



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT



HEALTHY AIR LIVING™

MAY 06 2013

Dan Martin
E & J Gallo Winery
18000 W River Rd
Livingston, CA 95334

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: N-1237
Project Number: N-1123806

Dear Mr. Martin:

Enclosed for your review and comment is the District's analysis of E & J Gallo Winery's application for an Authority to Construct for installation of a wastewater treatment anaerobic digester operation served by a biological sulfur scrubber, two activated carbon filters, and enclosed flare, at 18000 W River Rd, Livingston.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. After addressing all comments made during the 30-day public notice and 45-day EPA notice comment periods, 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. Stanley Tom of Permit Services at (559) 230- 5900.

Sincerely,

David Warner
Director of Permit Services

DW:st

Enclosures

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

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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**NOTICE OF PRELIMINARY DECISION
FOR THE PROPOSED ISSUANCE OF
AN AUTHORITY TO CONSTRUCT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to E & J Gallo Winery for installation of a wastewater treatment anaerobic digester operation served by a biological sulfur scrubber, two activated carbon filters, and enclosed flare, at 18000 W River Rd, Livingston.

The analysis of the regulatory basis for this proposed action, Project #N-1123806, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and at any District office. For additional information, please contact the District at (559) 230-6000. Written comments on this project must be submitted by June 5, 2013 to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 1990 EAST GETTYSBURG AVENUE, FRESNO, CA 93726.**

San Joaquin Valley Air Pollution Control District

Authority to Construct Application Review

New Digester and Waste Water Treatment Operation Served by Scrubber and Activated Carbon Filters With Digester Gas-Fired Flare

Facility Name: E & J Gallo Winery
Mailing Address: 18000 W River Rd
Livingston, CA 95334
Contact Person: Dan Martin
Telephone: (209) 394-6211
E-Mail: Dan.Martin@ejgallo.com
Application No: N-1237-661-0
Project No: N-1123806
Deemed Complete: January 10, 2013

Date: May 2, 2013
Engineer: Stanley Tom
Lead Engineer: Joven Refuerzo

I. Proposal

E & J Gallo Winery has requested an Authority to Construct (ATC) permit to install a wastewater treatment anaerobic digester operation served by a biological sulfur scrubber, two activated carbon filters, and enclosed flare. The produced, treated digester gas will also be directed to two digester gas-fired engines listed in permits N-1237-605-0 and '606-0 which were processed in project N-1121959.

E & J Gallo Winery has received their Title V Permit. This modification can be classified as a Title V significant modification pursuant to Rule 2520, Section 3.29, and can be processed with a Certificate of Conformity (COC). But the facility has not requested that this project be processed in that manner; therefore, the facility will be required to submit a Title V significant modification application prior to operating under the revised provisions of the ATC(s) issued with this project. The facility may commence construction under the ATCs while the Title V significant modification is processed.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (4/21/11)
Rule 2410 Prevention of Significant Deterioration (6/16/11)
Rule 2520 Federally Mandated Operating Permits (6/21/01)
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 4201 Particulate Matter Concentration (12/17/92)
Rule 4301 Fuel Burning Equipment (12/17/92)
Rule 4311 Flares (6/18/09)
Rule 4801 Sulfur Compounds (12/17/92)
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 18000 W River Rd in Livingston, CA. The equipment is not 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.

IV. Process Description

E & J Gallo Winery is proposing the operation of a wastewater treatment and energy recovery project called Livingston Water Innovation and Energy (L-WINE).

E & J Gallo Winery produces wine and beverages for commercial sale. The wastewater from the wine and beverage manufacturing operations is collected and transferred to an anaerobic digester, which generates a waste gas stream (commonly referred to as “biogas” or “digester gas”) of which the primary constituents are methane (CH₄), carbon dioxide (CO₂), hydrogen sulfide (H₂S) as well as small amounts of non-methane organic compounds (NMOC). The facility will treat about 0.5 MM GPD of winery waste water through a High Rate Anaerobic Reactor (HRAD) and aerobic treatment in a Membrane Biological Reactor (MBR) System. The project will also have a Low Rate Anaerobic Digester (LRAD) for pomace digestion and a dewatering system will send the effluent to the MBR system for processing.

Winery waste water is collected from drains in the winery and is a mix of process and storm water. This water is sent to a 700K gallon Equalization (EQ) Tank before treatment. After the EQ Tank, the waste water is sent to the HRAD and where 90% sCOD and BOD is removed. This water is then sent to the MBR system comprised of an anoxic tank, aerobic tank (which receives air from the HRAD), and the membrane basin where permeate is discharged for vineyard irrigation and sludge is recycled to the anoxic basin to increase treatment. The MBR system is for nitrogen removal as well as COD/BOD polishing.

The LRAD is a large digester with a much longer retention time than the HRAD. The digesters are fed with wastewater and pomace from the winery to produce 1 MW worth of Biogas. The HRAD and the LRAD both produce 1 MW worth of biogas independently. The waste gas from the digester is routed to a biological scrubber for H₂S control and then to two activated carbon units for combustion in two digester gas-fired engines listed on permits N-1237-605 and '606 for electricity production or, in the event of mechanical failure or emergency, to an enclosed flare to incinerate the CH₄ present in the waste gas stream prior to discharge to the atmosphere.

V. Equipment Listing

N-1237-661-0: DIGESTER GAS OPERATION COMPOSED OF A WASTE WATER TREATMENT SYSTEM WITH AN EQUALIZATION TANK, HIGH RATE ANAEROBIC DIGESTER, TWO LOW RATE ANAEROBIC DIGESTERS, AND MEMBRANE BIOLOGICAL REACTOR SYSTEM CONSISTING OF AN ANOXIC TANK, A PRE-AERATION TANK, AND TWO MEMBRANE BIOLOGICAL REACTORS WITH BIOGAS SENT TO ONE BIOLOGICAL SCRUBBER, TWO ACTIVATED CARBON FILTERS, ONE 600 CFM OVIVO GWE ENCLOSED FLARE, AND/OR IC ENGINES LISTED ON PERMITS N-1237-605 AND '606

VI. Emission Control Technology Evaluation

Anaerobic Digester

Inside the digester under anaerobic conditions, biological organisms digest organic wastes in the wastewater from the wine and beverage manufacturing process. This process generates waste gas, which primarily consists of methane (CH₄), carbon dioxide (CO₂), and hydrogen sulfide (H₂S).

A biological scrubber is used to remove hydrogen sulfide (H₂S) from the digester gas stream followed by two activated carbon units prior to incineration in the IC engines or enclosed flare. The two activated carbon units will be installed in series and will be operated simultaneously or one at a time when one is being serviced. Due to the low concentrations of H₂S present in the digester gas, it is not practical to establish the scrubber's maximum H₂S removal efficiency. Instead, the applicant is proposing to limit the H₂S concentration influent to the flare to 40 ppmv. The proposed H₂S concentration limit should be achievable utilizing the biological scrubber.

Flare

The applicant is proposing to combust the CH₄ present in the digester gas in an enclosed flare. The flare is a commercially available unit that is designed specifically for this application. Digester gas combustion generates NO_x, SO_x, PM₁₀, CO and VOC emissions.

VII. General Calculations

A. Assumptions

- Operation schedule = 24 hr/day and 1,680 hours/year (per applicant)
- Biogas F-factor = 9,800 dscf/MMBtu (per applicant)
- Biogas higher heating value = 900 Btu/scf (per applicant)
- Biogas percent methane = 79% (per gas analysis see Attachment A)
- Daily maximum flare gas flowrate = 600 scf/min x 60 min/hr x 24 hours/day = 864,000 scf/day

- Annual maximum flare gas flowrate = 600 scf/min x 60 min/hr x 1680 hours/year = 60,480,000 scf/year
- Scrubber outlet biogas H₂S concentration = 40 ppmv (per applicant)
- Ethanol wastewater concentrations will vary during the season. The highest concentration of ethanol that would be released to the wastewater operation is 2%. Wastewater sample data was not provided so assumptions of concentrations from similar operations were used.

B. Emission Factors

Waste Water Operation

For the wastewater operation, emission calculations have been accomplished by utilizing WATER9 software. District default pollution concentration values and emission factors were used.

Flare

The flare will only be fired on biogas fuel at all times.

Flare Emission Factors Biogas Fuel		
Pollutant	lb/MMBtu	Source
NO _x	0.06	Per Manufacturer
SO _x	0.0075	Mass balance equation below based 40 ppmv H ₂ S in scrubber outlet
PM ₁₀	0.008	Per Manufacturer
CO	0.3	Per Manufacturer
VOC	0.0027	Per Manufacturer

$$SO_x = \frac{\left(36,000 \frac{ft^3 - fuel}{hr}\right) \left(\frac{40 ft^3 - H_2S}{10^6 ft^3 - fuel}\right) \left(\frac{34 lb - H_2S}{lb - mol}\right)}{\left(\frac{379.5 ft^3 - H_2S}{lb - mol}\right) \left(\frac{34 lb - H_2S}{32 lb - S}\right) \left(\frac{32 lb - S}{64 lb - SO_2}\right)}$$

$$SO_x = 0.24 \text{ lb/hr}$$

$$SO_x = 0.24 \text{ lb/hr} + (36,000 \text{ scf/hr} \times 900 \text{ Btu/scf}) \times 1E6/MM = 0.0075 \text{ lb/MMBtu}$$

C. Calculations

1. Pre-Project Potential to Emit (PE1)

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

2. Post Project Potential to Emit (PE2)

Digester and Waste Water Operation

Currently, the facility waste water is land applied through irrigation. After installation of the digester and waste water operation, the treated facility waste water will continue to be land applied through irrigation. Therefore, there is no increase in emissions from the land application irrigation water as a result of this project.

The digester gas production operation is fully enclosed. Therefore, there are no emissions assessed to the digester gas production operation.

The potential to emit calculations summary is included in Attachment B.

Waste Water Operation Potential to Emit (lb/day)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
Waste Water Treatment	0	0	0	0	0.0001 → 0.0

Waste Water Operation Potential to Emit (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
Waste Water Treatment	0	0	0	0	0.05 → 0

Flare

The PE2 for each pollutant is calculated with the following equation:

- $PE2 = EF \text{ (lb/MMBtu)} \times \text{Heat Input (MMBtu/day or MMBtu/year)} \times \text{Heating Value (Btu/scf)}$

Daily Post-Project Emissions – Flare (Biogas Fuel)											
Pollutant	Emission Factors		Heat input			PE2 Total					
NO _x	0.06	(lb/MMBtu)	x	864,000	(scf/day)	x	900	(Btu/scf)	=	46.7	(lb/day)
SO _x	0.0075	(lb/MMBtu)	x	864,000	(scf/day)	x	900	(Btu/scf)	=	5.8	(lb/day)
PM ₁₀	0.008	(lb/MMBtu)	x	864,000	(scf/day)	x	900	(Btu/scf)	=	6.2	(lb/day)
CO	0.3	(lb/MMBtu)	x	864,000	(scf/day)	x	900	(Btu/scf)	=	233.3	(lb/day)
VOC	0.0027	(lb/MMBtu)	x	864,000	(scf/day)	x	900	(Btu/scf)	=	2.1	(lb/day)

Annual Post-Project Emissions – Flare (Biogas Fuel)					
Pollutant	Emission Factors		Heat input		PE2 Total
NO _x	0.06	(lb/MMBtu) x 60,480,000	(scf/year) x 900	(Btu/scf) =	3,266 (lb/year)
SO _x	0.0075	(lb/MMBtu) x 60,480,000	(scf/year) x 900	(Btu/scf) =	408 (lb/year)
PM ₁₀	0.008	(lb/MMBtu) x 60,480,000	(scf/year) x 900	(Btu/scf) =	435 (lb/year)
CO	0.3	(lb/MMBtu) x 60,480,000	(scf/year) x 900	(Btu/scf) =	16,330 (lb/year)
VOC	0.0027	(lb/MMBtu) x 60,480,000	(scf/year) x 900	(Btu/scf) =	147 (lb/year)

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

Pursuant to District Rule 2201, the Pre-Project Stationary Source Potential to Emit (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 that have occurred at the source, and which have not been used on-site.

The facility acknowledges that its VOC emissions are already above the Offset and Major Source Thresholds; therefore, SSPE calculations for VOC are not necessary and permit units that only emit VOC will not be shown in the SSPE calculations below.

