



San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT



MAY 16 2017

Mr. John Haley
Aera Energy LLC
PO Box 11164
Bakersfield, CA 93389

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-1547
Project # 1170828**

Dear Mr. Haley:

Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. You requested that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The project authorizes modification of nine tanks.

After addressing all comments made during the 30-day public notice and the 45-day EPA comment periods, the District intends to issue the Authorities to Construct with Certificates of Conformity. Please submit your comments within the 30-day public comment period, as specified in the enclosed public notice. Prior to operating with modifications authorized by the Authorities to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

If you have any questions, please contact Mr. Leonard Scandura, Permit Services Manager, at (661) 392-5500.

Thank you for your cooperation in this matter.

Sincerely,


Arnaud Marjollet
Director of Permit Services

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

Authority to Construct Application Review

Facility Name: Aera Energy LLC

Date: April 3, 2017

Mailing Address: PO Box 11164
Bakersfield, CA 93389

Engineer: Richard Edgehill
Lead Engineer: Richard Karrs

Contact Person: John Haley

Telephone: (661) 665-5279

Application #(s): S-1547-643-21, '-644-10, '-645-10, '-647-10 thru '-649-10, '-652-10, '-653-10, '-654-11

Project #: 1170828

Deemed Complete: March 24, 2017

I. Proposal

Aera Energy LLC (Aera) is applying for Authorities to Construct (ATCs) to allow tanks and the tank vapor control system (VCS) at the Wier Dehydration facility to be idle. The Wier facility is currently serving as a standby operation and will be used only in the event that the primary facility receiving oil production in the area is inoperable. Applicant has stated that maintenance of the tanks and vapor control system, when not processing oil, is unnecessary and costly.

When idle, and not connected to the VCS, there will be no oil throughput to the tanks and VOC emissions will consist on only standing losses from low vapor pressure oil (< 0.05 psia).

However, the uncontrolled emissions from the tanks without VCS are considered new emissions for the Federal Major Modification calculation in contrast to pre-project fugitive emissions which are not included on this calculation. Therefore, the project is a Federal Major Modification.

BACT and public notice are required. Offsets are not required.

Aera S-1547 operates under a Title V PTO. The project is a Federal Major Modification and therefore it is classified as a Title V Significant Modification pursuant to Rule 2520, Section 3.20, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. Aera must apply to administratively amend their Title V Operating Permit to include the requirements of the ATC(s) issued with this project.

Current PTOs S-1547-643-21, '-644-10, '-645-10, '-647-10 thru '-649-10, '-652-10, '-653-10, '-654-11 are included in **Attachment I**.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (2/18/16)
Rule 2520 Federally Mandated Operating Permits (6/21/01)
Rule 2530 Federally Enforceable Potential to Emit
Rule 2410 Prevention of Significant Deterioration (Adopted 6/16/11, effective 11/26/12)
Rule 4001 New Source Performance Standards,

Subpart Kb (Amended 4/14/99) - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) Is not applicable. This subpart does not apply to vessels with a design capacity $\leq 1,589.874 \text{ m}^3$ ($\leq 420,000$ gallons) used for petroleum or condensate stored, processed, or treated prior to custody transfer. The capacity of these tanks is $\leq 420,000$ gallons, and they store crude oil prior to custody transfer; therefore, this subpart does not apply to the tanks in this project.

Subpart OOOO (Adopted 8/16/2012) - Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution.

Rule 4101 Visible Emissions (04/20/05)
Rule 4102 Nuisance (12/17/92)
Rule 4623 Storage of Organic Liquids (05/19/05)
CH&SC 41700 Health Risk Assessment
CH&SC 42301.6 School Notice
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. Project Location

The facility is located at SW Section 22, T 31S, R 22E in Aera's heavy oil western stationary source. The facility is not located within 1,000 feet of the outer boundary of any K-12 school. Therefore, pursuant to CH&SC 42301.6, California Health and Safety Code (School Notice), public notification is not required.

IV. Process Description

The tanks and vessels at the tank battery receive production prior to custody transfer. VOC emissions from the tanks are currently controlled by a shared vapor control system in accordance with current permit conditions. The vapor control system collects vapors from the tanks for disposal in DOGGR well(s) as stated in the following current S-1547-643 PTO conditions:

12. *Vapor disposal shall be limited to injection into the formation. [District Rule 2201] Y*
13. *Disposal of tank vapor by injection into the formation shall only be performed using DOGGR approved wells. [District Rule 2201] Y*

Proposed Modifications

The tanks and VCS will be allowed to be idle. When idle, the tvp of the oil stored will be limited to 0.05 psia, there will be no throughput, and VOC emissions will be low. No equipment changes are required to idle the tanks and VCS.

Fluids will be diverted into the tanks only in the event of a severe upset that would necessitate activating additional storage. The VCS must be restarted prior to introducing fluids into the tank.

Note that Aera has stated that the option to remove the oil (tank cleaning) and to designate the tanks as Dormant Emissions Units (DEUs) has high costs (3/15/17 email) and therefore is not a viable option

The following conditions will be added to the ATC which are applicable under both proposed modes of operation 1), when the tanks are made idle and 2), when they are reactivated

3. *When tank and vapor control system are idle (non-operational) oil inlet valve to tank shall remain closed. [District Rules 2080 and 2201] Y*
4. *Permittee shall submit written notification to the District upon designating the tank as idle or operational. [District Rules 2080 and 2201] Y*
5. *When tank and VCS are idle, the tank shall vent through a PV relief valve set to within 10% of maximum allowable pressure of the tank, no oil shall be introduced into tank, and the TVP of residual (standing) oil shall not exceed 0.05 psia. Prior to introducing crude oil or produced water, the VCS must be reactivated and shall have a VOC control efficiency of at least 99%. [District Rules 2201 and 4623] Y*

6. *When tank and vapor control system are idle, only biennial true vapor pressure measurements shall be taken. No additional monitoring and recordkeeping is required. [District Rules 2201 and 4623] Y*
7. *When tank and vapor control system are idle, VOC emission rate from the tank shall not exceed 0.2 lb/day. [District Rule 2201] Y*
8. *Records of tank throughput when idle, all dates and times that this unit is idle and operational, and copies of all corresponding notices to the District, shall be maintained, retained for a period of at least five years, and made available for District inspection upon request. [District Rule 1070] Y*

V. Equipment Listing

Pre-Project Equipment Description:

- S-1547-643-16: 5,000 BBL (210,000 GAL) FIXED ROOF CRUDE OIL SURGE TANK T-410, 38.6 FT DIAMETER X 25 FT HIGH, WITH SHARED VAPOR CONTROL SYSTEM BETWEEN S-1547-643 TO '-645, '-647 TO '-649, AND '-652 TO '-654 (WIER CDF)
- S-1547-644-8: 2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL STOCK TANK T-420, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)
- S-1547-645-8: 2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL CLARIFIER TANK T-430, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)
- S-1547-647-8: 5,000 BBL (210,000 GALLON) FIXED ROOF, 38.6 FT. DIAMETER X 24 FT. HIGH, CRUDE OIL SURGE TANK T-460, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)
- S-1547-648-8: 2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL STOCK TANK T-470, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)
- S-1547-649-8: 2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL CLARIFIER TANK T-480, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

- S-1547-652-8: 5,000 BBL (210,000 GALLON) FIXED ROOF, 38.6 FT. DIAMETER X 24. FT. HIGH, CRUDE OIL SKIM TANK T-600, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)
- S-1547-653-8: 500 BBL (21,000 GALLON) FIXED ROOF, 15.3 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL SLOP TANK T-610, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)
- S-1547-654-9: 500 BBL (21,000 GALLON) FIXED ROOF, 21.5 FT. DIAMETER X 8 FT. HIGH, CRUDE OIL DRAIN TANK T-700, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

Proposed Modification:

- S-1547-643-21: MODIFICATION OF 5,000 BBL (210,000 GAL) FIXED ROOF CRUDE OIL SURGE TANK T-410, 38.6 FT DIAMETER X 25 FT HIGH, WITH SHARED VAPOR CONTROL SYSTEM BETWEEN S-1547-643 TO '-645, '-647 TO '-649, AND '-652 TO '-654 (WIER CDF) : ADD PROVISIONS TO IDLE TANKS AND VAPOR CONTROL SYSTEM
- S-1547-644-10: MODIFICATION OF 2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL STOCK TANK T-420, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF) : ADD PROVISIONS TO IDLE TANKS AND VAPOR CONTROL SYSTEM
- S-1547-645-10: MODIFICATION OF 2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL CLARIFIER TANK T-430, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF) : ADD PROVISIONS TO IDLE TANKS AND VAPOR CONTROL SYSTEM
- S-1547-647-10: MODIFICATION OF 5,000 BBL (210,000 GALLON) FIXED ROOF, 38.6 FT. DIAMETER X 24 FT. HIGH, CRUDE OIL SURGE TANK T-460, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF) : ADD PROVISIONS TO IDLE TANKS AND VAPOR CONTROL SYSTEM
- S-1547-648-10: MODIFICATION OF 2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL STOCK TANK T-470, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643

TO -645, -647 TO -649, & -652 TO -654 (WIER CDF) : ADD
PROVISIONS TO IDLE TANKS AND VAPOR CONTROL SYSTEM

S-1547-649-10: MODIFICATION OF 2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL CLARIFIER TANK T-480, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF) : ADD PROVISIONS TO IDLE TANKS AND VAPOR CONTROL SYSTEM

S-1547-652-10: MODIFICATION OF 5,000 BBL (210,000 GALLON) FIXED ROOF, 38.6 FT. DIAMETER X 24. FT. HIGH, CRUDE OIL SKIM TANK T-600, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF) : ADD PROVISIONS TO IDLE TANKS AND VAPOR CONTROL SYSTEM

S-1547-653-10: MODIFICATION OF 500 BBL (21,000 GALLON) FIXED ROOF, 15.3 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL SLOP TANK T-610, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF) : ADD PROVISIONS TO IDLE TANKS AND VAPOR CONTROL SYSTEM

S-1547-654-11: MODIFICATION OF 500 BBL (21,000 GALLON) FIXED ROOF, 21.5 FT. DIAMETER X 8 FT. HIGH, CRUDE OIL DRAIN TANK T-700, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF) : ADD PROVISIONS TO IDLE TANKS AND VAPOR CONTROL SYSTEM

Post Project Equipment Description:

S-1547-643-21: 5,000 BBL (210,000 GAL) FIXED ROOF CRUDE OIL SURGE TANK T-410, 38.6 FT DIAMETER X 25 FT HIGH, WITH SHARED VAPOR CONTROL SYSTEM BETWEEN S-1547-643 TO '-645, '-647 TO '-649, AND '-652 TO '-654 (WIER CDF)

S-1547-644-10: 2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL STOCK TANK T-420, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

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S-1547-648-10: 2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL STOCK TANK T-470, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

S-1547-649-10: 2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL CLARIFIER TANK T-480, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

S-1547-652-10: 5,000 BBL (210,000 GALLON) FIXED ROOF, 38.6 FT. DIAMETER X 24. FT. HIGH, CRUDE OIL SKIM TANK T-600, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

S-1547-653-10: 500 BBL (21,000 GALLON) FIXED ROOF, 15.3 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL SLOP TANK T-610, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

S-1547-654-11: 500 BBL (21,000 GALLON) FIXED ROOF, 21.5 FT. DIAMETER X 8 FT. HIGH, CRUDE OIL DRAIN TANK T-700, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

VI. Emission Control Technology Evaluation

When idle, the tank(s) will be equipped with a pressure-vacuum (PV) relief vent valve set to within 10% of the maximum allowable working pressure of the tank. The PV-valve will reduce VOC wind induced emissions from the tank vent.

VII. General Calculations

A. Assumptions

- Facility will operate 24 hours per day, 7 days per week, and 52 weeks per year.
- The tanks emit only volatile organic compounds (VOCs),
- Post-project emissions are calculated assuming the tanks and VCS are active as this represents worst case or highest emissions.
- Emissions from the tanks when idle are calculated assuming 365 days/yr with a TVP not exceeding 0.05 psia (see attached laboratory results (**Attachment II**))

and are used as the "new emissions" in the Federal Major Modification calculation.

- When the tanks and VCS are idle (no throughput), there are no working or flashing loss emissions of VOCs.
- Tank temperature, 78° F (unheated)

B. Emission Factors

Pre-Project

Emissions are calculated using the EPA's "Protocol for Equipment Leak Emission Estimate," Table 2-4, Oil and Gas Production Operations Average Emission Factors.

Post-Project

Both the daily and annual PE's for each permit unit will be based on the results from the District's Microsoft Excel spreadsheets for Tank Emissions - Fixed Roof Crude Oil less than 26° API located in **Attachment III**.

C. Calculations

1. Pre-Project Potential to Emit, (PE₁)

Permit unit	VOC - Daily PE1 (lb/day)*	VOC- Annual PE1 (lb/Year)**
S-1547-643	12.9	4,709
S-1547-644	1.6	584
S-1547-645	3.1	1,132
S-1547-647	2.6	949
S-1547-648	2.6	949
S-1547-649	3.2	1,168
S-1547-652	3.2	1,168
S-1547-653	3.2	1,168
S-1547-654	3.2	1,168
Total		12,995

*Current PTO DEL

** Current PTO DEL x 365

2. Post Project Potential to Emit, (PE₂)

The following table summarizes the post-project potential to emit for units included in this project (**Attachment III**).

Operation with Vapor Control (Area Source Emissions)

Permit unit	VOC - Daily PE2 (lb/day)*	VOC- Annual PE2 (lb/Year)**
S-1547-643	12.9	4,709
S-1547-644	1.6	584
S-1547-645	3.1	1,132
S-1547-647	2.6	949
S-1547-648	2.6	949
S-1547-649	3.2	1,168
S-1547-652	3.2	1,168
S-1547-653	3.2	1,168
S-1547-654	3.2	1,168
Total		12,995

Idle Operation (Point Source Emissions)

Permit unit	VOC - Daily PE2 (lb/day)*	VOC- Annual PE2 (lb/Year)**
S-1547-643	2	730
S-1547-644	0.7	249
S-1547-645	0.7	249
S-1547-647	1.9	698
S-1547-648	0.7	249
S-1547-649	0.7	249
S-1547-652	1.9	698
S-1547-653	0.2	61
S-1547-654	0.2	75
Total		3,258

$$\begin{aligned}\text{SSPE (VOCs)} &= 12,995 - 12,995 \\ &= 0 \text{ lb VOCs/yr}\end{aligned}$$

Emissions profiles are included in **Attachment IV**.

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

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

Applicant stipulates that the pre-project, facility-wide VOC emissions exceed both the offset threshold for VOC's (20,000 lb VOC/ yr) and the Major Source threshold for VOC's (20,000 lb VOC/ yr). No other pollutants are emitted by this project; therefore, SSPE1 calculations for these pollutants are not necessary.

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

Pursuant to District Rule 2201, the SSPE2 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

As noted above, the applicant is an existing Major Source for VOC's, and the facility-wide VOC emissions already exceed the offset threshold for VOC's. The Applicant is therefore not becoming a Major Source for VOC's as a result of this project. No other pollutants are emitted by this project; therefore, no SSPE2 calculations for these pollutants are necessary.

