PUBLIC NOTICE CHECK LIST

PROJECT #: S-1547 PROJECT #: S-1144501

REQST.	COMPL.	
√		ERC PRELIMINARY PUBLIC NOTICE
√	☒	Newspaper Notice Emailed to Clerical (Check box and tab to generate Notice)
√		Send email to "OA-PublicNotices" containing the following: SUBJECT: facility name, facility id#, project #, type of notice (prelim/final) BODY: project description and why it is being noticed (Emission Reduction Credit Banking)

ENCLOSED DOCUMENTS REQUIRE:

√	✓	Enter Correct Date, Print All Documents from File and Obtain Director's Signature
√	✓	Determine date comment period will end, enter date on Newspaper Notice and Aviso en Español, and Email ***PRELIMINARY*** Newspaper Notice for Publication in Bakersfield Californian Pub Date: 6-26-17 Due Date: 5-30-17
√	✓	Mail/email ***PRELIMINARY*** Notice Letter to Applicant (email address: rmbeebout@aeraenergy.com) with the following attachments: √ Application Evaluation √ Newspaper Notice
√	✓	Email ***PRELIMINARY*** Public Notice package to EPA
√	✓	Email ***PRELIMINARY*** Public Notice package to CARB
√	✓	Email ***PRELIMINARY*** Newspaper Notice, Aviso en Español and Public Notice package to "webmaster"
√	✓	After posted on website, send email with weblink of Newspaper notice, Aviso en Español, and full public notice package to: √ specific [C, S, or N] region **and** District wide permitting notification list-serves (both English and Spanish list serves) √ facility specific distribution list, (AQE – enter email address from PAS facility details notifications tab, if none enter NONE below): jehaley@aeraenergy.com
√	✓	Mail the newspaper notice and aviso en español (NN/AE), or full public notice package (FPNP) to the persons on facility specific distribution list, as follows (entered by AQE, if none, enter NONE below): ☐NN/AE or ☐FPNP Name/address:NONE ☐NN/AE or ☐FPNP Name/address:NONE
√		Send ***PRELIMINARY*** Public Notice package to EDMS
		Other Special Instructions (please specify):_____

Date Completed February 28, 2017/By Stephen Leonard

Diseree Gomez

From: Diseree Gomez
Sent: Thursday, May 25, 2017 3:58 PM
To: 'Tung Le (ttle@arb.ca.gov)'; Gerardo C. Rios - EPA (SJV_T5_Permits@epamail.epa.gov); 'rmbeebout@aeraenergy.com'
Subject: Preliminary Public Notice for Aera Energy LLC., Facility # S-1547 Project # S-1144501
Attachments: Prelim S-1144501.pdf; Newspaper S-1144501.pdf

Importance: High

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 shut down of two oil storage tanks in western Kern County. The quantity of ERCs proposed for banking is 2,983 lb-VOC/year.

Thank You,

Diseree Gomez
Office Assistant II
San Joaquin Valley Air Pollution Control District
1990 E. Gettysburg Ave
Fresno, CA. 93726
559.230.6003
Diseree.Gomez@valleyair.org

HEALTHY AIR LIVING
www.healthyairliving.com
Make one change for clean air!

Diseree Gomez

From: Microsoft Outlook
To: rmbeebout@aeraenergy.com
Sent: Thursday, May 25, 2017 3:58 PM
Subject: Relayed: Preliminary Public Notice for Aera Energy LLC., Facility # S-1547 Project # S-1144501

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:

rmbeebout@aeraenergy.com (rmbeebout@aeraenergy.com)

Subject: Preliminary Public Notice for Aera Energy LLC., Facility # S-1547 Project # S-1144501

Diseree Gomez

From: Mail Delivery System <MAILER-DAEMON@mintra11.rtp.epa.gov>
To: sjv_t5_permits@epamail.epa.gov
Sent: Thursday, May 25, 2017 4:00 PM
Subject: Expanded: Preliminary Public Notice for Aera Energy LLC., Facility # S-1547 Project # S-1144501

Your message has been delivered to the following groups:

sjv_t5_permits@epamail.epa.gov

Subject: Preliminary Public Notice for Aera Energy LLC., Facility # S-1547 Project # S-1144501

Diseree Gomez

From:	Diseree Gomez
Sent:	Thursday, May 25, 2017 4:00 PM
To:	WebTeam
Subject:	valleyair.org update: Preliminary Public Notice for Aera Energy LLC., Facility # S-1547 Project # S-1144501
Attachments:	Prelim S-1144501.pdf; Newspaper S-1144501.pdf; Aviso, S-1144501.pdf

May 25, 2017 (Facility S-1547 Project S-1144501) 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 shut down of two oil storage tanks in western Kern County. The quantity of ERCs proposed for banking is 2,983 lb-VOC/year. The comment period ends on June 26, 2017.

Newspaper Notice

Aviso

Public Notice Package

Thank You,

Diseree Gomez
Office Assistant II
San Joaquin Valley Air Pollution Control District
1990 E. Gettysburg Ave
Fresno, CA. 93726
559.230.6003
Diseree.Gomez@valleyair.org

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Aviso en Español for posting on Valleyair.org

AVISO DE DECISIÓN PRELIMINAR PARA LA PROPUESTA OTORGACIÓN DE CERTIFICADOS DE REDUCCIÓN DE EMISIONES

POR EL PRESENTE SE NOTIFICA que el Distrito Unificado para el Control de la Contaminación del Aire del Valle de San Joaquín está solicitando comentarios del público para la propuesta emisión de Certificados de Reducción de Emisiones (ERC, por sus siglas en inglés) a Aera Energy, LLC para el cierre de dos tanques de almacenamiento de petróleo en in western Kern County. La cantidad de ERCs propuestas para almacenar son 2,983 lb-VOC/año.

El análisis de la base regulatoria para esta acción propuesta, Proyecto #S-1144501, está disponible para la inspección pública en http://www.valleyair.org/notices/public_notices_idx.htm y en cualquiera de las oficinas del Distrito. Para más información en Español, por favor comuníquese con el Distrito al (661) 392-5500. Comentarios por escrito acerca de este propuesto permiso inicial deben de ser sometidos antes del 26 de Junio del 2017 a **ARNAUD MARJOLLET, DIRECTOR DEL DEPARTAMENTO DE PERMISOS, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 34946 FLYOVER COURT, BAKERSFIELD, CA 93308.**

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 shut down of two oil storage tanks in western Kern County. The quantity of ERCs proposed for banking is 2,983 lb-VOC/year.

The analysis of the regulatory basis for this proposed action, Project #S-1144501, is available for public inspection at 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 26, 2017 to **ARNAUD MARJOLLET, 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

HEALTHY AIR LIVING™

MAY 2 5 2017

Robert Beebout
Aera Energy, LLC
PO Box 11164
Bakersfield, CA 93389

Re: Notice of Preliminary Decision – Emission Reduction Credits
Facility Number: S-1547
Project Number: S-1144501

Dear Mr. Beebout:

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 shut down of two oil storage tanks in western Kern County. The quantity of ERCs proposed for banking is 2,983 lb-VOC/year.

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 the 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. Stephen Leonard of Permit Services at (661) 392-5605.

Sincerely,

Arnaud Marjollet
Director of Permit Services

AM:spl

Enclosures

cc: Tung Le, 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

www.valleyair.org www.healthyairliving.com

San Joaquin Valley Air Pollution Control District

ERC Application Review

Shutdown of Crude Oil Storage Tanks

Facility Name:	Aera Energy, LLC	Date:	May 16, 2017
Mailing Address:	PO Box 11164 Bakersfield, CA 93389	Engineer:	Steve Leonard
		Lead Engineer:	Rich Karrs
Contact Person:	Robert M. Beebout		
Telephone:	661-665-3212		
Project #:	S-1144501		
Deemed Complete:	December 16, 2014		

I. Summary:

The primary business of Aera Energy LLC (Aera) is crude oil exploration and production. Aera has surrendered Permits to Operate for two external floating roof crude oil production tanks S-1547-223 and S-1547-639 at Area's Wier Dehydration Facility following the permanent shutdown of the operation as of 8/31/14, and submitted an application to bank emission reduction credits (ERCs) for the decreased emissions. Copies of the surrendered Permits to Operate (PTOs) are included in **Appendix A** of this evaluation. Aera has applied to bank the actual emission reductions (AER) from both tanks.

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

ERC BANKING	
	VOC (lb. /qtr.)
1st Quarter	582
2nd Quarter	960
3rd Quarter	904
4th Quarter	537

II. Applicable Rules:

Rule 2201 New and Modified Stationary Source Review Rule (2/18/16)
Rule 2301 Emission Reduction Credit Banking (1/19/12)

III. Location of Reduction:

The physical location of the equipment involved with this application is Section 22, Township 31 South, Range 22 East, at the former Wier Dehydration Facility within Aera's Western Heavy Crude Oil Production Source S-1547.

IV. Method of Generating Reductions:

Actual Emission Reductions (AER) are being generated with the permanent shutdown of the following equipment:

S-1547-223-3: 30,000 BBL (1,260,000 GALLON) EXTERNAL FLOATING ROOF WET OIL TANK WITH MECHANICAL SHOE PRIMARY SEAL AND ZERO GAP WIPER-TYPE SECONDARY SEAL. (WIER)

S-1547-639-5: 30,000 BBL (1,260,000 GALLON) EXTERNAL FLOATING ROOF TANK, 67 FT. DIA. BY 48 FT. TALL, WITH METALLIC SHOE TYPE PRIMARY SEAL AND "ZERO GAP" FLEX-A-SEAL SECONDARY SEAL (WIER DEHY)

The applicant has surrendered the two Permits to Operate identified above for the equipment in order to validate the emission reduction credits. Copies of the PTOs are included as **Appendix A**. As required by Rules 2201 and 2301, creditable emission reductions are to be based upon the historical actual emissions (HAE) over the appropriate baseline period, and the use of acceptable emission factors.

V. Calculations:

A. Assumptions and Emission Factors

Assumptions:

- The oil processed through these tanks at the Wier Dehy Facility is a heavy crude oil with API Gravity measurements of 10.2° - 10.6°, historically.
- The crude oil stored and processed through the tanks was heated to reduce the viscosity enough to allow pumping and shipping. "Wet" oil tank S-1547-223 was heated to ~200 °F. "Dry" oil tank S-1547-639 was heated between ~164 °F – 194 °F

Emission Factors:

- The EPA's "Tanks" Program, version 4.0.9d was used to determine HAE from the two (2) external floating roof crude oil storage tanks based on each tank's actual monthly throughput and the vapor pressure test results for each tank contents. Tanks 4.0.9d is particularly useful in estimating emissions from floating roof tanks. See the emissions calculation spreadsheets in Appendices B & C.

B. Baseline Period Determination and Data

An application, to bank the reductions, was received by the District on December 16, 2014. Pursuant to District Rule 2201, Section 3.9, the baseline period for determining actual historical emissions for banking purposes shall be a period of time equal to either:

- *the two consecutive years of operation immediately prior to the submission date of the Complete Application; or*
- *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*
- *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*
- *zero years if an emissions unit has been in operation for less than one year (only for use when calculating AER).*

The applicant has provided the quarterly crude oil throughputs of each tank for the two years immediately prior to the submittal of the application for banking, (September 2012 through August 2014), as shown below. Baseline emissions are calculated using the TANKS 4.0.9d program and the fugitive component counts (default values) for each tank. A review of District inspection records and prior correspondences between Aera and the District has allowed data on tank storage temperature and oil properties to be obtained for the historical actual emissions (HAE) calculations.

See **Appendices B & C** for the HAE calculations and individual tank fugitive component counts.

C. Historical Actual Emissions (HAE)

Quarter/Year	Volume (bbls)		Comments
	T-223	T-639	
3rd Qtr 2012	692.20	35,729	Sept. only
4th Qtr 2012	457,79	99,159	
1st Qtr 2013	1.45	92,054	
2nd Qtr 2013	0.00	93,845	
3rd Qtr 2013	1,203.26	106,157	
4th Qtr 2013	649.63	88,419	
1st Qtr 2014	589.15	80,050	
2nd Qtr 2014	2,402.59	75,304	
3rd Qtr 2014	0.00	11,968	July, Aug. only

Averaged Quarterly Throughputs

Quarter	Volume (bbls)		Comments
	T-223	T-639	
1st Qtr	295	86,052	
2nd Qtr	1,201	84,575	
3rd Qtr	948	77,107	
4th Qtr	554	93,789	

Historical Actual Emissions

Quarter	VOC (Lbs/Qtr)		Total VOC (Lbs/Qtr)
	T-223	T-639	
1st Qtr	59	588	**647**
2nd Qtr	105	962	**1,067**
3rd Qtr	100	904	**1,004**
4th Qtr	54	543	**597**

D. Adjustments to HAE

Pursuant to Section 3.23 of Rule 2201, Historical Actual Emissions must be discounted for any emissions reduction which is:

- 3.23.1 Any emissions reductions required or encumbered by any laws, rules, regulations, agreements, orders, or permits; and
- 3.23.2 Any emissions reductions attributed to a control measure noticed for workshop, or proposed or contained in a State Implementation Plan, and
- 3.23.3 Any emissions reductions proposed in the District air quality plan for attaining the annual reductions required by the California Clean Air Act, and
- 3.23.4 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 SLC must be discounted for any emissions in excess of that allowed by the SLC.

These emissions units were operated in compliance with Rule 4623, "Storage of Organic Liquids", and did not exhibit any excess leaking during routine inspections. Therefore, no adjustments to the calculated HAE are required.

E. Actual Emissions Reductions (AER)

Per Rule 2201, Section 4.12, the Actual Emissions Reductions due to shutdown of emissions units shall be calculated, on a pollutant-by-pollutant basis, as follows:

AER = HAE - PE2

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

Because these crude oil storage were shutdown, PE2 = 0. Therefore,
AER = HAE – 0, or AER = HAE

Actual Emission Reductions (AER)				
Pollutant	1st Qtr. AER (lb. /qtr.)	2nd Qtr. AER (lb. /qtr.)	3rd Qtr. AER (lb. /qtr.)	4th Qtr. AER (lb. /qtr.)
VOC	647	1,067	1,004	597

F. Air Quality Improvement Deduction

The Air Quality Improvement Deduction (AQID) is 10% of the AER per Rule 2201, Sections 3.6 and 4.12.1, and is summarized as follows:

Air Quality Improvement Deduction (AQID) (AQID = AER x 10%)				
Pollutant	1st Qtr. AQID (lb. /qtr.)	2nd Qtr. AQID (lb. /qtr.)	3rd Qtr. AQID (lb. /qtr.)	4th Qtr. AQID (lb. /qtr.)
VOC	65	107	100	60

G. Increases in Permitted Emissions (IPE)

No IPE is associated with this project.