Pre-Project Stationary Source Potential to Emit [SSPE1] (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
N-1237-1-2	0	0	0	0	-
N-1237-3-8	1,080	86	150	4,440	-
N-1237-4-13	12,994	3,760	6,570	194,472	-
N-1237-5-2	0	0	528	0	-
N-1237-6-3	0	0	73	0	-
N-1237-7-2	0	0	0	0	-
N-1237-8-2	0	0	0	0	-
N-1237-9-2	0	0	0	0	-
N-1237-10-2	0	0	0	0	-
N-1237-12-2	3,942	431	262	552	-
N-1237-17-2	0	0	657	0	-
N-1237-480-3	0	0	14	0	-
N-1237-596-0	0	0	99	0	-
N-1237-601-0	0	0	7	0	-
N-1237-602-0	0	0	115	0	-
N-1237-603-0	0	0	115	0	-
SSPE ₁ Permit Unit	18,016	4,277	8,590	199,464	> 20,000
ERC N-2-2	19,838	0	0	0	-
ERC N-2-3	0	0	0	407,020	-
Total _{ERC}	19,838	0	0	407,020	-
Pre-Project SSPE (SSPE1)	37,854	4,277	8,590	606,484	> 20,000

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

Pursuant to District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) 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 that have occurred at the source, and which have not been used on-site.

Post-Project Stationary Source Potential to Emit [SSPE2] (lb/year)					
Permit Unit	NO_x	SO_x	PM₁₀	CO	VOC
N-1237-1-2	0	0	0	0	-
N-1237-3-8	1,080	86	150	4,440	-
N-1237-4-13	12,994	3,760	6,570	194,472	-
N-1237-5-2	0	0	528	0	-
N-1237-6-3	0	0	73	0	-
N-1237-7-2	0	0	0	0	-
N-1237-8-2	0	0	0	0	-
N-1237-9-2	0	0	0	0	-
N-1237-10-2	0	0	0	0	-
N-1237-12-2	3,942	431	262	552	-
N-1237-17-2	0	0	657	0	-
N-1237-480-3	0	0	14	0	-
N-1237-596-0	0	0	99	0	-
N-1237-601-0	0	0	7	0	-
N-1237-602-0	0	0	115	0	-
N-1237-603-0	0	0	115	0	-
N-1237-661-0	3,266	408	435	16,330	147
SSPE2_{Permit Unit}	21,282	4,685	9,025	215,794	> 20,000
ERC N-2-2	19,838	0	0	0	-
ERC N-2-3	0	0	0	407,020	-
Total_{ERC}	19,838	0	0	407,020	-
Post-Project SSPE (SSPE2)	41,120	4,685	9,025	622,814	> 20,000

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

Major Source Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE1	37,854	4,277	8,590	606,484	> 20,000
SSPE2	41,120	4,685	9,025	622,814	> 20,000
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	Yes	Yes

This source is an existing Major Source for NO_x, CO, and VOC emissions and will remain a Major Source for NO_x, CO, and VOC.

Rule 2410 Major Source Determination:

The following table summarizes the potential VOC emissions from previous permitting actions for this stationary source prior to the proposed project.

Project Number	Proposed Permitting Actions	PE (lb-VOC/year)
N-1072605	Applying for In-house PTOs for existing wine storage and fermentation tanks	470,985
N-1110129	Install 2 wine fermentation tanks	8,432
N-1110722	Convert 7 existing grape juice tanks to wine fermentation tanks	15,680
N-1113344	Install 104 wine storage and fermentation tanks	94,430
N-1113395	Install 3 wine storage and fermentation tanks	10,173
N-1113047	Install 2 distilled spirit tanks	188
N-1113864	Install an ethanol evaporator system	7,719
Total		607,607

As indicated above, the SSPE VOC emission before the proposal project is calculated to 607,607 pounds per year, equivalent to 303.8 tons per year.

The facility evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21(b)(1)(i). Therefore, the following PSD Major Source threshold for VOC is applicable.

PSD Major Source Determination (tons/year)	
	VOC
Facility PE before Project Increase	303.8
PSD Major Source Thresholds	250
PSD Major Source?	Yes

As shown above, the facility is an existing Major Source for PSD for VOC. Therefore, the facility is an existing Major Source for PSD.

6. Baseline Emissions (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.

Pursuant to District Rule 2201, 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 District Rule 2201.

Since this is a new emissions unit, BE = PE1 = 0 for all pollutants.

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."

As discussed in Section VII.C.5 above, the facility is not a Major Source for SO_x or PM₁₀; therefore, the project does not constitute a SB 288 Major Modification for SO_x or PM₁₀.

As discussed in Section VII.C.5 above, the facility is an existing Major Source for NO_x, CO, and VOC; however, the project by itself would need to be a significant increase in order to trigger a SB 288 Major Modification. The emissions unit within this project does not have a total potential to emit which is greater than SB 288 Major Modification thresholds (see table below). Therefore, the project cannot be a significant increase and the project does not constitute a SB 288 Major Modification.

SB 288 Major Modification Thresholds (Existing Major Source)			
Pollutant	Project PE (lb/year)	Threshold (lb/year)	SB 288 Major Modification?
NO _x	3,266	50,000	No
VOC	147	50,000	No

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 for SO_x or PM₁₀, this project does not constitute a Federal Major Modification for SO_x or PM₁₀. Additionally, since the facility is not a major source for PM₁₀ (140,000 lb/year), it is not a major source for PM_{2.5} (200,000 lb/year).

NO_x and VOC

District Rule 2201 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA. SB 288 Major Modifications are not federal major modifications if they meet the criteria of the "Less-Than-Significant Emissions Increase" exclusion.

A Less-Than-Significant Emissions Increase exclusion is for an emissions increase for the project, or a Net Emissions Increase for the project (as defined in 40 CFR 51.165 (a)(2)(ii)(B) through (D), and (F)), that is not significant for a given regulated NSR pollutant, and therefore is not a federal major modification for that pollutant.

- To determine the post-project projected actual emissions from existing units, the provisions of 40 CFR 51.165 (a)(1)(xxviii) shall be used.
- To determine the pre-project baseline actual emissions, the provisions of 40 CFR 51.165 (a)(1)(xxxv)(A) through (D) shall be used.
- If the project is determined not to be a federal major modification pursuant to the provisions of 40 CFR 51.165 (a)(2)(ii)(B), but there is a reasonable possibility that the project may result in a significant emissions increase, the owner or operator shall comply with all of the provisions of 40 CFR 51.165 (a)(6) and (a)(7).
- Emissions increases calculated pursuant to this section are significant if they exceed the significance thresholds specified in the table below.

Significant Threshold (lb/year)	
Pollutant	Threshold (lb/year)
NO _x	0
VOC	0

The Net Emissions Increases (NEI) for purposes of determination of a "Less-Than-Significant Emissions Increase" exclusion will be calculated below to determine if this project qualifies for such an exclusion.

Net Emission Increase for New Units (NEI_N)

Per 40 CFR 51.165 (a)(2)(ii)(D) for new emissions units in this project,

$$NEI_N = PE_{2N} - BAE$$

Since this is a new unit, BAE for this unit is zero and,

$$NEI_N = PE_{2N}$$

where PE_{2N} is the Post Project Potential to Emit for the new emission unit.

Net Emissions Increase (NEI)		
Permit	NOx (lb/year)	VOC (lb/year)
N-1237-661-0	3,266	147 → 0*

* Calculated emission increases from new or modified emission units that are less than or equal to 0.5 lb/day are rounded to 0 (consistent with District Policy APR-1130 Increases Maximum Daily Permitted Emissions Less Than or Equal to 0.5 lb/day). This calculation is performed on an emission unit by emission unit basis. New or modified emission units with emission increases that round to 0 shall not constitute a Federal Major Modification.

The NEI for this project will be greater than the federal Major Modification threshold for NOx. Therefore, this project does not qualify for a “Less-Than-Significant Emissions Increase” exclusion and is thus determined to be a Federal Major Modification for NOx.

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

Rule 2410 applies to pollutants for which the District is in attainment or for unclassified, pollutants. The pollutants addressed in the PSD applicability determination are listed as follows:

- NO₂ (as a primary pollutant)
- SO₂ (as a primary pollutant)
- CO
- PM
- PM₁₀
- Greenhouse gases (GHG): CO₂, N₂O, CH₄, HFCs, PFCs, and SF₆

The first step of this PSD evaluation consists of determining whether the facility is an existing PSD Major Source or not (See Section VII.C.5 of this document).

In the case the facility is an existing PSD Major Source, the second step of the PSD evaluation is to determine if the project results in a PSD significant increase.

In the case the facility is NOT an existing PSD Major Source but is an existing source, the second step of the PSD evaluation is to determine if the project, by itself, would be a PSD major source.

In the case the facility is new source, the second step of the PSD evaluation is to determine if this new facility will become a new PSD major Source as a result of the project and if so, to determine which pollutant will result in a PSD significant increase.

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 major source for PSD. Because the project is not located within 10 km 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. Significance of Project Emission Increase Determination

a. Potential to Emit of attainment/unclassified pollutant for New or Modified Emission Units vs PSD Significant Emission Increase Thresholds

As a screening tool, the potential to emit from all new and modified units is compared to the PSD significant emission increase thresholds, and if total potential to emit from all new and modified units is below this threshold, no further analysis will be needed.

Greenhouse Gas Emissions Evaluation

The District has evaluated potential greenhouse gas emissions from the flare rated at 600 scfm (32.4 MMBtu/hr).

Basis and Assumptions

- The flare is fired with digester gas at a rate of 32.4 MMBtu/hour (HHV)
- The flare operates 1,680 hours per year
- Emission factors and global warming potentials (GWP) are taken from EPA 40 CFR Part 98, Subpart A, Tables C-1 and C-2:

CO₂ 52.07 kg/MMBtu (114.79 lb/MMBtu)

CH₄ 3.2 x 10⁻³ kg/MMBtu (0.00705 lb/MMBtu)

N₂O 6.3 x 10⁻⁴ kg/MMBtu (0.00139 lb/MMBtu)

GWP for CH₄ = 21 lb-CO₂(eq) per lb-CH₄

GWP for N₂O = 310 lb-CO₂(eq) per lb-N₂O

Calculations

Hourly Emissions

CO2 Emissions = 32.4 MMBtu/hr x 114.79 lb/MMBtu = 3,719.2 lb-CO2(eq)/hour
 CH4 Emissions = 32.4 MMBtu/hr x 0.00705 lb/MMBtu x 21 lb-CO2(eq) per lb-CH4
 = 4.8 lb-CO2(eq)/hour
 N2O Emissions = 32.4 MMBtu/hr x 0.00139 lb/MMBtu x 310 lb-CO2(eq) per lb-N2O
 = 13.96 lb-CO2(eq)/hour

Total = 3,719.2 + 4.8 + 13.96 = 3,737.96 lb-CO2e/hour

Annual Emissions

3737.96 lb-CO2e/hour x 1,680 hr/year + 2,000 lb/short ton = 3,140 short tons-CO2e/year

PSD Significant Emission Increase Determination: Potential to Emit (tons/year)						
	NO2	SO2	CO	PM	PM10	CO2e
Total PE from New and Modified Units	1.6	0.2	8.2	0.2	0.2	3,140
PSD Significant Emission Increase Thresholds	40	40	100	25	15	75,000
PSD Significant Emission Increase?	N	N	N	N	N	N

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

10. Quarterly Net Emissions Change (QNEC)

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. 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.

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	817	0	817
SO _x	102	0	102
PM ₁₀	109	0	109
CO	4,083	0	4,083
VOC	37	0	37

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 for the following*:

- 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 a Major Modification.

*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 new digester gas-fired flare with a PE greater than 2 lb/day for NO_x, SO_x, PM₁₀, CO, and VOC. BACT is triggered for NO_x, SO_x, PM₁₀, CO, and VOC since the PEs are greater than 2 lbs/day and the SSPE2 for CO is greater than 200,000 lbs/year, as demonstrated in Section VII.C.5 above.

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 Section VII.C.8 above, this project does constitute a Federal Major Modification for NOx. Therefore BACT is triggered for NOx.

2. BACT Discussion

The increase in emissions are associated with the flare. The flare is used to control the digester gas that is generated by the digester system and therefore is an emission control device. In accordance with District definitions, an emission control device is not an emission unit. Per District Rule 2201, only emission units can trigger BACT. Therefore, an emission control device cannot be subject to BACT requirements.

District BACT Guideline 1.4.4 applies to digester gas-fired flares. This BACT guideline was established prior to the District formalizing a position of BACT on control equipment. The guideline was simply a place to list the criteria to be a well controlled flare, but as the flare would not trigger BACT, it is inappropriate to have a BACT guideline for a flare. However, upon review of the BACT Guideline 1.4.4, the proposed flare will operate with NOx emissions of 0.06 lb/MMBtu, biological scrubber for H2S control, smokeless operation with a 5% opacity limit, operation in accordance to manufacturer's specifications, and enclosed flare with VOC emissions of 0.0027 lb/MMBtu which meets the achieved in practice BACT requirements for this type of operation. Therefore, the proposed flare is minimizing the generation of collateral pollutants and is equivalent to the best control alternatives available for this type of operation.

