

July 19, 2021

Stephen Dvorak
WTE Riverdale, LLC
PO Box 143
Chilton, WI 53014

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: C-9792
Project Number: C-1202318

Dear Mr. Dvorak:

Enclosed for your review and comment is the District's analysis of WTE Riverdale, LLC's application for an Authority to Construct for the construction of a digester system with a digester gas-fired backup flare (ATC C-9792-1-0) and digester gas upgrading operation (ATC C-9792-2-0), at 12840 W Kamm Ave, Riverdale.

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

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. John Yoshimura of Permit Services at (209) 557-6449.

Sincerely,



Brian Clements
Director of Permit Services

BC:jy

Enclosures

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

Samir Sheikh
Executive Director/Air Pollution Control Officer

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San Joaquin Valley Air Pollution Control District

Authority to Construct Application Review

Digester System with Backup Flare and Digester Gas Upgrading Operation

Facility Name: WTE Riverdale, LLC

Date: July 6, 2021

Mailing Address: PO Box 143
Chilton, WI 53014

Engineer: John Yoshimura

Lead Engineer: James Harader

Contact Person: Stephen Dvorak

Telephone: (920) 849-9797

Application #s: C-9792-1-0 and '2-0

Project #: C-1202318

Deemed Complete: July 2, 2020

I. Proposal

WTE Riverdale, LLC has requested Authority to Construct (ATC) permits to construct a digester system with a digester gas-fired backup flare and two permit-exempt boilers (ATC C-9792-1-0). The facility has also proposed to install a digester gas upgrading operation consisting of feed gas blowers, compressors, coolers, chillers, iron sponge H₂S removal, a membrane CO₂ removal system, and product gas compressors (ATC C-9792-2-0). The digester gas upgrading operation will take the raw digester gas and purify it into pipeline quality renewable natural gas (RNG).

The proposed digester system and upgrading operation will be constructed at the existing facility, Maddox Dairy LTD (C-5206), and will receive liquid manure from the dairy. The digester system will capture methane produced from the liquid manure and will send to the biomethane upgrading operation that will be built next to the new digester. The collected biogas will be upgraded to pipeline quality renewable natural gas (RNG) for injection into the PG&E statewide grid for delivery to the end users, via a California Gas Gathering, Inc. (CGGI) point of pipeline interconnection located on dairy property to the west of the of the dairy.

WTE Riverdale, LLC and Maddox Dairy LTD are separate companies that will work together for the construction and operation of the proposed project. WTE Riverdale, LLC has indicated that the dairy and the digester facility will be separately owned and operate as separate businesses. The following is a summary of the information provided by the applicant. The proposed digester system and digester gas upgrading operation set will be owned, installed, operated, maintained, and repaired if necessary by WTE Riverdale, LLC. The responsibility of the dairy will be limited to providing the manure feedstock and disposing of the effluent, which the dairy already must do for compliance with local water quality regulations. WTE Riverdale, LLC will not be involved in the dairy's primary activity, the production of milk. WTE Riverdale, LLC will be solely responsible for ensuring that the digester system and digester gas upgrading operation comply with all applicable air quality regulations. Because the dairy and the proposed digester system and upgrading operation at the site will be separately owned and operated and will have different two-digit Standard Industrial Classification (SIC) codes (Industry Group 02: Agricultural

Production – Livestocks and Animal Specialties for the dairy vs. Industry Group 49: Electric, Gas, And Sanitary Services for the digester system), pursuant to Section 3.39 of District Rule 2201, the proposed digester system and the digester gas upgrading operation will not be part of the dairy agricultural stationary source. Therefore, the digester system and digester upgrading operation be will be permitted as a separate non-agricultural stationary source (Facility C-9792).

II. Applicable Rules

Rule 2020	Exemptions (12/18/14)
Rule 2201	New and Modified Stationary Source Review Rule (8/15/19)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (8/15/19)
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 (12/17/20)
Rule 4801	Sulfur Compounds (12/17/92)
CH&SC 41700	Risk Management Review
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 12840 W Kamm Ave in Riverdale, 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

C-9792-1-0 (Digester System)

A digester is a sealed basin or tank that is designed to accelerate and control the decomposition of organic matter by microorganisms in the absence of oxygen. Anaerobic decomposition results in the conversion of organic compounds in the substrate into methane (CH₄), carbon dioxide (CO₂), and water rather than intermediate Volatile Organic Compounds (VOCs). The gas generated by this process is known as biogas, waste gas, or digester gas. In addition to methane and carbon dioxide, biogas may also contain small amounts of Nitrogen (N₂), Oxygen (O₂), Hydrogen Sulfide (H₂S), and Ammonia (NH₃). Biogas may also include trace amounts of various VOCs that remain from incomplete digestion of the volatile solids in the incoming substrate. Because biogas is mostly composed of methane, the main component of natural gas, the gas produced in the digester can be cleaned to remove H₂S and other impurities and used as fuel.

The proposed digester system will be designed to process the manure generated by the cattle at Maddox Dairy LTD and will capture fugitive methane that is currently being released from the

uncovered pond at the dairy. The manure will be flushed from the milking parlor and the cow housing areas at the dairy and the manure will be pumped via an underground piping system to reception pits where the waste stream will be adjusted to the proper solids content (9-15% solids) and then pumped into the new digester system. Excess manure liquid from the reception pits will be sent to a separated liquids pit where the liquid will be available for the dairy to use in the flush system. The effluent from the digester will be pumped to a solids separation area where the fibrous solids will be separated from the liquid digester effluent. After the fibrous solids have been separated, the liquid digester effluent will be pumped back to the separated liquids pit to be used in the flush system. Excess liquid from the separated liquids pit will flow to the existing dairy storage pond to be used to fertilize adjacent cropland.

The effluent leaving the digester will be sent to a solids separation area where it will be pumped over a two stage slope screen separator for separation of the digested manure fiber solids from the liquid. The digested solids will be returned to the dairy for use as bedding for the cattle at the dairy or stored for use as a soil amendment. The liquid effluent from the mechanical separators will be directed to the separated liquids pit for reuse in the dairy flush system. The existing dairy storage pond will be utilized for capture of any overflow from the separated liquids reception pit. The dairy will continue to use the existing storage pond to irrigate and fertilize adjacent cropland.

Digester Gas-Fired Backup Flare

The applicant has proposed to install a 10.75 MMBtu/hr partially enclosed digester gas-fired backup flare to combust the biogas during emergencies or other rare situations when the upgraded digester gas is not transported offsite. The applicant indicates that because the proposed flare will be used during emergencies and will be connected directly to the digester vessel, the proposed flare may combust untreated digester gas with a sulfur content of up to 4,000 ppmv as H₂S. The applicant has indicated that the digester gas-fired backup flare will have the capacity to combust a maximum of 18,540 cubic feet of biogas per hour and is expected to operate a maximum of 200 hours per year, equivalent to operation of 2.283% of the total hours in a year (2.283% of 8,760 hours/year = 200 hr/year). However, to provide greater operational flexibility, the digester gas-fired backup flare will be limited by permit condition to combusting no more than 2,150 MMBtu (3.707 million standard cubic feet (scf) @ 580 Btu/scf) of digester gas per year, which is equivalent to operation of the flare for 200 hours per year at the full capacity of the flare provided by the applicant.

V. Equipment Listing

C-9792-1-0: DIGESTER SYSTEM CONSISTING OF A RECEPTION PIT, ONE COVERED DIGESTER LAGOON, ONE 10.75 MMBTU/HR DIGESTER GAS-FIRED BACKUP FLARE, AND TWO PERMIT EXEMPT BOILERS (NATURAL GAS-FIRED, 5 MMBTU/HR OR LESS)

C-9792-2-0: DIGESTER GAS UPGRADING OPERATION CONSISTING OF FEED GAS BLOWERS, COMPRESSORS, COOLERS, CHILLERS, IRON SPONGE H₂S REMOVAL, A MEMBRANE CO₂ REMOVAL SYSTEM, AND PRODUCT GAS COMPRESSORS

VI. Emission Control Technology Evaluation

C-9792-1-0

Digester System

As previously discussed, a digester system is a sealed basin or tank that is designed to accelerate and control the decomposition of organic matter by microorganisms in the absence of oxygen. Anaerobic digestion results in greater conversion of organic compounds in the substrate into methane (CH₄), carbon dioxide (CO₂), and water rather than intermediate Volatile Organic Compounds (VOCs). Because construction of the digester system will allow the liquid manure to be anaerobically treated as opposed to being processed through an open lagoon, construction of the digester is expected to reduce VOC emissions from the dairy's liquid manure handling system.

Moisture as well as other impurities, such as CO₂, H₂S, and NH₃ will be removed from the digester gas via the digester gas upgrading equipment to upgrade the gas to pipeline quality renewable natural gas to be shipped offsite and used elsewhere.

Under normal operation, digesters are assumed to capture 100% of the produced digester gas which is upgraded into RNG to be transported offsite. If produced digester gas cannot be upgraded and transported offsite, the excess gas will be vented to the backup/emergency flare for VOC control.

The flare is considered an emissions control devices and the products of combustion, which includes oxides of nitrogen (NO_x), oxides of sulfur (SO_x), particulate matter less than 10 microns (PM₁₀) and less than 2.5 microns (PM_{2.5}), and carbon monoxide (CO) emissions are secondary pollutants

Backup Digester Gas-Fired Flare

The proposed digester system must be equipped with a backup/emergency flare as a VOC control device if there is excess digester gas that must be disposed of. There may be excess raw digester gas in cases when the gas upgrading equipment is not operating due to breakdown or maintenance. However, the flare is expected to only operate in emergency situations since gas upgrading equipment is expected to be maintained and properly operated which will serve to ensure the equipment remains reliable.