H. Bankable Emissions Reductions Credits

The bankable emissions reductions credits, presented in following table, are determined by subtraction of the Air Quality Improvement Deduction (discussed in Section V.F) from the AER.

Bankable Emissions Reductions Credits				
Pollutant	1st Qtr. Emissions (lb./qtr.)	2nd Qtr. Emissions (lb./qtr.)	3rd Qtr. Emissions (lb./qtr.)	4th Qtr. Emissions (lb./qtr.)
VOC	582	960	904	537

VI. Compliance:

Rule 2201 - New and Modified Stationary Source Review Rule:

To comply with the definition of Actual Emissions Reductions (Rule 2201, Section 3.2), the reductions must be real, enforceable, quantifiable, permanent, and surplus.

A. Real

The emissions reductions were generated by the shutdown of two (2) 30,000 bbl (1,260,000 gallon) external floating roof crude oil storage tanks at Aera Energy's "Wier Dehydration Facility". The emissions reductions were calculated from actual historic data and recognized emission factors. Each tank has a diameter of 67 feet, yielding a roof seal circumference of 210.5 feet. The emissions reduction is real as fugitive VOC emissions would be released along the circumference of the tank seal at the interface between the floating roof and the tank shell. These VOC emissions existed until the tanks were taken out of service, drained, and cleaned near the end of September 2014.

Oil production from the Weir Lease is now routed to a nearby tank battery at the Anderson Goodwin Dehy. The well production piping has always been in use to allow routing Weir crude oil to other Aera Energy oil processing facilities, when needed. The storage and processing tanks at the Anderson Goodwin Dehy facility are fixed roof tanks utilizing a hard-piped vapor control system. See copies of Anderson Goodwin vapor controlled tank PTOs in Appendix D. Sending the crude oil to the Anderson-Goodwin Dehy does not add any fugitive components or related emissions at the Anderson-Goodwin Dehy tanks.

Therefore, the emission reductions are real.

B. Enforceable

The PTOs for the Wier Dehydration Facility floating roof tanks have been surrendered and the tanks cannot be operated without a valid PTO.

Therefore, the reductions are enforceable.

C. Quantifiable

Reduction amounts were calculated from historic process data, floating roof storage tank fugitive component leak criteria and the measured VOC content in the vapors present in the tanks.

Therefore, the reductions are quantifiable.

D. Permanent

The tanks have been shut down and cleaned, and the PTOs have been surrendered to the District. The oil previously handled by the floating roof tanks is now handled by tanks with vapor control at the Anderson-Goodwin Dehy tank facility. There is no increase in VOC emissions from fugitive components at the Anderson-Goodwin Dehy.

The external floating roof tanks being shutdown, S-1547-223 and -639, are the last floating roof tanks in Aera Energy's heavy oil western stationary source. Being a federal major source for VOC emissions, any replacement tanks to be built would need to be fully offset at the federal major modification offset ratio for VOC increases of 1.5:1.

Therefore, the reductions are permanent.

E. Surplus

To be considered surplus, Actual Emission Reductions 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:

- *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 APCO's adopted air quality plan pursuant to the California Clean Air Act.*

The shutdown of the crude oil processing tanks was voluntary and not required by any law, rule, agreement, or regulation.

Additionally, there are no control measures in current rules, rules noticed for workshop, or contained in an attainment plan identified to reduce emissions from external floating roof organic liquid storage tanks.

Therefore, the reductions are surplus.

F. Not used for the Approval of an Authority to Construct

The emission reductions generated by the shutdown of the crude oil production tanks were not previously used for the approval of any Authority to Construct(s).

Rule 2301 – Emission Reduction Banking:

Section 5.5 states that ERC certificate applications for reductions shall be submitted within 180 days after the emission reduction occurs. The applicant surrendered the PTOs and had permanently ceased operation of and cleaned out all the tanks at this location on 8/31/14. The ERC application was received on 12/16/14, within the 180 day timeframe allowed. Therefore, the application was submitted in a timely fashion.

Section 6.1.2 states that if the emission reductions were created as a result of the shutdown of a permitted emissions unit, the relevant Permit(s) to Operate has been surrendered and voided. The Permits to Operate were surrendered with this banking action and canceled by the District on 1/19/17.

VII. Recommendation:

Issue Emission Reduction Credit (ERC) Certificate S-4783-1 in the amounts shown below and on the draft ERC certificate contained in **Appendix E**.

Bankable Emissions Reductions Credits				
Pollutant	1st Qtr. Emissions (lb. /qtr.)	2nd Qtr. Emissions (lb. /qtr.)	3rd Qtr. Emissions (lb. /qtr.)	4th Qtr. Emissions (lb. /qtr.)
VOC	582	960	904	537

List of Appendices

A. Surrendered Permits to Operate
B. Tanks 4.0.9d Baseline Emissions Calculations for S-1547-223
C. Tanks 4.0.9d Baseline Emissions Calculations for S-1547-639
D. Permits for Vapor Controlled Tanks at the Anderson-Goodwin Lease & Dehy
E. Draft ERC Certificate S-4783-1

APPENDIX A

Surrendered Permits to Operate

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1547-223-3 **EXPIRATION DATE:** 05/31/2016

SECTION: 22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
30,000 BBL (1,260,000 GALLON) EXTERNAL FLOATING ROOF WET OIL TANK WITH MECHANICAL SHOE PRIMARY SEAL AND ZERO GAP WIPER-TYPE SECONDARY SEAL. (WIER)

PERMIT UNIT REQUIREMENTS

1. Tank shall store crude oil only. [District Rule 2201] Federally Enforceable Through Title V Permit
2. True vapor pressure of liquid stored shall not exceed 2.0 psia. [District Rule 2201] Federally Enforceable Through Title V Permit
3. Maximum tank throughput shall not exceed 10,000 bbl/day. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Liquid shall be removed from tank by pipeline only. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Tank water draw-off shall be pumped to T600, S-1547-652. [District Rule 2201] Federally Enforceable Through Title V Permit
6. The tank shall be equipped with a cover consisting of either a pontoon-type or double-deck-type cover which rests upon the surface of the liquid being stored and is equipped with a closure device between the tank shell and roof edge consisting of a primary and a secondary seal. [40 CFR 60.112a(a)(1) and District Rule 4623, 5.3.1] Federally Enforceable Through Title V Permit
7. Roof shall be floating on the liquid (i.e., off the roof leg supports) at all times except during initial fill and when tank is completely emptied and subsequently refilled. The process of emptying and refilling when the roof is resting on the leg supports shall be continuous and shall be accomplished as rapidly as possible. [40 CFR 60.112a(a)(1) and District Rule 4623, 5.3.1] Federally Enforceable Through Title V Permit
8. Accumulated area of gaps between tank wall and primary seal shall not exceed 10.0 inches per foot of tank diameter and the width of any portion of any gap shall not exceed one and one-half (1 1/2) inch. [40 CFR 60.112a(a)(1)(i)(A)] Federally Enforceable Through Title V Permit
9. Cumulative length of all gaps, between the tank shell and the primary seal: 1) Greater than one-half (1/2) inch shall not exceed 10 percent of the circumference of the tank; and 2) Greater than one-eighth (1/8) inch shall not exceed 30 percent of the circumference of the tank. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit
10. The primary seal shall have no continuous gap greater than one-eighth (1/8) inch shall exceed 10 percent of the tank circumference. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit
11. Gap between the tank shell and secondary seal shall not exceed one-half (1/2) inch. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit
12. Cumulative length of all gaps between the tank shell and secondary seal greater than one-eighth (1/8) inch shall not exceed 5 percent of the tank circumference. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

13. One end of the metallic shoe is to extend into the stored liquid and the other end is to extend a minimum vertical distance of 24 inches above the stored liquid surface. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit
14. There shall be no holes, tears, or other openings in the shoe, seal fabric or seal envelope of the primary seal. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit
15. Secondary seal shall be installed above the primary seal. [40 CFR 60.112a(a)(1)(ii)(A)] Federally Enforceable Through Title V Permit
16. Accumulated area of gaps between tank wall and the secondary seal shall not exceed 1.0 sq inch per foot of tank diameter and the width of any portion of any gap shall not exceed one-half (1/2) inch. [40 CFR 60.112a(a)(1)(i)(B) and District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit
17. Secondary seal shall have no openings, holes or tears in the seal or seal fabric. [40 CFR 60.112a(a)(1)(ii)(C) and District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit
18. Geometry of the shoe shall be such that the maximum gap between the shoe and the tank shell is no greater than double the gap allowed by the seal gap criteria for a length of at least eighteen inches in the vertical plane above the liquid surface. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit
19. Secondary seal shall allow easy insertion of probes up to one and one-half (1-1/2) inches in width in order to measure gaps in the primary seal. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit
20. Secondary seal shall extend from the roof of the tank to the shell and not be attached to the primary seal. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit
21. Operator shall be exempt from the requirements for secondary seals and the secondary seal gap criteria when performing gap measurements or inspections of the primary seal. [40 CFR 60.112a(a)(1)(ii)(D)] Federally Enforceable Through Title V Permit
22. Each roof drain shall be provided with a slotted membrane fabric cover that covers at least 90 percent of the area of the opening. [40 CFR 60.112a(a)(1)(iv), District Rule 4623, 5.1.6] Federally Enforceable Through Title V Permit
23. All openings in the roof used for sampling and gauging except pressure-vacuum valves, which shall be set to within 10 percent of the maximum allowable working pressure of the roof, shall provide a projection below the liquid surface. [40 CFR 60.112a(a)(1)(iii) and District Rule 4623, 5.5.1] Federally Enforceable Through Title V Permit
24. All openings in the roof used for sampling and gauging except pressure-vacuum valves, which shall be set to within 10 percent of the maximum allowable working pressure of the roof, shall be equipped with a cover, seal or lid that shall be in a closed position at all times, with no visible gaps and be gas-tight, except when the device or appurtenance is in use. Gas-tight shall be defined as emitting no more than 10,000 ppm of methane measured at a distance of one centimeter from the potential source with an instrument calibrated with methane in accordance with EPA Method 21. Emissions in excess of this limit shall be considered a leak. [40 CFR 60.112a(a)(1)(iii), District Rule 4623, 5.5.1] Federally Enforceable Through Title V Permit
25. All covers, seals and lids covering openings in the roof used for sampling and gauging, except pressure-vacuum valves set to within 10 percent of the maximum allowable working pressure of the roof, shall be inspected annually by the facility operator to ensure compliance with the provisions of this permit. However, if one or more of the components are found to leak during an annual inspection, the inspection frequency for that component type shall be changed from annual to quarterly. If none of the components of that type are subsequently found to be leaking during five consecutive inspections, the inspection frequency may be changed from quarterly to annual. Components located in inaccessible (over 15 feet above ground when access is required from the ground or over 6 feet away from a platform when access is required from the platform) locations shall be inspected at least annually and components located in unsafe areas shall be inspected and repaired at the next process unit turnaround (the scheduled shutdown of a unit for maintenance and repair work). [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

26. A facility operator, upon detection of a leaking cover, seal, or lid, shall affix to that component a weatherproof readily visible tag bearing the date on which the leak is detected. The tag shall remain in place until the leaking component is repaired, reinspected and found to be in compliance with the requirements of this rule. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

27. An operator shall reinspect a cover, seal, or lid for leaks within thirty working days after the date on which the component is repaired. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

28. Emissions from covers, seals, or lids which have been tagged by the facility operator for repair within 15 calendar days or which have been repaired and are awaiting reinspection shall not be in violation of this permit. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

29. Any leak in a cover, seal, or lid shall be repaired to a leak-free condition within fifteen (15) calendar days of detection. The APCO may grant a ten (10) calendar day extension provided the operator demonstrates that necessary and sufficient actions are being taken to correct the leak within this time period. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

30. If the leaking component is an essential part of a critical process unit which cannot be immediately shut down for repairs, the operator shall 1) Minimize the leak within 15 calendar days; and 2) If the leak which has been minimized still exceeds the concentration allowed by this permit, the essential component shall be repaired to eliminate the leak during the next process unit turnaround, but in no case later than one year from the date of the original leak detection. A critical process unit is any process unit which would result in the automatic shutdown of other process units if it were shut down. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

31. Operator shall maintain an inspection log containing the following: 1) Type of component leaking; 2) Date of leak detection, and method of detection; 3) Date and emission level of recheck after leak is repaired; 4) Identification and location of essential parts of critical process units found leaking that cannot be repaired until the next process unit turnaround; and 5) Method used to minimize the leak from essential parts of critical process units which cannot be repaired until the next process unit turnaround. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

32. Automatic bleeder vents shall be closed at all times when the roof is floating, except when the roof is being floated off or is being landed on the roof leg supports. [40 CFR 60.112a(a)(1)(iii)] Federally Enforceable Through Title V Permit

33. Rim vents shall be set to open when the roof is being floated off the roof legs supports or at the manufacturer's recommended setting. [40 CFR 60.112a(a)(1)(iii)] Federally Enforceable Through Title V Permit

34. Operator shall perform gap measurements on primary seals within 60 days of the initial fill and at least once every 5 years thereafter. Operator shall perform gap measurements on secondary seals within 60 days of the initial fill with petroleum liquid and at least once every year thereafter. If unit is out of service for a period of one year or more, subsequent refilling with petroleum liquid shall be considered initial fill. [40 CFR 60.113a(a)(1)(i)(A), (B), and (C)] Federally Enforceable Through Title V Permit

35. If unit is out of service for a period of one year or more, subsequent refilling with petroleum liquid shall be considered initial fill in accordance with the conditions of this permit. [40 CFR 60.113a(a)(1)(i)(C)] Federally Enforceable Through Title V Permit

36. Operator shall determine gap widths in the primary and secondary seals using the following procedure: 1) Measure seal gaps, at one or more floating roof levels when the roof is floating off leg supports; 2) Measure seal gaps around entire circumference of the tank in each place where a one-eighth (1/8) inch diameter uniform probe passes freely (without forcing or binding against seal) between the seal and the tank wall and measure the circumferential distance of each such location; 3), Total surface area of each gap shall be determined by using probes of various widths to accurately measure the actual distance from the tank wall to the seal and multiplying each such width by its respective circumferential distance; 4) Add the gap surface area of each gap location for the primary seal and the secondary seal individually. Divide the sum for each seal by the nominal diameter of the tank. [40 CFR 60.113a(a)(1)(ii) and (iii)] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

37. Operator shall record the vessel on which the measurement was performed, date of the seal gap measurement, and raw data obtained in the measurement process in accordance with the conditions of this permit. [40 CFR 60.113a(a)(1)(i)(D)] Federally Enforceable Through Title V Permit

38. Operator shall provide the APCO with 30 days notice of the gap measurement to afford the District the opportunity to have an observer present. [40 CFR 60.113a(a)(1)(iv)] Federally Enforceable Through Title V Permit

