Appendix B3 Permit to Construct/Permit to Operate

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Permit to Construct/Permit to Operate for a Renewable Natural Gas Plant for Biofuels Coyote Canyon Biogas, LLC Newport Beach, California

Biofuels Coyote Canyon Biogas, LLC
201 Helios Way, Floor 6
Houston, TX 77079

SCS ENGINEERS

01221270.00 Task 1 | **December 11, 2023**

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1.0 INTRODUCTION

1.1 OVERVIEW

This document was prepared by SCS Engineers (SCS) on behalf of Biofuels Coyote Canyon Biogas, LLC (BCCB) located at the Coyote Canyon Landfill (CCL). This is an application for a Permit to Construct (PTC)/Permit to Operate (PTO) for the new construction and operation of the proposed BCCB facility. The application is for a new Renewable Natural Gas (RNG) Plant (RNG Plant). This information is formatted in accordance with the South Coast Air Quality Management District (SCAQMD) PTC/PTO permit information requirements.

1.2 PROJECT LOCATION

The proposed RNG Plant will be located at the CCL. CCL is located at 20661 Newport Coast Drive in Newport Beach, California. The CCL site location is shown in Figure 1. A map showing the location of the proposed RNG Plant at the CCL site can be found in Appendix A. The RNG Plant will be under separate ownership and control from the CCL.

1.3 BACKGROUND INFORMATION

1.3.1 Applicant Name and Address

Biofuels Coyote Canyon, LLC
201 Helios Way, Floor 6
Houston, TX 77079

1.3.2 Facility Address

Biofuels Coyote Canyon Biogas, LLC
20661 Newport Coast Drive
Newport Beach, CA 92660

1.3.3 Nature of Business

Renewable Natural Gas Plant

1.3.4 Person to Contact Regarding Application

Mr. Nevin Edwards
Air Permitting Manager
Biofuels San Bernardino Biogas, LLC
201 Helios Way, Floor 6
Houston, Texas 77079
(724) 776-8388

Ms. Gabrielle Stephens
Project Director
SCS Engineers
4683 Chabot Drive, Suite 200
Pleasanton, California 94588
(562) 355-6510

1.3.5 Type of Entitlement

PTC/PTO

1.3.6 Operation Schedule

24 hours per day
7 days per week
52 weeks per year
With scheduled shutdowns for maintenance

1.3.7 Status of Application

This is a new application for a RNG Plant that includes a hydrogen sulfide (H_2S) treatment system, volatile organic compound (VOC) removal system, gas treatment system, thermal oxidizer (TOX), an enclosed RNG flare, and various related equipment.

1.3.8 Facility Status

New

1.3.9 Compliance Certification

"BCCB certifies that all facilities owned or operated by BCCB are in compliance or on approved schedule for compliance with applicable federal, state, and local emission limits and standards."

Certified by: _____

Signature: _____

Date: _____

A copy of the completed SCAQMD permit application forms for the RNG Plant is provided as an appendix to this report.

2.0 PROJECT DESCRIPTION

2.1 REASON FOR PERMITTING ACTION

BCCB is proposing to divert the current landfill gas (LFG), and future quantities of LFG collected, to a new RNG Plant, and as a result, put the LFG to a more valuable use. The LFG is currently being flared by the Orange County Waste & Recycling (OCWR), who owns and operates the CCL. None of the existing operations at the CCL will be under common ownership or control with the proposed RNG Plant.

The RNG Plant will convert LFG into a pipeline quality natural gas equivalent, by removing H_2S, VOCs, carbon dioxide (CO_2), nitrogen, (N_2), and oxygen (O_2). A process flow diagram (PFD) detailing the processes employed in the RNG Plant can be found in Appendix A. The RNG will be injected into the Southern California Gas Company pipeline.

The bulk of the H_2S contained in the LFG is converted into elemental sulfur. The remaining H_2S, nearly all the VOCs, CO_2, N_2 and oxygen are removed from the LFG and routed to a TOX for destruction. The gas routed to the TOX is referred to as waste gas. The waste gas contains approximately 6 – 8.5 percent (%) methane (CH_4) (varies as raw gas composition changes). To ensure stable combustion of the waste gas, at a minimum of 1,500 degrees Fahrenheit (ºF), it is necessary to provide supplemental fuel (conventional natural gas) to the TOX.

BCCB also requests to install an enclosed RNG flare to burn off-specification RNG and waste gases from the H_2S and VOC removal systems. The pipeline receiving the RNG has a strict minimum requirement for CH_4 content and strict upper limits for the content of CO_2, N_2 and O_2. If these limits are exceeded, it will be necessary to divert the RNG to the flare until such time as the RNG quality returns to within the acceptable limits.

3.0 DESCRIPTION OF PROPOSED EQUIPMENT

3.1 RNG PLANT

3.1.1 Bulk Hydrogen Sulfide Removal

The H_2S treatment system will be located within the RNG Plant as shown in the Figures attached. After compression to around 30 pounds per square inch gauge (PSIG), the LFG will enter the H_2S treatment system. The bulk of the H_2S contained in the LFG will be removed via a non-regenerative H_2S removal media contained within a vessel. When the media is spent, it will be replaced, and the spent media will be appropriately managed (e.g. landfilled). The concentration of the H_2S leaving the vessel is conservatively estimated to be 25 parts per million by volume (ppmv) or less.

The dry media system for sulfur removal will employ a non-regenerative granular sulfur removal media, such as Norit Darco BG1 activated carbon, Guild Associates BSR-050, or equivalent. The treatment system is a pass-through, closed-loop system, and there are no sources of air emission from the H_2S removal process. The inlet and outlet piping of the treatment vessel will include manual pressure measurement sample ports, visually read temperature gauges, and locations to sample for H_2S concentration and other parameters, as necessary.

3.1.1.1 Equipment Specifications for H_2S Treatment System

Below are some specific details regarding the H_2S Treatment System:

Type:	Non-Regenerative
Media:	Granular Sulfur Removal Media (e.g., Norit Darco BG1 activated carbon, Guild BSR-050, or equivalent)
Vessels:	Steel
Fluid:	LFG
Size:	8' DIA x 15' S/S
Amount:	20,000 pounds (lbs) Media
Outlet:	< 25 ppmv inlet H_2S
Changeout:	24 month changeout (or upon breakthrough)

3.1.2 VOC Removal

The VOC Removal system will be located within the RNG Plant as shown in Figures attached. After first stage compression and H_2S removal, the LFG is now considered process gas. The process gas is further compressed to around 200 PSIG, then enters the VOC removal system. The VOC removal process is mainly comprised of gas chilling followed by a regenerative temperature swing adsorption (TSA) system. Gas chilling condenses water as well as some VOCs. The TSA system provides residual water and VOC removal (90+ % removal). When the TSA system is regenerated, the VOCs in the TSA regeneration gas will flow to the enclosed flare and TOX systems. This TSA regeneration gas will also contain a portion of the H_2S not removed by the upstream H_2S treatment system. Polishing for additional removal of the remaining VOCs (and H_2S) is accomplished by non-regenerative media. The regenerative TSA media is designed for years of operation while the non-regenerative media is designed for annual replacement.

The TSA unit is regenerated using the membrane reject CO_2 stream plus the nitrogen rejection unit waste gas with the resulting effluent sent to the TOX.

3.1.2.1 Carbon Dioxide Removal

The CO_2 removal system will be located within the RNG Plant as shown in Figures attached. After second stage compression, H_2S, VOC, and water removal, the CO_2 is removed from the process gas using a two-stage membrane unit. The first stage membrane unit produces a low pressure permeate stream that is rich in CO_2 and is heated using waste heat from the TOX. The stage 1 permeate, which contains about 82% CO_2, 6% CH_4, and similar levels of N_2 and O_2, is used to regenerate the TSA system.

The stage 1 retentate stream (process gas enriched in CH_4) enters the second stage membrane unit. The second stage membrane unit also produces a low pressure permeate stream that is rich in CO_2 and CH_4 (up to 50%). To recover the CH_4, the stage 2 permeate is compressed and recycled internally to the membrane process (initially passing through a non-regenerable polisher bed).

3.1.2.2 Nitrogen Removal

The N_2 removal system will be located within the RNG Plant as shown in Figures attached. After the CO_2 removal process, the process gas is now considered intermediate or low heating value product gas. It contains CH_4, N_2, and O_2 with small amounts of CO_2 (<1%) and little to no VOCs or H_2S. Due to the presence of elevated concentrations of N_2 and O_2, it cannot yet be considered pipeline quality natural gas. Accordingly, the gas will enter a Pressure-Swing Adsorption (PSA) process that is used to

separate the N_2 and O_2 from the CH_4. As the $CH_4/(N_2+O_2)$ separation is not 100% efficient, the N_2 reject gas stream from the PSA system routed to TOX will contain CH_4. The CH_4 reduces the supplemental natural gas requirement of the TOX.

3.2 THERMAL OXIDIZER

3.2.1 Thermal Oxidizer

The TOX system will be located within the RNG Plant as shown in Appendix A. The entire system is designed to process up to 1,837 SCFM of dry waste gas. The maximum allowable total process heat release during operation is 12.11 million British Thermal Units per hour at the higher heating value (MMBtu/hr at HHV). The expected waste gas process heat release during normal operating conditions is 9.88 MMBtu/hr (HHV). The TOX system will operate 24 hours per day, 7 days per week, and 52 weeks per year, except during periods of scheduled and unscheduled maintenance. The design throughput of the TOX system is 86,515 MMBtu (HHV) per rolling 12-month period.

3.2.2 Equipment Specifications for Thermal Oxidizer

Equipment specifications are included in Appendix B. Below are some specific details regarding the TOX system:

Quantity:	One (1)
Type:	Thermal Recuperative Oxidizer (TRO)
Manufacturer:	Conifer Systems
Model:	TRO-65-60-051
Capacity (operating):	9.88 MMBtu/hr (HHV)
Annual Throughput:	86,515 MMBtu/yr (HHV)
Stack Height:	60-feet above grade
Stack Diameter:	42 inches (“) I.D.; 50” O.D.
Waste Gas Stream Flow (maximum):	1,837 SCFM (membrane waste gas/TSA regen + NRU waste gas)
Operating Temp (minimum):	1,500 °F
Natural Gas Usage (maximum):	7,500 scfh @ 10 psig (startup)
Natural Gas Usage (operating):	1,875 scfh @ 10 psig (design)
Estimated Power Consumption	70 kW at full capacity

Tables 8 and 9 (attached) shows the calculated Potential to Emit (PTE) for toxics and criteria pollutants for the TOX.

3.3 ENCLOSED RNG FLARE

3.3.1 Enclosed RNG Flare

The enclosed RNG flare will be located within the RNG Plant as shown in Appendix A. There are several points in the system where off-specification process gas will be routed to the flare during RNG plant startup or transitional operation. The process gas flow delivered to the flare will be measured and totalized on an annual basis. It is anticipated that the process gas will be off-specification no more than 600 hours per year; however, BCCB requests that a conservative 875 hours per year of operation of the enclosed RNG flare be permitted.

3.3.2 Equipment Specifications for Enclosed RNG Flare

Equipment specifications are included in Appendix B. Below are some specific details regarding the flare:

Quantity:	One (1)
Type:	Enclosed Flare System with combustion air blower
Manufacturer:	John Zink Hamworthy Combustion®
Model:	ZULE® Biogas Flare (Ultra Low Emissions)
Size (stack):	13' diameter x 40' height
Capacity (rated):	77.8 MMBtu/hr (HHV)
Equivalent Operating Capacity:	77.8 MMBtu/hr (HHV) (875 operating hours/year)
Throughput (annual):	68,060 MMBtu/yr (HHV), 66.6 MMSCF
Process Gas Flow (maximum):	3,000 SCFM(d)
Combustion Air Blower Capacity:	20,000 SCFM

Table 10 (attached) shows the calculated PTE for toxics and criteria pollutants for the flare system.

3.4 CONDENSATE STORAGE TANK

3.4.1 Aboveground Condensate Storage Tank

LFG supplied to the RNG Project contains water and any cooling below the gas/water dew point in the upgrading process will result in the formation of condensate; with the bulk of the condensate removed after the gas chilling step. Condensate will be collected from various points in the process and sent to two 15,000-gallon aboveground containment tanks that will collect and store condensate. The condensate will be periodically emptied via vac truck, and the condensate will be transported and disposed offsite at a permitted facility. The tanks normal vent will be routed to the Newterra TIGG granular activated carbon.

3.4.2 Equipment Specifications for Condensate Tank

Equipment specifications are included in Appendix B. Below are some specific details regarding the condensate tank:

Quantity:	Two (2) Aboveground Storage Tank
Size:	15,000 gallons
Type:	Vertical Double Wall
Fluid:	RNG Condensate
Removal Frequency:	Approximately every 7 days, or as needed

The condensate tanks are closed-loop, self-contained systems. Collected liquids will be disposed of at a permitted offsite facility. No emissions are expected with the proposed storage tanks.

4.0 EXPECTED EMISSIONS

4.1 AIR POLLUTION EMISSIONS

Tables 8 through 10 attached provide estimates of the PTE pollutant emissions that may be expected from the proposed TOX and enclosed RNG flare. Please note that the LFG treatment system is a closed-loop, pass-through system; therefore, there will be no pollutant emissions from the treatment process, except for the combustion devices.

4.1.1 Criteria Pollutants

Criteria pollutant emissions from the RNG Plant will be generated during combustion, which includes VOCs, NO_x, Sulfur Dioxide (SO_2), CO, particulate matter (PM) less than 10 microns (PM_{10}), and $PM_{2.5}$. Criteria pollutants are from manufacturer's guarantees and/or SCAQMD rule limits.

Table 1. Thermal Oxidizer Emission Factors

Criteria Pollutant	Proposed Emission Factor	Data Source
NOx	0.06 lbs/MMBtu (HHV)	Manufacturer's Guarantee
CO	0.20 lbs/MMBtu (HHV)	Manufacturer's Guarantee
SO_2	25 ppmv as H_2S (inlet)	Maximum Expected
$PM_{10}/PM_{2.5}$	0.017 lb/MMBtu	AP-42 Table 2.4-5
NMOCs/VOCs	98% Destruction Efficiency or less than 20 ppmv (as hexane)*	Manufacturer's Guarantee

*Emissions estimate conservative based on a destruction efficiency of 98% yet manufacturer has guaranteed up to 99% destruction.

Table 2. Enclosed RNG Flare Emission Factors

Criteria Pollutant	Rule 1118.1 Other Flare Gas	Proposed Emission Factor*	Data Source
NOx	0.06 lb/MMBtu (HHV)	0.025 lb/MMBtu (HHV)	Manufacturer's Guarantee
CO	N/A	0.06 lb/MMBtu (HHV)	Manufacturer's Guarantee
SO_2	N/A	25 ppmv as H_2S (inlet)	Maximum Expected
$PM_{10}/PM_{2.5}$	N/A	7.6 lb/MMscf	AP-42 Table 1.4-2
VOCs	N/A	98% Destruction Efficiency or 0.38 lb/MMBTU (HHV)	Manufacturer's Guarantee

Tables 8 through 10 (attached) provides emission estimates of the RNG Plant. Table 11 (attached) provides a summary of the proposed facility-wide emissions.

4.1.2 Toxic Emissions

Toxic pollutant emissions from the TOX and enclosed flare include the toxic air contaminants (TACs) shown in Tables 8 through 10 (attached).

5.0 REGULATORY ANALYSIS

5.1 PROHIBITORY RULES

5.1.1 Rule 401 (Visible Emissions)

No visible emissions are expected from the proposed RNG Plant with the proper operation of the equipment.

5.1.2 Rule 402 (Nuisance)

No nuisance complaints are expected from the proposed RNG Plant with the proper operation of the equipment.

5.1.3 Rule 403 (Fugitive Dust)

No significant fugitive dust emissions are anticipated from the proposed RNG Plant that would cause a violation of Rule 403.

5.1.4 Rule 404 (Particulate Matter – Concentration)

Particulate matter emissions from the proposed RNG Plant are not expected to exceed the threshold concentrations set forth in Table 404(a).

5.1.5 Rule 405 (Solid Particular Matter – Weight)

Solid particulate matter emissions from the proposed RNG Plant are not expected to exceed the threshold process weights set forth in Table 405(a).

5.1.6 Rule 407 (Liquid and Gaseous Air Contaminants)

CO and SOx emissions are not expected to exceed 2,000 ppmv and 500 ppmv, respectively from the proposed RNG Plant.

5.1.7 Rule 409 (Combustion Contaminants)

Combustion contaminants exceeding 0.23 grams per cubic meter of gas calculated to 12% of CO_2 is not expected to discharge from the proposed RNG Plant.

5.1.8 Rule 429 (Start-Up and Shut Down Exemption Provisions)

No significant emissions or changes in emissions during start-up and shutdown are expected from the proposed RNG Plant.

5.1.9 Rule 430 (Breakdown Provisions)

Adherence to applicable breakdown provision requirements is expected with proper operation of the proposed RNG Plant.

5.1.10 Rule 431.1 (Sulfur Content of Gaseous Fuels)

The CCL is currently in compliance with Rule 431.1, and the installation of the proposed RNG Plant will not change the SO_2 emissions for the entire landfill; therefore, CCL will remain in compliance. In

addition, the RNG Plant is installing a sulfur treatment system which would further ensure that compliance with the rule is maintained.

5.1.11 Rule 466 (Pumps and Compressors)

The proposed RNG Plant will maintain compliance with Rule 466 as required through a program of inspection and monitoring for VOC leaks from pumps and compressors within the proposed system.

5.1.12 Rule 474 (Fuel Burning Equipment – Oxides of Nitrogen)

The proposed RNG Plant will not emit oxides of nitrogen (measured as nitrogen dioxide) in excess of thresholds set forth in Rule 474.

5.2 SOURCE SPECIFIC REQUIREMENTS

5.2.1 Rule 1118.1 (Control of Emissions from Non-Refinery Flares)

The proposed enclosed RNG flare will meet the emission standards per Table 1 of Rule 1118.1. The flare meets the NOx emission limit of 0.025 lb/MMBtu (HHV) under the "other flare gas" category.

5.2.2 Rule 1147 (NOx Reductions from Miscellaneous Sources)

The proposed TOX will meet the NOx requirements under Rule 1147 of 60 ppm or 0.073 lb/MMBtu.

5.2.3 Rule 1150.1 (Active Landfills)

The proposed RNG Plant will not affect the operation of the existing gas collection or landfill flare systems at CCL. However, landfill flare emissions will be reduced once the RNG Plant is operating. The landfill operator, OCWR, will continue to maintain compliance with Rule 1150.1 for the landfill. The RNG Plant will provide the same level of control for NMOCs as required under Rule 1150.1, although the plant itself is not subject to the rule.

5.2.4 Rule 1173 (Fugitive Emissions of VOCs)

The proposed RNG Plant will maintain compliance with Rule 1173 as required through a program of inspection and monitoring for fugitive emissions of VOCs within the proposed system.

5.3 REGULATION XIII – NEW SOURCE REVIEW

Since the RNG Plant will have emissions of VOC, NOx, CO, PM_{10}, $PM_{2.5}$, and SO_2, it will be subject to the SCAQMD's New Source Review (NSR) for criteria pollutants under Regulation 13.

The requirements under NSR include the following:

- Best Available Control Technology (BACT)
- Emission Offsets
- Sensitive Zone Requirements
- Facility Compliance
- Major Polluting Facilities
- Air Impact Assessment and Modeling

5.3.1 Best Available Control Technology

5.3.1.1 Thermal Oxidizer

After review of SCAQMD and other District BACT determinations, there is not an established BACT level for a TOX handling waste gas from an RNG Plant; however, we are aware of multiple TOX permitted at the limits noted below for NOx, CO, and NMOCs/VOCs. Therefore, the TOX meets the BACT levels per the manufacturer guarantees in Appendix B.

- NOx: 0.06 lb/MMBtu (HHV)
- CO: 0.20 lb/MMBtu (HHV)
- SO_2: 25 ppmv as H_2S (inlet)
- $PM_{10}/PM_{2.5}$: 17 lb/MMSCF as CH_4
- NMOCs/VOCs: 98% destruction efficiency

Note: The manufacturer destruction efficiency is guaranteed to be 99% yet the emission calculations were completed with a destruction efficiency of 98%.

The above BACT emission values were applied in calculating the PTE estimates for the TOX found in **Tables 8** and **9**.

5.3.1.2 Enclosed RNG Flare

The flare meets the BACT level of SCAQMD's Rule 1118.1 for NOx under the other flare category [0.06 lb/MMBtu (HHV)]. After review of SCAQMD and other District BACT determinations, there is not an established BACT level for this equipment for the other criteria pollutants. The SCAQMD only had BACT determinations for digester gas-fired flares, landfill gas-fired flare, and process gas flare from oil and gas operations. Therefore, the flare meets the BACT levels per the manufacturer guarantees in Appendix B.

- NOx: 0.025 lb/MMBtu (HHV)
- CO: 0.06 lb/MMBtu (HHV)
- SO_2: 25 ppmv as H_2S (inlet)
- $PM_{10}/PM_{2.5}$: 7.6 lb/MMSCF
- VOCs: 98% destruction efficiency

The above BACT emission values were applied in calculating the PTE estimates for the flare system found in **Table 10**.

5.3.2 Emission Offsets

In accordance with SCAQMD Rule 1303 (b)(2)– Emission Offsets, the project source estimated emissions were compared to the offset trigger levels specified in Rule 1304(d)(2)(B), Table A.

Rule 1304(d)(1)(A) notes the following: "Any new facility that has a potential to emit less than the amounts in Table A shall be exempt from Rule 1303(b)(2)".

Rule 1304 Table A has the following thresholds:

- NOx : 4 tons per year (tpy)
- CO: 29 tpy
- PM_{10}: 4 tpy
- SOx: 4 tpy

- VOC: 4 tpy

The PTE as shown in **Table 12** (attached) are all lower than the Table A values; therefore, offsets are not triggered.

5.3.3 Sensitive Zone Requirements

The proposed RNG Plant will not be purchasing emission reduction credits (ERCs) in lieu of offsets; therefore, the sensitive zone requirements do not apply.

5.3.4 Facility Compliance

As stated in Section 1.3.9 above, the proposed RNG Plant will comply with all applicable rules and regulations of the SCAQMD.

5.3.5 Minor Facility

Based on the emission estimates in Section 4 above and **Table 12** (attached), the RNG Plant will be a "minor facility" under SCAQMD regulations.

5.3.6 Air Impact Analysis and Modeling

In accordance with Rule 1303, Table A-1, a detailed modeling is required for facilities that will have combustion sources greater than 40 million BTUs/hr and/or are above any allowable emission rates listed. The enclosed RNG Flare is over 40 MMBTU/hr in capacity therefore modeling is required. A modeling report will be submitted under separate cover to the SCAQMD.

5.3.7 New Source Review for Toxic Air Contaminants – Rule 1401

Since several TACs will be emitted from the proposed RNG Plant, it is subject to the requirements of SCAQMD Rule 1401. The TACs are identified in Table 3 below:

Table 3. List of TACs

Pollutant	Source(s)
1,1,1-Trichloroethane (methyl chloroform)	TOX
1,1,2,2-Tetrachloroethane	TOX
1,1-Dichloroethane (ethylidene dichloride)	TOX
1,1-Dichloroethene (vinylidene chloride)	TOX
1,2-Dichloroethane (ethylene dichloride)	TOX
1,2-Dichloropropane (propylene dichloride)	TOX
2-Propanol (isopropyl alcohol)	TOX
Acrylonitrile	TOX
Benzene	TOX, Enclosed RNG Flare
Benz(a)anthracene	Enclosed RNG Flare
Benzo(a)pyrene	Enclosed RNG Flare
Benzo(b)fluoranthene	Enclosed RNG Flare
Benzo(g,h,i)perylene	Enclosed RNG Flare
Benzo(k)fluoranthene	Enclosed RNG Flare
Carbon disulfide	TOX

Pollutant	Source(s)
Carbon tetrachloride	TOX
Carbonyl sulfide	TOX
Chlorobenzene	TOX
Chloroethane (ethyl chloride)	TOX
Chloroform	TOX
Chlorodifluoromethane	TOX
Chrysene	Enclosed RNG Flare
Dibenzo(a,h)anthracene	Enclosed RNG Flare
Dichlorobenzene (1,4-Dichlorobenzene)	TOX
Dichlorodifluoromethane	TOX
Dichloromethane (Methylene Chloride)	TOX
Ethyl benzene	TOX
Ethylene dibromide (1,2-Dibromoethane)	TOX
Fluorotrichloromethane	TOX
Hexane	TOX, Enclosed RNG Flare
Hydrochloric acid	TOX
Hydrogen Sulfide	TOX
Indeno(1,2,3-cd)pyrene	Enclosed RNG Flare
Mercury (total)	TOX, Enclosed RNG Flare
Methyl ethyl ketone	TOX
Perchloroethylene (tetrachloroethylene)	TOX
Toluene	TOX, Enclosed RNG Flare
Trichloroethylene (trichloroethene)	TOX
Vinyl chloride	TOX
Xylenes	TOX
PAH	TOX
Naphthalene	TOX, Enclosed RNG Flare
Formaldehyde	TOX, Enclosed RNG Flare
Arsenic	Enclosed RNG Flare
Beryllium	Enclosed RNG Flare
Cadmium	Enclosed RNG Flare
Chromium	Enclosed RNG Flare
Cobalt	Enclosed RNG Flare
Copper	Enclosed RNG Flare
Manganese	Enclosed RNG Flare
Nickel	Enclosed RNG Flare
Selenium	Enclosed RNG Flare
Vanadium	Enclosed RNG Flare
Zinc	Enclosed RNG Flare
2-Methylnaphthalene	Enclosed RNG Flare

Pollutant	Source(s)
3-Methylchloanthrene	Enclosed RNG Flare
7,12-Dimethylben(a)anthracene	Enclosed RNG Flare
Acenaphthene	Enclosed RNG Flare
Acenaphthylene	Enclosed RNG Flare
Anthracene	Enclosed RNG Flare
Bromodichloromethane	Enclosed RNG Flare
Butane	Enclosed RNG Flare
Ethane	Enclosed RNG Flare
Fluoranthene	Enclosed RNG Flare
Fluorene	Enclosed RNG Flare
Barium	Enclosed RNG Flare
Pentane	Enclosed RNG Flare
Phenanthrene	Enclosed RNG Flare
Propane	Enclosed RNG Flare
Pyrene	Enclosed RNG Flare
Molybdenum	Enclosed RNG Flare

Rule 1401 specifies that "the cumulative impact of emissions from the new, relocated, or modified permit unit and all other permit units located within a radius of 100 meters owned or operated by the applicant for which applications were submitted on or after June 1, 1990 will not result in a maximum individual cancer risk (MICR) greater than ten in one million (1×10^{-5}) at any receptor location where T-BACT is applied or one in one million where T-BACT is not applied." In addition, the cancer burden (i.e., the increase in cancer cases in the population exposed to a MICR exceeding one in one million) shall not exceed 0.5.

Health risk was evaluated using the SCAQMD Rule 1401 health risk calculation tool version 1.03 (RiskTool), except where the RiskTool could not demonstrate that health risk was less than the limits in Rule 1401. Table 4 below shows a summary of results, attached **Table 13** includes further details of the results. RiskTool outputs are attached in Appendix C. The RiskTool was generated for each of the two sources individually with both under two operating scenarios, one with main waste gas and one with the supplemental fuel for the TOX, and one with the off-specification RNG and one with waste gases for the enclosed RNG flare; and risk results for all were combined for analysis. The Tier 3 AERSCREEN model was used for all sources, as the risk did not pass Tier 1 and 2. The cancer burden was not needed to be calculated for the sources with such a low cancer risk.

Table 4. Risk Summary

Source	Tier	Acute HI	Chronic HI	Residential Cancer Risk	Commercial Cancer Risk
Thermal Oxidizer	3	3.85E-03	1.13E-02	2.41E-07	1.74E-08
Thermal Oxidizer – Supplemental Fuel	3	4.95E-05	2.24E-03	8.33E-09	4.28E-10
Enclosed RNG Flare	3	2.19E-04	6.58E-03	4.74E-08	1.63E-09
Enclosed RNG Flare (Part 2)	3	3.00E-03	1.15E-02	1.69E-07	9.75E-09
Total		**7.12E-03**	**3.16E-02**	**4.66E-07**	**2.92E-08**

5.3.8 Other Regulatory Requirements

The proposed RNG facility, as a treatment facility for the LFG generated from CCL, is not subject to Regulation IX (New Source Performance Standards [NSPS]) (40 Code of Federal Regulations [CFR] Part 60 Subpart XXX) and National Emission Standards for Hazardous Air Pollutants (NESHAPS) (40 CFR Part 63 Subpart AAAA); yet, the facility will be required to maintain a treatment system monitoring plan with the treatment of LFG. Upon issuance of the PTC/PTO, the facility will develop the site specific treatment system monitoring plan and adhere to the recordkeeping and reporting requirements in accordance with NSPS and NESHAP.

6.0 GREENHOUSE GAS TAILORING RULE

6.1 GHG EMISSIONS ESTIMATE

This application includes greenhouse gas (GHG) emission calculations to determine whether Prevention of Significant Deterioration (PSD) and/or Title V permit requirements from the Tailoring Rule might apply to the Project, if any. Natural gas-derived emissions of CO_2 from RNG are considered biogenic, meaning they come from a biofuel and do not contribute to a net increase in atmospheric CO_2.

Biogenic CO_2 should not be counted as part of the regulated GHG emissions from the RNG sources. Methane (CH_4) and nitrous oxide (N_2O) are combustion byproducts and are GHGs. Even when resulting from the combustion of a biofuel, methane and nitrous oxide are considered anthropogenic. The new GHG sources at the facility are the natural gas equipment, including the TOX and enclosed RNG flare. GHG emission factors are shown below.

Table 5. GHG Emission Factors

Fuel	Emission Factors (kilograms/MMBtu)		
	Carbon Dioxide	Methane	Nitrous Oxide
Natural Gas	53.06	1.0E-03	1.0E-04
Landfill Gas	52.07	3.2E-03	6.3E-04

Current and proposed GHG sources and their non-fugitive anthropogenic GHG emissions are provided below. Fugitive emissions of GHGs are not counted under the Clean Air Act (CAA) for GHG sources. The facility will not have fugitive emissions. Not all GHG have equal impact on the climate,

so emissions of methane and N_2O have been converted into CO_2 equivalent (CO_2e) using a global warming potential factor of 25 for CH_4 and 298 for N_2O.

Table 6. Project Total GHG Emissions

Sources		Thermal Oxidizer	Thermal Oxidizer Supplemental	Enclosed RNG Flare
Activity Rate		12.11 MMBtu/hr	8.25 MMBtu/hr	77.8 MMBtu/hr
Emissions (metric tons)	**CO_2**	6,089	4,227	39,861
	CH_4	0.37	0.08	0.75
	N_2O	0.07	0.008	0.075
Total GHG Emissions (metric ton CO_2e)		50,254		
Total (short ton CO_2e)		55,395		

Table 7. Regulated GHG Emissions

Sources		Thermal Oxidizer	Thermal Oxidizer Supplemental	Enclosed RNG Flare
Activity Rate		12.11 MMBtu/hr	8.25 MMBtu/hr	77.8 MMBtu/hr
Emissions (metric tons)	**CH_4**	0.37	0.08	0.08
	N_2O	0.07	0.008	0.075
Total GHG Emissions (metric ton CO_2e)		60		
Total (short ton CO_2e)		66		

The facility's GHGs from the project are estimated at 66 tpy of CO_2e, well below Title V and PSD thresholds. Note that a facility cannot trigger federal Title V or PSD for GHGs alone. Since the facility is not subject to Title V, no other requirements for GHGs should apply to this application.

7.0 CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) INFORMATION

A California Environmental Quality Act (CEQA) review is required for new major constructions that have not already undergone an Environmental Impact Analysis pursuant to CEQA regulations.

Presently, the proposed facility is under a CEQA review with the lead agency of the City of Newport facilitating the CEQA review Additional updates on the CEQA status can be provide upon request. . BCCB is seeking a negative declaration (ND) or a mitigated negative declaration (MND) which will be determined by the City of Newport upon final review of the Environmental Impact Report (EIR).

CEQA Form 400-CEQA is provided and attached with the application forms.

8.0 PERMIT PROCESSING FEES AND FORMS

The permit processing fees for the RNG Plant was calculated based upon Rule 301 Fees, and are enclosed:

Landfill Gas, Treatment Permit Processing (H_2S Treatment, Schedule E)	$5,587.92
Expedited Processing Fee	$2,793.96
Afterburner, Direct Flame (TOX, Schedule D)	$7,712.27
Expedited Processing Fee	$3,856.14
Flare, Other (Enclosed RNG Flare, Schedule C)	$8,866.78
Expedited Processing Fee	$4,433.39
Storage Tank, Other	$2,216.65
Storage Tank, Other (1 Identical)	$1,108.33
Expedited Processing Fee	$1,662.50
Total	**$38,237.94**

The appropriate fees for this application are enclosed per the Rule 301 dated December 8, 2023. BCCB understands that any additional fees will be invoiced at a later date.

The following application forms are enclosed with the application and can be found in Appendix D.