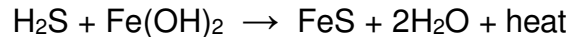
Fugitive Emissions

Previous analyses of digester gas have consistently demonstrated that the VOC content of digester gas is very low (less than 1% by weight). District Policy SSP 2015 – Procedures for Quantifying Fugitive VOC Emissions at Petroleum and SOCM (Synthetic Organic Chemical Manufacturing Industry) Facilities specifies that fugitive VOC emissions are not assessed for piping and components handling fluid streams with a VOC content of 10% or less by weight. Therefore, because of the very low VOC content of the digester gas, fugitive VOC emissions from the digester system and associated equipment are assumed to be negligible, consistent with District Policy SSP 2015.

Digester Gas Upgrading Operation with H₂S Removal (C-9792-2-0)

After capture of the digester gas, it is sent through an iron sponge H₂S scrubber for the removal of additional H₂S prior to delivery to the gas upgrading plant.

An iron sponge scrubber is composed of vessel(s) containing iron sponge, which consists of a hydrated form of iron oxide infused onto wood shavings. The wood shavings serve only as a carrier for the iron oxide powder. The iron oxide infused into the wood surface will not wash off or migrate with the gas. As the gas passes through the iron sponge material, the H₂S is removed by the following chemical reaction producing black iron sulfide and water:



For the iron sponge to perform effectively, it must be maintained within a defined range of sufficient moisture content. This requirement is typically satisfied if the gas is saturated with water vapor, as is frequently the case with biogas. If the iron sponge becomes dry, moisture can be added and it will remain effective.

The scrubber consists of enclosed vessels filled with iron sponge or other dry media for removal of H₂S. The digester gas flows through the scrubber and then to a dryer and chiller to remove moisture. For continuous operation, there will be a secondary unit that will be brought online at specified times or when monitoring indicates that the primary unit is nearing saturation. Valves can be arranged so either bed can operate while the other is serviced. The useful life of the iron sponge vessels will vary depending on the inlet concentration of H₂S, the flow rate, and the mass in the vessels. Before a scrubber is completely spent, it must be regenerated or replaced. The spent scrubber vessels will be sent to a regeneration facility or to an appropriate disposal facility.

The proposed scrubber will be capable of reducing H₂S concentration in the digester gas to 5 ppmv or less. Reducing the H₂S concentration in the gas will minimize SO_x emissions from combustion of the digester gas.

VII. General Calculations

A. Assumptions

- WTE Riverdale, LLC (Facility C-9792) and Maddox Dairy (Facility C-5206) are separate stationary sources at the same site
- PM_{2.5} emissions from the digester gas-fired backup flare are assumed to be equal to PM₁₀ emissions.

Assumptions for the Digester System (ATC C-9792-1-0)

- PM emissions from the handling of separated solids for the digester system are considered negligible because of the high moisture content of separated manure solids.
- The proposed digester system will reduce potential VOC emissions from manure generated by the cattle at the dairy. Manure that is currently stored in uncovered lagoon(s) and pond(s) will instead be placed in an enclosed anaerobic digester at the WTE Riverdale, LLC (Facility C-9792), thereby decreasing volatilization of compounds from the manure. In the digester, most VOCs present will be converted to methane (an exempt organic compound) and carbon dioxide further reducing the potential for VOC

emissions. The results of digester gas analyses have consistently demonstrated very low VOC content (less than 1% by weight). As explained above, District Policy SSP 2015 specifies that fugitive VOC emissions are not assessed for piping and components handling fluid streams with a VOC content of 10% or less by weight. Therefore, consistent with District Policy SSP 2015, the fugitive VOC emissions from the digester system will be assumed to be negligible.

- All emissions from the digester vessel are included in the emissions calculated for the flare; any other emissions from the digester system are considered negligible.
- H₂S emissions have already been evaluated at the liquid manure handling permit at Maddox Dairy LTD (permit unit C-5206-3). Since the permitted herd limit is not increasing, the amount of manure won't increase and as a result, the H₂S emissions from the liquid manure won't increase. Therefore, the construction of the proposed covered digester will only result in a new emission point, which requires a Health Risk Assessment (HRA).
- Volumetric/Molar composition of typical digester gas is about 60%-65% methane (CH₄) and 35%-40% carbon dioxide (CO₂) with trace amounts of hydrogen sulfide and other compounds¹.
- Digester gas properties:
 - Higher Heating Value = 580 Btu/scf (per applicant)
 - F-factor = 9,100 dscf/MMBtu (dry, adjusted to 60 °F), (Estimated based on previous digester gas fuel analyses for source tests)
 - Maximum VOC content = 0.5% by weight
 - Molar specific volume = 379.5 scf/lb-mol (at 60°F)
- Molecular weights:

NO _x (as NO ₂)	= 46 lb/lb-mol	CO	= 28 lb/lb-mol	NH ₃	= 17 lb/lb-mol
VOC (as CH ₄)	= 16 lb/lb-mol	SO _x (as SO ₂)	= 64.06 lb/lb-mol		

Assumptions for the Digester Gas-Fired Backup Flare (ATC C-9792-1-0)

- The flare is a control device and will be operated only for testing and maintenance, required regulatory purposes, backup purposes, and during emergency situations (proposed by applicant; District limitations for backup/emergency classification).
- An emergency is a situation or condition arising from a sudden and reasonably unforeseeable and unpreventable event beyond the control of the operator, such as, but not limited to, unpreventable equipment failure, natural disasters, acts of war or terrorism, and external power curtailment (except due to interruptible power service agreements). An emergency situation requires immediate corrective action to restore safe operation.
- The maximum amount of digester gas that can be combusted in the flare on a daily basis will be based on the maximum flare gas flow rate of 18,540 scf/hr and operation of the flare for 24 hrs/day (444,960 scf per day) (10.75 MMBtu/hr @ 580 Btu/scf) (proposed by applicant)

¹ U.S. EPA. Anaerobic Digestion and its Applications (October 2015) Office of Research and Development, National Risk Management Research Laboratory (NRMRL) Land Remediation and Pollution Control Division (LRPCD) Cincinnati, OH. Report No. EPA/600/R-15/304. https://www.epa.gov/sites/production/files/2016-07/documents/ad_and_applications-final_0.pdf; U.S. EPA AgSTAR "Market Opportunities for Biogas Recovery Systems at U.S. Livestock Facilities" (June 2018). EPA-430-R-18-006. <http://www2.epa.gov/agstar/agstar-market-opportunities-report>; and "Anaerobic Digestion of Animal Wastes: Factors to Consider", ATTRA - National Sustainable Agriculture Information Service (<https://attra.ncat.org/attra-pub/summaries/summary.php?pub=307>)

- The applicant has indicated that the digester gas backup flare is expected to operate a maximum of 2.283% of total hours in a year (2.283% of 8,760 hours/year = 200 hr/year). However, to provide greater operational flexibility, the digester gas backup flare will be limited by permit condition to combusting no more than 2,150 MMBtu (3.707 million standard cubic feet (scf) @ 580 Btu/scf) of digester gas per year, which is equivalent to operation of the flare for 200 hours per year at the full capacity of the flare provided by the applicant
- Maximum sulfur content of the raw digester gas combusted in the backup flare: 4,000 ppmv as H₂S (proposed by applicant)
- The proposed digester gas backup flare is used to control VOC, H₂S, and CH₄ in the gas that is generated by the digester system and is therefore an emissions control device that is not subject to District Best Available Control Technology (BACT) requirements
- The digester is considered an emissions unit that may be subject to BACT. The backup flare is a control device for VOC and H₂S in the digester gas from the digester system. Therefore, only pollutants directly emitted from the digester system can trigger BACT, not secondary pollutants emitted only as a result of the combustion of the digester gas in the flare

Assumptions for the Digester Gas Upgrading Operation (ATC C-9792-2-0)

- The design specifications that the applicant provided for the proposed biogas upgrading plant indicates that the biogas upgrading plant will be designed to process a maximum of 500 scfm of digester gas.
- District Policy SSP 2015 – Procedures for Quantifying Fugitive VOC Emissions at Petroleum and SOCM (Synthetic Organic Chemical Manufacturing Industry) Facilities (9/15/2005) specifies that fugitive VOC emissions are not assessed for piping and components handling fluid streams with a VOC content of 10% or less by weight. The results of digester gas fuel analyses have consistently demonstrated very low VOC content (less than 1% by weight). Therefore, the fugitive VOC emissions from the digester system and proposed biogas upgrading plant are considered negligible, consistent with District Policy SSP 2015.
- Because of the negligible content of the dairy digester gas that will be processed by the biogas upgrading plant, VOC emissions from this operation will be negligible.
- H₂S and NH₃ are the only pollutants of concern that will be emitted from the proposed biogas upgrading plant.
- The applicant indicates that the maximum flowrate of waste tail gas and off-specification gas venting from the operation will be 500 scfm. This value will be used for calculations of the PE from the proposed biogas upgrading plant.
- Venting of the waste tail gas from the system is assumed to be continuous, 24 hours per day and 365 days per year.
- Maximum H₂S and NH₃ content of the biogas in the upgrading system will be 5 ppmv H₂S and 5 ppmv NH₃ (applicant proposed).
- Molar Specific Volume = 379.5 scf/lb-mol (at 60°F)
- Molecular mass of H₂S: 34.08 lb/lb-mol
- Molecular mass of NH₃ = 17 lb/lb-mol

B. Emission Factors

Emission Factors for the Digester System with Backup Flare (ATC C-9792-1-0)

The NO_x emission factor (0.06 lb/MMBtu) is based on the Industry Standard NO_x emission factor for biogas flares² and District practice for permitting biogas flares.

- The SO_x emission factor (0.35 lb/MMBtu) is based on the maximum sulfur content of the dairy digester gas proposed by the applicant (1,200 ppmv as H₂S).
- The emission factors for PM (0.015 lb/MMBtu) and CO (0.046 lb/MMBtu) are based on the values given for landfill gas-fired flares in AP-42, Draft Section 2.4 Municipal Solid Waste Landfills (October 2008).
- The VOC emission factor for the digester gas-fired flare (0.006 lb/MMBtu) is based on the VOC emission for landfill gas and digester gas-fired flares (2.50 g/MMBtu or 0.0055 lb/MMBtu) from the California Air Resources Board (ARB) Low Carbon Fuel Standard (LCFS) pathways for the production of LCFS fuels from landfill gas and digester gas,³ and was also assumed to be similar to the AP-42 VOC emission factor for digester gas-fired turbines (0.0058 lb/MMBtu). The assumption that the AP-42 VOC emission factor for the digester gas-fired flare is similar to digester gas-fired turbines is conservative because AP-42, Draft Section 2.4 Municipal Solid Waste Landfills (October 2008) lists a typical VOC control efficiency of 97.7% for landfill gas-fired flares compared to 94.4% for landfill gas-fired turbines and greater VOC control efficiency would result in lower VOC emissions. Additionally, as noted above, the VOC content of dairy digester gas is generally negligible to very low; therefore, using a VOC emission factor of 0.006 lb/MMBtu will result in a reasonably conservative estimate of VOC emissions from the digester gas backup flare.