39. If the accumulated area of gaps or gap width exceed limits, operator shall submit a report to the District within 60 days of the date of measurement. Report should include identification of the vessel, reason vessel did not meet the specifications, and a description of the actions necessary to bring the storage vessel into compliance. [40 CFR 60.113a(a)(1)(i)(E)] Federally Enforceable Through Title V Permit

40. The primary seal envelope shall be made available for unobstructed inspection by the District personal on an annual basis at locations selected along its circumference at random by the District personal and minimum of four (4) locations shall be made available. If the District personal suspects a violation may exist, further unobstructed inspection of the primary seal as may be necessary to determine the seal condition for its entire circumference. [District Rule 4623, 6.1] Federally Enforceable Through Title V Permit

41. Operator shall keep a record of liquids stored in each container, period of storage, storage temperature, and both the Reid and maximum true vapor pressure of such liquids. [District Rule 4623, 6.3 and 40 CFR 60.115a(a)] Federally Enforceable Through Title V Permit

42. For crude oil with an API gravity of greater than 26 degrees, true vapor pressure shall be determined by measuring the Reid Vapor Pressure (RVP) using ASTM D 323-94 (Test Method for Vapor Pressure of Petroleum Products), and conversion of RVP to TVP at the tank's maximum organic liquid storage temperature according to the procedures in Appendix B of Rule 4623. As an alternative to using ASTM D 323-94, the TVP of crude oil with an API gravity range greater than 26 degrees up to 30 degrees may be determined by using other equivalent test methods approved by APCO, ARB, and US EPA. [District Rule 4623, 6.4] Federally Enforceable Through Title V Permit

43. For crude oil with an API gravity of 26 degrees or less, the TVP shall be determined using the latest version of the Lawrence Berkeley National Laboratory "test Method for Vapor pressure of Reactive Organic Compounds in Heavy Crude Oil Using Gas Chromatograph", as approved by ARB and EPA. [District Rule 4623, 6.4] Federally Enforceable Through Title V Permit

44. Maximum true vapor pressure may be determined from nomographs contained in API Bulletin 2517, by using the typical Reid vapor pressure and the maximum expected storage temperature of the stored product, unless the APCO specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s). [40 CFR 60.115a(b)] Federally Enforceable Through Title V Permit

45. Permittee shall maintain accurate daily records of the tank throughput and shall make such records available for District inspection upon request. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1547-639-5 **EXPIRATION DATE:** 05/31/2016

SECTION: 22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
30,000 BBL (1,260,000 GALLON) EXTERNAL FLOATING ROOF TANK, 67 FT. DIA. BY 48 FT. TALL, WITH METALLIC SHOE TYPE PRIMARY SEAL AND "ZERO GAP" FLEX-A-SEAL SECONDARY SEAL (WIER DEHY)

PERMIT UNIT REQUIREMENTS

1. Storage temperature shall not exceed 194 degrees F. [District Rule 2201] Federally Enforceable Through Title V Permit
2. Tank shall be equipped with operational temperature indicator for stored liquids. [District Rule 2201] Federally Enforceable Through Title V Permit
3. True vapor pressure of stored liquids at storage temperature shall be less than 1.5 psia. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Daily throughput of crude oil shall not exceed 15,000 barrels per day without prior District approval. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Emissions of volatile organic compounds (VOC) shall not exceed 0.001 lb/bbl throughput. [District Rule 2201] Federally Enforceable Through Title V Permit
6. The tank shall be equipped with a cover consisting of either a pontoon-type or double-deck-type cover which rests upon the surface of the liquid being stored and is equipped with a closure device between the tank shell and roof edge consisting of a primary and a secondary seal. [40 CFR 60.112a(a)(1), District Rule 4623, 5.3.1] Federally Enforceable Through Title V Permit
7. Roof shall be floating on the liquid (i.e., off the roof leg supports) at all times except during initial fill and when tank is completely emptied and subsequently refilled. The process of emptying and refilling when the roof is resting on the leg supports shall be continuous and shall be accomplished as rapidly as possible. [40 CFR 60.112a(a)(1) and District Rule 4623, 5.3.1] Federally Enforceable Through Title V Permit
8. Accumulated area of gaps between tank wall and primary seal shall not exceed 10.0 inches per foot of tank diameter and the width of any portion of any gap shall not exceed one and one-half (1 1/2) inch. [40 CFR 60.112a(a)(1)(i)(A)] Federally Enforceable Through Title V Permit
9. Cumulative length of all gaps, between the tank shell and the primary seal: 1) Greater than one-half (1/2) inch shall not exceed 10 percent of the circumference of the tank; and 2) Greater than one-eighth (1/8) inch shall not exceed 30 percent of the circumference of the tank. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit
10. The primary seal shall have no continuous gap greater than one-eighth (1/8) inch shall exceed 10 percent of the tank circumference. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit
11. Gap between the tank shell and secondary seal shall not exceed one-half (1/2) inch. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit
12. Cumulative length of all gaps between the tank shell and secondary seal greater than one-eighth (1/8) inch shall not exceed 5 percent of the tank circumference. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

13. One end of the metallic shoe is to extend into the stored liquid and the other end is to extend a minimum vertical distance of 24 inches above the stored liquid surface. [40 CFR 60.112a(a)(1)(i)(C) and District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit

14. There shall be no holes, tears, or other openings in the shoe, seal fabric, or seal envelope of the primary seal. [40 CFR 60.112a(a)(1)(i)(D), District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit

15. Secondary seal shall be installed above the primary seal. [40 CFR 60.112a(a)(1)(ii)(A)] Federally Enforceable Through Title V Permit

16. Accumulated area of gaps between tank wall and the secondary seal shall not exceed 1.0 sq inch per foot of tank diameter and the width of any portion of any gap shall not exceed one-half (1/2) inch. [40 CFR 60.112a(a)(1)(i)(B) and District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit

17. Secondary seal shall have no openings, holes or tears in the seal or seal fabric. [40 CFR 60.112a(a)(2)(ii)(C), District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit

18. Geometry of the shoe shall be such that the maximum gap between the shoe and the tank shell is no greater than double the gap allowed by the seal gap criteria for a length of at least eighteen inches in the vertical plane above the liquid surface. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit

19. Secondary seal shall allow easy insertion of probes up to one and one-half (1-1/2) inches in width in order to measure gaps in the primary seal. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit

20. Secondary seal shall extend from the roof of the tank to the shell and not be attached to the primary seal. [District Rule 4623, 5.3.2] Federally Enforceable Through Title V Permit

21. Operator shall be exempt from the requirements for secondary seals and the secondary seal gap criteria when performing gap measurements or inspections of the primary seal. [40 CFR 60.112a(a)(1)(ii)(D)] Federally Enforceable Through Title V Permit

22. Each roof drain shall be provided with a slotted membrane fabric cover that covers at least 90 percent of the area of the opening. [40 CFR 60.112a(a)(1)(iv), District Rule 4623, 5.1.6] Federally Enforceable Through Title V Permit

23. All openings in the roof used for sampling and gauging except pressure-vacuum valves, which shall be set to within 10 percent of the maximum allowable working pressure of the roof, shall provide a projection below the liquid surface. [40 CFR 60.112a(a)(1)(iii), District Rule 4623, 5.5.1] Federally Enforceable Through Title V Permit

24. All openings in the roof used for sampling and gauging except pressure-vacuum valves, which shall be set to within 10 percent of the maximum allowable working pressure of the roof, shall be equipped with a cover, seal or lid that shall be in a closed position at all times, with no visible gaps and be gas-tight, except when the device or appurtenance is in use. Gas-tight shall be defined as emitting no more than 10,000 ppm of methane measured at a distance of one centimeter from the potential source with an instrument calibrated with methane in accordance with EPA Method 21. Emissions in excess of this limit shall be considered a leak. [40 CFR 60.112a(a)(1)(iii), District Rule 4623, 5.5.1] Federally Enforceable Through Title V Permit

25. All covers, seals and lids covering openings in the roof used for sampling and gauging, except pressure-vacuum valves set to within 10 percent of the maximum allowable working pressure of the roof, shall be inspected annually by the facility operator to ensure compliance with the provisions of this permit. However, if one or more of the components are found to leak during an annual inspection, the inspection frequency for that component type shall be changed from annual to quarterly. If none of the components of that type are subsequently found to be leaking during five consecutive inspections, the inspection frequency may be changed from quarterly to annual. Components located in inaccessible (over 15 feet above ground when access is required from the ground or over 6 feet away from a platform when access is required from the platform) locations shall be inspected at least annually and components located in unsafe areas shall be inspected and repaired at the next process unit turnaround (the scheduled shutdown of a unit for maintenance and repair work). [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

26. A facility operator, upon detection of a leaking cover, seal, or lid, shall affix to that component a weatherproof readily visible tag bearing the date on which the leak is detected. The tag shall remain in place until the leaking component is repaired, reinspected and found to be in compliance with the requirements of this rule. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
27. An operator shall reinspect a cover, seal, or lid for leaks within thirty working days after the date on which the component is repaired. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
28. Emissions from covers, seals, or lids which have been tagged by the facility operator for repair within 15 calendar days or which have been repaired and are awaiting reinspection shall not be in violation of this permit. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
29. Any leak in a cover, seal, or lid shall be repaired to a leak-free condition within fifteen (15) calendar days of detection. The APCO may grant a ten (10) calendar day extension provided the operator demonstrates that necessary and sufficient actions are being taken to correct the leak within this time period. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
30. If the leaking component is an essential part of a critical process unit which cannot be immediately shut down for repairs, the operator shall 1) Minimize the leak within 15 calendar days; and 2) If the leak which has been minimized still exceeds the concentration allowed by this permit, the essential component shall be repaired to eliminate the leak during the next process unit turnaround, but in no case later than one year from the date of the original leak detection. A critical process unit is any process unit which would result in the automatic shutdown of other process units if it were shut down. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
31. Operator shall maintain an inspection log containing the following: 1) Type of component leaking; 2) Date of leak detection, and method of detection; 3) Date and emission level of recheck after leak is repaired; 4) Identification and location of essential parts of critical process units found leaking that cannot be repaired until the next process unit turnaround; and 5) Method used to minimize the leak from essential parts of critical process units which cannot be repaired until the next process unit turnaround. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
32. Automatic bleeder vents shall be closed at all times when the roof is floating, except when the roof is being floated off or is being landed on the roof leg supports. [40 CFR 60.112a(a)(1)(iii)] Federally Enforceable Through Title V Permit
33. Rim vents shall be set to open when the roof is being floated off the roof legs supports or at the manufacturer's recommended setting. [40 CFR 60.112a(a)(1)(iii)] Federally Enforceable Through Title V Permit
34. Operator shall perform gap measurements on primary seals within 60 days of the initial fill and at least once every 5 years thereafter. Operator shall perform gap measurements on secondary seals within 60 days of the initial fill with petroleum liquid and at least once every year thereafter. If unit is out of service for a period of one year or more, subsequent refilling with petroleum liquid shall be considered initial fill. [40 CFR 60.113a(a)(1)(i)(A), (B), and (C)] Federally Enforceable Through Title V Permit
35. If unit is out of service for a period of one year or more, subsequent refilling with petroleum liquid shall be considered initial fill in accordance with the conditions of this permit. [40 CFR 60.113a(a)(1)(i)(C)] Federally Enforceable Through Title V Permit
36. Operator shall determine gap widths in the primary and secondary seals using the following procedure: 1) Measure seal gaps, at one or more floating roof levels when the roof is floating off leg supports; 2) Measure seal gaps around entire circumference of the tank in each place where a one-eighth (1/8) inch diameter uniform probe passes freely (without forcing or binding against seal) between the seal and the tank wall and measure the circumferential distance of each such location; 3), Total surface area of each gap shall be determined by using probes of various widths to accurately measure the actual distance from the tank wall to the seal and multiplying each such width by its respective circumferential distance; 4) Add the gap surface area of each gap location for the primary seal and the secondary seal individually. Divide the sum for each seal by the nominal diameter of the tank. [40 CFR 60.113a(a)(1)(ii) and (iii)] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

37. Operator shall record the vessel on which the measurement was performed, date of the seal gap measurement, and raw data obtained in the measurement process in accordance with the conditions of this permit. [40 CFR 60.113a(a)(1)(i)(D)] Federally Enforceable Through Title V Permit

38. Operator shall provide the APCO with 30 days notice of the gap measurement to afford the District the opportunity to have an observer present. [40 CFR 60.113a(a)(1)(iv)] Federally Enforceable Through Title V Permit

39. If the accumulated area of gaps or gap width exceed limits, operator shall submit a report to the District within 60 days of the date of measurement. Report should include identification of the vessel, reason vessel did not meet the specifications, and a description of the actions necessary to bring the storage vessel into compliance. [40 CFR 60.113a(a)(1)(i)(E)] Federally Enforceable Through Title V Permit

40. The primary seal envelope shall be made available for unobstructed inspection by the District personal on an annual basis at locations selected along its circumference at random by the District personal and minimum of four (4) locations shall be made available. If the District personal suspects a violation may exist, further unobstructed inspection of the primary seal as may be necessary to determine the seal condition for its entire circumference. [District Rule 4623, 6.1] Federally Enforceable Through Title V Permit

41. Operator shall keep a record of liquids stored in each container, period of storage, storage temperature, and both the Reid and maximum true vapor pressure of such liquids. [District Rule 4623, 6.3 and 40 CFR 60.115a(a)] Federally Enforceable Through Title V Permit

42. For crude oil with an API gravity of greater than 26 degrees, true vapor pressure shall be determined by measuring the Reid Vapor Pressure (RVP) using ASTM D 323-94 (Test Method for Vapor Pressure of Petroleum Products), and conversion of RVP to TVP at the tank's maximum organic liquid storage temperature according to the procedures in Appendix B of Rule 4623. As an alternative to using ASTM D 323-94, the TVP of crude oil with an API gravity range greater than 26 degrees up to 30 degrees may be determined by using other equivalent test methods approved by APCO, ARB, and US EPA. [District Rule 4623, 6.4] Federally Enforceable Through Title V Permit

43. For crude oil with an API gravity of 26 degrees or less, the TVP shall be determined using the latest version of the Lawrence Berkeley National Laboratory "test Method for Vapor pressure of Reactive Organic Compounds in Heavy Crude Oil Using Gas Chromatograph", as approved by ARB and EPA. [District Rule 4623, 6.4] Federally Enforceable Through Title V Permit

44. Maximum true vapor pressure may be determined from nomographs contained in API Bulletin 2517, by using the typical Reid vapor pressure and the maximum expected storage temperature of the stored product, unless the APCO specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s). [40 CFR 60.115a(b)] Federally Enforceable Through Title V Permit

45. Permittee shall maintain accurate daily records of the tank throughput and shall make such records available for District inspection upon request. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

