RE

PROOF OF PUBLICATION

The BAKERSFIELD CALIFORNIAN
P.O. BOX 440
BAKERSFIELD, CA 93302

RECEIVED
APR 21 2008
SJVAPCD
Southern Region

Ad Number:	10835667	**PO #:**	S-1075362
Edition:	TBC	**Run Times**	1
Class Code	Legal Notices		
Start Date	4/10/2008	**Stop Date**	4/10/2008
Billing Lines	20	**Inches**	120.92
Total Cost	$ 74.60	**Account**	1SAN51
Billing Address	SAN JOAQUIN VALLEY A.P.C.D. 1990 E GETTYSBURGFRED BATES FRESNO,CA 93726		

SAN JOAQUIN VALLEY A.P.C.D.
1990 E GETTYSBURG FRED BATES
FRESNO, CA 93726

RECEIVED
APR 14 2008
FINANCE
SJVAPCD

--

STATE OF CALIFORNIA
COUNTY OF KERN

I AM A CITIZEN OF THE UNITED STATES AND A RESIDENT OF THE COUNTY AFORESAID: I AM OVER THE AGE OF EIGHTEEN YEARS, AND NOT A PARTY TO OR INTERESTED IN THE ABOVE ENTITLED MATTER. I AM THE ASSISTANT PRINCIPAL CLERK OF THE PRINTER OF THE BAKERSFIELD CALIFORNIAN, A NEWSPAPER OF GENERAL CIRCULATION, PRINTED AND PUBLISHED DAILY IN THE CITY OF BAKERSFIELD COUNTY OF KERN,

AND WHICH NEWSPAPER HAS BEEN ADJUDGED A NEWSPAPER OF GENERAL CIRCULATION BY THE SUPERIOR COURT OF THE COUNTY OF KERN, STATE OF CALIFORNIA, UNDER DATE OF FEBRUARY 5, 1952, CASE NUMBER 57610; THAT THE NOTICE, OF WHICH THE ANNEXED IS A PRINTED COPY, HAS BEEN PUBLISHED IN EACH REGULAR AND ENTIRE ISSUE OF SAID NEWSPAPER
AND NOT IN ANY SUPPLEMENT THEREOF ON THE FOLLOWING DATES, TO WIT: 4/10/08

ALL IN YEAR 2008

I CERTIFY (OR DECLARE) UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.

Cathy Wynne

DATED AT BAKERSFIELD CALIFORNIA

4-10-08

Solicitor I.D.: 0

First Text
NOTICE OF PRELIMINARY DECISIONFOR THE PR

Ad Number 10835667

NOTICE OF PRELIMINARY DECISION FOR THE PROPOSED ISSUANCE OF EMISSION REDUCTION CREDITS

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Emission Reduction Credits to Aera Energy LLC for the shutdown of 6 natural gas-fired IC engines driving pre-compressors and refrigeration compressors , at the Section 15 Lost Hills Gas Plant. The quantity of ERCs proposed for banking is 23,654 lb/yr NOx, 1,669 lb/yr PM10, 105,498 lb/yr CO, and 23,079 lb/yr VOCs.

The analysis of the regulatory basis for these proposed actions, Project #S-1075362, is available for public inspection at the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 2700 'M' STREET SUITE 275, BAKERSFIELD, CA 93301.
April 10, 2008 (10835667)

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

APR 0 7 2008

Brent Winn
Aera Energy LLC
PO Box 11164
Bakersfield, CA 93389

Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: S-1075362

Dear Mr. Winn:

Enclosed for your review and comment is the District's analysis of Aera Energy LLC's application for Emission Reduction Credits (ERCs) resulting from the shutdown of 6 natural gas-fired IC engines driving pre-compressors and refrigeration compressors , at the Section 15 Lost Hills Gas Plant. The quantity of ERCs proposed for banking is 23,654 lb/yr NOx, 1,669 lb/yr PM10, 105,498 lb/yr CO, and 23,079 lb/yr VOCs.

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

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Richard Edgehill of Permit Services at (661) 326-6958.

Sincerely,

David Warner
Director of Permit Services

DW:RUE/ls

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

Southern Region
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
Tel: (661) 326-6900 FAX: (661) 326-6985

www.valleyair.org

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

APR 0 7 2008

Gerardo C. Rios (AIR 3)
Chief, Permits Office
Air Division
U.S. E.P.A. - Region IX
75 Hawthorne Street
San Francisco, CA 94105

Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: S-1075362

Dear Mr. Rios:

Enclosed for your review and comment is the District's analysis of Aera Energy LLC's application for Emission Reduction Credits (ERCs) resulting from the shutdown of 6 natural gas-fired IC engines driving pre-compressors and refrigeration compressors , at the Section 15 Lost Hills Gas Plant. The quantity of ERCs proposed for banking is 23,654 lb/yr NOx, 1,669 lb/yr PM10, 105,498 lb/yr CO, and 23,079 lb/yr VOCs.

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

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Richard Edgehill of Permit Services at (661) 326-6958.

Sincerely,

David Warner
Director of Permit Services

DW:RUE/ls

Enclosure

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

Southern Region
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
Tel: (661) 326-6900 FAX: (661) 326-6985

www.valleyair.org

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

APR 0 7 2008

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

Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: S-1075362

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of Aera Energy LLC's application for Emission Reduction Credits (ERCs) resulting from the shutdown of 6 natural gas-fired IC engines driving pre-compressors and refrigeration compressors , at the Section 15 Lost Hills Gas Plant. The quantity of ERCs proposed for banking is 23,654 lb/yr NOx, 1,669 lb/yr PM10, 105,498 lb/yr CO, and 23,079 lb/yr VOCs.

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

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Richard Edgehill of Permit Services at (661) 326-6958.

Sincerely,

David Warner
Director of Permit Services

DW:RUE/ls

Enclosure

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

Southern Region
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
Tel: (661) 326-6900 FAX: (661) 326-6985

www.valleyair.org

Bakersfield Californian
Bakersfield Californian

**NOTICE OF PRELIMINARY DECISION
FOR THE PROPOSED ISSUANCE OF
EMISSION REDUCTION CREDITS**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Emission Reduction Credits to Aera Energy LLC for the shutdown of 6 natural gas-fired IC engines driving pre-compressors and refrigeration compressors , at the Section 15 Lost Hills Gas Plant. The quantity of ERCs proposed for banking is 23,654 lb/yr NOx, 1,669 lb/yr PM10, 105,498 lb/yr CO, and 23,079 lb/yr VOCs.

The analysis of the regulatory basis for these proposed actions, Project #S-1075362, is available for public inspection at the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 2700 'M' STREET SUITE 275, BAKERSFIELD, CA 93301.**

APPLICATION REVIEW
EMISSION REDUCTION CREDIT BANKING

Facility Name:	Aera Energy LLC
Mailing Address:	P.O. Box 11164 Bakersfield, CA 93389
Contact Name:	Brent Winn, Environmental Engineer
Telephone:	(661) 665-4363
Engineer:	Richard Edgehill, Air Quality Engineer
Date:	March 27, 2008
Lead Engineer:	Leonard Scandura, Supv. AQE
Date:	
Project Number:	S-43, 1075362
ERC Certificate #s:	S-2774-1 (VOC), S-2774-2 (NOx), S-2774-3 (CO), and S-2774-4 (PM10)
Date Received:	November 8, 2007
Date Complete:	December 6, 2007

I. SUMMARY

Aera Energy LLC (Aera) has applied for Emission Reduction Credits (ERCs) for the shutdown of 6 (three 1,100 hp and three 826 hp) lean burn natural gas-fired IC engines driving Section 15 Gas Plant Compressors (S-43-4 through '-9). The Permits to Operate (PTOs) for the IC engines were canceled August 27, 2007. The application for ERCs is timely because it was filed within 180 days following the shut down pursuant to Rule 2301, "Emission Reduction Credit Banking", Section 4.2.3.

The following emission reductions have been found to qualify for banking:

Emission Reductions Qualified for Banking (lbs)				
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	5817	4899	4757	8181
PM10	443	368	369	489
CO	29,596	23125	21911	30866
VOCs	8176	5745	5185	3973

Please note that the entire gas plant was shutdown in 2007. An ERC application for the shutdown of one small heater is pending project S43, 1080067.

II. APPLICABLE RULES

Rule 2201 New and Modified Stationary Source Review Rule (September 21, 2006)
Rule 2301 Emission Reduction Credit Banking (December 17, 1992)

III. PROJECT LOCATION

The subject 6 IC engines are located at the Lost Hills Section 15 Gas Plant (facility S-43), NE Section 15, T27S, R21E.

IV. METHOD OF GENERATING REDUCTIONS

Aera's sale of the gas plant equipment to Crimson Resource Management was finalized July 19, 2007. The equipment has been shutdown and will be removed from the site. The permits for the IC engines were surrendered August 27, 2007.

The PTOs are included in **Attachment I**.

V. CALCULATIONS

A. Assumptions

Fuel higher heating value = 1106.3 Btu/scf (**Attachment II**).

NOx, CO, and PM10 HAE is calculated based on the fuel use (mcf) multiplied times the emissions factors (lb/MMscf).

Emissions Factors

PM10: AP-42 Table 3.2-1 Uncontrolled Emissions Factors for 4-Stroke Lean-Burn Engines (**Attachment III**)

1106.3 MMBtu/MMscf x (0.00991 lb/MMBtu (condensable) + 0.0000771 lb/MMBtu (filterable)) = 11.05 lb/MMscf

NOx, CO, and VOC: The emissions factors used to calculate the HAE for 2002 and 2003 were the source test data for 2002. The emissions factors used to calculate the HAE for 2004 were the source test data for 2004. All of the source test measurements were less than the District Rule 4702 limits of 65 ppmv NOx @ 15% O_2, 2000 ppmv CO @ 15% O_2, and 750 ppmv VOC @ 15% O_2.

Quarterly Allocated Fuel Use for IC Engines

The three pre-compressor engines '-4 through '-6 share one fuel meter and the three refrigeration compressors share another fuel meter. Therefore, allocated fuel use for each IC engine is equal to the total fuel use for either the pre-compressors or the refrigeration compressors multiplied times fraction of total run time (pre-compressors or refrigeration compressors) associated with each engine.

B. Emissions Factors

The source test measurements and emissions factors for NOx, CO, and VOC are listed in the tables below. The source test summaries are included in **Attachment IV**.

NOx ppm @ 15% O_2 [lb/MMscf]						
	S-43-4	S-43-5	S-43-6	S-43-7	S-43-8	S-43-9
District Rule 4702 limit	65 [244.3]	65 [244.3]	65 [244.3]	65 [244.3]	65 [244.3]	65 [244.3]
2002 source test	45.6 [184.3]	46.8 [189.0]	50.7 [204.8]	43.7 [176.4]	34.9 [141.1]	61.8 [249.8]
2004 source test	14.3 [56.0]	15.4 [60.3]	13.6 [53.3]	51.4 [207.9]	21.9 [88.4]	14.2 [57.6]

CO ppm @ 15% O_2 [lb/MMscf]						
	S-43-4	S-43-5	S-43-6	S-43-7	S-43-8	S-43-9
District Rule 4702 Limit	2000 [4574]	2000 [4574]	2000 [4574]	2000 [4574]	2000 [4574]	2000 [4574]
2002 source test	270 [663.6]	258.3 [635.0]	217.8 [535.6]	422.8 [1039.5]	268.9 [660.9]	286.8 [705.0]
2004 source test	383 [913.0]	340 [811.4]	310 [740.2]	317 [780.4]	181 [447.0]	204 [503.2]

VOC ppm @ 15% O_2 [lb/MMscf]						
	S-43-4	S-43-5	S-43-6	S-43-7	S-43-8	S-43-9
District Rule 4702 Limit	750 [980.1]	750 [980.1]	750 [980.1]	750 [980.1]	750 [980.1]	750 [980.1]
2002 source test	67 [94.0]	36.6 [51.4]	255.5 [358.9]	45.1 [63.3]	38.8 [54.5]	42.8 [60.2]
2004 source test	308.1 [420.0]	303.4 [413.6]	214.1 [291.8]	57.6 [81.0]	68.5 [119.0]	53.8 [75.7]

Emissions monitoring measurements of CO and NOx were examined. A comparision between average portable analyzer readings for CO and NOx and source test

measurements is provided in **Attachment V**. Portable analyzer readings were generally higher (27 of the 36 comparisons) than source test data justifying use of the source test data to calculate HAE.

B. Baseline Period Determination and Data

Pursuant to District Rule 2201, Section 3.8, the baseline period for determining actual historical emissions for banking purposes shall be a period of time equal to either:

3.8.1 the two consecutive years of operation immediately prior to the submission date of the Complete Application; or

3.8.2 at least two consecutive years within the five years immediately prior to the submission date of the Complete Application if determined by the APCO as more representative of normal source operation; or

3.8.3 a shorter period of at least one year if the emissions unit has not been in operation for two years and this represents the full operational history of the emissions unit, including any replacement units; or

3.8.4 zero years if an emissions unit has been in operation for less than one year (only for use when calculating AER).

The ERC application was deemed complete on December 6, 2007. The two-year period immediately prior to submission of the complete ERC application (December 2005 - December 2007) is not considered representative of normal operation. In 2004 produced gas from Aera and Chevron was diverted from the gas plant and operations were severely curtailed. After 2004, engines S-43-4 through '-9 were either not operating or were consuming much less than normal quantities of gas.

Section 3.8.2 of Rule 2201 allows for another consecutive two year period if it is representative of normal operation and is within 5 yrs of submission of the complete ERC application i.e. a two-year period beginning after December 2, 2002. The time period from 4th Quarter 2002 through 3rd Quarter 2004 was selected as the baseline period.

Please note that this two year period ends 1 quarter earlier than the baseline period in project 1080067 as the IC engine compressors were shutdown before the hot oil heater. The demand for the compressor engines was significantly reduced in May 2004 when Aera stopped processing their Lost Hills produced gas in the plant. However, Chevron continued to send their Lost Hills gas for processing - until January 2005. The hot oil heater provided heat for the plant processes (for such things as glycol reboiler) and therefore it had to remain in operation until January 2005 when Chevron stopped sending gas to the plant

C. Historical Actual Emissions

Quarterly Fuel Use for IC Engines

Quarterly fuel use for each engine is calculated as the fraction of quarterly operation time associated with each engine multiplied times the quarterly fuel consumption for the engines served by a common fuel meter.

A sample calculation of allocated fuel usage by pre-compressor '-4 in October 2002 follows:

Engine '-4 total operating hours for October 2002 = 350 hrs
Combined pre-compressor ('-4 through '-6) operating hours October 2002 = 1471 hrs
Combined pre-compressor ('-4 through '-6) fuel consumption October 2002 = 8904 mcf

Allocated fuel to engine '-4 = 350/1471 x 8904 = 2,119 mcf (October 2002)

The monthly operational hours and calculated quarterly fuel usage by each engine over the baseline period (4th Quarter 2002 through 3rd Quarter 2004) are included in **Attachment VI**.

Calculation of HAE for IC Engines

HAE is the product of quarterly fuel use for each engine (mcf) times the emissions factor in lb/MMscf. Sample calculations for engine S-43-4 for 4th Quarter 2002 and 3rd Quarter 2004 follow:

4th quarter 2002:
NOx: 9312 mcf x 184.3 lb/1000 mcf = 1716 lb NOx
CO: 9312 mcf x 663.6 lb/1000 mcf = 6179 lb CO
VOC: 9312 mcf x 94 lb/1000 mcf = 875 lb VOC
PM10: 9312 mcf x 11.05 lb/1000 mcf = 103 lb PM10

3rd quarter 2004:
NOx: 865 mcf x 56 lb/1000 mcf = 48 lb NOx
CO: 865 mcf x 913 lb/1000 mcf = 790 lb CO
VOC: 865 mcf x 420 lb/1000 mcf = 363 lb VOC
PM10: 865 mcf x 11.05 lb/1000 mcf = 10 lb PM10

The results of the calculations for IC engine '-4 over the baseline period are listed in the table below.

S-43-4 HAE

Quarter	Actual fuel consumption (mcf)	NOx (lb/qtr)	VOC	CO	PM10
4th quarter 2002	9312	1716	875	6179	103
1st quarter 2003	6,330	1167	595	4201	70
2nd quarter 2003	4,373	806	411	2902	48
3 rd quarter 2003	8,549	1576	804	5673	95
4th quarter 2003	13,397	2469	1259	8890	148
1st quarter 2004	13,289	744	5581	12,134	147
2nd quarter 2004	5,100	286	2142	4,656	56
3rd quarter 2004	865	48	363	790	10

The average quarterly HAE is ½ the sum of the two values for each quarter listed in the above table. Calculation of the HAE for 1st quarter NOx is as follows:

(1167 + 744)/2 = 955 lb/qtr

The results of the additional calculations of HAE for each engine and the combined HAE for all of the engines are included in **Attachment VII** and are summarized in the table below.

Total Average Quarterly HAE

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	6463	5443	5286	9090
PM10	492	409	410	543
CO	32,884	25694	24,346	34,296
VOC	9085	6383	5761	4415

D. Actual Emission Reductions (AER)

Aera has applied for ERC banking credits for the permanent cessation of six IC engines (S-43-4 through '-9). The engines are not being replaced. Therefore, the HAE is equal to the actual emissions reductions (AER).

AER = HAE

AER (lbs/Qtr)	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	6463	5443	5286	9090
PM10	492	409	410	543
CO	32,884	25694	24,346	34,296
VOC	9085	6383	5761	4415

E. Air Quality Improvement Deduction (10% of AER)

AQID (lbs/Qtr)	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	646	544	529	909
PM10	49	41	41	54
CO	3288	2569	2435	3430
VOC	909	638	576	442

F. Increases in Permitted Emissions (IPE)

No IPE is associated with this project.

G. Bankable Emissions Reductions Credits (AER – AQID)

ERC (lbs/Qtr)	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	5817	4899	4757	8181
PM10	443	368	369	489
CO	29,596	23125	21911	30866
VOC	8176	5745	5185	3973

VI. COMPLIANCE

To be eligible for banking, emission reduction credits (ERC's) must be verified as being real, surplus, permanent, quantifiable, and enforceable pursuant to District Rules 2201 and 2301. In addition, the application must be submitted within the timelines specified in Rule 2301.

A. Real

Aera has ceased operation of the six subject IC engines. They are currently being dismantled and removed from the site. Therefore, the reductions from S-43 are real.

B. Enforceable

The permits for the IC engines were surrendered August 27, 2007. Therefore, the reductions are enforceable.

C. Quantifiable

The AER's were calculated using District recognized emission factors and actual historical fuel use data. Therefore, the reductions are quantifiable.

D. Permanent

Aera has ceased operation of the six IC engines. The engines will be dismantled and removed from facility S-43. Aera's sale of the six IC engines to Crimson Resource Management was finalized July 19, 2007. However, Crimson Resource Management will not be allowed to operate the engines at any location without first receiving Authorities to Construct subject to the offset requirements of District Rule 2201 New Source Review. Therefore, the reductions are permanent.

E. Surplus

The reductions which qualify for banking are based on emissions which are less than required by District Rule 4702 i.e. 65 ppmv @ 15% O_2 for NOx, 2000 ppmv @ 15% O_2 for CO, and 750 ppm @ 15% O_2 for VOC. Therefore, the reductions are surplus.

F. Timeliness

An application for ERC's was received on November 8, 2007, within 180 days following the shutdown pursuant to Rule 2301, "Emission Reduction Credit Banking", Section 4.2.3. According to District policy 1805 shutdown is the date the permits were surrendered unless the Control Officer determines that:

(a) the unit has been removed or fallen into an inoperable and unmaintained condition such that start-up would require an investment exceeding 50% of the current replacement cost; and
(b) the owner cannot demonstrate to the satisfaction of the Control Officer that the owner intended to operate again. Evidence of "intent to operate again" may include valid production contracts, orders, other agreements, or any economically based reasons which would require the operation of the emissions unit.

The engines were not removed and had not fallen into inoperable and un-maintained condition such that start-up would require an investment exceeding 50% of the current replacement cost prior to surrendering the PTOs (August 27, 2007). Because the ERC application was filed no later than 180 days after August 27, 2007 (the date the PTO was surrendered), the application is timely.

VII. RECOMMENDATION

After public notice, comments and review, issue ERC Banking Certificates S-2774-1, S-2774-2, S-2774-3, and S-2774-4 to Aera Energy LLC for the following amounts:

ERC Certificate	1st Qtr (lbs)	2nd Qtr (lbs)	3rd Qtr (lbs)	4th Qtr (lbs)
S-2774-1 (VOC)	8176	5745	5185	3973
S-2774-2 (NOx)	5817	4899	4757	8181
S-2774-3 (CO)	29,596	23,125	21,911	30,866
S-2774-4 (PM10)	443	368	369	489

The draft ERC certificates are included in **Attachment VIII**.

Aera Energy LLC
S-43, Project 1075382

ATTACHMENT I
PTOs

CONDITIONS FOR PERMIT S-43-4-15

EXPIRATION DATE: 08/31/2009

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389

LOCATION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

SECTION: NE15 **TOWNSHIP:** 27S **RANGE:** 21E

EQUIPMENT DESCRIPTION:
1,100 BHP PRECOMPRESSION OPERATION #1 INCLUDING SUPERIOR NATURAL GAS FIRED IC ENGINE AND SHARING WITH PERMITS S-43-5 AND '-6 INLET SEPARATORS (V28/V29), COMPRESSOR (C-2C), AIR COOLER (AC-6A), SCRUBBER (V-30A) AND MISCELLANEOUS VALVES AND FLANGES

CONDITIONS

1. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Upon 7 days written notice to the District this engine may be designated as a dormant emission unit or an active emission unit. [District Rule 1070]
3. When designated as a dormant emissions unit fuel supply line shall be physically disconnected from the emission unit. [District Rule 2080]
4. Source testing is required within 60 days of recommencing operation if a source test has not been performed within the past 24 months. [District Rules 2201, 4701, and 4702]
5. During non operation of this unit the permittee shall not be required to perform source testing, fuel sulfur content certification, and monitoring requirements. [District Rules 2201, 4701, and 4702]
6. Permittee shall maintain accurate records of the time and duration of non operation of this unit. [District Rules 2201, 4701, and 4702]
7. Operation shall include lube oil head tank (V-26) and I.C. engine fuel scrubber (V-4) shared between permit unit #'s S-43-4, '-5, '-6, '-7, '-8, and '-9. [District NSR Rule]
8. Fuel gas sulfur content shall not exceed 0.3 gr/dscf as H2S. [District NSR Rule]
9. Condensate from compressor scrubbers and inlet separators shall be piped to low-pressure condensate vessel of permit S-43-1 or to any tank at the Lost Hill 1 treating facility served by vapor collection and control system S-1548-120. [District NSR Rule]
10. Distance piece vents shall be inspected and any packing leaks repaired in accordance with Rules 4403, as applicable. [District Rule 4403]
11. Pre-compressors with packing leaks shall be shut down within 72 hours and packing leaks repaired prior to re-starting. [District Rule 2201]
12. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (Source Sampling). [District Rule 1081, 3.0]
13. PM-10 emission rate shall not exceed 0.10 lb/hr. [District NSR Rule]
14. SO2 emission rate shall not exceed 0.01 lb/hr. [District NSR Rule]
15. Oxides of nitrogen (as NO2) emission rate shall not exceed 65 ppmv @ 15% O2 and 53.5 lb/day. [District Rule 4701 and 4702]
16. Volatile organic compounds (VOC's) emission rate shall not exceed 304 ppmv @ 15% O2 and 87.1 lb/day. [District NSR Rule]
17. Carbon monoxide (CO) emission rate shall not exceed 463 ppmv @ 15% O2 and 232.6 lb/day. [District NSR Rule]

CONDITIONS FOR PERMIT S-43-4-15

18. District-witnessed source testing for NOx and CO emission rates shall be conducted using CARB Method 100, and District-witnessed source testing for VOC emission rates shall be conducted using EPA Method 25 or EPA Method 18, referenced as methane, not less than once every 24 months. [District NSR Rule]
19. Documentation of fuel gas sulfur content shall be submitted to District with source test results. [District NSR Rule]
20. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Rule 404 (Madera), 406 (Fresno) and 407 (6 remaining counties in the San Joaquin Valley)]
21. Particulate emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201; Rule 402 (Madera) and 404 (all 7 remaining counties in the San Joaquin Valley)]
22. If the IC engine is fired on certified natural gas, then maintain on file copies of all natural gas bills or suppliers certification of sulfur content. [District Rule 1070]
23. If the engine is not fired on certified natural gas, then the sulfur content of the gas shall be determined using ASTM D 1072-80, D 3031-81, D 4084-82, D 3246-81 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 1070]
24. If the engine is not fired on certified natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rule 1071]
25. The operator of an internal combustion (IC) engine shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 1070]
26. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall be performed not less than once every month for 12 months if 2 consecutive deviations are observed during quarterly monitoring. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the last quarter if on a quarterly monitoring schedule. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4701 and 4702]
27. If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4701 and 4702]
28. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702]
29. The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702]
30. The permittee shall install and operate a nonresettable fuel meter and a nonresettable elapsed operating time meter. In lieu of installing a nonresettable fuel meter, the owner or operator may use an alternate device, method, or technique in determining monthly fuel consumption provided that the alternative is approved by the APCO. [District Rule 4702]

CONDITIONS FOR PERMIT S-43-4-15

31. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Maintenance (I&M) plan submitted to the District. [District Rule 4702]

32. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO no later than 14 days after the change for approval. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]

33. All compressors associated with this permit unit shall be reciprocating compressors in wet gas service only. In wet gas service means that a piece of equipment contains or contacts the field gas before the extraction step in the process. [40 CFR 60.482-3(b), 60.633(f), 60.482-3(a), and 60.632(f)]

34. 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 and quantity (cubic feet of gas or gallons of liquid) of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

35. Records shall be kept of leaks from distance piece vents and compliance with required repair timelines pursuant to Rules 4403, as applicable. [District Rule 4403]

36. Records of inspections, repairs and maintenance of fugitive VOC sources shall be kept and made readily available for District inspection. [District Rule 1070]

CONDITIONS FOR PERMIT S-43-5-14

EXPIRATION DATE: 08/31/2009

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389

LOCATION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

SECTION: NE15 **TOWNSHIP:** 27S **RANGE:** 21E

EQUIPMENT DESCRIPTION:
1,100 BHP PRECOMPRESSION OPERATION #2 INCLUDING SUPERIOR NATURAL GAS FIRED IC ENGINE AND SHARING WITH PERMITS S-43-4 AND '-6 INLET SEPARATORS (V28/V29), COMPRESSOR (C-2B), AIR COOLER (AC-6A), SCRUBBER (V-30A) AND MISCELLANEOUS VALVES AND FLANGES

CONDITIONS

1. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Upon 7 days written notice to the District this engine may be designated as a dormant emission unit or an active emission unit. [District Rule 1070]
3. When designated as a dormant emissions unit fuel supply line shall be physically disconnected from the emission unit. [District Rule 2080]
4. Source testing is required within 60 days of recommencing operation if a source test has not been performed within the past 24 months. [District Rules 2201, 4701, and 4702]
5. During non operation of this unit the permittee shall not be required to perform source testing, fuel sulfur content certification, and monitoring requirements. [District Rules 2201, 4701, and 4702]
6. Permittee shall maintain accurate records of the time and duration of non operation of this unit. [District Rules 2201, 4701, and 4702]
7. Operation shall include lube oil head tank (V-26) and I.C. engine fuel scrubber (V-4) shared between permit unit #'s S-43-4, '-5, '-6, '-7, '-8, and '-9. [District NSR Rule]
8. Fuel gas sulfur content shall not exceed 0.3 gr/dscf as H2S. [District NSR Rule]
9. Condensate from compressor scrubbers and inlet separators shall be piped to low-pressure condensate vessel of permit S-43-1 or to any tank at the Lost Hill 1 treating facility served by vapor collection and control system S-1548-120. [District NSR Rule]
10. Distance piece vents shall be inspected and any packing leaks repaired in accordance with Rules 4403, as applicable. [District Rule 4403]
11. Pre-compressors with packing leaks shall be shut down within 72 hours and packing leaks repaired prior to re-starting. [District Rule 2201]
12. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (Source Sampling). [District Rule 1081, 3.0]
13. PM-10 emission rate shall not exceed 0.10 lb/hr. [District NSR Rule]
14. SO2 emission rate shall not exceed 0.01 lb/hr. [District NSR Rule]
15. Oxides of nitrogen (as NO2) emission rate shall not exceed 65 ppmv @ 15% O2 and 53.5 lb/day. [District Rules 4701 and 4702]
16. Volatile organic compounds (VOC's) emission rate shall not exceed 304 ppmv @ 15% O2 and 87.1 lb/day. [District NSR Rule]
17. Carbon monoxide (CO) emission rate shall not exceed 463 ppmv @ 15% O2 and 232.6 lb/day. [District NSR Rule]

CONDITIONS FOR PERMIT S-43-5-14

18. District-witnessed source testing for NOx and CO emission rates shall be conducted using CARB Method 100, and District-witnessed source testing for VOC emission rates shall be conducted using EPA Method 25 or EPA Method 18, referenced as methane, not less than once every 24 months. [District NSR Rule]
19. Documentation of fuel gas sulfur content shall be submitted to District with source test results. [District NSR Rule]
20. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Rule 4801]
21. Particulate emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201]
22. If the IC engine is fired on certified natural gas, then maintain on file copies of all natural gas bills or suppliers certification of sulfur content. [District Rule 2080]
23. If the engine is not fired on certified natural gas, then the sulfur content of the gas shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 2080]
24. If the engine is not fired on certified natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rule 2080]
25. The operator of an internal combustion (IC) engine shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2080]
26. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall be performed not less than once every month for 12 months if 2 consecutive deviations are observed during quarterly monitoring. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the last quarter if on a quarterly monitoring schedule. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4701 and 4702]
27. {2993} If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4701 and 4702]
28. {2994} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702]
29. {2995} The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702]
30. The permittee shall install and operate a nonresettable fuel meter and a nonresettable elapsed operating time meter. In lieu of installing a nonresettable fuel meter, the owner or operator may use an alternate device, method, or technique in determining monthly fuel consumption provided that the alternative is approved by the APCO. [District Rule 4702]

CONDITIONS FOR PERMIT S-43-5-14

31. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Maintenance (I&M) plan submitted to the District. [District Rule 4702]

32. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO no later than 14 days after the change for approval. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]

33. 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 and quantity (cubic feet of gas or gallons of liquid) of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

34. All compressors associated with this permit unit shall be reciprocating compressors in wet gas service only. In wet gas service means that a piece of equipment contains or contacts the field gas before the extraction step in the process. [40 CFR 60.482-3(b), 60.633(f), 60.482-3(a), and 60.632(f)]

35. Records shall be kept of leaks from distance piece vents and compliance with required repair timelines pursuant to Rules 4403, as applicable. [District Rule 4403]

36. Records of inspections, repairs and maintenance of fugitive VOC sources shall be kept and made readily available for District inspection. [District Rule 2080]

CONDITIONS FOR PERMIT S-43-6-14

EXPIRATION DATE: 08/31/2009

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389

LOCATION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

SECTION: NE15 **TOWNSHIP:** 27S **RANGE:** 21E

EQUIPMENT DESCRIPTION:
1,100 BHP PRECOMPRESSION OPERATION #3 INCLUDING SUPERIOR NATURAL GAS IC ENGINE AND SHARING WITH PERMIT UNIT S-43-4 AND '-5 INLET SCRUBBERS (V28/V29), COMPRESSOR (C-2A), AIR COOLER (AC-6A), SCRUBBER (V-30A) AND MISCELLANEOUS VALVES AND FLANGES

CONDITIONS

1. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Upon 7 days written notice to the District this engine may be designated as a dormant emission unit or an active emission unit. [District Rule 1070]
3. When designated as a dormant emissions unit fuel supply line shall be physically disconnected from the emission unit. [District Rule 2080]
4. Source testing is required within 60 days of recommencing operation if a source test has not been performed within the past 24 months. [District Rules 2201, 4701, and 4702]
5. During non operation of this unit the permittee shall not be required to perform source testing, fuel sulfur content certification, and monitoring requirements. [District Rules 2201, 4701, and 4702]
6. Permittee shall maintain accurate records of the time and duration of non operation of this unit. [District Rules 2201, 4701, and 4702]
7. Operation shall include lube oil head tank (V-26) and I.C. engine fuel scrubber (V-4) shared between permit unit #'s S-43-4, '-5, '-6, '-7, '-8, and '-9. [District NSR Rule]
8. Fuel gas sulfur content shall not exceed 0.3 gr/dscf as H2S. [District NSR Rule]
9. Condensate from compressor scrubbers and inlet separators shall be piped to low-pressure condensate vessel of permit S-43-1 or to any tank at the Lost Hill 1 treating facility served by vapor collection and control system S-1548-120. [District NSR Rule]
10. Distance piece vents shall be inspected and any packing leaks repaired in accordance with Rules 4403, as applicable. [District Rule 4403]
11. Pre-compressors with packing leaks shall be shut down within 72 hours and packing leaks repaired prior to re-starting. [District Rule 2201]
12. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (Source Sampling). [District Rule 1081, 3.0]
13. PM-10 emission rate shall not exceed 0.10 lb/hr. [District NSR Rule]
14. SO2 emission rate shall not exceed 0.01 lb/hr. [District NSR Rule]
15. Oxides of nitrogen (as NO2) emission rate shall not exceed 65 ppmv @ 15% O2 and 53.5 lb/day. [District Rules 4701 and 4702]
16. Volatile organic compounds (VOC's) emission rate shall not exceed 304 ppmv @ 15% O2 and 87.1 lb/day. [District NSR Rule]
17. Carbon monoxide (CO) emission rate shall not exceed 463 ppmv @ 15% O2 and 232.6 lb/day. [District NSR Rule]

CONDITIONS FOR PERMIT S-43-6-14

18. District-witnessed source testing for NOx and CO emission rates shall be conducted using CARB Method 100, and District-witnessed source testing for VOC emission rates shall be conducted using EPA Method 25 or EPA Method 18, referenced as methane, not less than once every 24 months. [District NSR Rule]
19. Documentation of fuel gas sulfur content shall be submitted to District with source test results. [District NSR Rule]
20. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Rule 4801]
21. Particulate emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201]
22. If the IC engine is fired on certified natural gas, then maintain on file copies of all natural gas bills or suppliers certification of sulfur content. [District Rule 2080]
23. If the engine is not fired on certified natural gas, then the sulfur content of the gas shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 2080]
24. If the engine is not fired on certified natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rule 2080]
25. The operator of an internal combustion (IC) engine shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2080]
26. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall be performed not less than once every month for 12 months if 2 consecutive deviations are observed during quarterly monitoring. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the last quarter if on a quarterly monitoring schedule. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4701 and 4702]
27. {2993} If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4701 and 4702]
28. {2994} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702]
29. {2995} The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702]
30. The permittee shall install and operate a nonresettable fuel meter and a nonresettable elapsed operating time meter. In lieu of installing a nonresettable fuel meter, the owner or operator may use an alternate device, method, or technique in determining monthly fuel consumption provided that the alternative is approved by the APCO. [District Rule 4702]

CONDITIONS FOR PERMIT S-43-6-14

31. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Maintenance (I&M) plan submitted to the District. [District Rule 4702]

32. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO no later than 14 days after the change for approval. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]

33. 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 and quantity (cubic feet of gas or gallons of liquid) of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

34. All compressors associated with this permit unit shall be reciprocating compressors in wet gas service only. In wet gas service means that a piece of equipment contains or contacts the field gas before the extraction step in the process. [40 CFR 60.482-3(b), 60.633(f), 60.482-3(a), and 60.632(f)]

35. Records shall be kept of leaks from distance piece vents and compliance with required repair timelines pursuant to Rules 4403, as applicable. [District Rule 4403]

36. Records of inspections, repairs and maintenance of fugitive VOC sources shall be kept and made readily available for District inspection. [District Rule 2080]

CONDITIONS FOR PERMIT S-43-7-11

EXPIRATION DATE: 08/31/2009

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389

LOCATION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

SECTION: NE15 **TOWNSHIP:** 27S **RANGE:** 21E

EQUIPMENT DESCRIPTION:
825 BHP REFRIGERATION COMPRESSION UNIT #4 INCLUDING NATURAL GAS FIRED IC ENGINE AND SHARED W/ PERMIT UNITS S-43-8 & '-9 SUCTION SCRUBBER (V-6), ECONOMIZER (V-7), SURGE TANK (V-9), COMPRESSOR (C-1C), OIL TRAP (V-10) & CONDENSERS (AC-1A, AC-1B, AC-1C)

CONDITIONS

1. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Upon 7 days written notice to the District this engine may be designated as a dormant emission unit or an active emission unit. [District Rule 1070]
3. When designated as a dormant emissions unit fuel supply line shall be physically disconnected from the emission unit. [District Rule 2080]
4. Source testing is required within 60 days of recommencing operation if a source test has not been performed within the past 24 months. [District Rules 2201, 4701, and 4702]
5. During non operation of this unit the permittee shall not be required to perform source testing, fuel sulfur content certification, and monitoring requirements. [District Rules 2201, 4701, and 4702]
6. Permittee shall maintain accurate records of the time and duration of non operation of this unit. [District Rules 2201, 4701, and 4702]
7. This engine shall not be operated after June 1, 2007 for any reason without an ATC including the Rule 4702 emissions limits and any necessary retrofits needed to comply with the applicable requirements of District Rule 4702. [District Rule 4702]
8. Operation shall include lube oil head tank (V-26) and I.C. engine fuel scrubber (V-4) shared between permit unit #'s S-43-4, '-5, '-6, '-7, '-8, and '-9. [District NSR Rule]
9. Compressor distance piece shall be vented to the vapor recovery system listed on PTO# S-43-3. [District NSR Rule]
10. Fuel gas sulfur content shall not exceed 0.3 gr/dscf as H2S. [District NSR Rule]
11. Condensate from compressor scrubbers and inlet separators shall be piped to low-pressure condensate vessel of permit S-43-1 or to any tank at the Lost Hill 1 treating facility served by vapor collection and control system S-1548-120. [District NSR Rule]
12. Records of inspections, repairs and maintenance of fugitive VOC sources shall be kept and made readily available for District inspection. [District Rule 1070]
13. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (Source Sampling). [District Rule 1081, 3.0]
14. PM-10 emission rate shall not exceed 0.10 lb/hr. [District NSR Rule]
15. SO2 emission rate shall not exceed 0.01 lb/hr. [District NSR Rule]
16. Oxides of nitrogen (as NO2) emission rate shall not exceed 65 ppmv @ 15% O2 and 40.2 lb/day. [District Rule 4701]
17. Volatile organic compounds (VOC's) emission rate shall not exceed 304 ppmv @ 15% O2 and 87.1 lb/day. [District NSR Rule]

CONDITIONS FOR PERMIT S-43-7-11

18. Carbon monoxide (CO) emission rate shall not exceed 463 ppmv @ 15% O2 and 232.6 lb/day. [District NSR Rule]
19. District-witnessed source testing for NOx and CO emission rates shall be conducted using CARB Method 100, and District-witnessed source testing for VOC emission rates shall be conducted using EPA Method 25 or EPA Method 18, referenced as methane, not less than once every 24 months. [District NSR Rule]
20. Documentation of fuel gas sulfur content shall be submitted to District with source test results. [District NSR Rule]
21. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Rule 404 (Madera), 406 (Fresno) and 407 (6 remaining counties in the San Joaquin Valley)]
22. Particulate emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201; Rule 402 (Madera) and 404 (all 7 remaining counties in the San Joaquin Valley)]
23. If the IC engine is fired on certified natural gas, then maintain on file copies of all natural gas bills or suppliers certification of sulfur content. [District Rule 1070]
24. If the engine is not fired on certified natural gas, then the sulfur content of the gas shall be determined using ASTM D 1072-80, D 3031-81, D 4084-82, D 3246-81 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 1070]
25. If the engine is not fired on certified natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rule 1070]
26. The operator of an internal combustion (IC) engine shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 1070]
27. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall be performed not less than once every month for 12 months if 2 consecutive deviations are observed during quarterly monitoring. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the last quarter if on a quarterly monitoring schedule. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4701 and 4702]
28. {2993} If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4701 and 4702]
29. {2994} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702]
30. {2995} The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702]

CONDITIONS FOR PERMIT S-43-7-11

31. The permittee shall install and operate a nonresettable fuel meter and a nonresettable elapsed operating time meter. In lieu of installing a nonresettable fuel meter, the owner or operator may use an alternate device, method, or technique in determining monthly fuel consumption provided that the alternative is approved by the APCO. [District Rule 4702]
32. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Maintenance (I&M) plan submitted to the District. [District Rule 4702]
33. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO no later than 14 days after the change for approval. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]
34. 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 and quantity (cubic feet of gas or gallons of liquid) of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

CONDITIONS FOR PERMIT S-43-8-11

EXPIRATION DATE: 08/31/2009

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389

LOCATION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

SECTION: NE15 **TOWNSHIP:** 27S **RANGE:** 21E

EQUIPMENT DESCRIPTION:
825 BHP REFRIGERATION COMPRESSION UNIT #5 INCLUDING NATURAL GAS FIRED IC ENGINE AND SHARED W/ PERMIT UNITS S-43-7 AND '-9 SUCTION SCRUBBER (V-6), ECONOMIZER (V-7), SURGE TANK (V-9), COMPRESSOR (C-1B), OIL TRAP (V-10) & CONDENSERS (AC-1A, AC-1B, AC-1C)

CONDITIONS

1. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Upon 7 days written notice to the District this engine may be designated as a dormant emission unit or an active emission unit. [District Rule 1070]
3. When designated as a dormant emissions unit fuel supply line shall be physically disconnected from the emission unit. [District Rule 2080]
4. Source testing is required within 60 days of recommencing operation if a source test has not been performed within the past 24 months. [District Rules 2201, 4701, and 4702]
5. During non operation of this unit the permittee shall not be required to perform source testing, fuel sulfur content certification, and monitoring requirements. [District Rules 2201, 4701, and 4702]
6. Permittee shall maintain accurate records of the time and duration of non operation of this unit. [District Rules 2201, 4701, and 4702]
7. Operation shall include lube oil head tank (V-26) and I.C. engine fuel scrubber (V-4) shared between permit unit #'s S-43-4, '-5, '-6, '-7, '-8, and '-9. [District NSR Rule]
8. Compressor distance piece shall be vented to the vapor recovery system listed on PTO# S-43-3. [District NSR Rule]
9. Fuel gas sulfur content shall not exceed 0.3 gr/dscf as H2S. [District NSR Rule]
10. Condensate from compressor scrubbers and inlet separators shall be piped to low-pressure condensate vessel of permit S-43-1 or to any tank at the Lost Hill 1 treating facility served by vapor collection and control system S-1548-120. [District NSR Rule]
11. Records of inspections, repairs and maintenance of fugitive VOC sources shall be kept and made readily available for District inspection. [District Rule 1070, 9.5.2]
12. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (Source Sampling). [District Rule 1081, 3.0]
13. PM-10 emission rate shall not exceed 0.10 lb/hr. [District NSR Rule]
14. SO2 emission rate shall not exceed 0.01 lb/hr. [District NSR Rule]
15. Oxides of nitrogen (as NO2) emission rate shall not exceed 65 ppmv @ 15% O2 and 40.2 lb/day. [District Rules 4701 and 4702]
16. Volatile organic compounds (VOC's) emission rate shall not exceed 304 ppmv @ 15% O2 and 87.1 lb/day. [District NSR Rule]
17. Carbon monoxide (CO) emission rate shall not exceed 463 ppmv @ 15% O2 and 232.6 lb/day. [District NSR Rule]

CONDITIONS FOR PERMIT S-43-8-11

18. District-witnessed source testing for NOx and CO emission rates shall be conducted using CARB Method 100, and District-witnessed source testing for VOC emission rates shall be conducted using EPA Method 25 or EPA Method 18, referenced as methane, not less than once every 24 months. [District NSR Rule]
19. Documentation of fuel gas sulfur content shall be submitted to District with source test results. [District NSR Rule]
20. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Rule 404 (Madera), 406 (Fresno) and 407 (6 remaining counties in the San Joaquin Valley)]
21. Particulate emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201; Rule 402 (Madera) and 404 (all 7 remaining counties in the San Joaquin Valley)]
22. If the IC engine is fired on certified natural gas, then maintain on file copies of all natural gas bills or suppliers certification of sulfur content. [District Rule 1070]
23. If the engine is not fired on certified natural gas, then the sulfur content of the gas shall be determined using ASTM D 1072-80, D 3031-81, D 4084-82, D 3246-81 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 1070]
24. If the engine is not fired on certified natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rule 1070]
25. The operator of an internal combustion (IC) engine shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 1070]
26. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall be performed not less than once every month for 12 months if 2 consecutive deviations are observed during quarterly monitoring. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the last quarter if on a quarterly monitoring schedule. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4701 and 4702]
27. {2993} If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4701 and 4702]
28. {2994} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702]
29. {2995} The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702]
30. The permittee shall install and operate a nonresettable fuel meter and a nonresettable elapsed operating time meter. In lieu of installing a nonresettable fuel meter, the owner or operator may use an alternate device, method, or technique in determining monthly fuel consumption provided that the alternative is approved by the APCO. [District Rule 4702]

CONDITIONS FOR PERMIT S-43-8-11

31. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Maintenance (I&M) plan submitted to the District. [District Rule 4702]

32. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO no later than 14 days after the change for approval. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]

33. 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 and quantity (cubic feet of gas or gallons of liquid) of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

CONDITIONS FOR PERMIT S-43-9-11

INSPECTION WORKSHEET

EXPIRATION DATE: 08/31/2009

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389

LOCATION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

SECTION: NE15 **TOWNSHIP:** 27S **RANGE:** 21E

EQUIPMENT DESCRIPTION:
825 BHP REFRIGERATION COMPRESSION UNIT #6 INCLUDING NATURAL GAS FIRED IC ENGINE AND SHARED WITH PERMIT UNITS S-43-7 AND '-8 SUCTION SCRUBBER (V-6), ECONOMIZER (V-7), SURGE TANK (V-9), COMPRESSOR (C-1A), OIL TRAP (V-10) & CONDENSERS (AC-1A, AC-1B, AC-1C)

CONDITIONS

1. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Upon 7 days written notice to the District this engine may be designated as a dormant emission unit or an active emission unit. [District Rule 1070]
3. When designated as a dormant emissions unit fuel supply line shall be physically disconnected from the emission unit. [District Rule 2080]
4. Source testing is required within 60 days of recommencing operation if a source test has not been performed within the past 24 months. [District Rules 2201, 4701, and 4702]
5. During non operation of this unit the permittee shall not be required to perform source testing, fuel sulfur content certification, and monitoring requirements. [District Rules 2201, 4701, and 4702]
6. Permittee shall maintain accurate records of the time and duration of non operation of this unit. [District Rules 2201, 4701, and 4702]
7. Operation shall include lube oil head tank (V-26) and I.C. engine fuel scrubber (V-4) shared between permit unit #'s S-43-4, '-5, '-6, '-7, '-8, and '-9. [District NSR Rule]
8. Compressor distance piece shall be vented to the vapor recovery system listed on PTO# S-43-3. [District NSR Rule]
9. Fuel gas sulfur content shall not exceed 0.3 gr/dscf as H2S. [District NSR Rule]
10. Condensate from compressor scrubbers and inlet separators shall be piped to low-pressure condensate vessel of permit S-43-1 or to any tank at the Lost Hill 1 treating facility served by vapor collection and control system S-1548-120. [District NSR Rule]
11. Records of inspections, repairs and maintenance of fugitive VOC sources shall be kept and made readily available for District inspection. [District Rule 1070]
12. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (Source Sampling). [District Rule 1081, 3.0]
13. PM-10 emission rate shall not exceed 0.10 lb/hr. [District NSR Rule]
14. SO2 emission rate shall not exceed 0.01 lb/hr. [District NSR Rule]
15. Oxides of nitrogen (as NO2) emission rate shall not exceed 65 ppmv @ 15% O2 and 40.2 lb/day. [District Rules 4701 and 4702]
16. Volatile organic compounds (VOC's) emission rate shall not exceed 304 ppmv @ 15% O2 and 87.1 lb/day. [District NSR Rule]
17. Carbon monoxide (CO) emission rate shall not exceed 463 ppmv @ 15% O2 and 232.6 lb/day. [District NSR Rule]

CONDITIONS FOR PERMIT S-43-9-11 Page 2 of 3

18. District-witnessed source testing for NOx and CO emission rates shall be conducted using CARB Method 100, and District-witnessed source testing for VOC emission rates shall be conducted using EPA Method 25 or EPA Method 18, referenced as methane, not less than once every 24 months. [District NSR Rule]
19. Documentation of fuel gas sulfur content shall be submitted to District with source test results. [District NSR Rule]
20. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Rule 404 (Madera), 406 (Fresno) and 407 (6 remaining counties in the San Joaquin Valley)]
21. Particulate emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201; Rule 402 (Madera) and 404 (all 7 remaining counties in the San Joaquin Valley)]
22. If the IC engine is fired on certified natural gas, then maintain on file copies of all natural gas bills or suppliers certification of sulfur content. [District Rule 1070]
23. If the engine is not fired on certified natural gas, then the sulfur content of the gas shall be determined using ASTM D 1072-80, D 3031-81, D 4084-82, D 3246-81 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 1070]
24. If the engine is not fired on certified natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rule 1070]
25. The operator of an internal combustion (IC) engine shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 1070]
26. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall be performed not less than once every month for 12 months if 2 consecutive deviations are observed during quarterly monitoring. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the last quarter if on a quarterly monitoring schedule. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4701 and 4702]
27. {2993} If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4701 and 4702]
28. {2994} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702]
29. {2995} The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702]
30. The permittee shall install and operate a nonresettable fuel meter and a nonresettable elapsed operating time meter. In lieu of installing a nonresettable fuel meter, the owner or operator may use an alternate device, method, or technique in determining monthly fuel consumption provided that the alternative is approved by the APCO. [District Rule 4702]

CONDITIONS FOR PERMIT S-43-9-11

31. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Maintenance (I&M) plan submitted to the District. [District Rule 4702]

32. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO no later than 14 days after the change for approval. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]

33. 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 and quantity (cubic feet of gas or gallons of liquid) of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

Aera Energy LLC
S-43, Project 1075362

ATTACHMENT II
Laboratory Analysis

AEROS Environmental Inc.

Aera Energy LLC
IC Engine

Project 010-2806A
Laboratory ID 052202-02

Sample Description: Fuel Gas
Sampled by: Victor Welliver

Date Sampled: May 22, 2002
Date Received: May 22, 2002
Date Reported: May 22, 2002

Fuel Gas Analysis Results

CONSTITUENT	MOLE %	WT. %	CHONS Wt.%	
Carbon Dioxide	1.844	4.322	Carbon	73.52
Oxygen	0.056	0.096	Hydrogen	22.63
Nitrogen	0.410	0.612	Oxygen	3.24
Carbon Monoxide	0.000	0.000	Nitrogen	0.61
			Sulfur	0.00
Methane	85.517	73.062	H/C	0.308
Ethane	9.442	15.121		
Propane	2.339	5.493		
Isobutane	0.102	0.317		
N-Butane	0.203	0.627		
Isopentane	0.030	0.115		
N-Pentane	0.027	0.105		
Hexanes	0.028	0.130		
Total(s)	100.000	100.000		

Specific Gravity (Air = 1)	0.6483
Specific Volume (cf/lb)	20.21
Gross Calorific Value, Dry (Btu/cf)	1106.26
Gross Calorific Value, Wet (Btu/cf)	1084.02
Gross Calorific Value, Dry (Btu/lb)	22358.40
Net Calorific Value, Dry (Btu/cf)	999.93
Net Calorific Value, Wet (Btu/cf)	979.84
Compressability Factor "Z" @ 60° F, 1 atm	0.9973
EPA F-Factor @ 68° F (DSCF/MMBtu)	**8652**
EPA F-Factor @ 60° F (DSCF/MMBtu)	**8523**

References:
ASTM Methods D1945-96 & D3588-98

Terry M. Rowles, Laboratory Manager

Aera Energy LLC
S-43, Project 1075362

ATTACHMENT III

AP-42 Table 3.2-2

Table 3.2-2. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE LEAN-BURN ENGINES[a]
(SCC 2-02-002-54)

Pollutant	Emission Factor (lb/MMBtu)[b] (fuel input)	Emission Factor Rating
Criteria Pollutants and Greenhouse Gases		
NO_x[c] 90 - 105% Load	4.08 E+00	B
NO_x[c] <90% Load	8.47 E-01	B
CO[c] 90 - 105% Load	3.17 E-01	C
CO[c] <90% Load	5.57 E-01	B
CO_2[d]	1.10 E+02	A
SO_2[e]	5.88 E-04	A
TOC[f]	1.47 E+00	A
Methane[g]	1.25 E+00	C
VOC[h]	1.18 E-01	C
PM10 (filterable)[i]	7.71 E-05	D
PM2.5 (filterable)[i]	7.71 E-05	D
PM Condensable[j]	9.91 E-03	D
Trace Organic Compounds		
1,1,2,2-Tetrachloroethane[k]	<4.00 E-05	E
1,1,2-Trichloroethane[k]	<3.18 E-05	E
1,1-Dichloroethane	<2.36 E-05	E
1,2,3-Trimethylbenzene	2.30 E-05	D
1,2,4-Trimethylbenzene	1.43 E-05	C
1,2-Dichloroethane	<2.36 E-05	E
1,2-Dichloropropane	<2.69 E-05	E
1,3,5-Trimethylbenzene	3.38 E-05	D
1,3-Butadiene[k]	2.67E-04	D
1,3-Dichloropropene[k]	<2.64 E-05	E
2-Methylnaphthalene[k]	3.32 E-05	C
2,2,4-Trimethylpentane[k]	2.50 E-04	C
Acenaphthene[k]	1.25 E-06	C

ATTACHMENT IV

Source Test Summaries

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine # 1

Project 010-2806
May 22, 2002
Permit No. S-43-4-8

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
		87.4	50.2	0.71	1.2	0.1832	
NOx		69.1	42.2	0.59	1.0	0.1539	
		73.0	44.5	0.63	1.0	0.1626	2.67 lb/hr and
Mean		76.5	45.6	0.64	1.1	0.1666	1.10 gr/Bhp-hr
		451.8	259.3	2.22	3.6	0.5763	
CO		449.7	274.4	2.35	3.9	0.6098	
		452.8	276.3	2.37	3.9	0.6140	
Mean		451.4	270.0	2.31	3.8	0.6000	9.69 gr/Bhp-hr
		106.8	61.3	0.100	0.5	0.0778	
VOC		112.3	68.6	0.100	0.6	0.0870	
C_1 - C_6+ as C_1		116.4	71.1	0.100	0.6	0.0902	3.63 lb/hr and
Mean		111.8	67.0	0.100	0.6	0.0850	1.50 gr/Bhp-hr
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0				S gr/dscf in Fuel Gas <0.001	0.3 gr/dscf
	10.62						
O_2	11.23						
	11.23						
Mean	11.03						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine # 2

Project 010-2806
May 22, 2002
Permit No. S-43-5-8

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
		83.3	47.4	0.67	1.1	0.1731	
NOx		78.2	44.6	0.63	1.1	0.1628	
		84.8	48.3	0.68	1.2	0.1765	2.67 lb/hr and
Mean		82.1	46.8	0.66	1.1	0.1708	1.10 gr/Bhp-hr
		459.1	261.2	2.24	3.8	0.5806	
CO		447.3	255.0	2.18	3.7	0.5667	
		453.8	258.7	2.22	3.8	0.5750	
Mean		453.4	258.3	2.21	3.8	0.5741	9.69 gr/Bhp-hr
		64.2	36.6	0.000	0.3	0.0464	
VOC		67.7	38.6	0.000	0.3	0.0490	
C_3 - C_5+ as C_1		60.7	34.6	0.000	0.3	0.0440	3.63 lb/hr and
Mean		64.2	36.6	0.000	0.3	0.0465	1.50 gr/Bhp-hr
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0				S gr/dscf in Fuel Gas <0.001	0.3 gr/dscf
	10.53						
O_2	10.55						
	10.55						
Mean	10.54						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine # 3

Project 010-2806
May 21, 2002
Permit No. S-43-6-8

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
		69.9	44.7	0.63	1.2	0.1632	
NOx		80.3	51.2	0.72	1.4	0.1868	
		88.1	56.3	0.79	1.6	0.2054	2.67 lb/hr and
Mean		79.4	50.7	0.71	1.4	0.1851	1.10 gr/Bhp-hr
		348.1	222.5	1.91	3.7	0.4946	
CO		329.1	209.7	1.80	3.5	0.4661	
		346.5	221.3	1.89	3.8	0.4918	
Mean		341.2	217.8	1.87	3.7	0.4842	9.69 gr/Bhp-hr
		427.2	273.1	0.400	2.6	0.3468	
VOC		316.7	201.8	0.300	1.9	0.2563	
C_3 - C_6+ as C_1		456.6	291.5	0.400	2.8	0.3703	3.63 lb/hr and
Mean		400.2	255.5	0.367	2.4	0.3245	1.50 gr/Bhp-hr
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0				S gr/dscf in Fuel Gas <0.001	0.3 gr/dscf
	11.67						
O_2	11.64						
	11.66						
Mean	11.66						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine # 4

Project 010-2806
May 22, 2002
Permit No. S-43-7-7

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
		76.0	43.4	0.61	0.9	0.1583	
NOx		76.4	43.8	0.62	0.9	0.1601	
		76.0	43.9	0.62	0.9	0.1602	2.67 lb/hr and
Mean		76.1	43.7	0.62	0.9	0.1595	1.10 gr/Bhp-hr
		741.4	423.0	3.62	5.3	0.9403	
CO		735.1	421.9	3.61	5.3	0.9377	
		733.8	423.6	3.63	5.3	0.9416	
Mean		736.8	422.8	3.62	5.3	0.9399	9.69 gr/Bhp-hr
		67.7	38.6	0.000	0.3	0.0491	
VOC		79.3	45.5	0.000	0.3	0.0578	
C_1 - C_6+ as C_1		88.5	51.1	0.000	0.4	0.0649	3.63 lb/hr and
Mean		78.5	45.1	0.000	0.3	0.0573	1.50 gr/Bhp-hr
Fuel Sulfur (SO_x as SO_2)		As H_2S in Fuel Gas <1.0				S gr/dscf in Fuel Gas <0.001	0.3 gr/dscf
	10.56						
O_2	10.62						
	10.68						
Mean	10.62						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine # 5

Project 010-2806
May 21, 2002
Permit No. S-43-8-7

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
NOx		61.1	35.1	0.49	0.8	0.1280	
		63.8	36.7	0.52	0.9	0.1340	
		57.3	33.0	0.46	0.8	0.1204	2.67 lb/hr and
Mean		60.7	34.9	0.49	0.8	0.1275	1.10 gr/Bhp-hr
CO		479.7	275.3	2.36	3.8	0.6119	
		474.1	272.6	2.33	3.8	0.6060	
		449.4	258.7	2.21	3.7	0.5749	
Mean		467.7	268.9	2.30	3.8	0.5976	9.69 gr/Bhp-hr
VOC		67.1	38.6	0.000	0.3	0.0489	
		70.8	40.7	0.000	0.3	0.0517	
C_3 - C_6+ as C_1		64.5	37.1	0.000	0.3	0.0472	3.63 lb/hr and
Mean		67.5	38.8	0.000	0.3	0.0493	1.50 gr/Bhp-hr
Fuel Sulfur (SO_x as SO_2)		As H_2S in Fuel Gas <1.0				S gr/dscf in Fuel Gas <0.001	0.3 gr/dscf
O_2	10.62						
	10.64						
	10.65						
Mean	10.64						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine #6

Project 010-2806
May 21, 2002
Permit No. S-43-9-7

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
		108.0	61.2	0.86	1.3	0.2235	
NOx		103.3	58.5	0.82	1.2	0.2138	
		117.2	65.7	0.92	1.4	0.2400	2.67 lb/hr and
Mean		**109.5**	**61.8**	**0.87**	**1.3**	**0.2258**	**1.10 gr/Bhp-hr**
		535.2	303.3	2.60	3.9	0.6742	
CO		483.9	274.3	2.35	3.5	0.6096	
		504.1	282.7	2.42	3.6	0.6284	
Mean		**507.7**	**286.8**	**2.46**	**3.7**	**0.6374**	**9.69 gr/Bhp-hr**
		59.2	33.5	0.000	0.2	0.0426	
VOC		79.5	45.0	0.000	0.3	0.0572	
C_3 - C_6+ as C_1		89.2	50.0	0.000	0.4	0.0635	3.63 lb/hr and
Mean		**76.0**	**42.8**	**0.000**	**0.3**	**0.0544**	**1.50 gr/Bhp-hr**
Fuel Sulfur (SO_x as SO_2)		As H_2S in Fuel Gas **<1.0**				S gr/dscf in Fuel gas **<0.001**	**0.3 gr/dscf**
	10.49						
O_2	10.49						
	10.38						
Mean	10.45						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine 1

Project 010-3922
July 22, 2004
Permit No. S-43-4-9

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
NOx		20.3	13.8	8.86	0.0505	54.21	
		21.1	14.2	8.98	0.0518	55.64	75 ppm @ 15% O_2
		22.1	14.9	9.34	0.0542	58.21	and
Mean		21.2	14.3	9.06	0.0522	56.02	61.9 lb/day
CO		571	389	151.63	0.8641	928.04	
		567	381	146.95	0.8473	910.00	463 ppm @ 15% O_2
		562	378	144.54	0.8389	900.98	and
Mean		567	383	147.71	0.8501	913.01	232.6 lb/day
VOC		483.1	329.2	73.3	0.4178	448.71	
		457.9	308.0	67.8	0.3910	419.94	304 ppm @ 15% O_2
C_1 - C_{6+} as C_1		427.1	287.0	62.7	0.3644	391.37	and
Mean		456.0	308.1	67.9	0.3911	420.01	87.1 lb/day
					gr/dscf		
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0			As H_2S in Fuel Gas <0.0006		0.3 gr/dscf
O_2	12.24						
	12.13						
	12.12						
Mean	12.16						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine 2

Project 010-3922
July 22, 2004
Permit No. S-43-5-9

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
NOx		23.3	15.3	9.32	0.0557	59.87	
		23.8	15.5	9.40	0.0566	60.75	75 ppm @ 15% O_2
		23.7	15.4	9.33	0.0561	60.29	and
Mean		23.6	15.4	9.35	0.0561	60.30	61.9 lb/day
CO		524	344	127.53	0.7631	819.57	
		519	338	124.79	0.7508	806.36	463 ppm @ 15% O_2
		522	339	125.02	0.7526	808.29	and
Mean		522	340	125.78	0.7555	811.41	232.6 lb/day
VOC		463.2	303.7	64.4	0.3855	414.02	
C_3 - C_8+ as C_1		462.0	300.8	63.4	0.3820	410.27	304 ppm @ 15% O_2
		470.8	305.6	64.4	0.3879	416.60	and
Mean		465.3	303.4	64.1	0.3851	413.63	87.1 lb/day
					gr/dscf		
Fuel Sulfur (SO_x as SO_2)		As H_2S in Fuel Gas <1.0			As H_2S in Fuel Gas <0.0006		0.3 gr/dscf
O_2	11.90						
	11.84						
	11.81						
Mean	11.85						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine 3

Project 010-3922
July 22, 2004
Permit No. S-43-6-9

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
NOx		21.7	14.1	9.21	0.0515	55.33	
		19.6	12.6	8.08	0.0461	49.53	75 ppm @ 15% O_2
		21.9	14.0	9.05	0.0511	54.93	and
Mean		21.1	13.6	8.78	0.0496	53.26	61.9 lb/day
CO		481	313	124.31	0.6950	746.43	
		483	311	121.19	0.6918	742.99	463 ppm @ 15% O_2
		479	307	120.53	0.6809	731.29	and
Mean		481	310	122.01	0.6892	740.24	232.6 lb/day
VOC		345.1	224.5	51.0	0.2849	305.98	
		333.0	214.7	47.6	0.2726	292.78	304 ppm @ 15% O_2
C_1 - C_5+ as C_1		317.2	203.1	45.7	0.2576	276.66	and
Mean		331.8	214.1	48.1	0.2717	291.81	87.1 lb/day
					gr/dscf		
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0			As H_2S in Fuel Gas <0.0006		0.3 gr/dscf
O_2	11.83						
	11.75						
	11.68						
Mean	11.75						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine #4

Project 010-3824A
May 18, 2004
Permit S-43-7-8

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
NOx		92.3	52.0	26.99	0.1898	210.26	
		92.0	52.5	27.39	0.1917	212.41	75 ppm @ 15% O_2
		86.2	49.7	25.71	0.1814	200.96	and
Mean		90.2	51.4	26.70	0.1876	207.88	46.4 lb/day
CO		559	315	99.49	0.6996	775.16	
		557	318	100.94	0.7065	782.80	463 ppm @ 15% O_2
		552	318	100.21	0.7070	783.36	and
Mean		556	317	100.21	0.7044	780.44	232.6 lb/day
VOC		98.8	55.7	10.0	0.0706	78.23	
		100.7	57.5	10.4	0.0730	80.89	304 ppm @ 15% O_2
C_1 - C_6+ as C_1		103.2	59.5	10.7	0.0756	83.76	and
Mean		100.9	57.6	10.4	0.0731	80.96	65.5 lb/day
					gr/dscf		
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0			As H_2S in Fuel Gas <0.0006		0.3 gr/dscf
O_2	10.42						
	10.56						
	10.66						
Mean	10.55						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine #5

Project 010-3824A
May 19, 2004
Permit S-43-8-E

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
NOx		37.4	22.3	11.89	0.0814	90.19	
		37.8	22.8	12.32	0.0834	92.37	75 ppm @ 15% O_2
		33.8	20.5	11.02	0.0747	82.76	and
Mean		36.3	21.9	11.74	0.0798	88.44	46.4 lb/day
CO		302	180	58.46	0.4001	443.31	
		302	182	59.91	0.4054	449.18	463 ppm @ 15% O_2
		301	182	59.74	0.4049	448.63	and
Mean		302	181	59.37	0.4035	447.04	232.6 lb/day
VOC		112.8	67.3	12.5	0.0854	94.63	
		116.7	70.4	13.3	0.0895	99.15	304 ppm @ 15% O_2
C_1 - C_6+ as C_1		112.0	67.8	12.7	0.0860	163.15	and
Mean		113.8	68.5	12.8	0.0870	118.98	65.5 lb/day
					gr/dscf		
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0			As H_2S in Fuel Gas <0.0006		0.3 gr/dscf
O_2	11.00						
	11.13						
	11.15						
Mean	11.09						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine 6

Project 010-3824B
June 17, 2004
Permit No. S-43-9-8

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
NOx		24.2	14.5	8.57	0.0531	58.79	
		24.8	14.9	8.82	0.0543	60.19	75 ppm @ 15% O_2
		22.0	13.3	7.70	0.0485	53.78	and
Mean		23.7	14.2	8.36	0.0520	57.59	61.9 lb/day
CO		334	200	71.99	0.4458	493.95	
		341	204	73.78	0.4547	503.81	463 ppm @ 15% O_2
		344	208	73.28	0.4619	511.79	and
Mean		340	204	73.02	0.4541	503.18	232.6 lb/day
VOC		89.4	53.6	11.0	0.0682	75.57	
		103.0	61.8	12.7	0.0784	86.87	304 ppm @ 15% O_2
C_2 - C_6+ as C_1		76.2	46.0	9.2	0.0584	64.74	and
Mean		89.5	53.8	11.0	0.0683	75.72	87.1 lb/day
					gr/dscf		
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0			As H_2S in Fuel Gas <0.0006		0.3 gr/dscf
O_2	11.07						
	11.06						
	11.13						
Mean	11.09						

Comments:

Aera Energy LLC
S-43, Project 1075362

ATTACHMENT V

Comparison of Average Portable Analyzer (PA) Readings and Source Test (ST) Results

NOx

	2002 PA/ST	2003 PA/ST	2004 PA/ST
S-43-4	62.4/45.6	**38.2/45.6**	19.3/14.3
S-43-5	62.0/46.8	64.2/46.8	31.9/15.4
S-43-6	**30.1/50.7**	**35.2/50.7**	28.6/13.6
S-43-7	47.0/43.7	55.8/43.7	**46.0/51.4**
S-43-8	42.3/34.9	66.0/34.9	31.8/21.9
S-43-9	**35.2/61.8**	**40.1/61.8**	19.0/14.2

CO

	2002 PA/ST	2003 PA	2004 PA/ST
S-43-4	342.1/270	301.7/270	411.4/383
S-43-5	304.8/258.3	284.1/258.3	**297.1**/340
S-43-6	262.1/217.8	270.8/217.8	324.4/310
S-43-7	473.3/422.8	428.6/422.8	330.3/317
S-43-8	352.3/268.9	307.8/268.9	203.9/181
S-43-9	**284.3/286.8**	**271.8/286.8**	253.9/204

Numbers in bold correspond to lower portable analyzer readings than source test results i.e. 9 out of the 36 values.