Emissions Factors for Digester System Backup Flare (ATC C-9792-1)			
Pollutant	lb/MMBtu	lb/scf*	Source
NO _x	0.06	3.48 x 10 ⁻⁵	Industry Standard/District Practice for Permitting Biogas Flares
SO _x	1.16	6.73 x 10 ⁻⁴	4,000 ppmvd in flared gas (Proposed by Applicant)
PM ₁₀	0.015	8.70 x 10 ⁻⁶	AP-42 Draft Table 2.4.4 (October 2008) (Value for Landfill Gas Flares)
CO	0.046	2.67 x 10 ⁻⁵	AP-42 Draft Table 2.4.4 (October 2008) (Value for Landfill Gas Flares)
VOC**	0.006	3.48 x 10 ⁻⁶	Based on ARB LCFS Pathway Biogas Flare VOC EF/Also Conservatively Assumed to be similar to Digester Gas-Fired Turbines

*lb/scf equivalent equals lb/MMBtu x 0.000580 MMBtu/scf

**Example calculation of SO_x emission factor shown below

² John Zink® has previously indicated that the industry standard NO_x emission factor for biogas flares is 0.06 lb-NO_x/MMBtu. See: John Zink (March 1998) Ultra-Low Emission Enclosed Landfill Gas Flare – A Full Scale Factory Test. Presented at the **Solid Waste Association of North America (SWANA)** 21nd Annual Landfill Gas Symposium, Austin, Texas, March 1998. https://www.johnzinkhamworthy.com/wp-content/uploads/tp_UltraLowEmission.pdf. John Zink® also stated that one of their standard flares is expected to comply with the 0.06 lb-NO_x/MMBtu emission limit when flaring low Btu gas from a digester gas refining process. See: Sacramento Metropolitan Air Quality management District (SMAQMD) BACT determination for flaring low Btu digester gas (July 25, 2017): <http://www.airquality.org/StationarySources/Documents/Flare%20Waste%20Gas%20Low%20BTU%20BACT%20140.pdf>

³ Examples of ARB Low Carbon Fuel Standard (LCFS) pathways for landfill gas and digester gas are available at: https://www.arb.ca.gov/fuels/lcfs/092309lcfs_lfg_ing.pdf and <https://www.arb.ca.gov/fuels/lcfs/2a2b/apps/www2bm-rpt-082514.pdf> ; Also see: <https://www.arb.ca.gov/fuels/lcfs/2a2b/2a-2b-apps.htm>

SO_x – 4,000 ppmvd H₂S in flared gas

$$\frac{(\text{ppmv}) \text{ ft}^3 \text{ H}_2\text{S}}{10^6 \text{ ft}^3} \times \frac{32.06 \text{ lb} - \text{S}}{\text{lb} - \text{mol H}_2\text{S}} \times \frac{\text{lb} - \text{mol}}{379.5 \text{ ft}^3} \times \frac{64.06 \text{ lb} - \text{SO}_2}{32.06 \text{ lb} - \text{S}} \times \frac{1 \text{ ft}^3}{\text{HHV Btu}} \times \frac{10^6 \text{ Btu}}{\text{MMBtu}}$$

$$\frac{4,000 \text{ ft}^3 \text{ H}_2\text{S}}{10^6 \text{ ft}^3} \times \frac{32.06 \text{ lb} - \text{S}}{\text{lb} - \text{mol H}_2\text{S}} \times \frac{\text{lb} - \text{mol}}{379.5 \text{ ft}^3} \times \frac{64.06 \text{ lb} - \text{SO}_2}{32.06 \text{ lb} - \text{S}} \times \frac{1 \text{ ft}^3}{580 \text{ Btu}} \times \frac{10^6 \text{ Btu}}{\text{MMBtu}} = 1.16 \frac{\text{lb} - \text{SO}_x}{\text{MMBtu}}$$

Emission Factors for the Digester Gas Upgrade Operation (ATC C-9792-2-0)

VOC

Previous analyses of digester gas have consistently demonstrated that the VOC content of digester gas is very low (less than 1% by weight). District Policy SSP 2015 – Procedures for Quantifying Fugitive VOC Emissions at Petroleum and SOCMI (Synthetic Organic Chemical Manufacturing Industry) Facilities specifies that fugitive VOC emissions are not assessed for piping and components handling fluid streams with a VOC content of 10% or less by weight. Therefore, because of the very low VOC content of the digester gas, fugitive VOC emissions from the digester system and associated equipment are assumed to be negligible, consistent with District Policy SSP 2015.

H₂S

As stated above, the maximum H₂S concentration of the gas vented from the biogas upgrading plant will be 5 ppmv. The H₂S emission factor for the gas vented from the biogas upgrading plant is calculated below based on the H₂S concentration in the gas.

$$\frac{5 \text{ ft}^3 \text{ H}_2\text{S}}{10^6 \text{ ft}^3} \times \frac{34.08 \text{ lb} - \text{S}}{\text{lb} - \text{mol H}_2\text{S}} \times \frac{\text{lb} - \text{mol}}{379.5 \text{ ft}^3} = 4.49012 \times 10^{-7} \frac{\text{lb} - \text{H}_2\text{S}}{\text{ft}^3}$$

NH₃

As stated above, the maximum NH₃ concentration of the gas vented from the biogas upgrading plant will be 5 ppmv. The NH₃ emission factor for the gas vented from the biogas upgrading plant is calculated below based on the NH₃ concentration in the gas.

$$\frac{5 \text{ ft}^3 \text{ NH}_3}{10^6 \text{ ft}^3} \times \frac{17 \text{ lb} - \text{NH}_3}{\text{lb} - \text{mol}} \times \frac{\text{lb} - \text{mol}}{379.5 \text{ ft}^3} = 2.23979 \times 10^{-7} \frac{\text{lb} - \text{NH}_3}{\text{ft}^3}$$

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Because the proposed digester system with a backup flare and the digester gas upgrading operation are new emissions units, PE1 = 0 for all pollutants from these units.

2. Post-Project Potential to Emit (PE2)

Digester System with Backup Flare (ATC C-9792-1-0)

As explained above, the applicant has proposed to construct a new covered digester that will have negligible fugitive emissions; therefore, emissions for the digester will be calculated only based on combustion of the digester gas in the backup flare.

The potential to emit for the backup flare will be calculated based on the maximum hourly heat input for the flare of 10.75 MMBtu per hour (18,540 scf per hour) and the annual heat input limit of 2,150 MMBtu per year (equivalent to 200 hours of operation per year) of digester gas combusted in the flare.

Daily PE2 for the Digester System with Backup Flare (ATC C-9792-1-0)							
Pollutant	Emission Factor (lb/MMBtu)	x	Hourly Heat Input of Gas Flared (MMBtu/hr)	x	Daily Hours of Operation (hr/day)	=	Daily PE2 (lb/day)
NO _x	0.06	x	10.75	x	24	=	15.5
SO _x	1.16	x	10.75	x	24	=	299.3
PM ₁₀	0.015	x	10.75	x	24	=	3.9
CO	0.046	x	10.75	x	24	=	11.9
VOC	0.006	x	10.75	x	24	=	1.5

Annual PE2 for the Digester System with Backup Flare (ATC C-9792-1-0)					
Pollutant	Emission Factor (lb/MMBtu)	x	Annual Heat Input of Gas Flared (MMBtu/yr)	=	PE2 (lb/year)
NO _x	0.06	x	2,150	=	129
SO _x	1.16	x	2,150	=	2,494
PM ₁₀	0.015	x	2,150	=	32
CO	0.046	x	2,150	=	99
VOC	0.006	x	2,150	=	13

Digester Gas Upgrading Operation (ATC C-9792-2-0)

There are two emissions points from the upgrading center, (1) waste tail gas venting and (2) off-specification venting. The applicant has stated the flow rate is the same for both vents.

$$\text{Daily PE2} = \text{EF (lb-pollutant/ft}^3\text{)} \times \text{gas flow rate (ft}^3\text{/min)} \times 60 \text{ min/hr} \times 24 \text{ hr/day} \times 2 \text{ emissions points}$$

$$\text{Annual PE2} = \text{EF (lb-pollutant/ft}^3\text{)} \times \text{gas flow rate (ft}^3\text{/min)} \times 60 \text{ min/hr} \times 24 \text{ hr/day} \times 365 \text{ days/year} \times 2 \text{ emissions points}$$

H₂S

$$\begin{aligned} \text{Daily PE2}_{\text{H}_2\text{S}} &= 4.49012 \times 10^{-7} \text{ lb-H}_2\text{S/ft}^3 \times 500 \text{ ft}^3\text{/min} \times 60 \text{ min/hr} \times 24 \text{ hr/day} \times 2 \\ &= 0.6 \text{ lb-H}_2\text{S/day} \end{aligned}$$

$$\begin{aligned} \text{Annual PE2}_{\text{H}_2\text{S}} &= 4.49012 \times 10^{-7} \text{ lb-H}_2\text{S/ft}^3 \times 500 \text{ ft}^3\text{/min} \times 60 \text{ min/hr} \times 24 \text{ hr/day} \times 365 \\ &\text{ day/year} \\ &= 236 \text{ lb-H}_2\text{S/year} \end{aligned}$$

NH₃

$$\begin{aligned} \text{Daily PE2}_{\text{NH}_3} &= 2.23979 \times 10^{-7} \text{ lb-NH}_3\text{/ft}^3 \times 500 \text{ ft}^3\text{/min} \times 60 \text{ min/hr} \times 24 \text{ hr/day} \times 2 \\ &= 0.3 \text{ lb-NH}_3\text{/day} \end{aligned}$$

$$\begin{aligned} \text{Annual PE}_{2\text{NH}_3} &= 2.23979 \times 10^{-7} \text{ lb-NH}_3/\text{ft}^3 \times 500 \text{ ft}^3/\text{min} \times 60 \text{ min/hr} \times 24 \text{ hr/day} \times 365 \\ &\quad \text{day/year} \times 2 \\ &= 118 \text{ lb-NH}_3/\text{year} \end{aligned}$$

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

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

Since this is a new facility, there are no valid ATCs, PTOs, or ERCs at the Stationary Source; therefore, the SSPE1 is equal to zero.