H_2S Treatment System:

- Application Form for Permit or Plan Approval - Form 400-A
- California Environmental Quality Act Applicability - Form 400-CEQA
- Gaseous Emission Control Form Adsorber – Form 400-E-2b

Enclosed RNG Flare:

- Application Form for Permit or Plan Approval - Form 400-A
- California Environmental Quality Act Applicability - Form 400-CEQA
- Gaseous Emissions Control Form Flare – Form 400-E-2c
- Plot Plan and Stack Information Form – Form 400-PS

Thermal Oxidizer:

- Application Form for Permit or Plan Approval - Form 400-A
- California Environmental Quality Act Applicability - Form 400-CEQA
- Gaseous Emissions Control Form Afterburner/Oxidizer – Form 400-E-2a
- Plot Plan and Stack Information Form – Form 400-PS

Condensate Tank 1:

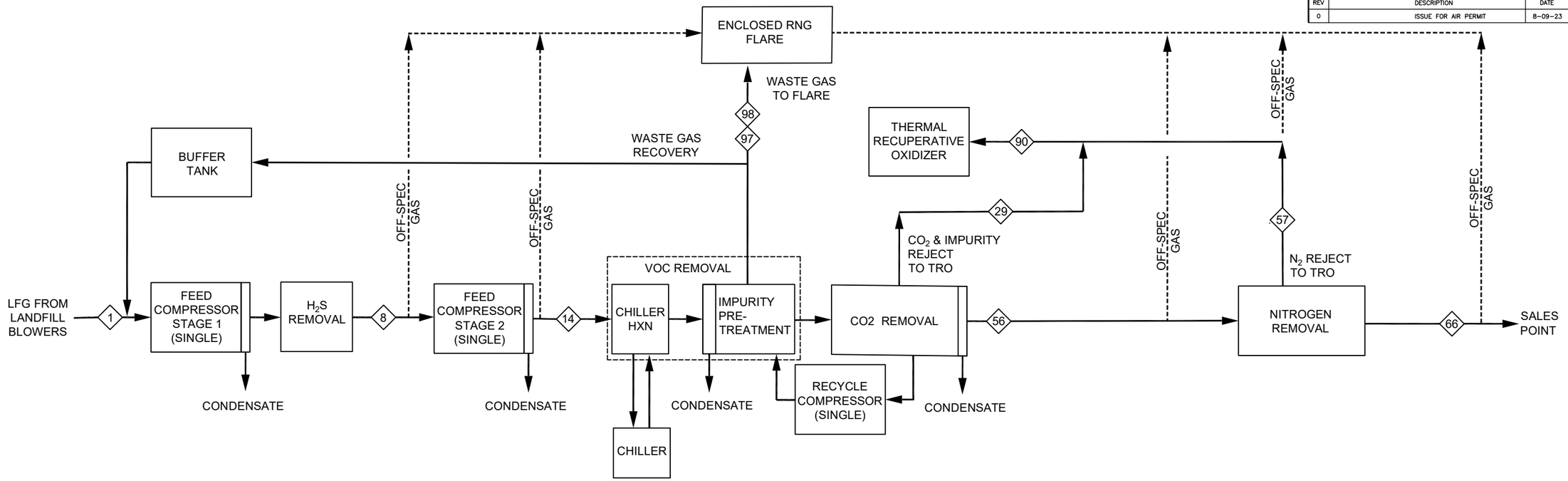
- Application Form for Permit or Plan Approval - Form 400-A
- California Environmental Quality Act Applicability - Form 400-CEQA
- Plot Plan and Stack Information Form – Form 400-PS
- Storage Tank – Form 400-E-18

Condensate Tank 2:

- Application Form for Permit or Plan Approval - Form 400-A
- California Environmental Quality Act Applicability - Form 400-CEQA
- Plot Plan and Stack Information Form – Form 400-PS
- Storage Tank – Form 400-E-18

Figures

REVISIONS				
REV	DESCRIPTION	DATE	DRAWN	APPROVED
0	ISSUE FOR AIR PERMIT	8-09-23		



LANDFILL GAS (LFG) FEED CONDITIONS	MAIN LFG FEED GAS
STREAM NUMBER:	**< 1 >**
GAS COMPOSITION	***VOL% (dry)***
CH4	42.69
CO2	35.35
N2	18.89
O2	3.00
H2O	SAT @ 90 F
	PPMV (dry)
TOTAL S (H2S+OTHER S)	28
VOC (AS HEXANE)	600
SITE CONDITIONS:	
ELEVATION, FEET	50
AMBIENT PRESSURE, PSIA	14.67
MIN. AMBIENT, DEG F	34
MAX. AMBIENT, DEG F	100

STREAM BALANCES REF COND: 14.696 PSIA, 60 DEG F		MAIN LFG FEED TO FEED COMP	MAIN LFG FEED H2S REMOVAL	MAIN LFG FEED POST-COMPRESSION	CO2 REJECT GAS TO TRO	LOW BTU GAS TO N2 REMOVAL	NRU REJECT GAS TO TRO	PRODUCT GAS TO SALES POINT	WASTE GAS TO TRO	WASTE GAS TO FLARE (INTERMITTENT)	WASTE GAS TO FLARE (INTERMITTENT)
STREAM NUMBER:		**< 1 >**	**< 8 >**	**< 14 >**	**< 29 >**	**< 56 >**	**< 57 >**	**< 66 >**	**< 90 >**	**< 97 >**	**< 98 >**
VOLUME FLOW	SCFM (wet / dry)	3175 / 3000	3191 / 3015	3042 / 3015	1290 / 1286	1729 / 1729	551 / 551	1178 / 1178	1841 / 1837	201 / 201	1285 / 1284
MASS FLOW	LB/HR (wet / dry)	14118 / 13619	14187 / 13688	13762 / 13687	8318 / 8308	5379 / 5379	2290 / 2290	3089 / 3089	10608 / 10597	911 / 911	5831 / 5829
PRESSURE	PSIA	15.7	37.7	223.2	17.7	115.2	17.7	103.7	17.7	14.7	14.8
TEMPERATURE	DEG F	100.0	137.1	125.0	250.0	97.0	100.0	105.0	212.6	37.9	89.0
MOLECULAR WEIGHT	LB/LBMOL	28.1 / 28.7	28.1 / 28.7	28.6 / 28.7	40.8 / 40.9	19.7 / 19.7	26.3 / 26.3	16.6 / 16.6	36.4 / 36.5	28.7 / 28.7	28.7 / 28.7
GAS COMPOSITION: (TOTAL SULFUR AS H2S, VOC AS HEXANE)		***VOL% (wet / dry)***	***VOL% (wet / dry)***	***VOL% (wet / dry)***	***VOL% (wet / dry)***	***VOL% (wet / dry)***	***VOL% (wet / dry)***	***VOL% (wet / dry)***	***VOL% (wet / dry)***	***VOL% (wet / dry)***	***VOL% (wet / dry)***
	CH4	40.34 / 42.69	40.35 / 42.70	42.33 / 42.70	5.48 / 5.50	70.37 / 70.37	15.44 / 15.44	96.09 / 96.09	8.47 / 8.48	42.68 / 42.70	42.68 / 42.70
	CO2	33.40 / 35.35	33.41 / 35.35	35.04 / 35.34	82.19 / 82.42	0.32 / 0.32	0.00 / 0.00	0.47 / 0.47	57.58 / 57.69	35.32 / 35.34	35.32 / 35.34
	N2	17.85 / 18.89	17.86 / 18.89	18.73 / 18.90	6.02 / 6.03	28.46 / 28.46	82.11 / 82.11	3.34 / 3.34	28.81 / 28.86	18.89 / 18.90	18.88 / 18.90
	O2	2.83 / 3.00	2.84 / 3.00	2.97 / 3.00	5.88 / 5.90	0.84 / 0.84	2.44 / 2.44	0.09 / 0.09	4.85 / 4.86	3.00 / 3.00	3.00 / 3.00
	H2O	5.52 / -	5.49 / -	0.87 / -	0.28 / -	0.00 / -	0.00 / -	0.00 / -	0.20 / -	0.06 / -	0.06 / -
		PPMV (wet / dry)	***PPMV (wet / dry)***	***PPMV (wet / dry)***	***PPMV (wet / dry)***	***PPMV (wet / dry)***	***PPMV (wet / dry)***	***PPMV (wet / dry)***	***PPMV (wet / dry)***	***PPMV (wet / dry)***	***PPMV (wet / dry)***
	TOTAL S	26.5 / 28.0	7.9 / 8.4	8.3 / 8.4	35.6 / 35.7	4.9 / 4.9	0.0 / 0.0	7.1 / 7.1	25.0 / 25.0	8.4 / 8.4	25.0 / 25.0
	VOC	566.9 / 600.0	567.1 / 600.1	594.5 / 599.8	1397.7 / 1401.7	10.5 / 10.5	0.0 / 0.0	15.4 / 15.4	979.1 / 981.0	599.2 / 599.5	599.2 / 599.5

CONDENSATE SUMMARY	OILY	OIL FREE	TOTAL
CONDENSATE, GAL/DAY	1445	0	1445

ARCHAEA ENERGY

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES	PROJECT NO.	
	APPROVALS	DATE
TOLERANCES	DRAWN P.KLOMKAEW	9-26-22
DECIMALS .X= ±.1 .XX= ±.02 .XXX= ±.010 ANGLES ±0 30' FRACTIONS ±1/32	CHECKED S.CHAFIN	9-26-22
	ENGINEERED	
DO NOT SCALE DRAWING	APPROVED	

BIOFUELS COYOTE CANYON BIOGAS LLC
NEWPORT BEACH, CA

TITLE: COYOTE CANYON BIOMETHANE FACILITY

SIZE	DWG. NO.	REV.
D	1	0
SCALE	WEIGHT	SHEET 1 OF 1

DWG NO 1 SH 1 REV 0

B3-22

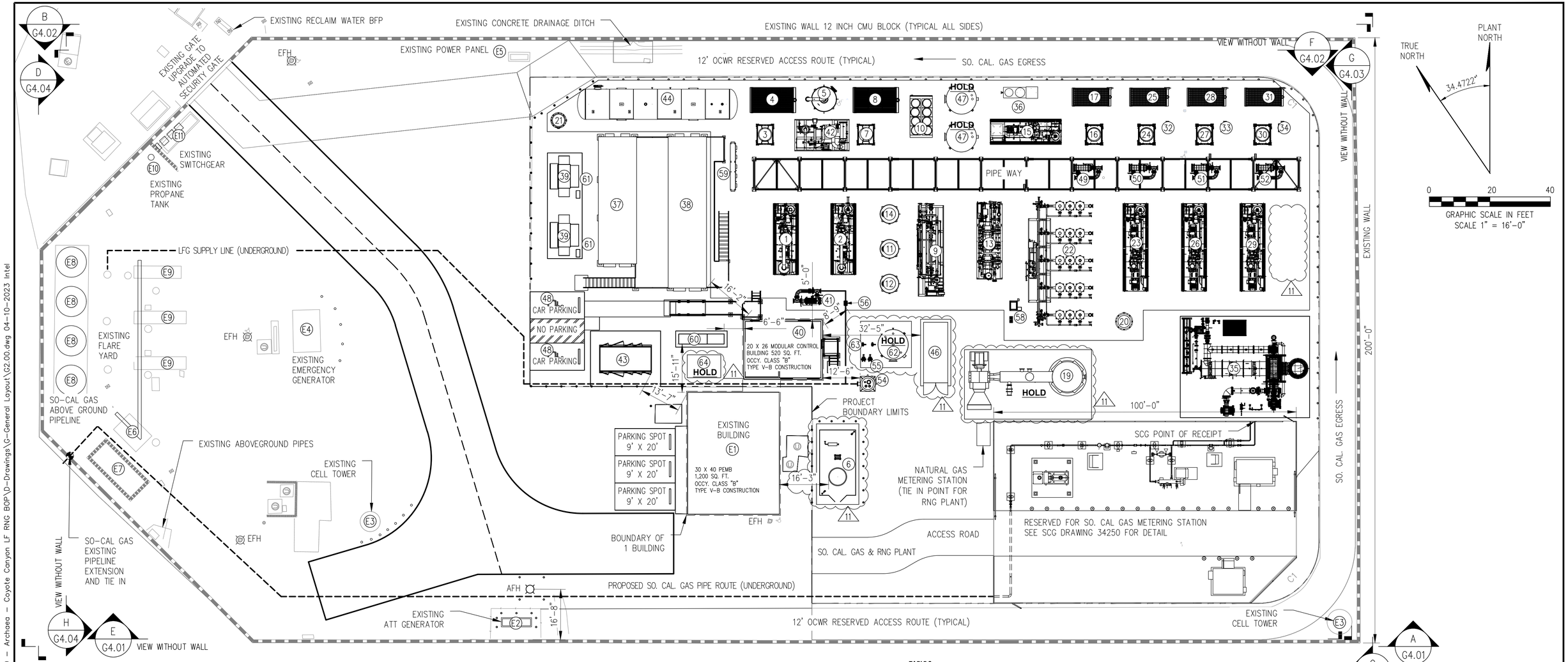


TABLE 1:-
EQUIPMENT LIST

S.NO.	DESCRIPTION
1	TYPE #1 FEED COMPRESSOR
2	TYPE #2 FEED COMPRESSOR
3	TYPE #1 COMPRESSOR FEED OIL COOLER
4	TYPE #1 COMPRESSOR FEED AFTERCOOLER
5	H2S REMOVAL VESSEL
6	LN2 PAD
7	TYPE #2 FEED COMPRESSOR OIL COOLER
8	TYPE #2 FEED COMPRESSOR AFTERCOOLER
9	TSA PRE-TREATMENT SKID
10	CHILLER
11	TSA ADSORBER VESSEL A (6' DIA.)
12	TSA ADSORBER VESSEL B (6' DIA.)
13	MEMBRANE SKID
14	VOC POLISHING VESSEL
15	TYPE #1 RECYCLE COMPRESSOR
16	TYPE #1 RECYCLE COMPRESSOR OIL COOLER
17	TYPE #1 RECYCLE COMPRESSOR AFTERCOOLER
~~18A~~	~~DEOXO SKID~~
~~18B~~	~~DEOXO DRYER~~
~~18C~~	~~DEOXO AFTERCOOLER~~
19	OFF-SPECIFICATION GAS FLARE

TABLE 1:-
EQUIPMENT LIST

S.NO.	DESCRIPTION
20	NRU BUFFER VESSEL
21	COMPRESSED AIR RECEIVER
22	NRU W/ADSORBERS
23	#1 NRU VAC. RINSE SKID
24	#1 NRU VAC. RINSE OIL COOLER
25	#1 NRU VAC. RINSE AFTERCOOLER
26	#2 NRU VAC. RINSE SKID
27	#2 NRU VAC RINSE OIL COOLER
28	#2 NRU VAC. RINSE AFTERCOOLER
29	#3 NRU VAC. RINSE SKID
30	#3 NRU VAC. RINSE OIL COOLER
31	#3 NRU VAC. RINSE AFTERCOOLER
32	#1 NRU DRYER VESSEL
33	#2 NRU DRYER VESSEL
34	#3 NRU DRYER VESSEL
35	THERMAL OXIDIZER
36	OILY WATER SEPARATOR
37	POWER DISTRIBUTION E-HOUSE
38	POWER DISTRIBUTION E-HOUSE BOP
39	TRANSFORMERS
11 40	OPERATOR/CONTROL SHELTER

TABLE 1:-
EQUIPMENT LIST

S.NO.	DESCRIPTION
41	STAGE #1 INLET PARTICULATE FILTER
42	H2S SKID
43	UTILITY INTERTIE SWITCHGEAR
44	TSA BLOWDOWN TANK 30,000 Gal
~~45~~	~~H2S GUARD BED~~
11 46	20 FEET STORAGE CONTAINER
47	CONDENSATE TANK (A & B)
48	PARKING AREA
49	NRU RINSE COMPRESSOR INLET FILTER A
50	NRU VACUUM COMPRESSOR INLET FILTER A
51	NRU RINSE COMPRESSOR INLET FILTER B
11 52	NRU VACUUM COMPRESSOR INLET FILTER B
~~53~~	~~HEAT EXHANGER (FUTURE)~~
54	LFG SUMP
55	SUMP CONDENSATE PUMP
56	FLOW METER
~~57~~	~~CONDENSATE TANK PUMP (A & B)~~
58	GAS CHROMATOGRAPH
59	3rd NRU PANEL
60	EMERGENCY GENERATOR
61	NEUTRAL GROUNDING RESISTORS
11 62	UTILITY WATER TANK
63	UTILITY WATER PUMP
64	UNDERGROUND SEPTIC TANK

TABLE 2:-
EXISTING EQUIPMENTS

S.NO.	DESCRIPTION
E1	EXISTING BUILDING
E2	EXISTING ATT GENERATOR
E3	EXISTING CELL TOWER
E4	EXISTING EMERGENCY GENERATOR
E5	EXISITNG POWER PANEL
E6	EXISITNG PAD
E7	EXISITNG TANK
E8	EXISTING FLARE
E9	EXISTING BLOWERS PAD
E10	EXISTING PROPANE TANK
E11	EXISTING SWITCHGEAR

LEGENDS

EFH–EXISTING FIRE HYDRANT RETAINED	EFH
AFH–ADDED FIRE HYDRANT	AFH
GAS LINES	
PROJECT BOUNDARY LIMITS	
SO. CAL. GAS METERING STATION LIMITS	

AREA JUSTIFICATION FOR CONTROL BUILDING

ID #	DESCRIPTION	WIDTH	LENGTH	AREA			TYPE CONSTRUCTION	OCCY CLASS	MAX. ALLOW. AREA
40	NEW MODULAR CONTROL BUILDING	26	20	520	27.7%		V-B	B	9,000
E1	EXISTING PEMB BUILDING	30	40	1,200	63.8%		V-B	B	9,000
	TOTAL			1,880	100%	<----------is less than----------<			9,000

NOTES:
1 TREAT BUILDING 40 & E1 AS ONE BUILDING PER SEC. 503.1.2

11 **HOLD:-** PENDING VENDOR INFO.

TOPOGRAPHY NOTE:
BASED ON TOPO FURNISHED BY D.WOOLLEY & ASSOCIATES
DATE: 07-28-2022.

CONFIDENTIAL

ISSUED FOR BID

REV	DATE	DESCRIPTION	DRN BY	CHK BY	APRV BY
8	06/15/2023	ISSUED FOR 60% DESIGN REVIEW (REVISED)	SS	TP	AG
9	07/06/2023	ISSUED FOR 60% DESIGN REVIEW (REVISED)	SS	TP	AG
10	08/16/2023	ISSUED FOR 60% DESIGN REVIEW (REVISED)	SS	TP	AG
11	10/03/2023	ISSUED FOR BID	SS	TP	AG

OWNER: ARCHAEA ENERGY
4444 WESTHEIMER ROAD, SUITE G450
HOUSTON, TX 77027
Ph: (346) 708-8272

ENGINEER: BIOGAS ENGINEERING
2321 E. 28TH STREET, SUITE 400
SIGNAL HILL, CA 90755, Ph: (562) 726-3565
EMAIL: INFO@BIOGASENG.COM

SITE PLAN

COYOTE CANYON LANDFILL
RNG PROJECT
20662 NEWPORT COAST DRIVE
NEWPORT BEACH, CA 92657

DRAWING NO.
G2.00


Site Map
Planned Stack Locations
Biofuels Coyote Canyon Biogas
Legend
Facility Line
Planned Flare Location
Planned TOx Location
Planned Flare Location
Planned TOx Location
N
200 ft
Google Earth

Tables

TABLE 8
POTENTIAL TO EMIT EMISSION SOURCE ESTIMATES FOR THERMAL OXIDIZER
COYOTE CANYON RNG FACILITY
NEWPORT BEACH, CALIFORNIA

CAS Number	Compounds	HAP? (Yes/No)	Molecular Weight (lb/lbmol)	Concentration of Compounds Found In Gas to Thermal Oxidizer (ppmv)(b)	Uncontrolled Emissions from Thermal Oxidizer (tons/yr)(c)	Destruction Efficiency (%) (d)	Maximum Emissions from Thermal Oxidizer (lbs/hr)	Maximum Emissions from Thermal Oxidizer (lbs/day)	Maximum Emissions from Thermal Oxidizer (lbs/yr)	Maximum Emissions from Thermal Oxidizer (tons/yr)
Hazardous Air Pollutants (HAPs)(a)										
71-55-6	1,1,1-Trichloroethane (methyl chloroform)**	Yes	133.41	2.81E-02	7.67E-03	98.0%	3.50E-05	8.41E-04	3.07E-01	1.53E-04
79-34-5	1,1,2,2-Tetrachloroethane	Yes	167.85	2.02E-04	6.95E-05	98.0%	3.17E-07	7.62E-06	2.78E-03	1.39E-06
75-34-3	1,1-Dichloroethane (ethylidene dichloride)**	Yes	98.97	3.93E-02	7.97E-03	98.0%	3.64E-05	8.73E-04	3.19E-01	1.59E-04
75-35-4	1,1-Dichloroethene (vinylidene chloride)**	Yes	96.94	2.81E-02	5.58E-03	98.0%	2.55E-05	6.11E-04	2.23E-01	1.12E-04
107-06-2	1,2-Dichloroethane (ethylene dichloride)**	Yes	98.96	2.81E-02	5.69E-03	98.0%	2.60E-05	6.24E-04	2.28E-01	1.14E-04
78-87-5	1,2-Dichloropropane (propylene dichloride)	Yes	112.99	1.91E-04	4.42E-05	98.0%	2.02E-07	4.84E-06	1.77E-03	8.84E-07
67-63-0	2-Propanol (isopropyl alcohol)	No	60.11	9.86	1.21	98.0%	5.54E-03	1.33E-01	4.85E+01	2.43E-02
107-13-1	Acrylonitrile	Yes	53.06	4.05E-02	4.39E-03	98.0%	2.01E-05	4.82E-04	1.76E-01	8.79E-05
71-43-2	Benzene**	Yes	78.11	5.96E-01	0.10	98.0%	4.35E-04	1.04E-02	3.81E+00	1.90E-03
75-25-2	Bromodichloromethane*	No	163.83	2.25E-04	7.54E-05	98.0%	3.44E-07	8.26E-06	3.02E-03	1.51E-06
75-15-0	Carbon disulfide*	Yes	76.13	1.42E-02	2.21E-03	98.0%	1.01E-05	2.42E-04	8.83E-02	4.41E-05
56-23-5	Carbon tetrachloride**	Yes	153.84	2.81E-02	8.85E-03	98.0%	4.04E-05	9.70E-04	3.54E-01	1.77E-04
463-58-1	Carbonyl sulfide	Yes	60.07	2.06E-01	2.53E-02	98.0%	1.15E-04	2.77E-03	1.01E+00	5.06E-04
108-90-7	Chlorobenzene**	Yes	112.56	3.20E-02	7.38E-03	98.0%	3.37E-05	8.09E-04	2.95E-01	1.48E-04
75-00-3	Chloroethane (ethyl chloride)*	Yes	64.52	2.45E-02	3.24E-03	98.0%	1.48E-05	3.55E-04	1.29E-01	6.47E-05
67-66-3	Chloroform**	Yes	119.39	2.81E-02	6.87E-03	98.0%	3.14E-05	7.53E-04	2.75E-01	1.37E-04
75-45-6	Chlorodifluoromethane	No	86.47	3.99E-01	7.06E-02	98.0%	3.22E-04	7.74E-03	2.83E+00	1.41E-03
74-87-3	Chloromethane (methyl chloride)*	Yes	50.49	3.42E-02	3.53E-03	98.0%	1.61E-05	3.87E-04	1.41E-01	7.06E-05
106-46-7	Dichlorobenzene (1,4-Dichlorobenzene)**	Yes	147.00	2.81E-02	8.46E-03	98.0%	3.86E-05	9.27E-04	3.38E-01	1.69E-04
75-43-4	Dichlorodifluoromethane*	No	120.91	2.60E-01	0.06	98.0%	2.93E-04	7.04E-03	2.57E+00	1.29E-03
75-71-8	Dichlorofluoromethane	No	102.92	3.99E-01	8.41E-02	98.0%	3.84E-04	9.21E-03	3.36E+00	1.68E-03
75-09-2	Dichloromethane (Methylene Chloride)**	Yes	84.94	2.81E-02	4.89E-03	98.0%	2.23E-05	5.35E-04	1.95E-01	9.77E-05
64-17-5	Ethanol*	No	46.08	22.42	2.12	98.0%	9.66E-03	2.32E-01	8.46E+01	4.23E-02
100-41-4	Ethylbenzene*	Yes	106.16	4.67	1.01	98.0%	4.63E-03	1.11E-01	4.06E+01	2.03E-02
106-93-4	Ethylene dibromide (1,2-Dibromoethane)**	Yes	187.88	2.81E-02	1.08E-02	98.0%	4.93E-05	1.18E-03	4.32E-01	2.16E-04
75-69-4	Fluorotrichloromethane	No	137.40	3.67E-01	1.03E-01	98.0%	4.72E-04	1.13E-02	4.13E+00	2.07E-03
110-54-3	Hexane*	Yes	86.18	3.05E-01	0.05	98.0%	2.45E-04	5.89E-03	2.15E+00	1.07E-03
7647-01-0	Hydrochloric acid (e)	Yes	36.50	42.00	3.14	0.0%	4.43E-01	1.06E+01	3.88E+03	1.94E+00
2148878	Hydrogen Sulfide (h)	No	34.081	25.00	1.74	98.0%	7.97E-03	1.91E-01	6.98E+01	3.49E-02
7439-97-6	Mercury (total) (f)	Yes	200.61	2.92E-04	1.20E-04	0.0%	2.74E-05	6.57E-04	2.40E-01	1.20E-04
78-93-3	Methyl ethyl ketone	No	72.11	11.86	1.75	98.0%	8.00E-03	1.92E-01	7.01E+01	3.50E-02
108-10-1	Methyl isobutyl ketone*	Yes	100.16	1.35	2.77E-01	98.0%	1.26E-03	3.03E-02	1.11E+01	5.53E-03
127-18-4	Perchloroethylene (tetrachloroethylene)	Yes	165.83	3.90E-02	1.32E-02	98.0%	6.05E-05	1.45E-03	5.30E-01	2.65E-04
108-88-3	Toluene**	Yes	92.13	1.37	0.26	98.0%	1.18E-03	2.83E-02	1.03E+01	5.17E-03
79-01-6	Trichloroethylene (trichloroethene)**	Yes	131.40	2.81E-02	7.56E-03	98.0%	3.45E-05	8.28E-04	3.02E-01	1.51E-04
75-01-4	Vinyl chloride*	Yes	62.50	4.27E-02	5.46E-03	98.0%	2.50E-05	5.99E-04	2.19E-01	1.09E-04
1330-20-7	Xylenes**	Yes	106.16	1.31	0.29	98.0%	1.30E-03	3.13E-02	1.14E+01	5.72E-03
Various	PAH (i)	Yes	--	--	--	--	2.23E-05	5.36E-04	1.96E-01	9.78E-05
91-20-3	Naphthalene (i)	Yes	128.17	--	--	--	3.17E-05	7.60E-04	2.78E-01	1.39E-04
50-00-0	Formaldehyde (i)	Yes	30.03	--	--	--	1.07E-01	2.57E+00	9.37E+02	4.68E-01
Totals: TACs							0.59	14.22	5,188.80	2.59
Totals: HAPs							0.56	13.43	4,902.93	2.45
Single HAP							0.44	10.63	3,880.67	1.94

Criteria Air Pollutants	Molecular Weight (lb/lbmol)	Inlet Concentration of Compound (ppmv)(b)	Uncontrolled Pollutant Flow Rate from Thermal Oxidizer (tons/yr)	Destruction Efficiency (%) (d)	Maximum Emissions from Thermal Oxidizer (lbs/hr)	Maximum Emissions from Thermal Oxidizer (lbs/day)	Maximum Emissions from Thermal Oxidizer (lbs/yr)	Maximum Emissions from Thermal Oxidizer (tons/yr)
Total Non-Methane Organics (NMOCs) as Hexane at 3% O2	86.18	981.0	106.02	98.0%	0.48	11.62	4,240.84	2.12
Volatile Organic Compounds (VOCs)(g)	86.18	981.0	106.02	98.0%	0.48	11.62	4,240.84	2.12

Criteria Air Pollutants	Molecular Weight (lb/lbmol)	Concentration of Compound (ppmv)	Emission Factor (lb/MMscf as methane)	Emission Factor (lb/MMBtu HHV)	Maximum Emissions from Thermal Oxidizer (lbs/hr)	Maximum Emissions from Thermal Oxidizer (lbs/day)	Maximum Emissions from Thermal Oxidizer (lbs/yr)	Maximum Emissions from Thermal Oxidizer (tons/yr)
Nitrogen Oxides (NO_X)	--	--		0.06	0.73	17.44	5,190.93	2.60
Carbon Monoxide (CO)	--	--		0.20	2.42	58.14	17,303.10	8.65
Sulfur Oxides (SO_x)(h)	64.06	25		--	0.46	11.01	4,017.11	2.01
Particulate Matter (PM_{10}/$PM_{2.5}$)(j)	--	--	17	--	0.23	5.49	1,836.81	0.92

Notes:

(a) Gas entering facility from Coyote Canyon Landfill. List of hazardous air pollutants was from Title III Clean Air Act Amendments, 1990, and include compounds found in landfill gas, as determined from a list in AP-42 Tables 2.4-1 ("Default Concentrations for Landfill Gas Constituents, 11/98").

(b) Initial concentrations based on "Waste Industry Air Coalition (WIAC) Comparison of Recent Landfill Gas Analyses.
Site-specific data collected from the May 18, 2023 labs adjusted to 42.7% methane, indicated with "**". TGNMO estimated from engineering analysis concentrated up. If ND, detection limit was used.

(c) Based on concentrations in Column D and an estimated maximum gas flow of 3,000 scfm (concentrated up).

(d) The destruction efficiency of VOCs is 99% per the Manufacturer's Guarantee, however, 98% is conservatively assumed.

(e) Concentration of HCl is based on AP-42 Section 2.4.4.2.

(f) Concentration of Mercury based on the EPA AP-42 Section 2.4 Table 2.4-1 (11/98).

(g) VOCs assumed to equal NMOCs.

(h) SOx emissions are based on the H_2S ppmv into the product gas at 25 ppmv after sulfur treatment. Then, 100% of the H_2S is converted to SO_2.

(i) Based on correspondence between South Coast Air Quality Management District and Orange County Integrated Waste Management Department dated May 18, 2007. SCAQMD confirmed the specific use of emissions factors for formaldehyde, PAH, and naphthalene.

PAH(i)		Naphthalene(i)		Formaldehyde(i)	
0.0001240	lb/mmscf	0.000176	lb/mmscf	0.594000	lb/mmscf

(j) Particulate emissions are cited as 17 lbs/1,000,000 scf of methane on AP-42 Table 2.4-5.

Variables:

MODEL INPUT VARIABLES:		
Methane Content into RNG Facility	42.7	vol%
Max Gas Stream into RNG Facility (dry)	3,000	SCFM(d)
Waste Gas Flow Rate to Thermal Oxidizer (operating)	1,837	SCFM(d)
Waste Gas Throughput to the Thermal Oxidizer (operating)	965.77	MMSCF/yr
Waste Gas Methane Content to Thermal Oxidizer (operating)	8.48	vol%(d)
Waste Gas Methane Content to Thermal Oxidizer (maximum)	12.20	vol%
Thermal Oxidizer Process Heat Release (operating)	9.88	MMBTU/hr (HHV)
Thermal Oxidizer Process Heat Release (maximum)	12.11	MMBTU/hr (HHV)
Thermal Oxidizer Process Heat Release (operating, annual)	86,515	MMBTU/yr (HHV)

Criteria pollutant emission factors used for thermal oxidizer:

Pollutant	Emission Factor	Data Source
NMOCs/VOCs	99% Destruction Efficiency or 20 ppmv hexane (d)	Manufacturer's Guarantee
NO_x	0.06 lb/MMBtu (HHV)	SCAQMD Rule 1147/Manufacturer's Guarantee
CO	0.2 lb/MMBtu (HHV)	Manufacturer's Guarantee
SO_2	25 ppmv as H_2S	Maximum Expected
$PM_{10}/PM_{2.5}$	17 lb/MMSCF as methane	AP-42 Table 2.4-5

CONVERSIONS

ton conversion	2000	lbs
lb conversion	453.6	g
hour conversion	60	min
day conversion	24	hrs
12 months	365	days
mol conversion	24.04	L @ STP
cf conversion	28.32	L
mmbtu conversion	1,000,000	btu

TABLE 9
POTENTIAL TO EMIT ESTIMATES FOR THERMAL OXIDIZER - NATURAL GAS SUPPLEMENTAL FUEL
COYOTE CANYON RNG FACILITY
NEWPORT BEACH, CALIFORNIA

CAS Number	Compounds	HAP? (Yes/No)	Emission Factor (lb/MMscf)	Maximum Emissions from Thermal Oxidizer (lbs/hr)	Maximum Emissions from Thermal Oxidizer (lbs/day)	Maximum Emissions from Thermal Oxidizer (lbs/yr)	Maximum Emissions from Thermal Oxidizer (tons/yr)
Toxic Air Contaminants (a)							
91-57-6	2-Methylnaphthalene	No	2.40E-05	4.50E-08	1.08E-06	3.94E-04	1.97E-07
54-49-5	3-Methylchloanthrene	No	1.80E-06	3.38E-09	8.10E-08	2.96E-05	1.48E-08
	7,12-Dimethylben(a)anthracene	No	1.60E-05	3.00E-08	7.20E-07	2.63E-04	1.31E-07
83-32-9	Acenaphthene	No	1.80E-06	3.38E-09	8.10E-08	2.96E-05	1.48E-08
203-96-8	Acenaphthylene	No	1.80E-06	3.38E-09	8.10E-08	2.96E-05	1.48E-08
120-12-7	Anthracene	No	2.40E-06	4.50E-09	1.08E-07	3.94E-05	1.97E-08
56-55-3	Benz(a)anthracene	No	1.80E-06	3.38E-09	8.10E-08	2.96E-05	1.48E-08
71-43-2	Benzene	Yes	2.10E-03	3.94E-06	9.45E-05	3.45E-02	1.72E-05
50-32-8	Benzo(a)pyrene	No	1.20E-06	2.25E-09	5.40E-08	1.97E-05	9.86E-09
205-99-2	Benzo(b)fluoranthene	No	1.80E-06	3.38E-09	8.10E-08	2.96E-05	1.48E-08
191-24-2	Benzo(g,h,i)perylene	No	1.20E-06	2.25E-09	5.40E-08	1.97E-05	9.86E-09
207-08-9	Benzo(k)fluoranthene	No	1.80E-06	3.38E-09	8.10E-08	2.96E-05	1.48E-08
106-97-8	Butane	No	2.10E+00	3.94E-03	9.45E-02	3.45E+01	1.72E-02
218-01-9	Chrysene	No	1.80E-06	3.38E-09	8.10E-08	2.96E-05	1.48E-08
53-70-3	Dibenzo(a,h)anthracene	No	1.20E-06	2.25E-09	5.40E-08	1.97E-05	9.86E-09
25321-22-6	Dichlorobenzene	Yes	1.20E-03	2.25E-06	5.40E-05	1.97E-02	9.86E-06
74-84-0	Ethane	No	3.10E+00	5.81E-03	1.40E-01	5.09E+01	2.55E-02
206-44-0	Fluoranthene	No	3.00E-06	5.63E-09	1.35E-07	4.93E-05	2.46E-08
86-73-7	Fluorene	No	2.80E-06	5.25E-09	1.26E-07	4.60E-05	2.30E-08
50-00-0	Formaldehyde	Yes	7.50E-02	1.41E-04	3.38E-03	1.23E+00	6.16E-04
110-54-3	Hexane	Yes	1.80E+00	3.38E-03	8.10E-02	2.96E+01	1.48E-02
193-39-5	Indeno(1,2,3-cd)pyrene	No	1.80E-06	3.38E-09	8.10E-08	2.96E-05	1.48E-08
91-20-3	Naphthalene	Yes	6.10E-04	1.14E-06	2.75E-05	1.00E-02	5.01E-06
109-66-0	Pentane	No	2.60E+00	4.88E-03	1.17E-01	4.27E+01	2.14E-02
85-01-8	Phenanthrene	No	1.70E-05	3.19E-08	7.65E-07	2.79E-04	1.40E-07
74-98-6	Propane	No	1.60E+00	3.00E-03	7.20E-02	2.63E+01	1.31E-02
129-00-0	Pyrene	No	5.00E-06	9.38E-09	2.25E-07	8.21E-05	4.11E-08
108-88-3	Toluene	Yes	3.40E-03	6.38E-06	1.53E-04	5.58E-02	2.79E-05
7440-38-2	Arsenic	Yes	2.00E-04	3.75E-07	9.00E-06	3.29E-03	1.64E-06
7440-39-3	Barium	No	4.40E-03	8.25E-06	1.98E-04	7.23E-02	3.61E-05
7440-41-7	Beryllium	Yes	1.20E-05	2.25E-08	5.40E-07	1.97E-04	9.86E-08
7440-43-9	Cadmium	Yes	1.10E-03	2.06E-06	4.95E-05	1.81E-02	9.03E-06
7440-47-3	Chromium	Yes	1.40E-03	2.63E-06	6.30E-05	2.30E-02	1.15E-05
7440-48-4	Cobalt	Yes	8.40E-05	1.58E-07	3.78E-06	1.38E-03	6.90E-07
7440-50-8	Copper	No	8.50E-04	1.59E-06	3.83E-05	1.40E-02	6.98E-06
7439-95-5	Manganese	Yes	3.80E-04	7.13E-07	1.71E-05	6.24E-03	3.12E-06
7439-98-7	Molybdenum	No	1.10E-03	2.06E-06	4.95E-05	1.81E-02	9.03E-06
7440-02-0	Nickel	Yes	2.10E-03	3.94E-06	9.45E-05	3.45E-02	1.72E-05
782-49-2	Selenium	Yes	2.40E-05	4.50E-08	1.08E-06	3.94E-04	1.97E-07
7440-62-2	Vanadium	No	2.30E-03	4.31E-06	1.04E-04	3.78E-02	1.89E-05
7440-66-6	Zinc	No	2.90E-02	5.44E-05	1.31E-03	4.76E-01	2.38E-04
Totals: TACs				**0.02**	**0.51**	**186.02**	**0.09**
Totals: HAPs				**0.004**	**0.08**	**31.00**	**0.02**
Single HAP				**0.005**	**0.12**	**42.71**	**0.01**

Criteria Air Pollutants	Molecular Weight (lb/lbmol)	Inlet Concentration of Compound (ppmv)(b)	Uncontrolled Pollutant Flow Rate from Thermal Oxidizer (tons/yr)	Thermal Oxidizer Destruction Efficiency (%) (d)	Maximum Emissions from Thermal Oxidizer (lbs/hr)	Maximum Emissions from Thermal Oxidizer (lbs/day)	Maximum Emissions from Thermal Oxidizer (lbs/yr)	Maximum Emissions from Thermal Oxidizer (tons/yr)
Volatile Organic Compounds (VOCs)	86.18	100.0	0.184	98.0%	0.00	0.020	7.35	0.004

Criteria Air Pollutants	Molecular Weight (lb/lbmol)	Concentration of Compound (ppmv)	Emission Factor (lb/MMBtu HHV)	Emission Factor (lb/MMSCF)	Maximum Emissions from Thermal Oxidizer (lbs/hr)	Maximum Emissions from Thermal Oxidizer (lbs/day)	Maximum Emissions from Thermal Oxidizer (lbs/yr)	Maximum Emissions from Thermal Oxidizer (tons/yr)
Nitrogen Oxides (NO_X)	--	--	0.06		0.50	11.88	1,084.43	0.54
Carbon Monoxide (CO)	--	--	0.20		1.65	39.61	3,614.78	1.81
Sulfur Oxides (SO_x)(c)	64.06	8	--		0.010	0.24	87.45	0.011
Particulate Matter (PM_{10}/$PM_{2.5}$)	--	--	--	7.6	0.01	0.34	124.83	0.06

TABLE 9
POTENTIAL TO EMIT ESTIMATES FOR THERMAL OXIDIZER - NATURAL GAS SUPPLEMENTAL FUEL
COYOTE CANYON RNG FACILITY
NEWPORT BEACH, CALIFORNIA

Notes:

(a) List of toxic air contaminants and emission factors from AP-42, Tables 1.4-3 and 1.4-4 (Emission Factors from Natural Gas Combustion).

(b) Inlet concentration based on engineering estimate for worst-case emissions.

(c) SOx emissions are based on the low sulfur natural gas content of 0.5 grain per 100 scf (8 ppm).

(d) The destruction efficiency of VOCs is 99% per the Manufacturer's Guarantee, however, 98% is conservatively assumed.

(e) Hourly BTU capacity per the maximum rated capacity at 7,500 SCFH, annual BTU capacity based on estimated typical usage at 1,875 SCFH per manufacturer specifications.