Aera Energy LLC
S-43, Project 1075362

ATTACHMENT VI

Allocated Quarterly Fuel Usage

Compressor Run Hours

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4										350	510	707	COMPRESSOR #1
S-43-5										561	678	348	COMPRESSOR #2
S-43-6										560	250	406	COMPRESSOR #3
S-43-7										727	310	36	COMPRESSOR #4
S-43-8										577	401	674	COMPRESSOR #5
S-43-9										148	719	720	COMPRESSOR #6
										1471	1438	1461	Subt - precomprs
										1452	1430	1430	Subt- Refrig Comprs

Meter Readings - 2002

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
9356										8,904	8,315	8,771	104,179	PRE-COMPRESSOR FUEL
9354										7,431	7,235	7,437	74,137	REFRIG.FUEL
													178,316	mscf

'4 - '6
'7 - '9

Allocated Fuel Usage Per Engine

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
S-43-4										2,119	2,949	4,244	40,227
S-43-5										3,396	3,920	2,089	30,024
S-43-6										3,390	1,446	2,437	33,928
S-43-7										3721	1568	187	19,676
S-43-8										2953	2029	3505	38,050
S-43-9										757	3638	3745	16,412

104,179 mscf

74,137 mscf

Allocated Quarterly Fuel Usage Per Engine

2002	4Q
S-43-4	9,312
S-43-5	9,405
S-43-6	7,273
S-43-7	5,476
S-43-8	8,487
S-43-9	8,140

Compressor Run Hours

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	201	110	743	264	340	107	371	412	659	712	719	738	COMPRESSOR #1
S-43-5	740	636	513	635	698	501	359	321	475	722	720	694	COMPRESSOR #2
S-43-6	539	596	231	391	450	705	762	743	202	40	0	102	COMPRESSOR #3
S-43-7	356	682	728	497	739	79	345	279	350	406	683	194	COMPRESSOR #4
S-43-8	298	0	513	636	734	710	571	734	638	702	706	764	COMPRESSOR #5
S-43-9	739	658	237	137	0	634	590	449	323	316	0	403	COMPRESSOR #6
	1480	1342	1487	1290	1488	1313	1492	1476	1336	1474	1439	1534	Subt - precomprs
	1393	1340	1478	1270	1473	1423	1506	1462	1311	1424	1389	1361	Subt- Refrig Comprs

Meter Readings - 2003

9356	9,075	8,300	8,840	7,987	8,964	8,469	8,466	8,610	8,192	9,204	9,142	9,111	104,360	PRE-COMPRESSOR FUEL
9354	7,869	6,822	7,660	6,741	7,666	7,162	7,161	7,480	7,088	7,944	7,571	7,106	88,270	REFRIG.FUEL
													192,630	mscf

Allocated Fuel Usage Per Engine

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
S-43-4	1,232	680	4,417	1,635	2,048	690	2,105	2,403	4,041	4,446	4,568	4,383	32,649
S-43-5	4,538	3,934	3,050	3,932	4,205	3,232	2,037	1,873	2,913	4,508	4,574	4,122	42,915
S-43-6	3,305	3,686	1,373	2,421	2,711	4,547	4,324	4,334	1,239	250	0	606	28,796
S-43-7	2011	3472	3773	2638	3846	398	1640	1427	1892	2265	3723	1013	28,099
S-43-8	1683	0	2659	3376	3820	3573	2715	3755	3449	3916	3848	3989	36,785
S-43-9	4175	3350	1228	727	0	3191	2805	2297	1746	1763	0	2104	23,387
													192,630 mscf

104,360 mscf

88,270 mscf

Allocated Quarterly Fuel Usage Per Engine

2003	1Q	2Q	3Q	4Q
S-43-4	6,330	4,373	8,549	13,397
S-43-5	11,521	11,368	6,822	13,204
S-43-6	8,364	9,679	9,897	856
S-43-7	9,256	6,882	4,960	7,001
S-43-8	4,342	10,769	9,920	11,753
S-43-9	8,753	3,918	6,849	3,867

192,630 mscf

Compressor Run Hours

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
S-43-4	695	687	699	495	277	146	137	0	0	
S-43-5	689	695	737	613	433	3	214	12	60	
S-43-6	25	7	0	176	4	661	393	719	644	
S-43-7	524	411	48	319	157	71	3	2	5	
S-43-8	291	369	706	388	543	289	203	465	190	
S-43-9	0	6	0	0	0	317	518	266	511	
	1409	1389	1436	1284	714	810	744	731	704	
	815	786	754	707	700	677	724	733	706	

Meter Readings 2004

9356	8,952	8,843	9,244	8,100	3,366	3,727	4,697	4,666	4,210
9354	4,683	4,498	4,295	3,832	4,111	4,065	4,477	4,730	4,326

Allocated Fuel Usage Per Engine

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
S-43-4	4,416	4,374	4,500	3,123	1,306	672	865	0	0	
S-43-5	4,378	4,425	4,744	3,867	2,041	14	1,351	77	359	
S-43-6	159	45	0	1,110	19	3,041	2,481	4,589	3,851	
S-43-7	3,011	2,352	273	1,729	922	426	19	13	31	
S-43-8	1,672	2,112	4,022	2,103	3,189	1,735	1,255	3,001	1,164	
S-43-9	0	34	0	0	0	1,903	3,203	1,716	3,131	

Allocated Quarterly Fuel Usage Per Engine

2004	1Q	2Q	3Q
S-43-4	13,289	5,100	865
S-43-5	13,547	5,922	1,786
S-43-6	203	4,171	10,922
S-43-7	5,636	3,077	62
S-43-8	7,805	7,027	5,420
S-43-9	34	1,903	8,051

Nov	Dec	
		COMPRESSOR #1
		COMPRESSOR #2
		COMPRESSOR #3
		COMPRESSOR #4
		COMPRESSOR #5
		COMPRESSOR #6
		Subt - precomprs
		Subt- Refrig Comprs

66,406	PRE-COMPRESSOR FUEL	'4 - '6
52,289	REFRIG.FUEL	'7 - '9
118,695	mscf	

Nov	Dec	Annual		
		19,254		
		24,552	66,406	mscf
		22,599		
		8,776		
		21,701	52,289	mscf
		21,812		
		118,695	mscf	

118,695 mscf

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

Allocated Fuel Usage Per Engine (mcf)

2002	Oct	Nov	Dec	2002 Annual
S-43-4	2,119	2,949	4,244	40,227
S-43-5	3,395	3,920	2,089	30,024
S-43-6	3,390	1,446	2,437	33,928
S-43-7	3721	1568	187	19,676
S-43-8	2953	2029	3505	38,050
S-43-9	757	3638	3745	16,412
				178,316

Allocated Fuel Usage Per Engine (mcf)

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2003 Annual
S-43-4	1,232	680	4,417	1,635	2,048	690	2,105	2,403	4,041	4,446	4,568	4,383	32,649
S-43-5	4,538	3,934	3,050	3,932	4,205	3,232	2,037	1,873	2,913	4,508	4,574	4,122	42,915
S-43-6	3,305	3,686	1,373	2,421	2,711	4,547	4,324	4,334	1,239	250	0	606	28,796
S-43-7	2011	3472	3773	2638	3846	398	1640	1427	1892	2265	3723	1013	28,099
S-43-8	1683	0	2659	3376	3820	3573	2715	3765	3449	3916	3848	3989	36,785
S-43-9	4175	3350	1228	727	0	3191	2805	2297	1746	1763	0	2104	23,387
													192,630

Allocated Fuel Usage Per Engine (mcf)

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	2004 Annual
S-43-4	4,416	4,374	4,500	3,123	1,306	672	865	0	0	19,254
S-43-5	4,378	4,425	4,744	3,867	2,041	14	1,351	77	359	24,552
S-43-6	159	45	0	1,110	19	3,041	2,481	4,589	3,851	22,599
S-43-7	3,011	2,352	273	1,729	922	426	19	13	31	8,776
S-43-8	1,672	2,112	4,022	2,103	3,189	1,735	1,255	3,001	1,164	21,701
S-43-9	0	34	0	0	0	1,903	3,203	1,716	3,131	21,812
										118,695

Aera Energy LLC
S-43, Project 1075362

ATTACHMENT VII

HAE Calculations

Engine '-4

4th quarter 2002:
NOx: 9312 mcf x 184.3 lb/1000 mcf = 1716.2 lb NOx
CO: 9312 mcf x 663.6 lb/1000 mcf = 6179.4 lb CO
VOC: 9312 mcf x 94 lb/1000 mcf = 875.3 lb VOC
PM10: 9312 mcf x 11.05 lb/1000 mcf = 102.9 lb PM10

1st quarter 2003:
NOx: 6330 mcf x 184.3 lb/1000 mcf = 1166.6 lb NOx
CO: 6330 mcf x 663.6 lb/1000 mcf = 4200.6 lb CO
VOC: 6330 mcf x 94 lb/1000 mcf = 595.0 lb VOC
PM10: 6330 mcf x 11.05 lb/1000 mcf = 69.9 lb PM10

2nd quarter 2003:
NOx: 4373 mcf x 184.3 lb/1000 mcf = 805.9 lb NOx
CO: 4373 mcf x 663.6 lb/1000 mcf = 2901.9 lb CO
VOC: 4373 mcf x 94 lb/1000 mcf = 411.1 lb VOC
PM10: 4373 mcf x 11.05 lb/1000 mcf = 48.3 lb PM10

3rd quarter 2003:
NOx: 8549 mcf x 184.3 lb/1000 mcf = 1575.6 lb NOx
CO: 8549 mcf x 663.6 lb/1000 mcf = 5673.1 lb CO
VOC: 8549 mcf x 94 lb/1000 mcf = 803.6 lb VOC
PM10: 8549 mcf x 11.05 lb/1000 mcf = 94.5 lb PM10

4th quarter 2003:
NOx: 13397 mcf x 184.3 lb/1000 mcf = 2469.0 lb NOx
CO: 13397 mcf x 663.6 lb/1000 mcf = 8890.2 lb CO
VOC: 13397 mcf x 94 lb/1000 mcf = 1259.3 lb VOC
PM10: 13397 mcf x 11.05 lb/1000 mcf = 148.0 lb PM10

1st quarter 2004:
NOx: 13289 mcf x 56 lb/1000 mcf = 744.2 lb NOx
CO: 13289 mcf x 913 lb/1000 mcf = 12132.9 lb CO
VOC: 13289 mcf x 420 lb/1000 mcf = 5581.4 lb VOC
PM10: 13289 mcf x 11.05 lb/1000 mcf = 146.8 lb PM10

2nd quarter 2004:
NOx: 5100 mcf x 56 lb/1000 mcf = 285.6 lb NOx
CO: 5100 mcf x 913 lb/1000 mcf = 4656.3 lb CO
VOC: 5100 mcf x 420 lb/1000 mcf = 2142.0 lb VOC
PM10: 5100 mcf x 11.05 lb/1000 mcf = 56.4 lb PM10

3rd quarter 2004:
NOx: 865 mcf x 56 lb/1000 mcf = 48.4 lb NOx
CO: 865 mcf x 913 lb/1000 mcf = 789.7 lb CO
VOC: 865 mcf x 420 lb/1000 mcf = 363.3 lb VOC
PM10: 865 mcf x 11.05 lb/1000 mcf = 9.6 lb PM10

Engine '-5

4th quarter 2002:
NOx: 9405 mcf x 189.0 lb/1000 mcf = 1777.5 lb NOx
CO: 9405 mcf x 635.0 lb/1000 mcf = 5972.1 lb CO
VOC: 9405 mcf x 51.4 lb/1000 mcf = 483.4 lb VOC
PM10: 9405 mcf x 11.05 lb/1000 mcf = 103.9 lb PM10

1st quarter 2003:
NOx: 11521 mcf x 189.0 lb/1000 mcf = 2177.5 lb NOx
CO: 11521 mcf x 635.0 lb/1000 mcf = 7315.8 lb CO
VOC: 11521 mcf x 51.4 lb/1000 mcf = 592.2 lb VOC
PM10: 11521 mcf x 11.05 lb/1000 mcf = 127.3 lb PM10

2nd quarter 2003:
NOx: 11368 mcf x 189.0 lb/1000 mcf = 2148.6 lb NOx
CO: 11368 mcf x 635.0 lb/1000 mcf = 7218.7 lb CO
VOC: 11368 mcf x 51.4 lb/1000 mcf = 584.3 lb VOC
PM10: 11368 mcf x 11.05 lb/1000 mcf = 125.6 lb PM10

3rd quarter 2003:
NOx: 6822 mcf x 189.0 lb/1000 mcf = 1289.4 lb NOx
CO: 6822 mcf x 635.0 lb/1000 mcf = 4332.0 lb CO
VOC: 6822 mcf x 51.4 lb/1000 mcf = 350.7 lb VOC
PM10: 6822 mcf x 11.05 lb/1000 mcf = 75.4 lb PM10

4th quarter 2003:
NOx: 13204 mcf x 189.0 lb/1000 mcf = 2495.6 lb NOx
CO: 13204 mcf x 635.0 lb/1000 mcf = 8384.5 lb CO
VOC: 13204 mcf x 51.4 lb/1000 mcf = 678.7 lb VOC
PM10: 13204 mcf x 11.05 lb/1000 mcf = 145.9 lb PM10

1st quarter 2004:
NOx: 13547 mcf x 60.3 lb/1000 mcf = 816.9 lb NOx
CO: 13547 mcf x 811.4 lb/1000 mcf = 10922.0 lb CO
VOC: 13547 mcf x 413.6 lb/1000 mcf = 5603.0 lb VOC
PM10: 13547 mcf x 11.05 lb/1000 mcf = 149.7 lb PM10

2nd quarter 2004:
NOx: 5922 mcf x 60.3 lb/1000 mcf = 357.1 lb NOx
CO: 5922 mcf x 811.4 lb/1000 mcf = 4805.1 lb CO
VOC: 5922 mcf x 413.6 lb/1000 mcf = 2449.3 lb VOC
PM10: 5922 mcf x 11.05 lb/1000 mcf = 65.4 lb PM10

3rd quarter 2004:
NOx: 1786 mcf x 60.3 lb/1000 mcf = 107.7 lb NOx
CO: 1786 mcf x 811.4 lb/1000 mcf = 1449.2 lb CO
VOC: 1786 mcf x 413.6 lb/1000 mcf = 738.7 lb VOC
PM10: 1786 mcf x 11.05 lb/1000 mcf = 19.7 lb PM10

Engine '-6

4th quarter 2002:
NOx: 7273 mcf x 204.8 lb/1000 mcf = 1489.5 lb NOx
CO: 7273 mcf x 535.6 lb/1000 mcf = 3895.4 lb CO
VOC: 7273 mcf x 358.9 lb/1000 mcf = 2610.3 lb VOC
PM10: 7273 mcf x 11.05 lb/1000 mcf = 80.4 lb PM10

1st quarter 2003:
NOx: 8364 mcf x 204.8 lb/1000 mcf = 1712.9 lb NOx
CO: 8364 mcf x 535.6 lb/1000 mcf = 4479.8 lb CO
VOC: 8364 mcf x 358.9 lb/1000 mcf = 3001.8 lb VOC
PM10: 8364 mcf x 11.05 lb/1000 mcf = 92.4 lb PM10

2nd quarter 2003:
NOx: 9679 mcf x 204.8 lb/1000 mcf = 1982.2 lb NOx
CO: 9679 mcf x 535.6 lb/1000 mcf = 5184.0 lb CO
VOC: 9679 mcf x 358.9 lb/1000 mcf = 3473.8 lb VOC
PM10: 9679 mcf x 11.05 lb/1000 mcf = 107.0 lb PM10

3rd quarter 2003:
NOx: 9897 mcf x 204.8 lb/1000 mcf = 2026.9 lb NOx
CO: 9897 mcf x 535.6 lb/1000 mcf = 5300.8 lb CO
VOC: 9897 mcf x 358.9 lb/1000 mcf = 3552.0 lb VOC
PM10: 9897 mcf x 11.05 lb/1000 mcf = 109.4 lb PM10

4th quarter 2003:
NOx: 856 mcf x 204.8 lb/1000 mcf = 175.3 lb NOx
CO: 856 mcf x 535.6 lb/1000 mcf = 458.5 lb CO
VOC: 856 mcf x 358.9 lb/1000 mcf = 307.2 lb VOC
PM10: 856 mcf x 11.05 lb/1000 mcf = 9.5 lb PM10

1st quarter 2004:
NOx: 203 mcf x 53.3 lb/1000 mcf = 10.8 lb NOx
CO: 203 mcf x 740.2 lb/1000 mcf = 150.3 lb CO
VOC: 203 mcf x 291.8 lb/1000 mcf = 59.2 lb VOC
PM10: 203 mcf x 11.05 lb/1000 mcf = 2.2 lb PM10

2nd quarter 2004:
NOx: 4171 mcf x 53.3 lb/1000 mcf = 222.3 lb NOx
CO: 4171 mcf x 740.2 lb/1000 mcf = 3087.4 lb CO
VOC: 4171 mcf x 291.8 lb/1000 mcf = 1217.0 lb VOC
PM10: 4171 mcf x 11.05 lb/1000 mcf = 46.1 lb PM10

3rd quarter 2004:
NOx: 10,922 mcf x 53.3 lb/1000 mcf = 582.1 lb NOx
CO: 10,922 mcf x 740.2 lb/1000 mcf = 8084.5 lb CO
VOC: 10,922 mcf x 291.8 lb/1000 mcf = 3187.0 lb VOC
PM10: 10,922 mcf x 11.05 lb/1000 mcf = 120.7 lb PM10

Engine '-7

4th quarter 2002:
NOx: 5476 mcf x 176.4 lb/1000 mcf = 966.0 lb NOx
CO: 5476 mcf x 1039.5 lb/1000 mcf = 5692.3 lb CO
VOC: 5476 mcf x 63.3 lb/1000 mcf = 346.6 lb VOC
PM10: 5476 mcf x 11.05 lb/1000 mcf = 60.5 lb PM10

1st quarter 2003:
NOx: 9256 mcf x 176.4 lb/1000 mcf = 1632.8 lb NOx
CO: 9256 mcf x 1039.5 lb/1000 mcf = 9621.6 lb CO
VOC: 9256 mcf x 63.3 lb/1000 mcf = 585.9 lb VOC
PM10: 9256 mcf x 11.05 lb/1000 mcf = 102.3 lb PM10

2nd quarter 2003:
NOx: 6882 mcf x 176.4 lb/1000 mcf = 1214.0 lb NOx
CO: 6882 mcf x 1039.5 lb/1000 mcf = 7153.8 lb CO
VOC: 6882 mcf x 63.3 lb/1000 mcf = 435.6 lb VOC
PM10: 6882 mcf x 11.05 lb/1000 mcf = 76.0 lb PM10

3rd quarter 2003:
NOx: 4960 mcf x 176.4 lb/1000 mcf = 874.9 lb NOx
CO: 4960 mcf x 1039.5 lb/1000 mcf = 5155.9 lb CO
VOC: 4960 mcf x 63.3 lb/1000 mcf = 314.0 lb VOC
PM10: 4960 mcf x 11.05 lb/1000 mcf = 54.8 lb PM10

4th quarter 2003:
NOx: 7001 mcf x 176.4 lb/1000 mcf = 1235.0 lb NOx
CO: 7001 mcf x 1039.5 lb/1000 mcf = 7277.5 lb CO
VOC: 7001 mcf x 63.3 lb/1000 mcf = 443.2 lb VOC
PM10: 7001 mcf x 11.05 lb/1000 mcf = 77.4 lb PM10

1st quarter 2004:
NOx: 5636 mcf x 207.9 lb/1000 mcf = 1171.7 lb NOx
CO: 5636 mcf x 780.4 lb/1000 mcf = 4398.3 lb CO
VOC: 5636 mcf x 81.0 lb/1000 mcf = 456.5 lb VOC
PM10: 5636 mcf x 11.05 lb/1000 mcf = 62.3 lb PM10

2nd quarter 2004:
NOx: 3077 mcf x 207.9 lb/1000 mcf = 639.7 lb NOx
CO: 3077 mcf x 780.4 lb/1000 mcf = 2401.3 lb CO
VOC: 3077 mcf x 81.0 lb/1000 mcf = 249.2 lb VOC
PM10: 3077 mcf x 11.05 lb/1000 mcf = 34.0 lb PM10

3rd quarter 2004:
NOx: 62 mcf x 207.9 lb/1000 mcf = 12.9 lb NOx
CO: 62 mcf x 780.4 lb/1000 mcf = 48.3 lb CO
VOC: 62 mcf x 81.0 lb/1000 mcf = 5.0 lb VOC
PM10: 62 mcf x 11.05 lb/1000 mcf = 0.7 lb PM10

Engine '-8

4th quarter 2002:
NOx: 8487 mcf x 141.1 lb/1000 mcf = 1197.5 lb NOx
CO: 8487 mcf x 660.9 lb/1000 mcf = 5609.0 lb CO
VOC: 8487 mcf x 54.5 lb/1000 mcf = 462.5 lb VOC
PM10: 8487 mcf x 11.05 lb/1000 mcf = 93.8 lb PM10

1st quarter 2003:
NOx: 4342 mcf x 141.1 lb/1000 mcf = 612.7 lb NOx
CO: 4342 mcf x 660.9 lb/1000 mcf = 2869.6 lb CO
VOC: 4342 mcf x 54.5 lb/1000 mcf = 236.6 lb VOC
PM10: 4342 mcf x 11.05 lb/1000 mcf = 48.0 lb PM10

2nd quarter 2003:
NOx: 10769 mcf x 141.1 lb/1000 mcf = 1519.5 lb NOx
CO: 10769 mcf x 660.9 lb/1000 mcf = 7117.2 lb CO
VOC: 10769 mcf x 54.5 lb/1000 mcf = 586.9 lb VOC
PM10: 10769 mcf x 11.05 lb/1000 mcf = 119.0 lb PM10

3rd quarter 2003:
NOx: 9920 mcf x 141.1 lb/1000 mcf = 1399.7 lb NOx
CO: 9920 mcf x 660.9 lb/1000 mcf = 6556.1 lb CO
VOC: 9920 mcf x 54.5 lb/1000 mcf = 540.6 lb VOC
PM10: 9920 mcf x 11.05 lb/1000 mcf = 109.6 lb PM10

4th quarter 2003:
NOx: 11753 mcf x 141.1 lb/1000 mcf = 1658.3 lb NOx
CO: 11753 mcf x 660.9 lb/1000 mcf = 7767.6 lb CO
VOC: 11753 mcf x 54.5 lb/1000 mcf = 640.5 lb VOC
PM10: 11753 mcf x 11.05 lb/1000 mcf = 129.9 lb PM10

1st quarter 2004:
NOx: 7805 mcf x 88.4 lb/1000 mcf = 690.0 lb NOx
CO: 7805 mcf x 447.0 lb/1000 mcf = 3488.4 lb CO
VOC: 7805 mcf x 119.0 lb/1000 mcf = 928.8 lb VOC
PM10: 7805 mcf x 11.05 lb/1000 mcf = 86.2 lb PM10

2nd quarter 2004:
NOx: 7027 mcf x 88.4 lb/1000 mcf = 621.2 lb NOx
CO: 7027 mcf x 447.0 lb/1000 mcf = 3141.1 lb CO
VOC: 7027 mcf x 119.0 lb/1000 mcf = 836.2 lb VOC
PM10: 7027 mcf x 11.05 lb/1000 mcf = 77.6 lb PM10

3rd quarter 2004:
NOx: 5420 mcf x 88.4 lb/1000 mcf = 479.1 lb NOx
CO: 5420 mcf x 447.0 lb/1000 mcf = 2422.7 lb CO
VOC: 5420 mcf x 119.0 lb/1000 mcf = 645.0 lb VOC
PM10: 5420 mcf x 11.05 lb/1000 mcf = 59.9 lb PM10

Engine '-9

4th quarter 2002:
NOx: 8140 mcf x 249.8 lb/1000 mcf = 2033.4 lb NOx
CO: 8140 mcf x 705.0 lb/1000 mcf = 5738.7 lb CO
VOC: 8140 mcf x 60.2 lb/1000 mcf = 490.0 lb VOC
PM10: 8140 mcf x 11.05 lb/1000 mcf = 89.9 lb PM10

1st quarter 2003:
NOx: 8753 mcf x 249.8 lb/1000 mcf = 2186.5 lb NOx
CO: 8753 mcf x 705.0 lb/1000 mcf = 6170.9 lb CO
VOC: 8753 mcf x 60.2 lb/1000 mcf = 526.9 lb VOC
PM10: 8753 mcf x 11.05 lb/1000 mcf = 96.7 lb PM10

2nd quarter 2003:
NOx: 3918 mcf x 249.8 lb/1000 mcf = 978.7 lb NOx
CO: 3918 mcf x 705.0 lb/1000 mcf = 2762,2 lb CO
VOC: 3918 mcf x 60.2 lb/1000 mcf = 235.9 lb VOC
PM10: 3918 mcf x 11.05 lb/1000 mcf = 43.3 lb PM10

3rd quarter 2003:
NOx: 6849 mcf x 249.8 lb/1000 mcf = 1710.9 lb NOx
CO: 6849 mcf x 705.2 lb/1000 mcf = 4828.5 lb CO
VOC: 6849 mcf x 60.2 lb/1000 mcf = 412.3 lb VOC
PM10: 6849 mcf x 11.05 lb/1000 mcf = 75.7 lb PM10

4th quarter 2003:
NOx: 3867 mcf x 249.8 lb/1000 mcf = 966.0 lb NOx
CO: 3867 mcf x 705.2 lb/1000 mcf = 2727.0 lb CO
VOC: 3867 mcf x 60.2 lb/1000 mcf = 232.8 lb VOC
PM10: 3867 mcf x 11.05 lb/1000 mcf = 42.7 lb PM10

1st quarter 2004:
NOx: 34 mcf x 57.6 lb/1000 mcf = 2.0 lb NOx
CO: 34 mcf x 503.2 lb/1000 mcf = 17.1 lb CO
VOC: 34 mcf x 75.7 lb/1000 mcf = 2.6 lb VOC
PM10: 34 mcf x 11.05 lb/1000 mcf = 0.4 lb PM10

2nd quarter 2004:
NOx: 1903 mcf x 57.6 lb/1000 mcf = 109.6 lb NOx
CO: 1903 mcf x 503.2 lb/1000 mcf = 957.6 lb CO
VOC: 1903 mcf x 75.7 lb/1000 mcf = 144.0 lb VOC
PM10: 1903 mcf x 11.05 lb/1000 mcf = 21.0 lb PM10

3rd quarter 2004:
NOx: 8051 mcf x 57.6 lb/1000 mcf = 463.7 lb NOx
CO: 8051 mcf x 503.2 lb/1000 mcf = 4051.3 lb CO
VOC: 8051 mcf x 75.7 lb/1000 mcf = 609.5 lb VOC
PM10: 8051 mcf x 11.05 lb/1000 mcf = 89.0 lb PM10

S-43-4 HAE

Quarter	Actual fuel consumption (mcf)	NOx (lb/qtr)	VOC	CO	PM10
4th quarter 2002	9312	1716.2	875.3	6179.4	102.9
1st quarter 2003	6,330	1166.6	595.0	4200.6	69.9
2nd quarter 2003	4,373	805.9	411.1	2901.9	48.3
3 rd quarter 2003	8,549	1575.6	803.6	5673.1	94.5
4th quarter 2003	13,397	2469.0	1259.3	8890.2	148.0
1st quarter 2004	13,289	744.2	5581.4	12,132.9	146.8
2nd quarter 2004	5,100	285.6	2142.0	4,656.3	56.4
3rd quarter 2004	865	48.4	363.3	789.7	9.6

Average Quarterly HAE '-4

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	955.4	545.8	812.0	2092.6
PM10	108.4	52.4	52.0	125.5
CO	8167.3	3779.1	3231.4	7534.8
VOC	3088.2	1276.6	583.5	1067.3

S-43-5 HAE

Quarter	Actual fuel consumption (mcf)	NOx (lb/qtr)	VOC	CO	PM10
4th quarter 2002	9405	1777.5	483.4	5972.1	103.9
1st quarter 2003	11,521	2177.5	592.2	7315.8	127.3
2nd quarter 2003	11,368	2148.6	584.3	7218.7	125.6
3 rd quarter 2003	6822	1289.4	350.7	4332.0	75.4
4th quarter 2003	13,204	2495.6	678.7	8384.5	145.9
1st quarter 2004	13,547	816.9	5603.0	10922.0	149.7
2nd quarter 2004	5,922	357.1	2449.3	4805.1	65.4
3rd quarter 2004	1786	107.7	738.7	1449.2	19.7

Average Quarterly HAE '-5

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	1497.2	1252.9	698.6	2136.6
PM10	138.5	95.5	47.6	124.9
CO	9118.9	6011.9	2890.6	7178.3
VOC	3097.6	1516.8	544.7	581.1

S-43-6 HAE

Quarter	Actual fuel consumption (mcf)	NOx (lb/qtr)	VOC	CO	PM10
4th quarter 2002	7273	1489.5	2610.3	3895.4	80.4
1st quarter 2003	8364	1712.9	3001.8	4479.8	92.4
2nd quarter 2003	9679	1982.2	3473.8	5184.0	107.0
3 rd quarter 2003	9897	2026.9	3552.0	5300.8	109.4
4th quarter 2003	856	175.3	307.2	458.5	9.5
1st quarter 2004	203	10.8	59.2	150.3	2.2
2nd quarter 2004	4171	222.3	1217.0	3087.4	46.1
3rd quarter 2004	10,922	582.1	3187.0	8084.5	120.7

Average Quarterly HAE '-6

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	861.9	1102.3	1304.5	832.4
PM10	47.3	76.6	115.1	45.0
CO	2315.1	4135.7	6692.7	2176.8
VOC	1530.5	2345.4	3369.5	1458.8

S-43-7 HAE

Quarter	Actual fuel consumption (mcf)	NOx (lb/qtr)	VOC	CO	PM10
4th quarter 2002	5476	966.0	346.6	5692.3	60.5
1st quarter 2003	9256	1632.8	585.9	9621.6	102.3
2nd quarter 2003	6882	1214.0	435.6	7153.8	76.0
3 rd quarter 2003	4960	874.9	314.0	5155.9	54.8
4th quarter 2003	7001	1235.0	443.2	7277.5	77.4
1st quarter 2004	5636	1171.7	456.5	4398.3	62.3
2nd quarter 2004	3077	639.7	249.2	2401.3	34.0
3rd quarter 2004	62	12.9	5.0	48.3	0.7

Average Quarterly HAE '-7

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	1402.3	926.9	443.9	1100.5
PM10	82.3	55.0	27.8	69.0
CO	7010.0	4777.6	2602.1	6484.8
VOC	521.2	342.4	159.5	394.9

S-43-8 HAE

Quarter	Actual fuel consumption (mcf)	NOx (lb/qtr)	VOC	CO	PM10
4th quarter 2002	8487	1197.5	462.5	5609.0	93.8
1st quarter 2003	4342	612.7	236.6	2869.6	48.0
2nd quarter 2003	10769	1519.5	586.9	7117.2	119.0
3 rd quarter 2003	9920	1399.7	540.6	6556.1	109.6
4th quarter 2003	11753	1658.3	640.5	7767.6	129.9
1st quarter 2004	7805	690.0	928.8	3488.4	86.2
2nd quarter 2004	7027	621.2	836.2	3141.1	77.6
3rd quarter 2004	5420	479.1	645.0	2422.7	59.9

Average Quarterly HAE '8

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	651.4	1070.4	939.4	1427.9
PM10	67.1	98.3	84.8	111.9
CO	3179.0	5129.2	4489.4	6688.3
VOC	582.7	711.6	592.8	551.5

S-43-9 HAE

Quarter	Actual fuel consumption (mcf)	NOx (lb/qtr)	VOC	CO	PM10
4th quarter 2002	8140	2033.4	490.0	5738.7	89.9
1st quarter 2003	8753	2186.5	526.9	6170.9	96.7
2nd quarter 2003	3918	978.7	235.9	2762.2	43.3
3 rd quarter 2003	6849	1710.9	412.3	4828.5	75.7
4th quarter 2003	3867	966.0	232.8	2727.0	42.7
1st quarter 2004	34	2.0	2.6	17.1	0.4
2nd quarter 2004	1903	109.6	144.0	957.6	21.0
3rd quarter 2004	8051	463.7	609.5	4051.3	89.0

Average Quarterly HAE '9

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	1094.3	544.2	1087.3	1499.7
PM10	48.6	31.2	82.4	66.3
CO	3094.0	1859.9	4439.9	4232.9
VOC	264.8	190.0	510.9	361.4

Total Average Quarterly HAE

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	6463	5443	5286	9090
PM10	492	409	410	543
CO	32,884	25694	24,346	34,296
VOC	9085	6383	5761	4415

AQID (lbs/Qtr)	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	646	544	529	909
PM10	49	41	41	54
CO	3288	2569	2435	3430
VOC	909	638	576	442

ERC (lbs/Qtr)	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	5817	4899	4757	8181
PM10	443	368	369	489
CO	29,596	23125	21911	30866
VOC	8176	5745	5185	3973

Aera Energy LLC
S-43, Project 1075362

ATTACHMENT VIII

Draft ERC Certificates

San Joaquin Valley
Air Pollution Control District

Southern Regional Office • 2700 M Street, Suite 275 • Bakersfield, CA 93301-2370

Emission Reduction Credit Certificate
S-2774-1

ISSUED TO: AERA ENERGY LLC

ISSUED DATE: <DRAFT>

LOCATION OF REDUCTION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

For VOC Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
8,176 lbs	5,745 lbs	5,185 lbs	3,973 lbs

[ ] Conditions Attached

Method Of Reduction

[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of gas plant precompressors and refrigeration compressors (permits S-43-4 through S-43-9)

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

DRAFT

David Warner, Director of Permit Services

San Joaquin Valley
Air Pollution Control District

Southern Regional Office • 2700 M Street, Suite 275 • Bakersfield, CA 93301-2370

Emission Reduction Credit Certificate
S-2774-2

ISSUED TO: AERA ENERGY LLC

ISSUED DATE: <DRAFT>

LOCATION OF REDUCTION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

For NOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
5,817 lbs	4,899 lbs	4,757 lbs	8,181 lbs

[ ] Conditions Attached

Method Of Reduction

[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of gas plant precompressors and refrigeration compressors (permits S-43-4 through S-43-9)

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

DRAFT

David Warner, Director of Permit Services

San Joaquin Valley
Air Pollution Control District

Southern Regional Office • 2700 M Street, Suite 275 • Bakersfield, CA 93301-2370

Emission Reduction Credit Certificate
S-2774-3

ISSUED TO: AERA ENERGY LLC

ISSUED DATE: <DRAFT>

LOCATION OF REDUCTION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

For CO Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
29,596 lbs	23,125 lbs	21,911 lbs	30,866 lbs

[ ] Conditions Attached

Method Of Reduction

[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of gas plant precompressors and refrigeration compressors (permits S-43-4 through S-43-9)

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

DRAFT

David Warner, Director of Permit Services

San Joaquin Valley
Air Pollution Control District

Southern Regional Office • 2700 M Street, Suite 275 • Bakersfield, CA 93301-2370

Emission Reduction Credit Certificate S-2774-4

ISSUED TO: AERA ENERGY LLC

ISSUED DATE: <DRAFT>

LOCATION OF REDUCTION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

For PM10 Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
443 lbs	368 lbs	369 lbs	489 lbs

[ ] Conditions Attached

Method Of Reduction

[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of gas plant precompressors and refrigeration compressors (permits S-43-4 through S-43-9)

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

DRAFT

David Warner, Director of Permit Services

RECEIVED
NOV 0 8 2007
SJVAPCD
Southern Region

San Joaquin Valley Air Pollution Control District

Application for

[X] EMISSION REDUCTION CREDIT (ERC) [ ] CONSOLIDATION OF ERC CERTIFICATES

1. ERC TO BE ISSUED TO: Aera Energy LLC — Facility ID: _S_-_43__ (if known)

2. MAILING ADDRESS: Street/P.O. Box: P.O. Box 11164

City: Bakersfield State: CA Zip Code: 93389-1164

3. LOCATION OF REDUCTION:
Street:

City: Lost Hills

NE /4 SECTION 15 TOWNSHIP 27S RANGE 21E

4. DATE OF REDUCTION:

5. PERMIT NO(S): S-43-4, S-43-5, S-43-6 S-43-7, S-43-8, S-43-9 EXISTING ERC NO(S):

6. METHOD RESULTING IN EMISSION REDUCTION:

[X] SHUTDOWN [ ] RETROFIT [ ] PROCESS CHANGE [ ] OTHER

DESCRIPTION: Lost Hills Gas Plant was permanently shut down. Equipment was sold to, and is in process of being removed by, Crimson Resources Management.

(Use additional sheets if necessary)

7. REQUESTED ERCs (In Pounds Per Calendar Quarter):

	VOC	NOx	CO	PM10	SOx	OTHER
1ST QUARTER	6,967.8	4,113.9	31,013.5	405.3	0.0	
2ND QUARTER	5,158.7	3,581.8	24,372.5	337.5	0.0	
3RD QUARTER	4,935.3	3,478.9	22,874.0	337.1	0.0	
4TH QUARTER	3,855.7	5,975.4	30,864.4	623.1	0.0	

8. SIGNATURE OF APPLICANT: Brent Winn

TYPE OR PRINT TITLE OF APPLICANT: Environmental Engineer

9. TYPE OR PRINT NAME OF APPLICANT: Brent Winn

DATE: 11/8/07

TELEPHONE NO: (661) 665-4363

FOR APCD USE ONLY: AERA ENERGY

DATE STAMP

FILING FEE RECEIVED: $ 650 — / #418116

DATE PAID: PM 11/8/07

PROJECT NO.: S-1075362 FACILITY ID.: S-43

Initial ERC App $650 S-43

AERA

RECEIVED
NOV 0 8 2007
SJVAPCD
Southern Region

November 8, 2007

San Joaquin Valley APCD
2700 "M" Street, Suite 275
Bakersfield, CA 93301

ATTN: Mr. Thomas E. Goff, P.E.

SUBJECT: Emission Reduction Credits (ERCs) Application
Shutdown of Lost Hills Section 15 Gas Plant (S-43)

Attached is an application for banking of emission reduction credits (ERC's) associated with shutdown of the Lost Hills Section 15 Gas Plant (Facility ID S-43). Aera sold the gas plant equipment to Crimson Resource Management (Crimson), effective July 19, 2007. Crimson did not elect to purchase the associated air permits, and Aera surrendered the permits on August 22, 2007. Equipment removal is currently in process and ultimately all of the equipment will be removed from the site, either by Aera or Crimson.

This ERC application focuses on the plant precompressors and refrigeration compressors (permits S-43-4 through S-43-9). Aera plans to follow up with separate ERC applications for the remaining plant equipment.

Should you have any questions or need further information, please contact me at (661) 665-4363.

Sincerely,

Brent Winn
Environmental Engineer - Belridge

Emission Reduction Credit Application – I. C. Engine Compressors S-43-4 through S-43-9
Lost Hills Section 15 Gas Plant
Supplemental Application Information

Rule 2301 Requirements

4.2 Emissions Reductions Occurring After September 19, 1991	
For emission reductions occurring after September 19, 1991, the following criteria must be met in order to deem such reductions eligible for banking:	***Comments***
4.2.2 AERs are calculated in accordance with the calculation procedures of Rule 2201 (New and Modified Stationary Source Review Rule) and comply with the definition of AERs of Rule 2201 (New and Modified Stationary Source Review Rule). Adjustment to emissions reductions for the Community Bank shall be made at the time the reductions are quantified pursuant to Rule 2201 (New and Modified Stationary Source Review Rule).	*Rule 2201 Requirements are addressed below.*
4.2.3 An application for ERC has been filed no later than 180 days after the emission reductions occurred.	*Aera sold the gas plant equipment to Crimson Resource Management, effective July 19, 2007. This is the date that Aera no longer possessed legal authority to operate the plant equipment. The deadline for submittal of ERC applications is therefore January 14, 2008. To verify that an earlier "de facto" reduction had not occurred, SJVAPCD Inspector Sam Parks inspected the facility on August 16th, 2007 and verified that the plant equipment had not been removed and the plant was still capable of being re-started from "dormant" status.*

Emission Reduction Credit Application – I. C. Engine Compressors S-43-4 through S-43-9
Lost Hills Section 15 Gas Plant
Supplemental Application Information

Rule 2301 Requirements (continued)

4.2.1 The emission reductions are real, surplus, permanent, quantifiable, and enforceable;	*Real: The subject emission reductions are the result of actual physical shutdown and removal of equipment associated with the Lost Hills Gas Plant. Produced gas that had previously been processed in the gas plant was redirected to serve as fuel for field operations. The redirected produced gas displaced fuel that had previously been purchased from outside sources. Therefore, shutdown of the plant did not result in emission increases elsewhere.*
	Surplus: The compressor engines that are the subject of this application are lean-burn and were subject to a limit of 65 ppm NOx under Rule 4702. The engines demonstrated compliance with this tier of Rule 4702 prior to the Rule's compliance deadlines (June 1, 2005 through June 1, 2007). The engines' permits already included limits that were below the VOC and CO limits specified in Rule 4702.
	Permanent: The subject emission reductions are the result of actual physical shutdown and removal of equipment associated with the Lost Hills Gas Plant. The plant was shut down in Aera sold the gas plant equipment to Crimson Resource Management (Crimson), effective July 19, 2007. Crimson did not elect to purchase the associated air permits, and Aera surrendered the permits on August 22, 2007.
	Quantifiable: The emission reductions are quantifiable using actual fuel gas records and emission factors derived from actual source tests and EPA-approved documents **(AP-42, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources)** *Quantification of the emissions is presented below and in Attachment 1.*
	Enforceable: Crimson Resources did not elect to purchase the air permits associated with the gas plant, and Aera surrendered the permits on August 22, 2007. These emission reductions are enforceable by the fact that the permits have been surrendered. The reductions will be further enforceable by an inspection of the plant site after equipment removal is complete.

Emission Reduction Credit Application – I. C. Engine Compressors S-43-4 through S-43-9
Lost Hills Section 15 Gas Plant
Supplemental Application Information

Rule 2201 Requirements

3.2 Actual Emissions Reduction (AER): the decrease of actual emissions, compared to the Baseline Period, from an emissions unit and selected for use as emission offsets or ERC banking. AER shall meet the following criteria:	
3.2.1 Shall be real, enforceable, quantifiable, surplus, and permanent.	*These criteria are addressed above under Rule 2301 Requirements.*
3.2.2 To be considered surplus, AER shall be in excess, at the time the application for an Emission Reduction Credit or an Authority to Construct authorizing such reductions is deemed complete, of any emissions reduction which:	
3.2.2.1 Is required or encumbered by any laws, rules, regulations, agreements, orders, or	*The shutdown of these engines was not required or precipitated by any laws, rules, regulations, agreements, or orders.*
3.2.2.2 Is attributed to a control measure noticed for workshop, or proposed or contained in a State Implementation Plan, or	*These emission reductions are not attributed to a control measure noticed for workshop, or proposed or contained in a State Implementation Plan.*
3.2.2.3 Is proposed in the APCO's adopted air quality plan pursuant to the California Clean Air Act.	*I.C. engines are identified as a "further study" measure (Standards Review S-COM-6, scheduled for 2012) in the SJVAPCD 8-hour ozone plan, but no specific new emission limits have been considered at present. South Coast AQMD Rule 1110.2, last revised on June 3, 2005, has been incorporated into the SIP and is more stringent than SJVAPCD Rule 4702. Therefore, emission factors are adjusted accordingly in this application.*

Emission Reduction Credit Application – I. C. Engine Compressors S-43-4 through S-43-9
Lost Hills Section 15 Gas Plant
Supplemental Application Information

Rule 2201 Requirements (continued)

4.12 Actual Emissions Reductions (AER) Calculations: Actual Emissions Reductions shall be calculated, on a pollutant-by-pollutant basis, as follows: AER = HAE - PE2	
HAE = Historic Actual Emissions	*HAE calculations are presented in Attachment 1.*
PE2 = Post-project Potential to Emit	*Post-project potential to emit is zero since the subject emission units have have been permanently shut down and permits surrendered.*
4.12.1 Prior to banking, AER shall be discounted by 10 percent (10%) for Air Quality Improvement Deduction, and shall comply with all applicable provisions of Rule 2301 (Emission Reduction Credit Banking).	*The AQI deduction is reflected in the HAE calculations presented in Attachment 1.* *Rule 2301 requirements are addressed above.*

Emission Reduction Credit Application – I. C. Engine Compressors S-43-4 through S-43-9
Lost Hills Section 15 Gas Plant
Supplemental Application Information

Following are the AER's after adjusting for SQAQMD Rule 1110.2 and the 10% AQI deduction:

Pounds Per Quarter	VOC	NOx	CO	PM10	SOx
1ST QUARTER	6,967.8	4,113.9	31,013.5	405.3	0.0
2ND QUARTER	5,158.7	3,581.8	24,372.5	337.5	0.0
3RD QUARTER	4,935.3	3,478.9	22,874.0	337.1	0.0
4TH QUARTER	3,855.7	5,975.4	30,864.4	623.1	0.0

ATTACHMENT 1

Calculation of Historical Actual Emissions (HAE)

Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9
Lost Hills Section 15 Gas Plant
Calculation of Historical Actual Emissions

Background & Methodology

Operation of the Section 15 Gas Plant compressors was ramped down when feed gas from Aera's Lost Hills operations was discontinued in the first week of May, 2004. Chevron discontinued feed to the plant in January, 2005. Therefore, emissions occurring prior to May 2004 are most representative of actual plant operation. July 20, 2002 marks the beginning of the 5-year period prior to July 19, 2007 (date of the actual emission reduction). 2 years of operational data going back to May 2002 would be most representative of normal plant operation, but the months of May and June 2002 are outside of the 5-year window allowed by Rules 2301 and 2201 for establishing representative emissions. Therefore, this analysis presents actual emissions data beginning with the last quarter of 2002.

Compressors S-43-4, S-43-5, and S-43-6 were identified as the "precompressors" and were equipped with one shared fuel meter (# 9356). Compressors S-43-7, S-43-8, and S-43-9 were identified as the "refrigeration compressors" and were also equipped with one shared fuel meter (# 9354). Although the compressors did not have individual dedicated fuel meters, detailed monthly runtime records have been kept which allow an accurate allocation of fuel usage by month and quarter. The fuel volumes, runtimes, and fuel allocations are presented in attached spreadsheet printouts.

Emission factors used in these calculations are identical to those used in annual emission statements submitted to SJVAPCD in the years 2002-2005. NOx, CO, and VOC emission factors are based on actual biennial source tests required by Rule 4702.

Rule 2301 does not allow emissions that are not "surplus" to be included in ERC's. Emission reductions are not considered "surplus" if they are required by a rule that is included in the State Implementation Plan (e.g. SJVAPCD Rule 4702). The gas plant engines demonstrated by source testing that they were already capable of compliance with the new 65 ppm NOx limit prior to adoption of the most recent revisions of Rule 4702.

According to guidance from SJVAPCD Permit Services, the "surplus" criteria also includes consideration of rules adopted by other California air districts that have been incorporated into the SIP. It appears that South Coast AQMD Rule 1110.2 (last revised on June 3, 2005) is the most stringent I.C. engine rule that has been incorporated into the SIP.

Under Rule 1110.2, engines that had previously been designated in a Rule 1110.1 compliance plan to be shut down or electrified can continue to operate in compliance with a limit of 11 ppm NOx. Rule 1110.1 was rescinded on June 3, 2005. For engines that are subject to Rule 1110.2 but were <u>not</u> designated for shutdown or electrification under rescinded Rule 1110.1, the applicable limit is 36 ppm NOx. Therefore, the 11 ppm NOx limit is for a special situation, so the 36 ppm limit is the appropriate emission factor to be considered. 36 ppm NOx is equivalent to 135.26 lb NOx/MMcf - assuming a fuel heat content of 1020 BTU/scf. In the attached analysis, this factor was applied for

operating years when source tests conducted to show compliance with SJVAPCD Rule 4702 reflected values higher than 135.26 lb NOx/MMcf.

The applicable Rule 4702 limit for VOC is 750 ppm. The SCAQMD Rule 1110.2 VOC limit is more stringent at 250 ppm (equivalent to 326.7 lb VOC/MMcf). In the HAE analysis, this factor was substituted for operating years when the SJVAPCD source test results reflected values higher than 326.7 lb VOC/MMcf.

The CO limit is 2000 ppm for both SJVAPCD Rule 4702 and SCAQMD Rule 1110.2. The CO limit in PTO's for the gas plant engines has always been more stringent at 463 ppm, so this factor does not have to be adjusted in the HAE analysis.

Aera Energy - Lost Hills Section 15 Gas Plant Emission Reduction Credit Application – I. C. Engine Compressors S-43-4 through S-43-9

PM_{10}	Average Quarterly Emissions (lbs) Based on 2 most representative years			
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q
S-43-4	99.2	47.9	47.6	114.8
S-43-5	126.7	87.4	43.5	161.8
S-43-6	43.3	70.0	105.2	77.9
S-43-7	75.3	50.3	25.4	90.8
S-43-8	61.4	90.0	77.5	145.2
S-43-9	44.4	29.4	75.3	101.8
	450.3	375.0	374.6	692.3
After 10 % AQI Reduction	405.3	337.5	337.1	623.1

CO	Average Quarterly Emissions (lbs) Based on 2 most representative years			
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q
S-43-4	8,166.8	3,779.3	3,231.5	7,534.8
S-43-5	9,153.1	6,011.4	2,890.4	7,177.5
S-43-6	2,314.9	4,135.2	6,692.1	2,176.3
S-43-7	7,010.3	4,777.6	2,602.3	6,484.9
S-43-8	4,720.8	6,517.1	5,559.8	6,688.4
S-43-9	3,093.6	1,859.8	4,439.4	4,231.7
	34,459.4	27,080.5	25,415.6	34,293.7
After 10 % AQI Reduction	31,013.5	24,372.5	22,874.0	30,864.4

SOx	Average Quarterly Emissions (lbs) Based on 2 most representative years			
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q
S-43-4	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0

NOx	Average Quarterly Emissions (lbs) Based on 2 most representative years			
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q
S-43-4	800.3	438.6	602.4	1,535.8
S-43-5	1,187.6	947.4	515.2	1,529.1
S-43-6	571.1	765.7	960.1	549.7
S-43-7	1,007.2	673.5	339.7	843.8
S-43-8	411.9	834.8	753.0	1,368.9
S-43-9	592.9	319.8	695.0	812.0
	4,571.0	3,979.7	3,865.4	6,639.3
After 10 % AQI Reduction	4,113.9	3,581.8	3,478.9	5,975.4

VOC	Average Quarterly Emissions (lbs) Based on 2 most representative years			
	1Q	2Q	3Q	4Q
S-43-4	2,468.4	1,038.7	543.1	1,067.5
S-43-5	2,509.0	1,259.6	467.2	581.0
S-43-6	1,396.1	2,189.7	3,210.2	1,327.8
S-43-7	521.1	342.4	159.5	394.9
S-43-8	582.7	711.5	592.8	551.5
S-43-9	264.8	190.0	511.0	361.5
	7,742.0	5,731.8	5,483.7	4,284.2
After 10 % AQI Reduction	6,967.8	5,158.7	4,935.3	3,855.7

Aera Energy Lost Hills Section 15 Gas Plant - Emission Reduction Credit Application – I. C. Engine Compressors S-43-4 through S-43-9

Most Representative 2-year Period (within 5 years Prior to Date of Emission Reduction)

Operation of the Section 15 Gas Plant compressors was ramped down when feed gas from Aera's Lost Hills operations was discontinued in the first week of May, 2004. Chevron discontinued feed to the plant in January, 2005. After that, compressors were only operated as needed to distribute unprocessed gas back to the field. Therefore, emissions occurring prior to May 2004 are most representative of normal plant operation.

PM_{10}	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	94.1	64.0	44.2	86.4	135.4	134.4	51.6	8.7
S-43-5	95.1	116.5	114.9	69.0	133.5	137.0	59.9	18.1
S-43-6	73.5	84.6	97.9	100.1	8.6	2.1	42.2	110.4
S-43-7	55.4	93.6	69.6	50.1	70.8	57.0	31.1	0.6
S-43-8	85.8	43.9	108.9	100.3	118.8	78.9	71.0	54.8
S-43-9	82.3	88.5	39.6	69.2	39.1	0.3	19.2	81.4
	486.2	491.0	475.1	475.1	506.3	409.6	275.0	274.0

CO	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	6,179.4	4,200.5	2,901.9	5,673.3	8,890.2	12,133.1	4,656.6	789.7
S-43-5	5,971.5	7,314.5	7,217.6	4,331.4	8,383.5	10,991.8	4,805.3	1,449.5
S-43-6	3,894.5	4,479.1	5,183.2	5,299.6	458.2	150.6	3,087.2	8,084.7
S-43-7	5,692.6	9,621.7	7,153.6	5,156.1	7,277.2	4,398.8	2,401.7	48.5
S-43-8	5,609.1	2,869.7	7,117.5	6,556.0	7,767.8	6,571.9	5,916.8	4,563.6
S-43-9	5,737.7	6,169.8	2,761.9	4,827.8	2,725.8	17.3	957.8	4,051.0
	33,084.7	34,655.4	32,335.7	31,844.3	35,502.7	34,263.4	21,825.4	18,986.9

SOx	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NOx	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	1,715.8	1,166.3	805.8	1,575.3	2,468.5	744.5	285.7	48.5
S-43-5	1,776.7	2,176.3	2,147.4	1,288.7	2,494.3	816.9	357.1	107.7
S-43-6	1,488.7	1,712.2	1,981.3	2,025.8	175.1	10.8	222.1	581.7
S-43-7	966.0	1,632.8	1,213.9	875.0	1,234.9	1,171.7	639.7	12.9
S-43-8	1,196.7	612.2	1,518.5	1,398.7	1,657.2	236.4	212.9	164.2
S-43-9	2,032.5	2,185.6	978.4	1,710.2	965.6	2.0	109.6	463.6
	9,176.4	9,485.4	8,645.3	8,873.7	8,995.7	2,982.2	1,827.1	1,378.6

VOC	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	875.6	595.0	411.1	803.6	1,259.3	5,581.5	2,142.2	363.3
S-43-5	483.2	592.2	584.3	350.7	678.7	5,603.2	2,449.6	738.9
S-43-6	2,609.9	3,002.0	3,473.8	3,551.9	307.1	59.4	1,217.0	3,187.1
S-43-7	346.7	585.9	435.6	314.0	443.1	456.3	249.1	5.0
S-43-8	462.4	236.6	586.9	540.6	640.6	928.7	836.1	644.9
S-43-9	490.2	526.9	235.9	412.3	232.8	2.6	144.1	609.6
	5,268.1	5,538.6	5,727.6	5,973.1	3,561.6	12,631.7	7,038.1	5,548.8

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

	2002 Quarterly fuel (mcf)				
	1Q	2Q	3Q	4Q	Annual Fuel (mcf)
S-43-4	6,825.9	11,176.5	12,912.7	9,312.0	40,227
S-43-5	6,968.1	7,670.9	5,979.6	9,405.4	30,024
S-43-6	12,263.6	7,420.6	6,970.7	7,272.7	33,928
S-43-7	0.0	2,725.6	11,474.2	5,476.3	19,676
S-43-8	9,123.4	8,944.5	11,494.8	8,487.1	38,050
S-43-9	4,135.0	4,136.9	0.0	8,139.7	16,412
					178,316

PM_{10}	2002					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	69.0	113.0	130.5	94.1	10.11	AP-42
S-43-5	70.4	77.6	60.5	95.1	10.11	AP-42
S-43-6	124.0	75.0	70.5	73.5	10.11	AP-42
S-43-7	0.0	27.6	116.0	55.4	10.11	AP-42
S-43-8	92.2	90.4	116.2	85.8	10.11	AP-42
S-43-9	41.8	41.8	0.0	82.3	10.11	AP-42
	397.5	425.4	493.7	486.2		

CO	2002					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	4,529.7	7,416.7	8,568.9	6,179.4	663.6	Source Test 5/21 & 22/2002
S-43-5	4,424.0	4,870.3	3,796.4	5,971.5	634.9	Source Test 5/21 & 22/2002
S-43-6	6,567.2	3,973.7	3,732.8	3,894.5	535.5	Source Test 5/21 & 22/2002
S-43-7	0.0	2,833.2	11,927.4	5,692.6	1039.5	Source Test 5/21 & 22/2002
S-43-8	6,029.7	5,911.4	7,596.9	5,609.1	660.9	Source Test 5/21 & 22/2002
S-43-9	2,914.7	2,916.1	0.0	5,737.7	704.9	Source Test 5/21 & 22/2002
	24,465.3	27,921.5	35,622.5	33,084.7		

Rule 1110.2 Limit (2000 ppm)
CO 4574.002 lb/MMcf

SOx	2002				
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	0.0	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	

NOx	2002					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	923.3	1,511.7	1,746.6	1,259.5	135.3	Rule 1110.2 Limit (36 ppm)
S-43-5	942.5	1,037.6	808.8	1,272.2	135.3	Rule 1110.2 Limit (36 ppm)
S-43-6	1,658.8	1,003.7	942.9	983.7	135.3	Rule 1110.2 Limit (36 ppm)
S-43-7	0.0	368.7	1,552.0	740.7	135.3	Rule 1110.2 Limit (36 ppm)
S-43-8	1,234.0	1,209.8	1,554.8	1,148.0	135.3	Rule 1110.2 Limit (36 ppm)
S-43-9	559.3	559.6	0.0	1,101.0	135.3	Rule 1110.2 Limit (36 ppm)
	5,317.9	5,691.1	6,605.0	6,505.0		

Rule 1110.2 Limit (36 ppm)
NOx 135.260 lb/MMcf

VOC	2002					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	641.9	1,051.0	1,214.2	875.6	94.0	Source Test 5/21 & 22/2002
S-43-5	358.0	394.1	307.2	483.2	51.4	Source Test 5/21 & 22/2002
S-43-6	4,006.7	2,424.4	2,277.4	2,376.1	326.7	Rule 1110.2 limit (250 ppm)
S-43-7	0.0	172.6	726.5	346.7	63.3	Source Test 5/21 & 22/2002
S-43-8	497.0	487.3	626.2	462.4	54.5	Source Test 5/21 & 22/2002
S-43-9	249.0	249.2	0.0	490.2	60.2	Source Test 5/21 & 22/2002
	5,752.6	4,778.5	5,151.6	5,034.3		

Rule 1110.2 limit (250 ppm)
VOC 326.714 lb/MMcf

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

	2003	Quarterly fuel (mcf)			
	1Q	2Q	3Q	4Q	Annual Fuel (mcf)
S-43-4	6,329.8	4,373	8,549	13,397	32,649
S-43-5	11,520.7	11,368	6,822	13,204	42,915
S-43-6	8,364.4	9,679	9,897	856	28,796
S-43-7	9,256.1	6,882	4,960	7,001	28,099
S-43-8	4,342.1	10,769	9,920	11,753	36,785
S-43-9	8,752.8	3,918	6,849	3,867	23,387
					192,630

PM_{10}	2003					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	64.0	44.2	86.4	135.4	10.11	AP-42
S-43-5	116.5	114.9	69.0	133.5	10.11	AP-42
S-43-6	84.6	97.9	100.1	8.6	10.11	AP-42
S-43-7	93.6	69.6	50.1	70.8	10.11	AP-42
S-43-8	43.9	108.9	100.3	118.8	10.11	AP-42
S-43-9	88.5	39.6	69.2	39.1	10.11	AP-42
	491.0	475.1	475.1	506.3		

CO	2003						
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)		Rule 1110.2 Limit (2000 ppm)
S-43-4	4,200.5	2,901.9	5,673.3	8,890.2	663.6	Source Test 5/21 & 22/2002	CO 4574.002 lb/MMcf
S-43-5	7,314.5	7,217.6	4,331.4	8,383.5	634.9	Source Test 5/21 & 22/2002	
S-43-6	4,479.1	5,183.2	5,299.6	458.2	535.5	Source Test 5/21 & 22/2002	
S-43-7	9,621.7	7,153.6	5,156.1	7,277.2	1039.5	Source Test 5/21 & 22/2002	
S-43-8	2,869.7	7,117.5	6,556.0	7,767.8	660.9	Source Test 5/21 & 22/2002	
S-43-9	6,169.8	2,761.9	4,827.8	2,725.8	704.9	Source Test 5/21 & 22/2002	
	34,655.4	32,335.7	31,844.3	35,502.7			

SOx	2003				
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	0.0	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	

NOx	2003						
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)		Rule 1110.2 Limit (36 ppm)
S-43-4	856.2	591.5	1,156.4	1,812.1	135.3	Rule 1110.2 Limit (36 ppm)	NOx 135.260 lb/MMcf
S-43-5	1,558.3	1,537.6	922.8	1,786.0	135.3	Rule 1110.2 Limit (36 ppm)	
S-43-6	1,131.4	1,309.2	1,338.6	115.7	135.3	Rule 1110.2 Limit (36 ppm)	
S-43-7	1,252.0	930.8	670.9	946.9	135.3	Rule 1110.2 Limit (36 ppm)	
S-43-8	587.3	1,456.7	1,341.8	1,589.8	135.3	Rule 1110.2 Limit (36 ppm)	
S-43-9	1,183.9	530.0	926.4	523.0	135.3	Rule 1110.2 Limit (36 ppm)	
	6,569.0	6,355.8	6,356.8	6,773.5			

VOC	2003						
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)		Rule 1110.2 limit (250 ppm)
S-43-4	595.0	411.1	803.6	1,259.3	94.0	Source Test 5/21 & 22/2002	VOC 326.714 lb/MMcf
S-43-5	592.2	584.3	350.7	678.7	51.4	Source Test 5/21 & 22/2002	
S-43-6	2,732.8	3,162.3	3,233.4	279.5	326.7	Rule 1110.2 limit (250 ppm)	
S-43-7	585.9	435.6	314.0	443.1	63.3	Source Test 5/21 & 22/2002	
S-43-8	236.6	586.9	540.6	640.6	54.5	Source Test 5/21 & 22/2002	
S-43-9	526.9	235.9	412.3	232.8	60.2	Source Test 5/21 & 22/2002	
	5,269.4	5,416.1	5,654.6	3,534.0			

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

	2004 Quarterly fuel (mcf)				
	1Q	2Q	3Q	4Q	Annual Fuel (mcf)
S-43-4	13,289	5,100	865	0	19,254
S-43-5	13,547	5,922	1,786	3,297	24,552
S-43-6	203	4,171	10,922	7,304	22,599
S-43-7	5,636	3,077	62	0	8,776
S-43-8	7,805	7,027	5,420	1,448	21,701
S-43-9	34	1,903	8,051	11,824	21,812
					118,695

PM_{10}	2004					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	134.4	51.6	8.7	0.0	10.11	AP-42
S-43-5	137.0	59.9	18.1	33.3	10.11	AP-42
S-43-6	2.1	42.2	110.4	73.8	10.11	AP-42
S-43-7	57.0	31.1	0.6	0.0	10.11	AP-42
S-43-8	78.9	71.0	54.8	14.6	10.11	AP-42
S-43-9	0.3	19.2	81.4	119.5	10.11	AP-42
	409.6	275.0	274.0	241.4		

CO	2004					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	12,133.1	4,656.6	789.7	0.0	913.01	Source Test 7/22/2004
S-43-5	10,991.8	4,805.3	1,449.5	2,675.5	811.41	Source Test 7/22/2004
S-43-6	150.6	3,087.2	8,084.7	5,406.5	740.24	Source Test 7/22/2004
S-43-7	4,398.8	2,401.7	48.5	0.0	780.44	Source Test 5/18/2004
S-43-8	6,571.9	5,916.8	4,563.6	1,219.3	841.98	Source Test 5/19/2004
S-43-9	17.3	957.8	4,051.0	5,949.6	503.18	Source Test 6/17/2004
	34,263.4	21,825.4	18,986.9	15,250.8		

Rule 1110.2 Limit (2000 ppm)
CO 4574.002 lb/MMcf

SOx	2004				
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	0.0	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	

NOx	2004				
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	744.5	285.7	48.5	0.0	56.0 Source Test 7/22/2004
S-43-5	816.9	357.1	107.7	198.8	60.3 Source Test 7/22/2004
S-43-6	10.8	222.1	581.7	389.0	53.3 Source Test 7/22/2004
S-43-7	762.4	416.2	8.4	0.0	135.3 Rule 1110.2 Limit (36 ppm)
S-43-8	236.4	212.9	164.2	43.9	30.3 Source Test 5/19/2004
S-43-9	2.0	109.6	463.6	680.9	57.6 Source Test 6/17/2004
	2,572.9	1,603.7	1,374.1	1,312.6	

Rule 1110.2 Limit (36 ppm)
NOx 135.260 lb/MMcf

VOC	2004					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	4,341.7	1,666.3	282.6	0.0	326.7	Rule 1110.2 limit (250 ppm)
S-43-5	4,425.8	1,934.9	583.6	1,077.3	326.7	Rule 1110.2 limit (250 ppm)
S-43-6	59.4	1,217.0	3,187.1	2,131.3	291.8	Source Test 7/22/2004
S-43-7	456.3	249.1	5.0	0.0	81.0	Source Test 5/18/2004
S-43-8	928.7	836.1	644.9	172.3	119.0	Source Test 5/19/2004
S-43-9	2.6	144.1	609.6	895.3	75.7	Source Test 6/17/2004
	10,214.5	6,047.6	5,312.8	4,276.2		

Rule 1110.2 limit (250 ppm)
VOC 326.714 lb/MMcf

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

	2005 Quarterly fuel (mcf)				
	1Q	2Q	3Q	4Q	Annual Fuel (mcf)
S-43-4	0	0	0	0	0
S-43-5	7,034	6,331	6,175	5,357	24,897
S-43-6	1,606	2,772	2,661	111	7,150
S-43-7	0	0	0	0	0
S-43-8	1,854	0	0	0	1,854
S-43-9	0	0	0	0	0
					33,901

PM_{10}	2005					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	0.0	0.0	0.0	0.0	10.11	AP-42
S-43-5	71.1	64.0	62.4	54.2	10.11	AP-42
S-43-6	16.2	28.0	26.9	1.1	10.11	AP-42
S-43-7	0.0	0.0	0.0	0.0	10.11	AP-42
S-43-8	18.7	0.0	0.0	0.0	10.11	AP-42
S-43-9	0.0	0.0	0.0	0.0	10.11	AP-42
	106.1	92.0	89.3	55.3		

CO	2005					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	0.0	0.0	0.0	0.0	913.01	Source Test 7/22/2004
S-43-5	5,707.6	5,136.9	5,010.4	4,346.7	811.41	Source Test 7/22/2004
S-43-6	1,188.7	2,052.1	1,969.8	82.2	740.24	Source Test 7/22/2004
S-43-7	0.0	0.0	0.0	0.0	780.44	Source Test 5/18/2004
S-43-8	1,561.0	0.0	0.0	0.0	841.98	Source Test 5/19/2004
S-43-9	0.0	0.0	0.0	0.0	503.18	Source Test 6/17/2004
	8,457.3	7,189.0	6,980.2	4,428.9		

Rule 1110.2 Limit (2000 ppm)
CO 4574.002 lb/MMcf

SOx	2005				
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	0.0	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	

NOx	2005					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	0.0	0.0	0.0	0.0	56.0	Source Test 7/22/2004
S-43-5	424.2	381.7	372.4	323.0	60.3	Source Test 7/22/2004
S-43-6	85.5	147.6	141.7	5.9	53.3	Source Test 7/22/2004
S-43-7	0.0	0.0	0.0	0.0	135.3	Rule 1110.2 Limit (36 ppm)
S-43-8	56.2	0.0	0.0	0.0	30.3	Source Test 5/19/2004
S-43-9	0.0	0.0	0.0	0.0	57.6	Source Test 6/17/2004
	565.8	529.4	514.1	328.9		

Rule 1110.2 Limit (36 ppm)
NOx 135.260 lb/MMcf

VOC	2005					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	0.0	0.0	0.0	0.0	326.7	Rule 1110.2 limit (250 ppm)
S-43-5	2,298.2	2,068.4	2,017.5	1,750.2	326.7	Rule 1110.2 limit (250 ppm)
S-43-6	468.6	808.9	776.5	32.4	291.8	Source Test 7/22/2004
S-43-7	0.0	0.0	0.0	0.0	81.0	Source Test 5/18/2004
S-43-8	220.6	0.0	0.0	0.0	119.0	Source Test 5/19/2004
S-43-9	0.0	0.0	0.0	0.0	75.7	Source Test 6/17/2004
	2,987.4	2,877.3	2,794.0	1,782.6		

Rule 1110.2 limit (250 ppm)
VOC 326.714 lb/MMcf

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

Compressor Run Hours

2001	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	3	8	496	365	0	0	0	0	1	403	533	307	COMPRESSOR #1
S-43-5	739	671	744	645	736	501	743	724	706	517	516	418	COMPRESSOR #2
S-43-6	729	625	248	424	708	487	739	739	698	571	358	694	COMPRESSOR #3
S-43-7	478	524	315	428	305	433	457	526	45	33	15	2	COMPRESSOR #4
S-43-8	0	0	0	5	470	487	673	733	383	407	680	231	COMPRESSOR #5
S-43-9	299	194	475	300	157	0	0	2	372	328	1	486	COMPRESSOR #6
	1471	1304	1488	1434	1444	988	1482	1463	1405	1491	1407	1419	**Subt - precomprs**
	777	718	790	733	932	920	1130	1261	800	768	696	719	**Subt- Refrig Comprs**

Fuel Meter Readings (mcf)

2001	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	
9356	10,386	9,582	8,934	9,254	8,975	6,294	9,107	9,308	8,744	9,300	8,854	9,037	107,774	PLANT PRE-COMPRESSOR FUEL
9354	4,348	3,934	4,228	4,666	5,104	4,948	6,173	7,057	4,706	4,552	4,162	4,263	58,141	PLANT REFRIG.FUEL
													165,915	

Allocated Fuel Usage Per Engine (mcf)

2001	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
S-43-4	21	59	2,978	2,355	0	0	0	0	6	2,514	3,354	1,955	13,242
S-43-5	5,218	4,931	4,467	4,162	4,575	3,192	4,566	4,606	4,394	3,225	3,247	2,662	49,243
S-43-6	5,147	4,593	1,489	2,736	4,401	3,102	4,541	4,702	4,344	3,562	2,253	4,420	45,288
S-43-7	2675	2871	1686	2724	1670	2329	2497	2944	265	196	90	12	19,958
S-43-8	0	0	0	32	2574	2619	3676	4102	2253	2412	4066	1370	23,104
S-43-9	1673	1063	2542	1910	860	0	0	11	2188	1944	6	2881	15,079
													165,915

Allocated Quarterly Fuel Usage Per Engine (mcf)

2001	1Q	2Q	3Q	4Q
S-43-4	3,058	2,355	6	7,823
S-43-5	14,615	11,929	13,566	9,134
S-43-6	11,229	10,239	13,587	10,234
S-43-7	7,232	6,724	5,705	297
S-43-8	0	5,225	10,032	7,848
S-43-9	5,278	2,770	2,200	4,831

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

Compressor Run Hours

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	26	373	723	545	586	719	690	739	703	350	510	707	COMPRESSOR #1
S-43-5	711	351	63	415	430	425	101	633	267	561	678	348	COMPRESSOR #2
S-43-6	731	608	657	475	464	290	582	89	466	560	250	406	COMPRESSOR #3
S-43-7	0	0	0	0	154	327	679	732	685	727	310	36	COMPRESSOR #4
S-43-8	693	312	399	398	526	646	663	737	700	577	401	674	COMPRESSOR #5
S-43-9	46	227	334	321	365	39	0	0	0	148	719	720	COMPRESSOR #6
	1468	1332	1443	1435	1480	1434	1373	1461	1436	1471	1438	1461	**Subt - precomprs**
	739	539	733	719	1045	1012	1342	1469	1385	1452	1430	1430	**Subt- Refrig Comprs**

Fuel Meter Readings (mcf)

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
9356	9,146	8,188	8,724	8,687	8,893	8,688	8,556	8,621	8,686	8,904	8,315	8,771	104,179	**PRE-COMPRESSOR FUEL**
9354	4,479	4,176	4,603	4,185	5,859	5,763	7,402	8,034	7,533	7,431	7,235	7,437	74,137	**REFRIG.FUEL**
													178,316	

Allocated Fuel Usage Per Engine (mcf)

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
S-43-4	162	2,293	4,371	3,299	3,521	4,356	4,300	4,361	4,252	2,119	2,949	4,244	40,227
S-43-5	4,430	2,158	381	2,512	2,584	2,575	629	3,735	1,615	3,396	3,920	2,089	30,024
S-43-6	4,554	3,737	3,972	2,875	2,788	1,757	3,627	525	2,819	3,390	1,446	2,437	33,928
S-43-7	0	0	0	0	863	1862	3745	4003	3726	3721	1568	187	19,676
S-43-8	4201	2417	2506	2317	2949	3679	3657	4031	3807	2953	2029	3505	38,050
S-43-9	279	1759	2097	1868	2046	222	0	0	0	757	3638	3745	16,412

Allocated Quarterly Fuel Usage Per Engine (mcf)

2002	1Q	2Q	3Q	4Q
S-43-4	6,826	11,177	12,913	9,312
S-43-5	6,968	7,671	5,980	9,405
S-43-6	12,264	7,421	6,971	7,273
S-43-7	0	2,726	11,474	5,476
S-43-8	9,123	8,944	11,495	8,487
S-43-9	4,135	4,137	0	8,140

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

Compressor Run Hours

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	201	110	743	264	340	107	371	412	659	712	719	738	COMPRESSOR #1
S-43-5	740	636	513	635	698	501	359	321	475	722	720	694	COMPRESSOR #2
S-43-6	539	596	231	391	450	705	762	743	202	40	0	102	COMPRESSOR #3
S-43-7	356	682	728	497	739	79	345	279	350	406	683	194	COMPRESSOR #4
S-43-8	298	0	513	636	734	710	571	734	638	702	706	764	COMPRESSOR #5
S-43-9	739	658	237	137	0	634	590	449	323	316	0	403	COMPRESSOR #6
	1480	1342	1487	1290	1488	1313	1492	1476	1336	1474	1439	1534	**Subt - precomprs**
	1393	1340	1478	1270	1473	1423	1506	1462	1311	1424	1389	1361	**Subt- Refrig Comprs**

Fuel Meter Readings (mcf)

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
9356	9,075	8,300	8,840	7,987	8,964	8,469	8,466	8,610	8,192	9,204	9,142	9,111	104,360	**PRE-COMPRESSOR FUEL**
9354	7,869	6,822	7,660	6,741	7,666	7,162	7,161	7,480	7,088	7,944	7,571	7,106	88,270	**REFRIG.FUEL**
													192,630	

Allocated Fuel Usage Per Engine (mcf)

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
S-43-4	1,232	680	4,417	1,635	2,048	690	2,105	2,403	4,041	4,446	4,568	4,383	32,649
S-43-5	4,538	3,934	3,050	3,932	4,205	3,232	2,037	1,873	2,913	4,508	4,574	4,122	42,915
S-43-6	3,305	3,686	1,373	2,421	2,711	4,547	4,324	4,334	1,239	250	0	606	28,796
S-43-7	2011	3472	3773	2638	3846	398	1640	1427	1892	2265	3723	1013	28,099
S-43-8	1683	0	2659	3376	3820	3573	2715	3755	3449	3916	3848	3989	36,785
S-43-9	4175	3350	1228	727	0	3191	2805	2297	1746	1763	0	2104	23,387
													192,630

Allocated Quarterly Fuel Usage Per Engine (mcf)

2003	1Q	2Q	3Q	4Q	
S-43-4	6,330	4,373	8,549	13,397	
S-43-5	11,521	11,368	6,822	13,204	
S-43-6	8,364	9,679	9,897	856	192,630
S-43-7	9,256	6,882	4,960	7,001	
S-43-8	4,342	10,769	9,920	11,753	
S-43-9	8,753	3,918	6,849	3,867	

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

Compressor Run Hours

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	695	687	699	495	277	146	137	0	0	0	0	0	COMPRESSOR #1
S-43-5	689	695	737	613	433	3	214	12	60	5	227	536	COMPRESSOR #2
S-43-6	25	7	0	176	4	661	393	719	644	737	415	207	COMPRESSOR #3
S-43-7	524	411	48	319	157	71	3	2	5	0	0	0	COMPRESSOR #4
S-43-8	291	369	706	388	543	289	203	465	190	2	106	131	COMPRESSOR #5
S-43-9	0	6	0	0	0	317	518	266	511	721	616	603	COMPRESSOR #6
	1409	1389	1436	1284	714	810	744	731	704	742	642	743	**Subt - precomprs**
	815	786	754	707	700	677	724	733	706	723	722	734	**Subt- Refrig Comprs**

Fuel Meter Readings (mcf)

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
9356	8,952	8,843	9,244	8,100	3,366	3,727	4,697	4,666	4,210	4,505	3,074	3,022	66,406	**PRE-COMPRESSOR FUEL**
9354	4,683	4,498	4,295	3,832	4,111	4,065	4,477	4,730	4,326	4,419	4,554	4,299	52,289	**REFRIG.FUEL**
													118,695	

Allocated Fuel Usage Per Engine (mcf)

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
S-43-4	4,416	4,374	4,500	3,123	1,306	672	865	0	0	0	0	0	19,254
S-43-5	4,378	4,425	4,744	3,867	2,041	14	1,351	77	359	30	1,087	2,180	24,552
S-43-6	159	45	0	1,110	19	3,041	2,481	4,589	3,851	4,475	1,987	842	22,599
S-43-7	3,011	2,352	273	1,729	922	426	19	13	31	0	0	0	8,776
S-43-8	1,672	2,112	4,022	2,103	3,189	1,735	1,255	3,001	1,164	12	669	767	21,701
S-43-9	0	34	0	0	0	1,903	3,203	1,716	3,131	4,407	3,885	3,532	21,812
													118,695

Allocated Quarterly Fuel Usage Per Engine (mcf)

2004	1Q	2Q	3Q	4Q	
S-43-4	13,289	5,100	865	0	
S-43-5	13,547	5,922	1,786	3,297	
S-43-6	203	4,171	10,922	7,304	118,695
S-43-7	5,636	3,077	62	0	
S-43-8	7,805	7,027	5,420	1,448	
S-43-9	34	1,903	8,051	11,824	

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

Compressor Run Hours

2005	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	0	0	0	0	0	0	0	0	0	0	0	0	COMPRESSOR #1
S-43-5	752	648	360	349	538	613	544	683	311	700	702	0	COMPRESSOR #2
S-43-6	1	2	383	364	216	71	197	12	423	23	6	0	COMPRESSOR #3
S-43-7	0	0	0	0	0	0	0	0	0	0	0	0	COMPRESSOR #4
S-43-8	314	0	0	0	0	0	0	0	0	0	0	0	COMPRESSOR #5
S-43-9	0	0	0	0	0	0	0	0	0	0	0	0	COMPRESSOR #6
	753	650	743	713	754	684	741	695	734	723	708	0	Subt - precomprs
	314	0	0	0	0	0	0	0	0	0	0	0	Subt- Refrig Comprs

Fuel Meter Readings (mcf)

2005	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
9356	2,912	2,636	3,092	3,126	3,043	2,934	2,962	2,704	3,170	2,772	2,696	41	32,088	PRE-COMPRESSOR FUEL
9354	1,854	0	0	0	0	0	0	0	0	0	0	0	1,854	REFRIG.FUEL

Allocated Fuel Usage Per Engine (mcf)

2005	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
S-43-4	0	0	0	0	0	0	0	0	0	0	0	0	0
S-43-5	2,908	2,628	1,498	1,530	2,171	2,629	2,175	2,657	1,343	2,684	2,673	0	24,897
S-43-6	4	8	1,594	1,596	872	305	787	47	1,827	88	23	0	7,150
S-43-7	0	0	0	0	0	0	0	0	0	0	0	0	0
S-43-8	1854	0	0	0	0	0	0	0	0	0	0	0	1,854
S-43-9	0	0	0	0	0	0	0	0	0	0	0	0	0
													33,901

Allocated Quarterly Fuel Usage Per Engine (mcf)

2005	1Q	2Q	3Q	4Q	
S-43-4	0	0	0	0	
S-43-5	7,034	6,331	6,175	5,357	
S-43-6	1,606	2,772	2,661	111	33,901
S-43-7	0	0	0	0	
S-43-8	1,854	0	0	0	
S-43-9	0	0	0	0	

EXCERPT - RULE 1110.2

or non-road engine and is not a motor vehicle as defined in Section 415 of the California Vehicle Code.

