

February 19, 2021

Lauren Marker  
Merced Pipeline, LLC  
3711 Meadow Ciew Dr. #100  
Redding, CA 96002

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Facility Number: N-9642**  
**Project Number: N-1204397**

Dear Ms. Marker:

Enclosed for your review and comment is the District's analysis of Merced Pipeline, LLC's application for an Authority to Construct for a biogas treatment operation, at 1550 Rahilly Rd, Merced, CA.

The notice of preliminary decision for this project has been posted on the District's website ([www.valleyair.org](http://www.valleyair.org)). After addressing all comments made during the 30-day public notice period, the District intends to issue the Authority to Construct. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Richard Edgehill of Permit Services at (661) 392-5617.

Sincerely,



Brian Clements  
Director of Permit Services

BC:rue

Enclosures

cc: Courtney Graham, CARB (w/ enclosure) via email

**Samir Sheikh**  
Executive Director/Air Pollution Control Officer

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# San Joaquin Valley Air Pollution Control District

## Authority to Construct Application Review

### Raw Biogas Treatment Facility

Facility Name: Merced Pipeline, LLC Date: February 18 2021  
Mailing Address: 3711 Meadow View Drive, Suite 100 Engineer: Richard Edgehill  
Redding, CA 96002 Lead Engineer: Richard Karrs  
Contact Person: Lauren Marker (Maas Energy Works Inc)  
Telephone/email: (530) 356-7154 (LM)  
Application #(s): N-9642-1-1  
Project #: 1204397  
Deemed Complete: November 24, 2020

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## I. Proposal

Merced Pipeline, LLC (Merced) recently received an Authority to Construct (ATC N-9642-1-0) for a Biogas Cleanup Plant (BCP) for treatment of decomposition gas (raw biogas) from waste lagoons at several nearby dairies. The BCP is designed to remove sulfur compounds, CO<sub>2</sub>, and VOCs from the raw biogas to create PUC-quality gas (biomethane) that can be entered into a natural gas transmission system operated by a utility company.

For this project, applicant has requested reauthorization of the BCP to include a 116.4 MMBtu/hr flare to be located at the BCP for the primary purpose of combustion of excess gas not routed to utility gas pipeline due to failure to meet utility gas pipeline specifications, or other operational issues (please see Process Description Section for more details). The flare will be open candlestick design operated no more than 500 hr/yr.

Please note that, as of the date of this document, the BCP has not been completely constructed. Therefore, ATC N-9642-1-0 will be cancelled and replaced by the proposed ATC.

ATC N-9642-1-0 is included in **Attachment I**.

The facility is a non-major source and therefore Rule 2520 and 2530 are not applicable.

## II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (8/15/19)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)

Rule 4311                      Flares (12/17/20)  
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 new proposed BCP is to be located at a new site about 6 miles northeast of Merced, CA. The facility is located adjacent to 1550 Rahilly Rd, Merced, the address of Vander Woude Dairy (N-7402). The facility does not currently have a street address. The equipment will not be located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

A site photo and flare location diagram are included in **Attachment II**.

### IV. Process Description

The BCP will be designed to handle up to 800,000,000 standard cubic feet per year (800 MM scf/yr) of raw biogas. On a short-term basis, the raw biogas input to the plant is expected to be as high as 2,822,400 scf per day (2.82 MM scf/day). The approximate maximum flow rate of raw biogas into the plant is 1,960 scf per minute (scfm). The plant is anticipated to be operational 24 hours per day, 365 days per year.

#### SULFUR AND VOC REMOVAL SYSTEMS

Dairy biogas entering the BCP will have sulfur and small amounts (~2 ppmv) of VOCs removed in the carbon adsorption system.

The carbon adsorption system will consist of multi-media vessels in series containing carbon and other media to remove sulfur and VOC with no potential for emissions. The system requires two media vessels in series in order to achieve both H<sub>2</sub>S and VOC removal. Each media-vessel will have a backup vessel with breakthrough monitoring between the first and second vessel. Each media-vessel will be sized sufficiently to handle the entire raw biogas flow alone. Thus when breakthrough from the first media-vessel is detected, the gas flow will be routed to the second media-vessel and the first vessel refreshed. A commercial vendor will remove the spent media and replace it with fresh media. The replenished vessel then serves as the backup vessel. In this manner there is no bypass and there are no emissions from the carbon adsorber system because there will always be two media-vessels in series on line.

The carbon adsorber system is expected to remove 95% of the VOC. Sulfur will also be removed by the activated carbon resulting in an exhaust concentration of approximately 4 ppmv. The gas leaving the carbon adsorption system may be flared due to lack of cleanup facility capacity, maintenance, or unexpected cleanup facility downtime.

## CO<sub>2</sub> MEMBRANE REMOVAL SYSTEM

The CO<sub>2</sub> membrane removal system is designed to remove 97 percent of the inlet CO<sub>2</sub> content so that the biomethane sent to the utility company is expected to contain no more than 3 percent CO<sub>2</sub>. The CO<sub>2</sub> removed by the CO<sub>2</sub> membrane system and approximately 3 percent of the inlet feed gas (including inlet sulfur, VOC, and NH<sub>3</sub>) is expected to be vented from the CO<sub>2</sub> membrane system. This stream will be uncontrolled (not flared).

### Backup Flare

The backup flare will be used to 1), combust (off-spec) product gas from CO<sub>2</sub> removal step, 2), combust gas from the activated carbon exhaust due to lack of BCP capacity, maintenance, or unexpected cleanup facility downtime, and 3), depressurize the BCP during shutdown for maintenance.

A Flare Specifications List are included in **Attachment III**.

A Process Diagram is included in **Attachment IV**.

## V. Equipment Listing

### Pre-Project Equipment Description:

~~N-9642-1-0: BCP CONSISTING OF H<sub>2</sub>S ACTIVATED CARBON ADSORPTION AND CO<sub>2</sub> MEMBRANE REMOVAL SYSTEM – CANCELLED WITH THIS PROJECT~~

### Post-Project Equipment Description:

S-8982-1-1: BIOGAS CLEANUP PLANT CONSISTING OF H<sub>2</sub>S ACTIVATED CARBON ADSORPTION, CO<sub>2</sub> MEMBRANE REMOVAL SYSTEM, AND 116.4 MMBTU/HR BACKUP FLARE

## VI. Emission Control Technology Evaluation

The raw biogas control equipment consists of a sulfur scrubber and activated carbon canisters. Gas leaving the sulfur removal system is expected to contain no more than 4 ppmv S. Activated carbon is expected to remove 95% (by weight) of the VOCs.

The flare will be unassisted and will be required to operate smokelessly. 98% control of VOCs is expected.

## VII. General Calculations

### A. Assumptions

#### BCP

Operation 24 hr/day, 365 days/yr

Plant inlet gas flow rate: 800 MMscf/yr, 2.8 MMscf/day

Sulfur content of gas after sulfur removal: 4 ppmv, 0.357 lbS/MMscf

Sulfur content of flared gas: 50 ppmv

Activated carbon control of VOCs: 95% by weight

#### Venting to Biogas to Atmosphere

Waste Tail Gas: 3% of tail gas (treated biogas) is vented to the atmosphere from CO<sub>2</sub> membrane system, the tail gas has been treated by activated carbon

#### Flare

Flare operation 24 hr/day, 500 hr/yr

Flare heat input rating: 116.4 MMBtu/hr (manufacturer specification)\*

Flare gas flowrate: 120,000 scf/hr (manufacturer specification 8" tip)\*  
60,000,000 scf/yr (500 hr/yr)

\*assumes flared gas heat content of 970 Btu/scf

120,000 scf/hr x 970 Btu/scf x MMBtu/10<sup>6</sup> Btu = 116.4 MMBtu/hr

Daily heat input: 333.33 MMBtu/day (proposed by applicant)

Annual heat input: 60,000,000 scf/yr x 970 Btu/scf x MMBtu/10<sup>6</sup> Btu = 58,200 MMBtu/yr

Flare Type: Semi Enclosed Candlestick (Nonassist)

Visible emissions: Smokeless

Flare will only be used for 1), combust (off-spec) product gas from CO<sub>2</sub> removal step, 2), combust gas from the activated carbon exhaust due to lack of BCP capacity, maintenance, or unexpected cleanup facility downtime, and 3), depressurize the BCP during shutdown for maintenance. There will be no ongoing flaring.