APPENDIX B

Tanks 4.0.9d Baseline Emissions Calculations for S-1547-223

Aera Energy LLC
Facility Number: S-1547 Project Number: S-1144501

S-1547-223 First Quarter

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	S-1547-223 1ST Qtr
City:	Bakersfield
State:	California
Company:	Aera
Type of Tank:	External Floating Roof Tank
Description:	Aera Wier external floating roof tank 223

Tank Dimensions

Diameter (ft):	70.00
Volume (gallons):	1,260,000.00
Turnovers:	0.04

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	White/White
Shell Condition	Good

Roof Characteristics

Type:	Pontoon
Fitting Category	Typical

Tank Construction and Rim-Seal System

Construction:	Welded
Primary Seal:	Mechanical Shoe
Secondary Seal	Rim-mounted

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

S-1547-223 - External Floating Roof Tank
Bakersfield, California

Mixture/Component	Month	Daily Liquid Surf Temperature (deg F) Avg.	Min	Max	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min	Max	Vapor Mol. Weight	Liquid Mass Fract	Vapor Mass Fract	Mol Weight	Basis for Vapor Pressure Calculations
Wier Crude Oil	Jan	58.62	54.46	62.78	65.42	0.3603	N/A	N/A	60.0000			100.00	Option 4: RVP=1.13
Wier Crude Oil	Feb	61.49	56.39	66.58	65.42	0.3885	N/A	N/A	60.0000			100.00	Option 4: RVP=1.13
Wier Crude Oil	Mar	63.85	57.94	69.77	65.42	0.4132	N/A	N/A	60.0000			100.00	Option 4: RVP=1.13

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

S-1547-223 - External Floating Roof Tank
Bakersfield, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Rim Seal Losses (lb):	2.3647	2.7811	3.2444									
Seal Factor A (lb-mole/ft-yr):	0.6000	0.6000	0.6000									
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000	0.4000	0.4000									
Average Wind Speed (mph):	5.2000	5.8000	6.5000									
Seal-related Wind Speed Exponent:	1.0000	1.0000	1.0000									
Value of Vapor Pressure Function:	0.0063	0.0068	0.0072									
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3603	0.3885	0.4132									
Tank Diameter (ft):	70.0000	70.0000	70.0000									
Vapor Molecular Weight (lb/lb-mole):	60.0000	60.0000	60.0000									
Product Factor:	0.4000	0.4000	0.4000									
Withdrawal Losses (lb):	0.0672	0.0672	0.0672									
Net Throughput (gal/mo.):	4,200.0000	4,200.0000	4,200.0000									
Shell Clingage Factor (bbl/1000 sqft):	0.0060	0.0060	0.0060									
Average Organic Liquid Density (lb/gal):	8.3200	8.3200	8.3200									
Tank Diameter (ft):	70.0000	70.0000	70.0000									
Roof Fitting Losses (lb):	13.2472	16.4257	20.2429									
Value of Vapor Pressure Function:	0.0063	0.0068	0.0072									
Vapor Molecular Weight (lb/lb-mole):	60.0000	60.0000	60.0000									
Product Factor:	0.4000	0.4000	0.4000									
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	1,050.9523	1,207.2274	1,397.6136									
Average Wind Speed (mph):	5.2000	5.8000	6.5000									
Total Losses (lb):	15.6791	19.2740	23.5545									

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	0.0642
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	1.5871
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	0.4305
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1	31.00	150.00	1.40	44.8336
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1	0.47	0.02	0.97	0.0220
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13	2.00	0.37	0.91	1.7412
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9	0.82	0.53	0.14	0.5294
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1	0.71	0.10	1.00	0.0450

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March

S-1547-223 - External Floating Roof Tank
Bakersfield, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Wier Crude Oil	8.39	0.20	49.92	0.00	58.51

Aera Energy LLC
Facility Number: S-1547 Project Number: S-1144501

S-1547-223 Second Quarter

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	S-1547-223 2nd QTR
City:	Bakersfield
State:	California
Company:	Aera
Type of Tank:	External Floating Roof Tank
Description:	Aera Wier external floating roof tank 223

Tank Dimensions

Diameter (ft):	70.00
Volume (gallons):	1,260,000.00
Turnovers:	0.16

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	White/White
Shell Condition	Good

Roof Characteristics

Type:	Pontoon
Fitting Category	Typical

Tank Construction and Rim-Seal System

Construction:	Welded
Primary Seal:	Mechanical Shoe
Secondary Seal	Rim-mounted

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

S-1547-223 - External Floating Roof Tank
Bakersfield, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min	Max	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol Weight	Basis for Vapor Pressure Calculations
Wier Crude Oil	Apr	66.98	60.01	73.95	65.42	0.4479	N/A	N/A	60.0000			100.00	Option 4: RVP=1.13
Wier Crude Oil	May	71.00	63.30	78.70	65.42	0.4961	N/A	N/A	60.0000			100.00	Option 4: RVP=1.13
Wier Crude Oil	Jun	74.47	66.32	82.63	65.42	0.5414	N/A	N/A	60.0000			100.00	Option 4: RVP=1.13

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

S-1547-223 - External Floating Roof Tank
Bakersfield, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Rim Seal Losses (lb):				3.7853	4.5908	5.0174						
Seal Factor A (lb-mole/ft-yr):				0.6000	0.6000	0.6000						
Seal Factor B (lb-mole/ft-yr (mph)^n):				0.4000	0.4000	0.4000						
Average Wind Speed (mph):				7.1000	7.9000	7.9000						
Seal-related Wind Speed Exponent:				1.0000	1.0000	1.0000						
Value of Vapor Pressure Function:				0.0079	0.0087	0.0095						
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):				0.4479	0.4961	0.5414						
Tank Diameter (ft):				70.0000	70.0000	70.0000						
Vapor Molecular Weight (lb/lb-mole):				60.0000	60.0000	60.0000						
Product Factor:				0.4000	0.4000	0.4000						
Withdrawal Losses (lb):				0.2690	0.2690	0.2690						
Net Throughput (gal/mo.):				16,800.0000	16,800.0000	16,800.0000						
Shell Clingage Factor (bbl/1000 sqft):				0.0060	0.0060	0.0060						
Average Organic Liquid Density (lb/gal):				8.3200	8.3200	8.3200						
Tank Diameter (ft):				70.0000	70.0000	70.0000						
Roof Fitting Losses (lb):				24.6372	31.4365	34.3580						
Value of Vapor Pressure Function:				0.0079	0.0087	0.0095						
Vapor Molecular Weight (lb/lb-mole):				60.0000	60.0000	60.0000						
Product Factor:				0.4000	0.4000	0.4000						
Tot. Roof Fitting Loss Fact.(lb-mole/yr):				1,567.2997	1,802.3212	1,802.3212						
Average Wind Speed (mph):				7.1000	7.9000	7.9000						
Total Losses (lb):				28.6914	36.2962	39.6444						

		Roof Fitting Loss Factors			
Roof Fitting/Status	Quantity	KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	0.0833
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	2.5137
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	0.6260
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1	31.00	150.00	1.40	83.7009
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1	0.47	0.02	0.97	0.0298
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13	2.00	0.37	0.91	2.5092
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9	0.82	0.53	0.14	0.6986
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1	0.71	0.10	1.00	0.0649

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: April, May, June

S-1547-223 - External Floating Roof Tank
Bakersfield, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Wier Crude Oil	13.39	0.81	90.43	0.00	104.63

Aera Energy LLC
Facility Number: S-1547 Project Number: S-1144501

S-1547-223 Third Quarter

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	S-1547-223 3rd Q+e
City:	Bakersfield
State:	California
Company:	Aera
Type of Tank:	External Floating Roof Tank
Description:	Aera Wier external floating roof tank 223

Tank Dimensions

Diameter (ft):	70.00
Volume (gallons):	1,260,000.00
Turnovers:	0.13

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	White/White
Shell Condition	Good

Roof Characteristics

Type:	Pontoon
Fitting Category	Typical

Tank Construction and Rim-Seal System

Construction:	Welded
Primary Seal:	Mechanical Shoe
Secondary Seal	Rim-mounted

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

S-1547-223 - External Floating Roof Tank
Bakersfield, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Wier Crude Oil	Jul	77.01	68.80	85.22	65.42	0.5766	N/A	N/A	60.0000			100.00	Option 4: RVP=1.13
Wier Crude Oil	Aug	76.03	68.25	83.81	65.42	0.5627	N/A	N/A	60.0000			100.00	Option 4: RVP=1.13
Wier Crude Oil	Sep	72.96	65.93	79.98	65.42	0.5212	N/A	N/A	60.0000			100.00	Option 4: RVP=1.13

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

S-1547-223 - External Floating Roof Tank
Bakersfield, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Rim Seal Losses (lb):							4.9519	4.6085	3.9541			
Seal Factor A (lb-mole/ft-yr):							0.6000	0.6000	0.6000			
Seal Factor B (lb-mole/ft-yr (mph)^n):							0.4000	0.4000	0.4000			
Average Wind Speed (mph):							7.2000	6.8000	6.2000			
Seal-related Wind Speed Exponent:							1.0000	1.0000	1.0000			
Value of Vapor Pressure Function:							0.0102	0.0099	0.0092			
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.5766	0.5627	0.5212			
Tank Diameter (ft):							70.0000	70.0000	70.0000			
Vapor Molecular Weight (lb/lb-mole):							60.0000	60.0000	60.0000			
Product Factor:							0.4000	0.4000	0.4000			
Withdrawal Losses (lb):							0.2118	0.2118	0.2118			
Net Throughput (gal/mo.):							13,230.0000	13,230.0000	13,230.0000			
Shell Clingage Factor (bbl/1000 sqft):							0.0060	0.0060	0.0060			
Average Organic Liquid Density (lb/gal):							8.3200	8.3200	8.3200			
Tank Diameter (ft):							70.0000	70.0000	70.0000			
Roof Fitting Losses (lb):							32.4463	29.3830	24.1166			
Value of Vapor Pressure Function:							0.0102	0.0099	0.0092			
Vapor Molecular Weight (lb/lb-mole):							60.0000	60.0000	60.0000			
Product Factor:							0.4000	0.4000	0.4000			
Tot. Roof Fitting Loss Fact.(lb-mole/yr):							1,596.1398	1,481.7296	1,314.9915			
Average Wind Speed (mph):							7.2000	6.8000	6.2000			
Total Losses (lb):							37.6100	34.2034	28.2825			

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	0.0944
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	2.5872
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	0.6710
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1	31.00	150.00	1.40	79.8588
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1	0.47	0.02	0.97	0.0331
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13	2.00	0.37	0.91	2.7016
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9	0.82	0.53	0.14	0.7854
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1	0.71	0.10	1.00	0.0698

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: July, August, September

S-1547-223 - External Floating Roof Tank
Bakersfield, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Wier Crude Oil	13.51	0.64	85.95	0.00	100.10

Aera Energy LLC
Facility Number: S-1547 Project Number: S-1144501

S-1547-223 Fourth Quarter

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	S-1547-223 4th Qtr
City:	Bakersfield
State:	California
Company:	Aera
Type of Tank:	External Floating Roof Tank
Description:	Aera Wier external floating roof tank 223

Tank Dimensions

Diameter (ft):	70.00
Volume (gallons):	1,260,000.00
Turnovers:	0.07

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	White/White
Shell Condition	Good

Roof Characteristics

Type:	Pontoon
Fitting Category	Typical

Tank Construction and Rim-Seal System

Construction:	Welded
Primary Seal:	Mechanical Shoe
Secondary Seal	Rim-mounted

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

S-1547-223 - External Floating Roof Tank
Bakersfield, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Wier Crude Oil	Oct	68.33	62.00	74.66	65.42	0.4636	N/A	N/A	60.0000			100.00	Option 4: RVP=1.13
Wier Crude Oil	Nov	62.38	57.33	67.44	65.42	0.3977	N/A	N/A	60.0000			100.00	Option 4: RVP=1.13
Wier Crude Oil	Dec	58.39	54.32	62.46	65.42	0.3580	N/A	N/A	60.0000			100.00	Option 4: RVP=1.13

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

S-1547-223 - External Floating Roof Tank
Bakersfield, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Rim Seal Losses (lb):										3.1910	2.5749	2.2796
Seal Factor A (lb-mole/ft-yr):										0.6000	0.6000	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):										0.4000	0.4000	0.4000
Average Wind Speed (mph):										5.5000	5.1000	5.0000
Seal-related Wind Speed Exponent:										1.0000	1.0000	1.0000
Value of Vapor Pressure Function:										0.0081	0.0070	0.0063
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):										0.4636	0.3977	0.3580
Tank Diameter (ft):										70.0000	70.0000	70.0000
Vapor Molecular Weight (lb/lb-mole):										60.0000	60.0000	60.0000
Product Factor:										0.4000	0.4000	0.4000
Withdrawal Losses (lb):										0.1177	0.1177	0.1177
Net Throughput (gal/mo.):										7,350.0000	7,350.0000	7,350.0000
Shell Clingage Factor (bbl/1000 sqft):										0.0060	0.0060	0.0060
Average Organic Liquid Density (lb/gal):										8.3200	8.3200	8.3200
Tank Diameter (ft):										70.0000	70.0000	70.0000
Roof Fitting Losses (lb):										18.3686	14.2898	12.5299
Value of Vapor Pressure Function:										0.0081	0.0070	0.0063
Vapor Molecular Weight (lb/lb-mole):										60.0000	60.0000	60.0000
Product Factor:										0.4000	0.4000	0.4000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):										1,128.2642	1,025.5582	1,000.3560
Average Wind Speed (mph):										5.5000	5.1000	5.0000
Total Losses (lb):										21.6773	16.9824	14.9273

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	0.0690
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	1.5725
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	0.4422
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1	31.00	150.00	1.40	41.0720
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1	0.47	0.02	0.97	0.0233
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13	2.00	0.37	0.91	1.7952
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9	0.82	0.53	0.14	0.5646
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1	0.71	0.10	1.00	0.0464

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: October, November, December

S-1547-223 - External Floating Roof Tank
Bakersfield, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Wier Crude Oil	8.05	0.35	45.19	0.00	53.59

APPENDIX C

Tanks 4.0.9d Baseline Emissions Calculations for S-1547-639

Aera Energy LLC
Facility Number: S-1547 Project Number: S-1144501

S-1547-639 First Quarter

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	S-1547-639 1ST QTR
City:	Bakersfield
State:	California
Company:	Aera
Type of Tank:	External Floating Roof Tank
Description:	Aera Wier External Floating Roof T-639

Tank Dimensions

Diameter (ft):	70.00
Volume (gallons):	1,260,000.00
Turnovers:	11.47

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	White/White
Shell Condition	Good

