San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

MAR 07 2011

Gerardo C. Rios, Chief
Permits Office
Air Division
U.S. EPA - Region IX
75 Hawthorne St.
San Francisco, CA 94105

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # C-904
Project # 1102936

Dear Mr. Rios:

Enclosed for your review is the District's engineering evaluation of an application for Authority to Construct (ATC) for Pacific Gas and Electric Company located at 34453 Plymouth Avenue in Avenal, CA, which has been issued a Title V permit. Pacific Gas and Electric Company is requesting that a Certificate of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. This ATC authorizes the modification of one 791 bhp natural gas fired emergency standby internal combustion (IC) engine to remove its emergency standby status, allow operation up to 200 hours per year during any situation, and replace the non-selective catalytic reduction (NSCR) system with a new NSCR system.

Enclosed is the engineering evaluation of this application with a copy of the current Title V permit and proposed ATC # C-904-31-4 with Certificate of Conformity. After demonstrating compliance with the ATC, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

Please submit your written comments on this project within the 45-day comment period that begins on the date you receive this letter. If you have any questions, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

Enclosures
c: Dustin Brown, Permit Services

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

MAR 0 7 2011

Mike Tollstrup, Chief
Project Assessment Branch
Air Resources Board
P O Box 2815
Sacramento, CA 95812-2815

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # C-904
Project # 1102936

Dear Mr. Tollstrup:

Enclosed for your review is the District's analysis of an application for Authority to Construct (ATC) for the facility identified above. The applicant is requesting that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. This ATC authorizes the modification of one 791 bhp natural gas fired emergency standby internal combustion (IC) engine to remove its emergency standby status, allow operation up to 200 hours per year during any situation, and replace the non-selective catalytic reduction (NSCR) system with a new NSCR system.

Enclosed is the engineering evaluation of this application with a copy of the current Title V permit and proposed ATC # C-904-31-4 with Certificate of Conformity. After demonstrating compliance with the ATC, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

Please submit your written comments on this project within the 30-day comment period that begins on the date you receive this letter. If you have any questions, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

Enclosures
c: Dustin Brown, Permit Services

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

MAR 07 2011

Mr. Robert Howard
Pacific Gas and Electric Company
P O Box 7640
San Francisco, CA 94120

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # C-904
Project # 1102936

Dear Mr. Howard:

Enclosed for your review is the District's analysis of an application for Authority to Construct (ATC) for the facility identified above. The applicant is requesting that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. This ATC authorizes the modification of one 791 bhp natural gas fired emergency standby internal combustion (IC) engine to remove its emergency standby status, allow operation up to 200 hours per year during any situation, and replace the non-selective catalytic reduction (NSCR) system with a new NSCR system.

After addressing any EPA comments made during the 45-day comment period, the ATC will be issued to the facility with a Certificate of Conformity. Prior to operating with modifications authorized by the ATC, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

If you have any questions, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

Enclosures
c: Dustin Brown, Permit Services
Carol Burke, PG&E Environmental Services

Fresno Bee
and
Hanford Sentinel

NOTICE OF PRELIMINARY DECISION FOR THE ISSUANCE OF AUTHORITY TO CONSTRUCT AND PROPOSED SIGNIFICANT MODIFICATION OF FEDERALLY MANDATED OPERATING PERMIT

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct (ATC) to Pacific Gas and Electric Company for its natural gas compressor station located at 34453 Plymouth Avenue in Avenal, California. This ATC authorizes the modification of one 791 bhp natural gas fired emergency standby internal combustion (IC) engine to remove its emergency standby status, allow operation up to 200 hours per year during any situation, and replace the non-selective catalytic reduction (NSCR) system with a new NSCR system.

The District's analysis of the legal and factual basis for this proposed action, project #1102936, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. This will be the public's only opportunity to comment on the specific conditions of the modification. If requested by the public, the District will hold a public hearing regarding issuance of this modification. For additional information, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900. Written comments on the proposed initial permit must be submitted within 30 days of the publication date of this notice to DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 1990 E. GETTYSBURG AVE, FRESNO, CA 93726-0244.

San Joaquin Valley Air Pollution Control District
Authority to Construct
Application Review

Modification of 791 BHP Natural Gas Fired IC Engine

Facility Name:	Pacific Gas and Electric Company – Kettleman Compressor Station	Date:	March 4, 2011
Mailing Address:	P O Box 7640 San Francisco, CA 94120	Engineer:	Dustin Brown
		Lead Engineer:	Joven Refuerzo
Contact Person:	Robert Howard		
Telephone:	(415) 973-4603		
Fax:	(415) 973-1300		
Email:	RTHc@pge.com		
Application #'s:	C-904-31-4		
Project #:	1102936		
Deemed Complete:	November 24, 2010		

I. PROPOSAL:

Pacific Gas and Electric Company – Kettleman Compressor Station, herein referred to as PG&E, is requesting an Authority to Construct (ATC) permit for the modification of one 791 BHP natural gas fired emergency standby internal combustion (IC) engine to remove the emergency standby status of the IC engine and allow it to operate for up to 200 hours per year. PG&E is also proposing to replace the existing non-selective catalytic reductino (NSCR) system with a new, more efficient NSCR system.

PG&E received their Title V Permit for this stationary source on December 12, 1997. This modification can be classifed as a Title V significant modification pursuant to Rule 2520, Sections 3.20 and 3.29, and can be processed with a Certificate of Comformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. PG&E must apply to administartively amend their Title V Operating Permit to include the requirements of the ATC issued with this project.

II. APPLICABLE RULES:

Rule 2010	Permits Required (12/17/92)
Rule 2201	New and Modified Stationary Source Review Rule (12/18/08)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99) 40 CFR 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/18/00) 40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Emissions (RICE)

Rule 4101 Visible Emissions (2/17/05)
Rule 4102 Nuisance (12/17/92)
Rule 4201 Particulate Matter Concentration (12/17/92)
Rule 4702 Internal Combustion Engines – Phase 2 (1/18/07)
Rule 4801 Sulfur Compounds (12/17/92)
California Environmental Quality Act (CEQA)
California Health & Safety Code (CH&S), Sections 41700 (Health Risk Analysis), 42301.6 (School Notice), and 44300 (Air Toxic "Hot Spots")

III. PROJECT LOCATION:

The facility is located at 34453 Plymouth Avenue in Avenal, CA.

The District has verified that the facility is not located within 1,000 feet of the outer boundary of any K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project and no further discussion is required.

IV. PROCESS DESCRIPTION:

This IC engine powers an electrical generator. The engine is used to provide electrical power to the facility when there is 100% power outage or when the facility does not have a 100% power outage, but when they are not receiving a constant supply of power from their utility supplier. These situations can occur when there is a lot of wind in the area that is blowing the power lines around. The power connection is not entirely cut off, but they no longer are receiving a pure power supply which can cause damage to some of the critical equipment at this facility. The engine will be operated for up to 200 hours per year.

V. EQUIPMENT LISTING:

Pre-Project Equipment Description:

C-904-31-2: 791 BHP CATERPILLAR MODEL G3512TA RICH-BURN NATURAL GAS-FIRED EMERGENCY STANDBY IC ENGINE WITH NON-SELECTIVE CATALYTIC REDUCTION (NSCR) POWERING AN ELECTRICAL GENERATOR

ATC Equipment Description:

C-904-31-4: MODIFICATION OF 791 BHP CATERPILLAR MODEL G3512TA RICH-BURN NATURAL GAS-FIRED EMERGENCY STANDBY IC ENGINE WITH NON-SELECTIVE CATALYTIC REDUCTION (NSCR) POWERING AN ELECTRICAL GENERATOR: REMOVE EMERGENCY STANDBY STATUS, ALLOW OPERATION UP TO 200 HOURS PER YEAR, AND REPLACE NSCR SYSTEM WITH A NEW COASTAL IGNITION AND CONTROLS MODEL 2-DC74.5-10 NSCR SYSTEM

Post Project Equipment Description:

C-904-31-4: 791 BHP CATERPILLAR MODEL G3512TA RICH-BURN NATURAL GAS-FIRED LOW USE INTERNAL COMBUSTION (IC) ENGINE SERVCED BY A COASTAL IGNITION AND CONTROLS MODEL 2-DC74.5-10 NON-SELECTIVE CATALYTIC REDUCTION (NSCR) SYSTEM POWERING AN ELECTRICAL GENERATOR

VI. EMISSION CONTROL TECHNOLOGY EVALUATION:

The engine is equipped with the following:

[x] Positive Crankcase Ventilation (PCV) or 90% efficient control device
[x] Non-Selective Catalytic Reduction
[x] Air/Fuel Ratio or an O_2 Controller
[ ] Lean Burn Technology

The PCV system reduces crankcase VOC and PM_{10} emissions by at least 90% over an uncontrolled crankcase vent.

Non-Selective Catalytic Reduction (NSCR) decreases NO_X, CO and VOC emissions by using a catalyst to promote the chemical reduction of NO_X into N_2 and O_2, and the chemical oxidation of VOC and CO into H_2O and CO_2.

The fuel/air ratio controller, (oxygen controller) is used in conjunction with the NSCR to maintain the amount of oxygen in the exhaust stream to optimize catalyst function.