Variables:

MODEL INPUT VARIABLES:		**Units**
Heating Value Basis (?)	1100	BTU/SCF (HHV)
Natural Gas Flow Rate to Thermal Oxidizer (operating) (e)	1,875	SCFH
Natural Gas Burner Capacity (operating)	2.06	MMBTU/HR (HHV)
Natural Gas Throughput to Thermal Oxidizer (operating)	16.43	MMSCF/yr
Natural Gas Burner Capacity (operating)	18,074	MMBTU/yr (HHV)
Natural Gas Flow Rate to Thermal Oxidizer (maximum)	7,500	SCFH
Natural Gas Burner Capacity (maximum)	8.25	MMBTU/HR (HHV)

Criteria pollutant emission factors used for thermal oxidizer:

Pollutant	Emission Factor	Data Source
VOCs	99% destruction efficiency	Manufacturer's Guarantee
NO_x	0.06 lb/MMBTU (HHV)	Manufacturer's Guarantee
CO	0.20 lb/MMBTU (HHV)	Manufacturer's Guarantee
SO_2	8 ppmv as H2S	Maximum Expected
$PM_{10}/PM_{2.5}$	7.6 lb/MMscf	AP-42 Table 1.4-2 (PM total)

CONVERSIONS

ton conversion	2000	lbs
lb conversion	453.6	g
hour conversion	60	min
day conversion	24	hrs
12 months	365	days
mol conversion	24.04	L @ STP
cf conversion	28.32	L
mmbtu conversion	1,000,000	btu

TABLE 10
POTENTIAL TO EMIT EMISSION SOURCE ESTIMATES FOR ENCLOSED RNG FLARE
COYOTE CANYON RNG FACILITY
NEWPORT BEACH, CALIFORNIA

CAS Number	Compounds	HAP? (Yes/No)	Emission Factor (lb/MMscf)	Maximum Emissions from Flare (lbs/hr)	Maximum Emissions from Flare (lbs/day)	Maximum Emissions from Flare (lbs/yr)	Maximum Emissions from Flare (tons/yr)
Hazardous Air Pollutants (HAPs)(a)							
91-57-6	2-Methylnaphthalene	No	2.40E-05	1.82E-07	4.38E-06	1.60E-03	7.99E-07
54-49-5	3-Methylchloanthrene	No	1.80E-06	1.37E-08	3.28E-07	1.20E-04	5.99E-08
	7,12-Dimethylben(a)anthracene	No	1.60E-05	1.22E-07	2.92E-06	1.06E-03	5.32E-07
83-32-9	Acenaphthene	No	1.80E-06	1.37E-08	3.28E-07	1.20E-04	5.99E-08
203-96-8	Acenaphthylene	No	1.80E-06	1.37E-08	3.28E-07	1.20E-04	5.99E-08
120-12-7	Anthracene	No	2.40E-06	1.82E-08	4.38E-07	1.60E-04	7.99E-08
56-55-3	Benz(a)anthracene	No	1.80E-06	1.37E-08	3.28E-07	1.20E-04	5.99E-08
71-43-2	Benzene	Yes	2.10E-03	1.60E-05	3.83E-04	1.40E-01	6.99E-05
50-32-8	Benzo(a)pyrene	No	1.20E-06	9.12E-09	2.19E-07	7.99E-05	3.99E-08
205-99-2	Benzo(b)fluoranthene	No	1.80E-06	1.37E-08	3.28E-07	1.20E-04	5.99E-08
191-24-2	Benzo(g,h,i)perylene	No	1.20E-06	9.12E-09	2.19E-07	7.99E-05	3.99E-08
207-08-9	Benzo(k)fluoranthene	No	1.80E-06	1.37E-08	3.28E-07	1.20E-04	5.99E-08
106-97-8	Butane	No	2.10E+00	1.60E-02	3.83E-01	1.40E+02	6.99E-02
218-01-9	Chrysene	No	1.80E-06	1.37E-08	3.28E-07	1.20E-04	5.99E-08
53-70-3	Dibenzo(a,h)anthracene	No	1.20E-06	9.12E-09	2.19E-07	7.99E-05	3.99E-08
25321-22-6	Dichlorobenzene	Yes	1.20E-03	9.12E-06	2.19E-04	7.99E-02	3.99E-05
74-84-0	Ethane	No	3.10E+00	2.36E-02	5.65E-01	2.06E+02	1.03E-01
206-44-0	Fluoranthene	No	3.00E-06	2.28E-08	5.47E-07	2.00E-04	9.98E-08
86-73-7	Fluorene	No	2.80E-06	2.13E-08	5.11E-07	1.86E-04	9.32E-08
50-00-0	Formaldehyde	Yes	7.50E-02	5.70E-04	1.37E-02	4.99E+00	2.50E-03
110-54-3	Hexane	Yes	1.80E+00	1.37E-02	3.28E-01	1.20E+02	5.99E-02
193-39-5	Indeno(1,2,3-cd)pyrene	No	1.80E-06	1.37E-08	3.28E-07	1.20E-04	5.99E-08
91-20-3	Naphthalene	Yes	6.10E-04	4.63E-06	1.11E-04	4.06E-02	2.03E-05
109-66-0	Pentane	No	2.60E+00	1.98E-02	4.74E-01	1.73E+02	8.65E-02
85-01-8	Phenanthrene	No	1.70E-05	1.29E-07	3.10E-06	1.13E-03	5.66E-07
74-98-6	Propane	No	1.60E+00	1.22E-02	2.92E-01	1.06E+02	5.32E-02
129-00-0	Pyrene	No	5.00E-06	3.80E-08	9.12E-07	3.33E-04	1.66E-07
108-88-3	Toluene	Yes	3.40E-03	2.58E-05	6.20E-04	2.26E-01	1.13E-04
7440-38-2	Arsenic	Yes	2.00E-04	1.52E-06	3.65E-05	1.33E-02	6.66E-06
7440-39-3	Barium	No	4.40E-03	3.34E-05	8.02E-04	2.93E-01	1.46E-04
7440-41-7	Beryllium	Yes	1.20E-05	9.12E-08	2.19E-06	7.99E-04	3.99E-07
7440-43-9	Cadmium	Yes	1.10E-03	8.36E-06	2.01E-04	7.32E-02	3.66E-05
7440-47-3	Chromium	Yes	1.40E-03	1.06E-05	2.55E-04	9.32E-02	4.66E-05
7440-48-4	Cobalt	Yes	8.40E-05	6.38E-07	1.53E-05	5.59E-03	2.80E-06
7440-50-8	Copper	No	8.50E-04	6.46E-06	1.55E-04	5.66E-02	2.83E-05
7439-95-5	Manganese	Yes	3.80E-04	2.89E-06	6.93E-05	2.53E-02	1.26E-05
7439-97-6	Mercury	Yes	2.60E-04	1.98E-06	4.74E-05	1.73E-02	8.65E-06
7439-98-7	Molybdenum	No	1.10E-03	8.36E-06	2.01E-04	7.32E-02	3.66E-05
7440-02-0	Nickel	Yes	2.10E-03	1.60E-05	3.83E-04	1.40E-01	6.99E-05
782-49-2	Selenium	Yes	2.40E-05	1.82E-07	4.38E-06	1.60E-03	7.99E-07
7440-62-2	Vanadium	No	2.30E-03	1.75E-05	4.19E-04	1.53E-01	7.65E-05
7440-66-6	Zinc	No	2.90E-02	2.20E-04	5.29E-03	1.93E+00	9.65E-04

CAS Number	Compounds	HAP? (Yes/No)	Molecular Weight (lb/lbmol)	Concentration of Compounds Found In Gas to RNG Flare (ppmv)(b)	Uncontrolled Emissions from RNG Flare (tons/yr)(c)	Destruction Efficiency (%) (d)	Maximum Emissions from RNG Flare (lbs/hr)	Maximum Emissions from RNG Flare (lbs/day)	Maximum Emissions from RNG Flare (lbs/yr)	Maximum Emissions from RNG Flare (tons/yr)
Hazardous Air Pollutants (HAPs)(a)										
71-55-6	1,1,1-Trichloroethane (methyl chloroform)**	Yes	133.41	2.81E-02	7.67E-03	98.0%	3.50E-05	8.41E-04	3.07E-01	1.53E-04
79-34-5	1,1,2,2-Tetrachloroethane	Yes	167.85	2.02E-04	6.95E-05	98.0%	3.17E-07	7.62E-06	2.78E-03	1.39E-06
75-34-3	1,1-Dichloroethane (ethylidene dichloride)**	Yes	98.97	3.93E-02	7.97E-03	98.0%	3.64E-05	8.73E-04	3.19E-01	1.59E-04
75-35-4	1,1-Dichloroethene (vinylidene chloride)**	Yes	96.94	2.81E-02	5.58E-03	98.0%	2.55E-05	6.11E-04	2.23E-01	1.12E-04
107-06-2	1,2-Dichloroethane (ethylene dichloride)**	Yes	98.96	2.81E-02	5.69E-03	98.0%	2.60E-05	6.24E-04	2.28E-01	1.14E-04
78-87-5	1,2-Dichloropropane (propylene dichloride)	Yes	112.99	1.91E-04	4.42E-05	98.0%	2.02E-07	4.84E-06	1.77E-03	8.84E-07
67-63-0	2-Propanol (isopropyl alcohol)	No	60.11	9.86	1.21E+00	98.0%	5.54E-03	1.33E-01	4.85E+01	2.43E-02
107-13-1	Acrylonitrile	Yes	53.06	4.05E-02	4.39E-03	98.0%	2.01E-05	4.82E-04	1.76E-01	8.79E-05
71-43-2	Benzene**	Yes	78.11	5.96E-01	9.52E-02	98.0%	4.35E-04	1.04E-02	3.81E+00	1.90E-03
75-25-2	Bromodichloromethane*	No	163.83	2.25E-04	7.54E-05	98.0%	3.44E-07	8.26E-06	3.02E-03	1.51E-06
75-15-0	Carbon disulfide*	Yes	76.13	1.42E-02	2.21E-03	98.0%	1.01E-05	2.42E-04	8.83E-02	4.41E-05
56-23-5	Carbon tetrachloride**	Yes	153.84	2.81E-02	8.85E-03	98.0%	4.04E-05	9.70E-04	3.54E-01	1.77E-04
463-58-1	Carbonyl sulfide	Yes	60.07	0.21	2.53E-02	98.0%	1.15E-04	2.77E-03	1.01E+00	5.06E-04
108-90-7	Chlorobenzene**	Yes	112.56	0.03	7.38E-03	98.0%	3.37E-05	8.09E-04	2.95E-01	1.48E-04
75-00-3	Chloroethane (ethyl chloride)*	Yes	64.52	2.45E-02	3.24E-03	98.0%	1.48E-05	3.55E-04	1.29E-01	6.47E-05
67-66-3	Chloroform**	Yes	119.39	2.81E-02	6.87E-03	98.0%	3.14E-05	7.53E-04	2.75E-01	1.37E-04
75-45-6	Chlorodifluoromethane	No	86.47	0.40	7.06E-02	98.0%	3.22E-04	7.74E-03	2.83E+00	1.41E-03
74-87-3	Chloromethane (methyl chloride)*	Yes	50.49	0.03	3.53E-03	98.0%	1.61E-05	3.87E-04	1.41E-01	7.06E-05
106-46-7	Dichlorobenzene (1,4-Dichlorobenzene)**	Yes	147.00	0.03	8.46E-03	98.0%	3.86E-05	9.27E-04	3.38E-01	1.69E-04
75-43-4	Dichlorodifluoromethane*	No	120.91	0.26	6.43E-02	98.0%	2.93E-04	7.04E-03	2.57E+00	1.29E-03
75-71-8	Dichlorofluoromethane	No	102.92	0.40	8.41E-02	98.0%	3.84E-04	9.21E-03	3.36E+00	1.68E-03
75-09-2	Dichloromethane (Methylene Chloride)**	Yes	84.94	2.81E-02	4.89E-03	98.0%	2.23E-05	5.35E-04	1.95E-01	9.77E-05
64-17-5	Ethanol*	No	46.08	2.24E+01	2.12E+00	98.0%	9.66E-03	2.32E-01	8.46E+01	4.23E-02
100-41-4	Ethylbenzene*	Yes	106.16	4.67E+00	1.01E+00	98.0%	4.63E-03	1.11E-01	4.06E+01	2.03E-02
106-93-4	Ethylene dibromide (1,2-Dibromoethane)**	Yes	187.88	2.81E-02	1.08E-02	98.0%	4.93E-05	1.18E-03	4.32E-01	2.16E-04
75-69-4	Fluorotrichloromethane	No	137.40	0.37	1.03E-01	98.0%	4.72E-04	1.13E-02	4.13E+00	2.07E-03
110-54-3	Hexane*	Yes	86.18	0.30	5.37E-02	98.0%	2.45E-04	5.89E-03	2.15E+00	1.07E-03
7647-01-0	Hydrochloric acid (e)	Yes	36.50	42.00	3.14E+00	0.0%	7.23E-01	1.74E+01	6.34E+03	3.17E+00
2148878	Hydrogen Sulfide(f)	No	34.081	25.00	1.74E+00	98.0%	7.97E-03	1.91E-01	6.98E+01	3.49E-02
7439-97-6	Mercury (total) (g)	Yes	200.61	2.92E-04	1.20E-04	0.0%	2.74E-05	6.57E-04	2.40E-01	1.20E-04
78-93-3	Methyl ethyl ketone	No	72.11	11.86	1.75E+00	98.0%	8.00E-03	1.92E-01	7.01E+01	3.50E-02
108-10-1	Methyl isobutyl ketone*	Yes	100.16	1.35	2.77E-01	98.0%	1.26E-03	3.03E-02	1.11E+01	5.53E-03
127-18-4	Perchloroethylene (tetrachloroethylene)	Yes	165.83	0.04	1.32E-02	98.0%	6.05E-05	1.45E-03	5.30E-01	2.65E-04
108-88-3	Toluene**	Yes	92.13	1.37	2.59E-01	98.0%	1.18E-03	2.83E-02	1.03E+01	5.17E-03
79-01-6	Trichloroethylene (trichloroethene)**	Yes	131.40	0.03	7.56E-03	98.0%	3.45E-05	8.28E-04	3.02E-01	1.51E-04
75-01-4	Vinyl chloride*	Yes	62.50	0.04	5.46E-03	98.0%	2.50E-05	5.99E-04	2.19E-01	1.09E-04
1330-20-7	Xylenes**	Yes	106.16	1.31	2.86E-01	98.0%	1.30E-03	3.13E-02	1.14E+01	5.72E-03
Various	PAH (i)	Yes	--	--	--	--	2.23E-05	5.36E-04	1.96E-01	9.78E-05
91-20-3	Naphthalene (i)	Yes	128.17	--	--	--	3.17E-05	7.60E-04	2.78E-01	1.39E-04
50-00-0	Formaldehyde (i)	Yes	30.03	--	--	--	1.07E-01	2.57E+00	9.37E+02	4.68E-01
Totals: TACs							0.96	23.01	8397.86	4.20
Totals: HAPs							2.73	20.50	7483.48	3.74
Single HAP							1.80	17.36	6335.90	3.17

Criteria Air Pollutants	Molecular Weight (lb/lbmol)	Inlet Concentration of Compound (ppmv)(b)	Uncontrolled Pollutant Flow Rate to Flare (tons/yr)	Flare Destruction Efficiency (%) (k)	Maximum Emissions from Flare (lbs/hr)	Maximum Emissions from Flare (lbs/day)	Maximum Emissions from Flare (lbs/yr)	Maximum Emissions from Flare (tons/yr)
Non-Methane Organic Compounds (NMOCs)	86.18	600.0	10.57	98.0%	0.483	11.60	422.99	0.21
Volatile Organic Compounds (VOCs)	86.18	600.0	10.57	98.0%	0.483	11.60	422.99	0.21

Criteria Air Pollutants	Molecular Weight (lb/lbmol)	Concentration of Compound (ppmv)	Emission Factor (lb/MMBtu HHV)	Emission Factor (lb/MMscf)	Maximum Emissions from Flare (lbs/hr)	Maximum Emissions from Flare (lbs/day)	Maximum Emissions from Flare (lbs/yr)	Maximum Emissions from Flare (tons/yr)
Nitrogen Oxides (NO_X)	--	--	0.025		1.94	46.67	1,701.49	0.85
Carbon Monoxide (CO)	--	--	0.06		4.67	112.01	4,083.57	2.04
Sulfur Oxides (SO_x)(d)	64.06	25	--		0.75	17.97	655.12	0.33
Particulate Matter ($PM_{10}/PM_{2.5}$)	--	--	--	7.6	1.37	32.83	505.85	0.25

Notes:

(a) Gas entering facility from Coyote Canyon Landfill. List of hazardous air pollutants was from emission factors for natural gas combustion from AP-42, Tables 1.4-3 and 1.4-4 (Emission Factors from Natural Gas Combustion) and theTitle III Clean Air Act Amendments, 1990, and include compounds found in landfill gas, as Natural Gas Combustion) and theTitle III Clean Air Act Amendments, 1990, and include compounds found in landfill gas, as determined from a list in AP-42 Tables 2.4-1("Default Concentrations for Landfill Gas Constituents, 11/98").

(b) Initial concentrations based on "Waste Industry Air Coalition (WIAC) Comparison of Recent Landfill Gas Analyses with Historic AP-42 Values," and site-specific data collection from a May 18, 2023 AccuLabs Analysis at Coyote Canyon Landfill adjusted to 41.68% methane, indicated with "*". If ND, detection limite was used. Site-specific data collected from the May 18, 2023 labs adjusted to 42.7% methane, indicated with "**". TGNMO estimated from engineering analysis concentrated up.

(c) Inlet concentration based on engineering estimate for worst-case emissions.

(d) SOx emissions are conservatively based on 25 ppmv H_2S in the maximum waste gas flow to the flare. 100% conversion of H_2S to SO_2 is assumed to occur at the flare.

BTU/SCF (HHV).

(e) Concentration of HCl is based on AP-42 Section 2.4.4.2.

(f) Concentration maximum expected.

(g) Concentration of Mercury based on the EPA AP-42 Section 2.4 Table 2.4-1 (11/98).

(h) Flaring operations are estimated at 875 hours per annum, totalized across eight anticipated flaring modes. Select flaring modes may potentially require fuel gas assist (i.e., utility gas).

(i) Based on correspondence between South Coast Air Quality Management District and Orange County Integrated Waste Management Department dated May 18, 2007. SCAQMD confirmed the specific use of

PAH(k)		Naphthalene(k)		Formaldehyde(k)	
0.0001240	lb/mmscf	0.000176	lb/mmscf	0.594000	lb/mmscf

(j) Flare maximum waste gas heat release (i.e., rated capacity) is 77.8 MMBTU/hr (HHV). Across the eight anticipated flaring modes, the design heat release ranges from 6.0-77.8 MMBTU/hr (HHV).

(k) Destruction efficiency of VOCs based on Manufacturer's Guarantee.

Variables:

MODEL INPUT VARIABLES:		
Heating Value (d)	1012	BTU/SCF (HHV)
Maximum Hours of Operation (h)	875	hrs/yr
Methane Content into RNG Facility	42.7	vol%
Waste Gas Flow Rate to Flare (maximum)	3000	SCFM(d)
Waste Gas Flow Rate to Flare (maximum)	180000	SCFH(d)
Waste Gas Throughput to the Flare (operating)	66.6	MMSCF/yr
Flare Waste Gas Heat Release (maximum) (j)	77.8	MMBtu/hr (HHV)
Flare Waste Gas Heat Release (operating, annual) (h)	68060	MMBtu/yr (HHV)

Criteria pollutant emission factors used for the flare:

Pollutant	Emission Factor	Data Source
NMOCs/VOCs	98% Destruction Efficiency (k)	Manufacturer's Guarantee
NO_x	0.025 lb/MMBtu (HHV)	Manufacturer's Guarantee
CO	0.06 lb/MMBtu (HHV)	Manufacturer's Guarantee
SO_2	25 ppmv as H_2S	Maximum Expected
$PM_{10}/PM_{2.5}$	7.6 lb/MMSCF	AP-42 Table 1.4-2 (PM total)

CONVERSIONS		
ton conversion	2000	lbs
lb conversion	453.6	g
hour conversion	60	min
day conversion	24	hrs
12 months	365	days
mol conversion	24.04	L @ STP
cf conversion	28.32	L
mmbtu conversion	1,000,000	btu

TABLE 11
PROPOSED POTENTIAL TO EMIT EMISSIONS SUMMARY
COYOTE CANYON RNG FACILITY
NEWPORT BEACH, CALIFORNIA

Equipment		Criteria Pollutant Emissions																	
		NOx			CO			PM-10/PM-2.5			SOx			VOCs			HAPs		
		lb/hr	lbs/day	tons/yr	lb/hr	lbs/day	tons/yr	lb/hr	lbs/day	tons/yr	lb/hr	lbs/day	tons/yr	lb/hr	lbs/day	tons/yr	lb/hr	lbs/day	tons/yr
Thermal Oxidizer	Main Fuel	0.73	17.44	2.60	2.42	58.14	8.65	0.229	5.49	0.92	0.459	11.01	2.01	0.484	11.62	2.12	0.56	13.43	2.45
	Supplemental Fuel	0.50	11.88	0.54	1.65	39.61	1.81	0.01	0.34	0.06	0.010	0.24	0.01	0.00	0.02	0.004	0.004	31.00	0.02
RNG Flare		1.94	46.67	0.85	4.67	112.01	2.04	1.368	32.83	0.25	0.749	17.97	0.33	0.48	11.60	0.21	2.73	20.50	3.74
TOTAL EMISSIONS		**3.17**	**75.99**	**3.99**	**8.74**	**209.76**	**12.50**	**1.61**	**38.66**	**1.23**	**1.22**	**29.21**	**2.35**	**0.97**	**23.24**	**2.34**	**3.29**	**64.94**	**6.21**

Note: Pounds per day are based on 24 hours of operation a day.

TABLE 12
NEW SOURCE REVIEW THRESHOLD EMISSION LEVELS
COYOTE CANYON RNG FACILITY
NEWPORT BEACH, CALIFORNIA

Pollutant	Proposed RNG Facility Emissions	Major Source Threshold[1]	Major Source?	Offset Trigger Levels[2]	Offsets Required?	Offsets Required to Purchase	Proposed Source		BACT Threshold[4]	Trigger BACT?
							TOX	RNG Flare		
	tons/yr	tons/yr		tons/yr		Ratio 1:1.2	lb/day	lb/day	lb/day	TOX/Flare
Nitrogen Oxides (NO_X)	3.99	10.00	No	4.00	No	NA	29.32	46.67	1.00	Yes/Yes
Carbon Monoxide (CO)	12.50	50.00	No	29.00	No	NA	97.75	112.01	1.00	Yes/Yes
Sulfur Dioxide (SO_2)	2.35	70.00	No	4.00	No	NA	11.25	17.97	1.00	Yes/Yes
Volatile Organic Compounds (VOCs)	2.34	10.00	No	4.00	No	NA	11.64	11.60	1.00	Yes/Yes
Particulate Matter (PM_{10})	1.23	70.00	No	4.00	No	NA	5.83	32.83	1.00	Yes/Yes
Total Hazardous Air Pollutants (HAPs)	6.21	25.00	No	N/A	N/A	NA	N/A	N/A	N/A	N/A
Single HAP	1.94	10.00	No	N/A	N/A	NA	N/A	N/A	N/A	N/A

Notes:

[1] Major source thresholds were taken from SCAQMD Rule 1302(s)

[2] Offset trigger levels were taken from SCAQMD Rule 1304(d)(2)

[3] Offset evaluation performed in accordance with SCAQMD Rule 1303 (b)(2)

[4] BACT threshold taken from SCAQMD BACT policy

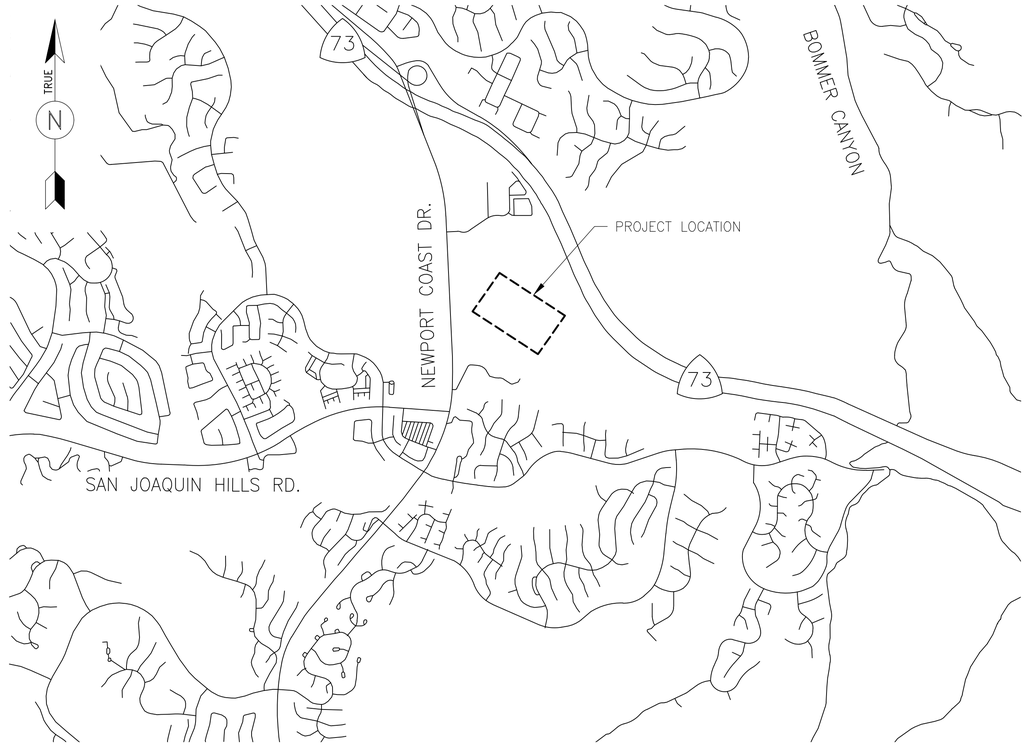
Appendix A

Facility Plans

POINT OF RECIEPT
BIOME RULE 45
BIOFUELS COYOTE CANYON
WOA 89395

CONSTRUCTION DRAWING LIST

DRAWING NO.	DESCRIPTION
34250-1001-D-PIP	DRAWING LIST
P & ID	
34250-2001-D-PID	P&ID
PIPING	
34250-3001-D-PIP	SITE PLAN
34250-3002-D-PIP	PLOT PLAN



ISSUED FOR REVIEW
30% REVIEW

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	10/15/21	GKC	BKD	PD	SQL	*	ISSUED FOR 30% REVIEW	89395
A	09/23/21	GKC	BDK	PD	SQL	*	ISSUED FOR 10% REVIEW	89395

	BY	DATE
DESIGNED:	G. CASILLAS	09/16/21
DRAWN:	G. CASILLAS	09/16/21
CHECKED:	B. KIKAWA	09/23/21
PROJ APV:	P. DISOMMA	09/23/21
SCG ENG APV:	S. LY	09/23/21

ENG FILE NO: *
WOA: 89395.000
DWG CLASS:
DWG DIST:
SCALE: NONE

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POINT OF RECIEPT
BIOME RULE 45 – COYOTE CANYON
DRAWING LIST

20662 NEWPORT BEACH DRIVE NEWPORT BEACH

DRAWING NUMBER 34250-1001-D-PIP REV B

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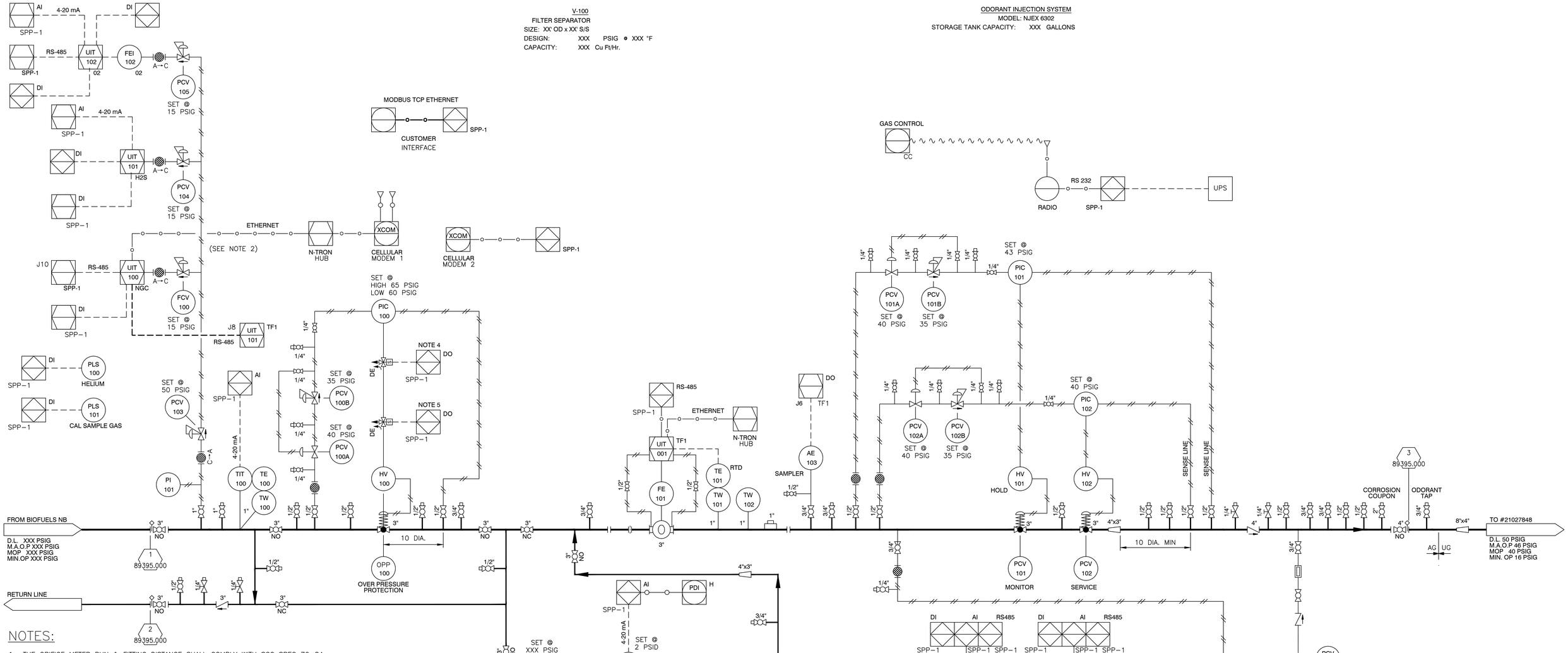
V-100
FILTER SEPARATOR
SIZE: XX' OD x XX' S/S
DESIGN: XXX PSIG @ XXX °F
CAPACITY: XXX Cu Ft/Hr.

ODORANT INJECTION SYSTEM
MODEL: NJEX 6302
STORAGE TANK CAPACITY: XXX GALLONS



NOTES:

1. THE ORIFICE METER RUN & FITTING DISTANCE SHALL COMPLY WITH SCG SPEC 76-84.
2. A METER (NOT SHOWN ON P&ID) IS SET TO DELIVER 50 ML/MIN TO THE NGC.
3. PCV-101, PCV-102 AND OPP 100 CONTAIN VERSA PNEU, DIRECTIONAL VALVE TO FAIL VALVES ON LOSS OF SUPPLY GAS.
4. LATCHING SOLENIOD VALVE FOR ODORANT PUMP FAILURE, H2S, AND OTHER PROCESS UPSET CONDITIONS.
5. NON-LATCHING SOLENOID VALVE FOR GAS QUALITY, MOISTURE.
6. MINIMUM OPERATING PRESSURE BASED ON RER #21-3243.

LEGEND:

1. DENOTES DIRECTION OF FLOWS
2. ISOLATION KIT
3. XXX / XXXXX — DENOTES TIE-IN
4. FIELD WELD
5. LC = LOCKED CLOSED
6. LO = LOCKED OPEN
7. NC = NORMALLY CLOSED
8. NO = NORMALLY OPEN
9. INSTRUMENT GAS SIGNAL
10. INSTRUMENT ELECTRICAL LEAD
11. SOFTWARE OR DATA LINK
12. RADIO TRANSMISSION
13. SCADA PACK
14. FILTER
15. PISTON SPRING ACTUATED BALL VALVE
16. HV — MANUAL CONTROL VALVE
17. FLOW CONDITIONER
18. M — ORIFICE METER
19. OPERATOR ACCESS COMPUTER PANEL
20. DIAPHRAGM SPRING ACTUATED GLOBE VALVE

B3-37

* 53%
** 60%

ISSUED FOR REVIEW

STRS. LEV. % SMYS	PRESSURE	PSIG		LOCATION CLASS	3	
		INLET	OUTLET	DESIGN FACTOR	0.5	
10.8% AT	D. L. OF LINE	XXX	50	CAPACITY AT PRESS. NOTED/MCFH		
8.1% AT	MAOP OF LINE	XXX	46	REGS.	METERS	@ INCHES W.C.
6.6% AT	MAX. EXPECTED	60	40	63.6	63.6	81
	NORM. OPERATING	50	37	63.6	63.6	95
	MIN. EXPECTED	50	37	63.6	63.6	95
* RELIEF VALVE SET	AT --- PSIG			DESIGN LOAD	63.60	MCFH
SERV. REG. SET	AT 40 PSIG			MIN. FLOW RATE	44.10	MCFH
MONITOR REG. SET	AT 43 PSIG			TOT. CONN. LOAD		MCFH
STANDBY REG. SET	AT --- PSIG					
OVER PRESS. PILOT SET	AT 65 PSIG			AUTH. DELV. PRESS.	37	PSIG

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
C	11/03/21	DTN	AJJ	SQL	PP	*	ISSUED FOR REVIEW	89395.000
B	10/05/21	DTN	AJJ	SQL	PP	*	ISSUED FOR REVIEW	89395.000
A	09/23/21	DTN	AJJ	SQL	PP	*	ISSUED FOR REVIEW	89395.000

	BY	DATE
DESIGNED:	A. JACKSON	09/17/21
DRAWN:	D. NGUYEN	09/17/21
CHECKED:	I. GHANEM	09/17/21
PROJ APV:	S. LY	09/17/21
SCG ENG APV:	P. PATEL	09/17/21
ENG FILE NO:	*	
WOA:	89395.000	

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POINT OF RECEIPT
COYOTE CANYON
P&ID
LEGEND & PRESSURE BLOCK
COYOTE CANYON

DWG CLASS: 38 DWG DIST: 303
SCALE: NONE
DRAWING NUMBER 34250-2001-D-PID REV C

PLANT N

EXISTING WALL

GATE

SITE LIMITS

EXISTING FLARE YARD

EXISTING UNDERGROUND LINES (TYP.)

NEW 8'x10' VERIZON GENERATOR ENCLOSURE

NEW VERIZON & T-MOBILE MONOPOLE

NEW 8'x11' T-MOBILE EQUIPMENT ENCLOSURE

EXISTING BUILDING

PIPEWAY

RESERVED FOR SO. CAL GAS

POINT OF RECEIPT

FOR PLOT PLAN SEE DWG: 2450-3002-D-PIP

NEW 8"PIPELINE

EXISTING 8" SERVICE LINE

TP XX

60'-0"

12'-0"

100'-0"

24'-0"

EXISTING WALL

NEW UNDERGROUND COAX JOINT TRENCH

FUTURE AT&T BACKUP GENERATOR

EXISTING CONDUIT TRENCH

ISSUED FOR REVIEW
30% REVIEW

GENERAL NOTES:

WHERE MSA OR REGULATOR STATIONS ARE EXPOSED TO VEHICULAR TRAFFIC, INSTALL REQUIRED GUARD POSTS PER GAS STANDARD 185.0008 AND STANDARD DRAWING 0413-D.STD TO PREVENT DAMAGE.

0 200' 400'
SCALE: 1" = 200'-0"

B3-38

REV	DATE	DRAWN	CHECKED	PRJ APV	SCG APV	ENG FILE NO	DESCRIPTION	WOA
B	10/15/21	GKC	BDK	PD	SQL	*	ISSUED FOR 30% REVIEW	89395
A	09/23/21	GKC	BDK	PD	SQL	*	ISSUED FOR 10% REVIEW	89395

	BY	DATE
DESIGNED:	G. CASILLAS	09/16/21
DRAWN:	G. CASILLAS	09/16/21
CHECKED:	B. KIKAWA	09/23/21
PROJ APV:	P. DISOMMA	09/23/21
SCG ENG APV:	S. LY	09/23/21
ENG FILE NO:	*	
WOA:	89395.000	

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DWG CLASS:
DWG DIST:
SCALE: 1"=200'

POINT OF RECIEPT
BIOME RULE 45 - COYOTE CANYON
SITE PLAN

20662 NEWPORT BEACH DRIVE NEWPORT BEACH

DRAWING NUMBER 34250-3001-D-PIP REV B

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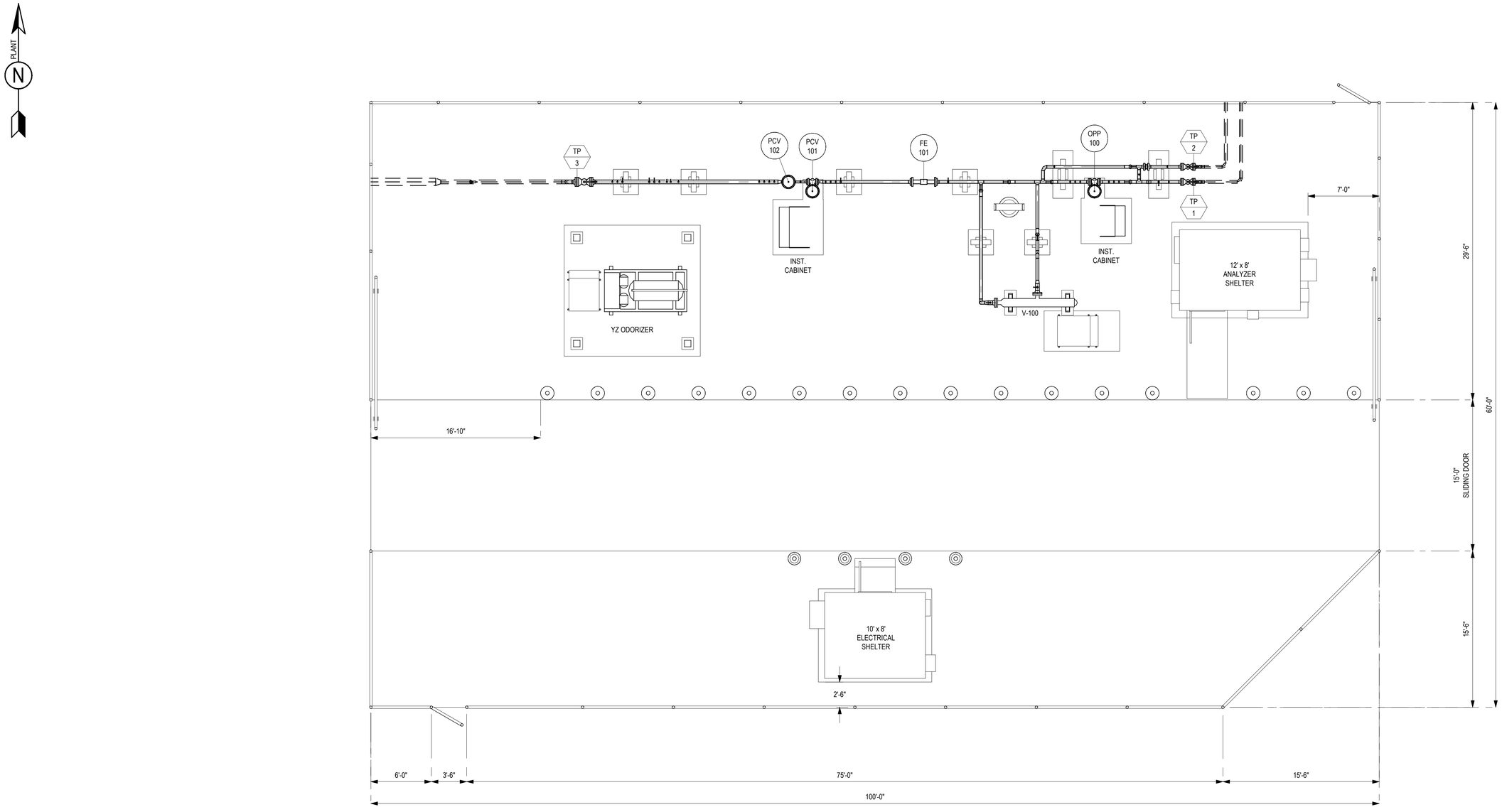

ISSUED FOR 30% REVIEW

NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN FEET AND INCHES.

