



MAY 01 2013

Brent Winn  
Aera Energy, LLC  
P.O. Box 11164  
Bakersfield, CA 93389-1164

**Re: Notice of Preliminary Decision – Emission Reduction Credits**  
**Facility Number: S-1547**  
**Project Number: S-1130189**

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 steam generators listed on permits S-1547-78, '-123, and '-146, at Aera's generator setting 2972 in the Belridge Oilfield. The quantity of ERCs proposed for banking is 6,857 lb-NOx/yr, 5,410 lb-PM2.5/yr, and 1,871 lb-VOC/yr.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. After addressing all comments made during the 30-day public notice comment period, the District intends to issue the ERCs. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Kris Rickards of Permit Services at (661) 392- 5611.

Sincerely,



David Warner  
Director of Permit Services

DW:KTR/st

Enclosures

cc: Mike Tollstrup, CARB (w/enclosure) via email  
cc: Gerardo C. Rios, EPA (w/enclosure) via email

**Seyed Sadredin**  
Executive Director/Air Pollution Control Officer

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

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

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

Newspaper notice for publication in Bakersfield Californian and for posting on  
valleyair.org

---

**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 steam generators listed on permits S-1547-78, '-123, and '-146, at Aera's generator setting 2972 in the Belridge Oilfield. The quantity of ERCs proposed for banking is 6,857 lb-NOx/yr, 5,410 lb-PM2.5/yr, and 1,871 lb-VOC/yr.

The analysis of the regulatory basis for this proposed action, Project #S-1130189, is available for public inspection at [http://www.valleyair.org/notices/public\\_notices\\_idx.htm](http://www.valleyair.org/notices/public_notices_idx.htm) and at any District office. For additional information, please contact the District at (661) 392-5500. Written comments on this project must be submitted by June 6, 2013 to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 34946 FLYOVER COURT, BAKERSFIELD, CA 93308.**

**San Joaquin Valley Air Pollution Control District  
ERC Application Review  
Removal of Oilfield Steam Generators**

Facility Name: Aera Energy, LLC  
Mailing Address: P.O. Box 11164  
Bakersfield, CA 93389-1164

Date: April 12, 2013  
Engineer: Kris Rickards  
Lead Engineer: Allan Phillips *AP Sure ADE*

Contact Person: Brent Winn                      Marianne Tomlin (Consultant)  
Telephone: 661-665-4363                      770-529-9404

**APR 15 2013**

Project #: S-1130189  
Submitted: January 31, 2013  
Deemed Complete: February 25, 2013

**I. Summary**

Aera Energy, LLC (Aera) has submitted an application to bank NO<sub>x</sub>, PM<sub>2.5</sub>, and VOC Emission Reduction Credits (ERCs) for the shutdown of three oilfield steam generators listed on permits S-1547-78, '-123, and '-146. Aera will surrender the permits for this equipment when the preliminary decision for the issuance of the requested ERCs is made.

Steam production for these units has been replaced by steam generated by units listed on Authority to Construct permits S-1547-1173 through '-1180. The potential to emit from permits S-1547-1173 through '-1180 was fully offset for NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, and VOC in project S-1084433. Therefore, all replacement steam has been fully offset and reductions banked in this project will not result in the actual increase in emissions from any unit that has not been fully offset.

The issue with timeliness, pursuant to Rule 2301, "Emission Reduction Credit Banking", Section 4.2.3 is not relevant due to the equipment being surrendered after the application for the ERCs was accepted.

The following reductions have been found to qualify for an emission reduction banking (see following calculations in evaluation).

	Bankable Emission Reduction Credits (lb/Quarter)		
	NO <sub>x</sub>	PM <sub>2.5</sub>	VOC
1st Quarter	1,768	1,395	483
2nd Quarter	2,002	1,580	546
3rd Quarter	1,631	1,287	445
4th Quarter	1,456	1,148	397

## II. Applicable Rules

- Rule 2201 New and Modified Stationary Source Review Rule (4/21/11)
- Rule 2301 Emission Reduction Credit Banking (1/19/12)
- Rule 4201 Particulate Matter Concentration (12/17/92)
- Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (8/16/08)

## III. Location of Reduction

These steam generators are located at Aera's 2972 generator setting in the Belridge Oilfield within Aera's Heavy Oil Western Stationary Source, NE/4 of Section 29, Township 28S, Range 21E.

## IV. Method of Generating Reductions

Actual Emissions Reductions (AER) are generated through the voluntary removal of the following steam generator Permits to Operate (see Appendix C):

- S-1547-78: 62.5 MMBTU/HR NATURAL GAS FIRED-STEAM GENERATOR WITH A COEN ULTRA LOW NOX BURNER, WITH FLUE GAS RECIRCULATION, AND PIPING FROM S-1547-1079 (EAST FLANK LEASE), (#89, DIS# 27471-80) (GEN SITE 2972)
- S-1547-123: 62.5 MMBTU/HR NATURAL GAS/VAPOR RECOVERY GAS-FIRED STEAM GENERATOR WITH A COEN ULTRA LOW NOX BURNER AND A FLUE GAS RECIRCULATION (FGR) SYSTEM (#133, DIS# 28715-83) (GEN SITE 2972)
- S-1547-146: 62.5 MMBTU/HR C.E. NATCO NATURAL GAS/VAPOR RECOVERY GAS-FIRED STEAM GENERATOR (#124, DIS# 27578-81), WITH A COEN ULN LOW NOX BURNER, O2 CONTROLLER AND FLUE GAS RECIRCULATION (GEN SITE 2972)

As required by Rules 2201 and 2301, creditable emission reductions are to be based upon the equipment's operating history over the appropriate baseline period, and the use of acceptable emission factors.

## V. Calculations

### A. Assumptions

- Historical Actual Emissions are based on the following emission factors:
  - NO<sub>x</sub>: Rule 4320 (Table 1, Category C.3 Final Limit)
    - These steam generators are required to burn <50% PUC quality gas on a monthly basis and subject to Rule 4320, which requires a future final limit of 0.011 lb/MMBtu (9 ppmv), which is lower than the current permit limit (Rule 2201, Section 3.23)
  - PM<sub>2.5</sub>: AP 42, Natural Gas Combustion (Table 1.4-2 and footnote "c")
    - ATCs implemented in June of 2011 removed the ability to combust TEOR gas and the requirement to exhaust through the scrubber (source tests for PM from scrubber previously attached to exhaust system is not considered); however, these units still were required to combust <50% PUC gas.
    - All PM emitted from natural gas consumption is less than 1 micrometer in diameter.
  - VOC: Permit limit (less than the AP-42 limit of 5.5 lb/MMscf)
  - No detected CO from source testing nor H<sub>2</sub>S in fuel gas analyses

### B. Baseline Period Determination

Per Section 3.9 of Rule 2201, Baseline Period is defined as:

1. The two consecutive years of operation immediately prior to the submission date of the complete application; or
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 (NSO); or
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
4. Zero years if an emissions unit has been in operation for less than one year (only for use when calculating Actual Emissions Reductions (AER)).

Rule 2301 titled "Emissions Reduction Credit Banking" defines Baseline Period as "the same period as defined in Rule 2201".

The application requesting ERCs for the shutdown of this equipment was received in January of 2013. Fuel was shut off to these units November, 2012. The applicant has provided an 8 year history of fuel use to establish the NSO (see Appendix A). Based on a 2-year rolling monthly average during the 5-year period preceding submission of the application, the period of time that most closely resembles the NSO is from the 3<sup>rd</sup> quarter of 2010 to the 2<sup>nd</sup> quarter of 2012 (where the second quarter of 2012 is the the last quarter of the 2-year rolling average).