VII. GENERAL CALCULATIONS:

A. Assumptions

Pre-project operating schedule:	24 hours/day and 100 hours/year
Post Project Operating Schedule:	24 hours/day and 200 hours/year
EPA F-factor (adjusted to 60 °F):	8,578 dscf/MMBtu (40 CFR 60 Appendix B)
Fuel heating value:	1,000 Btu/dscf (District Policy APR-1720, dated 12/20/01)
BHP to Btu/hr conversion:	2,542.5 Btu/bhp-hr
Sulfur concentration:	2.85 lb-S/MMscf (District Policy APR-1720, dated 12/20/01)
Thermal efficiency of engine:	commonly ≈ 35%
Catalyst control efficiencies:	90% for NO_X, 80% for CO, and 50% for VOC (*Update On Emissions - Form 960*, Second Edition, Waukesha Engine Division, Dresser Industries, October, 1991)

B. Emission Factors

Pre-Project Emission Factors:

Pollutant	Emission Factor (g/bhp-hr)	Source(s)
NO_x	0.33	Current Permit
CO	0.40	Current Permit
VOC	0.12	Current Permit
PM_{10}	0.02	Applicant Data, based on source tests of similar IC engines[1]
SO_X	0.0094	Mass Balance Equation Below

SO_X is calculated as follows:

$$0.00285 \quad \frac{lb - SO_x}{MMBtu} \times \frac{1\,MMBtu}{1{,}000{,}000\,Btu} \times \frac{2{,}542.5\,Btu}{bhp - hr} \times \frac{1\,bhp\,input}{0.35\,bhp\,out} \times \frac{453.6\,g}{lb} = \quad 0.0094 \quad \frac{g - SO_x}{bhp - hr}$$

Post Project Emission Factors:

Information regarding the post project NO_X, CO, VOC and PM_{10} emission factors can be found in Attachment C.

Pollutant	Emission Factor (ppmvd @ 15% O_2)	Emission Factor (g/bhp-hr)	Source(s)
NO_x	5	0.07	Catalyst Manufacturer
CO	56	0.60	Catalyst Manufacturer
VOC	25	0.15	Catalyst Manufacturer
PM_{10}	N/A	0.02	Applicant Data, based on source tests of similar IC engines[1]
SO_X	N/A	0.0094	PUC regulated natural gas limit, no proposed change

[1] PG&E provided source test data from four similar natural gas fired IC engines located at their Hinkley Compressor Station that were performed on October 7, 2010 to show what PM_{10} emissions can be expected from this type of engine. In accordance with District Policy APR 1110, since this new source test data represents better emission data than what was used in the previous project (AP-42 (7/00) Table 3.2-3), the pre project emission factor will be revised in accordance with the source test results. The highest value during any of the runs performed during the source test was 0.0112 grams/bhp-hr. In order to allow for a factor of safety and to account for higher emissions that may result from the limited use of this IC engine, PG&E has requested to use an emission factor of 0.020 grams/bhp-hr.

C. Calculations

1. Pre-Project Potential to Emit (PE1)

The daily and annual PE1 values are calculated as follows:

PE = EF (g/hp-hr) x HP Rating (hp) x lb/453.6 g x hours of operation (hours/day or year)

Daily Pre-Project Emissions					
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hours/day)	Conversion (g/lb)	PE2 Total (lb/day)
NO_X	0.33	791	24	453.6	13.8
CO	0.40	791	24	453.6	16.7
VOC	0.12	791	24	453.6	5.0
PM_{10}	0.020	791	24	453.6	0.8
SO_X	0.0094	791	24	453.6	0.4

Annual Pre-Project Emissions					
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Annual Hours of Operation (hours/year)	Conversion (g/lb)	PE2 Total (lb/year)
NO_X	0.33	791	100	453.6	58
CO	0.40	791	100	453.6	70
VOC	0.12	791	100	453.6	21
PM_{10}	0.020	791	100	453.6	3
SO_X	0.0094	791	100	453.6	2

2. Post Project Potential to Emit (PE2)

The daily and annual PE2 values are calculated as follows:

PE = EF (g/hp-hr) x HP Rating (hp) x lb/453.6 g x hours of operation (hours/day or year)

Daily Post Project Emissions					
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hours/day)	Conversion (g/lb)	PE2 Total (lb/day)
NO_X	0.07	791	24	453.6	2.9
CO	0.60	791	24	453.6	25.1
VOC	0.15	791	24	453.6	6.3
PM_{10}	0.020	791	24	453.6	0.8
SO_X	0.0094	791	24	453.6	0.4

Annual Post Project Emissions					
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Annual Hours of Operation (hours/year)	Conversion (g/lb)	PE2 Total (lb/year)
NO_X	0.07	791	200	453.6	24
CO	0.60	791	200	453.6	209
VOC	0.15	791	200	453.6	52
PM_{10}	0.020	791	200	453.6	7
SO_X	0.0094	791	200	453.6	3

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

Pursuant to Section 4.9 of District Rule 2201, the Pre-project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

The SSPE1 values for units C-904-27, '-28 and '-29 listed in the following table were taken from the application review performed under the most recent project for this facility, 1084328. The SSPE values for unit C-904-31 were taken from the calculations above. This stationary source does not have any banked ERC's.

Pre-project Stationary Source Potential to Emit [SSPE1]					
Permit Unit	NO_X (lb/year)	CO (lb/year)	VOC (lb/year)	PM_{10} (lb/year)	SO_X (lb/year)
C-904-27	46,907	57,093	16,298	2,648	1,426
C-904-28	46,907	57,093	16,298	2,648	1,426
C-904-29	46,907	57,093	16,298	2,648	1,426
C-904-31	58	70	21	3	2
Pre-project SSPE (SSPE1)	140,779	171,349	48,915	7,947	4,280

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

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Post Project Stationary Source Potential to Emit [SSPE2]					
Permit Unit	NO_X (lb/year)	CO (lb/year)	VOC (lb/year)	PM_{10} (lb/year)	SO_X (lb/year)
C-904-27	46,907	57,093	16,298	2,648	1,426
C-904-28	46,907	57,093	16,298	2,648	1,426
C-904-29	46,907	57,093	16,298	2,648	1,426
C-904-31	24	209	52	7	3
Post-project SSPE (SSPE2)	140,745	171,488	48,946	7,951	4,281

5. Major Source Determination

Pursuant to Section 3.24 of District Rule 2201, a major source is a stationary source with post-project emissions or a Post-project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values.

Major Source Determination					
	NO_X (lb/year)	CO (lb/year)	VOC (lb/year)	PM_{10} (lb/year)	SO_X (lb/year)
Post-project SSPE (SSPE2)	140,745	171,488	48,946	7,951	4,281
Major Source Threshold	20,000	200,000	20,000	140,000	140,000
Major Source?	Yes	No	Yes	No	No

6. Annual Baseline Emissions (BE)

Per District Rule 2201, Section 3.7, the baseline emissions, for a given pollutant, shall be equal to the pre-project potential to emit for:

- Any emission unit located at a non-major source,
- Any highly utilized emission unit, located at a major source,
- Any fully-offset emission unit, located at a major source, or
- Any clean emission unit located at a major source

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.22 of District Rule 2201

As shown above, this facility is not a major source for CO, PM_{10} and SO_X emissions. Therefore, the baseline CO, PM_{10} and SO_X emissions can be set equal to the units pre-project potential to emit.

Pollutant	Baseline Emissions (lb/year)
CO	70
PM_{10}	3
SO_X	2

As shown above, this facility remains a major source for NO_X and VOC emissions after this project. Therefore, the baseline NO_X and VOC emissions will be set equal to the historical actual emissions of this IC engine.

PG&E provided the District with operating hour records for this IC engine for the past five years (2006 through 2010). The IC engine was currently allowed to operate during emergency situations and up to 100 hours per year for maintenance and testing purposes. However, the records that PG&E provided do not indicate or break down what the engine was being used for during the hours it was operated.

Pursuant to District Rule 2201, Section 3.22.4, historical actual emissions must be the actual emissions of a unit that occurred during the baseline period, after discounting for, any actual emissions in excess of those required or encumbered by an laws, rules, regulations, orders or permits. Since PG&E was not able to provide records that showed what specific reason the IC engine was operated for, it is not known if the IC engine was operating in compliance with the conditions of its current permit to operate. In addition, PG&E submitted this ATC application because the District Compliance Department found them in violation of their PTO at various times because they were operating the IC engine during periods that did not meet the true definition of an emergency situation. Therefore, it cannot be shown that actual emissions of the IC engine were emissions that occurred while operating in compliance with their PTO and as a worst case conservative estimate, the baseline NO_X and VOC emissions will be set equal to zero for the purposes of this project.

Pollutant	Baseline Emissions (lb/year)
NO_X	0
VOC	0

7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 as "*any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act.*"

As discussed in Section VII.C.5 above, the facility is an existing Major Source for NO_X and VOC emissions; however, the project by itself would need to be a significant increase in order to trigger a Major Modification. The emissions unit(s) within this project do(es) not have a total potential to emit which is greater than Major Modification thresholds (see table below). Therefore, the project cannot be a significant increase and the project does not constitute a Major Modification.

Major Modification Thresholds			
Pollutant	Project PE (lb/year)	Threshold (lb/year)	Major Modification?
NO_X	24	50,000	No
VOC	52	50,000	No

8. Federal Major Modification

A Federal Major Modification is triggered if the project meets the definition of Major Modification listed in the current version of 40 CFR 51.165. In the latest version of 40 CFR 51.165, Major Modification (current) is defined as *any physical change in or change in the method of operation of a major stationary source that would result in:*

(1) A significant increase in emissions of a regulated NSR pollutant; and
(2) A significant net emissions increase of that pollutant from the major stationary source.

Pursuant to paragraph (a)(2)(ii)(C) of 40 CFR 51.165, a significant modification of a regulated NSR pollutant is projected to occur if the sum of the difference between the projected actual emissions and the baseline actual emissions for each existing emissions unit equals or exceeds the significance thresholds.