0 5' 10'

SCALE: 3/16" = 1'-0"

REV NO	DATE	DRAWN	CHK'D	PROJ APV	SCG ENG APV	ENG FILE NO	DESCRIPTION	WOA
B	10/15/21	GKC	BDK	PD	SQL	*	ISSUED FOR 30% REVIEW	89395.000
A	09/23/21	GKC	BDK	PD	SQL	*	ISSUED FOR 10% REVIEW	89395.000

	BY	DATE
DESIGNED:	G. CASILLAS	09/20/21
DRAWN:	G. CASILLAS	09/20/21
CHECKED:	B. KIKAWA	09/23/21
PROJ APV:	P. DISOMMA	09/23/21
SCG ENG APV:	S. LY	
ENG FILE NO:	*	
WOA:	89395.000	

SoCalGas
A Sempra Energy utility

DWG CLASS: DWG DIST:
SCALE: 3/16" = 1'-0"

POINT OF RECEIPT
BIOME RULE 45 - COYOTE CANYON
PLOT PLAN

20662 NEWPORT BEACH DR. NEWPORT BEACH

DRAWING NUMBER: 34250-3002-D-PIP

REV B

Appendix B

Equipment Specifications/Standards

Thermal Oxidizer

ARCHAEA ENERGY

A Conifer Custom Solution Utilizing
A Thermal Recuperative Oxidizer (TRO) System
For the Abatement of Waste Gas
From an Archaea LFG to RNG Plant
To be Located in: California (Coyote Canyon)

6515 Willowbrook Park
Houston, Texas 77066
832.476.9024
www.conifersystems.com

CONIFER SYSTEMS

Customer	**Steve Chafin**
Address	**500 Technology Drive, Upper Floor** **Canonsburg, PA 1531**
Company	**Archaea Holdings, LLC**
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E-Mail	**steve.chafin@petroexergy.com**
Date	**September 29th, 2023**
Proposal Number	**2249-21 Rev.6**
Proposed Solution	**TRO w/ External Heat Recovery**

V1 TRO Example – Actual may Vary

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SECTION 1: EXECUTIVE SUMMARY

1.1 Theory of Operation

Thermal Recuperative Oxidizer (TRO)

The method of reduction of Volatile Organic Compounds in a Thermal Oxidizer revolves around thermal destruction. The chemical process is quite simple; the process air stream temperature is raised to a point that the chemical bonds that hold the volatile organic molecules together are broken. The VOCs in the process air stream are converted to combinations of carbon dioxide and water vapor by the high temperature of the combustion chamber. This exothermic process also releases a substantial amount of additional heat. For gas streams with low levels of oxygen, dilution with additional air may be required to ensure that enough oxygen is present for complete oxidation of the pollutants. Additionally, more air may be added during periods of high VOC loading to protect from overheating of the internal system components. However, this excess heat does have the benefit of reducing demand on the burner.

In a recuperative system heat from the exhaust gas is typically recovered and applied to the incoming air stream as a way to reduce fuel consumption. Heat may also be recovered for external use depending on plant requirements.

Thermal Recuperative Oxidizer – Actual may Vary

Application Specific Details

- This oxidizer is intended for use in Archaea's standard V1 3,200 SCFM size RNG plant.
- The oxidizer in this application uses two heat exchangers. The primary heat exchanger is used to pre-heat the incoming dilution air in order to minimize fuel consumption. The secondary heat exchanger recovers heat from the oxidizer exhaust for external use. In this case, incoming process gas from the CO_2 separation membrane (by others) is heated to a target temperature and sent to the TSA unit (by others) to heat the media. A set of high temperature rated control dampers shall be used to bypass gas around the hot side of the heat exchangers as a means of controlling the temperature. During a TSA cooling cycle the secondary heat exchanger may be bypassed immediately to eliminate any time lost to cooling the heat exchanger. During a heating cycle it may take up to 20 minutes for the gas to fully come back up to temperature before it's ready to send to the TSA. During this time the gas may be circulated back to the inlet of the oxidizer as long as it is cooled prior to reaching the flame arrestor. This would allow at least a portion, if not all, of the warm-up time to take place while the TSA is depressurizing. The gas coming from the TSA during a depressurization cycle, or at the start of the heating cycle should not be sent to the oxidizer as this would increase the total methane load over maximum design capacity of the system.
- After going through the TSA the gas is expected increase in VOC and water vapor content up to the amount specified in section 3.1. No other changes in composition are expected. It is recommended that additional filtration (not included here) be installed upstream of the oxidizer if the additional water vapor and organic compounds have the potential to condense before reaching the oxidizer as this may lead to plugging of the flame arrestor. See section 3.1 for more design clarifications.
- When the gas is first passed through the TSA a volume will be displaced that contains a higher concentration of methane (>50% by volume). The oxidizer is not designed to process this high concentration "slug". The gas should be momentarily directed to a separate flare, oxidizer, or other piece of equipment until methane concentration returns to normal.
- The minimal amount of oxygen present prevents the waste gas stream from becoming combustible. Conifer has provided a standard flame arrestor on the unit for flashback protection. However, this may not be sufficient to prevent ignition within the process line upstream of the arrestor if higher levels of oxygen are present. The process gas should always be delivered as oxygen deficient when the methane concentration is near the flammable limits. If greater oxygen content is possible (typically >6% by volume) then design of the feed equipment to the oxidizer may need to change. Customer bears full responsibility for the process conditions shown in section 3.1 as well as any changes which could impact equipment performance or safety.
- To help deal with any potential silica buildup due to the combustion of any siloxanes or other silicone bound compounds the heat exchanger has been designed with an in-line tube arrangement to make cleanout easier. The tube bank is also slightly oversized to account for a certain amount of additional resistance to heat transfer due to fouling. However, these are just basic precautionary measures. No silica forming compounds have been specified so no guarantee has been made regarding performance degradation of any part of the system due to fouling. Alternate heat exchanger designs are available if higher amounts of silica forming compounds are expected.

1.2 Proposal Overview

This proposal details the supply of one (1) Thermal Recuperative Oxidizer with installation supervision and commissioning services included. The 5,100 SCFM system shall be capable of treating up to 1,700 SCFM total waste gas combined with up to 3,400 SCFM of dilution air for oxygen addition. Additional cooling air may be added downstream of the combustion zone for temperature control. The fresh air source shall be ambient air provided through the Conifer supplied dilution and cooling air fans.

The system is assumed to be ground mounted, outdoors, and operated in a Class I Div. II electrical area. All electronic instruments on the oxidizer shall be rated for the classified area. Control panel enclosure is purged with appropriate conduit seal-offs for operation in the classified area when the doors are closed. All burner mounted components shall rated for the classified area. For clarity the burner itself cannot be “classified” due to its inherent function. Burners are not UL approved.

In the first revision, Rev.1 of the proposal, the standard unit was slightly modified to better suit different design conditions. Modifications include:

- Increased the NRU waste gas line size from 4” to 6”.
- Increased the oxidizer inlet line size from 10” to 12”. This includes a larger flame arrestor.
- Estimated gas consumption and exhaust stack exit conditions have been updated based on the new design conditions.
- Pricing has been updated.

In the previous revision, Rev.2 of the proposal, process conditions have been updated as per new information from Archaea. These conditions are reiterated in section 3.1 of the proposal. No changes to the equipment are necessary. Pricing has also been updated based on current vendor quotes for major components.

In the previous revision, Rev.3 of the proposal, Conifer has made the following changes:

- The emissions guarantee for NO_x and CO has been updated. See section 3.4 for more information.
- Additional information has also been provided in section 4.1 on the total combustion chamber volume.
- Pricing, technical specifications, and the preliminary general arrangement drawing have been updated to include the Low-NOx burner in the base bid.

In the previous revision, Rev. 4 of the proposal, process conditions have been updated as per new information from Archaea. These conditions are reiterated in section 3.1 of the proposal. Components changed in Rev.1 have been reverted back to standard size. Pricing has also been updated based on current projected cost of standard V1 TRO systems.

In this revision, Rev.5 of the proposal, process conditions have been updated based on Revision C of the process specification dated 7/21/23. Process conditions are reiterated in section 2.1 of this proposal. Conifer confirms that the system as designed is suitable for these conditions. Pricing and schedule have also been removed for this technical proposal.

In this revision, Rev.6 of the proposal, process conditions have been updated based on revision D of the process specification dated 9/27/23. Process heat release has also been stated on a higher heating value (HHV) and lower heating value (LHV) basis. No changes to the equipment have been made.

SECTION 2: DESIGN CONSIDERATIONS

2.1 Process Data

Stream #1	
Application:	Membrane Waste Gas / TSA Regen
Maximum process volume:	Up to 1,289.6 SCFM (w) / 1286.0 SCFM (d)
Process Gas Inlet Temperature:	Up to 300°F *(return from heating)*
Process Gas Inlet Pressure:	~2.5 psig at heat exchanger inlet <0.5 psig at oxidizer inlet 15 psig max. allowable at start-up
Process Volume Turndown Requirement:	~4:1
*Expected VOC Heat Release:	LHV Basis: 4,337,477 BTU/hr HHV Basis: 4,762,898 BTU/hr
**Process Gas Composition at max. Condition:	
- Nitrogen, N_2	6.02% Vol. or 343.73 lb/hr
- Oxygen, O_2	5.88% Vol. or 383.91 lb/hr
- Water Vapor, H_2O	0.28% Vol. or 10.29 lb/hr
- Carbon Dioxide, CO_2	82.19% Vol. or 7,375.72 lb/hr
- Methane, CH_4	5.48% Vol. or 179.35 lb/hr
- Other Non-Corrosive VOCs *(as Hexane, C_6H_{14})*	0.14% or 24.56 lb/hr
- ***Hydrogen Sulfide, H_2S	<0.01% or 0.29 lb/hr
- Total	100.00% Vol. or 8,317.84 lb/hr

Stream #2	
Application:	NRU Waste Gas
Maximum process volume:	Up to 551.4 SCFM (d)
Process Gas Inlet Temperature:	Up to 100°F
Process Gas Inlet Pressure:	<0.5 psig at oxidizer inlet 15 psig max. allowable at start-up
Process Volume Turndown Requirement:	~4:1
*Expected VOC Heat Release:	LHV Basis: 4,642,929 BTU/hr HHV Basis: 5,113,298 BTU/hr
**Process Gas Composition at max. Condition:	
- Nitrogen, N_2	82.11% Vol. or 2,005.47 lb/hr
- Oxygen, O_2	2.44% Vol. or 68.18 lb/hr
- Water Vapor, H_2O	0.00% Vol. or 0.00 lb/hr
- Carbon Dioxide, CO_2	<0.01% Vol. or 0.18 lb/hr
- Methane, CH_4	15.44% Vol. or 216.02 lb/hr
- Other Non-Corrosive VOCs *(as Hexane, C_6H_{14})*	0.00% or 0.00 lb/hr
- ***Hydrogen Sulfide, H_2S	0.00% or 0.00 lb/hr
- Total	100.00% Vol. or 2,289.79 lb/hr

*The VOC/HAP load shown represents the expected operating conditions based on information provided by Archaea. For design purposes the oxidizer shall be capable of operating with a combined methane load of 12.2% by vol. in 1,685 SCFM of total waste gas at the system inlet, or ~511.50 lb/hr of total methane. This represents a maximum heat load under any condition of about 10,997,250

BTU/hr on a LHV basis or about 12,111,509 BTU/hr on a HHV basis. LHV is defined as the HHV minus the heat of vaporization of any water vapor formed in combustion.*

The process stream composition is limited to the constituents in the above table and does not contain any particulate, acids, halogenated, or additional corrosive compounds. All compounds to be oxidized are expected to have auto-ignition temperatures of approximately 1,000°F or less.

Any SO_x compounds formed as a result of hydrogen sulfide oxidation or silica particulate formed as a result of siloxane combustion will not be removed by this equipment alone. Conifer can provide additional post-combustion treatment solutions for the removal of these compounds if required.

2.2 Operating Conditions

Minimum Operating Temperature:	1,500°F
Maximum Operating Temperature:	1,800°F
Target Internal Heat Transfer Effectiveness:	~65% (for dilution air pre-heating)
Target External Heat Transfer Effectiveness:	~60% (for TSA heating)
Equipment Location:	Outdoors
Control Panel Location	Outdoors (on the oxidizer skid)
Site Location Elevation:	~50 ft ASL
Electrical Area Classification:	Class I Div. II
Wind Load Design:	100 MPH
Seismic Design:	Category II Site Class C Ss = 1.282 S_1 = 0.456
Noise Requirement:	<85 dBa @ 5ft from rotating equipment

2.3 Utilities

Natural Gas Requirement (Installed Burner Maximum Capacity):	7,500 SCFH @ 10 psig pressure LHV = ~1,000 btu/SCF
Estimated Natural Gas Usage: At full volume, maximum operating temperature, and **Specified VOC Load**	<1,875 SCFH *(varies with inlet methane content)*
Electrical Supply Voltage:	480V / 60Hz / 3 Phase
Estimated Electrical Power Consumption:	~70 kW at maximum capacity
Compressed Air Supply:	80 psig @ -20°F dewpoint
Estimated Compressed Air Usage:	10 CFM peak; <5 CFM average
Oxygen Analyzer Additional Utilities	Power – 120 V / 60 Hz / 1 Ph (from control panel) Calibration Gas – 5 SCFH @ 20 psig, 0.4% and 8% O_2, Balance N_2 (from canisters, during calibration only) Reference Air – 2 SCFH @ 20 psig (from instrument air, continuous)

2.4 Emissions Guarantee

Methane and Volatile Organic Compound (VOC) Destruction Removal Efficiency (DRE):
99% or less than 20 ppm_v as hexane

Stack NO_x Emissions:
<0.06 lb/MMBTU (HHV basis) or <10 ppm_v as NO_2

Stack Carbon Monoxide Emissions:
<0.20 lb/MMBTUH (HHV basis) or <50 ppm_v

EPA Method 25A, 7E, & 10 and/or mutually agreed upon test method(s) will be used to determine/validate VOC, NO_x, & CO destruction performance respectively.

Emission factors for NO_x and CO are applicable as long as the following provisions are recognized:

1. There are no NOx compounds present in the waste gas prior to combustion.
2. There are no combustible nitrogen bearing compounds present in the waste gas.
3. There is no CO present in the waste gas prior to combustion.
4. There is no combustible particulate present in the waste gas.

2.5 Performance Guarantee provisions

- The unit is installed (if applicable), operated and maintained by Buyer in accordance with Conifer instructions. This includes replacing of consumable or maintenance components by Buyer, as required.
- Buyer agrees to operate the system within the system design data as specified in this proposal.
- The performance guarantees apply only during normal operation, not during any maintenance procedures.
- All functional tests are arranged and paid for by Buyer. Conifer must be notified in writing 14 days prior to the tests for scheduling purposes.
- Conifer reserves the right to adjust the burner chamber operating temperature and any other settings as required to meet the guarantees.
- If Conifer fails to meet the Performance Guarantee, Conifer must be given reasonable time to investigate and take corrective action within the scope of this contract.

SECTION 3: EQUIPMENT SPECIFICATIONS

This proposal is based on preliminary engineering intended to achieve the performance goals. Conifer Systems reserves the right to alter component selections during project engineering.

3.1 5,000 SCFM Thermal Recuperative Oxidizer – Low NOx Specification

General Requirement	Conifer Provision
Fans & Blowers	
Dilution Air Fan	
Fan Manufacturer	New York Blower or equal
Approximate Volume @ Design Conditions	3,400 SCFM
Expected Motor Size	15 HP
Motor Type	TEFC Premium Efficiency
Fan Materials of Construction	Carbon Steel Housing and Fan Wheel Base & Pedestal are Carbon Steel
Safety Pressure Switch	Dwyer 1950 Series or equal
Motor Starter	Allen Bradley or equal Located in the Control Panel
Flow Control	Pneumatic Modulating Damper
Other Features	Inlet Screen Outlet Flex Joint Housing Access Door & Drain
Cooling Air Fan	
Fan Manufacturer	New York Blower or equal
Approximate Volume @ Design Conditions	9,500 SCFM
Expected Motor Size	40 HP
Motor Type	TEFC Premium Efficiency
Fan Materials of Construction	Carbon Steel Housing and Fan Wheel Base & Pedestal are Carbon Steel
Safety Pressure Switch	Dwyer 1950 Series or equal
Motor Starter	Allen Bradly or equal Located in the Control Panel
Flow Control	Pneumatic Modulating Dampers Two (2) total
Other Features	Inlet Screen Outlet Flex Joint Housing Access Door & Drain

Fans & Blowers (continued)	
Combustion Air Fan	
Fan Manufacturer	New York Blower or equal
Approximate Volume @ Design Conditions	2,150 SCFM
Expected Motor Size	25 HP
Motor Type	TEFC Premium Efficiency
Fan Materials of Construction	Carbon Steel Housing and Fan Wheel Base & Pedestal are Carbon Steel
Safety Pressure Switch	Dwyer 1950 Series or equal
Motor Starter	Allen Bradly or equal Located in the Control Panel
Flow Control	Pneumatic Modulating Damper
Other Features	Wire Mesh Inlet Filter Housing Access Door & Drain

Burner, Gas Train, & Combustion System	
Burner	Fives 4225 or Conifer approved equal
Quantity of Burners	One (1)
Maximum Rated Capacity of Each Burner	7,500,000 BTU/hr
Flame Monitoring	Self-Scheck UV Scanner
Gas Train Design Standard	NFPA 86
Expected Gas Line Size	3” NPT Sch. 40
Manual Shut-off Valves	Apollo or equal
Y-Strainer	Mueller or equal
Gas Pressure Regulator	Sensus or equal
Low and High Gas Pressure Switches	United Electric or equal
Fuel Gas Safety Shut-Off Valves	Maxon or equal
Pressure Gauges	Miljocco or equal
Gas Control Valve	Maxon or equal
Pilot Shut-Off Valves	Maxon or equal

Combustion Chamber	
Shell Material	Minimum ¼” thick Carbon Steel
Internal Insulation (Shop Installed)	Ceramic Fiber Modules
Combustion Chamber Access Door	30” x 30” minimum opening size Davit Arm Assisted
Burner Site Port	2” Dia. Pyrex Glass with Air Purge
Temperature Elements	Duplex Type “K” Thermocouple Pyromation or equal
Residence Time *(volumetric basis)*	~0.5 Seconds @ 1,800°F and maximum flow rate
Total Combustion Chamber Volume *(mixing zone & combustion zone)*	~277 ft^3

Exhaust Stack	
Stack Discharge Height	60ft above grade
Stack Diameter	38” I.D. / 46” O.D.
Materials of Construction	Carbon Steel Shell Internally Insulated with Ceramic Fiber
Test Ports	Two (2) 3” NPT Threaded Pipe Nipples Set at 90° Apart
Stack Test Platform	Not Included
Other Features	Free Standing (no guy wires) Drain at Stack Base

Controls	
Control Panel Type	NEMA 4X – Outdoor Rated with Weather Hood & A/C Purged for Class I Div. II
Operator Interface	Allen Bradley PanelView or equal
Control Panel Standard	UL508a
Programmable Logic Controller (PLC)	Allen Bradley CompactLogix or equal
Burner Management System (BMS)	Siemens or equal
Communications Connection	Ethernet Switch
Voltage Main Control	480 VAC / 3 phase / 60 Hz 120 VAC / 1 phase / 60 Hz (via Conifer supplied transformer)

Process Valves	
Membrane Gas Process Isolation Valve	
Type / Size	Wafer Style Butterfly / 8”Ø Two (2) Total
Materials of Construction	Carbon Steel Body Stainless Steel Disk PTFE Seat
Actuator Type / Manufacturer	Spring Return Pneumatic / Fail Closed One (1) On-Off & One (1) Modulating Max-Air or equal
TSA Return Process Isolation Valve	
Type / Size	Wafer Style Butterfly / 10”Ø One (1) Total
Materials of Construction	Carbon Steel Body Stainless Steel Disk PTFE Seat
Actuator Type / Manufacturer	Spring Return Pneumatic / Fail Closed On-Off Max-Air or equal

Process Valves (continued)	
NRU Gas Process Isolation Valve	
Type / Size	Wafer Style Butterfly / 4"Ø Two (2) Total
Materials of Construction	Carbon Steel Body Stainless Steel Disk PTFE Seat
Actuator Type / Manufacturer	Spring Return Pneumatic / Fail Closed One (1) On-Off & One (1) Modulating Max-Air or equal

Primary Heat Exchanger – Dilution Air Pre-Heat	
Heat Exchanger Type	Crossflow Shell-and-Tube In-line Tube Bank
Materials of Construction	Carbon Steel Housing Internally Insulated with Ceramic Fiber 304 Stainless Steel Internals
Internal Expansion Joint	Included
Cold Side Inlet Design Conditions	Flow Rate: 2,200 SCFM Temperature: 70°F
Hot Side Inlet Design Conditions	Flow Rate: 7,210 SCFM Temperature: 1,200°F
Cold Side Outlet Temperature	805°F (clean, no bypass)
Hot Side Outlet Temperature	1,015°F (clean, no bypass)
Maximum Expected Heat Transfer Rate	~1,789,000 BTU/hr
Maximum Expected Heat Transfer Effectiveness	~65%
Expected Cold Side Pressure Drop	~2.0" w.c. (at design flow rate)
Expected Hot Side Pressure Drop	~3.0" w.c. (at design flow rate)
Maximum Design Differential Pressure from Cold Side to Hot Side	1.0 psig (PSV not included or required)
Cold Side Bypass	None
Hot Side Bypass	Rectangular Louver Dampers Refractory Lined with 330 Stainless Steel Metal Internals

Secondary Heat Exchanger – TSA Heater	
Heat Exchanger Type	Crossflow Shell-and-Tube In-line Tube Bank
Materials of Construction	Carbon Steel Housing Internally Insulated with Ceramic Fiber 304 Stainless Steel Internals
Internal Expansion Joint	Included
Cold Side Inlet Design Conditions	Flow Rate: 1,260 SCFM Temperature: 65°F
Hot Side Inlet Design Conditions	Flow Rate: 9,410 SCFM Temperature: 800°F
Cold Side Outlet Temperature	543°F (clean, no bypass)
Hot Side Outlet Temperature	722°F (clean, no bypass)
Maximum Expected Heat Transfer Rate	~919,000 BTU/hr
Maximum Expected Heat Transfer Effectiveness	~65%
Expected Cold Side Pressure Drop	~1.0” w.c. (at design flow rate)
Expected Hot Side Pressure Drop	~3.0” w.c. (at design flow rate)
Maximum Design Differential Pressure from Cold Side to Hot Side	5.0 psig (PSV included)
Cold Side Bypass	Wafer Style Butterfly Valves
Hot Side Bypass	Rectangular Louver Dampers Refractory Lined with 330 Stainless Steel Metal Internals

Miscellaneous	
Flame Arrestor	10” Flanged Connection Carbon Steel Housing Stainless Steel Element Protego or equal
Oxygen Analyzer	Rosemount or equal
Area Lighting	Not Included
Factory Mounting	Pre-piped and Pre-wired to maximum extent practical for shipping

Estimated Size	
Approximate Equipment Footprint	34ft X 42ft Note: Footprint dimensions may be altered to fit available space. Includes all fans and exhaust stack
Approximate Equipment Total Dry Weight	40,000 lbs

Enclosed RNG Flare

ZULE® Ultra Low Emissions Flare

Firm Technical Proposal

Prepared for:

Nick Bauer
of
Archaea Energy

For:
Coyote Canyon Landfill;
Newport Beach, California

Date:
October 6, 2023

John Zink reference number: 202203-268235REV11

Prepared by: Ben Pernu
Applications Engineer, Biogas Systems
(918) 234-2718
Ben.Pernu@kes.global

JOHN ZINK HAMWORTHY COMBUSTION®

ZULE® Ultra Low Emissions Flare

Firm Technical Proposal

Prepared for:

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of
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JOHN ZINK HAMWORTHY COMBUSTION®

Contents

EXECUTIVE SUMMARY

Scope:..... John Zink ZULE® Ultra-Low Emission Flare
(technical information and scope of supply follow)
Price: .....
Customer Submittal Schedule:..... 12 weeks after purchase order acceptance
Customer Approval Schedule: ..... 2 weeks after receipt of submittals
Fabrication Schedule: ..... 30 weeks after receiving approved submittal

INTRODUCTION

To satisfy your landfill gas flare requirements per your recent request, John Zink Company is pleased to offer a firm quote for our **ZULE® Ultra-Low Emissions Flare System.**

For over 80 years, the John Zink brand has ensured quality, innovative technology, and worldwide service in the combustion industry. John Zink has supplied **over 800 flare systems** for the biogas industry, giving us unparalleled expertise. Each flare system is made in our own 330,000 square foot manufacturing facility; and **we possess the resources to care for your flare at every stage of life**: from installation and startup of new flares, to repair and retrofits of existing flares. Our national network of sales representatives and field technicians means you will always have someone available to assist you in any issues that may arise with your flare, and our portable rental units and spare parts inventory can ensure continued compliance and quick turnaround in case of flare shutdown.

John Zink offers a range of features and options as listed in this proposal. Our intent is to supply the safest, most reliable and economical system available that will also allow you to customize your system to meet your specific needs. After reviewing the proposal, please let us know if there are any additional options you would like to pursue.

We look forward to working with you on this project, and if you require any additional information please do not hesitate to contact me at (918) 234-2718 or our local sales representative, Robert Erdmann, at 1-800-8-LOWNOX.

Change Log – REV5

- Page 4: Changed title of Stream 2 (Mode 2A) to match RFP verbiage;
  - Changed flow data and title of Stream 2 (Mode 2B) to match RFP data and verbiage.
  - Changed for data of Stream 5 (Mode 4A) to match RFP data.
- Page 5: Deleted VOCP blowdown and purge streams
  - Changed Stream 8 to Stream 6 for Modes 3, 5 and 6.
  - Amended enrichment gas requirements for new natural gas heating value (96.09% methane, 874 BTU/SCF)
- Page 7: Replaced provided OIP to reflect new John Zink standard
- Page 9: Replaced provided flow meters to reflect RFP verbiage.

Change Log – REV6

- Page 4: Added second stage permeate stream.
- Page 6: Corrected pilot operation from continuous to intermittent.
- Page 9: Replaced previously quoted hydrocarbon analyzer with continuously operating gas analyzer to provide methane and oxygen levels for air blower control.
- Page 12: Adjusted price due to material cost increases and scope changes.

Change Log – REV7

- Page 4: Increased fuel gas flow on permeate stream for consistent minimum flowrate across streams.
- Page 10: Removed one thermal mass flow meter from JZ project scope. Added a pressure transmitter with a low pressure shutdown to the pilot gas spool. Added clarifications regarding signals that will be sent to the John Zink control panel from end user provided monitoring equipment, an ultrasonic flow meter and a pressure transmitter.
- Page 13: Price adjustment to reflect removal of flow meter from project scope.

Change Log – REV8

- Page 9: Reduced diameter of flame arrester and block valve from 12 to 10 inches.
- Page 13: Price adjustment to reflect size reduction of page 9 components.

Change Log – REV9

- Page 4: Revised flow data for Stream 2C – second stage permeate gas.

Change Log – REV10

- Page 5: Revised flow data for Stream 4A – TSA purge gas; added mode 7, off-spec process gas.
- Page 6: Added language reflecting the addition of a second pilot
- Page 7: Revised stack diameter and ignition panel quantity, added language for flanged stack
- Page 10: Added extra 100 ft of thermocouple wire due to addition of second pilot

DESIGN CRITERIA

NOTE: One stream to the flare at a time. Stream selection and pressure regulation by others.

Flare Gas Stream 1

Type: ..... Mode 1 - process gas
Staging: ..... both stages
Composition: ..... 42.7% CH_4 +/- 1% (design)
balance CO_2, air, inerts, less than 5% O_2
Higher Heating Value: ..... 432 BTU/SCF (design)
Lower Heating Value: ..... 389 BTU/SCF (design)
Temperature: ..... 135.3°F
Flow Rate: ..... 3,000 SCFM (design normalized at 42.7% CH_4)
Minimum: ..... 1,100 SCFM (design normalized at 42.7% CH_4)
Heat Release (HHV): ..... 77.8 MMBTU/hr (design at 42.7% CH_4)
Heat Release (LHV): ..... 69.9 MMBTU/hr (design at 42.7% CH_4)

NOTE: *Hydrogen sulfide concentrations greater than 3,000 ppm may require special materials with potential commercial impact.*

Flare Gas Stream 2

Type: ..... Mode 2A - process gas
Staging: ..... both stages
Composition: ..... 42.7% CH_4 +/- 1% (design)
balance CO_2, air, inerts, less than 5% O_2
Higher Heating Value: ..... 432 BTU/SCF (design)
Lower Heating Value: ..... 389 BTU/SCF (design)
Temperature: ..... 108.4°F
Flow Rate: ..... 3,000 SCFM (design normalized at 42.7% CH_4)
Minimum: ..... 1,100 SCFM (design normalized at 42.7% CH_4)
Heat Release (HHV): ..... 77.8 MMBTU/hr (design at 42.7% CH_4)
Heat Release (LHV): ..... 69.9 MMBTU/hr (design at 42.7% CH_4)

.

Flare Gas Stream 3

Type: ..... Mode 2B - membrane gas
Staging: ..... both stages
Composition: ..... 70.4% CH_4 +/- 1% (design)
balance CO_2, air, inerts, less than 5% O_2
Higher Heating Value: ..... 712 BTU/SCF (design
Lower Heating Value: ..... 641 BTU/SCF (design)
Temperature: ..... 89.0°F
Flow Rate: ..... 1,729 SCFM (design normalized at 70.4% CH_4)
Minimum: ..... 650 SCFM (design normalized at 70.4% CH_4)
Heat Release (HHV): ..... 73.9 MMBTU/hr (design at 70.4% CH_4)
Heat Release (LHV): ..... 66.5 MMBTU/hr (design at 70.4% CH_4)

Flare Gas Stream 4

Type:	Mode 2C – second stage permeate gas
Staging:	First stage only
Composition:	28.6% CH_4 +/- 1% (design) balance CO_2, air, inerts, **up to 10% O_2**
Higher Heating Value:	289 BTU/SCF (design)
Lower Heating Value:	260 BTU/SCF (design)
Temperature:	89.0°F
Flow Rate:	300 SCFM (design normalized at 28.6% CH_4) 100 SCFM (minimum at 28.6% CH_4)
Initial Heat Release (HHV):	5.2 MMBTU/hr (design at 28.6% CH_4)
Initial Heat Release (LHV):	4.7 MMBTU/hr (design at 28.6% CH_4)
Fuel Gas Requirements:	**70 SCFM (maximum at 100 SCFM waste gas)**
Combined Heat Release (HHV):	**6.0 MMBTU/hr (design)**
Combined Heat Release (LHV):	**5.4 MMBTU/hr (design)**

Flare Gas Stream 5

Type:	Mode 4 - TSA blowdown
Staging:	First stage only
Composition:	42.7% CH_4 +/- 1% (design) balance CO_2, air, inerts, less than 5% O_2
Higher Heating Value:	432 BTU/SCF (design)
Lower Heating Value:	389 BTU/SCF (design)
Temperature:	37.9°F
Flow Rate:	419 SCFM decaying to 40 SCFM
Initial Heat Release (HHV):	10.9 MMBTU/hr (design at 42.7% CH_4)
Initial Heat Release (LHV):	9.8 MMBTU/hr (design at 42.7% CH_4)
Fuel Gas Requirements:	**90 SCFM (maximum at 40 SCFM waste gas)**
Combined Heat Release (HHV):	**6.5 MMBTU/hr (design)**
Combined Heat Release (LHV):	**5.8 MMBTU/hr (design)**

Flare Gas Stream 6

Type:	Mode 4A – TSA purge
Staging:	First stage only
Composition:	42.7% CH_4 (design); 42.7% to 8.4% CH_4 (range) balance CO_2, air, inerts, less than 5% O_2
Higher Heating Value:	432 BTU/SCF (design)
Lower Heating Value:	389 BTU/SCF (design)
Temperature:	89.0°F
Flow Rate:	1,284 SCFM +/- 1% (design at 42.7% CH_4)
Initial Heat Release (HHV):	33.3 MMBTU/hr (design at 42.7% CH_4)
Initial Heat Release (LHV):	29.9 MMBTU/hr (design at 42.7% CH_4)
Fuel Gas Requirements:	**290 SCFM at 8.4% CH_4 waste gas**
Combined Heat Release (HHV):	**24.2 MMBTU/hr (design)**
Combined Heat Release (LHV):	**21.7 MMBTU/hr (design)**

NOTE: *Low methane concentrations may require auxiliary fuel to initiate combustion and maintain temperature.*

Flare Gas Stream 7

Type:	Modes 3, 5 and 6: off-spec product gas
Staging:	both stages
Composition:	96.1% CH_4 +/- 1% (design) balance CO_2, air, inerts, less than 1% O_2
Higher Heating Value:	973 BTU/SCF (design)
Lower Heating Value:	875 BTU/SCF (design)
Temperature:	97.9°F
Flow Rate:	1,178 SCFM (design normalized at 96.1% CH_4)
Minimum:	500 SCFM (design normalized at 96.1% CH_4)
Heat Release (HHV):	68.8 MMBTU/hr (design at 96.1% CH_4)
Heat Release (LHV):	61.8 MMBTU/hr (design at 96.1% CH_4)

Flare Gas Stream 8

Type:	Mode 7: off-spec process gas
Staging:	First stage only
Composition:	15.4% CH_4 +/- 1% (design) balance CO_2, air, inerts, less than 1% O_2
Higher Heating Value:	156 BTU/SCF (design)
Lower Heating Value:	140 BTU/SCF (design)
Temperature:	97.9°F
Flow Rate:	551 SCFM (design normalized at 15.4% CH_4)
Heat Release (HHV):	5.2 MMBTU/hr (design at 15.4% CH_4)
Heat Release (LHV):	4.6 MMBTU/hr (design at 15.4% CH_4)
Fuel Gas Requirements:	**74 SCFM**
Combined Heat Release (HHV):	**9.6 MMBTU/hr (design)**
Combined Heat Release (LHV):	**8.7 MMBTU/hr (design)**

Mechanical

Design Wind Speed (ASCE 7-10; EXP C):	110 mph
Design Seismic (CBC 1613):	Zone 4
Ambient Temperature:	29°F to 94 °F
Ambient Pressure:	14.3 psia
Elevation:	750 feet above sea level
Electrical Area Classification:	Class 1 Div 2 Group D (flare) Unclassified (panel and air blower)

NOTE: *Heat tracing and insulating (by others) recommended to protect against freezing.*

Process

Smokeless Capacity:	100%
Operating Temperature:	1400 °F to 1800 °F (2000 °F shutdown)
Retention Time:	0.7 seconds at 1800 °F (minimum)
Required Flame Arrester Inlet Pressure:	15 inches of H_2O (design)

NOTE: *Low methane concentrations may require auxiliary fuel to initiate combustion and maintain temperature.*

Utilities

Pilot Gas (intermittent):	22 SCFH of propane at 7-10 psig (or) 50 SCFH of natural gas at 10-15 psig per pilot
Compressed Air (or Nitrogen):	80 PSIG (regulated, clean and dry)
Electricity:	480 V, 3 phase, 60 Hz for motor control; transformer provided for 120 V, single phase for control system components
Auxiliary Fuel:	enrichment gas required as described above

EQUIPMENT DETAILS

FLARE

Quantity:	one (1); flanged into two sections for field assembly
Material:	carbon steel stack
Nominal Diameter:	13 ft.
Nominal Height:	40 ft.
Interior Protection:	
Insulation:	one (1) 1 in. thick 8 lb density ceramic fiber blanket insulation, backed by one (1) 1 in. thick 6 lb density ceramic fiber blanket insulation, each rated 2200 °F minimum; stainless steel rain cap to protect refractory
Insulation Anchoring:	Inconel 601 pins and keepers
Surface Preparation:	SSPC-SP-6 sandblast;
Primer:	*Sherwin Williams Heat Flex 1200*, 5 - 6 mils DFT (two coats)
Rigidizer	KAOWOOL spray-on rigidizer to protect the insulation.
External Coating:	
Surface Preparation:	SSPC-SP-6 sandblast;
Primer:	inorganic rich zinc primer, 2 - 4 mils DFT (one coat)
Automatic dampers:	four (4) (One hinged for easy interior access)
Damper actuators:	explosion proof
Manifold Construction:	carbon steel
Inlet Diameter:	12 in.
Flare Tips:	four (4), each with one type K thermocouple
Flare Tip Construction:	Portions 304 and 310 stainless; ceramic burner can
Burner Staging:	two stages
Second Stage Cooling Fan:	¾ HP, 700 CFM (shipped loose for field installation)
Stack Thermocouple Connections:	three (3), each with one type K thermocouple
Sample Ports:	four (4)
Sight Ports:	two (2)
Pilot Ignition (Qty 2):	electronic spark ignitors; NEMA 7 ignition panels
Flame Scanner:	one (1) Honeywell UV scanner (or equal)
Purge Blower:	**continuous** purge provided by combustion air blower and cooling fan
Structural Anchoring:	AISC continuous base plate
Ladder:	one (1) 40 ft. ladder including fall protection with one (1) harness.
Lifting Lugs:	two (2)
Premix chamber:	included with static mixer assembly and manway

SHIPPED LOOSE EQUIPMENT

Combustion Air Blower:

- Quantity: ..... one (1)
- Flowrate: ..... 20,000 SCFM
- Inlet Suction: ..... -5 inches of H_2O
- Outlet Pressure: ..... 15 inches of H_2O
- Motor Power: ..... 75 HP
- Motor Control: NEMA 3R variable frequency drive (see below for additional details)
- Motor Enclosure: ..... TEFC (NEMA)
- Outlet Attachments: ..... flexible expansion joint
- Manufacturer: ..... Chicago Blower (or equal)
- Accessories:
  - Inlet Venturi Style Flow Meter: ..... one (1) included, Aeroacoustics (or equal)
  - Inlet Rainhood & Filter: ..... one (1) included
  - Silencer: ..... one (1) included
  - Pressure Gauge: ..... one (1) included

Combustion Air Blower VFD:

- Quantity: ..... one (1)
- Enclosure: ..... NEMA 3R
- Motor Power: ..... 75 HP
- Power Input: 480V, 3ph, 60hz
- Drive Manufacturer: ..... FUJI

Automatic Ignition and Control Station:

- Panel Rack: ..... one (1); including the following:
- Power transformer: ..... 480V to 120V
- Control Panel:
  - Quantity ..... one (1)
  - Certification ..... Underwriters Laboratory
  - Enclosure ..... weatherproof
  - PLC ..... Allen Bradley CompactLogix
  - Communication ..... via Ethernet/IP
    - signals: ..... remote start/stop (discrete signal)
      flare status (discrete signal)
      waste gas flow in SCFM (analog signal)
      fuel gas flow in SCFM (analog signal)
      flare temperature in degrees F (analog signal)
  - Operator Touchscreen ..... 12” Tru-Vue (or equal) Color Operator Interface Panel
  - Flame Scanner Relay ..... one (1) UV flame scanner control relay
  - Control Panel Weatherhood: ..... included with LED panel light
  - Emergency Stop Button ..... one (1)

Flame Arrester:

Quantity:	one (1)
Diameter:	10 in.
Style:	eccentric
Housing material:	aluminum
Internals material:	stainless steel
Internals monitoring:	one (1) Dwyer differential pressure gauge one (1) type K thermocouple
Manufacturer:	Enardo (or equal)

Second Stage Duct Block Valve:

Quantity:	one (1)
Diameter:	36 in.
Style:	lug
Actuator:	piston with spring return, fail closed
Body material:	carbon steel
Disk:	316 stainless steel
Seat:	PTFE
Manufacturer:	Apollo (or equal)

Automatic Block Valve:

Quantity:	three (3); one for waste gas, two for stage cooling fan
Diameter:	one (1) 10 in.; two (2) 6 in.
Style:	lug
Actuator:	pneumatic, fail closed
Body material:	carbon steel
Disk:	316 stainless steel
Seat:	PTFE
Manufacturer:	Xomox (or equal)

Pressure Control Valve:

Quantity:	one (1)
Diameter:	10 in.
Style:	lug
Actuator:	pneumatic, fail closed
Body material:	carbon steel
Disk:	316 stainless steel
Seat:	PTFE
Manufacturer:	Apollo (or equal)

Rack Mounted Gas Analyzer:

Quantity:	one (1), for air blower control
Measurement:	CH_4 and O_2
Sample Pump:	included
Autocalibration Package:	included
Manufacturer:	QED Environmental (or equal)

Flow Meter:

Quantity:	one (1) for fuel gas **(ultrasonic flow meter to be provided by end user to provide 4-20 signals for flowrate in SCFM as well as molecular weight of waste gas stream)**
Type:	thermal mass
Probe material:	316 stainless steel, Teflon coated
Manufacturer:	Endress and Hauser (or equal)

Ancillary Equipment:

Pressure Transmitter:	two (2), one for mixing chamber monitoring (high pressure shutdown), one for pilot gas monitoring (low pressure shutdown) **(additional pressure transmitter for inlet pipe monitoring to be provided by end user; will provide interlock, preventing flare startup if piping pressure is too high)**
Pilot Gas Spool:	one (1) including, ½" piping, solenoid valve, pressure regulator with carbon steel body, four manual valves, pressure gauge, two strainers, manual globe valve
Fuel Gas Spool:	one (1) including modulating flow control valve, automated ball valve, two manual valves, pressure regulator with carbon steel body, pressure gauge, strainer
Thermocouple Wire:	900 ft.
Ignition Wire:	25 ft.