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

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

SSPE2 (lb/year)							
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC	NH ₃	H ₂ S
C-9792-1-0	129	2,494	32	99	13	0	0
C-9792-2-0	0	0	0	0	0	118	236
SSPE2	129	2,494	32	99	13	118	236

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), pursuant to the Clean Air Act, Title 3, Section 302, US Codes 7602(j) and (z)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 70.2

Rule 2201 Major Source Determination (lb/year)						
	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO	VOC
SSPE1	0	0	0	0	0	0
SSPE2	129	2,494	32	32	99	13
Major Source Threshold	20,000	140,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No	No

Note: PM_{2.5} assumed to be equal to PM₁₀

As seen in the table above, the facility is not an existing Major Source and is not becoming a Major Source as a result of this project.

Rule 2410 Major Source Determination

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

PSD Major Source Determination (tons/year)						
	NO ₂	VOC	SO ₂	CO	PM	PM ₁₀
Estimated Facility PE before Project Increase	0	0	0	0	0	0
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source?	No	No	No	No	No	No

As shown above, the facility is not an existing PSD major source for any regulated NSR pollutant expected to be emitted at this facility.

6. Baseline Emissions (BE)

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

Pursuant to District Rule 2201, BE = PE1 for:

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

otherwise,

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

Since the proposed digester system with backup flare and digester gas upgrading operation are new emissions units, BE = PE1 = 0 for all pollutants from each unit.

7. SB 288 Major Modification

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

Since this facility is not a major source for any of the pollutants addressed in this project, this project does not constitute an SB 288 major modification and no further discussion is required.

8. Federal Major Modification / New Major Source

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.

As defined in 40 CFR 51.165, Section (a)(1)(v) and part D of Title I of the CAA, a Federal Major Modification is 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. The significant net emission increase threshold for each criteria pollutant is included in Rule 2201.

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification and no further discussion is required.

New Major Source

As demonstrated above, this facility is not becoming a Major Source as a result of this project, therefore, this facility is not a New Major Source pursuant to 40 CFR 51.165 a(1)(iv)(A)(3).

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

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

- NO₂ (as a primary pollutant)
- SO₂ (as a primary pollutant)
- CO
- PM
- PM₁₀
- Hydrogen sulfide (H₂S)⁴
- Total reduced sulfur (including H₂S)⁴
- Reduced sulfur compounds⁴

⁴ Because the facility is not included in the specific source categories listed in 40 CFR 51.165, only non-fugitive emissions from the backup flare must be addressed for the PSD applicability determination. Although the sulfur (primarily H₂S) in the fuel will be converted almost entirely to SO_x during combustion, the maximum possible amount of H₂S and total reduced sulfur compounds from the flare can be calculated by assuming that all sulfur in the fuel is emitted as H₂S. Based on the fuel sulfur limit of 4,000 ppmv as H₂S for the flare, the maximum possible H₂S emission factors are calculated to be 1.16 lb-H₂S/MMBtu. This results in a total combined maximum of 2.7 tpy H₂S from the flare. This is well below the applicable PSD threshold of 250 tpy.

I. Project Emissions Increase - New Major Source Determination

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

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

PSD Major Source Determination: Potential to Emit (tons/year)						
	NO₂	VOC	SO₂	CO	PM	PM₁₀
Total PE from New and Modified Units	0.1	0.0	1.2	0.1	0.0	0.0
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	N	N	N	N	N	N

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

10. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are included in Appendix C.

VIII. Compliance Determination

Rule 2020 Exemptions

1.0 Purpose

This rule specifies emissions units that are not required to obtain an Authority to Construct or Permit to Operate. This rule also specifies the recordkeeping requirements to verify the exemption and outlines the compliance schedule for emissions units that lose the exemption after installation.

2.0 Applicability

This rule shall apply to any source that emits or may emit air contaminants.

The applicant has proposed to install two natural gas-fired boilers with a heat input rating of < 5.0 MMBtu/hr.

Pursuant to Section 6.1.1, no ATC or PTO shall be required for steam generators, steam superheaters, water boilers, water heaters, steam cleaners, and closed indirect heat transfer

systems that have a maximum input heat rating of 5,000,000 Btu per hour (gross) or less and is equipped to be fired exclusively with the following:

- 6.1.1.1 Natural gas containing no more than five (5) percent by weight hydrocarbons heavier than butane and no more than 1.0 grain of total sulfur per 100 standard cubic feet of gas; or
- 6.1.1.2 Liquefied petroleum gas containing no more than two (2) percent by volume hydrocarbons heavier than butane and no more than 15 grains of total sulfur per 100 standard cubic feet of gas; or
- 6.1.1.3 Any combination of gases specified in Sections 6.1.1.1 and 6.1.1.2.
- 6.1.1.4 The percent by weight hydrocarbons content heavier than butane shall be determined by using the latest version of ASTM E-260 (Standard Practice for Packed Column Gas Chromatography).
- 6.1.1.5 The gas sulfur content shall be determined by using the latest version of ASTM D-1072 (Standard Test Method for Total Sulfur in Fuel Gases by Combustion and Barium Chloride Titration), ASTM D-3246 (Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry), ASTM D-6228 (Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection), or ASTM D5504 (Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence).

The proposed < 5.0 MMBtu/hr boilers are fired on natural gas that meets the criteria listed in Section 6.1.1.1. Therefore, the two proposed < 5.0 MMBtu/hr natural gas-fired boilers are exempt from permits.

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

Pursuant to District Rule 2201, Section 4.1, BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

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

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

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

Digester System with Backup Flare (ATC C-9792-1-0)

The applicant proposes to install a digester system with a backup flare to control VOC emissions. As explained above, fugitive emissions from the digester system are considered negligible. However, the post-control emissions will be compared to the BACT threshold of 2.0 lb/day.

The proposed backup flare will have a PE greater than 2.0 lb/day for NO_x, SO_x, PM₁₀, and CO. However, the flare is an emissions control device used to control the gas from the digester system. The District has determined that an emissions control device is not a source operation that is subject to BACT. Therefore, only emissions from the digester system may trigger District BACT requirements, not secondary emissions from the flare (i.e. NO_x, SO_x, PM₁₀, and CO). VOC emissions from the digester system controlled by the flare do not exceed 2.0 lb/day. Therefore, BACT is not required for the digester system with backup flare.

Digester Gas Upgrading Operation (ATC C-9792-2-0)

The applicant proposes to install a digester upgrading operation that will only produce H₂S and NH₃ emissions. As shown above, the PE for this emissions unit is less than 2 lb/day for both H₂S and NH₃. Therefore, BACT for a new unit with PE > 2 lb/day purposes is not required for this unit.

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

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

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

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

d. SB 288/Federal Major Modification

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

B. Offsets

1. Offset Applicability

Pursuant to District Rule 2201, Section 4.5, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals 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
SSPE2	129	2,494	32	99	13
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	No	No	No	No	No

2. Quantity of Offsets Required

As seen above, the SSPE2 is not greater than the offset thresholds for all the pollutants; therefore offset calculations are not necessary and offsets will not be required for this project.

C. Public Notification

1. Applicability

Pursuant to District Rule 2201, Section 5.4, public noticing is required for:

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

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

As shown in Section VII.C.5 above, this existing minor source facility is not becoming a Major Source as a result of this project. Therefore, this facility is not a New Major Source and this project does not constitute an SB 288 or a Federal Major Modification. Consequently, public noticing for this project for New Major Source, Federal Major Modification, or SB 288 Major Modification purposes is not required.

b. PE > 100 lb/day

Applications which include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements.

ATC C-9792-1-0 (Digester System with Backup Flare)

The PE2 for this 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	15.5	100 lb/day	No
SO _x	299.3	100 lb/day	Yes
PM ₁₀	3.9	100 lb/day	No
CO	11.9	100 lb/day	No
VOC	1.5	100 lb/day	No

As shown in the table above, daily SO_x emissions for this unit exceed 100 lb/day. Therefore, public noticing for PE > 100 lb/day purposes is required.

ATC C-9792-2-0 (Digester Gas Upgrading)

The PE2 for this 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	0.0	100 lb/day	No
SO _x	0.0	100 lb/day	No
PM ₁₀	0.0	100 lb/day	No
CO	0.0	100 lb/day	No
VOC	0.0	100 lb/day	No
NH ₃	0.3	100 lb/day	No
H ₂ S	0.6	100 lb/day	No

As shown in the table above, the emissions for this unit does not exceed 100 lb/day. Therefore, public noticing for PE > 100 lb/day purposes is not required.

c. Offset Threshold

Public notification is required if the pre-project Stationary Source Potential to Emit (SSPE1) is increased to a level exceeding the offset threshold levels. The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	0	129	20,000 lb/year	No
SO _x	0	2,494	54,750 lb/year	No
PM ₁₀	0	32	29,200 lb/year	No
CO	0	99	200,000 lb/year	No
VOC	0	13	20,000 lb/year	No

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

d. SSIPE > 20,000 lb/year

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

SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	129	0	129	20,000 lb/year	No
SO _x	2,494	0	2,494	20,000 lb/year	No
PM ₁₀	32	0	32	20,000 lb/year	No
CO	99	0	99	20,000 lb/year	No
VOC	13	0	13	20,000 lb/year	No
NH ₃	118	0	118	20,000 lb/year	No
H ₂ S	236	0	236	20,000 lb/year	No

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

e. Title V Significant Permit Modification

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

2. Public Notice Action

As discussed above, public noticing is required for this project for SO_x emissions in excess of 100 lb/day. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be electronically published on the District’s website 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.

