



OCT 14 2009

Mike Tollstrup, Chief
Project Assessment Branch
Stationary Source Division
California Air Resources Board
PO Box 2815
Sacramento, CA 95812-2815

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: S-1084435

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of CG Environmental/Bena Power Producers's application for an Authority to Construct for two 2,233 bhp landfill gas-fired internal combustion engines, at 2951 Neumarkel Road in Bakersfield, CA.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Rupi Gill of Permit Services at (209) 557-6400.

Sincerely,

David Warner
Director of Permit Services

DW:NRP/lis

Enclosure

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585



San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT



OCT 14 2009

Richard Prosser
CG Environmental/Bena Power Producers
1230 North Jefferson Street, Suite J
Anaheim, CA 92807

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: S-1084435

Dear Mr. Prosser:

Enclosed for your review and comment is the District's analysis of CG Environmental/Bena Power Producers's application for an Authority to Construct for two 2,233 bhp landfill gas-fired internal combustion engines, at 2951 Neumarkel Road in Bakersfield, CA.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Rupi Gill of Permit Services at (209) 557-6400.

Sincerely,

David Warner
Director of Permit Services

DW:NRP/lis

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585

**NOTICE OF PRELIMINARY DECISION
FOR THE PROPOSED ISSUANCE OF
AN AUTHORITY TO CONSTRUCT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to CG Environmental/Bena Power Producers for two 2,233 bhp landfill gas-fired internal combustion engines, at 2951 Neumarkel Road in Bakersfield, CA.

The analysis of the regulatory basis for this proposed action, Project #S-1084435, is available for public inspection at the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 4800 ENTERPRISE WAY, MODESTO, CA 95356.**

San Joaquin Valley Air Pollution Control District

Authority to Construct Application Review Landfill Gas-Fired IC Engine

Facility Name: Bena Power Producers
Mailing Address: 1230 North Jefferson St, Suite J
Anaheim, CA 92807

Date: October 6, 2009

Contact Name: Richard Prosser
Telephone: (714) 632-9969
FAX: (714) 632-9968

Engineer: John Fowler
Lead Engineer: Nick Peirce
Application #s: S-7457-1-0 and S-7457-2-0
Project#: S-1084435

I. Proposal:

The applicant is requesting Authority to Construct (ATC) permits to install two 2,233 bhp landfill gas-fired IC engines each powering an electrical generator. The engines will each be served by a Noxtech, Inc. Aftertreatment System. The Noxtech, Inc. Aftertreatment System is designed to reduce Nitrogen Oxide (NO_x) emissions in the exhaust stream. In addition, testing of this system has indicated that the system will also reduce emissions of volatile organic compounds (VOCs), carbon monoxide (CO), and organic particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀). The landfill gas will be purchased from Bakersfield Metropolitan Landfill @ Bena (facility ID S-3232).

Pursuant to Section 3.37 of District Rule 2201, a *Stationary Source is any building, structure, facility, or installation which emits or may emit any affected pollutant directly or as a fugitive emission. Building, structure, facility or installation includes all pollutant emitting activities including emissions units which:*

- 3.37.1 *Are under the same or common ownership or operation, or which are owned or operated by entities which are under common control; and*
- 3.37.2 *Belong to the same industrial grouping either by virtue of falling within the same two-digit standard industrial classification code or by virtue of being part of a common industrial process, manufacturing process, or connected process involving a common raw material; and*
- 3.37.3 *Are located on one or more contiguous or adjacent properties; or*

3.37.4 *Are located on one or more properties wholly within either the Western Kern County Oil Fields or the Central Kern County Oil Field or Fresno County Oil Fields and are used for the production of light oil, heavy oil or gas. Notwithstanding the provisions of this definition, light oil production, heavy oil production, and gas production shall constitute separate Stationary Sources.*

A. Section 3.37.1 Applicability:

Pursuant to the email from Dan Waino of Bena Power Producers in Appendix F of this document, Bena Power Producers will own and operate the proposed landfill gas-fired IC engines. The landfill, landfill gas collection system, and landfill gas flare are owned by Kern County Sanitation District and will continue to be the responsibility of Kern County Sanitation District. As part of their contract with Kern County Sanitation District, Bena Power Producers will monitor and operate the landfill gas collection system as an outside contractor. However, Kern County Sanitation District will continue to maintain both ownership and regulatory responsibility of the landfill gas collection system. Therefore, Bena Power Producers and Bakersfield Metropolitan Landfill @ Bena do not meet the requirements of Section 3.37.1.

B. Section 3.37.2 Applicability:

Electric, Gas and Sanitary Services (includes landfills and electric energy generation) belong to the same two-digit standard industrial classification code. In addition, the landfill gas collection system and the landfill gas-fired electrical generation system are a connected process. Therefore, Bakersfield Metropolitan Landfill @ Bena and Bena Power Producers meet the requirements of Section 3.37.2.

C. Section 3.37.3 Applicability:

Bena Power Producers will be located at the Bakersfield Metropolitan Landfill @ Bena. Therefore, Bakersfield Metropolitan Landfill @ Bena and Bena Power Producers meet the requirements of Section 3.37.2.

D. Section 3.37.4 Applicability:

Since Bena Power Producers will not produce light oil, heavy oil, or gas, this section does not apply.

E. Section 3.37 Applicability:

Since Bena Power Producers and Bakersfield Metropolitan Landfill @ Bena do not meet the requirements of Section 3.37.1 of District Rule 2201, they are not the same stationary source.

II. Applicable Rules:

Rule 2020 Exemptions (12/20/07)
Rule 2201 New and Modified Stationary Source Review Rule (9/21/06)
Rule 4101 Visible Emissions (2/17/05)
Rule 4102 Nuisance (12/17/92)
Rule 4201 Particulate Matter Concentration (12/17/92)
Rule 4701 Stationary Internal Combustion Engines – Phase 1 (8/21/03)
Rule 4702 Stationary Internal Combustion Engines – Phase 2 (1/18/07)
Rule 4801 Sulfur Compounds (12/17/92)
CH&SC 41700 Health Risk Assessment
CH&SC 42301.6 School Notice
40 CFR Subpart JJJJ Standards of Performance for Stationary Spark Ignited Internal
Combustion Engines
40 CFR Subpart ZZZZ National Emission Standards for Hazardous Air Pollutants for
Stationary Internal Combustion Engines
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA
Guidelines

III. Project Location:

The facility will be located at 2951 Neumarkel Road, Bena Landfill, in Bakersfield, CA. The District has verified that the equipment will not be located within 1,000 feet of a school.

IV. Process Description:

Bena Power Producers will use the landfill gas-fired IC engines to power generators that will produce electrical power to be added to the local power grid.

Landfill gas production results from chemical reactions and microbes acting upon the landfill waste as materials in a landfill begin to break down. As the landfill gas continues to be produced, pressure in the landfill begins to grow causing the gas to migrate to the surface and be released into the atmosphere. Uncontrolled emissions of landfill gas has resulted in explosions and fires. In addition, the migration of subsurface gasses have resulted in the contamination of ground water. As a result of these problems, landfill operators have drilled wells into landfills, captured the gas, and burned it in flares. As an alternative, landfill operators have begun to burn the landfill gas in internal combustion (IC) engines that drive electrical generators. Bena Power Producers will purchase landfill gas from Bena Landfill and combust the fuel in two identical 2,233 bhp IC engines each connected to a 1,600 kW electrical generator.

Naturally occurring landfill gasses have a composition of 55% methane and 45% carbon dioxide. However, landfill management techniques can considerably affect the concentration of methane and carbon dioxide in the gas. In practice, a typical landfill gas will have a composition of 45-50% methane, 35-45% carbon dioxide, 0-2 % oxygen, 1-15% nitrogen, and trace amounts of other compounds. Landfill gas collection systems are normally equipped with pumps used to pull the gas from the landfill. As a result, a negative pressure on the landfill can result in ambient air migrating into the top and perimeter of the landfill supplying, the oxygen and nitrogen to the landfill gas. Typically, oxygen levels greater than 2% cause methane production to drop considerably. However, a landfill operator may use the introduction of air into the landfill to control odors or keep landfill gas from migrating into areas around the landfill. With good landfill collection practices, landfill gas with a stable methane content of 50-55% can be obtained.

Bena Landfill is currently permitted to burn the landfill gas in a flare permitted under S-3232-1. During periods of high landfill gas production, low engine demand, or engine maintenance, the engines may not be capable of consuming all of the landfill gas recovered. Therefore, Bena Landfill is not proposing to remove the flare or modify its permit at this time.

V. Equipment Listing:

Equipment Description:

S-7457-1-0:

2,233 BHP CATERPILLAR MODEL G3520C LANDFILL GAS-FIRED LEAN BURN IC ENGINE POWERING A 1,600 KW ELECTRICAL GENERATOR. THE IC ENGINE IS SERVED BY A NOXTECH, INC. AFTERTREATMENT SYSTEM AND A SULFATREAT H₂S DRY SCRUBBER. THE NOXTECH, INC. AFTERTREATMENT SYSTEM IS SERVED BY A PERMIT EXEMPT 1MMBTU/HR LANDFILL GAS FIRED BURNER USED DURING START-UP PERIODS.

S-7457-2-0:

2,233 BHP CATERPILLAR MODEL G3520C LANDFILL GAS-FIRED LEAN BURN IC ENGINE POWERING A 1,600 KW ELECTRICAL GENERATOR. THE IC ENGINE IS SERVED BY A NOXTECH, INC. AFTERTREATMENT SYSTEM AND A SULFATREAT H₂S DRY SCRUBBER. THE NOXTECH, INC. AFTERTREATMENT SYSTEM IS SERVED BY A PERMIT EXEMPT 1MMBTU/HR LANDFILL GAS FIRED BURNER USED DURING START-UP PERIODS.

VI. Emission Control Technology Evaluation:

A. For NO_x, CO and VOCs:

The applicant is proposing to use a Noxtech, Inc. Aftertreatment system to control the emissions of NO_x, CO, and VOCs. A Noxtech aftertreatment system is a Selective Non-Catalytic Reduction (SNCR) system. An SNCR system is similar to Selective Catalytic Reduction (SCR), but reduces NO_x emissions without a catalyst. Normally, SNCR involves injecting urea or ammonia into the exhaust at an exhaust temperature between 1600 °F and 2100 °F. A Noxtech aftertreatment system is capable of reducing NO_x emissions within a reactor at temperatures between 1400 °F and 1550 °F. In addition to reducing NO_x emissions, source test results have indicated that the aftertreatment system also reduces emissions of VOC, CO, and hydrocarbon based PM₁₀.

The reaction that occurs in the Noxtech aftertreatment system is autothermal and autocatalytic. An autothermal reaction is a reaction that evolves sufficient energy to cause a reaction to continue without an outside energy source. An autocatalytic reaction is a reaction where a reaction product is also the catalyst for the reaction.

The Noxtech aftertreatment reactor consists of a heat exchanger, a mixing system, a reaction area, urea injection nozzle(s), and a burner used to bring the reactor up to temperature during startup. The reactor is cylindrically shaped and covered with insulating material used to hold heat in the reactor.

Engine exhaust gas enters one end of the reactor through the inlet plenum. The inlet plenum directs the exhaust gas into the tubes of a tube and shell heat exchanger oriented in a radial array around the inside walls of the reactor. At the other end of the reactor, the exhaust gasses exit the heat exchanger tubes and are directed back down the center of the reactor into the mixing area. Urea is introduced in the mixing area where turning vanes mix the influent exhaust gas and the urea into a homogeneous mixture. As the reaction mixture flows from the mixing area through the reactor core, NO_x, VOC, CO and hydrocarbon-based PM₁₀ are converted to N₂, CO₂ and H₂O. The reacted exhaust gasses then reverse direction at the rear of the reactor and flow through the reactor annulus toward the front of the reactor where the exhaust gasses enter the shell side of the heat exchanger. The reacted exhaust gasses exit the heat exchanger at the rear of the reactor then flow through the outlet plenum and the exhaust stack. To control the urea injection rate, a NO_x and O₂ analyzer measures the outlet concentrations and sends a signal to a Programmable Logic Controller, which controls the urea injection rate.

The reaction mechanism for the reduction of NO_x to N₂ is the same as for an SCR system where OH radicals are formed and convert the NO_x to N₂. For this system, the OH radical is the autocatalyst that causes the NO_x to convert to N₂ and is also a product of the reaction. There are a large number of reactions that take place to convert VOC, and hydrocarbon-based PM₁₀ to CO₂ and H₂O. However, testing on the system indicates that all of the reaction mechanisms also rely on the OH radical as a reactant. The system's design relies on a proper temperature operating range, thorough mixing, a proper urea injection rate, and a minimum residence time necessary to complete the reaction.

The reactor is equipped with a front-mounted burner, which introduces hot gasses into the mixing area of the reactor during the reactor start up. The burner will be fired on landfill gas. Once the reactor is up to temperature, the burner will be shut off and urea injected into the reactor causing the emission reductions to occur.

B. For SO_x:

The applicant is proposing to use a Sulfatreat system to control SO_x emissions. The Sulfatreat system is a dry scrubbing system that will remove the H₂S from the landfill gas prior to combustion in the engine. Sulfatreat is a granular product consisting of a proprietary Iron Oxide formulation on an inert clay base. As the landfill gas passes through the Sulfatreat canister, the H₂S reacts with the Sulfatreat forming iron disulfide (FeS₂).

The applicant is proposing to use two 502 cubic foot canisters. In this arrangement, the lead canister removes most of the H₂S and the lag canister is used to remove most of the remaining H₂S. Once the Sulfatreat in the lead canister is consumed, the spent Sulfatreat, now iron disulfide, will be removed and replaced with fresh Sulfatreat. To complete this task, the facility will bypass the lead canister and send the landfill gas directly to the lag canister. After the Sulfatreat replacement service has been completed, the serviced canister will be brought back online as the lag canister. In this arrangement, the freshest canister will always be used as the lag canister helping assure that the outlet H₂S concentrations will not exceed the proposed limits for each of the engines.

VII. General Calculations:

Since the applicant is proposing to install two identical engines, only one set of calculations will be performed for the engines.

A. Assumptions:

- The oxygen-based F-factor, adjusted to 60 °F, for the landfill gas is 9,463 dscf/MMBtu (based on a source test performed at this site on 3-18-09)
- The landfill gas fuel heating value is 455 Btu/dscf (proposed by the applicant)
- The fuel flow rate will be 45,000 scf/hr for each engine (proposed by the applicant)
- All particulate matter emitted is PM₁₀
- All sulfur in the sulfur containing compounds of the landfill gas is converted to sulfur dioxide (SO₂)

B. Emission Factors:

1. Pre-Project Emission Factors:

Both of the engines are new. Therefore, there are no pre-project emissions from either of the proposed IC engines.

2. Post-Project Emission Factors:

NO_x, CO and VOC:

The engines will each be served by a Noxtech, Inc. Aftertreatment system used to control emissions of NO_x, CO and VOC. Since the Noxtech, Inc. Aftertreatment system requires a start-up period, emissions will need to be determined for both startup and steady state operating periods. During start-up periods, emissions will result from the combustion of landfill gas in the engine, and from the start-up burner in the Noxtech, Inc. Aftertreatment system used to bring the reactor up to temperature. As shown in Appendix E of this document, the Noxtech, Inc. Aftertreatment start-up burners are Low Emitting units and are exempt from permit requirements at this time. Therefore, emissions for the Noxtech, Inc. Aftertreatment start-up burners are not addressed here.

The startup emission factors are guaranteed by the engine manufacturer, and the steady state emission factors are guaranteed by Noxtech, Inc.

Pollutant	Engine Post-Project Emission Factors (EF2)	
	Startup EF2	Steady State EF2
NO _x	0.5 g/bhp-hr	0.15 g/bhp-hr
CO	2.5 g/bhp-hr	0.6 g/bhp-hr
VOC	0.88 g/bhp-hr	20 ppmv @ 15% O ₂

PM₁₀:

An emission factor of 0.1 g/bhp-hr will be used to estimate PM₁₀ emissions from the proposed engines. This emission factor is based on a review of source test results for similar landfill gas-fired IC engines.

SO_x:

The SO_x emissions are solely dependent on the concentrations of sulfur containing compounds⁽¹⁾ in the landfill gas. The applicant is proposing a maximum fuel H₂S of 10 ppmv.