(13) TIER 2 AND TIER 3 DIESEL ENGINES mean engines certified by CARB to meet Tier 2 or Tier 3 emission standards in accordance with Title 13, Chapter 9, Article 4 of the CCR.

(14) VOLATILE ORGANIC COMPOUND (VOC) is as defined in Rule 102.

(d) Requirements

(1) Stationary Engine Emission Limits:

(A) Operators of stationary engines with an amended Rule 1110.1 Emission Control Plan submitted by July 1, 1991, or an Approved Emission Control Plan, designating the permanent removal of engines or the replacement of engines with electric motors, in accordance with subparagraph (d)(1)(B), shall do so by December 31, 1999, or not operate the engines on or after December 31, 1999 in a manner that exceeds the emission concentration limits listed in Table I:

TABLE I
ALTERNATIVE TO ELECTRIFICATION
CONCENTRATION LIMITS

NO_x	VOC	CO
(ppm)[1]	(ppm)[1, 2]	(ppm)[1]
11	30	70

[1] Corrected to 15% oxygen on a dry basis and averaged over 15 minutes.

[2] Measured as carbon.

(B) The operator of any other stationary engine subject to this rule shall

(i) Remove such engine permanently from service or replace the engine with an electric motor, or

(ii) Not operate the engine in a manner that exceeds the emission concentration limits listed in TABLE II.

EXCERPT- RULE 1110.2

TABLE II CONCENTRATION LIMITS		
NO_x	VOC	CO
(ppm)[1] 36	(ppm)[1, 2] 250	(ppm)[1] 2000

[1] Corrected to 15% oxygen on a dry basis and averaged over 15 minutes.

[2] Measured as carbon.

(C) Notwithstanding the provisions in subparagraph (d)(1)(B), the operator of any stationary engine described in Table III shall not operate the engine in a manner that exceeds an emission concentration of 2000 ppm by volume of CO corrected to 15 percent oxygen on a dry basis and averaged over 15 minutes, or the emission concentration limits for VOC as carbon or NOx specified by the following formula:

CONCENTRATION LIMIT FORMULA				
Concentration Limit	=	Reference Limit	x	EFF / 25%

Where:

Concentration Limit = the allowable NO_x, or VOC emission limit (ppm by volume) corrected to 15 percent oxygen on a dry basis, and averaged over 15 consecutive minutes.

Reference Limit = the NO_x or VOC emission limit (ppm by volume) corrected to 15 percent oxygen on a dry basis. The reference limits for various bhp ratings (continuous rating by the manufacturer) are listed in TABLE IV.

Richard Edgehill

From: Winn BT (Brent) at Aera [btwinn@aeraenergy.com]
Sent: Friday, November 16, 2007 9:49 AM
To: Richard Edgehill
Subject: S-43 Compressor Engines ERC Application


Quarterly uel_Emiss factors -.


app supplemental info.doc


Run Times and Qtrly Fuel Alloc...


HAE Calc Narrative.doc


Page 6 from CAQMD R1110-2.tif.


Cover letter - engines.doc

Richard:

Here are the electronic files for the S-43 compressor engines ERC application.

Thanks,
Brent Winn
Aera Energy LLC
Environmental Engineer - Belridge
Office: 661-665-4363 Pager: 661-747-8963
Cell: 661-747-8963 Home: 661-587-5181
FAX: 661-665-7437 E-Mail: btwinn@aeraenergy.com

<<Quarterly Fuel_Emiss factors - Rule 1110_2.xls>> <<app supplemental info.doc>> <<Run Times and Qtrly Fuel Allocations - 2001 to 2005.xls>> <<HAE Calc Narrative.doc>> <<Page 6 from SCAQMD R1110-2.tif>> <<Cover letter - engines.doc>>

AERA

November 8, 2007

San Joaquin Valley APCD
2700 "M" Street, Suite 275
Bakersfield, CA 93301

ATTN: Mr. Thomas E. Goff, P.E.

SUBJECT: Emission Reduction Credits (ERCs) Application
Shutdown of Lost Hills Section 15 Gas Plant (S-43)

Attached is an application for banking of emission reduction credits (ERC's) associated with shutdown of the Lost Hills Section 15 Gas Plant (Facility ID S-43). Aera sold the gas plant equipment to Crimson Resource Management (Crimson), effective July 19, 2007. Crimson did not elect to purchase the associated air permits, and Aera surrendered the permits on August 22, 2007. Equipment removal is currently in process and ultimately all of the equipment will be removed from the site, either by Aera or Crimson.

This ERC application focuses on the plant precompressors and refrigeration compressors (permits S-43-4 through S-43-9). Aera plans to follow up with separate ERC applications for the remaining plant equipment.

Should you have any questions or need further information, please contact me at (661) 665-4363.

Sincerely,

Brent Winn
Environmental Engineer - Belridge

Aera Energy - Lost Hills Section 15 Gas Plant Emission Reduction Credit Application – I. C. Engine Compressors S-43-4 through S-43-9

PM_{10}	Average Quarterly Emissions (lbs) Based on 2 most representative years			
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q
S-43-4	99.2	47.9	47.6	114.8
S-43-5	126.7	87.4	43.5	161.8
S-43-6	43.3	70.0	105.2	77.9
S-43-7	75.3	50.3	25.4	90.8
S-43-8	61.4	90.0	77.5	145.2
S-43-9	44.4	29.4	75.3	101.8
	450.3	375.0	374.6	692.3
After 10 % AQI Reduction	405.3	337.5	337.1	623.1

CO	Average Quarterly Emissions (lbs) Based on 2 most representative years			
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q
S-43-4	8,166.8	3,779.3	3,231.5	7,534.8
S-43-5	9,153.1	6,011.4	2,890.4	7,177.5
S-43-6	2,314.9	4,135.2	6,692.1	2,176.3
S-43-7	7,010.3	4,777.6	2,602.3	6,484.9
S-43-8	4,720.8	6,517.1	5,559.8	6,688.4
S-43-9	3,093.6	1,859.8	4,439.4	4,231.7
	34,459.4	27,080.5	25,415.6	34,293.7
After 10 % AQI Reduction	31,013.5	24,372.5	22,874.0	30,864.4

SOx	Average Quarterly Emissions (lbs) Based on 2 most representative years			
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q
S-43-4	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0

NOx	Average Quarterly Emissions (lbs) Based on 2 most representative years			
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q
S-43-4	800.3	438.6	602.4	1,535.8
S-43-5	1,187.6	947.4	515.2	1,529.1
S-43-6	571.1	765.7	960.1	549.7
S-43-7	1,007.2	673.5	339.7	843.8
S-43-8	411.9	834.8	753.0	1,368.9
S-43-9	592.9	319.8	695.0	812.0
	4,571.0	3,979.7	3,865.4	6,639.3
After 10 % AQI Reduction	4,113.9	3,581.8	3,478.9	5,975.4

VOC	Average Quarterly Emissions (lbs) Based on 2 most representative years			
	1Q	2Q	3Q	4Q
S-43-4	2,468.4	1,038.7	543.1	1,067.5
S-43-5	2,509.0	1,259.6	467.2	581.0
S-43-6	1,396.1	2,189.7	3,210.2	1,327.8
S-43-7	521.1	342.4	159.5	394.9
S-43-8	582.7	711.5	592.8	551.5
S-43-9	264.8	190.0	511.0	361.5
	7,742.0	5,731.8	5,483.7	4,284.2
After 10 % AQI Reduction	6,967.8	5,158.7	4,935.3	3,855.7

Summary in Application Format/Sequence

Pounds Per Quarter	VOC	NOx	CO	PM10	SOx
1ST QUARTER	6,967.8	4,113.9	31,013.5	405.3	0.0
2ND QUARTER	5,158.7	3,581.8	24,372.5	337.5	0.0
3RD QUARTER	4,935.3	3,478.9	22,874.0	337.1	0.0
4TH QUARTER	3,855.7	5,975.4	30,864.4	623.1	0.0

PM_{10}	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	94.1	64.0	44.2	86.4	135.4	134.4	51.6	8.7
S-43-5	95.1	116.5	114.9	69.0	133.5	137.0	59.9	18.1
S-43-6	73.5	84.6	97.9	100.1	8.6	2.1	42.2	110.4
S-43-7	55.4	93.6	69.6	50.1	70.8	57.0	31.1	0.6
S-43-8	85.8	43.9	108.9	100.3	118.8	78.9	71.0	54.8
S-43-9	82.3	88.5	39.6	69.2	39.1	0.3	19.2	81.4
	486.2	491.0	475.1	475.1	506.3	409.6	275.0	274.0

CO	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	6,179.4	4,200.5	2,901.9	5,673.3	8,890.2	12,133.1	4,656.6	789.7
S-43-5	5,971.5	7,314.5	7,217.6	4,331.4	8,383.5	10,991.8	4,805.3	1,449.5
S-43-6	3,894.5	4,479.1	5,183.2	5,299.6	458.2	150.6	3,087.2	8,084.7
S-43-7	5,692.6	9,621.7	7,153.6	5,156.1	7,277.2	4,398.8	2,401.7	48.5
S-43-8	5,609.1	2,869.7	7,117.5	6,556.0	7,767.8	6,571.9	5,916.8	4,563.6
S-43-9	5,737.7	6,169.8	2,761.9	4,827.8	2,725.8	17.3	957.8	4,051.0
	33,084.7	34,655.4	32,335.7	31,844.3	35,502.7	34,263.4	21,825.4	18,986.9

SOx	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NOx	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	1,259.5	856.2	591.5	1,156.4	1,812.1	744.5	285.7	48.5
S-43-5	1,272.2	1,558.3	1,537.6	922.8	1,786.0	816.9	357.1	107.7
S-43-6	983.7	1,131.4	1,309.2	1,338.6	115.7	10.8	222.1	581.7
S-43-7	740.7	1,252.0	930.8	670.9	946.9	762.4	416.2	8.4
S-43-8	1,148.0	587.3	1,456.7	1,341.8	1,589.8	236.4	212.9	164.2
S-43-9	1,101.0	1,183.9	530.0	926.4	523.0	2.0	109.6	463.6
	9,176.4	9,485.4	8,645.3	8,873.7	8,995.7	2,982.2	1,827.1	1,378.6

VOC	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	875.6	595.0	411.1	803.6	1,259.3	4,341.7	1,666.3	282.6
S-43-5	483.2	592.2	584.3	350.7	678.7	4,425.8	1,934.9	583.6
S-43-6	2,376.1	2,732.8	3,162.3	3,233.4	279.5	59.4	1,217.0	3,187.1
S-43-7	346.7	585.9	435.6	314.0	443.1	456.3	249.1	5.0
S-43-8	462.4	236.6	586.9	540.6	640.6	928.7	836.1	644.9
S-43-9	490.2	526.9	235.9	412.3	232.8	2.6	144.1	609.6
	5,268.1	5,538.6	5,727.6	5,973.1	3,561.6	12,631.7	7,038.1	5,548.8

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application – I. C. Engine Compressors S-43-4 through S-43-9

Most representative 2-year period (within 5 years preceding date of Emission Reduction)

Operation of the Section 15 Gas Plant compressors was ramped down when feed gas from Aera's Lost Hills operations was discontinued in the first week of May, 2004. Chevron discontinued feed to the plant in January, 2005. After that, compressors were only operated as needed to distribute unprocessed gas back to the field. Therefore, emissions occurring prior to May 2004 are most representative of normal plant operation.

PM_{10}	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	94.1	64.0	44.2	86.4	135.4	134.4	51.6	8.7
S-43-5	95.1	116.5	114.9	69.0	133.5	137.0	59.9	18.1
S-43-6	73.5	84.6	97.9	100.1	8.6	2.1	42.2	110.4
S-43-7	55.4	93.6	69.6	50.1	70.8	57.0	31.1	0.6
S-43-8	85.8	43.9	108.9	100.3	118.8	78.9	71.0	54.8
S-43-9	82.3	88.5	39.6	69.2	39.1	0.3	19.2	81.4
	486.2	491.0	475.1	475.1	506.3	409.6	275.0	274.0

CO	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	6,179.4	4,200.5	2,901.9	5,673.3	8,890.2	12,133.1	4,656.6	789.7
S-43-5	5,971.5	7,314.5	7,217.6	4,331.4	8,383.5	10,991.8	4,805.3	1,449.5
S-43-6	3,894.5	4,479.1	5,183.2	5,299.6	458.2	150.6	3,087.2	8,084.7
S-43-7	5,692.6	9,621.7	7,153.6	5,156.1	7,277.2	4,398.8	2,401.7	48.5
S-43-8	5,609.1	2,869.7	7,117.5	6,556.0	7,767.8	6,571.9	5,916.8	4,563.6
S-43-9	5,737.7	6,169.8	2,761.9	4,827.8	2,725.8	17.3	957.8	4,051.0
	33,084.7	34,655.4	32,335.7	31,844.3	35,502.7	34,263.4	21,825.4	18,986.9

SOx	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NOx	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	1,259.5	856.2	591.5	1,156.4	1,812.1	744.5	285.7	48.5
S-43-5	1,272.2	1,558.3	1,537.6	922.8	1,786.0	816.9	357.1	107.7
S-43-6	983.7	1,131.4	1,309.2	1,338.6	115.7	10.8	222.1	581.7
S-43-7	740.7	1,252.0	930.8	670.9	946.9	762.4	416.2	8.4
S-43-8	1,148.0	587.3	1,456.7	1,341.8	1,589.8	236.4	212.9	164.2
S-43-9	1,101.0	1,183.9	530.0	926.4	523.0	2.0	109.6	463.6
	9,176.4	9,485.4	8,645.3	8,873.7	8,995.7	2,982.2	1,827.1	1,378.6

VOC	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	875.6	595.0	411.1	803.6	1,259.3	4,341.7	1,666.3	282.6
S-43-5	483.2	592.2	584.3	350.7	678.7	4,425.8	1,934.9	583.6
S-43-6	2,376.1	2,732.8	3,162.3	3,233.4	279.5	59.4	1,217.0	3,187.1
S-43-7	346.7	585.9	435.6	314.0	443.1	456.3	249.1	5.0
S-43-8	462.4	236.6	586.9	540.6	640.6	928.7	836.1	644.9
S-43-9	490.2	526.9	235.9	412.3	232.8	2.6	144.1	609.6
	5,268.1	5,538.6	5,727.6	5,973.1	3,561.6	12,631.7	7,038.1	5,548.8

	SELECTION #
COAL (ANTHRACITE)	0
COAL (BITUMINOUS)	1
COAL (LIGNITE)	2
OIL (CRUDE, RESIDUAL, OR DISTILLATE)	3
GAS (NATURAL)	4
GAS (PROPANE)	5
GAS (BUTANE)	6
WOOD	7
WOOD BARK	8
MUNICIPAL SOLID WASTE	9

STANDARD O2 CORRECTION FOR EXTERNAL COMBUSTION IS 3%		
Type of fuel (use table above)	4	GAS
O2 correction (i.e., 3%)	15	%
Enter concentrations		
NOx	36	ppmv
CO	2000	ppmv
VOC (as methane)	250	ppmv

CALCULATED EQUIVALENT LB/MMBTU VALUES		
NOx	0.1326	LB/MMBTU
CO	4.4843	LB/MMBTU
VOC (as methane)	0.3203	LB/MMBTU

pV = R*T		
pressure (p)	1	atm
universal gas constant (R*)	0.7302	atm-scf/lbmole-oR
temperature (oF)	60	oF
calculated		
molar specific volume (V)	379.5	scf/lbmole
Molecular weights		
NOx	46	lb/lb-mole
CO	28	lb/lb-mole
VOC (as methane)	16	lb/lb-mole

F FACTORS FROM EPA METHOD 19			
COAL (ANTHRACITE)	10100	DSCF/MMBTU	COAL
COAL (BITUMINOUS)	9780	DSCF/MMBTU	COAL
COAL (LIGNITE)	9860	DSCF/MMBTU	COAL
OIL (CRUDE, RESIDUAL, OR DISTILLATE)	9160	DSCF/MMBTU	OIL
GAS (NATURAL)	8710	DSCF/MMBTU	GAS

GAS (PROPANE)	8710 DSCF/MMBTU	GAS
GAS (BUTANE)	8710 DSCF/MMBTU	GAS
WOOD	9240 DSCF/MMBTU	WOOD
WOOD BARK	9600 DSCF/MMBTU	WOOD BARK
MUNICIPAL SOLID WASTE	9570 DSCF/MMBTU	SOLID WASTE
F FACTOR USED IN CALCULATIONS	8710 DSCF/MMBTU	GAS

Fuel

1020 MMBTU/MMSCF

0.00098039 MMSCF/MMBTU

NOx	135.260	lb/MMcf
CO	4574.002	lb/Mcf
VOC (as methane)	326.714	lb/Mcf

Emission Reduction Credit Application – I. C. Engine Compressors S-43-4 through S-43-9
Lost Hills Section 15 Gas Plant
Supplemental Application Information

Rule 2301 Requirements

4.2 Emissions Reductions Occurring After September 19, 1991	
For emission reductions occurring after September 19, 1991, the following criteria must be met in order to deem such reductions eligible for banking:	***Comments***
4.2.2 AERs are calculated in accordance with the calculation procedures of Rule 2201 (New and Modified Stationary Source Review Rule) and comply with the definition of AERs of Rule 2201 (New and Modified Stationary Source Review Rule). Adjustment to emissions reductions for the Community Bank shall be made at the time the reductions are quantified pursuant to Rule 2201 (New and Modified Stationary Source Review Rule).	*Rule 2201 Requirements are addressed below.*
4.2.3 An application for ERC has been filed no later than 180 days after the emission reductions occurred.	*Aera sold the gas plant equipment to Crimson Resource Management, effective July 19, 2007. This is the date that Aera no longer possessed legal authority to operate the plant equipment. The deadline for submittal of ERC applications is therefore January 14, 2008. To verify that an earlier "de facto" reduction had not occurred, SJVAPCD Inspector Sam Parks inspected the facility on August 16th, 2007 and verified that the plant equipment had not been removed and the plant was still capable of being re-started from "dormant" status.*

Emission Reduction Credit Application – I. C. Engine Compressors S-43-4 through S-43-9
Lost Hills Section 15 Gas Plant
Supplemental Application Information

Rule 2301 Requirements (continued)

4.2.1 The emission reductions are real, surplus, permanent, quantifiable, and enforceable;	*Real: The subject emission reductions are the result of actual physical shutdown and removal of equipment associated with the Lost Hills Gas Plant. Produced gas that had previously been processed in the gas plant was redirected to serve as fuel for field operations. The redirected produced gas displaced fuel that had previously been purchased from outside sources. Therefore, shutdown of the plant did not result in emission increases elsewhere.*
	Surplus: The compressor engines that are the subject of this application are lean-burn and were subject to a limit of 65 ppm NOx under Rule 4702. The engines demonstrated compliance with this tier of Rule 4702 prior to the Rule's compliance deadlines (June 1, 2005 through June 1, 2007). The engines' permits already included limits that were below the VOC and CO limits specified in Rule 4702.
	Permanent: The subject emission reductions are the result of actual physical shutdown and removal of equipment associated with the Lost Hills Gas Plant. The plant was shut down in Aera sold the gas plant equipment to Crimson Resource Management (Crimson), effective July 19, 2007. Crimson did not elect to purchase the associated air permits, and Aera surrendered the permits on August 22, 2007.
	Quantifiable: The emission reductions are quantifiable using actual fuel gas records and emission factors derived from actual source tests and EPA-approved documents **(AP-42, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources)** *Quantification of the emissions is presented below and in Attachment 1.*
	Enforceable: Crimson Resources did not elect to purchase the air permits associated with the gas plant, and Aera surrendered the permits on August 22, 2007. These emission reductions are enforceable by the fact that the permits have been surrendered. The reductions will be further enforceable by an inspection of the plant site after equipment removal is complete.

Emission Reduction Credit Application – I. C. Engine Compressors S-43-4 through S-43-9
Lost Hills Section 15 Gas Plant
Supplemental Application Information

Rule 2201 Requirements

3.2 Actual Emissions Reduction (AER): the decrease of actual emissions, compared to the Baseline Period, from an emissions unit and selected for use as emission offsets or ERC banking. AER shall meet the following criteria:	
3.2.1 Shall be real, enforceable, quantifiable, surplus, and permanent.	*These criteria are addressed above under Rule 2301 Requirements.*
3.2.2 To be considered surplus, AER shall be in excess, at the time the application for an Emission Reduction Credit or an Authority to Construct authorizing such reductions is deemed complete, of any emissions reduction which:	
3.2.2.1 Is required or encumbered by any laws, rules, regulations, agreements, orders, or	*The shutdown of these engines was not required or precipitated by any laws, rules, regulations, agreements, or orders.*
3.2.2.2 Is attributed to a control measure noticed for workshop, or proposed or contained in a State Implementation Plan, or	*These emission reductions are not attributed to a control measure noticed for workshop, or proposed or contained in a State Implementation Plan.*
3.2.2.3 Is proposed in the APCO's adopted air quality plan pursuant to the California Clean Air Act.	*I.C. engines are identified as a "further study" measure (Standards Review S-COM-6, scheduled for 2012) in the SJVAPCD 8-hour ozone plan, but no specific new emission limits have been considered at present. South Coast AQMD Rule 1110.2, last revised on June 3, 2005, has been incorporated into the SIP and is more stringent than SJVAPCD Rule 4702. Therefore, emission factors are adjusted accordingly in this application.*

Emission Reduction Credit Application – I. C. Engine Compressors S-43-4 through S-43-9
Lost Hills Section 15 Gas Plant
Supplemental Application Information

Rule 2201 Requirements (continued)

4.12 Actual Emissions Reductions (AER) Calculations: Actual Emissions Reductions shall be calculated, on a pollutant-by-pollutant basis, as follows: AER = HAE - PE2	
HAE = Historic Actual Emissions	*HAE calculations are presented in Attachment 1.*
PE2 = Post-project Potential to Emit	*Post-project potential to emit is zero since the subject emission units have have been permanently shut down and permits surrendered.*
4.12.1 Prior to banking, AER shall be discounted by 10 percent (10%) for Air Quality Improvement Deduction, and shall comply with all applicable provisions of Rule 2301 (Emission Reduction Credit Banking).	*The AQI deduction is reflected in the HAE calculations presented in Attachment 1.* *Rule 2301 requirements are addressed above.*

Emission Reduction Credit Application – I. C. Engine Compressors S-43-4 through S-43-9
Lost Hills Section 15 Gas Plant
Supplemental Application Information

Following are the AER's after adjusting for SQAQMD Rule 1110.2 and the 10% AQI deduction:

Pounds Per Quarter	VOC	NOx	CO	PM10	SOx
1ST QUARTER	6,967.8	4,113.9	31,013.5	405.3	0.0
2ND QUARTER	5,158.7	3,581.8	24,372.5	337.5	0.0
3RD QUARTER	4,935.3	3,478.9	22,874.0	337.1	0.0
4TH QUARTER	3,855.7	5,975.4	30,864.4	623.1	0.0

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

7/19/2007
1825
7/20/2002

Compressor Run Hours

2001	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	3	8	496	365	0	0	0	0	1	403	533	307	COMPRESSOR #1
S-43-5	739	671	744	645	736	501	743	724	706	517	516	418	COMPRESSOR #2
S-43-6	729	625	248	424	708	487	739	739	698	571	358	694	COMPRESSOR #3
S-43-7	478	524	315	428	305	433	457	526	45	33	15	2	COMPRESSOR #4
S-43-8	0	0	0	5	470	487	673	733	383	407	680	231	COMPRESSOR #5
S-43-9	299	194	475	300	157	0	0	2	372	328	1	486	COMPRESSOR #6
	1471	1304	1488	1434	1444	988	1482	1463	1405	1491	1407	1419	Subt - precomprs
	777	718	790	733	932	920	1130	1261	800	768	696	719	Subt- Refrig Comprs

Fuel Meter Readings (mcf)

2001	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	
9356	10,386	9,582	8,934	9,254	8,975	6,294	9,107	9,308	8,744	9,300	8,854	9,037	107,774	PLANT PRE-COMPRESSOR FUEL
9354	4,348	3,934	4,228	4,666	5,104	4,948	6,173	7,057	4,706	4,552	4,162	4,263	58,141	PLANT REFRIG.FUEL
													165,915	

Allocated Fuel Usage Per Engine (mcf)

2001	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
S-43-4	21	59	2,978	2,355	0	0	0	0	6	2,514	3,354	1,955	13,242
S-43-5	5,218	4,931	4,467	4,162	4,575	3,192	4,566	4,606	4,394	3,225	3,247	2,662	49,243
S-43-6	5,147	4,593	1,489	2,736	4,401	3,102	4,541	4,702	4,344	3,562	2,253	4,420	45,288
S-43-7	2675	2871	1686	2724	1670	2329	2497	2944	265	196	90	12	19,958
S-43-8	0	0	0	32	2574	2619	3676	4102	2253	2412	4066	1370	23,104
S-43-9	1673	1063	2542	1910	860	0	0	11	2188	1944	6	2881	15,079
													165,915

Allocated Quarterly Fuel Usage Per Engine (mcf)

2001	1Q	2Q	3Q	4Q
S-43-4	3,058	2,355	6	7,823
S-43-5	14,615	11,929	13,566	9,134
S-43-6	11,229	10,239	13,587	10,234
S-43-7	7,232	6,724	5,705	297
S-43-8	0	5,225	10,032	7,848
S-43-9	5,278	2,770	2,200	4,831

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

Compressor Run Hours

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	26	373	723	545	586	719	690	739	703	350	510	707	COMPRESSOR #1
S-43-5	711	351	63	415	430	425	101	633	267	561	678	348	COMPRESSOR #2
S-43-6	731	608	657	475	464	290	582	89	466	560	250	406	COMPRESSOR #3
S-43-7	0	0	0	0	154	327	679	732	685	727	310	36	COMPRESSOR #4
S-43-8	693	312	399	398	526	646	663	737	700	577	401	674	COMPRESSOR #5
S-43-9	46	227	334	321	365	39	0	0	0	148	719	720	COMPRESSOR #6
	1468	1332	1443	1435	1480	1434	1373	1461	1436	1471	1438	1461	Subt - precomprs
	739	539	733	719	1045	1012	1342	1469	1385	1452	1430	1430	Subt- Refrig Comprs

Fuel Meter Readings (mcf)

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
9356	9,146	8,188	8,724	8,687	8,893	8,688	8,556	8,621	8,686	8,904	8,315	8,771	104,179	PRE-COMPRESSOR FUEL
9354	4,479	4,176	4,603	4,185	5,859	5,763	7,402	8,034	7,533	7,431	7,235	7,437	74,137	REFRIG.FUEL
													178,316	

Allocated Fuel Usage Per Engine (mcf)

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
S-43-4	162	2,293	4,371	3,299	3,521	4,356	4,300	4,361	4,252	2,119	2,949	4,244	40,227
S-43-5	4,430	2,158	381	2,512	2,584	2,575	629	3,735	1,615	3,396	3,920	2,089	30,024
S-43-6	4,554	3,737	3,972	2,875	2,788	1,757	3,627	525	2,819	3,390	1,446	2,437	33,928
S-43-7	0	0	0	0	863	1862	3745	4003	3726	3721	1568	187	19,676
S-43-8	4201	2417	2506	2317	2949	3679	3657	4031	3807	2953	2029	3505	38,050
S-43-9	279	1759	2097	1868	2046	222	0	0	0	757	3638	3745	16,412

FAC_ID	DEV	PR 2002
43	4	40.331
43	5	30.126
43	6	33.723
43	7	20.354
43	8	37.506
43	9	16.277
		178.317

OK

Allocated Quarterly Fuel Usage Per Engine (mcf)

2002	1Q	2Q	3Q	4Q
S-43-4	6,826	11,177	12,913	9,312
S-43-5	6,968	7,671	5,980	9,405
S-43-6	12,264	7,421	6,971	7,273
S-43-7	0	2,726	11,474	5,476
S-43-8	9,123	8,944	11,495	8,487
S-43-9	4,135	4,137	0	8,140

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

Compressor Run Hours

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	201	110	743	264	340	107	371	412	659	712	719	738	COMPRESSOR #1
S-43-5	740	636	513	635	698	501	359	321	475	722	720	694	COMPRESSOR #2
S-43-6	539	596	231	391	450	705	762	743	202	40	0	102	COMPRESSOR #3
S-43-7	356	682	728	497	739	79	345	279	350	406	683	194	COMPRESSOR #4
S-43-8	298	0	513	636	734	710	571	734	638	702	706	764	COMPRESSOR #5
S-43-9	739	658	237	137	0	634	590	449	323	316	0	403	COMPRESSOR #6
	1480	1342	1487	1290	1486	1313	1492	1476	1336	1474	1439	1534	Subt - precomprs
	1393	1340	1478	1270	1473	1423	1506	1462	1311	1424	1389	1361	Subt- Refrig Comprs

Fuel Meter Readings (mcf)

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
9356	9,075	8,300	8,840	7,987	8,964	8,469	8,466	8,610	8,192	9,204	9,142	9,111	104,360	PRE-COMPRESSOR FUEL
9354	7,869	6,822	7,660	6,741	7,666	7,162	7,161	7,480	7,088	7,944	7,571	7,106	88,270	REFRIG.FUEL
													192,630	

Allocated Fuel Usage Per Engine (mcf)

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
S-43-4	1,232	680	4,417	1,635	2,048	690	2,105	2,403	4,041	4,446	4,568	4,383	32,649
S-43-5	4,538	3,934	3,050	3,932	4,205	3,232	2,037	1,873	2,913	4,508	4,574	4,122	42,915
S-43-6	3,305	3,686	1,373	2,421	2,711	4,547	4,324	4,334	1,239	250	0	606	28,796
S-43-7	2011	3472	3773	2638	3846	398	1640	1427	1892	2265	3723	1013	28,099
S-43-8	1683	0	2659	3376	3820	3573	2715	3755	3449	3916	3848	3989	36,785
S-43-9	4175	3350	1228	727	0	3191	2805	2297	1746	1763	0	2104	23,387
													192,630

Allocated Quarterly Fuel Usage Per Engine (mcf)

2003	1Q	2Q	3Q	4Q	
S-43-4	6,330	4,373	8,549	13,397	
S-43-5	11,521	11,368	6,822	13,204	
S-43-6	8,364	9,679	9,897	856	192,630
S-43-7	9,256	6,882	4,960	7,001	
S-43-8	4,342	10,769	9,920	11,753	
S-43-9	8,753	3,918	6,849	3,867	

FAC_ID	DEV	PR 2003	PR 2004	PR 2005	PR 2006	UNITS
43	4	38.07	32.40	0.00	0.00	MILLION CUBIC FEET
43	5	49.66	43.64	24.15	0.00	MILLION CUBIC FEET
43	6	33.71	45.41	6.50	0.00	MILLION CUBIC FEET
43	7	20.78	11.49	0.00	0.00	MILLION CUBIC FEET
43	8	27.27	27.47	1.86	0.00	MILLION CUBIC FEET
43	9	17.46	26.54	0.00	0.00	MILLION CUBIC FEET

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

Compressor Run Hours

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	695	687	699	495	277	146	137	0	0	0	0	0	COMPRESSOR #1
S-43-5	689	695	737	613	433	3	214	12	60	5	227	536	COMPRESSOR #2
S-43-6	25	7	0	176	4	661	393	719	644	737	415	207	COMPRESSOR #3
S-43-7	524	411	48	319	157	71	3	2	5	0	0	0	COMPRESSOR #4
S-43-8	291	369	706	388	543	289	203	465	190	2	106	131	COMPRESSOR #5
S-43-9	0	6	0	0	0	317	518	266	511	721	616	603	COMPRESSOR #6
	1409	1389	1436	1284	714	810	744	731	704	742	642	743	Subt - precomprs
	815	786	754	707	700	677	724	733	706	723	722	734	Subt- Refrig Comprs

Fuel Meter Readings (mcf)

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
9356	8,952	8,843	9,244	8,100	3,366	3,727	4,697	4,666	4,210	4,505	3,074	3,022	66,406	PRE-COMPRESSOR FUEL
9354	4,683	4,498	4,295	3,832	4,111	4,065	4,477	4,730	4,326	4,419	4,554	4,299	52,289	REFRIG.FUEL
													118,695	

Allocated Fuel Usage Per Engine (mcf)

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
S-43-4	4,416	4,374	4,500	3,123	1,306	672	865	0	0	0	0	0	19,254
S-43-5	4,378	4,425	4,744	3,867	2,041	14	1,351	77	369	30	1,087	2,180	24,552
S-43-6	159	45	0	1,110	19	3,041	2,481	4,589	3,851	4,475	1,987	842	22,599
S-43-7	3,011	2,352	273	1,729	922	426	19	13	31	0	0	0	8,776
S-43-8	1,672	2,112	4,022	2,103	3,189	1,735	1,255	3,001	1,164	12	668	767	21,701
S-43-9	0	34	0	0	0	1,903	3,203	1,716	3,131	4,407	3,805	3,532	21,812
													118,695

Allocated Quarterly Fuel Usage Per Engine (mcf)

2004	1Q	2Q	3Q	4Q	
S-43-4	13,289	5,100	865	0	
S-43-5	13,547	5,922	1,786	3,297	
S-43-6	203	4,171	10,922	7,304	118,695
S-43-7	5,636	3,077	62	0	
S-43-8	7,805	7,027	5,420	1,448	
S-43-9	34	1,903	8,051	11,824	

FAC_ID	DEV	PR 2004	PR 2005	PR 2006	UNITS
43	4	32.40	0.00	0.00	MILLION CUBIC FEET
43	5	43.64	24.15	0.00	MILLION CUBIC FEET
43	6	45.41	6.50	0.00	MILLION CUBIC FEET
43	7	11.49	0.00	0.00	MILLION CUBIC FEET
43	8	27.47	1.86	0.00	MILLION CUBIC FEET
43	9	26.54	0.00	0.00	MILLION CUBIC FEET
		186.95	32.51		

Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9
Lost Hills Section 15 Gas Plant
Calculation of Historical Actual Emissions

Background & Methodology

Operation of the Section 15 Gas Plant compressors was ramped down when feed gas from Aera's Lost Hills operations was discontinued in the first week of May, 2004. Chevron discontinued feed to the plant in January, 2005. Therefore, emissions occurring prior to May 2004 are most representative of actual plant operation. July 20, 2002 marks the beginning of the 5-year period prior to July 19, 2007 (date of the actual emission reduction). 2 years of operational data going back to May 2002 would be most representative of normal plant operation, but the months of May and June 2002 are outside of the 5-year window allowed by Rules 2301 and 2201 for establishing representative emissions. Therefore, this analysis presents actual emissions data beginning with the last quarter of 2002.

Compressors S-43-4, S-43-5, and S-43-6 were identified as the "precompressors" and were equipped with one shared fuel meter (# 9356). Compressors S-43-7, S-43-8, and S-43-9 were identified as the "refrigeration compressors" and were also equipped with one shared fuel meter (# 9354). Although the compressors did not have individual dedicated fuel meters, detailed monthly runtime records have been kept which allow an accurate allocation of fuel usage by month and quarter. The fuel volumes, runtimes, and fuel allocations are presented in attached spreadsheet printouts.

Emission factors used in these calculations are identical to those used in annual emission statements submitted to SJVAPCD in the years 2002-2005. NOx, CO, and VOC emission factors are based on actual biennial source tests required by Rule 4702.

Rule 2301 does not allow emissions that are not "surplus" to be included in ERC's. Emission reductions are not considered "surplus" if they are required by a rule that is included in the State Implementation Plan (e.g. SJVAPCD Rule 4702). The gas plant engines demonstrated by source testing that they were already capable of compliance with the new 65 ppm NOx limit prior to adoption of the most recent revisions of Rule 4702.

According to guidance from SJVAPCD Permit Services, the "surplus" criteria also includes consideration of rules adopted by other California air districts that have been incorporated into the SIP. It appears that South Coast AQMD Rule 1110.2 (last revised on June 3, 2005) is the most stringent I.C. engine rule that has been incorporated into the SIP.

Under Rule 1110.2, engines that had previously been designated in a Rule 1110.1 compliance plan to be shut down or electrified can continue to operate in compliance with a limit of 11 ppm NOx. Rule 1110.1 was rescinded on June 3, 2005. For engines that are subject to Rule 1110.2 but were <u>not</u> designated for shutdown or electrification under rescinded Rule 1110.1, the applicable limit is 36 ppm NOx. Therefore, the 11 ppm NOx limit is for a special situation, so the 36 ppm limit is the appropriate emission factor to be considered. 36 ppm NOx is equivalent to 135.26 lb NOx/MMcf - assuming a fuel heat content of 1020 BTU/scf. In the attached analysis, this factor was applied for

operating years when source tests conducted to show compliance with SJVAPCD Rule 4702 reflected values higher than 135.26 lb NOx/MMcf.

The applicable Rule 4702 limit for VOC is 750 ppm. The SCAQMD Rule 1110.2 VOC limit is more stringent at 250 ppm (equivalent to 326.7 lb VOC/MMcf). In the HAE analysis, this factor was substituted for operating years when the SJVAPCD source test results reflected values higher than 326.7 lb VOC/MMcf.

The CO limit is 2000 ppm for both SJVAPCD Rule 4702 and SCAQMD Rule 1110.2. The CO limit in PTO's for the gas plant engines has always been more stringent at 463 ppm, so this factor does not have to be adjusted in the HAE analysis.

TABLE III STATIONARY ENGINES DESCRIPTION
For electric power generation
Fired by landfill gas
Fired by sewage digester gas
Used to drive a water supply or conveyance pump except for aeration facilities
Fired by oil field-produced gas
For integral engine-compressor applications operating less than 4000 hours per calendar year
Fired by liquefied petroleum gas (LPG)

TABLE IV REFERENCE LIMITS, ppm		
Bhp Rating	NO_x	VOC
500 and greater	36	250
Greater Than 50 and Less Than 500	45	250

And,

EFF = the demonstrated percent efficiency at full load when averaged over 15 consecutive minutes of the engine only without consideration of any downstream energy recovery from the actual heat rate, in Btu/kW-hr, corrected to the HHV (higher heating value) of the fuel; or the manufacturer's continuous rated percent efficiency (manufacturer's rated efficiency) of the engine after correction from LHV (lower heating value) to the HHV of the fuel, whichever efficiency is higher. The value of EFF shall not be less than 25 percent. Engines with lower efficiencies will be assigned a 25-percent efficiency for this calculation.

$$EFF = \frac{3413 \times 100\%}{\text{Actual Heat Rate at HHV of Fuel (Btu/kW-hr)}}$$

APPLICATION REVIEW
EMISSION REDUCTION CREDIT BANKING

Facility Name:	Aera Energy LLC
Mailing Address:	P.O. Box 11164 Bakersfield, CA 93389
Contact Name:	Brent Winn, Environmental Engineer
Telephone:	(661) 665-4363
Engineer:	Richard Edgehill, Air Quality Engineer
Date:	March 27, 2008
Lead Engineer:	Leonard Scandura, ~~Supv. AQE~~ PSD mgr
Date:	4/3/08
Project Number:	S-43, 1075362
ERC Certificate #s:	S-2774-1 (VOC), S-2774-2 (NOx), S-2774-3 (CO), and S-2774-4 (PM10)
Date Received:	November 8, 2007
Date Complete:	December 6, 2007

I. SUMMARY

Aera Energy LLC (Aera) has applied for Emission Reduction Credits (ERCs) for the shutdown of 6 (three 1,100 hp and three 826 hp) lean burn natural gas-fired IC engines driving Section 15 Gas Plant Compressors (S-43-4 through '-9). The Permits to Operate (PTOs) for the IC engines were canceled August 27, 2007. The application for ERCs is timely because it was filed within 180 days following the shut down pursuant to Rule 2301, "Emission Reduction Credit Banking", Section 4.2.3.

The following emission reductions have been found to qualify for banking:

Emission Reductions Qualified for Banking (lbs)				
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	5817	4899	4757	8181
PM10	443	368	369	489
CO	29,596	23125	21911	30866
VOCs	8176	5745	5185	3973

Please note that the entire gas plant was shutdown in 2007. An ERC application for the shutdown of one small heater is pending project S43, 1080067.

II. APPLICABLE RULES

Rule 2201 New and Modified Stationary Source Review Rule (September 21, 2006)
Rule 2301 Emission Reduction Credit Banking (December 17, 1992)

III. PROJECT LOCATION

The subject 6 IC engines are located at the Lost Hills Section 15 Gas Plant (facility S-43), NE Section 15, T27S, R21E.

IV. METHOD OF GENERATING REDUCTIONS

Aera's sale of the gas plant equipment to Crimson Resource Management was finalized July 19, 2007. The equipment has been shutdown and will be removed from the site. The permits for the IC engines were surrendered August 27, 2007.

The PTOs are included in **Attachment I**.

V. CALCULATIONS

A. Assumptions

Fuel higher heating value = 1106.3 Btu/scf (**Attachment II**).

NOx, CO, and PM10 HAE is calculated based on the fuel use (mcf) multiplied times the emissions factors (lb/MMscf).

Emissions Factors

PM10: AP-42 Table 3.2-1 Uncontrolled Emissions Factors for 4-Stroke Lean-Burn Engines (**Attachment III**)

1106.3 MMBtu/MMscf x (0.00991 lb/MMBtu (condensable) + 0.0000771 lb/MMBtu (filterable)) = 11.05 lb/MMscf

NOx, CO, and VOC: The emissions factors used to calculate the HAE for 2002 and 2003 were the source test data for 2002. The emissions factors used to calculate the HAE for 2004 were the source test data for 2004. All of the source test measurements were less than the District Rule 4702 limits of 65 ppmv NOx @ 15% O_2, 2000 ppmv CO @ 15% O_2, and 750 ppmv VOC @ 15% O_2.

Quarterly Allocated Fuel Use for IC Engines

The three pre-compressor engines '-4 through '-6 share one fuel meter and the three refrigeration compressors share another fuel meter. Therefore, allocated fuel use for each IC engine is equal to the total fuel use for either the pre-compressors or the refrigeration compressors multiplied times fraction of total run time (pre-compressors or refrigeration compressors) associated with each engine.

B. Emissions Factors

The source test measurements and emissions factors for NOx, CO, and VOC are listed in the tables below. The source test summaries are included in **Attachment IV**.

NOx ppm @ 15% O_2 [lb/MMscf]						
	S-43-4	S-43-5	S-43-6	S-43-7	S-43-8	S-43-9
District Rule 4702 limit	65 [244.3]	65 [244.3]	65 [244.3]	65 [244.3]	65 [244.3]	65 [244.3]
2002 source test	45.6 [184.3]	46.8 [189.0]	50.7 [204.8]	43.7 [176.4]	34.9 [141.1]	61.8 [249.8]
2004 source test	14.3 [56.0]	15.4 [60.3]	13.6 [53.3]	51.4 [207.9]	21.9 [88.4]	14.2 [57.6]

CO ppm @ 15% O_2 [lb/MMscf]						
	S-43-4	S-43-5	S-43-6	S-43-7	S-43-8	S-43-9
District Rule 4702 Limit	2000 [4574]	2000 [4574]	2000 [4574]	2000 [4574]	2000 [4574]	2000 [4574]
2002 source test	270 [663.6]	258.3 [635.0]	217.8 [535.6]	422.8 [1039.5]	268.9 [660.9]	286.8 [705.0]
2004 source test	383 [913.0]	340 [811.4]	310 [740.2]	317 [780.4]	181 [447.0]	204 [503.2]

VOC ppm @ 15% O_2 [lb/MMscf]						
	S-43-4	S-43-5	S-43-6	S-43-7	S-43-8	S-43-9
District Rule 4702 Limit	750 [980.1]	750 [980.1]	750 [980.1]	750 [980.1]	750 [980.1]	750 [980.1]
2002 source test	67 [94.0]	36.6 [51.4]	255.5 [358.9]	45.1 [63.3]	38.8 [54.5]	42.8 [60.2]
2004 source test	308.1 [420.0]	303.4 [413.6]	214.1 [291.8]	57.6 [81.0]	68.5 [119.0]	53.8 [75.7]

Emissions monitoring measurements of CO and NOx were examined. A comparision between average portable analyzer readings for CO and NOx and source test

measurements is provided in **Attachment V.** Portable analyzer readings were generally higher (27 of the 36 comparisons) than source test data justifying use of the source test data to calculate HAE.

B. Baseline Period Determination and Data

Pursuant to District Rule 2201, Section 3.8, the baseline period for determining actual historical emissions for banking purposes shall be a period of time equal to either:

3.8.1 the two consecutive years of operation immediately prior to the submission date of the Complete Application; or

3.8.2 at least two consecutive years within the five years immediately prior to the submission date of the Complete Application if determined by the APCO as more representative of normal source operation; or

3.8.3 a shorter period of at least one year if the emissions unit has not been in operation for two years and this represents the full operational history of the emissions unit, including any replacement units; or

3.8.4 zero years if an emissions unit has been in operation for less than one year (only for use when calculating AER).

The ERC application was deemed complete on December 6, 2007. The two-year period immediately prior to submission of the complete ERC application (December 2005 - December 2007) is not considered representative of normal operation. In 2004 produced gas from Aera and Chevron was diverted from the gas plant and operations were severely curtailed. After 2004, engines S-43-4 through '-9 were either not operating or were consuming much less than normal quantities of gas.

Section 3.8.2 of Rule 2201 allows for another consecutive two year period if it is representative of normal operation and is within 5 yrs of submission of the complete ERC application i.e. a two-year period beginning after December 2, 2002. The time period from 4th Quarter 2002 through 3rd Quarter 2004 was selected as the baseline period.

Please note that this two year period ends 1 quarter earlier than the baseline period in project 1080067 as the IC engine compressors were shutdown before the hot oil heater. The demand for the compressor engines was significantly reduced in May 2004 when Aera stopped processing their Lost Hills produced gas in the plant. However, Chevron continued to send their Lost Hills gas for processing - until January 2005. The hot oil heater provided heat for the plant processes (for such things as glycol reboiler) and therefore it had to remain in operation until January 2005 when Chevron stopped sending gas to the plant

C. Historical Actual Emissions

Quarterly Fuel Use for IC Engines

Quarterly fuel use for each engine is calculated as the fraction of quarterly operation time associated with each engine multiplied times the quarterly fuel consumption for the engines served by a common fuel meter.

A sample calculation of allocated fuel usage by pre-compressor '-4 in October 2002 follows:

Engine '-4 total operating hours for October 2002 = 350 hrs
Combined pre-compressor ('-4 through '-6) operating hours October 2002 = 1471 hrs
Combined pre-compressor ('-4 through '-6) fuel consumption October 2002 = 8904 mcf

Allocated fuel to engine '-4 = 350/1471 x 8904 = 2,119 mcf (October 2002)

The monthly operational hours and calculated quarterly fuel usage by each engine over the baseline period (4th Quarter 2002 through 3rd Quarter 2004) are included in **Attachment VI**.

Calculation of HAE for IC Engines

HAE is the product of quarterly fuel use for each engine (mcf) times the emissions factor in lb/MMscf. Sample calculations for engine S-43-4 for 4th Quarter 2002 and 3rd Quarter 2004 follow:

4th quarter 2002:
NOx: 9312 mcf x 184.3 lb/1000 mcf = 1716 lb NOx
CO: 9312 mcf x 663.6 lb/1000 mcf = 6179 lb CO
VOC: 9312 mcf x 94 lb/1000 mcf = 875 lb VOC
PM10: 9312 mcf x 11.05 lb/1000 mcf = 103 lb PM10

3rd quarter 2004:
NOx: 865 mcf x 56 lb/1000 mcf = 48 lb NOx
CO: 865 mcf x 913 lb/1000 mcf = 790 lb CO
VOC: 865 mcf x 420 lb/1000 mcf = 363 lb VOC
PM10: 865 mcf x 11.05 lb/1000 mcf = 10 lb PM10

The results of the calculations for IC engine '-4 over the baseline period are listed in the table below.

S-43-4 HAE

Quarter	Actual fuel consumption (mcf)	NOx (lb/qtr)	VOC	CO	PM10
4th quarter 2002	9312	1716	875	6179	103
1st quarter 2003	6,330	1167	595	4201	70
2nd quarter 2003	4,373	806	411	2902	48
3 rd quarter 2003	8,549	1576	804	5673	95
4th quarter 2003	13,397	2469	1259	8890	148
1st quarter 2004	13,289	744	5581	12,134	147
2nd quarter 2004	5,100	286	2142	4,656	56
3rd quarter 2004	865	48	363	790	10

The average quarterly HAE is ½ the sum of the two values for each quarter listed in the above table. Calculation of the HAE for 1st quarter NOx is as follows:

(1167 + 744)/2 = 955 lb/qtr

The results of the additional calculations of HAE for each engine and the combined HAE for all of the engines are included in **Attachment VII** and are summarized in the table below.

Total Average Quarterly HAE

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	6463	5443	5286	9090
PM10	492	409	410	543
CO	32,884	25694	24,346	34,296
VOC	9085	6383	5761	4415

D. Actual Emission Reductions (AER)

Aera has applied for ERC banking credits for the permanent cessation of six IC engines (S-43-4 through '-9). The engines are not being replaced. Therefore, the HAE is equal to the actual emissions reductions (AER).

AER = HAE

AER (lbs/Qtr)	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	6463	5443	5286	9090
PM10	492	409	410	543
CO	32,884	25694	24,346	34,296
VOC	9085	6383	5761	4415

E. Air Quality Improvement Deduction (10% of AER)

AQID (lbs/Qtr)	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	646	544	529	909
PM10	49	41	41	54
CO	3288	2569	2435	3430
VOC	909	638	576	442

F. Increases in Permitted Emissions (IPE)

No IPE is associated with this project.

G. Bankable Emissions Reductions Credits (AER – AQID)

ERC (lbs/Qtr)	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	5817	4899	4757	8181
PM10	443	368	369	489
CO	29,596	23125	21911	30866
VOC	8176	5745	5185	3973

VI. COMPLIANCE

To be eligible for banking, emission reduction credits (ERC's) must be verified as being real, surplus, permanent, quantifiable, and enforceable pursuant to District Rules 2201 and 2301. In addition, the application must be submitted within the timelines specified in Rule 2301.

A. Real

Aera has ceased operation of the six subject IC engines. They are currently being dismantled and removed from the site. Therefore, the reductions from S-43 are real.

B. Enforceable

The permits for the IC engines were surrendered August 27, 2007. Therefore, the reductions are enforceable.

C. Quantifiable

The AER's were calculated using District recognized emission factors and actual historical fuel use data. Therefore, the reductions are quantifiable.

D. Permanent

Aera has ceased operation of the six IC engines. The engines will be dismantled and removed from facility S-43. Aera's sale of the six IC engines to Crimson Resource Management was finalized July 19, 2007. However, Crimson Resource Management will not be allowed to operate the engines at any location without first receiving Authorities to Construct subject to the offset requirements of District Rule 2201 New Source Review. Therefore, the reductions are permanent.

E. Surplus

The reductions which qualify for banking are based on emissions which are less than required by District Rule 4702 i.e. 65 ppmv @ 15% O_2 for NOx, 2000 ppmv @ 15% O_2 for CO, and 750 ppm @ 15% O_2 for VOC. Therefore, the reductions are surplus.

F. Timeliness

An application for ERC's was received on November 8, 2007, within 180 days following the shutdown pursuant to Rule 2301, "Emission Reduction Credit Banking", Section 4.2.3. According to District policy 1805 shutdown is the date the permits were surrendered unless the Control Officer determines that:

(a) the unit has been removed or fallen into an inoperable and unmaintained condition such that start-up would require an investment exceeding 50% of the current replacement cost; and
(b) the owner cannot demonstrate to the satisfaction of the Control Officer that the owner intended to operate again. Evidence of "intent to operate again" may include valid production contracts, orders, other agreements, or any economically based reasons which would require the operation of the emissions unit.

The engines were not removed and had not fallen into inoperable and un-maintained condition such that start-up would require an investment exceeding 50% of the current replacement cost prior to surrendering the PTOs (August 27, 2007). Because the ERC application was filed no later than 180 days after August 27, 2007 (the date the PTO was surrendered), the application is timely.

VII. RECOMMENDATION

After public notice, comments and review, issue ERC Banking Certificates S-2774-1, S-2774-2, S-2774-3, and S-2774-4 to Aera Energy LLC for the following amounts:

ERC Certificate	1st Qtr (lbs)	2nd Qtr (lbs)	3rd Qtr (lbs)	4th Qtr (lbs)
S-2774-1 (VOC)	8176	5745	5185	3973
S-2774-2 (NOx)	5817	4899	4757	8181
S-2774-3 (CO)	29,596	23,125	21,911	30,866
S-2774-4 (PM10)	443	368	369	489

The draft ERC certificates are included in **Attachment VIII**.