VOC content of dairy biogas: 0.296 lb/MMscf (ATC N-9642-1-0, project 1191995)\*

\*(0.296 lb/MMscf)(lbmol/16 lb)(379 ft<sup>3</sup>/lbmol) = 7 ppmv as methane

Activated carbon exhaust gas and CO<sub>2</sub> membrane vent gases are separate emissions units for BACT purposes. Both streams include VOC and sulfur emissions.

### B. Emission Factors

VOC content of raw biogas: 0.296 lb/MMscf (project 11919950)

S content leaving the Cleanup Plant: 4 ppmv (0.357 lb S/MMscf)

NH<sub>3</sub> content of raw biogas: 1.74 lb/MMscf

Flare

As worst case, flare is assumed to combust gas with the carbon adsorption system offline i.e. with a sulfur content of 50 ppmv as sulfur.

AP-42 Section 13.5 Emissions Factors for Industrial Flares (for NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, and CO) and District VOC Emissions Factor are summarized below:

Pollutant	lb/MMBtu
NO <sub>x</sub> (as NO <sub>2</sub> )	0.068
SO <sub>x</sub> (as SO <sub>2</sub> )	mass balance based on 50 ppmv S
PM <sub>10</sub> (BACT)	0.008
CO	0.310
VOC	0.006 (flare manufacturer, applicant email confirmation)

**C. Calculations**

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

Since this is a permit unit, PE1 = 0 for all pollutants.

**2. Post Project Potential to Emit (PE2)**

H<sub>2</sub>S emissions (as total S)

Waste Tail Gas (3% on inlet gas to CO<sub>2</sub> membrane vented to atmosphere)

$$0.357 \text{ lb S/MMscf} \times 2.8 \text{ MMscf/day} \times 0.03 = 0.03 \text{ lb S/day}$$

$$0.357 \text{ lb S/MMscf} \times 800 \text{ MMscf/yr} \times 0.03 = 9 \text{ lb S/yr}$$

VOC emissions

Waste Tail Gas

$$0.296 \text{ lb VOC/MMscf} \times 2.8 \text{ MMscf/day} \times 0.03 \times 0.05 = 0.0 \text{ lb VOC/day}$$

$$0.296 \text{ lb VOC/MMscf} \times 800 \text{ MMscf/yr} \times 0.03 \times 0.05 = 0 \text{ lb VOC/yr}$$

NH<sub>3</sub> emissions

Waste Tail Gas

$$1.74 \text{ lb/MMscf} \times 2.8 \text{ MMscf/day} \times 0.03 = 0.1 \text{ lb NH}_3/\text{day}$$

$$1.74 \text{ lb/MMscf} \times 800 \text{ MMscf/yr} \times 0.03 = 42 \text{ lb NH}_3/\text{yr}$$

Flare (500 hr/yr)

$$\text{NO}_x: 0.068 \text{ lb/MMBtu} \times 116.4 \text{ MMBtu/hr} = 7.9 \text{ lb/hr, } 190.0 \text{ lb/day, } 3,958 \text{ lb/yr}$$

$$0.068 \text{ lb/MMBtu} \times 116.4 \text{ MMBtu/hr} \times 500 \text{ hr/yr} = 3,958 \text{ lb/yr}$$

$$\text{SO}_x: 50 \text{ ft}^3 \text{ H}_2\text{S}/10^6 \text{ ft}^3 \times 120,000 \text{ ft}^3/\text{hr} \times \text{lbmol}/379 \text{ ft}^3 \times 64 \text{ lb SO}_x/\text{lbmol}$$

$$= 1.0 \text{ lb/hr, } 24.3 \text{ lb/day, } 507 \text{ lb/yr}$$

$$\text{PM}_{10}: 0.008 \text{ lb/MMBtu} \times 116.4 \text{ MMBtu/hr} = 0.93 \text{ lb/hr, } 22.3 \text{ lb/day, } 466 \text{ lb/yr}$$

$$\text{CO}: 0.31 \text{ lb/MMBtu} \times 116.4 \text{ MMBtu/hr} = 36.08 \text{ lb/hr, } 866.0 \text{ lb/day, } 18,042 \text{ lb/yr}$$

$$\text{VOC}: 0.006 \text{ lb/MMBtu} \times 333.3 \text{ MMBtu/day} = 2.0 \text{ lb/day}$$

$$0.006 \text{ lb/MMBtu} \times 116.4 \text{ MMBtu/hr} \times 500 \text{ hr/yr} = 349 \text{ lb/yr}$$

PE2		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO <sub>x</sub>	190.0	3,958
SO <sub>x</sub>	24.3	507
PM <sub>10</sub>	22.3	466
CO	866.0	18,042
VOC	0 (waste tail gas) + 2.0 (flare)	0 (waste tail gas) + 349 (flare)
NH <sub>3</sub>	0.1 (waste tail gas)	42 (waste tail gas)
H <sub>2</sub> S (sulfur)	0.0 (waste tail gas)	9 (waste tail gas)

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.

SSPE1 (lb/year)					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
N-9642-1-0	0	0	0	0	0
<b>SSPE1</b>	0	0	0	0	0

#### 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.

SSPE2 (lb/year)					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
N-9642-1-1	3,958	507	466	18,042	349
<b>SSPE2</b>	3,958	507	466	18,042	349

#### 5. Major Source Determination

##### Rule 2201 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 <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO	VOC
SSPE1	0	0	0	0	0	0
SSPE2	3,958	507	466	466	18,042	349
Major Source Threshold	20,000	140,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No	No

Note: PM2.5 assumed to be equal to PM10



\*excluding fugitive emissions

**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	0	0	0	0	0	0
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ? (Y/N)	N	N	N	N	N	N

**6. Baseline Emissions (BE)**

The BE calculation (in lb/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.

Pursuant to District Rule 2201, 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 = Historic Actual Emissions (HAE), calculated pursuant to District Rule 2201.

**N-9642-1-1:**

The permit unit is new: BE = 0 for all pollutants.

BE (lb/year)						
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO	VOC
N-9642-1-1	0	0	0	0	0	0

**7. SB 288 Major Modification**

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

Since this facility is not a major source, this project does not constitute a SB 288 Major Modification.

**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.

Since this facility is not a major source, this project does not constitute a Federal Major Modification.

**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)

- Total reduced sulfur (including H<sub>2</sub>S)
- Reduced sulfur compounds

**I. Project Emissions Increase - New Major Source Determination**

The post-project potentials to emit from all new and modified units are compared to the PSD major source thresholds to determine if the project constitutes a new major source subject to PSD requirements.

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)(i). The PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

<b>PSD Major Source Determination: Potential to Emit (tons/year)</b>						
	<b>NO2</b>	<b>VOC</b>	<b>SO2</b>	<b>CO</b>	<b>PM</b>	<b>PM10</b>
Total PE from New and Modified Units	2	0.2	0.2	9	0.2	0.2
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	N	N	N	N	N	N

As shown in the table above, the potential to emit for the project, by itself, does not exceed any PSD major source threshold. Therefore Rule 2410 is not applicable and no further analysis is required.