¹ The sulfur containing compounds consist mostly of H₂S and a small fraction of mercaptans. Based on testing of landfill gas samples from the facility, the fraction of mercaptans relative to H₂S is insignificant and will not be included here.

Ammonia (NH₃):

NH₃ emissions will result from the reaction of urea with NO_x in the Noxtech, Inc. Aftertreatment system during steady state operation. The applicant has proposed a maximum NH₃ emissions concentration of 10 ppmv @15% O₂.

3. Equations:

NO_x, CO, startup VOC, and PM₁₀:

$$PE2_{\text{daily}} = (\text{engine rating}) \times (\text{EF2}) \times (\text{hours of operation}) \times (\text{lb}/453.6 \text{ g})$$

VOC steady state:

$$PE2_{\text{daily}} = (\text{Heat Input}) \times (\text{Emission Concentration}) \times (\text{Molecular Weight}) \times (\text{F Factor}) \\ \times (1 \text{ lb-mol}/379.5 \text{ ft}^3) \times [20.95/(20.95 - \text{O}_2\%)] \times (\text{daily hours of operation})$$

Where:

F Factor:	9,463 dscf/MMBtu
Molecular Weight of VOC:	16 lb/lb-mole
Heat input:	(fuel flow rate) x (fuel heating value)

SO_x Emissions:

Since SO_x emissions are solely dependent on the fuel organic sulfur content, the start-up and steady state emission rates will be the same and the total SO_x emissions can be determined with a single calculation as follows:

$$PE2_{\text{daily}} = (\text{H}_2\text{S concentration in fuel}) \times (\text{fuel flow rate}) \times (\text{lb-mol}/379.5 \text{ ft}^3) \\ \times (34 \text{ lb-H}_2\text{S}/\text{lb-mol}) \times (32 \text{ lb-S}/34 \text{ lb-H}_2\text{S}) \times (64 \text{ lb-SO}_2/32 \text{ lb-S}) \times (24 \text{ hr}/\text{day})$$

Ammonia (NH₃):

Urea is only injected during steady state operation of the Noxtech, Inc. Aftertreatment system. Therefore, the maximum NH₃ emissions will occur during steady state operation and can be determined with a single calculation as follows:

$$PE2_{\text{daily}} = (\text{Heat Input}) \times (\text{Emission Concentration}) \times (\text{Molecular Weight}) \times (\text{F-Factor}) \\ \times (1 \text{ lb-mol}/379.5 \text{ ft}^3) \times [20.95/(20.95 - \text{O}_2\%)] \times (\text{daily hours of operation})$$

Where:

F Factor:	9,463 scf/MMBtu
Molecular Weight for NH ₃ :	17 lb/lb-mole
Heat input:	(fuel flow rate) x (fuel heating value)

Annual Emissions:

$$PE2_{\text{annual}} = (PE2) \times (365 \text{ day/yr})$$

C. Calculations:

1. Pre-Project Emissions (PE1):

Both of the engines are new. Therefore, there are no pre-project emissions from either of the proposed IC engines.

2. Post Project PE (PE2):

Since the two proposed IC engines will be identical, one set of calculations will be performed for both permit units. The applicant has asked for, and the District has granted, a 12-month period to evaluate the operational variability and optimum control effectiveness of the Noxtech Aftertreatment system. During this 12-month evaluation period, each engine will only be required to meet relaxed NO_x, CO, and VOC emission limits. Therefore, the PE2 calculations will be evaluated under two scenarios, "Normal Operation" and "12-Month Evaluation Period", to ensure that each engine operates in compliance with all applicable Rules and Regulations under both scenarios.

Normal Operation:

The applicant has indicated that, during normal operation, the engines will each operate up to 3.5 hours per day for start-up purposes, and up to 24 hours per day for steady state operation. For NO_x, CO and VOC, the worst case emissions during normal operation will occur during the start-up period when the engine's emissions will not be controlled by the Noxtech, Inc. Aftertreatment system. Therefore, the worst case daily emissions of NO_x, CO and VOC will be determined by using the maximum start-up period of 3.5 hours/day and steady state operation for the remaining 20.5 hours/day. As stated in the emission factor section above, SO_x emissions are only dependent on the landfill gas H₂S concentration, and worst case emission calculations will be based on the maximum of 24 hours of operation per day. Similarly, PM₁₀ emissions are proportional to fuel flow, so worst case emission calculations will be based on the maximum of 24 hours of operation per day. NH₃ will only be emitted during steady state operation. Therefore, the worst case NH₃ daily emissions will be determined using the steady state emissions rate over a 24 hour period.

NO_x Emissions from each IC Engine during Normal Operation:

$$\text{PE2}_{\text{daily start-up}} = (2,233 \text{ bhp}) \times (0.5 \text{ g-NO}_x/\text{bhp-hr}) \times (\text{lb}/453.6 \text{ g}) \times (3.5 \text{ hr/day})$$

$$\text{PE2}_{\text{daily start-up}} = \mathbf{8.6 \text{ lb-NO}_x/\text{day}}$$

$$\text{PE2}_{\text{daily steady state}} = (2,233 \text{ bhp}) \times (0.15 \text{ g-NO}_x/\text{bhp-hr}) \times (\text{lb}/453.6 \text{ g}) \times (20.5 \text{ hr/day})$$

$$\text{PE2}_{\text{daily steady state}} = \mathbf{15.1 \text{ lb-NO}_x/\text{day}}$$

$$\begin{aligned} \text{PE2}_{\text{daily total}} &= (\text{PE2}_{\text{daily start-up}}) + (\text{PE2}_{\text{daily steady state}}) \\ &= 8.6 \text{ lb-NO}_x/\text{day} + 15.1 \text{ lb-NO}_x/\text{day} \end{aligned}$$

$$\text{PE2}_{\text{daily total}} = \mathbf{23.7 \text{ lb-NO}_x/\text{day}}$$

$$\text{PE2}_{\text{annual}} = (23.7 \text{ lb-NO}_x/\text{day}) \times (365 \text{ day/yr})$$

$$\text{PE2}_{\text{annual}} = \mathbf{8,651 \text{ lb-NO}_x/\text{yr}}$$

CO Emissions from each IC Engine during Normal Operation:

$$\text{PE2}_{\text{daily start-up}} = (2,233 \text{ bhp}) \times (2.5 \text{ g-CO/bhp-hr}) \times (\text{lb}/453.6 \text{ g}) \times (3.5 \text{ hr/day})$$

$$\text{PE2}_{\text{daily start-up}} = \mathbf{43.1 \text{ lb-CO/day}}$$

$$\text{PE2}_{\text{daily steady state}} = (2,233 \text{ bhp}) \times (0.6 \text{ g-CO/bhp-hr}) \times (\text{lb}/453.6 \text{ g}) \times (20.5 \text{ hr/day})$$

$$\text{PE2}_{\text{daily steady state}} = \mathbf{60.6 \text{ lb-CO/day}}$$

$$\begin{aligned} \text{PE2}_{\text{daily total}} &= (\text{PE2}_{\text{daily start-up}}) + (\text{PE2}_{\text{daily steady state}}) \\ &= 43.1 \text{ lb-CO/day} + 60.6 \text{ lb-CO/day} \end{aligned}$$

$$\text{PE2}_{\text{daily total}} = \mathbf{103.7 \text{ lb-CO/day}}$$

$$\text{PE2}_{\text{annual}} = (103.7 \text{ lb-CO/day}) \times (365 \text{ day/yr})$$

$$\text{PE2}_{\text{annual}} = \mathbf{37,851 \text{ lb-CO/yr}}$$

VOC Emissions from each IC Engine during Normal Operation:

$$\text{PE2}_{\text{daily start-up}} = (2,233 \text{ bhp}) \times (0.88 \text{ g-VOC/bhp-hr}) \times (\text{lb}/453.6 \text{ g}) \times (3.5 \text{ hr/day})$$

$$\text{PE2}_{\text{daily start-up}} = \mathbf{15.2 \text{ lb-VOC/day}}$$

$$\begin{aligned} \text{PE2}_{\text{daily steady state}} &= (45,000 \text{ scf/hr}) \times (455 \text{ Btu/scf}) \times (20 \times 10^{-6} \text{ VOC}) \times (16 \text{ lb/lb-mol}) \\ &\quad \times (9463 \text{ scf/MMBtu}) \times (\text{MMBtu}/10^6 \text{ Btu}) \times (1 \text{ lb-mol}/379.5 \text{ ft}^3) \\ &\quad \times (20.95/5.95) \times (20.5 \text{ hr/day}) \end{aligned}$$

$$\text{PE2}_{\text{daily steady state}} = \mathbf{11.8 \text{ lb-VOC/day}}$$

$$\text{PE2}_{\text{daily total}} = (15.2 \text{ lb-VOC/day}) + (11.8 \text{ lb-VOC/day})$$

$$\text{PE2}_{\text{daily total}} = \mathbf{27.0 \text{ lb-VOC/day}}$$

$$\text{PE2}_{\text{annual}} = (27.0 \text{ lb-VOC/day}) \times (365 \text{ day/yr})$$

$$\text{PE2}_{\text{annual}} = \mathbf{9,855 \text{ lb-VOC/yr}}$$

PM₁₀ Emissions during Normal Operation:

$$\begin{aligned} PE2_{\text{daily}} &= (2,233 \text{ bhp}) \times (0.1 \text{ g-PM}_{10}/\text{bhp-hr}) \times (\text{lb}/453.6 \text{ g}) \times (24 \text{ hr}/\text{day}) \\ PE2_{\text{daily}} &= \mathbf{11.8 \text{ lb-PM}_{10}/\text{day}} \end{aligned}$$

$$\begin{aligned} PE2_{\text{annual}} &= (11.8 \text{ lb-PM}_{10}/\text{day}) \times (365 \text{ day}/\text{yr}) \\ PE2_{\text{annual}} &= \mathbf{4,307 \text{ lb-PM}_{10}/\text{yr}} \end{aligned}$$

SO_x Emissions during Normal Operation:

$$\begin{aligned} PE2_{\text{daily}} &= (10 \text{ H}_2\text{S}/10^6) \times (45,000 \text{ scf}/\text{hr}) \times (\text{lb-mole}/379.5 \text{ ft}^3) \times (34 \text{ lb-H}_2\text{S}/\text{lb-mol}) \\ &\quad \times (32 \text{ lb-S}/34 \text{ lb-H}_2\text{S}) \times (64 \text{ lb-SO}_2/32 \text{ lb-S}) \times (24 \text{ hr}/\text{day}) \\ PE2_{\text{daily}} &= \mathbf{1.8 \text{ lb-SO}_x/\text{day}} \end{aligned}$$

$$\begin{aligned} PE2_{\text{annual}} &= (1.8 \text{ lb-SO}_x/\text{day}) \times (365 \text{ day}/\text{yr}) \\ PE2_{\text{annual}} &= \mathbf{657 \text{ lb-SO}_x/\text{yr}} \end{aligned}$$

NH₃ Emissions during Normal Operation:

$$\begin{aligned} PE2_{\text{daily steady state}} &= (45,000 \text{ scf}/\text{hr}) \times (455 \text{ Btu}/\text{scf}) \times (10 \times 10^{-6} \text{ NH}_3) \times (17 \text{ lb}/\text{lb-mol}) \\ &\quad \times (9463 \text{ DSCF}/\text{MMBtu}) \times (\text{MMBtu}/10^6 \text{ Btu}) \times (1 \text{ lb-mol}/379.5 \text{ ft}^3) \\ &\quad \times (20.95/5.95) \times (24 \text{ hr}/\text{day}) \\ PE2_{\text{daily steady state}} &= \mathbf{7.3 \text{ lb-NH}_3/\text{day}} \end{aligned}$$

$$\begin{aligned} PE2_{\text{annual}} &= (7.3 \text{ lb-NH}_3/\text{day}) \times (365 \text{ day}/\text{yr}) \\ PE2_{\text{annual}} &= \mathbf{2,665 \text{ lb-NH}_3/\text{yr}} \end{aligned}$$

12-Month Evaluation Period:

During this 12-month period, the Noxtech Aftertreatment system will be evaluated to determine its operational variability and to establish the optimum level of NO_x control that can be achieved on a long term basis. Consequently, it is possible (although not expected) that the Noxtech system will be offline for a significant portion of an operating day, possibly up to 24 hours. Therefore, the District has granted flexibility for a longer startup time during this 12-month evaluation period. Since the Noxtech system controls NO_x, CO, and VOC emissions, each engine's worst case potential emissions of these pollutants during this 12-month evaluation period will be calculated using the applicant's proposed startup emission factors:

Engine Post-Project Emission Factors (EF2)	
Pollutant	Startup EF2
NO _x	0.5 g/bhp-hr
CO	2.5 g/bhp-hr
VOC	0.88 g/bhp-hr

The potential PM₁₀, SO_x, and NH₃ emissions during the 12-month evaluation period are expected to be the same as those for normal operation.

NO_x Emissions from each IC Engine during the 12-Month Evaluation Operation:

$$\begin{aligned} \text{PE2}_{\text{daily}} &= (2,233 \text{ bhp}) \times (0.5 \text{ g-NO}_x/\text{bhp-hr}) \times (\text{lb}/453.6 \text{ g}) \times (24 \text{ hr/day}) \\ \text{PE2}_{\text{daily}} &= \mathbf{59.1 \text{ lb-NO}_x/\text{day}} \end{aligned}$$

In order to prevent offsets from being triggered for NO_x emissions, a facility-wide SLC of 19,999 lb-NO_x/yr will be imposed during the 12-month evaluation period.

$$\text{PE2}_{\text{Facility}} = \mathbf{19,999 \text{ lb-NO}_x/\text{yr}}$$

CO Emissions from each IC Engine during the 12-Month Evaluation Operation:

$$\begin{aligned} \text{PE2}_{\text{daily}} &= (2,233 \text{ bhp}) \times (2.5 \text{ g-CO/bhp-hr}) \times (\text{lb}/453.6 \text{ g}) \times (24 \text{ hr/day}) \\ \text{PE2}_{\text{daily}} &= \mathbf{295.4 \text{ lb-CO/day}} \end{aligned}$$

In order to prevent the facility from becoming a Major Source for CO emissions, a facility-wide SLC of 199,999 lb-CO/yr will be imposed during the 12-month evaluation period.

$$\text{PE2}_{\text{Facility}} = \mathbf{199,999 \text{ lb-CO/yr}}$$

VOC Emissions from each IC Engine during the 12-Month Evaluation Operation:

$$\begin{aligned} \text{PE2}_{\text{daily start-up}} &= (2,233 \text{ bhp}) \times (0.88 \text{ g-VOC/bhp-hr}) \times (\text{lb}/453.6 \text{ g}) \times (24 \text{ hr/day}) \\ \text{PE2}_{\text{daily start-up}} &= \mathbf{104.0 \text{ lb-VOC/day}} \end{aligned}$$

In order to prevent offsets from being triggered for VOC emissions, a facility-wide SLC of 19,999 lb-VOC/yr will be imposed during the 12-month evaluation period.

$$\text{PE2}_{\text{annual}} = \mathbf{19,999 \text{ lb-VOC/yr}}$$

D. Facility Emissions:

1. Pre-Project Stationary Source Potential to Emit (SSPE1):

Since this is a new facility, there is no pre-project stationary source potential to emit.

2. Post-Project Stationary Source Potential to Emit (SSPE2):

As stated earlier, the worst case potential emissions will occur during the 12-month evaluation period. Therefore, the emissions from this operational scenario will be included in the SSPE.

Permit Unit	SSPE2 S-7457 (lb/yr)				
	NO _x	CO	VOC	PM ₁₀	SO _x
S-7457-1-0	--	--	--	4,307	657
S-7457-2-0	--	--	--	4,307	657
Total	19,999⁽²⁾	199,999⁽³⁾	19,999⁽³⁾	8,614	1,314
Major Source Thresholds	50,000	200,000	50,000	140,000	140,000
Major Source?	No	No	No	No	No
ERC ⁽³⁾	0	0	0	0	0
Total	19,999	199,999	19,999	8,614	1,314
Offsets Threshold	20,000	200,000 ⁽⁴⁾	20,000	29,200	54,750
Offsets Triggered?	No	No	No	No	No

3. Stationary Source Increase in Permitted Emissions (SSIPE):

SSIPE = SSPE2 – SSPE1

	SSIPE S-7457				
	NO _x (lb/yr)	CO (lb/yr)	VOC (lb/yr)	PM ₁₀ (lb/yr)	SO _x (lb/yr)
SSPE2	19,999	199,999	19,999	8,614	1,314
SSPE1	0	0	0	0	0
SSIPE	19,999	199,999	19,999	8,614	1,314

² This facility-wide emission rate will be limited by permit conditions.