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	PM₁₀	CO	VOC
Post Project SSPE (SSPE2)	41,120	4,685	9,025	622,814	> 20,000
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	No	No	Yes	Yes

2. Quantity of Offsets Required

NOx Offset Calculations

As seen above, the SSPE2 is greater than the offset thresholds for NOx; therefore offset calculations will be required for this project.

The quantity of offsets in pounds per year 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

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)

There are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

Offsets Required (lb/year) = $[PE2 - BE] \times DOR$

Offset Requirement	
Pollutant	NOx (lb/year)
PE2	3,266
BE	0
PE2 - BE	3,266

Calculating the appropriate quarterly emissions to be offset is as follows:

Quarterly Offset Requirement				
Pollutant	1 st Qtr (lb/qtr)	2 nd Qtr (lb/qtr)	3 rd Qtr (lb/qtr)	4 th Qtr (lb/qtr)
NOx	816	816	817	817

The project is a Federal Major Modification and therefore the offset ratio for NOx is 1.5:1.

Assuming an offset ratio of 1.5:1, the amount of ERCs that need to be withdrawn is:

Offset Requirement (PE2 – BE) x DOR = 1.5	
Permit	NOx (lb/year)
PE2 – BE	3,266
(PE2 – BE) x DOR	4,899

Quarterly Offset Requirement x DOR = 1.5				
Pollutant	1 st Qtr (lb/qtr)	2 nd Qtr (lb/qtr)	3 rd Qtr (lb/qtr)	4 th Qtr (lb/qtr)
NOx	1,224	1,225	1,225	1,225

The applicant has stated that the facility plans to use ERC certificates N-2-2, N-1010-2 to offset the increases in emissions associated with this project. The above certificates have available quarterly credits as follows:

Proposed NOx ERC Certificates				
ERC Certificate #	1 st Qtr (lb/qtr)	2 nd Qtr (lb/qtr)	3 rd Qtr (lb/qtr)	4 th Qtr (lb/qtr)
N-2-2	2,587	2,434	7,175	7,642
N-1010-2	644	644	644	643
N-1011-2	625	625	625	625
N-1012-2	545	545	545	545
N-1061-2	9,980	9,980	10,939	9,979
Total	14,381	14,228	19,928	19,434

As seen above, the facility has sufficient credits to fully offset the quarterly emissions increases associated with this project.

VOC Offset Calculations

As seen above, the SSPE2 is greater than the offset thresholds for VOC; therefore offset calculations will be required for this project.

The quantity of offsets in pounds per year 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

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)

There are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

Offsets Required (lb/year) = $[PE2 - BE] \times DOR$

Offset Requirement	
Pollutant	VOC (lb/year)
PE2	147
BE	0
PE2 - BE	147

Calculating the appropriate quarterly emissions to be offset is as follows:

Quarterly Offset Requirement				
Pollutant	1 st Qtr (lb/qtr)	2 nd Qtr (lb/qtr)	3 rd Qtr (lb/qtr)	4 th Qtr (lb/qtr)
VOC	36	37	37	37

The project is a Federal Major Modification and therefore the offset ratio for VOC is 1.5:1.

Assuming an offset ratio of 1.5:1, the amount of ERCs that need to be withdrawn is:

Offset Requirement (PE2 – BE) x DOR = 1.5	
Permit	VOC (lb/year)
Total	147
Total x DOR	221

Quarterly Offset Requirement x DOR = 1.5				
Pollutant	1 st Qtr (lb/qtr)	2 nd Qtr (lb/qtr)	3 rd Qtr (lb/qtr)	4 th Qtr (lb/qtr)
VOC	55	55	55	56

The applicant has stated that the facility plans to use ERC certificates S-4025-1, S-3805-1, S-3807-1, S-3808-1 to offset the increases in emissions associated with this project. The above certificates have available quarterly credits as follows:

Proposed VOC ERC Certificates				
ERC Certificate #	1 st Qtr (lb/qtr)	2 nd Qtr (lb/qtr)	3 rd Qtr (lb/qtr)	4 th Qtr (lb/qtr)
S-4025-1	44,473	44,472	44,465	44,397
S-3805-1	18,000	18,000	18,000	18,000
S-3807-1	11,431	11,424	11,417	11,417
S-3808-1	8,098	8,041	8,086	8,086
Total	82,002	81,937	81,968	81,900

As seen above, the facility has sufficient credits to fully offset the quarterly emissions increases associated with this project.

CO-Offset Calculations

CO offsets are triggered by CO emissions in excess of 200,000 lb/year for the facility.

However, pursuant to Section 4.6.1, "Emission Offsets shall not be required for the following: increases in carbon monoxide in attainment areas if the applicant demonstrates to the satisfaction of the APCO, that the Ambient Air Quality Standards are not violated in the areas to be affected, and such emissions will be consistent with Reasonable Further Progress, and will not cause or contribute to a violation of Ambient Air Quality Standards (AAQS)."

The Technical Services Section of the San Joaquin Valley Unified Air Pollution Control District performed a CO modeling run, using the EPA AERMOD air dispersion model, to determine if the CO emissions from the flare would exceed the State and Federal AAQS (Attachment D). Modeling of the worst case 1 hour and 8 hour CO impacts were performed. These values were added to the worst case ambient concentration (background) measured and compared to the ambient air quality standards. Results of the modeling are presented below:

Ambient Modeling Results for CO		
	1 hr std	8 hr std
AAQS (ug/m ³)	23,000	10,000
Worst case ambient (background) (ug/m ³)	3262.0	2097.0
Modeled impact (ug/m ³)	32.0	24.9
Modeled ambient CO (ug/m ³)	3294.0	2121.9

This modeling demonstrates that the proposed increase in CO emissions will not cause a violation of the CO ambient air quality standards. Therefore, the increase in CO emissions is exempt from offsets pursuant to Section 6.4.1.

Proposed Rule 2201 (offset) Conditions:

- Prior to operating equipment under this Authority to Construct, permittee shall surrender NO_x emission reduction credits for the following quantity of emissions: 1st quarter – 816 lb, 2nd quarter – 816 lb, 3rd quarter – 817 lb, and fourth quarter – 817 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 04/21/11). [District Rule 2201]
- Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter – 36 lb, 2nd quarter – 37 lb, 3rd quarter – 37 lb, and fourth quarter – 37 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 04/21/11). [District Rule 2201]
- ERC Certificate Numbers N-2-2, N-1010-2, N-1011-2, N-1012-2, N-1061-2, S-4025-1, S-3805-1, S-3807-1, S-3808-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

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.

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

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 VII.C.8, this project does constitute a Federal Major Modification for NO_x; therefore, public noticing for Federal Major Modification purposes is required.

b. PE > 100 lb/day

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

PE > 100 lb/day Public Notice Thresholds			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO _x	46.7	100 lb/day	No
SO _x	5.8	100 lb/day	No
PM ₁₀	6.2	100 lb/day	No
CO	233.3	100 lb/day	Yes
VOC	2.1	100 lb/day	No

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

c. Offset Threshold

The following table compares pollutant will trigger public noticing requirements. As seen the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	37,854	41,120	20,000 lb/year	No
SO _x	4,277	4,685	54,750 lb/year	No
PM ₁₀	8,590	9,025	29,200 lb/year	No
CO	606,484	622,814	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 Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. $SSIPE = SSPE2 - SSPE1$. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	41,120	37,854	3,266	20,000 lb/year	No
SO _x	4,685	4,277	408	20,000 lb/year	No
PM ₁₀	9,025	8,590	435	20,000 lb/year	No
CO	622,814	606,484	16,330	20,000 lb/year	No
VOC	> 20,000	> 20,000	147	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.

2. Public Notice Action

As discussed above, public noticing is required for this project for Federal Major Modification for NO_x for the flare and for PE > 100 lb/day for CO for the flare. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB), US Environmental Protection Agency (USEPA) 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.

The flare heat input will be limited in the permit and calculated as follows:

$$\begin{aligned} \text{Daily heat input limit} &= 600 \text{ scf/min} \times 60 \text{ min/hr} \times 24 \text{ hr/day} \times 900 \text{ Btu/scf} \times \text{MM}/10^6 \\ &= 777.6 \text{ MMBtu/day} \end{aligned}$$

$$\begin{aligned} \text{Annual heat input limit} &= 600 \text{ scf/min} \times 60 \text{ min/hr} \times 1,680 \text{ hr/year} \times 900 \text{ Btu/scf} \times \text{MM}/10^6 \\ &= 54,432 \text{ MMBtu/year} \end{aligned}$$

- The flare heat input shall not exceed any of the following: 777.6 MMBtu/day or 54,432 MMBtu/year. [District Rules 2201 and 4102]
- Emissions from the flare shall not exceed any of the following limits: 0.06 lb-NOx/MMBtu; 0.008 lb-PM10/MMBtu; 0.3 lb-CO/MMBtu; or 0.0027 lb-VOC/MMBtu. [District Rules 2201 and 4311]
- The sulfur content of the biogas being incinerated by the flare shall not exceed 40 ppmv (as H₂S). [District Rules 2201]

E. Compliance Assurance

1. Source Testing

Pursuant to District Policy APR 1705, source testing is required to demonstrate compliance with Rule 2201.

The following conditions will be placed on the permit to ensure compliance with the assumptions made for Rule 2201. Source testing will be required within 60 days of initial start-up.

- Source testing to measure NO_x, CO and VOC emissions from the digester-fired flare shall be conducted within 60 days of initial start-up and at least once every twelve (12) months thereafter. [District Rules 2201 and 4311]
- For source test purposes, NO_x emissions from the flare shall be determined using EPA Method 19 on a heat input basis, or EPA Method 3A, EPA Method 7E, or ARB Method 100 on a ppmv basis. [District Rules 2201 and 4311]
- For source test purposes, CO emissions from the flare shall be determined using EPA Method 10 or 10B, ARB Methods 1 through 5 with 10, or ARB Method 100. [District Rule 2201]
- For source test purposes, VOC emissions from the flare shall be determined using EPA Method 18 or 25 or 25a. [District Rules 2201 and 4311]
- Stack gas oxygen (O₂) shall be determined using EPA Method 3A, EPA Method 7E, or ARB Method 100. [District Rules 2201 and 4311]
- Operator shall determine digester gas fuel higher heating value annually by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2201]

2. Monitoring

The following conditions will be placed on the permit to ensure compliance with the assumptions made for Rule 2201.

- The sulfur content of the digester gas combusted in this flare shall be monitored and recorded weekly. After eight (8) consecutive weekly tests show compliance, the digester gas sulfur content monitoring frequency may be reduced to once every calendar quarter. If quarterly monitoring shows a violation of the digester gas sulfur content limit of this permit, then weekly monitoring shall resume and continue until eight consecutive weeks of monitoring show compliance with the gas

sulfur content limit. Once compliance with the gas sulfur content limit is shown for eight consecutive weeks, then the monitoring frequency may return to quarterly. Monitoring of the sulfur content of the digester gas shall not be required if the flare does not operate during that period. Records of the results of monitoring of the digester gas sulfur content shall be maintained. [District Rule 2201]

- Monitoring of the digester gas sulfur content shall be performed using a Testo 350 XL portable emission monitor; District-approved in-line H₂S monitors; gas detection tubes calibrated for H₂S; District-approved source test methods, including EPA Method 11 or EPA Method 15, ASTM Method D1072, D4084, and D5504; or an alternative method approved by the District. Prior to utilization of in-line monitors to demonstrate compliance with the digester 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]

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. The following condition will be placed on the permit to ensure compliance:

- Permittee shall maintain daily and annual records of quantity of digester gas combusted in the flare, annual test results of higher heating value of digester gas, and daily and annual heat input for the flare. [District Rules 1070 and 2201]
- All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rules 1070 and 4311]

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

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. The District's Technical Services Division conducted the required analysis. Refer to Attachment D of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO_x, CO, and SO_x. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO_x, CO, or SO_x.

The proposed location is in a non-attainment area for the state's PM₁₀ as well as federal and state PM_{2.5} thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM₁₀ and PM_{2.5}.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or federal major modification to demonstrate to the satisfaction of the District that all other major Stationary Sources owned by such person (or by entity controlling, controlled by, or under common control with such person) in California which are subject to emission limitations are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Section VIII above, this project does constitute a federal major modification, therefore this requirement is applicable. The facility's compliance certification is included in Attachment C.

H. Alternate Siting Analysis

The current project occurs at an existing facility. The applicant proposes to install an anaerobic digester operation served by a flare.

Since the project will produce digester gas to be fired in IC engines to produce electricity 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

The prevention of significant deterioration (PSD) program is a construction permitting program for new major stationary sources and major modifications to existing major stationary sources located in areas classified as attainment or in areas that are unclassifiable for any criteria air pollutant.