5. Major Source Determination

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

Rule 2201 Major Source Determination (lb/year)						
	NO_x	SO_x	PM₁₀	PM_{2.5}	CO	VOC
SSPE1*	2,439,273	2,638,685	1,768,003	1,768,003	4,951,217	3,769,230
SSPE2	2,439,273	2,638,685	1,768,003	1,768,003	4,951,217	3,769,230
Major Source Threshold	20,000	140,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	No	Yes	Yes

Note: PM2.5 assumed to be equal to PM10
*3/25/17, District SSPE Calculator

Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(iii). Therefore the PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

PSD Major Source Determination (tons/year)						
	NO₂	VOC	SO₂	CO	PM	PM₁₀
Estimated Facility PE before Project Increase	1220					
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ? (Y/N)	Y					

As shown above, the facility is an existing PSD major source for at least one pollutant.

6. Baseline Emissions (BE)

a. Annual BE

The BE calculation (in lbs/year) is performed pollutant-by-pollutant for each unit within the project to calculate the QNEC, and if applicable, to determine the amount of offsets required.

BE = Pre-project Potential to Emit for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, Located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.23

Since tanks S-1547-643,'-644,'-645,'-647 thru '-649, and '-652 thru '-654 have a vapor control system capable of reducing VOCs by at least 95% by wt, they are considered Clean Emissions Units.

Therefore, the BE is equal to the pre-project potential to emit (PE1).

7. SB 288 Major Modification

Since this facility is a major source for NO_x and VOCs, the project's PE2 is compared to the SB 288 Major Modification Thresholds in the following table in order to determine if the SB 288 Major Modification calculation is required.

SB 288 Major Modification Thresholds			
Pollutant	Project PE2 (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
NO _x	0	50,000	No
SO _x	0	80,000	No
PM ₁₀	0	30,000	No
VOC	12,995	50,000	No

NA is not applicable

8. Federal Major Modification

District Rule 2201 states that a Federal Major Modification is the same as a "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

The determination of Federal Major Modification is based on a two-step test. For the first step, only the emission *increases* are counted. Emission decreases may not cancel out the increases for this determination.

For new non-fugitive emissions from the subject tanks, the increase in emissions is equal to the PE2 (idle emissions) for each tank included in this project.

The project's combined total emission increases are compared to the Federal Major Modification Thresholds in the following table.

Federal Major Modification Thresholds for Emission Increases			
Pollutant	Total Emissions Increases (lb/yr)	Thresholds (lb/yr)	Federal Major Modification?
NO _x	0	0	No
VOC	3,258*	0	Yes
PM ₁₀	0	30,000	No
SO _x	0	80,000	No

*New point source emissions

Since there are new VOC emissions associated with non-operation of the vapor control system, this project constitutes a Federal Major Modification and no further analysis is required.

Federal Offset Quantities:

The Federal offset quantity is calculated only for the pollutants for which the project is a Federal Major Modification. The Federal offset quantity is the sum of the annual emission changes for all new and modified emission units in a project calculated as the potential to emit after the modification (PE2) minus the actual emissions (AE) during the baseline period for each emission unit times the applicable federal offset ratio. There are no special calculations performed for units covered by an SLC.

Only pollutants for which the project is a Federal Major Modification have Federal offset quantities. The calculated Federal offset quantity, listed in the table below, is entered into the Major Modification tracking spreadsheet under the heading "Federal Offset Quantity"

VOCs		Federal Offset Ratio	1.5
Permit No.	Actual Emissions (lb/year)	Potential Emissions (lb/year)	Emissions Change (lb/yr)
S-1547-643, '-644, '-645, '-647 thru '-649, and '-652 thru '-654	0	3,258	3,258
Net Emission Change (lb/year):			3,258
Federal Offset Quantity: (NEC * 1.5)			4,887

9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The pollutants which must be addressed in the PSD applicability determination for sources located in the SJV and which are emitted in this project are: (See 52.21 (b) (23) definition of significant)

- Hydrogen sulfide (H₂S)
- Total reduced sulfur (including H₂S)
- Reduced sulfur compounds

I. Project Location Relative to Class 1 Area

As demonstrated in the “PSD Major Source Determination” Section above, the facility was determined to be a existing PSD Major Source. Because the project is not located within 10 km (6.2 miles) of a Class 1 area – modeling of the emission increase is not required to determine if the project is subject to the requirements of Rule 2410.

II. Project Emission Increase – Significance Determination

a. Evaluation of Calculated Post-project Potential to Emit for New or Modified Emissions Units vs PSD Significant Emission Increase Thresholds

As a screening tool, the post-project potential to emit from all new and modified units is compared to the PSD significant emission increase thresholds, and if the total potentials to emit from all new and modified units are below the applicable thresholds, no further PSD analysis is needed.

PSD Significant Emission Increase Determination: Potential to Emit (tons/year)					
	NO ₂	SO ₂	CO	PM	PM ₁₀
Total PE from New and Modified Units	0	0	0	0	0
PSD Significant Emission Increase Thresholds	40	40	100	25	15
PSD Significant Emission Increase?	N	N	N	N	N

As demonstrated above, because the post-project total potentials to emit from all new and modified emission units are below the PSD significant emission increase thresholds, this project is not subject to the requirements of Rule 2410 and no further discussion is required.

10. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated to establish emissions that are used to complete the District's PAS emissions profile screen. The QNEC shall be calculated as follows:

$QNEC = PE2 - PE1$, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.

PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.

PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

Using the values in Sections VII.C.2 and VII.C.6 in the evaluation above, quarterly PE2 and quarterly PE1 are shown below.

	VOC PE2 (lb/yr)	VOC PE1 (lb/yr)	VOC QNEC (lb/qtr)
S-1547-643	4,709	4,709	0
S-1547-644	584	584	0
S-1547-645	1,132	1,132	0
S-1547-647	949	949	0
S-1547-648	949	949	0
S-1547-649	1,168	1,168	0
S-1547-652	1,168	1,168	0
S-1547-653	1,168	1,168	0
S-1547-654	1,168	1,168	0

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

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

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

As discussed in Section I above, there are no new emissions units associated with this project. Therefore BACT for new units with PE > 2 lb/day purposes is not triggered.

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

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

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

$$\text{AIPE} = \text{PE2} - \text{HAPE}$$

Where,

AIPE = Adjusted Increase in Permitted Emissions, (lb/day)

PE2 = Post-Project Potential to Emit, (lb/day)

HAPE = Historically Adjusted Potential to Emit, (lb/day)

$$\text{HAPE} = \text{PE1} \times (\text{EF2}/\text{EF1})$$

Where,

PE1 = The emissions unit's PE prior to modification or relocation, (lb/day)

EF2 = The emissions unit's permitted emission factor for the pollutant after modification or relocation. If EF2 is greater than EF1 then EF2/EF1 shall be set to 1

EF1 = The emissions unit's permitted emission factor for the pollutant before the modification or relocation

$$\text{AIPE} = \text{PE2} - (\text{PE1} * (\text{EF2} / \text{EF1}))$$

EF1 = 0.05 (95% Control), EF2 = 0.9 (10% control w/PV vent)

EF2/EF1 = 1

For all of the project emissions units PE2 < PE1 and therefore AIPE is < 0.

As demonstrated above, the AIPE is not greater than 2.0 lb/day for VOCs. Therefore BACT is not triggered for modification purposes.

d. SB 288/Federal Major Modification

As discussed in Sections VII.C.7 and VII.C.8 above, this project does constitute a Federal Major Modification for VOC emissions. Therefore BACT is triggered for VOC for all emissions units in the project for which there is an emission increase.

2. BACT Guideline

There is not an existing BACT Guideline for temporary disconnection of tank and VCS when in standby mode. The BACT analysis will be based on the BACT Guidelines for fixed roof tanks which are BACT Guidelines 7.3.1 and 7.3.2 (see **Attachment V**).

3. Top-Down BACT Analysis

Pursuant to the attached Top-Down BACT Analysis (see **Attachment VI**), BACT has been satisfied with the following:

S-1547-643, '-644, '-645, '-647 thru '-649, and '-652 thru '-654

VOC:

When tanks and VCS are idle (non-operational), the tanks shall vent through a PV relief valve set to within 10% of maximum allowable pressure of the tank, no oil shall be introduced into tank and and TVP of residual (standing) oil shall not exceed 0.05 psia. Prior to introducing crude oil or produced water, VCS must be reactivated and shall have a VOC control efficiency of at least 99%.

When tanks and VCS are idle, the monitoring and recordkeeping requirements specified in this permit do not apply except for the following: biennial true vapor pressure measurements and records shall continue and the permittee shall maintain daily records of tank

throughput and records of whether tank served by vapor recovery system.

B. Offsets

1. Offset Applicability

Offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The SSPE2 is compared to the offset thresholds in the following table.

Offset Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE2					>20,000
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets calculations required?	No	No	No	No	Yes

2. Quantity of Offsets Required

As seen above, the facility is an existing Major Source for VOCs and the SSPE2 is greater than the offset thresholds. Therefore offset calculations will be required for this project.

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

Offsets Required (lb/year) = $(\Sigma[PE2 - BE] + ICCE) \times DOR$, for all new or modified emissions units in the project,

Where,

PE2 = Post Project Potential to Emit, (lb/year)

BE = Baseline Emissions, (lb/year)

ICCE = Increase in Cargo Carrier Emissions, (lb/year)

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = PE1 for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,

- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, Located at a Major Source.

otherwise,

$$BE = HAE$$

As calculated in Section VII.C.6 above, the BEs from these units are equal to the PE1 since the units are Clean Emissions Units.

Also, there are no increases in cargo carrier emissions. Therefore offsets can be determined as follows:

$$\text{Offsets Required (lb/year)} = ([PE2 - BE] + ICCE) \times DOR$$

$$\begin{aligned}\Sigma PE2 \text{ (VOCs)} &= 12,995 \text{ lb/year} \\ \Sigma BE \text{ (VOCs)} &= 12,995 \text{ lb/year} \\ ICCE &= 0 \text{ lb/year}\end{aligned}$$

$$\begin{aligned}\text{Offsets Required (lb/year)} &= ([12,995 - 12,995] + 0) \times DOR \\ &= 0 \text{ lb VOC/year}\end{aligned}$$

As demonstrated in the calculation above, the amount of offsets is zero. Therefore, offsets will not be required for this project.

C. Public Notification

1. Applicability

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed,
- d. Any project with an SSPE of greater than 20,000 lb/year for any pollutant, and/or
- e. Any project which results in a Title V significant permit modification

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications

New Major Sources are new facilities, which are also Major Sources. As shown in Section VII.C.5 above, the SSPE2 is not greater than the Major

Source threshold for any pollutant. Therefore, public noticing is not required for this project for new Major Source purposes.

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

As demonstrated in Sections VII.C.7 and VII.C.8, this project is a Federal Major Modification. Therefore, public noticing for SB 288 or Federal Major Modification purposes is required.

b. PE > 100 lb/day

Applications which include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. There are no new emissions units associated with this project. Therefore public noticing is not required for this project for PE > 100 lb/day.

c. Offset Threshold

The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	>20,000	>20,000	20,000 lb/year	No
SO _x	>54,750	>54,750	54,750 lb/year	No
PM ₁₀	>29,200	>29,200	29,200 lb/year	No
CO	>200,000	>200,000	200,000 lb/year	No
VOC	>20,000	>20,000	20,000 lb/year	No

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

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	>20,000	>20,000	0	20,000 lb/year	No
SO _x	>54,750	>54,750	0	20,000 lb/year	No
PM ₁₀	>29,200	>29,200	0	20,000 lb/year	No
CO	>200,000	>200,000	0	20,000 lb/year	No
VOC	>20,000	>20,000	0	20,000 lb/year	No

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

e. Title V Significant Permit Modification

As shown in the Discussion of Rule 2520 below, this project constitutes a Title V significant modification. Therefore, public noticing for Title V significant modifications is required for this project.

2. Public Notice Action

As discussed above, public noticing is required for this project for NO_x emissions in excess of 100 lb/day. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. The DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

Proposed Rule 2201 (DEL) Conditions:

The new condition added to the ATCs is as follows.

S-1547-643 (example)

- VOC emission rate from the tank when idle shall not exceed 2.0 lb/day. [District Rule 2201]

E. Compliance Assurance

1. Source Testing

Pursuant to District Policy APR 1705, source testing is not required to demonstrate compliance with Rule 2201.

2. Monitoring

The ATCs will include the following new monitoring condition:

When tank and vapor control system are idle, the monitoring and recordkeeping requirements specified in this permit do not apply except for the following: biennial true vapor pressure measurements and records shall continue and the permittee shall maintain daily records of tank throughput and records of whether tank served by vapor recovery system. [District Rules 2201 and 4623] Y

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. A condition addressing this requirement is included on the S-1128 facility-wide permit.

The ATCs will include the following new recordkeeping condition:

When tank and vapor control system are idle, the monitoring and recordkeeping requirements specified in this permit do not apply except for the following: biennial true vapor pressure measurements and records shall continue and the permittee shall maintain daily records of tank throughput and records of whether tank served by vapor recovery system. [District Rules 2201 and 4623] Y

4. Reporting

The ATCs will include the following new reporting condition:

Permittee shall submit written notification to the District upon designating the tank as idle or operational. [District Rules 2080 and 2201] Y

F. Ambient Air Quality Analysis (AAQA)

An AAQA shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. There are no AAQA standards for VOCs and therefore an AAQA is not required.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Title I Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Section VIII above, this facility is a new major source and this project does constitute a Title I modification, therefore this requirement is applicable. Aera's compliance certification is included in **Attachment VII**.

H. Alternate Siting Analysis

The current project occurs at an existing facility. The applicant proposes to authorize an organic liquid transfer operation.

Since the project will provide a tank to be used at the same location, the existing site will result in the least possible impact from the project. Alternative sites would involve the relocation and/or construction of various support structures on a much greater scale, and would therefore result in a much greater impact.

Rule 2410 Prevention of Significant Deterioration

As shown in Section VII. C. 9. above, this project does not result in a new PSD major source or PSD major modification. No further discussion is required.

Rule 2520 Federally Mandated Operating Permits

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

The project is Federal Major Modification and therefore is also a Title V Significant Modification. As discussed above, the facility has applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The Title V Compliance Certification form is included in **Attachment VII**.

District Rule 4001 New Source Performance Standards

This rule incorporates the New Source Performance Standards from 40 CFR Part 60. 40 CFR Part 60, Subparts K, Ka, Kb and OOOO could potentially apply to the tanks located at this facility. However, Subparts K, Ka and Kb do not apply to storage vessels less than 10,000 barrels used for petroleum or condensate that is stored, processed and/or treated at a drilling and production facility prior to transfer. Subpart OOOO has no standards for tanks with annual VOC emissions less than 6 tons per year.

Therefore, the requirements of these subparts are not applicable to this project.

District Rule 4101 Visible Emissions

District Rule 4101, Section 5.0, indicates that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour, which is dark or darker than Ringlemann 1 or equivalent to 20% opacity.

As long as the equipment is properly maintained and operated, compliance with visible emissions limits is expected under normal operating conditions.

Rule 4102 Nuisance

Rule 4102 prohibits discharge of air contaminants, which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations provided the equipment is well maintained. Therefore, compliance with this rule is expected.