Quarterly fuel consumption for the baseline period is shown below (see Appendix A for detailed throughput):

<b>Quarterly Historical Actual Throughputs (Mscf)</b>			
	S-1547-78	S-1547-123	S-1547-146
3 <sup>rd</sup> Quarter, 2010	55,644	49,656	79,380
4 <sup>th</sup> Quarter, 2010	86,701	60,330	45,115
1 <sup>st</sup> Quarter, 2011	68,705	99,030	28,334
2 <sup>nd</sup> Quarter, 2011	45,281	78,244	72,402
3 <sup>rd</sup> Quarter, 2011	74,947	45,832	70,593
4 <sup>th</sup> Quarter, 2011	66,067	39,012	38,312
1 <sup>st</sup> Quarter, 2012	96,083	67,264	48,534
2 <sup>nd</sup> Quarter, 2012	74,078	93,536	98,348

### C. Historical Actual Emissions (HAE)

The gross dry heating value for gas burned in these units is summarized on the following table (see gas analysis in Appendix B):

<b>Gross Dry Heating Value (Btu/scf)</b>			
	S-1547-78	S-1547-123	S-1547-146
Source Test	876.42	875.28	875.28

The HAE for NO<sub>x</sub>, PM<sub>2.5</sub>, and VOC are calculated as follows:

**NO<sub>x</sub>:**

$$\text{HAE} = \text{EF (lb/MMBtu)} \times [\text{Fuel Use (Mscf)} \times (1,000 \text{ scf/Mscf})] \times [\text{HHV (Btu/scf)} \times (\text{MMBtu}/10^6 \text{ Btu})]$$

<b>S-1547-78 Quarterly Historical Actual Emissions (lb-NO<sub>x</sub>/qtr)</b>				
	Rule 4320 Limit (lb/MMBtu)	Fuel Use (Mscf)	HHV (Btu/scf)	HAE (lb-NO <sub>x</sub> /qtr)
3 <sup>rd</sup> Quarter, 2010	0.011	55,644	876.42	536
4 <sup>th</sup> Quarter, 2010	0.011	86,701	876.42	836
1 <sup>st</sup> Quarter, 2011	0.011	68,705	876.42	662
2 <sup>nd</sup> Quarter, 2011	0.011	45,281	876.42	437
3 <sup>rd</sup> Quarter, 2011	0.011	74,947	876.42	723
4 <sup>th</sup> Quarter, 2011	0.011	66,067	876.42	637
1 <sup>st</sup> Quarter, 2012	0.011	96,083	876.42	926
2 <sup>nd</sup> Quarter, 2012	0.011	74,078	876.42	714

<b>S-1547-123 Quarterly Historical Actual Emissions (lb-NO<sub>x</sub>/qtr)</b>				
	Rule 4320 Limit (lb/MMBtu)	Fuel Use (Mscf)	HHV (Btu/scf)	HAE (lb-NO <sub>x</sub> /qtr)
3 <sup>rd</sup> Quarter, 2010	0.011	49,656	875.28	478
4 <sup>th</sup> Quarter, 2010	0.011	60,330	875.28	581
1 <sup>st</sup> Quarter, 2011	0.011	99,030	875.28	953
2 <sup>nd</sup> Quarter, 2011	0.011	78,244	875.28	753
3 <sup>rd</sup> Quarter, 2011	0.011	45,832	875.28	441
4 <sup>th</sup> Quarter, 2011	0.011	39,012	875.28	376
1 <sup>st</sup> Quarter, 2012	0.011	67,264	875.28	648
2 <sup>nd</sup> Quarter, 2012	0.011	93,536	875.28	901

<b>S-1547-146 Quarterly Historical Actual Emissions (lb-NO<sub>x</sub>/qtr)</b>				
	Rule 4320 Limit (lb/MMBtu)	Fuel Use (Mscf)	HHV (Btu/scf)	HAE (lb-NO <sub>x</sub> /qtr)
3 <sup>rd</sup> Quarter, 2010	0.011	79,380	875.28	764
4 <sup>th</sup> Quarter, 2010	0.011	45,115	875.28	434
1 <sup>st</sup> Quarter, 2011	0.011	28,334	875.28	273
2 <sup>nd</sup> Quarter, 2011	0.011	72,402	875.28	697
3 <sup>rd</sup> Quarter, 2011	0.011	70,593	875.28	680
4 <sup>th</sup> Quarter, 2011	0.011	38,312	875.28	369
1 <sup>st</sup> Quarter, 2012	0.011	48,534	875.28	467
2 <sup>nd</sup> Quarter, 2012	0.011	98,348	875.28	947

<b>NO<sub>x</sub> HAE Summary (lb-NO<sub>x</sub>/qtr)</b>					
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
'-78	2-yr Sum (HAE)	1,588	1,151	1,259	1,473
	<b>2-yr Avg (HAE/2)</b>	<b>794</b>	<b>576</b>	<b>630</b>	<b>737</b>
'-123	2-yr Sum (HAE)	1,601	1,654	919	957
	<b>2-yr Avg (HAE/2)</b>	<b>801</b>	<b>827</b>	<b>460</b>	<b>479</b>
'-146	2-yr Sum (HAE)	740	1,644	1,444	803
	<b>2-yr Avg (HAE/2)</b>	<b>370</b>	<b>822</b>	<b>722</b>	<b>402</b>
<b>Total</b>		<b>1,965</b>	<b>2,225</b>	<b>1,812</b>	<b>1,618</b>

**PM<sub>10</sub>:**

HAE = EF (lb/Mscf) x Fuel Use (Mscf)

<b>S-1547-78 Quarterly Historical Actual Emissions (lb-PM<sub>2.5</sub>/qtr)</b>			
	AP-42 Total PM <sub>1</sub> Factor (lb/Mscf)	Fuel Use (Mscf)	HAE (lb- PM <sub>2.5</sub> /qtr)
3 <sup>rd</sup> Quarter, 2010	0.0076	55,644	423
4 <sup>th</sup> Quarter, 2010	0.0076	86,701	659
1 <sup>st</sup> Quarter, 2011	0.0076	68,705	522
2 <sup>nd</sup> Quarter, 2011	0.0076	45,281	344
3 <sup>rd</sup> Quarter, 2011	0.0076	74,947	570
4 <sup>th</sup> Quarter, 2011	0.0076	66,067	502
1 <sup>st</sup> Quarter, 2012	0.0076	96,083	730
2 <sup>nd</sup> Quarter, 2012	0.0076	74,078	563

<b>S-1547-123 Quarterly Historical Actual Emissions (lb- PM<sub>2.5</sub>/qtr)</b>			
	AP-42 Total PM <sub>1</sub> Factor (lb/MMBtu)	Fuel Use (Mscf)	HAE (lb- PM <sub>2.5</sub> /qtr)
3 <sup>rd</sup> Quarter, 2010	0.0076	49,656	377
4 <sup>th</sup> Quarter, 2010	0.0076	60,330	459
1 <sup>st</sup> Quarter, 2011	0.0076	99,030	753
2 <sup>nd</sup> Quarter, 2011	0.0076	78,244	595
3 <sup>rd</sup> Quarter, 2011	0.0076	45,832	348
4 <sup>th</sup> Quarter, 2011	0.0076	39,012	296
1 <sup>st</sup> Quarter, 2012	0.0076	67,264	511
2 <sup>nd</sup> Quarter, 2012	0.0076	93,536	711

<b>S-1547-146 Quarterly Historical Actual Emissions (lb- PM<sub>2.5</sub>/qtr)</b>			
	AP-42 Total PM <sub>1</sub> Factor (lb/MMBtu)	Fuel Use (Mscf)	HAE (lb- PM <sub>2.5</sub> /qtr)
3 <sup>rd</sup> Quarter, 2010	0.0076	79,380	603
4 <sup>th</sup> Quarter, 2010	0.0076	45,115	343
1 <sup>st</sup> Quarter, 2011	0.0076	28,334	215
2 <sup>nd</sup> Quarter, 2011	0.0076	72,402	550
3 <sup>rd</sup> Quarter, 2011	0.0076	70,593	537
4 <sup>th</sup> Quarter, 2011	0.0076	38,312	291
1 <sup>st</sup> Quarter, 2012	0.0076	48,534	369
2 <sup>nd</sup> Quarter, 2012	0.0076	98,348	747



<b>PM<sub>2.5</sub> HAE Summary (lb-PM<sub>2.5</sub>/qtr)</b>					
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
-78	2-yr Sum (HAE)	1,252	907	993	1,161
	<b>2-yr Avg (HAE/2)</b>	<b>626</b>	<b>454</b>	<b>497</b>	<b>581</b>
-123	2-yr Sum (HAE)	1,264	1,306	725	755
	<b>2-yr Avg (HAE/2)</b>	<b>632</b>	<b>653</b>	<b>363</b>	<b>378</b>
-146	2-yr Sum (HAE)	584	1,297	1,140	634
	<b>2-yr Avg (HAE/2)</b>	<b>292</b>	<b>649</b>	<b>570</b>	<b>317</b>
<b>Total</b>		<b>1,550</b>	<b>1,756</b>	<b>1,430</b>	<b>1,276</b>

**VOC:**

HAE = EF (lb/MMBtu) x [Fuel Use (Mscf) x (1,000 scf/Mscf)] x [HHV (Btu/scf) x (MMBtu/10<sup>6</sup> Btu)]

<b>S-1547-78 Quarterly Historical Actual Emissions (lb-VOC/qtr)</b>				
	Permit Limit (lb/MMBtu)	Fuel Use (Mscf)	HHV (Btu/scf)	HAE (lb-VOC/qtr)
3 <sup>rd</sup> Quarter, 2010	0.003	55,644	876.42	146
4 <sup>th</sup> Quarter, 2010	0.003	86,701	876.42	228
1 <sup>st</sup> Quarter, 2011	0.003	68,705	876.42	181
2 <sup>nd</sup> Quarter, 2011	0.003	45,281	876.42	119
3 <sup>rd</sup> Quarter, 2011	0.003	74,947	876.42	197
4 <sup>th</sup> Quarter, 2011	0.003	66,067	876.42	174
1 <sup>st</sup> Quarter, 2012	0.003	96,083	876.42	253
2 <sup>nd</sup> Quarter, 2012	0.003	74,078	876.42	195