³ Emission Reduction Credit.

⁴ This threshold is for Stationary Sources located within a CO attainment area. This stationary source is located within a CO attainment area.

VIII. Compliance:

Rule 2020 Exemptions

Pursuant to Section 6.19 of this rule, Low Emitting Units, except those which belong to a source category listed in Sections 6.1 through 6.18 shall not require an Authority to Construct or Permit to Operate unless uncontrolled emissions of Hazardous Air Pollutants (HAPs) may cause a significant health risk to the public. The start-up burner for each Noxtech, Inc. Aftertreatment system does not fit a source category listed in Sections 6.1 through 6.18. As shown in Appendix E of this document, the start-up burner for each Noxtech, Inc. Aftertreatment system is a Low Emitting Unit.

In addition, the District has performed a Risk Management Review for all of the equipment for this project including the Noxtech, Inc. Aftertreatment system start-up burners. Pursuant to the Risk Management Review summary presented later in this document, potential emissions from all of the equipment for this project combined resulted in a Prioritization Score of 0.05. Pursuant to District policy APR 1905, equipment that results in a prioritization score of less than or equal to one are considered to be insignificant sources. Since the prioritization score for all of the equipment does not exceed one, hazardous emissions from all of the proposed equipment is considered to be insignificant. Therefore, the hazardous emissions from the individual Noxtech, Inc. Aftertreatment start-up burners will also be insignificant.

Since each of the Noxtech, Inc. Aftertreatment start-up burners are low emitting units and will not cause a significant health risk, the burners are exempt from permit requirements at this time.

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT):

1. BACT Applicability:

Per Section 4.1.1 of District Rule 2201, for new emission units, BACT shall be required on a pollutant-by-pollutant and on an emissions unit-by-unit basis if the new emissions unit results in a PE for a pollutant that exceeds 2.0 pounds in any one day. Section 4.2.1 of this rule exempts CO from this requirement unless the SSPE2 for the source meets or exceeds 200,000 lb/yr for CO. The following table lists the daily PE for each of the proposed new landfill gas-fired IC engines and whether that engine's potential emissions exceed the BACT trigger level for that pollutant.

PE2 for S-7457-1-0 and S-7457-2-0				
Permit Unit	Emissions Unit	Pollutant	PE2 (lb/day)	Triggers BACT?
S-7457-1-0	2,233 bhp landfill gas-fired IC Engine	NO _x	23.7	Yes
		SO _x	1.8	No
		PM ₁₀	11.8	Yes
		CO	103.7	No ⁽⁵⁾
		VOC	27.0	Yes
S-7457-2-0	2,233 bhp landfill gas-fired IC Engine	NO _x	23.7	Yes
		SO _x	1.8	No
		PM ₁₀	11.8	Yes
		CO	103.7	No ⁽⁵⁾
		VOC	27.0	Yes

As shown above, each engine triggers BACT for NO_x, VOC and PM₁₀ emissions. The PE2 emission rates above are based on normal operation and not the emission rates during the 12-month evaluation period.

2. BACT Requirements:

NO_x emissions:

The District considers an emission rate of 0.15 g/bhp-hr to be Technologically Feasible for landfill gas-fired engines. The applicant has proposed to meet this emission level during normal operation via the use of a selective non-catalytic reduction system (Noxtech Aftertreatment System). Therefore, no further analysis was performed.

VOC emissions:

The District considers an emission rate of 0.16 g/bhp-hr (equivalent to approximately 38 ppmvd @ 15% O₂ as methane) to be BACT for landfill gas-fired engines. The applicant has proposed to meet an emission concentration of 20 ppmvd @ 15% O₂ during normal operation. Therefore, no further analysis was performed.

PM₁₀ emissions:

The District considers an emission rate of 0.1 g/bhp-hr to be BACT for landfill gas-fired engines. The proposed engines will be limited to this emission level. Therefore, no further analysis was performed.

⁵ As shown in Section VII.D.2 above, the SSPE2 for CO will be below 200,000 lb/yr. Therefore, BACT will not be triggered for CO.

B. Offsets:

Per Section 4.5.3 of this rule, Offset requirements shall be triggered on a pollutant-by-pollutant basis if the SSPE2 equals or exceeds the following offset threshold levels:

Pollutant	SSPE2 (POUNDS/YEAR)
VOC	20,000
NO _x	20,000
CO (non-attainment areas)	30,000
CO (attainment areas)	200,000
SO _x	54,750
PM ₁₀	29,200

The facility is located in a CO attainment area and as shown in Section VII.D.2 of this document, the SSPE2 for all pollutants are below offset thresholds. Therefore, offsets are not required for this facility at this time.

C. Public Notification:

1. Applicability:

Section 5.4 of this rule requires a public notice for the affected pollutants from the following types of projects:

- a. New Major Sources.
- b. Major Modification.
- c. New emissions units with a PE > 100 lb/day of any one pollutant (IPE Notifications).
- d. On a pollutant by pollutant basis, modifications with an SSPE1 below an offset threshold and an SSPE2 above an offset threshold.
- e. New stationary sources with an SSPE2 exceeding offset thresholds (New Facility Offset Threshold Exceeding Notification).
- f. Any permitting action with an SSIPE exceeding 20,000 lb/yr for any one pollutant (SSIPE Notice).

a. New Major Source Public Notice Determination:

A new major source is a new source that exceeds the thresholds of Section 3.23.1 of this rule. As shown in Section VII.D.2 above, the facility will not be a major source for any pollutant. Therefore, a new major source public notice is not required.

b. Major Modification Public Notice Determination:

As shown in Section VII.D.2 of this document, the facility will not be a major source for any pollutant and a major modification public notice is not required.

c. PE Public Notice Determination:

A public notification is required for each new emissions unit with the potential to emit more than 100 pounds per day of any one pollutant. During normal operation, each engine will have potential CO emissions in excess of 100 pounds per day of CO. **Therefore, a PE public notice is required.**

d. Existing Facility Offsets Threshold Exceedence Public Notice Determination:

A public notification is required if the SSPE1 for any pollutant is increased from a level below the offset threshold to a level exceeding the emissions offset threshold. This is a new facility. Therefore, an existing facility offsets threshold exceedence public notice is not required.

e. New Facility Offset Threshold Exceedence Public Notice:

A public notification is required for a new source if the SSPE2 for any pollutant exceeds the emissions offsets threshold for one or more pollutant. As shown in Section VII.D.2 of this document, the SSPE2 for all pollutants is below the applicable offset thresholds. Therefore, a new facility offset threshold exceedence public notice is not required.

f. SSIPE Public Notification:

A public notification is required for any permitting action that results in an SSIPE of more than 20,000 lb/yr for any one pollutant. As shown in Section VII.D.3 of this document, the SSIPE is above 20,000 lb/yr for CO. **Therefore, an SSIPE public notice is required.**

2. Public Notification:

As shown above, the proposed new equipment will exceed the PE Public Notice and SSIPE Public Notice thresholds of District Rule 2201. Therefore, a 30 day public notice period will be required prior to issuing the ATCs for this project.

D. Daily Emissions Limits (DELs):

DELs are required for each permit unit per Section 3.15 of this rule. DELs will be listed on the ATC and PTO for each permit unit using a combination of hp ratings and emission factors, or emissions concentrations and fuel flow rates. The following DELs will be used to limit emissions for each of the landfill gas-fired IC engines:

During start-up periods and the 12-month evaluation period, the NO_x emission rate shall not exceed 0.5 g/bhp-hr. [District Rules 2201 and 4702]

During start-up periods and the 12-month evaluation period, the VOC emission rate shall not exceed 0.88 g/bhp-hr. [District Rules 2201 and 4702]

During start-up periods and the 12-month evaluation period, the CO emission rate shall not exceed 2.5 g/bhp-hr. [District Rules 2201 and 4702]

Except during start-up periods, and after conclusion of the 12-month evaluation period, the NO_x emission rate shall not exceed 0.15 g/bhp-hr. [District Rules 2201 and 4702]

Except during start-up periods, and after conclusion of the 12-month evaluation period, the VOC emission rate shall not exceed 20 ppmvd @ 15% O₂ (as methane). [District Rules 2201 and 4702]

Except during start-up periods, and after conclusion of the 12-month evaluation period, the CO emission rate shall not exceed 0.6 g/bhp-hr. [District Rules 2201 and 4702]

The PM₁₀ emission rate shall not exceed 0.1 g/bhp-hr. [District Rule 2201]

The H₂S content of the landfill gas after treatment by the Sulfatreat dry scrubber shall not exceed 10.0 ppmvd. [District Rule 2201]

Except during the 12-month evaluation period, the start-up periods shall not exceed a combined total of 3.5 hours in any one day. [District Rule 2201]

Except during the 12-month evaluation period, ammonia (NH₃) emissions shall not exceed 10.0 ppmvd @ 15% O₂. [District Rule 2201]

E. Compliance Assurance:

1. Source Testing:

a. Source Testing Frequency for NO_x, CO, VOC, and NH₃:

The landfill gas-fired IC engines are subject to the requirements of Rule 4702. Section 6.3.2.1 of District Rule 4702 requires source testing of NO_x, CO, and VOC at initial start-up and at least once every 24 months thereafter. However, the District's Source Test Policy (APR 1705) requires source testing at initial start-up and annually thereafter for all pollutants controlled by a catalyst if there is not a rule or regulation that specifies a source testing frequency.

NO_x, CO and VOC emissions for each of the engines will be controlled by a Noxtech, Inc. Aftertreatment system which will also be the source of ammonia slip. In addition, the Noxtech, Inc. Aftertreatment system has only been used on a limited basis to control emissions from a landfill gas-fired IC engine. Therefore, the testing frequency set forth in the District's Source Test Policy is more appropriate for this equipment; consequently, each engine must be source tested for NO_x, CO, VOC, and NH₃ during the 12-month evaluation period and annually thereafter.

b. Source Testing for PM₁₀:

According to the applicant, the engines' PM₁₀ emissions are mostly dependent on the combustion of siloxanes in the landfill gas. To verify the engines' PM₁₀ emissions, initial source testing will be required for PM₁₀ emissions.

c. Initial Source Testing Timeline:

It is District policy to require an initial source test within 60 days of initial start-up. However, the District has allowed a longer period of time for emission sources on a case-by-case basis. For operations that are using newer technologies, the District has allowed a longer period of time to adjust and tune the equipment. Since the Noxtech, Inc. Aftertreatment system has only been operated on a limited basis on a landfill gas-fired IC engine, the District will allow the facility some flexibility for completion of initial source testing. The following condition will be added to each permit:

Source testing to measure NO_x, CO, VOC, PM₁₀, and NH₃ emissions from this unit shall be conducted within 90 days of achieving reasonably reliable compliance with the NO_x emission limit of 0.15 g/bhp-hr, but no later than the conclusion of the 12-month evaluation period. Source testing to measure NO_x, CO, VOC, and NH₃ emissions from this unit shall be conducted not less than once every 12 months thereafter. [District Rules 1081, 2201, and 4702]

2. Monitoring:

As stated above, the landfill gas-fired IC engines are subject to District Rule 4702. Section 5.6.1 of District Rule 4702 requires the installation of continuous monitoring equipment for NO_x, CO, and oxygen as identified in Rule 1080 (Stack Monitoring), or install, operate, and maintain APCO approved alternative monitoring.

The District has produced an emissions monitoring policy (SSP 1810) for IC engines that lists pre-approved monitoring procedures that can be used to comply with Section 5.6.1 of Rule 4702. The District's pre-approved monitoring procedure "A" requires the following:

- The monitoring of NO_x, CO and O₂ emissions using a District approved portable monitor conducted at least once every calendar quarter.
- The monitoring of NO_x, CO and O₂ emissions using a District approved portable monitor conducted at least once a month for 12 months if a deviation is observed during two consecutive quarterly monitoring events.
- Report to the District NO_x and CO deviations that are outside of the normal range that are not corrected within 8 hours of detection.
- Maintain records of the date and times of NO_x and CO measurements (corrected to 15% O₂) and the types of corrective actions taken for deviations outside of the normal range.

Considering the more stringent NSR emissions limits required for the proposed IC engines, the size of the engines, the potential variability of the landfill gas makeup, monitoring once every calendar quarter would not be sufficient to ensure compliance with the permitted emission limits. Therefore, a more frequent monitoring scheme will be required. During the 12-month evaluation period, the applicant will monitor NO_x, CO, NH₃, and O₂ emissions on a weekly basis. This monitoring frequency may be reduced to monthly upon demonstration of compliance with the NO_x emission limit of 0.15 g/bhp-hr.

The District has determined that periodic (weekly or monthly) monitoring the stack NO_x, CO, NH₃, and O₂ concentrations will adequately assure compliance with the requirements of Section 5.6.1 of Rule 4702. Additionally, quarterly monitoring of landfill gas H₂S concentration will be required to assure compliance with Rule 2201 emission limits.

The permittee shall monitor and record the stack concentration of NO_x, CO, NH₃ and O₂ concurrently at least once every week (in which a source test is not performed). Upon demonstration of reasonably reliable compliance with the NO_x emission limit of 0.15 g/bhp-hr, the NO_x, CO, NH₃, and O₂ stack concentration monitoring frequency may be reduced to monthly. NO_x, CO and O₂ concentrations shall be monitored using a portable emission monitor that meets District specifications. NH₃ monitoring shall be conducted utilizing District approved gas-detection tubes or a District approved equivalent method. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within two days of restarting the engine unless monitoring has been performed within the last week. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2201 and 4702]

3. Recordkeeping:

The landfill gas-fired IC engines will have specific conditions requiring records of maintenance performed, operational characteristics, and any information necessary to demonstrate compliance with District Rules 2201 and 4702. Records will be required to be kept for a minimum of 5 years and made available to District personnel upon request.

4. Reporting:

The landfill gas-fired IC engines will be required to comply with the reporting requirements of Rule 4702.

F. Ambient Air Quality Analysis

Section 4.14.1 of this Rule requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of a State or National ambient air quality standard (AAQS). An AAQA is required to be performed for all New Source Review (NSR) public notice projects. As previously discussed in Section VIII.C above, this project requires that a public notice be performed before issuance of the final ATC permits. Therefore, the District is required to perform an AAQA for this project.

The AAQA for this project was performed by the Technical Services Division of the SJVAPCD using the worst-case emission rates from the "12-month Evaluation Period" operational scenario. A summary of the results is presented in the following table.

Criteria Pollutant Modeling Results*					
Values are in $\mu\text{g}/\text{m}^3$					
LFG ICEs	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO _x	Pass	X	X	X	Pass
SO _x	Pass	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass	Pass

*Results were taken from the attached PSD spreadsheets.

¹The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

The criteria modeling runs indicate the emissions from the proposed equipment will not cause or significantly contribute to a violation of a State or National AAQS.

Rule 4101 – Visible Emissions

As long as the engines are properly maintained and operated, visible emissions are not expected to exceed 20% opacity for a period or periods aggregating more than 3 minutes in any one hour. Compliance with the provisions of this rule is expected.

Rule 4102 – Nuisance

As long as the engines are properly maintained and operated, they are not expected to create a public nuisance, and compliance with the provisions of this rule is expected.

California Health & Safety Code 41700 (Risk Management Review)

District Policy APR 1905 (Risk Management Policy for Permitting New and Modified Sources) specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact on the nearest resident or worksite. The District performed a Risk Management Review (RMR) for this project.

As shown in the following table, the landfill gas-fired IC engines and associated equipment resulted in a prioritization score of 0.05. Pursuant to District Policy APR 1905, since the prioritization score is less than 1, no further analysis is necessary and Toxic Best Available Control Technology (T-BACT) is not required.