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – *Risk Management Policy for Permitting New and Modified Sources* specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

An HRA is not required for a project with a total facility prioritization score of less than one. According to the Technical Services Memo for this project (**Attachment VIII**), the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.

The cancer risk for this project is shown below:

HRA Summary		
Unit	Cancer Risk	T-BACT Required
S-1547-643, '-644, '-645, '-647 thru '-649, and '-652 thru '-654	2.88E-08	No

Discussion of T-BACT

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

Rule 4623, Storage of Organic Liquids

According to Section 4.4, tanks exclusively receiving and or storing organic liquids with a TVP less than 0.5 psia are exempt from this Rule except for complying with Sections 6.2, 6.3.6, 6.4 and 7.2. The tanks are currently operating in compliance with the rule. New conditions applicable when the tanks and VCS are idle are as follows:

When tank and VCS are idle, the tank shall vent through a PV relief valve set to within 10% of maximum allowable pressure of the tank, no oil shall be introduced into tank, and the TVP of residual (standing) oil shall not exceed 0.05 psia. Prior to introducing crude oil or produced water, the VCS must be reactivated and shall have a VOC control efficiency of at least 99%. [District Rules 2201 and 4623] Y

When tank and vapor control system are idle, only biennial true vapor pressure measurements shall be taken. No additional monitoring and recordkeeping is required. [District Rules 2201 and 4623] Y

Compliance with the requirements of this rule is expected.

CH&SC 42301.6 California Health & Safety Code (School Notice)

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

The District has verified that this site is located within 1,000 feet of a school. However, pursuant to California Health and Safety Code 42301.6, since this project will not result in an increase in emissions, a school notice is not required.

California Environmental Quality Act (CEQA)

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

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

Greenhouse Gas (GHG) Significance Determination

District is a Responsible Agency

Oil and gas operations in Kern County must comply with the *Kern County Zoning Ordinance – 2015 (C) Focused on Oil and Gas Local Permitting*. In 2015, Kern County revised the Kern County Zoning Ordinance Focused on Oil and Gas Activities (Kern Oil and Gas Zoning Ordinance) in regards to future oil and gas exploration, and drilling and production of hydrocarbon resource projects occurring within Kern County.

Kern County served as lead agency for the revision to their ordinance under the California Environmental Quality Act (CEQA), and prepared an Environmental Impact Report (EIR) that was certified on November 9, 2015. The EIR evaluated and disclosed to the public the environmental impacts associated with the growth of oil and gas exploration in Kern County, and determined that such growth will result in significant GHG impacts in the San Joaquin Valley. As such, the EIR included mitigation measures for GHG.

The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381). As a Responsible Agency, the District is limited to mitigating or avoiding impacts for which it has statutory authority. The District does not have statutory authority for regulating GHGs. The District has determined that the applicant is responsible for

implementing GHG mitigation measures imposed in the EIR by the Kern County for the Kern County Zoning Ordinance.

District CEQA Findings

The proposed project is located in Kern County and is thus subject to the *Kern County Zoning Ordinance – 2015 (C) Focused on Oil and Gas Local Permitting*. The *Kern County Zoning Ordinance* was developed by the Kern County Planning Agency as a comprehensive set of goals, objectives, policies, and standards to guide development, expansion, and operation of oil and gas exploration within Kern County.

In 2015, Kern County revised their *Kern County Zoning Ordinance* in regards to exploration, drilling and production of hydrocarbon resources projects. Kern County served as lead agency for the revision to their ordinance under the California Environmental Quality Act (CEQA), and prepared an Environmental Impact Report (EIR) that was certified on November 9, 2015. The revised Kern County Zoning Ordinance establishes a written process (Conformity Review permit process or Minor Activity permit) by which oil and gas exploration projects involving site-specific operations can be evaluated to determine whether the environmental effects of the operation were covered in the *Kern County Zoning Ordinance* EIR.

For stationary source emissions that are below the offset threshold, i.e. not required to surrender ERCs, and for non-stationary source emissions, Kern County entered into an Oil and Gas Emission Reduction Agreement (Oil and Gas ERA) with the District pursuant to the EIR. Per the Oil and Gas ERA, the applicant shall fully mitigate project emissions that are not required to be offset by District permit rules and regulations. Such mitigation can be achieved through any of the three options: (1) the applicants pay an air quality mitigation fee with each Oil and Gas Conformity Review permit issued by the Kern County, (2) the applicants may develop and propose to implement their own emission reduction projects instead of paying all or part of the mitigation fee, or (3) the applicants will be allowed to enter into an agreement directly with the District (if approved by Kern County) to develop an alternative fee schedule.

Kern County, as the lead agency, is the agency that will enforce the mitigation measures identified the EIR, including the mitigation requirements of the Oil and Gas ERA. As a responsible agency the District complies with CEQA by considering the EIR prepared by the Lead Agency, and by reaching its own conclusion on whether and how to approve the project involved (CCR §15096). The District has reviewed the EIR prepared by Kern County, the Lead Agency for the project, and finds it to be adequate. To reduce project related impacts on air quality, the District evaluates emission controls for the project such as Best Available Control Technology (BACT) under District Rule 2201 (New and

Modified Stationary Source Review). In addition, the District is requiring the applicant to surrender emission reduction credits (ERC) for stationary source emissions above the offset threshold.

Thus, the District concludes that through a combination of project design elements, permit conditions, and the Oil and Gas ERA, the project will be fully mitigated to result in no net increase in emissions. Pursuant to CCR §15096, prior to project approval and issuance of ATCs the District prepared findings.

Indemnification Agreement/Letter of Credit Determination

According to District Policy APR 2010 (CEQA Implementation Policy), when the District is the Lead or Responsible Agency for CEQA purposes, an indemnification agreement and/or a letter of credit may be required. The decision to require an indemnity agreement and/or a letter of credit is based on a case-by-case analysis of a particular project's potential for litigation risk, which in turn may be based on a project's potential to generate public concern, its potential for significant impacts, and the project proponent's ability to pay for the costs of litigation without a letter of credit, among other factors.

The revision to the *Kern County Zoning Ordinance* went through an extensive public process that included a Notice of Preparation, a preparation of an EIR, scoping meetings, and public hearings. The process led to the certification of the final EIR and approval of the revised *Kern County Zoning Ordinance* in November 2015 by the Kern County Board of Supervisors. As mentioned above, the proposed project will be fully mitigated and will result in no net increase in emissions. In addition, the proposed project is not located at a facility of concern; therefore, an Indemnification Agreement and/or a Letter of Credit will not be required for this project in the absence of expressed public concern.

IX. Recommendations

Compliance with all applicable rules and regulations is expected. Pending a successful EPA/NSR Public Noticing period, issue Authorities to Construct S-1547-643, '-644, '-645, '-647 thru '-649, and '-652 thru '-654 subject to the permit conditions on the attached draft Authority to Construct in **Attachment IX**.

X. Billing Information

Permit Number	Fee Schedule	Fee Description	Annual Fee
S-1547-643	3020-05E	210,000 gal	270
S-1547-644	3020-05D	84,000 gal	203
S-1547-645	3020-05D	84,000 gal	201
S-1547-647	3020-05E	210,000 gal	270
S-1547-648	3020-05D	84,000 gal	203
S-1547-649	3020-05D	84,000 gal	203
S-1547-652	3020-05E	210,000 gal	270
S-1547-653	3020-05C	21,000 gal	149
S-1547-654	3020-05C	21,000 gal	149

Attachments

- I: Current PTOs
- II: Laboratory Analysis
- III: Tank Emissions Calculations
- IV: Emissions Profiles
- V: BACT Guideline
- VI: BACT Analysis
- VII: Title V Compliance Certification Form and Statewide Compliance Statement
- VIII: HRA
- IX: Draft ATC

ATTACHMENT I
Current PTOs

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1547-643-16

EXPIRATION DATE: 05/31/2016

SECTION: SW22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:

5,000 BBL (210,000 GAL) FIXED ROOF CRUDE OIL SURGE TANK T-410, 38.6 FT DIAMETER X 25 FT HIGH, WITH SHARED VAPOR CONTROL SYSTEM BETWEEN S-1547-643 TO '645, '647 TO '649, AND '652 TO '654 (WIER CDF)

PERMIT UNIT REQUIREMENTS

1. Vapor control system shall include vapor piping from free water knockouts, tanks S-1547-643 to '645, '647 to '649, & '652 to '654, with pressure relief vents (for emergency atmospheric release) located on the collection line. [District Rule 2201] Federally Enforceable Through Title V Permit
2. Vapor control system shall include vapor compressors with suction and discharge knockout vessels, serving tanks and vessels described above. [District Rule 2201] Federally Enforceable Through Title V Permit
3. Vapor piping from free water knockout may connect upstream or downstream of vapor compressors to accommodate operational needs. [District Rule 2201] Federally Enforceable Through Title V Permit
4. During power-switching events, no produced fluids shall be introduced into any tank at the Weir tank battery. All production into the tanks shall cease prior to shutting down the tank vapor control system. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Each power-switching event shall not exceed 2 hours, and total annual hours of vapor control system shutdown during power-switching shall not exceed 96 hours. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Prior to disconnecting power from the TVR systems, during a power-switching event, AERA shall monitor the pressure in the shutdown TVR system to determine pressure relief valve(s) pressure settings are not exceeded. [District Rule 2201] Federally Enforceable Through Title V Permit
7. During power-switching events, there shall be no leaks ($> 10,000$ ppmv) from any vapor component in the TVR system. [District Rule 2201] Federally Enforceable Through Title V Permit
8. During power-switching events, permittee shall monitor TVR system piping and vapor components to ensure there are no leaks ($> 10,000$ ppmv). [District Rule 2201] Federally Enforceable Through Title V Permit
9. Vapor compressor(s) may be operated continuously or as required by demand. [District Rule 2201] Federally Enforceable Through Title V Permit
10. Operator shall monitor vapor control system pressures on a quarterly basis to ensure that system pressure does not exceed pressure relief valve setting. [District Rule 2520] Federally Enforceable Through Title V Permit
11. Vapor control system pressure transmitters shall be inspected and maintained in good operating condition. The inspections shall be conducted on a quarterly basis. Replacing and repairing of each pressure transmitter shall not exceed one hour per day. [District Rule 2201] Federally Enforceable Through Title V Permit
12. Vapor disposal shall be limited to injection into the formation. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Disposal of tank vapor by injection into the formation shall only be performed using DOGGR approved wells. [District Rule 2201] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

14. VOC fugitive emissions from the components in gas service on the tank, FWKO vessels, tank vapor collection piping and vapor control system shall not exceed 12.9 lb-VOC/day (includes 0.46 lb/day, 0.46 lb-VOC/quarter for VRS sensor maintenance). [District Rule 2201] Federally Enforceable Through Title V Permit
15. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
16. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
17. VOC content of THC in collected vapors shall be sampled not less than annually. [District Rule 2201] Federally Enforceable Through Title V Permit
18. Fixed roof tank shall be fully enclosed and shall be maintained in a leak-free condition. The APCO-approved vapor control system consists of a closed vent system that collects all VOCs from the storage tank and vents them to DOGGR approved disposal well(s). The vapor control system shall be maintained in a leak-free condition. Vapor control system shall reduce VOC emissions by at least 99% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
19. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623] Federally Enforceable Through Title V Permit
20. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
21. Tank 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
22. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
23. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
24. 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
25. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
26. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
27. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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
28. Allowable methods of cleaning include using water, 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

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

Facility Name: AERA ENERGY LLC

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

S-1547-643-16 : Mar 26 2017 10:28AM -- EDGEHILL

29. 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 2080] Federally Enforceable Through Title V Permit
30. 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, 9.3.2] Federally Enforceable Through Title V Permit
31. 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, 9.3.2] Federally Enforceable Through Title V Permit
32. An operator shall re-inspect a component 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
33. 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, 9.3.2] Federally Enforceable Through Title V Permit
34. 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, 9.3.2] Federally Enforceable Through Title V Permit
35. 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
36. 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
37. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

38. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
39. 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
40. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. [District Rules 1070 and 2520, 9.4.2] Federally Enforceable Through Title V Permit
41. Permittee shall maintain records of DOGGR approved injection wells connected to this vapor control system, % VOC of THC in collected vapors, the date and duration of vapor control system maintenance operations, and all records of required monitoring data and support information. [District Rule 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit
42. Permittee shall maintain records of date and duration of each power switching event. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
43. All records required by this permit shall be maintained and retained for a period of at least 5 years and shall be made readily available for District inspection upon request. [District Rule 1070 and 4623, 6.3] Federally Enforceable Through Title V Permit

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1547-644-8

EXPIRATION DATE: 05/31/2016

SECTION: SW22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:

2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL STOCK TANK T-420, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

PERMIT UNIT REQUIREMENTS

1. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
2. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
3. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
4. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Tank 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
6. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
7. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks ($> 10,000$ ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
8. VOC fugitive emissions from the components in gas service on the tank shall not exceed 1.6 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
10. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
11. 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
12. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
13. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

14. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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
15. Allowable methods of cleaning include using water, 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
16. 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 2080] Federally Enforceable Through Title V Permit
17. 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, 9.3.2] Federally Enforceable Through Title V Permit
18. 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, 9.3.2] Federally Enforceable Through Title V Permit
19. An operator shall re-inspect a component 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
20. 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, 9.3.2] Federally Enforceable Through Title V Permit
21. 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, 9.3.2] Federally Enforceable Through Title V Permit
22. 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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

Facility Name: AERA ENERGY LLC

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

S-1547-644-8 : Mar 26 2017 10:26AM - EOG/EHLR

23. 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
24. True vapor pressure shall be measured 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 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 Rules 2520, 9.3.2 and 4623, 6.2.2] Federally Enforceable Through Title V Permit
25. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623, 6.4] Federally Enforceable Through Title V Permit
26. 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
27. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
28. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1547-645-8

EXPIRATION DATE: 05/31/2016

SECTION: SW22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:

2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL CLARIFIER TANK T-430, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

PERMIT UNIT REQUIREMENTS

1. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
2. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
3. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
4. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Tank 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
6. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
7. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks ($> 10,000$ ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
8. VOC fugitive emissions from the components in gas service on the tank shall not exceed 3.1 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
10. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
11. 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
12. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

Facility Name: AERA ENERGY LLC
Location: HEAVY OIL WESTERN STATIONARY SOURCE, KERN COUNTY, CA
S-1547-645-8; Mar 25 2017 10:29AM - EDGEHILL

13. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
14. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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
15. Allowable methods of cleaning include using water, 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
16. 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 2080] Federally Enforceable Through Title V Permit
17. 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, 9.3.2] Federally Enforceable Through Title V Permit
18. 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, 9.3.2] Federally Enforceable Through Title V Permit
19. An operator shall re-inspect a component 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
20. 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, 9.3.2] Federally Enforceable Through Title V Permit
21. 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, 9.3.2] Federally Enforceable Through Title V Permit
22. 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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

23. 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
24. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
25. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
26. 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
27. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
28. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1547-647-8

EXPIRATION DATE: 05/31/2016

SECTION: SW22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:

5,000 BBL (210,000 GALLON) FIXED ROOF, 38.6 FT. DIAMETER X 24 FT. HIGH, CRUDE OIL SURGE TANK T-460, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

PERMIT UNIT REQUIREMENTS

1. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
2. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
3. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
4. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Tank 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
6. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
7. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks (> 10,000 ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
8. VOC fugitive emissions from the components in gas service on the tank shall not exceed 2.6 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
10. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
11. 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
12. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE
These terms and conditions are part of the Facility-wide Permit to Operate.

13. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
14. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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
15. Allowable methods of cleaning include using water, 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
16. 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 2080] Federally Enforceable Through Title V Permit
17. 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, 9.3.2] Federally Enforceable Through Title V Permit
18. 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, 9.3.2] Federally Enforceable Through Title V Permit
19. An operator shall re-inspect a component 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
20. 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, 9.3.2] Federally Enforceable Through Title V Permit
21. 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, 9.3.2] Federally Enforceable Through Title V Permit
22. 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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

23. 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
24. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
25. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
26. 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
27. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
28. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1547-648-8

EXPIRATION DATE: 05/31/2016

SECTION: SW22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:

2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL STOCK TANK T-470, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

PERMIT UNIT REQUIREMENTS

1. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
2. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
3. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
4. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Tank 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
6. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
7. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks ($> 10,000$ ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
8. VOC fugitive emissions from the components in gas service on the tank shall not exceed 2.6 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
10. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
11. 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
12. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
13. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

14. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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
15. Allowable methods of cleaning include using water, 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
16. 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 2080] Federally Enforceable Through Title V Permit
17. 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, 9.3.2] Federally Enforceable Through Title V Permit
18. 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, 9.3.2] Federally Enforceable Through Title V Permit
19. An operator shall re-inspect a component 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
20. 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, 9.3.2] Federally Enforceable Through Title V Permit
21. 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, 9.3.2] Federally Enforceable Through Title V Permit
22. 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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

23. 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
24. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
25. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
26. 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
27. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
28. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1547-649-8

EXPIRATION DATE: 05/31/2016

SECTION: SW22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:

2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL CLARIFIER TANK T-480, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

PERMIT UNIT REQUIREMENTS

1. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
2. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
3. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
4. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Tank 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
6. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
7. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks (> 10,000 ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
8. VOC fugitive emissions from the components in gas service on the tank shall not exceed 3.2 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
10. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
11. 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
12. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

13. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
14. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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
15. Allowable methods of cleaning include using water, 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
16. 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 2080] Federally Enforceable Through Title V Permit
17. 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, 9.3.2] Federally Enforceable Through Title V Permit
18. 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, 9.3.2] Federally Enforceable Through Title V Permit
19. An operator shall re-inspect a component 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
20. 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, 9.3.2] Federally Enforceable Through Title V Permit
21. 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, 9.3.2] Federally Enforceable Through Title V Permit
22. 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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

23. 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
24. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
25. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
26. 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
27. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
28. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1547-652-8

EXPIRATION DATE: 05/31/2016

SECTION: SW22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:

5,000 BBL (210,000 GALLON) FIXED ROOF, 38.6 FT. DIAMETER X 24. FT. HIGH, CRUDE OIL SKIM TANK T-600, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

PERMIT UNIT REQUIREMENTS

1. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
2. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
3. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
4. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Tank 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
6. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
7. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks ($> 10,000$ ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
8. VOC fugitive emissions from the components in gas service on the tank shall not exceed 3.2 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
10. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
11. 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
12. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
13. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

14. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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
15. Allowable methods of cleaning include using water, 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
16. 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 2080] Federally Enforceable Through Title V Permit
17. 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, 9.3.2] Federally Enforceable Through Title V Permit
18. 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, 9.3.2] Federally Enforceable Through Title V Permit
19. An operator shall re-inspect a component 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
20. 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, 9.3.2] Federally Enforceable Through Title V Permit
21. 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, 9.3.2] Federally Enforceable Through Title V Permit
22. 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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

23. 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
24. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
25. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
26. 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
27. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
28. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1547-653-8

EXPIRATION DATE: 05/31/2016

SECTION: SW22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:

500 BBL (21,000 GALLON) FIXED ROOF, 15.3 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL SLOP TANK T-610, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

PERMIT UNIT REQUIREMENTS

1. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
2. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
3. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
4. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Tank 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
6. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
7. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks ($> 10,000$ ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
8. VOC fugitive emissions from the components in gas service on the tank shall not exceed 3.2 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
10. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
11. 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
12. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
13. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

Facility Name: AERA ENERGY LLC

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

S-1547-653-8 Mar 26 2017 10:29AM - EDGEHILL

14. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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
15. Allowable methods of cleaning include using water, 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
16. 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 2080] Federally Enforceable Through Title V Permit
17. 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, 9.3.2] Federally Enforceable Through Title V Permit
18. 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, 9.3.2] Federally Enforceable Through Title V Permit
19. An operator shall re-inspect a component 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
20. 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, 9.3.2] Federally Enforceable Through Title V Permit
21. 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, 9.3.2] Federally Enforceable Through Title V Permit
22. 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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

23. 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
24. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
25. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
26. 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
27. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
28. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1547-654-9

EXPIRATION DATE: 05/31/2016

SECTION: SW22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:

500 BBL (21,000 GALLON) FIXED ROOF, 21.5 FT. DIAMETER X 8 FT. HIGH, CRUDE OIL DRAIN TANK T-700, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF)

PERMIT UNIT REQUIREMENTS

1. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
2. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
3. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
4. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Tank 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
6. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
7. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks ($> 10,000$ ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
8. VOC fugitive emissions from the components in gas service on the tank shall not exceed 3.2 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
10. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
11. 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
12. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
13. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

Facility Name: AERA ENERGY LLC

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

S-1547-654-9: Mar 25 2017 10:28AM - EDGEHILL

14. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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
15. Allowable methods of cleaning include using water, 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
16. 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 2080] Federally Enforceable Through Title V Permit
17. 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, 9.3.2] Federally Enforceable Through Title V Permit
18. 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, 9.3.2] Federally Enforceable Through Title V Permit
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20. 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, 9.3.2] Federally Enforceable Through Title V Permit
21. 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, 9.3.2] Federally Enforceable Through Title V Permit
22. 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

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

23. 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
24. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
25. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
26. 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
27. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
28. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

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

ATTACHMENT II
Laboratory Analyses

BC**Laboratories, Inc.**

Environmental Testing Laboratory Since 1949

Aera Energy LLC
29235 Hwy 33
Maricopa, CA 93262Reported: 09/28/2015 16:50
Project: HOST/TVP, API Gravity
Project Number: HOST/TVP, API Gravity
Project Manager: Phil Young**HOST Method (LBNL)**

BCL Sample ID:	1520840-11	Client Sample Name:	Wier No-Gov (S-1547-), 8/19/2015 1:20:00PM, Rick Ogletree					
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quais	Run #
Total Vapor Pressure	ND	psia	0.010	0.010	LBNL-HOST			1
Tank Temperature (Field Test)	160	F			LBNL-HOST			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	LBNL-HOST	08/27/15	08/27/15 11:13	RDC	Inst	1	8Y12067
2	LBNL-HOST	08/19/15	08/19/15 13:20	RDC	Inst	1	8Y12067

Test Method for Vapor Pressure of Reactive Organic Compounds in Heavy Crude Oil Using Gas Chromatography, Revised Draft, calculation from page 6.
David Littlejohn and Donald Lucas, Lawrence Berkeley National Laboratory, March 1, 2000.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.
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BC**Laboratories, Inc.**

Environmental Testing Laboratory Since 1949

Aera Energy LLC
29235 Hwy 33
Maricopa, CA 93252Reported: 09/28/2015 16:50
Project: HOST/TVP, API Gravity
Project Number: HOST/TVP, API Gravity
Project Manager: Phil Young**Petroleum Analysis**

BCL Sample ID:	1520940-11	Client Sample Name:	Wier No-Gov (S-1547-), 8/19/2015 1:20:00PM, Rick Ogletree					
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quats	Run #
API Gravity 60/60 F	11.0	API			ASTM-D287			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	ASTM-D287	08/27/15	08/27/15 11:13	RDC	Inst	1	BYI2067

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Aera Energy LLC
29235 Hwy 33
Maricopa, CA 93252

Reported: 09/28/2015 16:50

Project: HOST/TVP, API Gravity

Project Number: HOST/TVP, API Gravity

Project Manager: Phil Young

HOST Method (LBNL)

BCL Sample ID:	1520940-10	Client Sample Name:	Wier Gov (S-1547-), 8/19/2015 12:55:00PM, Rick Ogletree					
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quota	Run #
Total Vapor Pressure	ND	psia	0.010	0.010	LBNL-HOST			1
Tank Temperature (Field Test)	167	F			LBNL-HOST			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	LBNL-HOST	08/27/15	09/28/15 13:25	RDC	Inst	1	BYI2087
2	LBNL-HOST	08/19/15	08/19/15 12:55	RDC	Inst	1	BYI2087

Test Method for Vapor Pressure of Reactive Organic Compounds in Heavy Crude Oil Using Gas Chromatography, Revised Draft, calculation from page 6
David Littlejohn and Donald Lucas, Lawrence Berkeley National Laboratory, March 1, 2000.

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Laboratories, Inc.

Environmental Testing Laboratory Since 1949

Aera Energy LLC
29235 Hwy 33
Maricopa, CA 93252

Reported: 09/28/2015 16:50
Project: HOST/TVP, API Gravity
Project Number: HOST/TVP, API Gravity
Project Manager: Phil Young

Petroleum Analysis

BCL Sample ID:	1520940-10	Client Sample Name:	Wier Gov (S-1547-), 8/19/2015 12:55:00PM, Rick Ogletree					
Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
API Gravity 60/60 F	9.9	API			ASTM-D287			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	ASTM-D287	08/27/15	09/28/15 13:25	RDC	Inst	1	BY12087

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ATTACHMENT III Tank Emissions Calculations

Summary Table	
Permit Number	S-1547-643
Facility Tank I.D.	--
Tank capacity (bbl)	5,000
Tank diameter (ft)	38.6
Tank shell height (ft)	25
Conical or Dome Roof	Dome
Maximum Daily Fluid Throughput (bbl/day)	-
Maximum Annual Fluid Throughput (bbl/year)	0
Maximum Daily Oil Throughput (bbl/day)	N/A
Maximum Annual Oil Throughput (bbl/year)	N/A
Total Uncontrolled Daily Tank VOC Emissions (lb/day)	2.0
Total Uncontrolled Annual Tank VOC Emissions (lb/year)	730

Tank Input Data	
permit number (S-xxxx-xx-xx)	S-1547-643
facility tank I.D.	-
nearest city (1: Bakersfield, 2: Fresno, 3: Stockton)	1
tank ROC vapor pressure (psia)	0.05
liquid bulk storage temperature, T _b (°F)	78
is this a constant-level tank? (yes, no)	yes
will flashing losses occur in this tank (only if first-line tank)? (yes, no)	no
breather vent pressure setting range (psi)	0.06
diameter of tank (feet)	38.6
capacity of tank (bbi)	5,000
conical or dome roof? (c, d)	d
shell height of tank (feet)	25
average liquid height (feet)	5
are the roof and shell the same color? (yes, no)	yes
For roof:	
color (1: Spec Al, 2: Diff Al, 3: Light, 4: Med, 5: Red, 6: White)	3
condition (1: Good, 2: Poor)	1
-----This row only used if shell is different color from roof-----	
-----This row only used if shell is different color from roof-----	

Liquid Input Data		
	A	B
maximum daily fluid throughput (bbi)		-
maximum annual fluid throughput (bbi)		
-----This row only used if flashing losses occur in this tank-----	0	0
-----This row only used if flashing losses occur in this tank-----		
molecular weight, Mw (lb/lb-mol)		100

Calculated Values		
	A	B
daily maximum ambient temperature, T _{ax} (°F)		77.65
daily minimum ambient temperature, T _{an} (°F)		53.15
daily total solar insolation factor, I (Btu/ft ² -day)		1648.9
atmospheric pressure, P _a (psia)		14.47
water vapor pressure at daily maximum liquid surface temperature (T _{ix}), P _{vx} (psia)	84.9	0.6009
water vapor pressure at daily minimum liquid surface temperature (T _{in}), P _{vn} (psia)	74.1	0.4223
water vapor pressure at average liquid surface temperature (T _{ia}), P _{va} (psia)	79.5	0.5000
roof outage, H _{ro} (feet)		2.6441
vapor space volume, V _v (cubic feet)		26498.39
paint factor, alpha		0.54
vapor density, W _v (lb/cubic foot)		0.0009
daily vapor temperature range, delta T _v (degrees Rankine)		42.57
vapor space expansion factor, K _e		0.0874

Results		
	lb/year	lb/day
Standing Storage Loss	730	2.00
Working Loss	N/A	N/A
Flashing Loss	N/A	N/A
Total Uncontrolled Tank VOC Emissions	730	2.0

Summary Table	
Permit Number	S-1547-644
Facility Tank I.D.	
Tank capacity (bbl)	2,000
Tank diameter (ft)	29.7
Tank shell height (ft)	16
Conical or Dome Roof	Dome
Maximum Daily Fluid Throughput (bbl/day)	.
Maximum Annual Fluid Throughput (bbl/year)	0
Maximum Daily Oil Throughput (bbl/day)	N/A
Maximum Annual Oil Throughput (bbl/year)	N/A
Total Uncontrolled Daily Tank VOC Emissions (lb/day)	0.7
Total Uncontrolled Annual Tank VOC Emissions (lb/year)	249

Tank Input Data	
permit number (S-xxxx-xx-xx)	S-1547-844
facility tank I.D.	
nearest city (1: Bakersfield, 2: Fresno, 3: Stockton)	1
tank ROC vapor pressure (psia)	0.05
liquid bulk storage temperature, T_b (°F)	78
is this a constant-level tank? (yes, no)	yes
will flashing losses occur in this tank (only if first-line tank)? (yes, no)	no
breather vent pressure setting range (psi)	0.05
diameter of tank (feet)	29.7
capacity of tank (bbl)	2,000
conical or dome roof? (c, d)	d
shell height of tank (feet)	16
average liquid height (feet)	5
are the roof and shell the same color? (yes, no)	yes
For roof:	
color (1:Spec Al, 2:Diff Al, 3:Light, 4:Med, 5:Red, 6:White)	3
condition (1: Good, 2: Poor)	1
-----This row only used if shell is different color from roof-----	
-----This row only used if shell is different color from roof-----	

Liquid Input Data	
maximum daily fluid throughput (bbl)	A
maximum annual fluid throughput (bbl)	B
-----This row only used if flashing losses occur in this tank-----	0
-----This row only used if flashing losses occur in this tank-----	0
molecular weight, Mw (lb/lb-mol)	100

Calculated Values	
daily maximum ambient temperature, T_{ax} (°F)	A
daily minimum ambient temperature, T_{an} (°F)	B
daily total solar insolation factor, I (Btu/ft ² -day)	77.65
atmospheric pressure, P_a (psia)	53.15
water vapor pressure at daily maximum liquid surface temperature (T_{lx}), P_{vx} (psia)	1648.9
water vapor pressure at daily minimum liquid surface temperature (T_{ln}), P_{vn} (psia)	14.47
water vapor pressure at average liquid surface temperature (T_{la}), P_{va} (psia)	84.9
roof outage, H_{ro} (feet)	0.6009
vapor space volume, V_v (cubic feet)	74.1
paint factor, alpha	0.4223
vapor density, W_v (lb/cubic foot)	79.5
daily vapor temperature range, ΔT_v (degrees Rankine)	0.5000
vapor space expansion factor, K_e	2.0345
	9030.16
	0.54
	0.0009
	42.57
	0.0874