ATTACHMENT I

PTOs

INSPECTION

EXPIRATION DATE: 08/31/2009

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389

WORKSHEET

LOCATION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

SECTION: NE15 **TOWNSHIP:** 27S **RANGE:** 21E

EQUIPMENT DESCRIPTION:
1,100 BHP PRECOMPRESSION OPERATION #1 INCLUDING SUPERIOR NATURAL GAS FIRED IC ENGINE AND SHARING WITH PERMITS S-43-5 AND '-6 INLET SEPARATORS (V28/V29), COMPRESSOR (C-2C), AIR COOLER (AC-6A), SCRUBBER (V-30A) AND MISCELLANEOUS VALVES AND FLANGES

CONDITIONS

1. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Upon 7 days written notice to the District this engine may be designated as a dormant emission unit or an active emission unit. [District Rule 1070]
3. When designated as a dormant emissions unit fuel supply line shall be physically disconnected from the emission unit. [District Rule 2080]
4. Source testing is required within 60 days of recommencing operation if a source test has not been performed within the past 24 months. [District Rules 2201, 4701, and 4702]
5. During non operation of this unit the permittee shall not be required to perform source testing, fuel sulfur content certification, and monitoring requirements. [District Rules 2201, 4701, and 4702]
6. Permittee shall maintain accurate records of the time and duration of non operation of this unit. [District Rules 2201, 4701, and 4702]
7. Operation shall include lube oil head tank (V-26) and I.C. engine fuel scrubber (V-4) shared between permit unit #'s S-43-4, '-5, '-6, '-7, '-8, and '-9. [District NSR Rule]
8. Fuel gas sulfur content shall not exceed 0.3 gr/dscf as H2S. [District NSR Rule]
9. Condensate from compressor scrubbers and inlet separators shall be piped to low-pressure condensate vessel of permit S-43-1 or to any tank at the Lost Hill 1 treating facility served by vapor collection and control system S-1548-120. [District NSR Rule]
10. Distance piece vents shall be inspected and any packing leaks repaired in accordance with Rules 4403, as applicable. [District Rule 4403]
11. Pre-compressors with packing leaks shall be shut down within 72 hours and packing leaks repaired prior to re-starting. [District Rule 2201]
12. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (Source Sampling). [District Rule 1081, 3.0]
13. PM-10 emission rate shall not exceed 0.10 lb/hr. [District NSR Rule]
14. SO2 emission rate shall not exceed 0.01 lb/hr. [District NSR Rule]
15. Oxides of nitrogen (as NO2) emission rate shall not exceed 65 ppmv @ 15% O2 and 53.5 lb/day. [District Rule 4701 and 4702]
16. Volatile organic compounds (VOC's) emission rate shall not exceed 304 ppmv @ 15% O2 and 87.1 lb/day. [District NSR Rule]
17. Carbon monoxide (CO) emission rate shall not exceed 463 ppmv @ 15% O2 and 232.6 lb/day. [District NSR Rule]

18. District-witnessed source testing for NOx and CO emission rates shall be conducted using CARB Method 100, and District-witnessed source testing for VOC emission rates shall be conducted using EPA Method 25 or EPA Method 18, referenced as methane, not less than once every 24 months. [District NSR Rule]
19. Documentation of fuel gas sulfur content shall be submitted to District with source test results. [District NSR Rule]
20. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Rule 404 (Madera), 406 (Fresno) and 407 (6 remaining counties in the San Joaquin Valley)]
21. Particulate emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201; Rule 402 (Madera) and 404 (all 7 remaining counties in the San Joaquin Valley)]
22. If the IC engine is fired on certified natural gas, then maintain on file copies of all natural gas bills or suppliers certification of sulfur content. [District Rule 1070]
23. If the engine is not fired on certified natural gas, then the sulfur content of the gas shall be determined using ASTM D 1072-80, D 3031-81, D 4084-82, D 3246-81 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 1070]
24. If the engine is not fired on certified natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rule 1071]
25. The operator of an internal combustion (IC) engine shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 1070]
26. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall be performed not less than once every month for 12 months if 2 consecutive deviations are observed during quarterly monitoring. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the last quarter if on a quarterly monitoring schedule. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4701 and 4702]
27. If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4701 and 4702]
28. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702]
29. The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702]
30. The permittee shall install and operate a nonresettable fuel meter and a nonresettable elapsed operating time meter. In lieu of installing a nonresettable fuel meter, the owner or operator may use an alternate device, method, or technique in determining monthly fuel consumption provided that the alternative is approved by the APCO. [District Rule 4702]

31. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Maintenance (I&M) plan submitted to the District. [District Rule 4702]

32. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO no later than 14 days after the change for approval. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]

33. All compressors associated with this permit unit shall be reciprocating compressors in wet gas service only. In wet gas service means that a piece of equipment contains or contacts the field gas before the extraction step in the process. [40 CFR 60.482-3(b), 60.633(f), 60.482-3(a), and 60.632(f)]

34. 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 and quantity (cubic feet of gas or gallons of liquid) of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

35. Records shall be kept of leaks from distance piece vents and compliance with required repair timelines pursuant to Rules 4403, as applicable. [District Rule 4403]

36. Records of inspections, repairs and maintenance of fugitive VOC sources shall be kept and made readily available for District inspection. [District Rule 1070]

INSPECTION WORKSHEET

EXPIRATION DATE: 08/31/2009

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389

LOCATION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

SECTION: NE15 **TOWNSHIP:** 27S **RANGE:** 21E

EQUIPMENT DESCRIPTION:
1,100 BHP PRECOMPRESSION OPERATION #2 INCLUDING SUPERIOR NATURAL GAS FIRED IC ENGINE AND SHARING WITH PERMITS S-43-4 AND '-6 INLET SEPARATORS (V28/V29), COMPRESSOR (C-2B), AIR COOLER (AC-6A), SCRUBBER (V-30A) AND MISCELLANEOUS VALVES AND FLANGES

CONDITIONS

1. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Upon 7 days written notice to the District this engine may be designated as a dormant emission unit or an active emission unit. [District Rule 1070]
3. When designated as a dormant emissions unit fuel supply line shall be physically disconnected from the emission unit. [District Rule 2080]
4. Source testing is required within 60 days of recommencing operation if a source test has not been performed within the past 24 months. [District Rules 2201, 4701, and 4702]
5. During non operation of this unit the permittee shall not be required to perform source testing, fuel sulfur content certification, and monitoring requirements. [District Rules 2201, 4701, and 4702]
6. Permittee shall maintain accurate records of the time and duration of non operation of this unit. [District Rules 2201, 4701, and 4702]
7. Operation shall include lube oil head tank (V-26) and I.C. engine fuel scrubber (V-4) shared between permit unit #'s S-43-4, '-5, '-6, '-7, '-8, and '-9. [District NSR Rule]
8. Fuel gas sulfur content shall not exceed 0.3 gr/dscf as H2S. [District NSR Rule]
9. Condensate from compressor scrubbers and inlet separators shall be piped to low-pressure condensate vessel of permit S-43-1 or to any tank at the Lost Hill 1 treating facility served by vapor collection and control system S-1548-120. [District NSR Rule]
10. Distance piece vents shall be inspected and any packing leaks repaired in accordance with Rules 4403, as applicable. [District Rule 4403]
11. Pre-compressors with packing leaks shall be shut down within 72 hours and packing leaks repaired prior to re-starting. [District Rule 2201]
12. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (Source Sampling). [District Rule 1081, 3.0]
13. PM-10 emission rate shall not exceed 0.10 lb/hr. [District NSR Rule]
14. SO2 emission rate shall not exceed 0.01 lb/hr. [District NSR Rule]
15. Oxides of nitrogen (as NO2) emission rate shall not exceed 65 ppmv @ 15% O2 and 53.5 lb/day. [District Rules 4701 and 4702]
16. Volatile organic compounds (VOC's) emission rate shall not exceed 304 ppmv @ 15% O2 and 87.1 lb/day. [District NSR Rule]
17. Carbon monoxide (CO) emission rate shall not exceed 463 ppmv @ 15% O2 and 232.6 lb/day. [District NSR Rule]

18. District-witnessed source testing for NOx and CO emission rates shall be conducted using CARB Method 100, and District-witnessed source testing for VOC emission rates shall be conducted using EPA Method 25 or EPA Method 18, referenced as methane, not less than once every 24 months. [District NSR Rule]
19. Documentation of fuel gas sulfur content shall be submitted to District with source test results. [District NSR Rule]
20. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Rule 4801]
21. Particulate emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201]
22. If the IC engine is fired on certified natural gas, then maintain on file copies of all natural gas bills or suppliers certification of sulfur content. [District Rule 2080]
23. If the engine is not fired on certified natural gas, then the sulfur content of the gas shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 2080]
24. If the engine is not fired on certified natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rule 2080]
25. The operator of an internal combustion (IC) engine shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2080]
26. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall be performed not less than once every month for 12 months if 2 consecutive deviations are observed during quarterly monitoring. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the last quarter if on a quarterly monitoring schedule. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4701 and 4702]
27. {2993} If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4701 and 4702]
28. {2994} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702]
29. {2995} The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702]
30. The permittee shall install and operate a nonresettable fuel meter and a nonresettable elapsed operating time meter. In lieu of installing a nonresettable fuel meter, the owner or operator may use an alternate device, method, or technique in determining monthly fuel consumption provided that the alternative is approved by the APCO. [District Rule 4702]

31. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Maintenance (I&M) plan submitted to the District. [District Rule 4702]

32. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO no later than 14 days after the change for approval. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]

33. 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 and quantity (cubic feet of gas or gallons of liquid) of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

34. All compressors associated with this permit unit shall be reciprocating compressors in wet gas service only. In wet gas service means that a piece of equipment contains or contacts the field gas before the extraction step in the process. [40 CFR 60.482-3(b), 60.633(f), 60.482-3(a), and 60.632(f)]

35. Records shall be kept of leaks from distance piece vents and compliance with required repair timelines pursuant to Rules 4403, as applicable. [District Rule 4403]

36. Records of inspections, repairs and maintenance of fugitive VOC sources shall be kept and made readily available for District inspection. [District Rule 2080]

INSPECTION

EXPIRATION DATE: 08/31/2009

WORKSHEET

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389

LOCATION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

SECTION: NE15 **TOWNSHIP:** 27S **RANGE:** 21E

EQUIPMENT DESCRIPTION:
1,100 BHP PRECOMPRESSION OPERATION #3 INCLUDING SUPERIOR NATURAL GAS IC ENGINE AND SHARING WITH PERMIT UNIT S-43-4 AND '-5 INLET SCRUBBERS (V28/V29), COMPRESSOR (C-2A), AIR COOLER (AC-6A), SCRUBBER (V-30A) AND MISCELLANEOUS VALVES AND FLANGES

CONDITIONS

1. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Upon 7 days written notice to the District this engine may be designated as a dormant emission unit or an active emission unit. [District Rule 1070]
3. When designated as a dormant emissions unit fuel supply line shall be physically disconnected from the emission unit. [District Rule 2080]
4. Source testing is required within 60 days of recommencing operation if a source test has not been performed within the past 24 months. [District Rules 2201, 4701, and 4702]
5. During non operation of this unit the permittee shall not be required to perform source testing, fuel sulfur content certification, and monitoring requirements. [District Rules 2201, 4701, and 4702]
6. Permittee shall maintain accurate records of the time and duration of non operation of this unit. [District Rules 2201, 4701, and 4702]
7. Operation shall include lube oil head tank (V-26) and I.C. engine fuel scrubber (V-4) shared between permit unit #'s S-43-4, '-5, '-6, '-7, '-8, and '-9. [District NSR Rule]
8. Fuel gas sulfur content shall not exceed 0.3 gr/dscf as H2S. [District NSR Rule]
9. Condensate from compressor scrubbers and inlet separators shall be piped to low-pressure condensate vessel of permit S-43-1 or to any tank at the Lost Hill 1 treating facility served by vapor collection and control system S-1548-120. [District NSR Rule]
10. Distance piece vents shall be inspected and any packing leaks repaired in accordance with Rules 4403, as applicable. [District Rule 4403]
11. Pre-compressors with packing leaks shall be shut down within 72 hours and packing leaks repaired prior to re-starting. [District Rule 2201]
12. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (Source Sampling). [District Rule 1081, 3.0]
13. PM-10 emission rate shall not exceed 0.10 lb/hr. [District NSR Rule]
14. SO2 emission rate shall not exceed 0.01 lb/hr. [District NSR Rule]
15. Oxides of nitrogen (as NO2) emission rate shall not exceed 65 ppmv @ 15% O2 and 53.5 lb/day. [District Rules 4701 and 4702]
16. Volatile organic compounds (VOC's) emission rate shall not exceed 304 ppmv @ 15% O2 and 87.1 lb/day. [District NSR Rule]
17. Carbon monoxide (CO) emission rate shall not exceed 463 ppmv @ 15% O2 and 232.6 lb/day. [District NSR Rule]

18. District-witnessed source testing for NOx and CO emission rates shall be conducted using CARB Method 100, and District-witnessed source testing for VOC emission rates shall be conducted using EPA Method 25 or EPA Method 18, referenced as methane, not less than once every 24 months. [District NSR Rule]
19. Documentation of fuel gas sulfur content shall be submitted to District with source test results. [District NSR Rule]
20. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Rule 4801]
21. Particulate emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201]
22. If the IC engine is fired on certified natural gas, then maintain on file copies of all natural gas bills or suppliers certification of sulfur content. [District Rule 2080]
23. If the engine is not fired on certified natural gas, then the sulfur content of the gas shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 2080]
24. If the engine is not fired on certified natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rule 2080]
25. The operator of an internal combustion (IC) engine shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2080]
26. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall be performed not less than once every month for 12 months if 2 consecutive deviations are observed during quarterly monitoring. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the last quarter if on a quarterly monitoring schedule. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4701 and 4702]
27. {2993} If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4701 and 4702]
28. {2994} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702]
29. {2995} The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702]
30. The permittee shall install and operate a nonresettable fuel meter and a nonresettable elapsed operating time meter. In lieu of installing a nonresettable fuel meter, the owner or operator may use an alternate device, method, or technique in determining monthly fuel consumption provided that the alternative is approved by the APCO. [District Rule 4702]

31. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Maintenance (I&M) plan submitted to the District. [District Rule 4702]

32. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO no later than 14 days after the change for approval. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]

33. 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 and quantity (cubic feet of gas or gallons of liquid) of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

34. All compressors associated with this permit unit shall be reciprocating compressors in wet gas service only. In wet gas service means that a piece of equipment contains or contacts the field gas before the extraction step in the process. [40 CFR 60.482-3(b), 60.633(f), 60.482-3(a), and 60.632(f)]

35. Records shall be kept of leaks from distance piece vents and compliance with required repair timelines pursuant to Rules 4403, as applicable. [District Rule 4403]

36. Records of inspections, repairs and maintenance of fugitive VOC sources shall be kept and made readily available for District inspection. [District Rule 2080]

INSPECTION

EXPIRATION DATE: 08/31/2009

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389

WORKSHEET

LOCATION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

SECTION: NE15 **TOWNSHIP:** 27S **RANGE:** 21E

EQUIPMENT DESCRIPTION:
825 BHP REFRIGERATION COMPRESSION UNIT #4 INCLUDING NATURAL GAS FIRED IC ENGINE AND SHARED W/ PERMIT UNITS S-43-8 & '-9 SUCTION SCRUBBER (V-6), ECONOMIZER (V-7), SURGE TANK (V-9), COMPRESSOR (C-1C), OIL TRAP (V-10) & CONDENSERS (AC-1A, AC-1B, AC-1C)

CONDITIONS

1. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Upon 7 days written notice to the District this engine may be designated as a dormant emission unit or an active emission unit. [District Rule 1070]
3. When designated as a dormant emissions unit fuel supply line shall be physically disconnected from the emission unit. [District Rule 2080]
4. Source testing is required within 60 days of recommencing operation if a source test has not been performed within the past 24 months. [District Rules 2201, 4701, and 4702]
5. During non operation of this unit the permittee shall not be required to perform source testing, fuel sulfur content certification, and monitoring requirements. [District Rules 2201, 4701, and 4702]
6. Permittee shall maintain accurate records of the time and duration of non operation of this unit. [District Rules 2201, 4701, and 4702]
7. This engine shall not be operated after June 1, 2007 for any reason without an ATC including the Rule 4702 emissions limits and any necessary retrofits needed to comply with the applicable requirements of District Rule 4702. [District Rule 4702]
8. Operation shall include lube oil head tank (V-26) and I.C. engine fuel scrubber (V-4) shared between permit unit #'s S-43-4, '-5, '-6, '-7, '-8, and '-9. [District NSR Rule]
9. Compressor distance piece shall be vented to the vapor recovery system listed on PTO# S-43-3. [District NSR Rule]
10. Fuel gas sulfur content shall not exceed 0.3 gr/dscf as H2S. [District NSR Rule]
11. Condensate from compressor scrubbers and inlet separators shall be piped to low-pressure condensate vessel of permit S-43-1 or to any tank at the Lost Hill 1 treating facility served by vapor collection and control system S-1548-120. [District NSR Rule]
12. Records of inspections, repairs and maintenance of fugitive VOC sources shall be kept and made readily available for District inspection. [District Rule 1070]
13. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (Source Sampling). [District Rule 1081, 3.0]
14. PM-10 emission rate shall not exceed 0.10 lb/hr. [District NSR Rule]
15. SO2 emission rate shall not exceed 0.01 lb/hr. [District NSR Rule]
16. Oxides of nitrogen (as NO2) emission rate shall not exceed 65 ppmv @ 15% O2 and 40.2 lb/day. [District Rule 4701]
17. Volatile organic compounds (VOC's) emission rate shall not exceed 304 ppmv @ 15% O2 and 87.1 lb/day. [District NSR Rule]

18. Carbon monoxide (CO) emission rate shall not exceed 463 ppmv @ 15% O2 and 232.6 lb/day. [District NSR Rule]
19. District-witnessed source testing for NOx and CO emission rates shall be conducted using CARB Method 100, and District-witnessed source testing for VOC emission rates shall be conducted using EPA Method 25 or EPA Method 18, referenced as methane, not less than once every 24 months. [District NSR Rule]
20. Documentation of fuel gas sulfur content shall be submitted to District with source test results. [District NSR Rule]
21. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Rule 404 (Madera), 406 (Fresno) and 407 (6 remaining counties in the San Joaquin Valley)]
22. Particulate emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201; Rule 402 (Madera) and 404 (all 7 remaining counties in the San Joaquin Valley)]
23. If the IC engine is fired on certified natural gas, then maintain on file copies of all natural gas bills or suppliers certification of sulfur content. [District Rule 1070]
24. If the engine is not fired on certified natural gas, then the sulfur content of the gas shall be determined using ASTM D 1072-80, D 3031-81, D 4084-82, D 3246-81 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 1070]
25. If the engine is not fired on certified natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rule 1070]
26. The operator of an internal combustion (IC) engine shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 1070]
27. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall be performed not less than once every month for 12 months if 2 consecutive deviations are observed during quarterly monitoring. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the last quarter if on a quarterly monitoring schedule. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4701 and 4702]
28. {2993} If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4701 and 4702]
29. {2994} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702]
30. {2995} The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702]

31. The permittee shall install and operate a nonresettable fuel meter and a nonresettable elapsed operating time meter. In lieu of installing a nonresettable fuel meter, the owner or operator may use an alternate device, method, or technique in determining monthly fuel consumption provided that the alternative is approved by the APCO. [District Rule 4702]
32. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Maintenance (I&M) plan submitted to the District. [District Rule 4702]
33. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO no later than 14 days after the change for approval. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]
34. 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 and quantity (cubic feet of gas or gallons of liquid) of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

INSPECTION WORKSHEET

EXPIRATION DATE: 08/31/2009

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389

LOCATION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

SECTION: NE15 **TOWNSHIP:** 27S **RANGE:** 21E

EQUIPMENT DESCRIPTION:
825 BHP REFRIGERATION COMPRESSION UNIT #5 INCLUDING NATURAL GAS FIRED IC ENGINE AND SHARED W/ PERMIT UNITS S-43-7 AND '-9 SUCTION SCRUBBER (V-6), ECONOMIZER (V-7), SURGE TANK (V-9), COMPRESSOR (C-1B), OIL TRAP (V-10) & CONDENSERS (AC-1A, AC-1B, AC-1C)

CONDITIONS

1. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Upon 7 days written notice to the District this engine may be designated as a dormant emission unit or an active emission unit. [District Rule 1070]
3. When designated as a dormant emissions unit fuel supply line shall be physically disconnected from the emission unit. [District Rule 2080]
4. Source testing is required within 60 days of recommencing operation if a source test has not been performed within the past 24 months. [District Rules 2201, 4701, and 4702]
5. During non operation of this unit the permittee shall not be required to perform source testing, fuel sulfur content certification, and monitoring requirements. [District Rules 2201, 4701, and 4702]
6. Permittee shall maintain accurate records of the time and duration of non operation of this unit. [District Rules 2201, 4701, and 4702]
7. Operation shall include lube oil head tank (V-26) and I.C. engine fuel scrubber (V-4) shared between permit unit #'s S-43-4, '-5, '-6, '-7, '-8, and '-9. [District NSR Rule]
8. Compressor distance piece shall be vented to the vapor recovery system listed on PTO# S-43-3. [District NSR Rule]
9. Fuel gas sulfur content shall not exceed 0.3 gr/dscf as H2S. [District NSR Rule]
10. Condensate from compressor scrubbers and inlet separators shall be piped to low-pressure condensate vessel of permit S-43-1 or to any tank at the Lost Hill 1 treating facility served by vapor collection and control system S-1548-120. [District NSR Rule]
11. Records of inspections, repairs and maintenance of fugitive VOC sources shall be kept and made readily available for District inspection. [District Rule 1070, 9.5.2]
12. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (Source Sampling). [District Rule 1081, 3.0]
13. PM-10 emission rate shall not exceed 0.10 lb/hr. [District NSR Rule]
14. SO2 emission rate shall not exceed 0.01 lb/hr. [District NSR Rule]
15. Oxides of nitrogen (as NO2) emission rate shall not exceed 65 ppmv @ 15% O2 and 40.2 lb/day. [District Rules 4701 and 4702]
16. Volatile organic compounds (VOC's) emission rate shall not exceed 304 ppmv @ 15% O2 and 87.1 lb/day. [District NSR Rule]
17. Carbon monoxide (CO) emission rate shall not exceed 463 ppmv @ 15% O2 and 232.6 lb/day. [District NSR Rule]

18. District-witnessed source testing for NOx and CO emission rates shall be conducted using CARB Method 100, and District-witnessed source testing for VOC emission rates shall be conducted using EPA Method 25 or EPA Method 18, referenced as methane, not less than once every 24 months. [District NSR Rule]
19. Documentation of fuel gas sulfur content shall be submitted to District with source test results. [District NSR Rule]
20. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Rule 404 (Madera), 406 (Fresno) and 407 (6 remaining counties in the San Joaquin Valley)]
21. Particulate emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201; Rule 402 (Madera) and 404 (all 7 remaining counties in the San Joaquin Valley)]
22. If the IC engine is fired on certified natural gas, then maintain on file copies of all natural gas bills or suppliers certification of sulfur content. [District Rule 1070]
23. If the engine is not fired on certified natural gas, then the sulfur content of the gas shall be determined using ASTM D 1072-80, D 3031-81, D 4084-82, D 3246-81 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 1070]
24. If the engine is not fired on certified natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rule 1070]
25. The operator of an internal combustion (IC) engine shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 1070]
26. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall be performed not less than once every month for 12 months if 2 consecutive deviations are observed during quarterly monitoring. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the last quarter if on a quarterly monitoring schedule. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4701 and 4702]
27. {2993} If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4701 and 4702]
28. {2994} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702]
29. {2995} The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702]
30. The permittee shall install and operate a nonresettable fuel meter and a nonresettable elapsed operating time meter. In lieu of installing a nonresettable fuel meter, the owner or operator may use an alternate device, method, or technique in determining monthly fuel consumption provided that the alternative is approved by the APCO. [District Rule 4702]

31. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Maintenance (I&M) plan submitted to the District. [District Rule 4702]

32. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO no later than 14 days after the change for approval. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]

33. 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 and quantity (cubic feet of gas or gallons of liquid) of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

INSPECTION WORKSHEET

EXPIRATION DATE: 08/31/2009

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389

LOCATION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

SECTION: NE15 **TOWNSHIP:** 27S **RANGE:** 21E

EQUIPMENT DESCRIPTION:
825 BHP REFRIGERATION COMPRESSION UNIT #6 INCLUDING NATURAL GAS FIRED IC ENGINE AND SHARED WITH PERMIT UNITS S-43-7 AND '-8 SUCTION SCRUBBER (V-6), ECONOMIZER (V-7), SURGE TANK (V-9), COMPRESSOR (C-1A), OIL TRAP (V-10) & CONDENSERS (AC-1A, AC-1B, AC-1C)

CONDITIONS

1. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Upon 7 days written notice to the District this engine may be designated as a dormant emission unit or an active emission unit. [District Rule 1070]
3. When designated as a dormant emissions unit fuel supply line shall be physically disconnected from the emission unit. [District Rule 2080]
4. Source testing is required within 60 days of recommencing operation if a source test has not been performed within the past 24 months. [District Rules 2201, 4701, and 4702]
5. During non operation of this unit the permittee shall not be required to perform source testing, fuel sulfur content certification, and monitoring requirements. [District Rules 2201, 4701, and 4702]
6. Permittee shall maintain accurate records of the time and duration of non operation of this unit. [District Rules 2201, 4701, and 4702]
7. Operation shall include lube oil head tank (V-26) and I.C. engine fuel scrubber (V-4) shared between permit unit #'s S-43-4, '-5, '-6, '-7, '-8, and '-9. [District NSR Rule]
8. Compressor distance piece shall be vented to the vapor recovery system listed on PTO# S-43-3. [District NSR Rule]
9. Fuel gas sulfur content shall not exceed 0.3 gr/dscf as H2S. [District NSR Rule]
10. Condensate from compressor scrubbers and inlet separators shall be piped to low-pressure condensate vessel of permit S-43-1 or to any tank at the Lost Hill 1 treating facility served by vapor collection and control system S-1548-120. [District NSR Rule]
11. Records of inspections, repairs and maintenance of fugitive VOC sources shall be kept and made readily available for District inspection. [District Rule 1070]
12. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (Source Sampling). [District Rule 1081, 3.0]
13. PM-10 emission rate shall not exceed 0.10 lb/hr. [District NSR Rule]
14. SO2 emission rate shall not exceed 0.01 lb/hr. [District NSR Rule]
15. Oxides of nitrogen (as NO2) emission rate shall not exceed 65 ppmv @ 15% O2 and 40.2 lb/day. [District Rules 4701 and 4702]
16. Volatile organic compounds (VOC's) emission rate shall not exceed 304 ppmv @ 15% O2 and 87.1 lb/day. [District NSR Rule]
17. Carbon monoxide (CO) emission rate shall not exceed 463 ppmv @ 15% O2 and 232.6 lb/day. [District NSR Rule]

18. District-witnessed source testing for NOx and CO emission rates shall be conducted using CARB Method 100, and District-witnessed source testing for VOC emission rates shall be conducted using EPA Method 25 or EPA Method 18, referenced as methane, not less than once every 24 months. [District NSR Rule]
19. Documentation of fuel gas sulfur content shall be submitted to District with source test results. [District NSR Rule]
20. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Rule 404 (Madera), 406 (Fresno) and 407 (6 remaining counties in the San Joaquin Valley)]
21. Particulate emissions shall not exceed at the point of discharge, 0.1 gr/dscf. [District Rule 4201; Rule 402 (Madera) and 404 (all 7 remaining counties in the San Joaquin Valley)]
22. If the IC engine is fired on certified natural gas, then maintain on file copies of all natural gas bills or suppliers certification of sulfur content. [District Rule 1070]
23. If the engine is not fired on certified natural gas, then the sulfur content of the gas shall be determined using ASTM D 1072-80, D 3031-81, D 4084-82, D 3246-81 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 1070]
24. If the engine is not fired on certified natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rule 1070]
25. The operator of an internal combustion (IC) engine shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 1070]
26. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall be performed not less than once every month for 12 months if 2 consecutive deviations are observed during quarterly monitoring. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the last quarter if on a quarterly monitoring schedule. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4701 and 4702]
27. {2993} If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4701 and 4702]
28. {2994} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702]
29. {2995} The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702]
30. The permittee shall install and operate a nonresettable fuel meter and a nonresettable elapsed operating time meter. In lieu of installing a nonresettable fuel meter, the owner or operator may use an alternate device, method, or technique in determining monthly fuel consumption provided that the alternative is approved by the APCO. [District Rule 4702]

31. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Maintenance (I&M) plan submitted to the District. [District Rule 4702]

32. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO no later than 14 days after the change for approval. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]

33. 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 and quantity (cubic feet of gas or gallons of liquid) of fuel used, maintenance or modifications performed, monitoring data, compliance source test results, and any other information necessary to demonstrate compliance. [District Rule 4702]

ATTACHMENT II

Laboratory Analysis

AEROS Environmental Inc.

Aera Energy LLC
IC Engine

Project 010-2806A
Laboratory ID 052202-02

Sample Description: Fuel Gas
Sampled by: Victor Welliver

Date Sampled: May 22, 2002
Date Received: May 22, 2002
Date Reported: May 22, 2002

Fuel Gas Analysis Results

CONSTITUENT	MOLE %	WT. %	CHONS Wt.%	
Carbon Dioxide	1.844	4.322	Carbon	73.52
Oxygen	0.056	0.096	Hydrogen	22.63
Nitrogen	0.410	0.612	Oxygen	3.24
Carbon Monoxide	0.000	0.000	Nitrogen	0.61
			Sulfur	0.00
Methane	85.517	73.062	H/C	0.308
Ethane	9.442	15.121		
Propane	2.339	5.493		
Isobutane	0.102	0.317		
N-Butane	0.203	0.627		
Isopentane	0.030	0.115		
N-Pentane	0.027	0.105		
Hexanes	0.028	0.130		
Total(s)	**100.000**	**100.000**		

Specific Gravity (Air = 1)	0.6483
Specific Volume (cf/lb)	20.21
Gross Calorific Value, Dry (Btu/cf)	1106.26
Gross Calorific Value, Wet (Btu/cf)	1084.02
Gross Calorific Value, Dry (Btu/lb)	22358.40
Net Calorific Value, Dry (Btu/cf)	999.93
Net Calorific Value, Wet (Btu/cf)	979.84
Compressability Factor "Z" @ 60° F, 1 atm	0.9973
EPA F-Factor @ 68° F (DSCF/MMBtu)	**8652**
EPA F-Factor @ 60° F (DSCF/MMBtu)	**8523**

References:
ASTM Methods D1945-96 & D3588-98

Terry M. Rowles, Laboratory Manager

ATTACHMENT III

AP-42 Table 3.2-2

Table 3.2-2. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE LEAN-BURN ENGINES[a]
(SCC 2-02-002-54)

Pollutant	Emission Factor (lb/MMBtu)[b] (fuel input)	Emission Factor Rating
Criteria Pollutants and Greenhouse Gases		
NO_x[c] 90 - 105% Load	4.08 E+00	B
NO_x[c] <90% Load	8.47 E-01	B
CO[c] 90 - 105% Load	3.17 E-01	C
CO[c] <90% Load	5.57 E-01	B
CO_2[d]	1.10 E+02	A
SO_2[e]	5.88 E-04	A
TOC[f]	1.47 E+00	A
Methane[g]	1.25 E+00	C
VOC[h]	1.18 E-01	C
PM10 (filterable)[i]	7.71 E-05	D
PM2.5 (filterable)[i]	7.71 E-05	D
PM Condensable[j]	9.91 E-03	D
Trace Organic Compounds		
1,1,2,2-Tetrachloroethane[k]	<4.00 E-05	E
1,1,2-Trichloroethane[k]	<3.18 E-05	E
1,1-Dichloroethane	<2.36 E-05	E
1,2,3-Trimethylbenzene	2.30 E-05	D
1,2,4-Trimethylbenzene	1.43 E-05	C
1,2-Dichloroethane	<2.36 E-05	E
1,2-Dichloropropane	<2.69 E-05	E
1,3,5-Trimethylbenzene	3.38 E-05	D
1,3-Butadiene[k]	2.67E-04	D
1,3-Dichloropropene[k]	<2.64 E-05	E
2-Methylnaphthalene[k]	3.32 E-05	C
2,2,4-Trimethylpentane[k]	2.50 E-04	C
Acenaphthene[k]	1.25 E-06	C

ATTACHMENT IV

Source Test Summaries

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine # 1

Project 010-2806
May 22, 2002
Permit No. S-43-4-8

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
		87.4	50.2	0.71	1.2	0.1832	
NOx		69.1	42.2	0.59	1.0	0.1539	
		73.0	44.5	0.63	1.0	0.1626	2.67 lb/hr and
Mean		**76.5**	**45.6**	**0.64**	**1.1**	**0.1666**	**1.10 gr/Bhp-hr**
		451.8	259.3	2.22	3.6	0.5763	
CO		449.7	274.4	2.35	3.9	0.6098	
		452.8	276.3	2.37	3.9	0.6140	
Mean		**451.4**	**270.0**	**2.31**	**3.8**	**0.6000**	**9.69 gr/Bhp-hr**
		106.8	61.3	0.100	0.5	0.0778	
VOC		112.3	68.6	0.100	0.6	0.0870	
C_3 - C_8+ as C_1		116.4	71.1	0.100	0.6	0.0902	3.63 lb/hr and
Mean		**111.8**	**67.0**	**0.100**	**0.6**	**0.0850**	**1.50 gr/Bhp-hr**
Fuel Sulfur (SOx as SO_2)		As H_2S In Fuel Gas **<1.0**				S gr/dscf in Fuel Gas **<0.001**	**0.3 gr/dscf**
	10.62						
O_2	11.23						
	11.23						
Mean	**11.03**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine # 2

Project 010-2806
May 22, 2002
Permit No. S-43-5-8

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
		83.3	47.4	0.67	1.1	0.1731	
NOx		78.2	44.6	0.63	1.1	0.1628	
		84.8	48.3	0.68	1.2	0.1765	2.67 lb/hr and
Mean		**82.1**	**46.8**	**0.66**	**1.1**	**0.1708**	1.10 gr/Bhp-hr
		459.1	261.2	2.24	3.8	0.5806	
CO		447.3	255.0	2.18	3.7	0.5667	
		453.8	258.7	2.22	3.8	0.5750	
Mean		**453.4**	**258.3**	**2.21**	**3.8**	**0.5741**	9.69 gr/Bhp-hr
		64.2	36.6	0.000	0.3	0.0464	
VOC		67.7	38.6	0.000	0.3	0.0490	
C_1 - C_6+ as C_1		60.7	34.6	0.000	0.3	0.0440	3.63 lb/hr and
Mean		**64.2**	**36.6**	**0.000**	**0.3**	**0.0465**	1.50 gr/Bhp-hr
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0				S gr/dscf in Fuel Gas <0.001	0.3 gr/dscf
	10.53						
O_2	10.55						
	10.55						
Mean	**10.54**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine # 3

Project 010-2806
May 21, 2002
Permit No. S-43-6-8

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
NOx		69.9	44.7	0.63	1.2	0.1632	
		80.3	51.2	0.72	1.4	0.1868	
		88.1	56.3	0.79	1.6	0.2054	2.67 lb/hr and
Mean		**79.4**	**50.7**	**0.71**	**1.4**	**0.1851**	**1.10 gr/Bhp-hr**
CO		348.1	222.5	1.91	3.7	0.4946	
		329.1	209.7	1.80	3.5	0.4661	
		346.5	221.3	1.89	3.8	0.4918	
Mean		**341.2**	**217.8**	**1.87**	**3.7**	**0.4842**	**9.69 gr/Bhp-hr**
VOC		427.2	273.1	0.400	2.6	0.3468	
		316.7	201.8	0.300	1.9	0.2563	
C_3 - C_6+ as C_1		456.6	291.5	0.400	2.8	0.3703	**3.63 lb/hr and**
Mean		**400.2**	**255.5**	**0.367**	**2.4**	**0.3245**	**1.50 gr/Bhp-hr**
Fuel Sulfur (SO_x as SO_2)		As H_2S in Fuel Gas **<1.0**				S gr/dscf in Fuel Gas **<0.001**	**0.3 gr/dscf**
O_2	11.67						
	11.64						
	11.66						
Mean	**11.66**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine # 4

Project 010-2806
May 22, 2002
Permit No. S-43-7-7

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
		76.0	43.4	0.61	0.9	0.1583	
NOx		76.4	43.8	0.62	0.9	0.1601	
		76.0	43.9	0.62	0.9	0.1602	2.67 lb/hr and
Mean		**76.1**	**43.7**	**0.62**	**0.9**	**0.1595**	**1.10 gr/Bhp-hr**
		741.4	423.0	3.62	5.3	0.9403	
CO		735.1	421.9	3.61	5.3	0.9377	
		733.8	423.6	3.63	5.3	0.9416	
Mean		**736.8**	**422.8**	**3.62**	**5.3**	**0.9399**	**9.69 gr/Bhp-hr**
		67.7	38.6	0.000	0.3	0.0491	
VOC		79.3	45.5	0.000	0.3	0.0578	
C_1 - C_6+ as C_1		88.5	51.1	0.000	0.4	0.0649	3.63 lb/hr and
Mean		**78.5**	**45.1**	**0.000**	**0.3**	**0.0573**	**1.50 gr/Bhp-hr**
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0				S gr/dscf in Fuel Gas <0.001	0.3 gr/dscf
	10.56						
O_2	10.62						
	10.68						
Mean	**10.62**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine # 5

Project 010-2806
May 21, 2002
Permit No. S-43-8-7

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
		61.1	35.1	0.49	0.8	0.1280	
NOx		63.8	36.7	0.52	0.9	0.1340	
		57.3	33.0	0.46	0.8	0.1204	2.67 lb/hr and
Mean		**60.7**	**34.9**	**0.49**	**0.8**	**0.1275**	1.10 gr/Bhp-hr
		479.7	275.3	2.36	3.8	0.6119	
CO		474.1	272.6	2.33	3.8	0.6060	
		449.4	258.7	2.21	3.7	0.5749	
Mean		**467.7**	**268.9**	**2.30**	**3.8**	**0.5976**	9.69 gr/Bhp-hr
		67.1	38.6	0.000	0.3	0.0489	
VOC		70.8	40.7	0.000	0.3	0.0517	
C_3 - C_6+ as C_1		64.5	37.1	0.000	0.3	0.0472	3.63 lb/hr and
Mean		**67.5**	**38.8**	**0.000**	**0.3**	**0.0493**	1.50 gr/Bhp-hr
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas **<1.0**				S gr/dscf in Fuel Gas **<0.001**	0.3 gr/dscf
	10.62						
O_2	10.64						
	10.65						
Mean	**10.64**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine #6

Project 010-2806
May 21, 2002
Permit No. S-43-9-7

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
		108.0	61.2	0.86	1.3	0.2235	
NOx		103.3	58.5	0.82	1.2	0.2138	
		117.2	65.7	0.92	1.4	0.2400	2.67 lb/hr and
Mean		**109.5**	**61.8**	**0.87**	**1.3**	**0.2258**	**1.10 gr/Bhp-hr**
		535.2	303.3	2.60	3.9	0.6742	
CO		483.9	274.3	2.35	3.5	0.6096	
		504.1	282.7	2.42	3.6	0.6284	
Mean		**507.7**	**286.8**	**2.46**	**3.7**	**0.6374**	**9.69 gr/Bhp-hr**
		59.2	33.5	0.000	0.2	0.0426	
VOC		79.5	45.0	0.000	0.3	0.0572	
C_3 - C_6+ as C_1		89.2	50.0	0.000	0.4	0.0635	3.63 lb/hr and
Mean		**76.0**	**42.8**	**0.000**	**0.3**	**0.0544**	**1.50 gr/Bhp-hr**
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas **<1.0**				S gr/dscf in Fuel gas **<0.001**	**0.3 gr/dscf**
	10.49						
O_2	10.49						
	10.38						
Mean	**10.45**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine 1

Project 010-3922
July 22, 2004
Permit No. S-43-4-9

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
		20.3	13.8	8.86	0.0505	54.21	
NOx		21.1	14.2	8.98	0.0518	55.64	75 ppm @ 15% O_2
		22.1	14.9	9.34	0.0542	58.21	and
Mean		**21.2**	**14.3**	**9.06**	**0.0522**	**56.02**	61.9 lb/day
		571	389	151.63	0.8641	928.04	
CO		567	381	146.95	0.8473	910.00	463 ppm @ 15% O_2
		562	378	144.54	0.8389	900.98	and
Mean		**567**	**383**	**147.71**	**0.8501**	**913.01**	232.6 lb/day
		483.1	329.2	73.3	0.4178	448.71	
VOC		457.9	308.0	67.8	0.3910	419.94	304 ppm @ 15% O_2
C_3 - C_6+ as C_1		427.1	287.0	62.7	0.3644	391.37	and
Mean		**456.0**	**308.1**	**67.9**	**0.3911**	**420.01**	87.1 lb/day
					gr/dscf		
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0			As H_2S in Fuel Gas <0.0006		0.3 gr/dscf
	12.24						
O_2	12.13						
	12.12						
Mean	**12.16**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine 2

Project 010-3922
July 22, 2004
Permit No. S-43-5-9

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
		23.3	15.3	9.32	0.0557	59.87	
NOx		23.8	15.5	9.40	0.0566	60.75	75 ppm @ 15% O_2
		23.7	15.4	9.33	0.0561	60.29	and
Mean		**23.6**	**15.4**	**9.35**	**0.0561**	**60.30**	61.9 lb/day
		524	344	127.53	0.7631	819.57	
CO		519	338	124.79	0.7508	806.36	463 ppm @ 15% O_2
		522	339	125.02	0.7526	808.29	and
Mean		**522**	**340**	**125.78**	**0.7555**	**811.41**	232.6 lb/day
		463.2	303.7	64.4	0.3855	414.02	
VOC		462.0	300.8	63.4	0.3820	410.27	304 ppm @ 15% O_2
C_3 - C_6+ as C_1		470.8	305.6	64.4	0.3879	416.60	and
Mean		**465.3**	**303.4**	**64.1**	**0.3851**	**413.63**	87.1 lb/day
					gr/dscf		
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0			As H_2S in Fuel Gas <0.0006		0.3 gr/dscf
	11.90						
O_2	11.84						
	11.81						
Mean	**11.85**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine 3

Project 010-3922
July 22, 2004
Permit No. S-43-6-9

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
		21.7	14.1	9.21	0.0515	55.33	
NOx		19.6	12.6	8.08	0.0461	49.53	75 ppm @ 15% O_2
		21.9	14.0	9.05	0.0511	54.93	and
Mean		**21.1**	**13.6**	**8.78**	**0.0496**	**53.26**	61.9 lb/day
		481	313	124.31	0.6950	746.43	
CO		483	311	121.19	0.6918	742.99	463 ppm @ 15% O_2
		479	307	120.53	0.6809	731.29	and
Mean		**481**	**310**	**122.01**	**0.6892**	**740.24**	232.6 lb/day
		345.1	224.5	51.0	0.2849	305.98	
VOC		333.0	214.7	47.6	0.2726	292.78	304 ppm @ 15% O_2
C_2 - C_6+ as C_1		317.2	203.1	45.7	0.2576	276.66	and
Mean		**331.8**	**214.1**	**48.1**	**0.2717**	**291.81**	87.1 lb/day
					gr/dscf		
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0			As H_2S in Fuel Gas <0.0006		0.3 gr/dscf
	11.83						
O_2	11.75						
	11.68						
Mean	**11.75**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine #4

Project 010-3824A
May 18, 2004
Permit S-43-7-8

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
		92.3	52.0	26.99	0.1898	210.26	
NOx		92.0	52.5	27.39	0.1917	212.41	75 ppm @ 15% O_2
		86.2	49.7	25.71	0.1814	200.96	and
Mean		**90.2**	**51.4**	**26.70**	**0.1876**	**207.88**	46.4 lb/day
		559	315	99.49	0.6996	775.16	
CO		557	318	100.94	0.7065	782.80	463 ppm @ 15% O_2
		552	318	100.21	0.7070	783.36	and
Mean		**556**	**317**	**100.21**	**0.7044**	**780.44**	232.6 lb/day
		98.8	55.7	10.0	0.0706	78.23	
VOC		100.7	57.5	10.4	0.0730	80.89	304 ppm @ 15% O_2
C_3 - C_6+ as C_1		103.2	59.5	10.7	0.0756	83.76	and
Mean		**100.9**	**57.6**	**10.4**	**0.0731**	**80.96**	65.5 lb/day
					gr/dscf		
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas **<1.0**			As H_2S in Fuel Gas **<0.0006**		0.3 gr/dscf
	10.42						
O_2	10.56						
	10.66						
Mean	**10.55**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine #5

Project 010-3824A
May 19, 2004
Permit S-43-8-E

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
		37.4	22.3	11.89	0.0814	90.19	
NOx		37.8	22.8	12.32	0.0834	92.37	75 ppm @ 15% O_2
		33.8	20.5	11.02	0.0747	82.76	and
Mean		**36.3**	**21.9**	**11.74**	**0.0798**	**88.44**	**46.4 lb/day**
		302	180	58.46	0.4001	443.31	
CO		302	182	59.91	0.4054	449.18	463 ppm @ 15% O_2
		301	182	59.74	0.4049	448.63	and
Mean		**302**	**181**	**59.37**	**0.4035**	**447.04**	**232.6 lb/day**
		112.8	67.3	12.5	0.0854	94.63	
VOC		116.7	70.4	13.3	0.0895	99.15	304 ppm @ 15% O_2
C_3 - C_6+ as C_1		112.0	67.8	12.7	0.0860	163.15	and
Mean		**113.8**	**68.5**	**12.8**	**0.0870**	**118.98**	**65.5 lb/day**
					gr/dscf		
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas **<1.0**			As H_2S in Fuel Gas **<0.0006**		**0.3 gr/dscf**
	11.00						
O_2	11.13						
	11.15						
Mean	**11.09**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine 6

Project 010-3824B
June 17, 2004
Permit No. S-43-9-8

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
		24.2	14.5	8.57	0.0531	58.79	
NOx		24.8	14.9	8.82	0.0543	60.19	75 ppm @ 15% O_2
		22.0	13.3	7.70	0.0485	53.78	and
Mean		**23.7**	**14.2**	**8.36**	**0.0520**	**57.59**	61.9 lb/day
		334	200	71.99	0.4458	493.95	
CO		341	204	73.78	0.4547	503.81	463 ppm @ 15% O_2
		344	208	73.28	0.4619	511.79	and
Mean		**340**	**204**	**73.02**	**0.4541**	**503.18**	232.6 lb/day
		89.4	53.6	11.0	0.0682	75.57	
VOC		103.0	61.8	12.7	0.0784	86.87	304 ppm @ 15% O_2
C_3 - C_6+ as C_1		76.2	46.0	9.2	0.0584	64.74	and
Mean		**89.5**	**53.8**	**11.0**	**0.0683**	**75.72**	87.1 lb/day
					gr/dscf		
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0			As H_2S in Fuel Gas <0.0006		0.3 gr/dscf
	11.07						
O_2	11.06						
	11.13						
Mean	**11.09**						

Comments:

ATTACHMENT V

Comparison of Average Portable Analyzer (PA) Readings and Source Test (ST) Results

NOx

	2002 PA/ST	2003 PA/ST	2004 PA/ST
S-43-4	62.4/45.6	**38.2/45.6**	19.3/14.3
S-43-5	62.0/46.8	64.2/46.8	31.9/15.4
S-43-6	**30.1/50.7**	**35.2/50.7**	28.6/13.6
S-43-7	47.0/43.7	55.8/43.7	**46.0/51.4**
S-43-8	42.3/34.9	66.0/34.9	31.8/21.9
S-43-9	**35.2/61.8**	**40.1/61.8**	19.0/14.2

CO

	2002 PA/ST	2003 PA	2004 PA/ST
S-43-4	342.1/270	301.7/270	411.4/383
S-43-5	304.8/258.3	284.1/258.3	**297.1/340**
S-43-6	262.1/217.8	270.8/217.8	324.4/310
S-43-7	473.3/422.8	428.6/422.8	330.3/317
S-43-8	352.3/268.9	307.8/268.9	203.9/181
S-43-9	**284.3/286.8**	**271.8/286.8**	253.9/204

Numbers in bold correspond to lower portable analyzer readings than source test results i.e. 9 out of the 36 values.

ATTACHMENT VI

Allocated Quarterly Fuel Usage

Compressor Run Hours

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4										350	510	707	COMPRESSOR #1
S-43-5										561	678	348	COMPRESSOR #2
S-43-6										560	250	406	COMPRESSOR #3
S-43-7										727	310	36	COMPRESSOR #4
S-43-8										577	401	674	COMPRESSOR #5
S-43-9										148	719	720	COMPRESSOR #6
										1471	1438	1461	Subt - precomprs
										1452	1430	1430	Subt- Refrig Comprs

Meter Readings - 2002

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
9356										8,904	8,315	8,771	104,179	PRE-COMPRESSOR FUEL
9354										7,431	7,235	7,437	74,137	REFRIG.FUEL
													178,316	mscf

'4 - '6

'7 - '9

Allocated Fuel Usage Per Engine

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
S-43-4										2,119	2,949	4,244	40,227
S-43-5										3,396	3,920	2,089	30,024
S-43-6										3,390	1,446	2,437	33,928
S-43-7										3721	1568	187	19,676
S-43-8										2953	2029	3505	38,050
S-43-9										757	3638	3745	16,412

104,179 mscf

74,137 mscf

Allocated Quarterly Fuel Usage Per Engine

2002	4Q
S-43-4	9,312
S-43-5	9,405
S-43-6	7,273
S-43-7	5,476
S-43-8	8,487
S-43-9	8,140

Compressor Run Hours

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	201	110	743	264	340	107	371	412	659	712	719	738	COMPRESSOR #1
S-43-5	740	636	513	635	698	501	359	321	475	722	720	694	COMPRESSOR #2
S-43-6	539	596	231	391	450	705	762	743	202	40	0	102	COMPRESSOR #3
S-43-7	356	682	728	497	739	79	345	279	350	406	683	194	COMPRESSOR #4
S-43-8	298	0	513	636	734	710	571	734	638	702	706	764	COMPRESSOR #5
S-43-9	739	658	237	137	0	634	590	449	323	316	0	403	COMPRESSOR #6
	1480	1342	1487	1290	1488	1313	1492	1476	1336	1474	1439	1534	Subt - precomprs
	1393	1340	1478	1270	1473	1423	1506	1462	1311	1424	1389	1361	Subt- Refrig Comprs

Meter Readings - 2003

9356	9,075	8,300	8,840	7,987	8,964	8,469	8,466	8,610	8,192	9,204	9,142	9,111	104,360	PRE-COMPRESSOR FUEL
9354	7,869	6,822	7,660	6,741	7,666	7,162	7,161	7,480	7,088	7,944	7,571	7,106	88,270	REFRIG.FUEL
													192,630	mscf

Allocated Fuel Usage Per Engine

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
S-43-4	1,232	680	4,417	1,635	2,048	690	2,105	2,403	4,041	4,446	4,568	4,383	32,649
S-43-5	4,538	3,934	3,050	3,932	4,205	3,232	2,037	1,873	2,913	4,508	4,574	4,122	42,915
S-43-6	3,305	3,686	1,373	2,421	2,711	4,547	4,324	4,334	1,239	250	0	606	28,796
S-43-7	2011	3472	3773	2638	3846	398	1640	1427	1892	2265	3723	1013	28,099
S-43-8	1683	0	2659	3376	3820	3573	2715	3755	3449	3916	3848	3989	36,785
S-43-9	4175	3350	1228	727	0	3191	2805	2297	1746	1763	0	2104	23,387
													192,630 mscf

104,360 mscf

88,270 mscf

Allocated Quarterly Fuel Usage Per Engine

2003	1Q	2Q	3Q	4Q
S-43-4	6,330	4,373	8,549	13,397
S-43-5	11,521	11,368	6,822	13,204
S-43-6	8,364	9,679	9,897	856
S-43-7	9,256	6,882	4,960	7,001
S-43-8	4,342	10,769	9,920	11,753
S-43-9	8,753	3,918	6,849	3,867

192,630 mscf

Compressor Run Hours

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
S-43-4	695	687	699	495	277	146	137	0	0	
S-43-5	689	695	737	613	433	3	214	12	60	
S-43-6	25	7	0	176	4	661	393	719	644	
S-43-7	524	411	48	319	157	71	3	2	5	
S-43-8	291	369	706	388	543	289	203	465	190	
S-43-9	0	6	0	0	0	317	518	266	511	
	1409	1389	1436	1284	714	810	744	731	704	
	815	786	754	707	700	677	724	733	706	

Meter Readings **2004**

9356	8,952	8,843	9,244	8,100	3,366	3,727	4,697	4,666	4,210
9354	4,683	4,498	4,295	3,832	4,111	4,065	4,477	4,730	4,326

Allocated Fuel Usage Per Engine

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
S-43-4	4,416	4,374	4,500	3,123	1,306	672	865	0	0	
S-43-5	4,378	4,425	4,744	3,867	2,041	14	1,351	77	359	
S-43-6	159	45	0	1,110	19	3,041	2,481	4,589	3,851	
S-43-7	3,011	2,352	273	1,729	922	426	19	13	31	
S-43-8	1,672	2,112	4,022	2,103	3,189	1,735	1,255	3,001	1,164	
S-43-9	0	34	0	0	0	1,903	3,203	1,716	3,131	

Allocated Quarterly Fuel Usage Per Engine

2004	1Q	2Q	3Q
S-43-4	13,289	5,100	865
S-43-5	13,547	5,922	1,786
S-43-6	203	4,171	10,922
S-43-7	5,636	3,077	62
S-43-8	7,805	7,027	5,420
S-43-9	34	1,903	8,051

	Nov	Dec	
			COMPRESSOR #1
			COMPRESSOR #2
			COMPRESSOR #3
			COMPRESSOR #4
			COMPRESSOR #5
			COMPRESSOR #6
			Subt - precomprs
			Subt- Refrig Comprs

66,406	**PRE-COMPRESSOR FUEL**	'4 - '6
52,289	**REFRIG.FUEL**	'7 - '9
118,695	mscf	

	Nov	Dec	Annual
			19,254
			24,552
			22,599
			8,776
			21,701
			21,812
			118,695 mscf

66,406 mscf

52,289 mscf

118,695 mscf

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

Allocated Fuel Usage Per Engine (mcf)

2002	Oct	Nov	Dec	2002 Annual
S-43-4	2,119	2,949	4,244	40,227
S-43-5	3,396	3,920	2,089	30,024
S-43-6	3,390	1,446	2,437	33,928
S-43-7	3721	1568	187	19,676
S-43-8	2953	2029	3505	38,050
S-43-9	757	3638	3745	16,412
				178,316

Allocated Fuel Usage Per Engine (mcf)

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2003 Annual
S-43-4	1,232	680	4,417	1,635	2,048	690	2,105	2,403	4,041	4,446	4,568	4,383	32,649
S-43-5	4,538	3,934	3,050	3,932	4,205	3,232	2,037	1,873	2,913	4,508	4,574	4,122	42,915
S-43-6	3,305	3,686	1,373	2,421	2,711	4,547	4,324	4,334	1,239	250	0	606	28,796
S-43-7	2011	3472	3773	2638	3846	398	1640	1427	1892	2265	3723	1013	28,099
S-43-8	1683	0	2659	3376	3820	3573	2715	3755	3449	3916	3848	3989	36,785
S-43-9	4175	3350	1228	727	0	3191	2805	2297	1746	1763	0	2104	23,387
													192,630

Allocated Fuel Usage Per Engine (mcf)

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	2004 Annual
S-43-4	4,416	4,374	4,500	3,123	1,306	672	865	0	0	19,254
S-43-5	4,378	4,425	4,744	3,867	2,041	14	1,351	77	359	24,552
S-43-6	159	45	0	1,110	19	3,041	2,481	4,589	3,851	22,599
S-43-7	3,011	2,352	273	1,729	922	426	19	13	31	8,776
S-43-8	1,672	2,112	4,022	2,103	3,189	1,735	1,255	3,001	1,164	21,701
S-43-9	0	34	0	0	0	1,903	3,203	1,716	3,131	21,812
										118,695

ATTACHMENT VII

HAE Calculations

Engine '-4

4th quarter 2002:
NOx: 9312 mcf x 184.3 lb/1000 mcf = 1716.2 lb NOx
CO: 9312 mcf x 663.6 lb/1000 mcf = 6179.4 lb CO
VOC: 9312 mcf x 94 lb/1000 mcf = 875.3 lb VOC
PM10: 9312 mcf x 11.05 lb/1000 mcf = 102.9 lb PM10

1st quarter 2003:
NOx: 6330 mcf x 184.3 lb/1000 mcf = 1166.6 lb NOx
CO: 6330 mcf x 663.6 lb/1000 mcf = 4200.6 lb CO
VOC: 6330 mcf x 94 lb/1000 mcf = 595.0 lb VOC
PM10: 6330 mcf x 11.05 lb/1000 mcf = 69.9 lb PM10

2nd quarter 2003:
NOx: 4373 mcf x 184.3 lb/1000 mcf = 805.9 lb NOx
CO: 4373 mcf x 663.6 lb/1000 mcf = 2901.9 lb CO
VOC: 4373 mcf x 94 lb/1000 mcf = 411.1 lb VOC
PM10: 4373 mcf x 11.05 lb/1000 mcf = 48.3 lb PM10

3rd quarter 2003:
NOx: 8549 mcf x 184.3 lb/1000 mcf = 1575.6 lb NOx
CO: 8549 mcf x 663.6 lb/1000 mcf = 5673.1 lb CO
VOC: 8549 mcf x 94 lb/1000 mcf = 803.6 lb VOC
PM10: 8549 mcf x 11.05 lb/1000 mcf = 94.5 lb PM10

4th quarter 2003:
NOx: 13397 mcf x 184.3 lb/1000 mcf = 2469.0 lb NOx
CO: 13397 mcf x 663.6 lb/1000 mcf = 8890.2 lb CO
VOC: 13397 mcf x 94 lb/1000 mcf = 1259.3 lb VOC
PM10: 13397 mcf x 11.05 lb/1000 mcf = 148.0 lb PM10

1st quarter 2004:
NOx: 13289 mcf x 56 lb/1000 mcf = 744.2 lb NOx
CO: 13289 mcf x 913 lb/1000 mcf = 12132.9 lb CO
VOC: 13289 mcf x 420 lb/1000 mcf = 5581.4 lb VOC
PM10: 13289 mcf x 11.05 lb/1000 mcf = 146.8 lb PM10

2nd quarter 2004:
NOx: 5100 mcf x 56 lb/1000 mcf = 285.6 lb NOx
CO: 5100 mcf x 913 lb/1000 mcf = 4656.3 lb CO
VOC: 5100 mcf x 420 lb/1000 mcf = 2142.0 lb VOC
PM10: 5100 mcf x 11.05 lb/1000 mcf = 56.4 lb PM10

3rd quarter 2004:
NOx: 865 mcf x 56 lb/1000 mcf = 48.4 lb NOx
CO: 865 mcf x 913 lb/1000 mcf = 789.7 lb CO
VOC: 865 mcf x 420 lb/1000 mcf = 363.3 lb VOC
PM10: 865 mcf x 11.05 lb/1000 mcf = 9.6 lb PM10

Engine '-5

4th quarter 2002:
NOx: 9405 mcf x 189.0 lb/1000 mcf = 1777.5 lb NOx
CO: 9405 mcf x 635.0 lb/1000 mcf = 5972.1 lb CO
VOC: 9405 mcf x 51.4 lb/1000 mcf = 483.4 lb VOC
PM10: 9405 mcf x 11.05 lb/1000 mcf = 103.9 lb PM10

1st quarter 2003:
NOx: 11521 mcf x 189.0 lb/1000 mcf = 2177.5 lb NOx
CO: 11521 mcf x 635.0 lb/1000 mcf = 7315.8 lb CO
VOC: 11521 mcf x 51.4 lb/1000 mcf = 592.2 lb VOC
PM10: 11521 mcf x 11.05 lb/1000 mcf = 127.3 lb PM10

2nd quarter 2003:
NOx: 11368 mcf x 189.0 lb/1000 mcf = 2148.6 lb NOx
CO: 11368 mcf x 635.0 lb/1000 mcf = 7218.7 lb CO
VOC: 11368 mcf x 51.4 lb/1000 mcf = 584.3 lb VOC
PM10: 11368 mcf x 11.05 lb/1000 mcf = 125.6 lb PM10

3rd quarter 2003:
NOx: 6822 mcf x 189.0 lb/1000 mcf = 1289.4 lb NOx
CO: 6822 mcf x 635.0 lb/1000 mcf = 4332.0 lb CO
VOC: 6822 mcf x 51.4 lb/1000 mcf = 350.7 lb VOC
PM10: 6822 mcf x 11.05 lb/1000 mcf = 75.4 lb PM10

4th quarter 2003:
NOx: 13204 mcf x 189.0 lb/1000 mcf = 2495.6 lb NOx
CO: 13204 mcf x 635.0 lb/1000 mcf = 8384.5 lb CO
VOC: 13204 mcf x 51.4 lb/1000 mcf = 678.7 lb VOC
PM10: 13204 mcf x 11.05 lb/1000 mcf = 145.9 lb PM10

1st quarter 2004:
NOx: 13547 mcf x 60.3 lb/1000 mcf = 816.9 lb NOx
CO: 13547 mcf x 811.4 lb/1000 mcf = 10922.0 lb CO
VOC: 13547 mcf x 413.6 lb/1000 mcf = 5603.0 lb VOC
PM10: 13547 mcf x 11.05 lb/1000 mcf = 149.7 lb PM10

2nd quarter 2004:
NOx: 5922 mcf x 60.3 lb/1000 mcf = 357.1 lb NOx
CO: 5922 mcf x 811.4 lb/1000 mcf = 4805.1 lb CO
VOC: 5922 mcf x 413.6 lb/1000 mcf = 2449.3 lb VOC
PM10: 5922 mcf x 11.05 lb/1000 mcf = 65.4 lb PM10

3rd quarter 2004:
NOx: 1786 mcf x 60.3 lb/1000 mcf = 107.7 lb NOx
CO: 1786 mcf x 811.4 lb/1000 mcf = 1449.2 lb CO
VOC: 1786 mcf x 413.6 lb/1000 mcf = 738.7 lb VOC
PM10: 1786 mcf x 11.05 lb/1000 mcf = 19.7 lb PM10

Engine '-6

4th quarter 2002:
NOx: 7273 mcf x 204.8 lb/1000 mcf = 1489.5 lb NOx
CO: 7273 mcf x 535.6 lb/1000 mcf = 3895.4 lb CO
VOC: 7273 mcf x 358.9 lb/1000 mcf = 2610.3 lb VOC
PM10: 7273 mcf x 11.05 lb/1000 mcf = 80.4 lb PM10

1st quarter 2003:
NOx: 8364 mcf x 204.8 lb/1000 mcf = 1712.9 lb NOx
CO: 8364 mcf x 535.6 lb/1000 mcf = 4479.8 lb CO
VOC: 8364 mcf x 358.9 lb/1000 mcf = 3001.8 lb VOC
PM10: 8364 mcf x 11.05 lb/1000 mcf = 92.4 lb PM10

2nd quarter 2003:
NOx: 9679 mcf x 204.8 lb/1000 mcf = 1982.2 lb NOx
CO: 9679 mcf x 535.6 lb/1000 mcf = 5184.0 lb CO
VOC: 9679 mcf x 358.9 lb/1000 mcf = 3473.8 lb VOC
PM10: 9679 mcf x 11.05 lb/1000 mcf = 107.0 lb PM10

3rd quarter 2003:
NOx: 9897 mcf x 204.8 lb/1000 mcf = 2026.9 lb NOx
CO: 9897 mcf x 535.6 lb/1000 mcf = 5300.8 lb CO
VOC: 9897 mcf x 358.9 lb/1000 mcf = 3552.0 lb VOC
PM10: 9897 mcf x 11.05 lb/1000 mcf = 109.4 lb PM10

4th quarter 2003:
NOx: 856 mcf x 204.8 lb/1000 mcf = 175.3 lb NOx
CO: 856 mcf x 535.6 lb/1000 mcf = 458.5 lb CO
VOC: 856 mcf x 358.9 lb/1000 mcf = 307.2 lb VOC
PM10: 856 mcf x 11.05 lb/1000 mcf = 9.5 lb PM10

1st quarter 2004:
NOx: 203 mcf x 53.3 lb/1000 mcf = 10.8 lb NOx
CO: 203 mcf x 740.2 lb/1000 mcf = 150.3 lb CO
VOC: 203 mcf x 291.8 lb/1000 mcf = 59.2 lb VOC
PM10: 203 mcf x 11.05 lb/1000 mcf = 2.2 lb PM10

2nd quarter 2004:
NOx: 4171 mcf x 53.3 lb/1000 mcf = 222.3 lb NOx
CO: 4171 mcf x 740.2 lb/1000 mcf = 3087.4 lb CO
VOC: 4171 mcf x 291.8 lb/1000 mcf = 1217.0 lb VOC
PM10: 4171 mcf x 11.05 lb/1000 mcf = 46.1 lb PM10

3rd quarter 2004:
NOx: 10,922 mcf x 53.3 lb/1000 mcf = 582.1 lb NOx
CO: 10,922 mcf x 740.2 lb/1000 mcf = 8084.5 lb CO
VOC: 10,922 mcf x 291.8 lb/1000 mcf = 3187.0 lb VOC
PM10: 10,922 mcf x 11.05 lb/1000 mcf = 120.7 lb PM10

Engine '-7

4th quarter 2002:
NOx: 5476 mcf x 176.4 lb/1000 mcf = 966.0 lb NOx
CO: 5476 mcf x 1039.5 lb/1000 mcf = 5692.3 lb CO
VOC: 5476 mcf x 63.3 lb/1000 mcf = 346.6 lb VOC
PM10: 5476 mcf x 11.05 lb/1000 mcf = 60.5 lb PM10

1st quarter 2003:
NOx: 9256 mcf x 176.4 lb/1000 mcf = 1632.8 lb NOx
CO: 9256 mcf x 1039.5 lb/1000 mcf = 9621.6 lb CO
VOC: 9256 mcf x 63.3 lb/1000 mcf = 585.9 lb VOC
PM10: 9256 mcf x 11.05 lb/1000 mcf = 102.3 lb PM10

2nd quarter 2003:
NOx: 6882 mcf x 176.4 lb/1000 mcf = 1214.0 lb NOx
CO: 6882 mcf x 1039.5 lb/1000 mcf = 7153.8 lb CO
VOC: 6882 mcf x 63.3 lb/1000 mcf = 435.6 lb VOC
PM10: 6882 mcf x 11.05 lb/1000 mcf = 76.0 lb PM10

3rd quarter 2003:
NOx: 4960 mcf x 176.4 lb/1000 mcf = 874.9 lb NOx
CO: 4960 mcf x 1039.5 lb/1000 mcf = 5155.9 lb CO
VOC: 4960 mcf x 63.3 lb/1000 mcf = 314.0 lb VOC
PM10: 4960 mcf x 11.05 lb/1000 mcf = 54.8 lb PM10

4th quarter 2003:
NOx: 7001 mcf x 176.4 lb/1000 mcf = 1235.0 lb NOx
CO: 7001 mcf x 1039.5 lb/1000 mcf = 7277.5 lb CO
VOC: 7001 mcf x 63.3 lb/1000 mcf = 443.2 lb VOC
PM10: 7001 mcf x 11.05 lb/1000 mcf = 77.4 lb PM10

1st quarter 2004:
NOx: 5636 mcf x 207.9 lb/1000 mcf = 1171.7 lb NOx
CO: 5636 mcf x 780.4 lb/1000 mcf = 4398.3 lb CO
VOC: 5636 mcf x 81.0 lb/1000 mcf = 456.5 lb VOC
PM10: 5636 mcf x 11.05 lb/1000 mcf = 62.3 lb PM10

2nd quarter 2004:
NOx: 3077 mcf x 207.9 lb/1000 mcf = 639.7 lb NOx
CO: 3077 mcf x 780.4 lb/1000 mcf = 2401.3 lb CO
VOC: 3077 mcf x 81.0 lb/1000 mcf = 249.2 lb VOC
PM10: 3077 mcf x 11.05 lb/1000 mcf = 34.0 lb PM10

3rd quarter 2004:
NOx: 62 mcf x 207.9 lb/1000 mcf = 12.9 lb NOx
CO: 62 mcf x 780.4 lb/1000 mcf = 48.3 lb CO
VOC: 62 mcf x 81.0 lb/1000 mcf = 5.0 lb VOC
PM10: 62 mcf x 11.05 lb/1000 mcf = 0.7 lb PM10

Engine '-8

4th quarter 2002:
NOx: 8487 mcf x 141.1 lb/1000 mcf = 1197.5 lb NOx
CO: 8487 mcf x 660.9 lb/1000 mcf = 5609.0 lb CO
VOC: 8487 mcf x 54.5 lb/1000 mcf = 462.5 lb VOC
PM10: 8487 mcf x 11.05 lb/1000 mcf = 93.8 lb PM10

1st quarter 2003:
NOx: 4342 mcf x 141.1 lb/1000 mcf = 612.7 lb NOx
CO: 4342 mcf x 660.9 lb/1000 mcf = 2869.6 lb CO
VOC: 4342 mcf x 54.5 lb/1000 mcf = 236.6 lb VOC
PM10: 4342 mcf x 11.05 lb/1000 mcf = 48.0 lb PM10

2nd quarter 2003:
NOx: 10769 mcf x 141.1 lb/1000 mcf = 1519.5 lb NOx
CO: 10769 mcf x 660.9 lb/1000 mcf = 7117.2 lb CO
VOC: 10769 mcf x 54.5 lb/1000 mcf = 586.9 lb VOC
PM10: 10769 mcf x 11.05 lb/1000 mcf = 119.0 lb PM10

3rd quarter 2003:
NOx: 9920 mcf x 141.1 lb/1000 mcf = 1399.7 lb NOx
CO: 9920 mcf x 660.9 lb/1000 mcf = 6556.1 lb CO
VOC: 9920 mcf x 54.5 lb/1000 mcf = 540.6 lb VOC
PM10: 9920 mcf x 11.05 lb/1000 mcf = 109.6 lb PM10

4th quarter 2003:
NOx: 11753 mcf x 141.1 lb/1000 mcf = 1658.3 lb NOx
CO: 11753 mcf x 660.9 lb/1000 mcf = 7767.6 lb CO
VOC: 11753 mcf x 54.5 lb/1000 mcf = 640.5 lb VOC
PM10: 11753 mcf x 11.05 lb/1000 mcf = 129.9 lb PM10

1st quarter 2004:
NOx: 7805 mcf x 88.4 lb/1000 mcf = 690.0 lb NOx
CO: 7805 mcf x 447.0 lb/1000 mcf = 3488.4 lb CO
VOC: 7805 mcf x 119.0 lb/1000 mcf = 928.8 lb VOC
PM10: 7805 mcf x 11.05 lb/1000 mcf = 86.2 lb PM10

2nd quarter 2004:
NOx: 7027 mcf x 88.4 lb/1000 mcf = 621.2 lb NOx
CO: 7027 mcf x 447.0 lb/1000 mcf = 3141.1 lb CO
VOC: 7027 mcf x 119.0 lb/1000 mcf = 836.2 lb VOC
PM10: 7027 mcf x 11.05 lb/1000 mcf = 77.6 lb PM10

3rd quarter 2004:
NOx: 5420 mcf x 88.4 lb/1000 mcf = 479.1 lb NOx
CO: 5420 mcf x 447.0 lb/1000 mcf = 2422.7 lb CO
VOC: 5420 mcf x 119.0 lb/1000 mcf = 645.0 lb VOC
PM10: 5420 mcf x 11.05 lb/1000 mcf = 59.9 lb PM10

Engine '-9

4th quarter 2002:
NOx: 8140 mcf x 249.8 lb/1000 mcf = 2033.4 lb NOx
CO: 8140 mcf x 705.0 lb/1000 mcf = 5738.7 lb CO
VOC: 8140 mcf x 60.2 lb/1000 mcf = 490.0 lb VOC
PM10: 8140 mcf x 11.05 lb/1000 mcf = 89.9 lb PM10

1st quarter 2003:
NOx: 8753 mcf x 249.8 lb/1000 mcf = 2186.5 lb NOx
CO: 8753 mcf x 705.0 lb/1000 mcf = 6170.9 lb CO
VOC: 8753 mcf x 60.2 lb/1000 mcf = 526.9 lb VOC
PM10: 8753 mcf x 11.05 lb/1000 mcf = 96.7 lb PM10

2nd quarter 2003:
NOx: 3918 mcf x 249.8 lb/1000 mcf = 978.7 lb NOx
CO: 3918 mcf x 705.0 lb/1000 mcf = 2762,2 lb CO
VOC: 3918 mcf x 60.2 lb/1000 mcf = 235.9 lb VOC
PM10: 3918 mcf x 11.05 lb/1000 mcf = 43.3 lb PM10

3rd quarter 2003:
NOx: 6849 mcf x 249.8 lb/1000 mcf = 1710.9 lb NOx
CO: 6849 mcf x 705.2 lb/1000 mcf = 4828.5 lb CO
VOC: 6849 mcf x 60.2 lb/1000 mcf = 412.3 lb VOC
PM10: 6849 mcf x 11.05 lb/1000 mcf = 75.7 lb PM10

4th quarter 2003:
NOx: 3867 mcf x 249.8 lb/1000 mcf = 966.0 lb NOx
CO: 3867 mcf x 705.2 lb/1000 mcf = 2727.0 lb CO
VOC: 3867 mcf x 60.2 lb/1000 mcf = 232.8 lb VOC
PM10: 3867 mcf x 11.05 lb/1000 mcf = 42.7 lb PM10

1st quarter 2004:
NOx: 34 mcf x 57.6 lb/1000 mcf = 2.0 lb NOx
CO: 34 mcf x 503.2 lb/1000 mcf = 17.1 lb CO
VOC: 34 mcf x 75.7 lb/1000 mcf = 2.6 lb VOC
PM10: 34 mcf x 11.05 lb/1000 mcf = 0.4 lb PM10

2nd quarter 2004:
NOx: 1903 mcf x 57.6 lb/1000 mcf = 109.6 lb NOx
CO: 1903 mcf x 503.2 lb/1000 mcf = 957.6 lb CO
VOC: 1903 mcf x 75.7 lb/1000 mcf = 144.0 lb VOC
PM10: 1903 mcf x 11.05 lb/1000 mcf = 21.0 lb PM10

3rd quarter 2004:
NOx: 8051 mcf x 57.6 lb/1000 mcf = 463.7 lb NOx
CO: 8051 mcf x 503.2 lb/1000 mcf = 4051.3 lb CO
VOC: 8051 mcf x 75.7 lb/1000 mcf = 609.5 lb VOC
PM10: 8051 mcf x 11.05 lb/1000 mcf = 89.0 lb PM10

S-43-4 HAE

Quarter	Actual fuel consumption (mcf)	NOx (lb/qtr)	VOC	CO	PM10
4th quarter 2002	9312	1716.2	875.3	6179.4	102.9
1st quarter 2003	6,330	1166.6	595.0	4200.6	69.9
2nd quarter 2003	4,373	805.9	411.1	2901.9	48.3
3 rd quarter 2003	8,549	1575.6	803.6	5673.1	94.5
4th quarter 2003	13,397	2469.0	1259.3	8890.2	148.0
1st quarter 2004	13,289	744.2	5581.4	12,132.9	146.8
2nd quarter 2004	5,100	285.6	2142.0	4,656.3	56.4
3rd quarter 2004	865	48.4	363.3	789.7	9.6

Average Quarterly HAE '-4

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	955.4	545.8	812.0	2092.6
PM10	108.4	52.4	52.0	125.5
CO	8167.3	3779.1	3231.4	7534.8
VOC	3088.2	1276.6	583.5	1067.3

S-43-5 HAE

Quarter	Actual fuel consumption (mcf)	NOx (lb/qtr)	VOC	CO	PM10
4th quarter 2002	9405	1777.5	483.4	5972.1	103.9
1st quarter 2003	11,521	2177.5	592.2	7315.8	127.3
2nd quarter 2003	11,368	2148.6	584.3	7218.7	125.6
3 rd quarter 2003	6822	1289.4	350.7	4332.0	75.4
4th quarter 2003	13,204	2495.6	678.7	8384.5	145.9
1st quarter 2004	13,547	816.9	5603.0	10922.0	149.7
2nd quarter 2004	5,922	357.1	2449.3	4805.1	65.4
3rd quarter 2004	1786	107.7	738.7	1449.2	19.7

Average Quarterly HAE '-5

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	1497.2	1252.9	698.6	2136.6
PM10	138.5	95.5	47.6	124.9
CO	9118.9	6011.9	2890.6	7178.3
VOC	3097.6	1516.8	544.7	581.1

S-43-6 HAE

Quarter	Actual fuel consumption (mcf)	NOx (lb/qtr)	VOC	CO	PM10
4th quarter 2002	7273	1489.5	2610.3	3895.4	80.4
1st quarter 2003	8364	1712.9	3001.8	4479.8	92.4
2nd quarter 2003	9679	1982.2	3473.8	5184.0	107.0
3 rd quarter 2003	9897	2026.9	3552.0	5300.8	109.4
4th quarter 2003	856	175.3	307.2	458.5	9.5
1st quarter 2004	203	10.8	59.2	150.3	2.2
2nd quarter 2004	4171	222.3	1217.0	3087.4	46.1
3rd quarter 2004	10,922	582.1	3187.0	8084.5	120.7

Average Quarterly HAE '-6

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	861.9	1102.3	1304.5	832.4
PM10	47.3	76.6	115.1	45.0
CO	2315.1	4135.7	6692.7	2176.8
VOC	1530.5	2345.4	3369.5	1458.8

S-43-7 HAE

Quarter	Actual fuel consumption (mcf)	NOx (lb/qtr)	VOC	CO	PM10
4th quarter 2002	5476	966.0	346.6	5692.3	60.5
1st quarter 2003	9256	1632.8	585.9	9621.6	102.3
2nd quarter 2003	6882	1214.0	435.6	7153.8	76.0
3 rd quarter 2003	4960	874.9	314.0	5155.9	54.8
4th quarter 2003	7001	1235.0	443.2	7277.5	77.4
1st quarter 2004	5636	1171.7	456.5	4398.3	62.3
2nd quarter 2004	3077	639.7	249.2	2401.3	34.0
3rd quarter 2004	62	12.9	5.0	48.3	0.7

Average Quarterly HAE '-7

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	1402.3	926.9	443.9	1100.5
PM10	82.3	55.0	27.8	69.0
CO	7010.0	4777.6	2602.1	6484.8
VOC	521.2	342.4	159.5	394.9

S-43-8 HAE

Quarter	Actual fuel consumption (mcf)	NOx (lb/qtr)	VOC	CO	PM10
4th quarter 2002	8487	1197.5	462.5	5609.0	93.8
1st quarter 2003	4342	612.7	236.6	2869.6	48.0
2nd quarter 2003	10769	1519.5	586.9	7117.2	119.0
3 rd quarter 2003	9920	1399.7	540.6	6556.1	109.6
4th quarter 2003	11753	1658.3	640.5	7767.6	129.9
1st quarter 2004	7805	690.0	928.8	3488.4	86.2
2nd quarter 2004	7027	621.2	836.2	3141.1	77.6
3rd quarter 2004	5420	479.1	645.0	2422.7	59.9

Average Quarterly HAE '8

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	651.4	1070.4	939.4	1427.9
PM10	67.1	98.3	84.8	111.9
CO	3179.0	5129.2	4489.4	6688.3
VOC	582.7	711.6	592.8	551.5

S-43-9 HAE

Quarter	Actual fuel consumption (mcf)	NOx (lb/qtr)	VOC	CO	PM10
4th quarter 2002	8140	2033.4	490.0	5738.7	89.9
1st quarter 2003	8753	2186.5	526.9	6170.9	96.7
2nd quarter 2003	3918	978.7	235.9	2762.2	43.3
3 rd quarter 2003	6849	1710.9	412.3	4828.5	75.7
4th quarter 2003	3867	966.0	232.8	2727.0	42.7
1st quarter 2004	34	2.0	2.6	17.1	0.4
2nd quarter 2004	1903	109.6	144.0	957.6	21.0
3rd quarter 2004	8051	463.7	609.5	4051.3	89.0

Average Quarterly HAE '9

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	1094.3	544.2	1087.3	1499.7
PM10	48.6	31.2	82.4	66.3
CO	3094.0	1859.9	4439.9	4232.9
VOC	264.8	190.0	510.9	361.4

Total Average Quarterly HAE

Pollutant	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	6463	5443	5286	9090
PM10	492	409	410	543
CO	32,884	25694	24,346	34,296
VOC	9085	6383	5761	4415

AQID (lbs/Qtr)	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	646	544	529	909
PM10	49	41	41	54
CO	3288	2569	2435	3430
VOC	909	638	576	442

ERC (lbs/Qtr)	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
NOx	5817	4899	4757	8181
PM10	443	368	369	489
CO	29,596	23125	21911	30866
VOC	8176	5745	5185	3973

ATTACHMENT VIII

Draft ERC Certificates

San Joaquin Valley
Air Pollution Control District

Southern Regional Office • 2700 M Street, Suite 275 • Bakersfield, CA 93301-2370

Emission Reduction Credit Certificate
S-2774-1

ISSUED TO: AERA ENERGY LLC

ISSUED DATE: <DRAFT>

LOCATION OF REDUCTION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

For VOC Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
8,176 lbs	5,745 lbs	5,185 lbs	3,973 lbs

[ ] Conditions Attached

Method Of Reduction

[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of gas plant precompressors and refrigeration compressors (permits S-43-4 through S-43-9)

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

DRAFT

David Warner, Director of Permit Services

Mar 31 2008 10:49AM -- EDGEHILR

San Joaquin Valley
Air Pollution Control District

Southern Regional Office • 2700 M Street, Suite 275 • Bakersfield, CA 93301-2370

Emission Reduction Credit Certificate
S-2774-2

ISSUED TO: AERA ENERGY LLC

ISSUED DATE: <DRAFT>

LOCATION OF REDUCTION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

For NOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
5,817 lbs	4,899 lbs	4,757 lbs	8,181 lbs

[ ] Conditions Attached

Method Of Reduction

[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of gas plant precompressors and refrigeration compressors (permits S-43-4 through S-43-9)

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

DRAFT

David Warner, Director of Permit Services

Mar 31 2008 10:49AM – EDGEHILR

San Joaquin Valley
Air Pollution Control District

Southern Regional Office • 2700 M Street, Suite 275 • Bakersfield, CA 93301-2370

Emission Reduction Credit Certificate
S-2774-3

ISSUED TO: AERA ENERGY LLC

ISSUED DATE: <DRAFT>

LOCATION OF REDUCTION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

For CO Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
29,596 lbs	23,125 lbs	21,911 lbs	30,866 lbs

[ ] Conditions Attached

Method Of Reduction

[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of gas plant precompressors and refrigeration compressors (permits S-43-4 through S-43-9)

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

DRAFT

David Warner, Director of Permit Services

Mar 31 2006 10:49AM – EDGEHILR

San Joaquin Valley
Air Pollution Control District

Southern Regional Office • 2700 M Street, Suite 275 • Bakersfield, CA 93301-2370

Emission Reduction Credit Certificate
S-2774-4

ISSUED TO: AERA ENERGY LLC

ISSUED DATE: <DRAFT>

LOCATION OF REDUCTION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

For PM10 Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
443 lbs	368 lbs	369 lbs	489 lbs

[ ] Conditions Attached

Method Of Reduction

[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of gas plant precompressors and refrigeration compressors (permits S-43-4 through S-43-9)

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

DRAFT

David Warner, Director of Permit Services

Mar 31 2008 10:49AM -- EDGEHILR

Richard Edgehill

From: Richard Edgehill
Sent: Thursday, March 27, 2008 9:01 AM
To: 'BTwinn@aeraenergy.com'
Subject: attached HAE calculations project S43,1075362

Brent-I rechecked the calculations I sent to you yesterday and recalculated PM10 HAE based on 1106.3 Btu/scf (lab value).