Digester System and Backup Flare (ATC C-9792-1-0)

The following Rule 2201 condition will be included on the ATC permit requiring that the equipment be properly maintained and operated to minimize emissions of air contaminants:

- {271} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]

The following condition will be included on the ATC permit to ensure that fugitive emissions from the digester system will be negligible:

- The VOC content of the digester gas produced by the digester system shall not exceed 10% by weight. [District Rule 2201]

Proposed DEL Conditions for the Backup Flare

For the digester gas flare, the DELs for NO_x, PM₁₀, CO, and VOC are stated in the form of maximum emission factors (lb/MMBtu) and maximum amount of gas that can be combusted (MMscf). The DEL for SO_x is based on the maximum sulfur content of the digester gas.

The following conditions will be included on the ATC permit:

- Only digester gas shall be combusted in the flare. [District Rule 2201]
- Emissions from the flare shall not exceed any of the following limits: 0.06 lb-NO_x/MMBtu, 0.015 lb-PM₁₀/MMBtu, 0.046 lb-CO/MMBtu, or 0.006 lb-VOC/MMBtu. [District Rule 2201]
- The sulfur content of the digester gas combusted in this flare shall not exceed 4,000 ppmv as H₂S. The permittee may utilize an averaging period of up to 24 hours in length for demonstration of compliance with the fuel sulfur content limit. [District Rules 2201, 4102, and 4801]
- The digester gas-fired backup flare shall not exceed 200 hours of operation per calendar year. [District Rules 2201, 4102, and 4311]
- The total heating value of the gas combusted in the flare on given day shall be calculated using the measured quantity of gas combusted and the higher heating value (HHV) determined for the gas from the nearest date(s) to the date that the flare operated. [District Rule 2201]
- The flare shall be equipped with an operational, non-resettable, totalizing mass or volumetric fuel flow meter or other District-approved alternative method to measure the amount of gas combusted in the flare. [District Rule 2201]

In addition, the following condition will also be included on the ATC permit to ensure that the flare is properly operated as a control device.

- A flame shall be present at all times whenever combustible gases are vented through the flare. [District Rule 2201]
- The 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 Rules 2201 and 4311]
- The flare shall be equipped with an operational, non-resettable, totalizing mass or volumetric fuel flow meter or other District-approved alternative method to measure the amount of gas combusted in the flare. [District Rule 2201]
- Unless the flare is equipped with a flow-sensing ignition system, the flare shall be equipped and operated 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. [District Rules 2201 and 4311]

- The flare shall be operated only for testing and maintenance, backup, and emergency purposes. [District Rule 2201]
- Flares that use flow-sensing automatic ignition systems and which do not use a continuous flame pilot shall use purge gas for purging. [District Rules 2201 and 4311]
- 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. [District Rules 2201 and 4311]
- Upon request, the operator of an open flare in which the flare gas pressure is less than 5 psig shall make available records that demonstrate compliance with the provisions of 40 CFR 60.18, (c)(3) through (c)(5). [District Rules 2201 and 4311]

Digester Gas Upgrading Operation (ATC C-9792-2-0)

The following Rule 2201 condition will be included on the ATC permit requiring that the equipment be properly maintained and operated to minimize emissions of air contaminants:

- {271} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
- The oxygen/air injection system shall be maintained and operated in accordance with the supplier's recommendations to minimize the concentration of hydrogen sulfide (H₂S) in the digester gas. [District Rule 2201]

E. Compliance Assurance

1. Source Testing

Digester System with Backup Flare (C-9792-1-0)

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

Digester Gas Upgrading Operation (C-9792-2-0)

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

2. Monitoring

Digester System with Backup Flare (C-9792-1-0)

Because of the variable composition of digester gas, monitoring of the sulfur content of the digester gas flared will be required. The following conditions will be placed on the ATC permit to ensure compliance:

- The sulfur content of the digester gas combusted in this flare shall be monitored and recorded at least once every calendar quarter in which a digester gas sulfur content analysis is not performed. If quarterly monitoring shows a violation of the sulfur content limit of this permit, monthly monitoring will be required until six consecutive months of monitoring show compliance with the sulfur content limit. Once compliance with the

sulfur content limit is shown for six consecutive months, then the monitoring frequency may return to quarterly. Monitoring of the sulfur content of the digester gas flared 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 gas detection tubes calibrated for H₂S; a continuous fuel gas monitor that meets the requirements specified in SCAQMD Rule 431.1, Attachment A; District-approved source test methods, including EPA Method 11 and EPA Method 15, ASTM Method D1072, D4084, and D5504; District-approved in-line H₂S monitors; 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]

To ensure compliance with the conditions of the permit, the permittee will also be required to determine the higher heating value (HHV) of the digester gas. The following conditions will be included on the ATC permit:

- The permittee shall determine and record the higher heating value (HHV) of the digester gas combusted in the flare at least once in each calendar quarter in which the flare operates. [District Rule 2201] N
- The higher heating value (HHV) of the digester gas shall be determined using ASTM D1826, ASTM 1945 in conjunction with ASTM D3588, or an alternative method approved by the District. [District Rule 2201]

Digester Gas Upgrading Operation (C-9792-2-0)

No monitoring of this unit is required to demonstrate compliance with 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 conditions are listed on the permits:

Digester System with Backup Flare (C-9792-1-0)

- Permittee shall maintain daily records of the hours the backup flare is in operation, including the date the flare was operated and the purpose of the operation (e.g. for testing and maintenance). [District Rules 1070 and 2201]
- The sulfur content of the digester gas combusted in this flare shall be monitored and recorded at least once every calendar quarter in which a digester gas sulfur content analysis is not performed. If quarterly monitoring shows a violation of the sulfur content limit of this permit, monthly monitoring will be required until six consecutive months of monitoring show compliance with the sulfur content limit. Once compliance with the sulfur content limit is shown for six consecutive months, then the monitoring frequency may return to quarterly. Monitoring of the sulfur content of the digester gas flared 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]

- All records shall be maintained and retained for a minimum of five (5) years, and shall be made available for District inspection upon request. Records may be maintained and submitted in an electronic format approved by the District. [District Rules 1070, 2201, and 4311]

Digester Gas Upgrading Operation (C-9792-2-0)

- All records shall be maintained and retained for a minimum of five (5) years, and shall be made available for District inspection upon request. Records may be maintained and submitted in an electronic format approved by the District. [District Rules 1070, 2201, and 4311]

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

Section 4.14 of District Rule 2201 requires that an AAQA be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. Refer to Appendix B 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}.

Rule 2410 Prevention of Significant Deterioration

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

Rule 2520 Federally Mandated Operating Permits

Since this facility's potential emissions do not exceed any major source thresholds of Rule 2201, this facility is not a major source, and Rule 2520 does not apply.

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 anaerobic digester lagoons.

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 anaerobic digester lagoons.

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.

Because the backup flare will only combust excess digester gas, visible emissions from the flare and engine are not expected to exceed Ringelmann 1 or 20% opacity. The following condition will be listed on the ATC C-9792-1-0 to ensure compliance:

- {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

Rule 4102 Nuisance

Rule 4102 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, compliance with this rule is expected. The following conditions will be included on each permit in this project as a mechanism to enforce 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.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification of an existing source shall not result in an increase in cancer risk greater than the District's significance level (20 in a million) and shall not result in acute and/or chronic risk indices greater than 1.

According to the Technical Services Memo for this project, 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 resulting prioritization score, acute hazard index, chronic hazard index, and cancer risk for this project is shown below.

RMR Summary						
Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required?	Special Permit Requirements?
ATC C-9792-1-0	1.06	0.19	0.00	1.01E-07	No	Yes
ATC C-9792-2-0	44.9	0.01	0.01	6.35E-07	No	Yes
Project Totals	45.96	0.20	0.01	7.36E-07		
Facility Totals	>1	0.20	0.01	7.36E-07		

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.

In accordance with District policy APR 1905, no further analysis is required, and compliance with District Rule 4102 requirements is expected.

See Attachment D: Health Risk Assessment Summary

The following permit conditions are required to ensure compliance with the assumptions made for the risk management review:

C-9792-1-0

- The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap, roof overhang, or any other obstruction. [District Rule 4102]
- The digester gas-fired backup flare shall not exceed 200 hours of operation per calendar year. [District Rules 2201, 4102, and 4311]

C-9792-2-0

- The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap, roof overhang, or any other obstruction. [District Rule 4102]

Rule 4201 Particulate Matter Concentration

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

Digester System with Backup Flare (ATC C-9792-1-0)

$$0.015 \frac{lb - PM}{MMBtu} \times \frac{1 MMBtu}{9,137 dscf} \times \frac{7,000 grain}{1 lb} = 0.012 \frac{grain}{dscf}$$

Since 0.012 grain/dscf is less than 0.1 grain/dscf, compliance with this rule is expected. The following condition will be listed on the proposed ATC permit to ensure compliance:

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

Rule 4311 Flares

Digester System and Backup Flare (ATC C-9792-1-0)

Pursuant to Section 5.1, flares that are permitted to operate only during an emergency are not subject to the requirements of Sections 5.7, 5.8, 5.9 and 5.10. The proposed backup flare will be permitted to allow limited operation during times that are not emergencies. Therefore, this section does not apply to the proposed flare.

Pursuant to Section 5.2, flares that are operated 200 hours or less per calendar year as specified in the Permit to Operate, or with an annual throughput limit equivalent to 200 hours per year at flare rating (MMBtu/hr) as specified in the Permit to Operate, are exempt from the requirements of Sections 5.9 and 5.10 provided that one of the following two conditions are satisfied.

- 5.2.1 For the 200 hours per year validation, the operator shall use a calibrated non-resettable totalizing time meter or equivalent method approved in writing by the APCO;
or
- 5.2.2 For the annual throughput limit equivalent to 200 hours per year validation, the operator shall use a calibrated fuel meter or equivalent method approved in writing by the APCO.