**10. Quarterly Net Emissions Change (QNEC)**

The QNEC is calculated solely to establish emissions that are used to complete the District’s PAS emissions profile screen. The permit unit is new and therefore QNEC = PE2/4.

QNEC					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
N-9642-1-1	3,958	507	466	18,042	349
<b>QNEC (lb/qtr)</b>	989.5	126.75	116.5	4,510.5	87.25

**VIII. Compliance Determination**

**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 seen in Section VII.C.2 above, the applicant is proposing to install a raw biogas treatment facility with a PE = 0 for NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, CO, and VOC. The facility will include a backup flare for control of VOCs. BACT is not required.

The backup flare will have a PE greater than 2.0 lb/day for NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, and CO as calculated in Section VII.C.2. However, because the flare is an emissions control and not a source operation, BACT is not required. Therefore, only VOC emissions (the only pollutant controlled by the flare) may trigger District BACT requirements, not secondary emissions from the flare (i.e. NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, and CO).

VOC emissions from the emissions units included in biogas cleanup operation controlled by the flare (activated carbon exhaust, CO<sub>2</sub> vent gas) do not exceed 2.0 lb/day. Therefore, BACT is not required for the biogas cleanup operation and backup flare.

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

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

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

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

**d. SB 288/Federal Major Modification**

As discussed in Sections VII.C.7 and VII.C.8 above, this project does not constitute an SB 288 and/or Federal Major Modification. Therefore, BACT is not triggered for any pollutant.

**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 <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE2	3,958	507	466	18,042	349
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets calculations required?	No	No	No	No	No

**2. Quantity of Offsets Required**

As seen above, the SSPE2 is not greater than the offset thresholds for all the pollutants; therefore offset calculations are not necessary and 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, and/or
- d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.
- 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.

As demonstrated in Sections VII.C.7 and VII.C.8, this project does not constitute an SB 288 or Federal Major Modification; therefore, public noticing for SB 288 or Federal Major Modification purposes is not required.

**b. PE > 100 lb/day**

The PE2 for this new unit is compared to the daily PE Public Notice thresholds in the following table:

<b>PE &gt; 100 lb/day Public Notice Thresholds</b>			
<b>Pollutant</b>	<b>PE2 (lb/day)</b>	<b>Public Notice Threshold</b>	<b>Public Notice Triggered?</b>
NO <sub>x</sub>	190.0	100 lb/day	Yes
SO <sub>x</sub>	24.3	100 lb/day	No
PM <sub>10</sub>	22.3	100 lb/day	No
CO	866.0	100 lb/day	Yes
VOC	349	100 lb/day	No

Therefore, public noticing for PE > 100 lb/day purposes is required.

**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 <sub>x</sub>	0	3,958	20,000 lb/year	No
SO <sub>x</sub>	0	507	54,750 lb/year	No
PM <sub>10</sub>	0	466	29,200 lb/year	No
CO	0	18,042	200,000 lb/year	No
VOC	0	349	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 <sub>x</sub>	3,958	0	3,958	20,000 lb/year	No
SO <sub>x</sub>	507	0	507	20,000 lb/year	No
PM <sub>10</sub>	466	0	466	20,000 lb/year	No
CO	18,042	0	18,042	20,000 lb/year	No
VOC	349	0	349	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**

Since this facility does not have a Title V operating permit, this change is not a Title V Significant Modification, and therefore public noticing is not required.

## 2. Public Notice Action

As discussed above, this project will not result in emissions, for any pollutant, which would subject the project to any of the noticing requirements listed above. Therefore, public notice will not be required for this project.

### 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:**

*VOC content of the vapor processed through this operation shall not exceed 10% by weight. Permittee shall sample and record the VOC content of the vapor at least once every 12 months. The sample shall be taken on the main vapor line after all individual vapor streams are combined and prior to the sulfur scrubbers. [District Rules 1070 and 2201] N*

*Flaring shall not exceed either of the following limits: 333.33 MMBtu/day and 58,200 MMBtu/yr (equivalent to 500 hours operation per calendar year). [District Rules 2201 and 4102] N*

*Emissions from the flare shall not exceed any of the following limits: 0.068 lb-NO<sub>x</sub>/MMBtu, 0.008 lb-PM<sub>10</sub>/MMBtu, 0.31 lb-CO/MMBtu, or 0.00 lb-VOC/MMBtu. [District Rule 2201] N*

*Sulfur concentration of flared gas shall not exceed 50 ppmv as H<sub>2</sub>S. [District Rule 2201] N*

### E. Compliance Assurance

#### 1. Source Testing

VOC source testing upon initial startup is required.

- {1417} Initial compliance with activated carbon VOC control efficiency requirements shall be demonstrated by the results of the laboratory sample analysis. The results shall be submitted to the District within 60 days of the test. [District Rule 1081]
- {1414} Laboratory samples shall be taken at the initial inspection, under the supervision of the APCD Inspector. Samples shall be taken from both the influent and the effluent gas stream activated carbon sampling ports. [District Rule 1081]
- {1416} Measurements to determine the influent and the effluent gas flow rates from activated carbon shall be taken at the initial inspection. Flow rate calculations shall be submitted to the District along with the laboratory sample analysis results. [District Rule 1081]

- Flared gas sulfur content analysis shall be performed within 60 days of initial startup operation, and at least once every 12 months thereafter, using EPA Method 11 or EPA Method 15, as appropriate. Records of the flared gas sulfur content analysis shall be maintained and provided to the District upon request. [District Rule 2201] N

## 2. Monitoring

The following monitoring is required to demonstrate compliance with Rule 2201:

- *Ongoing compliance with VOC activated carbon control efficiency requirements shall be demonstrated at least once per week by sampling both the influent and the effluent gas streams with an FID, PID, or other District-approved VOC detection device. [District Rule 2201] N*
- Flared gas sulfur content analysis shall be performed within 60 days of initial startup operation, and at least once every 12 months thereafter, using EPA Method 11 or EPA Method 15, as appropriate. Records of the flared gas sulfur content analysis shall be maintained and provided to the District upon request. [District Rule 2201] N
- The sulfur content of the flared gas shall be monitored and recorded at least once every calendar quarter in which a flared gas sulfur content analysis is not performed. If quarterly monitoring shows a violation of the sulfur content limit of this permit, monthly monitoring will be required until six consecutive months of monitoring show compliance with the sulfur content limit. Once compliance with the sulfur content limit is shown for six consecutive months, then the monitoring frequency may return to quarterly. Monitoring shall not be required during periods in which the flare does not operate. [District Rule 2201] N

## 3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. The following condition(s) are listed on the permit to operate:

- Records of the cumulative running time of activated carbon adsorbers and the measured influent and effluent VOC concentrations shall be maintained. [District Rule 2201] N
- Permittee shall maintain accurate records of all VOC and H<sub>2</sub>S concentration test results, and activated carbon influent and effluent flow rates, total number of hours of operation on each day and dates of operation. [District Rule 1070] N
- Records of hydrogen sulfide analyzer(s) installed or utilized and the calibration records of such analyzer(s) shall be maintained. Records are only required on such analyzer(s) utilized to demonstrate compliance with this permit. [District Rule 2201] N



- The permittee shall maintain flare operation records including the dates of operation, the purpose of operation, and the daily and annual quantities of flared gas flared, in standard cubic feet (scf) and MMBtu. [District Rule 2201] N
- Records shall be maintained for a period of five years and shall be made available for District inspection upon request. [District Rule 2201] N

#### 4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

#### F. Ambient Air Quality Analysis (AAQA)

Section 4.14 of District Rule 2201 requires that an AAQA 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. The District's Technical Services Division conducted the required analysis. Refer to **Attachment VI** of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO<sub>x</sub>, CO, and SO<sub>x</sub>. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO<sub>x</sub>, CO, or SO<sub>x</sub>.