The ERCs will be calculated based on the attached HAE for the engines

S43, 1076362.doc

Richard Edgehill

From: Winn BT (Brent) at Aera [BTWinn@aeraenergy.com]
Sent: Tuesday, April 01, 2008 2:00 PM
To: Richard Edgehill
Subject: RE: ERC banking projects S43, 1080067 and 1075362

Richard:

The demand for the compressor engines was significantly reduced in May 2004 when Aera stopped processing their Lost Hills produced gas in the plant. However, Chevron continued to send their Lost Hills gas for processing - until January 2005. The hot oil heater provided heat for the plant processes (for such things as glycol reboiler) and therefore it had to remain in operation until January 2005 when Chevron stopped sending gas to the plant. As you can see from the data, the fuel burned in the hot oil heater did not change significantly after May 2004, but the engines' fuel usage did. Therefore, the quarters prior to May 2004 are more representative of the actual historical operation of the compressors.

There is no technical reason why emissions from the hot oil heater prior to May 2004 would be more representative of actual historical operation, therefore the two calendar years prior to actual shutdown of the heater were selected.

Thanks....

-B. Winn

-----Original Message-----
From: Richard Edgehill [mailto:Richard.Edgehill@valleyair.org]
Sent: Tuesday, April 01, 2008 11:53 AM
To: Winn BT (Brent) at Aera
Subject: ERC banking projects S43, 1080067 and 1075362

Brent: The baseline period selected for the hot oil heater (project 1080067) is February 2003 through January 2005 (includes 4th quarter 2004) and for the compressors (project 1075362) is October 2002 September 2004 (does not include 4th quarter 2004). I need to address why there is a difference in baseline period for the EE. Did the hot oil heater operate longer than the IC engine-driven compressors. Clearly 4th qtr 2004 fuel usage for the hot oil heater had not "tapered off" but compressor operation was considered to be "not representative of normal operation" in 4th quarter 2004 i.e. terminal downtime had begun. Apparently shut down of all of the gas plant equipment did not occur simultaneously - please elaborate on why the oil heater operated longer than the compressors i.e. into 4th qtr 2004.

Thanks

Richard Edgehill

From: Winn BT (Brent) at Aera [BTWinn@aeraenergy.com]
Sent: Tuesday, March 25, 2008 4:11 PM
To: Richard Edgehill
Subject: RE: ERC project S43, 1075362

Richard:

I checked the factors in the table you sent against Aera's source test records and they look accurate.

As far as hhv of fuel, in the ERC application I used the lb/mmscf factors that were used in Aera's annual emission statements in an attempt to make the ERC calcs consistent with reported data. For year 2002, Aera's emission statement used a hhv of 1106 btu/scf in calculation of the emission factors. In the calculations, the lb/mmbtu results from the source tests were multiplied by the hhv as follows (for example S-43-4):

1106 mmbtu/mmscf (0.1666 lb NOx/mmbtu) = 184.26 lb NOx/mmscf.

The calculations in the source test report for 2002 used hhv of 1106 btu/scf and "F" factor of 8652 dscf/mmbtu. When I plug those values into the attached spreadsheet along with the (15% O2) corrected ppm values reported in the source tests, I get lb/mmscf factors that are very close to those listed in Aera's annual emission statement, but not exact. At this point I assume there is just a slight difference between my spreadsheet and that used by the source testing company (Aeros). The numbers do seem to corroborate unless you are looking for an exact match. If you still have a concern, please clarify.

Thanks....

-B. Winn

-----Original Message-----
From: Richard Edgehill [mailto:Richard.Edgehill@valleyair.org]
Sent: Tuesday, March 25, 2008 7:57 AM
To: Winn BT (Brent) at Aera
Subject: RE: ERC project S43, 1075362

OK - Brent attached is the table of emissions factors I have worked with - note that the 2002 and 2004 source test measurements are surplus of Rule 4702 and so HAE should be based on these - please confirm that the source test emissions factors are consistent with your calculation i.e. with the correct actual hhv of fuel . Thanks

> -----Original Message-----
> **From:** Winn BT (Brent) at Aera [mailto:BTWinn@aeraenergy.com]
> **Sent:** Tuesday, March 25, 2008 7:42 AM
> **To:** Richard Edgehill
> **Subject:** RE: ERC project S43, 1075362
>
> I may not be able to get to this until next week. Will that be OK ?
>
> -B. Winn
>
> -----Original Message-----
> **From:** Richard Edgehill [mailto:Richard.Edgehill@valleyair.org]

Sent: Friday, March 21, 2008 11:32 AM
To: Winn BT (Brent) at Aera
Subject: ERC project S43, 1075362

Brent: We have decided to determine surplus emissions based on the Rule 4702 requirements of 65 ppmv NOx @ 15% O2 and 750 ppmv VOC @ 15% O2 i.e. with no reference to SCAQMD Rule 1110.2. Therefore it appears that all HAE calculations for NOx and VOC should now be based on the source test results as they are all less than the 4702 NOx and VOC limits (65 ppmv and 750 ppmv). Please revise your calculations submitted with the application (received by the District 11-8-07) accordingly.

By the way I did notice that 2002 and 2003 HAE NOx emissions in the summary table entitled "Aera energy Lost Hills 15 gas plant - Emissions reduction credit application - I.C. engine compressors S-43-43-4 through S-43-9 -- Most representative 2 - year period"--- are not identical with the numbers in the tables following the summary table (the tables with NOx emissions calculated for 2002, 2003, and 2004 i.e. each years results orinted on one page - whereas all the other pollutants have the same HAE results in the summary table as listed on the following pages. Please correct.

This change should result in more ERCs thus worth the effort to revise.

Thanks

	SELECTION #
COAL (ANTHRACITE)	0
COAL (BITUMINOUS)	1
COAL (LIGNITE)	2
OIL (CRUDE, RESIDUAL, OR DISTILLATE)	3
GAS (NATURAL)	4
GAS (PROPANE)	5
GAS (BUTANE)	6
WOOD	7
WOOD BARK	8
MUNICIPAL SOLID WASTE	9

STANDARD O2 CORRECTION FOR EXTERNAL COMBUSTION IS 3%		
Type of fuel (use table above)	4	GAS
O2 correction (i.e., 3%)	15	%
Enter concentrations		
NOx	61.8	ppmv
CO	286.8	ppmv
VOC (as methane)	42.8	ppmv

2002

S-43-4	S-43-5	S-43-6	S-43-7	S-43-8	S-43-9	
45.6	46.8	50.7	43.7	34.9	61.8	
270	258.3	217.8	422.8	268.9	286.8	
67	36.6	255.5	45.1	38.8	42.8	
1106	1106	1106	1106	1106	1106	MMBTU/MMSCF
0.0009042	0.0009042	0.0009042	0.0009042	0.0009042	0.0009042	MMscf/MMBTU
184.54	189.39	205.18	176.85	141.24	250.10	lb NOx /mmscf
665.09	636.27	536.51	1041.49	662.39	706.48	lb CO/mmscf
94.31	51.52	359.64	63.48	54.62	60.25	lb VOC/mmscf

CALCULATED EQUIVALENT LB/MMBTU VALUES		
NOx	0.2261	LB/MMBTU
CO	0.6388	LB/MMBTU
VOC (as methane)	0.0545	LB/MMBTU

pV = R*T		
pressure (p)	1	atm
universal gas constant (R*)	0.7302	atm-scf/lbmole-oR
temperature (oF)	68	oF
calculated		
molar specific volume (V)	385.3	scf/lbmole
Molecular weights		
NOx	46	lb/lb-mole
CO	28	lb/lb-mole
VOC (as methane)	16	lb/lb-mole

F FACTORS FROM EPA METHOD 19			
COAL (ANTHRACITE)	10100	DSCF/MMBTU	COAL
COAL (BITUMINOUS)	9780	DSCF/MMBTU	COAL
COAL (LIGNITE)	9860	DSCF/MMBTU	COAL
OIL (CRUDE, RESIDUAL, OR DISTILLATE)	9160	DSCF/MMBTU	OIL
GAS (NATURAL)	8652	DSCF/MMBTU	GAS
GAS (PROPANE)	8710	DSCF/MMBTU	GAS
GAS (BUTANE)	8710	DSCF/MMBTU	GAS
WOOD	9240	DSCF/MMBTU	WOOD
WOOD BARK	9600	DSCF/MMBTU	WOOD BARK
MUNICIPAL SOLID WASTE	9570	DSCF/MMBTU	SOLID WASTE
F FACTOR USED IN CALCULATIONS	8652	DSCF/MMBTU	GAS

	SELECTION #
COAL (ANTHRACITE)	0
COAL (BITUMINOUS)	1
COAL (LIGNITE)	2
OIL (CRUDE, RESIDUAL, OR DISTILLATE)	3
GAS (NATURAL)	4
GAS (PROPANE)	5
GAS (BUTANE)	6
WOOD	7
WOOD BARK	8
MUNICIPAL SOLID WASTE	9

STANDARD O2 CORRECTION FOR EXTERNAL COMBUSTION IS 3%		
Type of fuel (use table above)	4	GAS
O2 correction (i.e., 3%)	15	%
Enter LB/MMBTU emission factor		
NOx	0.167	LB/MMBTU
CO	0.600	LB/MMBTU
VOC (as methane)	0.085	LB/MMBTU

CALCULATED EQUIVALENT CONCENTRATIONS		
NOx	45.53	ppmv
CO	269.39	ppmv
VOC (as methane)	66.79	ppmv

pV = R*T		
pressure (p)	1	atm
universal gas constant (R*)	0.7302	atm-scf/lbmole-oR
temperature (oF)	60	oF
calculated		
molar specific volume (V)	379.5	scf/lbmole
Molecular weights		
NOx	46	lb/lb-mole
CO	28	lb/lb-mole
VOC (as methane)	16	lb/lb-mole

F FACTORS FROM EPA METHOD 19 @ 68 F			
COAL (ANTHRACITE)	10100	DSCF/MMBTU	COAL
COAL (BITUMINOUS)	9780	DSCF/MMBTU	COAL
COAL (LIGNITE)	9860	DSCF/MMBTU	COAL
OIL (CRUDE, RESIDUAL, OR DISTILLATE)	9160	DSCF/MMBTU	OIL
GAS (NATURAL)	8652	DSCF/MMBTU	GAS
GAS (PROPANE)	8710	DSCF/MMBTU	GAS
GAS (BUTANE)	8710	DSCF/MMBTU	GAS
WOOD	9240	DSCF/MMBTU	WOOD
WOOD BARK	9600	DSCF/MMBTU	WOOD BARK
MUNICIPAL SOLID WASTE	9570	DSCF/MMBTU	SOLID WASTE
F FACTOR USED IN CALCULATIONS	8652	DSCF/MMBTU	GAS

Grams/Brake Horsepower - Hour ----> Parts Per Million Volume

g/Bhp-hr ----> ppmv

Variables:		
Engine Size:	0	hp
NO_x:	0	g/bhp-hr
CO:	0	g/bhp-hr
VOC:	0	g/bhp-hr
O_2 level:	0	%
Fuel Type	0	
F-factor:	9160	dscf/MMBtu
Engine Efficiency:	0	% (Assumed)

OIL (CRUDE, RESIDUAL, OR DISTILLATE)	0
GAS (NATURAL)	1
GAS (PROPANE)	2
GAS (BUTANE)	3

Given:		
Conversion #1	379.5E+6	dscf/lb
Conversion #2	393.236	bhp-hr/MMBtu
Conversion #3	453.59	g/lb
$MW_{(NOx)}$:	46	as NO_2
$MW_{(CO)}$:	28	
$MW_{(VOC)}$:	16	as CH_4
O_2 Correction:	1.000	
Pressure (p)	1	atm
Temp (oF)	60	oF

Formula:

g	1	1	(20.9 - O_2%)	Conversion #1	Conversion #2	1	Engine Eff.
bhp-hr	F-factor	$MW_{pollutant}$	20.9	1	1	Conversion #3	1

for NO_x:

0.00 g	MMBtu	1	20.9 - 0	379.5E+6 dscf	393.24 bhp-hr	lb	0%
bhp-hr	9160 dscf	46	20.9	lb	MMBtu	453.59 g	1

= **0.000** **PPM**

for CO:

0.00 g	MMBtu	1	20.9 - 0	379.5E+6 dscf	393.24 bhp-hr	lb	0%
bhp-hr	9160 dscf	28	20.9	lb	MMBtu	453.59 g	1

= **0.000** **PPM**

for VOC:

0.00 g	MMBtu	1	20.9 - 0	379.5E+6 dscf	393.24 bhp-hr	lb	0%
bhp-hr	9160 dscf	16	20.9	lb	MMBtu	453.59 g	1

= **0.000** **PPM**

Parts Per Million Volume --> Grams/Brake Horsepower - Hour

ppmv --> g/Bhp-hr

Variables:		
Engine Size:	800	hp
NO_x:	5	ppmv
CO:	70	ppmv
VOC:	30	ppmv
O_2 level:	15	%
Fuel Type	1	
F-factor:	8710	dscf/MMBtu
Engine Efficiency:	30	% (Assumed)

OIL (CRUDE, RESIDUAL, OR DISTILLATE)	0
GAS (NATURAL)	1
GAS (PROPANE)	2
GAS (BUTANE)	3

Given:		
Conversion #1	379.5E+6	dscf/lb
Conversion #2	393.236	bhp-hr/MMBtu
Conversion #3	453.59	g/lb
$MW_{(NOx)}$:	46	as NO_2
$MW_{(CO)}$:	28	
$MW_{(VOC)}$:	16	as CH_4
O_2 Correction:	3.542	
Pressure (p)	1	atm
Temp (^oF)	60	^oF

Formula:

ppmv	F-factor	$MW_{pollutant}$	20.9	1	1	Conversion #3	1	=
1	1	1	(20.9 - O_2%)	Conversion #1	Conversion #2	1	Engine Eff.	

for NO_x:

5 ppmv	8710 dscf	46	20.9	lb	MMBtu	453.59 g	1	=
1	MMBtu	1	20.9 - 15	379.5E+6 dscf	393.24 bhp-hr	lb	30%	

=	0.071 g/bhp-hr	56.7 g/hr	0.125 lbs/hr	2.998 lbs/day

for CO:

70 ppmv	8710 dscf	28	20.9	lb	MMBtu	453.59 g	1	=
1	MMBtu	1	20.9 - 15	379.5E+6 dscf	393.24 bhp-hr	lb	30%	

=	0.603 g/bhp-hr	483 g/hr	1.065 lbs/hr	25.55 lbs/day

for VOC:

30 ppmv	8710 dscf	16	20.9	lb	MMBtu	453.59 g	1	=
1	MMBtu	1	20.9 - 15	379.5E+6 dscf	393.24 bhp-hr	lb	30%	

=	0.148 g/bhp-hr	118 g/hr	0.261 lbs/hr	6.257 lbs/day

Parts Per Million Volume --> Grams/Brake Horsepower - Hour

ppmv --> g/Bhp-hr

Variables:

Engine Size:	800	hp
NO_x:	5	ppmv
CO:	70	ppmv
VOC:	30	ppmv
O_2 level:	15	%
Fuel Type	1	
F-factor:	8710	dscf/MMBtu
Engine Efficiency:	30	% (Assumed)

OIL (CRUDE, RESIDUAL, OR DISTILLATE)	0
GAS (NATURAL)	1
GAS (PROPANE)	2
GAS (BUTANE)	3

Given:

Conversion #1	379.5E+6	dscf/lb
Conversion #2	393.236	bhp-hr/MMBtu
Conversion #3	453.59	g/lb
$MW_{(NOx)}$:	46	as NO_2
$MW_{(CO)}$:	28	
$MW_{(VOC)}$:	16	as CH_4
O_2 Correction:	3.542	
Pressure (p)	1	atm
Temp (^oF)	60	^oF

Formula:

ppmv	F-factor	$MW_{pollutant}$	20.9	1	1	Conversion #3	1	
1	1	1	(20.9 - O_2%)	Conversion #1	Conversion #2	1	Engine Eff.	=

for NO_x:

5 ppmv	8710 dscf	46	20.9	lb	MMBtu	453.59 g	1	=
1	MMBtu	1	20.9 - 15	379.5E+6 dscf	393.24 bhp-hr	lb	30%	

=	**0.071 g/bhp-hr**	**56.7 g/hr**	**0.125 lbs/hr**	**2.998 lbs/day**

for CO:

70 ppmv	8710 dscf	28	20.9	lb	MMBtu	453.59 g	1	=
1	MMBtu	1	20.9 - 15	379.5E+6 dscf	393.24 bhp-hr	lb	30%	

=	**0.603 g/bhp-hr**	**483 g/hr**	**1.065 lbs/hr**	**25.55 lbs/day**

for VOC:

30 ppmv	8710 dscf	16	20.9	lb	MMBtu	453.59 g	1	=
1	MMBtu	1	20.9 - 15	379.5E+6 dscf	393.24 bhp-hr	lb	30%	

=	**0.148 g/bhp-hr**	**118 g/hr**	**0.261 lbs/hr**	**6.257 lbs/day**

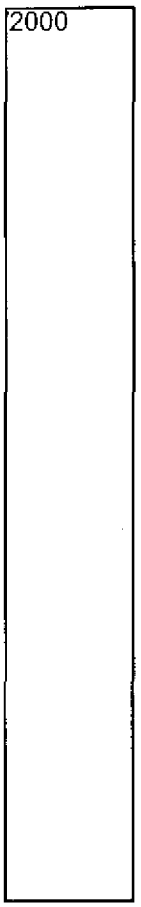
Fuel burning equipment **100,000 Btu/therm** updated 1

AP-42 Natural gas emission factors, 1000 Btu/cf

>100 MMBtu/hr	1.4-1	1.4-2	1.4-2	1.4-1	1.4-2
uncontrolled	NOx	VOC	SOx	CO	PM_{10}
lb/MMcf	**190**	**5.5**	**0.6**	**84**	**7.6**
lb/MMBtu	**0.19**	**0.006**	**0.001**	**0.08**	**0.008**
lo-NOx	NOx	VOC	SOx	CO	PM_{10}
lb/MMcf	**140**	**5.5**	**0.6**	**84**	**7.6**
lb/MMBtu	**0.14**	**0.006**	**0.001**	**0.08**	**0.008**
lo-NOx w/ FGR	NOx	VOC	SOx	CO	PM_{10}
lb/MMcf	**100**	**5.5**	**0.6**	**84**	**7.6**
lb/MMBtu	**0.10**	**0.006**	**0.001**	**0.08**	**0.008**

AP-42 Natural gas emission factors, 1000 Btu/cf

<100 MMBtu/hr	1.4-1	1.4-2	1.4-2	1.4-1	1.4-1
uncontrolled	NOx	VOC	SOx	CO	PM_{10}
lb/MMcf	**100**	**5.5**	**0.6**	**84**	**7.6**
lb/MMBtu	**0.10**	**0.006**	**0.001**	**0.08**	**0.008**
lo-NOx	NOx	VOC	SOx	CO	PM_{10}
lb/MMcf	**50**	**5.5**	**0.6**	**84**	**7.6**
lb/MMBtu	**0.05**	**0.006**	**0.001**	**0.08**	**0.008**
lo-NOx w/ FGR	NOx	VOC	SOx	CO	PM_{10}
lb/MMcf	**32**	**5.5**	**0.6**	**84**	**7.6**
lb/MMBtu	**0.032**	**0.006**	**0.001**	**0.08**	**0.008**


2000

B. Emissions Factors

The source test measurements and emissions factors for NOx, CO, and VOC are listed in the tables below. The source test summaries are included in **Attachment IV**.

NOx ppm @ 15% O_2 [lb/MMscf]						
	S-43-4	S-43-5	S-43-6	S-43-7	S-43-8	S-43-9
Rule 4702	65 [244.3]	65 [244.3]	65 [244.3]]	65 [244.3]	65 [244.3]	65 [244.3]
2002 source test	45.6 [184.3]	46.8 [189.0]	50.7 [204.8]	43.7 [176.4]	34.9 [141.1]	61.8 [249.8]
2004 source test	14.3 [56.0]	15.4 [60.3]	13.6 [53.3]	51.4 [207.9]	21.9 [88.4]	14.2 [57.6]

CO ppm @ 15% O_2 [lb/MMscf]						
	S-43-4	S-43-5	S-43-6	S-43-7	S-43-8	S-43-9
District Rule 4702 Limit	2000 [4574]	2000 [4574]	2000 [4574]	2000 [4574]	2000 [4574]	2000 [4574]
2002 source test	270 [663.6]	258.3 [635.0]	217.8 [535.6]	422.8 [1039.5]	268.9 [660.9]	286.8 [705.0]
2004 source test	383 [913.0]	340 [811.4]	310 [740.2]	317 [780.4]	181 [447.0]	204 [503.2]

VOC ppm @ 15% O_2 [lb/MMscf]						
	S-43-4	S-43-5	S-43-6	S-43-7	S-43-8	S-43-9
Rule 4702	750 [980.1]	750 [980.1]	750 [980.1]	750 [980.1]	750 [980.1]	750 [980.1]
2002 source test	67 [94.0]	36.6 [51.4]	255.5 [358.9]	45.1 [63.3]	38.8 [54.5]	42.8 [60.2]
2004 source test	308.1 [420.0]	303.4 [413.6]	214.1 [291.8]	57.6 [81.0]	68.5 [119.0]	53.8 [75.7]

Richard Edgehill

From: Richard Edgehill
Sent: Wednesday, January 09, 2008 9:41 AM
To: 'Winn BT (Brent) at Aera'
Subject: RE: Corrections to previous years' Aera Energy emission inventories

Thanks Brent. Please provide the heating value used to convert from lb/MMBtu to lb/MMscf for the source test results for 2002. If possible please revise the 2002 source test table to include lb/MMscf. This will save time i.e. I can include your emailed 12-6-07 table of quarterly baseline emissions in the evaluation with a sample calculation showing how the numbers were obtained. Thanks

-----Original Message-----
From: Winn BT (Brent) at Aera [mailto:btwinn@aeraenergy.com]
Sent: Wednesday, January 09, 2008 7:04 AM
To: Richard Edgehill
Subject: FW: Corrections to previous years' Aera Energy emission inventories

Richard:

In response to part of your most recent voice mail message, attached are the corrections sent to SJVAPCD's emission inventory group by Aera's Peggy Shue.

-B. Winn

-----Original Message-----
From: Shue PA (Peggy) at Aera
Sent: Tuesday, January 08, 2008 2:21 PM
To: 'Leland Villalvazo'
Cc: Brant Botill
Subject: RE: Corrections to previous years' Aera Energy emission inventories

Hi, Leland and Brant - I'm attaching an excel spreadsheet with two tabs - one for corrections to the S-43 inventories and one for corrections to the C-1121 inventories. Please let me know if you have any questions concerning this information. Thanks so much,

Peggy Shue
Lead EHS Advisor, Air
Aera Energy LLC
(661) 665-5689

-----Original Message-----
From: Leland Villalvazo [mailto:leland.villalvazo@valleyair.org]
Sent: Monday, January 07, 2008 12:08 PM
To: Shue PA (Peggy) at Aera
Cc: Brant Botill
Subject: RE: Corrections to previous years' Aera Energy emission inventories

Peggy,

Please forward the corrected information to me and we will go back and correct each year.

Info Needed:
Unit ID
New Fuel Usage
EF
Emissions for each Criteria Pollutant (This will allow us to double check the reported emissions)

The District will then resubmit the data to ARB.

Leland

From: Shue PA (Peggy) at Aera [mailto:pashue@aeraenergy.com]
Sent: Monday, January 07, 2008 11:00 AM
To: Leland Villalvazo
Subject: Corrections to previous years' Aera Energy emission inventories

Hi, Leland - I'm hoping you can provide me with some direction. We have found errors in the fuel use quantities on which some previous years' Aera Energy emission inventories were based and would like to know how to correct the inventories with the District.

In particular, the fuel use reported was in error for four heater treaters in the C-1121 inventory for 2006 and the six engines in the S-43 inventories for 2001 through 2004.

Please let me know if you would like us to provide you with corrected inventories for any or all of these cases and in what form you would like us to provide that correction.

Thanks for your help!

Peggy Shue
Lead EHS Advisor, Air
Aera Energy LLC
(661) 665-5689

Aera Energy LLC
Lost Hills Gas Plant
IC Engines

	2001	Emission Factor, lb/MMcf						Emissions, tons/year					
Unit ID	Corrected Fuel Use, MMcf	NOx	TOC	VOC	SOx	CO	PM10	NOx	TOC	VOC	SOx	CO	PM10
S-43-4	13.242	224.53	409.29	28.65	0.00	1019.90	10.11	1.49	2.71	0.19	0.00	6.75	0.07
S-43-5	49.243	236.75	1037.29	72.61	0.00	682.50	10.11	5.83	25.54	1.79	0.00	16.80	0.25
S-43-6	45.288	148.02	10651.43	745.60	0.00	888.45	10.11	3.35	241.19	16.88	0.00	20.12	0.23
S-43-7	19.958	158.43	2286.71	160.07	0.00	1031.33	10.11	1.58	22.82	1.60	0.00	10.29	0.10
S-43-8	23.104	175.09	1555.57	108.89	0.00	721.13	10.11	2.02	17.97	1.26	0.00	8.33	0.12
S-43-9	15.079	124.64	2704.57	189.32	0.00	580.17	10.11	0.94	20.39	1.43	0.00	4.37	0.08

	2002	Emission Factor, lb/MMcf						Emissions, tons/year					
Unit ID	Corrected Fuel Use, MMcf	NOx	TOC	VOC	SOx	CO	PM10	NOx	TOC	VOC	SOx	CO	PM10
S-43-4	40.227	184.26	1258.34	100.67	0.00	663.60	10.11	3.71	25.31	2.02	0.00	13.35	0.20
S-43-5	30.024	188.90	63.90	5.11	0.00	634.90	10.11	2.84	0.96	0.08	0.00	9.53	0.15
S-43-6	33.928	204.70	4485.07	358.81	0.00	535.50	10.11	3.47	76.08	6.09	0.00	9.08	0.17
S-43-7	19.676	176.40	798.37	63.87	0.00	1,039.50	10.11	1.74	7.85	0.63	0.00	10.23	0.10
S-43-8	38.05	141.00	679.89	54.39	0.00	660.90	10.11	2.68	12.93	1.03	0.00	12.57	0.19
S-43-9	16.412	249.70	752.60	60.21	0.00	704.90	10.11	2.05	6.18	0.49	0.00	5.78	0.08

	2003	Emission Factor, lb/MMcf						Emissions, tons/year					
Unit ID	Corrected Fuel Use, MMcf	NOx	TOC	VOC	SOx	CO	PM10	NOx	TOC	VOC	SOx	CO	PM10
S-43-4	32.65	184.26	1740.00	94.00	0.00	663.60	10.11	3.01	28.40	1.53	0.00	10.83	0.17
S-43-5	42.92	188.90	1238.00	51.40	0.00	634.90	10.11	4.05	26.56	1.10	0.00	13.62	0.22
S-43-6	28.80	204.70	5187.00	358.90	0.00	535.50	10.11	2.95	74.68	5.17	0.00	7.71	0.15
S-43-7	28.10	176.40	1708.00	63.30	0.00	1039.50	10.11	2.48	24.00	0.89	0.00	14.60	0.14
S-43-8	36.79	141.00	1364.00	54.50	0.00	660.90	10.11	2.59	25.09	1.00	0.00	12.16	0.19
S-43-9	23.39	249.70	1379.00	60.20	0.00	704.90	10.11	2.92	16.13	0.70	0.00	8.24	0.12

	2004	Emission Factor, lb/MMcf						Emissions, tons/year					
Unit ID	Corrected Fuel Use, MMcf	NOx	TOC	VOC	SOx	CO	PM10	NOx	TOC	VOC	SOx	CO	PM10
S-43-4	19.25	56.02	1740.00	420.01	0.00	913.01	10.11	0.54	16.75	4.04	0.00	8.79	0.10
S-43-5	24.55	60.30	1238.00	413.63	0.00	811.41	10.11	0.74	15.20	5.08	0.00	9.96	0.12
S-43-6	22.60	53.26	5187.00	291.81	0.00	740.24	10.11	0.60	58.61	3.30	0.00	8.36	0.11
S-43-7	8.78	207.88	1708.00	80.96	0.00	780.44	10.11	0.91	7.49	0.36	0.00	3.42	0.04
S-43-8	21.70	30.29	1364.00	118.98	0.00	841.98	10.11	0.33	14.80	1.29	0.00	9.14	0.11
S-43-9	21.81	57.59	1379.00	75.72	0.00	503.18	10.11	0.63	15.04	0.83	0.00	5.49	0.11

Richard Edgehill

From: Winn BT (Brent) at Aera [btwinn@aeraenergy.com]
Sent: Wednesday, December 19, 2007 10:31 AM
To: Richard Edgehill
Subject: FW: ERC application S43, 1075362

Here is the previous E-mail I sent....

Thanks....

-B. Winn

-----Original Message-----
From: Winn BT (Brent) at Aera
Sent: Tuesday, December 11, 2007 9:51 AM
To: 'Richard Edgehill'
Subject: RE: ERC application S43, 1075362

Richard:

Attached are documents providing basis for the emission factors used in 2004-2005 for the subject engines. Unlike the year 2002 source tests, the results were reported directly in terms of "pounds per MMcf", so there was no need to convert from lb/MMBTU to lb/MMcf. The PM10 factor, if based on the heating values in the fuel tests, would actually be higher than the factor originally proposed in the ERC application. They would be in the range of 10.43 to 10.98 lb/MMcf as compared to 10.11 lb/MMcf.

In reviewing the source tests, I noticed an error in the NOx and CO factors used for engine S-43-8.

The NOx factor in the original ERC application was 30.3 lb/MMCF but the source test shows 88.44 lb/MMcf.

The CO factor in the original ERC application was 841.98 lb/MMCF but the source test shows 447.04 lb/MMcf.

A spreadsheet with revised historical emission estimates (based on these corrected factors) is also attached.

-B. Winn

Richard Edgehill

From: Winn BT (Brent) at Aera [btwinn@aeraenergy.com]
Sent: Wednesday, December 19, 2007 10:01 AM
To: Richard Edgehill
Subject: RE: ERC application S43, 1075362

The items that I e-mailed on Tuesday 12/11/2007 weren't sufficient ? Are you saying that the numbers presented in the source test summaries won't work for your analysis ?

-B. Winn

-----Original Message-----
From: Richard Edgehill [mailto:Richard.Edgehill@valleyair.org]
Sent: Wednesday, December 19, 2007 9:25 AM
To: Winn BT (Brent) at Aera
Subject: FW: ERC application S43, 1075362

Brent: The 2004 calculations were useful for the evaluation. Please also provide similar calculations for 2004 (as per your underlined statement below).Thanks again.
-----Original Message-----
From: Richard Edgehill
Sent: Thursday, December 06, 2007 3:14 PM
To: 'Winn BT (Brent) at Aera'
Subject: RE: ERC application S43, 1075362

Thanks Please submit the similar 2004 calcs if they can easily be obtained from these sample calculations.

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine 1

Project 010-3922
July 22, 2004
Permit No. S-43-4-9

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
		20.3	13.8	8.86	0.0505	54.21	
NOx		21.1	14.2	8.98	0.0518	55.64	75 ppm @ 15% O_2
		22.1	14.9	9.34	0.0542	58.21	and
Mean		**21.2**	**14.3**	**9.06**	**0.0522**	**56.02**	**61.9 lb/day**
		571	389	151.63	0.8641	928.04	
CO		567	381	146.95	0.8473	910.00	463 ppm @ 15% O_2
		562	378	144.54	0.8389	900.98	and
Mean		**567**	**383**	**147.71**	**0.8501**	**913.01**	**232.6 lb/day**
		483.1	329.2	73.3	0.4178	448.71	
VOC		457.9	308.0	67.8	0.3910	419.94	304 ppm @ 15% O_2
C_3 - C_6+ as C_1		427.1	287.0	62.7	0.3644	391.37	and
Mean		**456.0**	**308.1**	**67.9**	**0.3911**	**420.01**	**87.1 lb/day**
					gr/dscf		
Fuel Sulfur (SO_x as SO_2)		As H_2S in Fuel Gas **<1.0**			As H_2S in Fuel Gas **<0.0006**		0.3 gr/dscf
	12.24						
O_2	12.13						
	12.12						
Mean	**12.16**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine 2

Project 010-3922
July 22, 2004
Permit No. S-43-5-9

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
NOx		23.3	15.3	9.32	0.0557	59.87	
		23.8	15.5	9.40	0.0566	60.75	75 ppm @ 15% O_2
		23.7	15.4	9.33	0.0561	60.29	and
Mean		**23.6**	**15.4**	**9.35**	**0.0561**	**60.30**	**61.9 lb/day**
CO		524	344	127.53	0.7631	819.57	
		519	338	124.79	0.7508	806.36	463 ppm @ 15% O_2
		522	339	125.02	0.7526	808.29	and
Mean		**522**	**340**	**125.78**	**0.7555**	**811.41**	**232.6 lb/day**
VOC		463.2	303.7	64.4	0.3855	414.02	
		462.0	300.8	63.4	0.3820	410.27	304 ppm @ 15% O_2
C_3 - C_6+ as C_1		470.8	305.6	64.4	0.3879	416.60	and
Mean		**465.3**	**303.4**	**64.1**	**0.3851**	**413.63**	**87.1 lb/day**
					gr/dscf		
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0			As H_2S in Fuel Gas <0.0006		0.3 gr/dscf
O_2	11.90						
	11.84						
	11.81						
Mean	**11.85**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine 3

Project 010-3922
July 22, 2004
Permit No. S-43-6-9

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
		21.7	14.1	9.21	0.0515	55.33	
NOx		19.6	12.6	8.08	0.0461	49.53	75 ppm @ 15% O_2
		21.9	14.0	9.05	0.0511	54.93	and
Mean		**21.1**	**13.6**	**8.78**	**0.0496**	**53.26**	61.9 lb/day
		481	313	124.31	0.6950	746.43	
CO		483	311	121.19	0.6918	742.99	463 ppm @ 15% O_2
		479	307	120.53	0.6809	731.29	and
Mean		**481**	**310**	**122.01**	**0.6892**	**740.24**	232.6 lb/day
		345.1	224.5	51.0	0.2849	305.98	
VOC		333.0	214.7	47.6	0.2726	292.78	304 ppm @ 15% O_2
C_3 - C_{6+} as C_1		317.2	203.1	45.7	0.2576	276.66	and
Mean		**331.8**	**214.1**	**48.1**	**0.2717**	**291.81**	87.1 lb/day
					gr/dscf		
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas <1.0			As H_2S in Fuel Gas <0.0006		0.3 gr/dscf
	11.83						
O_2	11.75						
	11.68						
Mean	**11.75**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine #4

Project 010-3824A
May 18, 2004
Permit S-43-7-8

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
NOx		92.3	52.0	26.99	0.1898	210.26	
		92.0	52.5	27.39	0.1917	212.41	75 ppm @ 15% O_2
		86.2	49.7	25.71	0.1814	200.96	and
Mean		**90.2**	**51.4**	**26.70**	**0.1876**	**207.88**	**46.4 lb/day**
CO		559	315	99.49	0.6996	775.16	
		557	318	100.94	0.7065	782.80	463 ppm @ 15% O_2
		552	318	100.21	0.7070	783.36	and
Mean		**556**	**317**	**100.21**	**0.7044**	**780.44**	**232.6 lb/day**
VOC		98.8	55.7	10.0	0.0706	78.23	
		100.7	57.5	10.4	0.0730	80.89	304 ppm @ 15% O_2
C_3 - C_6+ as C_1		103.2	59.5	10.7	0.0756	83.76	and
Mean		**100.9**	**57.6**	**10.4**	**0.0731**	**80.96**	**65.5 lb/day**
					gr/dscf		
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas **<1.0**			As H_2S in Fuel Gas **<0.0006**		0.3 gr/dscf
O_2	10.42						
	10.56						
	10.66						
Mean	**10.55**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine #5

Project 010-3824A
May 19, 200<
Permit S-43-8-E

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
		37.4	22.3	11.89	0.0814	90.19	
NOx		37.8	22.8	12.32	0.0834	92.37	75 ppm @ 15% O_2
		33.8	20.5	11.02	0.0747	82.76	and
Mean		**36.3**	**21.9**	**11.74**	**0.0798**	**88.44**	46.4 lb/day
		302	180	58.46	0.4001	443.31	
CO		302	182	59.91	0.4054	449.18	463 ppm @ 15% O_2
		301	182	59.74	0.4049	448.63	and
Mean		**302**	**181**	**59.37**	**0.4035**	**447.04**	232.6 lb/day
		112.8	67.3	12.5	0.0854	94.63	
VOC		116.7	70.4	13.3	0.0895	99.15	304 ppm @ 15% O_2
C_3 - C_6+ as C_1		112.0	67.8	12.7	0.0860	163.15	and
Mean		**113.8**	**68.5**	**12.8**	**0.0870**	**118.98**	65.5 lb/day
					gr/dscf		
Fuel Sulfur (SO_x as SO_2)		As H_2S in Fuel Gas **<1.0**			As H_2S in Fuel Gas **<0.0006**		0.3 gr/dscf
	11.00						
O_2	11.13						
	11.15						
Mean	**11.09**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine 6

Project 010-3824B
June 17, 2004
Permit No. S-43-9-8

Pollutant	%	ppm	ppm @ 15% O_2	lb/day	lb/MMBtu	lb/MMCF	Permit Limits
		24.2	14.5	8.57	0.0531	58.79	
NOx		24.8	14.9	8.82	0.0543	60.19	75 ppm @ 15% O_2
		22.0	13.3	7.70	0.0485	53.78	and
Mean		**23.7**	**14.2**	**8.36**	**0.0520**	**57.59**	**61.9 lb/day**
		334	200	71.99	0.4458	493.95	
CO		341	204	73.78	0.4547	503.81	463 ppm @ 15% O_2
		344	208	73.28	0.4619	511.79	and
Mean		**340**	**204**	**73.02**	**0.4541**	**503.18**	232.6 lb/day
		89.4	53.6	11.0	0.0682	75.57	
VOC		103.0	61.8	12.7	0.0784	86.87	304 ppm @ 15% O_2
$C_1 - C_6+$ as C_1		76.2	46.0	9.2	0.0584	64.74	and
Mean		**89.5**	**53.8**	**11.0**	**0.0683**	**75.72**	87.1 lb/day
					gr/dscf		
Fuel Sulfur (SO_x as SO_2)		As H_2S in Fuel Gas <1.0			As H_2S in Fuel Gas <0.0006		0.3 gr/dscf
	11.07						
O_2	11.06						
	11.13						
Mean	**11.09**						

Comments:

AEROS Environmental Inc.

Aera Energy LLC
Various IC Engines

Project 010-3824
Laboratory ID 040149-11

Sample Description: Fuel Gas
Sampled by: Dave Noble

Date Sampled: May 18, 2004
Date Received: May 19, 2004
Date Reported: May 19, 2004

Fuel Gas Analysis Results

CONSTITUENT	MOLE %	WT. %	CHONS Wt.%	
Oxygen	0.084	0.142	Carbon	73.42
Nitrogen	0.288	0.427	Hydrogen	22.51
Carbon Dioxide	2.065	4.811	Oxygen	3.64
Carbon Monoxide	0.000	0.000	Nitrogen	0.43
Hydrogen Sulfide	0.000	0.000	Sulfur	0.00
Methane	85.325	72.449	H/C	0.307
Ethane	9.221	14.675		
Propane	2.519	5.880		
Isobutane	0.154	0.474	H_2S ppmv	H_2S gr/100 SCF*
N-Butane	0.253	0.780	ND < 1	ND < 0.06
Isopentane	0.036	0.138		
N-Pentane	0.029	0.111	TRS ppmv	TRS gr/100 SCF*
Hexanes	0.025	0.115	ND < 1	ND < 0.06
Total(s)	100.000	100.000	* Reported as Sulfur	

Specific Gravity (Air = 1)	0.6524
Specific Volume (cf/lb)	20.09
Gross Calorific Value, Dry (Btu/cf)	1108.47
Gross Calorific Value, Wet (Btu/cf)	1086.16
Gross Calorific Value, Dry (Btu/lb)	22264.99
Net Calorific Value, Dry (Btu/cf)	1002.04
Net Calorific Value, Wet (Btu/cf)	981.87
Compressability Factor "Z" @ 60° F, 1 atm	0.9973
EPA F-Factor @ 68° F (DSCF/MMBtu)	**8653**
EPA F-Factor @ 60° F (DSCF/MMBtu)	**8523**

References:
ASTM Methods D1945-96, D3588-98 & D6228-98
Double GC, TCD, FPD
TRS = Total Reduced Sulfur as H_2S

Terry M. Rowles, Laboratory Manager

AEROS
Environmental Inc.

Aera Energy LLC
IC Engine 6

Project 010-3824
Laboratory ID 040186-05

Sample Description: Fuel Gas
Sampled by: Victor Wellliver

Date Sampled: June 17, 2004
Date Received: June 17, 2004
Date Reported: June 17, 2004

Fuel Gas Analysis Results

CONSTITUENT	MOLE %	WT. %
Oxygen	0.046	0.077
Nitrogen	0.314	0.464
Carbon Dioxide	2.180	5.068
Carbon Monoxide	0.000	0.000
Hydrogen Sulfide	0.000	0.000
Methane	85.038	72.071
Ethane	9.490	15.074
Propane	2.467	5.747
Isobutane	0.144	0.442
N-Butane	0.247	0.758
Isopentane	0.033	0.126
N-Pentane	0.026	0.100
Hexanes	0.016	0.072
Total(s)	**100.000**	**100.000**

CHONS Wt.%	
Carbon	73.32
Hydrogen	22.45
Oxygen	3.76
Nitrogen	0.46
Sulfur	0.00
H/C	0.306
H_2S ppmv	H_2S gr/100 SCF*
ND < 1	ND < 0.06
TRS ppmv	TRS gr/100 SCF*
ND < 1	ND < 0.06

* Reported as Sulfur

Specific Gravity (Air = 1)	0.6536
Specific Volume (cf/lb)	20.05
Gross Calorific Value, Dry (Btu/cf)	1107.79
Gross Calorific Value, Wet (Btu/cf)	1085.49
Gross Calorific Value, Dry (Btu/lb)	22210.00
Net Calorific Value, Dry (Btu/cf)	1001.44
Net Calorific Value, Wet (Btu/cf)	981.28
Compressability Factor "Z" @ 60° F, 1 atm	0.9973
EPA F-Factor @ 68° F (DSCF/MMBtu)	**8656**
EPA F-Factor @ 60° F (DSCF/MMBtu)	**8526**

References:
ASTM Methods D1945-96, D3588-98 & D6228-98
Double GC, TCD, FPD
TRS = Total Reduced Sulfur as H_2S

Terry M. Rowles, Laboratory Manager

AEROS Environmental Inc.

Aera Energy LLC
IC Engine

Project 010-3922
Laboratory ID 040230-11

Sample Description: Natural Gas
Sampled by: Victor Welliver

Date Sampled: July 22, 2004
Date Received: July 23, 2004
Date Reported: July 23, 2004

Fuel Gas Analysis Results

CONSTITUENT	MOLE %	WT. %	CHONS Wt.%	
Oxygen	0.508	0.867	Carbon	71.31
Nitrogen	1.810	2.706	Hydrogen	22.10
Carbon Dioxide	1.764	4.145	Oxygen	3.88
Carbon Monoxide	0.000	0.000	Nitrogen	2.71
Hydrogen Sulfide	0.000	0.000	Sulfur	0.00
Methane	85.304	73.055	H/C	0.310
Ethane	8.272	13.278		
Propane	1.891	4.452		
Isobutane	0.129	0.401	H_2S ppmv	H_2S gr/100 SCF*
N-Butane	0.214	0.663	ND < 1	ND < 0.06
Isopentane	0.051	0.196		
N-Pentane	0.036	0.138	TRS ppmv	TRS gr/100 SCF*
Hexanes	0.021	0.098	ND < 1	ND < 0.06
Total(s)	100.000	100.000		

* Reported as Sulfur

Specific Gravity (Air = 1)	0.6468
Specific Volume (cf/lb)	20.26
Gross Calorific Value, Dry (Btu/cf)	1073.97
Gross Calorific Value, Wet (Btu/cf)	1052.53
Gross Calorific Value, Dry (Btu/lb)	21758.08
Net Calorific Value, Dry (Btu/cf)	970.39
Net Calorific Value, Wet (Btu/cf)	951.02
Compressability Factor "Z" @ 60° F, 1 atm	0.9974
EPA F-Factor @ 68° F (DSCF/MMBtu)	**8647**
EPA F-Factor @ 60° F (DSCF/MMBtu)	**8518**

References:
ASTM Methods D1945-96, D3588-98 & D6228-98
Double GC, TCD, FPD
TRS = Total Reduced Sulfur as H_2S

Terry M. Rowles, Laboratory Manager

Volume Flow Rate
DSCFM by Fuel Rate and Fuel F-factor (Fd)

Reference: *EPA Code of Federal Regulations, Title 40, Part 60 Appendix A, Method 19.*

The exhaust gas volume flow rate (DSCFM) is calculated based on the fuel flow rate (MMBtu/hr) and the Fuel F-factor (Fd, DSCF/MMBtu) corrected to the stack gas oxygen content (% O_2 vd).

Symbol Identification

DSCFM	=	Exhaust gas dry standard cubic feet per minute
Fd	=	Fuel F-factor, DSCF/MMBtu
CFH	=	Fuel Flow Rate, cubic feet per hour @ 60°F or 68°F
GPH	=	Fuel Flow Rate, gallons per hour @ 60°F or 68°F
GCV	=	Fuel gross calorific value, Btu/lb

Calculations

1. $$DSCFM = \frac{MMBtu}{hr} \times Fd \times \frac{20.9}{(20.9 - \%O_2)} \times \frac{1\ hr}{60\ \text{min}}$$

2. $$\frac{MMBtu}{hr},\ gaseous\ fuels = CFH \times \frac{MMBtu}{CF}$$

   $$\frac{MMBtu}{hr},\ liquid\ fuels = GPH \times \frac{MMBtu}{gal}$$

3. $$Fd = \frac{DSCF\ exhaust\ gas}{MMBtu} \text{ @ } 29.92\text{"}Hg \text{ \& } 68°F$$

   based on fuel elemental analysis and gross calorific value

   $$Fd = \frac{10^6\left(3.64\,(\%H) + 1.53\,(\%C) + 0.57\,(\%S) + 0.14\,(\%N) - 0.46\,(\%O)\right)}{GCV}$$

4. $$Fd \text{ @ } 60°F = Fd \text{ @ } 68°F \times \frac{520°R}{528°R}$$

				Emission Factor Source							Emission Factor Used, lb/MMcf or lb/Mgal							
FAC_ID	DEV	LEASE	PRO_DES	PM10	CO	SOx	NOx	VOC	Test Date	Btu/cf	PM10	CO	SOx	NOx	VOC	FROG	TOC
43	4	Section 15 Gas Plant	IC ENGINE NAT GAS	9.91 E-03 lb/MMBtu Table 3.2-2	**913.01**	0	**56.02**	**420.01**	5/22/2002 Sox, 7/22/04 CO, NOx, VOC	1020	10.11	**913.0**	0	**56.0**	**420.01**	0.06	**6610.18**
43	5	Section 15 Gas Plant	IC ENGINE NAT GAS	9.91 E-03 lb/MMBtu Table 3.2-2	**811.41**	0	**60.30**	**413.63**	5/22/2002 Sox, 7/22/04 CO, NOx, VOC	1020	10.11	**811.1**	0	**60.3**	**413.63**	0.07	**5709.99**
43	6	Section 15 Gas Plant	IC ENGINE NAT GAS	9.91 E-03 lb/MMBtu Table 3.2-2	**740.24**	0	**53.26**	**291.81**	5/21/2002 Sox, 7/22/04 CO, Nox, VOC	1020	10.11	**740.24**	0	**53.3**	**291.81**	0.06	**5044.19**
43	7	Section 15 Gas Plant	IC ENGINE NAT GAS	9.91 E-03 lb/MMBtu Table 3.2-2	**780.44**	0	**207.88**	**80.96**	5/22/2002 Sox, 5/18/04 CO, Nox, VOC	1020	10.11	**780.4**	0	**207.9**	**80.96**	0.05	**1658.57**
43	8	Section 15 Gas Plant	IC ENGINE NAT GAS	9.91 E-03 lb/MMBtu Table 3.2-2	**447.04**	0	**88.44**	**118.98**	5/21/2002 Sox, 5/19/04 CO, Nox, VOC	1020	10.11	**842.0**	0	**30.3**	**118.98**	0.07	**1759.28**
43	9	Section 15 Gas Plant	IC ENGINE NAT GAS	9.91 E-03 lb/MMBtu Table 3.2-2	**503.18**	0	**57.59**	**75.72**	5/21/2002 Sox, 6/17/04 CO, Nox, VOC	1020	10.11	**503.18**	0	**57.6**	**75.72**	0.05	**1381.79**

black - source test
blue - AP-42

	PM10	NOx	CO	VOC
value used in annual emission statements ==>>	1020 MMBTU/MMcf	lb/MMcf emission factors were calculated directly in source test summaries	lb/MMcf emission factors were calculated directly in source test summaries	lb/MMcf emission factors were calculated directly in source test summaries
AP-42 Factor==>>	9.91E-03 lb/MMBTU			
Conversion ==>>	10.11 lb/MMCF			
highest test value = =>	1108.47 MMBTU/MMcf			
AP-42 Factor==>>	9.91E-03 lb/MMBTU			
Conversion ==>>	10.98 lb/MMCF			
lowest test value = =>	1052.53 MMBTU/MMcf			
AP-42 Factor==>>	9.91E-03 lb/MMBTU			
Conversion ==>>	10.43 lb/MMCF			

Aera Energy - Lost Hills Section 15 Gas Plant Emission Reduction Credit Application – I. C. Engine Compressors S-43-4 through S-43-9

PM_{10}	Average Quarterly Emissions (lbs) Based on 2 most representative years			
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q
S-43-4	99.2	47.9	47.6	114.8
S-43-5	126.7	87.4	43.5	114.3
S-43-6	43.3	70.0	105.2	41.1
S-43-7	75.3	50.3	25.4	63.1
S-43-8	61.4	90.0	77.5	102.3
S-43-9	44.4	29.4	75.3	60.7
	450.3	375.0	374.6	496.3
After 10 % AQI Reduction	405.3	337.5	337.1	446.6

PM_{10}	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	94.1	64.0	44.2	86.4	135.4	134.4	51.6	8.7
S-43-5	95.1	116.5	114.9	69.0	133.5	137.0	59.9	18.1
S-43-6	73.5	84.6	97.9	100.1	8.6	2.1	42.2	110.4
S-43-7	55.4	93.6	69.6	50.1	70.8	57.0	31.1	0.6
S-43-8	85.8	43.9	108.9	100.3	118.8	78.9	71.0	54.8
S-43-9	82.3	88.5	39.6	69.2	39.1	0.3	19.2	81.4
	486.2	491.0	475.1	475.1	506.3	409.6	275.0	274.0

CO	Average Quarterly Emissions (lbs) Based on 2 most representative years			
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q
S-43-4	8,166.8	3,779.3	3,231.5	7,534.8
S-43-5	8,153.1	6,011.4	2,890.4	7,177.5
S-43-6	2,314.9	4,135.2	6,892.1	2,176.3
S-43-7	7,019.3	4,777.6	2,602.3	6,484.9
S-43-8	3,179.5	5,129.5	4,489.5	6,688.4
S-43-9	3,093.6	1,859.8	4,439.4	4,231.7
	32,918.1	25,692.8	24,345.3	34,293.7
After 10 % AQI Reduction	29,626.3	23,123.6	21,910.8	30,864.4

CO	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	6,179.4	4,200.5	2,901.9	5,673.3	8,890.2	12,133.1	4,656.6	789.7
S-43-5	5,971.5	7,314.5	7,217.6	4,331.4	8,383.5	10,991.8	4,805.3	1,449.5
S-43-6	3,894.5	4,479.1	5,183.2	5,299.6	458.2	150.6	3,087.2	8,084.7
S-43-7	5,692.6	9,621.7	7,153.6	5,156.1	7,277.2	4,398.8	2,401.7	48.5
S-43-8	5,609.1	2,869.7	7,117.5	6,556.0	7,767.8	3489.29	3141.455	2423.01
S-43-9	5,737.7	6,169.8	2,761.9	4,827.8	2,725.8	17.3	957.8	4,051.0
	33,084.7	34,655.4	32,335.7	31,844.3	35,502.7	31,180.8	19,050.0	16,846.3

SOx	Average Quarterly Emissions (lbs) Based on 2 most representative years			
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q
S-43-4	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0

SOx	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NOx	Average Quarterly Emissions (lbs) Based on 2 most representative years			
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q
S-43-4	800.3	438.6	602.4	1,535.8
S-43-5	1,187.6	947.4	515.2	1,529.1
S-43-6	571.1	765.7	960.1	549.7
S-43-7	1,007.2	673.5	339.7	843.8
S-43-8	638.6	1,039.1	910.6	1,368.9
S-43-9	592.9	319.8	695.0	812.0
	4,797.9	4,184.0	4,023.0	6,639.3
After 10 % AQI Reduction	4,318.1	3,765.6	3,620.7	5,975.4

NOx	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	1,259.5	856.2	591.5	1,156.4	1,812.1	744.5	285.7	48.5
S-43-5	1,272.2	1,558.3	1,537.6	922.8	1,786.0	816.9	357.1	107.7
S-43-6	983.7	1,131.4	1,309.2	1,338.6	115.7	10.8	222.1	581.7
S-43-7	740.7	1,252.0	930.8	670.9	946.9	762.4	416.2	8.4
S-43-8	1,148.0	587.3	1,456.7	1,341.8	1,589.8	690.3	621.5	479.4
S-43-9	1,101.0	1,183.9	530.0	926.4	523.0	2.0	109.6	463.6
	6,505.0	6,569.0	6,355.8	6,356.8	6,773.5	3,026.8	2,012.3	1,689.3

VOC	Average Quarterly Emissions (lbs) Based on 2 most representative years			
	1Q	2Q	3Q	4Q
S-43-4	2,468.4	1,038.7	543.1	1,067.5
S-43-5	2,509.0	1,259.6	467.2	581.0
S-43-6	1,396.1	2,189.7	3,210.2	1,327.8
S-43-7	521.1	342.4	159.5	394.9
S-43-8	582.7	711.5	592.8	551.5
S-43-9	264.8	190.0	511.0	361.5
	7,742.0	5,731.8	5,483.7	4,284.2
After 10 % AQI Reduction	6,967.8	5,158.7	4,935.3	3,855.7

VOC	2002	2003				2004		
Quarterly Emissions (lbs)	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
S-43-4	875.6	595.0	411.1	803.6	1,259.3	4,341.7	1,666.3	282.6
S-43-5	483.2	592.2	584.3	350.7	678.7	4,425.8	1,934.9	583.6
S-43-6	2,376.1	2,732.8	3,162.3	3,233.4	279.5	59.4	1,217.0	3,187.1
S-43-7	346.7	585.9	435.6	314.0	443.1	456.3	249.1	5.0
S-43-8	462.4	236.6	586.9	540.6	640.6	928.7	836.1	644.9
S-43-9	490.2	526.9	235.9	412.3	232.8	2.6	144.1	609.6
	5,034.3	5,269.4	5,416.1	5,654.6	3,534.0	10,214.5	6,047.6	5,312.8

Summary in Application Format/Sequence

Pounds Per Quarter	VOC	NOx	CO	PM10	SOx
1ST QUARTER	6,967.8	4,318.1	29,626.3	405.3	0.0
2ND QUARTER	5,158.7	3,765.6	23,123.6	337.5	0.0
3RD QUARTER	4,935.3	3,620.7	21,910.8	337.1	0.0
4TH QUARTER	3,855.7	5,975.4	30,864.4	446.6	0.0

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

DEC 0 6 2007

Brent Winn
Aera Energy LLC
PO Box 11164
Bakersfield, CA 93389

Re: Notice of Receipt of Complete Application
Project Number: S-1075362

Dear Mr. Winn:

The District has received your application for Emission Reduction Credits (ERCs) from the shutdown of precompressor and refrigeration compressor IC engines (S-43-4 through S-43-9) at the Lost Hills Gas Plant, NE 15, T27S, R21E, Lost Hills. Based on our preliminary review, the application appears to be complete. This means that your application contains sufficient information to proceed with our analysis. However, during processing of your application, the District may request additional information to clarify, correct, or otherwise supplement, the information on file.

Please note that your project will be public noticed for a 30-day period at the conclusion of our analysis. It is estimated that the project analysis will take 60 hours, and you will be charged at the weighted hourly labor rate in accordance with District Rule 3010. The current weighted labor rate is $86.00 per hour, but please note that this fee is revised annually to reflect actual costs and therefore may change. No payment is due at this time; an invoice will be sent to you upon completion of the public notice process.

We will begin processing your application as soon as possible. In general, complete applications are processed on a first-come first-served basis.

If you have any questions, please contact Mr. Thomas Goff at (661) 326-6900.

Sincerely,

David Warner
Director of Permit Services

Thomas Goff, P.E.
Permit Services Manager
DW:rue

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

Southern Region
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
Tel: (661) 326-6900 FAX: (661) 326-6985

www.valleyair.org

Richard Edgehill

From: Richard Edgehill
Sent: Wednesday, December 19, 2007 2:03 PM
To: 'Winn BT (Brent) at Aera'
Subject: ERC application S43, 1075362

Brent: What is the source of the higher heating value used in the source test summaries to convert from lb/MMbtu to lb/MMscf i.e. 0.0522 lb/MMBtu to 56.02 lb/MMscf (NOx for engine '-9 2004) - the lab value of ~1108 Btu/scf doesnt work on the conversion. Is this value used for both the 2002 and 2004 source test results? Thanks

Richard Edgehill

From: Winn BT (Brent) at Aera [btwinn@aeraenergy.com]
Sent: Thursday, December 06, 2007 2:59 PM
To: Richard Edgehill
Subject: RE: ERC application S43, 1075362

Richard:

Attached is an excel file that was used to document the emission factors used in the 2002 Annual Emission Statement for S-43. I added some sample calcs for PM10, NOx and CO emission factors at the bottom of the first tab. The second tab shows how the VOC emission factors were derived from the source test results (which are also attached along with GC analysis and "F" Factor calculation methodology). The heating value (BTU/scf) employed varies slightly but does not make a significant difference in the outcome. I did notice that, for the PM10 factor, the "theoretical" value of 1020 MMBTU/scf results in a lower emission factor than the 1106 BTU/scf that was determined by GC analysis in conjunction with the source test (10.11 lb/mmcf vs. 10.96 lb/mmcf).

If you need it, I can produce similar analysis/documentation for the 2004 source tests.

-B. Winn

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine # 1

Project 010-2806
May 22, 2002
Permit No. S-43-4-8

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
NOx		87.4	50.2	0.71	1.2	0.1832	
		69.1	42.2	0.59	1.0	0.1539	
		73.0	44.5	0.63	1.0	0.1626	2.67 lb/hr and
Mean		**76.5**	**45.6**	**0.64**	**1.1**	**0.1666**	**1.10 gr/Bhp-hr**
CO		451.8	259.3	2.22	3.6	0.5763	
		449.7	274.4	2.35	3.9	0.6098	
		452.8	276.3	2.37	3.9	0.6140	
Mean		**451.4**	**270.0**	**2.31**	**3.8**	**0.6000**	**9.69 gr/Bhp-hr**
VOC		106.8	61.3	0.100	0.5	0.0778	
C_3 - C_6+ as C_1		112.3	68.6	0.100	0.6	0.0870	
		116.4	71.1	0.100	0.6	0.0902	3.63 lb/hr and
Mean		**111.8**	**67.0**	**0.100**	**0.6**	**0.0850**	**1.50 gr/Bhp-hr**
Fuel Sulfur (SO_x as SO_2)		As H_2S in Fuel Gas **<1.0**				S gr/dscf in Fuel Gas **<0.001**	**0.3 gr/dscf**
O_2	10.62						
	11.23						
	11.23						
Mean	**11.03**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine # 2

Project 010-2806
May 22, 2002
Permit No. S-43-5-8

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
		83.3	47.4	0.67	1.1	0.1731	
NOx		78.2	44.6	0.63	1.1	0.1628	
		84.8	48.3	0.68	1.2	0.1765	2.67 lb/hr and
Mean		**82.1**	**46.8**	**0.66**	**1.1**	**0.1708**	**1.10 gr/Bhp-hr**
		459.1	261.2	2.24	3.8	0.5806	
CO		447.3	255.0	2.18	3.7	0.5667	
		453.8	258.7	2.22	3.8	0.5750	
Mean		**453.4**	**258.3**	**2.21**	**3.8**	**0.5741**	**9.69 gr/Bhp-hr**
		64.2	36.6	0.000	0.3	0.0464	
VOC		67.7	38.6	0.000	0.3	0.0490	
C_3 - C_6+ as C_1		60.7	34.6	0.000	0.3	0.0440	3.63 lb/hr and
Mean		**64.2**	**36.6**	**0.000**	**0.3**	**0.0465**	**1.50 gr/Bhp-hr**
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas **<1.0**				S gr/dscf in Fuel Gas **<0.001**	**0.3 gr/dscf**
	10.53						
O_2	10.55						
	10.55						
Mean	**10.54**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine # 3

Project 010-2806
May 21, 2002
Permit No. S-43-6-8

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
		69.9	44.7	0.63	1.2	0.1632	
NOx		80.3	51.2	0.72	1.4	0.1868	
		88.1	56.3	0.79	1.6	0.2054	2.67 lb/hr and
Mean		**79.4**	**50.7**	**0.71**	**1.4**	**0.1851**	**1.10 gr/Bhp-hr**
		348.1	222.5	1.91	3.7	0.4946	
CO		329.1	209.7	1.80	3.5	0.4661	
		346.5	221.3	1.89	3.8	0.4918	
Mean		**341.2**	**217.8**	**1.87**	**3.7**	**0.4842**	**9.69 gr/Bhp-hr**
		427.2	273.1	0.400	2.6	0.3468	
VOC		316.7	201.8	0.300	1.9	0.2563	
C_1 - C_6+ as C_1		456.6	291.5	0.400	2.8	0.3703	3.63 lb/hr and
Mean		**400.2**	**255.5**	**0.367**	**2.4**	**0.3245**	**1.50 gr/Bhp-hr**
Fuel Sulfur (SO_x as SO_2)		As H_2S in Fuel Gas **<1.0**				S gr/dscf in Fuel Gas **<0.001**	**0.3 gr/dscf**
	11.67						
O_2	11.64						
	11.66						
Mean	**11.66**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine # 4

Project 010-2806
May 22, 2002
Permit No. S-43-7-7

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
		76.0	43.4	0.61	0.9	0.1583	
NOx		76.4	43.8	0.62	0.9	0.1601	
		76.0	43.9	0.62	0.9	0.1602	2.67 lb/hr and
Mean		**76.1**	**43.7**	**0.62**	**0.9**	**0.1595**	**1.10 gr/Bhp-hr**
		741.4	423.0	3.62	5.3	0.9403	
CO		735.1	421.9	3.61	5.3	0.9377	
		733.8	423.6	3.63	5.3	0.9416	
Mean		**736.8**	**422.8**	**3.62**	**5.3**	**0.9399**	**9.69 gr/Bhp-hr**
		67.7	38.6	0.000	0.3	0.0491	
VOC		79.3	45.5	0.000	0.3	0.0578	
C_3 - C_6+ as C_1		88.5	51.1	0.000	0.4	0.0649	3.63 lb/hr and
Mean		**78.5**	**45.1**	**0.000**	**0.3**	**0.0573**	1.50 gr/Bhp-hr
Fuel Sulfur (SO_x as SO_2)		As H_2S in Fuel Gas **<1.0**				S gr/dscf in Fuel Gas **<0.001**	0.3 gr/dscf
	10.56						
O_2	10.62						
	10.68						
Mean	**10.62**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine # 5

Project 010-2806
May 21, 2002
Permit No. S-43-8-7

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
		61.1	35.1	0.49	0.8	0.1280	
NOx		63.8	36.7	0.52	0.9	0.1340	
		57.3	33.0	0.46	0.8	0.1204	2.67 lb/hr and
Mean		**60.7**	**34.9**	**0.49**	**0.8**	**0.1275**	1.10 gr/Bhp-hr
		479.7	275.3	2.36	3.8	0.6119	
CO		474.1	272.6	2.33	3.8	0.6060	
		449.4	258.7	2.21	3.7	0.5749	
Mean		**467.7**	**268.9**	**2.30**	**3.8**	**0.5976**	9.69 gr/Bhp-hr
		67.1	38.6	0.000	0.3	0.0489	
VOC		70.8	40.7	0.000	0.3	0.0517	
C_3 - C_6+ as C_1		64.5	37.1	0.000	0.3	0.0472	3.63 lb/hr and
Mean		**67.5**	**38.8**	**0.000**	**0.3**	**0.0493**	1.50 gr/Bhp-hr
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas **<1.0**				S gr/dscf in Fuel Gas **<0.001**	0.3 gr/dscf
	10.62						
O_2	10.64						
	10.65						
Mean	**10.64**						

Comments:

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Aera Energy LLC
Lost Hills Gas Plant
IC Engine #6

Project 010-2806
May 21, 2002
Permit No. S-43-9-7

Pollutant	%	ppm	ppm @ 15% O_2	gr/Bhp-hr	lb/hr	lb/MMBtu	Permit Limits
		108.0	61.2	0.86	1.3	0.2235	
NOx		103.3	58.5	0.82	1.2	0.2138	
		117.2	65.7	0.92	1.4	0.2400	**2.67 lb/hr and**
Mean		**109.5**	**61.8**	**0.87**	**1.3**	**0.2258**	**1.10 gr/Bhp-hr**
		535.2	303.3	2.60	3.9	0.6742	
CO		483.9	274.3	2.35	3.5	0.6096	
		504.1	282.7	2.42	3.6	0.6284	
Mean		**507.7**	**286.8**	**2.46**	**3.7**	**0.6374**	**9.69 gr/Bhp-hr**
		59.2	33.5	0.000	0.2	0.0426	
VOC		79.5	45.0	0.000	0.3	0.0572	
C_3 - C_6+ as C_1		89.2	50.0	0.000	0.4	0.0635	**3.63 lb/hr and**
Mean		**76.0**	**42.8**	**0.000**	**0.3**	**0.0544**	**1.50 gr/Bhp-hr**
Fuel Sulfur (SOx as SO_2)		As H_2S in Fuel Gas **<1.0**				S gr/dscf in Fuel gas **<0.001**	**0.3 gr/dscf**
	10.49						
O_2	10.49						
	10.38						
Mean	**10.45**						

Comments:

FAC	ID	DEV	LEASE	Emission Factor Source PRO	DES	PM	CO	SOx	NOx	VOC	Test Date	Btu/cf	Emission Factor Used, lb/MMcf or lb/Mgal PM	CO	SOx	NOx	VOC	FROG	TOC
						9.91 E-03 lb/MMBtu					05/22/02	1020							
43	4		Section 15 Gas Plant	IC	ENGINE NAT GAS	Table 3.2-2	663.6	0	184.3	94.0			10.11	663.6	0	184.3	94.0	0.05405	1740
						9.91 E-03 lb/MMBtu					05/22/02	1020							
43	5		Section 15 Gas Plant	IC	ENGINE NAT GAS	Table 3.2-3	634.9	0	188.9	51.4			10.11	634.9	0	188.9	51.4	0.041504	1238
						9.91 E-03 lb/MMBtu					05/21/02	1020							
43	6		Section 15 Gas Plant	IC	ENGINE NAT GAS	Table 3.2-2	535.5	0	204.7	358.9			10.11	535.5	0	204.7	358.9	0.069186	5187
						9.91 E-03 lb/MMBtu					05/22/02	1020							
43	7		Section 15 Gas Plant	IC	ENGINE NAT GAS	Table 3.2-2	1039.5	0	176.4	83.3			10.11	1039.5	0	176.4	83.3	0.037078	1708
						9.91 E-03 lb/MMBtu					05/21/02	1020							
43	8		Section 15 Gas Plant	IC	ENGINE NAT GAS	Table 3.2-2	660.9	0	141.0	54.5			10.11	660.9	0	141.0	54.5	0.039929	1364
						9.91 E-03 lb/MMBtu					05/21/02	1020							
43	9		Section 15 Gas Plant	IC	ENGINE NAT GAS	Table 3.2-2	704.9	0	249.7	60.2			10.11	704.9	0	249.7	60.2	0.043674	1379

black - source test
blue - AP-42

PM10

1020	MMBTU/MMcf	
9.91E-03	lb/MMBTU	
10.11	lb/MMCF	
1106.3	MMBTU/MMcf	
9.91E-03	lb/MMBTU	
10.96	lb/MMCF	

NOx

0.1666	lb/MMBTU	
1106.3	MMBTU/MMSCF	
184.30958	lb/MMscf	
0.1708	lb/MMBTU	
1106.3	MMBTU/MMSCF	
188.95604	lb/MMscf	
0.1851	lb/MMBTU	
1106.3	MMBTU/MMSCF	
204.77613	lb/MMscf	
0.1595	lb/MMBTU	
1106.3	MMBTU/MMSCF	
176.45485	lb/MMscf	
0.1275	lb/MMBTU	
1106.3	MMBTU/MMSCF	
141.05325	lb/MMscf	
0.2258	lb/MMBTU	
1106.3	MMBTU/MMSCF	
249.80254	lb/MMscf	

CO

0.600	lb/MMBTU	
1106	MMBTU/MMSCF	
663.6	lb/MMscf	
0.5741	lb/MMBTU	
1106	MMBTU/MMSCF	
634.9546	lb/MMscf	
0.4842	lb/MMBTU	
1106	MMBTU/MMSCF	
535.5252	lb/MMscf	
0.9399	lb/MMBTU	
1106	MMBTU/MMSCF	
1039.529	lb/MMscf	
0.5976	lb/MMBTU	
1106	MMBTU/MMSCF	
660.9456	lb/MMscf	
0.6374	lb/MMBTU	
1106	MMBTU/MMSCF	
704.9644	lb/MMscf	

AEROS Environmental Inc.