<b>S-1547-123 Quarterly Historical Actual Emissions (lb-VOC/qtr)</b>				
	Permit Limit (lb/MMBtu)	Fuel Use (Mscf)	HHV (Btu/scf)	HAE (lb-VOC/qtr)
3 <sup>rd</sup> Quarter, 2010	0.003	49,656	875.28	130
4 <sup>th</sup> Quarter, 2010	0.003	60,330	875.28	158
1 <sup>st</sup> Quarter, 2011	0.003	99,030	875.28	260
2 <sup>nd</sup> Quarter, 2011	0.003	78,244	875.28	205
3 <sup>rd</sup> Quarter, 2011	0.003	45,832	875.28	120
4 <sup>th</sup> Quarter, 2011	0.003	39,012	875.28	102
1 <sup>st</sup> Quarter, 2012	0.003	67,264	875.28	177
2 <sup>nd</sup> Quarter, 2012	0.003	93,536	875.28	246

<b>S-1547-146 Quarterly Historical Actual Emissions (lb-VOC/qtr)</b>				
	Permit Limit (lb/MMBtu)	Fuel Use (Mscf)	HHV (Btu/scf)	HAE (lb-VOC/qtr)
3 <sup>rd</sup> Quarter, 2010	0.003	79,380	875.28	208
4 <sup>th</sup> Quarter, 2010	0.003	45,115	875.28	118
1 <sup>st</sup> Quarter, 2011	0.003	28,334	875.28	74
2 <sup>nd</sup> Quarter, 2011	0.003	72,402	875.28	190
3 <sup>rd</sup> Quarter, 2011	0.003	70,593	875.28	185
4 <sup>th</sup> Quarter, 2011	0.003	38,312	875.28	101
1 <sup>st</sup> Quarter, 2012	0.003	48,534	875.28	127
2 <sup>nd</sup> Quarter, 2012	0.003	98,348	875.28	258

<b>VOC HAE Summary (lb-VOC/qtr)</b>					
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
'-78	2-yr Sum (HAE)	434	314	343	402
	<b>2-yr Avg (HAE/2)</b>	<b>217</b>	<b>157</b>	<b>172</b>	<b>201</b>
'-123	2-yr Sum (HAE)	437	451	250	260
	<b>2-yr Avg (HAE/2)</b>	<b>219</b>	<b>226</b>	<b>125</b>	<b>130</b>
'-146	2-yr Sum (HAE)	201	448	393	219
	<b>2-yr Avg (HAE/2)</b>	<b>101</b>	<b>224</b>	<b>197</b>	<b>110</b>
<b>Total</b>		<b>537</b>	<b>607</b>	<b>494</b>	<b>441</b>

## E. Adjustments to HAE

### 1. Rule 2201 - New and Modified Stationary Source Review Rule

Pursuant to Section 3.23, Historical Actual Emissions must be discounted for any emissions reduction which is:

- Required or encumbered by any laws, rules, regulations, agreements, orders, or
  - Attributed to a control measure noticed for workshop, or proposed or contained in a State Implementation Plan, or
  - Proposed in the District Air Quality Plan for attaining the annual reductions required by the California Clean Air Act.
  - Any Actual Emissions in excess of those required or encumbered by any laws, rules, regulations, orders, or permits. For units covered by a Specific Limiting Condition (SLC), the total overall HAE for all units covered by the SLC must be discounted for any emissions in excess of that allowed by the SLC.
- a. There are no agreements or orders regarding the operation or emissions reductions associated with this operation. Discounts for any rules will be discussed under the applicable rules listed below. Therefore, no adjustments will be made to the HAE under this section.

- b. Rule 4320, a rule incorporated into the District's State Implementation Plan (SIP) requires a future NO<sub>x</sub> limit of 9 ppmv. This limit has been taken into account in the previous HAE calculations. Therefore, no adjustment to the HAE will be made in this section.
- c. There are no reductions for this operation type proposed in the District Air Quality Plan for attaining the annual reductions required by the California Clean Air Act. Therefore, no adjustments will be made to the HAE under this section.
- d. There are no SLCs related to these units. The emissions were taken from the actual throughput records. Any adjustments to be made for any Rules will be addressed under the applicable Rules listed below. Therefore, no adjustments will be made to the HAE under this section.

This operation has undergone permitting under Rule 2201 and the permits comply with all NSR requirements. No adjustments to the HAE are required under Rule 2201.

## 2. Actual Emissions Reductions (AER)

Since no adjustments have been made to the HAE, the AER is calculated pursuant to Section 3.2 of Rule 2201 where the AER shall be real, surplus, permanent, quantifiable and enforceable. The AER is calculated per subsection 4.12 as follows:

$$\text{AER} = \text{HAE} - \text{PE2}$$

Where: HAE = Historic Actual Emissions  
 PE2 = Post-Project Potential to Emit

The post-project potential to emit (PE2) is equal to zero since the equipment will be shut down. Therefore, the AER = HAE. The following table summarizes the AER for each pollutant:

Actual Emission Reduction (lb/qtr)				
	Q1 (Jan-Mar)	Q2 (Apr-Jun)	Q3 (Jul –Sep)	Q4 (Oct-Dec)
NO <sub>x</sub>	1,965	2,225	1,812	1,618
PM <sub>2.5</sub>	1,550	1,756	1,430	1,276
VOC	537	607	494	441

## 3. Air Quality Improvement Deduction (AQID)

Pursuant to Rule 2201 Section 3.6, the AQID is a 10% discount factor applied to AER before the AER is eligible for banking.

The AER is adjusted for the AQID in the following table.

<b>Air Quality Improvement Deduction (lb/qtr)</b>				
	Q1 (Jan-Mar)	Q2 (Apr-Jun)	Q3 (Jul –Sep)	Q4 (Oct-Dec)
NO <sub>x</sub>	197	223	181	162
PM <sub>2.5</sub>	155	176	143	128
VOC	54	61	49	44

#### 4. Increase in Permitted Emissions (IPE)

This equipment will be removed from service and Permits to Operate will be cancelled upon preliminary notice of the requested Emission Reduction Certificates. Therefore, there is no increase in emissions associated with this project, and no adjustment to the HAE for IPE purposes is necessary.

#### 9. Bankable Emissions Reduction Credits

To obtain the bankable emissions, the AQID is subtracted from the AER as shown below:

<b>Air Quality Improvement Deduction (lb-NO<sub>x</sub>/qtr)</b>				
	Q1 (Jan-Mar)	Q2 (Apr-Jun)	Q3 (Jul –Sep)	Q4 (Oct-Dec)
AER	1,965	2,225	1,812	1,618
AQID	197	223	181	162
<b>Bankable Reductions</b>	<b>1,768</b>	<b>2,002</b>	<b>1,631</b>	<b>1,456</b>

<b>Air Quality Improvement Deduction (lb-PM<sub>2.5</sub>/qtr)</b>				
	Q1 (Jan-Mar)	Q2 (Apr-Jun)	Q3 (Jul –Sep)	Q4 (Oct-Dec)
AER	1,550	1,756	1,430	1,276
AQID	155	176	143	128
<b>Bankable Reductions</b>	<b>1,395</b>	<b>1,580</b>	<b>1,287</b>	<b>1,148</b>

<b>Air Quality Improvement Deduction (lb-VOC/qtr)</b>				
	Q1 (Jan-Mar)	Q2 (Apr-Jun)	Q3 (Jul –Sep)	Q4 (Oct-Dec)
AER	537	607	494	441
AQID	54	61	49	44
<b>Bankable Reductions</b>	<b>483</b>	<b>546</b>	<b>445</b>	<b>397</b>

## **VI. Compliance**

### **Rule 2201 - New and Modified Stationary Source Review Rule**

To comply with the definition of AER (Section 3.2.1), the reductions must be real, enforceable, quantifiable, permanent, and surplus.

#### **A. Real**

The emissions reductions will be generated by the shutdown of three steam generators and surrender of the Permits to Operate. The emissions reductions were calculated from actual historic fuel use and recognized emission factors. Therefore, the emission reductions are real.

#### **B. Enforceable**

The permits will be surrendered. Therefore, the reductions are enforceable.

#### **C. Quantifiable**

The reductions are quantifiable since they were calculated from historic fuel use records, established and accepted emission factors, permitted limits, and methods according to District Rule 2201. Therefore, the reductions are quantifiable and have been quantified.