NEI = Projected Actual Emissions – Baseline Actual Emissions

Pursuant to the CFR projected actual emissions may be set equal to the emission unit's potential to emit. For the purposes of calculating the worst case Net Emissions Increase for this project, PG&E has requested that the projected actual NO_X and VOC emissions from the IC engine within this project be set equal to the engine's post-project potential to emit.

Baseline actual emissions are defined in the current version of 40 CFR 51.165 as the rate of emissions of a regulated NSR Pollutant as determined in paragraphs (a)(1)(xxxv)(A)(D) of 40 CFR 51.165.

For any existing emissions unit that is not an electric utility steam generating unit, baseline actual emissions means the average rate at which the emissions unit actually emitted the pollutant during any consecutive 24-month period **selected by the owner or operator** within the 10-year period immediately preceding either the date the owner or operator begins actual construction or the date a complete permit application is received by the reviewing authority, whichever is earlier.

As discussed above, for the purposes of this project, the baseline NO_X and CO emissions for District Rule 2201 purposes from this IC engine were determined to be zero. As a worst case, the baseline actual NO_X and VOC emissions for the federal major modification calculations will also be set equal to zero.

PG&E has also indicated that they do not see any reason why they would not actually operate the maximum number of hours the permit will allow. Therefore, the projected actual emissions for this facility will be set equal to each units post project potential to emit.

Net Emissions Increase					
Pollutant	Projected Actual Emissions (lb/year)	Baseline Actual Emissions (lb/year)	Net Emissions Increase (lb/year)	Federal Major Modification Threshold (lb/year)	Federal Major Modification?
NO_X	24	0	24	0	**Yes**
VOC	52	0	52	0	**Yes**

As shown above, this project triggers a Federal Major Modification for NO_X and VOC emissions.

VIII. COMPLIANCE:

Rule 2010 Permits Required

This Rule requires any person building, altering, or replacing any operation, article, machine, equipment, or other contrivance, the use of which may cause the issuance of air contaminants, to first obtain authorization from the District in the form of an ATC. By the submission of an ATC application, PG&E is complying with the requirements of this Rule.

Rule 2201 New and Modified Stationary Source Review Rule

A. BACT:

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following*:

a. Any new emissions unit with a potential to emit exceeding two pounds per day,
b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
d. Any new or modified emissions unit, in a stationary source project, which results in a Major Modification.

*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

a. New emissions units – PE > 2 lb/day

PG&E is proposing to modify an existing emergency standby IC engine by removing its emergency standby staus and allowing it to operate anytime, for up to 200 hours per year. Since PG&E is proposing to change the class and category of how the engine operates, the District will treat the IC engine as a new unit. The post project PE values from the IC engine are greater than 2.0 lb/day for NO_X, CO and VOC emissions. Therefore, BACT is triggered for NO_X and VOC emissions. However, since the SSPE2 for CO emissions is less than 200,000 lbs/year, as demonstrated in Section VII.C.5 of this document, BACT will not be required for CO emissions.

b. Relocation of emissions units – PE > 2 lb/day

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another; therefore BACT is not triggered.

c. Modification of emissions units – AIPE > 2 lb/day

As discussed in Section I above, there are no modified emissions units for BACT purpuses associated with this project; therefore BACT is not triggered.

d. SB 288/Federal Major Modification

As discussed in Section VII.C.7 above, this project does constitute Federal Major Modification for NO_X and VOC emissions; therefore BACT is triggered for NO_X and VOC for all emissions units in the project for which there is an emission increase.

2. BACT Guidance

BACT Guideline 3.3.12, 4th quarter 2010, applies to fossil fuel fired IC engines with a rating greater than 50 bhp. PG&E is proposing to operate a 791 bhp natural gas fired IC engine for up to 200 hours per year. Therefore, BACT Guideline 3.3.12 is applicable to this IC engine and no further discussion is required (BACT Guideline 3.3.12 included in Attachment E).

3. Top-Down Best Available Control Technology (BACT) Analysis

Per Permit Services Policies and Procedures for BACT, a Top-Down BACT analysis shall be performed as a part of the application review for each application subject to the BACT requirements pursuant to the District's NSR Rule.

Pursuant to the Top-Down BACT Analysis in Attachment B, BACT is satisfied with the following:

NO_X: 5 ppmv@ 15% O_2 (selective catalytic reduction, or equal)

VOC: 25 ppmv @ 15% O_2 (0.15 g/bhp-hr or 0.5 lb/MW-hr)

The following conditions will ensure continued compliance with the BACT requirements of this rule:

- All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]

- Emissions from this IC engine shall not exceed any of the following limits: 5 ppmvd NO_X @ 15% O2 (0.07 grams-NOx/bhp-hr); 56 ppmvd CO @ 15% O2 (0.60 grams-CO/bhp-hr); 25 ppmvd VOC @ 15% O2 (0.15 grams-VOC/bhp-hr); 0.02 grams-PM_{10}/bhp-hr; or 0.0094 grams-SO_X/bhp-hr. [District Rule 2201]

B. Offsets:

1. Offset Applicability:

Pursuant to Section 4.5.3, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the Post-project Stationary Source Potential to Emit (SSPE2) equals to or exceeds emissions of 20,000 lbs/year for NO_X and VOC, 200,000 lbs/year for CO, 54,750 lbs/year for SO_X and 29,200 lbs/year for PM_{10}. As seen in the table below, the facility's SSPE2 is greater than the offset thresholds for NO_X and VOC emissions. Therefore, offset calculations are necessary.

Offset Determination					
	NO_X (lb/year)	CO (lb/year)	VOC (lb/year)	PM_{10} (lb/year)	SO_X (lb/year)
Post-project SSPE (SSPE2)	140,745	171,488	48,946	7,951	4,281
Offset Threshold	20,000	200,000	20,000	29,200	54,750
Offsets Required?	Yes	No	Yes	No	No

2. Quantity of Offsets Required:

Per Section 4.7.1, the quantity of offsets, in pounds per year, is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

Offsets Required (lb/year) = ([PE2 – BE] + ICCE) x DOR, for all new or modified emissions units in the project,

Where,
PE2 = Post Project Facility Potential to Emit, (lb/year)
BE = Baseline Emissions (lb/year)
ICCE = Increase in Cargo Carrier Emissions, (lb/year)
DOR = Distance Offset Ratio, determined pursuant to Section 4.8

NO_X Offset Calculations:

NO_X PE2 = 24 lb/year
NO_X BE = 0 lb/year
ICCE = 0 lb/year

Offsets = [24 – 0] x DOR
= 24 lb/year x DOR

Calculating the appropriate quarterly NO_X emissions to be offset without the distance offset ratio is as follows:

	1st Quarter (lb/qtr)	2nd Quarter (lb/qtr)	3rd Quarter (lb/qtr)	4th Quarter (lb/qtr)	Total (lb/year)
NO_X	6	6	6	6	24

Pursuant to Section 4.8 of District Rule 2201, the distance offset ratio for NO_X and VOC emissions shall be 1.5:1 for new major sources and federal major modifications. Since this project triggers a federal major modification, the District Rule 2201 DOR will be 1.5:1.

Using an offset distance ratio of 1.5:1, the amount of NO_X ERC's that needs to be withdrawn is:

Offsets Required = 24 lb-NO_X/year x 1.5
Offsets Required = 36 lb-NO_X/year

Calculating the appropriate quarterly emissions to be offset is as follows:

	1st Quarter (lb/qtr)	2nd Quarter (lb/qtr)	3rd Quarter (lb/qtr)	4th Quarter (lb/qtr)	Total (lb/year)
NO_X	9	9	9	9	36

The applicant has stated that the facility plans to use ERC Certificate N-868-2 to offset the increases in NO_X emissions associated with this project. The above certificate has available quarterly NO_X credits as follows:

Offset Proposal					
	1st Quarter (lb/qtr)	2nd Quarter (lb/qtr)	3rd Quarter (lb/qtr)	4th Quarter (lb/qtr)	Total (lb/year)
ERC #N-868-2	556	3,428	2,975	355	7,314

Therefore, as seen above, the facility has sufficient credits to fully offset the quarterly amount of NO_X emissions required for this project.

VOC Offset Calculations:

VOC PE2 = 52 lb/year
VOC BE = 0 lb/year
ICCE = 0 lb/year

Offsets = [52 – 0] x DOR
= 52 lb/year x DOR

Calculating the appropriate quarterly VOC emissions to be offset without the distance offset ratio is as follows:

	1st Quarter (lb/qtr)	2nd Quarter (lb/qtr)	3rd Quarter (lb/qtr)	4th Quarter (lb/qtr)	Total (lb/year)
VOC	13	13	13	13	52

Pursuant to Section 4.8 of District Rule 2201, the distance offset ratio for NO_X and VOC emissions shall be 1.5:1 for new major sources and federal major modifications. Since this project triggers a federal major modification, the District Rule 2201 DOR will be 1.5:1.

Using an offset distance ratio of 1.5:1, the amount of VOC ERC's that needs to be withdrawn is:

Offsets Required = 52 lb-NO_X/year x 1.5
Offsets Required = 78 lb-NO_X/year

Calculating the appropriate quarterly emissions to be offset is as follows:

Quantity of Offsets Required					
	1st Quarter (lb/qtr)	2nd Quarter (lb/qtr)	3rd Quarter (lb/qtr)	4th Quarter (lb/qtr)	Total (lb/year)
VOC	19	19	20	20	78

The applicant has stated that the facility plans to use ERC Certificate N-868-1 to offset the increases in NO_X emissions associated with this project. The above certificate has available quarterly NO_X credits as follows:

Offset Proposal					
	1st Quarter (lb/qtr)	2nd Quarter (lb/qtr)	3rd Quarter (lb/qtr)	4th Quarter (lb/qtr)	Total (lb/year)
ERC #N-868-1	926	5,826	5,035	615	12,402

Therefore, as seen above, the facility has sufficient credits to fully offset the quarterly amount of VOC emissions required for this project.