RMR SUMMARY			
Categories	Two LFG ICE (Units 1-0 & 2-0)	Project Totals	Facility Totals
Prioritization Score	0.05	0.05	0.05
Acute Hazard Index	NA ¹	NA ¹	NA ¹
Chronic Hazard Index	NA ¹	NA ¹	NA ¹
Maximum Individual Cancer Risk (10⁻⁶)	NA ¹	NA ¹	NA ¹
T-BACT Required?	No		
Special Permit Conditions?	No		

1 Cancer risk, Acute and Chronic Hazard Indices were not calculated since the prioritization score was less than 1.0.

Rule 4201 Particulate Matter Concentration:

This rule limits the particulate matter emissions rate to less than or equal to 0.1 grain per cubic foot of gas at dry standard conditions.

Source test results for similar lean-burn landfill gas-fired engines show PM concentrations ranging from 0.001 – 0.002 gr/dscf. Therefore, compliance with Rule 4201 is expected.

Rule 4701 Internal Combustion Engines – Phase 1

Pursuant to Section 7.5.2.3 of District Rule 4702, District Rule 4701 is no longer applicable to the proposed IC engines.

Rule 4702 Internal Combustion Engines – Phase 2

The purpose of this rule is to limit the emissions of nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC) from internal combustion engines. This rule applies to any internal combustion engine with a rated brake horsepower greater than 50 horsepower.

Requirements:

Section 5.1 requires that the owner of an internal combustion engine shall not operate it in such a manner that results in emissions exceeding the limits in the following table:

Engine Type	NO _x	CO	VOC
1. Rich-Burn			
a. Waste gas fueled	50 ppmv or 90 % reduction	2000 ppmv	250 ppmv
b. Cyclic loaded, field gas fueled	50 ppmv	2000 ppmv	250 ppmv
c. All other engines	25 ppmv or 96 % reduction	2000 ppmv	250 ppmv
2. Lean-Burn			
a. Two stroke, gaseous fueled, less than 100 horsepower	75 ppmv or 85 % reduction	2000 ppmv	750 ppmv
b. All other engines	65 ppmv or 90 % reduction	2000 ppmv	750 ppmv
3. Rich-Burn Engine Used Exclusively in Agricultural Operations			
a. Comply by 1/1/2009, or if owner has an agreement to electrify, comply by 1/1/2010	90 ppmv or 80 % reduction	2000 ppmv	250 ppmv
4. Lean-Burn Engine Used Exclusively in Agricultural Operations			
a. Comply by 1/1/2009, or if owner has an agreement to electrify, comply by 1/1/2010	150 ppmv or 70 % reduction	2000 ppmv	250 ppmv
5. Certified Spark-Ignited Engine Used Exclusively in AO and installed on or before June 16, 2005			
a. Comply by 6/1/2006	Meet Certified Spark-Ignited Engine Standard of HC+NO _x < 0.6 g/bhp-hr		

The proposed landfill gas-fired IC engines are four stroke lean-burn engines and must meet the emission limits of Section 2.b of the table above.

Normal Operation:

As discussed earlier, the applicant has proposed to meet the following emission limits during the normal operation:

NO_x: 0.15 g/bhp-hr (equivalent to approximately 12.4 ppmvd @ 15% O₂)
 CO: 0.6 g/bhp-hr (equivalent to approximately 81 ppmvd @ 15% O₂)
 VOC: 20.0 ppmvd @ 15% O₂ (as methane)

12-Month Evaluation Period:

As discussed earlier, the applicant has requested to be allowed to, and the District has approved, meet the following emission limits during the 12-month evaluation period:

NO_x: 0.5 g/bhp-hr (equivalent to approximately 41.3 ppmvd @ 15% O₂)
 CO: 2.5 g/bhp-hr (equivalent to approximately 339 ppmvd @ 15% O₂)
 VOC: 0.88 g/bhp-hr (equivalent to approximately 208.7ppmvd @ 15% O₂)

Therefore, each engine is expected to comply with the emission requirements of this Rule.

Monitoring:

Section 5.6.1 requires that the owner of an engine subject to the requirements of Section 5.1 shall comply with the requirements specified in Sections 5.6.1 through 5.6.11.

Section 5.6.1 requires that an engine with a rated brake horsepower of 1,000 hp or greater and which is allowed by Permit-to-Operate, or with an external emissions control device, either install, operate, and maintain continuous emissions monitoring equipment for NO_x, CO, and oxygen, as identified in Rule 1080 (Stack Monitoring), or install, operate, and maintain APCO-approved alternative monitoring. The applicant will be required to monitor NO_x, CO and O₂ on a weekly to monthly basis using a District-approved portable emissions analyzer. Therefore, the applicant's alternative monitoring proposal meets the requirements of this section of the rule.

Section 5.6.6 requires the owner to install and operate a nonresettable elapsed operating time meter. In lieu of installing a nonresettable time meter, the owner of an engine may use an alternative device, method, or technique, in determining operating time provided that the alternative is approved by the APCO and is allowed by Permit-to-Operate or Permit-Exempt Equipment Registration condition. The owner of the engine shall properly maintain and operate the time meter or alternative device in accordance with the manufacturer's instructions. The applicant is proposing a non-resettable time meter for each landfill gas-fired IC engine and meets the requirements of this section of the rule.

Section 5.6.7 requires that each engine, implement the Inspection and Monitoring (I&M) plan, if any, submitted to and approved by the APCO pursuant to Section 6.5. The applicant has proposed monitoring of NO_x, CO and O₂ on a monthly basis. This proposal has previously been approved for other projects. Therefore, the applicant's I&M plan meets the requirements of this section of the rule.

Section 5.6.9 requires that for each engine use a portable NO_x analyzer to take NO_x emissions readings to verify compliance with the emissions requirements of Section 5.1 or Section 8.0 during each calendar quarter in which a source test is not performed and the engine is operated. The applicant will be required to measure NO_x emissions on a weekly to monthly basis. Therefore, the applicant's proposal meets the requirements of this section of the rule.

Recordkeeping:

Section 6.2 requires that except for engines subject to Section 4.0, the owner of an engine subject to the requirements of Section 5.1 shall maintain an engine operating log to demonstrate compliance with this rule. This information shall be retained for a period of at least five years, shall be readily available, and be made available to the APCO upon request. The engine-operating log shall include, on a monthly basis, the following information:

- Total hours of operation,
- Type of fuel used,
- Maintenance or modifications performed,
- Monitoring data,
- Compliance source test results, and
- Any other information necessary to demonstrate compliance with this rule.

Section 6.2.2 requires that the data collected pursuant to the requirements of Section 5.7 shall be maintained for at least five years, shall be readily available, and made available to the APCO upon request.

Compliance Testing:

Section 6.3.2.1 requires that the new landfill gas-fired IC engines be source tested at initial start-up and once every 24 months thereafter. The proposed IC engines will be required to be source tested at initial start-up and at least once every 12 months thereafter. Therefore, compliance with this section of the rule is expected.

Rule 4801 Sulfur Compounds

Rule 4801 requires that sulfur compound emissions (as SO₂) shall not exceed 0.2% by volume. The sulfur compound emissions concentration can be determined as follows:

$$\text{concentration} = \frac{\text{(hourly SO}_2\text{ emissions rate)}}{\{(\text{molecular weight}) \times (\text{F factor}) \times (\text{heat input}) \times [20.95 / (20.95 - \text{O}_2\%)]\}}$$

Where:

$$\begin{aligned} \text{hourly SO}_2\text{ emissions rate} &= \text{daily SO}_2\text{ emissions rate} \div (24 \text{ hr/day}) \\ \text{heat input} &= (\text{fuel flow rate}) \times (\text{fuel heating value}) \end{aligned}$$

$$\begin{aligned} \text{hourly SO}_2\text{ emissions rate} &= 1.8 \text{ lb/day} \div 24 \text{ hr/day} \\ \text{hourly SO}_2\text{ emissions rate} &= \mathbf{0.075 \text{ lb/hr}} \end{aligned}$$

$$\text{heat input} = (45,000 \text{ scf/hr}) \times (455 \text{ Btu/scf}) \times (\text{MMBtu}/10^6 \text{ Btu})$$

$$\text{heat input} = 20.5 \text{ MMBtu/hr}$$

$$\text{concentration} = (0.075 \text{ lb/hr}) \div [(64) \times (9,463 \text{ scf/MMBtu}) \times (20.5 \text{ MMBtu/hr}) \times (20.95/5.95)]$$

$$\text{concentration} = 1.72 \times 10^{-9} \text{ (0.00172 ppmv)}$$

Since 0.00172 ppmv is \leq 2,000 ppmv, the engines are expected to comply with Rule 4801.

California Health & Safety Code 42301.6 (School Notice)

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code §42301.6, a school notice is not required.

40 CFR Subpart JJJJ Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

The proposed engines are rated at over 100 bhp and per section 60.4233(e) are subject to the limits presented in Table 1 of this subpart. The Table 1 limits as well as the proposed emissions are shown on the following table. This regulation does not specify an emissions averaging period.

	Table 1 Limit	Proposed Emissions	Compliant?
NO _x	3.0 g/bhp-hr, or 220 ppmvd @ 15% O ₂	Start-up = 0.50 g/bhp-hr Steady State = 0.15 g/bhp-hr	Yes
CO	5.0 g/bhp-hr, or 610 ppmvd @ 15% O ₂	Start-up = 2.50 g/bhp-hr Steady State = 0.6 g/bhp-hr	Yes
VOC	1.0 g/bhp-hr, or 80 ppmvd @ 15% O ₂	Start-up = 0.88 g/bhp-hr Steady State = 20 ppmvd @ 15% O ₂	Yes

40 CFR Part 63 Subpart ZZZZ National Emission Standards for Hazardous Air Pollutants for Stationary Internal Combustion Engines

Pursuant to 40 CFR Part 63 §63.6585 (b), a major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons or per year of any combination of HAP at a rate of 25 tons or more per year. Pursuant to 40 CFR Part 63 §63.6585 (c), an area source of HAP emissions is a source that is not a major source. As shown in the table below, the HAP emissions from the facility will be below the major source thresholds, so the facility is an area source.

Therefore, per section 63.6590(c), the engines must comply with 40 CFR Part 60 Subpart JJJJ. As shown in the compliance sections for this subpart above, compliance is proposed.

Source HAP Emission Calculations:

The purpose of the following calculations is to determine if the source will be a major source for Hazardous Air Pollutants (HAPs). HAPs emissions for each emissions source for this facility were determined using California Air Toxics Emission Factors (CATEF). The following table lists the source's HAP emission totals.

Emissions Source	HAPs Emissions (tons/yr)
2,233 bhp landfill gas-fired IC engine	4.83×10^{-1}
2,233 bhp landfill gas-fired IC engine	4.83×10^{-1}
Noxtech landfill gas-fired start-up burner	4.24×10^{-3}
Noxtech landfill gas-fired start-up burner	4.24×10^{-3}
Total	9.75×10^{-1}

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The San Joaquin Valley Unified Air Pollution Control District (District) adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public of the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or significantly reduced.
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the project will not have a significant effect on the environment. The District finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

IX. Recommendation:

Since the use of exhaust emissions control technology on landfill gas-fired engines is a relatively recent development, the applicant has requested an evaluation period during which they would have flexibility in meeting the "Normal Operation" NO_x, CO, VOC, and NH₃ emission limits as they determine the feasibility and operational reliability of the proposed exhaust emissions control technology. The District has approved the applicant's request. Therefore, the applicant will be allowed a 12-month period where each engine must only meet the following emission limits while the facility evaluates and tunes the emission control equipment:

NO_x: 0.5 g/bhp-hr
CO: 2.5 g/bhp-hr
VOC: 0.88 g/bhp-hr
NH₃: The 10 ppmvd @ 15% O₂ NH₃ emission limit will not apply during the evaluation period.

The following conditions will be included on each permit:

The permittee shall be allowed a 12-month period to evaluate the operational variability and optimum control effectiveness of the proposed exhaust emission control system. During the evaluation period, the permittee shall operate and maintain the engine and the emission control system in such a manner as to minimize NO_x, CO, and VOC emissions, and perform the initial source testing and the required monthly portable analyzer monitoring. [District Rule 2201]

During start-up periods and the 12-month evaluation period, the NO_x emission rate shall not exceed 0.5 g/bhp-hr. [District Rules 2201 and 4702]

During start-up periods and the 12-month evaluation period, the VOC emission rate shall not exceed 0.88 g/bhp-hr. [District Rules 2201 and 4702]

During start-up periods and the 12-month evaluation period, the CO emission rate shall not exceed 2.5 g/bhp-hr. [District Rules 2201 and 4702]

During the 12-month evaluation period, the facility-wide NO_x emissions shall be less than 20,000 pounds. This engine's contribution to the facility's annual NO_x emissions shall be determined each week as follows: NO_x emissions = fuel usage (scf/week) x fuel HHV (use 455 Btu/scf unless better data are available) x weekly portable analyzer reading (ppmv corrected to 15% O₂) x 4.04E-9. [District Rule 2201]

During the 12-month evaluation period, the facility-wide CO emissions shall be less than 200,000 pounds. This engine's contribution to the facility's annual CO emissions shall be determined each week as follows: CO emissions = fuel usage (scf/week) x fuel HHV (use 455 Btu/scf unless better data are available) x weekly portable analyzer reading (ppmv corrected to 15% O₂) x 2.46E-9. [District Rule 2201]

During the 12-month evaluation period, the facility-wide VOC emissions shall be less than 20,000 pounds. This engine's contribution to the facility's annual VOC emissions shall be determined each week as follows: VOC emissions = [operating time while exhaust control system is online (hr/week) x controlled hourly emission rate determined from source test data (lb/hr)] + [operating time while exhaust control system is offline (hr/week) x uncontrolled hourly emission rate determined from source test data (lb/hr)]. [District Rule 2201]

Except during start-up periods, and after the conclusion of the 12-month evaluation period, the NO_x emission rate shall not exceed 0.15 g/bhp-hr. [District Rules 2201 and 4702]

Except during start-up periods, and after the conclusion of the 12-month evaluation period, the VOC emission rate shall not exceed 20.0 ppmvd @ 15% O₂ (as methane) [District Rules 2201 and 4702]

Except during start-up periods, and after the conclusion of the 12-month evaluation period, the CO emission rate shall not exceed 0.6 g/bhp-hr. [District Rules 2201 and 4702]

Except during the 12-month evaluation period, the start-up periods shall not exceed a combined total of 3.5 hours in any one day. [District Rule 2201]

Except during the 12-month evaluation period, ammonia (NH₃) emissions shall not exceed 10.0 ppmvd @ 15% O₂. [District Rule 2201]

NO_x (as NO₂), CO, VOC (as methane) and ammonia emissions from the Noxtech Aftertreatment system during the 12-month evaluation period in excess of 0.15 g/bhp-hr, 0.6 g/bhp-hr, 20.0 ppmvd @ 15% O₂, and 10.0 ppmvd @ 15 % O₂, respectively, shall not constitute a violation of this permit provided the permittee can demonstrate to the satisfaction of the Air Pollution Control Officer that emissions of these pollutants are limited to the lowest achievable rates to satisfy BACT/LAER requirements, and the engine and the emission control system have been installed, operated, and maintained properly in accordance with all manufacturers' specifications and instructions. [District Rule 2201]

If NO_x, CO, VOC, and NH₃ emissions continue to exceed, or are projected to exceed, 0.15 g/bhp-hr, 0.6 g/bhp-hr, 20.0 ppmvd @ 15% O₂, and 10.0 ppmvd @ 15 % O₂, respectively, after the 12-month evaluation period, the permittee shall submit a report containing all monitoring and source test data to the District within 90 days after the end of the evaluation period. The report shall also include a detailed analysis of all factors that prohibit compliance with these emission limits, as well as a detailed explanation of the steps taken to operate and maintain the engine and the emission control system in such a manner as to minimize emissions of these pollutants. [District Rule 2201]

Upon submittal of the report, the District shall re-evaluate BACT requirements for NO_x, CO, and VOC emissions from this class and category of source and establish appropriate BACT emissions limits. Within 30 days of receipt of the District's determination, the permittee shall submit an Authority to Construct application to incorporate these revised these emissions limits. In no case shall the final BACT NO_x emission limitation be higher than 0.60 g/bhp-hr. The engine shall be allowed to continue to operate after the 12-month evaluation period has ended and before the new Authority to Construct permit has been issued. [District Rule 2201]

If the engine demonstrates reasonably reliable compliance with the NO_x emissions limit of 0.15 g/bhp-hr during the 12-month evaluation period, this limit shall be deemed BACT for the installation. [District Rule 2201]

During the 12-month evaluation period, the permittee shall maintain records of the cumulative total annual NO_x, CO, and VOC emissions from the entire stationary source. These records shall be updated weekly. [District Rule 2201]

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct permits S-7457-1-0 and S-7457-2-0 subject to the permit conditions on the attached final draft Authority to Construct permits in Appendix A.