#### **D. Permanent**

The equipment will be shut down and permits cancelled upon preliminary notice. Steam production for these units has been replaced by steam generated by units listed on Authority to Construct permits S-1547-1173 through '-1180. The potential to emit from permits S-1547-1173 through '-1180 was fully offset for NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, and VOC in project S-1084433. Therefore, all replacement steam has been fully offset and reductions banked in this project will not result in the actual increase in emissions from any unit that has not been fully offset.

Therefore, the reductions are considered permanent.

#### **E. Surplus**

To be considered surplus, AER shall be in excess, at the time the application for an Emission Reduction Credit is deemed complete, of any emissions reduction which:

- Is required or encumbered by any laws, rules, regulations, agreements, orders, or
- Is attributed to a control measure noticed for workshop, or proposed or contained in a State Implementation Plan, or
- Is proposed in the adopted air quality plan pursuant to the California Clean Air Act.

As discussed in Section V.F.1 above, there are no, regulations, plans, etc., that would serve to reduce the HAE. A future compliance date for Rule 4320 NO<sub>x</sub> emissions has been taken into account with previous HAE calculations. Therefore the reductions are surplus.

**F. Not used for the Approval of an Authority to Construct or as Offsets**

The emission reductions generated by the shutdown of this equipment have not been used for the approval of any Authority to Construct or as offsets or mitigation. The ATCs have been implemented, inspected and converted to Permits to Operate (PTO).

**Rule 2301 – Emission Reduction Banking**

Section 5.5 states that ERC certificate applications shall be submitted within 180 days after the emission reduction occurs. The equipment at this facility will be shut down and permits surrendered upon the preliminary decision for the issuance of emission reduction credits. Therefore, the application is considered timely.

Copies of the PTOs for this operation are included in Appendix C.

**Rule 4201 - Particulate Matter Concentration**

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

Since these units are gas fired and limited by permit condition to less than 0.1 grain-PM/scf, no adjustment is necessary for Rule 4201.

**Rule 4320 - Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (8/16/08)**

These steam generators were found to be in compliance with this rule in 2012, after the most recent rule amendment date. These units currently comply with Table 1, Category C.3 (units firing on less than 50%, by volume, PUC quality gas) and would have to meet the final NO<sub>x</sub> limit of 9 ppmv @ 3% O<sub>2</sub>. Since this is a SIP approved rule, this final limit is used to adjust the HAE, which was performed in the HAE calculation above; therefore, no further adjustments to the HAE are necessary.

**VII. Recommendation**

Issue ERC Certificates in the amounts posted in the table below and on the Draft ERC Certificates in Appendix D.

Bankable Emission Reduction Credits (lb/Quarter)			
	NO <sub>x</sub>	PM <sub>2.5</sub>	VOC
1st Quarter	1,768	1,395	483
2nd Quarter	2,002	1,580	546
3rd Quarter	1,631	1,287	445
4th Quarter	1,456	1,148	397

## **List of Appendices**

- A: Historical Fuel Use Records and NSO Calculation
- B: Fuel Gas Analyses and Source Test Results
- C: Permits to Operate
- D: Draft Emission Reduction Credit Certificates

# Appendix A

---

## Historical Fuel Use Records and NSO Calculation



<b>Table A1--FUEL USAGE BY QUARTER (Mscf)</b>			
<b>Month</b>	<b>Permit Number</b>		
	<b>S-1547-78</b>	<b>S-1547-123</b>	<b>S-1547-146</b>
Jul-10	25,104.55	10,102.07	26,673.65
Aug-10	15,165.94	25,137.14	21,544.62
Sep-10	15,373.35	14,416.77	31,161.54
<b>3rd Qtr 2010 TOTAL</b>	<b>55,644</b>	<b>49,656</b>	<b>79,380</b>
Oct-10	32,609.91	8,717.56	21,190.50
Nov-10	22,815.86	32,806.09	8,525.03
Dec-10	31,275.54	18,805.88	15,399.39
<b>4th Qtr 2010 TOTAL</b>	<b>86,701</b>	<b>60,330</b>	<b>45,115</b>
Jan-11	23,408.25	32,074.15	10,966.71
Feb-11	20,528.78	31,446.96	10,052.90
Mar-11	24,768.09	35,509.04	7,314.23
<b>1st Qtr 2011 TOTAL</b>	<b>68,705</b>	<b>99,030</b>	<b>28,334</b>
Apr-11	23,357.27	19,964.93	13,652.42
May-11	12,583.30	32,149.43	23,410.53
Jun-11	9,340.83	26,129.20	35,339.46
<b>2nd Qtr 2011 TOTAL</b>	<b>45,281</b>	<b>78,244</b>	<b>72,402</b>
Jul-11	27,099.72	21,093.63	20,687.84
Aug-11	24,586.97	9,560.56	32,538.95
Sep-11	23,259.86	15,177.83	17,366.34
<b>3rd Qtr 2011 TOTAL</b>	<b>74,947</b>	<b>45,832</b>	<b>70,593</b>
Oct-11	20,658.11	7,900.70	8,965.31
Nov-11	3,265.57	1,000.52	8,451.66
Dec-11	12,754.30	30,111.15	20,894.75
<b>4th Qtr 2011 TOTAL</b>	<b>66,067</b>	<b>39,012</b>	<b>38,312</b>
Jan-12	32,598.42	18,616.95	17,557.73
Feb-12	33,743.63	19,578.92	21,849.60
Mar-12	29,740.59	29,068.31	9,127.12
<b>1st Qtr 2012 TOTAL</b>	<b>96,083</b>	<b>67,264</b>	<b>48,534</b>
Apr-12	15,090.34	21,033.75	37,307.31
May-12	26,524.46	38,417.43	25,196.30
Jun-12	32,463.27	34,084.54	35,844.49
<b>2nd Qtr 2012 TOTAL</b>	<b>74,078</b>	<b>93,536</b>	<b>98,348</b>

**Table B1--BASELINE PERIOD DETERMINATION**

Date	Fuel Use for S-1547-78 (Mscf/month)	Fuel Use for S-1547-123 (Mscf/month)	Fuel Use for S-1547-146 (Mscf/month)	Monthly Total (Mscf)	2 Yr Rolling Monthly Avg (Mscf)	8 Yr NSO Avg (Mscf)
11-2012	2,718.76	17,714.43	0.00	20,433.19	57,930.15	66,250
10-2012	0.00	892.29	0.00	892.29	59,751.56	66,250
9-2012	4,137.32	9,324.44	0.00	13,461.76	62,319.30	66,250
8-2012	5,831.47	8,159.93	12,090.01	26,081.41	64,298.05	66,250
7-2012	10,148.46	38,177.79	11,045.59	59,371.84	65,788.31	66,250
6-2012*	32,463.27	34,084.54	35,844.49	102,392.30	<b>65,892.83</b>	66,250
5-2012*	26,524.46	38,417.43	25,196.30	90,138.19	64,094.34	66,250
4-2012*	15,090.34	21,033.75	37,307.31	73,431.40	62,839.70	66,250
3-2012*	29,740.59	29,068.31	9,127.12	67,936.02	62,305.78	66,250
2-2012*	33,743.63	19,578.92	21,849.60	75,172.15	62,149.50	66,250
1-2012*	32,598.42	18,616.95	17,557.73	68,773.10	61,473.50	66,250
12-2011*	12,754.30	30,111.15	20,894.75	63,760.20	61,092.31	66,250
11-2011*	32,654.57	1,000.52	8,451.66	42,106.75	61,174.81	66,250
10-2011*	20,658.11	7,900.70	8,965.31	37,524.12	61,862.73	66,250
9-2011*	23,259.86	15,177.83	17,366.34	55,804.03	62,996.56	66,250
8-2011*	24,586.97	9,560.56	32,538.95	66,686.48	63,267.40	66,250
7-2011*	27,099.72	21,093.63	20,687.84	68,881.19	63,293.55	66,250
6-2011*	9,340.83	26,129.20	35,339.46	70,809.49	63,101.58	66,250
5-2011*	12,583.30	32,149.43	23,410.53	68,143.26	62,808.15	66,250
4-2011*	23,357.27	19,964.93	13,652.42	56,974.62	62,636.37	66,250
3-2011*	24,768.09	35,509.04	7,314.23	67,591.36	62,706.42	66,250
2-2011*	20,528.78	31,446.96	10,052.90	62,028.64	62,823.22	66,250
1-2011*	23,408.25	32,074.15	10,966.71	66,449.11	63,255.05	66,250
12-2010*	31,275.54	18,805.88	15,399.39	65,480.81	63,525.68	66,250
11-2010*	22,815.86	32,806.09	8,525.03	64,146.98	63,221.29	66,250
10-2010*	32,609.91	8,717.56	21,190.50	62,517.97	63,065.55	66,250
9-2010*	15,373.35	14,416.77	31,161.54	60,951.66	63,343.42	66,250
8-2010*	15,165.94	25,137.14	21,544.62	61,847.70	63,432.87	66,250
7-2010*	25,104.55	10,102.07	26,673.65	61,880.27	63,319.34	66,250
6-2010	23,041.61	5,991.43	30,195.53	59,228.57	63,467.12	66,250
5-2010	3,537.19	29,043.32	27,446.51	60,027.02	63,703.96	66,250