The proposed backup flare will not be limited by permit condition to operating no more than 200 hours per year or an equivalent annual heat input throughput limit. Therefore, this section does not apply to the proposed flare.

Section 5.3 requires that a flame always be present in the flare whenever combustible gases are present. The following condition will be included on the ATC as a mechanism to ensure compliance:

- A flame shall be present at all times in the flare whenever combustible gases are vented through the flare. [District Rules 2201 and 4311]

Section 5.4 requires that the flare be equipped with either an automatic ignition system or operated with a continuous pilot. Per the applicant, this unit is equipped with an automatic ignition system. The following condition will be included on the ATC as a mechanism to ensure compliance:

- The 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 Rules 2201 and 4311]

Section 5.5 requires that, except for flares equipped with a flow-sensing ignition system, flares must be equipped with a device to monitor and confirm operation of the pilot flame. The following condition will be included on the ATC as a mechanism to ensure compliance:

- Unless the flare is equipped with a flow-sensing ignition system, the flare shall be equipped and operated 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. [District Rules 2201 and 4311]

Section 5.6 requires that flares that use flow-sensing automatic ignition systems and which do not use a continuous flame pilot must use purge gas for purging. The following condition will be included on the ATC as a mechanism to ensure compliance:

- Flares that use flow-sensing automatic ignition systems and which do not use a continuous flame pilot shall use purge gas for purging. [District Rules 2201 and 4311]

Section 5.7 requires open flares (air-assisted, steam-assisted, or non-assisted) in which the flare gas pressure is less than 5 psig to be operated in such a manner that meets the provisions of 40 CFR 60.18. The following condition will be included on the ATC as a mechanism to ensure compliance:

- 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. [District Rules 2201 and 4311]

Section 5.8 establishes emission limits for ground-level enclosed flares. The proposed flare is not a ground level enclosed flare. Therefore, the requirements of Section 5.7 are not applicable to the proposed flare.

Section 5.9 requires, except for flares that meet the emission limits specified in Table 3, operators of flares located at operations specified in Table 2 shall complete one of the following options:

- 5.9.1 Submit an ATC application to limit flaring annual throughput through an enforceable Permit to Operate limit, to levels not to exceed those specified in Table 2 for two consecutive calendar years, per the compliance schedule in Section 7.2; or
- 5.9.2 Replace or modify the existing flare to meet Table 3 emission limits per the compliance schedule in Section 7.3.

Rule 4311, Table 2 – Flare Annual Throughput Thresholds (MMBtu/calendar year)	
Flare Category	MMBtu/yr
A. Flares used at Oil and Gas Operations, and Chemical Operations	25,000
B. Flares used at Landfill Operations	90,000
C. Flares used at Digester Operations	100,000
D. Flares used at Organic Liquid Loading Operations	25,000

Rule 4311, Table 3 – VOC and NOx Emissions Requirements for Flares		
Flare Category	VOC (lb/MMBtu)	NOx (lb/MMBtu)
A. Flares at Oil and Gas Operations or Chemical Operations	0.008	0.018
B. Flares at Landfill Operations	0.038	0.025
C. Flares at Digester Operations (Located at a Major Source)	0.038	0.025
D. Flares at Digester Operations (Not located at a Major Source)	N/A	0.060
E. Flares at Organic Liquid Loading Operations	Pounds/1,000 gallons loaded	
	N/A	0.034

The proposed backup flare will be used at a digester operation and will be limited to no more than a maximum heat input of 16,410.98 MMBtu per year; therefore, it will not be subject to the emission limits in Table 3. The following condition will be placed on the ATC permit.

- The digester gas-fired backup flare shall not exceed 200 hours of operation per calendar year. [District Rules 2201, 4102, and 4311]

Section 5.10 provides additional requirements for flares that exceed the annual throughput thresholds specified in Table 2 above, or two consecutive calendar years. The proposed flare does not have the physical capacity to exceed the annual throughput threshold in Table 2.

Section 5.11 prohibits flaring unless it is consistent with an approved flare minimization plan (FMP), pursuant to Section 6.5 or is caused by an emergency and is necessary to prevent an accident, hazard, or release of vent gas directly to the atmosphere. Section 6.5 specifies that a flare minimization plan is required for refinery flares and flares at a major source. The proposed flare is not a refinery flare and is not at a major source. Therefore, a flare minimization plan is not required and this section does not apply.

Section 5.12 establishes SO₂ emission reduction standards for petroleum refinery flares. The proposed flare is not a petroleum refinery flare. Therefore, this section does not apply.

Section 5.13 requires the operator of a flare subject to flare minimization requirements pursuant to Section 5.11 to monitor the vent gas flow to the flare with a flow measuring device and to 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. As discussed above, the proposed flare is not subject to flare minimization requirements pursuant to Section 5.11. Therefore, this section does not apply.

Section 5.14 requires the operator of a flare subject to the annual throughput thresholds in Table 2 to monitor the vent gas flow rate to the flare with a flow measuring device. Flares that the operator can verify are not capable of exceeding the annual throughput thresholds are not required to monitor the vent gas flow to the flare. Since the flare is not physically capable of flaring enough gas to exceed the threshold in Table 2, this section does not apply.

Section 5.15 requires the operator of a petroleum refinery or a flare with a flaring capacity equal to or greater than 50 MMBtu/hr to monitor the flare pursuant to Sections 6.6, 6.7, 6.8, 6.9, and 6.10. The proposed flare is not a petroleum refinery flare. Therefore, this section does not apply.

Section 6.0 - Administrative Requirements

Section 6.1 requires the operator of a flare to maintain certain records for five years. The following conditions will be placed on the permit to ensure compliance:

- All records shall be maintained and retained for a minimum of five (5) years, and shall be made available for District inspection upon request. Records may be maintained and submitted in an electronic format approved by the District. [District Rules 1070, 2201, 4311]

Section 6.1 also states that the operator of a flare subject to this rule shall maintain the following records:

- 6.1.1 Copy of the compliance determination conducted pursuant to Section 6.4.1
- 6.1.2 Copy of the source testing result conducted pursuant to Section 6.4.2
- 6.1.3 For flares used during an emergency, record of the duration of flare operation, amount of gas burned, and the nature of the emergency situation
- 6.1.4 Operators claiming an exemption pursuant to Section 4.3 shall record annual throughput, material usage, or other information necessary to demonstrate an exemption under that section
- 6.1.5 A copy of the approved flare minimization plan pursuant to Section 6.5
- 6.1.6 Where applicable, a copy of annual reports submitted to the APCO pursuant to Section 6.2
- 6.1.7 Where applicable, monitoring data collected pursuant to Sections 5.10, 6.6, 6.7, 6.8, 6.9, and 6.10

The proposed flare is not subject to any of the sections or requirements listed above; therefore, these recordkeeping requirements are not applicable.

Section 6.2.1 requires the operator of a flare subject to flare minimization plans pursuant to Section 5.8 to 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. As discussed above, the proposed flare is not subject to flare minimization requirements pursuant to Section 5.8. Therefore, this section does not apply.

Section 6.2.2 states that effective on and after July 1, 2012, and annually thereafter, the operator of a flare subject to flare minimization plans pursuant to Section 5.11 shall submit an annual report to the APCO that summarizes all Reportable Flaring Events as defined Section 3.0 that occurred during the previous 12 month period. As discussed above, the proposed flare is not subject to flare minimization requirements pursuant to Section 5.11. Therefore, this section does not apply.

Section 6.2.3 states that effective on and after July 1, 2012, and annually thereafter, the operator of a flare subject to flare monitoring requirements pursuant to Sections 5.13, 5.14, 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 proposed flare is not a petroleum refinery flare and is not

located at a major source. Therefore, the flare is not subject to the requirements of Sections 5.13, 5.14, 6.6, 6.7, 6.8, 6.9, and 6.10 and the requirements of this section are not applicable.

Section 6.3 specifies test methods to demonstrate compliance with Rule 4311. The proposed flare is not a ground level enclosed flare and is not subject the testing or monitoring requirements of this section; therefore, this section does not apply.

Section 6.4.1 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 following condition will be included on the ATC to ensure compliance with the requirements of Section 6.4.1:

- Upon request, the operator of an open flare in which the flare gas pressure is less than 5 psig shall make available records that demonstrate compliance with the provisions of 40 CFR 60.18, (c)(3) through (c)(5). [District Rules 2201 and 4311]

Section 6.4.2 requires the operator of ground-level enclosed flares, or flares subject to the emission limits in Table 3 to conduct source testing at least once every 12 months to demonstrate compliance with Section 5.8. As discussed above, the proposed flare is not a ground level enclosed flare and is not subject to the emission limits in Table 3; therefore, this section does not apply.

Section 6.5 specifies requirements for operators of flares that are subject to the flare minimization plan (FMP) provisions of District Rule 4311. As discussed above, the proposed flare is not subject to flare minimization requirements pursuant to Section 5.8. Therefore, this section does not apply.

Sections 6.6, 6.7, 6.8, 6.9, and 6.10 require additional monitoring for petroleum refinery flares and any flare located at a major source. The proposed flare is not a petroleum refinery flare and is not located at a major source. Therefore, these sections do not apply.

Compliance with the requirements of this Rule 4311 is expected.

Rule 4801 Sulfur Compounds

The purpose of District Rule 4801 is to limit the emissions of sulfur compounds. A maximum concentration and test method are specified. The provisions of this rule shall apply to any discharge to the atmosphere of sulfur compounds, which would exist as a liquid or a gas at standard conditions.