Aera Energy LLC
IC Engine

Project 010-2806A
Laboratory ID 052202-02

Sample Description: Fuel Gas
Sampled by: Victor Welliver

Date Sampled: May 22, 2002
Date Received: May 22, 2002
Date Reported: May 22, 2002

Fuel Gas Analysis Results

CONSTITUENT	MOLE %	WT. %	CHONS Wt.%	
Carbon Dioxide	1.844	4.322	Carbon	73.52
Oxygen	0.056	0.096	Hydrogen	22.63
Nitrogen	0.410	0.612	Oxygen	3.24
Carbon Monoxide	0.000	0.000	Nitrogen	0.61
			Sulfur	0.00
Methane	85.517	73.062	H/C	0.308
Ethane	9.442	15.121		
Propane	2.339	5.493		
Isobutane	0.102	0.317		
N-Butane	0.203	0.627		
Isopentane	0.030	0.115		
N-Pentane	0.027	0.105		
Hexanes	0.028	0.130		
Total(s)	**100.000**	**100.000**		

Specific Gravity (Air = 1)	0.6483
Specific Volume (cf/lb)	20.21
Gross Calorific Value, Dry (Btu/cf)	1106.26
Gross Calorific Value, Wet (Btu/cf)	1084.02
Gross Calorific Value, Dry (Btu/lb)	22358.40
Net Calorific Value, Dry (Btu/cf)	999.93
Net Calorific Value, Wet (Btu/cf)	979.84
Compressability Factor "Z" @ 60° F, 1 atm	0.9973
EPA F-Factor @ 68° F (DSCF/MMBtu)	**8652**
EPA F-Factor @ 60° F (DSCF/MMBtu)	**8523**

References:
ASTM Methods D1945-96 & D3588-98

Terry M. Rowles, Laboratory Manager

Attention: Mr. Mike Brown
Aera Energy LLC
P O Box 38
Lost Hills CA 93249

Sampled: 6/10/2002
Submitted: 6/10/2002
Analyzed: 6/11/2002
Reported: 6/11/2002

Gas Analysis by Chromotography - ASTM D 3588-91

Meter#: 9416
Description:
Facility: Lost Hills

Lab No.: 020460-1
Pressure:
Temperature:

Component	Mole %	Weight %	GPM
Oxygen	0.27	0.46	
Nitrogen	1.11	1.66	
Carbon Dioxide	1.93	4.56	
Hydrogen	ND	0.00	
Carbon Monoxide	ND	0.00	
Methane	85.65	73.60	
Ethane	8.88	14.30	
Propane	1.82	4.31	0.504
iso-Butane	0.10	0.31	0.033
n-Butane	0.17	0.53	0.054
iso-Pentane	0.05	0.19	0.018
n-Pentane	0.02	0.08	0.007
Hexanes Plus	ND	0.00	0.000
Totals	100.00	100.00	0.615

Specific Volume, ft3/lb		20.33	Values Corrected		
Compressibility (Z) Factor		0.9974	for Compressibility	CHONS	Weight %
Specific Gravity, Calculated		0.6446	0.6460	Carbon	72.210
				Hydrogen	22.352
GROSS				Oxygen	3.777
BTU/ft3	Dry	1079.6	1082.4	Nitrogen	1.661
	Wet	1060.7	1063.5	Sulfur	0.000
BTU/lb	Dry	21945.4	22002.6		
BTU/lb	Wet	21561.4	21617.6	F FACTOR @	8651
NET				68 deg F, dscf/MMBTU	
BTU/ft3	Dry	975.5	978.0		
	Wet	958.4	960.9	F FACTOR @	8521
BTU/lb	Dry	19828.8	19880.5	60 deg F, dscf/MMBTU	
BTU/lb	Wet	19481.8	19532.6		

Hydrogen Sulfide ppm	Tr<1	Method	GC/FPD
Total Sulfur ppm	Tr<1	Method	ASTMD 3246
Hydrocarbon Dew Point, deg F	Not Tested	Method	Bureau of Mines
Moisture, lbs H2O/MMCF	Not Tested	Method	Bureau of Mines

ND : None Detected *Tr : Trace*

Volume Flow Rate
DSCFM by Fuel Rate and Fuel F-factor (Fd)

Reference: *EPA Code of Federal Regulations, Title 40, Part 60 Appendix A, Method 19.*

The exhaust gas volume flow rate (DSCFM) is calculated based on the fuel flow rate (MMBtu/hr) and the Fuel F-factor (Fd, DSCF/MMBtu) corrected to the stack gas oxygen content (% O_2 vd).

Symbol Identification

DSCFM = Exhaust gas dry standard cubic feet per minute
Fd = Fuel F-factor, DSCF/MMBtu
CFH = Fuel Flow Rate, cubic feet per hour @ 60°F or 68°F
GPH = Fuel Flow Rate, gallons per hour @ 60°F or 68°F
GCV = Fuel gross calorific value, Btu/lb

Calculations

1. $$DSCFM = \frac{MMBtu}{hr} \times Fd \times \frac{20.9}{(20.9 - \%O_2)} \times \frac{1\ hr}{60\ \text{min}}$$

2. $$\frac{MMBtu}{hr},\ gaseous\ fuels = CFH \times \frac{MMBtu}{CF}$$

   $$\frac{MMBtu}{hr},\ liquid\ fuels = GPH \times \frac{MMBtu}{gal}$$

3. $$Fd = \frac{DSCF\ exhaust\ gas}{MMBtu} @\ 29.92"Hg\ \&\ 68°F$$

   based on fuel elemental analysis and gross calorific value

   $$Fd = \frac{10^6\left(3.64\,(\%H) + 1.53\,(\%C) + 0.57\,(\%S) + 0.14\,(\%N) - 0.46\,(\%O)\right)}{GCV}$$

4. $$Fd\ @\ 60°F = Fd\ @\ 68°F \times \frac{520°R}{528°R}$$

AERA

November 28, 2007

San Joaquin Valley APCD
2700 "M" Street, Suite 275
Bakersfield, CA 93301

ATTN: Mr. Richard Edgehill

SUBJECT: Additional Information - Emission Reduction Credits (ERCs) Application - Shutdown of Lost Hills Section 15 Gas Plant (S-43) [Project 1075362]

Attached is additional supporting information for the subject project.

Attachment 1 provides a comparison of actual fuel volumes recorded during the years 2001-2004 and fuel volumes that were erroneously reported in annual emission statements submitted by Aera to SJVAPCD for calendar years 2001, 2003, and 2004. This is to help clarify the discrepancy in fuel volumes that was noted for year 2003 during preliminary review of the ERC application.

Attachment 2 provides portable analyzer monitoring results for NOx and CO and compares them to emission factors used in calculation of historical actual emissions (HAE). The purpose of the comparison is to further establish that the proposed emission factors are generally representative – not to build a case that the portable analyzer results are more representative.

Should you have any questions or need further information, please contact me at (661) 665-4363.

Sincerely,

Brent Winn
Environmental Engineer - Belridge

Attachment 1

Comparison of Actual Recorded Fuel Volumes
vs.
Fuel volumes Reported in Annual Emission Statements

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

Allocated Fuel Usage Per Engine (mcf)

2001	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2001 Annual	Volumes Reported in Annual Emission Statement (mmcf)
S-43-4	21	59	2,978	2,355	0	0	0	0	6	2,514	3,354	1,955	13,242	15.300
S-43-5	5,218	4,931	4,467	4,162	4,575	3,192	4,566	4,606	4,394	3,225	3,247	2,662	49,243	55.385
S-43-6	5,147	4,593	1,489	2,736	4,401	3,102	4,541	4,702	4,344	3,562	2,253	4,420	45,288	50.758
S-43-7	2675	2871	1686	2724	1670	2329	2497	2944	265	196	90	12	19,958	22.771
S-43-8	0	0	0	32	2574	2619	3676	4102	2253	2412	4066	1370	23,104	26.019
S-43-9	1673	1063	2542	1910	860	0	0	11	2188	1944	6	2881	15,079	16.715
													165,915	186.947

Allocated Fuel Usage Per Engine (mcf)

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2002 Annual	
S-43-4	162	2,293	4,371	3,299	3,521	4,356	4,300	4,361	4,252	2,119	2,949	4,244	40,227	40.331
S-43-5	4,430	2,158	381	2,512	2,584	2,575	629	3,735	1,615	3,396	3,920	2,089	30,024	30.126
S-43-6	4,554	3,737	3,972	2,875	2,788	1,757	3,627	525	2,819	3,390	1,446	2,437	33,928	33.723
S-43-7	0	0	0	0	863	1862	3745	4003	3726	3721	1568	187	19,676	20.354
S-43-8	4201	2417	2506	2317	2949	3679	3657	4031	3807	2953	2029	3505	38,050	37.506
S-43-9	279	1759	2097	1868	2046	222	0	0	0	757	3638	3745	16,412	16.277
													178,316	178.317

Allocated Fuel Usage Per Engine (mcf)

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2003 Annual	
S-43-4	1,232	680	4,417	1,635	2,048	690	2,105	2,403	4,041	4,446	4,568	4,383	32,649	38.066
S-43-5	4,538	3,934	3,050	3,932	4,205	3,232	2,037	1,873	2,913	4,508	4,574	4,122	42,915	49.665
S-43-6	3,305	3,686	1,373	2,421	2,711	4,547	4,324	4,334	1,239	250	0	606	28,796	33.712
S-43-7	2011	3472	3773	2638	3846	398	1640	1427	1892	2265	3723	1013	28,099	20.776
S-43-8	1683	0	2659	3376	3820	3573	2715	3755	3449	3916	3848	3989	36,785	27.268
S-43-9	4175	3350	1228	727	0	3191	2805	2297	1746	1763	0	2104	23,387	17.460
													192,630	186.947

Allocated Fuel Usage Per Engine (mcf)

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2004 Annual	
S-43-4	4,416	4,374	4,500	3,123	1,306	672	865	0	0	0	0	0	19,254	32.399
S-43-5	4,378	4,425	4,744	3,867	2,041	14	1,351	77	359	30	1,087	2,180	24,552	43.639
S-43-6	159	45	0	1,110	19	3,041	2,481	4,589	3,851	4,475	1,987	842	22,599	45.405
S-43-7	3,011	2,352	273	1,729	922	426	19	13	31	0	0	0	8,776	11.488
S-43-8	1,672	2,112	4,022	2,103	3,189	1,735	1,255	3,001	1,164	12	669	767	21,701	27.474
S-43-9	0	34	0	0	0	1,903	3,203	1,716	3,131	4,407	3,885	3,532	21,812	26.542
													118,695	186.947

Compressor Run Hours

2001	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	3	8	496	365	0	0	0	0	1	403	533	307	COMPRESSOR #1
S-43-5	739	671	744	645	736	501	743	724	706	517	516	418	COMPRESSOR #2
S-43-6	729	625	248	424	708	487	739	739	698	571	358	694	COMPRESSOR #3
S-43-7	478	524	315	428	305	433	457	526	45	33	15	2	COMPRESSOR #4
S-43-8	0	0	0	5	470	487	673	733	383	407	680	231	COMPRESSOR #5
S-43-9	299	194	475	300	157	0	0	2	372	328	1	486	COMPRESSOR #6
	1471	1304	1488	1434	1444	988	1482	1463	1405	1491	1407	1419	Subt - precomprs
	777	718	790	733	932	920	1130	1261	800	768	696	719	Subt- Refrig Comprs

Meter Readings - 2001

2001	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	
9356	10,386	9,582	8,934	9,254	8,975	6,294	9,107	9,308	8,744	9,300	8,854	9,037	107,774	PLANT PRE-COMPRESSOR FUI
9354	4,348	3,934	4,228	4,666	5,104	4,948	6,173	7,057	4,706	4,552	4,162	4,263	58,141	PLANT REFRIG.FUEL
													165,915	

Allocated Fuel Usage Per Engine

2001	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	
S-43-4	21	59	2,978	2,355	0	0	0	0	6	2,514	3,354	1,955	13,242	
S-43-5	5,218	4,931	4,467	4,162	4,575	3,192	4,566	4,606	4,394	3,225	3,247	2,662	49,243	107,774
S-43-6	5,147	4,593	1,489	2,736	4,401	3,102	4,541	4,702	4,344	3,562	2,253	4,420	45,288	
S-43-7	2675	2871	1686	2724	1670	2329	2497	2944	265	196	90	12	19,958	
S-43-8	0	0	0	32	2574	2619	3676	4102	2253	2412	4066	1370	23,104	58,141
S-43-9	1673	1063	2542	1910	860	0	0	11	2188	1944	6	2881	15,079	
													165,915	

Allocated Quarterly Fuel Usage Per Engine

2001	1Q	2Q	3Q	4Q	
S-43-4	3,058	2,355	6	7,823	
S-43-5	14,615	11,929	13,566	9,134	
S-43-6	11,229	10,239	13,587	10,234	165,915
S-43-7	7,232	6,724	5,705	297	
S-43-8	0	5,225	10,032	7,848	
S-43-9	5,278	2,770	2,200	4,831	

Compressor Run Hours

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	26	373	723	545	586	719	690	739	703	350	510	707	COMPRESSOR #1
S-43-5	711	351	63	415	430	425	101	633	267	561	678	348	COMPRESSOR #2
S-43-6	731	608	657	475	464	290	582	89	466	560	250	406	COMPRESSOR #3
S-43-7	0	0	0	0	154	327	679	732	685	727	310	36	COMPRESSOR #4
S-43-8	693	312	399	398	526	646	663	737	700	577	401	674	COMPRESSOR #5
S-43-9	46	227	334	321	365	39	0	0	0	148	719	720	COMPRESSOR #6
	1468	1332	1443	1435	1480	1434	1373	1461	1436	1471	1438	1461	**Subt - precomprs**
	739	539	733	719	1045	1012	1342	1469	1385	1452	1430	1430	**Subt- Refrig Comprs**

Meter Readings - 2002

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
9356	9,146	8,188	8,724	8,687	8,893	8,688	8,556	8,621	8,686	8,904	8,315	8,771	104,179	PRE-COMPRESSOR FUEL
9354	4,479	4,176	4,603	4,185	5,859	5,763	7,402	8,034	7,533	7,431	7,235	7,437	74,137	REFRIG.FUEL
													178,316	

Allocated Fuel Usage Per Engine

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	
S-43-4	162	2,293	4,371	3,299	3,521	4,356	4,300	4,361	4,252	2,119	2,949	4,244	40,227	
S-43-5	4,430	2,158	381	2,512	2,584	2,575	629	3,735	1,615	3,396	3,920	2,089	30,024	104,179
S-43-6	4,554	3,737	3,972	2,875	2,788	1,757	3,627	525	2,819	3,390	1,446	2,437	33,928	
S-43-7	0	0	0	0	863	1862	3745	4003	3726	3721	1568	187	19,676	
S-43-8	4201	2417	2506	2317	2949	3679	3657	4031	3807	2953	2029	3505	38,050	74,137
S-43-9	279	1759	2097	1868	2046	222	0	0	0	757	3638	3745	16,412	

Allocated Quarterly Fuel Usage Per Engine

2002	1Q	2Q	3Q	4Q
S-43-4	6,826	11,177	12,913	9,312
S-43-5	6,968	7,671	5,980	9,405
S-43-6	12,264	7,421	6,971	7,273
S-43-7	0	2,726	11,474	5,476
S-43-8	9,123	8,944	11,495	8,487
S-43-9	4,135	4,137	0	8,140

Compressor Run Hours

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	201	110	743	264	340	107	371	412	659	712	719	738	COMPRESSOR #1
S-43-5	740	636	513	635	698	501	359	321	475	722	720	694	COMPRESSOR #2
S-43-6	539	596	231	391	450	705	762	743	202	40	0	102	COMPRESSOR #3
S-43-7	356	682	728	497	739	79	345	279	350	406	683	194	COMPRESSOR #4
S-43-8	298	0	513	636	734	710	571	734	638	702	706	764	COMPRESSOR #5
S-43-9	739	658	237	137	0	634	590	449	323	316	0	403	COMPRESSOR #6
	1480	1342	1487	1290	1488	1313	1492	1476	1336	1474	1439	1534	**Subt - precomprs**
	1393	1340	1478	1270	1473	1423	1506	1462	1311	1424	1389	1361	**Subt- Refrig Comprs**

Meter Readings - 2003

9356	9,075	8,300	8,840	7,987	8,964	8,469	8,466	8,610	8,192	9,204	9,142	9,111	104,360 PRE-COMPRESSOR FUEL
9354	7,869	6,822	7,660	6,741	7,666	7,162	7,161	7,480	7,088	7,944	7,571	7,106	88,270 REFRIG.FUEL
													192,630

Allocated Fuel Usage Per Engine

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	
S-43-4	1,232	680	4,417	1,635	2,048	690	2,105	2,403	4,041	4,446	4,568	4,383	32,649	
S-43-5	4,538	3,934	3,050	3,932	4,205	3,232	2,037	1,873	2,913	4,508	4,574	4,122	42,915	104,360
S-43-6	3,305	3,686	1,373	2,421	2,711	4,547	4,324	4,334	1,239	250	0	606	28,796	
S-43-7	2011	3472	3773	2638	3846	398	1640	1427	1892	2265	3723	1013	28,099	
S-43-8	1683	0	2659	3376	3820	3573	2715	3755	3449	3916	3848	3989	36,785	88,270
S-43-9	4175	3350	1228	727	0	3191	2805	2297	1746	1763	0	2104	23,387	
													192,630	

Allocated Quarterly Fuel Usage Per Engine

2003	1Q	2Q	3Q	4Q	
S-43-4	6,330	4,373	8,549	13,397	
S-43-5	11,521	11,368	6,822	13,204	
S-43-6	8,364	9,679	9,897	856	192,630
S-43-7	9,256	6,882	4,960	7,001	
S-43-8	4,342	10,769	9,920	11,753	
S-43-9	8,753	3,918	6,849	3,867	

Compressor Run Hours

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	695	687	699	495	277	146	137	0	0	0	0	0	COMPRESSOR #1
S-43-5	689	695	737	613	433	3	214	12	60	5	227	536	COMPRESSOR #2
S-43-6	25	7	0	176	4	661	393	719	644	737	415	207	COMPRESSOR #3
S-43-7	524	411	48	319	157	71	3	2	5	0	0	0	COMPRESSOR #4
S-43-8	291	369	706	388	543	289	203	465	190	2	106	131	COMPRESSOR #5
S-43-9	0	6	0	0	0	317	518	266	511	721	616	603	COMPRESSOR #6
	1409	1389	1436	1284	714	810	744	731	704	742	642	743	**Subt - precomprs**
	815	786	754	707	700	677	724	733	706	723	722	734	**Subt- Refrig Comprs**

Meter Readings - 2004

9356	8,952	8,843	9,244	8,100	3,366	3,727	4,697	4,666	4,210	4,505	3,074	3,022	66,406	PRE-COMPRESSOR FUEL
9354	4,683	4,498	4,295	3,832	4,111	4,065	4,477	4,730	4,326	4,419	4,554	4,299	52,289	REFRIG.FUEL
													118,695	

Allocated Fuel Usage Per Engine

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	
S-43-4	4,416	4,374	4,500	3,123	1,306	672	865	0	0	0	0	0	19,254	
S-43-5	4,378	4,425	4,744	3,867	2,041	14	1,351	77	359	30	1,087	2,180	24,552	66,406
S-43-6	159	45	0	1,110	19	3,041	2,481	4,589	3,851	4,475	1,987	842	22,599	
S-43-7	3,011	2,352	273	1,729	922	426	19	13	31	0	0	0	8,776	
S-43-8	1,672	2,112	4,022	2,103	3,189	1,735	1,255	3,001	1,164	12	669	767	21,701	52,289
S-43-9	0	34	0	0	0	1,903	3,203	1,716	3,131	4,407	3,885	3,532	21,812	
													118,695	

Allocated Quarterly Fuel Usage Per Engine

2004	1Q	2Q	3Q	4Q	
S-43-4	13,289	5,100	865	0	
S-43-5	13,547	5,922	1,786	3,297	
S-43-6	203	4,171	10,922	7,304	118,695
S-43-7	5,636	3,077	62	0	
S-43-8	7,805	7,027	5,420	1,448	
S-43-9	34	1,903	8,051	11,824	

Compressor Run Hours

2005	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
S-43-4	0	0	0	0	0	0	0	0	0	0	0	0	COMPRESSOR #1
S-43-5	752	648	360	349	538	613	544	683	311	700	702	0	COMPRESSOR #2
S-43-6	1	2	383	364	216	71	197	12	423	23	6	0	COMPRESSOR #3
S-43-7	0	0	0	0	0	0	0	0	0	0	0	0	COMPRESSOR #4
S-43-8	314	0	0	0	0	0	0	0	0	0	0	0	COMPRESSOR #5
S-43-9	0	0	0	0	0	0	0	0	0	0	0	0	COMPRESSOR #6
	753	650	743	713	754	684	741	695	734	723	708	0	**Subt - precomprs**
	314	0	0	0	0	0	0	0	0	0	0	0	**Subt- Refrig Comprs**

Meter Readings - 2005

9356	2,912	2,636	3,092	3,126	3,043	2,934	2,962	2,704	3,170	2,772	2,696	41	32,088 PRE-COMPRESSOR FUEL
9354	1,854	0	0	0	0	0	0	0	0	0	0	0	1,854 REFRIG.FUEL

Allocated Fuel Usage Per Engine

2005	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	
S-43-4	0	0	0	0	0	0	0	0	0	0	0	0	0	
S-43-5	2,908	2,628	1,498	1,530	2,171	2,629	2,175	2,657	1,343	2,684	2,673	0	24,897	32,047
S-43-6	4	8	1,594	1,596	872	305	787	47	1,827	88	23	0	7,150	
S-43-7	0	0	0	0	0	0	0	0	0	0	0	0	0	
S-43-8	1854	0	0	0	0	0	0	0	0	0	0	0	1,854	1,854
S-43-9	0	0	0	0	0	0	0	0	0	0	0	0	0	
													33,901	

Allocated Quarterly Fuel Usage Per Engine

2005	1Q	2Q	3Q	4Q	
S-43-4	0	0	0	0	
S-43-5	7,034	6,331	6,175	5,357	
S-43-6	1,606	2,772	2,661	111	33,901
S-43-7	0	0	0	0	
S-43-8	1,854	0	0	0	
S-43-9	0	0	0	0	

Attachment 2

Comparison of Portable Analyzer Monitoring Results and Proposed Emission Factors

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

ADD PORTABLE ANALYZER RESULTS for NOx & CO

	2002 Quarterly fuel (mcf)				
	1Q	2Q	3Q	4Q	Annual Fuel (mcf)
S-43-4	6,825.9	11,176.5	12,912.7	9,312.0	40,227
S-43-5	6,968.1	7,670.9	5,979.6	9,405.4	30,024
S-43-6	12,263.6	7,420.6	6,970.7	7,272.7	33,928
S-43-7	0.0	2,725.6	11,474.2	5,476.3	19,676
S-43-8	9,123.4	8,944.5	11,494.8	8,487.1	38,050
S-43-9	4,135.0	4,136.9	0.0	8,139.7	16,412
					178,316

CO	2002					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	4,529.7	7,416.7	8,568.9	6,179.4	663.6	Source Test 5/21 & 22/2002
S-43-5	4,424.0	4,870.3	3,796.4	5,971.5	634.9	Source Test 5/21 & 22/2002
S-43-6	6,567.2	3,973.7	3,732.8	3,894.5	535.5	Source Test 5/21 & 22/2002
S-43-7	0.0	2,833.2	11,927.4	5,692.6	1039.5	Source Test 5/21 & 22/2002
S-43-8	6,029.7	5,911.4	7,596.9	5,609.1	660.9	Source Test 5/21 & 22/2002
S-43-9	2,914.7	2,916.1	0.0	5,737.7	704.9	Source Test 5/21 & 22/2002
	24,465.3	27,921.5	35,622.5	33,084.7		

NOx	2002					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	923.3	1,511.7	1,746.6	1,259.5	135.3	Rule 1110.2 Limit (36 ppm)
S-43-5	942.5	1,037.6	808.8	1,272.2	135.3	Rule 1110.2 Limit (36 ppm)
S-43-6	1,658.8	1,003.7	942.9	983.7	135.3	Rule 1110.2 Limit (36 ppm)
S-43-7	0.0	368.7	1,552.0	740.7	135.3	Rule 1110.2 Limit (36 ppm)
S-43-8	1,234.0	1,209.8	1,554.8	1,148.0	135.3	Rule 1110.2 Limit (36 ppm)
S-43-9	559.3	559.6	0.0	1,101.0	135.3	Rule 1110.2 Limit (36 ppm)
	5,317.9	5,691.1	6,605.0	6,505.0		

2002	CO

Portable Analyzer Results (ppm CO @15% O2)

1Q	2Q	3Q	4Q	Average	Converted to lb/mmcf
	341.8	334.1	350.4	342.1	782.4
	255.9	346.6	311.8	304.8	697.1
	265.2	274.9	246.2	262.1	599.4
	560.5	397.4	462.0	473.3	1082.4
	361.5	369.9	325.4	352.3	805.7
	No test	No test	284.3	284.3	650.2

2002	NOx

Portable Analyzer Results (ppm NOx @15% O2)

1Q	2Q	3Q	4Q	Average	Converted to lb/mmcf
	62.6	56.6	68.1	62.4	234.5
	52.6	68.6	64.8	62.0	232.9
	33.5	31.6	25.3	30.1	113.1
	52.1	36.7	52.3	47.0	176.6
	31.2	53.1	42.6	42.3	158.9
	No test	No test	35.2	35.2	132.3

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

ADD PORTABLE ANALYZER RESULTS for NOx & CO

	2003	Quarterly fuel (mcf)			
	1Q	2Q	3Q	4Q	Annual Fuel (mcf)
S-43-4	6,329.8	4,373	8,549	13,397	32,649
S-43-5	11,520.7	11,368	6,822	13,204	42,915
S-43-6	8,364.4	9,679	9,897	856	28,796
S-43-7	9,256.1	6,882	4,960	7,001	28,099
S-43-8	4,342.1	10,769	9,920	11,753	36,785
S-43-9	8,752.8	3,918	6,849	3,867	23,387
					192,630

CO	2003					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	4,200.5	2,901.9	5,673.3	8,890.2	663.6	Source Test 5/21 & 22/2002
S-43-5	7,314.5	7,217.6	4,331.4	8,383.5	634.9	Source Test 5/21 & 22/2002
S-43-6	4,479.1	5,183.2	5,299.6	458.2	535.5	Source Test 5/21 & 22/2002
S-43-7	9,621.7	7,153.6	5,156.1	7,277.2	1039.5	Source Test 5/21 & 22/2002
S-43-8	2,869.7	7,117.5	6,556.0	7,767.8	660.9	Source Test 5/21 & 22/2002
S-43-9	6,169.8	2,761.9	4,827.8	2,725.8	704.9	Source Test 5/21 & 22/2002
	34,655.4	32,335.7	31,844.3	35,502.7		

NOx	2003					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	856.2	591.5	1,156.4	1,812.1	135.3	Rule 1110.2 Limit (36 ppm)
S-43-5	1,558.3	1,537.6	922.8	1,786.0	135.3	Rule 1110.2 Limit (36 ppm)
S-43-6	1,131.4	1,309.2	1,338.6	115.7	135.3	Rule 1110.2 Limit (36 ppm)
S-43-7	1,252.0	930.8	670.9	946.9	135.3	Rule 1110.2 Limit (36 ppm)
S-43-8	587.3	1,456.7	1,341.8	1,589.8	135.3	Rule 1110.2 Limit (36 ppm)
S-43-9	1,183.9	530.0	926.4	523.0	135.3	Rule 1110.2 Limit (36 ppm)
	6,569.0	6,355.8	6,356.8	6,773.5		

CO	2003

Portable Analyzer Results (ppm @15% O2)

1Q	2Q	3Q	4Q	Average	Converted to lb/mmcf
276.2	295.0	274.4	361.3	301.7	690.0
273.8	296.2	280.0	286.2	284.1	649.7
249.5	265.2	314.7	253.9	270.8	619.3
413.0	No test	433.1	439.7	428.6	980.2
266.4	306.9	329.1	328.8	307.8	703.9
253.3	265.5	255.1	313.1	271.8	621.6

Rule 1110.2 Limit (2000 ppm)		
CO	4574.002	lb/MMcf

NOx	2003

Portable Analyzer Results (ppm @15% O2)

1Q	2Q	3Q	4Q	Average	Converted to lb/mmcf	
51.5	31.4	41.3	28.6	38.2	143.5	
63.6	56.1	67.3	69.6	64.2	241.2	
36.6	30.5	28.2	45.4	35.2	132.3	
38.9	No test	72.6	Failed test	55.8	209.7	Re-tested in Jan 2004 @ 64.3 ppm
67.6	62.6	67.7	Failed test	66.0	248.0	Re-tested in Jan 2004 @ 67.1 ppm
29.8	38.4	61.7	30.6	40.1	150.7	

Rule 1110.2 Limit (36 ppm)		
NOx	135.260	lb/MMcf

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

ADD PORTABLE ANALYZER RESULTS for NOx & CO

	2004 Quarterly fuel (mcf)				
	1Q	2Q	3Q	4Q	Annual Fuel (mcf)
S-43-4	13,289	5,100	865	0	19,254
S-43-5	13,547	5,922	1,786	3,297	24,552
S-43-6	203	4,171	10,922	7,304	22,599
S-43-7	5,636	3,077	62	0	8,776
S-43-8	7,805	7,027	5,420	1,448	21,701
S-43-9	34	1,903	8,051	11,824	21,812
					118,695

CO	2004					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	12,133.1	4,656.6	789.7	0.0	913.01	Source Test 7/22/2004
S-43-5	10,991.8	4,805.3	1,449.5	2,675.5	811.41	Source Test 7/22/2004
S-43-6	150.6	3,087.2	8,084.7	5,406.5	740.24	Source Test 7/22/2004
S-43-7	4,398.8	2,401.7	48.5	0.0	780.44	Source Test 5/18/2004
S-43-8	6,571.9	5,916.8	4,563.6	1,219.3	841.98	Source Test 5/19/2004
S-43-9	17.3	957.8	4,051.0	5,949.6	503.18	Source Test 6/17/2004
	34,263.4	21,825.4	18,986.9	15,250.8		

NOx	2004				
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	744.5	285.7	48.5	0.0	56.0 Source Test 7/22/2004
S-43-5	816.9	357.1	107.7	198.8	60.3 Source Test 7/22/2004
S-43-6	10.8	222.1	581.7	389.0	53.3 Source Test 7/22/2004
S-43-7	762.4	416.2	8.4	0.0	135.3 Rule 1110.2 Limit (36 ppm)
S-43-8	236.4	212.9	164.2	43.9	53.4 ~~38.3~~ Source Test 5/19/2004
S-43-9	2.0	109.6	463.6	680.9	57.6 Source Test 6/17/2004
	2,572.9	1,603.7	1,374.1	1,312.6	

CO	2004

Portable Analyzer Results (ppm CO @15% O2)

1Q	2Q	3Q	4Q	Average	Converted to lb/mmcf
369.3	451.5	413.4	No test	411.4	940.9
290.2	242.9	338.9	316.3	297.1	679.5
265.9	299.6	353.6	378.5	324.4	741.9
333.9	339.7	317.4	No test	330.3	755.4
229.6	234.3	141.4	210.1	203.9	466.3
No test	258.3	235.3	268.2	253.9	580.7

NOx	2004

Portable Analyzer Results (ppm NOx @15% O2)

1Q	2Q	3Q	4Q	Average	Converted to lb/mmcf
21.1	24.2	12.5	No test	19.3	72.5
69.8	28.6	9.3	19.9	31.9	119.9
34.1	49.7	12.5	18.1	28.6	107.5
53.5	51.9	32.6	No test	46.0	172.8
33.4	44.6	12.5	36.6	31.8	119.5
No test	17.2	12.3	27.4	19.0	71.4

Unit # 1 (Precompressor) Date 6/12/2002 Permit # S-43-8-7

Test Data

Operational Data	
Fuel Rate	142.5

Emissions	
NOx	103
CO	562
O2	11.2
SO2	0
VOC	0
Fuel BTU	1099.3
F factor	8655
Fuel Rate	142.5
Bhp	898
Eng Eff	0.35

Hrs. On for Month 287

PM# 910128489

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	103	190.1	82.6	0.2288	1.46	251.57	0.755
CO ppm	562	1037.093	451.0	0.7600	4.84	835.51	2.507
SO2 ppm	0	0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	11.2						
F factor @	8655						
BTU/cf	1099.3						
Fuel Rate	142.5						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	618	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.63	1.5

Unit # 2 (Precompressor) Date 06/12/2002 Permit # S-43-5-7

Test Data

Operational Data	
Fuel Rate	142.5

Emissions	
NOx	90
CO	438
O2	10.8
SO2	0
VOC	0
Fuel BTU	1099.3
F factor	8655
Fuel Rate	142.5
Bhp	898
Eng Eff	0.35

Hrs. On for Month:

PM# 910128503

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	90	159.5	52.6	0.1920	1.25	211.11	0.633
CO ppm	438	776.2574	255.9	0.5689	3.71	625.37	1.876
SO2 ppm	0	0.0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	10.8						
F factor @	8655						
BTU/cf	1099.3						
Fuel Rate	142.5						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	618	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.63	1.5

Unit # 3 (Precompressor) Date 06/12/2002 Permit # S-43-8-7

Test Data

Operational Data	
Fuel Rate	142.5

Emissions	
NOx	55
CO	436
O2	11.2
SO2	0
VOC	0
Fuel BTU	1099.3
F factor	8655
Fuel Rate	142.5
Bhp	898
Eng Eff	0.35

Hrs. On for Month: 282

PM# 910128504

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	55	101.5	33.5	0.1222	0.80	134.33	0.403
CO ppm	436	804.5773	265.2	0.5896	3.85	648.19	1.945
SO2	0	0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	11.2						
F factor @	8655						
BTU/cf	1099.3						
Fuel Rate	142.5						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	618	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.63	1.5

Unit # 4 (Ref. Compressor) Date 06/12/2002 Permit # S-43-7-7

Test Data

Operational Data	
Fuel Rate	135

Emissions	
NOx	90
CO	969
O2	10.7
SO2	0
VOC	0
Fuel BTU	1102.7
F factor	8657
Fuel Rate	135
Bhp	853
Eng Eff	0.35

Hrs. on for Month: 106

PM# 910128502

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	90	157.9	52.1	0.1902	1.18	209.74	0.627
CO ppm	969	1700.5	560.5	1.2465	7.73	1374.52	4.111
SO2	0	0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	10.7						
F factor @	8657						
BTU/cf	1102.7						
Fuel Rate	135						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	618	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.63	1.5

Unit # 5 (Ref. Compressor) Date 06/12/2002 Permit # S-43-8-7

Test Data

Operational Data	
Fuel Rate	135

Emissions	
NOx	54
CO	625
O2	10.7
SO2	0
VOC	0
Fuel BTU	1099.3
F factor	8655
Fuel Rate	135
Bhp	850
Eng Eff	0.35

Hrs. On For Month: 223

PM# 910128506

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	54	94.8	31.2	0.1141	0.71	125.42	0.376
CO ppm	625	1096.814	361.5	0.8038	4.97	883.62	2.651
SO2	0	0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	10.7						
F factor @	8655						
BTU/cf	1099.3						
Fuel Rate	135						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	618	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.63	1.5

Unit # 6 (ref. Compressor) Date 06/12/2002 Permit # S-43-8-7

Test Data

Operational Data	
Fuel Rate	0

Emissions	
NOx	
CO	
O2	
SO2	0
VOC	0
Fuel BTU	1102.7
F factor	8657
Fuel Rate	0
Bhp	0
Eng Eff	0.35

Hrs. On for Month: 0

PM# 910128505

Compressor Down for Repairs on 6/2/02 - Will Test when returned to service. MRB

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	0	0.0	0.0	0.0000	0.00	0.00	#DIV/0!
CO ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
SO2	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	0						
F factor @	8657						
BTU/cf	1102.7						
Fuel Rate	0						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	0	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.63	1.5

Unit # 1 (Precompressor) Date 09/13/2002 Permit # S-43-4-7

Test Data

Operational Data	
Fuel Rate	142.5

Emissions	
NOx	94
CO	555
O2	11.1
SO2	0
VOC	0
Fuel BTU	1105.9
F factor	8652
Fuel Rate	142.5
Bhp	903
Eng Eff	0.35

Hrs On for Month: 310

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	94	179.1	56.6	0.2066	1.36	228.53	0.682
CO ppm	555	1013.724	334.1327	0.7427	4.88	821.30	2.449
SO2 ppm	0	0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	11.1						
F factor @	8652						
BTU/cf	1105.9						
Fuel Rate	142.5						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	1.63	1.5

Unit # 2 (Precompressor) Date 09/13/2002 Permit # S43-5-7

Test Data

Operational Data	
Fuel Rate	142.5

Emissions	
NOx	121
CO	611
O2	10.5
SO2	0
VOC	0
Fuel BTU	1105.9
F factor	8652
Fuel Rate	142.5
Bhp	903
Eng Eff	0.36

Hrs On for Month: 59

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	121	208.3	68.6	0.2507	1.65	277.20	0.827
CO ppm	611	1051.625	346.625	0.7704	5.06	852.01	2.541
SO2 ppm	0	0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	10.5						
F factor @	8652						
BTU/cf	1105.9						
Fuel Rate	142.5						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.63	1.5

Unit # 3 (Precompressor) Date 09/26/2002 Permit# S 43-6-7

Test Data

Operational Data	
Fuel Rate	138

Emissions	
NOx	52
CO	452
O2	11.2
SO2	0
VOC	0
Fuel BTU	1105.9
F factor	8652
Fuel Rate	138
Bhp	875
Eng Eff	0.35

Hrs On for Month: 451

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	52	96.0	31.8	0.1155	0.73	127.72	0.381
CO ppm	452	834.1031	274.9278	0.6111	3.89	675.78	2.015
SO2	0	0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	11.2						
F factor @	8652						
BTU/cf	1105.9						
Fuel Rate	138						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.63	1.5

Unit # 4 (Ref. Compressor) Date 09/26/2002 Permit # S-43-7-7

Test Data

Operational Data	
Fuel Rate	123.5

Emissions	
NOx	61
CO	660
O2	11.1
SO2	0
VOC	0
Fuel BTU	1105.9
F factor	8652
Fuel Rate	123.5
Bhp	783
Eng Eff	0.36

Hrs on for Month: 589

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	61	114.1	36.7	0.1344	0.76	148.30	0.442
CO ppm	660	1205.51	397.3469	0.8832	5.03	976.68	2.913
SO2	0	0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	11.1						
F factor @	8652						
BTU/cf	1105.9						
Fuel Rate	123.5						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.63	1.5

Unit # 5 (Ref. Compressor) Date 09/26/2002 Permit # S-43-8-7

Test Data

Operational Data	
Fuel Rate	123.5

Emissions	
NOx	90
CO	627
O2	10.9
SO2	0
VOC	0
Fuel BTU	1105.9
F factor	8652
Fuel Rate	123.5
Bhp	783
Eng Eff	0.36

Hrs On For Month: 604

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	90	161.1	53.1	0.1939	1.10	214.43	0.640
CO ppm	627	1122.33	369.93	0.8222	4.68	909.29	2.712
SO2	0	0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	10.9						
F factor @	8652						
BTU/cf	1105.9						
Fuel Rate	123.5						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.63	1.5

Unit # 6 (ref. Compressor) Date 9/1/2002 Permit # S-43-9-7

Test Data

Operational Data	
Fuel Rate	0

Emissions	
NOx	0
CO	0
O2	0
SO2	0
VOC	0
Fuel BTU	1105.9
F factor	8652
Fuel Rate	0
Bhp	0
Eng Eff	0.36

Hrs On for Month: 0
Engine down for repairs will test when returning to service MRB 9/30/02

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	0	0.0	0.0	0.0000	0.00	0.00	#DIV/0!
CO ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
SO2	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	0						
F factor @	8652						
BTU/cf	1105.9						
Fuel Rate	0						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.63	1.5

Unit # 1 (Precompressor) Date 12/2/2002 Permit # S-43-4-7

Test Data

Operational Data	
Fuel Rate	140.5

Emissions — Hrs. On for Month: 11

NOx	112
CO	576
O2	11.2
SO2	0
VOC	0
Fuel BTU	1102.3
F factor	8863
Fuel Rate	140.5
Bhp	887
Eng Eff	0.35

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	112	206.7	68.1	0.2548	1.64	280.89	0.840
CO ppm	576	1062.928	350.3505	0.7977	5.15	879.30	2.631
SO2 ppm	0	0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	11.2						
F factor @	8863						
BTU/cf	1102.3						
Fuel Rate	140.5						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	[illegible]	[illegible]

Unit # 2 (Precompressor) Date 12/20/2002 Permit # S43-5-7

Test Data

Operational Data	
Fuel Rate	136

Emissions — Hrs. On for Month: 72

NOx	112
CO	539
O2	10.7
SO2	0
VOC	0
Fuel BTU	1102.3
F factor	8863
Fuel Rate	136
Bhp	859
Eng Eff	0.35

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	112	196.5	64.8	0.2423	1.51	267.12	0.799
CO ppm	539	945.8922	311.7745	0.7099	4.43	782.48	2.341
SO2 ppm	0	0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	10.7						
F factor @	8863						
BTU/cf	1102.3						
Fuel Rate	136						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	[illegible]	[illegible]

Unit # 3 (Precompressor) Date 12/2/2002 Permit# S-43-6-7

Test Data

Operational Data	
Fuel Rate	140.5

Emissions — Hrs. On for Month: 34

NOx	42
CO	409
O2	11.1
SO2	0
VOC	0
Fuel BTU	1102.3
F factor	8863
Fuel Rate	140.5
Bhp	887
Eng Eff	0.35

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	42	76.7	25.3	0.0946	0.61	104.26	0.312
CO ppm	409	747.051	246.2347	0.5606	3.62	617.99	1.849
SO2	0	0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	11.1						
F factor @	8863						
BTU/cf	1102.3						
Fuel Rate	140.5						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	[illegible]	9.69	N/A
SO2	NA	[illegible]	N/A
VOC	NA	3.63	1.5

Unit # 4 (Ref. Compressor) Date 12/2/2002 Permit # S-43-7-7

Test Data

Operational Data	
Fuel Rate	122

Emissions — Hrs. on for Month: 34

NOx	94
CO	830
O2	10.3
SO2	0
VOC	0
Fuel BTU	1102.3
F factor	8863
Fuel Rate	122
Bhp	771
Eng Eff	0.35

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	94	158.7	54.3	0.1957	1.10	215.73	0.645
CO ppm	830	1401.604	481.9811	1.0519	5.89	1159.46	3.469
SO2	0	0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	10.3						
F factor @	8863						
BTU/cf	1102.3						
Fuel Rate	122						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	[illegible]	[illegible]

Unit # 5 (Ref. Compressor) Date 12/2/2002 Permit # S-43-8-7

Test Data

Operational Data	
Fuel Rate	122

Emissions — Hrs. On For Month: 2

NOx	73
CO	557
O2	10.8
SO2	0
VOC	0
Fuel BTU	1102.3
F factor	8863
Fuel Rate	122
Bhp	771
Eng Eff	0.36

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	73	129.4	42.6	0.1595	0.89	175.83	0.526
CO ppm	557	987.1584	325.3762	0.7408	4.15	816.62	2.443
SO2	0	0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	10.8						
F factor @	8863						
BTU/cf	1102.3						
Fuel Rate	122						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.63	1.5

Unit # 6 (ref. Compressor) Date 12/2/2002 Permit # S-43-9-7

Test Data

Operational Data	
Fuel Rate	122

Emissions — Hrs. On for Month: 34

NOx	59
CO	477
O2	11
SO2	0
VOC	0
Fuel BTU	1102.3
F factor	8863
Fuel Rate	122
Bhp	771
Eng Eff	0.35

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	59	106.7	35.2	0.1315	0.74	144.98	0.434
CO ppm	477	862.4545	284.2727	0.6472	3.63	713.46	2.135
SO2	0	0	0	0.0000	0.00	0.00	0.000
VOC ppm	0	0	0	0.0000	0.00	0.00	0.000
O2 %	11						
F factor @	8863						
BTU/cf	1102.3						
Fuel Rate	122						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	[illegible]	[illegible]

Unit # 1 (Precompressor) 3/3/2003 Permit # S-43-4-7

Test Data

Operational Data	
Fuel Rate	151

Emissions — Hrs. On for Month: 59

NOx	82
CO	440
O2	13.5
SO2	0
VOC	0
Fuel BTU	1097
F factor	8664
Fuel Rate	151
Bhp	0
Eng Eff	0

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	82	156.1	51.5	0.1882	1.30	206.45	#DIV/0!
CO ppm	440	837.8723	276.2	0.6147	4.24	674.30	#DIV/0!
SO2 ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	13.5						
F factor @	8664						
BTU/cf	1097						
Fuel Rate	151						

Limits	@ 15%	#/hr	gr/Bhp-hr
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	1.63	1.5

Unit # 2 (Precompressor) Date 3/11/2003 Permit # S43-5-7

Test Data

Operational Data	
Fuel Rate	135.5

Emissions — Hrs. On for Month: 33

NOx	111
CO	478
O2	10.6
SO2	0
VOC	0
Fuel BTU	1097
F factor	8664
Fue Rate	135.5
Bhp	0
Eng Eff	

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	111	192.9	63.6	0.2325	1.84	255.04	#DIV/0!
CO ppm	478	830.6956	273.8	0.6094	4.77	668.53	#DIV/0!
SO2 ppm	0	0.0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	10.6						
F factor @	8664						
BTU/cf	1097						
Fuel Rate	135.5						

Limits	@ 15%	#/hr	gr/Bhp-hr
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A

Unit # 3 (Precompressor) Date 3/3/2003 Permit# S-43-6-7

Test Data

Operational Data	
Fuel Rate	151

Emissions — Hrs. On for Month: 59

NOx	57
CO	389
O2	11.7
SO2	0
VOC	0
Fuel BTU	1097
F factor	8664
Fuel Rate	151
Bhp	0
Eng Eff	

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	57	110.9	36.9	0.1337	0.92	146.63	#DIV/0!
CO ppm	389	756.8587	249.5	0.5552	3.83	609.10	#DIV/0!
SO2	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	11.7						
F factor @	8664						
BTU/cf	1097						
Fuel Rate	151						

Limits	@ 15%	#/hr	gr/Bhp-hr
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A

Unit # 4 (Ref. Compressor) Date 3/3/2003 Permit # S-43-7-7

Test Data

Operational Data	
Fuel Rate	126

Emissions — Hrs. on for Month: 59

NOx	66
CO	700
O2	10.9
SO2	0
VOC	0
Fuel BTU	1097
F factor	8664
Fuel Rate	126
Bhp	0
Eng Eff	

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	66	118.1	38.9	0.1424	0.82	156.20	#DIV/0!
CO ppm	700	1253	413.0	0.9192	5.29	1008.39	#DIV/0!
SO2	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	10.9						
F factor @	8664						
BTU/cf	1097						
Fuel Rate	126						

Limits	@ 15%	#/hr	gr/Bhp-hr
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	1.63	1.5

Unit # 5 (Ref. Compressor) Date 3/11/2003 Permit # S-43-8-7

Test Data

Operational Data	
Fuel Rate	122.5

Emissions — Hrs. On For Month: 34

NOx	118
CO	465
O2	10.6
SO2	0
VOC	0
Fuel BTU	1097
F factor	8664
Fuel Rate	122.5
Bhp	0
Eng Eff	

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	118	205.1	67.6	0.2472	1.38	271.13	#DIV/0!
CO ppm	465	808.1068	268.4	0.5928	3.32	650.35	#DIV/0!
SO2	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	10.6						
F factor @	8664						
BTU/cf	1097						
Fuel Rate	122.5						

Limits	@ 15%	#/hr	gr/Bhp-hr
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A

Unit # 6 (ref. Compressor) Date 3/3/2003 Permit # S-43-9-7

Test Data

Operational Data	
Fuel Rate	126

Emissions — Hrs. On for Month: 59

NOx	50
CO	425
O2	11
SO2	0
VOC	0
Fuel BTU	1097
F factor	8664
Fuel Rate	126
Bhp	0
Eng Eff	

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	50	90.4	29.8	0.1060	0.63	119.53	#DIV/0!
CO ppm	425	768.4343	253.3	0.5637	3.25	618.42	#DIV/0!
SO2	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	11						
F factor @	8664						
BTU/cf	1097						
Fuel Rate	126						

Limits	@ 15%	#/hr	gr/Bhp-hr
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A

Unit # 1 (Precompressor) Date 6/25/2003 Permit # S-43-4-7

Test Data

Operational Data	
Fuel Rate	139

Emissions — Hrs. On for Month: 100

NOx	50
CO	470
O2	11.5
SO2	0
VOC	0
Fuel BTU	1150
F factor	8675
Fuel Rate	139
Bhp	0
Eng Eff	0

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	50	95.2	31.4	0.1149	0.77	132.13	#DIV/0!
CO ppm	470	895	295.0	0.6574	4.38	756.03	#DIV/0!
SO2 ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	11.5						
F factor @	8675						
BTU/cf	1150						
Fuel Rate	139						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.62	1.5

Unit # 2 (Precompressor) Date 6/11/2003 Permit # S43-5-7

Test Data

Operational Data	
Fuel Rate	140.5

Emissions — Hrs. On for Month: 240

NOx	96
CO	507
O2	10.8
SO2	0
VOC	0
Fuel BTU	1150
F factor	8675
Fuel Rate	140.5
Bhp	0
Eng Eff	0

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	96	170.1	56.1	0.2053	1.38	236.11	#DIV/0!
CO ppm	507	898.5448	296.2	0.6600	4.44	759.03	#DIV/0!
SO2 ppm	0	0.0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	10.8						
F factor @	8675						
BTU/cf	1150						
Fuel Rate	140.5						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.62	1.5

Unit # 3 (Precompressor) Date 6/11/2003 Permit# S-43-6-7

Test Data

Operational Data	
Fuel Rate	140.5

Emissions — Hrs. On for Month: 238

NOx	47
CO	409
O2	11.8
SO2	0
VOC	0
Fuel BTU	1150
F factor	8675
Fuel Rate	140.5
Bhp	0
Eng Eff	0

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	47	92.5	30.7	0.1118	0.75	128.30	#DIV/0!
CO ppm	409	804.5165	265.2	0.5910	3.98	679.60	#DIV/0!
SO2	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	11.8						
F factor @	8675						
BTU/cf	1150						
Fuel Rate	140.5						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.62	1.5

Unit # 4 (Ref. Compressor) Date 6/1/2003 Permit # S-43-7-7

Test Data

Operational Data	
Fuel Rate	0

Emissions — Hrs. on for Month:

NOx	0
CO	0
O2	0
SO2	0
VOC	0
Fuel BTU	1150
F factor	8675
Fuel Rate	0
Bhp	0
Eng Eff	0

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	0	0.0	0.0	0.0000	0.00	0.00	#DIV/0!
CO ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
SO2	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	0						
F factor @	8675						
BTU/cf	1150						
Fuel Rate	0						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.62	1.5

Unit # 5 (Ref. Compressor) Date 6/11/2003 Permit # S-43-8-7

Test Data

Operational Data	
Fuel Rate	123

Emissions — Hrs. On For Month: 239

NOx	105
CO	515
O2	11
SO2	0
VOC	0
Fuel BTU	1150
F factor	8675
Fuel Rate	123
Bhp	0
Eng Eff	0

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	105	189.8	62.6	0.2261	1.49	263.47	#DIV/0!
CO ppm	515	931.1616	306.9	0.6843	4.03	786.58	#DIV/0!
SO2	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	11						
F factor @	8675						
BTU/cf	1150						
Fuel Rate	123						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.62	1.5

Unit # 6 (ref. Compressor) Date 6/11/2003 Permit # S-43-9-7

Test Data

Operational Data	
Fuel Rate	123

Emissions — Hrs. On for Month: 157

NOx	65
CO	450
O2	10.9
SO2	0
VOC	0
Fuel BTU	1150
F factor	8675
Fuel Rate	123
Bhp	0
Eng Eff	0

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	65	116.4	38.4	0.1404	0.83	161.47	#DIV/0!
CO ppm	450	805.5	265.5	0.5917	3.49	680.43	#DIV/0!
SO2	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	10.9						
F factor @	8675						
BTU/cf	1150						
Fuel Rate	123						

Limits	@ 15%	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.62	1.5

Unit # 1 (Precompressor) Date 9/10/2003 Permit # S-43-7

Test Data

Operational Data	
Fuel Rate	149.5

Hrs On for Month: 201

Emissions	
NOx	70
CO	465
O2	10.9
SO2	0
VOC	0
Fuel BTU	1110
F factor	8671
Fuel Rate	149.5
Bhp	0
Eng Eff	0

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	70	125.3	41.7	0.1511	1.05	167.76	#DIV/0!
CO ppm	465	832.35	274.4	0.6111	4.23	678.34	#DIV/0!
SO2 ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	10.9						
F factor @	8671						
BTU/cf	1110						
Fuel Rate	149.5						

Limits	@ 15%*	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.50	1.0

Unit # 2 (Precompressor) Date 9/10/2003 Permit # S-43-5-7

Test Data

Operational Data	
Fuel Rate	141.5

Hrs On for Month: 10

Emissions	
NOx	121
CO	503
O2	10.3
SO2	0
VOC	0
Fuel BTU	1110
F factor	8671
Fuel Rate	141.5
Bhp	0
Eng Eff	

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	121	204.3	67.3	0.2465	1.61	273.57	#DIV/0!
CO ppm	503	849.4057	280.0	0.6236	4.08	692.24	#DIV/0!
SO2 ppm	0	0.0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	10.3						
F factor @	8671						
BTU/cf	1110						
Fuel Rate	141.5						

Limits	@ 15%*	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.50	1.0

Unit # 3 (Precompressor) Date 9/10/2003 Permit # S-43-6-7

Test Data

Operational Data	
Fuel Rate	149.5

Hrs On for Month: 202

Emissions	
NOx	43
CO	480
O2	11.9
SO2	0
VOC	0
Fuel BTU	1110
F factor	8671
Fuel Rate	149.5
Bhp	0
Eng Eff	

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	43	85.5	28.2	0.1032	0.77	114.50	#DIV/0!
CO ppm	480	954.6667	314.7	0.7009	5.23	778.03	#DIV/0!
SO2	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	11.9						
F factor @	8671						
BTU/cf	1110						
Fuel Rate	149.5						

Limits	@ 15%*	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.50	1.0

Unit # 4 (Ref. Compressor) Date 9/25/2003 Permit # S-43-7-7

Test Data

Operational Data	
Fuel Rate	126

Hrs on for Month: 340

Emissions	
NOx	123
CO	734
O2	10.9
SO2	0
VOC	0
Fuel BTU	1104
F factor	8658
Fuel Rate	126
Bhp	0
Eng Eff	

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	123	220.2	72.6	0.2652	1.54	292.75	#DIV/0!
CO ppm	734	1313.86	433.1	0.9832	5.58	1083.38	#DIV/0!
SO2	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	10.9						
F factor @	8658						
BTU/cf	1104						
Fuel Rate	126						

Limits	@ 15%*	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.50	1.0

Unit # 5 (Ref. Compressor) Date 9/26/2003 Permit # S-43-8-7

Test Data

Operational Data	
Fuel Rate	128.5

Hrs. On For Month: 545

Emissions	
NOx	117
CO	569
O2	10.7
SO2	0
VOC	0
Fuel BTU	1104
F factor	8658
Fuel Rate	128.5
Bhp	0
Eng Eff	

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	117	205.3	67.7	0.2473	1.46	273.01	#DIV/0!
CO ppm	569	998.5392	329.1	0.7320	4.33	808.17	#DIV/0!
SO2	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	10.7						
F factor @	8658						
BTU/cf	1104						
Fuel Rate	128.5						

Limits	@ 15%*	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.50	1.0

Unit # 6 (ref. Compressor) Date 9/25/2003 Permit # S-43-9-7

Test Data

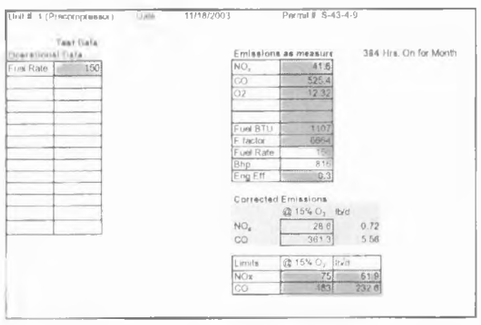
Operational Data	
Fuel Rate	126

Hrs On for Month: 206

Emissions	
NOx	113
CO	467
O2	10.1
SO2	0
VOC	0
Fuel BTU	1104
F factor	8658
Fuel Rate	126
Bhp	0
Eng Eff	

		@ 3 %	@ 15%	#/mmbtu	#/hr	#/mmcf	gr/Bhp-hr
NOx ppm	113	187.3	61.7	0.2256	1.31	249.03	#DIV/0!
CO ppm	467	774.0093	255.0	0.5674	3.29	626.45	#DIV/0!
SO2	0	0	0	0.0000	0.00	0.00	#DIV/0!
VOC ppm	0	0	0	0.0000	0.00	0.00	#DIV/0!
O2 %	10.1						
F factor @	8658						
BTU/cf	1104						
Fuel Rate	126						

Limits	@ 15%*	#/hr	gr/Bhp-h
NOx	75	2.67	1.1
CO	463	9.69	N/A
SO2	NA	0.01	N/A
VOC	NA	3.50	1.0


Unit # 1 (Precompressor) Date 11/18/2003 Permit # S-43-4-9

Test Data

Operational Data

Fuel Rate	150

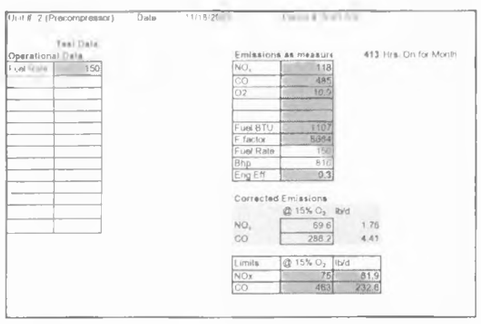
Emissions as measure — 384 Hrs. On for Month

NO_x	41.6
CO	525.4
O2	12.32
Fuel BTU	1107
F factor	8664
Fuel Rate	150
Bhp	810
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	28.6	0.72
CO	361.3	5.56

Limits	@ 15% O_2	lb/d
NOx	75	61.9
CO	463	232.6


Unit # 2 (Precompressor) Date 11/18/2003 Permit # S-43-4-9

Test Data

Operational Data

Fuel Rate	150

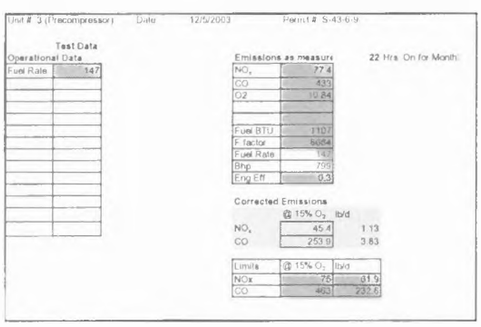
Emissions as measure — 413 Hrs. On for Month

NO_x	118
CO	485
O2	10.9
Fuel BTU	1107
F factor	8384
Fuel Rate	150
Bhp	810
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	59.6	1.76
CO	288.2	4.41

Limits	@ 15% O_2	lb/d
NOx	75	61.9
CO	463	232.6


Unit # 3 (Precompressor) Date 12/5/2003 Permit # S-43-6-9

Test Data

Operational Data

Fuel Rate	147

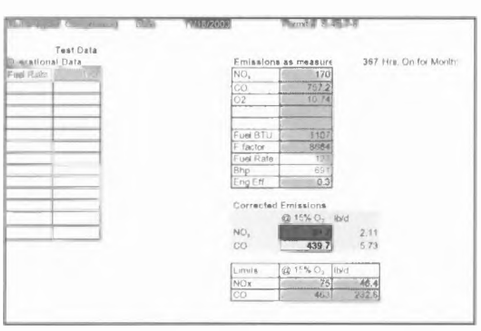
Emissions as measure — 22 Hrs. On for Month

NO_x	27.4
CO	433
O2	10.84
Fuel BTU	1107
F factor	8664
Fuel Rate	150
Bhp	700
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	45.4	1.13
CO	253.9	3.83

Limits	@ 15% O_2	lb/d
NOx	75	61.9
CO	463	232.6


Test Data

Operational Data

Fuel Rate	150

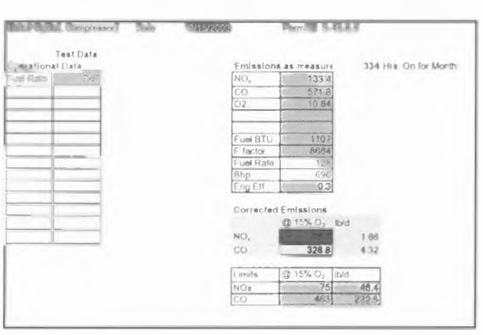
Emissions as measure — 367 Hrs. On for Month

NO_x	170
CO	757.2
O2	10.74
Fuel BTU	1107
F factor	8664
Fuel Rate	128
Bhp	691
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	84.3	2.11
CO	439.7	5.73

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.6


Test Data

Operational Data

Fuel Rate	128

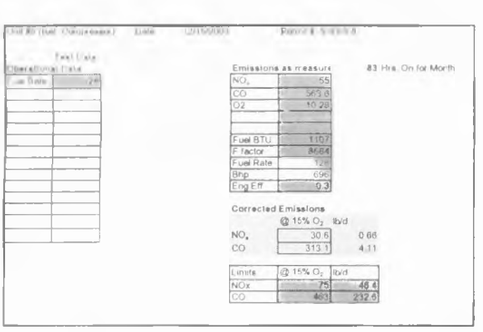
Emissions as measure — 334 Hrs. On for Month

NO_x	133.4
CO	571.8
O2	10.84
Fuel BTU	1107
F factor	8664
Fuel Rate	128
Bhp	696
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	66.3	1.66
CO	328.8	4.32

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.6


Test Data

Operational Data

Fuel Rate	128

Emissions as measure — 83 Hrs. On for Month

NO_x	55
CO	565.8
O2	10.28
Fuel BTU	1107
F factor	8664
Fuel Rate	128
Bhp	696
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	30.6	0.66
CO	313.1	4.11

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.6

Modified 1/5/04

Portable Analyzer readings

Time	NO_x	CO	O2
Average	#DIV/0!	#DIV/0!	#DIV/0!

Unit # 1 (Precompressor) Date: Permit # S-43-4-9

Test Data

Operational Data

Fuel Rate	

Emissions as measured — Hrs. On for Month:

NO_x	#DIV/0!
CO	#DIV/0!
O2	#DIV/0!
Fuel BTU	1106
F factor	8652
Fuel Rate	0
Bhp	0
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	#DIV/0!	#DIV/0!
CO	#DIV/0!	#DIV/0!

Limits	@ 15% O_2	lb/d
NOx	75	61.9
CO	463	232.6

Portable Analyzer readings

Time	NO_x	CO	O2
Average	#DIV/0!	#DIV/0!	#DIV/0!

Unit # 2 (Precompressor) Date: Permit # S-43-5-9

Test Data

Operational Data

Fuel Rate	

Emissions as measured — Hrs. On for Month:

NO_x	#DIV/0!
CO	#DIV/0!
O2	#DIV/0!
Fuel BTU	1106
F factor	8652
Fuel Rate	0
Bhp	0
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	#DIV/0!	#DIV/0!
CO	#DIV/0!	#DIV/0!

Limits	@ 15% O_2	lb/d
NOx	75	61.9
CO	463	232.6

Portable Analyzer readings

Time	NO_x	CO	O2
Average	#DIV/0!	#DIV/0!	#DIV/0!

Unit # 3 (Precompressor) Date: Permit # S-43-6-9

Test Data

Operational Data

Fuel Rate	160

Emissions as measured — Hrs. On for Month:

NO_x	#DIV/0!
CO	#DIV/0!
O2	#DIV/0!
Fuel BTU	1106
F factor	8652
Fuel Rate	160
Bhp	869
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	#DIV/0!	#DIV/0!
CO	#DIV/0!	#DIV/0!

Limits	@ 15% O_2	lb/d
NOx	75	61.9
CO	463	232.6

Portable Analyzer readings

Time	NO_x	CO	O2
	98	671	11.5
	108	723	11.4
	106	745	11.2
	104	782	11.3
	105	810	11.5
Average	104.2	746.2	11.34

Unit # 4 (Ref. Compressor) Date: 1/9/2004 Permit # S-43-7-8

Test Data

Operational Data

Fuel Rate	160

Emissions as measure — 14 Hrs. On for Month:

NO_x	104.2
CO	746.2
O2	11.34
Fuel BTU	1106
F factor	8652
Fuel Rate	160
Bhp	869
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	64.3	1.73
CO	461.8	7.57

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.6

Portable Analyzer readings

Time	NO_x	CO	O2
	126	601	10.3
	112	572	10.4
	118	606	10.6
	126	565	10.3
	121	576	10.5
Average	119.2	584.8	10.42

Unit # 5 (Ref. Compressor) Date: 1/5/2004 Permit # S-43-8-8

Test Data

Operational Data

Fuel Rate	148

Emissions as measure — 84 Hrs. On for Month:

NO_x	119.2
CO	584.8
O2	10.42
Fuel BTU	1100
F factor	8652
Fuel Rate	148
Bhp	780
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	67.1	1.63
CO	329.2	4.86

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.6

Portable Analyzer readings

Time	NO_x	CO	O2
Average	#DIV/0!	#DIV/0!	#DIV/0!

Unit #6 (Ref. Compressor) Date: Permit # S-43-9-8

Test Data

Operational Data

Fuel Rate	160

Emissions as measured — Hrs. On for Month:

NO_x	#DIV/0!
CO	#DIV/0!
O2	#DIV/0!
Fuel BTU	1100
F factor	8652
Fuel Rate	160
Bhp	869
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	#DIV/0!	#DIV/0!
CO	#DIV/0!	#DIV/0!