As demonstrated above, this project is not subject to the requirements of Rule 2410 due to a significant emission increase and 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."

Section 3.20.5 states that a minor permit modification is a permit modification that does not meet the definition of modification as given in Section 111 or Section 112 of the Federal Clean Air Act. Since this project is a Title I modification (i.e. Federal Major Modification), the proposed project is considered to be a modification under the Federal Clean Air Act. As a result, the proposed project constitutes a Significant Modification to the Title V Permit pursuant to Section 3.29.

As discussed above, the facility has not applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with a Significant Modification, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility may commence construction under the ATCs while the Title V significant modification is processed.

40 CFR Part 64 – Compliance Assurance Monitoring (CAM)

Except for back-up utility units that are exempt under paragraph (b)(2), Section 64.2 states that the requirements of this subpart shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a Part 70 or 71 permit if the unit satisfies all of the following criteria:

- 1) the unit must have an emission limit for the pollutant;
- 2) the unit must have add-on controls for the pollutant; these are devices such as flue gas recirculation (FGR), baghouses, catalytic oxidizers, etc; and
- 3) the unit must have a pre-control potential to emit of greater than the major source thresholds.

Pollutant	Major Source Threshold (lb/year)
VOC	20,000
NO _x	20,000
CO	200,000
PM ₁₀	140,000
SO _x	140,000

The permit for the digester and waste water system contains emission limits for VOC. This system is not equipped with any add on control devices for VOC. Therefore, the CAM requirements of 40 CFR 64 are not applicable.

The permit for the flare contains emission limits for NO_x, CO, VOC, PM₁₀ and SO_x emissions. However, the flare is not equipped with any add on control devices. Therefore, the CAM requirements of 40 CFR 64 are not applicable.

Rule 4001 New Source Performance Standards (NSPS)

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60. However, no subparts of 40 CFR Part 60 apply to digester operations and biogas-fired flares.

Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63. However, no subparts of 40 CFR Part 61 or 40 CFR Part 63 apply to digester operations and biogas-fired flares.

Rule 4101 Visible Emissions

Rule 4101 states 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 as dark as, or darker than, Ringelmann 1 or 20% opacity.

The following condition will be added to the permit to ensure compliance:

- Visible emissions from the flare serving the anaerobic digesters shall not equal or exceed Ringelmann 1/4 or 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rules 2201 and 4101]

Rule 4102 Nuisance

Section 4.0 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 and the following condition will be added to the permit to ensure compliance:

- {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

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 D), 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
N-1237-661-0	0.000598 per million	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.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 10 in a million). As outlined by the HRA Summary in Attachment D of this report, the emissions increases for this project was determined to be less than significant.

Rule 4201 Particulate Matter Concentration

Section 3.0 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

Particulate matter calculations were performed for each piece of equipment by the following equation:

F-Factor for digester gas:	9,800 dscf/MMBtu
PM ₁₀ Emission Factor:	0.008 lb-PM ₁₀ /MMBtu
Percentage of PM as PM ₁₀ in Exhaust:	100%

$$GL = \left(\frac{0.008 \text{ lb-PM}}{\text{MMBtu}} \times \frac{7,000 \text{ grain}}{\text{lb-PM}} \right) / \left(\frac{9,800 \text{ ft}^3}{\text{MMBtu}} \right)$$

$$GL = 0.006 \text{ grain/dscf} < 0.1 \text{ grain/dscf}$$

Since the particulate matter concentration is ≤ 0.1 grains per dscf, compliance with Rule 4201 is expected.

Therefore, the following condition will be listed on the permits to ensure compliance:

- {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Rule 4301 Fuel Burning Equipment

This rule specifies maximum emission rates in lb/hr for SO₂, NO₂, and combustion contaminants (defined as total PM in Rule 1020). This rule also limits combustion contaminants to ≤ 0.1 gr/scf. According to AP 42 (Table 1.4-2, footnote c), all PM emissions from natural gas combustion are less than 1 μm in diameter. As shown below, each unit's maximum hourly emission rates are below the Rule 4301 limits.

District Rule 4301 Limits			
Unit	NO₂	Total PM	SO₂
N-1237-661-0 (Digester Gas)	1.95	0.26	0.24
Rule 4301 Limit	140 lb/hr	10 lb/hr	200 lb/hr

As shown above, compliance with this rule is expected.

Rule 4311 Flares

Rule 4311 limits the emissions of volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), and sulfur oxides (SO_x) from the operation of flares.

Section 5.1 states flares permitted to operate only during an emergency are not subject to the requirements of Section 5.6 and 5.7. The flare in this project is not an emergency flare; therefore, Sections 5.6 and 5.7 are applicable.

Section 5.2 requires that the flame be present at all times when combustible gases are vented through the flare.

The following condition will be listed on the permit to ensure compliance:

- A flame shall be present at all times when combustible gases are vented through the flare. [District Rule 4311]

Section 5.3 requires that the flare outlet be equipped with an automatic ignition system, or 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.

The following condition will be listed on the permit to ensure compliance:

- Flare 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. [District Rule 4311]

Section 5.4 requires that 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.

The following condition will be listed on the permit to ensure compliance:

- Flare shall be equipped with a heat sensing device such as a thermocouple, ultraviolet beam sensor, infrared sensor, or an equivalent device capable of continuously detecting at least one pilot flame or the flare flame is present. The flame detection device shall be kept operational at all times except during flare maintenance when the flare is isolated from gas flow. During essential planned power outages when the flare is operating, the pilot monitor is allowed to be non-functional if the flare flame is clearly visible to onsite operators. All pilot monitor downtime shall be reported annually pursuant to Rule 4311, Section 6.2.3.6. [District Rule 4311]

Section 5.5 requires flares that use flow-sensitive automatic ignition systems and which do not use a continuous pilot flame to use purge gas for purging.

The following condition will be listed on the permit to ensure compliance:

- If the flare uses a flow-sensing automatic ignition system and does not use a continuous flame pilot, the flare shall use purge gas for purging. [District Rule 4311]

Section 5.6 states that 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. The flare in this project is an enclosed flare; therefore, Section 5.6 is not applicable.

Section 5.7 states that ground-level enclosed flares meet the defined emission standards. The flare involved with this project is a ground-level enclosed flare.

Type of Flare and Heat Release Rate in MMBtu/hr	VOC (lb/MMBtu)	NOx (lb/MMBtu)
Without Steam-assist		
10-100 MMBtu	0.0027	0.1330

The following condition will be listed on the permit to ensure compliance:

- Emissions from the flare shall not exceed any of the following limits: 0.06 lb-NOx/MMBtu; 0.008 lb-PM10/MMBtu; 0.3 lb-CO/MMBtu; or 0.0027 lb-VOC/MMBtu. [District Rules 2201 and 4311]

Section 5.8 states that effective on and after July 1, 2011, flaring is prohibited unless it is consistent with an approved flare minimization plan (FMP), pursuant to Section 6.5, and all commitments listed in that plan have been met. This standard does not apply if the APCO

determines that the flaring is caused by an emergency as defined by Section 3.7 and is necessary to prevent an accident, hazard or release of vent gas directly to the atmosphere. The facility submitted an FMP on June 29, 2010 and a revised FMP on June 29, 2011.

The following condition will be listed on the permit to ensure compliance:

- Flaring is prohibited unless it is consistent with an approved flare minimization plan (FMP), pursuant to Section 6.5, and all commitments listed in that plan have been met. This standard does not apply if the APCO determines that the flaring is caused by an emergency as defined by Section 3.7 and is necessary to prevent an accident, hazard or release of vent gas directly to the atmosphere. [District Rule 4311]

Section 5.9 sites Petroleum Refinery SO₂ Performance Targets. The flare does not serve a petroleum refinery; therefore, Section 5.9 is not applicable.

Section 5.10 states the operator of a flare subject to flare minimization requirements pursuant to Section 5.8 shall monitor the vent gas flow to the flare with a flow measuring device or other parameters as specified in the Permit to Operate. The operator shall maintain records pursuant to Section 6.1.7. Flares that the operator can verify, based on permit conditions, are not capable of producing reportable flare events pursuant to Section 6.2.2 shall not be required to monitor vent gas flow to the flare.

The following condition will be listed on the permit to ensure compliance:

- The operator shall monitor and record the vent gas flow to the flare with a flow measuring device or other parameters as specified in the Permit to Operate. [District Rule 4311]

Section 5.11 states that the operator of a petroleum refinery or a flare with a flaring capacity equal to or greater than 50 MMBtu/hr shall monitor the flare pursuant to Sections 6.6, 6.7, 6.8, 6.9, and 6.10. The flare is not part of petroleum refinery; therefore, Section 5.11 is not applicable.

Section 6.1 states that the records listed in Sections 6.1.1 through 6.1.7 shall be maintained, retained on-site for a minimum of five years, and made available to the APCO, ARB, and EPA upon request.

The following condition will be placed on the permit to ensure compliance:

- All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070 and 4311]

Section 6.1.1 requires the operator of flares that are subject to Section 5.6 to make available to the APCO upon request the compliance determination records that demonstrate compliance with the provisions of 40 CFR 60.18, (c)(3) through (c)(5).

The flare is not subject to Section 5.6; therefore, Section 6.1.1 is not applicable.

Section 6.1.2 requires the operator of flares that are subject to Section 5.7 to make available to the APCO upon request a copy of the source testing result conducted pursuant to Section 6.4.2.

The following condition will be listed on the permit to ensure compliance:

- Permittee shall maintain the following records: a copy of the source testing result conducted pursuant to Section 6.4.2; a copy of the approved flare minimization plan pursuant to Section 6.5; a copy of annual reports submitted to the APCO pursuant to Section 6.2. [District Rule 4311]

Section 6.1.3 requires the operator of flares that are used during an emergency, to maintain a record of the duration of flare operation, amount of gas burned, and the nature of the emergency situation.

The following condition will be placed on the permit to ensure compliance:

- Permittee shall maintain records of the following when the flare is used during an emergency: duration of flare operation, amount of gas burned, and the nature of the emergency situation. [District Rule 4311]

Section 6.1.4 applies only to operators claiming an exemption pursuant to Section 4.3. This project is not claiming an exemption pursuant to Section 4.3; therefore, Section 6.1.4 is not applicable.

Sections 6.1.5 applies only to flares operated at petroleum refineries or those with a flaring capacity greater than or equal to 5 MMBtu/hr subject to a flare minimization plan.

The following condition will be listed on the permit to ensure compliance:

- Permittee shall maintain the following records: a copy of the source testing result conducted pursuant to Section 6.4.2; a copy of the approved flare minimization plan pursuant to Section 6.5; a copy of annual reports submitted to the APCO pursuant to Section 6.2. [District Rule 4311]

Section 6.1.6 applies to flares subject to flare minimization plans pursuant to Section 5.8.

The following condition will be listed on the permit to ensure compliance:

- Permittee shall maintain the following records: a copy of the source testing result conducted pursuant to Section 6.4.2; a copy of the approved flare minimization plan pursuant to Section 6.5; a copy of annual reports submitted to the APCO pursuant to Section 6.2. [District Rule 4311]

Section 6.1.7 applies to flares subject to flare minimization requirements pursuant to Section 5.8 and to flares operated at petroleum refineries or those with a flaring capacity equal to or greater than 50 MMBtu/hr.

The following condition will be listed on the permit to ensure compliance:

- The operator shall monitor and record the vent gas flow to the flare with a flow measuring device or other parameters as specified in the Permit to Operate. [District Rule 4311]

Section 6.2 applies to flares subject to a flare minimization plan.

Section 6.2.1 states the operator of a flare subject to flare minimization plans pursuant to Section 5.8 of this rule shall notify the APCO of an unplanned flaring event within 24 hours after the start of the next business day or within 24 hours of their discovery, which ever occurs first. The notification shall include the flare source identification, the start date and time, and the end date and time.

The following condition will be listed on the permit to ensure compliance:

- The operator of a flare subject to flare minimization plans pursuant to Section 5.8 of this rule shall notify the APCO of an unplanned flaring event within 24 hours after the start of the next business day or within 24 hours of their discovery, which ever occurs first. The notification shall include the flare source identification, the start date and time, and the end date and time. [District Rule 4311]

Section 6.2.2 states the operator of a flare subject to flare minimization plans pursuant to Section 5.8 shall submit an annual report to the APCO that summarizes all Reportable Flaring Events as defined in Section 3.0 that occurred during the previous 12 month period. The report shall be submitted within 30 days following the end of the twelve month period of the previous year. The report shall include, but is not limited to all of the following:

- 6.2.2.1 The results of an investigation to determine the primary cause and contributing factors of the flaring event;
- 6.2.2.2 Any prevention measures considered or implemented to prevent recurrence together with a justification for rejecting any measures that were considered but not implemented;
- 6.2.2.3 If appropriate, an explanation of why the flaring was an emergency and necessary to prevent accident, hazard or release of vent gas to the atmosphere, or where, due to a regulatory mandate to vent a flare, it cannot be recovered, treated and used as a fuel gas at the facility; and
- 6.2.2.4 The date, time, and duration of the flaring event.