Section 3.1 states that a person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: two-tenths (0.2) percent by volume calculated as sulfur dioxide (SO₂), on a dry basis averaged over 15 consecutive minutes. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

$$\text{Volume SO}_2 = \frac{n RT}{P}$$

Where:

N = moles SO₂

T (Standard Temperature) = 60 °F = 520 °R

P (Standard Pressure) = 14.7 psi

R (Universal Gas Constant) = $\frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}}$

Estimated F-Factor for the Digester Gas: 9,137 dscf/MMBtu at 60 °F

Digester System with Backup Flare (ATC C-9792-1-0)

To demonstrate compliance with the sulfur compound emission limit of Rule 4801, the maximum sulfur compound emissions from the flare will be calculated based on the maximum sulfur content allowed for the digester gas combusted in the flare: 1.16 lb-SO_x/MMBtu (based on a maximum digester gas sulfur content of 4,000 ppmv as H₂S).

$$\frac{1.16 \text{ lb} - \text{SO}_x}{\text{MMBtu}} \times \frac{1 \text{ MMBtu}}{9,137 \text{ dscf}} \times \frac{1 \text{ lb} \cdot \text{mol}}{64 \text{ lb} - \text{SO}_x} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}} \times \frac{520 ^\circ\text{R}}{14.7 \text{ psi}} \times \frac{1,000,000 \text{ parts}}{\text{million}} = 753 \frac{\text{parts}}{\text{million}}$$

Because 753 ppmv is ≤ 2000 ppmv, the flare is expected to comply with Rule 4801. The following condition will be placed on the ATC permit to ensure compliance:

- The sulfur content of the digester gas combusted in this flare shall not exceed 4,000 ppmv as H₂S. The applicant may utilize an averaging period of up to 24 hours in length for demonstration of compliance with the fuel sulfur content limit. [District Rules 2201, 4102, and 4801]

Digester Gas Upgrading Operation (ATC C-9792-2-0)

To demonstrate compliance with the sulfur compound emission limit of Rule 4801, the maximum sulfur compound emissions from the digester gas upgrading operation will be calculated based on the maximum sulfur content allowed to be vented to the atmosphere: 5 ppmv as H₂S).

Because 5 ppmv is ≤ 2000 ppmv, the flare is expected to comply with Rule 4801. The following condition will be placed on the ATC permit to ensure compliance:

- The sulfur content of the digester gas vented from this emissions unit shall not exceed 5 ppmv as H₂S. [District Rules 2201 and 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)

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

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

Greenhouse Gas (GHG) Significance Determination

District is a Responsible Agency

It is determined that another agency has prepared an environmental review document for the project. The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381). As a Responsible Agency, the District is limited to mitigating or avoiding impacts for which it has statutory authority. The District does not have statutory authority for regulating greenhouse gas emissions. The District has determined that the applicant is responsible for implementing greenhouse gas mitigation measures, if any, imposed by the Lead Agency.

District CEQA Findings

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

The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CCR §15381). As a Responsible Agency the District complies with CEQA by considering the environmental document prepared by the Lead Agency, and by reaching its own conclusion on whether and how to approve the project (CCR §15096).

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

Indemnification Agreement/Letter of Credit Determination

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

The criteria pollutant emissions and toxic air contaminant emissions associated with the proposed project are not significant, and there is minimal potential for public concern for this particular type of facility/operation. Therefore, an Indemnification Agreement and/or a Letter of Credit will not be required for this project in the absence of expressed public concern.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue ATCs C-9792-1-0 and ‘-2-0 subject to the permit conditions on the attached draft ATC in Appendix A.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
C-9792-1-0	3020-02-G	10.75 MMBtu/hr Flare	\$980
C-9792-2-0	3020-06	Miscellaneous	\$128

Appendixes

- A: Draft ATCs (C-9792-1-0 and ‘-2-0)
- B: Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) Summary
- C: Quarterly Net Emissions Change

APPENDIX A
Draft ATCs (C-9792-1-0 and '-2-0)

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: C-9792-1-0

LEGAL OWNER OR OPERATOR: WTE RIVERDALE, LLC
MAILING ADDRESS: PO BOX 143
CHILTON, WI 53014

LOCATION: 12840 W KAMM AVE
RIVERDALE, CA 93856

EQUIPMENT DESCRIPTION:

DVO MIXED PLUG-FLOW MESOPHILIC ANAEROBIC DIGESTER SYSTEM CONSISTING OF A RECEPTION PIT AND AN IN-GROUND CONCRETE VESSEL (260' X 144' X 16") WITH ONE 10.75 MMBTU/HR DIGESTER GAS-FIRED BACKUP FLARE, AND TWO PERMIT EXEMPT BOILERS (NATURAL GAS-FIRED, 5 MMBTU/HR OR LESS)

CONDITIONS

1. {271} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. {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]
6. The sulfur content of the digester gas combusted in this flare shall not exceed 4,000 ppmv as H₂S. The applicant may utilize an averaging period of up to 24 hours in length for demonstration of compliance with the fuel sulfur content limit. [District Rules 2201, 4102, and 4801]
7. The VOC content of the digester gas produced by the digester system shall not exceed 10% by weight. [District Rule 2201]
8. Only digester gas shall be combusted in the flare. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Samir Sheikh, Executive Director / AP CO

Brian Clements, Director of Permit Services

C-9792-1-0; All 8/2021 8:46AM - Y028-BLU : Joint Inspection NOT Required

Conditions for C-9792-1-0 (continued)

Page 2 of 3

9. The digester gas-fired backup flare shall not exceed 200 hours of operation per calendar year. [District Rules 2201, 4102, and 4311]
10. Emissions from the flare shall not exceed any of the following limits: 0.06 lb-NO_x/MMBtu, 0.015 lb-PM₁₀/MMBtu, 0.046 lb-CO/MMBtu, or 0.006 lb-VOC/MMBtu. [District Rule 2201]
11. The total heating value of the gas combusted in the flare on given day shall be calculated using the measured quantity of gas combusted and the higher heating value (HHV) determined for the gas from the nearest date(s) to the date that the flare operated. [District Rule 2201]
12. A flame shall be present at all times whenever combustible gases are vented through the flare. [District Rule 2201]
13. The 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 Rules 2201 and 4311]
14. The flare shall be equipped with an operational, non-resettable, totalizing mass or volumetric fuel flow meter or other District-approved alternative method to measure the amount of gas combusted in the flare. [District Rule 2201]
15. Unless the flare is equipped with a flow-sensing ignition system, the flare shall be equipped and operated 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. [District Rules 2201 and 4311]
16. The flare shall be operated only for testing and maintenance, backup, and emergency purposes. [District Rule 2201]
17. Flares that use flow-sensing automatic ignition systems and which do not use a continuous flame pilot shall use purge gas for purging. [District Rules 2201 and 4311]
18. 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. [District Rules 2201 and 4311]
19. Upon request, the operator of an open flare in which the flare gas pressure is less than 5 psig shall make available records that demonstrate compliance with the provisions of 40 CFR 60.18, (c)(3) through (c)(5). [District Rules 2201 and 4311]
20. The sulfur content of the digester gas combusted in this flare shall be monitored and recorded at least once every calendar quarter in which a digester gas sulfur content analysis is not performed. If quarterly monitoring shows a violation of the sulfur content limit of this permit, monthly monitoring will be required until six consecutive months of monitoring show compliance with the sulfur content limit. Once compliance with the sulfur content limit is shown for six consecutive months, then the monitoring frequency may return to quarterly. Monitoring of the sulfur content of the digester gas flared 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]
21. Monitoring of the digester gas sulfur content shall be performed using gas detection tubes calibrated for H₂S; a continuous fuel gas monitor that meets the requirements specified in SCAQMD Rule 431.1, Attachment A; District-approved source test methods, including EPA Method 11 and EPA Method 15, ASTM Method D1072, D4084, and D5504; District-approved in-line H₂S monitors; 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]
22. The permittee shall determine and record the higher heating value (HHV) of the digester gas combusted in the flare at least once in each calendar quarter in which the flare operates. [District Rule 2201]
23. The higher heating value (HHV) of the digester gas shall be determined using ASTM D1826, ASTM 1945 in conjunction with ASTM D3588, or an alternative method approved by the District. [District Rule 2201]
24. Permittee shall maintain daily records of the hours the backup flare is in operation, including the date the flare was operated and the purpose of the operation (e.g. for testing and maintenance). [District Rules 1070 and 2201]
25. Records of the methane content and the higher heating value (HHV) in Btu/scf of the digester gas shall be maintained for each calendar quarter in which the flare operated. [District Rules 1070 and 2201]

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CONDITIONS CONTINUE ON NEXT PAGE

Conditions for C-9792-1-0 (continued)

Page 3 of 3

26. Permittee shall maintain daily and annual records of the quantity of gas combusted in the flare in standard cubic feet (scf) and the total heating value of the gas combusted in MMBtu. [District Rules 1070 and 2201]
27. The facility shall maintain records of the amount of gas combusted annually, annual throughput, material usage, or other information necessary to demonstrate that total emissions from the facility (C-9792) are less than ten tons per year for both NO_x and VOC. [District Rule 4311]
28. Permittee shall maintain daily and annual records of the quantity of digester gas combusted in the flare in standard cubic feet (scf). [District Rules 1070 and 2201]
29. All records shall be maintained and retained for a minimum of five (5) years, and shall be made available for District inspection upon request. Records may be maintained and submitted in an electronic format approved by the District. [District Rules 1070, 2201, and 4311]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: C-9792-2-0

LEGAL OWNER OR OPERATOR: WTE RIVERDALE, LLC
MAILING ADDRESS: PO BOX 143
CHILTON, WI 53014

LOCATION: 12840 W KAMM AVE
RIVERDALE, CA 93858

EQUIPMENT DESCRIPTION:

DIGESTER GAS UPGRADING OPERATION CONSISTING OF FEED GAS BLOWERS, COMPRESSORS, COOLERS, CHILLERS, IRON SPONGE H₂S REMOVAL, A MEMBRANE CO₂ REMOVAL SYSTEM, AND PRODUCT GAS COMPRESSORS

CONDITIONS

1. {271} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
2. The sulfur content of the digester gas vented from this emissions unit shall not exceed 5 ppmv as H₂S. [District Rules 2201 and 4801]
3. The oxygen/air injection system shall be maintained and operated in accordance with the supplier's recommendations to minimize the concentration of hydrogen sulfide (H₂S) in the digester gas. [District Rule 2201]
4. All records shall be maintained and retained for a minimum of five (5) years, and shall be made available for District inspection upon request. Records may be maintained and submitted in an electronic format approved by the District. [District Rules 1070, 2201, and 4311]