\*\*

4-2010	19,040.37	25,482.76	16,094.19	60,617.32	63,684.44	66,250
3-2010	20,273.68	21,752.49	22,159.03	64,185.20	63,836.81	66,250
2-2010	23,170.44	20,046.14	15,731.59	58,948.17	63,822.24	66,250
1-2010	20,069.55	22,947.30	16,607.55	59,624.40	63,797.17	66,250
12-2009	25,620.24	9,570.74	30,549.44	65,740.42	64,022.40	66,250
11-2009	10,405.48	19,785.95	28,425.39	58,616.82	63,943.67	66,250
10-2009	30,175.89	3,346.46	31,213.61	64,735.96		
9-2009	26,109.40	3,936.80	32,257.96	62,304.16		
8-2009	8,283.98	34,698.28	24,331.87	67,314.13		
7-2009	11,003.40	33,579.89	19,690.69	64,273.98		
6-2009	13,689.03	27,051.23	23,026.88	63,767.14		
5-2009	30,602.98	29,971.63	3,445.86	64,020.47		
4-2009	28,779.20	0.00	29,876.59	58,655.79		
3-2009	14,084.72	22,401.32	33,908.47	70,394.51		
2-2009	22,890.45	29,124.82	20,377.44	72,392.71		
1-2009	18,117.82	28,965.21	25,861.21	72,944.24		
12-2008	26,515.78	15,264.08	16,395.42	58,175.28		
11-2008	31,444.31	12,482.31	16,482.66	60,409.28		
10-2008	34,313.85	18,311.74	16,561.20	69,186.79		
9-2008	22,534.29	16,027.68	24,536.49	63,098.46		
8-2008	14,094.48	21,883.16	23,145.54	59,123.18		
7-2008	33,041.35	15,965.02	16,420.41	65,426.78		
6-2008	25,249.76	24,031.22	15,631.75	64,912.73		
5-2008	17,025.50	18,094.65	24,438.47	59,558.62		
4-2008	17,473.50	19,499.69	27,300.97	64,274.16		
3-2008	23,570.69	31,185.36	9,079.44	63,835.49		
2-2008	21,736.53	27,655.65	8,954.38	58,346.56		
1-2008	22,693.57	12,510.49	29,825.84	65,029.90		
12-2007	17,502.07	32,765.25	13,583.65	63,850.97		

\* Period for which the 2 year rolling average is closest to the NSO

\*\* 2 year rolling average that is closest to the NSO

<b>Table B2--NORMAL SOURCE OPERATION ANALYSIS (NSO)</b>				
<b>Fuel Use in Mscf by Permit Number</b>				
	<b>S-1547-78</b>	<b>S-1547-123</b>	<b>S-1547-146</b>	<b>Total</b>
<b>2012*</b>	192,997	235,069	170,018	598,084
<b>2011</b>	255,000	262,118	209,641	726,759
<b>2010</b>	251,478	235,249	252,729	739,456
<b>2009</b>	239,763	242,432	302,965	785,160
<b>2008</b>	289,694	232,911	228,773	751,378
<b>2007</b>	206,934	324,921	265,221	797,076
<b>2006</b>	244,472	327,466	320,314	892,252
<b>2005</b>	244,574	436,058	322,987	1,003,619
<b>8 yr Total</b>				<b>6,293,784</b>
<b>Months Operated</b>				<b>95</b>
<b>8 yr Monthly Average</b>				<b>66,250</b>

\* Operated 11 out of 12 months this year

## **Appendix B**

---

### Fuel Gas Analyses and Source Test Results



**Aera Energy LLC**  
**Steam Generator 89 S-15147-078**  
**Natural Gas**

**Project 010-7892**  
**Laboratory ID 12-222-02**

Sampled by: Paul Sabovich

Date Sampled: June 13, 2012  
 Date Received: June 14, 2012  
 Date Analyzed: June 14, 2012

**Fuel Gas Analysis Results**

CONSTITUENT	MOLE %	WT. %	CHONS	WT. %
Oxygen	0.213	0.274	Carbon	54.69
Nitrogen	1.721	1.933	Hydrogen	13.36
Carbon Dioxide	23.186	40.910	Oxygen	30.02
Carbon Monoxide	0.000	0.000	Nitrogen	1.93
			Sulfur	0.00
Methane	64.124	41.244	H/C	0.244
Ethane	6.619	7.980		
Propane	3.563	6.300		
Isobutane	0.195	0.455		
N-Butane	0.342	0.797		
Isopentane	0.016	0.047		
N-Pentane	0.007	0.021		
Hexanes	0.012	0.040		
<b>Total(s)</b>	<b>100.000</b>	<b>100.000</b>		

Specific Gravity (Air = 1)	0.8612
Specific Volume (cf/lb)	15.21
Gross Calorific Value, Dry (Btu/cf)	876.42
Gross Calorific Value, Wet (Btu/cf)	858.22
Gross Calorific Value, Dry (Btu/lb)	13333.37
Net Calorific Value, Dry (Btu/cf)	793.00
Net Calorific Value, Wet (Btu/cf)	776.53
Compressibility Factor "Z" @ 60° F, 1 atm	0.9966
<b>EPA F-Factor @ 68° F (DSCF/MMBtu)</b>	<b>8907</b>
<b>EPA F-Factor @ 60° F (DSCF/MMBtu)</b>	<b>8773</b>

References:  
 ASTM Methods D1945 & D3588  
 GC-TCD

Reviewed By: Tim Brennan, Laboratory Manager

**"Professional Air Emissions Testing and Analytical Services"**

18828 Highway 65 • Bakersfield, CA 93308  
 (661) 391-0112 • (661) 391-0163 Fax



**Aera Energy LLC**  
**Steam Generators 124 & 133**  
**Natural Gas**

S-1547-123  
 81-146

**Project 010-7859**  
**Laboratory ID 12-192-01**

Sampled by: Rory Brennan

Date Sampled: May 24, 2012  
 Date Received: May 24, 2012  
 Date Analyzed: May 24, 2012

**Fuel Gas Analysis Results**

CONSTITUENT	MOLE %	WT. %	CHONS	WT.%
Oxygen	0.157	0.200	Carbon	54.74
Nitrogen	0.730	0.812	Hydrogen	13.21
Carbon Dioxide	24.414	42.687	Oxygen	31.24
Carbon Monoxide	0.000	0.000	Nitrogen	0.81
			Sulfur	0.00
Methane	64.013	40.800	H/C	0.241
Ethane	6.426	7.677		
Propane	3.641	6.378		
Isobutane	0.212	0.490		
N-Butane	0.376	0.869		
Isopentane	0.021	0.059		
N-Pentane	0.010	0.028		
Hexanes	0.000	0.000		
<b>Total(s)</b>	<b>100.000</b>	<b>100.000</b>		

Specific Gravity (Air = 1)	0.8691
Specific Volume (cf/lb)	15.08
Gross Calorific Value, Dry (Btu/cf)	875.28
Gross Calorific Value, Wet (Btu/cf)	857.04
Gross Calorific Value, Dry (Btu/lb)	13195.49
Net Calorific Value, Dry (Btu/cf)	791.99
Net Calorific Value, Wet (Btu/cf)	775.49
Compressibility Factor "Z" @ 60° F, 1 atm	0.9965
EPA F-Factor @ 68° F (DSCF/MMBtu)	8912
EPA F-Factor @ 60° F (DSCF/MMBtu)	8778

References:  
 ASTM Methods D1945 & D3588  
 GC-TCD

Reviewed By: Tim Brennan, Laboratory Manager

**"Professional Air Emissions Testing and Analytical Services"**

18828 Highway 65 • Bakersfield, CA 93308  
 (661) 391-0112 • (661) 391-0153 Fax

**Aera Energy LLC  
Cymric Lease  
Steam Generator 89**

**Project 010-6211  
December 11, 2008  
Permit No. S-1547-78-22**

<b>Pollutant</b>	<b>%</b>	<b>ppm</b>	<b>ppm @ 3% O<sub>2</sub></b>	<b>lb/hr</b>	<b>lb/MMCF</b>	<b>Permit Limits</b>
<b>NOx</b>		12	13	0.78	14.93	
		11	12	0.73	13.90	
		11	13	0.73	14.06	
<b>Mean</b>		11	13	0.75	14.30	<b>15 ppm @ 3% O<sub>2</sub></b>
<b>CO</b>		0	0	0.00	0.00	
		0	0	0.00	0.00	
		0	0	0.00	0.00	
<b>Mean</b>		0	0	0.00	0.00	<b>50 ppm @ 3% O<sub>2</sub></b>
<b>O<sub>2</sub></b>	4.56					
	4.51					
	4.56					
<b>Mean</b>	4.54					