The proposed location is in a non-attainment area for the state's PM<sub>10</sub> as well as federal and state PM<sub>2.5</sub> thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM<sub>10</sub> and PM<sub>2.5</sub>.

#### AAQA

Pollutant	Air Quality Standard (State/Federal)				
	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass		Pass		
NO <sub>x</sub>	Pass				Pass
SO <sub>x</sub>	Pass	Pass		Pass	Pass
PM <sub>10</sub>				Pass	Pass
PM <sub>2.5</sub>				Pass	Pass

Notes:

1. Results were taken from the attached AAQA Report.
2. The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2) unless otherwise noted below.
3. Modeled PM<sub>10</sub> concentrations were below the District SIL for non-fugitive sources of 5 µg/m<sup>3</sup> for the 24-hour average concentration and 1 µg/m<sup>3</sup> for the annual concentration.
4. Modeled PM<sub>2.5</sub> concentrations were below the District SIL for non-fugitive sources of 1.2 µg/m<sup>3</sup> for the 24-hour average concentration and 0.2 µg/m<sup>3</sup> for the annual concentration.

#### 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 4101 Visible Emissions**

Rule 4101 states that no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity).

The flare is required to operate smokelessly with no aggregation of air contaminants more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1/4 (or 5% opacity).

Visible emissions are not expected provided the equipment is well maintained.

**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 VI**), 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:

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**Summary**

**RMR**

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
1-1	1.32	0.02	0.00	2.78E-07	No	Yes
<b>Project Totals</b>	1.32	0.02	0.00	2.78E-07		
<b>Facility Totals</b>	>1	0.75	0.00	5.65E-07		

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

Unit # 1-1

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

### **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.

The following special condition (Proposed Permit Requirements) listed above is required.

### **Rule 4311 Flares**

The purpose of this rule is to limit the emissions of volatile organic compounds (VOCs) and oxides of nitrogen (NO<sub>x</sub>) from the operation of flares.

The flare is subject to the following requirements:

*The flame shall be present at all times when combustible gases are vented through the flare.*

*The outlet shall be equipped with an automatic ignition system, or, shall operate with a pilot flame present at all times when combustible gases are vented through the flare, except during purge periods for automatic-ignition equipped flares.*

*Except for flares equipped with a flow-sensing ignition system, a heat sensing device such as a thermocouple, ultraviolet beam sensor, infrared sensor, or an alternative equivalent device, capable of continuously detecting at least one pilot flame or the flare flame is present shall be installed and operated.*

*Flares that use flow-sensing automatic ignition systems and which do not use a continuous flame pilot shall use purge gas for purging.*

*Open flares (air-assisted, steam-assisted, or non-assisted) in which the flare gas pressure is less than 5 psig shall be operated in such a manner that meets the provisions of 40 CFR 60.18. The requirements of this section shall not apply to Coanda effect flares.*

Except for flares that meet the emission limits specified in Table 3, operators of flares located at operations specified in Table 2 shall complete one of the following options:

Submit an ATC application to limit flaring annual throughput through an enforceable Permit to Operate limit, to levels not to exceed those specified in Table 2 for two consecutive calendar years, per the compliance schedule in Section 7.2; or

Replace or modify the flare to meet the emissions limits in Table 3 per the compliance schedule in Section 7.3.

<u>Table 2 – Flare Annual Throughput Thresholds (MMBtu/calendar year)</u>	
<u>Flare Category</u>	<u>MMBtu/yr</u>
<u>A. Flares used at Oil and Gas Operations, and Chemical Operations</u>	<u>25,000</u>
<u>B. Flares used at Landfill Operations</u>	<u>90,000</u>
<u>C. Flares used at Digester Operations</u>	<u>100,000</u>
<u>D. Flares used at Organic Liquid Loading Operations</u>	<u>25,000</u>

As demonstrated in the Calculations Section, the flare will be limited (by permit condition) to 58,200 MMBtu/yr. Further, the subject flare will not be used in any of the operations listed in Table 2. Therefore, the throughput limits in Table 2 are not applicable.

Compliance with the requirements of this rule is expected.

**California Health & Safety Code 42301.6 (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.

**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**

It is determined that another agency has prepared an environmental review document for the project. 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 greenhouse gas emissions. The District has determined that the applicant is responsible for implementing greenhouse gas mitigation measures, if any, imposed by the Lead Agency.

### **District CEQA Findings**

The County of Merced (County) is the public agency having principal responsibility for approving the project. As such, the County served as the Lead Agency (CCR §15367). In approving the project, the Lead Agency prepared and adopted a Negative Declaration. The Lead agency filed a Notice of Determination, stating that the environmental document was adopted pursuant to the provisions of CEQA and concluding that the project would not have a significant effect on the environment.

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), (CCR §15381). As a Responsible Agency the District complies with CEQA by considering the environmental document prepared by the Lead Agency, and by reaching its own conclusion on whether and how to approve the project (CCR §15096).

The District has considered the Lead Agency's environmental document. Furthermore, the District has conducted an engineering evaluation of the project, this document, which demonstrates that Stationary Source emissions from the project would be below the District's thresholds of significance for criteria pollutants. Thus, the District finds that through a combination of project design elements, compliance with applicable District rules and regulations, and compliance with District air permit conditions, project specific stationary source emissions will have a less than significant impact on air quality. The District does not have authority over any of the other project impacts and has, therefore, determined that no additional findings are required (CEQA Guidelines §15096(h)).

### **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 criteria pollutant emissions and toxic air contaminant emissions associated with the proposed project are not significant, and there is minimal potential for public concern for this particular facility/operation. 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. Recommendation**

Compliance with all applicable rules and regulations is expected. Issue ATC N-9642-1-1 subject to the permit conditions on the attached draft ATC in **Attachment VII**.

**X. Billing Information**

<b>Annual Permit Fees</b>			
<b>Permit Number</b>	<b>Fee Schedule</b>	<b>Fee Description</b>	<b>Annual Fee</b>
N-9642-1-1	3020-02-H	116.4 MMBtu/hr	\$ 1238.00

- I: ATC N-9642-1-0
- II: Site Photo and Flare Location Diagram
- III: Flare Manufacturer Specifics
- IV: Process Diagram
- V: Emissions Factors
- VI: HRA
- VII: Draft ATC

ATTACHMENT I  
ATC N-9642-1-0



**San Joaquin Valley**  
AIR POLLUTION CONTROL DISTRICT



## AUTHORITY TO CONSTRUCT

PERMIT NO: N-9642-1-0

ISSUANCE DATE: 01/22/2020

LEGAL OWNER OR OPERATOR: MERCED PIPELINE, LLC  
MAILING ADDRESS: 3711 MEADOW VIEW DR  
SUITE 100  
REDDING, CA 96002-9810

LOCATION: 1550 RAHILLY RD  
MERCED, CA 95341

EQUIPMENT DESCRIPTION:  
BIOGAS CLEANUP PLANT CONSISTING OF H<sub>2</sub>S ACTIVATED CARBON ADSORPTION AND CO<sub>2</sub> MEMBRANE REMOVAL SYSTEM

### CONDITIONS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
2. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. The raw biogas treatment system shall be maintained in proper operating condition at all times. [District Rule 2201]
4. VOC emissions from operation shall not exceed 0.05 lb/day. [District Rule 2201]
5. Total sulfur emissions from operation shall not exceed 1.0 lb/day. [District Rule 2201]
6. Sulfur concentration (as H<sub>2</sub>S) shall not exceed either of the following: 50 ppmv in off-spec gas vent and 4 ppmv in CO<sub>2</sub> vent gas. [District Rule 4201]
7. Venting of off-spec biogas to atmosphere shall be done no more than any of the following: 2 hrs/day or 126 hrs/yr. [District Rule 2201]
8. No more than 3% by volume of treated biogas shall be vented to atmosphere. [District Rule 2201]
9. VOC content of the vapor processed through this operation shall not exceed 10% by weight. Permittee shall sample and record the VOC content of the vapor at least once every 12 months. The sample shall be taken on the main vapor line after all individual vapor streams are combined and prior to the sulfur scrubbers. [District Rules 1070 and 2201]

#### CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 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 2000, 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.