The following conditions will ensure compliance with the offset requirements of this rule:

- Prior to operating equipment under this Authority to Construct, permittee shall provide NO_X (as NO_2) emission reduction credits for the following quantities of emissions: 1st quarter – 6 lb; and quarter – 6 lb; 3rd quarter – 6 lb; and 4th quarter - 6 lb. Offsets shall be provided at a distance ratio of 1.5 to 1. [District Rule 2201]

- Prior to operating equipment under this Authority to Construct, permittee shall provide VOC emission reduction credits for the following quantities of emissions: 1st quarter – 13 lb; 2nd quarter – 13 lb; 3rd quarter – 13 lb; and 4th quarter – 13 lb. Offsets shall be provided at a distance ratio of 1.5 to 1. [District Rule 2201]

- ERC certificate numbers (or any splits from these certificates) N-868-1 and N-868-2 shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct (ATC) shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of the ATC. [District Rule 2201]

D. Public Notification:

1. Applicability

District Rule 2201, section 5.4, requires a public notification for the affected pollutants from the following types of projects:

- New Major Sources
- SB 288 Major Modification and Federal Major Modification
- New emission units with a PE > 100 lb/day of any one pollutant (IPE Notifications)
- Any project which results in the offset thresholds being surpassed (Offset Threshold Notification), and/or
- Any permitting action with a SSIPE exceeding 20,000 lb/yr for any one pollutant. (SSIPE Notice)

a. New Major Source Notice Determination

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

b. SB 288 Major Modification and Federal Major Modification

As demonstrated in Section VII.C above, this project does not constitute an SB 288 Major Modification. However, the project does result in a Federal Major Modification for NO_X and VOC emissions. Therefore, public noticing for Federal Major Modification purposes is required.

c. PE Notification

Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. As seen in Section VII.C.2 above, this project does not include a new emissions unit which has daily emissions greater than 100 lb/day for any pollutant. Therefore, public noticing for PE > 100 lb/day purposes is not required.

e. Offset Threshold

Public notification is required if the Pre-Project Stationary Source Potential to Emit (SSPE1) is increased from a level below the offset threshold to a level exceeding the emissions offset threshold, for any pollutant.

The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO_X	140,779	140,745	20,000 lb/year	No
CO	171,349	171,488	200,000 lb/year	No
VOC	48,915	48,946	20,000 lb/year	No
PM_{10}	7,947	7,951	29,200 lb/year	No
SO_X	4,280	4,281	54,750 lb/year	No

As detailed above, there were no thresholds surpassed with this project; therefore public noticing is not required for offset purposes.

f. SSIPE Notification

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. SSIPE = SSPE2 – SSPE1. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

SSIPE Notification					
Pollutant	**SSPE2 (lb/year)**	**SSPE1 (lb/year)**	**SSIPE (lb/year)**	**SSIPE Public Notice Threshold**	**Public Notice Required?**
NO_X	140,745	140,779	0	20,000 lb/year	No
CO	171,488	171,349	139	20,000 lb/year	No
VOC	48,946	48,915	31	20,000 lb/year	No
PM_{10}	7,951	7,947	4	20,000 lb/year	No
SO_X	4,281	4,280	1	20,000 lb/year	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

2. Public Notice Requirements

As discussed above, public noticing is required for this project for federal major modification purposes. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

E. Daily Emission Limits:

Daily emissions limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis.

The following conditions will ensure continued compliance with the DEL requirements of this rule:

- Emissions from this IC engine shall not exceed any of the following limits: 5 ppmvd NO_X @ 15% O_2 (0.07 grams-NOx/bhp-hr); 56 ppmvd @ 15% O_2 (0.60 grams-CO/bhp-hr); 25 ppmvd VOC @ 15% O_2 (0.15 grams-VOC/bhp-hr); 0.02 grams-PM_{10}/bhp-hr; or 0.0094 grams-SO_X/bhp-hr. [District Rule 2201]

In addition to the daily emissions limits specified above, the following condition will also be included to ensure continued compliance for the proposed IC engine:

- Operation of this IC engine shall not exceed 200 hours per year. [District Rules 2201 and 4702]

F. Alternative Siting Analysis:

District Rule 2201, Section 4.15.1 requires an alternative siting analysis for any project which constitutes a New Major Source or a Federal Major Modification. As shown above, this project triggers a Federal Major Modifciation. Therefore, an alaternative siting analysis must be performed.

The purpose of an Alterative Siting Analysis is to evaluate the environmental impacts of a project, and how location and sizing might affect that environmental impact. The proposed project deals with the modification of an existing natural gas fired IC engine at an existing natural gas compressor station that is located in a remote area of Kings County. The site is located directly over a major natural gas supply line for the state of California. The IC engine involved with this project provides electrical power to critical components at the facility when they have power outages and/or interruptions to their continuous power supply. Therefore, the IC engine cannot be sited elsewhere.

Furthermore, this project results in minor increases in CO, VOC, PM_{10} and SO_X emissions. In accordance with the health risk assessment and ambient air quality analysis that were performed for this project, the minor increases in these pollutants does not have any impact on the surrounding environment.

G. Compliance Certification:

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Federal Major Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Sections VIII-Rule 2201-C.1.a and VIII-Rule 2201-C.1.b, this project does constitute a Federal Major Modification, therefore this requirement is applicable. PG&E's statewide compliance certification is included in Attachment E.

H. Air Quality Impact Analysis:

Section 4.14.2 of this Rule requires that an air quality impact analysis (AQIA) be conducted for the purpose of determining whether the operation of the proposed equipment will cause or make worse a violation of an air quality standard. The Technical Services Division of the SJVAPCD conducted the required analysis. Refer to Attachment G of this document for the AQIA summary sheet.

The proposed location is in an attainment area for NO_X, CO, and SO_X. As shown by the table below, the proposed equipment will not cause a violation of an air quality standard for NO_X, CO, or SO_X.

AAQA Results Summary					
Pollutant	1 hr Average	3 hr Average	8 hr Average	24 hr Average	Annual Average
CO	Pass	N/A	Pass	N/A	N/A
NO_x	Pass	N/A	N/A	N/A	Pass
SO_x	Pass	Pass	N/A	Pass	Pass

The proposed location is in a non-attainment area for PM_{10}. The increase in the ambient PM_{10} concentration due to the proposed equipment is shown on the table titled Calculated Contribution. The levels of significance, from 40 CFR Part 51.165 (b)(2), are shown on the table titled Significance Levels.

Significance Levels					
Pollutant	Significance Levels ($\mu g/m^3$) - 40 CFR Part 51.165 (b)(2)				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
PM_{10}	1.0	5	N/A	N/A	N/A

Calculated Contribution					
Pollutant	Calculated Contributions ($\mu g/m^3$)				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
PM_{10}	0.0035	0.274	N/A	N/A	N/A

As shown, the calculated contribution of PM_{10} will not exceed the EPA significance level. This project is not expected to cause or make worse a violation of an air quality standard.

H. Compliance Assurance:

1. Source Testing

Pursuant to District Policy APR 1705, source testing is not required for low use IC engines that operate no more than 200 hours per year to demonstrate compliance with Rule 2201.

2. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification, and daily emission limit requirements of Rule 2201. As required by District Rule 4702, *Stationary Internal Combustion Engines - Phase 2*, this IC engine is subject to recordkeeping requirements. Recordkeeping requirements, in accordance with District Rule 4702, will be discussed in Section VIII, *District Rule 4702*, of this evaluation.

4. Reporting

No reporting is required to demonstrate compliance with District Rule 2201.

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this Rule, and has received their Title V Operating Permit. Section 3.29 defines a significant permit modification as a "permit amendment that does not qualify as a minor permit modification or administrative amendment."

Section 3.20.5 states that a minor permit modification is a permit modification that is not a federal major modification, as defined in Rule 2201[1]. As discussed above, this project triggers a federal major modification. As a result, the proposed project constitutes a Significant Modification to the Title V Permit pursuant to Section 3.29.

As discussed above, the facility has applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility shall not implement the changes requested until the final permit is issued. The following conditions will be included on the ATC to ensure continued compliance:

- This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District NSR Rule]

- Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4]

Rule 4001 New Source Performance Standards

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60. 40 CFR Part 60, Subpart JJJJ is the only subpart that applies to spark ignited internal combustion engines.

40 CFR 60 - Subpart JJJJ

40 CFR Part 60 Subpart JJJJ applies to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines that were originally manufactuered after July 1, 2007, or later, depending on type of IC engine in question. Pursuant to information in the facility files, this IC engine was originally installed in 2001. Therefore, this IC engine does not meet the applicability requirements of this subpart and no further discussion is required.

[1] District Rule 2520, Section 3.20.5 actually states that a project shall not constitute a Title I modification, as defined in Rule 2201. In previous versions of Rule 2201, the term Title I modification was replaced with Federal Major Modification. However, at that time, the terminology in Rule 2520 was not updated to reflect the new Rule 2201 terms. Therefore, even though Rule 2520 references that a project triggering a Title I modification does not qualify as a Title V minor modification, it will be replaced with the term Federal Major Modification for the purposes of this project.