Results		
Standing Storage Loss	lb/year	lb/day
Working Loss	249	0.68
Flashing Loss	N/A	N/A
Total Uncontrolled Tank VOC Emissions	249	0.7

Summary Table	
Permit Number	S-1547-645
Facility Tank I.D.	
Tank capacity (bbl)	2,000
Tank diameter (ft)	29.7
Tank shell height (ft)	16
Conical or Dome Roof	Dome
Maximum Daily Fluid Throughput (bbl/day)	-
Maximum Annual Fluid Throughput (bbl/year)	0
Maximum Daily Oil Throughput (bbl/day)	N/A
Maximum Annual Oil Throughput (bbl/year)	N/A
Total Uncontrolled Daily Tank VOC Emissions (lb/day)	0.7
Total Uncontrolled Annual Tank VOC Emissions (lb/year)	249

Tank Input Data	
permit number: (S-xxxx-xx-xx)	S-1547-645
facility tank I.D.	
nearest city (1: Bakersfield, 2: Fresno, 3: Stockton)	1
tank ROG vapor pressure (psia)	0.05
liquid bulk storage temperature, T_b (°F)	78
is this a constant-level tank? {yes, no}	yes
will flashing losses occur in this tank (only if first-line tank)? {yes, no}	no
breather vent pressure setting range (psi)	0.06
diameter of tank (feet)	29.7
capacity of tank (bbl)	2,000
conical or dome roof? {c, d}	d
shell height of tank (feet)	16
average liquid height (feet)	5
are the roof and shell the same color? {yes, no}	yes
For roof:	
color (1: Spec Al, 2: Diff Al, 3: Light, 4: Med, 5: Red, 6: White)	3
condition (1: Good, 2: Poor)	1
-----This row only used if shell is different color from roof-----	
-----This row only used if shell is different color from roof-----	

Liquid Input Data		
maximum daily fluid throughput (bbl)	A	B
maximum annual fluid throughput (bbl)		-
-----This row only used if flashing losses occur in this tank-----	0	0
-----This row only used if flashing losses occur in this tank-----		
molecular weight, M_w (lb/lb-mol)		100

Calculated Values		
daily maximum ambient temperature, T_{ax} (°F)	A	B
daily minimum ambient temperature, T_{an} (°F)		77.65
daily total solar insulation factor, I (Btu/ft ² -day)		53.15
atmospheric pressure, P_a (psia)		1648.9
		14.47
water vapor pressure at daily maximum liquid surface temperature (T_{lx}), P_{vx} (psia)	84.9	0.6009
water vapor pressure at daily minimum liquid surface temperature (T_{ln}), P_{vn} (psia)	74.1	0.4223
water vapor pressure at average liquid surface temperature (T_{la}), P_{va} (psia)	79.5	0.5000
roof outage, H_{ro} (feet)		2.0345
vapor space volume, V_v (cubic feet)		9030.16
paint factor, α		0.54
vapor density, W_v (lb/cubic foot)		0.0009
daily vapor temperature range, ΔT_v (degrees Rankine)		42.57
vapor space expansion factor, K_e		0.0874

Results		
Standing Storage Loss	lb/year	lb/day
Working Loss	249	0.68
Flashing Loss	N/A	N/A
Total Uncontrolled Tank VOC Emissions	249	0.7

Summary Table	
Permit Number	S-1547-647
Facility Tank I.D.	--
Tank capacity (bbl)	5,000
Tank diameter (ft)	38.6
Tank shell height (ft)	24
Conical or Dome Roof	Dome
Maximum Daily Fluid Throughput (bbl/day)	-
Maximum Annual Fluid Throughput (bbl/year)	0
Maximum Daily Oil Throughput (bbl/day)	N/A
Maximum Annual Oil Throughput (bbl/year)	N/A
Total Uncontrolled Daily Tank VOC Emissions (lb/day)	1.9
Total Uncontrolled Annual Tank VOC Emissions (lb/year)	698

Tank Input Data	
permit number (S-xxxx-xx-xx)	
facility tank I.D.	S-1547-647
nearest city (1: Bakersfield, 2: Fresno, 3: Stockton)	--
tank ROC vapor pressure (psia)	1
liquid bulk storage temperature, T _b (°F)	0.05
is this a constant-level tank? (yes, no)	78
will flashing losses occur in this tank (only if first-line tank)? (yes, no)	yes
breather vent pressure setting range (psi)	no
diameter of tank (feet)	0.06
capacity of tank (bbi)	38.6
conical or dome roof? (c, d)	5,000
shell height of tank (feet)	d
average liquid height (feet)	24
are the roof and shell the same color? (yes, no)	5
For roof:	yes
color (1:Spec Al, 2:Diff Al, 3:Light, 4:Med, 5:Red, 6:White)	
condition (1: Good, 2: Poor)	3
	1
-----This row only used if shell is different color from roof-----	
-----This row only used if shell is different color from roof-----	

Liquid Input Data		
maximum daily fluid throughput (bbi)	A	B
maximum annual fluid throughput (bbi)		-
-----This row only used if flashing losses occur in this tank-----	0	0
-----This row only used if flashing losses occur in this tank-----		
molecular weight, Mw (lb/lb-mol)		-
		100

Calculated Values		
daily maximum ambient temperature, T _{ax} (°F)	A	B
daily minimum ambient temperature, T _{an} (°F)		77.65
daily total solar insolation factor, I (Btu/ft ² -day)		53.15
atmospheric pressure, P _a (psia)		1648.9
water vapor pressure at daily maximum liquid surface temperature (T _{lx}), P _{vx} (psia)		14.47
water vapor pressure at daily minimum liquid surface temperature (T _{ln}), P _{vn} (psia)	84.9	0.6009
water vapor pressure at average liquid surface temperature (T _{la}), P _{va} (psia)	74.1	0.4223
roof outage, H _{ro} (feet)	79.5	0.5000
vapor space volume, V _v (cubic feet)		2.6441
paint factor, alpha		25328.18
vapor density, W _v (lb/cubic foot)		0.54
daily vapor temperature range, delta T _v (degrees Rankine)		0.0009
vapor space expansion factor, K _e		42.57
		0.0874

Results		
Standing Storage Loss	lb/year	lb/day
Working Loss	698	1.91
Flashing Loss	N/A	N/A
Total Uncontrolled Tank VOC Emissions	N/A	N/A
	698	1.9

Summary Table	
Permit Number	S-1547-648
Facility Tank I.D.	
Tank capacity (bbl)	2,000
Tank diameter (ft)	29.7
Tank shell height (ft)	16
Conical or Dome Roof	Dome
Maximum Daily Fluid Throughput (bbl/day)	-
Maximum Annual Fluid Throughput (bbl/year)	0
Maximum Daily Oil Throughput (bbl/day)	N/A
Maximum Annual Oil Throughput (bbl/year)	N/A
Total Uncontrolled Daily Tank VOC Emissions (lb/day)	0.7
Total Uncontrolled Annual Tank VOC Emissions (lb/year)	249

Tank Input Data	
permit number (S-xxxx-xx-xx)	S-1547-648
facility tank I.D.	
nearest city (1: Bakersfield, 2: Fresno, 3: Stockton)	1
tank ROC vapor pressure (psia)	0.05
liquid bulk storage temperature, T_b (°F)	78
is this a constant-level tank? {yes, no}	yes
will flashing losses occur in this tank (only if first-line tank)? {yes, no}	no
breather vent pressure setting range (psi)	0.06
diameter of tank (feet)	29.7
capacity of tank (bbl)	2,000
conical or dome roof? {c, d}	d
shell height of tank (feet)	16
average liquid height (feet)	5
are the roof and shell the same color? {yes, no}	yes
For roof:	
color {1:Spec Al, 2:Diff Al, 3:Light, 4:Med, 5:Red, 6:White}	3
condition {1: Good, 2: Poor}	1
-----This row only used if shell is different color from roof-----	
-----This row only used if shell is different color from roof-----	

Liquid Input Data		
	A	B
maximum daily fluid throughput (bbl)		
maximum annual fluid throughput (bbl)		
-----This row only used if flashing losses occur in this tank-----	0	0
-----This row only used if flashing losses occur in this tank-----		
molecular weight, M_w (lb/lb-mol)		100

Calculated Values		
	A	B
daily maximum ambient temperature, T_{ax} (°F)		77.65
daily minimum ambient temperature, T_{an} (°F)		53.15
daily total solar insulation factor, I (Btu/ft ² -day)		1648.9
atmospheric pressure, P_a (psia)		14.47
water vapor pressure at daily maximum liquid surface temperature (T_{lx}), P_{vx} (psia)	84.9	0.6009
water vapor pressure at daily minimum liquid surface temperature (T_{ln}), P_{vn} (psia)	74.1	0.4223
water vapor pressure at average liquid surface temperature (T_{la}), P_{va} (psia)	79.5	0.5000
roof outage, H_{ro} (feet)		2.0345
vapor space volume, V_v (cubic feet)		9030.16
paint factor, α		0.54
vapor density, W_v (lb/cubic foot)		0.0009
daily vapor temperature range, ΔT_v (degrees Rankine)		42.57
vapor space expansion factor, K_e		0.0874

Results		
	lb/year	lb/day
Standing Storage Loss	249	0.68
Working Loss	N/A	N/A
Flashing Loss	N/A	N/A
Total Uncontrolled Tank VOC Emissions	249	0.7

Summary Table	
Permit Number	S-1547-649
Facility Tank I.D.	--
Tank capacity (bbl)	2,000
Tank diameter (ft)	29.7
Tank shell height (ft)	16
Conical or Dome Roof	Dome
Maximum Daily Fluid Throughput (bbl/day)	-
Maximum Annual Fluid Throughput (bbl/year)	0
Maximum Daily Oil Throughput (bbl/day)	N/A
Maximum Annual Oil Throughput (bbl/year)	N/A
Total Uncontrolled Daily Tank VOC Emissions (lb/day)	0.7
Total Uncontrolled Annual Tank VOC Emissions (lb/year)	249

Tank Input Data	
permit number (S-xxxx-xx-xx)	
facility tank I.D.	S-1547-649
nearest city {1: Bakersfield, 2: Fresno, 3: Stockton}	
tank ROC vapor pressure (psia)	1
liquid bulk storage temperature, Tb (°F)	0.05
is this a constant-level tank? {yes, no}	78
will flashing losses occur in this tank (only if first-line tank)? {yes, no}	yes
breather vent pressure setting range (psi)	no
diameter of tank (feet)	0.06
capacity of tank (bbl)	29.7
conical or dome roof? {c, d}	2,000
shell height of tank (feet)	d
average liquid height (feet)	16
	5
are the roof and shell the same color? {yes,no}	
For roof:	yes
color {1:Spec Al, 2:Diff Al, 3:Light, 4:Med, 5:Red, 6:White}	
condition {1: Good, 2: Poor}	3
	1
-----This row only used if shell is different color from roof-----	
-----This row only used if shell is different color from roof-----	

Liquid Input Data	
maximum daily fluid throughput (bbl)	A
maximum annual fluid throughput (bbl)	B
-----This row only used if flashing losses occur in this tank-----	0
-----This row only used if flashing losses occur in this tank-----	0
molecular weight, Mw (lb/lb-mol)	
	100

Calculated Values	
daily maximum ambient temperature, T _{ax} (°F)	A
daily minimum ambient temperature, T _{an} (°F)	B
daily total solar insolation factor, I (Btu/ft ² -day)	77.65
atmospheric pressure, P _a (psia)	53.15
water vapor pressure at daily maximum liquid surface temperature (T _{ix}), P _{vx} (psia)	1648.9
water vapor pressure at daily minimum liquid surface temperature (T _{in}), P _{vn} (psia)	14.47
water vapor pressure at average liquid surface temperature (T _{ia}), P _{va} (psia)	84.9
roof outage, H _{ro} (feet)	0.6009
vapor space volume, V _v (cubic feet)	74.1
paint factor, alpha	0.4223
vapor density, W _v (lb/cubic foot)	79.5
daily vapor temperature range, delta T _v (degrees Rankine)	0.5000
vapor space expansion factor, K _e	2.0345
	9030.16
	0.54
	0.0009
	42.57
	0.0874

Results		
Standing Storage Loss	lb/year	lb/day
Working Loss	249	0.68
Flashing Loss	N/A	N/A
Total Uncontrolled Tank VOC Emissions	N/A	N/A
	249	0.7

Summary Table	
Permit Number	S-1547-652
Facility Tank I.D.	---
Tank capacity (bbl)	5,000
Tank diameter (ft)	38.6
Tank shell height (ft)	24
Conical or Dome Roof	Dome
Maximum Daily Fluid Throughput (bbl/day)	-
Maximum Annual Fluid Throughput (bbl/year)	0
Maximum Daily Oil Throughput (bbl/day)	N/A
Maximum Annual Oil Throughput (bbl/year)	N/A
Total Uncontrolled Daily Tank VOC Emissions (lb/day)	1.9
Total Uncontrolled Annual Tank VOC Emissions (lb/year)	698

Tank Input Data	
permit number (S-xxxx-xx-xx)	S-1547-652
facility tank I.D.	
nearest city (1: Bakersfield, 2: Fresno, 3: Stockton)	--
tank ROC vapor pressure (psia)	1
liquid bulk storage temperature, Tb (°F)	0.05
is this a constant-level tank? (yes, no)	78
will flashing losses occur in this tank (only if first-line tank)? (yes, no)	yes
breather vent pressure setting range (psi)	no
diameter of tank (feet)	0.06
capacity of tank (bbl)	38.6
conical or dome roof? (c, d)	5,000
shell height of tank (feet)	d
average liquid height (feet)	24
	5
are the roof and shell the same color? (yes, no)	yes
For roof:	
color (1: Spec Al, 2: Diff Al, 3: Light, 4: Med, 5: Red, 6: White)	3
condition (1: Good, 2: Poor)	1
-----This row only used if shell is different color from roof-----	
-----This row only used if shell is different color from roof-----	

Liquid Input Data	
maximum daily fluid throughput (bbl)	A
maximum annual fluid throughput (bbl)	D
-----This row only used if flashing losses occur in this tank-----	0
-----This row only used if flashing losses occur in this tank-----	0
molecular weight, Mw (lb/lb-mol)	
	100

Calculated Values	
daily maximum ambient temperature, T _{ax} (°F)	A
daily minimum ambient temperature, T _{an} (°F)	B
daily total solar insulation factor, I (Btu/ft ² -day)	77.65
atmospheric pressure, P _a (psia)	53.15
	1648.9
	14.47
water vapor pressure at daily maximum liquid surface temperature (T _{lx}), P _{vx} (psia)	84.9
water vapor pressure at daily minimum liquid surface temperature (T _{ln}), P _{vn} (psia)	74.1
water vapor pressure at average liquid surface temperature (T _{la}), P _{va} (psia)	79.5
roof outage, H _{ro} (feet)	0.6009
vapor space volume, V _v (cubic feet)	2.6441
paint factor, alpha	25328.18
vapor density, W _v (lb/cubic foot)	0.54
daily vapor temperature range, delta T _v (degrees Rankine)	0.0009
vapor space expansion factor, K _e	42.57
	0.0874