Samiir Sheikh, Executive Director / APCD

Richard W. Kasey, Director of Permit Services

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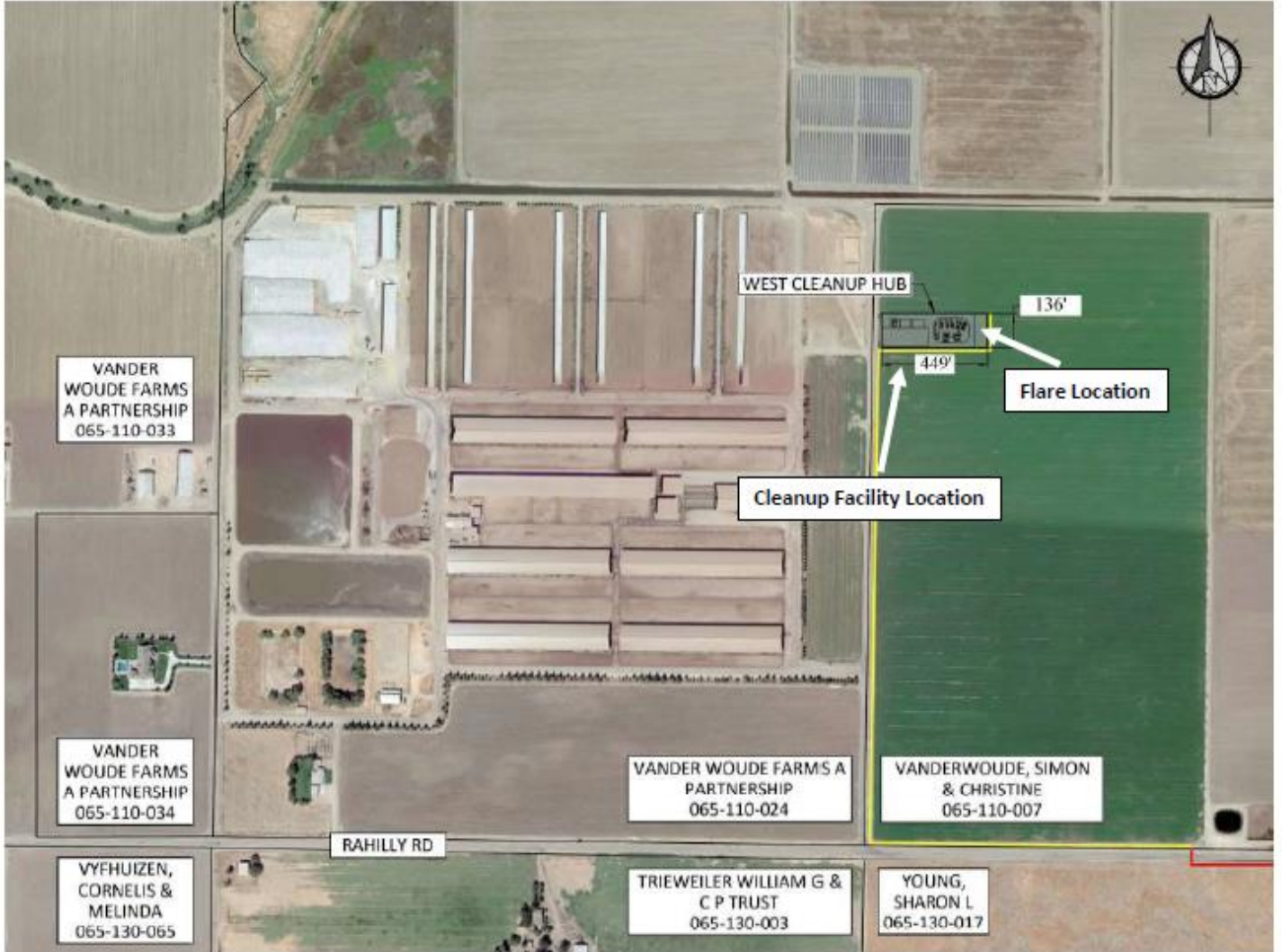
Conditions for N-9642-1-0 (continued)