Expected Flare Pre-Mix Emission Range – Waste Gas Streams 1, 2, 3, 4, 6, 7(Design Flow)

Operating Temperature	1600°F	1800°F
Smokeless Capacity	100%	100%
Methane Destruction Efficiency	99%	99%
NOx, lb / MMBTU(1)	0.025	0.025
CO, lb / MMBTU(2)	0.06	0.05
VOC Destruction Efficiency (3)	98%	98%

(1) Excludes NOx from fixed nitrogen.
(2) Excludes CO contribution present in the gas.
(3) VOC Emissions of 0.038 lb/MMBTU is achievable based on a maximum inlet VOC concentration of 5,000 ppm as methane.

NOTE: *Expected emissions are based on field tests of operating units and the higher heating value (HHV) of the gas. Destruction efficiency, NOx, and CO emissions shown are valid for combustion of specified gas only. Expected emissions are not guaranteed unless expressly stated elsewhere in this proposal.*

Expected Flare Pre-Mix Emission Range – Waste Gas Streams 5, 8 (Design Flow)

Operating Temperature	1600°F	1800°F
Smokeless Capacity	100%	100%
Methane Destruction Efficiency	99%	99%
NOx, lb / MMBTU(1)	0.06	0.08
CO, lb / MMBTU(2)	0.15	0.2
VOC Destruction Efficiency (3)	98%	98%

(1) Excludes NOx from fixed nitrogen.
(2) Excludes CO contribution present in the gas.
(3) VOC Emissions of 0.038 lb/MMBTU is achievable based on a maximum inlet VOC concentration of 5,000 ppm as methane.

NOTE: *Expected emissions are based on field tests of operating units and the higher heating value (HHV) of the gas. Destruction efficiency, NOx, and CO emissions shown are valid for combustion of specified gas only. Expected emissions are not guaranteed unless expressly stated elsewhere in this proposal.*

Contents

EXECUTIVE SUMMARY

Scope:..... John Zink ZULE® Ultra-Low Emission Flare
(technical information and scope of supply follow)
Price: .....
Customer Submittal Schedule:..... 12 weeks after purchase order acceptance
Customer Approval Schedule: ..... 2 weeks after receipt of submittals
Fabrication Schedule: ..... 30 weeks after receiving approved submittal

INTRODUCTION

To satisfy your landfill gas flare requirements per your recent request, John Zink Company is pleased to offer a firm quote for our **ZULE® Ultra-Low Emissions Flare System.**

For over 80 years, the John Zink brand has ensured quality, innovative technology, and worldwide service in the combustion industry. John Zink has supplied **over 800 flare systems** for the biogas industry, giving us unparalleled expertise. Each flare system is made in our own 330,000 square foot manufacturing facility; and **we possess the resources to care for your flare at every stage of life**: from installation and startup of new flares, to repair and retrofits of existing flares. Our national network of sales representatives and field technicians means you will always have someone available to assist you in any issues that may arise with your flare, and our portable rental units and spare parts inventory can ensure continued compliance and quick turnaround in case of flare shutdown.

John Zink offers a range of features and options as listed in this proposal. Our intent is to supply the safest, most reliable and economical system available that will also allow you to customize your system to meet your specific needs. After reviewing the proposal, please let us know if there are any additional options you would like to pursue.

We look forward to working with you on this project, and if you require any additional information please do not hesitate to contact me at (918) 234-2718 or our local sales representative, Robert Erdmann, at 1-800-8-LOWNOX.

Change Log – REV5

- Page 4: Changed title of Stream 2 (Mode 2A) to match RFP verbiage;
  - Changed flow data and title of Stream 2 (Mode 2B) to match RFP data and verbiage.
  - Changed for data of Stream 5 (Mode 4A) to match RFP data.
- Page 5: Deleted VOCP blowdown and purge streams
  - Changed Stream 8 to Stream 6 for Modes 3, 5 and 6.
  - Amended enrichment gas requirements for new natural gas heating value (96.09% methane, 874 BTU/SCF)
- Page 7: Replaced provided OIP to reflect new John Zink standard
- Page 9: Replaced provided flow meters to reflect RFP verbiage.

Change Log – REV6

- Page 4: Added second stage permeate stream.
- Page 6: Corrected pilot operation from continuous to intermittent.
- Page 9: Replaced previously quoted hydrocarbon analyzer with continuously operating gas analyzer to provide methane and oxygen levels for air blower control.
- Page 12: Adjusted price due to material cost increases and scope changes.

Change Log – REV7

- Page 4: Increased fuel gas flow on permeate stream for consistent minimum flowrate across streams.
- Page 10: Removed one thermal mass flow meter from JZ project scope. Added a pressure transmitter with a low pressure shutdown to the pilot gas spool. Added clarifications regarding signals that will be sent to the John Zink control panel from end user provided monitoring equipment, an ultrasonic flow meter and a pressure transmitter.
- Page 13: Price adjustment to reflect removal of flow meter from project scope.

Change Log – REV8

- Page 9: Reduced diameter of flame arrester and block valve from 12 to 10 inches.
- Page 13: Price adjustment to reflect size reduction of page 9 components.

Change Log – REV9

- Page 4: Revised flow data for Stream 2C – second stage permeate gas.

Change Log – REV10

- Page 5: Revised flow data for Stream 4A – TSA purge gas; added mode 7, off-spec process gas.
- Page 6: Added language reflecting the addition of a second pilot
- Page 7: Revised stack diameter and ignition panel quantity, added language for flanged stack
- Page 10: Added extra 100 ft of thermocouple wire due to addition of second pilot

DESIGN CRITERIA

NOTE: One stream to the flare at a time. Stream selection and pressure regulation by others.

Flare Gas Stream 1

Type: ..... Mode 1 - process gas
Staging: ..... both stages
Composition: ..... 42.7% CH_4 +/- 1% (design)
balance CO_2, air, inerts, less than 5% O_2
Higher Heating Value: ..... 432 BTU/SCF (design)
Lower Heating Value: ..... 389 BTU/SCF (design)
Temperature: ..... 135.3°F
Flow Rate: ..... 3,000 SCFM (design normalized at 42.7% CH_4)
Minimum: ..... 1,100 SCFM (design normalized at 42.7% CH_4)
Heat Release (HHV): ..... 77.8 MMBTU/hr (design at 42.7% CH_4)
Heat Release (LHV): ..... 69.9 MMBTU/hr (design at 42.7% CH_4)

NOTE: *Hydrogen sulfide concentrations greater than 3,000 ppm may require special materials with potential commercial impact.*

Flare Gas Stream 2

Type: ..... Mode 2A - process gas
Staging: ..... both stages
Composition: ..... 42.7% CH_4 +/- 1% (design)
balance CO_2, air, inerts, less than 5% O_2
Higher Heating Value: ..... 432 BTU/SCF (design)
Lower Heating Value: ..... 389 BTU/SCF (design)
Temperature: ..... 108.4°F
Flow Rate: ..... 3,000 SCFM (design normalized at 42.7% CH_4)
Minimum: ..... 1,100 SCFM (design normalized at 42.7% CH_4)
Heat Release (HHV): ..... 77.8 MMBTU/hr (design at 42.7% CH_4)
Heat Release (LHV): ..... 69.9 MMBTU/hr (design at 42.7% CH_4)

.

Flare Gas Stream 3

Type: ..... Mode 2B - membrane gas
Staging: ..... both stages
Composition: ..... 70.4% CH_4 +/- 1% (design)
balance CO_2, air, inerts, less than 5% O_2
Higher Heating Value: ..... 712 BTU/SCF (design
Lower Heating Value: ..... 641 BTU/SCF (design)
Temperature: ..... 89.0°F
Flow Rate: ..... 1,729 SCFM (design normalized at 70.4% CH_4)
Minimum: ..... 650 SCFM (design normalized at 70.4% CH_4)
Heat Release (HHV): ..... 73.9 MMBTU/hr (design at 70.4% CH_4)
Heat Release (LHV): ..... 66.5 MMBTU/hr (design at 70.4% CH_4)

Flare Gas Stream 4

Type: ..... Mode 2C – second stage permeate gas
Staging: ..... First stage only
Composition: ..... 28.6% CH_4 +/- 1% (design)
balance CO_2, air, inerts, **up to 10% O_2**
Higher Heating Value: ..... 289 BTU/SCF (design)
Lower Heating Value: ..... 260 BTU/SCF (design)
Temperature: ..... 89.0°F
Flow Rate: ..... 300 SCFM (design normalized at 28.6% CH_4)
100 SCFM (minimum at 28.6% CH_4)
Initial Heat Release (HHV): ..... 5.2 MMBTU/hr (design at 28.6% CH_4)
Initial Heat Release (LHV): ..... 4.7 MMBTU/hr (design at 28.6% CH_4)
Fuel Gas Requirements: ..... 70 SCFM (maximum at 100 SCFM waste gas)
Combined Heat Release (HHV): ..... 6.0 MMBTU/hr (design)
Combined Heat Release (LHV): ..... 5.4 MMBTU/hr (design)

Flare Gas Stream 5

Type: ..... Mode 4 - TSA blowdown
Staging: ..... First stage only
Composition: ..... 42.7% CH_4 +/- 1% (design)
balance CO_2, air, inerts, less than 5% O_2
Higher Heating Value: ..... 432 BTU/SCF (design)
Lower Heating Value: ..... 389 BTU/SCF (design)
Temperature: ..... 37.9°F
Flow Rate: ..... 419 SCFM decaying to 40 SCFM
Initial Heat Release (HHV): ..... 10.9 MMBTU/hr (design at 42.7% CH_4)
Initial Heat Release (LHV): ..... 9.8 MMBTU/hr (design at 42.7% CH_4)
Fuel Gas Requirements: ..... 90 SCFM (maximum at 40 SCFM waste gas)
Combined Heat Release (HHV): ..... 6.5 MMBTU/hr (design)
Combined Heat Release (LHV): ..... 5.8 MMBTU/hr (design)

Flare Gas Stream 6

Type: ..... Mode 4A – TSA purge
Staging: ..... First stage only
Composition: ..... 42.7% CH_4 (design); 42.7% to 8.4% CH_4 (range)
balance CO_2, air, inerts, less than 5% O_2
Higher Heating Value: ..... 432 BTU/SCF (design)
Lower Heating Value: ..... 389 BTU/SCF (design)
Temperature: ..... 89.0°F
Flow Rate: ..... 1,284 SCFM +/- 1% (design at 42.7% CH_4)
Initial Heat Release (HHV): ..... 33.3 MMBTU/hr (design at 42.7% CH_4)
Initial Heat Release (LHV): ..... 29.9 MMBTU/hr (design at 42.7% CH_4)
Fuel Gas Requirements: ..... 290 SCFM at 8.4% CH_4 waste gas
Combined Heat Release (HHV): ..... 24.2 MMBTU/hr (design)
Combined Heat Release (LHV): ..... 21.7 MMBTU/hr (design)

NOTE: *Low methane concentrations may require auxiliary fuel to initiate combustion and maintain temperature.*

Flare Gas Stream 7

Type:	Modes 3, 5 and 6: off-spec product gas
Staging:	both stages
Composition:	96.1% CH_4 +/- 1% (design) balance CO_2, air, inerts, less than 1% O_2
Higher Heating Value:	973 BTU/SCF (design)
Lower Heating Value:	875 BTU/SCF (design)
Temperature:	97.9°F
Flow Rate:	1,178 SCFM (design normalized at 96.1% CH_4)
Minimum:	500 SCFM (design normalized at 96.1% CH_4)
Heat Release (HHV):	68.8 MMBTU/hr (design at 96.1% CH_4)
Heat Release (LHV):	61.8 MMBTU/hr (design at 96.1% CH_4)

Flare Gas Stream 8

Type:	Mode 7: off-spec process gas
Staging:	First stage only
Composition:	15.4% CH_4 +/- 1% (design) balance CO_2, air, inerts, less than 1% O_2
Higher Heating Value:	156 BTU/SCF (design)
Lower Heating Value:	140 BTU/SCF (design)
Temperature:	97.9°F
Flow Rate:	551 SCFM (design normalized at 15.4% CH_4)
Heat Release (HHV):	5.2 MMBTU/hr (design at 15.4% CH_4)
Heat Release (LHV):	4.6 MMBTU/hr (design at 15.4% CH_4)
Fuel Gas Requirements:	**74 SCFM**
Combined Heat Release (HHV):	**9.6 MMBTU/hr (design)**
Combined Heat Release (LHV):	**8.7 MMBTU/hr (design)**

Mechanical

Design Wind Speed (ASCE 7-10; EXP C):	110 mph
Design Seismic (CBC 1613):	Zone 4
Ambient Temperature:	29°F to 94 °F
Ambient Pressure:	14.3 psia
Elevation:	750 feet above sea level
Electrical Area Classification:	Class 1 Div 2 Group D (flare) Unclassified (panel and air blower)

NOTE: *Heat tracing and insulating (by others) recommended to protect against freezing.*

Process

Smokeless Capacity:	100%
Operating Temperature:	1400 °F to 1800 °F (2000 °F shutdown)
Retention Time:	0.7 seconds at 1800 °F (minimum)
Required Flame Arrester Inlet Pressure:	15 inches of H_2O (design)

NOTE: *Low methane concentrations may require auxiliary fuel to initiate combustion and maintain temperature.*

Utilities

Pilot Gas (intermittent):	22 SCFH of propane at 7-10 psig (or) 50 SCFH of natural gas at 10-15 psig per pilot
Compressed Air (or Nitrogen):	80 PSIG (regulated, clean and dry)
Electricity:	480 V, 3 phase, 60 Hz for motor control; transformer provided for 120 V, single phase for control system components
Auxiliary Fuel:	enrichment gas required as described above

EQUIPMENT DETAILS

FLARE

Quantity:	one (1); flanged into two sections for field assembly
Material:	carbon steel stack
Nominal Diameter:	13 ft.
Nominal Height:	40 ft.
Interior Protection:	
Insulation:	one (1) 1 in. thick 8 lb density ceramic fiber blanket insulation, backed by one (1) 1 in. thick 6 lb density ceramic fiber blanket insulation, each rated 2200 °F minimum; stainless steel rain cap to protect refractory
Insulation Anchoring:	Inconel 601 pins and keepers
Surface Preparation:	SSPC-SP-6 sandblast;
Primer:	*Sherwin Williams Heat Flex 1200*, 5 - 6 mils DFT (two coats)
Rigidizer	KAOWOOL spray-on rigidizer to protect the insulation.
External Coating:	
Surface Preparation:	SSPC-SP-6 sandblast;
Primer:	inorganic rich zinc primer, 2 - 4 mils DFT (one coat)
Automatic dampers:	four (4) (One hinged for easy interior access)
Damper actuators:	explosion proof
Manifold Construction:	carbon steel
Inlet Diameter:	12 in.
Flare Tips:	four (4), each with one type K thermocouple
Flare Tip Construction:	Portions 304 and 310 stainless; ceramic burner can
Burner Staging:	two stages
Second Stage Cooling Fan:	¾ HP, 700 CFM (shipped loose for field installation)
Stack Thermocouple Connections:	three (3), each with one type K thermocouple
Sample Ports:	four (4)
Sight Ports:	two (2)
Pilot Ignition (Qty 2):	electronic spark ignitors; NEMA 7 ignition panels
Flame Scanner:	one (1) Honeywell UV scanner (or equal)
Purge Blower:	**continuous** purge provided by combustion air blower and cooling fan
Structural Anchoring:	AISC continuous base plate
Ladder:	one (1) 40 ft. ladder including fall protection with one (1) harness.
Lifting Lugs:	two (2)
Premix chamber:	included with static mixer assembly and manway

SHIPPED LOOSE EQUIPMENT

Combustion Air Blower:

- Quantity: ..... one (1)
- Flowrate: ..... 20,000 SCFM
- Inlet Suction: ..... -5 inches of H_2O
- Outlet Pressure: ..... 15 inches of H_2O
- Motor Power: ..... 75 HP
- Motor Control: NEMA 3R variable frequency drive (see below for additional details)
- Motor Enclosure: ..... TEFC (NEMA)
- Outlet Attachments: ..... flexible expansion joint
- Manufacturer: ..... Chicago Blower (or equal)
- Accessories:
  - Inlet Venturi Style Flow Meter: ..... one (1) included, Aeroacoustics (or equal)
  - Inlet Rainhood & Filter: ..... one (1) included
  - Silencer: ..... one (1) included
  - Pressure Gauge: ..... one (1) included

Combustion Air Blower VFD:

- Quantity: ..... one (1)
- Enclosure: ..... NEMA 3R
- Motor Power: ..... 75 HP
- Power Input: 480V, 3ph, 60hz
- Drive Manufacturer: ..... FUJI

Automatic Ignition and Control Station:

- Panel Rack: ..... one (1); including the following:
- Power transformer: ..... 480V to 120V
- Control Panel:
  - Quantity ..... one (1)
  - Certification ..... Underwriters Laboratory
  - Enclosure ..... weatherproof
  - PLC ..... Allen Bradley CompactLogix
  - Communication ..... via Ethernet/IP
    - signals: ..... remote start/stop (discrete signal)
      flare status (discrete signal)
      waste gas flow in SCFM (analog signal)
      fuel gas flow in SCFM (analog signal)
      flare temperature in degrees F (analog signal)
  - Operator Touchscreen ..... 12” Tru-Vue (or equal) Color Operator Interface Panel
  - Flame Scanner Relay ..... one (1) UV flame scanner control relay
  - Control Panel Weatherhood: ..... included with LED panel light
  - Emergency Stop Button ..... one (1)

Flame Arrester:

- Quantity: ..... one (1)
- Diameter: ..... 10 in.
- Style: ..... eccentric
- Housing material: ..... aluminum
- Internals material: ..... stainless steel
- Internals monitoring: ..... one (1) Dwyer differential pressure gauge
  one (1) type K thermocouple
- Manufacturer: ..... Enardo (or equal)

Second Stage Duct Block Valve:

- Quantity: ..... one (1)
- Diameter: ..... 36 in.
- Style: ..... lug
- Actuator: ..... piston with spring return, fail closed
- Body material: ..... carbon steel
- Disk: ..... 316 stainless steel
- Seat: ..... PTFE
- Manufacturer: ..... Apollo (or equal)

Automatic Block Valve:

- Quantity: ..... three (3); one for waste gas, two for stage cooling fan
- Diameter: ..... one (1) 10 in.; two (2) 6 in.
- Style: ..... lug
- Actuator: ..... pneumatic, fail closed
- Body material: ..... carbon steel
- Disk: ..... 316 stainless steel
- Seat: ..... PTFE
- Manufacturer: ..... Xomox (or equal)

Pressure Control Valve:

- Quantity: ..... one (1)
- Diameter: ..... 10 in.
- Style: ..... lug
- Actuator: ..... pneumatic, fail closed
- Body material: ..... carbon steel
- Disk: ..... 316 stainless steel
- Seat: ..... PTFE
- Manufacturer: ..... Apollo (or equal)

Rack Mounted Gas Analyzer:

- Quantity: ..... one (1), for air blower control
- Measurement: ..... CH_4 and O_2
- Sample Pump: ..... included
- Autocalibration Package: ..... included
- Manufacturer: ..... QED Environmental (or equal)

Flow Meter:

Quantity:	one (1) for fuel gas **(ultrasonic flow meter to be provided by end user to provide 4-20 signals for flowrate in SCFM as well as molecular weight of waste gas stream)**
Type:	thermal mass
Probe material:	316 stainless steel, Teflon coated
Manufacturer:	Endress and Hauser (or equal)

Ancillary Equipment:

Pressure Transmitter:	two (2), one for mixing chamber monitoring (high pressure shutdown), one for pilot gas monitoring (low pressure shutdown) **(additional pressure transmitter for inlet pipe monitoring to be provided by end user; will provide interlock, preventing flare startup if piping pressure is too high)**
Pilot Gas Spool:	one (1) including, ½" piping, solenoid valve, pressure regulator with carbon steel body, four manual valves, pressure gauge, two strainers, manual globe valve
Fuel Gas Spool:	one (1) including modulating flow control valve, automated ball valve, two manual valves, pressure regulator with carbon steel body, pressure gauge, strainer
Thermocouple Wire:	900 ft.
Ignition Wire:	25 ft.

Expected Flare Pre-Mix Emission Range – Waste Gas Streams 1, 2, 3, 4, 6, 7(Design Flow)

Operating Temperature	1600°F	1800°F
Smokeless Capacity	100%	100%
Methane Destruction Efficiency	99%	99%
NOx, lb / MMBTU(1)	0.025	0.025
CO, lb / MMBTU(2)	0.06	0.05
VOC Destruction Efficiency (3)	98%	98%

(1) Excludes NOx from fixed nitrogen.
(2) Excludes CO contribution present in the gas.
(3) VOC Emissions of 0.038 lb/MMBTU is achievable based on a maximum inlet VOC concentration of 5,000 ppm as methane.

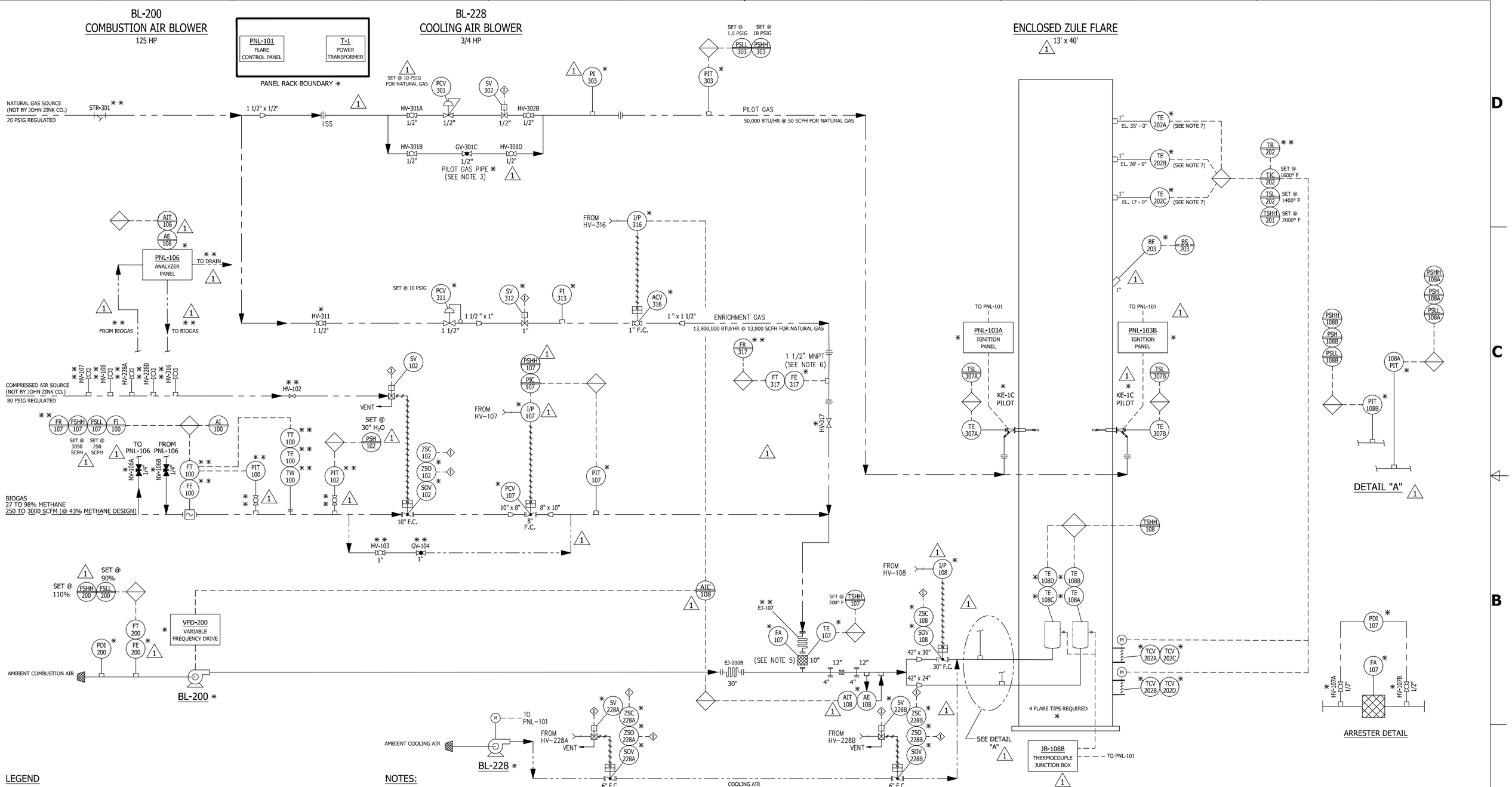
NOTE: *Expected emissions are based on field tests of operating units and the higher heating value (HHV) of the gas. Destruction efficiency, NOx, and CO emissions shown are valid for combustion of specified gas only. Expected emissions are not guaranteed unless expressly stated elsewhere in this proposal.*

Expected Flare Pre-Mix Emission Range – Waste Gas Streams 5, 8 (Design Flow)

Operating Temperature	1600°F	1800°F
Smokeless Capacity	100%	100%
Methane Destruction Efficiency	99%	99%
NOx, lb / MMBTU(1)	0.06	0.08
CO, lb / MMBTU(2)	0.15	0.2
VOC Destruction Efficiency (3)	98%	98%

(1) Excludes NOx from fixed nitrogen.
(2) Excludes CO contribution present in the gas.
(3) VOC Emissions of 0.038 lb/MMBTU is achievable based on a maximum inlet VOC concentration of 5,000 ppm as methane.

NOTE: *Expected emissions are based on field tests of operating units and the higher heating value (HHV) of the gas. Destruction efficiency, NOx, and CO emissions shown are valid for combustion of specified gas only. Expected emissions are not guaranteed unless expressly stated elsewhere in this proposal.*



LEGEND

- FIELD MOUNTED INSTRUMENT
- REMOTE PANEL MOUNTED NORMALLY ACCESSIBLE TO OPERATOR
- LOCAL PANEL MOUNTED NORMALLY ACCESSIBLE TO OPERATOR
- REMOTE SUB-PANEL MOUNTED NORMALLY INACCESSIBLE TO OPERATOR
- LOCAL SUB-PANEL MOUNTED NORMALLY INACCESSIBLE TO OPERATOR
- LOCATED IN PROCESSOR (PLC)
- INTERLOCK TO/FROM CONTROL PANEL.
- PIPE & FITTINGS BY OTHERS (NOT BY KOCH ENGINEERED SOLUTIONS)
- ELECTRICAL INTERCONNECTIONS
- INSTRUMENT CONTROL AIR LINE
- PIPE & FITTINGS BY KOCH ENGINEERED SOLUTIONS

NOTES:

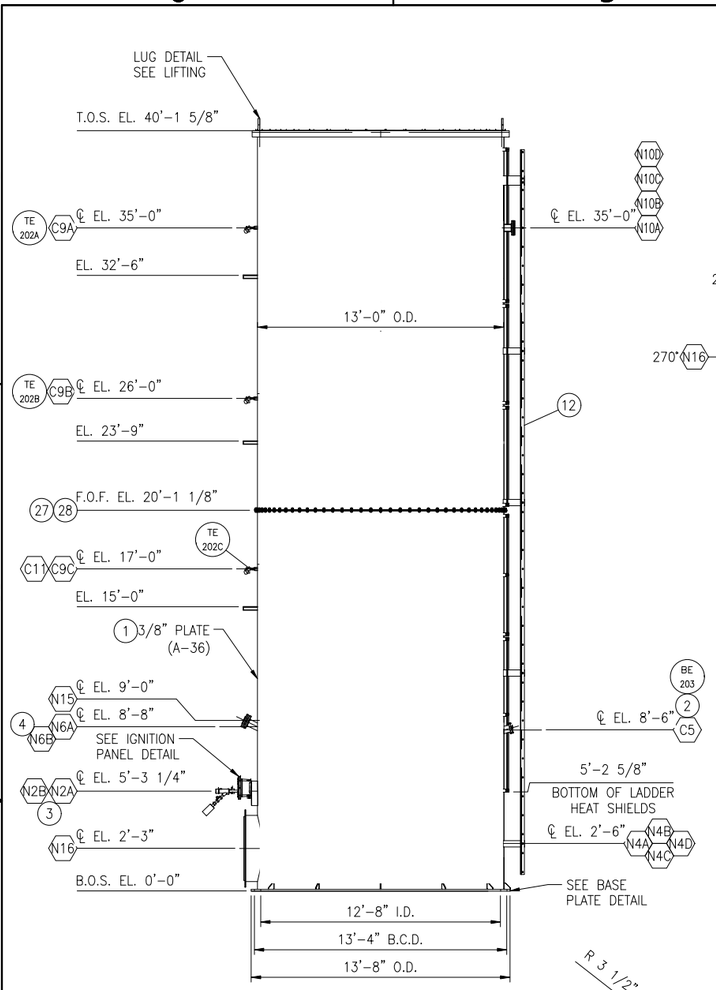
1. ✳ SUPPLIED BY JOHN ZINK CO. AND SHIPPED LOOSE FOR FIELD INSTALLATION
   ✳✳ SUPPLIED BY OTHERS (NOT BY JOHN ZINK CO.)
2. ELECTRICAL AREA CLASSIFICATION: NON-HAZARDOUS: CLASS 1, DIVISION 2 GROUP D, (FLARE ONLY).
3. MOUNT PILOT GAS PIPE WITHIN 5 FT OF FLARE INLET FLANGE.
4. THERMOCOUPLE WIRE AND IGNITION WIRE SUPPLIED BY JOHN ZINK CO. AND SHIPPED LOOSE FOR FIELD INSTALLATION.
5. LOCATE ARRESTER AT FLANGE INLET FLANGE WITH 5 INTERNAL PIPE DIAMETERS OF STRAIGHT UNDISTURBED FLOW UPSTREAM.
6. LOCATE FLOW ELEMENT WITH 10 INTERNAL PIPE DIAMETERS OF STRAIGHT UNDISTURBED FLOW UPSTREAM AND 5 INTERNAL PIPE DIAMETERS DOWNSTREAM.
7. SELECTION OF TEMPERATURE CONTROL THERMOCOUPLE (TE-202) DEPENDS ON METHANE CONTENT AND GAS FLOW. IMPROPER OPERATION MAY RESULT IF INCORRECT ELEVATION IS SELECTED.
8. APPLY UNDERWRITERS LABORATORIES LABEL (UL 508A) TO EACH PANEL PNL-101.