X. Billing Information⁽⁶⁾:

Billing Schedule			
Permit Number	Fee Schedule	Fee Description	Fee Amount
S-7457-1-0	3020-10-F	2,233 bhp IC engine	\$749.00
S-7457-2-0	3020-10-F	2,233 bhp IC engine	\$749.00

APPENDICES

- A. Final Draft Authority to Construct permits (S-7457-1-0 and S-7457-2-0)
- B. Preliminary Draft Authority to Construct permit S-7457-1-0
- C. Applicant comments on the preliminary draft Authority to Construct permit language
- D. District's response to Applicant comments on the preliminary draft Authority to Construct permit language
- E. Emission Calculations for the Noxtech, Inc. Aftertreatment Start-Up Burner
- F. Email from Dan Waineo Regarding Stationary Source Determination

⁶ Since the power generation from the proposed IC engines will neither be produced from the combustion of tires or other waste materials, or from the combusting of fossil or wood-derived fuel, fee schedules 3020-7 and 3020-8 respectively do not apply.

Appendix A

**Final Draft Authority to Construct permits
(S-7457-1-0 and S-7457-2-0)**

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-7457-1-0

LEGAL OWNER OR OPERATOR: BENA POWER PRODUCERS
MAILING ADDRESS: 1230 NORTH JEFFERSON STREET
SUITE J
ANAHEIM, CA 92807

LOCATION: 2951 NEUMARKEL ROAD
BENA LANDFILL
BAKERSFIELD, CA

EQUIPMENT DESCRIPTION:

2,233 BHP CATERPILLAR MODEL G3520C LANDFILL GAS-FIRED LEAN BURN IC ENGINE POWERING A 1,600 KW ELECTRICAL GENERATOR. THE IC ENGINE IS SERVED BY A NOXTECH, INC. AFTERTREATMENT SYSTEM AND A SULFATREAT H2S DRY SCRUBBER. THE NOXTECH, INC. AFTERTREATMENT SYSTEM IS SERVED BY A PERMIT EXEMPT 1MMBTU/HR LANDFILL GAS FIRED BURNER USED DURING START-UP PERIODS.

CONDITIONS

1. Facility S-3232 is a separate stationary source from this facility. [District Rule 2201]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. All equipment shall be maintained in good operating condition and shall be operated per the manufacturer's specifications to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
6. The engine shall be fired solely on landfill gas. [District Rules 2201 and 4801]
7. This engine shall be equipped with an operational non-resettable elapsed time meter. [District Rules 2201 and 4702]
8. The engine shall be equipped with a fuel flow meter, or a District-approved alternative method or technique that can be used to accurately determine the fuel flow rate into the engine. [District Rule 2201]
9. The Sulfatreat dry scrubber shall consist of at least one 502 cubic foot Sulfatreat canister. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

DAVID WARNER, Director of Permit Services

S-7457-1-0 - Oct 6 2009 9:28AM - PEIRCE : Joint Inspection NOT Required

Southern Regional Office • 34946 Flyover Court • Bakersfield, CA 93308 • (661) 392-5500 • Fax (661) 392-5585

Conditions for S-7457-1-0 (continued)

Page 2 of 5

10. The landfill gas flow rate into the engine shall not exceed 1,080,000 cubic feet per day (45,000 cubic feet per hour). [District Rule 2201]
11. The permittee shall be allowed a 12-month period to evaluate the operational variability and optimum control effectiveness of the proposed exhaust emission control system. During the evaluation period, the permittee shall operate and maintain the engine and the emission control system in such a manner as to minimize NO_x, CO, and VOC emissions, and perform the initial source testing and the required portable analyzer monitoring. [District Rule 2201]
12. During start-up periods and the 12-month evaluation period, the NO_x emission rate shall not exceed 0.5 g/bhp-hr. [District Rules 2201 and 4702]
13. During start-up periods and the 12-month evaluation period, the VOC emission rate shall not exceed 0.88 g/bhp-hr. [District Rules 2201 and 4702]
14. During start-up periods and the 12-month evaluation period, the CO emission rate shall not exceed 2.5 g/bhp-hr. [District Rules 2201 and 4702]
15. NO_x (as NO₂), CO, VOC (as methane) and ammonia emissions from the Noxtech Aftertreatment system during the 12-month evaluation period in excess of 0.15 g/bhp-hr, 0.6 g/bhp-hr, 20.0 ppmvd @ 15% O₂, and 10.0 ppmvd @ 15 % O₂, respectively, shall not constitute a violation of this permit provided the permittee can demonstrate to the satisfaction of the Air Pollution Control Officer that emissions of these pollutants are limited to the lowest achievable rates to satisfy BACT/LAER requirements, and the engine and the emission control system have been installed, operated, and maintained properly in accordance with all manufacturers' specifications and instructions. [District Rule 2201]
16. If NO_x, CO, VOC, and NH₃ emissions continue to exceed, or are projected to exceed, 0.15 g/bhp-hr, 0.6 g/bhp-hr, 20.0 ppmvd @ 15% O₂, and 10.0 ppmvd @ 15 % O₂, respectively, after the 12-month evaluation period, the permittee shall submit a report containing all monitoring and source test data to the District within 90 days after the end of the evaluation period. The report shall also include a detailed analysis of all factors that prohibit compliance with these emission limits, as well as a detailed explanation of the steps taken to operate and maintain the engine and the emission control system in such a manner as to minimize emissions of these pollutants. [District Rule 2201]
17. Upon submittal of the report, the District shall re-evaluate BACT requirements for NO_x, CO, and VOC emissions from this class and category of source and establish appropriate BACT emissions limits. Within 30 days of receipt of the District's determination, the permittee shall submit an Authority to Construct application to incorporate these revised emissions limits. In no case shall the final BACT NO_x emission limitation be higher than 0.60 g/bhp-hr. The engine shall be allowed to continue to operate after the 12-month evaluation period has ended and before the new Authority to Construct permit has been issued. [District Rule 2201]
18. If the engine demonstrates reasonably reliable compliance with the NO_x emissions limit of 0.15 g/bhp-hr during the 12-month evaluation period, this limit shall be deemed BACT for the installation. [District Rule 2201]
19. During the 12-month evaluation period, the facility-wide NO_x emissions shall be less than 20,000 pounds. This engine's contribution to the facility's annual NO_x emissions shall be determined each week as follows: NO_x emissions = fuel usage (scf/week) x fuel HHV (use 455 Btu/scf unless better data are available) x weekly portable analyzer reading (ppmv corrected to 15% O₂) x 4.04E-9. [District Rule 2201]
20. During the 12-month evaluation period, the facility-wide CO emissions shall be less than 200,000 pounds. This engine's contribution to the facility's annual CO emissions shall be determined each week as follows: CO emissions = fuel usage (scf/week) x fuel HHV (use 455 Btu/scf unless better data are available) x weekly portable analyzer reading (ppmv corrected to 15% O₂) x 2.46E-9. [District Rule 2201]
21. During the 12-month evaluation period, the facility-wide VOC emissions shall be less than 20,000 pounds. This engine's contribution to the facility's annual VOC emissions shall be determined each week as follows: VOC emissions = [operating time while exhaust control system is online (hr/week) x controlled hourly emission rate determined from source test data (lb/hr)] + [operating time while exhaust control system is offline (hr/week) x uncontrolled hourly emission rate determined from source test data (lb/hr)]. [District Rule 2201]
22. Except during start-up periods, and after the conclusion of the 12-month evaluation period, the NO_x emission rate shall not exceed 0.15 g/bhp-hr. [District Rules 2201 and 4702]

CONDITIONS CONTINUE ON NEXT PAGE

Conditions for S-7457-1-0 (continued)

Page 3 of 5

23. Except during start-up periods, and the after conclusion of the 12-month evaluation period, the VOC emission rate shall not exceed 20.0 ppmvd @ 15% O₂ (as methane). [District Rules 2201 and 4702]
24. Except during start-up periods, and the after conclusion of the 12-month evaluation period, the CO emission rate shall not exceed 0.6 g/bhp-hr. [District Rules 2201 and 4702]
25. The PM₁₀ emission rate shall not exceed 0.1 g/bhp-hr. [District Rule 2201]
26. The H₂S content of the landfill gas after treatment by the Sulfatreat dry scrubber shall not exceed 10.0 ppmvd. [District Rule 2201]
27. Except during the 12-month evaluation period, ammonia (NH₃) emissions shall not exceed 10.0 ppmvd @ 15% O₂. [District Rule 2201]
28. Except during the 12-month evaluation period, the start-up periods shall not exceed a combined total of 3.5 hours in any one day. [District Rule 2201]
29. A start-up period is the amount of time necessary to operate the 1 MMBtu/hr burner serving the Noxtech, Inc. Aftertreatment system to bring the the Noxtech, Inc. Aftertreatment system up to the minimum temperature necessary for the Noxtech, Inc. Aftertreatment system to reduce emissions of NO_x to the non-start-up NO_x emissions rate required by this permit. [District Rule 2201]
30. The temperature of the Noxtech, Inc Aftertreatment reactor shall be maintained within the manufacturer's suggested range. [District Rules 2201 and 4702]
31. The Noxtech, Inc. Aftertreatment system shall be maintained in accordance with the recommendations of Noxtech, Inc. Records of the Noxtech, Inc. Aftertreatment system maintenance shall be maintained. [District Rules 2201 and 4702]
32. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
33. Source testing to measure NO_x, CO, VOC, PM₁₀, and NH₃ emissions from this unit shall be conducted within 90 days of achieving reasonably reliable compliance with the NO_x emission limit of 0.15 g/bhp-hr, but no later than the conclusion of the 12-month evaluation period. Source testing to measure NO_x, CO, VOC, and NH₃ emissions from this unit shall be conducted not less than once every 12 months thereafter. [District Rules 1081, 2201, and 4702]
34. {3791} Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702]
35. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as methane. [District Rules 2201 and 4702]
36. The following methods shall be used for testing: NO_x (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100, PM₁₀ - EPA Methods 201A and 202, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, and ammonia - BAAQMD ST-1B. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4702]
37. Compliance demonstration (source testing) shall be District witnessed, or authorized and samples shall be shipped under custody transfer and tested by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. Source testing may occur more frequently than once every 12 months at the discretion of the equipment owner or operator, if such frequency is necessary to schedule source testing during normal operating periods. Any source testing conducted more frequently than required, shall reset the 12-month testing clock. [District Rule 1081]

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

Conditions for S-7457-1-0 (continued)

Page 4 of 5

38. {109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]
39. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
40. Testing to demonstrate compliance with the fuel H2S content limit of this permit shall be conducted at least monthly, and within 24 hours prior to replacement of spent Sulfatreat media. After all fuel H2S content tests show compliance for six consecutive months, the fuel H2S content testing frequency may be reduced to once every calendar quarter and within 24 hours prior to replacement of spent Sulfatreat media. If any fuel H2S content test shows a violation of the H2S content limit of this permit during a quarterly testing period, then the fuel H2S content testing frequency shall immediately return to monthly and within 24 hours prior to replacement of spent Sulfatreat media. Once all fuel H2S content tests again show compliance with the H2S limits of this permit for six consecutive months, testing may again return to once every calendar quarter and within 24 hours prior to replacement of spent Sulfatreat media. [District Rule 2201]
41. H2S content of the fuel shall be measured using EPA Method 15, ASTM Method D1072, D3246, D4084, D5504, with a District approved portable analyzer, or an alternative method approved by the District.. [District Rule 2201]
42. The permittee shall monitor and record the stack concentration of NOx, CO, NH3 and O2 concurrently at least once every week (in which a source test is not performed). Upon demonstration of reasonably reliable compliance with the NOx emission limit of 0.15 g/bhp-hr, the NOx, CO, NH3, and O2 stack concentration monitoring frequency may be reduced to monthly. NOx, CO and O2 concentrations shall be monitored using a portable emission monitor that meets District specifications. NH3 monitoring shall be conducted utilizing District approved gas-detection tubes or a District approved equivalent method. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within two days of restarting the engine unless monitoring has been performed within the last week. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2201 and 4702]
43. Except during the 12-month evaluation period, if either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, or the NH3 concentrations corrected to 15% O2, as measured by District approved gas-detection tubes, exceed the allowable emissions levels, the permittee shall return the emissions to the acceptable level as soon as possible, but no longer than 8 hours of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions levels after 8 hours of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee shall then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2201 and 4702]
44. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 2201 and 4702]
45. The permittee shall maintain records of: (1) the date and time of NOx, CO, O2 and NH3 measurements, (2) the O2 concentration in percent and the measured NOx, CO, and NH3 concentrations corrected to 15% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, (5) the method of determining the NH3 emission concentration, and (6) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201 and 4702]
46. {3797} The permittee shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total hours of operation, type of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

CONDITIONS CONTINUE ON NEXT PAGE

Conditions for S-7457-1-0 (continued)

Page 5 of 5

47. {3202} This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702]
48. {3212} The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]
49. The permittee shall maintain a daily record that includes the date, the hours the engine operated, and the total daily fuel usage in standard cubic feet. [District Rule 2201 and 4702]
50. The permittee shall maintain a record that includes the date, the time that each start-up began, the duration of each start-up, and the total time for all start-up periods for each day. [District Rule 2201]
51. During the 12-month evaluation period, the permittee shall maintain records of the cumulative total annual NO_x, CO, and VOC emissions from the entire stationary source. These records shall be updated weekly. [District Rule 2201]
52. All records shall be maintained and retained on-site for a minimum of five years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-7457-2-0

LEGAL OWNER OR OPERATOR: BENA POWER PRODUCERS
MAILING ADDRESS: 1230 NORTH JEFFERSON STREET
SUITE J
ANAHEIM, CA 92807

LOCATION: 2951 NEUMARKEL ROAD
BENA LANDFILL
BAKERSFIELD, CA

EQUIPMENT DESCRIPTION:

2,233 BHP CATERPILLAR MODEL G3520C LANDFILL GAS-FIRED LEAN BURN IC ENGINE POWERING A 1,600 KW ELECTRICAL GENERATOR. THE IC ENGINE IS SERVED BY A NOXTECH, INC. AFTERTREATMENT SYSTEM AND A SULFATREAT H2S DRY SCRUBBER. THE NOXTECH, INC. AFTERTREATMENT SYSTEM IS SERVED BY A PERMIT EXEMPT 1MMBTU/HR LANDFILL GAS FIRED BURNER USED DURING START-UP PERIODS.