Roof Characteristics

Type:	Pontoon
Fitting Category	Typical

Tank Construction and Rim-Seal System

Construction:	Welded
Primary Seal:	Mechanical Shoe
Secondary Seal	Rim-mounted

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

S-1547-639 - External Floating Roof Tank
Bakersfield, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Wier heavy crude	Jan	58.62	54.46	62.78	65.42	3.0035	N/A	N/A	60.0000			207.00	Option 4: RVP=5.26
Wier heavy crude	Feb	61.49	56.39	66.58	65.42	3.1753	N/A	N/A	60.0000			207.00	Option 4: RVP=5.26
Wier heavy crude	Mar	63.85	57.94	69.77	65.42	3.3229	N/A	N/A	60.0000			207.00	Option 4: RVP=5.26

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

S-1547-639 - External Floating Roof Tank
Bakersfield, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Rim Seal Losses (lb):	21.7965	25.2849	29.1767									
Seal Factor A (lb-mole/ft-yr):	0.6000	0.6000	0.6000									
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000	0.4000	0.4000									
Average Wind Speed (mph):	5.2000	5.8000	6.5000									
Seal-related Wind Speed Exponent:	1.0000	1.0000	1.0000									
Value of Vapor Pressure Function:	0.0581	0.0619	0.0651									
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.0035	3.1753	3.3229									
Tank Diameter (ft):	70.0000	70.0000	70.0000									
Vapor Molecular Weight (lb/lb-mole):	60.0000	60.0000	60.0000									
Product Factor:	0.4000	0.4000	0.4000									
Withdrawal Losses (lb):	19.2838	19.2838	19.2838									
Net Throughput (gal/mo.):	1,204,350.0000	1,204,350.0000	1,204,350.0000									
Shell Clingage Factor (bbl/1000 sqft):	0.0060	0.0060	0.0060									
Average Organic Liquid Density (lb/gal):	8.3200	8.3200	8.3200									
Tank Diameter (ft):	70.0000	70.0000	70.0000									
Roof Fitting Losses (lb):	122.1059	149.3378	182.0435									
Value of Vapor Pressure Function:	0.0581	0.0619	0.0651									
Vapor Molecular Weight (lb/lb-mole):	60.0000	60.0000	60.0000									
Product Factor:	0.4000	0.4000	0.4000									
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	1,050.9523	1,207.2274	1,397.6136									
Average Wind Speed (mph):	5.2000	5.8000	6.5000									
Total Losses (lb):	163.1862	193.9065	230.5040									

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	0.5841
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	14.4265
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	3.9138
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1	31.00	150.00	1.40	407.2749
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1	0.47	0.02	0.97	0.2003
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13	2.00	0.37	0.91	15.8320
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9	0.82	0.53	0.14	4.8146
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1	0.71	0.10	1.00	0.4089

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March

S-1547-639 - External Floating Roof Tank
Bakersfield, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Wier heavy crude	76.26	57.85	453.49	0.00	587.60

Aera Energy LLC
Facility Number: S-1547 Project Number: S-1144501

S-1547-639 Second Quarter

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	S-1547-639 2nd QTR
City:	Bakersfield
State:	California
Company:	Aera
Type of Tank:	External Floating Roof Tank
Description:	Aera Wier External Floating Roof T-639

Tank Dimensions

Diameter (ft):	70.00
Volume (gallons):	1,260,000.00
Turnovers:	11.28

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	White/White
Shell Condition	Good

Roof Characteristics

Type:	Pontoon
Fitting Category	Typical

Tank Construction and Rim-Seal System

Construction:	Welded
Primary Seal:	Mechanical Shoe
Secondary Seal	Rim-mounted

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

S-1547-639 - External Floating Roof Tank
Bakersfield, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min	Max	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol Weight	Basis for Vapor Pressure Calculations
Wier heavy crude	Apr	66.98	60.01	73.95	65.42	3.5264	N/A	N/A	60.0000			207.00	Option 4: RVP=5.26
Wier heavy crude	May	71.00	63.30	78.70	65.42	3.8025	N/A	N/A	60.0000			207.00	Option 4: RVP=5.26
Wier heavy crude	Jun	74.47	66.32	82.63	65.42	4.0551	N/A	N/A	60.0000			207.00	Option 4: RVP=5.26

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

S-1547-639 - External Floating Roof Tank
Bakersfield, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Rim Seal Losses (lb):				33.5728	40.0408	43.1745						
Seal Factor A (lb-mole/ft-yr):				0.6000	0.6000	0.6000						
Seal Factor B (lb-mole/ft-yr (mph)^n):				0.4000	0.4000	0.4000						
Average Wind Speed (mph):				7.1000	7.9000	7.9000						
Seal-related Wind Speed Exponent:				1.0000	1.0000	1.0000						
Value of Vapor Pressure Function:				0.0697	0.0761	0.0820						
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):				3.5264	3.8025	4.0551						
Tank Diameter (ft):				70.0000	70.0000	70.0000						
Vapor Molecular Weight (lb/lb-mole):				60.0000	60.0000	60.0000						
Product Factor:				0.4000	0.4000	0.4000						
Withdrawal Losses (lb):				18.9643	18.9643	18.9643						
Net Throughput (gal/mo.):				1,184,400.0000	1,184,400.0000	1,184,400.0000						
Shell Clingage Factor (bbl/1000 sqft):				0.0060	0.0060	0.0060						
Average Organic Liquid Density (lb/gal):				8.3200	8.3200	8.3200						
Tank Diameter (ft):				70.0000	70.0000	70.0000						
Roof Fitting Losses (lb):				218.5162	274.1884	295.6469						
Value of Vapor Pressure Function:				0.0697	0.0761	0.0820						
Vapor Molecular Weight (lb/lb-mole):				60.0000	60.0000	60.0000						
Product Factor:				0.4000	0.4000	0.4000						
Tot. Roof Fitting Loss Fact.(lb-mole/yr):				1,567.2997	1,802.3212	1,802.3212						
Average Wind Speed (mph):				7.1000	7.9000	7.9000						
Total Losses (lb):				271.0534	333.1936	357.7857						

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	0.7270
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	21.9194
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	5.4594
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1	31.00	150.00	1.40	729.6565
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1	0.47	0.02	0.97	0.2599
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13	2.00	0.37	0.91	21.8841
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9	0.82	0.53	0.14	6.0943
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1	0.71	0.10	1.00	0.5661

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: April, May, June

S-1547-639 - External Floating Roof Tank
Bakersfield, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Wier heavy crude	116.79	56.89	788.35	0.00	962.03

Aera Energy LLC
Facility Number: S-1547 Project Number: S-1144501

S-1547-639 Third Quarter

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	S-1547-639 3rd QTR
City:	Bakersfield
State:	California
Company:	Aera
Type of Tank:	External Floating Roof Tank
Description:	Aera Wier External Floating Roof T-639

Tank Dimensions

Diameter (ft):	70.00
Volume (gallons):	1,260,000.00
Turnovers:	10.28

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	White/White
Shell Condition	Good

Roof Characteristics

Type:	Pontoon
Fitting Category	Typical

Tank Construction and Rim-Seal System

Construction:	Welded
Primary Seal:	Mechanical Shoe
Secondary Seal	Rim-mounted

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

S-1547-639 - External Floating Roof Tank
Bakersfield, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Wier heavy crude	Jul	77.01	68.80	85.22	65.42	4.2478	N/A	N/A	60.0000			207.00	Option 4: RVP=5.26
Wier heavy crude	Aug	76.03	68.25	83.81	65.42	4.1724	N/A	N/A	60.0000			207.00	Option 4: RVP=5.26
Wier heavy crude	Sep	72.96	65.93	79.98	65.42	3.9432	N/A	N/A	60.0000			207.00	Option 4: RVP=5.26

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

S-1547-639 - External Floating Roof Tank
Bakersfield, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Rim Seal Losses (lb):							42.2175	39.4290	34.2217			
Seal Factor A (lb-mole/ft-yr):							0.6000	0.6000	0.6000			
Seal Factor B (lb-mole/ft-yr (mph)^n):							0.4000	0.4000	0.4000			
Average Wind Speed (mph):							7.2000	6.8000	6.2000			
Seal-related Wind Speed Exponent:							1.0000	1.0000	1.0000			
Value of Vapor Pressure Function:							0.0867	0.0848	0.0794			
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							4.2478	4.1724	3.9432			
Tank Diameter (ft):							70.0000	70.0000	70.0000			
Vapor Molecular Weight (lb/lb-mole):							60.0000	60.0000	60.0000			
Product Factor:							0.4000	0.4000	0.4000			
Withdrawal Losses (lb):							17.2831	17.2831	17.2831			
Net Throughput (gal/mo.):							1,079,400.0000	1,079,400.0000	1,079,400.0000			
Shell Clingage Factor (bbl/1000 sqft):							0.0060	0.0060	0.0060			
Average Organic Liquid Density (lb/gal):							8.3200	8.3200	8.3200			
Tank Diameter (ft):							70.0000	70.0000	70.0000			
Roof Fitting Losses (lb):							276.6219	251.3903	208.7256			
Value of Vapor Pressure Function:							0.0867	0.0848	0.0794			
Vapor Molecular Weight (lb/lb-mole):							60.0000	60.0000	60.0000			
Product Factor:							0.4000	0.4000	0.4000			
Tot. Roof Fitting Loss Fact.(lb-mole/yr):							1,596.1398	1,481.7296	1,314.9915			
Average Wind Speed (mph):							7.2000	6.8000	6.2000			
Total Losses (lb):							336.1226	308.1024	260.2303			

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	0.8098
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	22.1806
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	5.7533
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1	31.00	150.00	1.40	684.4797
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1	0.47	0.02	0.97	0.2835
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13	2.00	0.37	0.91	23.1644
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9	0.82	0.53	0.14	6.7349
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1	0.71	0.10	1.00	0.5986

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: July, August, September

S-1547-639 - External Floating Roof Tank
Bakersfield, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Wier heavy crude	115.87	51.85	736.74	0.00	904.46

Aera Energy LLC
Facility Number: S-1547 Project Number: S-1144501

S-1547-639 Fourth Quarter

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	S-1547-639 4th QTR
City:	Bakersfield
State:	California
Company:	Aera
Type of Tank:	External Floating Roof Tank
Description:	Aera Wier External Floating Roof T-639

Tank Dimensions

Diameter (ft):	70.00
Volume (gallons):	1,260,000.00
Turnovers:	12.51

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	White/White
Shell Condition	Good

Roof Characteristics

Type:	Pontoon
Fitting Category	Typical

Tank Construction and Rim-Seal System

Construction:	Welded
Primary Seal:	Mechanical Shoe
Secondary Seal	Rim-mounted

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

S-1547-639 - External Floating Roof Tank
Bakersfield, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min	Max	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract	Vapor Mass Fract.	Mol Weight	Basis for Vapor Pressure Calculations
Wier heavy crude	Oct	68.33	62.00	74.66	65.42	3.6172	N/A	N/A	60.0000			207.00	Option 4: RVP=5.26
Wier heavy crude	Nov	62.38	57.33	67.44	65.42	3.2307	N/A	N/A	60.0000			207.00	Option 4: RVP=5.26
Wier heavy crude	Dec	58.39	54.32	62.46	65.42	2.9698	N/A	N/A	60.0000			207.00	Option 4: RVP=5.26

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

S-1547-639 - External Floating Roof Tank
Bakersfield, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Rim Seal Losses (lb):										28.1394	23.3128	21.0368
Seal Factor A (lb-mole/ft-yr):										0.6000	0.6000	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):										0.4000	0.4000	0.4000
Average Wind Speed (mph):										5.5000	5.1000	5.0000
Seal-related Wind Speed Exponent:										1.0000	1.0000	1.0000
Value of Vapor Pressure Function:										0.0718	0.0631	0.0578
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):										3.6172	3.2307	2.9898
Tank Diameter (ft):										70.0000	70.0000	70.0000
Vapor Molecular Weight (lb/lb-mole):										60.0000	60.0000	60.0000
Product Factor:										0.4000	0.4000	0.4000
Withdrawal Losses (lb):										21.0322	21.0322	21.0322
Net Throughput (gal/mo.):										1,313,550.0000	1,313,550.0000	1,313,550.0000
Shell Clingage Factor (bbl/1000 sqft):										0.0060	0.0060	0.0060
Average Organic Liquid Density (lb/gal):										8.3200	8.3200	8.3200
Tank Diameter (ft):										70.0000	70.0000	70.0000
Roof Fitting Losses (lb):										161.9829	129.3758	115.6280
Value of Vapor Pressure Function:										0.0718	0.0631	0.0578
Vapor Molecular Weight (lb/lb-mole):										60.0000	60.0000	60.0000
Product Factor:										0.4000	0.4000	0.4000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):										1,128.2642	1,025.5582	1,000.3560
Average Wind Speed (mph):										5.5000	5.1000	5.0000
Total Losses (lb):										211.1545	173.7208	157.6970

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	0.6217
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	14.1685
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	3.9853
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1	31.00	150.00	1.40	369.8664
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1	0.47	0.02	0.97	0.2099
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13	2.00	0.37	0.91	16.1794
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9	0.62	0.53	0.14	5.0893
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1	0.71	0.10	1.00	0.4179

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: October, November, December

S-1547-639 - External Floating Roof Tank
Bakersfield, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Wier heavy crude	72.49	63.10	406.99	0.00	542.57

APPENDIX D

Permits for Vapor Controlled Tanks at the Anderson-Goodwin Lease & Dehy

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-129-29 **EXPIRATION DATE:** 05/31/2021

SECTION: NW21 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
THERMALLY ENHANCED OIL RECOVERY OPERATION AUTHORIZED FOR 425 STEAM ENHANCED WELLS INCLUDING BALANCED WELL VENT CONTROL SYSTEM, VAPOR PIPING TO INJECTION WELLS AND CONNECTED TO VESSELS S-1135-346 THROUGH '-351 AND '-353 THROUGH '-356 (ANDERSON-GOODWIN LEASE)

PERMIT UNIT REQUIREMENTS

1. Volatile organic compound (VOC) emissions from the entire system (including fugitive emissions from components handling vapor and condensate) shall not exceed 143.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
2. Compliance with permit conditions in the Title V permit shall be deemed compliance with SJVUAPCD Rule 4401 (June 6, 2011). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
3. The crude oil production wells associated with this unit do not have production enhanced by in-situ combustion. Therefore, the requirements of SJVUAPCD Rule 4407 (Adopted May 19, 1994) do not apply to this permit unit. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
4. When operating with crude oil production well vent open, TEOR vapors can be balanced within the collection and control system or injected into formation using DOGGR-approved disposal wells. Permit holder shall cease injecting vapors and notify the District if DOGGR injection approval is revoked, denied, terminated, surrendered or altered to disallow injection. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Permittee shall maintain accurate component count for tank according to CAPCOA's "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities," Table IV-2c (Feb 1999), Screening Value Range emission factors < 10,000 ppmv. Permittee shall update such records when new components are approved and installed. [District Rule 2201] Federally Enforceable Through Title V Permit
6. This unit is subject to TEOR Standard Conditions on the facility wide permit S-1135-0. Deviations from a standard condition shall be reported under the applicable condition in S-1135-0. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-149-23 **EXPIRATION DATE:** 05/31/2021