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.6

Portable Analyzer readings

Time	NO_x	CO	O2
	27	504	12.8
	25	515	12.7
	29	510	12.7
	30	513	12.8
	31	512	12.7
Average	28.2	510.8	12.74

Unit # 1 (Precompressor) Date 2/5/2004 Permit # S-43-4-9

Test Data

Operational Data	
Fuel Rate	152.5

Emissions as measure — 216 Hrs. On for Month

NO_x	29.2
CO	510.8
O2	12.74
Fuel BTU	1150
F factor	8674
Fuel Rate	152.5
Bhp	861
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	21.1	0.58
CO	369.9	6.01

Limits	@ 15% O_2	lb/d
NOx	75	61.6
CO	463	232.6

Portable Analyzer readings

Time	NO_x	CO	O2
	118	503	10.7
	125	509	10.6
	131	535	10.6
	123	515	10.6
	115	461	10.7
Average	121.4	504.6	10.64

Unit # 2 (Precompressor) Date 2/5/2004 Permit # S-43-5-9

Test Data

Operational Data	
Fuel Rate	152.5

Emissions as measure — 216 Hrs. On for Month

NO_x	121.4
CO	504.6
O2	10.64
Fuel BTU	1150
F factor	8674
Fuel Rate	152.5
Bhp	861
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	69.8	1.87
CO	290.2	4.72

Limits	@ 15% O_2	lb/d
NOx	75	61.6
CO	463	232.6

Portable Analyzer readings

Time	NO_x	CO	O2
	40	385	11.6
	54	416	11.2
	60	450	11.1
	67	464	11
	58	432	11.1
Average	55.8	435.4	11.24

Unit # 3 (Precompressor) Date 2/17/2004 Permit # S-43-6-9

Test Data

Operational Data	
Fuel Rate	140.5

Emissions as measure — 7 Hrs. On for Month

NO_x	55.8
CO	435.4
O2	11.24
Fuel BTU	1100
F factor	8852
Fuel Rate	140.5
Bhp	783
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	34.1	0.81
CO	265.9	3.83

Limits	
NOx	75 61.6
CO	463 232.6

Portable Analyzer readings

Time	NO_x	CO	O2
	81	510	12
	79	518	11.4
	88	509	11.6
	83	498	11.7
	74	492	11.8
Average	81.4	520.6	11.7

Unit # 4 (Ref. Compressor Date 3/26/2004 Permit # S-43-7-8

Test Data

Operational Data	
Fuel Rate	142

Emissions as measure — 8 Hrs. On for Month

NO_x	83.4
CO	520.6
O2	11.7
Fuel BTU	1101
F factor	8863
Fuel Rate	142
Bhp	768
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	53.5	1.27
CO	333.9	4.84

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	485	232.6

Portable Analyzer readings

Time	NO_x	CO	O2
	50	374	11.9
	48	353	11.8
	47	349	11.6
	56	360	11.9
	54	351	11.7
Average	51.6	357.6	11.74

Unit # 5 (Ref. Compressor) Date 3/26/2004 Permit # S-43-8-8

Test Data

Operational Data	
Fuel Rate	158

Emissions as measure — 596 Hrs. On for Month

NO_x	51.4
CO	353.4
O2	11.6
Fuel BTU	1101
F factor	8863
Fuel Rate	158
Bhp	854
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	33.4	0.89
CO	229.6	3.70

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.6

Portable Analyzer readings

Time	NO_x	CO	O2
Average	#####	#####	#####

Unit # 6 (Ref. Compressor) Date Permit # S-43-9-8

Test Data

Operational Data	
Fuel Rate	160

Emissions as measured — Hrs. On for Month.

NO_x	#DIV/0!
CO	#DIV/0!
O2	#DIV/0!
Fuel BTU	1150
F factor	8674
Fuel Rate	160
Bhp	904
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	#DIV/0!	#DIV/0!
CO	#DIV/0!	#DIV/0!

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.6

Portable Analizer readings

Time	NO_x	CO	O2
	29	577	13.2
	30	578	13.2
	32	601	13.2
	33	588	13.3
	33	587	13.3
Average	31.4	586.2	13.24

Unit # 1 (Precompressor) Date 5/14/2004 Permit # S-43-4-9

Test Data

Operational Data

Fuel Rate	126

Emissions as measure 104 Hrs. On for Month:

NO_x	31.4
CO	586.2
O2	13.24
Fuel BTU	[illegible]
F factor	[illegible]
Fuel Rate	[illegible]
Bhp	581
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	24.2	0.51
CO	451.5	5.81

Limits	@ 15% O_2	lb/d
NOx	75	61.9
CO	463	232.6

Portable Analizer readings

Time	NO_x	CO	O2
	[illegible]	334	[illegible]
	[illegible]	[illegible]	[illegible]
	42	[illegible]	[illegible]
	39	[illegible]	[illegible]
	42	360	[illegible]
Average	41.2	350	12.4

Unit # 2 (Precompressor) Date 4/29/2004 Permit # S-43-5-9

Test Data

Operational Data

Fuel Rate	144

Emissions as measure 565 Hrs. On for Month:

NO_x	41.2
CO	350
O2	12.4
Fuel BTU	[illegible]
F factor	8659
Fuel Rate	144
Bhp	779
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	28.6	0.69
CO	242.9	3.57

Limits	@ 15% O_2	lb/d
NOx	75	61.9
CO	463	232.6

Portable Analizer readings

Time	NO_x	CO	O2
	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	11.4
	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	11.4
	[illegible]	[illegible]	11.4
Average	80	482.4	11.4

Unit # 3 (Precompressor) Date [illegible] Permit # [illegible]

Test Data

Operational Data

Fuel Rate	173

Emissions as measure 7 Hrs. On for Month:

NO_x	80
CO	482.4
O2	11.4
Fuel BTU	[illegible]
F factor	8659
Fuel Rate	173
Bhp	936
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	49.7	1.44
CO	299.6	5.29

Limits	@ 15% O_2	lb/d
NOx	75	61.9
CO	[illegible]	232.0

Portable Analizer readings

Time	NO_x	CO	O2
	[illegible]	[illegible]	10.7
	[illegible]	585	[illegible]
	91	584	10.8
	[illegible]	578	11
	[illegible]	[illegible]	[illegible]
Average	88.6	580.4	10.82

Unit # 4 ([illegible] Compressor) Date 6/1/2004 Permit # [illegible]

Test Data

Operational Data

Fuel Rate	[illegible]

Emissions as measure 10 Hrs. On for Month

NO_x	88.6
CO	580.4
O2	10.82
Fuel BTU	1096
F factor	8661
Fuel Rate	[illegible]
Bhp	716
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	51.9	1.15
CO	339.7	4.59

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.6

Portable Analizer readings

Time	NO_x	CO	O2
	51	343	12
	75	361	11.8
	80	370	11.9
	80	369	11.8
	54	344	12
Average	68	357.4	11.9

Unit # 5 ([illegible] Compressor) Date 6/1/2004 Permit # S-43-8-8

Test Data

Operational Data

Fuel Rate	138

Emissions as measure 9 Hrs. On for Month:

NO_x	68
CO	357.4
O2	11.9
Fuel BTU	1096
F factor	8661
Fuel Rate	[illegible]
Bhp	743
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	44.6	1.03
CO	234.3	3.29

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.6

Portable Analizer readings

Time	NO_x	CO	O2
	25	404	11.4
	26	408	11.1
	37	446	10.6
	28	411	11.5
	22	437	11.6
Average	28	421.2	11.28

Unit # 6 ([illegible] Compressor) Date [illegible] Permit # [illegible]

Test Data

Operational Data

Fuel Rate	[illegible]

Emissions as measure 25 Hrs. On for Month:

NO_x	28
CO	421.2
O2	11.28
Fuel BTU	1108
F factor	8666
Fuel Rate	64
Bhp	348
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	17.2	0.19
CO	258.3	1.70

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.6

Portable Analyzer readings

Time	NO_x	CO	O2
	19	625	12.1
	19	618	12
	18	630	12.1
	18	626	12
	20	605	12
Average	18.8	620.8	12.04

Unit # 1 (Precompressor) Date 7/2/2004 Permit # S-43-4-9

Test Data

Operational Data

Fuel Rate	137

Emissions as measure — 12 Hrs. On for Month

NO_x	18.8
CO	620.8
O2	12.04
Fuel BTU	1095
F factor	8664
Fuel Rate	137
Bhp	737
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	12.5	0.29
CO	413.4	5.75

Limits	@ 15% O_2	lb/d
NOx	75	61.9
CO	463	232.6

Portable Analyzer readings

Time	NO_x	CO	O2
	14	498	12
	14	518	12
	14	504	12
	14	523	12
	14	513	12
Average	14	511.2	12

Unit # 2 (Precompressor) Date 7/7/2004 Permit # S-43-5-9

Test Data

Operational Data

Fuel Rate	128

Emissions as measure — 14 Hrs. On for Month

NO_x	14
CO	511.2
O2	12
Fuel BTU	1095
F factor	8664
Fuel Rate	128
Bhp	689
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	9.3	0.20
CO	338.9	4.40

Limits	@ 15% O_2	lb/d
NOx	75	61.9
CO	463	232.6

Portable Analyzer readings

Time	NO_x	CO	O2
	18	527	12
	17	535	12.1
	26	597	11.9
	16	551	12
	18	529	11.8
Average	19	535.8	11.96

Unit # 3 (Precompressor) Date 7/1/2004 Permit # S-43-6-9

Test Data

Operational Data

Fuel Rate	137

Emissions as measure — 11 Hrs. On for Month

NO_x	19
CO	535.8
O2	11.96
Fuel BTU	1095
F factor	8664
Fuel Rate	137
Bhp	737
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	12.5	0.29
CO	353.6	4.92

Limits	@ 15% O_2	lb/d
NOx	75	61.9
CO	463	232.6

Portable Analyzer readings

Time	NO_x	CO	O2
	48	523	11.7
	55	496	11.2
	53	536	11.3
	53	512	11.2
	56	510	11.2
Average	53	515.4	11.32

Unit # 4 (Ref. Compressor) Date 9/30/2004 Permit # S-43-7-8

Test Data

Operational Data

Fuel Rate	145

Emissions as measure — 5 Hrs. On for Month

NO_x	53
CO	515.4
O2	11.32
Fuel BTU	8853
F factor	10998
Fuel Rate	145
Bhp	6170
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	32.8	0.79
CO	317.4	4.89

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.0

Portable Analyzer readings

Time	NO_x	CO	O2
	17	221	11.3
	21	208	11.4
	32	202	11.1
	13	269	11.5
	18	243	11.5
Average	20.2	228.6	11.36

Unit # 5 (Ref. Compressor) Date 7/7/2004 Permit # S-43-8-8

Test Data

Operational Data

Fuel Rate	142

Emissions as measure — 75 Hrs. On for Month

NO_x	20.2
CO	228.6
O2	11.36
Fuel BTU	1095
F factor	8664
Fuel Rate	142
Bhp	764
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	12.5	0.30
CO	141.4	2.04

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.0

Portable Analyzer readings

Time	NO_x	CO	O2
	22	387	11
	23	394	10.8
	23	391	10.8
	17	407	11.2
	18	399	11.1
Average	20.6	395.6	10.98

Unit #6 (Ref. Compressor) Date 7/1/2004 Permit # S-43-9-8

Test Data

Operational Data

Fuel Rate	137

Emissions as measure — 11 Hrs. On for Month

NO_x	20.6
CO	395.6
O2	10.98
Fuel BTU	1085
F factor	8664
Fuel Rate	137
Bhp	737
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	12.3	0.28
CO	235.3	3.27

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.6

Portable Analizer readings

Time	NO_x	CO	O2
Average	#####	#####	#####

Unit # 1 (Precompressor) Date Permit # [illegible]

Test Data

Operational Data

Fuel Rate	[illegible]

Emissions as measured Hrs. On for Month:

NO_x	#DIV/0!
CO	#DIV/0!
O2	#DIV/0!
Fuel BTU	1106
F factor	8652
Fuel Rate	0
Bhp	0
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	#DIV/0!	#DIV/0!
CO	#DIV/0!	#DIV/0'

Limits	[illegible]	[illegible]
NOx	[illegible]	[illegible]
CO	[illegible]	[illegible]

Portable Analizer readings

Time	NO_x	CO	O2
	31	542	10.3
	39	577	10.3
	37	581	10.2
	36	579	10.3
	36	573	10.2
Average	35.8	570.4	10.26

Unit # 2 (Precompressor) Date 11/12/2004 Permit # S-43-5-9

Test Data

Operational Data

Fuel Rate	86

Emissions as measure 33 Hrs. On for Month:

NO_x	35.8
CO	570.4
O2	10.26
Fuel BTU	1099
F factor	8661
Fuel Rate	86
Bhp	464
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	19.9	0.29
CO	316.3	2.77

Limits	@ 15% O_2	lb/d
NOx	75	61.9
CO	463	232.6

Portable Analizer readings

Time	NO_x	CO	O2
	30	630	11.1
	30	626	11.1
	30	626	11.1
	32	636	11.1
	29	623	11
Average	30.2	630	11.08

Unit # 3 (Precompressor) Date 11/12/2004 Permit # S-43-6-9

Test Data

Operational Data

Fuel Rate	98

Emissions as measure 204 Hrs. On for Month

NO_x	30.2
CO	630
O2	11.08
Fuel BTU	1099
F factor	8661
Fuel Rate	98
Bhp	529
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	18.1	0.30
CO	378.5	3.78

Limits	@ 15% O_2	lb/d
NOx	75	[illegible]
CO	463	232.6

Portable Analizer readings

Time	NO_x	CO	O2
Average	#####	#####	#####

Unit # 4 (Ref. Compressor) Date Permit # S-43-7-8

Test Data

Operational Data

Fuel Rate	160

Emissions as measured Hrs. On for Month

NO_x	#DIV/0!
CO	#DIV/0!
O2	#DIV/0!
Fuel BTU	1106
F factor	8652
Fuel Rate	160
Bhp	869
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	#DIV/0!	#DIV/0!
CO	#DIV/0!	#DIV/0!

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.6

Portable Analizer readings

Time	NO_x	CO	O2
	69	374	11
	51	336	11.1
	60	348	11
	60	351	11
	68	359	10.7
Average	61.6	354	10.96

Unit # 5 (Ref. Compressor) Date 11/12/2004 Permit # S-43-8-8

Test Data

Operational Data

Fuel Rate	160

Emissions as measure 12 Hrs. On for Month:

NO_x	61.6
CO	354
O2	10.96
Fuel BTU	1099
F factor	8661
Fuel Rate	160
Bhp	864
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	36.6	0.98
CO	210.1	3.43

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.6

Portable Analizer readings

Time	NO_x	CO	O2
	26	355	12
	44	397	11.6
	62	477	11.5
	39	412	11.9
	42	441	11.7
Average	42.6	416.4	11.74

Unit #6 (Ref. Compressor) Date 11/12/2004 Permit # [illegible]

Test Data

Operational Data

Fuel Rate	163

Emissions as measure 253 Hrs. On for Month

NO_x	42.6
CO	416.4
O2	11.74
Fuel BTU	1099
F factor	8661
Fuel Rate	163
Bhp	880
Eng Eff	0.3

Corrected Emissions

	@ 15% O_2	lb/d
NO_x	27.4	0.75
CO	268.2	4.45

Limits	@ 15% O_2	lb/d
NOx	75	46.4
CO	463	232.6

Richard Edgehill

From: Winn BT (Brent) at Aera [btwinn@aeraenergy.com]
Sent: Tuesday, November 27, 2007 11:48 AM
To: Richard Edgehill
Subject: RE: ERC application S43, 1075362

Richard:

Attached is an Excel file showing the portable analyzer results for NOx and CO for the years 2002-2004. I have highlighted in light green the instances where:

1) The Rule 1110.2 limit of 36 ppm is higher than the average portable analyzer test values for the same period
2) The biennial source test values are higher than the average portable analyzer test values for the same period

It appears to me that, overall, the portable analyzer tests show that use of a 36 ppm emission factor does not overestimate emissions for the representative period. For the great majority of the data, the portable analyzer results are higher than the emission factors used and therefore the requested credit amounts are quite conservative.

It would be a fairly large undertaking to re-calculate the actual emissions based on portable analyzer (PA) results. I would not recommend this, since PA tests are intended only for *monitoring* and not for certifying emission compliance. Also, if PA test results are to be considered representative for *lower* emission values, they should also be considered representative for *higher* emission values. If PA test data were to be applied across-the-board, the overall total of requested credit amounts would probably be higher.

The comparison here does provide further demonstration that the emission factors that have been proposed are conservative. However, I don't think the differences warrant a re-calculation.

Please let me know how you would like to proceed from here.

Thanks....

-B. Winn

-----Original Message-----
From: Winn BT (Brent) at Aera
Sent: Monday, November 19, 2007 4:24 PM
To: 'Richard Edgehill'
Subject: RE: ERC application S43, 1075362

Richard:

Here are a few answers and clarifications, and then I will have to dig for any information you still need after this.

I discovered the year 2003 fuel usage discrepancy (186.95 vs. 192.63 MMscf) while preparing the ERC application when I compared the actual fuel meter numbers to the quantities Aera reported in their annual emission statements. The fuel numbers for the annual emission statements had been provided each year by gas plant staff who used a spreadsheet to allocate the fuel to each compressor based on the total combined fuel for all compressors and individual run hours. Each year, staff would pull up the same spreadsheet and revise/update it with the current year's data. It appears that there were some years when staff changed the run hours in the spreadsheet but forgot to change the overall combined fuel amount. The attached spreadsheet provides a comparison of the actual amounts versus the amounts reported in Aera's annual emission statements.

The gas plant staff have moved on to other positions and responsibilities. However, based on the numbers I have reviewed, it appears that this is what happened:

A) The volumes reported for year 2000 (total combined 185.69 mmcf) were accurate.
B) For year 2001, gas plant staff re-used the same spreadsheet and plugged in accurate run hours but accidentally kept the total combined fuel volume from the previous year in the spreadsheet. After allocating the *erroneous* fuel volume based on run hours, the total combined volume came out at 186.95 mmcf - very close to the volume reported for 2000. I assume the slight difference was due to rounding. The total combined volume for 2001 should have been 165.92 mmcf based on actual meter readings.
C) The same spreadsheet was used for year 2002 and both the run hours and fuel volumes used were accurate.
D) For year 2003, it appears that gas plant staff pulled up the spreadsheet that was used for year 2001 (skipped back two years) and again plugged in accurate run times for 2003 but forgot to change the (erroneous) combined total fuel volume (186.95 mmcf). The combined total volume should have been 192.63 mmcf based on actual meter readings.
E) For year 2004, the gas plant staff repeated the same error they made for year 2003 (the runtimes were accurate but the erroneous volume of 186.95 mmcf was still included in the spreadsheet). The combined total volume should have been 118.69 mmcf based on actual meter readings.
F) Year 2005, runtimes and volumes were accurate.

Aera's environmental staff did not catch these errors for two reasons:

1) When the fuel volumes were checked for accuracy, environmental staff compared each individual compressor's volume to the previous year's individual volume. Since the individual volumes were different from year to year, but did not differ greatly, that was within the realm of what was expected. The individual volumes differed somewhat because they were allocated based on actual run hours from year to year.

2) In the annual emission statements, the total gas plant combined emissions were compared between the current and the previous year in an effort to identify any potentially significant discrepancies. Different emission factors were used every 2 years, based on the most recent source test results for the engines. Furthermore, the emission totals included *all* of the plant equipment - not just the compressors - so it was not evident that the reported combined compressor volumes were repeated in years 2001, 2003, and 2004.

Aera's staff plans to submit revised annual emission statements to the District's emission inventory group as needed.

About baseline period:

The 2 years previous to the shutdown (July 2005 to July 2007) were not representative because, for a large part of that time, the gas plant was not processing any gas. Therefore, it is necessary to look to a different 2-year period as representative of normal operation. Normal operation must logically include times when the gas plant was processing gas from both Aera and Chevron's producing areas. Aera's gas was diverted to the field in May 2004. At that point, two compressors (S-43-4 and -7) were placed on standby (and then made dormant in December 2004). After that, compressors S-43-5 and -6 were not used to feed gas to the gas plant - they were used to divert Aera's produced gas back to the field. Compressors S-43-8 and -9 continued to put Chevron's gas into the plant processes, but operation of these compressors after May 2004 was not representative of normal gas plant volumes. Even after Chevron's feed to the plant was discontinued in January 2005, compressors S-43-5 and -6 continued to send Aera's gas to the field - until they were shut down in November 2005.

So, although the fuel volumes make it appear that compressors S-43-5, -6, -8, and -9 may have continued to operate normally after May 2004, this was not representative of normal plant operation. Normal plant operation would be best represented by a 2-year period preceding May 2004 (going back to May 2002), but this time period is not completely within the 5-year window preceding July 2007 ("shutdown" date). The representative period cannot begin any sooner than July 2002.

- B. Winn

-----Original Message-----
From: Richard Edgehill [mailto:Richard.Edgehill@valleyair.org]
Sent: Monday, November 19, 2007 11:52 AM
To: Winn BT (Brent) at Aera
Cc: Leonard Scandura
Subject: ERC application S43, 1075362

Brent: The following information is required to continue to process REC application S43, 1075362

Project 1041364 designated the 6 IC engines '-4 though '-9 as DEUs and was finalized 12-3-04. The Equipment Configuration and Operational Data submitted with the application included a total 2003 hours of operation and fuel use of '-4 through '-9 as 26,543 hrs and 186.95 MMscf. The ERC application listed the 2003 hours and fuel use for '-4 through '-9 as 33,981 hrs and 192.63 MMscf. Please explain the discrepancy.

Source test results for '-4 through '-9 indicated NOX concentrations of 45.6, 46.8, 50.7, 43.7, 34.9, and 61.4 ppmv @ 15% O2 in 2002 and 14.3, 15.4, 13.6, 51.4, 21.9, and 14.2 ppmv @ 15% O2 in 2004. Please provide portable monthly monitoring data for NOx covering the baseline period (see below).

Annual fuel use (mcf) for '-4 through '-9 from 2001 through 2005 was 165,915 (2001), 178,316 (2002), 192,630 (2003), 118,695 (2004), and 33,942 (2005). However, engine S-43-5 operated normally in 2005 (24,897 mcf fuel used), except in December when no fuel was consumed. Please recalculate ERCs for S-43-5 for a baseline period from December 2003 through November 2005. Please explain why the baseline period (Oct 2002 through Sept 2004) for '-6, '-8, and '-9 did not include 4th qtr 2004 (Oct-Dec 2004) as these engines apparently operated normally then.

Thanks

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Cr
I. C. Engine Compressors S-43-4 through S-43-9

ADD PORTABLE ANALYZER RESULTS for NOx & CO

	2002	Quarterly fuel (mcf)			
	1Q	2Q	3Q	4Q	Annual Fuel (mcf)
S-43-4	6,825.9	11,176.5	12,912.7	9,312.0	40,227
S-43-5	6,968.1	7,670.9	5,979.6	9,405.4	30,024
S-43-6	12,263.6	7,420.6	6,970.7	7,272.7	33,928
S-43-7	0.0	2,725.6	11,474.2	5,476.3	19,676
S-43-8	9,123.4	8,944.5	11,494.8	8,487.1	38,050
S-43-9	4,135.0	4,136.9	0.0	8,139.7	16,412
					178,316

PM_{10}	2002				
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	69.0	113.0	130.5	94.1	10.11
S-43-5	70.4	77.6	60.5	95.1	10.11
S-43-6	124.0	75.0	70.5	73.5	10.11
S-43-7	0.0	27.6	116.0	55.4	10.11
S-43-8	92.2	90.4	116.2	85.8	10.11
S-43-9	41.8	41.8	0.0	82.3	10.11
	397.5	425.4	493.7	486.2	

CO	2002				
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	4,529.7	7,416.7	8,568.9	6,179.4	663.6
S-43-5	4,424.0	4,870.3	3,796.4	5,971.5	634.9
S-43-6	6,567.2	3,973.7	3,732.8	3,894.5	535.5
S-43-7	0.0	2,833.2	11,927.4	5,692.6	1039.5
S-43-8	6,029.7	5,911.4	7,596.9	5,609.1	660.9
S-43-9	2,914.7	2,916.1	0.0	5,737.7	704.9
	24,465.3	27,921.5	35,622.5	33,084.7	

SOx	2002

Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	0.0	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	

NOx	2002				
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	923.3	1,511.7	1,746.6	1,259.5	135.3
S-43-5	942.5	1,037.6	808.8	1,272.2	135.3
S-43-6	1,658.8	1,003.7	942.9	983.7	135.3
S-43-7	0.0	368.7	1,552.0	740.7	135.3
S-43-8	1,234.0	1,209.8	1,554.8	1,148.0	135.3
S-43-9	559.3	559.6	0.0	1,101.0	135.3
	5,317.9	5,691.1	6,605.0	6,505.0	

VOC	2002				
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	641.9	1,051.0	1,214.2	875.6	94.0
S-43-5	358.0	394.1	307.2	483.2	51.4
S-43-6	4,006.7	2,424.4	2,277.4	2,376.1	326.7
S-43-7	0.0	172.6	726.5	346.7	63.3
S-43-8	497.0	487.3	626.2	462.4	54.5
S-43-9	249.0	249.2	0.0	490.2	60.2
	5,752.6	4,778.5	5,151.6	5,034.3	

Device ID #	Process Number	Equipment Type	Yearly Process Rate	Units Source Classification Code	NOX lb / Unit	TOG lb / Unit
1	3	FUGITIVE EMIS	6.348	IC FEET OF G	0.00	3.17
				31000299	**0.00**	**17.21**
3	1	FLARE	2.504	CUBIC FEET	68.00	2,000
				31000205	**0.09**	**2.50**
4	1	IC ENGINE	40.331	CUBIC FEET	184.26	1,740

				20200202	**3.72**	**35.08**
5	1	IC ENGINE	30.126	CUBIC FEET	188.90	1,238
				20200202	**2.85**	**18.65**
6	1	IC ENGINE	33.723	CUBIC FEET	204.70	5,187
				20200202	**3.45**	**87.46**
7	1	IC ENGINE	20.354	CUBIC FEET	176.40	1,708
				20200202	**1.80**	**17.38**
8	1	IC ENGINE	37.506	CUBIC FEET	141.00	1,364
				20200202	**2.64**	**25.59**
9	1	IC ENGINE	16.277	CUBIC FEET	249.70	1,379
				20200202	**2.03**	**11.22**
13	1	EATER NAT GA	0	CUBIC FEET	100.00	13.87
				31000404	**0.00**	**0.00**
14	2	GINE DIESEL I	0.06	GALLONS BU	85.11	6.76
				20200102	**0.00**	**0.00**
15	1	EATER NAT GA	30.728	CUBIC FEET	83.57	13.87
				31000414	**1.28**	**0.21**
		Totals For the Facility (Tons/Year)			17.86	215.30

Contact	PEGGY SHUE
Company	AERA ENERGY LLC
Adress	PO BOX 11164
City,State,Zip	BAKERSFIELD, CA 93389
Telephone	(661) 6655689
Email Address	pashue@aeraenergy.com
Loation of faility if different from above	AERA ENERGY LLC LOST HILLS GAS PLANT

Emission Factor Source

	PRO_DES	PM10	CO	SOx	NOx
S-43-4	IC ENGINE NAT GAS	9.91 E-03 lb/MMBtu Table 3.2-2	913.0	0	56.0
S-43-5	IC ENGINE NAT GAS	9.91 E-03 lb/MMBtu Table 3.2-2	811.1	0	60.3
S-43-6	IC ENGINE NAT GAS	9.91 E-03 lb/MMBtu Table 3.2-2	740.24	0	53.3

S-43-7	IC ENGINE NAT GAS	9.91 E-03 lb/MMBtu Table 3.2-2	780.4	0	207.9
S-43-8	IC ENGINE NAT GAS	9.91 E-03 lb/MMBtu Table 3.2-2	842.0	0	30.3
S-43-9	IC ENGINE NAT GAS	9.91 E-03 lb/MMBtu Table 3.2-2	503.18	0	57.6

Emission Factor Source

FAC_ID	PRO_DES	PM10	CO	SOx	NOx
S-43-4	IC ENGINE NAT GAS	0.0786 lb/MMcf	663.6	0	184.3
S-43-5	IC ENGINE NAT GAS	0.0786 lb/MMcf	634.9	0	188.9
S-43-6	IC ENGINE NAT GAS	0.0786 lb/MMcf	535.5	0	204.7
S-43-7	IC ENGINE NAT GAS	0.0786 lb/MMcf	1039.5	0	176.4
S-43-8	IC ENGINE NAT GAS	0.0786 lb/MMcf	660.9	0	141.0
S-43-9	IC ENGINE NAT GAS	0.0786 lb/MMcf	704.9	0	249.7

black - source test
blue - AP-42
green - permit limit
red - delete equipment

Emission Factors revised to answer Distr

PM10 Emission Factor	Emission Factor Source	PM or PM10?	PM 10 Emission Factor lb/MMscf or lb/Mgal
7.71 E-05 lb/MMBtu	AP-42 Table 3.2-2 with default 1020 Btu/scf	PM10	0.0786

'edit Application

AP-42
AP-42
AP-42
AP-42
AP-42
AP-42

2002	CO

Portable Analyzer Results (ppm CO @15% O2)

	1Q	2Q	3Q	4Q	Average
Source Test 5/21 & 22/2002		341.8	334.1	350.4	342.1
Source Test 5/21 & 22/2002		255.9	346.6	311.8	304.8
Source Test 5/21 & 22/2002		265.2	274.9	246.2	262.1
Source Test 5/21 & 22/2002		560.5	397.4	462.0	473.3
Source Test 5/21 & 22/2002		361.5	369.9	325.4	352.3
Source Test 5/21 & 22/2002		No test	No test	284.3	284.3

2002	NOx

Portable Analyzer Results (ppm NOx @15% O2)

	1Q	2Q	3Q	4Q	Average
Rule 1110.2 Limit (36 ppm)		62.6	56.6	68.1	62.4
Rule 1110.2 Limit (36 ppm)		52.6	68.6	64.8	62.0
Rule 1110.2 Limit (36 ppm)		33.5	31.6	25.3	30.1
Rule 1110.2 Limit (36 ppm)		52.1	36.7	52.3	47.0
Rule 1110.2 Limit (36 ppm)		31.2	53.1	42.6	42.3
Rule 1110.2 Limit (36 ppm)		No test	No test	35.2	35.2

Source Test 5/21 & 22/2002
Source Test 5/21 & 22/2002
Rule 1110.2 limit (250 ppm)
Source Test 5/21 & 22/2002
Source Test 5/21 & 22/2002
Source Test 5/21 & 22/2002

Emission Statement - Calendar Year 2002 Emissions

Fraction of ROG	VOC Lb / Unit	SOX lb / Unit				
0.39	1.23	0.00				
	6.66	**0.00**				
0.75	105.00	10.10				
	1.87	**0.01**				
0.05	94.03	0.00				

	1.90	**0.00**				
0.04	51.38	0.00				
	0.77	**0.00**				
0.07	358.86	0.00				
	6.05	**0.00**				
0.04	63.32	0.00				
	0.64	**0.00**				
0.04	54.48	0.00				
	1.02	**0.00**				
0.04	60.23	0.00				
	0.49	**0.00**				
0.50	5.50	0.60				
	0.00	**0.00**				
0.76	36.47	5.60				
	0.00	**0.00**				
0.50	5.50	0.60				
	0.11	**0.01**				
	17.80	0.02				

VOC	Test Date	Btu/cf				
420.0	5/22/2002 SOx, 7/22/04 CO, NOx, VOC	1020				
413.6	5/22/2002 SOx, 7/22/04 CO, NOx, VOC	1020				
291.8	5/22/2002 SOx, 7/22/04 CO, NOx, VOC	1020				

81.0	5/22/2002 Sox, 5/18/04 CO, Nox, VOC	1020				
119.0	5/21/2002 Sox, 5/19/04 CO, Nox, VOC	1020				
75.7	5/21/2002 Sox, 6/17/04 CO, Nox, VOC	1020				

VOC	Test Date	Btu/cf
94.0	05/22/02	1020
51.4	05/22/02	1020
358.9	05/21/02	1020
63.3	05/22/02	1020
54.5	05/21/02	1020
60.2	05/21/02	1020

rict's mid-2003 request to ensure PM10 (not total PM) and VOC (not TOG) emission factors

TOG or VOC Emission Factor	Emission Factor Source	Other Information Used
1.47 lb TOC /MMBtu; 0.118 lb VOC /MMBtu	AP-42 Table 3.2-2	AP-42 Table assumes 1020 Btu/scf

Aera Energy Lost I
I. C. Engine Compl

ADD PORTABLE ANAI

	2003
	1Q
S-43-4	6,329.8
S-43-5	11,520.7
S-43-6	8,364.4
S-43-7	9,256.1
S-43-8	4,342.1
S-43-9	8,752.8

PM_{10}	2003
Quarterly Emissions (lbs)	1Q
S-43-4	64.0
S-43-5	116.5
S-43-6	84.6
S-43-7	93.6
S-43-8	43.9
S-43-9	88.5
	491.0

Converted to lb/mmcf	Rule 1110.2 Limit (2000 ppm)
782.4	CO 4574.002 lb/MMcf
697.1	
599.4	
1082.4	
805.7	
650.2	

CO	2003
Quarterly Emissions (lbs)	1Q
S-43-4	4,200.5
S-43-5	7,314.5
S-43-6	4,479.1
S-43-7	9,621.7
S-43-8	2,869.7
S-43-9	6,169.8
	34,655.4

SOx	2003

Quarterly Emissions (lbs)	1Q
S-43-4	0.0
S-43-5	0.0
S-43-6	0.0
S-43-7	0.0
S-43-8	0.0
S-43-9	0.0
	0.0

Converted to lb/mmcf	Rule 1110.2 Limit (36 ppm)
234.5	NOx 135.260 lb/MMcf
232.9	
113.1	
176.6	
158.9	
132.3	

NOx	2003
Quarterly Emissions (lbs)	1Q
S-43-4	856.2
S-43-5	1,558.3
S-43-6	1,131.4
S-43-7	1,252.0
S-43-8	587.3
S-43-9	1,183.9
	6,569.0

Rule 1110.2 limit (250 ppm)
VOC 326.714 lb/MMcf

VOC	2003
Quarterly Emissions (lbs)	1Q
S-43-4	595.0
S-43-5	592.2
S-43-6	2,732.8
S-43-7	585.9
S-43-8	236.6
S-43-9	526.9
	5,269.4

	CO lb / Unit	PM Lb / Unit	Fraction PM10	PM10 Lb / Unit		
	0.00	N/A	N/A	0.00		
	0.00			**0.00**	**Tons /Yr.**	DEV
	370.00	N/A	N/A	7.60		1
	0.46			**0.01**	**Tons /Yr.**	3
	663.60	N/A	N/A	0.08		**S-43-4**

	13.38			**0.00**	**Tons /Yr.**
	634.90	N/A	N/A	0.08	
	9.56			**0.00**	**Tons /Yr.**
	535.50	N/A	N/A	0.08	
	9.03			**0.00**	**Tons /Yr.**
	1,040	N/A	N/A	0.08	
	10.58			**0.00**	**Tons /Yr.**
	660.90	N/A	N/A	0.08	
	12.39			**0.00**	**Tons /Yr.**
	704.90	N/A	N/A	0.08	
	5.74			**0.00**	**Tons /Yr.**
	84.00	N/A	N/A	7.60	
	0.00			**0.00**	**Tons /Yr.**
	18.34	N/A	N/A	42.48	
	0.00			**0.00**	**Tons /Yr.**
	172.18	N/A	N/A	7.60	
	2.65			**0.12**	**Tons /Yr.**
	63.79			1.03	

S-43-5
S-43-6
S-43-7
S-43-8
S-43-9
13
14
15

FAC_ID
1
3
S-43-4
S-43-5
S-43-6
S-43-7
S-43-8
S-43-9
13
14
15

Emission Factor Used, lb/MMcf

	PM10	CO	SOx	NOx	VOC
	10.11	913.0	0	56.0	420.0
	10.11	811.1	0	60.3	413.6
	10.11	740.24	0	53.3	291.8

	10.11	780.4	0	207.9	81.0
	10.11	842.0	0	30.3	119.0
	10.11	503.18	0	57.6	75.7

Emission Factor Used, lb/MMcf or lb/Mgal

PM10	CO	SOx	NOx	VOC	FR	TOC
0.0786	663.6	0	184.3	94.0	0	1740
0.0786	634.9	0	188.9	51.4	0	1238
0.0786	535.5	0	204.7	358.9	0	5187
0.0786	1039.5	0	176.4	63.3	0	1708
0.0786	660.9	0	141.0	54.5	0	1364
0.0786	704.9	0	249.7	60.2	0	1379

Source of FROG	FROG	TOG Emission Factor, lb/MMscf	VOC Emission Factor, lb/MMscf
Divide AP-42 VOC by AP-42 TOC	0.0803	1,499	120

Hills Section 15 Gas Plant Emission Reduction Credit Application
ıressors S-43-4 through S-43-9

LYZER RESULTS for NOx & CO

Quarterly fuel (mcf)			
2Q	3Q	4Q	Annual Fuel (mcf)
4,373	8,549	13,397	32,649
11,368	6,822	13,204	42,915
9,679	9,897	856	28,796
6,882	4,960	7,001	28,099
10,769	9,920	11,753	36,785
3,918	6,849	3,867	23,387
			192,630

2Q	3Q	4Q	Emission Factor (lb/mmcf)	
44.2	86.4	135.4	10.11	AP-42
114.9	69.0	133.5	10.11	AP-42
97.9	100.1	8.6	10.11	AP-42
69.6	50.1	70.8	10.11	AP-42
108.9	100.3	118.8	10.11	AP-42
39.6	69.2	39.1	10.11	AP-42
475.1	475.1	506.3		

CO	2003

Portable Analyzer Res

2Q	3Q	4Q	Emission Factor (lb/mmcf)		1Q	2Q
2,901.9	5,673.3	8,890.2	663.6	Source Test 5/21 & 22/2002	276.2	295.0
7,217.6	4,331.4	8,383.5	634.9	Source Test 5/21 & 22/2002	273.8	296.2
5,183.2	5,299.6	458.2	535.5	Source Test 5/21 & 22/2002	249.5	265.2
7,153.6	5,156.1	7,277.2	1039.5	Source Test 5/21 & 22/2002	413.0	No test
7,117.5	6,556.0	7,767.8	660.9	Source Test 5/21 & 22/2002	266.4	306.9
2,761.9	4,827.8	2,725.8	704.9	Source Test 5/21 & 22/2002	253.3	265.5
32,335.7	31,844.3	35,502.7				

2Q	3Q	4Q	Emission Factor (lb/mmcf)
0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0
0.0	0.0	0.0	

NOx	2003

Portable Analyzer Res

2Q	3Q	4Q	Emission Factor (lb/mmcf)		1Q	2Q
591.5	1,156.4	1,812.1	135.3	Rule 1110.2 Limit (36 ppm)	51.5	31.4
1,537.6	922.8	1,786.0	135.3	Rule 1110.2 Limit (36 ppm)	63.6	56.1
1,309.2	1,338.6	115.7	135.3	Rule 1110.2 Limit (36 ppm)	36.6	30.5
930.8	670.9	946.9	135.3	Rule 1110.2 Limit (36 ppm)	38.9	No test
1,456.7	1,341.8	1,589.8	135.3	Rule 1110.2 Limit (36 ppm)	67.6	62.6
530.0	926.4	523.0	135.3	Rule 1110.2 Limit (36 ppm)	29.8	38.4
6,355.8	6,356.8	6,773.5				

2Q	3Q	4Q	Emission Factor (lb/mmcf)	
411.1	803.6	1,259.3	94.0	Source Test 5/21 & 22/2002
584.3	350.7	678.7	51.4	Source Test 5/21 & 22/2002
3,162.3	3,233.4	279.5	326.7	Rule 1110.2 limit (250 ppm)
435.6	314.0	443.1	63.3	Source Test 5/21 & 22/2002
586.9	540.6	640.6	54.5	Source Test 5/21 & 22/2002
235.9	412.3	232.8	60.2	Source Test 5/21 & 22/2002
5,416.1	5,654.6	3,534.0		

2003						
PR = 2003	UNITS	PRO_DES	PM10_EF	PM10_EMS		
9187.81	MILLION C	LHGP FUG	0.00	0.00		
1.91	MILLION C	FLARE	7.60	0.01		
38.07	MILLION C	IC ENGINE	10.11	0.19		

49.66	MILLION C	IC ENGINE	10.11	0.25			
33.71	MILLION C	IC ENGINE	10.11	0.17			
20.78	MILLION C	IC ENGINE	10.11	0.11			
27.27	MILLION C	IC ENGINE	10.11	0.14			
17.46	MILLION C	IC ENGINE	10.11	0.09			
0	MILLION C	HEATER N	7.60	0.00			
0.05	1000 GALL	IC ENGINE	42.48	0.00			
34.20	MILLION C	HEATER N	7.60	0.13			

1.08

2004							
Fuel Use	UNITS	PRO_DES	PM10_EF	PM10_EMS			
7609.42	MILLION C	LHGP FUG	0.00	0.00			
1.51	MILLION C	FLARE	7.60	0.01			
32.40	MILLION C	IC ENGINE	10.11	0.16			
43.64	MILLION C	IC ENGINE	10.11	0.22			
45.41	MILLION C	IC ENGINE	10.11	0.23			
11.49	MILLION C	IC ENGINE	10.11	0.06			
27.47	MILLION C	IC ENGINE	10.11	0.14			
26.54	MILLION C	IC ENGINE	10.11	0.13			
0	MILLION C	HEATER N	7.60	0.00			
0.06	1000 GALL	IC ENGINE	42.48	0.00			
37.67	MILLION C	HEATER N	7.60	0.14			

1.10

Aera Energ
I. C. Engine

ADD PORTAE

S-43-4
S-43-5
S-43-6
S-43-7
S-43-8
S-43-9

PM_{10}
Quarterly Emissions (lbs)
S-43-4
S-43-5
S-43-6
S-43-7
S-43-8
S-43-9

sults (ppm @15% O2)

3Q	4Q	Average	Converted to lb/mmcf
274.4	361.3	301.7	690.0
280.0	286.2	284.1	649.7
314.7	253.9	270.8	619.3
433.1	439.7	428.6	980.2
329.1	328.8	307.8	703.9
255.1	313.1	271.8	621.6

Rule 1110.2 Limit (2000 ppm)		
CO		4574.002 lb/MMcf

CO
Quarterly Emissions (lbs)
S-43-4
S-43-5
S-43-6
S-43-7
S-43-8
S-43-9

SOx

Quarterly Emissions (lbs)
S-43-4
S-43-5
S-43-6
S-43-7
S-43-8
S-43-9

sults (ppm @15% O2)

3Q	4Q	Average	Converted to lb/mmcf
41.3	28.6	38.2	143.5
67.3	69.6	64.2	241.2
28.2	45.4	35.2	132.3
72.6	Failed test	55.8	209.7
67.7	Failed test	66.0	248.0
61.7	30.6	40.1	150.7

Rule 1110.2 Limit (36 ppm)
NOx 135.260 lb/MMcf

Re-tested in Jan 2004 @ 64.3 ppm
Re-tested in Jan 2004 @ 67.1 ppm

NOx
Quarterly Emissions (lbs)
S-43-4
S-43-5
S-43-6
S-43-7
S-43-8
S-43-9

Rule 1110.2 limit (250 ppm)
VOC 326.714 lb/MMcf

VOC
Quarterly Emissions (lbs)
S-43-4
S-43-5
S-43-6
S-43-7
S-43-8
S-43-9

				CO_EF	CO_EMS	SOX_EF		SOX_EMS
				0.00	0.00	0.00		0.00
				370.00	0.35	10.10		0.01
				663.60	12.63	0.00		0.00

				634.90	15.77	0.00		0.00
				535.50	9.03	0.00		0.00
				1039.50	10.80	0.00		0.00
				660.90	9.01	0.00		0.00
				704.90	6.15	0.00		0.00
				84.00	0.00	0.60		0.00
				130.18	0.00	39.74		0.00
				172.18	2.94	0.60		0.01
					66.69			0.02

				CO_EF	CO_EMS	SOX_EF		SOX_EMS
				0.00	0.00	0.00		0.00
				370.00	0.28	10.10		0.01
				913.01	14.79	0.00		0.00
				811.41	17.70	0.00		0.00
				740.24	16.81	0.00		0.00
				780.44	4.48	0.00		0.00
				841.98	11.57	0.00		0.00
				503.18	6.68	0.00		0.00
				84.00	0.00	0.60		0.00
				130.18	0.00	39.74		0.00
				172.18	3.24	0.60		0.01
					75.55			0.02

ıy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
ɘ Compressors S-43-4 through S-43-9

ɜLE ANALYZER RESULTS for NOx & CO

2004	Quarterly fuel (mcf)			
1Q	2Q	3Q	4Q	Annual Fuel (mcf)
13,289	5,100	865	0	19,254
13,547	5,922	1,786	3,297	24,552
203	4,171	10,922	7,304	22,599
5,636	3,077	62	0	8,776
7,805	7,027	5,420	1,448	21,701
34	1,903	8,051	11,824	21,812
				118,695

2004					
1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
134.4	51.6	8.7	0.0	10.11	AP-42
137.0	59.9	18.1	33.3	10.11	AP-42
2.1	42.2	110.4	73.8	10.11	AP-42
57.0	31.1	0.6	0.0	10.11	AP-42
78.9	71.0	54.8	14.6	10.11	AP-42
0.3	19.2	81.4	119.5	10.11	AP-42
409.6	275.0	274.0	241.4		

CO

2004						Portable A
1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)		1Q
12,133.1	4,656.6	789.7	0.0	913.01	Source Test 7/22/2004	369.3
10,991.8	4,805.3	1,449.5	2,675.5	811.41	Source Test 7/22/2004	290.2
150.6	3,087.2	8,084.7	5,406.5	740.24	Source Test 7/22/2004	265.9
4,398.8	2,401.7	48.5	0.0	780.44	Source Test 5/18/2004	333.9
6,571.9	5,916.8	4,563.6	1,219.3	841.98	Source Test 5/19/2004	229.6
17.3	957.8	4,051.0	5,949.6	503.18	Source Test 6/17/2004	No test
34,263.4	21,825.4	18,986.9	15,250.8			

2004

1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	

NOx

Portable A

2004

1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)		1Q
744.5	285.7	48.5	0.0	56.0	Source Test 7/22/2004	21.1
816.9	357.1	107.7	198.8	60.3	Source Test 7/22/2004	69.8
10.8	222.1	581.7	389.0	53.3	Source Test 7/22/2004	34.1
762.4	416.2	8.4	0.0	135.3	Rule 1110.2 Limit (36 ppm)	53.5
236.4	212.9	164.2	43.9	30.3	Source Test 5/19/2004	33.4
2.0	109.6	463.6	680.9	57.6	Source Test 6/17/2004	No test
2,572.9	1,603.7	1,374.1	1,312.6			

2004

1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
4,341.7	1,666.3	282.6	0.0	326.7	Rule 1110.2 limit (250 ppm)
4,425.8	1,934.9	583.6	1,077.3	326.7	Rule 1110.2 limit (250 ppm)
59.4	1,217.0	3,187.1	2,131.3	291.8	Source Test 7/22/2004
456.3	249.1	5.0	0.0	81.0	Source Test 5/18/2004
928.7	836.1	644.9	172.3	119.0	Source Test 5/19/2004
2.6	144.1	609.6	895.3	75.7	Source Test 6/17/2004
10,214.5	6,047.6	5,312.8	4,276.2		

NOX_EF	NOX_EMS	TOG_EF	TOG_EMS	FROG	VOC_EF	VOC_EMS
0.00	0.00	2.75	12.66	0.21	0.58	2.67
68.00	0.07	187.34	0.18	0.75	140.00	0.13
184.26	3.51	1740.00	33.12	0.05	94.00	1.79

188.90	4.69	1238.00	30.74	0.04	51.40	1.28
204.70	3.45	5187.00	87.43	0.07	358.90	6.05
176.40	1.83	1708.00	17.74	0.04	63.30	0.66
141.00	1.92	1364.00	18.60	0.04	54.50	0.74
249.70	2.18	1379.00	12.04	0.04	60.20	0.53
100.00	0.00	11.00	0.00	0.50	5.50	0.00
604.30	0.02	63.06	0.00	0.76	47.96	0.00
83.57	1.43	11.00	0.19	0.50	5.50	0.09
	19.09		212.69			13.94

NOX_EF	NOX_EMS	TOG_EF	TOG_EMS	FROG	VOC_EF	VOC_EMS
0.00	0.00	0.52	1.96	0.21	0.11	0.41
68.00	0.05	187.34	0.14	0.75	140.00	0.11
56.02	0.91	6610.18	107.08	0.06	420.01	6.80
60.30	1.32	5709.99	124.59	0.04	413.63	9.03
53.26	1.21	5044.19	114.52	0.07	291.81	6.62
207.88	1.19	1658.57	9.53	0.04	80.96	0.47
30.29	0.42	1759.28	24.17	0.04	118.98	1.63
57.59	0.76	1381.79	18.34	0.04	75.72	1.00
100.00	0.00	11.00	0.00	0.50	5.50	0.00
604.30	0.02	63.06	0.00	0.76	47.96	0.00
83.57	1.57	11.00	0.21	0.50	5.50	0.10
	7.45		400.53			26.18

2004

Analyzer Results (ppm CO @15% O2)

2Q	3Q	4Q	Average	Converted to lb/mmcf	Rule 1110.2 Limit (2000 ppm)
451.5	413.4	No test	411.4	940.9	CO 4574.002 lb/MMcf
242.9	338.9	316.3	297.1	679.5	
299.6	353.6	378.5	324.4	741.9	
339.7	317.4	No test	330.3	755.4	
234.3	141.4	210.1	203.9	466.3	
258.3	235.3	268.2	253.9	580.7	

2004

Analyzer Results (ppm NOx @15% O2)

2Q	3Q	4Q	Average	Converted to lb/mmcf
24.2	12.5	No test	19.3	72.5
28.6	9.3	19.9	31.9	119.9
49.7	12.5	18.1	28.6	107.5
51.9	32.6	No test	46.0	172.8
44.6	12.5	36.6	31.8	119.5
17.2	12.3	27.4	19.0	71.4

Rule 1110.2 Limit (36 ppm)
NOx 135.260 lb/MMcf

Rule 1110.2 limit (250 ppm)
VOC 326.714 lb/MMcf

56.02
60.30
53.26
207.88
30.29
57.59

5/22/2002 Sox, 7/22/04 CO, Nox, VOC
5/22/2002 Sox, 7/22/04 CO, Nox, VOC
5/21/2002 Sox, 7/22/04 CO, Nox,
5/22/2002 Sox, 5/18/04 CO, Nox, VOC
5/21/2002 Sox, 5/19/04 CO, Nox, VOC

5/21/2002
Sox, 6/17/04
CO, Nox,
VOC

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

ADD PORTABLE ANALYZER RESULTS for NOx & CO

	2005 Quarterly fuel (mcf)				
	1Q	2Q	3Q	4Q	Annual Fuel (mcf)
S-43-4	0	0	0	0	0
S-43-5	7,034	6,331	6,175	5,357	24,897
S-43-6	1,606	2,772	2,661	111	7,150
S-43-7	0	0	0	0	0
S-43-8	1,854	0	0	0	1,854
S-43-9	0	0	0	0	0
					33,901

PM_{10}	2005					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	0.0	0.0	0.0	0.0	10.11	AP-42
S-43-5	71.1	64.0	62.4	54.2	10.11	AP-42
S-43-6	16.2	28.0	26.9	1.1	10.11	AP-42
S-43-7	0.0	0.0	0.0	0.0	10.11	AP-42
S-43-8	18.7	0.0	0.0	0.0	10.11	AP-42
S-43-9	0.0	0.0	0.0	0.0	10.11	AP-42
	106.1	92.0	89.3	55.3		

CO	2005					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	0.0	0.0	0.0	0.0	913.01	Source Test 7/22/2004
S-43-5	5,707.6	5,136.9	5,010.4	4,346.7	811.41	Source Test 7/22/2004
S-43-6	1,188.7	2,052.1	1,969.8	82.2	740.24	Source Test 7/22/2004
S-43-7	0.0	0.0	0.0	0.0	780.44	Source Test 5/18/2004
S-43-8	1,561.0	0.0	0.0	0.0	841.98	Source Test 5/19/2004
S-43-9	0.0	0.0	0.0	0.0	503.18	Source Test 6/17/2004
	8,457.3	7,189.0	6,980.2	4,428.9		

SOx	2005

Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	0.0	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	

NOx	2005				
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	0.0	0.0	0.0	0.0	56.0 Source Test 7/22/2004
S-43-5	424.2	381.7	372.4	323.0	60.3 Source Test 7/22/2004
S-43-6	85.5	147.6	141.7	5.9	53.3 Source Test 7/22/2004
S-43-7	0.0	0.0	0.0	0.0	135.3 Rule 1110.2 Limit (36 p
S-43-8	56.2	0.0	0.0	0.0	30.3 Source Test 5/19/2004
S-43-9	0.0	0.0	0.0	0.0	57.6 Source Test 6/17/2004
	565.8	529.4	514.1	328.9	

VOC	2005				
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	0.0	0.0	0.0	0.0	326.7 Rule 1110.2 limit (250
S-43-5	2,298.2	2,068.4	2,017.5	1,750.2	326.7 Rule 1110.2 limit (250
S-43-6	468.6	808.9	776.5	32.4	291.8 Source Test 7/22/2004
S-43-7	0.0	0.0	0.0	0.0	81.0 Source Test 5/18/2004
S-43-8	220.6	0.0	0.0	0.0	119.0 Source Test 5/19/2004
S-43-9	0.0	0.0	0.0	0.0	75.7 Source Test 6/17/2004
	2,987.4	2,877.3	2,794.0	1,782.6	

2005						
DEV	PR = 2005	UNITS	PRO_DES	PM10_EF	PM10_EM	CO_EF
1	402.73	MILLION C	LHGP FUG	0.00	0.00	0.00
3	1.06	MILLION C	FLARE	7.60	0.00	370.00
S-43-4	0.00	MILLION C	IC ENGINE	10.11	0.00	913.01

S-43-5	**24.15**	MILLION C	IC ENGINE	10.11	0.12	811.41
S-43-6	**6.50**	MILLION C	IC ENGINE	10.11	0.03	740.24
S-43-7	**0.00**	MILLION C	IC ENGINE	10.11	0.00	780.44
S-43-8	**1.86**	MILLION C	IC ENGINE	10.11	0.01	841.98
S-43-9	**0.00**	MILLION C	IC ENGINE	10.11	0.00	503.18
13	**0.00**	MILLION C	HEATER N	7.60	0.00	84.00
14	**0.05**	1000 GALL	IC ENGINE	42.48	0.00	130.18
15	**2.44**	MILLION C	HEATER N	7.60	0.01	172.18

0.18

Rule 1110.2 Limit (2000 ppm)	
CO	4574.002 lb/MMcf

Rule 1110.2 Limit (36 ppm)
NOx 135.260 lb/MMcf

ppm)

Rule 1110.2 limit (250 ppm)
ppm) VOC 326.714 lb/MMcf
ppm)

CO_EMS	SOX_EF	SOX_EMS	NOX_EF	NOX_EMS	TOG_EF	TOG_EMS	FROG	VOC_EF
0.00	0.00	0.00	0.00	0.00	0.52	0.10	0.21	0.11
0.20	10.10	0.01	68.00	0.04	187.34	0.10	0.75	140.00
0.00	0.00	0.00	56.02	0.00	1740.00	0.00	0.05	420.01

9.80	0.00	0.00	60.30	0.73	1238.00	14.95	0.04	413.63
2.41	0.00	0.00	53.26	0.17	5187.00	16.86	0.07	291.81
0.00	0.00	0.00	207.88	0.00	1708.00	0.00	0.04	80.96
0.78	0.00	0.00	30.29	0.03	1364.00	1.27	0.04	118.98
0.00	0.00	0.00	57.59	0.00	1379.00	0.00	0.04	75.72
0.00	0.60	0.00	100.00	0.00	11.00	0.00	0.50	5.50
0.00	39.74	0.00	604.30	0.02	63.06	0.00	0.76	47.96
0.21	0.60	0.00	83.57	0.10	11.00	0.01	0.50	5.50

13.40 0.01 1.08 33.30

Richard Edgehill

From: Winn BT (Brent) at Aera [btwinn@aeraenergy.com]
Sent: Tuesday, November 27, 2007 11:48 AM
To: Richard Edgehill
Subject: RE: ERC application S43, 1075362

Richard:

Attached is an Excel file showing the portable analyzer results for NOx and CO for the years 2002-2004. I have highlighted in light green the instances where:

1) The Rule 1110.2 limit of 36 ppm is higher than the average portable analyzer test values for the same period
2) The biennial source test values are higher than the average portable analyzer test values for the same period

It appears to me that, overall, the portable analyzer tests show that use of a 36 ppm emission factor does not overestimate emissions for the representative period. For the great majority of the data, the portable analyzer results are higher than the emission factors used and therefore the requested credit amounts are quite conservative.

It would be a fairly large undertaking to re-calculate the actual emissions based on portable analyzer (PA) results. I would not recommend this, since PA tests are intended only for *monitoring* and not for certifying emission compliance. Also, if PA test results are to be considered representative for *lower* emission values, they should also be considered representative for *higher* emission values. If PA test data were to be applied across-the-board, the overall total of requested credit amounts would probably be higher.

The comparison here does provide further demonstration that the emission factors that have been proposed are conservative. However, I don't think the differences warrant a re-calculation.

Please let me know how you would like to proceed from here.

Thanks....

-B. Winn

-----Original Message-----
From: Winn BT (Brent) at Aera
Sent: Monday, November 19, 2007 4:24 PM
To: 'Richard Edgehill'
Subject: RE: ERC application S43, 1075362

Richard:

Here are a few answers and clarifications, and then I will have to dig for any information you still need after this.

I discovered the year 2003 fuel usage discrepancy (186.95 vs. 192.63 MMscf) while preparing the ERC application when I compared the actual fuel meter numbers to the quantities Aera reported in their annual emission statements. The fuel numbers for the annual emission statements had been provided each year by gas plant staff who used a spreadsheet to allocate the fuel to each compressor based on the total combined fuel for all compressors and individual run hours. Each year, staff would pull up the same spreadsheet and revise/update it with the current year's data. It appears that there were some years when staff changed the run hours in the spreadsheet but forgot to change the overall combined fuel amount. The attached spreadsheet provides a comparison of the actual amounts versus the amounts reported in Aera's annual emission statements.

The gas plant staff have moved on to other positions and responsibilities. However, based on the numbers I have reviewed, it appears that this is what happened:

A) The volumes reported for year 2000 (total combined 185.69 mmcf) were accurate.
B) For year 2001, gas plant staff re-used the same spreadsheet and plugged in accurate run hours but accidentally kept the total combined fuel volume from the previous year in the spreadsheet. After allocating the *erroneous* fuel volume based on run hours, the total combined volume came out at 186.95 mmcf - very close to the volume reported for 2000. I assume the slight difference was due to rounding. The total combined volume for 2001 should have been 165.92 mmcf based on actual meter readings.
C) The same spreadsheet was used for year 2002 and both the run hours and fuel volumes used were accurate.
D) For year 2003, it appears that gas plant staff pulled up the spreadsheet that was used for year 2001 (skipped back two years) and again plugged in accurate run times for 2003 but forgot to change the (erroneous) combined total fuel volume (186.95 mmcf). The combined total volume should have been 192.63 mmcf based on actual meter readings.
E) For year 2004, the gas plant staff repeated the same error they made for year 2003 (the runtimes were accurate but the erroneous volume of 186.95 mmcf was still included in the spreadsheet). The combined total volume should have been 118.69 mmcf based on actual meter readings.
F) Year 2005, runtimes and volumes were accurate.

Aera's environmental staff did not catch these errors for two reasons:

1) When the fuel volumes were checked for accuracy, environmental staff compared each individual compressor's volume to the previous year's individual volume. Since the individual volumes were different from year to year, but did not differ greatly, that was within the realm of what was expected. The individual volumes differed somewhat because they were allocated based on actual run hours from year to year.

2) In the annual emission statements, the total gas plant combined emissions were compared between the current and the previous year in an effort to identify any potentially significant discrepancies. Different emission factors were used every 2 years, based on the most recent source test results for the engines. Furthermore, the emission totals included *all* of the plant equipment - not just the compressors - so it was not evident that the reported combined compressor volumes were repeated in years 2001, 2003, and 2004.

Aera's staff plans to submit revised annual emission statements to the District's emission inventory group as needed.

About baseline period:

The 2 years previous to the shutdown (July 2005 to July 2007) were not representative because, for a large part of that time, the gas plant was not processing any gas. Therefore, it is necessary to look to a different 2-year period as representative of normal operation. Normal operation must logically include times when the gas plant was processing gas from both Aera and Chevron's producing areas. Aera's gas was diverted to the field in May 2004. At that point, two compressors (S-43-4 and -7) were placed on standby (and then made dormant in December 2004). After that, compressors S-43-5 and -6 were not used to feed gas to the gas plant - they were used to divert Aera's produced gas back to the field. Compressors S-43-8 and -9 continued to put Chevron's gas into the plant processes, but operation of these compressors after May 2004 was not representative of normal gas plant volumes. Even after Chevron's feed to the plant was discontinued in January 2005, compressors S-43-5 and -6 continued to send Aera's gas to the field - until they were shut down in November 2005.

So, although the fuel volumes make it appear that compressors S-43-5, -6, -8, and -9 may have continued to operate normally after May 2004, this was not representative of normal plant operation. Normal plant operation would be best represented by a 2-year period preceding May 2004 (going back to May 2002), but this time period is not completely within the 5-year window preceding July 2007 ("shutdown" date). The representative period cannot begin any sooner than July 2002.

- B. Winn

-----Original Message-----
From: Richard Edgehill [mailto:Richard.Edgehill@valleyair.org]
Sent: Monday, November 19, 2007 11:52 AM
To: Winn BT (Brent) at Aera
Cc: Leonard Scandura
Subject: ERC application S43, 1075362

Brent: The following information is required to continue to process REC application S43, 1075362

Project 1041364 designated the 6 IC engines '-4 though '-9 as DEUs and was finalized 12-3-04. The Equipment Configuration and Operational Data submitted with the application included a total 2003 hours of operation and fuel use of '-4 through '-9 as 26,543 hrs and 186.95 MMscf. The ERC application listed the 2003 hours and fuel use for '-4 through '-9 as 33,981 hrs and 192.63 MMscf. Please explain the discrepancy.

Source test results for '-4 through '-9 indicated NOX concentrations of 45.6, 46.8, 50.7, 43.7, 34.9, and 61.4 ppmv @ 15% O2 in 2002 and 14.3, 15.4, 13.6, 51.4, 21.9, and 14.2 ppmv @ 15% O2 in 2004. Please provide portable monthly monitoring data for NOx covering the baseline period (see below).

Annual fuel use (mcf) for '-4 through '-9 from 2001 through 2005 was 165,915 (2001), 178,316 (2002), 192,630 (2003), 118,695 (2004), and 33,942 (2005). However, engine S-43-5 operated normally in 2005 (24,897 mcf fuel used), except in December when no fuel was consumed. Please recalculate ERCs for S-43-5 for a baseline period from December 2003 through November 2005. Please explain why the baseline period (Oct 2002 through Sept 2004) for '-6, '-8, and '-9 did not include 4th qtr 2004 (Oct-Dec 2004) as these engines apparently operated normally then.