**Aera Energy LLC  
Belridge Lease  
Steam Generator 124**

**Project 010-6020  
June 17, 2008  
Permit No. S-1547-146-19**

Pollutant	%	ppm	ppm @ 3% O <sub>2</sub>	lb/hr	lb/MMCF	Permit Limits
NOx		12	13	0.61	13.93	15 ppm @ 3% O <sub>2</sub>
		12	13	0.62	14.06	
		12	13	0.61	13.92	
	Mean	12	13	0.61	13.97	
CO		0	0	0.00	0.00	50 ppm @ 3% O <sub>2</sub>
		0	0	0.00	0.00	
		0	0	0.00	0.00	
	Mean	0	0	0.00	0.00	
		ppm			lb/MMBtu	
Fuel Sulfur (SOx as SO <sub>2</sub> )		As H <sub>2</sub> S in Fuel Gas <1			As SO <sub>2</sub> in Stack Exhaust <0.0002	0.030 lb/MMBtu
O <sub>2</sub>	4.45					
	4.46					
	4.44					
	Mean					

**Aera Energy LLC  
Belridge Lease  
Steam Generator 133**

**Project-010-6020  
June 17, 2008  
Permit No. S-1547-123-18**

Pollutant	%	ppm	ppm @ 3% O <sub>2</sub>	lb/hr	lb/MMCF	Permit Limits
NOx		11	11	0.53	12.54	15 ppm @ 3% O <sub>2</sub>
		11	11	0.54	12.64	
		11	11	0.54	12.53	
	Mean	11	11	0.54	12.57	
CO		0	0	0.00	0.00	50 ppm @ 3% O <sub>2</sub>
		0	0	0.00	0.00	
		0	0	0.00	0.00	
	Mean	0	0	0.00	0.00	
		ppm			lb/MMBtu	
Fuel Sulfur (SOx as SO <sub>2</sub> )		As H <sub>2</sub> S in Fuel Gas			As SO <sub>2</sub> in Stack Exhaust	0.030 lb/MMBtu
		<1			<0.0002	
O <sub>2</sub>	4.22					
	4.19					
	4.20					
	Mean					















# **Appendix C**

---

Permits to Operate

# San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1547-78-33

EXPIRATION DATE: 05/31/2016

SECTION: NE29 TOWNSHIP: 28S RANGE: 21E

## EQUIPMENT DESCRIPTION:

62.5 MMBTU/HR NATURAL GAS FIRED-STEAM GENERATOR WITH A COEN ULTRA LOW NOX BURNER, WITH FLUE GAS RECIRCULATION, AND PIPING FROM S-1547-1079 (EAST FLANK LEASE), (#89, DIS# 27471-80) (GEN SITE 2972)

## PERMIT UNIT REQUIREMENTS

---

1. Copies of all fuel invoices showing quantity and delivery points of gas delivered and copies of quality terms of gas delivery contracts shall be maintained. The operator shall record daily amount and type(s) of fuel(s) combusted and all dates on which unit is fired on any noncertified fuel and record specific type of noncertified fuel used. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
2. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. 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 semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
3. If fuel analysis is used to demonstrate compliance with conditions of this permit, the fuel higher heating value for each fuel shall be certified by a third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 4305, 6.2; 4306, 6.2 and 4320, 6.2] Federally Enforceable Through Title V Permit
4. Compliance with permit conditions in the Title V permit shall be deemed compliance with the requirements of 40 CFR 60, Subpart Dc (except 60.44c(g) and (h) and 60.48c). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
5. The operator shall demonstrate compliance with this unit's sulfur compound exhaust concentration limit(s) using one of the following: test the sulfur content of each fuel source, or determine that the concentration of sulfur compounds in the exhaust does not exceed the concentration limit by a combination of source testing and fuel analysis. [District Rules 2520, 9.4.2, 4301, 5.2.1 and 4801, 3.1] Federally Enforceable Through Title V Permit
6. The total gas fired in this unit, on a monthly volume basis, shall be less than 50% PUC-quality natural gas (as defined by Rule 4320). [District Rule 4320] Federally Enforceable Through Title V Permit
7. The permittee shall maintain monthly records of the volume of PUC quality natural gas (as defined in Rule 4320) and the total gas fired in this unit. Permittee shall keep monthly records of the percentage by volume of PUC quality gas fired and indicate if the volume of PUC quality gas fired is less than 50%. [District Rule 4320] Federally Enforceable Through Title V Permit
8. Fuel H<sub>2</sub>S, total sulfur, and methane content shall be determined semi-annually using the test methods (or other approved methods listed in this permit) H<sub>2</sub>S: ASTM D6228; total sulfur: ASTM D1072; ASTM D3246, or ASTM D6228; and methane content: ASTM D1945. [District Rule 4320] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

9. Emission rates, except during startup, shutdown, and refractory curing shall not exceed any of the following: PM10: 0.014 lb/MMBtu, SOx (as SO2): 0.002 lb/MMBtu, NOx (as NO2): 0.014 lb/MMBtu or 12 ppmv @ 3% O2, or CO: 50 ppmv @ 3% O2 [District Rules 2201, 4305, 5.1; 4306, 5.1 and 4320, 5.2 & 5.4] Federally Enforceable Through Title V Permit
10. Emission rates shall not exceed any of the following: NOx (as NO2): 54.0 lb/day or 7,665 lb/yr. [District Rule 2201] Federally Enforceable Through Title V Permit
11. Emission rates during refractory curing shall not exceed: particulate matter - 10 pounds per hour, or 0.1 grains/dscf calculated to 12% CO2; sulfur - 200 pounds of SO2 per hour, or 2000 ppmv as SO2, or 0.11 pounds sulfur (as S) per MMBtu on average-wide basis for all units in Rule 4406 plan; NO2 - 140 pounds per hour or 0.14 pounds per MMBtu. [District Rules 4301, 5.2; 4405, 5.2; 4406, 4.2 and 4801, 3.1] Federally Enforceable Through Title V Permit
12. Duration of start-up and shutdown (as defined in Rule 4320) shall not exceed 2 hours each per occurrence. Refractory curing period is defined as a maintenance-based reduced-load period of time during which a unit is brought from a shutdown status to staged rates of firing for the sole purpose of curing new refractory lining of the unit, and shall not exceed 30 hours per occurrence. The operator shall maintain records of the duration of start-up, shutdown, and refractory curing periods. [District Rules 4305, 5.5; 4306, 5.3 and 4320, 5.6] Federally Enforceable Through Title V Permit
13. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 5.4; 4306, 5.4 and 4320, 5.7] Federally Enforceable Through Title V Permit
14. If the NOx or CO concentrations corrected to 3% O2, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 5.4; 4306, 5.4 and 4320, 5.7] Federally Enforceable Through Title V Permit
15. 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 4305, 5.5; 4306, 5.5 and 4320, 5.8] Federally Enforceable Through Title V Permit
16. 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 3% 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 4305, 5.5; 4306, 5.5 and 4320, 5.8] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

17. Source testing to measure natural gas-combustion NO<sub>x</sub> and CO emissions from this unit shall be conducted at least once every twelve (12) months (no more than 30 days before or after the required annual source test date). After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months (no more than 30 days before or after the required 36-month source test date). If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305, 6.3; 4306, 6.3 and 4320, 6.3] Federally Enforceable Through Title V Permit
18. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. Unless otherwise specified in the Permit to Operate, no determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0. For the purposes of permittee-performed alternate monitoring, emissions measurements may be performed at any time after the unit reaches conditions representative of normal operation. [District Rules 4305, 5.5, 4306, 5.5 and 4320, 5.8] Federally Enforceable Through Title V Permit
19. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 5.5; 4306, 5.5 and 4320, 5.8] Federally Enforceable Through Title V Permit
20. Measurement shall be made with the FGR system in the mode of operation (closed or open) in which it was used in the preceding 30 days. [District Rules 4306, 5.4 and 4320, 5.7] Federally Enforceable Through Title V Permit
21. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081, 7.1] Federally Enforceable Through Title V Permit
22. The following test methods shall be used: NO<sub>x</sub> (ppmv) - EPA Method 7E or ARB Method 100, NO<sub>x</sub> (lb/MMBtu) - EPA Method 19, CO (ppmv) - EPA Method 10 or 10B or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, SO<sub>x</sub> (lb/MMBtu) - ARB Method 8 or 100 or EPA Method 6, 6B or 8 or fuel gas sulfur content analysis and EPA Method 19, fuel gas sulfur content - ASTM D1072, D4468, D3246, D4084 or double GC for H<sub>2</sub>S and mercaptans performed in laboratory, fuel gas hhv - ASTM D1826 or D1945 in conjunction with ASTM D3588. [District Rule 1081, 6.1; 4305, 6.2, 4306, 6.2 and 4320, 6.2] Federally Enforceable Through Title V Permit
23. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 5.5; 4306, 5.5 and 4320, 5.8] Federally Enforceable Through Title V Permit
24. All records shall be maintained for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4.0; 4305,6.1; 4306, 6.1 and 4320, 6.1] Federally Enforceable Through Title V Permit

These terms and conditions are part of the Facility-wide Permit to Operate.