SECTION: NW 21 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
3,000 BBL CRUDE OIL LACT TANK ID# AG-01, WITH VAPOR CONTROL SYSTEM SHARED WITH TANKS S-1135-150, '151, '270, '301, '323, '339, AND VESSELS S-1135-346 THROUGH '-351 AND '-353 THROUGH '-356 (ANDERSON-GOODWIN)

PERMIT UNIT REQUIREMENTS

1. Vapor control system shall contain vapor control system piping network and vapor compression system consisting of vapor compressor(s), air-cooled heat exchanger, inlet scrubber, pump, and discharge scrubber. Collected vapors shall be compressed to the Andersen-Goodwin Lease TEOR skid S-1135-129 for disposal. [District Rule 2201] Federally Enforceable Through Title V Permit
2. Compressor suction and knockout drum liquids shall be piped only to vapor-controlled tanks. [District Rule 2520] Federally Enforceable Through Title V Permit
3. The fugitive VOC emissions from this tank and the vapor control system shall not exceed 10.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Maximum VOC content of hydrocarbons in tank vapor shall not exceed 20% by weight. [District Rule 4623] Federally Enforceable Through Title V Permit
5. Permittee shall measure VOC content of tank vapor annually using EPA Method 18, 25, 25a, 25b, or ASTM D-1945. [District Rule 4623] Federally Enforceable Through Title V Permit
6. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) not exceeding 0.5 psia under all storage conditions. [District Rule 4623] Federally Enforceable Through Title V Permit
7. Permittee shall maintain with the permit accurate fugitive component counts for tank and associated vapor recovery system and resulting emissions calculated using Table 2-4 Oil and Gas Production Operations Average Emissions factors from the EPA Protocol for Equipment Leak Emissions Estimates EPA-453/R-95-017. [District Rule 2080] Federally Enforceable Through Title V Permit
8. This unit has a storage capacity less than 420,000 gallons and is used for petroleum or condensate stored, processed and/or treated at a drilling and production facility prior to custody transfer. Therefore, the requirements of 40CFR 60 Subpart K, Ka and Kb do not apply to this source. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
9. AG DEHY VAPOR RECOVERY CONDITION: The tank shall be equipped with a vapor loss prevention system consisting of vapor and condensate collection systems capable of reducing VOC emissions by at least 99%. [District Rule 2201] Federally Enforceable Through Title V Permit
10. AG DEHY VAPOR RECOVERY CONDITION: Except during periods of tank cleaning, inspections, and maintenance allowed by this permit, tank shall be connected to a vapor control system that is functional and operating as designed. [District Rule 2201] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

11. AG DEHY VAPOR RECOVERY CONDITION: All tank gauging, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free (as defined in Rule 4623) except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit

12. AG DEHY VAPOR RECOVERY CONDITION: Tanks seams, welds, joints, piping, valves, and fittings shall be inspected and maintained in a leak-free condition. [District Rule 2201] Federally Enforceable Through Title V Permit

13. AG DEHY INSPECTION CONDITION: A gas leak is a reading in excess of 10,000 parts per million by volume (ppmv), as methane, above background on a portable hydrocarbon detection instrument that is calibrated with methane in accordance with EPA Method 21. A liquid leak is the dripping of organic liquid at a rate of more than 3 drops per minute. [District Rule 4623] Federally Enforceable Through Title V Permit

14. AG DEHY VAPOR RECOVERY CONDITION: Operator shall monitor vapor control system pressures on quarterly basis to ensure that system pressure does not exceed pressure relief valve setting. [District Rule 2520] Federally Enforceable Through Title V Permit

15. AG DEHY TESTING CONDITION: Permittee shall conduct true vapor pressure (TVP) and API gravity testing of the organic liquid stored in this tank at least once every 24 months during summer (July - September), and/or whenever there is a change in the source or type of organic liquid stored in this tank in order to maintain exemption from the rule. [District Rule 4623] Federally Enforceable Through Title V Permit

16. AG DEHY TESTING CONDITION: For crude oil with an API gravity of 26 degrees or less, the TVP shall be determined using the latest version of the Lawrence Berkeley National Laboratory "test Method for Vapor pressure of Reactive Organic Compounds in Heavy Crude Oil Using Gas Chromatograph", as approved by ARB and EPA. The TVP testing shall be conducted at actual storage temperature of the organic liquid in the tank. [District Rule 4623] Federally Enforceable Through Title V Permit

17. AG DEHY TESTING CONDITION: Permittee shall retain records of TVP and API gravity testing for District inspection upon request. The records shall include the tank identification number, Permit to Operate number, type of stored organic liquid, TVP and API gravity of the organic liquid, test methods used, and a copy of the test results. [District Rule 2080] Federally Enforceable Through Title V Permit

18. AG DEHY TANK CLEANING CONDITION: This permit authorizes tank cleaning that is not the result of breakdowns or poor maintenance as a routine maintenance activity. [District Rule 2080] Federally Enforceable Through Title V Permit

19. AG DEHY TANK CLEANING CONDITION: There shall be no throughput during cleaning of this tank. [District Rule 2080] Federally Enforceable Through Title V Permit

20. AG DEHY TANK CLEANING CONDITION: Prior to opening the tank to allow tank cleaning the following procedure must be followed. Operate PV valve and vapor recovery system during emptying, filling, and flushing. During filling and purging, no vapor leakage is allowed. Drain all liquid from the tank to the maximum extent feasible prior to opening the tank. [District Rule 2080] Federally Enforceable Through Title V Permit

21. AG DEHY TANK CLEANING CONDITION: Prior to opening the tank to allow tank cleaning one of the following options must be followed: 1) operate the vapor recovery system for at least 2 hours after all the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank volume is displaced, 3) vent the tank to the vapor control system until the vapor concentration is less than 10% of the lower explosive limit (LEL) or 5,000 ppmv whichever is less; or 4) vent the tank to the vapor control system for a length of time determined by the following relationship: $t = 2.3\ V / Q$, where t = time, V = tank volume (cubic feet), and Q= flow rate to the vapor control system as determined using appropriate engineering calculations. [District Rule 2080] Federally Enforceable Through Title V Permit

22. AG DEHY TANK CLEANING CONDITION: Allowable methods of cleaning include using steam, diesel, solvents with an initial boiling point of greater than 302 F, solvents with a vapor pressure of less than 0.5 psia, or solvents with 50 grams/liter VOC content or less. Steam cleaning shall be allowed at locations where wastewater treatment facilities are limited or during December through March. [District Rule 2080] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

23. AG DEHY VAPOR RECOVERY CONDITION: Tank pressure/vacuum valve (Varec) shall be inspected on an annual basis. During the varec inspections, the varec can be removed from the tank and replaced if necessary. The permittee shall minimize emissions from the opening by plugging the opening during the removal of varec valve. [District Rule 2201] Federally Enforceable Through Title V Permit

24. AG DEHY VAPOR RECOVERY CONDITION: The pressure transmitters shall be inspected and maintained in good operating conditions. The inspections shall be conducted on a quarterly basis. Replacing and repairing of each pressure transmitters shall not exceed one hour per day. [District Rule 2520] Federally Enforceable Through Title V Permit

25. AG DEHY INSPECTION CONDITION: All piping, fittings, and valves shall be inspected annually by the facility operator in accordance with EPA Method 21, with the instrument calibrated with methane, to ensure compliance with the provisions of this permit. If any of the tank components are found to leak during an annual inspection, the inspection frequency for that component type shall be changed from annual to quarterly. If no tank components are subsequently found to be leaking during five consecutive inspections, the inspection frequency may be changed from quarterly to annual. Components located in inaccessible (over 15 feet above ground when access is required from the ground or over 6 feet away from a platform when access is required from the platform) locations shall be inspected at least annually and components located in unsafe areas shall be inspected and repaired at the next process unit turnaround (the scheduled shutdown of a unit for maintenance and repair work). [District Rule 2520] Federally Enforceable Through Title V Permit

26. AG DEHY INSPECTION CONDITION: A facility operator, upon detection of a leaking component, shall affix to that component a weatherproof readily visible tag bearing the date on which the leak is detected. The tag shall remain in place until the leaking component is repaired, reinspected and found to be in compliance with the requirements of this rule. [District Rule 2520] Federally Enforceable Through Title V Permit

27. AG DEHY INSPECTION CONDITION: An operator shall reinspect a component for leaks within thirty working days after the date on which the component is repaired. [District Rule 2520] Federally Enforceable Through Title V Permit

28. AG DEHY INSPECTION CONDITION: Emissions from components which have been tagged by the facility operator for repair within 15 calendar days or which have been repaired and are awaiting re-inspection shall not be in violation of this permit. [District Rule 2520] Federally Enforceable Through Title V Permit

29. AG DEHY INSPECTION CONDITION: Any component leak shall be repaired to a leak-free condition or vented to a flare satisfying the requirements of 40 CFR 60.18 or to a vapor control device that is at least 99 percent efficient as measured by EPA Method 18 within fifteen (15) calendar days of detection. The APCO may grant a ten (10) calendar day extension provided the operator demonstrates that necessary and sufficient actions are being taken to correct the leak within this time period. Any vapor control device, other than a flare, used to comply with this condition shall demonstrate at least 99% control efficiency as measured by EPA Method 18 at least annually. [District Rule 2520] Federally Enforceable Through Title V Permit

30. AG DEHY INSPECTION CONDITION: If the leaking component is an essential part of a critical process unit which cannot be immediately shut down for repairs, the operator shall 1) Minimize the leak within 15 calendar days; and 2) If the leak which has been minimized still exceeds the concentration allowed by this permit, the essential component shall be repaired to eliminate the leak during the next process unit turnaround, but in no case later than one year from the date of the original leak detection. A critical process unit is any process unit which would result in the automatic shutdown of other process units if it were shut down. [District Rule 2520] Federally Enforceable Through Title V Permit

31. AG DEHY INSPECTION CONDITION: Operator shall maintain an inspection log containing the following 1) Type of component leaking; 2) Date of leak detection, and method of detection; 3) Date and emission level of recheck after leak is repaired; 4) Identification and location of essential parts of critical process units found leaking that cannot be repaired until the next process unit turnaround; and 5) Method used to minimize the leak from essential parts of critical process units which cannot be repaired until the next process unit turnaround. [District Rule 2520] Federally Enforceable Through Title V Permit

32. AG DEHY VAPOR RECOVERY CONDITION: Permittee shall maintain records of the date and duration of the vapor control system maintenance operation. [District Rule 1070] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

33. AG DEHY TESTING CONDITION: The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D 287 e1 "Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method). Sampling for API gravity shall be performed in accordance with ASTM Method D 4057 "Standard Practices for Manual Sampling of Petroleum and Petroleum Products." [District Rule 4623] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-150-15 **EXPIRATION DATE:** 05/31/2021

SECTION: 21 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
3,000 BBL CRUDE OIL LACT TANK ID# AG-02, WITH VAPOR CONTROL SYSTEM SHARED WITH TANK S-1135-149 (ANDERSON/GOODWIN LEASE)

PERMIT UNIT REQUIREMENTS

1. Tank shall be vented only to vapor control system listed on S-1135-149. [District Rule 2201] Federally Enforceable Through Title V Permit
2. The fugitive VOC emissions from this tank and the vapor control system shall not exceed 2.6 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
3. Maximum VOC content of hydrocarbons in tank vapor shall not exceed 20% by weight. [District Rule 4623] Federally Enforceable Through Title V Permit
4. Permittee shall measure VOC content of tank vapor annually using EPA Method 18, 25, 25a, 25b, or ASTM D-1945. [District Rule 4623] Federally Enforceable Through Title V Permit
5. Permittee shall maintain with the permit accurate fugitive component counts for tank and resulting emissions calculated using Table 2-4 Oil and Gas Production Operations Average Emissions factors from the EPA Protocol for Equipment Leak Emissions Estimates EPA-453/R-95-017. [District Rule 2080] Federally Enforceable Through Title V Permit
6. Tank shall be equipped with stored liquid temperature indicator. [District Rule 2201] Federally Enforceable Through Title V Permit
7. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) not exceeding 0.5 psia under all storage conditions. [District Rule 4623] Federally Enforceable Through Title V Permit
8. This unit has a storage capacity less than 420,000 gallons and is used for petroleum or condensate stored, processed and/or treated at a drilling and production facility prior to custody transfer. Therefore, the requirements of 40 CFR 60 Subpart K, Ka and Kb do not apply to this source. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
9. This unit is subject to the AG Dehy Vapor Recovery, Inspection, Testing, and Tank Cleaning Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-151-15 **EXPIRATION DATE:** 05/31/2021

SECTION: 21 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
5,000 BBL REJECT TANK ID# AG-03, WITH VAPOR CONTROL SYSTEM SHARED WITH TANK S-1135-149 (ANDERSON/GOODWIN LEASE)

PERMIT UNIT REQUIREMENTS

1. Tank shall be vented only to vapor control system listed on S-1135-149. [District Rule 2201] Federally Enforceable Through Title V Permit
2. The fugitive VOC emissions from this tank and the vapor control system shall not exceed 1.8 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
3. Maximum VOC content of hydrocarbons in tank vapor shall not exceed 20% by weight. [District Rule 4623] Federally Enforceable Through Title V Permit
4. Permittee shall measure VOC content of tank vapor annually using EPA Method 18, 25, 25a, 25b, or ASTM D-1945. [District Rule 4623] Federally Enforceable Through Title V Permit
5. Permittee shall maintain with the permit accurate fugitive component counts for tank and resulting emissions calculated using Table 2-4 Oil and Gas Production Operations Average Emissions factors from the EPA Protocol for Equipment Leak Emissions Estimates EPA-453/R-95-017. [District Rule 2080] Federally Enforceable Through Title V Permit
6. Tank shall be equipped with stored liquid temperature indicator. [District Rule 2201] Federally Enforceable Through Title V Permit
7. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) not exceeding 0.5 psia under all storage conditions. [District Rule 4623] Federally Enforceable Through Title V Permit
8. This unit has a storage capacity less than 420,000 gallons and is used for petroleum or condensate stored, processed and/or treated at a drilling and production facility prior to custody transfer. Therefore, the requirements of 40CFR 60 Subpart K, Ka and Kb do not apply to this source. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
9. This unit is subject to the AG Dehy Vapor Recovery, Inspection, Testing, and Tank Cleaning Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-270-13 **EXPIRATION DATE:** 05/31/2021

SECTION: NW21 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
5,000 BBL FIXED ROOF OIL TANK VENTED TO VAPOR CONTROL SYSTEM LISTED ON S-1135-149 (ANDERSON/GOODWIN LEASE)