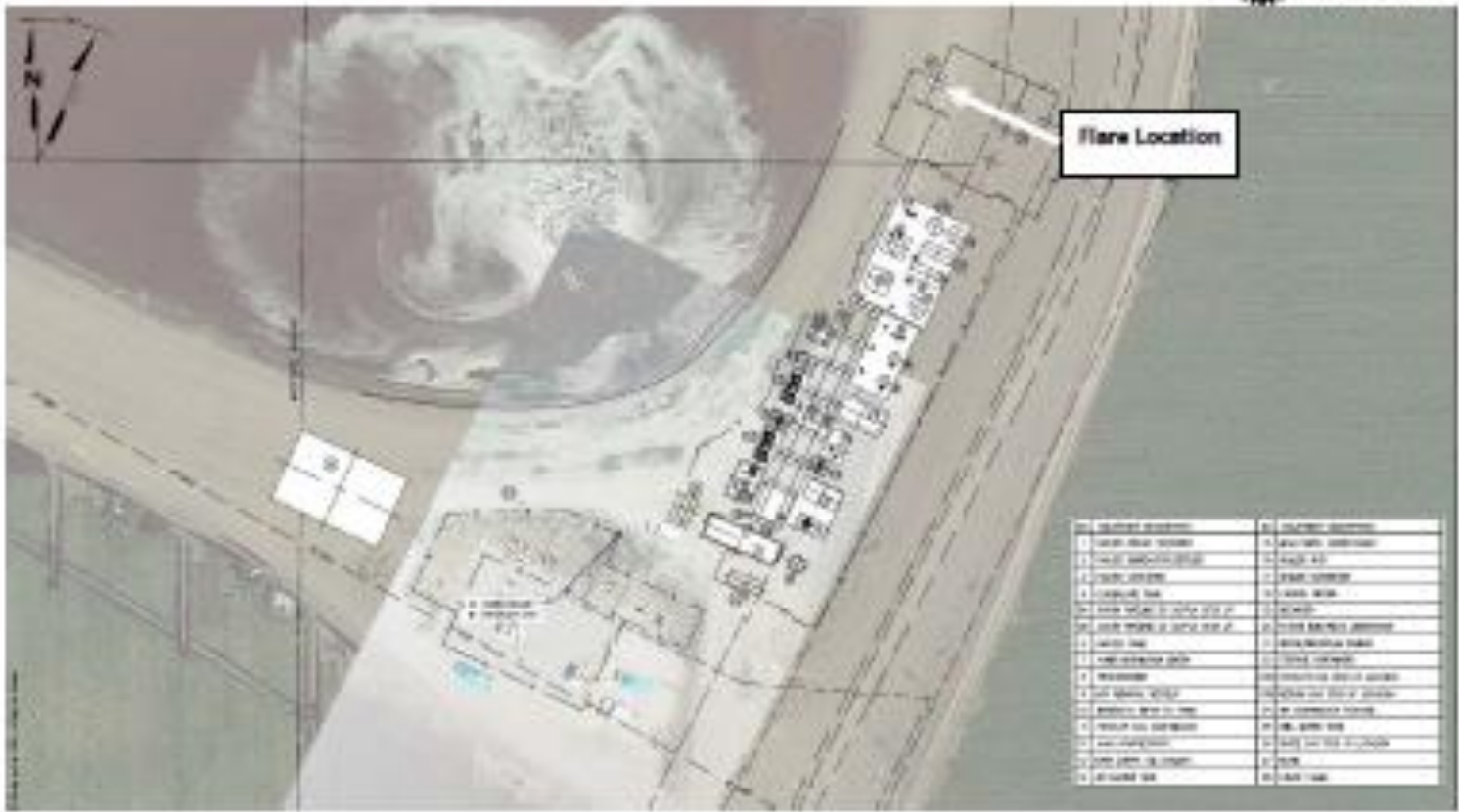
Page 2 of 2

10. The VOC content by weight percent (wt.%) shall be determined using American Society of Testing and Materials (ASTM) D1945 for gases and South Coast Air Quality Management District (SCAQMD) Method 304-91 or the latest revision of ASTM Method E168, E169 or E260 for liquids. [District Rule 4401]
11. Ongoing compliance to confirm no detectable VOC shall be demonstrated at startup and at least once per 6 months thereafter by sampling both the influent and the effluent gas streams to the carbon adsorber system with an FID, PID, or other District-approved VOC detection device. [District Rule 2201]
12. The carbon vessels shall be sealed vapor tight except during servicing of spent carbon in a vessel. [District Rule 2201]
13. A minimum of two carbon system vessels which are connected in series shall be utilized at all times. [District Rule 2201]
14. Sampling ports adequate for extraction of grab samples, measurement of gas flow rate, and use of an FID, PID, or other District-approved VOC detection device shall be provided for both the influent and the effluent gas streams. [District Rule 1081]
15. Records of the cumulative running time of activated carbon adsorbers and the measured influent and effluent VOC concentrations shall be maintained. [District Rule 2201]
16. Daily records of cumulative time of venting of offspec biogas shall be maintained. [District Rule 2201]
17. Sulfur concentration (H<sub>2</sub>S) of sulfur removal system outlet gas shall be measured monthly. [District Rule 4201]
18. Permittee shall maintain accurate records of all VOC and H<sub>2</sub>S concentration test results, and influent and effluent flow rates, total number of hours of operation on each day and dates of operation. [District Rule 1070]
19. Records shall be maintained for a period of five years and shall be made available for District inspection upon request. [District Rule 2201]

# ATTACHMENT II

## Site Location Photo and Flare Location Diagram





ATTACHMENT III  
Flare Manufacturer Specifics



# PARNEL

## BIOGAS INC.

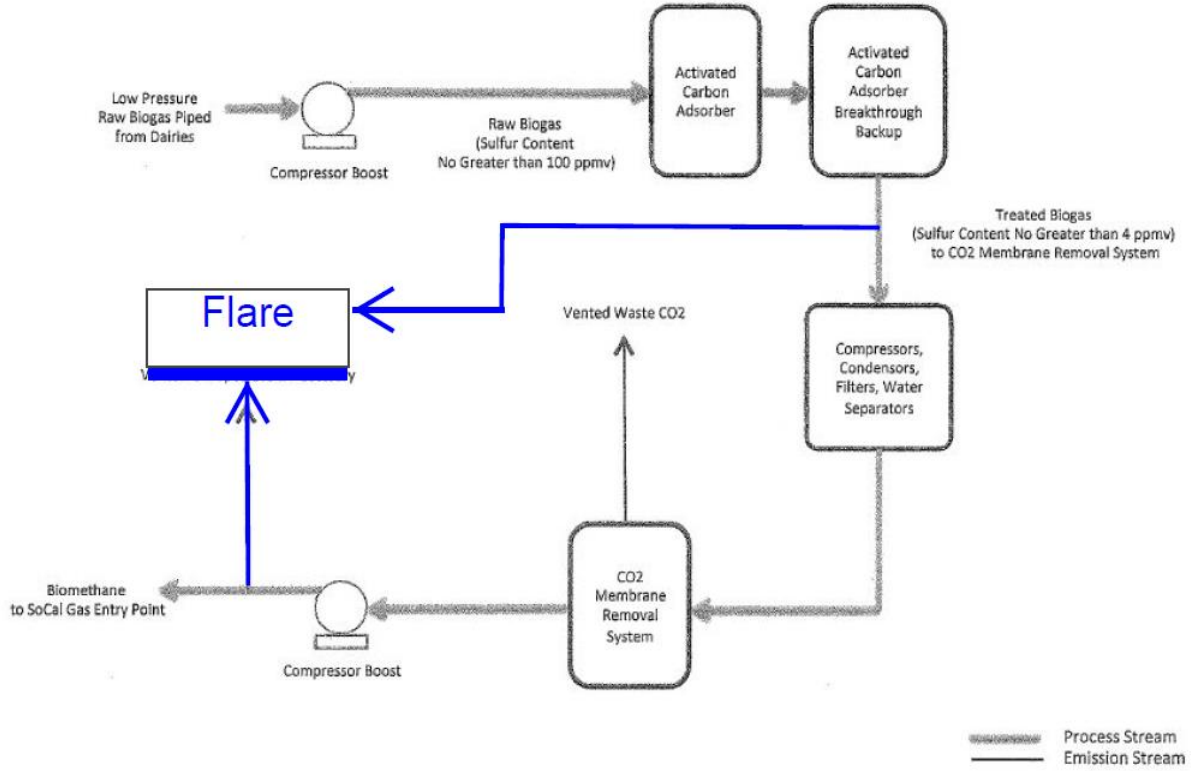
### PROCESS SPECIFICATIONS

Biogas Gas Flow rate Flare (max 10' lip)	2000 scfm
Biogas Gas Flow rate Flare (min 10' lip)	200 scfm
Flare exit velocity (not to exceed )	60.0 ft/sec
Biogas Gas Composition:	
Methane	60-98%
CO <sub>2</sub> , N <sub>2</sub> , O <sub>2</sub> , VOC's, H <sub>2</sub> O, H <sub>2</sub> S	40-2%
Heat Release (@ 2000 scfm (max):	107 MMBtu/hr
Inlet Pressure to flare	4 psig
Blower motor Horsepower	N/A
Sight Elevation	218 ASL
Design wind load per ASCE 7-99	110mph
Noise level at 3ft.	< 85dba
Design ambient air temperature	-30F to 110F
Electrical Area Classification	Non-hazardous

### **Expected Flow/Emissions at 2000scfm, 98% methane:**


N<sub>2</sub> 73.5 % vol.  
O<sub>2</sub> 13.6 % vol.  
CO<sub>2</sub> 6.0 % vol.  
H<sub>2</sub>O 6.9 % vol.  
NO<sub>2</sub> 0.068 lbs/MMBTU  
CO 0.31 lbs/MMBTU


# ATTACHMENT IV Process Diagram



# ATTACHMENT V Emissions Profiles



 NORTHNT1 PAS - [View Application Emissions: N-9642-1-1]

 File Actions Window

Permit #: N 9642-1 -1 Issued: //  
 Implemented: //

Last Updated  
 01/06/21 EDGEHILR

Facility: **MERCED PIPELINE, LLC**

Use PTO emissions Equipment Prebaselined:  Yes  No

PM2.5/PM10 %						
PM2.5 (lb/Yr)		<b>NOX</b>	<b>SOX</b>	<b>PM10</b>	<b>CO</b>	<b>VOC</b>
Potential to Emit (lb/Yr):		3958	507	466	18042	349
Daily Emis. Limit (lb/Day):		190.0	24.3	22.3	866.0	2.0
Quarterly Net Emissions Change (lb/Qtr)	1:	989	126	116	4510	87
	2:	989	127	116	4510	87
	3:	990	127	117	4511	87
	4:	990	127	117	4511	88
Check if offsets are triggered but exemption applies		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Offset Ratio:						
Quarterly Offset Amounts (lb/Qtr)	1:					
	2:					
	3:					
	4:					
SLC ID (PTE):						
SLC ID (DEL):						