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Samir Sheikh, Executive Director / APCCO

DRAFT

Brian Clements, Director of Permit Services

C:\P\2-0-C-9792-2-0-APCCO - 1/12/2020 - Joint Inspection NOT Required

APPENDIX B
Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA)
Summary

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

To: John Yoshimura – Permit Services
 From: Kyle J Melching – Technical Services
 Date: December 11, 2020
 Facility Name: WTE RIVERDALE, LLC
 Location: 12840 W KAMM AVE, RIVERDALE
 Application #(s): C-9792-1-0, -2-0
 Project #: C-1202318

Summary

RMR

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
1	0.81	0.05	0.00	8.55E-09	No	Yes
2	8.63	0.05	0.01	3.10E-07	No	Yes
Project Totals	9.44	0.10	0.01	3.18E-07		
Facility Totals	>1	0.1	0.01	3.19E-07		

AAQA

Pollutant	Air Quality Standard (State/Federal)				
	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	NA		NA		
NO_x	NA				Pass
SO_x	NA	NA		NA	Pass
PM10				NA	Pass
PM2.5				NA	Pass
Ozone	NA		NA		

Notes:

- Results were taken from the attached AAQA Report.
- The project is an intermittent source as defined in APR-1920. In accordance with APR-1920, compliance with short-term (i.e., 1-hour, 3-hour, 8-hour and 24-hour) standards is not required.
- ²The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2) unless otherwise noted.
- Modeled PM10 concentrations were below the District SIL for non-fugitive sources of 1 µg/m³ for the annual concentration.
- Modeled PM2.5 concentrations were below the District SIL for non-fugitive sources of 0.2 µg/m³ for the annual concentration.

Proposed Permit Requirements

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

Unit # 1-0 & 2-0

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

Unit # 1-0

1. This unit shall not exceed 200 hours per calendar year of operation.

Project Description

Technical Services received a request on December 11, 2020 to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for the following:

- *Unit -1-0: DVO MIXED PLUG-FLOW MESOPHILIC ANAEROBIC DIGESTER SYSTEM CONSISTING OF A RECEPTION PIT AND AN IN-GROUND CONCRETE VESSEL (260' X 144' X 16") WITH ONE 10.75 MMBTU/HR DIGESTER GAS-FIRED BACKUP FLARE, AND TWO PERMIT EXEMPT BOILERS (NATURAL GAS-FIRED, 5 MMBTU/HR OR LESS)*
- *Unit -2-0: DIGESTER GAS UPGRADING OPERATION CONSISTING OF FEED GAS BLOWERS, COMPRESSORS, COOLERS, CHILLERS, IRON SPONGE H₂S REMOVAL, A MEMBRANE CO₂ REMOVAL SYSTEM, AND PRODUCT GAS COMPRESSORS*

RMR Report

Analysis

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

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

Then, generally no further analysis is required.

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

If a refined assessment is greater than one in a million but less than 20 in one million for carcinogenic impacts (Cancer Risk) and less than 1.0 for the Acute and Chronic hazard indices (Non-Carcinogenic) on a unit by unit basis, project basis and on a facility-wide basis the

proposed application is considered less than significant. For unit's that exceed a cancer risk of 1 in one million, Toxic Best Available Control Technology (TBACT) must be implemented.

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

- Toxic emissions for this proposed unit were calculated using 2001 Ventura County's Air Pollution Control District's emission factors for Natural Gas Fired external combustion and based on the Dairy Biomethane characterization in Pipeline Quality Biomethane: North American Guidance Document for Introduction of Dairy Waste Derived Biomethane Into Existing Natural Gas Networks (2009).
- H₂S and NH₃ emission rates were calculated and provided by the processing engineer.

These emissions were input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy, risks from the proposed unit's toxic emissions were prioritized using the procedure in the 2016 CAPCOA Facility Prioritization Guidelines. The prioritization score for this proposed facility was greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required.

The AERMOD model was used, with the parameters outlined below and meteorological data for 2012-2016 from Lemoore (rural dispersion coefficient selected) to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Source Process Rates					
Unit ID	Process ID	Process Material	Process Units	Hourly Process Rate	Annual Process Rate
1	1	Digester Gas Combustion	Mmscf	0.019	8.12
2	1	Biogas Waste Tail	Mmscf	0.03	262.8
2	1	H ₂ S	Lb	0.013	118
2	2	Biogas Waste Tail	Mmscf	0.03	262.8
2	2	H ₂ S	Lb	0.013	118

Point Source Parameters						
Unit ID	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)	Vertical/Horizontal/Capped
1	1	5.75	811	3.41	0.78	Vertical
2	2	6.10	314	7.28	0.20	Vertical
2	2	6.10	314	7.28	0.20	Vertical

AAQA Report

The District modeled the impact of the proposed project on the National Ambient Air Quality Standard (NAAQS) and/or California Ambient Air Quality Standard (CAAQS) in accordance with District Policy APR-1925 (Policy for District Rule 2201 AAQA Modeling) and EPA’s Guideline for Air Quality Modeling (Appendix W of 40 CFR Part 51). The District uses a progressive three level approach to perform AAQAs. The first level (Level 1) uses a very conservative approach. If this analysis indicates a likely exceedance of an AAQS or Significant Impact Level (SIL), the analysis proceeds to the second level (Level 2) which implements a more refined approach. For the 1-hour NO₂ standard, there is also a third level that can be implemented if the Level 2 analysis indicates a likely exceedance of an AAQS or SIL.

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

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

Monitoring Stations				
Pollutant	Station Name	County	City	Measurement Year
CO	Fresno - Garland	Fresno	Fresno	2018
NOx	Hanford	Kings	Hanford	2018
PM10	Hanford	Kings	Hanford	2018
PM2.5	Hanford	Kings	Hanford	2018
SOx	Fresno - Garland	Fresno	Fresno	2018

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

Emission Rates (lbs/hour)						
Unit ID	Process	NOx	SOx	CO	PM10	PM2.5
1	1	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹

¹ The project is an intermittent source as defined in APR-1920. In accordance with APR-1920, compliance with short-term (i.e., 1-hour, 3-hour, 8-hour and 24-hour) standards is not required.

Emission Rates (lbs/year)						
Unit ID	Process	NOx	SOx	CO	PM10	PM2.5
1	1	283	5,462	4,380	71	71

The AERMOD model was used to determine if emissions from the project would cause or contribute to an exceedance of any state of federal air quality standard. The parameters outlined below and meteorological data for 2012-2016 from Lemoore (rural dispersion coefficient selected) were used for the analysis:

The following parameters were used for the review:

Point Source Parameters						
Unit ID	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)	Vertical/Horizontal/Capped
1	DG Flare	5.75	811	3.41	0.78	Vertical

Conclusion

RMR

The cumulative acute and chronic indices for this facility, including this project, are below 1.0; and the cumulative cancer risk for this facility, including this project, is less than 20 in a million. In addition, the cancer risk for each unit in this project is less than 1.0 in a million. **In accordance with the District’s Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

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

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

AAQA

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

Attachments

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

APPENDIX C
Quarterly Net Emissions Change (QNEC)

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.

Using the values in Sections VII.C.2 and VII.C.1 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

C-9792-1-0 (Digester System with 10.75 MMBtu/hr Backup Flare)

PE1 (lb/qtr) C-9792-1-0					
	PE1 (lb/year)	÷	4 qtr/year	=	PE1 (lb/qtr)
NO _x	0	÷	4 qtr/year	=	0.0
SO _x	0	÷	4 qtr/year	=	0.0
PM ₁₀	0	÷	4 qtr/year	=	0.0
CO	0	÷	4 qtr/year	=	0.0
VOC	0	÷	4 qtr/year	=	0.0

PE2 (lb/qtr) C-9792-1-0					
	PE2 (lb/year)	÷	4 qtr/year	=	PE2 (lb/qtr)
NO _x	129	÷	4 qtr/year	=	32.3
SO _x	2,494	÷	4 qtr/year	=	623.5
PM ₁₀	32	÷	4 qtr/year	=	8.0
CO	99	÷	4 qtr/year	=	24.8
VOC	13	÷	4 qtr/year	=	3.3

Quarterly NEC [QNEC] C-9792-1-0					
	PE2 (lb/qtr)	-	PE1 (lb/qtr)	=	NEC (lb/qtr)
NO _x	32.3	-	0.0	=	32.3
SO _x	623.5	-	0.0	=	623.5
PM ₁₀	8.0	-	0.0	=	8.0
CO	24.8	-	0.0	=	24.8
VOC	3.3	-	0.0	=	3.3

C-9792-2-0 (Digester Gas Upgrading Operation)

PE1 (lb/qtr) C-9792-2-0					
	PE1 (lb/year)	÷	4 qtr/year	=	PE1 (lb/qtr)
NO _x	0	÷	4 qtr/year	=	0.0
SO _x	0	÷	4 qtr/year	=	0.0
PM ₁₀	0	÷	4 qtr/year	=	0.0
CO	0	÷	4 qtr/year	=	0.0
VOC	0	÷	4 qtr/year	=	0.0

PE2 (lb/qtr) C-9792-2-0					
	PE2 (lb/year)	÷	4 qtr/year	=	PE2 (lb/qtr)
NO _x	0	÷	4 qtr/year	=	0.0
SO _x	0	÷	4 qtr/year	=	29.5
PM ₁₀	0	÷	4 qtr/year	=	0.0
CO	0	÷	4 qtr/year	=	0.0
VOC	0	÷	4 qtr/year	=	0.0

Quarterly NEC [QNEC] C-9792-2-0					
	PE2 (lb/qtr)	-	PE1 (lb/qtr)	=	NEC (lb/qtr)
NO _x	0.0	-	0.0	=	0.0
SO _x	0.0	-	0.0	=	29.5
PM ₁₀	0.0	-	0.0	=	0.0
CO	0.0	-	0.0	=	0.0
VOC	0.0	-	0.0	=	0.0