PERMIT UNIT REQUIREMENTS

1. Tank shall be vented only to vapor control system listed on S-1135-149. [District Rule 2201] Federally Enforceable Through Title V Permit
2. The fugitive VOC emissions from this tank and the vapor control system shall not exceed 3.1 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
3. Maximum VOC content of hydrocarbons in tank vapor shall not exceed 20% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Permittee shall measure VOC content of tank vapor annually using EPA Method 18, 25, 25a, 25b, or ASTM D-1945. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Tank shall be equipped with stored liquid temperature indicator. [District Rule 2201] Federally Enforceable Through Title V Permit
6. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) not exceeding 0.5 psia under all storage conditions. [District Rule 4623, 4.4] Federally Enforceable Through Title V Permit
7. This unit has a storage capacity less than 420,000 gallons and is used for petroleum or condensate stored, processed and/or treated at a drilling and production facility prior to custody transfer. Therefore, the requirements of 40CFR 60 Subpart K, Ka and Kb do not apply to this source. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
8. This unit is subject to the AG Dehy Vapor Recovery, Inspection, Testing, and Tank Cleaning Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-301-14 **EXPIRATION DATE:** 05/31/2021

SECTION: NW21 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
6,700 BBL FIXED ROOF CRUDE OIL STORAGE TANK SERVED BY VAPOR CONTROL SYSTEM LISTED ON S-1135-149 (ANDERSON/GOODWIN LEASE)

PERMIT UNIT REQUIREMENTS

1. Tank shall be vented only to vapor control listed on S-1135-149. [District Rule 2201] Federally Enforceable Through Title V Permit
2. The fugitive VOC emissions from this tank and the vapor control system shall not exceed 4.2 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
3. Maximum VOC content of hydrocarbons in tank vapor shall not exceed 20% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Permittee shall measure VOC content of tank vapor annually using EPA Method 18, 25, 25a, 25b, or ASTM D-1945. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Permittee shall maintain with the permit accurate fugitive component counts for tank and resulting emissions calculated using Table 2-4 Oil and Gas Production Operations Average Emissions factors from the EPA Protocol for Equipment Leak Emissions Estimates EPA-453/R-95-017. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Tank shall be equipped with stored liquid temperature indicator. [District Rule 2201] Federally Enforceable Through Title V Permit
7. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) not exceeding 0.5 psia under all storage conditions. [District Rule 4623, 4.4] Federally Enforceable Through Title V Permit
8. This unit has a storage capacity less than 420,000 gallons and is used for petroleum or condensate stored, processed and/or treated at a drilling and production facility prior to custody transfer. Therefore, the requirements of 40CFR 60 Subpart K, Ka and Kb do not apply to this source. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
9. This unit is subject to the AG Dehy Vapor Recovery, Inspection, Testing, and Tank Cleaning Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-323-5 **EXPIRATION DATE:** 05/31/2021

EQUIPMENT DESCRIPTION:
3,000 BBL FIXED ROOF CRUDE OIL STORAGE TANK SERVED BY VAPOR CONTROL SYSTEM LISTED ON S-1135-149 - ANDERSON GOODWIN LEASE

PERMIT UNIT REQUIREMENTS

1. Tank shall vent only to the vapor control skid inlet in permit S-1135-129. [District Rule 2201] Federally Enforceable Through Title V Permit
2. Tank shall be designed and maintained to vent only to vapor control system, except during the period of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
3. The fugitive VOC emissions from this tank and the vapor control system shall not exceed 0.26 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Permittee shall measure VOC content of tank vapor annually using EPA Method 18, 25, 25a, 25b, or ASTM D-1945. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Permittee shall maintain with the permit accurate fugitive component counts for tank and resulting emissions calculated using Table 2-4 Oil and Gas Production Operations Average Emissions factors from the EPA Protocol for Equipment Leak Emissions Estimates EPA-453/R-95-017. [District Rule 2201] Federally Enforceable Through Title V Permit
6. This unit has a storage capacity less than 420,000 gallons (1,589.874 cubic meters) and is used for petroleum or condensate stored, processed and/or treated at a drilling and production facility prior to custody transfer. Therefore, the requirements of 40CFR 60 Subpart K, and Kb do not apply to this source. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
7. This unit is subject to the AG Dehy Vapor Recovery, Inspection, Testing, and Tank Cleaning Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-339-2 **EXPIRATION DATE:** 05/31/2021

SECTION: 21 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:
3,000 BBL REJECT TANK CONNECTED TO THE VAPOR CONTROL SYSTEM LISTED ON TANK S-1135-149 (ANDERSON/GOODWIN LEASE)

PERMIT UNIT REQUIREMENTS

1. The fugitive VOC emissions from this tank and the vapor control system shall not exceed 1.9 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
2. Maximum VOC content of hydrocarbons in tank vapor shall not exceed 20% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
3. Permittee shall measure VOC content of tank vapor annually using EPA Method 18, 25, 25a, 25b, or ASTM D-1945. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Permittee shall maintain with the permit accurate fugitive component counts for tank and resulting emissions calculated using Table 2-4 Oil and Gas Production Operations Average Emissions factors from the EPA Protocol for Equipment Leak Emissions Estimates EPA-453/R-95-017. [District Rule 2201] Federally Enforceable Through Title V Permit
5. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) not exceeding 0.5 psia under all storage conditions. [District Rule 4623, 4.4] Federally Enforceable Through Title V Permit
6. This unit has a storage capacity less than 420,000 gallons and is used for petroleum or condensate stored, processed and/or treated at a drilling and production facility prior to custody transfer. Therefore, the requirements of 40 CFR 60 Subpart K, Ka and Kb do not apply to this source. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
7. Tank shall be vented only to vapor control listed on S-1135-149. [District Rule 2201] Federally Enforceable Through Title V Permit
8. This unit is subject to the AG Dehy Vapor Recovery, Inspection, Testing, and Tank Cleaning Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-346-1 **EXPIRATION DATE:** 05/31/2021

SECTION: nw21 **TOWNSHIP:** 31s **RANGE:** 22e

EQUIPMENT DESCRIPTION:
1,200 BBL FREE WATER KNOCK OUT (FWKO) #1 CONNECTED TO VAPOR CONTROL SYSTEMS LISTED ON S-1135-129 AND/OR '-149 (ANDERSON-GOODWIN)

PERMIT UNIT REQUIREMENTS

1. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.5 psia under all storage conditions. [District Rule 4623] Federally Enforceable Through Title V Permit
2. This unit is subject to the AG Dehy Inspection and Testing Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-347-1 **EXPIRATION DATE:** 05/31/2021

SECTION: nw21 **TOWNSHIP:** 31s **RANGE:** 22e

EQUIPMENT DESCRIPTION:
1,000 BBL FLOW SPLITTER VESSEL CONNECTED TO VAPOR CONTROL SYSTEMS LISTED ON S-1135-129 AND/OR '-149 (ANDERSON-GOODWIN)

PERMIT UNIT REQUIREMENTS

1. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.5 psia under all storage conditions. [District Rule 4623] Federally Enforceable Through Title V Permit
2. This unit is subject to the AG Dehy Inspection and Testing Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-348-1 **EXPIRATION DATE:** 05/31/2021

SECTION: nw21 **TOWNSHIP:** 31s **RANGE:** 22e

EQUIPMENT DESCRIPTION:
700 BBL FLOW GAS BUSTER VESSEL CONNECTED TO VAPOR CONTROL SYSTEMS LISTED ON S-1135-129 AND/OR '-149 (ANDERSON-GOODWIN)

PERMIT UNIT REQUIREMENTS

1. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.5 psia under all storage conditions. [District Rule 4623] Federally Enforceable Through Title V Permit
2. This unit is subject to the AG Dehy Inspection and Testing Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-349-1 **EXPIRATION DATE:** 05/31/2021

SECTION: nw21 **TOWNSHIP:** 31s **RANGE:** 22e

EQUIPMENT DESCRIPTION:
1,000 BBL TREATER VESSEL #1 CONNECTED TO VAPOR CONTROL SYSTEMS LISTED ON S-1135-129 AND/OR '-149 (ANDERSON-GOODWIN)

PERMIT UNIT REQUIREMENTS

1. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.5 psia under all storage conditions. [District Rule 4623] Federally Enforceable Through Title V Permit
2. This unit is subject to the AG Dehy Inspection and Testing Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-350-1 **EXPIRATION DATE:** 05/31/2021

SECTION: ne21 **TOWNSHIP:** 31s **RANGE:** 22e

EQUIPMENT DESCRIPTION:
1,000 BBL TREATER VESSEL #2 CONNECTED TO VAPOR RECOVERY SYSTEM CONNECTED TO VAPOR CONTROL SYSTEMS LISTED ON S-1135-129 AND/OR '-149 (ANDERSON-GOODWIN)

PERMIT UNIT REQUIREMENTS

1. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.5 psia under all storage conditions. [District Rule 4623] Federally Enforceable Through Title V Permit
2. This unit is subject to the AG Dehy Inspection and Testing Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-351-1 **EXPIRATION DATE:** 05/31/2021

SECTION: nw21 **TOWNSHIP:** 31s **RANGE:** 22e

EQUIPMENT DESCRIPTION:
1,000 BBL TREATER VESSEL #3 CONNECTED TO VAPOR RECOVERY SYSTEM CONNECTED TO VAPOR CONTROL SYSTEMS LISTED ON S-1135-129 AND/OR '-149 (ANDERSON-GOODWIN)

PERMIT UNIT REQUIREMENTS

1. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.5 psia under all storage conditions. [District Rule 4623] Federally Enforceable Through Title V Permit
2. This unit is subject to the AG Dehy Inspection and Testing Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-353-1 **EXPIRATION DATE:** 05/31/2021

SECTION: nw21 **TOWNSHIP:** 31s **RANGE:** 22e

EQUIPMENT DESCRIPTION:
1,000 BBL TREATER VESSEL #5 CONNECTED TO VAPOR CONTROL SYSTEMS LISTED ON S-1135-129 AND/OR '-149 (ANDERSON-GOODWIN)

PERMIT UNIT REQUIREMENTS

1. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.5 psia under all storage conditions. [District Rule 4623] Federally Enforceable Through Title V Permit
2. This unit is subject to the AG Dehy Inspection and Testing Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-354-1 **EXPIRATION DATE:** 05/31/2021

EQUIPMENT DESCRIPTION:
1,000 BBL TREATER VESSEL #6 CONNECTED TO VAPOR CONTROL SYSTEMS LISTED ON S-1135-129 AND/OR '-149 (ANDERSON-GOODWIN)

PERMIT UNIT REQUIREMENTS

1. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.5 psia under all storage conditions. [District Rule 4623] Federally Enforceable Through Title V Permit
2. This unit is subject to the AG Dehy Inspection and Testing Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-355-1 **EXPIRATION DATE:** 05/31/2021

EQUIPMENT DESCRIPTION:
1,000 BBL TREATER VESSEL #7 CONNECTED TO VAPOR CONTROL SYSTEMS LISTED ON S-1135-129 AND/OR '-149 (ANDERSON-GOODWIN)

PERMIT UNIT REQUIREMENTS

1. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.5 psia under all storage conditions. [District Rule 4623] Federally Enforceable Through Title V Permit
2. This unit is subject to the AG Dehy Inspection and Testing Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-1135-356-1 **EXPIRATION DATE:** 05/31/2021

EQUIPMENT DESCRIPTION:
1,000 BBL TREATER VESSEL #8 CONNECTED TO THE VAPOR CONTROL SYSTEMS LISTED ON S-1135-129 AND/OR '-149 (ANDERSON-GOODWIN)

PERMIT UNIT REQUIREMENTS

1. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.5 psia under all storage conditions. [District Rule 4623] Federally Enforceable Through Title V Permit
2. This unit is subject to the AG Dehy Inspection and Testing Conditions on Permit S-1135-149. Deviations from a standard condition shall be reported under the applicable condition in S-1135-149. [District Rule 2520] Federally Enforceable Through Title V Permit

APPENDIX E

Draft ERC Certificate S-4783-1

San Joaquin Valley
Air Pollution Control District

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

Emission Reduction Credit Certificate

S-4783-1

DRAFT

ISSUED TO: AERA ENERGY LLC

ISSUED DATE: <DRAFT>

LOCATION OF REDUCTION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

For VOC Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
582 lbs	960 lbs	904 lbs	537 lbs

Method Of Reduction

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

Shut down of two external floating roof crude oil storage tanks

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

Arnaud Marjollet, Director of Permit Services

Feb 24 2017 2:51PM – LEONARDS

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

JUL 13 2017

Robert Beebout
Aera Energy, LLC
PO Box 11164
Bakersfield, CA 93389

RE: Notice of Engineering Evaluation Fees due for Emission Reduction Credit Application

Project Number: S-1144501

Dear Mr. Beebout:

The Air Pollution Control Officer has issued Emission Reduction Credit (ERC) to Aera Energy LLC for emission reductions generated by the shutdown of two floating roof oil storage tanks in western Kern County. The quantity of ERCs to be issued is 2,983 lb-VOC/year.

Enclosed is the invoice for the engineering evaluation fees pursuant to District Rule 3010. Please remit the amount owed, along with a copy of the attached invoice, before the due date. You will be receiving your ERC under separate cover following the publication of the District's final decision on the banking action.

Thank you for your cooperation in this matter. If you have any questions, please contact Stephen Leonard at (661) 392-5605.

Sincerely,

Arnaud Marjollet
Director of Permit Services

for Leonard Scandura, P.E.
Permit Services Manager

AM: spl
Enclosure

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

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

www.valleyair.org www.healthyairliving.com

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

Due Date	Amount Due
8/11/2017	$ 2,515.20

Amount Enclosed

ERCFEE S1144501
1547 S134489 7/12/2017

RETURN THIS TOP PORTION ONLY, WITH REMITTANCE TO:

AERA ENERGY LLC
PO BOX 11164
BAKERSFIELD, CA 93389-1164

SJVAPCD
34946 Flyover Court
Bakersfield, CA 93308

Thank You!