Rule 4002 National Emissions Standards for Hazardous Air Pollutants (NESHAP)

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63. 40 CFR Part 63, Subpart ZZZZ, is the only subpart applicable to stationary reciprocating internal combustion engines (RICE's).

40 CFR 63 - Subpart ZZZZ:

The requirements of 40 CFR Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, are applicable to owners and operators of a stationary RICE located at a major or area source of HAP emissions. PG&E is not a major source of HAP emissions and is therefore, by definition, and area source of HAP emissions. Therefore, the requirements of this subpart are applicable to this engine.

This engine was originally installed in 2001, therefore, as definied by Section 63.65.90(iii), this engine can be classified as an existing stationary RICE. In accordance with Section 63.6595, the emission limitations and operating limits for an existing startionary RICE at an area source of HAP emissions do not become appliable until October 13, 2013. PG&E has indicated that they will comply with this subpart at a later date. Therefore, the requirements of this regulation will not be included in this project and no further discussion is required.

Rule 4101 Visible Emissions

Per Section 5.0, no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). As the IC engine is fired solely on natural gas, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity. Also, based on past inspections of the facility continued compliance is expected. The following condition will be included on the ATC and PTO to ensure continued compliance:

- 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]

Rule 4102 Nuisance

Section 4.0 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained as required by permit conditions. Therefore, compliance with this rule is expected.

A. California Health & Safety Code 41700 (Health Risk Analysis)

A Health Risk Assessment (HRA) is required for any increase in hourly or annual emissions of hazardous air pollutants (HAPs). HAPs are limited to substances included on the list in CH&SC 44321 and that have an OEHHA approved health risk value. The installation of the permit units for the power plant results in increases in emissions of HAPs.

A health risk screening assessment was performed for the proposed project. The acute and chronic hazard indices were less than 1.0 and the cancer risk was less than one in a million. Under the District's risk management policy, Policy APR 1905, TBACT is not required for any proposed emissions unit as shown in the table below:

Screen HRA Summary				
	Acute Hazard Index	Chronic Hazard Index	70 yr Cancer Risk	T-BACT Required?
C-904-31-4	0.00085	0.071	0.84 per million (10^{-6})	No

B. Discussion of Toxics BACT (TBACT)

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is not required for this project because the HRA indicates that the risk is not above the District's thresholds for triggering T-BACT requirements; therefore, compliance with the District's Risk Management Policy is expected.

The following conditions will be included on the ATC and PTO to ensure continued compliance with the District Rule 4102 requirements:

- The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

- Operation of this IC engine shall not exceed 200 hours per year. [District Rules 2201 and 4702]

Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

$$0.02 \quad \frac{g}{hp \cdot hr} \times \frac{1\,hp \cdot hr}{2{,}542.5\,Btu} \times \frac{10^6\,Btu}{8{,}578\,dscf} \times \frac{0.35\,Btu_{out}}{1\,Btu_{in}} \times \frac{15.43\,grain}{g} = \quad 0.005 \quad \frac{grain}{dscf}$$

Since 0.005 grain/dscf is less than 0.1 grain/dscf, compliance with this rule is expected. The following condition will be included on the ATC and PTO to ensure continued compliance:

- Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

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.

Pursuant to Section 4.2.2, except for the requirements of Sections 5.7 and 6.2.3, the requirements of this rule shall not apply to an internal combustion engine that meets the following condition:

> An internal combustion engine that is operated no more than 200 hours per calendar year as determined by an operational nonresettable elapsed operating time meter and provided the engine is not used to perform any of the following funtions specified in Section 4.2.2.1 through Section 4.2.2.3 below. In lieu of 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. The owner shall properly maintain and operate the time meter or alternative device in accordance with the manufacturer's instructions.
>
> 4.2.2.1 To generate electrical power that is either fed into the electrical utility power grid or used to reduce electrical power purchased by a stationary source.
> 4.2.2.2 To generate mechanical power tha is used to reduce electrical power purchased by a stationary source, or
> 4.2.2.3 In a distributed generation application

PG&E is proposing to operate this internal combustion engine for no more than 200 hours per year and will not use the engine to generate electrical power that will be fed into the utility power grid or reduce the amount of power purchased by this stationary source. Therefore, the IC engine involved with this project will only have to meet the requirements of Sections 5.7 and 6.2.3 of this Rule.

Section 5.7 of this Rule requires that the owner of an engine shall comply with the requirements specified in Section 5.7.2 through Section 5.7.5 below:

1) Properly operate and maintain each engine as recommended by the engine manufacturer or emission control system supplier.

2) Monitor the operational characteristics of each engine as recommended by the engine manufacturer or emission control system supplier.

3) 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 Stationary 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.

Therefore, the following conditions will be listed on the ATC to ensure compliance:

- This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702]

- During periods of operation, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections, change engine oil and filters, replace engine coolant, and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702]

- This engine shall be equipped with an operational nonresettable elapsed time meter or other APCO approved alternative. [District Rule 4702]

- Operation of this IC engine shall not exceed 200 hours per year. [District Rules 2201 and 4702]

Section 6.2.3 requires that an owner claiming an exemption under Section 4.2 or Section 4.3 shall maintain annual operating records. This information shall be retained for at least five years, shall be readily available, and submitted to the APCO upon request and at the end of each calendar year in a manner and form approved by the APCO. Therefore, the following condition (previously proposed) will be listed on the ATC to ensure compliance:

- 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, and any other information necessary to demonstrate compliance with Rule 4702. [District Rule 4702]

- 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 Rule 4702]

Rule 4801 Sulfur Compounds

Rule 4801 requires that sulfur compound emissions (as SO_2) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

Volume SO_2 = (n x R x T) ÷ P
n = moles SO_2
T (standard temperature) = 60 °F or 520 °R
R (universal gas constant) = $\frac{10.73\ psi - ft^3}{lb - mol - °R}$

$$2.85 \quad \frac{lb-S}{MMscf-gas} \times \frac{1\ scf-gas}{1{,}000\ Btu} \times \frac{1\ MMBtu}{8{,}578\ scf} \times \frac{1\ lb-mol}{64\ lb-S} \times \frac{10.73\ psi-ft^3}{lb-mol-°R} \times \frac{520°R}{14.7\ psi} \times 1{,}000{,}000 = \quad 1.97 \quad \text{ppmv}$$

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 about 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.

Greenhouse Gas (GHG) Significance Determination

It is determined that no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project. The District's engineering evaluation (this document – Attachment F) demonstrates that the project would not result in an increase in project specific greenhouse gas emissions. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

District CEQA Findings

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15031 (Existing Facilities), and 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)).

California Health & Safety Code, Section 42301.6 (School Notice)

As discussed in Section III of this evaluation, 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.

California Health & Safety Code, Section 44300 (Air Toxic "Hot Spots")

Section 44300 of the California Health and Safety Code requires submittal of an air toxics "Hot Spot" information and assessment report for sources with criteria pollutant emissions greater than 10 tons per year. However, Section 44344.5 (b) states that a new facility shall not be required to submit such a report if all of the following conditions are met:

1. The facility is subject to a district permit program established pursuant to Section 42300.

2. The district conducts an assessment of the potential emissions or their associated risks, and finds that the emissions will not result in a significant risk.

3. The district issues a permit authorizing construction or operation of the new facility.

A health risk screening assessment was performed for the proposed project. The acute and chronic hazard indices are less than 1.0 and the cancer risk is less than ten (10) in a million, which are the thresholds of significance for toxic air contaminants. This project qualifies for exemption per the above exemption criteria.

IX. RECOMMENDATION:

Pending a successful EPA 45-day COC comment period and 30 day public comment period, issue Authority to Construct C-904-31-4 subject to the permit conditions on the attached draft Authority to Construct in Attachment G.

X. BILLING INFORMATION:

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
C-904-31-4	3020-10-D	791 bhp IC engine	$479

Attachments:

A: Current Permit to Operate C-904-31-2
B: BACT Guideline 3.3.12 and Top Down BACT Analysis
C: Post Project NO_X, CO, VOC and PM_{10} Emission Factor Justification
D: Health Risk Assessment and Ambient Air Quality Analysis Summaries
E: PG&E Statewide Compliance Certification
F: Greenhouse Gas Emission Calculations
G: Draft ATC

ATTACHMENT A

Current Permit to Operate C-904-31-2

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: C-904-31-2 **EXPIRATION DATE:** 11/30/2007

EQUIPMENT DESCRIPTION:
791 BHP CATERPILLAR MODEL G3512TA RICH-BURN NATURAL GAS-FIRED EMERGENCY STANDBY IC ENGINE WITH NON-SELECTIVE CATALYTIC REDUCTION (NSCR) POWERING AN ELECTRICAL GENERATOR

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
3. 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] Federally Enforceable Through Title V Permit
4. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102] Federally Enforceable Through Title V Permit
5. This IC engine shall be fired on Public Utility Commission (PUC) regulated natural gas only. [District Rules 2201 and 4801] Federally Enforceable Through Title V Permit
6. This engine shall be equipped with either a positive crankcase ventilation (PCV) system that recirculates crankcase emissions into the air intake system for combustion, or a crankcase emissions control device of at least 90% control efficiency. [District Rule 2201] Federally Enforceable Through Title V Permit
7. This IC engine shall be equipped with a three-way catalyst. [District Rule 2201] Federally Enforceable Through Title V Permit
8. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702] Federally Enforceable Through Title V Permit
9. This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702] Federally Enforceable Through Title V Permit
10. Emissions from this IC engine shall not exceed any of the following limits: 0.33 g-NOx/bhp-hr, 0.063 g-PM10/bhp-hr, 0.40 g-CO/bhp-hr, or 0.12 g-VOC/bhp-hr. [District Rule 2201] Federally Enforceable Through Title V Permit
11. This engine shall be operated only for maintenance, testing, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 100 hours per year. [District Rule 4702] Federally Enforceable Through Title V Permit
12. During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