Results		
Standing Storage Loss	lb/year	lb/day
Working Loss	698	1.91
Flashing Loss	N/A	N/A
Total Uncontrolled Tank VOC Emissions	N/A	N/A
	698	1.9

Summary Table	
Permit Number	S-1547-653
Facility Tank I.D.	--
Tank capacity (bbl)	500
Tank diameter (ft)	15.3
Tank shell height (ft)	16
Conical or Dome Roof	Dome
Maximum Daily Fluid Throughput (bbl/day)	-
Maximum Annual Fluid Throughput (bbl/year)	0
Maximum Daily Oil Throughput (bbl/day)	N/A
Maximum Annual Oil Throughput (bbl/year)	N/A
Total Uncontrolled Daily Tank VOC Emissions (lb/day)	0.2
Total Uncontrolled Annual Tank VOC Emissions (lb/year)	61

Tank Input Data	
permit number (S-xxxx-xx-xx)	S-1547-853
facility tank I.D.	
nearest city (1: Bakersfield, 2: Fresno, 3: Stockton)	
tank ROC vapor pressure (psia)	1
liquid bulk storage temperature, T _b (°F)	0.08
is this a constant-level tank? (yes, no)	78
will flashing losses occur in this tank (only if first-line tank)? (yes, no)	yes
breather vent pressure setting range (psi)	no
diameter of tank (feet)	0.06
capacity of tank (bbl)	15.3
conical or dome roof? (c, d)	500
shell height of tank (feet)	d
average liquid height (feet)	16
	5
are the roof and shell the same color? (yes, no)	
For roof:	yes
color (1: Spec Al, 2: Diff Al, 3: Light, 4: Med, 5: Red, 6: White)	
condition (1: Good, 2: Poor)	3
	1
-----This row only used if shell is different color from roof-----	
-----This row only used if shell is different color from roof-----	

Liquid Input Data		
	A	B
maximum daily fluid throughput (bbl)		
maximum annual fluid throughput (bbl)		
-----This row only used if flashing losses occur in this tank-----	0	0
-----This row only used if flashing losses occur in this tank-----		
molecular weight, Mw (lb/lb-mol)		100

Calculated Values		
	A	B
daily maximum ambient temperature, T _{ax} (°F)		77.65
daily minimum ambient temperature, T _{an} (°F)		53.15
daily total solar insolation factor, I (Btu/ft ² -day)		1648.9
atmospheric pressure, P _a (psia)		14.47
water vapor pressure at daily maximum liquid surface temperature (T _{lx}), P _{vx} (psia)	84.9	0.6009
water vapor pressure at daily minimum liquid surface temperature (T _{ln}), P _{vn} (psia)	74.1	0.4223
water vapor pressure at average liquid surface temperature (T _{la}), P _{va} (psia)	79.5	0.5000
roof outage, H _{ro} (feet)		1.0481
vapor space volume, V _v (cubic feet)		2215.08
paint factor, alpha		0.54
vapor density, W _v (lb/cubic foot)		0.0009
daily vapor temperature range, delta T _v (degrees Rankine)		42.57
vapor space expansion factor, K _e		0.0874

Results		
	lb/year	lb/day
Standing Storage Loss	61	0.17
Working Loss	N/A	N/A
Flashing Loss	N/A	N/A
Total Uncontrolled Tank VOC Emissions	61	0.2

Summary Table	
Permit Number	S-1547-654
Facility Tank I.D.	
Tank capacity (bbl)	500
Tank diameter (ft)	21.5
Tank shell height (ft)	8
Conical or Dome Roof	Dome
Maximum Daily Fluid Throughput (bbl/day)	-
Maximum Annual Fluid Throughput (bbl/year)	0
Maximum Daily Oil Throughput (bbl/day)	N/A
Maximum Annual Oil Throughput (bbl/year)	N/A
Total Uncontrolled Daily Tank VOC Emissions (lb/day)	0.2
Total Uncontrolled Annual Tank VOC Emissions (lb/year)	75

Tank Input Data	
permit number (S-xxxx-xx-xx)	S-1547-654
facility tank I.D.	
nearest city (1: Bakersfield, 2: Fresno, 3: Stockton)	
tank ROC vapor pressure (psia)	1
liquid bulk storage temperature, Tb (°F)	0.05
is this a constant-level tank? (yes, no)	78
will flashing losses occur in this tank (only if first-line tank)? (yes, no)	yes
breather vent pressure setting range (psi)	no
diameter of tank (feet)	0.06
capacity of tank (bbl)	21.5
conical or dome roof? (c, d)	500
shell height of tank (feet)	d
average liquid height (feet)	8
are the roof and shell the same color? (yes, no)	2
For roof:	yes
color (1: Spec Al, 2: Diff Al, 3: Light, 4: Med, 5: Red, 6: White)	
condition (1: Good, 2: Poor)	3
	1
-----This row only used if shell is different color from roof-----	
-----This row only used if shell is different color from roof-----	

Liquid Input Data		A	B
maximum daily fluid throughput (bbl)			-
maximum annual fluid throughput (bbl)		0	0
-----This row only used if flashing losses occur in this tank-----			
-----This row only used if flashing losses occur in this tank-----			
molecular weight, Mw (lb/lb-mol)			100

Calculated Values		A	B
daily maximum ambient temperature, T _{ax} (°F)			77.65
daily minimum ambient temperature, T _{an} (°F)			53.15
daily total solar insulation factor, I (Btu/ft ² -day)			1648.9
atmospheric pressure, P _a (psia)			14.47
water vapor pressure at daily maximum liquid surface temperature (T _{lx}), P _{vx} (psia)	84.9		0.6009
water vapor pressure at daily minimum liquid surface temperature (T _{ln}), P _{vn} (psia)	74.1		0.4223
water vapor pressure at average liquid surface temperature (T _{la}), P _{va} (psia)	79.5		0.5000
roof outage, H _{ro} (feet)			1.4728
vapor space volume, V _v (cubic feet)			2712.98
paint factor, alpha			0.54
vapor density, W _v (lb/cubic foot)			0.0009
daily vapor temperature range, delta T _v (degrees Rankine)			42.57
vapor space expansion factor, K _e			0.0874

Results		lb/gal	lb/ft ³
Standing Storage Loss		75	0.20
Working Loss		N/A	N/A
Flashing Loss		N/A	N/A
Total Uncontrolled Tank VOC Emissions		75	0.2

ATTACHMENT IV Emissions Profiles

Permit #: S-1547-643-21	Last Updated
Facility: AERA ENERGY LLC	03/30/2017 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	4709.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	12.9
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	0.0
Q2:	0.0	0.0	0.0	0.0	0.0
Q3:	0.0	0.0	0.0	0.0	0.0
Q4:	0.0	0.0	0.0	0.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-1547-644-10	Last Updated
Facility: AERA ENERGY LLC	03/30/2017 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	584.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	1.6
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	0.0
Q2:	0.0	0.0	0.0	0.0	0.0
Q3:	0.0	0.0	0.0	0.0	0.0
Q4:	0.0	0.0	0.0	0.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-1547-645-10	Last Updated
Facility: AERA ENERGY LLC	03/30/2017 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	1132.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	3.1
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	0.0
Q2:	0.0	0.0	0.0	0.0	0.0
Q3:	0.0	0.0	0.0	0.0	0.0
Q4:	0.0	0.0	0.0	0.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-1547-647-10	Last Updated
Facility: AERA ENERGY LLC	03/30/2017 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	949.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	2.6
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	0.0
Q2:	0.0	0.0	0.0	0.0	0.0
Q3:	0.0	0.0	0.0	0.0	0.0
Q4:	0.0	0.0	0.0	0.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-1547-648-10	Last Updated
Facility: AERA ENERGY LLC	03/30/2017 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	949.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	2.6
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	0.0
Q2:	0.0	0.0	0.0	0.0	0.0
Q3:	0.0	0.0	0.0	0.0	0.0
Q4:	0.0	0.0	0.0	0.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-1547-649-10	Last Updated
Facility: AERA ENERGY LLC	03/30/2017 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	1168.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	3.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	0.0
Q2:	0.0	0.0	0.0	0.0	0.0
Q3:	0.0	0.0	0.0	0.0	0.0
Q4:	0.0	0.0	0.0	0.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-1547-652-10	Last Updated
Facility: AERA ENERGY LLC	03/30/2017 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	1168.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	3.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	0.0
Q2:	0.0	0.0	0.0	0.0	0.0
Q3:	0.0	0.0	0.0	0.0	0.0
Q4:	0.0	0.0	0.0	0.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-1547-653-10	Last Updated
Facility: AERA ENERGY LLC	03/30/2017 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	1168.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	3.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	0.0
Q2:	0.0	0.0	0.0	0.0	0.0
Q3:	0.0	0.0	0.0	0.0	0.0
Q4:	0.0	0.0	0.0	0.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-1547-654-11	Last Updated
Facility: AERA ENERGY LLC	03/30/2017 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	1168.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	3.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	0.0
Q2:	0.0	0.0	0.0	0.0	0.0
Q3:	0.0	0.0	0.0	0.0	0.0
Q4:	0.0	0.0	0.0	0.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

ATTACHMENT V
BACT Guideline

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 7.3.1*

Last Update 10/1/2002

**Petroleum and Petrochemical Production - Fixed Roof Organic
Liquid Storage or Processing Tank, < 5,000 bbl Tank capacity ****

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	PV-vent set to within 10% of maximum allowable pressure	99% control (Waste gas incinerated in steam generator, heater treater, or other fired equipment and inspection and maintenance program; transfer of noncondensable vapors to gas pipeline; reinjection to formation (if appropriate wells are available); or equal).	

** Converted from Determinations 7.1.11 (10/01/02).

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source**

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 7.3.2*

Last Update 10/1/2002

**Petroleum and Petrochemical Production - Fixed Roof Organic
Liquid Storage or Processing Tank, = or > 5,000 bbl Tank capacity ****

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
PM10	50% control, (Waste gas incinerated at scrubbed steam generator, heater treater or incinerator or compressed and injected in injection wells and inspection and maintenance program, or equal)	99% control (Transfer of noncondensable vapors to gas pipeline; reinjection to formation (if appropriate wells are available); or equal).	
SOx		95% control (Vapor collection system and either a) sulfur removal by scrubber with inspection and maintenance program or b) vapors no greater than 0.2 gr S/100 dscf; transfer of non-condensable vapors to gas pipeline; reinjection to formation (if appropriate wells are available), or equal)	
VOC	99% Control (Waste gas incinerated in steam generator, heater treater or other fired equipment and inspection and maintenance program, or equal)	99% control (Transfer of noncondensable vapors to gas pipeline; reinjection to formation (if appropriate wells are available); thermal or catalytic oxidizer; carbon adsorption; or equal).	

** Converted from Determinations 7.1.4 and 7.1.12 (10/01/02).

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source**

ATTACHMENT VI BACT Analysis

Top Down BACT Analysis

Step 1 - Identify All Possible Control Technologies

BACT Guidelines 7.3.1 and 7.3.2 list the controls that are considered potentially applicable to fixed-roof organic liquid storage or processing tank. The VOC control measures are summarized below.

Technologically Feasible (BACT Guideline 7.3.1)
Achieved in Practice (BACT Guideline 7.3.2)

99% control (waste gas incinerated in steam generator, heater treater, or other fired equipment and inspection and maintenance program; transfer of uncondensed vapors to gas pipeline or reinjection to formation, if appropriate wells are available).

Achieved in Practice (BACT Guideline 7.3.1)

PV relief valve set to within 10% of maximum allowable pressure.

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. 99 % control (waste gas incinerated in steam generator, heater treater, or other fired equipment and inspection and maintenance program; transfer of uncondensed vapors to gas pipeline or reinjection to formation, if appropriate wells are available)
2. PV relief valve set to within 10% of maximum allowable pressure

Step 4 - Cost Effectiveness Analysis

The tanks are currently equipped with vapor control and therefore the cost effectiveness analysis addresses only the cost of maintenance of the current VCS which the applicant has estimated to be \$109,750/yr. The detailed cost basis for this estimate is provided below.

Tank Vapor Recovery Operating Costs

Daily Operating Costs:

- Electricity – 75 KW/hr @ \$0.1/KW = \$65,700/yr
- Daily Surveillance – Operator @ \$55/hr * 1 hour = \$55/ day or \$20,075/yr
- Lubricant - \$2,400/yr

Maintenance:

- Quarterly mechanical – Mechanic @ \$75/hr * 9 hours = \$675/qtr or \$2,700/yr
- Annual electrical – Instrument Tech @ \$75/hr * 9 hours = \$675/yr
- Miscellaneous parts (can vary depending on parts needed) = \$15,000/yr
- Annual P/V valve inspection (performed by contractor inc. safety equipment) = \$700/yr
- Annual leak inspection (performed by contractor inc. safety equipment) = \$2,500/yr

Total Annual Costs:

Total annual costs = \$109,750

Reducing post-project emissions (3,258 lb/yr, 1.6 ton/yr) by 99% with vapor control results in a cost effectiveness of

$$\begin{aligned}\text{Cost effectiveness} &= \$109,750 / [1.6 \text{ ton} \times 0.99] \\ &= \$69,827/\text{ton} > \$17,500/\text{ton}.\end{aligned}$$

This value exceeds the cost effectiveness threshold for VOCs of \$17,500/ton. Therefore, the vapor control system is not cost effective.

Step 5 - Select BACT

When tanks and VCS are idle, a PV relief valve shall be set to within 10% of maximum allowable pressure of the tank, no oil shall be introduced into tank and and TVP of residual (standing) oil shall not exceed 0.05 psia. Prior to introducing crude oil or produced water, VCS must be functional with a VOC control efficiency of at least 99%.

When tanks and VCS are idle, the monitoring and recordkeeping requirements specified in this permit do not apply except for the following: biennial true vapor pressure measurements and records shall continue and the permittee shall maintain daily records of tank throughput and records of whether tank served by vapor recovery system.

ATTACHMENT VII
Title V Compliance Certification and
Statewide Compliance Statement



**San Joaquin Valley
Unified Air Pollution Control District**

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box)

- [X] SIGNIFICANT PERMIT MODIFICATION [] ADMINISTRATIVE
[] MINOR PERMIT MODIFICATION AMENDMENT

COMPANY NAME: Aera Energy LLC	FACILITY ID: S-1547
1. Type of Organization: [X] Corporation [] Sole Ownership [] Government [] Partnership [] Utility	
2. Owner's Name: Aera Energy LLC	
3. Agent to the Owner: N/A	

II. COMPLIANCE CERTIFICATION (Read each statement carefully and initial applicable circles for confirmation):

- ☒ Based on information and belief formed after reasonable inquiry, the equipment identified in this application will continue to comply with the applicable federal requirement(s).
- ☒ Based on information and belief formed after reasonable inquiry, the equipment identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.
- ☒ Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.
- ☒ Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.
- ☒ For minor modifications, this application meets the criteria for use of minor permit modification procedures pursuant to District Rule 2520.