The following condition will be listed on the permit to ensure compliance:

- The operator of a flare subject to flare minimization plans pursuant to Section 5.8 shall submit an annual report to the APCO that summarizes all Reportable Flaring Events as defined in Section 3.0 that occurred during the previous 12 month period. The report

shall be submitted within 30 days following the end of the twelve month period of the previous year. The report shall include, but is not limited to all of the following: the results of an investigation to determine the primary cause and contributing factors of the flaring event; any prevention measures considered or implemented to prevent recurrence together with a justification for rejecting any measures that were considered but not implemented; if appropriate, an explanation of why the flaring was an emergency and necessary to prevent accident, hazard or release of vent gas to the atmosphere, or where, due to a regulatory mandate to vent a flare, it cannot be recovered, treated and used as a fuel gas at the facility; and the date, time, and duration of the flaring event. [District Rule 4311]

Section 6.2.3 states the operator of a flare subject to flare monitoring requirements pursuant to Sections 5.10, 6.6, 6.7, 6.8, 6.9, and 6.10, as appropriate, shall submit an annual report to the APCO within 30 days following the end of each 12 month period. The report shall include the following:

- 6.2.3.1 The total volumetric flow of vent gas in standard cubic feet for each day.
- 6.2.3.2 Hydrogen sulfide content, methane content, and hydrocarbon content of vent gas composition pursuant to Section 6.6.
- 6.2.3.3 If vent gas composition is monitored by a continuous analyzer or analyzers pursuant to Section 5.11, average total hydrocarbon content by volume, average methane content by volume, and depending upon the analytical method used pursuant to Section 6.3.4, total reduced sulfur content by volume or hydrogen sulfide content by volume of vent gas flared for each hour of the month.
- 6.2.3.4 If the flow monitor used pursuant to Section 5.10 measures molecular weight, the average molecular weight for each hour of each month.
- 6.2.3.5 For any pilot and purge gas used, the type of gas used, the volumetric flow for each day and for each month, and the means used to determine flow.
- 6.2.3.6 Flare monitoring system downtime periods, including dates and times.
- 6.2.3.7 For each day and for each month provide calculated sulfur dioxide emissions.
- 6.2.3.8 A flow verification report for each flare subject to this rule. The flow verification report shall include flow verification testing pursuant to Section 6.3.5.

The flare is not subject to Sections 6.6, 6.7, 6.8, 6.9, and 6.10.

The following condition will be listed on the permit to ensure compliance:

- The operator of a flare subject to flare monitoring requirements pursuant to Section 5.10 shall submit an annual report to the APCO within 30 days following the end of each 12 month period. The report shall include the following: the total volumetric flow of vent gas in standard cubic feet for each day; a flow verification report which shall include flow verification testing pursuant to Section 6.3.5. [District Rule 4311]

Section 6.3 lists test methods to be used to demonstrate compliance with this rule. Alternate equivalent test methods may be used provided the test methods have been approved by the APCO and EPA.

Section 6.3.1 states for VOC, measured and calculated as carbon, shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case Method 25a may be used, and analysis of halogenated exempt compounds shall be analyzed by EPA Method 18 or ARB Method 422 "Determination of Volatile organic Compounds in Emission from Stationary Sources". The VOC concentration in ppmv shall be converted to pounds per million Btu (lb/MMBtu) by using the following equation:

$$\text{VOC in lb/MMBtu} = [(\text{ppmvd dry}) \times (\text{F, dscf/MMBtu})] / [(1.135 \times 10^6) \times (20.9 - \%O_2)]$$

Where: F = As determined by EPA Method 19

Section 6.3.2 states NO_x emissions in pounds per million BTU shall be determined by using EPA Method 19.

Section 6.3.3 states NO_x and O₂ concentrations shall be determined by using EPA Method 3A, EPA Method 7E, or ARB 100.

The following conditions will be listed on the permit to ensure compliance:

- For source test purposes, NO_x emissions from the flare shall be determined using EPA Method 19 on a heat input basis, or EPA Method 3A, EPA Method 7E, or ARB Method 100 on a ppmv basis. [District Rules 2201 and 4311]
- For source test purposes, VOC emissions from the flare shall be determined using EPA Method 25 or 25a. [District Rules 2201 and 4311]
- Stack gas oxygen (O₂) shall be determined using EPA Method 3A, EPA Method 7E, or ARB Method 100. [District Rules 2201 and 4311]

Section 6.3.4 applies to flares subject to vent gas composition monitoring requirements pursuant to Section 6.6. The flare in this project is not subject to Section 6.6.

Section 6.3.5 applies to flares subject to vent gas flow verification requirements pursuant to Section 6.2.3.8. For purposes of the flow verification report required by Section 6.2.3.8, vent gas flow shall be determined using one or more of the following methods, or by any alternative method approved by the APCO, ARB, and EPA:

- 6.3.5.1 EPA Methods 1 and 2;
- 6.3.5.2 A verification method recommended by the manufacturer of the flow monitoring equipment installed pursuant to Section 5.10.
- 6.3.5.3 Tracer gas dilution or velocity.
- 6.3.5.4 Other flow monitors or process monitors that can provide comparison data on a vent stream that is being directed past the ultrasonic flow meter.

The following condition will be listed on the permit to ensure compliance:

- For purposes of the flow verification report required by Section 6.2.3.8, vent gas flow shall be determined using one or more of the following methods, or by any alternative method approved by the APCO, ARB, and EPA: EPA Methods 1 and 2; a verification method recommended by the manufacturer of the flow monitoring equipment installed pursuant to Section 5.10; tracer gas dilution or velocity; other flow monitors or process monitors that can provide comparison data on a vent stream that is being directed past the ultrasonic flow meter. [District Rule 4311]

Section 6.4 applies only to flares subject to Section 5.6 and 5.7.

Section 6.4.1 states upon request, the operator of flares that are subject to Section 5.6 shall make available, to the APCO, the compliance determination records that demonstrate compliance with the provisions of 40 CFR 60.18, (c)(3) through (c)(5). The flare is not subject to Section 5.6.

Section 6.4.2 states the operator of ground-level enclosed flares shall conduct source testing at least once every 12 months to demonstrate compliance with Section 5.7. The operator shall submit a copy of the testing protocol to the APCO at least 30 days in advance of the scheduled testing. The operator shall submit the source test results not later than 45 days after completion of the source testing.

The following conditions will be listed on the permit to ensure compliance:

- Source testing to measure NO_x, CO and VOC emissions from the digester-fired flare shall be conducted within 60 days of initial start-up and at least once every twelve (12) months thereafter. [District Rules 2201 and 4311]
- Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rules 1081 and 4311]
- The results of each source test shall be submitted to the District within 45 days thereafter. [District Rules 1081 and 4311]

Section 6.5 applies to flares operated at a petroleum refinery or any flare that has a flaring capacity of greater than or equal to 5.0 MMBtu/hr subject to a flare minimization plan.

Section 6.5.1 states by July 1, 2010, the operator of a petroleum refinery flare or any flare that has a flaring capacity of greater than or equal to 5.0 MMBtu per hour shall submit a flare minimization plan (FMP) to the APCO for approval. The FMP shall include, but not be limited to:

- 6.5.1.1 A description and technical specifications for each flare and associated knock-out pots, surge drums, water seals and flare gas recovery systems.
- 6.5.1.2 Detailed process flow diagrams of all upstream equipment and process units venting to each flare, identifying the type and location of all control equipment.
- 6.5.1.3 A description of equipment, processes, or procedures the operator plans to install or implement to eliminate or minimize flaring and planned date of installation or implementation.
- 6.5.1.4 An evaluation of prevention measures to reduce flaring that has occurred or may be expected to occur during planned major maintenance activities, including startup and shutdown.
- 6.5.1.5 An evaluation of preventative measures to reduce flaring that may be expected to occur due to issues of gas quantity and quality. The evaluation shall include an audit of the vent gas recovery capacity of each flare system, the storage capacity available for excess vent gases, and the scrubbing capacity available for vent gases including any limitations associated with scrubbing vent gases for use as a fuel; and shall determine the feasibility of reducing flaring through the recovery, treatment and use of the gas or other means.
- 6.5.1.6 An evaluation of preventative measures to reduce flaring caused by the recurrent failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. The evaluation shall determine the adequacy of existing maintenance schedules and protocols for such equipment. For purposes of this section, a failure is recurrent if it occurs more than twice during any five year period as a result of the same cause as identified in accordance with Section 6.2.2.
- 6.5.1.7 Any other information requested by the APCO as necessary for determination of compliance with applicable provisions of this rule.

The following condition will be listed on the permit to ensure compliance:

- The operator shall submit a flare minimization plan to the District for approval that includes all of the data required under Section 6.5 of Rule 4311 prior to installing the equipment authorized by this Authority to Construct. [District Rule 4311]

Section 6.5.2 states every five years after the initial FMP submittal, the operator shall submit an updated FMP for each flare to the APCO for approval. The current FMP shall remain in effect until the updated FMP is approved by the APCO. If the operator fails to submit an updated FMP as required by this section, the existing FMP shall no longer be considered an approved plan.

The following condition will be listed on the permit to ensure compliance:

- Every five years after the initial FMP submittal, the operator shall submit an updated FMP for each flare to the APCO for approval. The current FMP shall remain in effect until the updated FMP is approved by the APCO. If the operator fails to submit an updated FMP as required by this section, the existing FMP shall no longer be considered an approved plan. [District Rule 4311]

Section 6.5.3 states an updated FMP shall be submitted by the operator pursuant to Section 6.5 addressing new or modified equipment, prior to installing the equipment. Updated FMP submittals are only required if:

- 6.5.3.1 The equipment change would require an authority to construct (ATC) and would impact the emissions from the flare, and
- 6.5.3.2 The ATC is deemed complete after June 18, 2009, and
- 6.5.3.3 The modification is not solely the removal or decommissioning of equipment that is listed in the FMP, and has no associated increase in flare emissions.

The following condition will be listed on the permit to ensure compliance:

- An updated FMP shall be submitted by the operator pursuant to Section 6.5 addressing new or modified equipment, prior to installing the equipment. Updated FMP submittals are only required if: (1) The equipment change would require an authority to construct (ATC) and would impact the emissions from the flare, and (2) The ATC is deemed complete after June 18, 2009, and (3) The modification is not solely the removal or decommissioning of equipment that is listed in the FMP, and has no associated increase in flare emissions. [District Rule 4311]

Section 6.5.4 states when submitting the initial FMP, or updated FMP, the operator shall designate as confidential any information claimed to be exempt from public disclosure under the California Public Records Act, Government Code Section 6250 et seq. If a document is submitted that contains information designated confidential, the operator shall provide a justification for this designation and shall submit a separate copy of the document with the information designated confidential redacted.

The facility has not requested confidentiality for any submitted FMPs.

Sections 6.6 through 6.9 applies to flares operated at a petroleum refinery or any flare that has a flaring capacity of greater than or equal to 50 MMBtu/hr. The flare does not fall under either category; therefore, Sections 6.6 through 6.9 are not applicable.

Section 6.10 applies to flares operated at a petroleum refinery. The flare is not operated at a petroleum refinery; therefore, Section 6.10 is not applicable.

Therefore, compliance with the requirements of this section is expected.

Rule 4801 Sulfur Compounds

Rule 4801 requires that sulfur compound emissions (as SO₂) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

$$\begin{aligned} \text{Volume SO}_2 &= (n \times R \times T) \div P \\ n &= \text{moles SO}_2 \\ T \text{ (standard temperature)} &= 60 \text{ }^\circ\text{F or } 520 \text{ }^\circ\text{R} \\ R \text{ (universal gas constant)} &= \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot \text{ }^\circ\text{R}} \end{aligned}$$

F-Factor for Digester gas: 9,800 dscf/MMBtu

$$\frac{0.0075 \text{ lb} - \text{SO}_x}{\text{MMBtu}} \times \frac{\text{MMBtu}}{9,800 \text{ dscf}} \times \frac{1 \text{ lb} \cdot \text{mol}}{64 \text{ lb}} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}} \times \frac{520^\circ\text{R}}{14.7 \text{ psi}} \times \frac{1,000,000 \cdot \text{parts}}{\text{million}} = 4.5 \frac{\text{parts}}{\text{million}}$$

Since the SOx concentration is $\leq 2,000$ ppmv, the flare is expected to comply with Rule 4801.