13. An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702] Federally Enforceable Through Title V Permit

14. This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702] Federally Enforceable Through Title V Permit

15. The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rule 4702] Federally Enforceable Through Title V Permit

16. 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 Rule 4702] Federally Enforceable Through Title V Permit

ATTACHMENT B

SJVAPCD BACT Guideline 3.3.12 and Top Down BACT Analysis

I. NO_X Top-Down BACT Analysis

Step 1 - Identify All Possible Control Technologies

SJVAPCD BACT Clearinghouse Guideline 3.3.12 identifies achieved in practice BACT as the following:

- 9 ppmvd NO_X @ 15% O_2, 0.15 grams/bhp-hr, or 0.5 lb/MW/hr

SJVAPCD BACT Clearinghouse Guideline 3.3.12 identifies technologically feasible BACT as the following:

- 5 ppmvd NO_X @ 15% O_2 (Selective Catalytic Reduction (SCR), or equal)

SJVAPCD BACT Clearinghouse Guideline 3.3.12 identifes alternate basic equipment BACT as the following:

- 2 ppmvd @ 15% O_2 natural gas fired turbine

Step 2 - Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

The following options are ranked based on their emission factor:

1. 2 ppmvd NO_X @ 15% O_2 natural gas fired turbine
2. 5 ppmvd NO_X @ 15% O_2 (SCR system, or equal)
3. 9 ppmvd NO_X @ 15% O_2

Step 4 - Cost Effective Analysis

A cost effective analysis must be performed for all control options in the list from step 3 in the order of their ranking to determine the cost effective option with the lowest emissions.

1. 2 ppmvd NO_X @ 15% O_2 Natural Gas Fired Turbine:

Per District BACT Policy APR 1305, the cost effectiveness of an Alternate Basic Equipment control option shall be performed using the following equation:

$$\mathbf{CE_{alt} = (Cost_{Alt} - Cost_{Basic}) \div (Emission_{Basic} - Emission_{Alt})}$$

Where:

CE_{Alt} = the cost effectiveness of alternate basic equipment expressed as dollars per ton of emissions reduced

$Cost_{Alt}$ = the equivalent annual capital cost of the alternate basic equipment plus its annual operating cost

$Cost_{Basic}$ = the equivalent annual capital cost of the proposed basic equipment, without BACT, plus its annual operating cost

$Emission_{Basic}$ = the emissions from the proposed basic equipment, without BACT

$Emission_{Alt}$ = the emissions from the alternate basic equipment

$COST_{Alt}$:

The purchase and installation (capital) cost of a turbine capable of achieving NO_X emissions of less than 2 ppmvd @ 15% O_2 was received from Mike Kelly with Solar Turbines (turbine manufacturer) on December 20, 2010. The capital cost of that turbine was estimated as follows:

$800,000

Pursuant to the District BACT Policy section X. (Revised 4/18/95), the annualized cost of installing the turbine will be calculated as follows. The installation cost will be spread over the expected life of the turbine which is estimated at 10 years and using the capital recovery equation (Equation 1). A 10% interest rate is assumed in the equation and the assumption will be made that the equation has no salvage value at the end of the ten-year cycle.

Equation 1: $A = [P * i(I+1)^n]/[(I+1)^n-1]$

Where:
- A = Annual Cost
- P = Present Value
- I = Interest Rate (10%)
- N = Equipment Life (10 years)

$A = [\$800,000 * 0.1 * (1.1)^{10}]/[(1.1)^{10}-1]$

$= \mathbf{\$130,196/year}$

$COST_{Basic}$:

The purchase and installation (capital) cost of a 791 bhp IC engine was received from John Mills with Peterson Power Systems, Inc. (electric power generation sales representative) on January 6, 2011. The capital cost of that IC engine, without any controls, was estimated as follows:

Total Capital Cost: $280,000

Pursuant to the District BACT Policy section X. (Revised 4/18/95), the annual cost of installing and maintaining the engines will be calculated as follows. The installation cost will be spread over the expected life of the engines which is estimated at 10 years and using the capital recovery equation (Equation 1). A 10% interest rate is assumed in the equation and the assumption will be made that the equation has no salvage value at the end of the ten-year cycle.

Equation 1: $A = [P * i(I+1)^n]/[(I+1)^n-1]$

Where:
- A = Annual Cost
- P = Present Value
- I = Interest Rate (10%)
- N = Equipment Life (10 years)

$A = [\$280,000 * 0.1 * (1.1)^{10}]/[(1.1)^{10}-1]$

= $45,569/year

$Emission_{Basic}$:

In accordance with information provided by Coastal Ignition & Controls for this project, the uncontrolled NO_X emission rate from PG&E's natural gas fired IC engine is as follows:

Emission Factor = 12.0 grams/bhp-hr
Operating Hours = 200 hours/year

$Emissions_{Basic}$: EF x bhp x Operation
$Emissions_{Basic}$: 12.0 grams/bhp-hr x 791 bhp x 200 hours/year x lb/453.6 grams

$Emissions_{Basic}$ = 4,185 lb/year

$Emissions_{Alt}$:

The emissions from a natural gas fired turbine operating at 2 ppmvd NO_X @ 15% O_2 is as follows:

Emission Factor = 0.028 grams/hp-hr (2 ppmv @ 15% O_2)
Operating Hours = 200 hours/year

$Emissions_{Alt}$ = 0.028 grams/bhp-hr x 791 bhp x 200 hours/year x lb/453.6 grams

$Emissions_{Alt}$ = 10 lb/year

Therefore, the cost effectiveness of installing a natural gas fired turbine operating with NO_X emissions of 2 ppmvd @ 15% O_2 can be determined as follows:

$CE_{Alt} = (Cost_{Alt} - Cost_{Basic}) \div (Emission_{Basic} - Emission_{Alt})$

$CE_{Alt} = [(\$130,196/yr - \$45,569/yr) \div (4,185 lb/yr - 10 lb/yr)] \times 2,000 lb/ton$

CE_{alt} = $40,540/ton

The cost of NO_X reduction utilizing a natural gas fired turbine with an emission concentration of 2 ppmvd @ 15% O_2 would be greater than the $24,500/ton cost effectiveness threshold of the District BACT policy. The equipment is therefore not cost effective and is being removed from consideration at this time.

2. 5 ppmvd NO_X @ 15% O_2 (SCR system or equal):

The applicant is proposing the use of a non-selective catalytic reduction system with NO_X emissions of 5 ppmv @ 15% O_2. Since the applicant is proposing to use a control technology that is equivilent to this control option, a cost effective analysis is not necessary and no further discussion is required.

3. 9 ppmvd NO_X @ 15% O_2:

The applicant is proposing the use of a non-selective catalytic reduction system with NO_X emissions of 5 ppmv @ 15% O_2. Since the applicant is proposing to use a control technology that is more effective than this control option, a cost effective analysis is not necessary and no further discussion is required.

Step 5 - Select BACT

BACT for the emission unit is determined to be the use of a natural gas fired IC engine with NO_X emissions of less than or equal to 5.0 ppmv @ 15% O_2. The facility is proposing to operate a natural gas fired IC engine served by an NSCR system with NO_X emissions of less than or equal to 5.0 ppmvd @ 15% O_2. Therefore, BACT is satisfied and no further discussion is required.

II. VOC Top-Down BACT Analysis

Step 1 - Identify All Possible Control Technologies

SJVAPCD BACT Clearinghouse Guideline 3.3.12 identifies achieved in practice BACT as the following:

- 25 ppmvd @ 15% O_2, 0.15 grams/bhp-hr, or 0.5 lb/MW-hr

SJVAPCD BACT Clearinghouse Guideline 3.3.12 does not identify any technologically feasible control alternatives:

SJVAPCD BACT Clearinghouse Guideline 3.3.12 does not identify any alternate basic equipment BACT control alternatives.

Step 2 - Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. 25 ppmvd @ 15% O_2

Step 4 - Cost Effectiveness Analysis

A cost effective analysis must be performed for all control options in the list from step 3 in the order of their ranking to determine the cost effective option with the lowest emissions.

The applicant is proposing the use of a non-selective catalytic reduction system with VOC emissions of 25 ppmv @ 15% O_2. This is the highest ranking control option listed in Step 3 above. Therefore, in accordance with District policy APR 1305 (BACT), Section IX.D, a cost effective analysis is not necessary and no further discussion is required.

Step 5 - Select BACT

BACT for the emission unit is determined to be VOC emissions of less than or equal to 25 ppmv @ 15% O_2. The facility is proposing to use a natural gas fueled IC engine equipped with a non-selective catalytic reduction system with VOC emissions of less than or equal to 25 ppmv @ 15% O_2; therefore, BACT is satisfied.

ATTACHMENT C

Post Project NO_X, CO, VOC and PM_{10} Emission Factor Justification

Coastal Ignition & Controls
5600 Everglades St. Suite D
Ventura, CA 93003
Phone: 805-644-8001
Fax: 805-644-8009

Quotation No: LR1962R0

Quotation Date: 8/29/2010

To: Pacific Gas & Electric

Reference: Catalytic Convertor for CAT Engine at Kettleman.

Attn: Robert Gregg **Tel:** 760 954 9141 **Fax:**

We are pleased to submit the following for your consideration:

Item	Qty	Part Number	Description	Unit Price	Total
1	1	2-DC 74.5-10	Model Quick Lid Catalyic Converter equipped with (2) catalist elements 304 stainless steel construction, provision for future up grades, ANSI 150lb bolt pattern carbon steel flanges, and four 1/2"standard mponitoring ports.		