B3-82

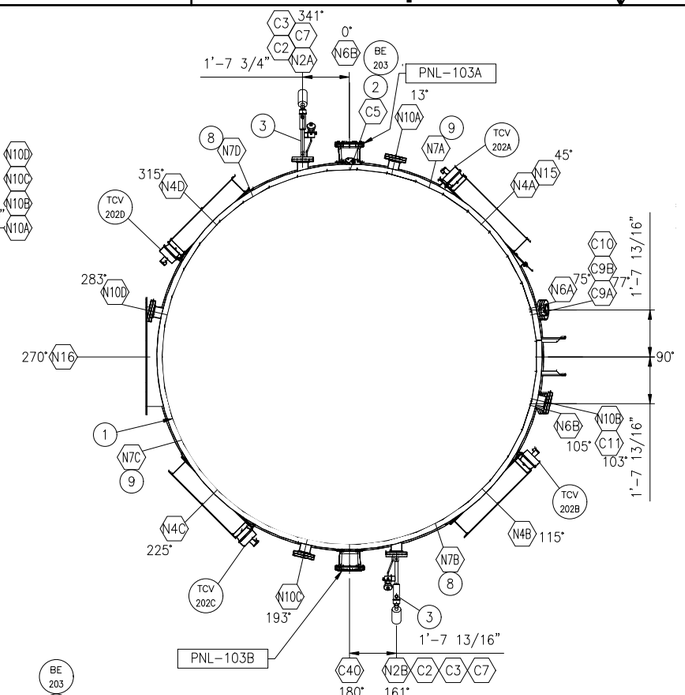
REV	DESCRIPTION	DWN	CHK	APPV	DATE
1	PER CUSTOMER COMMENT	LMS	TM	BMP	06NOV23
0	INITIAL RELEASE	ADH	TM	BMP	14AUG23

JOHN ZINK HAMWORTHY COMBUSTION®
A KOCH ENGINEERED SOLUTIONS COMPANY
JOHN ZINK COMPANY, LLC

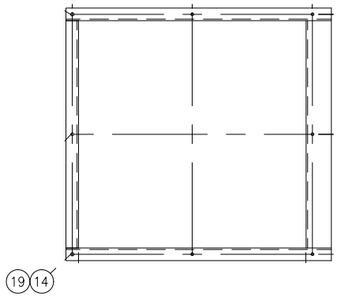
FOR: ARCHAEA ENERGY	TITLE: PIPING AND INSTRUMENT DIAGRAM ENCLOSED ZULE® BIOGAS FLARE
USER: COYOTE CANYON LANDFILL	
JOBSITE: NEWPORT BEACH, CA	
	CUSTOMER TAG: / ITEM NO:
PO NO: HLD-11156	
PROJECT NO: F00008644	THIRD ANGLE: / DRAWING NUMBER: K00209629-BG00-001-1500-001 / REV 1
ASSET NO: K00209629	



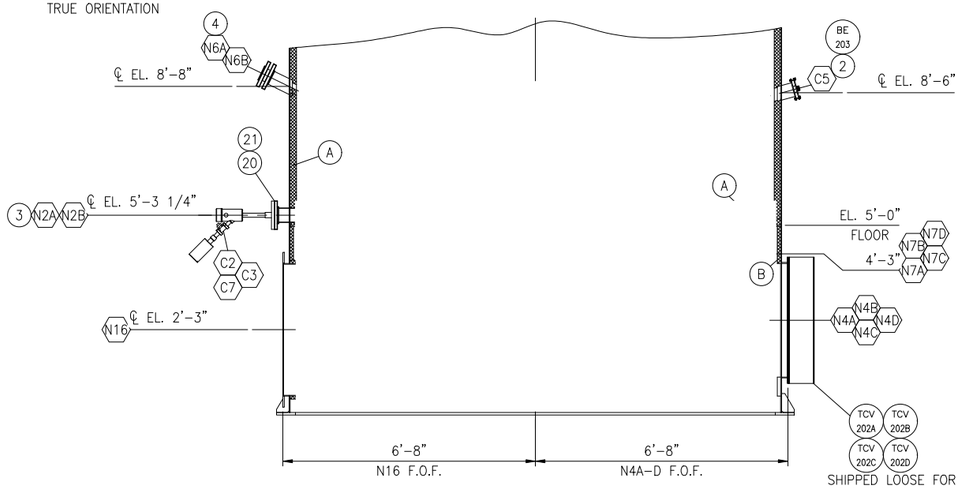
ELEVATION
NOT TRUE ORIENTATION



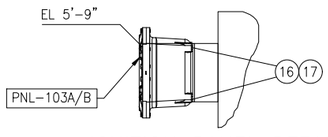
PLAN VIEW
TRUE ORIENTATION



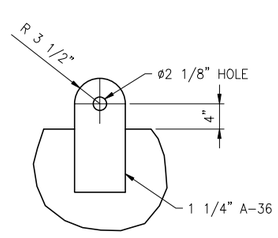
HINGED DAMPER FRAME DETAIL



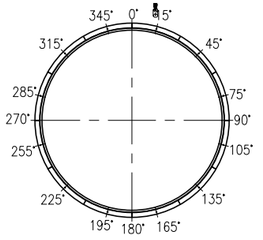
PARTIAL SECTIONAL ELEVATION
NOT TRUE ORIENTATION



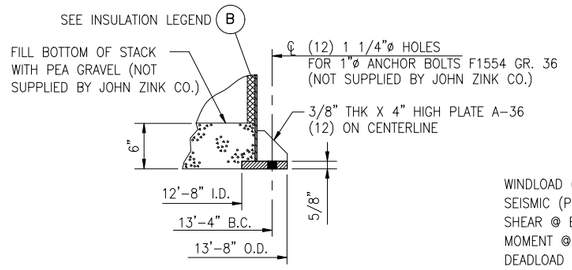
IGNITION PANEL DETAIL
SHIP LOOSE FOR FIELD INSTALLATION



LIFTING LUG DETAIL
(2 REQ'D. LOCATED AT 45° AND 225°)
(NOTE: CUT OFF LUGS AFTER STACK ERECTION)



FOUNDATION BOLT PATTERN



BASE PLATE DETAIL

PARTS LIST

ITEM	QTY	MATERIAL DESCRIPTION	MK: NO	PART NO	MATERIAL
1	1	ENCLOSED ZULE FLARE	BGBF-001-7001-0		
2	1	SWIVEL SCANNER MOUNT ASSEMBLY	ST12431-1	1415604	
3	2	KE-1C PILOT ASSEMBLY	BGBI-001-3002-0		
4	2	3 1/2" SIGHT PORT	D-ST-1275-1	0050054	
5	4	FLAME BRIDGE	BGBF-001-7025-0		310 SS
6	4	24" BOTTOM FLARE TIP	ST12148-1	1163802	304 SS
7	4	24" TOP FLARE TIP	ST12150-1	1297258	304 SS
8	2	PILOT CANISTER ASSEMBLY	BGBF-001-7024-0		CERAMIC
9	2	CANISTER ASSEMBLY	BGBF-001-7024-1	1245924	CERAMIC
10	8	GASKET: ROPE 24" x 1/16" THK.		-	NON-ASB
11	1	MANIFOLD EXTENSION	BGBF-001-7001-2		
12	1	GALVANIZED LADDER WITH PERSONNEL PROTECTION	ST11907-1	-	
		CLIMBING SAFETY SYSTEM			
13	1	COOLING AIR BLOWER TRANSITION	CMDU-001-7012-2		A-36
14	8	BOLT, HEX HD: 3/8" x 1 1/4" LG (PLATED)		BLH-109J003C0125	A-307
15	24	NUT, REG HX: 3/8-11NC (PLATED)		0008546	A-307
16	8	BOLT, HEX HD: 1/4" x 1" LG (PLATED)		BLH-109J002C010	A-307
17	8	NUT, REG HEX: 1/4-20NC (PLATED)		0008544	A-307
18	24	SCREW, FLAT HD. SL: 3/8-NC x 1" LG. (PLATED)		0002999	A-307
19	8	WING NUT: 3/8-16NC (PLATED)		0008563	A-307
20	16	BOLT, HEX HD: 5/8-NC x 4" LG (PLATED)		BLH-109J006C040	A-307
21	144	NUT, REG HX: 5/8-11NC (PLATED)		0008548	A-307

NOZZLE LEGEND

MK	QTY	DESCRIPTION
N1	1	GAS CONNECTION: FLG 10" 150# FF
N2A,B	2	PILOT MTG CONN: FLG 4" 150# RF
N3	1	COMBUSTION AIR INLET: 24" (SHEET 2)
N4A-D	4	HINGED DAMPER FRAME - SEE DETAIL
N6A,B	2	SIGHT PORT: 3 1/2" FLANGED
N7A-D	4	FLARE TIP CONN: 24" PLATE FLANGE
N8	4	COOLING AIR BLOWER INLET: FLG 6" 150# RF
N10A-D	4	SAMPLE PORT CONN: 4" RF WITH BLIND
N15	1	MANWAY: 48" x 48" (SEE DETAIL SHEET 2)
N16	1	MANIFOLD EXTENSION: 42" PLATE FLANGE
N17A	1	ACCESS: FLG 24" 150# RF WITH BLIND FLG (SHEET 2)
N17B,C	2	ACCESS: FLG 12" 150# RF WITH BLIND FLG (SHEET 2)
N18A,B	2	DRAIN: FLG 4" 150# RF WITH BLIND (SHEET 2)
C2	2	PILOT GAS CONN: 1/2" FNPT
C3	2	PILOT CONDUIT CONN: 1/2" FNPT
C5	1	SCANNER CONN: 1" MNPT
C7	4	PILOT THERMOCOUPLE CONN: 3/4" FNPT
C9A-11	4	THERMOCOUPLE CONN: 1" FNPT (C11 WITH PLUG)
C18A-D	4	PRESSURE CONN: 1" FNPT WITH PLUG
C19A-B	2	ANALYZER CONN: 3/4" FNPT
C40	1	THERMOCOUPLE WIRE: 2" COUPLING FNPT
C41A-D	4	THERMOCOUPLE CONN: 1/2" FNPT

LIFTING NOTES
A: MAIN CRANE AT TOP REQUIRES SPREADER BAR, (NOT SUPPLIED BY JOHN ZINK CO.)
B: LIFTING LUGS DESIGNED FOR 25 TON CROSBY ANCHOR SHACKLE AND VERTICAL SLINGS.
C. TAILING CRANE AT BOTTOM REQUIRES SPREADER BAR (NOT SUPPLIED BY JOHN ZINK CO.)

INSULATION LEGEND
A: (1) OVERLAPPING LAYER OF 1" THICK 8 LB DENSITY, 2300° F. BACKED WITH (1) LAYER, 1" THICK 6 LB DENSITY, 2300° F. ON INCONEL PINS AND KEEPERS.
B: (1) OVERLAPPING LAYER OF 1" THICK 6 LB DENSITY, 2300° F. ON INCONEL PINS AND KEEPERS.
C: AFTER INSTALLING INSULATION, APPLY INORGANIC SODIUM SILICATE RIGIDIZER SOLUTION TO ALL EXPOSED SURFACES ABOVE FLOOR.

GENERAL NOTES
1. TAG NUMBERS TO BE PRECEDED BY JOHN ZINK ASSET NUMBER.
2. FLARE ASSEMBLY IS NOT TO BE USED AS AN ANCHOR POINT FOR CUSTOMER PIPING.
3. PRE-TENSION ANCHOR BOLTS BY THE "TURN OF THE NUT" METHOD/AISC.
4. BOLT HOLES TO STRADDLE NORMAL CENTER LINES UNLESS NOTED.

DESIGN DATA

WINDLOAD (PER ASCE 7-10, EXP. C)	115 M.P.H.
SEISMIC (PER IBC-2012)	SITE CLASS C OR D
SHEAR @ BASE	10 Kip
MOMENT @ BASE	250 K-FT
DEADLOAD	34,530 LB
SHELL DESIGN TEMPERATURE	500° F
CORROSION ALLOWANCE	0.0

B3-83

GENERAL TOLERANCE LEGEND (UNLESS NOTED OTHERWISE)

SHEET METAL (FLAT)	±0.01563"/0.4mm	SAWING:	±0.0625"/1.6mm
SHEET METAL (FORMED)	±0.0625"/1.6mm/1°	PIPING CONNECTIONS (X,Y,Z):	±0.25"/6mm
TILE:	±0.125"/3mm	PIPING CONNECTIONS (FLG ROTATION):	±0.5°
MACHINING:	±0.01563"/0.4mm	PIPING CONNECTIONS (FLG FACE TILT):	±0.5°
GENERAL ASSEMBLY:	±0.375"/10mm	SPOOL ASSEMBLY:	see MTOL 1006

REV	DESCRIPTION	DWN	CHK	APPV	DATE
1	REVISED PER CUSTOMER CHANGE ORDER	MWR	TM	JPR	10 NOV 23
0	INITIAL RELEASE	MWR	TM	JPR	22 AUG 23

SHT: 1 of 2

FOR PARTS AND SERVICE: WWW.JOHNZINKHAMWORTHY.COM
AMERICAS 1.800.755.4252 | EUROPE/MIDDLE-EAST/AFRICA/INDIA +352.518991 | ASIA PACIFIC +65.6831.6500

JOHN ZINK HAMWORTHY COMBUSTION

JOHN ZINK COMPANY, LLC

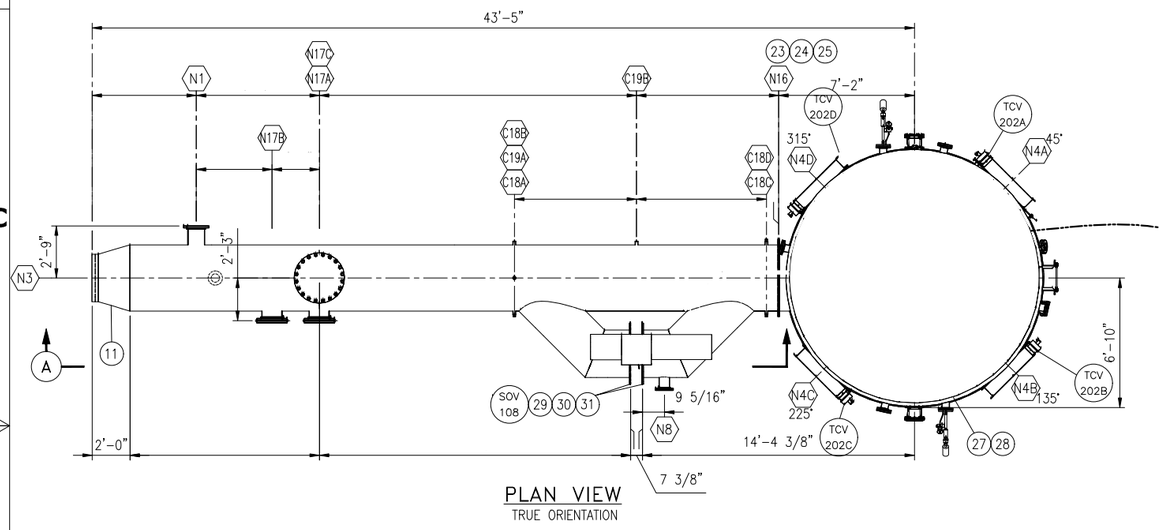
FOR: ARCHAEA ENERGY
USER: COYOTE CANYON LANDFILL
JOBSITE: NEWPORT BEACH, CA
PO NO: HLD-11156
PROJECT NO: F00008644
ASSET NO: K00209629

TITLE: ENCLOSED ZULE FLARE 13'-0" O.D. X 40' H.

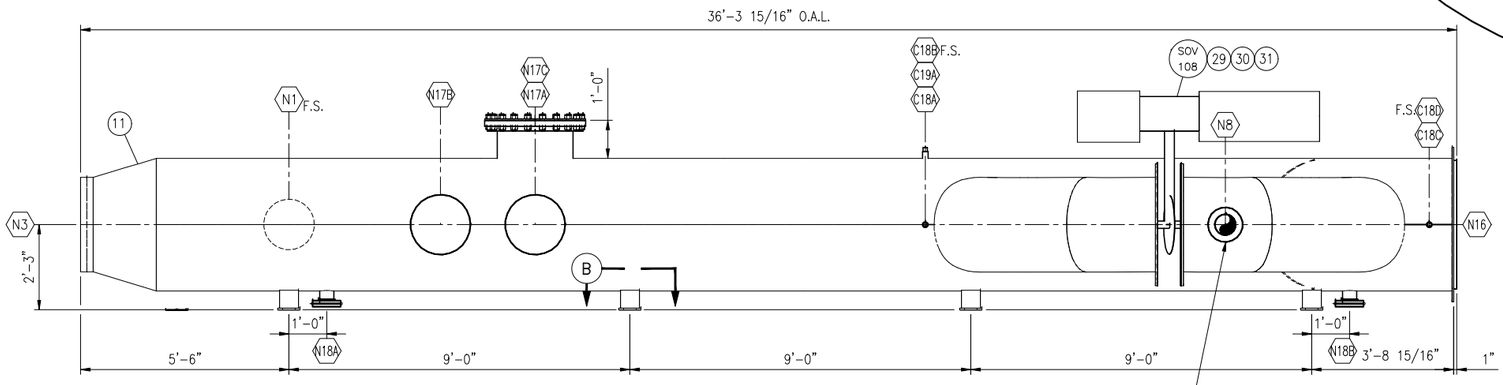
CUSTOMER TAG: | ITEM NO:

DRAWING NUMBER: K00209629-BGBF-001-3001-001 | REV 1

PARTS LIST					
ITEM	QTY	DESCRIPTION	MK: NO	PART NO	MATERIAL
		CONTINUED FROM SHEET 1			
22	128	BOLT HEX HD: 5/8-NC x 1 1/2" LG		BLH-304G006C015	304 SS
23	48	BOLT, HEX HD: 3/4" x 3" LG (PLATED)		BLH-109J007C030	A-307
24	48	NUT, REG HX: 3/4-10NC (PLATED)		0008549	A-307
25	1	GASKET, ROPE: 48" x ~ 1/16" THK		1098107	NON-ASB
26	84	BOLT, HEX HD: 1/2" x 3" LG (PLATED)		BLH-109J005C030	A-307
27	84	NUT, REG HEX: 1/2-NC (PLATED)		0008547	A-307
28	168	WSHR: 1/2" FLAT (PLATED)		0008523	F436
29	2	GSK: 30" 150# RFx 1/16" THK DONEX OR EQ		0500976	NON-ASB
30	48	BOLT, HEX HD: 1 1/4" x 4 1/2" LG (PLATED)		BLH-109J012C045	A-307
31	8	BOLT, HEX HD: 1 1/4" x 3 1/2" LG (PLATED)		BLH-109J012C035	A-307

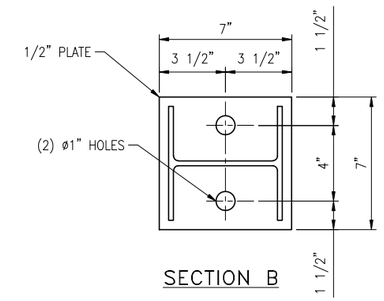


PLAN VIEW
TRUE ORIENTATION



ELEVATION VIEW "A"
MIXING CHAMBERMK: BGBF-001-7001-2

COOLING AIR BLOWER TRANSITION
MK: CMDU-001-7012-2



SECTION B

REV	DESCRIPTION	DWN	CHK	APPV	DATE
1	REVISED PER CUSTOMER CHANGE ORDER	MWR	TM	JPR	10 NOV 23
0	INITIAL RELEASE	MWR	TM	JPR	22 AUG 23

SHT: 2 of 2

FOR PARTS AND SERVICE: WWW.JOHNZINKHAMWORTHY.COM
AMERICAS 1.800.755.4252 | EUROPE/MIDDLE-EAST/AFRICA/INDIA +352.518991 | ASIA PACIFIC +65.6831.6500

GENERAL TOLERANCE LEGEND (UNLESS NOTED OTHERWISE)

SHEET METAL (FLAT)	±0.01563"/0.4mm	SAWING:	±0.0625"/1.6mm
SHEET METAL (FORMED)	±0.0625"/1.6mm/1°	PIPING CONNECTIONS (X,Y,Z):	±0.25"/6mm
TILE:	±0.125"/3mm	PIPING CONNECTIONS (FLG ROTATION):	±0.5°
MACHINING:	±0.01563"/0.4mm	PIPING CONNECTIONS (FLG FACE TILT):	±0.5°
GENERAL ASSEMBLY:	±0.375"/10mm	SPOOL ASSEMBLY:	see MTOL 1006

JOHN ZINK HAMWORTHY COMBUSTION

JOHN ZINK COMPANY, LLC

FOR: ARCHAEA ENERGY	TITLE: ENCLOSED ZULE FLARE 13'-0" O.D. X 40' H.
USER: COYOTE CANYON LANDFILL	
JOBSITE: NEWPORT BEACH, CA	
	CUSTOMER TAG: / ITEM NO:
PO NO: HLD-11156	
PROJECT NO: F00008644	DRAWING NUMBER: K00209629-BGBF-001-3001-002 REV 1
ASSET NO: K00209629	

H2S Scrubber

Guild Associates, Inc.

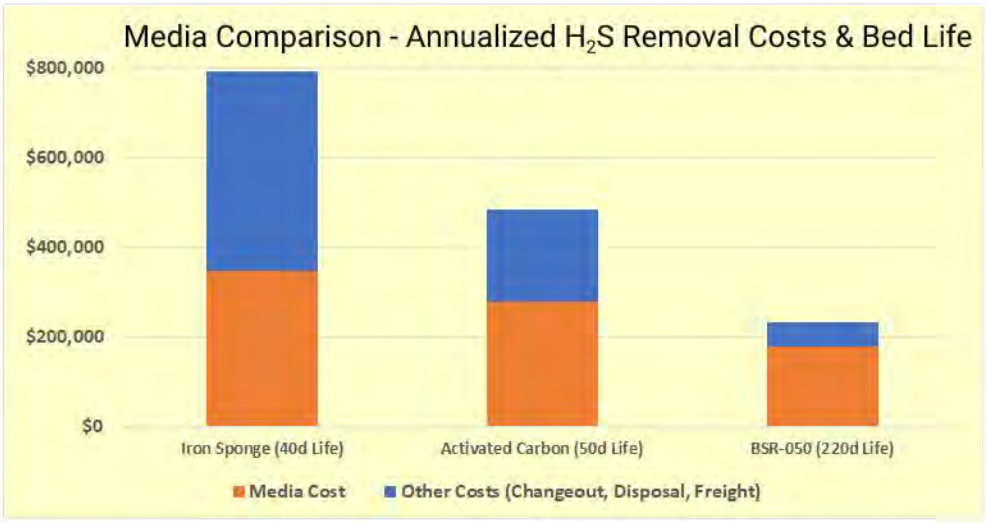
BSR-050 Hydrogen Sulfide Removal Media

The lowest overall cost dry media for the treatment of landfill gas

BSR-050® from Guild Associates is a high-capacity granular media for the removal of hydrogen sulfide from landfill gas. Engineered for direct replacement of Iron Sponge and Activated Carbon in systems with lead-lag vessel configuration, BSR-050 is field-proven to treat landfill gas for power generation or Renewable Natural Gas (RNG).

INDUSTRY LEADING PERFORMANCE

- Highest H_2S removal capacity in the industry
  - Up to 1.4 lb/lb media, equivalent to 36 lb/cuft
  - Delivers longest bed life of any granular media
- Non-bricking formulation
  - Minimizes downtime and labor in media changeouts
- Lowest total cost of H_2S removal.
  - See Media Comparison below



CASE STUDY

A landfill in Houston, Texas, producing RNG employs a lead-lag system to remove 800-1,000 ppm H_2S from landfill gas. The landfill replaced 110,000 lbs of Iron Sponge with 33,000 lbs of BSR-050 and increased the gas flow from 5,600 to 6,500 scfm by treating gas from high-sulfur cells that were previously flared. The changeout interval lengthened from 3 to 15 weeks, operational expenses dropped by 80% and revenue increased.

BSR-050 is available in 1,000-lb Super Sacks for installation by crane into vessels. Removal can typically be accomplished by vacuum truck with no risk of additional labor to remove agglomerated pieces. Contact Guild Associates for an assessment of your application and potential for BSR-050 to minimize your H_2S removal costs:

About Guild Associates

Guild Associates is a manufacturer of biogas processing equipment and BSR-050 Hydrogen Sulfide Removal Media. Guild Associates manufactures the patented BSR-050 media at a factility in Delaware OH.

Contact us for more information:
5750 Shier-Rings Rd
Dublin OH, 43016
614-798-8215
H2S@guildassociates.com
www.guildassociates.com

BSR-20; BSR-50; BSR-60

Safety Data Sheet

Prepared according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 03/22/2016 Revision 1.0: 09/18/2017

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name : BSR-20; BSR-50; BSR-60

Product form : Mixture

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Filtration media

1.3. Details of the supplier of the safety data sheet

Guild Associates Inc.
5750 Shier-Rings Road
Dublin, OH 43016
1-614-798-8215

1.4. Emergency telephone number

CHEMTREC : 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Not classified.

2.2. Label elements

GHS-US labeling

No labelling applicable

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%
Contains no hazardous ingredients at levels requiring disclosure by the OSHA Hazard Communication Standard (29 CFR 1910.1200). Non-hazardous constituents provided voluntarily, below.		100
Zinc Oxide	1314-13-2	20 - 60
Iron Hydroxide Oxide	20344-49-4	20 - 60
Silicon Dioxide	7631-86-9	5 – 30
Water (absorbed)	7732-18-5	<15

*In accordance with paragraph (i) of the OSHA Hazard Communication Standard (29 CFR §1910.1200), the specific chemical identity or exact weight % has been withheld as a trade secret

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If exposed or concerned, get medical attention/advice. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.

First-aid measures after inhalation : IF INHALED: Remove to fresh air and keep at rest in a comfortable position for breathing.

First-aid measures after skin contact : IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin with water for at least 15 minutes.

First-aid measures after eye contact : IF IN EYES: Immediately flush with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do so. Continue rinsing.

First-aid measures after ingestion : IF SWALLOWED: rinse mouth thoroughly. Do not induce vomiting without advice from poison control center or medical professional. Get medical attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Not expected to present a significant hazard under anticipated conditions of normal use

Symptoms/injuries after inhalation : May cause respiratory irritation.

Symptoms/injuries after skin contact : May cause skin irritation.
Symptoms/injuries after eye contact : Direct contact with the eyes is likely to be irritating.
Symptoms/injuries after ingestion : May cause gastrointestinal irritation.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide. Foam. Sand. Dry chemical powder.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Not flammable.
Explosion hazard : Product is not explosive.
Reactivity : No dangerous reactions known under normal conditions of use.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Do not dispose of fire-fighting water in the environment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Wear Protective equipment as described in Section 8.
Emergency procedures : Evacuate unnecessary personnel. Keep upwind.

6.1.2. For emergency responders

Protective equipment : For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up : Wear suitable protective clothing. Take up liquid spill into inert absorbent material, e.g: sand, earth, vermiculite. Place in a suitable container for disposal in accordance with the waste regulations (see Section 13). Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Handle in accordance with good industrial hygiene and safety procedures. Wear recommended personal protective equipment. Wash hands and other exposed areas with mild soap and water before eating, drinking, applying cosmetics, or smoking and when leaving work. Avoid dust formation.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed. Store in a dry, cool and well-ventilated place.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available.

8.2. Exposure controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Ensure adequate ventilation, especially in confined areas.
Personal protective equipment : Safety glasses. Gloves. Insufficient ventilation: wear respiratory protection.

Hand protection : Use gloves appropriate to the work environment.

Eye protection	: Use eye protection suitable to the environment. Avoid direct contact with eyes.
Skin and body protection	: Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure.
Respiratory protection	: Use NIOSH-approved dust/particulate respirator. Where vapor, mist, or dust exceed PELs or other applicable OELs, use NIOSH-approved respiratory protective equipment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Granular material. Beads.
Color	: Reddish-yellow.
Odor	: None.
Odor Threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: Does not self-ignite.
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: Not an explosive solid.
Oxidizing properties	: Not an oxidizing solid
Explosion limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known under normal conditions of use.

10.2. Chemical stability

Stable.

10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

No data available.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Cobalt oxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Not classified
Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: Not classified

Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Symptoms/injuries after inhalation	: May cause respiratory irritation.
Symptoms/injuries after skin contact	: May cause skin irritation.
Symptoms/injuries after eye contact	: Direct contact with the eyes is likely to be irritating.
Symptoms/injuries after ingestion	: May cause gastrointestinal irritation.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : No data available.

12.2. Persistence and degradability

BSR-20; BSR-50; BSR-60	
Persistence and degradability	No data available.

12.3. Bioaccumulative potential

BSR-20; BSR-50; BSR-60	
Bioaccumulative potential	No data available.

12.4. Mobility in soil

BSR-20; BSR-50; BSR-60	
Ecology - soil	No data available.

12.5. Other adverse effects

Other information : No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with DOT

Not hazardous for transport

Additional information

Other information : No supplementary information available.

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

BSR-20; BSR-50; BSR-60	
All chemical substances in this product are listed in the EPA (Environment Protection Agency) TSCA (Toxic Substances Control Act) Inventory or are exempt	
SARA Section 311/312 Hazard Classes	None

15.2. International regulations

No additional information available.

15.3. US State regulations

This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm

Zinc Oxide (1314-13-2)
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

Silica, amorphous (7631-86-9)
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Indication of changes : Revision 1.0:

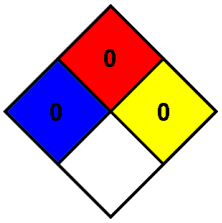
: 09/18/2017

Other information : Author: LMG.

NFPA health hazard : 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : 0

Flammability : 0

Physical : 0

Personal Protection :

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

Condensate Tanks

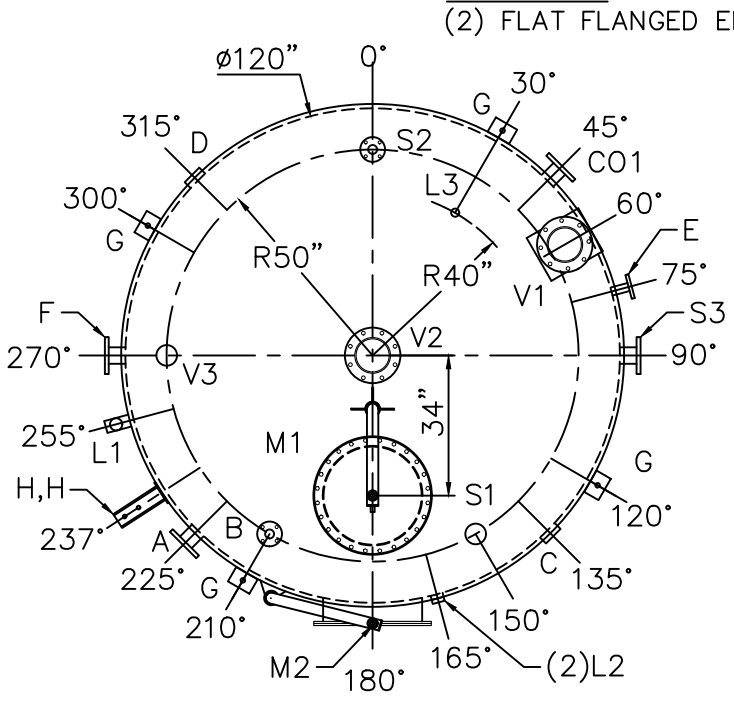
TOUCH UP OF FINISHED PAINT IS REQUIRED BY INSTALLATION CONTRACTOR. TOUCH UP PAINT SHIPPED WITH TANK.

NOTES

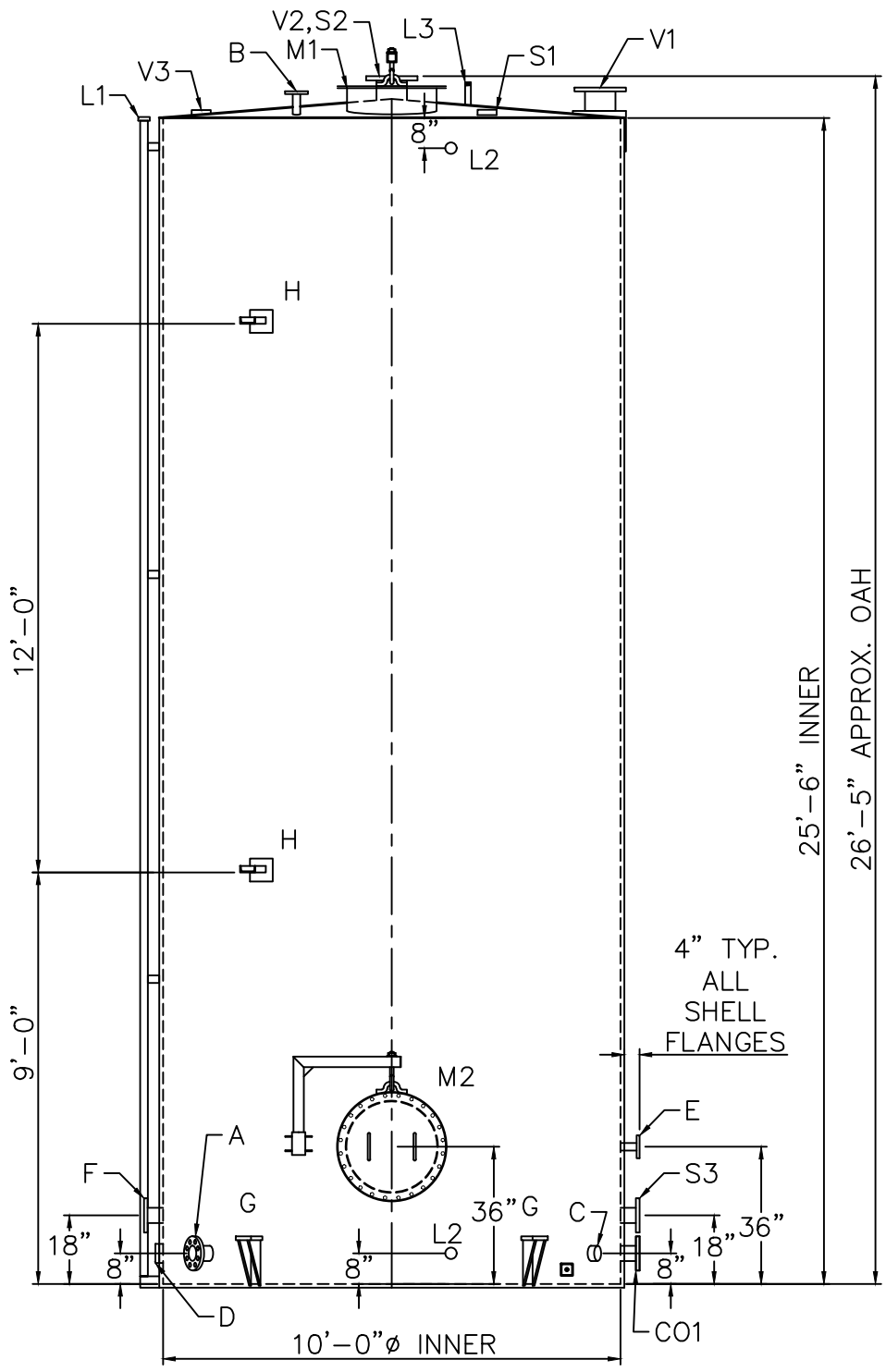
1. SEE PLAN VIEW FOR TRUE ORIENTATION AND LOCATION OF FITTING
2. LIFTING LUGS FOR UNLOADING UNIT & STANDING UNIT UPRIGHT TO BE PLACED AS NEEDED BY FABRICATION SHOP
3. A 3x3x¼" STEEL GROUNDING LUG WITH A ⅝"ø HOLE IN CENTER TO BE PLACED ON SHELL AT BOTTOM OF TANK IN LINE WITH LIFTING LUGS

SHIPPING LUGS AS NEEDED

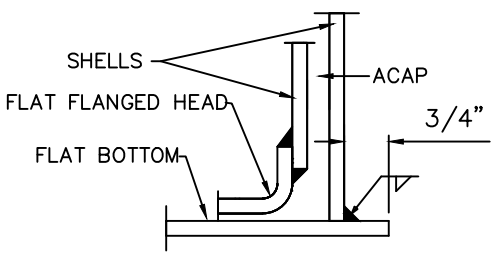
SHIP LOOSE
(2) FLAT FLANGED EMERGENCY VENTS 8 OZ.



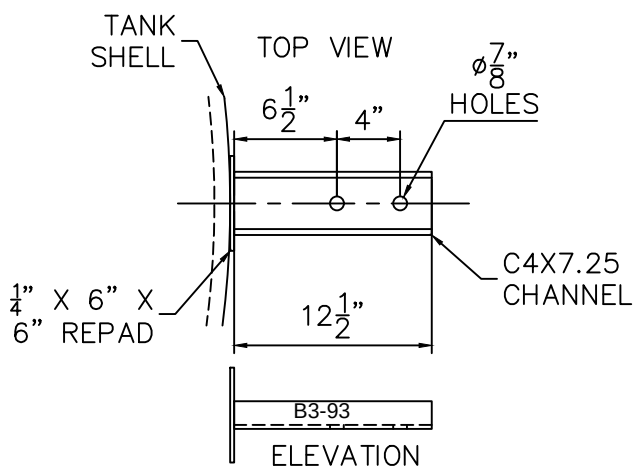
PLAN VIEW



ELEVATION VIEW



BOTTOM JOINT DETAIL



DESIGN DATA

CAPACITY – 15,000 GALLON
TYPE – VERTICAL DOUBLE WALL
NO. REQ. – ONE
OPERATING PRESSURE – ATMOSPHERIC
SPECIFIC GRAVITY = 1.0
TANK MATERIAL – MILD CARBON STEEL
THICKNESS–TOP –1/4" SHALLOW SLOPE THICKNESS–INNER– SHELL: 1/4" BOTTOM: 1/4" THICKNESS–OUTER– SHELL: 7 GA BOTTOM: 1/4"
CONSTRUCTION – INNER–LAP WELD INTERIOR & EXTERIOR SEAMS, OUTER– LAP WELD EXTERIOR ONLY
TANK TEST – INNER: 2 PSIG, OUTER:– 2 PSIG & FULL VACUUM
INT. FINISH – SP10 BLAST, CHEMLINER 4000 EPOXY (6–10 MILS PER COAT/12–20 TOTAL DFT
EXT. FINISH – SP6 BLAST, FINISH URETHANE WHITE
LABEL – UL 142

LEGEND

M1	24" x ¼" PLATE TIGHT BOLT MANWAY W/ FIBERFLEX GRADE A GASKET & DAVIT
V1	8" FFSO 150# FLANGE THROUGH OUTER SHELL ONLY, MARK WITH SPECIAL WARNING LABEL – INTERSTITIAL EMERGENCY VENT USE ONLY
M2	24" CLOSE BOLT MANWAY W/ ⅛" THK NEO CORK GASKET, 5/16"FLANGE, ¼"NECK, 7/16"COVER INCLUDES DAVIT
L1	2" INTERSTITIAL MONITOR PIPE
V2	8" 150# FFSO FLANGE – PRIMARY EMERGENCY VENT
A	4" 150# RFSO FLANGE (OUTLET)
CO1	4" 150# RFSO FLANGE (CLEAN OUT)
B	2" 150# RFSO FLANGE (FILL)
V3	4" FNPT FITTING (VENT)
C	4" FNPT FITTING (TRUCK HAULING)
S1	4" FNPT FITTING (SPARE)
D	4" FNPT FITTING (OUTLET)
L2	2" FNPT FITTING (SIGHT GLASS)
E	2" 150# RFSO FLANGE (SAMPLING)
F	4" 150# RFSO FLANGE (OUTLET)
S2	2" 150# RFSO FLANGE (SPARE)
S3	4" 150# RFSO FLANGE (SPARE)
L3	1.5" PIPE STUB, 6" HIGH (TOE) MNPT
G	HOLD DOWN LUG PER DETAIL AVLUGB
H	VERTICAL CLIP PER DETAIL

DRAWING 1 OF 2
SHEET–1 TANK DETAILS
SHEET–2 DAVIT, HOLD DOWN LUG DETAILS

HIGHLAND TANK & MFG CO.