Facility SLC

Exit

ATTACHMENT VI  
HRA

## San Joaquin Valley Air Pollution Control District Risk Management Review and Ambient Air Quality Analysis



To: Richard Edgehill – Permit Services  
 From: Keanu Morin – Technical Services  
 Date: December 11, 2020  
 Facility Name: Merced Pipeline, LLC  
 Location: 1550 RAHILLY RD, MERCED  
 Application #(s): N-9642-1-1  
 Project #: N-1204397

### 1. Summary

#### 1.1 RMR

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
1-1	1.32	0.02	0.00	2.78E-07	No	Yes
<b>Project Totals</b>	1.32	0.02	0.00	2.78E-07		
<b>Facility Totals</b>	>1	0.75	0.00	5.65E-07		

#### 1.2 AAQA

Pollutant	Air Quality Standard (State/Federal)				
	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass		Pass		
NO <sub>x</sub>	Pass				Pass
SO <sub>x</sub>	Pass	Pass		Pass	Pass
PM10				Pass	Pass
PM2.5				Pass	Pass

Notes:

- Results were taken from the attached AAQA Report.
- The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2) unless otherwise noted below.
- Modeled PM10 concentrations were below the District SIL for non-fugitive sources of 5 µg/m<sup>3</sup> for the 24-hour average concentration and 1 µg/m<sup>3</sup> for the annual concentration.
- Modeled PM2.5 concentrations were below the District SIL for non-fugitive sources of 1.2 µg/m<sup>3</sup> for the 24-hour average concentration and 0.2 µg/m<sup>3</sup> for the annual concentration.

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

#### Unit # 1-1

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

2. Operation of the flare for maintenance, testing, and required regulatory purposes shall not exceed 500 hours per calendar year.

## 2. Project Description

Technical Services received a request on November 18, 2020 to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for the following:

- Unit -1-1: MODIFICATION OF BIOGAS CLEANUP PLANT CONSISTING OF H<sub>2</sub>S ACTIVATED CARBON ADSORPTION AND CO<sub>2</sub> MEMBRANE REMOVAL SYSTEM: ADD FLARE

## 3. RMR Report

### 3.1 Analysis

The District performed an analysis pursuant to the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015) to determine the possible cancer and non-cancer health impact to the nearest resident or worksite. This policy requires that an assessment be performed on a unit by unit basis, project basis, and on a facility-wide basis. If a preliminary prioritization analysis demonstrates that:

- A unit's prioritization score is less than the District's significance threshold and;
- The project's prioritization score is less than the District's significance threshold and;
- The facility's total prioritization score is less than the District's significance threshold

Then, generally no further analysis is required.

The District's significant prioritization score threshold is defined as being equal to or greater than 1.0. If a preliminary analysis demonstrates that either the unit(s) or the project's or the facility's total prioritization score is greater than the District threshold, a screening or a refined assessment is required

If a refined assessment is greater than one in a million but less than 20 in one million for carcinogenic impacts (Cancer Risk) and less than 1.0 for the Acute and Chronic hazard indices (Non-Carcinogenic) on a unit by unit basis, project basis and on a facility-wide basis the proposed application is considered less than significant. For unit's that exceed a cancer risk of 1 in one million, Toxic Best Available Control Technology (TBACT) must be implemented.

Toxic emissions for this project were calculated using the following methods:

- Toxic emissions for this proposed unit were calculated using 2001 Ventura County's Air Pollution Control District's emission factors for Natural Gas Fired external combustion and based on the Dairy Biomethane characterization in Pipeline Quality Biomethane: North American Guidance Document for Introduction of Dairy Waste Derived Biomethane [Into Existing Natural Gas Networks](#) (2009).

These emissions were input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy, risks from the proposed unit's toxic emissions were prioritized using the procedure in the 2016 CAPCOA Facility Prioritization Guidelines. The prioritization score for this proposed facility was 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 Merced from 2013-2017 (rural dispersion coefficient selected) 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:

Source Process Rates					
Unit ID	Process ID	Process Material	Process Units	Hourly Process Rate	Annual Process Rate
1-1	1	Dairy Biogas	MMscf.	0.12	60.00

Point Source Parameters						
Unit ID	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)	Vertical/Horizontal/Capped
1-1	118.4MMbtu/hr Dairy Gas Flare	14.11	533	14.14	1.98	Vertical

#### 4. AAQA Report

The District modeled the impact of the proposed project on the National Ambient Air Quality Standard (NAAQS) and/or California Ambient Air Quality Standard (CAAQS) in accordance with District Policy APR-1925 (Policy for District Rule 2201 AAQA Modeling) and EPA's Guideline for Air Quality Modeling (Appendix W of 40 CFR Part 51). The District uses a progressive three level approach to perform AAQAs. The first level (Level 1) uses a very conservative approach. If this analysis indicates a likely exceedance of an AAQS or Significant Impact Level (SIL), the analysis proceeds to the second level (Level 2) which implements a more refined approach. For the 1-hour NO<sub>2</sub> standard, there is also a third level that can be implemented if the Level 2 analysis indicates a likely exceedance of an AAQS or SIL.

The modeling analyses predicts the maximum air quality impacts using the appropriate emissions for each standard's averaging period. Required model inputs for a refined AAQA include background ambient air quality data, land characteristics, meteorological inputs, a receptor grid, and source parameters including emissions. These inputs are described in the sections that follow.

Ambient air concentrations of criteria pollutants are recorded at monitoring stations throughout the San Joaquin Valley. Monitoring stations may not measure all necessary pollutants, so background data may need to be collected from multiple sources. The following stations were used for this evaluation:

Monitoring Stations				
Pollutant	Station Name	County	City	Measurement Year
CO	Madera Pump Yard	Madera	Madera	2018
NOx	Merced-Coffee	Merced	Merced	2018
PM10	2334 'M' ST.	Merced	Merced	2018
PM2.5	Merced-Coffee	Merced	Merced	2018
SOx	Fresno - Garland	Fresno	Fresno	2018

Technical Services performed modeling for directly emitted criteria pollutants with the emission rates below:

Emission Rates (lbs/hour)						
Unit ID	Process	NOx	SOx	CO	PM10	PM2.5
1-1	1	7.92	0.13	36.08	0.93	0.93

Emission Rates (lbs/year)						
Unit ID	Process	NOx	SOx	CO	PM10	PM2.5
1-1	1	3,958	64	316,061	466	466

The AERMOD model was used to determine if emissions from the project would cause or contribute to an exceedance of any state of federal air quality standard. The parameters outlined below and meteorological data for Merced from 2013-2017 (rural dispersion coefficient selected) were used for the analysis:

The following parameters were used for the review:

Point Source Parameters						
Unit ID	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)	Vertical/ Horizontal/ Capped
1-1	116.4MMbtu/hr Dairy Gas Flare	14.11	533	14.14	1.98	Vertical

## 5. Conclusion

### 5.1 RMR

The cumulative acute and chronic indices for this facility, including this project, are below 1.0; and the cumulative cancer risk for this facility, including this project, is less than 20 in a million. In addition, the cancer risk for each unit in this 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).