Terms: Net 30
F.O.B: Ontsario, canada
Delivery: Two Weeks
Quote Validity: 30 Days

The opportunity to supply these requirements and be of service will be very much appreciated.

Coastal Ignition & Controls
Leslie Robinson
Mobil: 661-246-6836
lesr@cic-inc.us

Coastal Ignition & Controls
5600 Everglades St. Suite D
Ventura, CA 93003
Phone: 805-644-8001
Fax: 805-644-8009

Quotation No: LR0734R0

Quotation Date: 8/30/2010

To: Pacific Gas & Electric Co.

Reference: Air fuel ratio Controller for Cat Unit at Kettleman

Attn: Robert Gregg **Tel:** **Fax:**

We are pleased to submit the following for your consideration:

Item	Qty	Part Number	Description	Unit Price	Total
1	1	EWPC100E	Air Fuel Ratio Controller		
2	2	6901`54-1	Gas Control Valve		
3	2	691310-2	Accessorie Kit		
4	4	CIC-ETC106UK	Thermnocouples		
			Total Material		

Terms: Net 30
F.O.B: Ventura, Ca.
Delivery: 10 Dayus
Quote Validity: 30 Days

The opportunity to supply these requirements and be of service will be very much appreciated.

Coastal Ignition & Controls
Leslie Robinson
Mobil: 661-246-6836
lesr@cic-inc.us

Technical Specification:

RE: Kettleman Station

ENGINE DATA

Engine model	**Cat 3512TA**
Power	750 bhp
Fuel	Pipeline NG
Exhaust Flow	3125 acfm
Exhaust Temperature	892 F

CATALYST SYSTEM DATA

Catalyst Model	2-DC74.5-10
Catalyst Type	NSCR
Number of Elements	2
Cell Density	300 cpsi
Approx. Dimensions	See Attached Drawing
Connection Size	10"
Approx Weight	400 lbs

EMISSION REQUIREMENTS

Exhaust Gas Component	Engine Output (g/bhp-hr ppmvd @15% O_2)	Converter Output (g/bhp-hr ppmvd @ 15% O_2)
NOx	12 - 671	0.07 - 5
CO	12 - 1322	0.6 - 56
VOC	1 - 193	0.15 - 25

TABLE 1-2
SUMMARY OF AVERAGE RESULTS
PACIFIC GAS AND ELECTRIC COMPANY
HINKLEY COMPRESSOR STATION, "P" UNIT IC ENGINES
OCTOBER 5-7, 2010

Parameter	P-6	P-7	P-8	P-9	Permit Limits
Date:	10/07/10	10/06/10	10/06/10	10/05/10	
Flue Gas:					
O_2, % volume dry	*0.001*	*0.001*	*0.001*	*0.001*	--
CO_2, % volume dry	12.01	12.04	12.01	11.94	--
Moisture content, % by vol.	19.45	19.54	19.52	18.75	--
Stack temperature, °F	930.8	907.9	937.2	956.0	--
Flow rate, dscfm	2,765	2,480	2,689	2,177	--
Particulate Matter:					
gr/dscf	0.0010	0.0004	0.0006	0.0003	--
gr/dscf @ 12% CO_2	0.0010	0.0004	0.0006	0.0003	--
lb/hr	0.0241	0.0082	0.0147	0.0053	0.24
g/bhp-hr	0.0112	0.0038	0.0069	0.0024	--

Notes: Mass emissions are calculated using the measured stack volumetric flow rate.
Test results presented in italics were measured below the detection limit of the instrument.
The measured particulate concentrations were relatively close to the field blank concentrations. Please see the Discussion of Results for more information.

TABLE 5-1
PARTICULATE TEST RESULTS SUMMARY
PACIFIC GAS AND ELECTRIC COMPANY
HINKLEY COMPRESSOR STATION, UNIT P-6

Parameter	1-P6	2-P6	3-P6	Averages
Date:	10/07/10	10/07/10	10/07/10	--
Time:	1140-1254	1315-1428	1648-1801	--
Process Data:				
Brake Horsepower, bhp	983	976	972	977
Flue Gas:				
O_2, % volume dry	*0.001*	*0.001*	*0.001*	*0.001*
CO_2, % volume dry	12.00	12.02	12.02	12.01
Moisture Content, %	19.55	19.45	19.35	19.45
Stack Temperature, °F	924.3	932.3	935.8	930.8
Stack Flow Rate, dscfm	2,766	2,702	2,828	2,765
F½ Particulate Matter:				
gr/dscf	<0.00001	<0.00001	<0.00001	<0.00001
gr/dscf @ 12% CO_2	<0.00001	<0.00001	<0.00001	<0.00001
lb/hr	<0.0001	<0.0001	<0.0001	<0.0001
B½ Particulate Matter:				
gr/dscf	0.0011	0.0011	0.0009	0.0010
gr/dscf @ 12% CO_2	0.0011	0.0011	0.0009	0.0010
lb/hr	0.0270	0.0244	0.0207	0.0240
Total Particulate Matter:				
gr/dscf	0.0011	0.0011	0.0009	0.0010
gr/dscf @ 12% CO_2	0.0011	0.0011	0.0009	0.0010
lb/hr	0.0271	0.0245	0.0207	0.0241
g/bhp-hr	0.0125	0.0114	0.0097	0.0112

Note: Every front half fraction at Unit P-6 contained particulate concentrations less than the field blank. Five of the six back half fractions contained particulate concentrations greater than the field blank. The front half particulate results are near the detection limit of the test methods. Please see the laboratory report in Appendix E.1 for more information.

ATTACHMENT D

Health Risk Assessment and Ambient Air Quality Analysis Summaries

San Joaquin Valley Air Pollution Control District
Risk Management Review

To:	Dustin Brown, AQE – Permit Services
From:	Jaime Horio, AQS – Technical Services
Date:	December 16, 2010
Facility Name:	PG&E – Kettleman Compressor Station
Location:	34453 Plymouth Ave Avenal, CA
Application #(s):	C-904-31-4
Project #:	C-1102936

A. RMR SUMMARY

RMR Summary			
Categories	**NG IC Engine (Unit 31-4)**	**Project Totals**	**Facility Totals**
Prioritization Score	0.47	0.47	>1.0
Acute Hazard Index	8.5e-4	8.5e-4	8.5e-4
Chronic Hazard Index	7.1e-2	7.1e-2	7.1e-2
Maximum Individual Cancer Risk (10^{-6})	0.84	0.84	0.84
T-BACT Required?	**No**		
Special Permit Conditions?	**Yes**		

Proposed Permit Conditions

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

Unit # 31-4

1. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
2. Operation of this engine for shall not exceed 200 hours per calendar year. [District Rules 2201 and 4702]

B. RMR REPORT

I. Project Description

Technical Services received a request on November 23, 2010, to perform an Ambient Air Quality Analysis and a Risk Management Review for a 791 bhp natural-gas fired IC engine. The project involves removing the "emergency standby" designation from the engine and increasing the annual usage from 100 hours/year to 200 hours/year.

II. Analysis

Technical Services performed a prioritization using the District's HEARTs database. Since the total facility prioritization score was greater than one, a refined health risk assessment was required. Emissions calculated using Ventura County Emission Factors for Internal Combustion of natural gas were input into the HEARTs database. The AERMOD model was used, with the parameters outlined below and meteorological data for 2005-2009 from Hanford to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the Hot Spots Analysis and Reporting Program (HARP) risk assessment module to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Analysis Parameters Unit 31-4			
Source Type	Point	**Location Type**	Rural
Stack Height (m)	6.1	**Closest Receptor (m)**	304
Stack Diameter. (m)	0.254	**Type of Receptor**	Residential
Stack Exit Velocity (m/s)	28.37	**Max Hours per Year**	200
Stack Exit Temp. (°K)	750.8	**Fuel Type**	NG

Technical Services performed modeling for criteria pollutants CO, NOx, SOx and PM_{10}; as well as a RMR. The emission rates used for criteria pollutant modeling were 1.046 lb/hr CO, 0.122 lb/hr NOx, 0.016 lb/hr SOx, and 0.035 lb/hr PM_{10}. The engineer supplied the maximum fuel rate for the IC engine used during the analysis.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Diesel ICE	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[2]	Pass[2]

*Results were taken from the attached PSD spreadsheet.
[1]The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

III. Conclusion

The acute and chronic indices are below 1.0 and the cancer risk factor associated with the IC engine is less than 1.0 in a million. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

To ensure that human health risks will not exceed District allowable levels; the permit conditions listed on page 1 of this report must be included for this proposed unit.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

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

Attachments:

A. RMR request from the project engineer
B. Additional information from the applicant/project engineer
C. Prioritization score
D. Risk Scores
E. AAQA Summary
F. Facility Summary

AAQA for (C-904)
All Values are in ug/m^3

	NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
SRCGP1	2.162E+00	6.842E-03	1.853E+01	1.305E+01	2.835E-01	2.453E-01	1.252E-01	8.552E-04	2.739E-01	1.996E-03
Background	1.110E+02	2.104E+01	3.612E+03	2.680E+03	1.598E+02	1.332E+02	7.193E+01	2.664E+01	3.510E+02	7.100E+01
Facility Totals	1.131E+02	2.105E+01	3.630E+03	2.693E+03	1.601E+02	1.334E+02	7.206E+01	2.664E+01	3.513E+02	7.100E+01
AAQS	188.68	56	23000	10000	195	1300	105	80	50	30
	Pass	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Fail**	**Fail**

EPA's Significance Level (ug/m^3)

NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
0.0	**1.0**	**2000.0**	**500.0**	**0.0**	**25.0**	**5.0**	**1.0**	**5.0**	**1.0**

AAQA Emission (g/sec)

Device	NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
SRCGP1	1.54E-02	3.45E-04	1.32E-01	1.32E-01	2.02E-03	2.02E-03	2.02E-03	4.31E-05	4.41E-03	1.01E-04

ATTACHMENT E

PG&E Statewide Compliance Certification

Pacific Gas and Electric Company

Carol Burke
Environmental Services

3401 Crow Canyon Road
San Ramon, CA 94583

Phone: (925) 415-6308
Fax: (925) 415-6848
e-mail: cob3@pge.com

November 19, 2010

David Warner
Director, Permit Services
San Joaquin Valley Air Pollution Control District
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244

Subject: Letter of Certification For PG&E Major Sources
Application for Authority to Construct to Modify Generator Engine
PG&E's Kettleman Compressor Station, Permit # C-904-32

Dear Mr. Warner:

Following is a statewide certification requested by Dustin Brown of the Permit Services group. We understand that this must accompany the existing permit application to modify the Kettleman generator.