Highland Tank

UNLESS NOTED, TOLERANCES ARE +/– 1"

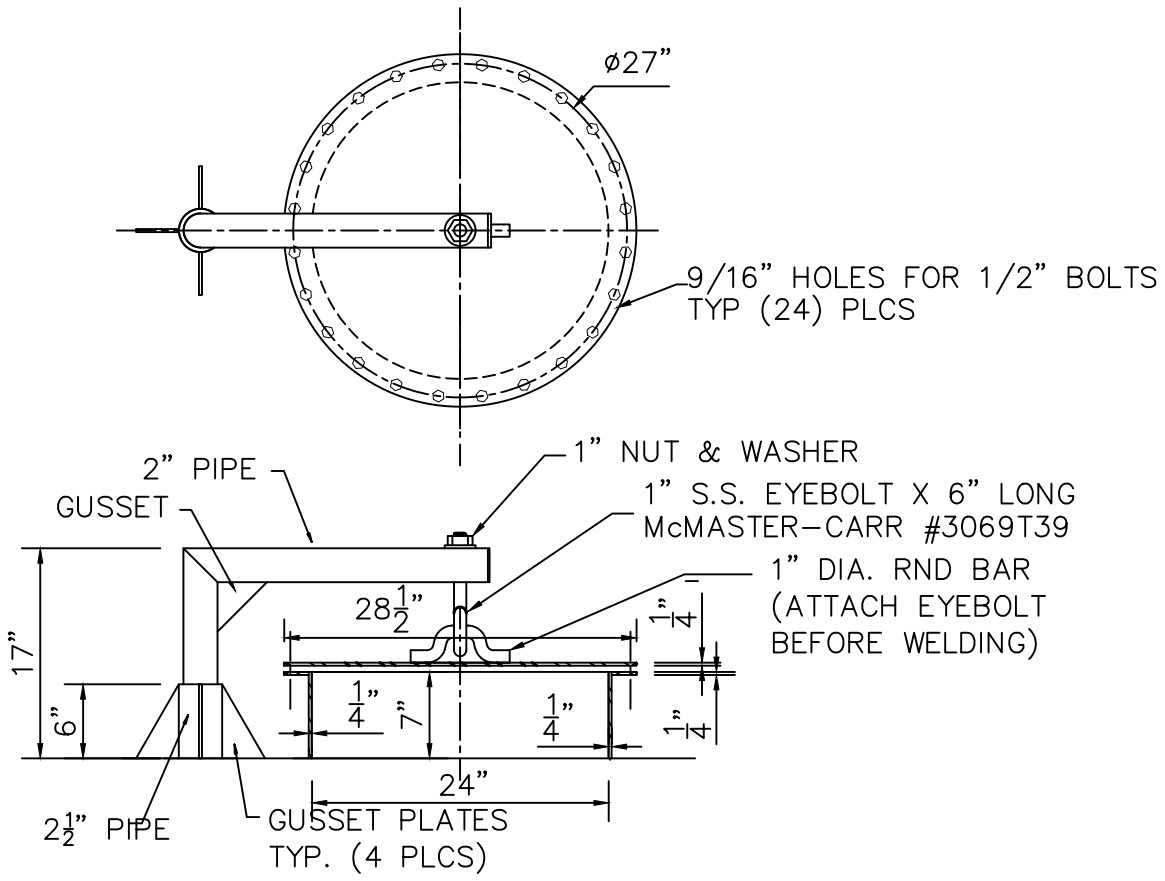
15,000 GAL 120"ø DW VERTICAL

QUOTE NO: 544212

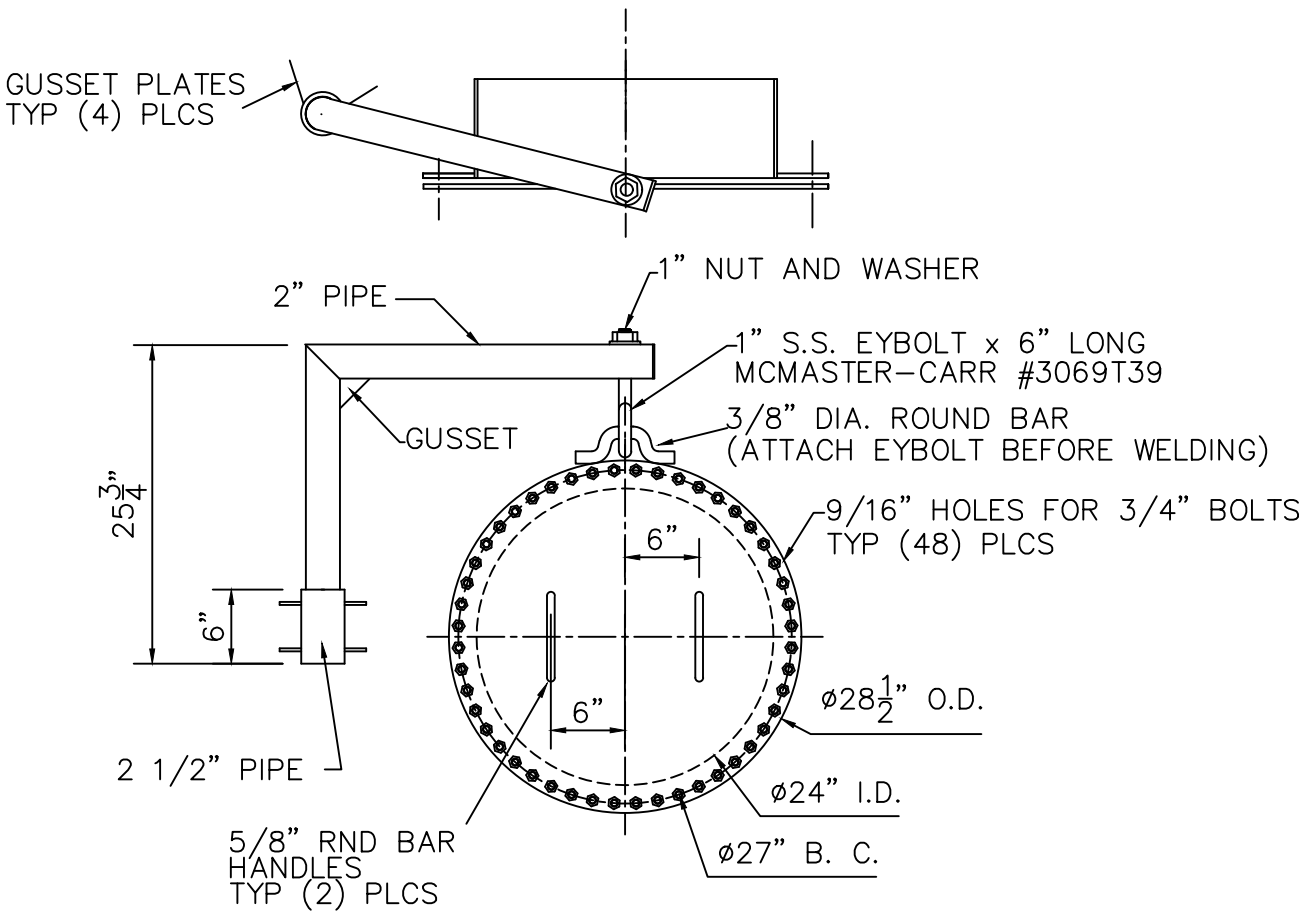
CHK'D BY:

SCALE:	DATE:	DWG. BY:	DWG. NO.:
1/4"=1'-0"	8/16/23	002	124756–1

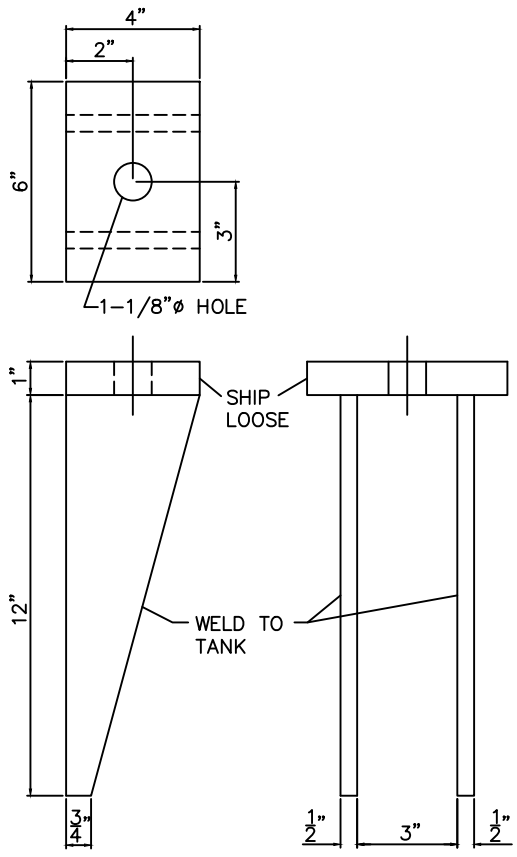
TOUCH UP OF FINISHED PAINT IS REQUIRED BY INSTALLATION CONTRACTOR. TOUCH UP PAINT SHIPPED WITH TANK.



ROOF DAVIT DETAIL
(ITEM-M1)



SHELL MANWAY DAVIT DETAIL
(ITEM-M2)



HOLD DOWN LUG AVLUGB

DRAWING 2 OF 2
SHEET-1 TANK DETAILS
SHEET-2 DAVIT, HOLD DOWN
LUG DETAILS

Highland Tank

UNLESS NOTED, TOLERANCES ARE +/- 1"

15,000 GAL 120"ø DW VERTICAL

QUOTE NO: 544212

CHK'D BY:

SCALE:	DATE:	DWG. BY:	DWG. NO.:
1/4"=1'-0"	8/16/23	002	124756-2

NIXTOX Steel Drum Adsorbers

Modular Activated Carbon Vapor Phase Adsorbers

These economical deep bed activated carbon adsorption units may be used as refillable or disposable adsorbers.

Rain shields are available and condensate drains are standard. The activated carbon units are constructed of carbon steel and provided with a double epoxy/phenolic lining. All adsorption units feature specially constructed vapor distributors to permit full adsorbent utilization and peak removal efficiency.

Custom distributors for high temperature applications are available upon request.

NIXTOX Features

- Nominal design flow may be conservative.
- Desired contact time may allow higher or lower flow rates.
- Dry virgin activated or reactivated carbon provided as standard adsorbent.
- Adsorbent fill is based on a bed density of 27 lb/ft^3.
- Adsorbent fill can differ based on variable bed density and alternate adsorbents.
- Pressure drops are based on a dense packed bed of activated carbon.

Modular Activated Carbon Vapor Phase Adsorber Drums				
Model #	**Max Temp (°F)**	**Max Press (PSIG)**	**Diameter/ Height (in)**	**Standard Fill (lbs)**
N-100	200	6	24.5/37.75	200

About Newterra

Newterra offers a broad portfolio of reliable, trouble-free technologies and outsourcing support for global municipal and industrial customers across diverse applications, including drinking water, industrial process water, wastewater, stormwater and remediation.

Product Features

- May be used as refillable or disposable adsorbers
- Constructed of carbon steel and provided
- Double epoxy/phenolic lining

Appendix C

Risk Assessment Information

TABLE 13
RISK RESULTS
COYOTE CANYON RNG FACILITY
NEWPORT BEACH, CALIFORNIA

	Thermal Oxidizer Main Ops	Thermal Oxidizer Supplement	Flare	Flare_pt2
Feet				
Commercial	1722.44	1722.44	1804.46	1804.46
Residential	1492.78	1492.78	1394.36	1394.36

ft/m
0.3048

Meters				
Commercial	525	525	550	550
Residential	455	455	425	425

MICR					**Total**	PASS?
Commercial	1.74E-08	4.28E-10	1.63E-09	9.75E-09	2.92E-08	YES
Residential	2.41E-07	8.33E-09	4.74E-08	1.69E-07	4.66E-07	YES
Hazard Index						
Acute HI	3.85E-03	4.95E-05	2.19E-04	3.00E-03	7.12E-03	YES
Chronic HI	1.13E-02	2.24E-03	6.58E-03	1.15E-02	3.16E-02	YES
Chronic 8-hr HI	2.07E-03	4.94E-05	1.60E-04	1.48E-03	3.76E-03	YES

Acute				
Alimentary system (liver) - AL	3.19E-08	0.00E+00	2.30E-08	0.00E+00
Bones and teeth - BN				
Cardiovascular system - CV	2.39E-09	2.81E-06	8.22E-06	0.00E+00
Developmental - DEV	9.29E-05	4.24E-06	3.01E-05	4.94E-05
Endocrine system - END				
Eye	3.23E-03	4.05E-06	1.37E-05	2.47E-03
Hematopoietic system - HEM	2.41E-05	2.18E-07	1.81E-05	0.00E+00
Immune system - IMM	2.41E-05	2.97E-05	1.04E-04	0.00E+00
Kidney - KID				
Nervous system - NS	6.89E-05	4.03E-06	1.20E-05	4.94E-05
Reproductive system - REP	9.29E-05	4.24E-06	3.01E-05	4.94E-05
Respiratory system - RESP	3.20E-04	2.39E-07	2.80E-06	3.73E-04
Skin	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Chronic				
Alimentary system (liver) - AL	8.47E-07	4.80E-07	1.58E-06	4.36E-07
Bones and teeth - BN	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cardiovascular system - CV	8.33E-09	3.29E-04	9.61E-04	0.00E+00
Developmental - DEV	5.37E-04	3.80E-04	1.11E-03	3.87E-04
Endocrine system - END	3.46E-07	0.00E+00	0.00E+00	2.50E-07
Eye	2.87E-07	0.00E+00	0.00E+00	2.07E-07
Hematopoietic system - HEM	2.17E-05	4.22E-05	1.39E-04	0.00E+00
Immune system - IMM	0.00E+00	4.80E-07	1.40E-06	0.00E+00
Kidney - KID	5.27E-04	3.98E-05	1.17E-04	3.80E-04
Nervous system - NS	5.28E-04	3.38E-04	9.89E-04	3.81E-04
Reproductive system - REP	5.37E-04	3.80E-04	1.11E-03	3.87E-04
Respiratory system - RESP	9.13E-03	4.04E-04	1.18E-03	9.95E-03
Skin	0.00E+00	3.29E-04	9.61E-04	0.00E+00

Chronic 8-hr				
Alimentary system (liver) - AL	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Bones and teeth - BN	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cardiovascular system - CV	0.00E+00	3.73E-06	1.09E-05	0.00E+00
Developmental - DEV	6.82E-05	4.95E-06	1.45E-05	4.92E-05
Endocrine system - END	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eye	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hematopoietic system - HEM	2.17E-05	1.96E-07	1.62E-05	0.00E+00
Immune system - IMM	0.00E+00	9.80E-06	2.87E-05	0.00E+00
Kidney - KID	6.82E-05	1.21E-06	3.55E-06	4.92E-05
Nervous system - NS	6.82E-05	4.95E-06	1.45E-05	4.92E-05
Reproductive system - REP	6.82E-05	4.95E-06	1.45E-05	4.92E-05
Respiratory system - RESP	1.77E-03	1.59E-05	4.64E-05	1.28E-03
Skin	0.00E+00	3.73E-06	1.09E-05	0.00E+00

Appendix D

Permit Application Forms

Thermal Oxidizer

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit):
Biofuels Coyote Canyon Biogas, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD):

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

20661 Newport Coast Drive
Street Address

Newport Beach , CA 92657
City Zip

Nevin Edwards | Air Permitting Manager
Contact Name | Title

(724) 766-8388 | Ext. | Fax #
Phone #

E-Mail: nedwards@archaea.energy

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

201 Helios Way, Floor 6
Address

Houston , TX 77079
City State Zip

Derek Kramer | Chief Operating Officer
Contact Name | Title

(380) 900-2739 | Ext. | Fax #
Phone #

E-Mail: dkramer@archaea.energy

Section D - Application Type

6. The Facility Is: (●) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V ( ) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- (●) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:

- ( ) Title V Application or Amendment (Refer to Title V Matrix)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
- ( ) Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy):

8b. Estimated End Date of Construction (mm/dd/yyyy):

8c. Estimated Start Date of Operation (mm/dd/yyyy):

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
Thermal Oxidizer

10. For Identical equipment, how many additional applications are being submitted with this application?
(Form 400-A required for each equipment / process)

11. Are you a Small Business as per AQMD's Rule 102 definition?
(10 employees or less and total gross receipts are $500,000 or less **OR** a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Renewable Natural Gas Plant

14. What is your business primary NAICS Code?
(North American Industrial Classification System) 221119

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (●) No ( ) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? (●) No ( ) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official:

18. Title of Responsible Official:
Chief Operating Officer

19. I wish to review the permit prior to issuance.
(This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name:
Derek Kramer

21. Date:

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: ☒ Authorized Signature/Date ☒ Form 400-CEQA ☒ Supplemental Form(s) (ie., Form 400-E-xx) ☒ Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN

South Coast Air Quality Management District

Form 400-CEQA
California Environmental Quality Act (CEQA) Applicability

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project [1] has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines § 15060(a)]. Form 400-CEQA and the instructions for guidance on completing this form are available at http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms or http://www.aqmd.gov/home/permits/permit-application-forms. For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one Form 400-CEQA is necessary for the entire project. If you need assistance completing this form, contact Permit Services at (909) 396-3385.

Section A – Facility Information

1. Facility Name (Business Name of Operator to Appear on the Permit): Biofuels Coyote Canyon Biogas, LLC

2. SCAQMD Facility ID:

3. Project Description: Thermal Oxidizer

Section B – Review For Exemption From Further CEQA Action

Check "Yes" or "No" as applicable. If "Yes" is checked for any question in Section B, skip Section C and proceed to page 2 and complete Section D - Signatures.

	Yes	No	Is this application for:
1.	○	◉	**A request for a change of operator only (without equipment or process change modifications)?**
2.	○	◉	**A functionally identical permit unit replacement with no increase in equipment unit rating or emissions?**
3.	○	◉	**A change of daily VOC permit limit to a monthly VOC permit limit?**
4.	○	◉	**Equipment damaged as a result of a disaster during state of emergency?**
5.	○	◉	**A Title V** (e.g., SCAQMD Regulation XXX) **permit renewal without equipment or process change modifications?**
6.	○	◉	**A Title V administrative permit revision?**
7.	○	◉	**The conversion of an existing permit into an initial Title V permit?**

Section C – Review of Impacts Which May Trigger Further CEQA Review

Check "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	
1.	○	◉	**Is this project specifically evaluated in a previously certified or adopted CEQA document?** If "Yes" is checked, attach a copy of the signed Notice of Determination to this form.
2.	○	◉	**Is this project specifically exempted from CEQA by another entity (e.g., city or agency)?** If "Yes" is checked, attach a copy of the signed Notice of Exemption or other documentation from the entity to this form.
3.	○	◉	**Is this project part of a larger project?** If "Yes" is checked, attach a separate sheet to briefly describe the larger project.
4.	○	◉	**Will the project increase the QUANTITY of hazardous materials stored aboveground onsite or transported by mobile vehicle to or from the site by greater than or equal to the amounts associated with each compound listed on Form 400-CEQA, Table 1 - Regulated Substances List and Threshold Quantities for Accidental Release Prevention** [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms]**?** If "Yes" is checked, attach a separate sheet to identify each hazardous material and corresponding quantity to be transported, stored, or used.
5.	○	◉	**Will the project emit any air toxic listed on Form 400-CEQA, Table 2 - Other Air Toxics and Their Screening Levels** [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms] [2]**?** If "Yes" is checked, attach a separate sheet to identify each air toxic and corresponding quantity to be emitted.
6.	○	◉	**Will the project require any demolition, excavation, and/or grading construction activities that encompass an area exceeding 20,000 square feet?**

[1] A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc

[2] Form 400-CEQA, Table 2 – Other Air Toxics and Their Screening Levels, contains a list of air toxics that either do not have a cancer potency (CP) or reference exposure level (REL) approved by the Office of Environmental Health Hazards Assessment (OEHHA) or have a combination of OEHHA-approved and non-approved CPs or RELs.

Section C – Review of Impacts Which May Trigger Further CEQA (concluded)

	Yes	No	
7.	◉	○	**Will the project utilize a boiler, engine, or other combustion equipment that uses fuel (e.g., gasoline, diesel, natural gas, liquefied petroleum gas (LPG), or landfill gas)?** If "Yes" is checked, then the applicant will need to calculate the amount of GHGs from fuel use via on the Greenhouse Gas (GHG) online estimator [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms], and attaching the printout or by conducting hand calculations and providing the documentation. Refer to the Instructions for Form 400-CEQA for guidance.
8.	○	◉	**Will the project utilize other types of equipment not addressed in Question 7 that require the use of, or will generate, any chemicals listed on Form 400-CEQA, Table 3 - Greenhouse Gases** [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms]**?** If "Yes" is checked, attach a separate sheet to identify each equipment unit, the chemical name(s), and the quantity of each chemical identified.
9.	○	◉	**Will the project include the open outdoor storage of dry bulk solid materials that could generate dust?** If "Yes" is checked, include a plot plan with the application package.
10.	○	◉	**Will the project result in or make worse noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements?** For example, landfills, materials recovery/recycling facilities (MRF), and compost materials or other types of greenwaste (e.g., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to SCAQMD Rule 402 – Nuisance.
11.	○	◉	**Will the project cause an increase of emissions from marine vessels, trains and/or airplanes?**
12.	○	◉	**Will the project increase demand for potable water at the facility by more than 262,820 gallons per day?** The following examples identify some, but not all, types of projects that may result in a "Yes" answer to this question: 1) a project that generates steam; 2) a project that uses water as part of operating air pollution control equipment; 3) a project that requires water as part of the production process; 4) a project that requires a new, or the expansion of an existing, sewage treatment facility, new water lines, sewage lines, sewage hook-ups etc.; 5) a project where the water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; 6) a project that requires new or the expansion of existing, water supply and conveyance facilities; and, 7) a project that requires water to hydrotest pipelines, storage tanks etc. for structural integrity.
13.	○	◉	**Will the project create an increase in the mass inflow of effluents to a public wastewater treatment facility that would require a new, or revision to an existing, National Pollutant Discharge Elimination System (NPDES) or other related permit at the facility?**
14.	○	◉	**Will the project result in the need for more than 350 new employees?**
15.	○	◉	**Will the project result in an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?**
16.	○	◉	**Will the project result in an increase in customer traffic by more than 700 visits per day?**
17.	○	◉	**Will the project result in temporary or permanent noise or vibration in excess of what is allowed by the applicable local noise ordinance?**
18.	○	◉	**Will the project create a permanent need for new or additional solid waste disposal?** Check "No" if the projected potential amount of solid waste to be generated by the project is less than five tons per day.
19.	○	◉	**Will the project create a permanent need for new or additional hazardous waste disposal?** Check "No" if the projected potential amount of hazardous wastes to be generated by the project is less than 42 cubic yards per day (or equivalent in pounds).
20.	○	◉	**Will the project include equipment that after installation or modification will change the visual character of the site and its surroundings or block views?**
21.	○	◉	**Will the project have equipment that will create a new source of external lighting that will be visible at the property line?**

Section D – SIGNATURES

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

1. Signature of Responsible Official of Firm:		2. Title of Responsible Official of Firm: Chief Operating Officer
3. Print Name of Responsible Official of Firm: Derek Kramer		4. Date Signed:
5. Phone # of Responsible Official of Firm: (380) 900-2739	6. Fax # of Responsible Official of Firm:	7. Email of Responsible Official of Firm: dkramer@archaea.energy
8. Signature of Preparer, (If prepared by person other than responsible official of firm):		9. Title of Preparer: Project Manafer
10. Print Name of Preparer: Maria Bowen		11. Date Signed: 12/14/2023
12. Phone # of Preparer: (619) 455-9518	13. Fax # of Preparer: (562) 492-9292	14. Email of Preparer: mbowen@scsengineers.com

THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND ANY ATTACHMENTS WITH FORM 400-A.

South Coast Air Quality Management District

Form 400-E-2a
Gaseous Emission Control Form
Afterburner/Oxidizer

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): Biofuels Coyote Canyon Biogas, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD):

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 20661 Newport Coast Drive, Newport Beach, California, 92657

(•) Fixed Location ( ) Various Locations

Section B - Equipment Description

Equipment

Manufacturer: Conifer Systems

Model No.: TRO-65-60-051

Type

( ) Catalytic Oxidizer
( ) Thermal (direct fired) Oxidizer
( ) Recuperative Oxidizer w/ Heat Exchanger (Catalytic)
(•) Recuperative Oxidizer w/ Heat Exchanger (Thermal)
( ) Regenerative Thermal Oxidizer (RTO) - Number of Chambers: _____

Is a concentrator for VOC part of the design? (•) No ( ) Yes If Yes, also complete 400-E-2b.

For Regenerative Oxidizer, choose type of media:
( ) Ceramic Saddles ( ) Monolith ( ) Other _____

For Recuperative Oxidizer, choose type of heat exchanger:
(•) Shell and Tube ( ) Plate ( ) Other _____

For Catalytic Oxidizer

Catalyst Manufacturer: _____

Type of Catalyst: ( ) Low Temperature Catalyst ( ) Commercial Noble Metal ( ) Other _____

Estimated Catalyst Life: _____ years Catalyst Cleaning Frequency: _____ months

Method of Cleaning: _____

Does the process emit any of the following potential catalyst masking agent or deactivators? ( ) No ( ) Yes
If Yes, check the type(s):

[ ] Halogens [ ] Heavy Metals [ ] Silicones [ ] Sulfur Compounds [ ] Particulate Matter
[ ] PCBTF [ ] Phosphorous Compounds [ ] Other _____

Type of Burners and Fuel

[X] Natural Gas Fired — Rating: 7,500,000 BTU/hr

No. of Burners: 1 — Rating: 7,500,000 BTU/hr per burner

[ ] Other: _____ — Rating: _____ BTU/hr

Manufacturer: Siemens or equal Model: Fives 4225 or Conifer

Manufacturer's Emission Guarantee for Burners: Emission guarantees are uncorrected values.

NOx: 10 ppm @ _____ $\%O_2$ CO: 50 ppm @ _____ $\%O_2$

Combustion Air Blower: Flow Rate: 3400 SCFM Horsepower: 15 HP

Design Criteria

Retention time at normal operating temperature: 1 secs @ 1800 °F

Combustion Chamber Volume: 277 cubic feet (ft^3) Design Gas Flow: 2150 SCFM

Pre-Treatment Device

Is a pre-treatment device present? ( ) Yes (•) No

If Yes, indicate type:

[ ] Cyclone [ ] Precooler [ ] Preheater [ ] Knock-Out Chamber [ ] Baghouse
[ ] Inline Filters (Pressure drop of clean filters: _____ in. H_2O) [ ] Other: _____

Dimensions of pre-treatment device:

W _____ in. x L _____ in. x H _____ in. or Diameter _____ in. x H _____ in.

South Coast Air Quality Management District

Form 400-E-2a
Gaseous Emission Control Form
Afterburner/Oxidizer

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section B - Equipment Description (cont.)

Auxiliary Fuel Data (e.g. gas injection, duct burner)

Auxiliary fuel available? ○ No ◉ Yes If Yes, indicate type: Natural Gas

Fuel Usage: ◉ Cubic Feet Per Hour (ft^3/hr) ○ Gallons/Hour (gal/hr)

Maximum	Minimum	Average
7500	1875	1875

Exhaust Blower

Rating: 25 HP Flow Capacity: 2150 SCFM Draft: ○ Forced ○ Induced

Section C - Process Stream Characteristics

Brief Description of Process

Please attach a process flow diagram and engineering drawing of the process and the control system configuration. In the space provided, indicate what equipment is vented to the control equipment.

The waste gas which is processed through the VOC Removal and CO2 Removal is routed to the TOX.

Emission Data

Air Contaminant	Concentration (ppmv)	Destruction Efficiency (%)
VOCs	20	99.00

Instrumentation

Describe instrumentation for measuring temperature, pressure drop and other operating parameter (attach description, if necessary):

See attached for system sequence.

Bakeout or Burnout Process

Is bakeout a feature of the process? ○ Yes ◉ No

Operating Conditions

	Maximum	Minimum	Average
Operating Temperature (°F):	1800	1500	1600
Exit Gas Temperature (°F):			748

Operating Schedule

Normal: 24 hours/day 7 days/week 52 weeks/yr

Maximum: 24 hours/day 7 days/week 52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: Date: 12/14/2023

Title: Project Manager Company Name: SCS Engineers

Name: Maria Bowen

Phone #: (619) 455-9518 Fax #: (562) 492-9292

Email: mbowen@scsengineers.com

Contact Info

Name: Nevin Edwards

Title: Air Permitting Mgr Company Name: BCCB, LLC

Phone #: (724) 766-8388 Fax #:

Email: nedwards@archaea.energy

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator To Appears On The Permit): Biofuels Coyote Canyon Biogas, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD):

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 20661 Newport Coast Drive, Newport Beach, California, 92657

(●) **Fixed Location** ( ) **Various Locations**

Section B - Location Data

Plot Plan

Please attach a site map for the project with distances and scales. Identify and locate the proposed equipment on the map. A copy of the appropriate Thomas Brothers page, a web-based map, or a sketch that shows the major streets and location of the equipment is acceptable.

Location of Schools Nearby

Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school? ( ) Yes (●) No

If yes, please provide name(s) of school(s) below:

School Name: _____ **School Name:** _____

School Address: _____ **School Address:** _____

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

CA Health & Safety Code 42301.9: "School" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

Population Density

(●) Urban ( ) Rural (<50% of land within 3 km radius accounted for by urban land use categories, i.e., multi-family dwelling or industrial.)

Zoning Classification

(●) **Mixed Use Residential Commercial Zone (M-U)** ( ) **Service and Professional Zone (C-S)** ( ) **Medium Commercial (C-3)**

( ) **Heavy Commercial (C-4)** ( ) **Commercial Manufacturing (C-M)**

Section C - Emission Release Parameters - Stacks, Vents

Stack Data

Stack Height: 60.00 feet (above ground level) **What is the height of the closest building nearest the stack?** 10 feet

Stack Inside Diameter: 38.00 inches **Stack Flow:** 11,205 acfm **Stack Temperature:** 1,600 °F

Rain Cap Present: ( ) Yes (●) No **Stack Orientation:** (●) Vertical ( ) Horizontal

If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack (attach additional sheet if necessary):

Building #/Name: _____ **Building #/Name:** _____

Building Height: _____ feet (above ground level) **Building Height:** _____ feet (above ground level)

Building Width: _____ feet **Building Width:** _____ feet

Building Length: _____ feet **Building Length:** _____ feet

Receptor Distance From Equipment Stack or Roof Vents/Openings

Distance to nearest residence or sensitive receptor*: 1,369 feet

Distance to nearest business: 1,870 feet

Building Information

Are the emissions released from vents and/or openings from a building? ( ) Yes (●) No

If yes, please provide:

Building #/Name: _____ **Building Width:** _____ feet

Building Height: _____ feet (above ground level) **Building Length:** _____ feet

*AQMD Rule 1470 defines SENSITIVE RECEPTOR as meaning any residence including private homes, condominiums, apartments, and living quarters, schools as defined under paragraph (b)(57), preschools, daycare centers and health facilities such as hospitals or retirement and nursing homes. A sensitive receptor includes long term care hospitals, hospices, prisons, and dormitories or similar live-in housing.

South Coast Air Quality Management District

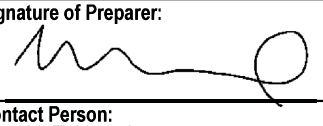
Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submittfgfed with this application is true and correct.

Signature of Preparer:	Title of Preparer:	Preparer's Phone #: (619) 455-9518 Preparer's Email: mbowen@scsengineers.com
	Project Manager	

Contact Person:	Contact's Phone#: (724) 766-8388	Date Signed:
Nevin Edwards		12/14/2023
Contact's Email: nedwards@archaea.energy	Contact's Fax#:	

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐


Receptor Map
TOx Sensitive Receptor Distances
Biofuels Coyote Canyon Biogas
Legend
Facility Line
Planned TOx Location
TOx to Nearest Residence - 1,369 ft
TOx to Non-Residential - 1,870 ft
TOx to School - 1,814 ft (0.34 miles)
Newport Coast Dr
Sage Hl
California State Route 73
Planned TOx Location
B3-107
Google Earth
N
1000 ft

Enclosed RNG Flare

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit):
Biofuels Coyote Canyon Biogas, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD):

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

20661 Newport Coast Drive
Street Address

Newport Beach , CA 92657
City Zip

Nevin Edwards | Air Permitting Manager
Contact Name | Title

(724) 766-8388 | Ext. | Fax #
Phone #

E-Mail: nedwards@archaea.energy

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

201 Helios Way, Floor 6
Address

Houston , TX 77079
City State Zip

Derek Kramer | Chief Operating Officer
Contact Name | Title

(380) 900-2739 | Ext. | Fax #
Phone #

E-Mail: dkramer@archaea.energy

Section D - Application Type

6. The Facility Is: (●) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V ( ) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- (●) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:

- ( ) Title V Application or Amendment (Refer to Title V Matrix)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
- ( ) Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy):

8b. Estimated End Date of Construction (mm/dd/yyyy):

8c. Estimated Start Date of Operation (mm/dd/yyyy):

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
Enclosed Renewable Natural Gas Flare

10. For Identical equipment, how many additional applications are being submitted with this application?
(Form 400-A required for each equipment / process)

11. Are you a Small Business as per AQMD's Rule 102 definition?
(10 employees or less and total gross receipts are $500,000 or less **OR** a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Renewable Natural Gas Plant

14. What is your business primary NAICS Code?
(North American Industrial Classification System)
221117

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (●) No ( ) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? (●) No ( ) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official:

18. Title of Responsible Official:
Chief Operating Officer

19. I wish to review the permit prior to issuance.
(This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name:
Derek Kramer

21. Date:

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: ☒ Authorized Signature/Date ☒ Form 400-CEQA ☒ Supplemental Form(s) (ie., Form 400-E-xx) ☒ Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN

South Coast Air Quality Management District

Form 400-CEQA
California Environmental Quality Act (CEQA) Applicability

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project [1] has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines § 15060(a)]. Form 400-CEQA and the instructions for guidance on completing this form are available at http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms or http://www.aqmd.gov/home/permits/permit-application-forms. For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one Form 400-CEQA is necessary for the entire project. If you need assistance completing this form, contact Permit Services at (909) 396-3385.

Section A – Facility Information

1. Facility Name (Business Name of Operator to Appear on the Permit): Biofuels Coyote Canyon Biogas, LLC

2. SCAQMD Facility ID:

3. Project Description: Enclosed Renewable Natural Gas Flare

Section B – Review For Exemption From Further CEQA Action

Check "Yes" or "No" as applicable. If "Yes" is checked for any question in Section B, skip Section C and proceed to page 2 and complete Section D - Signatures.

	Yes	No	Is this application for:
1.	○	◉	**A request for a change of operator only (without equipment or process change modifications)?**
2.	○	◉	**A functionally identical permit unit replacement with no increase in equipment unit rating or emissions?**
3.	○	◉	**A change of daily VOC permit limit to a monthly VOC permit limit?**
4.	○	◉	**Equipment damaged as a result of a disaster during state of emergency?**
5.	○	◉	**A Title V** (e.g., SCAQMD Regulation XXX) **permit renewal without equipment or process change modifications?**
6.	○	◉	**A Title V administrative permit revision?**
7.	○	◉	**The conversion of an existing permit into an initial Title V permit?**

Section C – Review of Impacts Which May Trigger Further CEQA Review

Check "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	
1.	○	◉	**Is this project specifically evaluated in a previously certified or adopted CEQA document?** If "Yes" is checked, attach a copy of the signed Notice of Determination to this form.
2.	○	◉	**Is this project specifically exempted from CEQA by another entity (e.g., city or agency)?** If "Yes" is checked, attach a copy of the signed Notice of Exemption or other documentation from the entity to this form.
3.	○	◉	**Is this project part of a larger project?** If "Yes" is checked, attach a separate sheet to briefly describe the larger project.
4.	○	◉	**Will the project increase the QUANTITY of hazardous materials stored aboveground onsite or transported by mobile vehicle to or from the site by greater than or equal to the amounts associated with each compound listed on Form 400-CEQA, Table 1 - Regulated Substances List and Threshold Quantities for Accidental Release Prevention** [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms]**?** If "Yes" is checked, attach a separate sheet to identify each hazardous material and corresponding quantity to be transported, stored, or used.
5.	○	◉	**Will the project emit any air toxic listed on Form 400-CEQA, Table 2 - Other Air Toxics and Their Screening Levels** [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms] [2]**?** If "Yes" is checked, attach a separate sheet to identify each air toxic and corresponding quantity to be emitted.
6.	○	◉	**Will the project require any demolition, excavation, and/or grading construction activities that encompass an area exceeding 20,000 square feet?**

[1] A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc

[2] Form 400-CEQA, Table 2 – Other Air Toxics and Their Screening Levels, contains a list of air toxics that either do not have a cancer potency (CP) or reference exposure level (REL) approved by the Office of Environmental Health Hazards Assessment (OEHHA) or have a combination of OEHHA-approved and non-approved CPs or RELs.