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

Facility ID	Invoice Date	Invoice Number
S1547	7/12/2017	S134489

SJVAPCD Tax ID: 77-0262563

Invoice Type
Project: S1144501

AERA ENERGY LLC
HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

PROJECT NUMBER: 1144501

APPLICATION FILING FEES	$ 759.00
ENGINEERING TIME FEES	$ 2,515.20
TOTAL FEES	$ 3,274.20
LESS PREVIOUSLY PAID PROJECT FEES APPLIED TO THIS INVOICE	($ 759.00)
PROJECT FEES DUE (Enclosed is a detailed statement outlining the fees for each item.)	**$ 2,515.20**

San Joaquin Valley Air Pollution Control District

Invoice Detail

Facility ID: S1547

AERA ENERGY LLC
HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

Invoice Nbr: S134489
Invoice Date: 7/12/2017
Page: 1

Application Filing Fees

Project Nbr	Permit Number	Description	Application Fee
S1144501	S-1547-1144501-0	Emission Reduction Credit Banking Evaluation Fee	$ 759.00
		Total Application Filing Fees:	**$ 759.00**

Engineering Time Fees

Project Nbr	Quantity	Rate	Description	Fee
S1144501	30.6 hours	$ 107.00 /h	Standard Engineering Time	$ 3,274.20
			Less Credit For Application Filing Fees	($ 759.00)
			Standard Engineering Time SubTotal	$ 2,515.20
			Total Engineering Time Fees:	**$ 2,515.20**

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- 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:

Robert Beebout
Aera Energy, LLC
P.O. Box 11164
Bakersfield CA 93389

9590 9402 1834 6104 3540 81

2. Article Number *(Transfer from service label)*

7016 0750 0000 3328 6363

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X [signature] ☐ Agent ☒ Addressee

B. Received by *(Printed Name)* [illegible] C. Date of Delivery [illegible]

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

AUG 0 3 2017

Permits Services
SJVAPCD

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ [illegible]all
- ☐ [illegible]all Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

USPS TRACKING #

9590 9402 1834 6104 3540 81

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

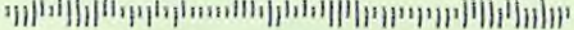
United States Postal Service

DOC Handle #4073017

• Sender: Please print your name, address, and ZIP+4® in this box•

San Joaquin Valley APCD
Diseree Gomez
1990 E Gettysburg Avenue
Fresno, CA 93726

Project # S-1144501



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING

JUL 2 6 2017

Robert Beebout
Aera Energy, LLC
PO Box 11164
Bakersfield, CA 93389

RE: Notice of Final Action – Emission Reduction Credits
Facility Number: S-1547
Project Number: S-1144501

Dear Mr. Beebout:

The Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Aera Energy, LLC for emission reductions generated by the shut down of two oil storage tanks in western Kern County. The quantity of ERCs to be issued is 2,983 lb-VOC/year.

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 May 30, 2017. The District's analysis of the proposal was also sent to CARB and US EPA Region IX on May 30, 2017. No comments were received following the District's preliminary decision on this project.

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

www.valleyair.org www.healthyairliving.com

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Leonard Scandura at (661) 392-5500.

Sincerely,

Arnaud Marjollet
Director of Permit Services

AM:spl

Enclosures

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

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING

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

Emission Reduction Credit Certificate
S-4783-1

ISSUED TO: AERA ENERGY LLC

ISSUED DATE: July 12, 2017

LOCATION OF REDUCTION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

For VOC Reductions In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
582 lbs	960 lbs	904 lbs	537 lbs

Method Of Reduction

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

Shut down of two external floating roof crude oil storage tanks S-1547-223, -639

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

Arnaud Marjollet, Director of Permit Services

Jul 24 2017 3:09PM – GOMEZD

PROJECT ROUTING FORM

FACILITY NAME: Aera Energy LLC

FACILITY ID: S-1547 PROJECT NUMBER: S-1144501

PERMIT #'s: ERC S-4783-1

DATE RECEIVED: December 16, 2014

PRELIMINARY REVIEW	ENGR	DATE	SUPR	DATE
A. Application Deemed Incomplete				
Second Information Letter				
B. Application Deemed Complete				
C. Application Pending Denial				
D. Application Denied				

ENGINEERING EVALUATION	INITIAL	DATE
E. Engineering Evaluation Complete • Project triggering Federal Major Modification: [ ] Yes AND Information entered into database (AirNet) [X] No (not Fed MMod) • District is Lead Agency for CEQA purposes AND the project GHG emissions increase exceeds 230 metric tons/year: [ ] Yes AND Information Entered in database (AirNet) [X] Not Required	SPL	2/24/17
F. Supervising Engineer Approval	[illegible]	2/27/17
G. Compliance Division Approval [X] Not Required		
H. Applicant's Review of Draft Authority to Construct Completed [ ] 3-day Review [ ] 10-day Review [ ] No Review Requested		
I. Permit Services Regional Manager Approval	[illegible]	2/27/17

DIRECTOR REVIEW [ ] Not Required	INITIAL	DATE
J. Preliminary Approval to Director		
K. Final Approval to Director		

RECEIVED
DEC 16 2014
SJVAPCD
Southern Region

December 10, 2014

Mr. Leonard Scandura
Regional Manager, Permit Services
San Joaquin Valley
Air Pollution Control District
34946 Flyover Court
Bakersfield, CA 93308

Subject: Emission Reduction Credits – Floating Roof tanks at Wier Dehydration Facility

Dear Mr. Scandura:

Aera Energy LLC (Aera) at Midway Sunset is in the process of surrendering the permits for two (2) floating roof tanks at the Wier lease.

Attached are summaries of the throughput for each of the two tanks by calendar quarter for the time period of September 1, 2012 thru August 31, 2014, and estimation of the emissions available for banking (TANKS 4.0.9d). Also attached are the completed application form and a check for $759 to cover the filing fee.

Should you have any questions concerning this application or require additional information, please do not hesitate to contact me at (661) 665-3212 or via e-mail at rmbeebout@aeraenergy.com.

Sincerely,

Robert M Beebout

Robert M. Beebout
Environmental Advisor – Midway Sunset

Enclosure

Wier Floating Roof tanks (9/1/2012 - 8/31/2014)

Quarter/Year	Volume (bbls)		Comments
	T-223	T-639	
3rd Qtr 2012	692.20	35,729	July & August only
4th Qtr 2012	457.79	99,159	
1st Qtr 2013	1.45	92,054	
2nd Qtr 2013	0.00	93,845	
3rd Qtr 2013	1,203.26	106,517	
4th Qtr 2013	649.63	88,419	
1st Qtr 2014	589.15	80,050	
2nd Qtr 2014	2,402.59	75,304	
3rd Qtr 2014	0.00	11,968	September only

RECEIVED
DEC 16 2014
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 - 1547 (if known)

2. MAILING ADDRESS: Street/P.O. Box: P.O. Box 10000

City: Bakersfield State: CA Zip Code: 93389

3. LOCATION OF REDUCTION:
Street:
City:
/4 SECTION 22 TOWNSHIP 31S RANGE 22E

4. DATE OF REDUCTION:

5. PERMIT NO(S): S-1547-223 and '-639 EXISTING ERC NO(S):

6. METHOD RESULTING IN EMISSION REDUCTION:

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

DESCRIPTION:

The Wier dehydration facility was taken out of service, so both floating roof tanks were shutdown, drained and cleaned; their Permit(s) to Operate will soon be surrendered; and, both tanks will be demolished.

(Use additional sheets if necessary)

7. REQUESTED ERCs: (In pounds per calendar quarter except CO_2e)

	VOC	NOx	CO	PM_{10}	SOx	Other
1st Qtr	153					
2nd Qtr	153					
3rd Qtr	153					
4th Qtr	153					

CO_2e [ ] metric ton/yr

8. SIGNATURE OF APPLICANT: Robert M Beebout

TYPE OR PRINT TITLE OF APPLICANT: Environmental Advisor

9. TYPE OR PRINT NAME OF APPLICANT: Robert M. Beebout

DATE: Dec 15, 2014

PHONE #: 661-665-3212
CELL PHONE #: 661-201-7304
FAX #:
E-MAIL: rmbeebout@aeraenergy.com

FOR APCD USE ONLY: Aera Energy LLC

DATE STAMP

FILING FEE RECEIVED: $ 759.00 CK# 500041

DATE PAID: PM 12/16/14

PROJECT NO.: S-1144501 FACILITY ID.: S-1547

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	S-1547-223
City:	Bakersfield
State:	California
Company:	Aera Energy LLC
Type of Tank:	External Floating Roof Tank
Description:	Wier Floating Roof Tank T-223

Tank Dimensions

Diameter (ft):	70.00
Volume (gallons):	1,260,000.00
Turnovers:	0.10

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	White/White
Shell Condition	Good

Roof Characteristics

Type:	Pontoon
Fitting Category	Typical

Tank Construction and Rim-Seal System

Construction:	Welded
Primary Seal:	Mechanical Shoe
Secondary Seal	Rim-mounted

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

S-1547-223 - External Floating Roof Tank
Bakersfield, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Heavy Crude Oil	Jan	58.62	54.46	62.78	65.42	0.2880	N/A	N/A	60.0000			207.00	
Heavy Crude Oil	Feb	61.49	56.39	66.58	65.42	0.2880	N/A	N/A	60.0000			207.00	
Heavy Crude Oil	Mar	63.85	57.94	69.77	65.42	0.2880	N/A	N/A	60.0000			207.00	
Heavy Crude Oil	Apr	66.98	60.01	73.95	65.42	0.2880	N/A	N/A	60.0000			207.00	
Heavy Crude Oil	May	71.00	63.30	78.70	65.42	0.2880	N/A	N/A	60.0000			207.00	
Heavy Crude Oil	Jun	74.47	66.32	82.63	65.42	0.2880	N/A	N/A	60.0000			207.00	
Heavy Crude Oil	Jul	77.01	68.80	85.22	65.42	0.2880	N/A	N/A	60.0000			207.00	
Heavy Crude Oil	Aug	76.03	68.25	83.81	65.42	0.2880	N/A	N/A	60.0000			207.00	
Heavy Crude Oil	Sep	72.96	65.93	79.98	65.42	0.2880	N/A	N/A	60.0000			207.00	
Heavy Crude Oil	Oct	68.33	62.00	74.66	65.42	0.2880	N/A	N/A	60.0000			207.00	
Heavy Crude Oil	Nov	62.38	57.33	67.44	65.42	0.2880	N/A	N/A	60.0000			207.00	
Heavy Crude Oil	Dec	58.39	54.32	62.46	65.42	0.2880	N/A	N/A	60.0000			207.00	

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

S-1547-223 - External Floating Roof Tank
Bakersfield, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Rim Seal Losses (lb):	1.8856	2.0545	2.2515	2.4203	2.6455	2.6455	2.4485	2.3359	2.1670	1.9700	1.8575	1.8293
Seal Factor A (lb-mole/ft-yr):	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000
Average Wind Speed (mph):	5.2000	5.8000	6.5000	7.1000	7.9000	7.9000	7.2000	6.8000	6.2000	5.5000	5.1000	5.0000
Seal-related Wind Speed Exponent:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Value of Vapor Pressure Function:	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.2880	0.2880	0.2880	0.2880	0.2880	0.2880	0.2880	0.2880	0.2880	0.2880	0.2880	0.2880
Tank Diameter (ft):	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000
Vapor Molecular Weight (lb/lb-mole):	60.0000	60.0000	60.0000	60.0000	60.0000	60.0000	60.0000	60.0000	60.0000	60.0000	60.0000	60.0000
Product Factor:	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000
Withdrawal Losses (lb):	0.1680	0.1680	0.1680	0.1680	0.1680	0.1680	0.1680	0.1680	0.1680	0.1680	0.1680	0.1680
Net Throughput (gal/mo.):	10,493.0000	10,493.0000	10,493.0000	10,493.0000	10,493.0000	10,493.0000	10,493.0000	10,493.0000	10,493.0000	10,493.0000	10,493.0000	10,493.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060
Average Organic Liquid Density (lb/gal):	8.3200	8.3200	8.3200	8.3200	8.3200	8.3200	8.3200	8.3200	8.3200	8.3200	8.3200	8.3200
Tank Diameter (ft):	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000
Roof Fitting Losses (lb):	10.5633	12.1341	14.0477	15.7533	18.1155	18.1155	16.0431	14.8932	13.2173	11.3404	10.3081	10.0548
Value of Vapor Pressure Function:	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Vapor Molecular Weight (lb/lb-mole):	60.0000	60.0000	60.0000	60.0000	60.0000	60.0000	60.0000	60.0000	60.0000	60.0000	60.0000	60.0000
Product Factor:	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	1,050.9523	1,207.2274	1,397.6136	1,567.2997	1,802.3212	1,802.3212	1,596.1398	1,481.7296	1,314.9915	1,128.2642	1,025.5582	1,000.3560
Average Wind Speed (mph):	5.2000	5.8000	6.5000	7.1000	7.9000	7.9000	7.2000	6.8000	6.2000	5.5000	5.1000	5.0000
Total Losses (lb):	12.6170	14.3566	16.4672	18.3416	20.9290	20.9290	18.6596	17.3971	15.5523	13.4785	12.3336	12.0521

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	0.1930
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	5.0553
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	1.3358
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1	31.00	150.00	1.40	150.8815
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1	0.47	0.02	0.97	0.0669
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13	2.00	0.37	0.91	5.3891
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9	0.82	0.53	0.14	1.5981
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1	0.71	0.10	1.00	0.1393

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

S-1547-223 - External Floating Roof Tank
Bakersfield, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Heavy Crude Oil	26.51	2.02	164.59	0.00	193.11

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	S-1547-639
City:	Bakersfield
State:	California
Company:	Aera Energy LLC
Type of Tank:	External Floating Roof Tank
Description:	Wier Floating Roof Tank T-639

Tank Dimensions

Diameter (ft):	70.00
Volume (gallons):	1,260,000.00
Turnovers:	11.38

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	White/White
Shell Condition	Good

Roof Characteristics

Type:	Pontoon
Fitting Category	Typical

Tank Construction and Rim-Seal System

Construction:	Welded
Primary Seal:	Mechanical Shoe
Secondary Seal	Rim-mounted

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

S-1547-639 - External Floating Roof Tank
Bakersfield, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Crude oil	All	67.63	61.25	74.00	65.42	0.2880	N/A	N/A	60.0000			0.00	

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

S-1547-639 - External Floating Roof Tank
Bakersfield, California

Annual Emission Calcaulations	
Rim Seal Losses (lb):	26.5111
Seal Factor A (lb-mole/ft-yr):	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000
Average Wind Speed (mph):	6.3500
Seal-related Wind Speed Exponent:	1.0000
Value of Vapor Pressure Function:	0.0050
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.2880
Tank Diameter (ft):	70.0000
Vapor Molecular Weight (lb/lb-mole):	60.0000
Product Factor:	0.4000
Withdrawal Losses (lb):	229.6717
Annual Net Throughput (gal/yr.):	14,343,945.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0060
Average Organic Liquid Density (lb/gal):	8.3200
Tank Diameter (ft):	70.0000
Roof Fitting Losses (lb):	163.5669
Value of Vapor Pressure Function:	0.0050
Vapor Molecular Weight (lb/lb-mole):	60.0000
Product Factor:	0.4000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	1,356.1132
Average Wind Speed (mph):	6.3500
Total Losses (lb):	419.7497

		Roof Fitting Loss Factors			
Roof Fitting/Status	Quantity	KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	0.1930
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	5.0495
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	1.3361
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1	31.00	150.00	1.40	149.7923
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1	0.47	0.02	0.97	0.0669
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13	2.00	0.37	0.91	5.3908
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9	0.82	0.53	0.14	1.5991
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1	0.71	0.10	1.00	0.1392

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

S-1547-639 - External Floating Roof Tank
Bakersfield, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Crude oil	26.51	229.67	163.57	0.00	419.75