Specifically, this letter serves to comply with Section 4.15.2, of Rule 2201 as it relates to this permit application. This section reads as follows:

> 4.15.2 Compliance by Other Owned, Operated, or Controlled Source: The owner of a proposed new Major Source or federal major modification shall demonstrate to the satisfaction of the APCO that all major Stationary Sources owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in California which are subject to emission limitations are in compliance or on a schedule for compliance with all applicable emission limitations and standards.

PG&E owns and operates seven Federally Major Facilities in the State of California, in addition to the two located within the San Joaquin Valley Air Pollution Control District. These facilities are in compliance with all air quality rules and regulations.

In light of an outstanding permitting issue for PG&E's Gateway Generating Station in Antioch, California, PG&E is providing some additional background information to explain the basis for PG&E's answer. EPA has alleged that the Gateway facility was constructed without a properly issued federal permit, and the Bay Area Air Quality Management District (BAAQMD) has deferred issuing other permits until the federal

issue is resolved. While PG&E disagrees with the allegations regarding the validity of the federal permit, PG&E has entered into a consent decree with EPA to resolve the matter without the need for further litigation. This consent decree was lodged in federal court on September 24, 2009. Although the court has not yet entered the consent decree as a final order, PG&E is operating in compliance with the requirements of the consent decree, which includes provisions to make further reductions in air emission limits. Separate agreements with BAAQMD enable PG&E to continue to operate the plant while the matter is being resolved. Therefore, PG&E is operating in compliance with all applicable requirements, including the agreements with EPA and BAAQMD.

Please contact me at (925) 415-6308 or by e-mail at cob3@pge.com if you have any questions about this information, or if you need additional information in order to complete the application processing.

Sincerely,

Carol Burke
Sr. Consulting Engineer – Air Quality

ATTACHMENT F

Greenhouse Gas Emission Calculations

Greenhouse Gas Emission Evaluation

The District has evaluated potential greenhouse gas emissions from the internal combustion engine rated at 791 brake horsepower to determine if there will be an increase in greenhouse gas emissions associated with this project.

Basis and Assumptions

- The engine is a spark-ignited unit fueled by natural gas.
- The engines operate at full rated power.
- Specific fuel consumption is 220 g/kWh (typical for engine type).
- The conversion from Btu to hp-hr is 2,542.5.
- As a worst case since the IC engine is changing class and category of operation from emergency standby to during any situation: pre-project operation = 0 hours/year and the post-project operation = 200 hours/year
- Emission factors and global warming potentials (GWP) for diesel fuel are taken from the California Climate Change Action Registry (CCAR), Version 3.1, January, 2009 (Appendix C, Tables C.1, C.3 and C.6) :

CO_2 EF	52.87 kg/MMBtu
CH4 EF	0.0009 kg/MMBtu
N2O EF	0.0001 kg/MMBtu

GWP for CH4 = 23 lb-CO2e per lb-CH4
GWP for N2O = 296 lb-CO2e per lb-N2O

Therefore, the total CO2e emissions from natural gas combustion is as follows:

CO2e EF = 52.87 kg/MMBtu + (0.0009 kg/MMBtu x 23) + (0.0001 kg/MMBtu x 296)
CO2e EF = 52.87 kg/MMBtu + 0.0207 kg/MMBtu + 0.0296 kg/MMBtu

CO2e EF = 52.92 kg/MMBtu

Converting to english units:

CO2e EF = 52.92 kg/MMBtu x 2.2 lb / 1 kg

CO2e EF = 116.4 lb/MMBtu

Calculations

$$\frac{791 \text{ bhp}}{} \times \frac{2542.5 \text{ Btu}}{\text{Bhp-hr}} \times \frac{1 \text{ MMBtu}}{10^6 \text{ Btu}} = \frac{2.011}{\text{MMBtu/hr}}$$

Hourly Emissions

CO2e Emissions = 116.4 lb/MMBtu x 2.011 MMBtu/hr = 234.1 lb-CO2e/hour

Annual Increase of Emissions

Since the engine will be allowed to operate for up to 200 hours per year, the annual greenhouse gas emissions will be as follows:

CO2e Emissions = Hourly Emissions x 200 hour/year
CO2e Emissions = 234.1 lb-CO2e/hour x 200 hour/year

CO2e Emissions = 46,820 lb-CO2e/year

Converting to metric tons:

CO2e Emissions = 46,820 lb-CO2e/year x short ton/2,000 lb x 0.9072 metric tons/short ton

CO2e Emissions = 21.24 metric tons-CO2e/year

Per District Policy, project specific greenhouse gas emissions less than or equal to 230 metric tons-CO2e/year are considered to be zero for District permitting purposes and are exempt from further environmental review.

ATTACHMENT G

Draft Authority to Construct C-904-31-4

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: C-904-31-4 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: PG & E CO -KETTLEMAN COMPRESSOR STATION
MAILING ADDRESS: ATTN: AIR QUALITY PERMITS
P O BOX 7640
SAN FRANCISCO, CA 94120

LOCATION: 34453 PLYMOUTH AVE
AVENAL, CA 93204

EQUIPMENT DESCRIPTION:
MODIFICATION OF 791 BHP CATERPILLAR MODEL G3512TA RICH-BURN NATURAL GAS-FIRED EMERGENCY STANDBY IC ENGINE WITH NON-SELECTIVE CATALYTIC REDUCTION (NSCR) POWERING AN ELECTRICAL GENERATOR: REMOVE EMERGENCY STANDBY STATUS, ALLOW OPERATION UP TO 200 HOURS PER YEAR, AND REPLACE NSCR SYSTEM WITH A NEW COASTAL IGNITION AND CONTROLS MODEL 2-DC74.5-10 NSCR SYSTEM

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District NSR Rule] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating equipment under this Authority to Construct, permittee shall provide NOx (as NO2) emission reduction credits for the following quantities of emissions: 1st quarter - 6 lb; 2nd quarter - 6 lb; 3rd quarter - 6 lb; and 4th quarter - 6 lb. Offsets shall be provided at a distance ratio of 1.5 to 1. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Prior to operating equipment under this Authority to Construct, permittee shall provide VOC emission reduction credits for the following quantities of emissions: 1st quarter - 13 lb; 2nd quarter - 13 lb; 3rd quarter - 13 lb; and 4th quarter - 13 lb. Offsets shall be provided at a distance ratio of 1.5 to 1. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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
C-904-31-4 : Mar 4 2011 11:20AM -- BROWND : Joint Inspection NOT Required

5. ERC certificate numbers (or any splits from these certificates) N-868-1 and N-868-2 shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct (ATC) shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of the ATC. [District Rule 2201] Federally Enforceable Through Title V Permit
6. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
7. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
8. 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] Federally Enforceable Through Title V Permit
9. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102] Federally Enforceable Through Title V Permit
10. This IC engine shall be fired on Public Utility Commission (PUC) regulated natural gas only. [District Rules 2201 and 4801] Federally Enforceable Through Title V Permit
11. This engine shall be equipped with either a positive crankcase ventilation (PCV) system that recirculates crankcase emissions into the air intake system for combustion, or a crankcase emissions control device of at least 90% control efficiency. [District Rule 2201] Federally Enforceable Through Title V Permit
12. This IC engine shall be equipped with a three-way catalyst. [District Rule 2201] Federally Enforceable Through Title V Permit
13. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702] Federally Enforceable Through Title V Permit
14. This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702] Federally Enforceable Through Title V Permit
15. Emissions from this IC engine shall not exceed any of the following limits: 5 ppmvd NOx @ 15% O2 (0.07 grams-NOx/bhp-hr); 56 ppmvd CO @ 15% O2 (0.60 grams-CO/bhp-hr); 25 ppmvd VOC @ 15% O2 (0.15 grams-VOC/bhp-hr); 0.02 grams-PM10/bhp-hr; or 0.0094 grams-SOx/bhp-hr. [District Rule 2201] Federally Enforceable Through Title V Permit
16. Operation of this IC engine shall not exceed 200 hours per year. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit
17. During periods of operation, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702] Federally Enforceable Through Title V Permit
18. This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702] Federally Enforceable Through Title V Permit
19. 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, and any other information necessary to demonstrate compliance with Rule 4702. [District Rule 4702] Federally Enforceable Through Title V Permit
20. 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 Rule 4702] Federally Enforceable Through Title V Permit