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)

The California Environmental Quality Act (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 San Joaquin Valley Unified Air Pollution Control District (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.
- 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.

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 Mitigated 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)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authority to Construct N-1237-661-0 subject to the permit conditions on the attached draft Authority to Construct in Attachment E.

X. Billing Information

The flare maximum heat input rating is based up on the following calculation:

$$600 \text{ scf/min} \times 60 \text{ min/hr} \times 900 \text{ Btu/scf} \times \text{MM}/10^6 = 32.4 \text{ MMBtu/hr}$$

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
N-1237-661-0	3020-02-H	32.4 MMBtu/hr flare	\$1030.00

Attachments

- A: Gas Analysis
- B: Digester Operation Flow Diagram and Waste Water Emission Calculations
- C: Compliance Certification
- D: Health Risk Assessment and Ambient Air Quality Analysis
- E: Draft Authority to Construct Permit

Attachment A
Gas Analysis



ZALCO LABORATORIES, INC.

4309 Armour Avenue, Bakersfield, CA 93308 (661) 395-0539 FAX (661) 395-3069 www.zalcolabs.com
1103 East Clark Avenue, Suite F-5, Santa Maria, CA 93455 (805) 938-5341 FAX (805) 938-5892

Best Environmental Services
6261 Southfront Road
Livermore CA 94551

Laboratory No: 1108298-01
Date Received: 08/18/11
Date Analyzed: 08/20/11

Attention: Bobby Asfour

Sample Description: R1/Inlet Digester Gas
Sampled: 08/17/2001 @ 09:05 AM by Client

Chromatographic Analysis, ASTM D 1345-03, ASTM D 3388-08, GPA 2145-01, GPA 2261-00

Constituent:	Mole %	Weight %	GPM	GPM Fractions	CHONS%
Oxygen	0.235	0.35			Carbon, C 54.20
Nitrogen	1.984	2.56			Hydrogen, H 14.61
Carbon Dioxide	19.200	38.89			Oxygen, O 28.63
Carbon Monoxide	0.000	0.00			Nitrogen, N 2.56
Hydrogen Sulfide	0.000	0.00			Sulfur, S 0.00
Methane	78.524	57.98			
Ethane	0.000	0.00			
Propane	0.000	0.00	0.00	(C3...C3) = 0.00	
IsoButane	0.000	0.00	0.00		
n-Butane	0.000	0.00	0.00	(C3...C4) = 0.00	
IsoPentane	0.000	0.00	0.00		
n-Pentane	0.000	0.00	0.00	(C3...C5) = 0.00	
Hexanes	0.056	0.22	0.02	(C3...C6+) = 0.02	
Totals:	100.00	100.00	0.02	0.02	100.00

Flammable Gases:	78.581
Gas Properties calculated @ STP: degrees F.	60
Measurement Base Pressure @ STP: psia	14.696
	H/C Ratio: 0.27

Dry *783-86 @ 68°F* Saturated

Gas State	Btu / Cu. Ft	Btu / lb	Btu / Cu. Ft
Gross, Ideal Gas	795.80	13899.12	781.95
Net, Ideal Gas	716.60	12515.71	704.13
Gross, Real Gas	797.79		783.91
Net, Real Gas	718.40		705.90

Relative Gas Density, [Air=1] Ideal:	0.7502	"F" Factor, DSCF/MMBtu @ 60F	8737.6	9703.4
Specific Gravity, [Air=1] Real gas:	0.7516	"F" Factor, DSCF/MMBtu @ 68F	8870.6	9851.2
Real Gas Density, Lb/Cu.Ft.:	0.0574	"F" Factor, DSCF/MMBtu @ 70F	8904.4	9888.6
Specific Volume, Cu.Ft./Lb.:	17.4218	"FC" Factor, DSCF CO2/MMBtu @ 60F	1233.0	1369.3
Relative Liquid Density @ 60F/60F:	0.4088	"FC" Factor, DSCF CO2/MMBtu @ 68F	1251.8	1390.2
Compressibility, z:	0.9975			
Fuel kg per kg-mole Molecular wt avg	21.727			
GPM: Gallons per 1000 cubic feet				

Robert Cortez
Robert Cortez, Laboratory Director



ZALCO LABORATORIES, INC.

4309 Armour Avenue, Bakersfield, CA 93308 (661) 395-0539 FAX (661) 395-3069 www.zalcolabs.com
 1103 East Clark Avenue, Suite F-5, Santa Maria, CA 93455 (805) 938-5341 FAX (805) 938-5892

Best Environmental Services
 6261 Southfront Road
 Livermore CA 94551

Laboratory No: 1108298-02
 Date Received: 08/18/11
 Date Analyzed: 08/20/11

Attention: Bobby Asfour

Sample Description: R2/Inlet Digester Gas
 Sampled: 08/17/2001 @ 09:54 AM by Client

~~Chromatographic Analysis, ASTM D 1595-03, ASTM D 1595-08, EPA 1145-04, EPA 2201-01~~

Constituent	Mole %	Weight %	GPM	GPM Fractions	CHONS%
					Carbon, C
Oxygen	0.326	0.48			53.84
Nitrogen	2.322	2.98			
					Hydrogen, H
Carbon Dioxide	19.250	38.82			14.47
Carbon Monoxide	0.000	0.00			
Hydrogen Sulfide	0.000	0.00			Oxygen, O
Methane	78.003	57.33			28.71
Ethane	0.000	0.00			
Propane	0.000	0.00	0.00	(C3....C3) = 0.00	Nitrogen, N
IsoButane	0.000	0.00	0.00		2.98
n-Butane	0.000	0.00	0.00	(C3....C4) = 0.00	
IsoPentane	0.000	0.00	0.00		Sulfur, S
n-Pentane	0.000	0.00	0.00	(C3....C5) = 0.00	0.00
Hexanes	0.098	0.39	0.04	(C3....C6+) = 0.04	
Totals:	100.00	100.00	0.04	0.04	100.00

Flammable Gases:	78.102
Gas Properties calculated @ STP: degrees F.	60
Measurement Base Pressure @ STP: psia	14.696
	H/C Ratio: 0.27

Gas State	Dry		Saturated
	Btu / Cu. Ft.	Btu / lb	Btu / Cu. Ft.
Gross, Ideal Gas	792.54	13779.81	778.75
Net, Ideal Gas	713.72	12409.17	701.30
Gross, Real Gas	794.53		780.70
Net, Real Gas	715.51		703.06

180.65 @ 68°F

Relative Gas Density; [Air=1] Ideal:	0.7536	"F" Factor, DSCF/MMBtu @ 60F	8739.9	9705.3
Specific Gravity, [Air=1] Real gas:	0.7550	"F" Factor, DSCF/MMBtu @ 68F	8873.0	9853.1
Real Gas Density, Lb/Cu.Ft.:	0.0577	"F" Factor, DSCF/MMBtu @ 70F	8906.8	9890.5
Specific Volume, Cu.Ft./Lb.:	17.3432	"FC" Factor, DSCF CO2/MMBtu @ 60F	1235.4	1371.8
Relative Liquid Density @ 60F/60F:	0.4111	"FC" Factor, DSCF CO2/MMBtu @ 68F	1254.2	1392.7
Compressibility, z:	0.9975			
Fuel kg per kg-mole Molecular wt avg	21.826			

GPM: Gallons per 1000 cubic feet

James M. [Signature]
 Robert Cortez, Laboratory Director



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Best Environmental Services
 6261 Southfront Road
 Livermore CA 94551

Laboratory No: 1108298-03
 Date Received: 08/18/11
 Date Analyzed: 08/20/11

Attention: Bobby Asfour

Sample Description: R3/Inlet Digester Gas
 Sampled: 08/17/2001 @ 10:46 AM by Client

TOTAL SULFUR ANALYSIS, ASTM D 3226, GPA-B16/D831E

Constituent:	Result	Units
Hydrogen Sulfide	1.9	ppm
Total Sulfur	0.12	grs S/100 SCF

Chromatographic Analysis, ASTM D 1924, ASTM D 4586/92, GPA 7145/94, GPA 2361/00

Constituent:	Mole %	Weight %	GPM	GPM Fractions	CHONS%
Oxygen	0.242	0.36			Carbon, C 54.00
Nitrogen	2.167	2.79			Hydrogen, H 14.54
Carbon Dioxide	19.241	38.93			Oxygen, O 28.67
Carbon Monoxide	0.000	0.00			Nitrogen, N 2.79
Hydrogen Sulfide	0.000	0.00			Sulfur, S 0.00
Methane	78.308	57.76			
Ethane	0.000	0.00			
Propane	0.000	0.00	0.00	(C3...C3) = 0.00	
IsoButane	0.000	0.00	0.00		
n-Butane	0.000	0.00	0.00	(C3...C4) = 0.00	
IsoPentane	0.000	0.00	0.00		
n-Pentane	0.000	0.00	0.00	(C3...C5) = 0.00	
Hexanes	0.041	0.16	0.02	(C3...C6+) = 0.02	
Totals:	100.00	100.00	0.02	0.02	100.00

Flammable Gases:	78.350
Gas Properties calculated @ STP: degrees F.	60
Measurement Base Pressure @ STP: psia	14.696
H/C Ratio: 0.27	

Gas State	Dry ^{184.0}		Saturated
	Btu / Cu. Ft.	Btu / lb	Btu / Cu. Ft
Gross, Ideal Gas	792.89	13833.27	779.09
Net, Ideal Gas	713.96	12456.10	701.54
Gross, Real Gas	794.87		781.04
Net, Real Gas	715.75		703.29

Relative Gas Density, [Air=1] Ideal:	0.7510	"F" Factor, DSCF/MMBtu @ 60F	8740.6	9707.0
Specific Gravity, [Air=1] Real gas:	0.7525	"F" Factor, DSCF/MMBtu @ 68F	8873.7	9854.9
Real Gas Density, Lb/Cu.Ft.:	0.0575	"F" Factor, DSCF/MMBtu @ 70F	8907.5	9892.3
Specific Volume, Cu.Ft./Lb.:	17.4030	"FC" Factor, DSCF CO2/MMBtu @ 60F	1234.2	1370.7
Relative Liquid Density @ 60F/60F:	0.4096	"FC" Factor, DSCF CO2/MMBtu @ 68F	1253.0	1391.5
Compressibility, z:	0.9975			
Fuel kg per kg-mole Molecular wt avg	21.751			

GPM: Gallons per 1000 cubic feet

Robert C. ...
 Robert C. ...
 For: File Date: 8/22/2011 Page:

Attachment B

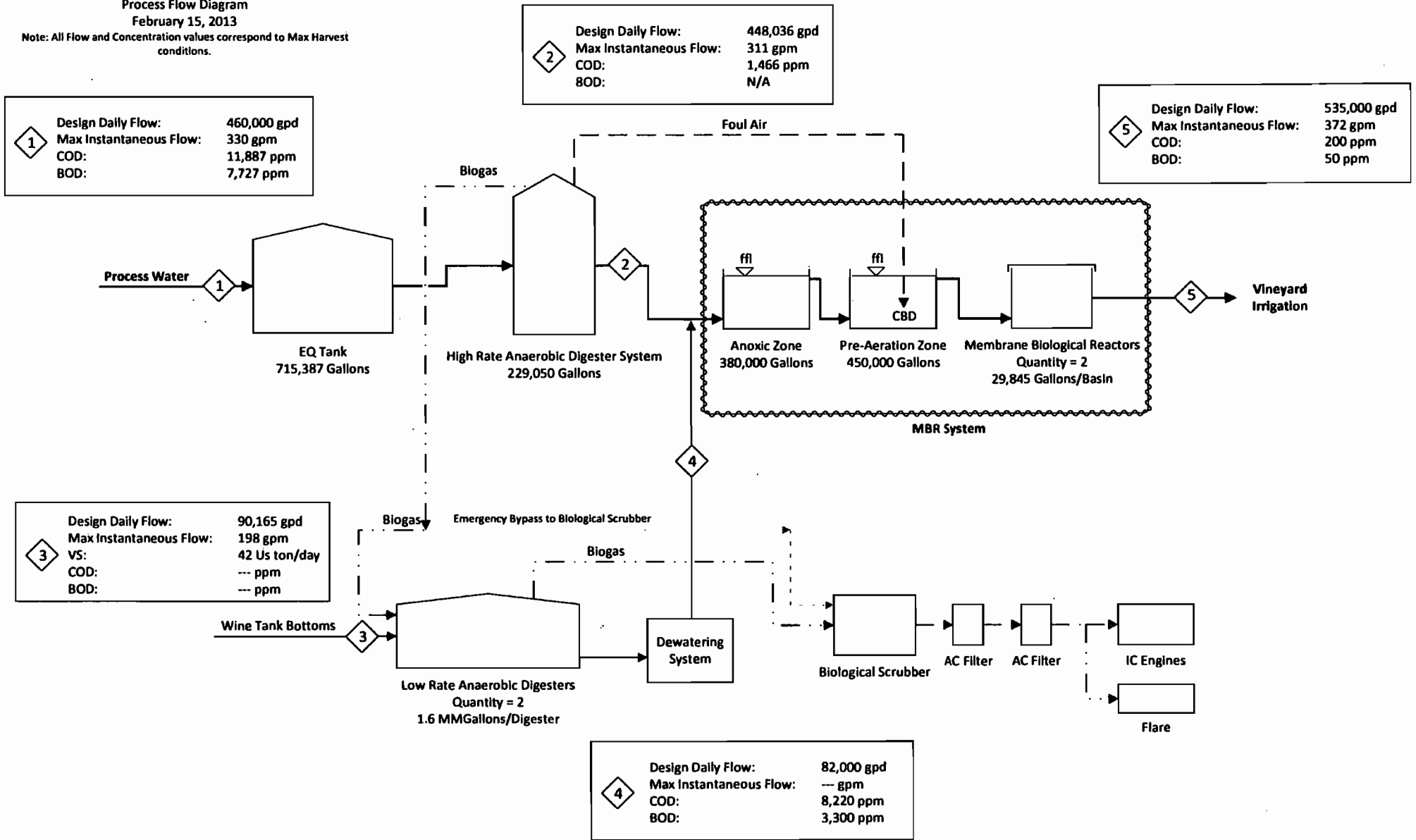
Digester Operation Flow Diagram and Waste Water Emission Calculations