# San Joaquin Valley Air Pollution Control District

**PERMIT UNIT:** S-1547-123-30

**EXPIRATION DATE:** 05/31/2016

**SECTION:** NE29 **TOWNSHIP:** 28S **RANGE:** 21E

**EQUIPMENT DESCRIPTION:**

62.5 MMBTU/HR NATURAL GAS/VAPOR RECOVERY GAS-FIRED STEAM GENERATOR WITH A COEN ULTRA LOW NOX BURNER AND A FLUE GAS RECIRCULATION (FGR) SYSTEM (#133, DIS# 28715-83) (GEN SITE 2972)

## PERMIT UNIT REQUIREMENTS

---

1. Copies of all fuel invoices showing quantity and delivery points of supplier-certified gas delivered and copies of quality terms of supplier-certified gas delivery contracts shall be maintained. The operator shall record daily amount and type(s) of fuel(s) combusted and all dates on which unit is fired on any noncertified fuel and record specific type of noncertified fuel used. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
2. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
3. The operator shall demonstrate compliance with this unit's sulfur compound exhaust concentration limit(s) using one of the following: test the sulfur content of each fuel source, or determine that the concentration of sulfur compounds in the exhaust does not exceed the concentration limit by a combination of source testing and fuel analysis. [District Rules 4301, 5.2.1 and 4801, 3.1] Federally Enforceable Through Title V Permit
4. If fuel analysis is used to demonstrate compliance with conditions of this permit, the fuel higher heating value for each fuel shall be certified by a third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 4305, 6.2; 4306, 6.2 and 4320, 6.2] Federally Enforceable Through Title V Permit
5. Compliance with permit conditions in the Title V permit shall be deemed compliance with the requirements of 40 CFR 60, Subpart Dc (except 60.44c(g) and (h) and 60.48c). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
6. The total gas fired in this unit, on a monthly volume basis, shall be less than 50% PUC-quality natural gas (as defined by Rule 4320). [District Rule 4320] Federally Enforceable Through Title V Permit
7. The permittee shall maintain monthly records of the volume of PUC quality natural gas (as defined in Rule 4320) and the total gas fired in this unit. Permittee shall keep monthly records of the percentage by volume of PUC quality gas fired and indicate if the volume of PUC quality gas fired is less than 50%. [District Rule 4320] Federally Enforceable Through Title V Permit
8. Fuel H<sub>2</sub>S, total sulfur, and methane content shall be determined semi-annually using the test methods (or other approved methods listed in this permit) H<sub>2</sub>S: ASTM D6228; total sulfur: ASTM D1072; ASTM D3246, or ASTM D6228; and methane content: ASTM D1945. [District Rules 4305, 6.2; 4306, 6.2 and 4320, 6.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

Facility Name: AERA ENERGY LLC

Location: HEAVY OIL WESTERN STATIONARY SOURCE, KERN COUNTY, CA

S-1547-123-30 : Apr 12 2013 9:27AM - RICKARDK

9. Emission rates, except during startup, shutdown, and refractory curing, shall not exceed any of the following: PM10: 0.014 lb/MMBtu, SO<sub>x</sub> (as SO<sub>2</sub>): 0.002 lb/MMBtu, NO<sub>x</sub> (as NO<sub>2</sub>): 0.014 lb/MMBtu or 12 ppmv @ 3% O<sub>2</sub>, VOC: 0.003 lb/MMBtu, CO: 50 ppmv @ 3% O<sub>2</sub>. [District Rules 2201, 4305, 5.1; 4306 and, 5.1 and 4320, 5.2 & 5.4] Federally Enforceable Through Title V Permit
10. Emission rates shall not exceed any of the following: NO<sub>x</sub> (as NO<sub>2</sub>): 54.0 lb/day and 7,665 lb/yr. [District Rule 2201] Federally Enforceable Through Title V Permit
11. Emission rates during refractory curing shall not exceed: particulate matter - 10 pounds per hour, or 0.1 grains/dscf calculated to 12% CO<sub>2</sub>; sulfur - 200 pounds of SO<sub>2</sub> per hour, or 2000 ppmv as SO<sub>2</sub>, or 0.11 pounds sulfur (as S) per MMBtu on average-wide basis for all units in Rule 4406 plan; NO<sub>2</sub> - 140 pounds per hour or 0.14 pounds per MMBtu. [District Rules 4301, 5.2; 4405, 5.2; 4406, 4.2 and 4801, 3.1] Federally Enforceable Through Title V Permit
12. Duration of start-up and shutdown (as defined in Rule 4320) shall not exceed 2 hours each per occurrence. Refractory curing period is defined as a maintenance-based reduced-load period of time during which a unit is brought from a shutdown status to staged rates of firing for the sole purpose of curing new refractory lining of the unit, and shall not exceed 30 hours per occurrence. The operator shall maintain records of the duration of start-up, shutdown, and refractory curing periods. [District Rules 4305, 5.5; 4306, 5.3 and 4320, 5.6] Federally Enforceable Through Title V Permit
13. The permittee shall monitor and record the stack concentration of NO<sub>x</sub>, CO, and O<sub>2</sub> at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Measurement shall be made with the FGR system in the mode of operation (closed or open) in which it was used in the preceding 30 days. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 5.4; 4306, 5.4 and 4320, 5.7] Federally Enforceable Through Title V Permit
14. If the NO<sub>x</sub> and/or CO concentrations corrected to 3% O<sub>2</sub>, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 4305, 5.4; 4306, 5.4 and 4320, 5.7] Federally Enforceable Through Title V Permit
15. The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 3% O<sub>2</sub>, (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 4305, 5.4; 4306, 5.4 and 4320, 5.7] Federally Enforceable Through Title V Permit
16. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. Unless otherwise specified in the Permit to Operate, no determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0. For the purposes of permittee-performed alternate monitoring, emissions measurements may be performed at any time after the unit reaches conditions representative of normal operation. [District Rules 4305, 5.5; 4306, 5.5 and 4320, 5.8] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

17. Source testing to measure natural gas-combustion NO<sub>x</sub> and CO emissions from this unit shall be conducted at least once every twelve (12) months, (no more than 30 days before or after the required annual source test date). After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months, (no more than 30 days before or after the required 36 months source test date). If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305, 6.3; 4306, 6.3 and 4320, 6.3] Federally Enforceable Through Title V Permit
18. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081,7.1] Federally Enforceable Through Title V Permit
19. The following test methods shall be used: NO<sub>x</sub> (ppmv) - EPA Method 7E or ARB Method 100, NO<sub>x</sub> (lb/MMBtu) - EPA Method 19, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, SO<sub>x</sub> (lb/MMBtu) - EPA Methods 6, 6B, or 8, or ARB Methods 8 or 100 and EPA Method 19, fuel gas sulfur content - ASTM D1072, D3246, D4084, D4468 or double GC for H<sub>2</sub>S and mercaptans, fuel gas hhv - ASTM D1826 or D1945 in conjunction with ASTM D3588, PM<sub>10</sub> - EPA Method 201A and 202, or EPA Method 5 (assume all PM is PM<sub>10</sub>). [District Rules 1081, 6.1; 4305, 6.2; 4306, 6.2 and 4320, 6.2] Federally Enforceable Through Title V Permit
20. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 5.5; 4306, 5.5 and 4320, 5.8] Federally Enforceable Through Title V Permit
21. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4.0; 4305, 6.1; 4306, 6.1 and 4320, 6.1] Federally Enforceable Through Title V Permit

These terms and conditions are part of the Facility-wide Permit to Operate.