CONDITIONS

1. Facility S-3232 is a separate stationary source from this facility. [District Rule 2201]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. All equipment shall be maintained in good operating condition and shall be operated per the manufacturer's specifications to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
6. The engine shall be fired solely on landfill gas. [District Rules 2201 and 4801]
7. This engine shall be equipped with an operational non-resettable elapsed time meter. [District Rules 2201 and 4702]
8. The engine shall be equipped with a fuel flow meter, or a District-approved alternative method or technique that can be used to accurately determine the fuel flow rate into the engine. [District Rule 2201]
9. The Sulfatreat dry scrubber shall consist of at least one 502 cubic foot Sulfatreat canister. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-6500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Sayed Sadredin, Executive Director APCO

DRAFT

DAVID WARNER, Director of Permit Services

S-7457-2-0 - Oct 6 2006 8:28AM - PERCEN : Joint Inspection NOT Required

Southern Regional Office • 34946 Flyover Court • Bakersfield, CA 93308 • (661) 392-5500 • Fax (661) 392-5585

Conditions for S-7457-2-0 (continued)

Page 2 of 5

10. The landfill gas flow rate into the engine shall not exceed 1,080,000 cubic feet per day (45,000 cubic feet per hour). [District Rule 2201]
11. The permittee shall be allowed a 12-month period to evaluate the operational variability and optimum control effectiveness of the proposed exhaust emission control system. During the evaluation period, the permittee shall operate and maintain the engine and the emission control system in such a manner as to minimize NO_x, CO, and VOC emissions, and perform the initial source testing and the required portable analyzer monitoring. [District Rule 2201]
12. During start-up periods and the 12-month evaluation period, the NO_x emission rate shall not exceed 0.5 g/bhp-hr. [District Rules 2201 and 4702]
13. During start-up periods and the 12-month evaluation period, the VOC emission rate shall not exceed 0.88 g/bhp-hr. [District Rules 2201 and 4702]
14. During start-up periods and the 12-month evaluation period, the CO emission rate shall not exceed 2.5 g/bhp-hr. [District Rules 2201 and 4702]
15. NO_x (as NO₂), CO, VOC (as methane) and ammonia emissions from the Noxtech Aftertreatment system during the 12-month evaluation period in excess of 0.15 g/bhp-hr, 0.6 g/bhp-hr, 20.0 ppmvd @ 15% O₂, and 10.0 ppmvd @ 15 % O₂, respectively, shall not constitute a violation of this permit provided the permittee can demonstrate to the satisfaction of the Air Pollution Control Officer that emissions of these pollutants are limited to the lowest achievable rates to satisfy BACT/LAER requirements, and the engine and the emission control system have been installed, operated, and maintained properly in accordance with all manufacturers' specifications and instructions. [District Rule 2201]
16. If NO_x, CO, VOC, and NH₃ emissions continue to exceed, or are projected to exceed, 0.15 g/bhp-hr, 0.6 g/bhp-hr, 20.0 ppmvd @ 15% O₂, and 10.0 ppmvd @ 15 % O₂, respectively, after the 12-month evaluation period, the permittee shall submit a report containing all monitoring and source test data to the District within 90 days after the end of the evaluation period. The report shall also include a detailed analysis of all factors that prohibit compliance with these emission limits, as well as a detailed explanation of the steps taken to operate and maintain the engine and the emission control system in such a manner as to minimize emissions of these pollutants. [District Rule 2201]
17. Upon submittal of the report, the District shall re-evaluate BACT requirements for NO_x, CO, and VOC emissions from this class and category of source and establish appropriate BACT emissions limits. Within 30 days of receipt of the District's determination, the permittee shall submit an Authority to Construct application to incorporate these revised emissions limits. In no case shall the final BACT NO_x emission limitation be higher than 0.60 g/bhp-hr. The engine shall be allowed to continue to operate after the 12-month evaluation period has ended and before the new Authority to Construct permit has been issued. [District Rule 2201]
18. If the engine demonstrates reasonably reliable compliance with the NO_x emissions limit of 0.15 g/bhp-hr during the 12-month evaluation period, this limit shall be deemed BACT for the installation. [District Rule 2201]
19. During the 12-month evaluation period, the facility-wide NO_x emissions shall be less than 20,000 pounds. This engine's contribution to the facility's annual NO_x emissions shall be determined each week as follows: NO_x emissions = fuel usage (scf/week) x fuel HHV (use 455 Btu/scf unless better data are available) x weekly portable analyzer reading (ppmv corrected to 15% O₂) x 4.04E-9. [District Rule 2201]
20. During the 12-month evaluation period, the facility-wide CO emissions shall be less than 200,000 pounds. This engine's contribution to the facility's annual CO emissions shall be determined each week as follows: CO emissions = fuel usage (scf/week) x fuel HHV (use 455 Btu/scf unless better data are available) x weekly portable analyzer reading (ppmv corrected to 15% O₂) x 2.46E-9. [District Rule 2201]
21. During the 12-month evaluation period, the facility-wide VOC emissions shall be less than 20,000 pounds. This engine's contribution to the facility's annual VOC emissions shall be determined each week as follows: VOC emissions = [operating time while exhaust control system is online (hr/week) x controlled hourly emission rate determined from source test data (lb/hr)] + [operating time while exhaust control system is offline (hr/week) x uncontrolled hourly emission rate determined from source test data (lb/hr)]. [District Rule 2201]
22. Except during start-up periods, and after the conclusion of the 12-month evaluation period, the NO_x emission rate shall not exceed 0.15 g/bhp-hr. [District Rules 2201 and 4702]

CONDITIONS CONTINUE ON NEXT PAGE

Conditions for S-7457-2-0 (continued)

Page 3 of 5

23. Except during start-up periods, and after the conclusion of the 12-month evaluation period, the VOC emission rate shall not exceed 20.0 ppmvd @ 15% O₂ (as methane). [District Rules 2201 and 4702]
24. Except during start-up periods, and after the conclusion of the 12-month evaluation period, the CO emission rate shall not exceed 0.6 g/bhp-hr. [District Rules 2201 and 4702]
25. The PM₁₀ emission rate shall not exceed 0.1 g/bhp-hr. [District Rule 2201]
26. The H₂S content of the landfill gas after treatment by the Sulfatreat dry scrubber shall not exceed 10.0 ppmvd. [District Rule 2201]
27. Except during the 12-month evaluation period, ammonia (NH₃) emissions shall not exceed 10.0 ppmvd @ 15% O₂. [District Rule 2201]
28. Except during the 12-month evaluation period, the start-up periods shall not exceed a combined total of 3.5 hours in any one day. [District Rule 2201]
29. A start-up period is the amount of time necessary to operate the 1 MMBtu/hr burner serving the Noxtech, Inc. Aftertreatment system to bring the the Noxtech, Inc. Aftertreatment system up to the minimum temperature necessary for the Noxtech, Inc. Aftertreatment system to reduce emissions of NO_x to the non-start-up NO_x emissions rate required by this permit. [District Rule 2201]
30. The temperature of the Noxtech, Inc Aftertreatment reactor shall be maintained within the manufacturer's suggested range. [District Rules 2201 and 4702]
31. The Noxtech, Inc. Aftertreatment system shall be maintained in accordance with the recommendations of Noxtech, Inc. Records of the Noxtech, Inc. Aftertreatment system maintenance shall be maintained. [District Rules 2201 and 4702]
32. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
33. Source testing to measure NO_x, CO, VOC, PM₁₀, and NH₃ emissions from this unit shall be conducted within 90 days of achieving reasonably reliable compliance with the NO_x emission limit of 0.15 g/bhp-hr, but no later than the conclusion of the 12-month evaluation period. Source testing to measure NO_x, CO, VOC, and NH₃ emissions from this unit shall be conducted not less than once every 12 months thereafter. [District Rules 1081, 2201, and 4702]
34. {3791} Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702]
35. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as methane. [District Rules 2201 and 4702]
36. The following methods shall be used for testing: NO_x (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100, PM₁₀ - EPA Methods 201A and 202, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, and ammonia - BAAQMD ST-1B. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4702]
37. Compliance demonstration (source testing) shall be District witnessed, or authorized and samples shall be shipped under custody transfer and tested by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. Source testing may occur more frequently than once every 12 months at the discretion of the equipment owner or operator, if such frequency is necessary to schedule source testing during normal operating periods. Any source testing conducted more frequently than required, shall reset the 12-month testing clock. [District Rule 1081]

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

Conditions for S-7457-2-0 (continued)

Page 4 of 5

38. {109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]
39. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
40. Testing to demonstrate compliance with the fuel H₂S content limit of this permit shall be conducted at least monthly, and within 24 hours prior to replacement of spent Sulfatreat media. After all fuel H₂S content tests show compliance for six consecutive months, the fuel H₂S content testing frequency may be reduced to once every calendar quarter and within 24 hours prior to replacement of spent Sulfatreat media. If any fuel H₂S content test shows a violation of the H₂S content limit of this permit during a quarterly testing period, then the fuel H₂S content testing frequency shall immediately return to monthly and within 24 hours prior to replacement of spent Sulfatreat media. Once all fuel H₂S content tests again show compliance with the H₂S limits of this permit for six consecutive months, testing may again return to once every calendar quarter and within 24 hours prior to replacement of spent Sulfatreat media. [District Rule 2201]
41. H₂S content of the fuel shall be measured using EPA Method 15, ASTM Method D1072, D3246, D4084, D5504, with a District approved portable analyzer, or an alternative method approved by the District.. [District Rule 2201]
42. The permittee shall monitor and record the stack concentration of NO_x, CO, NH₃ and O₂ concurrently at least once every week (in which a source test is not performed). Upon demonstration of reasonably reliable compliance with the NO_x emission limit of 0.15 g/bhp-hr, the NO_x, CO, NH₃, and O₂ stack concentration monitoring frequency may be reduced to monthly. NO_x, CO and O₂ concentrations shall be monitored using a portable emission monitor that meets District specifications. NH₃ monitoring shall be conducted utilizing District approved gas-detection tubes or a District approved equivalent method. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within two days of restarting the engine unless monitoring has been performed within the last week. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2201 and 4702]
43. Except during the 12-month evaluation period, if either the NO_x or CO concentrations corrected to 15% O₂, as measured by the portable analyzer, or the NH₃ concentrations corrected to 15% O₂, as measured by District approved gas-detection tubes, exceed the allowable emissions levels, the permittee shall return the emissions to the acceptable level as soon as possible, but no longer than 8 hours of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions levels after 8 hours of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee shall then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2201 and 4702]
44. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 2201 and 4702]
45. The permittee shall maintain records of: (1) the date and time of NO_x, CO, O₂ and NH₃ measurements, (2) the O₂ concentration in percent and the measured NO_x, CO, and NH₃ concentrations corrected to 15% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, (5) the method of determining the NH₃ emission concentration, and (6) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201 and 4702]
46. {3797} The permittee shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total hours of operation, type of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

CONDITIONS CONTINUE ON NEXT PAGE

Conditions for S-7457-2-0 (continued)

Page 5 of 5

47. {3202} This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702]
48. {3212} The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]
49. The permittee shall maintain a daily record that includes the date, the hours the engine operated, and the total daily fuel usage in standard cubic feet. [District Rule 2201 and 4702]
50. The permittee shall maintain a record that includes the date, the time that each start-up began, the duration of each start-up, and the total time for all start-up periods for each day. [District Rule 2201]
51. During the 12-month evaluation period, the permittee shall maintain records of the cumulative total annual NO_x, CO, and VOC emissions from the entire stationary source. These records shall be updated weekly. [District Rule 2201]
52. All records shall be maintained and retained on-site for a minimum of five years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702]

DRAFT

Appendix B

**Preliminary Draft Authority to Construct permit S-7457-1-0
(Both permits are identical, so only one permit is attached)**

San Joaquin Valley
Air Pollution Control District

Preliminary Draft

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-7457-1-0

LEGAL OWNER OR OPERATOR: BENA POWER PRODUCERS
MAILING ADDRESS: 1230 NORTH JEFFERSON STREET
SUITE J
ANAHEIM, CA 92807

LOCATION: 2951 NEUMARKEL ROAD
BENA LANDFILL
BAKERSFIELD, CA

EQUIPMENT DESCRIPTION:

2,233 BHP CATERPILLAR MODEL G3520C LANDFILL GAS-FIRED LEAN BURN IC ENGINE POWERING A 1,600 KW ELECTRICAL GENERATOR. THE IC ENGINE IS SERVED BY A NOXTECH, INC. AFTERTREATMENT SYSTEM AND A SULFATREAT H₂S DRY SCRUBBER. THE NOXTECH, INC. AFTERTREATMENT SYSTEM IS SERVED BY A PERMIT EXEMPT 1MMBTU/HR LANDFILL GAS FIRED BURNER USED DURING START-UP PERIODS.

CONDITIONS

1. Facility S-3232 is a separate stationary source from this facility. [District Rule 2201]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. All equipment shall be maintained in good operating condition and shall be operated per the manufacturer's specifications to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
6. The engine shall be fired solely on landfill gas. [District Rules 2201 and 4801]
7. This engine shall be equipped with an operational non-resettable elapsed time meter. [District Rules 2201 and 4702]
8. The engine shall be equipped with a fuel flow meter, or a District approved alternative method or technique that can be used to accurately determine the fuel flow rate into the engine. [District Rule 2201]
9. The Sulfatreat dry scrubber shall consist of at least one 502 cubic foot Sulfatreat canister. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

DRAFT

Conditions for S-7457-1-0 (continued)

Page 2 of 4

10. The landfill gas flow rate into the engine shall not exceed 805,848 cubic feet per day (33,577 cubic feet per hour). [District Rule 2201]
11. During start-up periods, the NO_x emissions rate shall not exceed 0.5 g/bhp-hr. [District Rules 2201 and 4702]
12. Except during start-up periods, the NO_x emissions rate shall not exceed 0.15 g/bhp-hr. [District Rules 2201 and 4702]
13. The permittee shall be allowed a 12 month period to evaluate the operational reliability and control effectiveness of the proposed NO_x emission control system. During the evaluation period, the permittee shall operate and maintain the engine and the emission control system in such a manner as to minimize NO_x emissions, and perform the initial source testing and the required monthly portable analyzer monitoring. [District Rule 2201]
14. NO_x emissions (as NO₂) from the Noxtech Aftertreatment system during the evaluation period in excess of 0.15 g/bhp-hr shall not constitute a violation of this permit provided that the permittee can demonstrate to the satisfaction of the Air Pollution Control Officer that NO_x emissions are limited to the lowest achievable emission rate to satisfy BACT/LAER requirements, and the engine and the emission control system have been installed, operated, and maintained properly in accordance with all manufacturers' specifications and instructions. [District Rule 2201]
15. If NO_x emissions continue to exceed, or are projected to exceed, 0.15 g/bhp-hr after the 12 month evaluation period, the permittee shall submit a report containing all monitoring and source test data to the District within 90 days of the end of the evaluation period. The report shall also include a detailed analysis of all factors that prohibit compliance with the 0.15 g-NO_x/bhp-hr limit, as well as a detailed explanation of the steps taken to operate and maintain the engine and the emission control system in such a manner as to minimize NO_x emissions. [District Rule 2201]
16. Upon submittal of the report, the District shall re-evaluate BACT requirements for NO_x emissions from this class and category of source and establish an appropriate BACT emissions limit. Within 30 days of receipt of the District's determination, the permittee shall submit an Authority to Construct application to modify this permit to revise the NO_x emissions limit. In no case shall the final BACT NO_x emission limitation be higher than 0.60 g/bhp-hr. [District Rule 2201]
17. If the engine demonstrates reasonably reliable compliance with the NO_x emissions limit of 0.15 g/bhp-hr during the 12 month evaluation period, this limit shall be deemed BACT for the installation. [District Rule 2201]
18. During start-up periods, the VOC emissions rate shall not exceed 0.88 g/bhp-hr. [District Rules 2201 and 4702]
19. Except during start-up periods, the VOC emissions rate shall not exceed 20 ppmvd @ 15% O₂. [District Rules 2201 and 4702]
20. During start-up periods, the CO emissions rate shall not exceed 2.5 g/bhp-hr. [District Rules 2201 and 4702]
21. Except during start-up periods, the CO emissions rate shall not exceed 0.6 g/bhp-hr. [District Rules 2201 and 4702]
22. The organic silicon content of the landfill gas, reported as silicon, shall not exceed 16 ppmvd. [District Rule 2201]
23. The H₂S content of the landfill gas after treatment by the Sulfatreat dry scrubber shall not exceed 6 ppmvd. [District Rule 2201]
24. Ammonia (NH₃) emissions shall not exceed 10.0 ppmvd @ 15% O₂. [District Rule 2201]
25. The start-up periods shall not exceed a combined total of 3.5 hours in any one day. [District Rule 2201]
26. A start-up period is the amount of time necessary to operate the 1 MMBtu/hr burner serving the Noxtech, Inc. Aftertreatment system to bring the the Noxtech, Inc. Aftertreatment system up to the minimum temperature necessary for the Noxtech, Inc. Aftertreatment system to reduce emissions of NO_x to the non-start-up NO_x emissions rate required by this permit. [District Rule 2201]
27. The temperature of the Noxtech, Inc Aftertreatment reactor shall be maintained within the range for the highest efficiency for NO_x reduction as specified by Noxtech, Inc. [District Rules 2201 and 4702]
28. The Noxtech, Inc. Aftertreatment system shall be maintained in accordance with the recommendations of Noxtech, Inc. Records of the Noxtech, Inc. Aftertreatment system maintenance shall be maintained. [District Rules 2201 and 4702]