I declare, under penalty of perjury under the laws of the state of California, that the foregoing is correct and true:


Signature of Responsible Official

3/22/17
Date

D.C. (David) Shuck
Name of Responsible Official (please print)

Process Supervisor
Title of Responsible Official (please print)

Title I Compliance Certification - SJVUAPCD

CERTIFICATION

Aera Energy LLC hereby certifies as follows:

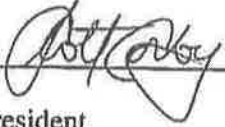
1. Aera Energy LLC owns or operates certain major stationary sources in the State of California. Such sources are comprised of a large number of emission points. As used in this certification, the term "major stationary source" shall, with respect to Aera Energy LLC stationary sources in the SJVUAPCD, have the meaning ascribed thereto in SJVUAPCD Rule 2201.3.15, and shall, with respect to all of Aera Energy LLC's other stationary sources in the State of California, have the meaning ascribed thereto in section 302(J) of the Clean Air Act (42 U.S.C. Section 7602 (J)).

2. Subject to paragraphs 3 and 4 below, all major stationary sources owned or operated by Aera Energy LLC in the State of California are either in compliance, or on a schedule of compliance, with all applicable emission limitations and standards under the Clean Air Act and all of the State Implementation Plan approved by the Environmental Protection Agency.

3. This certification is made on information and belief and is based upon a review of Aera Energy LLC's major stationary sources in the State of California by those employees of Aera Energy LLC who have operational responsibility for compliance. In conducting such reviews, Aera Energy LLC and its employees have acted in good faith and have exercised reasonable best efforts to identify any exceedances of the emission limitations and standards referred to in paragraph 2 thereof.

4. This certification shall speak as of the time and date of its execution.

CERTIFICATION

By: 
Title: Vice President

Date: April 6, 2017
Time: 3:07 pm

ATTACHMENT VIII
HRA

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Richard Edgehill – Permit Services
 From: Cheryl Lawler – Technical Services
 Date: April 6, 2017
 Facility Name: Aera Energy LLC
 Location: SW4 Sec 22, T31S, R22E
 Application #(s): S-1547-643-21, 644-10, 645-10, 647-10 thru 649-10, 652-10, 653-10,
 & 654-11
 Project #: S-1170828

A. RMR SUMMARY

RMR Summary						
Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required ?	Special Permit Requirements?
Unit 643-21 (Crude Oil Tank)	0.02	0.00	0.00	5.44E-09	No	No
Unit 644-10 (Crude Oil Tank)	0.01	0.00	0.00	2.26E-09	No	No
Unit 645-10 (Crude Oil Tank)	0.01	0.00	0.00	2.14E-09	No	No
Unit 647-10 (Crude Oil Tank)	0.02	0.00	0.00	5.37E-09	No	No
Unit 648-10 (Crude Oil Tank)	0.01	0.00	0.00	2.34E-09	No	No
Unit 649-10 (Crude Oil Tank)	0.01	0.00	0.00	2.21E-09	No	No
Unit 652-10 (Crude Oil Tank)	0.02	0.00	0.00	7.32E-09	No	No
Unit 653-10 (Crude Oil Tank)	0.00	0.00	0.00	7.42E-10	No	No
Unit 654-11 (Crude Oil Tank)	0.00	0.00	0.00	9.89E-10	No	No
Project Totals	0.10	0.01	0.00	2.88E-08		
Facility Totals	>1	0.39	0.15	13.38E-06		

B. RMR REPORT

I. Project Description

Technical Services received a request on March 23, 2017, to perform a Risk Management Review for nine crude oil tanks.

The project is also public notice; however, VOCs are the only emissions resulting from this project and are not analyzed as part of the Ambient Air Quality Analysis (AAQA) process. Therefore, no AAQA was performed.

II. Analysis

Toxic emissions from oilfield fugitives were calculated using emission factors derived from 1991 source tests of Central Valley sites, and input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015), risks from the project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines. The prioritization score for this facility is greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required. The AERMOD model was used, with the parameters outlined below and meteorological data for 2004-2008 from Fellows to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Analysis Parameters Unit 643-21			
Source Type	Circular Area	Location Type	Rural
Tank Radius (m)	5.88	Closest Receptor (m)	300
Tank Height (m)	7.62	Type of Receptor	Business
		VOC Emission Rates (lbs)	0.083 hr 730 yr

Analysis Parameters Units 644-10, 645-10, 648-10, 649-10 (each)			
Source Type	Circular Area	Location Type	Rural
Tank Radius (m)	4.53	Closest Receptor (m)	300
Tank Height (m)	4.88	Type of Receptor	Business
		VOC Emission Rates (lbs)	0.029 hr 249 yr

Analysis Parameters Unit 647-10 & 652-10 (each)			
Source Type	Circular Area	Location Type	Rural
Tank Radius (m)	5.88	Closest Receptor (m)	300
Tank Height (m)	7.32	Type of Receptor	Business
		VOC Emission Rates (lbs)	0.079 hr 698 yr

Analysis Parameters Unit 653-10			
Source Type	Circular Area	Location Type	Rural
Tank Radius (m)	2.33	Closest Receptor (m)	300
Tank Height (m)	4.88	Type of Receptor	Business
		VOC Emission Rates (lbs)	0.008 hr 61 yr

Analysis Parameters Unit 654-11			
Source Type	Circular Area	Location Type	Rural
Tank Radius (m)	3.28	Closest Receptor (m)	300
Tank Height (m)	2.44	Type of Receptor	Business
		VOC Emission Rates (lbs)	0.008 hr 75 yr

III. Conclusion

The Acute and Chronic Indices are below 1.0, and the Cancer Risk factor associated with the project is less than 1.0 in a million. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

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

IV. Attachments

- A. RMR Request Form
- B. Project Email
- C. Prioritization
- D. Risk Results
- E. Facility Summary

ATTACHMENT IX
Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-1547-643-21

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: SW22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 5,000 BBL (210,000 GAL) FIXED ROOF CRUDE OIL SURGE TANK T-410, 38.6 FT DIAMETER X 25 FT HIGH, WITH SHARED VAPOR CONTROL SYSTEM BETWEEN S-1547-643 TO '-645, '-647 TO '-649, AND '-652 TO '-654 (WIER CDF); PROVISIONS TO IDLE VCS

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. When tank and vapor control system are idle (non-operational) oil inlet valve to tank shall remain closed. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
4. Permittee shall submit written notification to the District upon designating the tank as idle or operational. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
5. When tank and VCS are idle, the tank shall vent through a PV relief valve set to within 10% of maximum allowable pressure of the tank, no oil shall be introduced into tank, and the TVP of residual (standing) oil shall not exceed 0.05 psia. Prior to introducing crude oil or produced water, the VCS must be reactivated and shall have a VOC control efficiency of at least 99%. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director, APCO

Arnaud Marjollet, Director of Permit Services

S-1547-643-21, Mar 26 2017 10:00AM - EDG:JHLR : Joint Inspection NOT Required

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

6. When tank and vapor control system are idle, only biennial true vapor pressure measurements shall be taken. No additional monitoring and recordkeeping is required. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit
7. When tank and vapor control system are idle, VOC emission rate from the tank shall not exceed 2.0 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
8. Records of tank throughput when idle, all dates and times that this unit is idle and operational, and copies of all corresponding notices to the District, shall be maintained, retained for a period of at least five years, and made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
9. Vapor control system shall include vapor piping from free water knockouts, tanks S-1547-643 to '645, '647 to '649, & '652 to '654, with pressure relief vents (for emergency atmospheric release) located on the collection line. [District Rule 2201] Federally Enforceable Through Title V Permit
10. Vapor control system shall include vapor compressors with suction and discharge knockout vessels, serving tanks and vessels described above. [District Rule 2201] Federally Enforceable Through Title V Permit
11. Vapor piping from free water knockout may connect upstream or downstream of vapor compressors to accommodate operational needs. [District Rule 2201] Federally Enforceable Through Title V Permit
12. During power-switching events, no produced fluids shall be introduced into any tank at the Weir tank battery. All production into the tanks shall cease prior to shutting down the tank vapor control system. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Each power-switching event shall not exceed 2 hours, and total annual hours of vapor control system shutdown during power-switching shall not exceed 96 hours. [District Rule 2201] Federally Enforceable Through Title V Permit
14. Prior to disconnecting power from the TVR systems, during a power-switching event, AERA shall monitor the pressure in the shutdown TVR system to determine pressure relief valve(s) pressure settings are not exceeded. [District Rule 2201] Federally Enforceable Through Title V Permit
15. During power-switching events, there shall be no leaks ($> 10,000$ ppmv) from any vapor component in the TVR system. [District Rule 2201] Federally Enforceable Through Title V Permit
16. During power-switching events, permittee shall monitor TVR system piping and vapor components to ensure there are no leaks ($> 10,000$ ppmv). [District Rule 2201] Federally Enforceable Through Title V Permit
17. Vapor compressor(s) may be operated continuously or as required by demand. [District Rule 2201] Federally Enforceable Through Title V Permit
18. Operator shall monitor vapor control system pressures on a quarterly basis to ensure that system pressure does not exceed pressure relief valve setting. [District Rule 2520] Federally Enforceable Through Title V Permit
19. Vapor control system pressure transmitters shall be inspected and maintained in good operating condition. The inspections shall be conducted on a quarterly basis. Replacing and repairing of each pressure transmitter shall not exceed one hour per day. [District Rule 2201] Federally Enforceable Through Title V Permit
20. Vapor disposal shall be limited to injection into the formation. [District Rule 2201] Federally Enforceable Through Title V Permit
21. Disposal of tank vapor by injection into the formation shall only be performed using DOGGR approved wells. [District Rule 2201] Federally Enforceable Through Title V Permit
22. VOC fugitive emissions from the components in gas service on the tank, FWKO vessels, tank vapor collection piping and vapor control system shall not exceed 12.9 lb-VOC/day (includes 0.46 lb/day, 0.46 lb-VOC/quarter for VRS sensor maintenance). [District Rule 2201] Federally Enforceable Through Title V Permit
23. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
24. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

25. VOC content of THC in collected vapors shall be sampled not less than annually. [District Rule 2201] Federally Enforceable Through Title V Permit
26. Fixed roof tank shall be fully enclosed and shall be maintained in a leak-free condition. The APCO-approved vapor control system consists of a closed vent system that collects all VOCs from the storage tank and vents them to DOGGR approved disposal well(s). The vapor control system shall be maintained in a leak-free condition. Vapor control system shall reduce VOC emissions by at least 99% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
27. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623] Federally Enforceable Through Title V Permit
28. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
29. Tank 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
30. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
31. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
32. 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
33. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
34. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
35. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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
36. Allowable methods of cleaning include using water, 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
37. 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 2080] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

38. 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, 9.3.2] Federally Enforceable Through Title V Permit
39. 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, 9.3.2] Federally Enforceable Through Title V Permit
40. An operator shall re-inspect a component 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
41. 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, 9.3.2] Federally Enforceable Through Title V Permit
42. 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, 9.3.2] Federally Enforceable Through Title V Permit
43. 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
44. 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
45. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
46. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
47. 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

CONDITIONS CONTINUE ON NEXT PAGE

48. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. [District Rules 1070 and 2520, 9.4.2] Federally Enforceable Through Title V Permit
49. Permittee shall maintain records of DOGGR approved injection wells connected to this vapor control system, % VOC of THC in collected vapors, the date and duration of vapor control system maintenance operations, and all records of required monitoring data and support information. [District Rule 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit
50. Permittee shall maintain records of date and duration of each power switching event. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
51. All records required by this permit shall be maintained and retained for a period of at least 5 years and shall be made readily available for District inspection upon request. [District Rule 1070 and 4623, 6.3] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-1547-644-10

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: SW22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL STOCK TANK T-420, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF): PROVISIONS TO IDLE VCS

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. When tank and vapor control system are idle (non-operational) oil inlet valve to tank shall remain closed. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
4. Permittee shall submit written notification to the District upon designating the tank as idle or operational. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
5. When tank and VCS are idle, the tank shall vent through a PV relief valve set to within 10% of maximum allowable pressure of the tank, no oil shall be introduced into tank, and the TVP of residual (standing) oil shall not exceed 0.05 psia. Prior to introducing crude oil or produced water, the VCS must be reactivated and shall have a VOC control efficiency of at least 99%. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

Arnaud Marjolle, Director of Permit Services

S-1547-644-10 Mar 26 2017 10:00AM -- EDGEHILL : Joint Inspection NOT Required

6. When tank and vapor control system are idle, only biennial true vapor pressure measurements shall be taken. No additional monitoring and recordkeeping is required. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit
7. When tank and vapor control system are idle, VOC emission rate from the tank shall not exceed 0.7 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
8. Records of tank throughput when idle, all dates and times that this unit is idle and operational, and copies of all corresponding notices to the District, shall be maintained, retained for a period of at least five years, and made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
9. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
10. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
11. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
12. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Tank 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
14. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
15. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks ($> 10,000$ ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
16. VOC fugitive emissions from the components in gas service on the tank shall not exceed 1.6 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
17. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
18. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
19. 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
20. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
21. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
22. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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

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CONDITIONS CONTINUE ON NEXT PAGE

23. Allowable methods of cleaning include using water, 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
24. 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 2080] Federally Enforceable Through Title V Permit
25. 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, 9.3.2] Federally Enforceable Through Title V Permit
26. 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, 9.3.2] Federally Enforceable Through Title V Permit
27. An operator shall re-inspect a component 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 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, 9.3.2] Federally Enforceable Through Title V Permit
29. 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, 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. True vapor pressure shall be measured 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 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 Rules 2520, 9.3.2 and 4623, 6.2.2] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

33. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623, 6.4] Federally Enforceable Through Title V Permit
34. 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
35. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
36. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-1547-645-10

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: SW22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL CLARIFIER TANK T-430, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF); PROVISIONS TO IDLE VCS

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. When tank and vapor control system are idle (non-operational) oil inlet valve to tank shall remain closed. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
4. Permittee shall submit written notification to the District upon designating the tank as idle or operational. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
5. When tank and VCS are idle, the tank shall vent through a PV relief valve set to within 10% of maximum allowable pressure of the tank, no oil shall be introduced into tank, and the TVP of residual (standing) oil shall not exceed 0.05 psia. Prior to introducing crude oil or produced water, the VCS must be reactivated and shall have a VOC control efficiency of at least 99%. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director, APCO

Arnaud Marjollet, Director of Permit Services

S-1547-645-10; Mar 20 2017 10:00AM - EDGEHILL; Joint Inspection NOT Required

6. When tank and vapor control system are idle, only biennial true vapor pressure measurements shall be taken. No additional monitoring and recordkeeping is required. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit
7. When tank and vapor control system are idle, VOC emission rate from the tank shall not exceed 0.7 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
8. Records of tank throughput when idle, all dates and times that this unit is idle and operational, and copies of all corresponding notices to the District, shall be maintained, retained for a period of at least five years, and made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
9. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
10. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
11. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
12. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Tank 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
14. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
15. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks ($> 10,000$ ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
16. VOC fugitive emissions from the components in gas service on the tank shall not exceed 3.1 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
17. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
18. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
19. 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
20. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
21. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
22. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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

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CONDITIONS CONTINUE ON NEXT PAGE

23. Allowable methods of cleaning include using water, 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
24. 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 2080] Federally Enforceable Through Title V Permit
25. 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, 9.3.2] Federally Enforceable Through Title V Permit
26. 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, 9.3.2] Federally Enforceable Through Title V Permit
27. An operator shall re-inspect a component 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 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, 9.3.2] Federally Enforceable Through Title V Permit
29. 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, 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. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

33. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
34. 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
35. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
36. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-1547-647-10

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: SW22 TOWNSHIP: 31S RANGE: 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 5,000 BBL (210,000 GALLON) FIXED ROOF, 38.6 FT. DIAMETER X 24 FT. HIGH, CRUDE OIL SURGE TANK T-460, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF): PROVISIONS TO IDLE VCS

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. When tank and vapor control system are idle (non-operational) oil inlet valve to tank shall remain closed. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
4. Permittee shall submit written notification to the District upon designating the tank as idle or operational. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
5. When tank and VCS are idle, the tank shall vent through a PV relief valve set to within 10% of maximum allowable pressure of the tank, no oil shall be introduced into tank, and the TVP of residual (standing) oil shall not exceed 0.05 psia. Prior to introducing crude oil or produced water, the VCS must be reactivated and shall have a VOC control efficiency of at least 99%. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

Arnaud Marjolle, Director of Permit Services
S-1547-647-10 : Mar 26 2017 10:00AM - EDGEHILL : Joint Inspection NOT Required

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

6. When tank and vapor control system are idle, only biennial true vapor pressure measurements shall be taken. No additional monitoring and recordkeeping is required. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit
7. When tank and vapor control system are idle, VOC emission rate from the tank shall not exceed 1.9 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
8. Records of tank throughput when idle, all dates and times that this unit is idle and operational, and copies of all corresponding notices to the District, shall be maintained, retained for a period of at least five years, and made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
9. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
10. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
11. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
12. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Tank 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
14. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
15. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks ($> 10,000$ ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
16. VOC fugitive emissions from the components in gas service on the tank shall not exceed 2.6 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
17. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
18. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
19. 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
20. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
21. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
22. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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

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CONDITIONS CONTINUE ON NEXT PAGE

23. Allowable methods of cleaning include using water, 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
24. 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 2080] Federally Enforceable Through Title V Permit
25. 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, 9.3.2] Federally Enforceable Through Title V Permit
26. 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, 9.3.2] Federally Enforceable Through Title V Permit
27. An operator shall re-inspect a component 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 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, 9.3.2] Federally Enforceable Through Title V Permit
29. 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, 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. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

33. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
34. 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
35. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
36. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-1547-648-10

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: SW22 TOWNSHIP: 31S RANGE: 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL STOCK TANK T-470, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF): PROVISIONS TO IDLE VCS

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. When tank and vapor control system are idle (non-operational) oil inlet valve to tank shall remain closed. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
4. Permittee shall submit written notification to the District upon designating the tank as idle or operational. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
5. When tank and VCS are idle, the tank shall vent through a PV relief valve set to within 10% of maximum allowable pressure of the tank, no oil shall be introduced into tank, and the TVP of residual (standing) oil shall not exceed 0.05 psia. Prior to introducing crude oil or produced water, the VCS must be reactivated and shall have a VOC control efficiency of at least 99%. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director, APCO

Arnaud Marjolle, Director of Permit Services
6-1547-648-10: Mar 28 2017 10:09AM - EDOERLR : Joint Inspection NOT Required

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6. When tank and vapor control system are idle, only biennial true vapor pressure measurements shall be taken. No additional monitoring and recordkeeping is required. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit
7. When tank and vapor control system are idle, VOC emission rate from the tank shall not exceed 0.7 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
8. Records of tank throughput when idle, all dates and times that this unit is idle and operational, and copies of all corresponding notices to the District, shall be maintained, retained for a period of at least five years, and made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
9. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
10. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TV) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
11. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
12. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Tank 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
14. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
15. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks (> 10,000 ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
16. VOC fugitive emissions from the components in gas service on the tank shall not exceed 2.6 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
17. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
18. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
19. 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
20. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
21. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
22. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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

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CONDITIONS CONTINUE ON NEXT PAGE

23. Allowable methods of cleaning include using water, 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
24. 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 2080] Federally Enforceable Through Title V Permit
25. 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, 9.3.2] Federally Enforceable Through Title V Permit
26. 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, 9.3.2] Federally Enforceable Through Title V Permit
27. An operator shall re-inspect a component 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 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, 9.3.2] Federally Enforceable Through Title V Permit
29. 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, 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. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

33. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
34. 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
35. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
36. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-1547-649-10

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: SW22 TOWNSHIP: 31S RANGE: 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 2,000 BBL (84,000 GALLON) FIXED ROOF, 29.7 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL CLARIFIER TANK T-480, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF):PROVISIONS TO IDLE VCS

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. When tank and vapor control system are idle (non-operational) oil inlet valve to tank shall remain closed. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
4. Permittee shall submit written notification to the District upon designating the tank as idle or operational. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
5. When tank and VCS are idle, the tank shall vent through a PV relief valve set to within 10% of maximum allowable pressure of the tank, no oil shall be introduced into tank, and the TVP of residual (standing) oil shall not exceed 0.05 psia. Prior to introducing crude oil or produced water, the VCS must be reactivated and shall have a VOC control efficiency of at least 99%. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director APCO

Arnaud Marjolle, Director of Permit Services

S-1547-049-10 : Mar 26 2017 10:00AM -- EDGSEHLR : Joint Inspection NOT Required

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6. When tank and vapor control system are idle, only biennial true vapor pressure measurements shall be taken. No additional monitoring and recordkeeping is required. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit
7. When tank and vapor control system are idle, VOC emission rate from the tank shall not exceed 0.7 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
8. Records of tank throughput when idle, all dates and times that this unit is idle and operational, and copies of all corresponding notices to the District, shall be maintained, retained for a period of at least five years, and made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
9. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
10. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
11. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
12. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Tank 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
14. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
15. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks ($> 10,000$ ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
16. VOC fugitive emissions from the components in gas service on the tank shall not exceed 3.2 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
17. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
18. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
19. 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
20. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
21. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
22. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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

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CONDITIONS CONTINUE ON NEXT PAGE

23. Allowable methods of cleaning include using water, 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
24. 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 2080] Federally Enforceable Through Title V Permit
25. 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, 9.3.2] Federally Enforceable Through Title V Permit
26. 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, 9.3.2] Federally Enforceable Through Title V Permit
27. An operator shall re-inspect a component 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 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, 9.3.2] Federally Enforceable Through Title V Permit
29. 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, 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. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

33. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
34. 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
35. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
36. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-1547-652-10

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: SW22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 5,000 BBL (210,000 GALLON) FIXED ROOF, 38.6 FT. DIAMETER X 24. FT. HIGH, CRUDE OIL SKIM TANK T-600, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF):PROVISIONS TO IDLE VCS

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. When tank and vapor control system are idle (non-operational) oil inlet valve to tank shall remain closed. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
4. Permittee shall submit written notification to the District upon designating the tank as idle or operational. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
5. When tank and VCS are idle, the tank shall vent through a PV relief valve set to within 10% of maximum allowable pressure of the tank, no oil shall be introduced into tank, and the TVP of residual (standing) oil shall not exceed 0.05 psia. Prior to introducing crude oil or produced water, the VCS must be reactivated and shall have a VOC control efficiency of at least 99%. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director, APCO

Arnaud Marjolle, Director of Permit Services

S-1547-652-10 - Mar 26 2017 10:00AM - EDGEHILR - Joint Inspection NOT Required

6. When tank and vapor control system are idle, only biennial true vapor pressure measurements shall be taken. No additional monitoring and recordkeeping is required. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit
7. When tank and vapor control system are idle, VOC emission rate from the tank shall not exceed 1.9 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
8. Records of tank throughput when idle, all dates and times that this unit is idle and operational, and copies of all corresponding notices to the District, shall be maintained, retained for a period of at least five years, and made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
9. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
10. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
11. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
12. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Tank 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
14. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
15. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks ($> 10,000$ ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
16. VOC fugitive emissions from the components in gas service on the tank shall not exceed 3.2 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
17. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
18. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
19. 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
20. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
21. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
22. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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

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CONDITIONS CONTINUE ON NEXT PAGE

23. Allowable methods of cleaning include using water, 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
24. 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 2080] Federally Enforceable Through Title V Permit
25. 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, 9.3.2] Federally Enforceable Through Title V Permit
26. 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, 9.3.2] Federally Enforceable Through Title V Permit
27. An operator shall re-inspect a component 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 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, 9.3.2] Federally Enforceable Through Title V Permit
29. 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, 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. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

33. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
34. 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
35. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
36. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-1547-653-10

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: SW22 TOWNSHIP: 31S RANGE: 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 500 BBL (21,000 GALLON) FIXED ROOF, 15.3 FT. DIAMETER X 16 FT. HIGH, CRUDE OIL SLOP TANK T-610, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF); PROVISIONS TO IDLE VCS

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. When tank and vapor control system are idle (non-operational) oil inlet valve to tank shall remain closed. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
4. Permittee shall submit written notification to the District upon designating the tank as idle or operational. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
5. When tank and VCS are idle, the tank shall vent through a PV relief valve set to within 10% of maximum allowable pressure of the tank, no oil shall be introduced into tank, and the TVP of residual (standing) oil shall not exceed 0.05 psia. Prior to introducing crude oil or produced water, the VCS must be reactivated and shall have a VOC control efficiency of at least 99%. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director, APCO

Arnaud Marjolle, Director of Permit Services

S-1547-653-10 - MAY 20 2017 10:00AM - EDGEHILL - Joint Inspection NOT Required

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

6. When tank and vapor control system are idle, only biennial true vapor pressure measurements shall be taken. No additional monitoring and recordkeeping is required. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit
7. When tank and vapor control system are idle, VOC emission rate from the tank shall not exceed 0.2 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
8. Records of tank throughput when idle, all dates and times that this unit is idle and operational, and copies of all corresponding notices to the District, shall be maintained, retained for a period of at least five years, and made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
9. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
10. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TV) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
11. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
12. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Tank 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
14. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
15. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks ($> 10,000$ ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
16. VOC fugitive emissions from the components in gas service on the tank shall not exceed 3.2 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
17. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
18. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
19. 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
20. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
21. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
22. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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

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CONDITIONS CONTINUE ON NEXT PAGE

23. Allowable methods of cleaning include using water, 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
24. 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 2080] Federally Enforceable Through Title V Permit
25. 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, 9.3.2] Federally Enforceable Through Title V Permit
26. 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, 9.3.2] Federally Enforceable Through Title V Permit
27. An operator shall re-inspect a component 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 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, 9.3.2] Federally Enforceable Through Title V Permit
29. 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, 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. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

33. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
34. 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
35. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
36. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-1547-654-11

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: SW22 **TOWNSHIP:** 31S **RANGE:** 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 500 BBL (21,000 GALLON) FIXED ROOF, 21.5 FT. DIAMETER X 8 FT. HIGH, CRUDE OIL DRAIN TANK T-700, WITH VAPOR CONTROL SYSTEM SHARED BETWEEN S-1547-643 TO -645, -647 TO -649, & -652 TO -654 (WIER CDF); PROVISIONS TO IDLE VCS

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. When tank and vapor control system are idle (non-operational) oil inlet valve to tank shall remain closed. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
4. Permittee shall submit written notification to the District upon designating the tank as idle or operational. [District Rules 2080 and 2201] Federally Enforceable Through Title V Permit
5. When tank and VCS are idle, the tank shall vent through a PV relief valve set to within 10% of maximum allowable pressure of the tank, no oil shall be introduced into tank, and the TVP of residual (standing) oil shall not exceed 0.05 psia. Prior to introducing crude oil or produced water, the VCS must be reactivated and shall have a VOC control efficiency of at least 99%. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director, APCO

Arnaud Marjollet, Director of Permit Services

8-1547-654-11 Mar 26 2017 10:00AM -- EDS:HLR : Joint Inspection NOT Required

6. When tank and vapor control system are idle, only biennial true vapor pressure measurements shall be taken. No additional monitoring and recordkeeping is required. [District Rules 2201 and 4623] Federally Enforceable Through Title V Permit
7. When tank and vapor control system are idle, VOC emission rate from the tank shall not exceed 0.2 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
8. Records of tank throughput when idle, all dates and times that this unit is idle and operational, and copies of all corresponding notices to the District, shall be maintained, retained for a period of at least five years, and made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
9. Tank shall be vented to vapor control system listed on S-1547-643. [District Rule 2201] Federally Enforceable Through Title V Permit
10. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) less than 0.50 psia under all storage conditions. [District Rule 4623, 2.0 and 4.4] Federally Enforceable Through Title V Permit
11. Tank shall be designed and maintained to vent only to vapor control system, except during periods of tank cleaning, inspections, and maintenance allowed by this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
12. All tank gauges, hatches, sampling ports, pressure relief valves, vapor control system components, etc. shall be closed and leak-free except during sampling or attended maintenance. [District Rule 2201] Federally Enforceable Through Title V Permit
13. Tank 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
14. "Leak-free" shall be defined as emitting no more than 10,000 ppm of methane measured in accordance with EPA Method 21. Emissions in excess of this is considered a leak. [District Rule 2201] Federally Enforceable Through Title V Permit
15. During power-switching events, no fluids shall be introduced into this tank and there shall be no leaks ($> 10,000$ ppmv) from any TVR vapor piping or components. [District Rule 2201] Federally Enforceable Through Title V Permit
16. VOC fugitive emissions from the components in gas service on the tank shall not exceed 3.2 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
17. Permittee shall maintain an accurate fugitive component count and resultant emissions calculated using U.S. EPA Publication 453/R-95-017, Table 2-4, Oil and Gas Production Average Emission Factors. [District Rule 2201] Federally Enforceable Through Title V Permit
18. VOC content of hydrocarbons (VOC/THC) in collected vapors shall not exceed 25% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
19. 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
20. Permittee shall conduct tank cleaning and maintenance operations in accordance with District approved procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
21. Tank may be disconnected from vapor control system during District approved cleaning and maintenance procedures as described in this permit. [District Rule 2080] Federally Enforceable Through Title V Permit
22. Prior to opening the tank to allow tank cleaning one of the following procedures must be followed: 1) operate the vapor recovery system for at least 2 hours after all of the liquid in the tank has been drained, 2) displace vapors floating the oil pad off with water such that 90% of the tank liquid capacity 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

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CONDITIONS CONTINUE ON NEXT PAGE

23. Allowable methods of cleaning include using water, 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
24. 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 2080] Federally Enforceable Through Title V Permit
25. 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, 9.3.2] Federally Enforceable Through Title V Permit
26. 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, 9.3.2] Federally Enforceable Through Title V Permit
27. An operator shall re-inspect a component 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 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, 9.3.2] Federally Enforceable Through Title V Permit
29. 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, 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. True vapor pressure shall be measured 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 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 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

33. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D287 - "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 from Manual Sampling of Petroleum and Petroleum Products". [District Rule 2520, 9.3.2 and 4623] Federally Enforceable Through Title V Permit
34. 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
35. Permittee shall maintain records of each period of cleaning and maintenance when the tank is disconnected or isolated from the vapor control system. Records shall include the date that tank cleaning was initiated, the date tank cleaning was completed, the procedure used to vent tank vapors prior to opening, the method of tank cleaning used, and a description of internal and external tank repairs and maintenance performed. Such records shall be retained for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 2080] Federally Enforceable Through Title V Permit
36. The operator shall maintain records of % VOC of THC in collected vapors, and all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4623, 6.3] Federally Enforceable Through Title V Permit

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