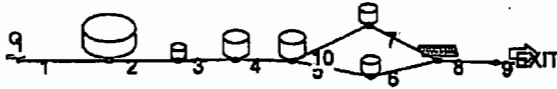
Livingston Water Innovation and Energy

Process Flow Diagram

February 15, 2013

Note: All Flow and Concentration values correspond to Max Harvest conditions.





No.	Name	Type	flow (l/s)
1	default hard piped	hard piped, no headspace	
2	def.equalization	equalization	21.9
3	def.storage tank	storage tank	21.9
4	def.storage tank	storage tank	21.9
5	def.storage tank	storage tank	10.95
6	def.storage tank	storage tank	10.95
7	def.storage tank	storage tank	10.95
8	def.landtreatment	landtreatment	21.9
9	def.system exit st	system exit stream	21.9
10	def.divert flow	divert flow	10.95

SUMMARY FOR EMISSIONS AT UNIT 2 def.equalization equalization
02-21-2013 14:27:28

COMPOUND NAME	conc in (ppmw)	fe air	fe bio	conc out (ppmw)	emissions (g/s)
CHLOROFORM	5.5e-3	6.976e-17	0.61199	2.134e-3	8.402e-21
ETHANOL	2.00e+2	1.73e-16	0.08817	1.824e+2	7.577e-16
CELLULOSE	1.495e+3	1.894e-16	0.	1.495e+3	6.202e-15
ACETIC ACID	1.0e+1	7.207e-17	0.62011	3.799e+0	1.578e-17
Total rate for all compounds					6.975e-15

SUMMARY FOR EMISSIONS AT UNIT 3 def.storage tank storage tank
02-21-2013 14:27:28

COMPOUND NAME	conc in (ppmw)	fe air	fe bio	conc out (ppmw)	emissions (g/s)
CHLOROFORM	2.134e-3	0.00028	0.	2.133e-3	1.328e-8
ETHANOL	1.824e+2	2.31e-9	0.	1.824e+2	9.225e-9
CELLULOSE	1.495e+3	2.031e-12	0.	1.495e+3	6.65e-11
ACETIC ACID	3.799e+0	6.561e-10	0.	3.799e+0	5.458e-11
Total rate for all compounds					2.263e-8

SUMMARY FOR EMISSIONS AT UNIT 4 def.storage tank storage tank
02-21-2013 14:27:28

COMPOUND NAME	conc in (ppmw)	fe air	fe bio	conc out (ppmw)	emissions (g/s)
CHLOROFORM	2.133e-3	0.00352	0.	2.126e-3	1.645e-7
ETHANOL	1.824e+2	2.436e-8	0.	1.824e+2	9.729e-8
CELLULOSE	1.495e+3	1.958e-10	0.	1.495e+3	6.412e-9
ACETIC ACID	3.799e+0	3.378e-8	0.	3.799e+0	2.81e-9
Total rate for all compounds					2.71e-7

SUMMARY FOR EMISSIONS AT UNIT 5 def.storage tank storage tank
02-21-2013 14:27:28

COMPOUND NAME	conc in (ppmw)	fe air	fe bio	conc out (ppmw)	emissions (g/s)
CHLOROFORM	2.126e-3	0.00389	0.	1.059e-3	1.813e-7
ETHANOL	1.824e+2	2.688e-8	0.	9.118e+1	1.074e-7
CELLULOSE	1.495e+3	2.179e-10	0.	7.475e+2	7.133e-9
ACETIC ACID	3.799e+0	3.754e-8	0.	1.899e+0	3.123e-9
Total rate for all compounds					2.989e-7

SUMMARY FOR EMISSIONS AT UNIT 6 def.storage tank storage tank
02-21-2013 14:27:28

COMPOUND NAME	conc in (ppmw)	fe air	fe bio	conc out (ppmw)	emissions (g/s)
CHLOROFORM	2.118e-3	0.00099	0.	2.116e-3	2.296e-8
ETHANOL	1.824e+2	7.095e-9	0.	1.824e+2	1.417e-8
CELLULOSE	1.495e+3	4.419e-11	0.	1.495e+3	7.234e-10
ACETIC ACID	3.799e+0	7.858e-9	0.	3.799e+0	3.269e-10

Total rate for all compounds

3.818e-8

SUMMARY FOR EMISSIONS AT UNIT 7 def.storage tank storage tank
02-21-2013 14:27:28

COMPOUND NAME	conc in (ppmw)	fe air	fe bio	conc out (ppmw)	emissions (g/s)
CHLOROFORM	2.118e-3	0.00099	0.	2.116e-3	2.296e-8
ETHANOL	1.824e+2	7.095e-9	0.	1.824e+2	1.417e-8
CELLULOSE	1.495e+3	4.419e-11	0.	1.495e+3	7.234e-10
ACETIC ACID	3.799e+0	7.858e-9	0.	3.799e+0	3.269e-10

Total rate for all compounds

3.818e-8

SUMMARY FOR EMISSIONS AT UNIT 8 def.landtreatment landtreatment
02-21-2013 14:27:28

COMPOUND NAME	conc in (ppmw)	fe air	fe bio	conc out (ppmw)	emissions (g/s)
CHLOROFORM	2.116e-3	0.99837	0.00001	3.438e-6	4.626e-5
ETHANOL	1.824e+2	0.99824	0.00014	2.964e-1	3.987e+0
CELLULOSE	1.495e+3	8.241e-5	0.00472	1.488e+3	2.698e-3
ACETIC ACID	3.799e+0	0.98241	0.00064	6.44e-2	8.173e-2

Total rate for all compounds

4.071e+0

WASTEWATER TREATMENT SUMMARY II 02-21-2013 14:27:16

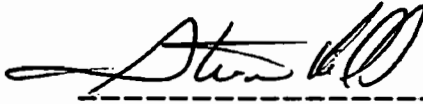
Project \\South1\shared\PER\ENG\KlevannD\Projects\Wastewater\EJGallo_1123806

COMPOUND	RATE (g/s)	Fraction Air	RATE (lb/day)	loading ppmw
CHLOROFORM	4.67E-05	.38738	.00888	.006
ETHANOL	3.99E+00	.91022	758.717	200.
CELLULOSE	2.70E-03	.00008	.51349	1495.
ACETIC ACID	8.17E-02	.37321	15.5544	10.
<hr/>				
TOTAL EMISSIONS ALL COMPOUNDS	4.07E+00 g/s air emissions			
TOTAL EMISSIONS ALL COMPOUNDS	128.39 Mg/yr air emissions			
TOTAL LOADING	1177.54 Mg/yr in waste			
TOTAL WATER FLOW	21.9 L/s			

Attachment C
Compliance Certification

N-1237
E&J Gallo Winery-Livingston
Compliance Certification Statement
For Federal Major Permit Modifications
Compliance with District Rule 2201, Section 4.15.2

“I certify under penalty of law that all major stationary sources (Title V facilities) operated under my control in California are compliant with all applicable air emissions limitations and standards. The facilities included in this certification statement include the E&J Gallo Winery-Fresno, the E&J Gallo Winery-Livingston, and the E&J Gallo Winery-Modesto.”



Mr. Steve Kidd
Vice President of Operations

11/02/12
Date

Attachment D

Health Risk Assessment and Ambient Air Quality Analysis

San Joaquin Valley Air Pollution Control District

Revised Risk Management Review

To: Stanley Tom – Permit Services
 From: Ester Davila – Technical Services
 Date: January 19, 2013
 Facility Name: E & J Gallo
 Location: 18000 W. River Rd.
 Application #(s): N-1237-661-0
 Project #: N-1123806

A. RMR SUMMARY

RMR Summary			
Categories	Digester-Fired Flare (Unit 661-0)	Project Totals	Facility Totals
Prioritization Score	0.005	0.005	0.62
Acute Hazard Index	$4.27E^{-4}$	$4.27E^{-4}$	$8.54E^{-4}$
Chronic Hazard Index	$2.11E^{-4}$	$2.11E^{-4}$	$8.46E^{-4}$
Maximum Individual Cancer Risk (10^{-6})	$5.98E^{-4}$	$5.98E^{-4}$	$1.32E^{-8}$
T-BACT Required?	No		
Special Permit Conditions?	No		

Proposed Permit Conditions

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

Unit # 661-0

The unit shall not operate more than 1680 hours per year.

B. RMR REPORT

I. Project Description

Technical Services received a request on January 09, 2013, to perform a Risk Management Review for a proposed installation of a digester operation served by a 28.7 MMBtu/hr digester gas-fired flare.

II. Analysis

Toxic emissions for this proposed unit were calculated using District approved Digester Gas Combustion emissions factors for flares. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905, March 2, 2001), risks from the proposed unit's toxic emissions were prioritized using the procedure in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEARTs database. The prioritization score for this proposed unit was less than 1.0 (see RMR Summary Table). However, the facility prioritization was greater than 1.0, therefore, further analysis was necessary. The AERMOD model was used, with the parameters outlined below and the five year concatenated meteorological data for 2005-2009 from Modesto 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 Hot Spots Analysis and Reporting Program (HARP) risk assessment module 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 661-0			
Source Type	Flare	Throughput (MMSCF/yr)	48.22
Flare Effective Height (m)	12.2	Fuel Type	Digester Gas
Flare Diameter. (m)	0.75	Location Type	Rural
Flare Exit Velocity (m/s)	13.97	Closest Receptor (m)	610
Flare Exit Temp. (°K)	1273	Type of Receptor	Business
		Max Hours per Year	1680

In addition to the RMR, Technical Services performed modeling for criteria pollutants using AERMOD to determine if the project would contribute to or cause a violation of a CAAQS or NAAQS. The results of the modeling are presented below.

Criteria Pollutant Modeling Results*

Diesel ICE	1 Hour	3 Hours	8 Hours.	24 Hours	Annual
CO	NA	X	NA	X	X
NO _x	NA	X	X	X	Pass
SO _x	NA	NA	X	NA	Pass
PM ₁₀	X	X	X	NA	Pass ¹
PM _{2.5}	X	X	X	NA	Pass ¹

*Results were taken from the attached PSD spreadsheet.

¹The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

III. Conclusion

The acute and chronic hazard indices were less than 1.0 and the cancer risk associated with the project was less than one 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 conditions 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.

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

IV. Attachments

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Toxic emissions summary
- D. Prioritization score
- E. HARP Reports
- F. AAQA reports
- G. Facility Summary

AAQA for E & J Gallow 1123806 (N1237)
All Values are in Micrograms per Cubic Meter

	NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
FLARE1	6.4	0.2	32.0	24.9	0.6	0.5	0.3	0.0	0.42	0.03
Background	93.7	15.3	3,262.0	2,097.0	159.8	133.2	71.9	26.6	75.00	39.00
Facility Totals	100.1	15.5	3,294.0	2,121.9	160.4	133.7	72.2	26.7	75.4	39.0
AAQS	188.7	56.0	23,000.0	10,000.0	195.0	1,300.0	105.0	80.0	50.0	30.0
	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Fail PASS	Fail PASS

EPA's Significance Level (ug/m³)

NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
0.0	1.0	2000.0	500.0	0.0	25.0	5.0	1.0	5.0	1.0

Below level of significance

PM 2.5 - significance impact levels

24hr - 1.2 - PASS

Annual - 0.3 - PASS

*Since 5-years of meteorological data were used, an adjustment factor of 1.75 for Modesto was applied to the annual average concentrations for the devices modeled.