DDAEST

Conditions for S-7457-1-0 (continued)

Page 3 of 4

29. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
30. Source testing to measure NO_x, CO, VOC, and NH₃ emissions from this unit shall be conducted within 90 days of initial startup and not less than once every 12 months thereafter. [District Rules 1081, 2201, and 4702]
31. Source testing to measure PM₁₀ emissions from this unit shall be conducted within 90 days of initial startup. [District Rules 1081 and 2201]
32. {3791} Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702]
33. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as methane. [District Rules 2201 and 4702]
34. The following methods shall be used for testing: NO_x (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100, PM₁₀ - EPA Methods 201A and 202, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, and ammonia - BAAQMD ST-1B. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4702]
35. Compliance demonstration (source testing) shall be District witnessed, or authorized and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. Source testing may occur more frequently than once every 12 months at the discretion of the equipment owner or operator, if such frequency is necessary to schedule source testing during normal operating periods. Any source testing conducted more frequently than required, shall reset the 12 month testing clock. [District Rule 1081]
36. {109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]
37. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
38. Testing to demonstrate compliance with the fuel H₂S content limit of this permit shall be conducted at least monthly, and within 24 hours prior to replacement of spent Sulfatreat media. After all fuel H₂S content tests show compliance for six (6) consecutive months, the fuel H₂S content testing frequency may be reduced to once every calendar quarter and within 24 hours prior to replacement of spent Sulfatreat media. If any fuel H₂S content test shows a violation of the H₂S content limit of this permit during a quarterly testing period, then testing of the fuel H₂S content shall immediately return to testing at least monthly and within 24 hours prior to replacement of spent Sulfatreat media. Once all fuel H₂S content tests again show compliance with the H₂S limits of this permit for six consecutive months, testing may again return to once every calendar quarter and within 24 hours prior to replacement of spent Sulfatreat media. [District Rule 2201]
39. H₂S content of the fuel shall be measured using EPA Method 15, ASTM Method D1072, D3246, D4084, D5504, with a District approved portable analyzer, or an alternative method approved by the District.. [District Rule 2201]
40. The permittee shall monitor and record the stack concentration of NO_x, CO, NH₃ and O₂ concurrently at least once every month (in which a source test is not performed). NO_x, CO and O₂ concentrations shall be monitored using a portable emission monitor that meets District specifications. NH₃ monitoring shall be conducted utilizing District approved gas-detection tubes or a District approved equivalent method. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2201 and 4702]

01011511

Conditions for S-7457-1-0 (continued)

Page 4 of 4

41. If either the NO_x or CO concentrations corrected to 15% O₂, as measured by the portable analyzer, or the NH₃ concentrations corrected to 15% O₂, as measured by District approved gas-detection tubes, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2201 and 4702]
42. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 2201 and 4702]
43. The permittee shall maintain records of: (1) the date and time of NO_x, CO, O₂ and NH₃ measurements, (2) the O₂ concentration in percent and the measured NO_x, CO, and NH₃ concentrations corrected to 15% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, (5) the method of determining the NH₃ emission concentration, and (6) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201 and 4702]
44. {3797} The permittee shall maintain an engine operating log to demonstrate compliance. The engine operating log shall include, on a monthly basis, the following information: total hours of operation, type of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]
45. {3202} This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702]
46. {3212} The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]
47. The permittee shall maintain a daily record that includes the date and the total daily fuel usage in cubic feet. [District Rule]
48. The permittee shall maintain a record that includes the date, the time that a start-up begins, the duration of the start-up, and the total time for all start-up periods for each day. [District Rule 2201]
49. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702]

DRAFT

Appendix C

Applicant Comments on Preliminary draft Authority to Construct Permit Language

BENA POWER PRODUCERS, LLC

10801 Monroe Road, Suite F

Matthews, NC 28105

September 22nd, 2009

Mr. Rupi Gill
San Joaquin Valley APCD
4800 Enterprise Way
Modesto, CA 95356-8718

Subject: RE: Draft ATC Permit Conditions, Project Number: S-1084435, Permit Number: S-7457-1-0

Dear Mr. Gill,

This Letter is in response to the draft ATC permit conditions for the landfill gas fired IC engines to be installed at the Bakersfield Metropolitan Landfill received by email on September 15, 2008. Our responses to the Draft ATC permit is shown below.

Condition 10:

The engine takes 235,181 BTU/min (LHV). You have limited the gas flow in the permit to 805,848 cubic feet per day. This corresponds to a methane quality of 46%. However, the BTU quality of the landfill gas can change over time. We would propose a flow rate of 1,063,299 standard cubic foot per day. This corresponds to a flow rate of 44,304 standard cubic feet per hour (35% methane).

Condition 12:

We would suggest the wording "Except during startup periods *and as allowed above,*".

Condition 15, 16:

We would ask that the following language be added to the permit:

The engine shall be allowed to continue to operate after the 12 months has ended and before the new ATC has been issued. If the NOxTech unit cannot obtain consistently and reliably obtain 0.15 g/bhp-hr, the new ATC NOx emission limit shall be based on the reasonable and reliable emissions from the NOxTech unit as determined by the 12 months of testing.

We are also concerned about the downtime of the NOxTech unit. If the NOxTech can achieve 0.15 g/bhp-hr, but only has 80% online time because of problems with the injection nozzles or other issues, the final permit should have flexibility to require 80% NOxtech online time. Also long term wear on the

engine and NOxTech unit may impact the future emission performance, so the final permit should also for a margin of emissions above what was tested during the 12 month period:

The new ATC permit limit shall also take into account the downtime of the NOxTech reactor during the 12 month testing period, and the effect of long term engine and NOxTech wear on the emissions. In the final ATC the NOxTech will have a required uptime based on what was achievable during the 12 month test period.

Conditions 18-21, 24

The CO, VOC, and NH3 emissions in the permit are also dependant on the operation of the NOxTech reactor. Thus these emissions should also have flexibility per conditions 12, 13, 14, 15, 16.

Condition 22

The organic silicon content of the landfill gas will vary over time. We don't see any reason to have this in the permit, so we would ask that it be removed.

Condition 23

Sulfatreat is less efficient at H2S removal down to 6 ppmv. We would ask that the limit be 10 ppmv.

Condition 25

We would ask that there be an exemption to the startup period for the 12 months of testing.

Condition 27

Replace "*maximum efficiency*" with "*manufacturers suggested range.*"

Condition 35

In the first sentence replace "*collected by*" with "*shipped under custody transfer and tested by*".

Condition 38-39.

We are proposing a Drager tubes for H2S analysis. Is that acceptable?

Condition 41.

There should be no emission violations for NOX, CO, VOC, or NH3 during the 12 month test period, or the time interval following the 12 month until a final permit is issued because these emissions are all based on the NOxTech reactor performance.

Should you have any questions on the contents of this letter please let me know.

Very truly yours,

BENA Power Producers, LLC

Daniel D. Waineo, PE

Manager

Appendix D

**District's Response to Applicant Comments on the
Preliminary draft Authority to Construct permit language**

Applicant Comment #1:

Condition 10:

The landfill gas flow rate into the engine shall not exceed 805,848 cubic feet per day (33,577 cubic feet per hour). [District Rule 2201]

The engine takes 235,181 BTU/min (LHV). You have limited the gas flow in the permit to 805,848 cubic feet per day. This corresponds to a methane quality of 46%. However, the BTU quality of the landfill gas can change over time. We would propose a flow rate of 1,063,299 standard cubic foot per day. This corresponds to a flow rate of 44,304 standard cubic feet per hour (35% methane).

District Response:

The District has revised the emission calculations based on a maximum fuel flow rate of 45,000 standard cubic feet per hour. The permit condition will now read:

The landfill gas flow rate into the engine shall not exceed 1,080,000 cubic feet per day (45,000 cubic feet per hour). [District Rule 2201]

Applicant Comment #2:

Condition 12:

Except during start-up periods, the NO_x emissions rate shall not exceed 0.15 g/bhp-hr. [District Rules 2201 and 4702]

We would suggest the wording "Except during startup periods *and as allowed above*,".

District Response:

The District has revised the permit condition language to read as follows:

Except during start-up periods and after conclusion of the 12-month evaluation period, the NO_x emissions rate shall not exceed 0.15 g/bhp-hr. [District Rules 2201 and 4702]

Applicant Comment #3:

Condition 15, 16:

15. If NO_x emissions continue to exceed, or are projected to exceed, 0.15 g/bhp-hr after the 12 month evaluation period, the permittee shall submit a report containing all monitoring and source test data to the District within 90 days of the end of the evaluation period. The report shall also include a detailed analysis of all factors that prohibit compliance with the 0.15 g-NO_x/bhp-hr limit, as well as a detailed explanation of the steps taken to operate and maintain the engine and the emission control system in such a manner as to minimize NO_x emissions. [District Rule 2201]

16. Upon submittal of the report, the District shall re-evaluate BACT requirements for NO_x emissions from this class and category of source and establish an appropriate BACT emissions limit. Within 30 days of receipt of the District's determination, the permittee shall submit an Authority to Construct application to modify this permit to revise the NO_x emissions limit. In no case shall the final BACT NO_x emission limitation be higher than 0.60 g/bhp-hr. [District Rule 2201]

We would ask that the following language be added to the permit:

The engine shall be allowed to continue to operate after the 12 months has ended and before the new ATC has been issued. If the NO_xTech unit cannot obtain consistently and reliably obtain 0.15 g/bhp-hr, the new ATC NO_x emission limit shall be based on the reasonable and reliable emissions from the NO_xTech unit as determined by the 12 months of testing.

District's Response:

These permit conditions have been revised as follows:

If NO_x, CO, VOC, and NH₃ emissions continue to exceed, or are projected to exceed, 0.15 g/bhp-hr, 0.6 g/bhp-hr, 20.0 ppmvd @ 15% O₂, and 10.0 ppmvd @ 15 % O₂, respectively, after the 12-month evaluation period, the permittee shall submit a report containing all monitoring and source test data to the District within 90 days after the end of the evaluation period. The report shall also include a detailed analysis of all factors that prohibit compliance with these emission limits, as well as a detailed explanation of the steps taken to operate and maintain the engine and the emission control system in such a manner as to minimize emissions of these pollutants. [District Rule 2201]

Upon submittal of the report, the District shall re-evaluate BACT requirements for NO_x, CO, and VOC emissions from this class and category of source and establish appropriate BACT emissions limits. Within 30 days of receipt of the District's determination, the permittee shall submit an Authority to Construct application to incorporate these revised emissions limits. In no case shall the final BACT NO_x emission limitation be higher than 0.60 g/bhp-hr. The engine shall be allowed to continue to operate after the 12-month evaluation period has ended and before the new Authority to Construct permit has been issued. [District Rule 2201]

Applicant Comment #4:

We are also concerned about the downtime of the NO_xTech unit. If the NO_xTech can achieve 0.15 g/bhp-hr, but only has 80% online time because of problems with the injection nozzles or other issues, the final permit should have flexibility to require 80% NO_xtech online time. Also long term wear on the engine and NO_xTech unit may impact the future emission performance, so the final permit should also for a margin of emissions above what was tested during the 12 month period:

The new ATC permit limit shall also take into account the downtime of the NOxTech reactor during the 12 month testing period, and the effect of long term engine and NOxTech wear on the emissions. In the final ATC the NOxTech will have a required uptime based on what was achievable during the 12 month test period.

District's Response:

It is common practice for similar projects that combust waste gas to maintain flare in conjunction with the power production unit(s). The flare is utilized to dispose of excess waste gas in case there is malfunction of the power generating device or the control system. The flare is also used when the power generating unit is shutdown for maintenance or repair.

Bena Landfill has an existing operational flare that is currently permitted under S-3232-1-1. which should be used during the operational issues as mentioned above.

Applicant Comment #5:

Conditions 18-21, 24:

18. During start-up periods, the VOC emissions rate shall not exceed 0.88 g/bhp-hr. [District Rules 2201 and 4702]

19. Except during start-up periods, the VOC emissions rate shall not exceed 20 ppmvd @ 15% O₂. [District Rules 2201 and 4702]

20. During start-up periods, the CO emissions rate shall not exceed 2.5 g/bhp-hr. [District Rules 2201 and 4702]

21. Except during start-up periods, the CO emissions rate shall not exceed 0.6 g/bhp-hr. [District Rules 2201 and 4702]

24. Ammonia (NH₃) emissions shall not exceed 10.0 ppmvd @ 15% O₂. [District Rule 2201]

The CO, VOC, and NH₃ emissions in the permit are also dependant on the operation of the NOxTech reactor. Thus these emissions should also have flexibility per conditions 12, 13 ,14 ,15 , 16.

District Response:

All of the permit condition language relating to the emission limits during the 12-month evaluation period have been revised as follows:

The permittee shall be allowed a 12-month period to evaluate the operational variability and optimum control effectiveness of the proposed exhaust emission control system. During the evaluation period, the permittee shall operate and maintain the engine and the emission control system in such a manner as to minimize NO_x, CO, and VOC emissions, and perform the initial source testing and the required portable analyzer monitoring. [District Rule 2201]

During start-up periods and the 12-month evaluation period, the NO_x emissions rate shall not exceed 0.5 g/bhp-hr. [District Rules 2201 and 4702]

During start-up periods and the 12-month evaluation period, the VOC emissions rate shall not exceed 0.88 g/bhp-hr. [District Rules 2201 and 4702]

During start-up periods and the 12-month evaluation period, the CO emissions rate shall not exceed 2.5 g/bhp-hr. [District Rules 2201 and 4702]

Except during the 12-month evaluation period, ammonia (NH₃) emissions shall not exceed 10.0 ppmvd @ 15% O₂. [District Rule 2201]

NO_x (as NO₂), CO, VOC (as methane) and ammonia emissions from the Noxtech Aftertreatment system during the 12-month evaluation period in excess of 0.15 g/bhp-hr, 0.6 g/bhp-hr, 20.0 ppmvd @ 15% O₂, and 10.0 ppmvd @ 15 % O₂, respectively, shall not constitute a violation of this permit provided the permittee can demonstrate to the satisfaction of the Air Pollution Control Officer that emissions of these pollutants are limited to the lowest achievable rates to satisfy BACT/LAER requirements, and the engine and the emission control system have been installed, operated, and maintained properly in accordance with all manufacturers' specifications and instructions. [District Rule 2201]

If NO_x, CO, VOC, and NH₃ emissions continue to exceed, or are projected to exceed, 0.15 g/bhp-hr, 0.6 g/bhp-hr, 20.0 ppmvd @ 15% O₂, and 10.0 ppmvd @ 15 % O₂, respectively, after the 12-month evaluation period, the permittee shall submit a report containing all monitoring and source test data to the District within 90 days after the end of the evaluation period. The report shall also include a detailed analysis of all factors that prohibit compliance with these emission limits, as well as a detailed explanation of the steps taken to operate and maintain the engine and the emission control system in such a manner as to minimize emissions of these pollutants. [District Rule 2201]

Upon submittal of the report, the District shall re-evaluate BACT requirements for NO_x, CO, and VOC emissions from this class and category of source and establish appropriate BACT emissions limits. Within 30 days of receipt of the District's determination, the permittee shall submit an Authority to Construct application to incorporate these revised emissions limits. In no case shall the final BACT NO_x emission limitation be higher than 0.60 g/bhp-hr. The engine shall be allowed to continue to operate after the 12-month evaluation period has ended and before the new Authority to Construct permit has been issued. [District Rule 2201]

Also, in order to ensure that the emissions from the proposed IC engines do not exceed the District's offset thresholds during the 12-month evaluation period, the following permit condition language has been added:

During the 12-month evaluation period, the facility-wide NO_x emissions shall be less than 20,000 pounds. This engine's contribution to the facility's annual NO_x emissions shall be determined each week as follows: NO_x emissions = fuel usage (scf/week) x fuel HHV (use 455 Btu/scf unless better data are available) x weekly portable analyzer reading (ppmv corrected to 15% O₂) x 4.04E-9. [District Rule 2201]

During the 12-month evaluation period, the facility-wide CO emissions shall be less than 200,000 pounds. This engine's contribution to the facility's annual CO emissions shall be determined each week as follows: CO emissions = fuel usage (scf/week) x fuel HHV (use 455 Btu/scf unless better data are available) x weekly portable analyzer reading (ppmv corrected to 15% O₂) x 2.46E-9. [District Rule 2201]

During the 12-month evaluation period, the facility-wide VOC emissions shall be less than 20,000 pounds. This engine's contribution to the facility's annual VOC emissions shall be determined each week as follows: VOC emissions = [operating time while exhaust control system is online (hr/week) x controlled hourly emission rate determined from source test data (lb/hr)] + [operating time while exhaust control system is offline (hr/week) x uncontrolled hourly emission rate determined from source test data (lb/hr)]. [District Rule 2201]

Applicant Comment #6:

Condition 22:

22. The organic silicon content of the landfill gas, reported as silicon, shall not exceed 16 ppmvd. [District Rule 2201]

The organic silicon content of the landfill gas will vary over time. We don't see any reason to have this in the permit, so we would ask that it be removed.