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

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

## **5.2 AAQA**

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

## **6. Attachments**

- A. Modeling request from the project engineer
  - B. Additional information from the applicant/project engineer
  - C. Prioritization score w/ toxic emissions summary
  - D. Facility Summary
  - E. AAQA results
-

ATTACHMENT VII  
Draft ATC



*San Joaquin Valley  
Air Pollution Control District*

## AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT  
**DRAFT**

**PERMIT NO:** N-9642-1-1

**LEGAL OWNER OR OPERATOR:** MERCED PIPELINE, LLC  
**MAILING ADDRESS:** 3711 MEADOW VIEW DR  
SUITE 100  
REDDING, CA 96002-9610

**LOCATION:** 1550 RAHILLY RD  
MERCED, CA 95341

**EQUIPMENT DESCRIPTION:**

BIOGAS CLEANUP PLANT CONSISTING OF H<sub>2</sub>S ACTIVATED CARBON ADSORPTION, CO<sub>2</sub> MEMBRANE REMOVAL SYSTEM, AND 116.4 MMBTU/HR BACKUP FLARE

## CONDITIONS

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1. ATC N-9642-1-0 is hereby cancelled. [District Rule 2201]
2. {271} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
3. The exhaust stack shall vent vertically upward . The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
6. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
7. The raw biogas treatment system shall be maintained in proper operating condition at all times. [District Rule 2201]
8. VOC content of the vapor processed through biogas treatment system shall not exceed 10% by weight. Permittee shall sample and record the VOC content of the vapor at least once every 12 months. The sample shall be taken on the main vapor line after all individual vapor streams are combined and prior to the sulfur scrubbers. [District Rules 1070 and 2201]

CONDITIONS CONTINUE ON NEXT PAGE

**YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 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.

Samir Sheikh, Executive Director / APCCO

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Brian Clements, Director of Permit Services

N-9642-1-1 : Feb 19 2021 2:01PM -- SCANDURL : Joint Inspection NOT Required

9. The VOC content by weight percent (wt.%) shall be determined using American Society of Testing and Materials (ASTM) D1945 for gases and South Coast Air Quality Management District (SCAQMD) Method 304-91 or the latest revision of ASTM Method E168, E169 or E260 for liquids. [District Rule 4401]
10. Activated carbon VOC control device shall be at least 95% efficient in controlling the VOCs from the raw biogas. [District Rule 2201]
11. Flare shall only be used for 1), combustion of offspec product gas from CO<sub>2</sub> removal step, 2), combustion of gas from the activated carbon exhaust due to lack of biogas cleanup facility capacity, maintenance, or unexpected biogas cleanup facility downtime, and 3), depressurization of the biogas cleanup facility during shutdown for maintenance. There shall be no ongoing flaring. [District Rule 2201]
12. Flare shall operate smokelessly with no discharge into the atmosphere of an air contaminant aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1/4 or 5% opacity. [District Rule 2201]
13. A flame shall be present at all times whenever combustible gases are vented through the flare. [District Rules 2201 and 4311]
14. Except for flares equipped with a flow-sensing ignition system, a heat sensing device such as a thermocouple, ultraviolet beam sensor, infrared sensor, or an alternative equivalent device, capable of continuously detecting at least one pilot flame or the flare flame is present shall be installed and operated. [District Rules 2201 and 4311]
15. Flares that use flow-sensing automatic ignition systems and which do not use a continuous flame pilot shall use purge gas for purging. [District Rule 4311]
16. Open flares (air-assisted, steam-assisted, or non-assisted) in which the flare gas pressure is less than 5 psig shall be operated in such a manner that meets the provisions of 40 CFR 60.18. The requirements of this section shall not apply to Coanda effect flares. [District Rule 4311]
17. The flare shall be equipped with an operational, non-resettable, totalizing mass or volumetric fuel flow meter or other District-approved alternative method to determine the quantity of gas flared. [District Rule 2201]
18. Flaring shall not exceed either of the following limits: 333.33 MMBtu/day and 58,200 MMBtu/yr (equivalent to 500 hours operation per calendar year). [District Rules 2201 and 4102]
19. Emissions from the flare shall not exceed any of the following limits: 0.068 lb-NO<sub>x</sub>/MMBtu, 0.008 lb-PM<sub>10</sub>/MMBtu, 0.31 lb-CO/MMBtu, or 0.006 lb-VOC/MMBtu. [District Rule 2201]
20. Sulfur concentration of flared gas shall not exceed 50 ppmv. [District Rule 2201]
21. The permittee may utilize an averaging period of up to 24 hours in length for demonstration of compliance with the flared gas sulfur content limit. [District Rules 2201 and 4801]
22. Flared gas sulfur content analysis shall be performed within 60 days of initial startup operation, and at least once every 12 months thereafter, using EPA Method 11 or EPA Method 15, as appropriate. Records of the flared gas sulfur content analysis shall be maintained and provided to the District upon request. [District Rule 2201]
23. The sulfur content of the flared gas shall be monitored and recorded at least once every calendar quarter in which a flared gas sulfur content analysis is not performed. If quarterly monitoring shows a violation of the sulfur content limit of this permit, monthly monitoring will be required until six consecutive months of monitoring show compliance with the sulfur content limit. Once compliance with the sulfur content limit is shown for six consecutive months, then the monitoring frequency may return to quarterly. Monitoring shall not be required during periods in which the flare does not operate. [District Rule 2201]
24. Monitoring of the flared gas sulfur content shall be performed using gas detection tubes calibrated for H<sub>2</sub>S; a Testo 350 XL portable emission monitor; a continuous fuel gas monitor that meets the requirements specified in SCAQMD Rule 431.1, Attachment A; District-approved source test methods, including EPA Method 15, ASTM Method D1072, D4084, and D5504; District-approved in-line H<sub>2</sub>S monitors; or an alternative method approved by the District. Prior to utilization of in-line monitors to demonstrate compliance with the flared gas sulfur content limit of this permit, the permittee shall submit details of the proposed monitoring system, including the make, model, and detection limits, to the District and obtain District approval for the proposed monitor(s). [District Rule 2201]

25. Initial compliance with activated carbon VOC control efficiency requirements shall be demonstrated by the results of the laboratory sample analysis. The results shall be submitted to the District within 60 days of the test. [District Rule 1081]
26. Ongoing compliance with VOC emission rate and activated carbon control efficiency requirements shall be demonstrated at least once per week by sampling both the influent and the effluent gas streams with an FID, PID, or other District-approved VOC detection device. [District Rule 2201]
27. Permittee may request District approval to reduce the monitoring frequency from weekly to monthly by providing to the District weekly monitoring data or design information indicating that breakthrough does not occur using a single carbon vessel at maximum gas flow and VOC loading for at least three months. [District Rule 2201]
28. The carbon vessels shall be sealed vapor tight except during servicing of spent carbon in a vessel. [District Rule 2201]
29. A minimum of two carbon system vessels which are connected in series shall be utilized at all times. [District Rule 2201]
30. {1413} Sampling ports adequate for extraction of grab samples, measurement of gas flow rate, and use of an FID, PID, or other District-approved VOC detection device shall be provided for both the influent and the effluent gas streams. [District Rule 1081]
31. Records of the cumulative running time of activated carbon adsorbers and the measured influent and effluent VOC concentrations shall be maintained. [District Rule 2201]
32. Sulfur concentration (H<sub>2</sub>S) of sulfur removal system outlet gas shall be measured monthly. [District Rule 2201]
33. Permittee shall maintain accurate records of all VOC and H<sub>2</sub>S concentration test results, and activated carbon influent and effluent flow rates, total number of hours of operation on each day and dates of operation. [District Rule 1070]
34. Records of hydrogen sulfide analyzer(s) installed or utilized and the calibration records of such analyzer(s) shall be maintained. Records are only required on such analyzer(s) utilized to demonstrate compliance with this permit. [District Rule 2201]
35. The permittee shall maintain flare operation records including the dates of operation, the purpose of operation, and the daily and annual quantities of flared gas flared, in standard cubic feet (scf) and MMBtu. [District Rule 2201]
36. Records shall be maintained for a period of five years and shall be made available for District inspection upon request. [District Rule 2201]

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