AAQA Emission (g/sec)

<i>Device</i>	NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
FLARE1	2.18E-01	4.17E-02	1.09E+00	1.09E+00	1.89E-02	1.89E-02	1.89E-02	3.67E-03	2.89E-02	5.57E-03

*Since 5-years of meteorological data were used, an adjustment factor of 1.75 for Modesto was applied to the annual average concentrations for the devices modeled.

Attachment E
Draft Authority to Construct Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-1237-661-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:

DIGESTER GAS OPERATION COMPOSED OF A WASTE WATER TREATMENT SYSTEM WITH AN EQUALIZATION TANK, HIGH RATE ANAEROBIC DIGESTER, TWO LOW RATE ANAEROBIC DIGESTERS, AND MEMBRANE BIOLOGICAL REACTOR SYSTEM CONSISTING OF AN ANOXIC TANK, A PRE-AERATION TANK, AND TWO MEMBRANE BIOLOGICAL REACTORS WITH BIOGAS SENT TO ONE BIOLOGICAL SCRUBBER, TWO ACTIVATED CARBON FILTERS, ONE 600 CFM OVIVO GWE ENCLOSED FLARE, AND/OR IC ENGINES LISTED ON PERMITS N-1237-605 AND '606

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 816 lb, 2nd quarter - 816 lb, 3rd quarter - 817 lb, and fourth quarter - 817 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 04/21/11). [District Rule 2201] Federally Enforceable Through Title V Permit
3. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 36 lb, 2nd quarter - 37 lb, 3rd quarter - 37 lb, and fourth quarter - 37 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 04/21/11). [District Rule 2201] Federally Enforceable Through Title V Permit

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.

Seyed Sadredin, Executive Director APCO

DRAFT

DAVID WARNER, Director of Permit Services
N-1237-661-0 : May 2 2013 2:36PM - TOMS : Joint Inspection NOT Required

4. ERC Certificate Numbers N-2-2, N-1010-2, N-1011-2, N-1012-2, N-1061-2, S-4025-1, S-3805-1, S-3807-1, S-3808-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
6. Visible emissions from the flare serving the anaerobic digesters shall not equal or exceed Ringelmann 1/4 or 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rules 2201 and 4101] Federally Enforceable Through Title V Permit
7. {1898} 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]
8. The anaerobic digester system and its associated piping shall be maintained leak free. [District Rule 2201] Federally Enforceable Through Title V Permit
9. This flare shall only be fired on biogas collected from the anaerobic digester system. [District Rule 2201] Federally Enforceable Through Title V Permit
10. The flare heat input shall not exceed any of the following: 777.6 MMBtu/day or 54,432 MMBtu/year. [District Rules 2201 and 4102] Federally Enforceable Through Title V Permit
11. Emissions from the flare shall not exceed any of the following limits: 0.06 lb-NO_x/MMBtu (as NO₂); 0.008 lb-PM₁₀/MMBtu; 0.3 lb-CO/MMBtu; or 0.0027 lb-VOC/MMBtu. [District Rules 2201 and 4311] Federally Enforceable Through Title V Permit
12. The sulfur content of the biogas being incinerated by the flare shall not exceed 40 ppmv (as H₂S). [District Rule 2201] Federally Enforceable Through Title V Permit
13. Source testing to measure NO_x, CO and VOC emissions from the digester-fired flare shall be conducted within 60 days of initial start-up and at least once every twelve (12) months thereafter. [District Rules 2201 and 4311] Federally Enforceable Through Title V Permit
14. For source test purposes, NO_x emissions from the flare shall be determined using EPA Method 19 on a heat input basis, or EPA Method 3A, EPA Method 7E, or ARB Method 100 on a ppmv basis. [District Rules 2201 and 4311] Federally Enforceable Through Title V Permit
15. For source test purposes, CO emissions from the flare shall be determined using EPA Method 10 or 10B, ARB Methods 1 through 5 with 10, or ARB Method 100. [District Rule 2201] Federally Enforceable Through Title V Permit
16. For source test purposes, VOC emissions from the flare shall be determined using EPA Method 18 or 25 or 25a. [District Rules 2201 and 4311] Federally Enforceable Through Title V Permit
17. Stack gas oxygen (O₂) shall be determined using EPA Method 3A, EPA Method 7E, or ARB Method 100. [District Rules 2201 and 4311] Federally Enforceable Through Title V Permit
18. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rules 1081 and 4311] Federally Enforceable Through Title V Permit
19. The results of each source test shall be submitted to the District within 45 days thereafter. [District Rules 1081 and 4311] Federally Enforceable Through Title V Permit
20. Operator shall determine digester gas fuel higher heating value annually by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2201] Federally Enforceable Through Title V Permit
21. Sampling ports for biogas testing shall be provided in accordance with District requirements. [District Rule 1081] Federally Enforceable Through Title V Permit

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22. The sulfur content of the digester gas combusted in this flare shall be monitored and recorded weekly. After eight (8) consecutive weekly tests show compliance, the digester gas sulfur content monitoring frequency may be reduced to once every calendar quarter. If quarterly monitoring shows a violation of the digester gas sulfur content limit of this permit, then weekly monitoring shall resume and continue until eight consecutive weeks of monitoring show compliance with the gas sulfur content limit. Once compliance with the gas sulfur content limit is shown for eight consecutive weeks, then the monitoring frequency may return to quarterly. Monitoring of the sulfur content of the digester gas shall not be required if the flare does not operate during that period. Records of the results of monitoring of the digester gas sulfur content shall be maintained. [District Rule 2201] Federally Enforceable Through Title V Permit
23. Monitoring of the digester gas sulfur content shall be performed using a Testo 350 XL portable emission monitor; District-approved in-line H₂S monitors; gas detection tubes calibrated for H₂S; District-approved source test methods, including EPA Method 11 or EPA Method 15, ASTM Method D1072, D4084, and D5504; or an alternative method approved by the District. Prior to utilization of in-line monitors to demonstrate compliance with the digester 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] Federally Enforceable Through Title V Permit
24. Biogas sampling shall be conducted using the methods and procedures approved by the District. The District shall be notified each time the biogas sampling frequency changes. [District Rule 1081] Federally Enforceable Through Title V Permit
25. A flame shall be present at all times when combustible gases are vented through the flare. [District Rule 4311] Federally Enforceable Through Title V Permit
26. Flare 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. [District Rule 4311] Federally Enforceable Through Title V Permit
27. Flare shall be equipped with a heat sensing device such as a thermocouple, ultraviolet beam sensor, infrared sensor, or an equivalent device capable of continuously detecting at least one pilot flame or the flare flame is present. The flame detection device shall be kept operational at all times except during flare maintenance when the flare is isolated from gas flow. During essential planned power outages when the flare is operating, the pilot monitor is allowed to be non-functional if the flare flame is clearly visible to onsite operators. All pilot monitor downtime shall be reported annually pursuant to Rule 4311, Section 6.2.3.6. [District Rule 4311] Federally Enforceable Through Title V Permit
28. If the flare uses a flow-sensing automatic ignition system and does not use a continuous flame pilot, the flare shall use purge gas for purging. [District Rule 4311] Federally Enforceable Through Title V Permit
29. Flaring is prohibited unless it is consistent with an approved flare minimization plan (FMP), pursuant to Section 6.5, and all commitments listed in that plan have been met. This standard does not apply if the APCO determines that the flaring is caused by an emergency as defined by Section 3.7 and is necessary to prevent an accident, hazard or release of vent gas directly to the atmosphere. [District Rule 4311] Federally Enforceable Through Title V Permit
30. The operator shall monitor and record the vent gas flow to the flare with a flow measuring device or other parameters as specified in the Permit to Operate. [District Rule 4311] Federally Enforceable Through Title V Permit
31. The operator of a flare subject to flare minimization plans pursuant to Section 5.8 of this rule shall notify the APCO of an unplanned flaring event within 24 hours after the start of the next business day or within 24 hours of their discovery, whichever occurs first. The notification shall include the flare source identification, the start date and time, and the end date and time. [District Rule 4311] Federally Enforceable Through Title V Permit

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32. The operator of a flare subject to flare minimization plans pursuant to Section 5.8 shall submit an annual report to the APCO that summarizes all Reportable Flaring Events as defined in Section 3.0 that occurred during the previous 12 month period. The report shall be submitted within 30 days following the end of the twelve month period of the previous year. The report shall include, but is not limited to all of the following: the results of an investigation to determine the primary cause and contributing factors of the flaring event; any prevention measures considered or implemented to prevent recurrence together with a justification for rejecting any measures that were considered but not implemented; if appropriate, an explanation of why the flaring was an emergency and necessary to prevent accident, hazard or release of vent gas to the atmosphere, or where, due to a regulatory mandate to vent a flare, it cannot be recovered, treated and used as a fuel gas at the facility; and the date, time, and duration of the flaring event. [District Rule 4311] Federally Enforceable Through Title V Permit
33. The operator of a flare subject to flare monitoring requirements pursuant to Section 5.10 shall submit an annual report to the APCO within 30 days following the end of each 12 month period. The report shall include the following: the total volumetric flow of vent gas in standard cubic feet for each day; a flow verification report which shall include flow verification testing pursuant to Section 6.3.5. [District Rule 4311] Federally Enforceable Through Title V Permit
34. For purposes of the flow verification report required by Section 6.2.3.8, vent gas flow shall be determined using one or more of the following methods, or by any alternative method approved by the APCO, ARB, and EPA: EPA Methods 1 and 2; a verification method recommended by the manufacturer of the flow monitoring equipment installed pursuant to Section 5.10; tracer gas dilution or velocity; other flow monitors or process monitors that can provide comparison data on a vent stream that is being directed past the ultrasonic flow meter. [District Rule 4311] Federally Enforceable Through Title V Permit
35. The operator shall submit a flare minimization plan to the District for approval that includes all of the data required under Section 6.5 of Rule 4311 prior to installing the equipment authorized by this Authority to Construct. [District Rule 4311] Federally Enforceable Through Title V Permit
36. Every five years after the initial FMP submittal, the operator shall submit an updated FMP for each flare to the APCO for approval. The current FMP shall remain in effect until the updated FMP is approved by the APCO. If the operator fails to submit an updated FMP as required by this section, the existing FMP shall no longer be considered an approved plan. [District Rule 4311] Federally Enforceable Through Title V Permit
37. An updated FMP shall be submitted by the operator pursuant to Section 6.5 addressing new or modified equipment, prior to installing the equipment. Updated FMP submittals are only required if: (1) The equipment change would require an authority to construct (ATC) and would impact the emissions from the flare, and (2) The ATC is deemed complete after June 18, 2009, and (3) The modification is not solely the removal or decommissioning of equipment that is listed in the FMP, and has no associated increase in flare emissions. [District Rule 4311] Federally Enforceable Through Title V Permit
38. The anaerobic digester system and its associated piping shall be inspected for leaks at least annually. Any leak detected on the basis of sight, smell, or sound, shall be recorded and a corrective action shall be taken to eliminate the leak. [District Rule 2201] Federally Enforceable Through Title V Permit
39. Records of leak inspections shall contain at least an identification of a person performing an inspection, date and time of the inspection, leak location, and corrective action taken to eliminate leaks. The records shall be maintained, kept, and made available for District inspection upon request. [District Rule 2201] Federally Enforceable Through Title V Permit
40. The permittee shall maintain records of: (1) the name of the sampler, and the date and time of biogas sampling for H₂S, (2) the name of the tester, and the date and time of biogas testing for H₂S, (3) test results showing the biogas concentration (in ppmv) of H₂S. [District Rule 1081] Federally Enforceable Through Title V Permit
41. Permittee shall maintain daily and annual records of quantity of digester gas combusted in the flare, annual test results of higher heating value of digester gas, and daily and annual heat input for the flare. [District Rules 1070 and 2201] Federally Enforceable Through Title V Permit
42. Permittee shall maintain the following records: a copy of the source testing result conducted pursuant to Section 6.4.2; a copy of the approved flare minimization plan pursuant to Section 6.5; a copy of annual reports submitted to the APCO pursuant to Section 6.2. [District Rule 4311] Federally Enforceable Through Title V Permit

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43. Permittee shall maintain records of the following when the flare is used during an emergency: duration of flare operation, amount of gas burned, and the nature of the emergency situation. [District Rule 4311] Federally Enforceable Through Title V Permit
44. All records shall be retained for a minimum of five years, and shall be made available for District inspection upon request. [District Rules 1070 and 4311] Federally Enforceable Through Title V Permit

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