District Response:

This condition language has been removed and replaced a gram/bhp-hr emission limit that is based on a review of source test results for several landfill gas-fired IC engines and conservative margin of compliance. The following condition language has been added:

The PM₁₀ emissions rate shall not exceed 0.1 g/bhp-hr. [District Rule 2201]

Applicant Comment #7:

Condition 23:

23. The H₂S content of the landfill gas after treatment by the Sulfatreat dry scrubber shall not exceed 6 ppmvd. [District Rule 2201]

Sulfatreat is less efficient at H₂S removal down to 6 ppmv. We would ask that the limit be 10 ppmv.

District Response:

The District has revised the emission calculations based on a maximum landfill gas H₂S content of 10 ppmv. The permit condition will now read:

The H₂S content of the landfill gas after treatment by the Sulfatreat dry scrubber shall not exceed 10.0 ppmvd. [District Rule 2201]

Applicant Comment #8:

Condition 25:

25. The start-up periods shall not exceed a combined total of 3.5 hours in any one day. [District Rule 2201]

We would ask that there be an exemption to the startup period for the 12 months of testing.

District Response:

This permit condition language has been revised as follows:

Except during the 12-month evaluation period, the start-up periods shall not exceed a combined total of 3.5 hours in any one day. [District Rule 2201]

Applicant Comment #9:

Condition 27:

27. The temperature of the Noxtech, Inc Aftertreatment reactor shall be maintained within the range for the highest efficiency for NOx reduction as specified by Noxtech, Inc. [District Rules 2201 and 4702]

Replace “maximum efficiency” with “manufacturers suggested range.”

District Response:

This permit condition language has been revised as follows:

The temperature of the Noxtech, Inc Aftertreatment reactor shall be maintained within the manufacturer’s suggested range. [District Rules 2201 and 4702]

Applicant Comment #10:

Condition 35:

35. Compliance demonstration (source testing) shall be District witnessed, or authorized and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. Source testing may occur more frequently than once every 12 months at the discretion of the equipment owner or operator, if such frequency is necessary to schedule source testing during normal operating periods. Any source testing conducted more frequently than required, shall reset the 12 month testing clock. [District Rule 1081]

In the first sentence replace “collected by” with “shipped under custody transfer and tested by”.

District Response:

This permit condition language has been revised as follows:

Compliance demonstration (source testing) shall be District witnessed, or authorized and samples shall be shipped under custody transfer and tested by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. Source testing may occur more frequently than once every 12 months at the discretion of the equipment owner or operator, if such frequency is necessary to schedule source testing during normal operating periods. Any source testing conducted more frequently than required, shall reset the 12-month testing clock. [District Rule 1081]

Applicant Comment #11:

Conditions 38-39:

38. *Testing to demonstrate compliance with the fuel H₂S content limit of this permit shall be conducted at least monthly, and within 24 hours prior to replacement of spent Sulfatreat media. After all fuel H₂S content tests show compliance for six consecutive months, the fuel H₂S content testing frequency may be reduced to once every calendar quarter and within 24 hours prior to replacement of spent Sulfatreat media. If any fuel H₂S content test shows a violation of the H₂S content limit of this permit during a quarterly testing period, then testing of the fuel H₂S content shall immediately return to testing at least monthly and within 24 hours prior to replacement of spent Sulfatreat media. Once all fuel H₂S content tests again show compliance with the H₂S limits of this permit for six consecutive months, testing may again return to once every calendar quarter and within 24 hours prior to replacement of spent Sulfatreat media. [District Rule 2201]*

39. *H₂S content of the fuel shall be measured using EPA Method 15, ASTM Method D1072, D3246, D4084, D5504, with a District approved portable analyzer, or an alternative method approved by the District.. [District Rule 2201]*

We are proposing a Drager tubes for H₂S analysis. Is that acceptable?

District Response:

The permit allows alternative methods of measuring the H₂S content of the landfill gas. Drager tubes are an acceptable alternative.

Applicant Comment #12:

Condition 41:

41. *If either the NO_x or CO concentrations corrected to 15% O₂, as measured by the portable analyzer, or the NH₃ concentrations corrected to 15% O₂, as measured by District approved gas-detection tubes, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2201 and 4702]*

There should be no emission violations for NO_x, CO, VOC, or NH₃ during the 12 month test period, or the time interval following the 12 month until a final permit is issued because these emissions are all based on the NOxTech reactor performance.

District Response:

This permit condition language has been revised as follows:

Except during the 12-month evaluation period, if either the NO_x or CO concentrations corrected to 15% O₂, as measured by the portable analyzer, or the NH₃ concentrations corrected to 15% O₂, as measured by District approved gas-detection tubes, exceed the allowable emissions levels, the permittee shall return the emissions to the acceptable level as soon as possible, but no longer than 8 hours of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions levels after 8 hours of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee shall then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2201 and 4702]

Also, the following revised permit condition language has been added:

NO_x (as NO₂), CO, VOC (as methane) and ammonia emissions from the Noxtech Aftertreatment system during the evaluation period in excess of 0.15 g/bhp-hr, 0.6 g/bhp-hr, 20.0 ppmvd @ 15% O₂, and 10.0 ppmvd @ 15 % O₂, respectively, shall not constitute a violation of this permit provided that the permittee can demonstrate to the satisfaction of the Air Pollution Control Officer that emissions of these pollutants are limited to the lowest achievable rates to satisfy BACT/LAER requirements, and the engine and the emission control system have been installed, operated, and maintained properly in accordance with all manufacturers' specifications and instructions. [District Rule 2201]

Appendix E

Emission Calculations
for the
Noxtech, Inc. Aftertreatment Start-Up Burner

Emission Calculations for the Noxtech, Inc. Aftertreatment Start-Up Burner

The following calculations are used to show that the 1 MMBtu/hr start-up burner for the Noxtech, Inc. Aftertreatment system is a low emitting unit as defined in District Rule 2020, Exemptions. Section 3.7 defines a Low Emitting Unit as an emissions unit with an uncontrolled emissions rate of each air contaminant less than or equal to two pounds per day, or less than 75 pounds per year if greater than two pounds per day.

A. Assumptions:

- The maximum operating time will not exceed 3.5 hour per day
- The F-factor, adjusted to 60 °F is 9463 DSCF/MMBtu (based on source test performed at this site 3-18-09)
- The fuel heating value is 455 Btu/dscf (as proposed by the applicant)
- All silicon from the from the siloxanes in the fuel will be converted to silicon dioxide (SiO₂)
- All particulate matter emissions will be from SiO₂
- All particulate matter emitted is PM₁₀
- All sulfur in the sulfur containing compounds of the landfill gas are converted to sulfur dioxide (SO₂)

B. Emission Factors:

Noxtech, Inc. Aftertreatment System Post-Project Emission Factors (EF2)	
Pollutant	EF2
NO _x	15 ppmv @ 15% O ₂
CO	70 ppmv @ 15% O ₂
VOC	5 ppmv @ 15% O ₂

The particulate matter and SO_x emissions are solely dependent on the landfill gas concentrations of siloxanes and sulfur containing compounds⁽⁷⁾ respectively. The applicant states a reasonable fuel organic silicon content would be 16 ppmv. The applicant is proposing a maximum fuel H₂S content of 10 ppmv.

C. Equations:

1. For NO_x, CO and VOC Emissions:

$$PE = (\text{Heat Input}) \times (\text{Emission Concentration}) \times (\text{Molecular Weight}) \times (\text{F Factor}) \\ \times (1 \text{ lb-mol}/379.5 \text{ ft}^3) \times [20.95/(20.95 - \text{O}_2\%)] \times (\text{daily hours of operation})$$

⁷ The sulfur containing compounds consists of mostly of H₂S and a small fraction of mercaptans.

Where:

F Factor:	9,463 scf/MMBtu
Molecular Weight for NO _x :	46 lb/lb-mole
Molecular Weight for CO:	28 lb/lb-mole
Molecular Weight for VOC:	16 lb/lb-mole

2. For PM₁₀ Emissions:

Since PM₁₀ emissions are solely dependent on the fuel organic silicon content, the start-up and steady state emission rates will be the same and the total PM₁₀ emissions can be determined with a single calculation as follows:

$$PE = (\text{Si concentration in fuel}) \times (\text{fuel flow rate}) \times (\text{lb-mol}/379.5 \text{ ft}^3) \\ \times (28 \text{ lb-Si/lb-mol}) \times (60 \text{ lb-SiO}_2/28 \text{ lb-Si}) \times (24 \text{ hr/day})$$

Where:

$$\text{fuel flow rate} = (\text{heat input}) \div (\text{fuel heating value})$$

3. For SO_x Emissions:

Since SO_x emissions are solely dependent on the fuel organic sulfur content, the start-up and steady state emission rates will be the same and the total SO_x emissions can be determined with a single calculation as follows:

$$PE = (\text{H}_2\text{S concentration in fuel}) \times (\text{fuel flow rate}) \times (\text{lb-mol}/379.5 \text{ ft}^3) \\ \times (34 \text{ lb-H}_2\text{S/lb-mol}) \times (32 \text{ lb-S}/34 \text{ lb-H}_2\text{S}) \times (64 \text{ lb SO}_2/32 \text{ lb S}) \times (24 \text{ hr/day})$$

Where:

$$\text{fuel flow rate} = (\text{heat input}) \div (\text{fuel heating value})$$

D. Calculations:

1. For NO_x Emissions:

$$PE = (1 \text{ MMBtu/hr}) \times (15 \text{ ppmv NO}_x) \times (46 \text{ lb/lb-mol}) \times (9,463 \text{ scf/MMBtu}) \\ \times (1 \text{ lb-mol}/379.5 \text{ ft}^3) \times [20.95/(20.95 - 15.0)] \times (3.5 \text{ hours/day})$$

$$PE = 0.2 \text{ lb-NO}_x/\text{day}$$

2. For CO Emissions:

$$\text{PE} = (1 \text{ MMBtu/hr}) \times (70 \text{ ppmv CO}) \times (28 \text{ lb/lb-mol}) \times (9,463 \text{ scf/MMBtu}) \\ \times (1 \text{ lb-mol}/379.5 \text{ ft}^3) \times [20.95/(20.95 - 15.0)] \times (3.5 \text{ hours/day})$$

PE = 0.6 lb-CO/day

3. For VOC Emissions:

$$\text{PE} = (1 \text{ MMBtu/hr}) \times (5 \text{ ppmv VOC}) \times (16 \text{ lb/lb-mol}) \times (9,463 \text{ scf/MMBtu}) \\ \times (1 \text{ lb-mol}/379.5 \text{ ft}^3) \times [20.95/(20.95 - 15.0)] \times (3 \text{ hours/day})$$

PE = 0.02 lb-VOC/day

4. For PM₁₀ Emissions:

$$\text{PE2} = (16 \text{ Si}/10^6) \times [(1 \times 10^6 \text{ Btu/hr})/(455 \text{ Btu/scf})] \times (\text{lb-mole}/379.5 \text{ ft}^3) \\ \times (60 \text{ lb-SiO}_2/28 \text{ lb-Si}) \times (3.5 \text{ hr/day}) \times (28 \text{ lb-Si/lb-mol})$$

PE = 0.02 lb-PM₁₀/day

5. For SO_x Emissions:

$$\text{PE2} = (10 \text{ H}_2\text{S}/10^6) \times [(1 \times 10^6 \text{ Btu/hr})/(455 \text{ Btu/scf})] \times (\text{lb-mole}/379.5 \text{ ft}^3) \times (34 \text{ lb-H}_2\text{S/lb-mol}) \\ \times (32 \text{ lb-S}/34 \text{ lb-H}_2\text{S}) \times (64 \text{ lb-SO}_2/32 \text{ lb-S}) \times (3.5 \text{ hr/day})$$

PE2 = 0.01 lb-SO_x/day

E. Conclusion:

As shown in the calculations section above, the uncontrolled emissions rate for each air contaminant does not exceed two pounds per day. Therefore, the Noxtech, Inc. Aftertreatment system's start-up burners are Low Emitting Units

Appendix F

**Email from Dan Waino Regarding Stationary Source
Determination**

John Fowler

From: Daniel Waineo [dwaineo@gc-environmental.com]
Sent: Thursday, August 27, 2009 9:26 AM
To: John Fowler
Subject: ::Re: Stationary Source Designation

John,

The owner of the IC engines is a separate entity (Bena Power Producers, LLC) (BPP) from the landfill owner (Kern County Waste Management Department) (KCWMD), and is thus a separate source. Kern County Waste Management owns no part of Bena Power Producers, LLC. BPP has a Contract to buy gas from KCWMD and will have a Contract with a utility to sell electricity. BPP has leased a parcel of land from KCWMD for the engine equipment.

The BPP's facility operator will do so under contract with BPP. The facility operator will be managed by BPP's operating manager. BPP's operator will run the BPP power plant and all peripheral equipment and fulfill the obligations of the Gas Purchase Contract. One of these obligations is to operate the Bena Landfill gas collection system and flare station that are owned by KCWMD. KCWMD will remain the owner and permit holder for the gas collection system and flare. Therefore they are responsible for emissions and permits for the flare and gas collection system.

Best regards,
Dan Waineo

On Tue, Aug 25, 2009 at 10:08 AM, John Fowler <John.Fowler@valleyair.org> wrote:
Dan,

I have been asked to acquire written documentation from you for your project to show that the proposed IC engines are for a separate Stationary Source from the landfill (including the landfill gas collection system). The following is the definition of a Stationary Source from District Rule 2201:

3.37 Stationary Source: any building, structure, facility, or installation which emits or may emit any affected pollutant directly or as a fugitive emission. Building, structure, facility or installation includes all pollutant emitting activities including emissions units which:

3.37.1 Are under the same or common ownership or operation, or which are owned or operated by entities which are under common control; and

3.37.2 Belong to the same industrial grouping either by virtue of falling within the same two-digit standard industrial classification code or by virtue of being part of a common industrial process, manufacturing process, or connected process involving a common raw material; and

3.37.3 Are located on one or more contiguous or adjacent properties; or

3.37.4 Are located on one or more properties wholly within either the Western Kern County Oil Fields or the Central Kern County Oil Fields or Fresno County Oil Fields and are used for the production of light oil, heavy oil or gas. Notwithstanding the provisions of this definition, light oil

Based on the information on file and the definition above, the proposed IC engines would not be the same Stationary Source as the landfill only if we can show that they will not be operated under common ownership or operation, or owned or operated by entities which are under common control as defined in Section 3.37.1. In order to show that this is true, I need a statement from you indicating how you are under separate ownership or operation, and are not owned or operated by entities which are under common control. This statement will need to be included as an attachment in our engineering evaluation so that we can show that we properly addressed this issue. Please also identify any financial agreements with Bakersfield Metropolitan Landfill on how you will acquire the landfill gas from them. Please contact me if you have any questions.

*John Fowler, AQE
San Joaquin Valley Air Pollution Control District
Telephone: (209) 557-6455
Fax: (209) 557-6475
email: John.Fowler@ValleyAir.org*



Make one change for clean air!

--
Daniel D. Waineo, P.E.
GC Environmental
107 SE Washington Street #243
Portland, OR 97214
503.234.7984 (voice)
503.231.6485 (fax)
714.745.3402 (cell)