Thanks

Aera Energy Lost Hills Section 15 Gas Plant E
I. C. Engine Compressors S-43-4 through S-43-

mission Reduction Credit Application
9

ADD PORTABLE ANALYZER RESULTS for NOx & CO

	2005 Quarterly fuel (mcf)			
	1Q	2Q	3Q	4Q
S-43-4	0	0	0	0
S-43-5	7,034	6,331	6,175	3,357
S-43-6	1,606	4,772	2,661	111
S-43-7	0	0	0	0
S-43-8	1,654	0	0	0
S-43-9	0	0	0	0

Annual Fuel (mcf)
0
24,897
7,150
0
1,854
0
33,901

PM_{10}

Quarterly Emissions (lbs)	2005 1Q	2Q	3Q	4Q
S-43-4	0.0	0.0	0.0	0.0
S-43-5	71.1	64.0	62.4	34.2
S-43-6	16.2	28.0	26.9	1.1
S-43-7	0.0	0.0	0.0	0.0
S-43-8	18.7	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0
	106.1	92.0	89.3	55.3

Emission Factor (lb/mmcf)	
10.11	AP-42
10.11	AP-42
10.11	AP-42
10.11	AP-42
10.11	AP-42
10.11	AP-42

CO

Quarterly Emissions (lbs)	2005 1Q	2Q	3Q	4Q
S-43-4	0.0	0.0	0.0	0.0
S-43-5	5,707.6	5,136.9	5,010.4	4,346.7
S-43-6	1,186.7	2,052.1	1,969.8	82.2
S-43-7	0.0	0.0	0.0	0.0
S-43-8	1,561.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0
	8,457.3	7,189.0	6,980.2	4,428.9

Emission Factor (lb/mmcf)	
913.01	Source Test 7-22-2004
811.41	Source Test 7-22-2004
740.24	Source Test 7-22-2004
780.44	Source Test 5-18-2004
841.98	Source Test 5-19-2004
503.18	Source Test 6-17-2004

Rule 1110.2 Limit (2000 ppm)		
CO	4574.002	lb/MMcf

SOx

Quarterly Emissions (lbs)	2005 1Q	2Q	3Q	4Q
S-43-4	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0

Emission Factor (lb/mmcf)
0.0
0.0
0.0
0.0
0.0

NOx

Quarterly Emissions (lbs)	2005 1Q	2Q	3Q	4Q
S-43-4	0.0	0.0	0.0	0.0
S-43-5	424.2	381.7	372.4	323.0
S-43-6	85.5	147.6	141.7	5.9
S-43-7	0.0	0.0	0.0	0.0
S-43-8	56.2	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0
	565.8	529.4	514.1	328.9

Emission Factor (lb/mmcf)	
56.0	Source Test 7-22-2004
60.3	Source Test 7-22-2004
53.3	Source Test 7-22-2004
135.3	Rule 1110.2 Limit (36 ppm)
30.3	Source Test 5-19-2004
57.6	Source Test 6-17-2004

Rule 1110.2 Limit (36 ppm)		
NOx	135.260	lb/MMcf

VOC

Quarterly Emissions (lbs)	2005 1Q	2Q	3Q	4Q
S-43-4	0.0	0.0	0.0	0.0
S-43-5	2,298.2	2,068.4	2,017.5	1,750.2
S-43-6	468.6	808.9	776.5	32.4
S-43-7	0.0	0.0	0.0	0.0
S-43-8	220.6	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0
	2,987.4	2,877.3	2,794.0	1,782.6

Emission Factor (lb/mmcf)	
326.7	Rule 1110.2 limit (250 ppm)
326.7	Rule 1110.2 limit (250 ppm)
291.6	Source Test 7-22-2004
81.0	Source Test 5-18-2004
119.0	Source Test 5-19-2004
75.7	Source Test 6-17-2004

Rule 1110.2 limit (250 ppm)		
VOC	326.714	lb/MMcf

2005 DEV	PR #	UNITS	PRO_DES
1	402.73	MILLION	LHOP FU
1	1.06	MILLION	FLARE
S-43-4	0.00	MILLION	IC ENGIN
S-43-5	24.15	MILLION	IC ENGIN
S-43-6	6.59	MILLION	IC ENGIN
S-43-7	0.00	MILLION	IC ENGIN
S-43-8	1.86	MILLION	IC ENGIN
S-43-8	0.76	MILLION	IC ENGIN
13	0.00	MILLION	HEATER
14	0.05	1000 GALLO	IC ENGIN
15	2.44	MILLION	HEATER

PM10_EF	PM10_EM	CO_EF	CO_EMS	SOX_EF	SOX_EMI	NOX_EF	NOX_EM	TOG_EF	TOG_EM	PROC	VOC_EF	VOC_EMS
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.10	0.21	0.11	0.02
7.60	0.00	370.00	0.20	10.10	0.01	68.00	0.04	187.34	0.10	0.75	140.00	0.07
10.11	0.00	913.01	0.00	0.00	0.00	56.02	0.00	1740.00	0.00	0.05	420.01	0.00
10.11	0.12	811.41	9.80	0.00	0.00	50.30	0.73	1238.00	14.99	0.05	413.63	4.99
10.11	0.03	740.24	2.41	0.00	0.00	53.28	0.17	3187.00	16.56	0.07	291.81	0.95
10.11	0.00	780.44	0.00	0.00	0.00	207.88	0.00	1706.00	0.00	0.04	50.56	0.00
10.11	0.01	841.98	0.78	0.00	0.00	30.29	0.03	1364.00	1.27	0.04	118.99	0.11
10.11	0.00	503.18	0.00	0.00	0.00	57.59	0.00	1379.00	0.00	0.04	75.72	0.00
7.60	0.00	84.00	0.00	0.60	0.00	100.00	0.00	11.00	0.00	0.50	5.50	0.00
42.48	0.00	130.13	0.00	39.74	0.00	804.30	0.02	63.06	0.00	0.75	47.95	0.00
7.60	0.01	172.18	0.21	0.60	0.00	83.57	0.10	11.00	0.01	0.50	5.50	0.01
	0.18		13.40		0.01		1.08		33.30			6.16

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

ADD PORTABLE ANALYZER RESULTS for NOx & CO

	2004 Quarterly fuel (mscf)				
	1Q	2Q	3Q	4Q	Annual Fuel (mscf)
S-43-4	13,289	5,100	865	0	19,254
S-43-5	13,547	5,922	1,786	3,297	24,552
S-43-6	203	4,171	10,922	7,304	22,599
S-43-7	5,636	3,077	62	0	8,776
S-43-8	7,805	7,027	5,420	1,448	21,701
S-43-9	34	1,903	8,051	11,824	21,812
					118,695

PM_{10} 2004

Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	134.4	51.6	8.7	0.0	10.11	AP-42
S-43-5	137.0	59.9	19.1	33.3	10.11	AP-42
S-43-6	2.1	42.2	110.4	73.8	10.11	AP-42
S-43-7	57.0	31.1	0.6	0.0	10.11	AP-42
S-43-8	78.9	71.0	54.8	14.6	10.11	AP-42
S-43-9	0.3	19.2	81.4	119.5	10.11	AP-42
	409.6	275.0	274.0	241.4		

CO 2004

Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	12,133.1	4,656.6	789.7	0.0	919.01	Source Test 7/22/2004
S-43-5	10,991.8	4,805.3	1,449.5	2,675.5	811.41	Source Test 7/22/2004
S-43-6	150.6	3,087.2	8,084.7	5,406.5	740.24	Source Test 7/22/2004
S-43-7	4,398.8	2,401.7	48.5	0.0	780.44	Source Test 5/18/2004
S-43-8	6,571.9	5,916.8	4,563.6	1,219.3	841.96	Source Test 5/19/2004
S-43-9	17.3	957.8	4,051.0	5,949.6	503.18	Source Test 5/17/2004
	34,263.4	21,825.4	18,986.9	15,250.8		

CO 2004

Portable Analyzer Results (ppm CO @15% O2)

1Q	2Q	3Q	4Q	Average	Converted to lb/mmcf	
369.3	451.5	413.4	No test	411.4	940.9	CO
290.2	292.9	338.9	316.3	297.1	679.5	
265.9	299.6	353.6	378.5	324.4	741.9	
333.9	339.7	317.4	No test	330.3	755.4	
229.6	234.3	141.4	210.1	203.9	466.3	
No test	258.3	235.3	268.2	253.9	580.7	

Rule 1110.2 Limit (2000 ppm)
4574.002 lb/MMcf

SOx 2004

Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	0.0	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	

NOx 2004

Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	744.5	285.7	48.5	0.0	56.0	Source Test 7/22/2004
S-43-5	816.9	357.1	107.7	198.8	60.3	Source Test 7/22/2004
S-43-6	10.8	222.1	581.7	389.0	53.3	Source Test 7/22/2004
S-43-7	762.4	416.2	8.4	0.0	135.3	Rule 1110.2 Limit (36 ppm)
S-43-8	236.4	212.9	164.2	43.9	30.3	Source Test 5/19/2004
S-43-9	2.0	109.6	463.8	680.9	57.6	Source Test 5/17/2004
	2,572.9	1,603.7	1,374.1	1,312.6		

NOx 2004

Portable Analyzer Results (ppm NOx @15% O2)

1Q	2Q	3Q	4Q	Average	Converted to lb/mmcf	
21.1	24.2	12.5	No test	19.3	72.5	NOx
59.8	28.5	9.3	19.9	31.9	119.9	
34.1	49.7	12.5	18.1	28.6	107.5	
53.5	51.9	32.6	No test	46.0	172.8	
33.4	44.6	12.5	36.6	31.8	119.5	
No test	17.2	12.3	27.4	19.0	71.4	

Rule 1110.2 limit (36 ppm)
135.250 lb/MMcf

VOC 2004

Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	4,341.7	1,696.3	282.6	0.0	326.7	Rule 1110.2 limit (250 ppm)
S-43-5	4,425.8	1,934.9	583.6	1,077.3	326.7	Rule 1110.2 limit (250 ppm)
S-43-6	59.4	1,217.0	3,187.1	2,131.3	291.8	Source Test 7/22/2004
S-43-7	456.3	249.1	5.0	0.0	81.0	Source Test 5/18/2004
S-43-8	928.7	835.1	644.9	172.3	119.0	Source Test 5/19/2004
S-43-9	2.6	144.1	609.6	895.3	75.7	Source Test 5/17/2004
	10,214.5	6,047.61	5,312.8	4,276.2		

Rule 1110.2 limit (250 ppm)
VOC 326.714 lb/MMcf

56.02
60.30
53.26
207.88
30.29
57.58

5/22/2002 Sox 7/22/04 CO, Nox VOC
5/22/2002 Sox 7/22/04 CO, Nox VOC
5/21/2002 Sox 7/22/04 CO, Nox VOC
5/23/2002 Sox 5/18/04 CO, Nox VOC
5/21/2002 Sox 5/19/04 CO, Nox VOC
5/21/2002 Sox 6/17/04 CO, Nox VOC

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

ADD PORTABLE ANALYZER RESULTS for NOx & CO

	2002 Quarterly fuel (mcf) 1Q	2Q	3Q	4Q	Annual Fuel (mcf)
S-43-4	6,825.9	11,176.5	12,912 7	9,312 0	40,227
S-43-5	6,968 1	7,670 9	5,979 6	9,405 4	30,024
S-43-6	12,263 6	7,420.6	6,970 7	7,272.7	33,928
S-43-7	0 0	2,725 6	11,474.2	5,476 3	19,676
S-43-8	9,123 4	8,944 5	11,494.8	8,487 1	38,050
S-43-9	4,135.0	4,136 9	0 0	8,139 7	16,412
					178,316

PM_{10}	2002					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	69 0	113.0	130.5	94 1	10 11	AP-42
S-43-5	70 4	77 6	60 5	95 1	10 11	AP-42
S-43-6	124 0	75 0	70 5	73 5	10 11	AP-42
S-43-7	0 0	27 6	116 0	55 4	10 11	AP-42
S-43-8	92 2	90 4	116 2	85 8	10 11	AP-42
S-43-9	41 8	41.8	0 0	82.3	10 11	AP-42
	397.5	425 4	493.7	486 2		

CO	2002					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	4,529 7	7,416 7	8,568.9	6,179 4	863 6	Source Test 5/21 & 22/2002
S-43-5	4,424.0	4,870 3	3,796 4	5,971.5	634.9	Source Test 5/21 & 22/2002
S-43-6	6,567 2	3,973.7	3,732 8	3,894 5	535.5	Source Test 5/21 & 22/2002
S-43-7	0.0	2,833 2	11,927 4	5,692.6	1039.5	Source Test 5/21 & 22/2002
S-43-8	6,029 7	5,911.4	7,596 9	5,609 1	660 9	Source Test 5/21 & 22/2002
S-43-9	2,914 7	2,916 1	0 0	5,737 7	704 9	Source Test 5/21 & 22/2002
	24,465 3	27,921 5	35,622 5	33,084.7		

2002 CO

Portable Analyzer Results (ppm CO @15% O2)

1Q	2Q	3Q	4Q	Average	Converted to lb/mmcf	Rule 1110 2 Limit (2000 ppm)
	341 8	334.1	350 4	342.1	782 4	CO 4574.002 lb/MMcf
	255 9	346 8	311 8	304.8	697.1	
	265 2	274 9	246.2	262.1	599 4	
	560 5	397 4	462 0	473 3	1082.4	
	361 5	369 9	325 4	352.3	805 7	
	No test	No test	284 3	284.3	650 2	

SOx	2002				
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	0.0	0 0	0 0	0 0	0 0
S-43-5	0.0	0 0	0 0	0.0	0 0
S-43-6	0 0	0 0	0 0	0.0	0 0
S-43-7	0 0	0 0	0.0	0 0	0 0
S-43-8	0.0	0 0	0.0	0 0	0.0
S-43-9	0 0	0 0	0 0	0.0	0 0
	0.0	0 0	0 0	0 0	

NOx	2002					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	923.3	1,511.7	1,746.6	1,259 5	135 3	Rule 1110.2 Limit (36 ppm)
S-43-5	942.5	1,037 6	808.8	1,272.2	135 3	Rule 1110.2 Limit (36 ppm)
S-43-6	1,658.8	1,003.7	942 9	983 7	135.3	Rule 1110 2 Limit (36 ppm)
S-43-7	0.0	358.7	1,552.0	740 7	135 3	Rule 1110 2 Limit (36 ppm)
S-43-8	1,234 0	1,209 8	1,554 9	1,148 0	135.3	Rule 1110.2 Limit (36 ppm)
S-43-9	559 3	559.6	0.0	1,101 0	135.3	Rule 1110 2 Limit (36 ppm)
	5,317.9	5,691 1	6,605 0	6,505 0		

2002 NOx

Portable Analyzer Results (ppm NOx @15% O2)

1Q	2Q	3Q	4Q	Average	Converted to lb/mmcf	Rule 1110 2 Limit (36 ppm)
	62.6	56.6	68.1	62.4	234 5	NOx 135 260 lb/MMcf
	52 6	68.6	64.8	62.0	232 9	
	33 5	31.6	25.3	30 1	113 1	
	52.1	36.7	52 3	47 0	176.6	
	31 2	53 1	42 6	42.3	158.9	
	No test	No test	35 2	35 2	132 3	

VOC	2002					
Quarterly Emissions (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	641 9	1,051.0	1,214.2	875.6	94 0	Source Test 5/21 & 22/2002
S-43-5	358.0	394 1	307 2	483.2	51.4	Source Test 5/21 & 22/2002
S-43-6	4,006 7	2,424 4	2,277.4	2,376.1	326 7	Rule 1110.2 limit (250 ppm)
S-43-7	0 0	172 6	726.5	346.7	63.3	Source Test 5/21 & 22/2002
S-43-8	497 0	487 3	626.2	462.4	54 5	Source Test 5/21 & 22/2002
S-43-9	249 0	249 2	0.0	490.2	60 2	Source Test 5/21 & 22/2002
	5,752 6	4,778 5	5,151 6	5,034 3		

Rule 1110 2 limit (250 ppm)
VOC 326.714 lb/MMcf

Emission Statement - Calendar Year 2002 Emissions

Device ID #	Process Number	Equipment Type	Yearly Process Rate	Unit Source Classification	NOX lb / Unit	TOG lb / Unit	Fraction of ROG	VOC Lb / Unit	SOX lb / Unit	CO lb / Unit	PM Lb / Unit	Fraction PM10	PM10 Lb / Unit	
1	3	FUGITIVE EMIS	6 348	IC FEET OF (	0.00	3 17	0 39	1.23	0.00	0.00	N/A	N/A	0.00	
				31000299	0.00	17.21		6.66	0.00	0.00			0.00	Tons /Yr.
3	1	FLARE	2.504	CUBIC FEET	68.00	2,000	0.75	105.00	10.10	370.00	N/A	N/A	7.60	
				31000205	0.08	2.50		1.87	0.01	0.46			0.01	Tons /Yr.
4	1	IC ENGINE	40.331	CUBIC FEET	184 26	1,740	0.05	94.03	0.00	663.60	N/A	N/A	0.08	
				20200202	3.72	35.08		1.90	0.00	13.38			0.00	Tons /Yr.
5	1	IC ENGINE	30.126	CUBIC FEET	188.90	1,238	0 04	51.38	0.00	634.90	N/A	N/A	0.08	
				20200202	2.85	18.65		0.77	0.00	9.56			0.00	Tons /Yr.
6	1	IC ENGINE	33 723	CUBIC FEET	204.70	5,187	0.07	358 86	0.00	535.50	N/A	N/A	0.08	
				20200202	3.45	87.48		6.05	0.00	9.03			0.00	Tons /Yr.
7	1	IC ENGINE	20 354	CUBIC FEET	176 40	1,708	0.04	63.32	0.00	1,040	N/A	N/A	0.08	
				20200202	1.80	17.38		0.64	0.00	10.58			0.00	Tons /Yr.
8	1	IC ENGINE	37 506	CUBIC FEET	141.00	1,364	0.04	54.48	0.00	660.90	N/A	N/A	0.08	
				20200202	2.64	25.59		1.02	0.00	12.39			0.00	Tons /Yr.
9	1	IC ENGINE	16.277	CUBIC FEET	249 70	1,379	0 04	60.23	0.00	704 90	N/A	N/A	0.08	
				20200202	2.03	11.22		0.49	0.00	5.74			0.00	Tons /Yr.
13	1	EATER NAT G(	0	CUBIC FEET	100.00	13 87	0 50	5.50	0.60	84.00	N/A	N/A	7.60	
				31000404	0.00	0.00		0.00	0.00	0.00			0.00	Tons /Yr.
14	2	GINE DIESEL	0.06	GALLONS BL	85 11	6 76	0 76	36.47	5.60	18.34	N/A	N/A	42.48	
				20200102	0.00	0.00		0.00	0.00	0.00			0.00	Tons /Yr.
15	1	EATER NAT G	30 728	CUBIC FEET	83 57	13 87	0 50	5 50	0.60	172.16	N/A	N/A	7.60	
				31000414	1.28	0.21		0.11	0.01	2.85			0.12	Tons /Yr.
		Totals For the Facility (Tons/Year)			17 86	215.30		17 80	0 02	63 79			1 03	

Contact	PEGGY SHUE
Company	AERA ENERGY LLC
Adress	PO BOX 11164
City,State,Zip	BAKERSFIELD, CA 93389
Telephone	(661) 6655689
Email Address	pashue@aeraenergy.com
Location of facility if different from above	AERA ENERGY LLC LOST HILLS GAS PLANT

Emission Factor Source

Emission Factor Used, lb/MMcf

	PRO DES	PM10	CO	SOx	NOx	VOC	Test Date	Btu/cf	PM10	CO	SOx	NOx	VOC
S-43-4	IC ENGINE NAT GAS		913.0	0	56 0	420 0	5/22/2002 SOx 7/22/04 CO, NOx, VOC		10 11	913 0	0	56 0	420 0
S-43-5	IC ENGINE NAT GAS		811 1	0	60 3	413 6	5/22/2002 SOx 7/22/04 CO, NOx, VOC		10 11	811 1	0	60 3	413 6
S-43-6	IC ENGINE NAT GAS		740 24	0	53 3	291 8	5/22/2002 SOx 7/22/04 CO, NOx VOC		10 11	740 24	0	53 3	291 8
S-43-7	IC ENGINE NAT GAS		780 4	0	207 9	81 0	5/22/2002 Sox 5/18/04 CO Nox VOC		10 11	780 4	0	207 9	81 0
S-43-8	IC ENGINE NAT GAS		842 0	0	30 3	119 0	5/21/2002 Sox 5/19/04 CO Nox VOC		10 11	842 0	0	30 3	119 0
S-43-9	IC ENGINE NAT GAS		503.18	0	57 6	75 7	5/21/2002 Sox 6/17/04 CO Nox VOC		10 11	503 18	0	57 6	75 7

Emission Factor Source

Emission Factor Used, lb/MMcf or lb/Mool

FAC ID	PRO DES	PM10	CO	SOx	NOx	VOC	Test Date	Btu/cf	PM10	CO	SOx	NOx	VOC	FF	TOC
S-43-4	IC ENGINE NAT GAS	0.0786	663 6	0	184 3	94 0	05/22/02		0 0786	663 6	0	184 3	94 0	0	1740
S-43-5	IC ENGINE NAT GAS	0.0786	634 9	0	188 9	51.4	05/22/02		0 0786	634 9	0	188 9	51 4	0	1238
S-43-6	IC ENGINE NAT GAS	0.0786	535 5	0	204 7	358 9	05/21/02		0 0786	535 5	0	204 7	358 9	0	5187
S-43-7	IC ENGINE NAT GAS	0.0786	1039 5	0	176 4	63 3	05/22/02		0 0786	1039 5	0	176 4	63 3	0	1708
S-43-8	IC ENGINE NAT GAS	0.0786	660 9	0	141 0	54 5	05/21/02		0 0786	660 9	0	141 0	54 5	0	1364
S-43-9	IC ENGINE NAT GAS	0.0786	704 9	0	249 7	60 2	05/21/02		0 0786	704 9	0	249 7	60 2	0	1379

black - source test

Emission Factors revised to answer District's mid-2003 request to ensure PM10 (not total PM) and VOC (not TOG) emission factors

PM10 Emission Factor	Emission Factor Source	PM or PM10?	PM 10 Emission Factor lb/MMscf or lb/Mool	TOG or VOC Emission Factor	Emission Factor Source	Other Information Used	Source of FROG	FROG	TOG Emission Factor, lb/MMscf	VOC Emission Factor, lb/MMscf
7.71 E-05 lb/MMBtu	AP-42 Table 3.2-2 with default 1020 Btu/scf	PM10	0.0786	1.47 lb TOC/MMBtu, 0.118 lb VOC/MMBtu	AP-42 Table 3.2-2	AP-42 Table assumes 1020 Btu/cf	Divide AP-42 VOC by AP-42 TOG	0.0800	1,496	120

Aera Energy Lost Hills Section 15 Gas Plant Emission Reduction Credit Application
I. C. Engine Compressors S-43-4 through S-43-9

ADD PORTABLE ANALYZER RESULTS for NOx & CO

	2003	Quarterly fuel (mcf)			
	1Q	2Q	3Q	4Q	Annual Fuel (mcf)
S-43-4	6,328.8	4,373	8,549	13,397	32,649
S-43-5	11,520.7	11,368	8,822	13,204	42,915
S-43-6	8,364.4	9,679	9,897	856	28,796
S-43-7	9,256.1	8,682	4,960	7,001	29,099
S-43-8	4,342.1	10,766	9,920	11,753	36,785
S-43-9	8,752.8	3,918	6,849	3,867	23,387
					192,630

PM_{10} 2003

Quarterly Emission s (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	84.0	44.2	99.4	135.4	10.11	AP-42
S-43-5	116.5	114.9	89.0	133.5	10.11	AP-42
S-43-6	84.6	97.9	100.1	8.6	10.11	AP-42
S-43-7	93.6	69.6	50.1	70.8	10.11	AP-42
S-43-8	43.9	108.9	100.3	118.8	10.11	AP-42
S-43-9	88.5	39.6	69.2	38.1	10.11	AP-42
	491.0	475.1	475.1	506.3		

CO 2003

Quarterly Emission s (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	4,200.5	2,901.9	5,673.3	8,890.2	663.6	Source Test 5/21 & 22/2002
S-43-5	7,314.5	7,217.6	4,331.4	8,383.5	634.9	Source Test 5/21 & 22/2002
S-43-6	4,479.1	5,183.2	5,299.6	458.2	535.5	Source Test 5/21 & 22/2002
S-43-7	9,621.7	7,153.6	5,156.1	7,277.2	1039.5	Source Test 5/21 & 22/2002
S-43-8	2,869.7	7,117.5	6,556.0	7,767.8	660.9	Source Test 5/21 & 22/2002
S-43-9	6,199.6	2,781.9	4,327.6	2,723.6	704.9	Source Test 5/21 & 22/2002
	34,685.4	32,335.7	31,844.3	35,502.7		

CO Portable A

1Q
276.2
273.9
249.5
413.0
266.4
253.3

2003

Analyzer Results (ppm @15% O2)

2Q	3Q	4Q	Average	Converted to lb/mmcf
295.0	274.4	361.3	301.7	680.0
296.2	280.0	266.2	284.1	649.7
265.2	314.7	253.9	270.8	619.3
No test	433.1	439.7	428.6	980.2
306.9	329.1	328.6	307.8	703.9
266.5	255.1	313.1	271.8	621.6

Rule 1110 2 Limit (2000 ppm)
CO 4574.002 lb/MMcf

SOx 2003

Quarterly Emission s (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)
S-43-4	0.0	0.0	0.0	0.0	0.0
S-43-5	0.0	0.0	0.0	0.0	0.0
S-43-6	0.0	0.0	0.0	0.0	0.0
S-43-7	0.0	0.0	0.0	0.0	0.0
S-43-8	0.0	0.0	0.0	0.0	0.0
S-43-9	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	

NOx 2003

Quarterly Emission s (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	856.2	591.5	1,156.4	1,812.1	135.3	Rule 1110 2 Limit (36 ppm)
S-43-5	1,558.3	1,537.6	922.8	1,786.0	135.3	Rule 1110 2 Limit (36 ppm)
S-43-6	1,131.4	1,309.2	1,338.8	115.7	135.3	Rule 1110 2 Limit (36 ppm)
S-43-7	1,252.0	930.8	670.9	946.9	135.3	Rule 1110 2 Limit (36 ppm)
S-43-8	587.3	1,456.7	1,341.8	1,569.6	135.3	Rule 1110 2 Limit (36 ppm)
S-43-9	1,183.9	530.0	926.4	523.0	135.3	Rule 1110 2 Limit (36 ppm)
	6,569.0	6,355.8	6,356.8	6,773.5		

NOx Portable A

1Q
51.5
63.6
36.6
38.9
67.5
29.8

2003

Analyzer Results (ppm @15% O2)

2Q	3Q	4Q	Average	Converted to lb/mmcf
31.4	41.3	28.6	38.2	143.5
56.1	67.3	69.6	64.2	241.2
30.5	28.2	45.4	35.2	132.3
No test	72.6	Failed test	55.8	209.7
62.5	67.7	Failed test	65.0	248.0
38.4	44.7	32.6	40.1	150.7

Rule 1110 2 Limit (36 ppm)
NOx 135.260 lb/MMcf

Re-tested in Jan 2004 @ 64.3 ppm
Re-tested in Jan 2004 @ 67.1 ppm

VOC 2003

Quarterly Emission s (lbs)	1Q	2Q	3Q	4Q	Emission Factor (lb/mmcf)	
S-43-4	595.0	411.1	803.6	1,259.3	94.0	Source Test 5/21 & 22/2002
S-43-5	592.2	584.3	350.7	678.7	51.4	Source Test 5/21 & 22/2002
S-43-6	2,732.8	3,152.3	3,233.4	279.5	326.7	Rule 1110 2 limit (250 ppm)
S-43-7	595.9	435.8	314.0	443.1	63.3	Source Test 5/21 & 22/2002
S-43-8	216.6	586.9	540.6	640.6	54.5	Source Test 5/21 & 22/2002
S-43-9	526.9	235.9	412.3	232.8	60.2	Source Test 5/21 & 22/2002
	5,269.4	5,416.1	5,654.6	3,534.0		

Rule 1110 2 limit (250 ppm)
VOC 326.714 lb/MMcf

DEV	PM_S	UNITS	PRO_DES	PM10_EF		PM10_EMS
1	9187.31	MILLION (I	LHGP FUE	0.00		0.00
3	1.91	MILLION (I	FLARE	7.60		0.01
S-43-4	39.37	MILLION (I	IC ENGINE	10.11		0.19
S-43-5	49.56	MILLION (I	IC ENGINE	10.11		0.25
S-43-6	33.71	MILLION (I	IC ENGINE	10.11		0.17
S-43-7	20.78	MILLION (I	IC ENGINE	10.11		0.11
S-43-8	27.27	MILLION (I	IC ENGINE	10.11		0.14
S-43-9	17.16	MILLION (I	IC ENGINE	10.11		0.09
13	0	MILLION (I	HEATER I	7.60		0.00
14	0.05	1000 GAL	IC ENGINE	42.46		0.00
15	34.20	MILLION (I	HEATER I	7.60		0.13
						1.08

DEV	CO_EF	CO_EMS	SOX_EF		SOX_EMS	NOX_EF	NOX_EMS	TOG_EF	TOG_EMS	FROG		VOC_EF	VOC_EMS
1	0.00	0.00	0.00		0.00	0.00	0.00	2.73	12.66		0.21	0.58	2.67
3	370.00	0.35	10.10		0.01	88.00	0.07	187.34	0.18		0.75	140.00	0.13
S-43-4	663.60	12.63	0.00		0.00	184.58	3.51	1740.00	33.12		0.05	94.00	1.79
S-43-5	634.90	15.77	0.00		0.00	168.90	4.59	1238.00	30.74		0.04	51.40	1.28
S-43-6	535.50	9.03	0.00		0.00	204.70	3.45	5157.00	87.43		0.07	358.90	6.05
S-43-7	1039.50	10.50	0.00		0.00	176.40	1.83	1108.00	11.74		0.04	63.30	0.66
S-43-8	660.90	9.01	0.00		0.00	141.00	1.92	1364.00	18.60		0.04	54.50	0.74
S-43-9	704.90	8.15	0.00		0.00	249.70	2.18	1379.00	12.04		0.04	60.20	0.53
13	84.00	0.00	0.60		0.00	100.00	0.00	11.00	0.00		0.50	5.50	0.00
14	130.18	0.00	39.74		0.00	904.30	0.02	63.06	0.00		0.76	47.96	0.00
15	172.18	2.94	0.60		0.01	83.57	1.43	11.00	0.19		0.50	5.50	0.09
		66.89			0.02		19.09		212.69				13.94

FAC_ID	2004 Fue	UNITS	PRO_DES	PM10_EF		PM10_EMS
1	7609.12	MILLION (I	LHGP FUE	0.00		0.00
3	1.51	MILLION (I	FLARE	7.60		0.01
S-43-4	32.40	MILLION (I	IC ENGINE	10.11		0.16
S-43-5	43.54	MILLION (I	IC ENGINE	10.11		0.22
S-43-6	45.41	MILLION (I	IC ENGINE	10.11		0.23
S-43-7	11.49	MILLION (I	IC ENGINE	10.11		0.06
S-43-8	27.47	MILLION (I	IC ENGINE	10.11		0.14
S-43-9	25.54	MILLION (I	IC ENGINE	10.11		0.13
13	0	MILLION (I	HEATER I	7.60		0.00
14	0.06	1000 GAL	IC ENGINE	42.46		0.00
15	37.57	MILLION (I	HEATER I	7.60		0.14
						1.10

DEV	CO_EF	CO_EMS	SOX_EF		SOX_EMS	NOX_EF	NOX_EMS	TOG_EF	TOG_EMS	FROG		VOC_EF	VOC_EMS
1	0.00	0.00	0.00		0.00	0.00	0.00	0.52	1.96		0.21	0.11	0.41
3	370.00	0.28	10.10		0.01	88.00	0.05	187.34	0.14		0.75	140.00	0.11
S-43-4	913.01	14.79	0.00		0.00	56.02	0.91	6810.13	107.08		0.06	420.01	6.80
S-43-5	811.41	17.70	0.00		0.00	50.30	1.32	5709.99	124.59		0.04	413.63	9.03
S-43-6	740.24	16.81	0.00		0.00	53.26	1.21	5044.19	114.52		0.07	291.81	6.62
S-43-7	780.44	4.48	0.00		0.00	207.88	1.19	1658.57	9.53		0.04	80.96	0.47
S-43-8	841.98	11.57	0.00		0.00	30.29	0.42	1759.28	24.17		0.04	118.98	1.63
S-43-9	903.18	8.68	0.00		0.00	57.59	0.76	1381.79	18.34		0.04	75.72	1.00
13	84.00	0.00	0.60		0.00	100.00	0.00	11.00	0.00		0.50	5.50	0.00
14	130.18	0.00	39.74		0.00	904.30	0.02	63.06	0.00		0.76	47.96	0.00
15	172.18	3.24	0.60		0.01	83.57	1.57	11.00	0.21		0.50	5.50	0.10
		75.55			0.02		7.45		400.53				26.18

Richard Edgehill

From: Winn BT (Brent) at Aera [btwinn@aeraenergy.com]
Sent: Monday, November 19, 2007 4:24 PM
To: Richard Edgehill
Subject: RE: ERC application S43, 1075362

Richard:

Here are a few answers and clarifications, and then I will have to dig for any information you still need after this.

I discovered the year 2003 fuel usage discrepancy (186.95 vs. 192.63 MMscf) while preparing the ERC application when I compared the actual fuel meter numbers to the quantities Aera reported in their annual emission statements. The fuel numbers for the annual emission statements had been provided each year by gas plant staff who used a spreadsheet to allocate the fuel to each compressor based on the total combined fuel for all compressors and individual run hours. Each year, staff would pull up the same spreadsheet and revise/update it with the current year's data. It appears that there were some years when staff changed the run hours in the spreadsheet but forgot to change the overall combined fuel amount. The attached spreadsheet provides a comparison of the actual amounts versus the amounts reported in Aera's annual emission statements.

The gas plant staff have moved on to other positions and responsibilities. However, based on the numbers I have reviewed, it appears that this is what happened:

A) The volumes reported for year 2000 (total combined 185.69 mmcf) were accurate.
B) For year 2001, gas plant staff re-used the same spreadsheet and plugged in accurate run hours but accidentally kept the total combined fuel volume from the previous year in the spreadsheet. After allocating the *erroneous* fuel volume based on run hours, the total combined volume came out at 186.95 mmcf - very close to the volume reported for 2000. I assume the slight difference was due to rounding. The total combined volume for 2001 should have been 165.92 mmcf based on actual meter readings.
C) The same spreadsheet was used for year 2002 and both the run hours and fuel volumes used were accurate.
D) For year 2003, it appears that gas plant staff pulled up the spreadsheet that was used for year 2001 (skipped back two years) and again plugged in accurate run times for 2003 but forgot to change the (erroneous) combined total fuel volume (186.95 mmcf). The combined total volume should have been 192.63 mmcf based on actual meter readings.
E) For year 2004, the gas plant staff repeated the same error they made for year 2003 (the runtimes were accurate but the erroneous volume of 186.95 mmcf was still included in the spreadsheet). The combined total volume should have been 118.69 mmcf based on actual meter readings.
F) Year 2005, runtimes and volumes were accurate.

Aera's environmental staff did not catch these errors for two reasons:

1) When the fuel volumes were checked for accuracy, environmental staff compared each individual compressor's volume to the previous year's individual volume. Since the individual volumes were different from year to year, but did not differ greatly, that was within the realm of what was expected. The individual volumes differed somewhat because they were allocated based on actual run hours from year to year.

2) In the annual emission statements, the total gas plant combined emissions were compared between the current and the previous year in an effort to identify any potentially significant discrepancies. Different emission factors were used every 2 years, based on the most recent source test results for the engines. Furthermore, the emission totals included *all* of the plant equipment - not just the compressors - so it was not evident that the reported combined compressor volumes were repeated in years 2001, 2003, and 2004.

Aera's staff plans to submit revised annual emission statements to the District's emission inventory group as needed.

About baseline period:

The 2 years previous to the shutdown (July 2005 to July 2007) were not representative because, for a large part of that time, the gas plant was not processing any gas. Therefore, it is necessary to look to a different 2-year period as representative of normal operation. Normal operation must logically include times when the gas plant was processing gas from both Aera and Chevron's producing areas. Aera's gas was diverted to the field in May 2004. At that point, two compressors (S-43-4 and -7) were placed on standby (and then made dormant in December 2004). After that, compressors S-43-5 and -6 were not used to feed gas to the gas plant - they were used to divert Aera's produced gas back to the field. Compressors S-43-8 and -9 continued to put Chevron's gas into the plant processes, but operation of these compressors after May 2004 was not representative of normal gas plant volumes. Even after Chevron's feed to the plant was discontinued in January 2005, compressors S-43-5 and -6 continued to send Aera's gas to the field - until they were shut down in November 2005.

So, although the fuel volumes make it appear that compressors S-43-5, -6, -8, and -9 may have continued to operate normally after May 2004, this was not representative of normal plant operation. Normal plant operation would be best represented by a 2-year period preceding May 2004 (going back to May 2002), but this time period is not completely within the 5-year window preceding July 2007 ("shutdown" date). The representative period cannot begin any sooner than July 2002.

- B. Winn

-----Original Message-----
From: Richard Edgehill [mailto:Richard.Edgehill@valleyair.org]
Sent: Monday, November 19, 2007 11:52 AM
To: Winn BT (Brent) at Aera
Cc: Leonard Scandura
Subject: ERC application S43, 1075362

Brent: The following information is required to continue to process REC application S43, 1075362

Project 1041364 designated the 6 IC engines '-4 though '-9 as DEUs and was finalized 12-3-04. The Equipment Configuration and Operational Data submitted with the application included a total 2003 hours of operation and fuel use of '-4 through '-9 as 26,543 hrs and 186.95 MMscf. The ERC application listed the 2003 hours and fuel use for '-4 through '-9 as 33,981 hrs and 192.63 MMscf. Please explain the discrepancy.

Source test results for '-4 through '-9 indicated NOX concentrations of 45.6, 46.8, 50.7, 43.7, 34.9, and 61.4 ppmv @ 15% O2 in 2002 and 14.3, 15.4, 13.6, 51.4, 21.9, and 14.2 ppmv @ 15% O2 in 2004. Please provide portable monthly monitoring data for NOx covering the baseline period (see below).

Annual fuel use (mcf) for '-4 through '-9 from 2001 through 2005 was 165,915 (2001), 178,316 (2002), 192,630 (2003), 118,695 (2004), and 33,942 (2005). However, engine S-43-5 operated normally in 2005 (24,897 mcf fuel used), except in December when no fuel was consumed. Please recalculate ERCs for S-43-5 for a baseline period from December 2003 through November 2005. Please explain why the baseline period (Oct 2002 through Sept 2004) for '-6, '-8, and '-9 did not include 4th qtr 2004 (Oct-Dec 2004) as these engines apparently operated normally then.

Thanks

Allocated Fuel Usage Per Engine (mcf)

2001	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
S-43-4	21	59	2,978	2,355	0	0	0	0
S-43-5	5,218	4,931	4,467	4,162	4,575	3,192	4,566	4,606
S-43-6	5,147	4,593	1,489	2,736	4,401	3,102	4,541	4,702
S-43-7	2675	2871	1686	2724	1670	2329	2497	2944
S-43-8	0	0	0	32	2574	2619	3676	4102
S-43-9	1673	1063	2542	1910	860	0	0	11

Allocated Fuel Usage Per Engine (mcf)

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
S-43-4	162	2,293	4,371	3,299	3,521	4,356	4,300	4,361
S-43-5	4,430	2,158	381	2,512	2,584	2,575	629	3,735
S-43-6	4,554	3,737	3,972	2,875	2,788	1,757	3,627	525
S-43-7	0	0	0	0	863	1862	3745	4003
S-43-8	4201	2417	2506	2317	2949	3679	3657	4031
S-43-9	279	1759	2097	1868	2046	222	0	0

Allocated Fuel Usage Per Engine (mcf)

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
S-43-4	1,232	680	4,417	1,635	2,048	690	2,105	2,403
S-43-5	4,538	3,934	3,050	3,932	4,205	3,232	2,037	1,873
S-43-6	3,305	3,686	1,373	2,421	2,711	4,547	4,324	4,334
S-43-7	2011	3472	3773	2638	3846	398	1640	1427
S-43-8	1683	0	2659	3376	3820	3573	2715	3755
S-43-9	4175	3350	1228	727	0	3191	2805	2297

Allocated Fuel Usage Per Engine (mcf)

2004	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
S-43-4	4,416	4,374	4,500	3,123	1,306	672	865	0
S-43-5	4,378	4,425	4,744	3,867	2,041	14	1,351	77
S-43-6	159	45	0	1,110	19	3,041	2,481	4,589
S-43-7	3,011	2,352	273	1,729	922	426	19	13
S-43-8	1,672	2,112	4,022	2,103	3,189	1,735	1,255	3,001
S-43-9	0	34	0	0	0	1,903	3,203	1,716

				2001	Volumes Reported in Annual Emission Statement (mmcf)
Sep	Oct	Nov	Dec	Annual	
6	2,514	3,354	1,955	13,242	**15.300**
4,394	3,225	3,247	2,662	49,243	**55.385**
4,344	3,562	2,253	4,420	45,288	**50.758**
265	196	90	12	19,958	**22.771**
2253	2412	4066	1370	23,104	**26.019**
2188	1944	6	2881	15,079	**16.715**
				165,915	**186.947**

				2002	
Sep	Oct	Nov	Dec	Annual	
4,252	2,119	2,949	4,244	40,227	**40.331**
1,615	3,396	3,920	2,089	30,024	**30.126**
2,819	3,390	1,446	2,437	33,928	**33.723**
3726	3721	1568	187	19,676	**20.354**
3807	2953	2029	3505	38,050	**37.506**
0	757	3638	3745	16,412	**16.277**
				178,316	**178.317**

				2003	
Sep	Oct	Nov	Dec	Annual	
4,041	4,446	4,568	4,383	32,649	**38.066**
2,913	4,508	4,574	4,122	42,915	**49.665**
1,239	250	0	606	28,796	**33.712**
1892	2265	3723	1013	28,099	**20.776**
3449	3916	3848	3989	36,785	**27.268**
1746	1763	0	2104	23,387	**17.460**
				192,630	**186.947**

				2004	
Sep	Oct	Nov	Dec	Annual	
0	0	0	0	19,254	**32.399**
359	30	1,087	2,180	24,552	**43.639**
3,851	4,475	1,987	842	22,599	**45.405**
31	0	0	0	8,776	**11.488**
1,164	12	669	767	21,701	**27.474**
3,131	4,407	3,885	3,532	21,812	**26.542**
				118,695	**186.947**

	Lost Hills Gas Plant and Field Meters	January MSCF	January MMBtu/mscf	February MSCF	February MMBtu/mscf
9354	PLANT REFRIG.FUEL	4,701		4,213	
9356	PLANT PRE-COMPRESSOR FUEL	11,142		9,785	

		January			744
COMPRESSOR #1	S-43-4		9845	10561	716
COMPRESSOR #2	S-43-5		0	0	0
		DFR		DFR	
COMPRESSOR #3	S-43-6		4371	5101	730
COMPRESSOR #4	S-43-7		40504	40683	179
COMPRESSOR #5	S-43-8		47376	47936	560
COMPRESSOR #6	S-43-9		36328	36328	0
		DFR		DFR	

		July			744
COMPRESSOR #1	S-43-4		14119	14853	734
COMPRESSOR #2	S-43-5		2641	3377	736
COMPRESSOR #3	S-43-6		6032	6033	1
				DFR	
COMPRESSOR #4	S-43-7		43280	43985	705
COMPRESSOR #5	S-43-8		49627	49993	366
		DFR			
COMPRESSOR #6	S-43-9		1739	2154	415
					299

		Hrs. Run Per Year	Avg. Per Day
COMPRESSOR #1	S-43-4	6592	18.06027397
COMPRESSOR #2	S-43-5	6396	17.52328767
COMPRESSOR #3	S-43-6	4325	11.84931507
COMPRESSOR #4	S-43-7	5615	15.38356164
COMPRESSOR #5	S-43-8	2854	7.819178082
COMPRESSOR #6	S-43-9	3772	10.33424658

March		April		May		June	
MSCF	*MMBtu/mscf*	*MSCF*	*MMBtu/mscf*	*MSCF*	*MMBtu/mscf*	*MSCF*	*MMBtu/mscf*
4,534		5,487		5,853		6,798	
10,110		9,608		9,572		8,678	

	February			696		March		744
96.24%	10561	11261	700	100.57%	11261	11985	724	
0.00%	0	4	4	0.57%	4	517	513	
	DFR							
98.12%	5101	5801	700	100.57%	5801	6031	230	
						DFR		
24.06%	40683	41230	547	78.59%	41230	41837	607	
75.27%	47936	48106	170	24.43%	48106	48241	135	
0.00%	36328	36328	0	0.00%	36328	36328	0	
	DFR	DFR			DFR	DFR		

	August			744		September		720
98.66%	14858	15444	586	78.76%	15444	15707	263	
98.92%	3382	4113	731	98.25%	4113	4663	550	
0.13%	6033	6184	151	20.30%	6184	6788	604	
	DFR							
94.76%	44009	44682	673	90.46%	44682	45368	686	
49.19%	50020	50243	223	29.97%	50243	50256	13	
55.78%	2159	2733	574	77.15%	2733	3393	660	
40.19%								

July		August		September		October	
MSCF	*MMBtu/mscf*	*MSCF*	*MMBtu/mscf*	*MSCF*	*MMBtu/mscf*	*MSCF*	*MMBtu/mscf*
7,748		7,653		7,264		5,507	1.095
9,413		9,349		9,529		10,250	1.0786

	April			720		May		744
97.31%		11985	12709	724	100.56%	12709	13433	724
68.95%		517	1241	724	100.56%	1241	1955	714
30.91%		6031	6031	0	0.00%	6031	6031	0
			DFR					
81.59%		41837	42231	394	54.72%	42231	42619	388
18.15%		48241	48728	487	67.64%	48728	49265	537
0.00%		36328		-36328	-5045.56%	276	1020	744
	DFR		corrected I	95	13.19%		corrected I	144

	October			744		November		720
36.53%		15707	15883	176	23.66%	15883	16206	323
76.39%		4663	5220	557	74.87%	5220	5793	573
83.89%		6788	7515	727	97.72%	7515	8061	546
95.28%		45368	45673	305	40.99%	45673	46132	459
1.81%		50256	50257	1	0.13%	50257	50257	0
91.67%		3393	4086	693	93.15%	4086	4434	348

November		December		
MSCF	***MMBtu/mscf***	***MSCF***	***MMBtu/mscf***	***Annual***
				Totals
4,594		4,351		68,704
9,337		10,210		116,984
				185,688

	June		720	
97.31%	13433	14119	686	95.28%
95.97%	1955	2641	686	95.28%
0.00%	6031	6032	1	25.00%
52.15%	42619	43280	661	91.81%
72.18%	49265	49627	362	50.28%
		DFR		
100.00%	1020	1739	719	99.86%
19.35%		corrected h	224	31.11%
	December		744	
44.86%	16206	16442	236	31.72%
79.58%	5793	6401	608	81.72%
75.83%	8061	8696	635	85.35%
63.75%	46132	46143	11	1.48%
0.00%	50257	50257	0	0.00%
48.33%	4434	5169	735	98.79%

Compressor Run Hours

2001	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
S-43-4	3	8	496	365	0	0	0	0	1
S-43-5	739	671	744	645	736	501	743	724	706
S-43-6	729	625	248	424	708	487	739	739	698
S-43-7	478	524	315	428	305	433	457	526	45
S-43-8	0	0	0	5	470	487	673	733	383
S-43-9	299	194	475	300	157	0	0	2	372
	1471	1304	1488	1434	1444	988	1482	1463	1405
	777	718	790	733	932	920	1130	1261	800

Meter Readings - 2001

2001	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
9356	10,386	9,582	8,934	9,254	8,975	6,294	9,107	9,308	8,744
9354	4,348	3,934	4,228	4,666	5,104	4,948	6,173	7,057	4,706

Allocated Fuel Usage Per Engine

2001	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
S-43-4	21	59	2,978	2,355	0	0	0	0	6
S-43-5	5,218	4,931	4,467	4,162	4,575	3,192	4,566	4,606	4,394
S-43-6	5,147	4,593	1,489	2,736	4,401	3,102	4,541	4,702	4,344
S-43-7	2675	2871	1686	2724	1670	2329	2497	2944	265
S-43-8	0	0	0	32	2574	2619	3676	4102	2253
S-43-9	1673	1063	2542	1910	860	0	0	11	2188

Allocated Quarterly Fuel Usage Per Engine

2001	1Q	2Q	3Q
S-43-4	3,058	2,355	6
S-43-5	14,615	11,929	13,566
S-43-6	11,229	10,239	13,587
S-43-7	7,232	6,724	5,705
S-43-8	0	5,225	10,032
S-43-9	5,278	2,770	2,200

Oct	Nov	Dec	
403	533	307	COMPRESSOR #1
517	516	418	COMPRESSOR #2
571	358	694	COMPRESSOR #3
33	15	2	COMPRESSOR #4
407	680	231	COMPRESSOR #5
328	1	486	COMPRESSOR #6
1491	1407	1419	Subt - precomprs
768	696	719	Subt- Refrig Comprs

Oct	Nov	Dec	Annual	
9,300	8,854	9,037	107,774	PLANT PRE-COMPRESSOR FUI
4,552	4,162	4,263	58,141	PLANT REFRIG.FUEL
			165,915	

Oct	Nov	Dec	Annual	
2,514	3,354	1,955	13,242	
3,225	3,247	2,662	49,243	107,774
3,562	2,253	4,420	45,288	
196	90	12	19,958	
2412	4066	1370	23,104	58,141
1944	6	2881	15,079	
			165,915	

4Q	
7,823	
9,134	
10,234	165,915
297	
7,848	
4,831	

EL

Compressor Run Hours

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
S-43-4	26	373	723	545	586	719	690	739	703	350	510	707
S-43-5	711	351	63	415	430	425	101	633	267	561	678	348
S-43-6	731	608	657	475	464	290	582	89	466	560	250	406
S-43-7	0	0	0	0	154	327	679	732	685	727	310	36
S-43-8	693	312	399	398	526	646	663	737	700	577	401	674
S-43-9	46	227	334	321	365	39	0	0	0	148	719	720
	1468	1332	1443	1435	1480	1434	1373	1461	1436	1471	1438	1461
	739	539	733	719	1045	1012	1342	1469	1385	1452	1430	1430

Meter Readings - 2002

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
9356	9,146	8,188	8,724	8,687	8,893	8,688	8,556	8,621	8,686	8,904	8,315	8,771
9354	4,479	4,176	4,603	4,185	5,859	5,763	7,402	8,034	7,533	7,431	7,235	7,437

Allocated Fuel Usage Per Engine

2002	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
S-43-4	162	2,293	4,371	3,299	3,521	4,356	4,300	4,361	4,252	2,119	2,949	4,244
S-43-5	4,430	2,158	381	2,512	2,584	2,575	629	3,735	1,615	3,396	3,920	2,089
S-43-6	4,554	3,737	3,972	2,875	2,788	1,757	3,627	525	2,819	3,390	1,446	2,437
S-43-7	0	0	0	0	863	1862	3745	4003	3726	3721	1568	187
S-43-8	4201	2417	2506	2317	2949	3679	3657	4031	3807	2953	2029	3505
S-43-9	279	1759	2097	1868	2046	222	0	0	0	757	3638	3745

Allocated Quarterly Fuel Usage Per Engine

2002	1Q	2Q	3Q	4Q
S-43-4	6,826	11,177	12,913	9,312
S-43-5	6,968	7,671	5,980	9,405
S-43-6	12,264	7,421	6,971	7,273
S-43-7	0	2,726	11,474	5,476
S-43-8	9,123	8,944	11,495	8,487
S-43-9	4,135	4,137	0	8,140

COMPRESSOR #1
COMPRESSOR #2
COMPRESSOR #3
COMPRESSOR #4
COMPRESSOR #5
COMPRESSOR #6
Subt - precomprs
Subt- Refrig Comprs

104,179	PRE-COMPRESSOR FUEL
74,137	REFRIG.FUEL
178,316	

Annual	
40,227	
30,024	104,179
33,928	
19,676	
38,050	74,137
16,412	

FAC_ID	DEV	PR 2002
43	4	40.331
43	5	30.126
43	6	33.723
43	7	20.354
43	8	37.506
43	9	16.277
		178.317

OK

Compressor Run Hours

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
S-43-4	201	110	743	264	340	107	371	412	659	712	719	738
S-43-5	740	636	513	635	698	501	359	321	475	722	720	694
S-43-6	539	596	231	391	450	705	762	743	202	40	0	102
S-43-7	356	682	728	497	739	79	345	279	350	406	683	194
S-43-8	298	0	513	636	734	710	571	734	638	702	706	764
S-43-9	739	658	237	137	0	634	590	449	323	316	0	403
	1480	1342	1487	1290	1488	1313	1492	1476	1336	1474	1439	1534
	1393	1340	1478	1270	1473	1423	1506	1462	1311	1424	1389	1361

Meter Readings - 2003

9356	9,075	8,300	8,840	7,987	8,964	8,469	8,466	8,610	8,192	9,204	9,142	9,111
9354	7,869	6,822	7,660	6,741	7,666	7,162	7,161	7,480	7,088	7,944	7,571	7,106

Allocated Fuel Usage Per Engine

2003	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
S-43-4	1,232	680	4,417	1,635	2,048	690	2,105	2,403	4,041	4,446	4,568	4,383
S-43-5	4,538	3,934	3,050	3,932	4,205	3,232	2,037	1,873	2,913	4,508	4,574	4,122
S-43-6	3,305	3,686	1,373	2,421	2,711	4,547	4,324	4,334	1,239	250	0	606
S-43-7	2011	3472	3773	2638	3846	398	1640	1427	1892	2265	3723	1013
S-43-8	1683	0	2659	3376	3820	3573	2715	3755	3449	3916	3848	3989
S-43-9	4175	3350	1228	727	0	3191	2805	2297	1746	1763	0	2104

Allocated Quarterly Fuel Usage Per Engine

2003	1Q	2Q	3Q	4Q
S-43-4	6,330	4,373	8,549	13,397
S-43-5	11,521	11,368	6,822	13,204
S-43-6	8,364	9,679	9,897	856
S-43-7	9,256	6,882	4,960	7,001
S-43-8	4,342	10,769	9,920	11,753
S-43-9	8,753	3,918	6,849	3,867

COMPRESSOR #1
COMPRESSOR #2
COMPRESSOR #3
COMPRESSOR #4
COMPRESSOR #5
COMPRESSOR #6
Subt - precomprs
Subt- Refrig Comprs

104,360	PRE-COMPRESSOR FUEL
88,270	REFRIG.FUEL
192,630	

FAC_ID	DEV	PR 2003	PR 2004	PR 2005	PR 2006
43	4	38.07	32.40	0.00	0.00
43	5	49.66	43.64	24.15	0.00
43	6	33.71	45.41	6.50	0.00
43	7	20.78	11.49	0.00	0.00
43	8	27.27	27.47	1.86	0.00
43	9	17.46	26.54	0.00	0.00

Annual

32,649	
42,915	104,360
28,796	
28,099	
36,785	88,270
23,387	
192,630	

192,630

UNITS
MILLION CUBIC FEET
MILLION CUBIC FEET
MILLION CUBIC FEET
MILLION CUBIC FEET
MILLION CUBIC FEET
MILLION CUBIC FEET

Richard Edgehill

From: Winn BT (Brent) at Aera [btwinn@aeraenergy.com]
Sent: Monday, November 19, 2007 2:38 PM
To: Richard Edgehill
Subject: IC Engine Conversions Spreadsheet

ice_emission conversions.xls

Richard:

I had pasted a page from the attached spreadsheet into my other calculation spreadsheet and noticed today that the conversion calcs don't work in the place where I pasted them. You can use the attached to compare the 36 ppm (from Rule 1110.2) to the source test values. I will work on getting some portable analyzer data to provide additional info. But, we should keep in mind that portable analyzer data is not as "certifiable" as the source test data.

<<ice_emission conversions.xls>>

Thanks,
Brent Winn
Aera Energy LLC
Environmental Engineer - Belridge
Office: 661-665-4363 Pager: 661-747-8963
Cell: 661-747-8963 Home: 661-587-5181
FAX: 661-665-7437 E-Mail: btwinn@aeraenergy.com

Fuel burning equipment **100,000 Btu/therm** updated 1/2000

AP-42 Natural gas emission factors, 1000 Btu/cf

>100 MMBtu/hr	1.4-1	1.4-2	1.4-2	1.4-1	1.4-2
uncontrolled	NOx	VOC	SOx	CO	PM_{10}
lb/MMcf	**190**	**5.5**	**0.6**	**84**	**7.6**
lb/MMBtu	**0.19**	**0.006**	**0.001**	**0.08**	**0.008**
lo-NOx	NOx	VOC	SOx	CO	PM_{10}
lb/MMcf	**140**	**5.5**	**0.6**	**84**	**7.6**
lb/MMBtu	**0.14**	**0.006**	**0.001**	**0.08**	**0.008**
lo-NOx w/ FGR	NOx	VOC	SOx	CO	PM_{10}
lb/MMcf	**100**	**5.5**	**0.6**	**84**	**7.6**
lb/MMBtu	**0.10**	**0.006**	**0.001**	**0.08**	**0.008**

AP-42 Natural gas emission factors, 1000 Btu/cf

<100 MMBtu	1.4-1	1.4-2	1.4-2	1.4-1	1.4-1
uncontrolled	NOx	VOC	SOx	CO	PM_{10}
lb/MMcf	**100**	**5.5**	**0.6**	**84**	**7.6**
lb/MMBtu	**0.10**	**0.006**	**0.001**	**0.08**	**0.008**
lo-NOx	NOx	VOC	SOx	CO	PM_{10}
lb/MMcf	**50**	**5.5**	**0.6**	**84**	**7.6**
lb/MMBtu	**0.05**	**0.006**	**0.001**	**0.08**	**0.008**
lo-NOx w/ FGR	NOx	VOC	SOx	CO	PM_{10}
lb/MMcf	**32**	**5.5**	**0.6**	**84**	**7.6**
lb/MMBtu	**0.032**	**0.006**	**0.001**	**0.08**	**0.008**

	SELECTION #
COAL (ANTHRACITE)	0
COAL (BITUMINOUS)	1
COAL (LIGNITE)	2
OIL (CRUDE, RESIDUAL, OR DISTILLATE)	3
GAS (NATURAL)	4
GAS (PROPANE)	5
GAS (BUTANE)	6
WOOD	7
WOOD BARK	8
MUNICIPAL SOLID WASTE	9

STANDARD O2 CORRECTION FOR EXTERNAL COMBUSTION IS 3%		
Type of fuel (use table above)	0	COAL
O2 correction (i.e., 3%)	0	%
Enter LB/MMBTU emission factor		
NOx	0.000	LB/MMBTU
CO	0.000	LB/MMBTU
VOC (as methane)	0.000	LB/MMBTU

CALCULATED EQUIVALENT CONCENTRATIONS		
NOx	0.00	ppmv
CO	0.00	ppmv
VOC (as methane)	0.00	ppmv

pV = R*T		
pressure (p)	1	atm
universal gas constant (R*)	0.7302	atm-scf/lbmole-oR
temperature (oF)	60	oF
calculated		
molar specific volume (V)	379.5	scf/lbmole
Molecular weights		
NOx	46	lb/lb-mole
CO	28	lb/lb-mole
VOC (as methane)	16	lb/lb-mole

F FACTORS FROM EPA METHOD 19 @ 68 F			
COAL (ANTHRACITE)	10100	DSCF/MMBTU	COAL
COAL (BITUMINOUS)	9780	DSCF/MMBTU	COAL
COAL (LIGNITE)	9860	DSCF/MMBTU	COAL
OIL (CRUDE, RESIDUAL, OR DISTILLATE)	9160	DSCF/MMBTU	OIL
GAS (NATURAL)	8710	DSCF/MMBTU	GAS
GAS (PROPANE)	8710	DSCF/MMBTU	GAS
GAS (BUTANE)	8710	DSCF/MMBTU	GAS
WOOD	9240	DSCF/MMBTU	WOOD
WOOD BARK	9600	DSCF/MMBTU	WOOD BARK
MUNICIPAL SOLID WASTE	9570	DSCF/MMBTU	SOLID WASTE
F FACTOR USED IN CALCULATIONS	10100	DSCF/MMBTU	COAL

Grams/Brake Horsepower - Hour ----> Parts Per Million Volume

g/Bhp-hr ----> ppmv

Variables:		
Engine Size:	0	hp
NO_x:	0	g/bhp-hr
CO:	0	g/bhp-hr
VOC:	0	g/bhp-hr
O_2 level:	0	%
Fuel Type	0	
F-factor:	9160	dscf/MMBtu
Engine Efficiency:	0	% (Assumed)

OIL (CRUDE, RESIDUAL, OR DISTILLATE)	0
GAS (NATURAL)	1
GAS (PROPANE)	2
GAS (BUTANE)	3

Given:		
Conversion #1	379.5E+6	dscf/lb
Conversion #2	393.236	bhp-hr/MMBtu
Conversion #3	453.59	g/lb
$MW_{(NOx)}$:	46	as NO_2
$MW_{(CO)}$:	28	
$MW_{(VOC)}$:	16	as CH_4
O_2 Correction:	1.000	
Pressure (p)	1	atm
Temp (oF)	60	oF

Formula:

g	1	1	(20.9 - O_2%)	Conversion #1	Conversion #2	1	Engine Eff.
bhp-hr	F-factor	$MW_{pollutant}$	20.9	1	1	Conversion #3	1

for NO_x:

0.00 g / bhp-hr	MMBtu / 9160 dscf	1 / 46	20.9 - 0 / 20.9	379.5E+6 dscf / lb	393.24 bhp-hr / MMBtu	lb / 453.59 g	0% / 1	=

= **0.000** **PPM**

for CO:

0.00 g / bhp-hr	MMBtu / 9160 dscf	1 / 28	20.9 - 0 / 20.9	379.5E+6 dscf / lb	393.24 bhp-hr / MMBtu	lb / 453.59 g	0% / 1	=

= **0.000** **PPM**

for VOC:

0.00 g / bhp-hr	MMBtu / 9160 dscf	1 / 16	20.9 - 0 / 20.9	379.5E+6 dscf / lb	393.24 bhp-hr / MMBtu	lb / 453.59 g	0% / 1	=

= **0.000** **PPM**

Parts Per Million Volume --> Grams/Brake Horsepower - Hour

ppmv --> g/Bhp-hr

Variables:

Engine Size:	800	hp
NO_x:	5	ppmv
CO:	70	ppmv
VOC:	30	ppmv
O_2 level:	15	%
Fuel Type	1	
F-factor:	8710	dscf/MMBtu
Engine Efficiency:	30	% (Assumed)

OIL (CRUDE, RESIDUAL, OR DISTILLATE)	0
GAS (NATURAL)	1
GAS (PROPANE)	2
GAS (BUTANE)	3

Given:

Conversion #1	379.5E+6	dscf/lb
Conversion #2	393.236	bhp-hr/MMBtu
Conversion #3	453.59	g/lb
$MW_{(NOx)}$:	46	as NO_2
$MW_{(CO)}$:	28	
$MW_{(VOC)}$:	16	as CH_4
O_2 Correction:	3.542	
Pressure (p)	1	atm
Temp (^oF)	60	^oF

Formula:

ppmv	F-factor	$MW_{pollutant}$	20.9	1	1	Conversion #3	1	=
1	1	1	(20.9 - O_2%)	Conversion #1	Conversion #2	1	Engine Eff.	

for NO_x:

5 ~~ppmv~~	8710 ~~dscf~~	46	20.9	~~lb~~	~~MMBtu~~	453.59 g	1	=
1	~~MMBtu~~	1	20.9 - 15	379.5E+6 ~~dscf~~	393.24 bhp-hr	~~lb~~	30%	

=	0.071	g/bhp-hr	56.7 g/hr	0.125 lbs/hr	2.998 lbs/day

for CO:

70 ~~ppmv~~	8710 ~~dscf~~	28	20.9	~~lb~~	~~MMBtu~~	453.59 g	1	=
1	~~MMBtu~~	1	20.9 - 15	379.5E+6 ~~dscf~~	393.24 bhp-hr	~~lb~~	30%	

=	0.603	g/bhp-hr	483 g/hr	1.065 lbs/hr	25.55 lbs/day

for VOC:

30 ~~ppmv~~	8710 ~~dscf~~	16	20.9	~~lb~~	~~MMBtu~~	453.59 g	1	=
1	~~MMBtu~~	1	20.9 - 15	379.5E+6 ~~dscf~~	393.24 bhp-hr	~~lb~~	30%	

=	0.148	g/bhp-hr	118 g/hr	0.261 lbs/hr	6.257 lbs/day

Richard Edgehill

From: Richard Edgehill
Sent: Tuesday, May 13, 2008 2:10 PM
To: 'yannayon.laura@epamail.epa.gov'; 'tmanders@arb.ca.gov'
Subject: ERC projects 1075362 and 1080067, S-43

Laura and Theresa: Please let me know if you plan to comment on ERC projects S43, 1075362 and 1080067.The 30-day public comment period has ended.

Thank you.

Richard Edgehill
SJVAPCD
2700 M St, Suite 275
Bakerwsfield, CA 93301
661 326-6958

Laura called 3 pm 5-15-08 and said the had no comments.

ERC PROJECT ROUTING FORM

PROJECT NUMBER: 1075362 ORIGINATING FACILITY ID: S-43

NEW ERC #'s:

CURRENT OWNER/APPLICANT NAME: Aera Energy LLC

DATE RECEIVED: November 8, 2007

PRELIMINARY REVIEW	ENGR	DATE	SUPR	DATE
A. Application Deemed Incomplete				
B. Application Deemed Complete	RUE	12-3-07	[illegible]	12/6/07
180th Day for Developmental Projects				
C. Application Pending Denial				
D. Application Denied				

ENGINEERING EVALUATION	INITIAL	DATE
E. Engineering Evaluation Complete	RUE	4/1/08
F. Supervising Engineer Approval	[illegible]	4/5/08
H. Permit Services Regional Manager Approval	[illegible]	4/6/08

DIRECTOR REVIEW: [ ] Not Required [ ] Required

PROJECTS REQUIRING PUBLIC NOTIFICATION

--PRELIMINARY DECISION:

_____ Date emailed to Fresno.

_____ Date of distribution to applicant, EPA, and CARB.

_____ Date of contact with EPA regarding comments on project.

_____ Date of contact with CARB regarding comments on project.

--FINAL DECISION:

_____ Date emailed to Fresno.

_____ Date of distribution to applicant, EPA, and CARB.

RE

PROOF OF PUBLICATION

The BAKERSFIELD CALIFORNIAN
P.O. BOX 440
BAKERSFIELD, CA 93302

SAN JOAQUIN VALLEY A.P.C.D.
1990 E GETTYSBURG FRED BATES
FRESNO, CA 93726

RECEIVED
MAY 30 2008
FINANCE
SJVAPCD

--

STATE OF CALIFORNIA
COUNTY OF KERN

I AM A CITIZEN OF THE UNITED STATES AND A RESIDENT OF THE COUNTY AFORESAID: I AM OVER THE AGE OF EIGHTEEN YEARS, AND NOT A PARTY TO OR INTERESTED IN THE ABOVE ENTITLED MATTER. I AM THE ASSISTANT PRINCIPAL CLERK OF THE PRINTER OF THE BAKERSFIELD CALIFORNIAN, A NEWSPAPER OF GENERAL CIRCULATION, PRINTED AND PUBLISHED DAILY IN THE CITY OF BAKERSFIELD COUNTY OF KERN,

AND WHICH NEWSPAPER HAS BEEN ADJUDGED A NEWSPAPER OF GENERAL CIRCULATION BY THE SUPERIOR COURT OF THE COUNTY OF KERN, STATE OF CALIFORNIA, UNDER DATE OF FEBRUARY 5, 1952, CASE NUMBER 57610; THAT THE NOTICE, OF WHICH THE ANNEXED IS A PRINTED COPY, HAS BEEN PUBLISHED IN EACH REGULAR AND ENTIRE ISSUE OF SAID NEWSPAPER
AND NOT IN ANY SUPPLEMENT THEREOF ON THE FOLLOWING DATES, TO WIT: 5/28/08

ALL IN YEAR 2008

I CERTIFY (OR DECLARE) UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.

Cathy Lyons

DATED AT BAKERSFIELD CALIFORNIA

5-28-08

Ad Number:	10897351	**PO #:**	S-1075362
Edition:	TBC	**Run Times**	1
Class Code	Legal Notices		
Start Date	5/28/2008	**Stop Date**	5/28/2008
Billing Lines	20	**Inches**	120.92
Total Cost	$ 74.60	**Account**	1SAN51
Billing Address	SAN JOAQUIN VALLEY A.P.C.D. 1990 E GETTYSBURGFRED BATES FRESNO,CA 93726		

RECEIVED
JUN 04 2008
SJVAPCD
Southern Region

Solicitor I.D.: 0

First Text
NOTICE OF FINAL ACTIONFOR THE ISSUANCE O

Ad Number 10897351

NOTICE OF FINAL ACTION FOR THE ISSUANCE OF EMISSION REDUCTION CREDITS

NOTICE IS HEREBY GIVEN that the Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Aera Energy LLC for emission reductions generated by shutdown of 6 natural gas-fired IC engines driving pre-compressors and refrigeration compressors, at the Section 15 Lost Hills Gas Plant. The quantity of ERCs to be issued is 23,654 lb/yr NOx, 1,669 lb/yr PM10, 105,498 lb/yr CO, and 23,079 lb/yr VOCs.

No comments were received following the District's preliminary decision on this project.

The application review for Project #S-1075362 is available for public inspection at the SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 2700 'M' STREET SUITE 275, BAKERSFIELD, CA 93301.
May 28, 2008 (10897351)

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Brent Winn
Aera Energy LLC
PO Box 11164
Bakersfield, CA 93389

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) [illegible] C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☑ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

7006 2760 0000 1340 0738

ERC Proj. #S-1075362

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

7006 2760 0000 1340 0738

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage	

Postmark Here

Sent To: Brent Winn
Street, Apt. No. or PO Box No.: Aera Energy LLC PO Box 11164
City, State, ZIP: Bakersfield, CA 93389

PS Form 3800, August 2006 See Reverse for Instructions

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

MAY 2 2 2008

Brent Winn
Aera Energy LLC
PO Box 11164
Bakersfield, CA 93389

RE: Notice of Final Action - Emission Reduction Credits
Project Number: S-1075362

Dear Mr. Winn:

The Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Aera Energy LLC for emission reductions generated by shutdown of 6 natural gas-fired IC engines driving pre-compressors and refrigeration compressors, at the Section 15 Lost Hills Gas Plant. The quantity of ERCs to be issued is 23,654 lb/yr NOx, 1,669 lb/yr PM10, 105,498 lb/yr CO, and 23,079 lb/yr VOCs.

Enclosed are the ERC Certificates and a copy of the notice of final action to be published approximately three days from the date of this letter.

Notice of the District's preliminary decision to issue the ERC Certificates was published on April 10, 2008. The District's analysis of the proposal was also sent to CARB and US EPA Region IX on April 7, 2008. No comments were received following the District's preliminary decision on this project.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Leonard Scandura at (661) 326-6900.

Sincerely,

David Warner
Director of Permit Services

DW:RUE/ls

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

Southern Region
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
Tel: (661) 326-6900 FAX: (661) 326-6985

www.valleyair.org

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

MAY 2 2 2008

Gerardo C. Rios (AIR 3)
Chief, Permits Office
Air Division
U.S. E.P.A. - Region IX
75 Hawthorne Street
San Francisco, CA 94105

RE: Notice of Final Action - Emission Reduction Credits
Project Number: S-1075362

Dear Mr. Rios:

The Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Aera Energy LLC for emission reductions generated by shutdown of 6 natural gas-fired IC engines driving pre-compressors and refrigeration compressors, at the Section 15 Lost Hills Gas Plant. The quantity of ERCs to be issued is 23,654 lb/yr NOx, 1,669 lb/yr PM10, 105,498 lb/yr CO, and 23,079 lb/yr VOCs.

Enclosed are copies of the ERC Certificates and a copy of the notice of final action to be published approximately three days from the date of this letter.

Notice of the District's preliminary decision to issue the ERC Certificates was published on April 10, 2008. The District's analysis of the proposal was also sent to CARB and US EPA Region IX on April 7, 2008. No comments were received following the District's preliminary decision on this project.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Leonard Scandura at (661) 326-6900.

Sincerely,

David Warner
Director of Permit Services

DW:RUE/ls

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

Southern Region
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
Tel: (661) 326-6900 FAX: (661) 326-6985

www.valleyair.org

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

MAY 2 2 2008

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

RE: Notice of Final Action - Emission Reduction Credits
Project Number: S-1075362

Dear Mr. Tollstrup:

The Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Aera Energy LLC for emission reductions generated by shutdown of 6 natural gas-fired IC engines driving pre-compressors and refrigeration compressors, at the Section 15 Lost Hills Gas Plant. The quantity of ERCs to be issued is 23,654 lb/yr NOx, 1,669 lb/yr PM10, 105,498 lb/yr CO, and 23,079 lb/yr VOCs.

Enclosed are copies of the ERC Certificates and a copy of the notice of final action to be published approximately three days from the date of this letter.

Notice of the District's preliminary decision to issue the ERC Certificates was published on April 10, 2008. The District's analysis of the proposal was also sent to CARB and US EPA Region IX on April 7, 2008. No comments were received following the District's preliminary decision on this project.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Leonard Scandura at (661) 326-6900.

Sincerely,

David Warner
Director of Permit Services

DW:RUE/ls

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

Southern Region
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
Tel: (661) 326-6900 FAX: (661) 326-6985

www.valleyair.org

Bakersfield Californian

NOTICE OF FINAL ACTION
FOR THE ISSUANCE OF
EMISSION REDUCTION CREDITS

NOTICE IS HEREBY GIVEN that the Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Aera Energy LLC for emission reductions generated by shutdown of 6 natural gas-fired IC engines driving pre-compressors and refrigeration compressors, at the Section 15 Lost Hills Gas Plant. The quantity of ERCs to be issued is 23,654 lb/yr NOx, 1,669 lb/yr PM10, 105,498 lb/yr CO, and 23,079 lb/yr VOCs.

No comments were received following the District's preliminary decision on this project.

The application review for Project #S-1075362 is available for public inspection at the SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 2700 'M' STREET SUITE 275, BAKERSFIELD, CA 93301.

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

Southern Regional Office • 2700 M Street, Suite 275 • Bakersfield, CA 93301-2370

Emission Reduction Credit Certificate
S-2774-1

ISSUED TO: AERA ENERGY LLC

ISSUED DATE: May 15, 2008

LOCATION OF REDUCTION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

For VOC Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
8,176 lbs	5,745 lbs	5,185 lbs	3,973 lbs

[ ] Conditions Attached

Method Of Reduction

[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of gas plant precompressors and refrigeration compressors (permits S-43-4 through S-43-9)

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

David Warner, Director of Permit Services

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

Southern Regional Office • 2700 M Street, Suite 275 • Bakersfield, CA 93301-2370

Emission Reduction Credit Certificate
S-2774-2

ISSUED TO: AERA ENERGY LLC

ISSUED DATE: May 15, 2008

LOCATION OF REDUCTION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

For NOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
5,817 lbs	4,899 lbs	4,757 lbs	8,181 lbs

[ ] Conditions Attached

Method Of Reduction

[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of gas plant precompressors and refrigeration compressors (permits S-43-4 through S-43-9)

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

David Warner, Director of Permit Services

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

Southern Regional Office • 2700 M Street, Suite 275 • Bakersfield, CA 93301-2370

Emission Reduction Credit Certificate
S-2774-3

ISSUED TO: AERA ENERGY LLC

ISSUED DATE: May 15, 2008

LOCATION OF REDUCTION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

For CO Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
29,596 lbs	23,125 lbs	21,911 lbs	30,866 lbs

[ ] Conditions Attached

Method Of Reduction

[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of gas plant precompressors and refrigeration compressors (permits S-43-4 through S-43-9)

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

David Warner, Director of Permit Services

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

Southern Regional Office • 2700 M Street, Suite 275 • Bakersfield, CA 93301-2370

Emission Reduction Credit Certificate
S-2774-4

ISSUED TO: AERA ENERGY LLC

ISSUED DATE: May 15, 2008

LOCATION OF REDUCTION: LOST HILLS GAS PLANT
NE 15, T.27S, R.21E., M.D.B.& M.
LOST HILLS, CA

For PM10 Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
443 lbs	368 lbs	369 lbs	489 lbs

[ ] Conditions Attached

Method Of Reduction

[ ] Shutdown of Entire Stationary Source
[X] Shutdown of Emissions Units
[ ] Other

Shutdown of gas plant precompressors and refrigeration compressors (permits S-43-4 through S-43-9)

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

Seyed Sadredin, Executive Director / APCO

David Warner, Director of Permit Services