# San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1547-146-30

EXPIRATION DATE: 05/31/2016

SECTION: NE29 TOWNSHIP: 28S RANGE: 21E

## EQUIPMENT DESCRIPTION:

62.5 MMBTU/HR C.E. NATCO NATURAL GAS/VAPOR RECOVERY GAS-FIRED STEAM GENERATOR (#124, DIS# 27578-81), WITH A COEN ULN LOW NOX BURNER, O2 CONTROLLER AND FLUE GAS RECIRCULATION (GEN SITE 2972)

## PERMIT UNIT REQUIREMENTS

---

1. Copies of all fuel invoices showing quantity and delivery points of supplier-certified gas delivered and copies of quality terms of supplier-certified gas delivery contracts shall be maintained. The operator shall record daily amount and type(s) of fuel(s) combusted and all dates on which unit is fired on any noncertified fuel and record specific type of noncertified fuel used. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
2. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
3. If fuel analysis is used to demonstrate compliance with conditions of this permit, the fuel higher heating value for each fuel shall be certified by a third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 2520, 9.3.2, 4305, 6.2; 4306, 6.2 and 4320, 6.2] Federally Enforceable Through Title V Permit
4. The total gas fired in this unit, on a monthly volume basis, shall be less than 50% PUC-quality natural gas (as defined by Rule 4320). [District Rule 4320] Federally Enforceable Through Title V Permit
5. The permittee shall maintain monthly records of the volume of PUC quality natural gas (as defined in Rule 4320) and the total gas fired in this unit. Permittee shall keep monthly records of the percentage by volume of PUC quality gas fired and indicate if the volume of PUC quality gas fired is less than 50%. [District Rule 4320] Federally Enforceable Through Title V Permit
6. Fuel H<sub>2</sub>S, total sulfur, and methane content shall be determined semi-annually using the test methods (or other approved methods listed in this permit) H<sub>2</sub>S: ASTM D6228; total sulfur: ASTM D1072; ASTM D3246, or ASTM D6228; and methane content: ASTM D1945. [District Rule 4305, 6.2; 4306, 6.2 and 4320, 6.2] Federally Enforceable Through Title V Permit
7. Duration of startup and shutdown (as defined in Rule 4320) shall not exceed 2 hours each per occurrence. Refractory curing period is defined as a maintenance-based reduced-load period of time during which a unit is brought from a shutdown status to staged rates of firing for the sole purpose of curing new refractory lining of the unit, and shall not exceed 30 hours per occurrence. The operator shall maintain records of the duration of start-up, shutdown, and refractory curing periods. [District Rules 4405, 5.5 & 6.1; 4306, 5.3 & 6.1 and 4320, 5.6 & 6.1] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.



8. Emission rates, except during startup, shutdown, and refractory curing shall not exceed any of the following: PM10: 0.015 lb/MMBtu, SOx (as SO2): 0.002 lb/MMBtu, VOC:0.003 lb/MMBtu, NOx (as NO2): 0.014 lb/MMBtu or 12 ppmv @ 3% O2, or CO: 50 ppmv @ 3% O2. [District Rules 2201; 4305, 5.1; 4306, 5.1 and 4320, 5.2 & 5.4] Federally Enforceable Through Title V Permit
9. Emission rates during startup, shutdown or refractory curing shall not exceed: particulate matter - 10 pounds per hour, or 0.1 grains/dscf calculated to 12% CO2; sulfur - 200 pounds of SO2 per hour, or 2000 ppmv as SO2, or 0.11 pounds sulfur (as S) per MMBtu on average-wide basis for all units in Rule 4406 plan; NO2 - 140 pounds per hour or 0.14 pounds per MMBtu. [District Rules 4301, 5.2; 4405, 5.2; 4406, 4.2 and 4801, 3.1] Federally Enforceable Through Title V Permit
10. Emission rates shall not exceed any of the following: NOx (as NO2): 54.0 lb/day or 7665 lb/yr. [District Rule 2201] Federally Enforceable Through Title V Permit
11. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 5.4; 4306, 5.4 and 4320, 5.7] Federally Enforceable Through Title V Permit
12. If either the NOx or CO concentrations corrected to 3% O2, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100 (amended December 17, 1992), the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 5.4; 4306, 5.4 and 4320, 5.7] Federally Enforceable Through Title V Permit
13. 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 4305, 5.5; 4306, 5.5 and 4320, 5.8] Federally Enforceable Through Title V Permit
14. 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 3% 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 4305, 5.4; 4306, 5.4 and 4320, 5.7] Federally Enforceable Through Title V Permit
15. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. Unless otherwise specified in the Permit to Operate No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of rule 4320. For the purposes of permittee-performed alternate monitoring, emissions measurements may be performed at any time after the unit reaches conditions representative of normal operation. [District Rules 4305, 5.5; 4306, 5.5 and 4320, 5.8] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

16. Source testing to measure natural gas-combustion NO<sub>x</sub> and CO emissions from this unit shall be conducted at least once every twelve (12) months, (no more than 30 days before or after the required annual source test date). After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months, (no more than 30 days before or after the required 36 months source test date). If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rule 2201 and District Rules 4305, 6.3; 4306, 6.3 and 4320, 6.3] Federally Enforceable Through Title V Permit
17. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 5.5; 4306, 5.5 and 4320, 5.8] Federally Enforceable Through Title V Permit
18. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081, 7.1] Federally Enforceable Through Title V Permit
19. Compliance demonstration (source testing) shall be by District witnessed, or authorized. Sample collection shall be by an ARB certified testing laboratory. [District Rule 1081] Federally Enforceable Through Title V Permit
20. The following test methods shall be used: NO<sub>x</sub> (ppmv) - EPA Method 7E or ARB Method 100, NO<sub>x</sub> (lb/MMBtu) - EPA Method 19, CO (ppmv) - EPA Method 10 or 10B or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, SO<sub>x</sub> (lb/MMBtu) - ARB Method 8 or 100 or EPA Method 6, 6B or 8 or fuel gas sulfur content analysis and EPA Method 19, fuel gas sulfur content - ASTM D1072, D3246, D4084, D4468 or double GC for H<sub>2</sub>S and mercaptans performed in laboratory, fuel gas hhv - ASTM D1826 or D1945 in conjunction with ASTM D3588. [District Rules 1081, 6.1; 4305, 6.2; 4306, 6.2 and 4320, 6.2] Federally Enforceable Through Title V Permit
21. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 5.5; 4306, 5.5 and 4320, 5.8] Federally Enforceable Through Title V Permit
22. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 2201, District Rules 1070, 4.0; 4305, 6.1; and 4306, 6.1] Federally Enforceable Through Title V Permit

These terms and conditions are part of the Facility-wide Permit to Operate.

## **Appendix D**

---

Draft Emission Reduction Credit Certificates

San Joaquin Valley  
Air Pollution Control District

Southern Regional Office • 34946 Flyover Court • Bakersfield, CA 93308

**Emission Reduction Credit Certificate**  
**S1130189-204-1**

ISSUED TO: AERA ENERGY LLC  
ISSUED DATE: <DRAFT>  
LOCATION OF REDUCTION: HEAVY OIL WESTERN STATIONARY SOURCE  
KERN COUNTY, CA  
SECTION: NE29 TOWNSHIP: 28S RANGE: 21E

**For VOC Reduction In The Amount Of:**

Quarter 1	Quarter 2	Quarter 3	Quarter 4
483 lbs	546 lbs	445 lbs	397 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source  
 Shutdown of Emissions Units  
 Other

Shutdown of steam generators S-1547-78, '-123, and '-146

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 • 34946 Flyover Court • Bakersfield, CA 93308

**Emission Reduction Credit Certificate**  
**S1130189-204-2**

ISSUED TO: AERA ENERGY LLC  
ISSUED DATE: <DRAFT>  
LOCATION OF REDUCTION: HEAVY OIL WESTERN STATIONARY SOURCE  
KERN COUNTY, CA  
SECTION: NE29 TOWNSHIP: 28S RANGE: 21E

**For NOx Reduction In The Amount Of:**

Quarter 1	Quarter 2	Quarter 3	Quarter 4
1,768 lbs	2,002 lbs	1,631 lbs	1,456 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source  
 Shutdown of Emissions Units  
 Other

Shutdown of steam generators S-1547-78, '-123, and '-146

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 • 34946 Flyover Court • Bakersfield, CA 93308

**Emission Reduction Credit Certificate**  
**S1130189-204-22**

ISSUED TO: AERA ENERGY LLC  
ISSUED DATE: <DRAFT>  
LOCATION OF REDUCTION: HEAVY OIL WESTERN STATIONARY SOURCE  
KERN COUNTY, CA  
SECTION: NE29 TOWNSHIP: 28S RANGE: 21E

**For PM2.5 Reduction In The Amount Of:**

Quarter 1	Quarter 2	Quarter 3	Quarter 4
1,395 lbs	1,580 lbs	1,287 lbs	1,148 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source  
 Shutdown of Emissions Units  
 Other

Shutdown of steam generators S-1547-78, '-123, and '-146

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