Section C – Review of Impacts Which May Trigger Further CEQA (concluded)

	Yes	No	
7.	◉	○	**Will the project utilize a boiler, engine, or other combustion equipment that uses fuel (e.g., gasoline, diesel, natural gas, liquefied petroleum gas (LPG), or landfill gas)?** If "Yes" is checked, then the applicant will need to calculate the amount of GHGs from fuel use via on the Greenhouse Gas (GHG) online estimator [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms], and attaching the printout or by conducting hand calculations and providing the documentation. Refer to the Instructions for Form 400-CEQA for guidance.
8.	○	◉	**Will the project utilize other types of equipment not addressed in Question 7 that require the use of, or will generate, any chemicals listed on Form 400-CEQA, Table 3 - Greenhouse Gases** [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms]**?** If "Yes" is checked, attach a separate sheet to identify each equipment unit, the chemical name(s), and the quantity of each chemical identified.
9.	○	◉	**Will the project include the open outdoor storage of dry bulk solid materials that could generate dust?** If "Yes" is checked, include a plot plan with the application package.
10.	○	◉	**Will the project result in or make worse noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements?** For example, landfills, materials recovery/recycling facilities (MRF), and compost materials or other types of greenwaste (e.g., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to SCAQMD Rule 402 – Nuisance.
11.	○	◉	**Will the project cause an increase of emissions from marine vessels, trains and/or airplanes?**
12.	○	◉	**Will the project increase demand for potable water at the facility by more than 262,820 gallons per day?** The following examples identify some, but not all, types of projects that may result in a "Yes" answer to this question: 1) a project that generates steam; 2) a project that uses water as part of operating air pollution control equipment; 3) a project that requires water as part of the production process; 4) a project that requires a new, or the expansion of an existing, sewage treatment facility, new water lines, sewage lines, sewage hook-ups etc.; 5) a project where the water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; 6) a project that requires new or the expansion of existing, water supply and conveyance facilities; and, 7) a project that requires water to hydrotest pipelines, storage tanks etc. for structural integrity.
13.	○	◉	**Will the project create an increase in the mass inflow of effluents to a public wastewater treatment facility that would require a new, or revision to an existing, National Pollutant Discharge Elimination System (NPDES) or other related permit at the facility?**
14.	○	◉	**Will the project result in the need for more than 350 new employees?**
15.	○	◉	**Will the project result in an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?**
16.	○	◉	**Will the project result in an increase in customer traffic by more than 700 visits per day?**
17.	○	◉	**Will the project result in temporary or permanent noise or vibration in excess of what is allowed by the applicable local noise ordinance?**
18.	○	◉	**Will the project create a permanent need for new or additional solid waste disposal?** Check "No" if the projected potential amount of solid waste to be generated by the project is less than five tons per day.
19.	○	◉	**Will the project create a permanent need for new or additional hazardous waste disposal?** Check "No" if the projected potential amount of hazardous wastes to be generated by the project is less than 42 cubic yards per day (or equivalent in pounds).
20.	○	◉	**Will the project include equipment that after installation or modification will change the visual character of the site and its surroundings or block views?**
21.	○	◉	**Will the project have equipment that will create a new source of external lighting that will be visible at the property line?**

Section D – SIGNATURES

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

1. Signature of Responsible Official of Firm:		2. Title of Responsible Official of Firm: Chief Operating Officer
3. Print Name of Responsible Official of Firm: Derek Kramer		4. Date Signed:
5. Phone # of Responsible Official of Firm: (380) 900-2739	6. Fax # of Responsible Official of Firm:	7. Email of Responsible Official of Firm: dkramer@archaea.energy
8. Signature of Preparer, (If prepared by person other than responsible official of firm):		9. Title of Preparer: Project Manager
10. Print Name of Preparer: Maria Bowen		11. Date Signed: 12/14/2023
12. Phone # of Preparer: (619) 455-9518	13. Fax # of Preparer:	14. Email of Preparer: mbowen@scsengineers.com

THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND ANY ATTACHMENTS WITH FORM 400-A.

South Coast Air Quality Management District

Form 400-E-2c
Gaseous Emission Control Form
Flare

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): Biofuels Coyote Canyon Biogas, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD):

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

(●) Fixed Location ( ) Various Locations

Section B - Equipment Description

Equipment

Manufacturer: John Zink or equivalent

Model No.: ZULE

Type

( ) Elevated (●) Ground Level ( ) Pit

How is Flare Assisted? ( ) Air Assisted ( ) Steam Assisted (●) Non-Assisted

Operation (See Rule 1118 for definition)

( ) Clean Service Flare ( ) Emergency Service Flare (●) General Service Flare

Dimension

Flare Height: 40 ft. **Flare Tip Inside Diameter:** 10 ft.

Design Criteria for Waste Gas Stream

Retention Time at Normal Operating Temperature: 1 secs at 1800 °F

Combustion Chamber Volume: 4367 cubic feet

Design Waste Stream Flow: 3000 scfm

Btu: 77,800,000

	Maximum	Minimum
Velocity At Tip: (feet per second)	1170	
Flow Rate: (scfm)	3000	

For Steam Injection

	Maximum	Minimum
Steam Pressure (psig):		

Design Basis for Steam Injected: _____ lb steam/lb Hydrocarbons

Total Steam Flow Rate: _____ pounds/hour **Number of Jets:** _____

Temperature: _____ °F **Diameter of Jets:** _____ inches **Velocity:** _____ feet per second

For Water Injection

Number of Water Jets: _____ **Diameter of Water Jets:** _____ inches

	Maximum	Minimum
Water Pressure (psig):		
Total Water Flow Rate (gpm):		

Auxiliary Fuel Data (e.g. gas injection, duct burner)

Auxiliary fuel available? (●) No ( ) Yes **If Yes, indicate type:** _____

Number of Pilots: _____ **Fuel Rate per pilot** (at 70 °F & 14.7 psia): _____ SCFM

Fuel Usage: ( ) Cubic Feet Per Hour (ft^3/hr) ( ) Gallons/Hour (gal/hr)

Maximum	Minimum	Average

South Coast Air Quality Management District

Form 400-E-2c
Gaseous Emission Control Form
Flare

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section C - Waste Gas Stream Characteristics

Brief Description of Process

Describe equipment vented to this Flare. Also describe the type of ignition system and its method of operation. Provide an explanation of the control system for steam flow and rate and other operating variables. Please supply an assembly drawing, dimensioned to scale, to show clearly the operation of the flare system. Show interior dimensions and features of the equipment necessary to calculate its performance.

The RNG plant's product gas will be low VOC after having been treated by the membrane CO2 removal process pressure swing adsorption (PSA) system and activated carbon. It will also at all times be virtually HAPs and H2S free. Details can be found in the attached application.

Waste Gas Stream

Material	Flow Rate (at 70 °F & 14.7 psia) (scfm) Maximum	Minimum	Average	BTU Rating
Off-Spec Natural Gas	3000	74		77,800,000

Instrumentation

Describe instrumentation for measuring temperature, pressure drop and other operating parameter (attach description, if necessary)**:**

The flare will be equipped with pressure transmitters and thermocouples, as well as a flow meter. The flow and temperature will be recorded continuously. See attached application for details.

Operating Schedule

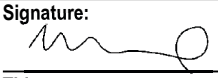
Normal:	2	hours/day	7	days/week	52	weeks/yr
Maximum:	24	hours/day	7	days/week	52	weeks/yr

The flare will not operate at maximum operating scenario concurrently.

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature: 

Date: 12/14/2023

Name: Maria Bowen

Title: Manager Project

Company Name: SCS Engineers

Phone #: (619) 455-9518 **Fax #:** (562) 492-9292

Email: mbowen@scsengineers,com

Contact Info

Name: Nevin Edwards

Title: Air Permitting Mgr.

Company Name: Archaea Energy

Phone #: (724) 766-8388 **Fax #:**

Email: nedwards@archaea.energy

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

South Coast Air Quality Management District

Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator To Appears On The Permit): Biofuels Coyote Canyon Biogas, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD):

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 20661 Newport Coast Drive, Newport Beach, California, 92657

(●) **Fixed Location** ( ) **Various Locations**

Section B - Location Data

Plot Plan

Please attach a site map for the project with distances and scales. Identify and locate the proposed equipment on the map. A copy of the appropriate Thomas Brothers page, a web-based map, or a sketch that shows the major streets and location of the equipment is acceptable.

Location of Schools Nearby

Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school? ( ) Yes (●) No

If yes, please provide name(s) of school(s) below:

School Name: _____ **School Name:** _____

School Address: _____ **School Address:** _____

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

Distance from stack or equipment vent to the outer boundary of the school: _____ feet

CA Health & Safety Code 42301.9: "School" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

Population Density

(●) Urban ( ) Rural (<50% of land within 3 km radius accounted for by urban land use categories, i.e., multi-family dwelling or industrial.)

Zoning Classification

(●) **Mixed Use Residential Commercial Zone (M-U)** ( ) **Service and Professional Zone (C-S)** ( ) **Medium Commercial (C-3)**

( ) **Heavy Commercial (C-4)** ( ) **Commercial Manufacturing (C-M)**

Section C - Emission Release Parameters - Stacks, Vents

Stack Data

Stack Height: 40.00 feet (above ground level) **What is the height of the closest building nearest the stack?** 10 feet

Stack Inside Diameter: 12.00 inches **Stack Flow:** 24,992 acfm **Stack Temperature:** 1,600 °F

Rain Cap Present: (●) Yes ( ) No **Stack Orientation:** (●) Vertical ( ) Horizontal

If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack (attach additional sheet if necessary):

Building #/Name: _____ **Building #/Name:** _____

Building Height: _____ feet (above ground level) **Building Height:** _____ feet (above ground level)

Building Width: _____ feet **Building Width:** _____ feet

Building Length: _____ feet **Building Length:** _____ feet

Receptor Distance From Equipment Stack or Roof Vents/Openings

Distance to nearest residence or sensitive receptor*: 1,394 feet

Distance to nearest business: 1,804 feet

Building Information

Are the emissions released from vents and/or openings from a building? ( ) Yes (●) No

If yes, please provide:

Building #/Name: _____ **Building Width:** _____ feet

Building Height: _____ feet (above ground level) **Building Length:** _____ feet

*AQMD Rule 1470 defines SENSITIVE RECEPTOR as meaning any residence including private homes, condominiums, apartments, and living quarters, schools as defined under paragraph (b)(57), preschools, daycare centers and health facilities such as hospitals or retirement and nursing homes. A sensitive receptor includes long term care hospitals, hospices, prisons, and dormitories or similar live-in housing.

South Coast Air Quality Management District

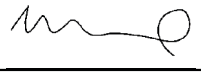
Form 400-PS

Plot Plan And Stack Information Form

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Form 400A and Form 400-CEQA.

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submittfgfed with this application is true and correct.

Signature of Preparer:	Title of Preparer:	Preparer's Phone #: (619) 455-9518 Preparer's Email: mbowen@scsengineers.com
	Project Manager	

Contact Person:	Contact's Phone#: (726) 766-8388	Date Signed:
Nevin Edwards		12/14/2023
Contact's Email: nedwards@archaea.energy	Contact's Fax#:	

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐


Receptor Map
Flare Sensitive Receptor Distances
Biofuels Coyote Canyon Biogas
Legend
Facility Line
Flare to Nearest Residence - 1,377 ft
Flare to Non-Residential - 1,848 ft
Flare to School - 1,794 ft (0.34 miles)
Planned Flare Location
Newport Coast Dr
Sage Hl
California State Route 73
Planned Flare Location
B3-116
Google Earth
N
1000 ft

H2S Scrubber System

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit):
Biofuels Coyote Canyon Biogas, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD):

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

20661 Newport Coast Drive
Street Address

Newport Beach , CA 92657
City Zip

Nevin Edwards | Air Permitting Manager
Contact Name | Title

(724) 766-8388 | Ext. | Fax #
Phone #

E-Mail: nedwards@archaea.energy

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

201 Helios Way, Floor 6
Address

Houston , TX 77079
City State Zip

Derek Kramer | Air Permitting Manager
Contact Name | Title

(380) 900-2739 | Ext. | Fax #
Phone #

E-Mail: dkramer@archaea.energy

Section D - Application Type

6. The Facility Is: (●) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V ( ) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- (●) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:

- ( ) Title V Application or Amendment (Refer to Title V Matrix)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
- ( ) Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy):

8b. Estimated End Date of Construction (mm/dd/yyyy):

8c. Estimated Start Date of Operation (mm/dd/yyyy):

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
Hydrogen Sulfide Treatment System

10. For Identical equipment, how many additional applications are being submitted with this application?
(Form 400-A required for each equipment / process)

11. Are you a Small Business as per AQMD's Rule 102 definition?
(10 employees or less and total gross receipts are $500,000 or less **OR** a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Renewable Natural Gas Plant

14. What is your business primary NAICS Code?
(North American Industrial Classification System)
221117

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (●) No ( ) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? (●) No ( ) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official:

18. Title of Responsible Official:
Chief Operating Officer

19. I wish to review the permit prior to issuance.
(This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name:
Derek Kramer

21. Date:

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: ☒ Authorized Signature/Date ☒ Form 400-CEQA ☒ Supplemental Form(s) (ie., Form 400-E-xx) ☒ Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN

South Coast Air Quality Management District

Form 400-CEQA
California Environmental Quality Act (CEQA) Applicability

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project [1] has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines § 15060(a)]. Form 400-CEQA and the instructions for guidance on completing this form are available at http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms or http://www.aqmd.gov/home/permits/permit-application-forms. For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one Form 400-CEQA is necessary for the entire project. If you need assistance completing this form, contact Permit Services at (909) 396-3385.

Section A – Facility Information

1. Facility Name (Business Name of Operator to Appear on the Permit): Biofuels Coyote Canyon Biogas, LLC

2. SCAQMD Facility ID:

3. Project Description: Hydrogen Sulfide Treatment System and associated equipment

Section B – Review For Exemption From Further CEQA Action

Check "Yes" or "No" as applicable. If "Yes" is checked for any question in Section B, skip Section C and proceed to page 2 and complete Section D - Signatures.

	Yes	No	Is this application for:
1.	○	⊙	**A request for a change of operator only (without equipment or process change modifications)?**
2.	○	⊙	**A functionally identical permit unit replacement with no increase in equipment unit rating or emissions?**
3.	○	⊙	**A change of daily VOC permit limit to a monthly VOC permit limit?**
4.	○	⊙	**Equipment damaged as a result of a disaster during state of emergency?**
5.	○	⊙	**A Title V** (e.g., SCAQMD Regulation XXX) **permit renewal without equipment or process change modifications?**
6.	○	⊙	**A Title V administrative permit revision?**
7.	○	⊙	**The conversion of an existing permit into an initial Title V permit?**

Section C – Review of Impacts Which May Trigger Further CEQA Review

Check "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	
1.	○	⊙	**Is this project specifically evaluated in a previously certified or adopted CEQA document?** If "Yes" is checked, attach a copy of the signed Notice of Determination to this form.
2.	○	⊙	**Is this project specifically exempted from CEQA by another entity (e.g., city or agency)?** If "Yes" is checked, attach a copy of the signed Notice of Exemption or other documentation from the entity to this form.
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6.	○	⊙	**Will the project require any demolition, excavation, and/or grading construction activities that encompass an area exceeding 20,000 square feet?**

[1] A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc

[2] Form 400-CEQA, Table 2 – Other Air Toxics and Their Screening Levels, contains a list of air toxics that either do not have a cancer potency (CP) or reference exposure level (REL) approved by the Office of Environmental Health Hazards Assessment (OEHHA) or have a combination of OEHHA-approved and non-approved CPs or RELs.

Section C – Review of Impacts Which May Trigger Further CEQA (concluded)			
	Yes	No	
7.	◉	○	**Will the project utilize a boiler, engine, or other combustion equipment that uses fuel (e.g., gasoline, diesel, natural gas, liquefied petroleum gas (LPG), or landfill gas)?** If "Yes" is checked, then the applicant will need to calculate the amount of GHGs from fuel use via on the Greenhouse Gas (GHG) online estimator [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms], and attaching the printout or by conducting hand calculations and providing the documentation. Refer to the Instructions for Form 400-CEQA for guidance.
8.	○	◉	**Will the project utilize other types of equipment not addressed in Question 7 that require the use of, or will generate, any chemicals listed on Form 400-CEQA, Table 3 - Greenhouse Gases** [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms]**?** If "Yes" is checked, attach a separate sheet to identify each equipment unit, the chemical name(s), and the quantity of each chemical identified.
9.	○	◉	**Will the project include the open outdoor storage of dry bulk solid materials that could generate dust?** If "Yes" is checked, include a plot plan with the application package.
10.	○	◉	**Will the project result in or make worse noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements?** For example, landfills, materials recovery/recycling facilities (MRF), and compost materials or other types of greenwaste (e.g., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to SCAQMD Rule 402 – Nuisance.
11.	○	◉	**Will the project cause an increase of emissions from marine vessels, trains and/or airplanes?**
12.	○	◉	**Will the project increase demand for potable water at the facility by more than 262,820 gallons per day?** The following examples identify some, but not all, types of projects that may result in a "Yes" answer to this question: 1) a project that generates steam; 2) a project that uses water as part of operating air pollution control equipment; 3) a project that requires water as part of the production process; 4) a project that requires a new, or the expansion of an existing, sewage treatment facility, new water lines, sewage lines, sewage hook-ups etc.; 5) a project where the water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; 6) a project that requires new or the expansion of existing, water supply and conveyance facilities; and, 7) a project that requires water to hydrotest pipelines, storage tanks etc. for structural integrity.
13.	○	◉	**Will the project create an increase in the mass inflow of effluents to a public wastewater treatment facility that would require a new, or revision to an existing, National Pollutant Discharge Elimination System (NPDES) or other related permit at the facility?**
14.	○	◉	**Will the project result in the need for more than 350 new employees?**
15.	○	◉	**Will the project result in an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?**
16.	○	◉	**Will the project result in an increase in customer traffic by more than 700 visits per day?**
17.	○	◉	**Will the project result in temporary or permanent noise or vibration in excess of what is allowed by the applicable local noise ordinance?**
18.	○	◉	**Will the project create a permanent need for new or additional solid waste disposal?** Check "No" if the projected potential amount of solid waste to be generated by the project is less than five tons per day.
19.	○	◉	**Will the project create a permanent need for new or additional hazardous waste disposal?** Check "No" if the projected potential amount of hazardous wastes to be generated by the project is less than 42 cubic yards per day (or equivalent in pounds).
20.	○	◉	**Will the project include equipment that after installation or modification will change the visual character of the site and its surroundings or block views?**
21.	○	◉	**Will the project have equipment that will create a new source of external lighting that will be visible at the property line?**

Section D – SIGNATURES

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

1. Signature of Responsible Official of Firm:		2. Title of Responsible Official of Firm: Chief Operating Officer
3. Print Name of Responsible Official of Firm: Derek Kramer		4. Date Signed:
5. Phone # of Responsible Official of Firm: (380) 900-2739	6. Fax # of Responsible Official of Firm:	7. Email of Responsible Official of Firm: dkramer@archaea.energy
8. Signature of Preparer, (If prepared by person other than responsible official of firm):		9. Title of Preparer: Project Manager
10. Print Name of Preparer: Maria Bowen		11. Date Signed: 12/14/2023
12. Phone # of Preparer: (619) 455-9518	13. Fax # of Preparer:	14. Email of Preparer: mbowen@scsengineers.com

THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND ANY ATTACHMENTS WITH FORM 400-A.

South Coast Air Quality Management District

Form 400-E-2b
Gaseous Emission Control Form
Adsorber (Carbon, Others)

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944
Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): Biofuels Coyote Canyon Biogas, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD):

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 20661 Newport Coast Drive, Newport Beach, California, 92657

(●) **Fixed Location** ( ) **Various Locations**

Section B - Equipment Description

Equipment

Manufacturer: Guild Associates, Inc.

Model No.:

Type

( ) **Fixed Regenerative Beds** ( ) **Traveling Bed Adsorbers/Rotary Concentrators**

(●) **Disposable/Rechargeable Canisters** ( ) **Fluidized Adsorbers**

Number of beds: 1 **Capacity of each bed:** 20000 pounds of adsorbent

Arrangement, if 2 or more beds: ( ) **In Series** ( ) **In Parallel**

Adsorbent Material

(●) **Granulated Activated Carbon** ( ) **Synthetic Adsorbent** Trade name:

( ) **Zeolite, Molecular Sieve** ( ) **Others:**

Adsorbent Capacity: 1.4 (pound of vapor/pound of adsorbent)

Depth of Adsorbent in Bed: ft. in.

Adsorbent Vessel Dimensions

Diameter: 8 ft in. **Height:** 15 ft in.

Or

Width: ft in. **Length:** ft in. **Height:** ft in.

Section C - Gas Stream Characteristics

Brief Description Of Process

Please supply an assembly drawing, dimensioned to scale, to show clearly the operation of the adsorber including all equipment vented. Describe equipment vented to this adsorber and procedure in disposing of spent adsorbent.

See attached PFD.

Gas Stream

Inlet Flow Rate: 3000 SCFM **Temperature:** 100 °F **Pressure:** 15.7 psia

Does gas stream contain Rule 1401 toxic air contaminants? (●) **No** ( ) **Yes** If Yes, list below:

Are Ketones or Aldehydes present? (●) **No** ( ) **Yes**

Relative humidity: %

Cycle time for adsorption: hours

Lower explosive limit of mixture: ppmv **or** % volume

South Coast Air Quality Management District

Form 400-E-2b
Gaseous Emission Control Form
Adsorber (Carbon, Others)

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Section C - Gas Stream Characteristics (cont.)

Regeneration

Is the adsorbent material regenerated on-site? ○ Yes ◉ No

On-site Regeneration by:

○ Steam ○ Air ○ Inert gas ○ Process gas ○ Other_____

Cycle time for regeneration:_____ hours

Describe regeneration procedure and how emissions are controlled during regeneration. If Ketones or Aldehydes are present in the inlet stream, what is the procedure to prevent adsorbent bed fires (Attach description, if necessary).

Instrumentation

Describe instrumentation for measuring temperature, pressure drop, VOC monitoring, audible alarms, and other operating parameters.

The inlet piping of each treatment vessel will include manual pressure measurement sample ports, visually-read temperature gauges, and locations to sample for hydrogen sulfide concentration and other parameters, as necessary. The outlet piping of each treatment vessel will include manual pressure measurement sample ports, visually-read temperature gauges, and locations to sample for hydrogen sulfide concentration and other parameters, as necessary.

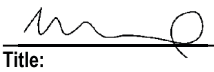
Operating Schedule

Normal:	24	hours/day	7	days/week	52 weeks/yr
Maximum:	24	hours/day	7	days/week	52 weeks/yr

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature:  **Date:** 12/14/2023

Title: Manager Project **Company Name:** SCS Engineers

Name: Maria Bowen

Phone #: (619) 455-9518 **Fax #:** (562) 492-9292

Email: mbowen@scsengineers.com

Contact Info

Name: Nevin Edwards

Title: Air Permitting Mgr **Company Name:** Archaea Energy

Phone #: (724) 766-8388 **Fax #:**

Email: nedwards@archaea.energy

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

Condensate Tanks

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit):
Biofuels Coyote Canyon Biogas, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD):

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

20661 Newport Coast Drive
Street Address

Newport Beach , CA 92377
City Zip

Nevin Edwards | Air Permitting Manager
Contact Name | Title

(724) 766-8388 | Ext. | Fax #
Phone #

E-Mail: nedwards@archaea.energy

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

201 Helios Way, Floor 6
Address

Houston , TX 77079
City State Zip

Derek Kramer | Chief Operating Officer
Contact Name | Title

(380) 900-2739 | Ext. | Fax #
Phone #

E-Mail: dkramer@archaea.energy

Section D - Application Type

6. The Facility Is: (●) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V ( ) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- (●) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:

- ( ) Title V Application or Amendment (Refer to Title V Matrix)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
- ( ) Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy):

8b. Estimated End Date of Construction (mm/dd/yyyy):

8c. Estimated Start Date of Operation (mm/dd/yyyy):

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
Condensate Storage Tank 1 (a)

10. For Identical equipment, how many additional applications are being submitted with this application?
(Form 400-A required for each equipment / process)

11. Are you a Small Business as per AQMD's Rule 102 definition?
(10 employees or less and total gross receipts are $500,000 or less **OR** a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Renewable Natural Gas Plant

14. What is your business primary NAICS Code?
(North American Industrial Classification System)
221210

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (●) No ( ) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? (●) No ( ) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official:

18. Title of Responsible Official:
Chief Operating Officer

19. I wish to review the permit prior to issuance.
(This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name:
Derek Kramer

21. Date:

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: ☒ Authorized Signature/Date ☒ Form 400-CEQA ☒ Supplemental Form(s) (ie., Form 400-E-xx) ☒ Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN

South Coast Air Quality Management District

Form 400-CEQA
California Environmental Quality Act (CEQA) Applicability

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project [1] has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines § 15060(a)]. Form 400-CEQA and the instructions for guidance on completing this form are available at http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms or http://www.aqmd.gov/home/permits/permit-application-forms. For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one Form 400-CEQA is necessary for the entire project. If you need assistance completing this form, contact Permit Services at (909) 396-3385.

Section A – Facility Information

1. Facility Name (Business Name of Operator to Appear on the Permit): Biofuels Coyote Canyon Biogas, LLC

2. SCAQMD Facility ID:

3. Project Description: Underground Condensate Storage Tank 1

Section B – Review For Exemption From Further CEQA Action

Check "Yes" or "No" as applicable. If "Yes" is checked for any question in Section B, skip Section C and proceed to page 2 and complete Section D - Signatures.

	Yes	No	Is this application for:
1.	○	⊙	**A request for a change of operator only (without equipment or process change modifications)?**
2.	○	⊙	**A functionally identical permit unit replacement with no increase in equipment unit rating or emissions?**
3.	○	⊙	**A change of daily VOC permit limit to a monthly VOC permit limit?**
4.	○	⊙	**Equipment damaged as a result of a disaster during state of emergency?**
5.	○	⊙	**A Title V** (e.g., SCAQMD Regulation XXX) **permit renewal without equipment or process change modifications?**
6.	○	⊙	**A Title V administrative permit revision?**
7.	○	⊙	**The conversion of an existing permit into an initial Title V permit?**

Section C – Review of Impacts Which May Trigger Further CEQA Review

Check "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	
1.	○	⊙	**Is this project specifically evaluated in a previously certified or adopted CEQA document?** If "Yes" is checked, attach a copy of the signed Notice of Determination to this form.
2.	○	⊙	**Is this project specifically exempted from CEQA by another entity (e.g., city or agency)?** If "Yes" is checked, attach a copy of the signed Notice of Exemption or other documentation from the entity to this form.
3.	○	⊙	**Is this project part of a larger project?** If "Yes" is checked, attach a separate sheet to briefly describe the larger project.
4.	○	⊙	**Will the project increase the QUANTITY of hazardous materials stored aboveground onsite or transported by mobile vehicle to or from the site by greater than or equal to the amounts associated with each compound listed on Form 400-CEQA, Table 1 - Regulated Substances List and Threshold Quantities for Accidental Release Prevention** [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms]**?** If "Yes" is checked, attach a separate sheet to identify each hazardous material and corresponding quantity to be transported, stored, or used.
5.	○	⊙	**Will the project emit any air toxic listed on Form 400-CEQA, Table 2 - Other Air Toxics and Their Screening Levels** [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms] [2]**?** If "Yes" is checked, attach a separate sheet to identify each air toxic and corresponding quantity to be emitted.
6.	○	⊙	**Will the project require any demolition, excavation, and/or grading construction activities that encompass an area exceeding 20,000 square feet?**

[1] A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc

[2] Form 400-CEQA, Table 2 – Other Air Toxics and Their Screening Levels, contains a list of air toxics that either do not have a cancer potency (CP) or reference exposure level (REL) approved by the Office of Environmental Health Hazards Assessment (OEHHA) or have a combination of OEHHA-approved and non-approved CPs or RELs.

Section C – Review of Impacts Which May Trigger Further CEQA (concluded)

	Yes	No	
7.	◉	○	**Will the project utilize a boiler, engine, or other combustion equipment that uses fuel (e.g., gasoline, diesel, natural gas, liquefied petroleum gas (LPG), or landfill gas)?** If "Yes" is checked, then the applicant will need to calculate the amount of GHGs from fuel use via on the Greenhouse Gas (GHG) online estimator [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms], and attaching the printout or by conducting hand calculations and providing the documentation. Refer to the Instructions for Form 400-CEQA for guidance.
8.	○	◉	**Will the project utilize other types of equipment not addressed in Question 7 that require the use of, or will generate, any chemicals listed on Form 400-CEQA, Table 3 - Greenhouse Gases** [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms]**?** If "Yes" is checked, attach a separate sheet to identify each equipment unit, the chemical name(s), and the quantity of each chemical identified.
9.	○	◉	**Will the project include the open outdoor storage of dry bulk solid materials that could generate dust?** If "Yes" is checked, include a plot plan with the application package.
10.	○	◉	**Will the project result in or make worse noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements?** For example, landfills, materials recovery/recycling facilities (MRF), and compost materials or other types of greenwaste (e.g., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to SCAQMD Rule 402 – Nuisance.
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16.	○	◉	**Will the project result in an increase in customer traffic by more than 700 visits per day?**
17.	○	◉	**Will the project result in temporary or permanent noise or vibration in excess of what is allowed by the applicable local noise ordinance?**
18.	○	◉	**Will the project create a permanent need for new or additional solid waste disposal?** Check "No" if the projected potential amount of solid waste to be generated by the project is less than five tons per day.
19.	○	◉	**Will the project create a permanent need for new or additional hazardous waste disposal?** Check "No" if the projected potential amount of hazardous wastes to be generated by the project is less than 42 cubic yards per day (or equivalent in pounds).
20.	○	◉	**Will the project include equipment that after installation or modification will change the visual character of the site and its surroundings or block views?**
21.	○	◉	**Will the project have equipment that will create a new source of external lighting that will be visible at the property line?**

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I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

1. Signature of Responsible Official of Firm:		2. Title of Responsible Official of Firm: Chief Operating Officer
3. Print Name of Responsible Official of Firm: Derek Kramer		4. Date Signed:
5. Phone # of Responsible Official of Firm: (380) 900-2739	6. Fax # of Responsible Official of Firm:	7. Email of Responsible Official of Firm: dkramer@archaea.energy
8. Signature of Preparer, (If prepared by person other than responsible official of firm):		9. Title of Preparer: Project Manager
10. Print Name of Preparer: Maria Bowen		11. Date Signed: 12/14/2023
12. Phone # of Preparer: (619) 455-9518	13. Fax # of Preparer:	14. Email of Preparer: mbowen@scsengineers.com

THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND ANY ATTACHMENTS WITH FORM 400-A.

South Coast Air Quality Management District

Form 400-A

Application Form for Permit or Plan Approval

List only one piece of equipment or process per form.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

1. Facility Name (Business Name of Operator to Appear on the Permit):
Biofuels Coyote Canyon Biogas, LLC

2. Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD):

3. Owner's Business Name (If different from Business Name of Operator):

Section B - Equipment Location Address

4. Equipment Location Is: (●) Fixed Location ( ) Various Location
(For equipment operated at various locations, provide address of initial site.)

20661 Newport Coast Drive
Street Address

Newport Beach , CA 92377
City Zip

Nevin Edwards | Air Permitting Manager
Contact Name | Title

(724) 766-8388 | Ext. | Fax #
Phone #

E-Mail: nedwards@archaea.energy

Section C - Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

201 Helios Way, Floor 6
Address

Houston , TX 77079
City State Zip

Derek Kramer | Chief Operating Officer
Contact Name | Title

(380) 900-2739 | Ext. | Fax #
Phone #

E-Mail: dkramer@archaea.energy

Section D - Application Type

6. The Facility Is: (●) Not In RECLAIM or Title V ( ) In RECLAIM ( ) In Title V ( ) In RECLAIM & Title V Programs

7. Reason for Submitting Application (Select only ONE):

7a. New Equipment or Process Application:

- (●) New Construction (Permit to Construct)
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Equipment Operating Without A Permit *
- ( ) Compliance Plan
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

7b. Facility Permits:

- ( ) Title V Application or Amendment (Refer to Title V Matrix)
- ( ) RECLAIM Facility Permit Amendment

7c. Equipment or Process with an Existing/Previous Application or Permit:

- ( ) Administrative Change
- ( ) Alteration/Modification
- ( ) Alteration/Modification without Prior Approval *
- ( ) Change of Condition
- ( ) Change of Condition without Prior Approval *
- ( ) Change of Location
- ( ) Change of Location without Prior Approval *
- ( ) Equipment Operating with an Expired/Inactive Permit *

Existing or Previous Permit/Application
If you checked any of the items in 7c., you MUST provide an existing Permit or Application Number:

* A Higher Permit Processing Fee and additional Annual Operating Fees (up to 3 full years) may apply (Rule 301(c)(1)(D)(i)).

8a. Estimated Start Date of Construction (mm/dd/yyyy):

8b. Estimated End Date of Construction (mm/dd/yyyy):

8c. Estimated Start Date of Operation (mm/dd/yyyy):

9. Description of Equipment or Reason for Compliance Plan (list applicable rule):
Condensate Storage Tank 2 (b)

10. For Identical equipment, how many additional applications are being submitted with this application?
(Form 400-A required for each equipment / process)

11. Are you a Small Business as per AQMD's Rule 102 definition?
(10 employees or less and total gross receipts are $500,000 or less **OR** a not-for-profit training center) (●) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice to Comply (NC) been issued for this equipment? (●) No ( ) Yes
If Yes, provide NOV/NC#:

Section E - Facility Business Information

13. What type of business is being conducted at this equipment location?
Renewable Natural Gas Plant

14. What is your business primary NAICS Code?
(North American Industrial Classification System)
221210

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (●) No ( ) Yes

16. Are there any schools (K-12) within 1000 feet of the facility property line? (●) No ( ) Yes

Section F - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application are true and correct.

17. Signature of Responsible Official:

18. Title of Responsible Official:
Chief Operating Officer

19. I wish to review the permit prior to issuance.
(This may cause a delay in the application process.) ( ) No (●) Yes

20. Print Name:
Derek Kramer

21. Date:

22. Do you claim confidentiality of data? (If Yes, see instructions.) (●) No ( ) Yes

23. Check List: ☒ Authorized Signature/Date ☒ Form 400-CEQA ☒ Supplemental Form(s) (ie., Form 400-E-xx) ☒ Fees Enclosed

AQMD USE ONLY	APPLICATION TRACKING #	CHECK #	AMOUNT RECEIVED $	PAYMENT TRACKING #	VALIDATION

DATE	APP REJ	DATE	APP REJ	CLASS I III	BASIC CONTROL	EQUIPMENT CATEGORY CODE	TEAM	ENGINEER	REASON/ACTION TAKEN

South Coast Air Quality Management District

Form 400-CEQA
California Environmental Quality Act (CEQA) Applicability

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project [1] has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines § 15060(a)]. Form 400-CEQA and the instructions for guidance on completing this form are available at http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms or http://www.aqmd.gov/home/permits/permit-application-forms. For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one Form 400-CEQA is necessary for the entire project. If you need assistance completing this form, contact Permit Services at (909) 396-3385.

Section A – Facility Information

1. Facility Name (Business Name of Operator to Appear on the Permit): Biofuels Coyote Canyon Biogas, LLC

2. SCAQMD Facility ID:

3. Project Description: Underground Condensate Storage Tank 2

Section B – Review For Exemption From Further CEQA Action

Check "Yes" or "No" as applicable. If "Yes" is checked for any question in Section B, skip Section C and proceed to page 2 and complete Section D - Signatures.

	Yes	No	Is this application for:
1.	○	⊙	**A request for a change of operator only (without equipment or process change modifications)?**
2.	○	⊙	**A functionally identical permit unit replacement with no increase in equipment unit rating or emissions?**
3.	○	⊙	**A change of daily VOC permit limit to a monthly VOC permit limit?**
4.	○	⊙	**Equipment damaged as a result of a disaster during state of emergency?**
5.	○	⊙	**A Title V** (e.g., SCAQMD Regulation XXX) **permit renewal without equipment or process change modifications?**
6.	○	⊙	**A Title V administrative permit revision?**
7.	○	⊙	**The conversion of an existing permit into an initial Title V permit?**

Section C – Review of Impacts Which May Trigger Further CEQA Review

Check "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	
1.	○	⊙	**Is this project specifically evaluated in a previously certified or adopted CEQA document?** If "Yes" is checked, attach a copy of the signed Notice of Determination to this form.
2.	○	⊙	**Is this project specifically exempted from CEQA by another entity (e.g., city or agency)?** If "Yes" is checked, attach a copy of the signed Notice of Exemption or other documentation from the entity to this form.
3.	○	⊙	**Is this project part of a larger project?** If "Yes" is checked, attach a separate sheet to briefly describe the larger project.
4.	○	⊙	**Will the project increase the QUANTITY of hazardous materials stored aboveground onsite or transported by mobile vehicle to or from the site by greater than or equal to the amounts associated with each compound listed on Form 400-CEQA, Table 1 - Regulated Substances List and Threshold Quantities for Accidental Release Prevention** [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms]**?** If "Yes" is checked, attach a separate sheet to identify each hazardous material and corresponding quantity to be transported, stored, or used.
5.	○	⊙	**Will the project emit any air toxic listed on Form 400-CEQA, Table 2 - Other Air Toxics and Their Screening Levels** [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms] [2]**?** If "Yes" is checked, attach a separate sheet to identify each air toxic and corresponding quantity to be emitted.
6.	○	⊙	**Will the project require any demolition, excavation, and/or grading construction activities that encompass an area exceeding 20,000 square feet?**

[1] A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc

[2] Form 400-CEQA, Table 2 – Other Air Toxics and Their Screening Levels, contains a list of air toxics that either do not have a cancer potency (CP) or reference exposure level (REL) approved by the Office of Environmental Health Hazards Assessment (OEHHA) or have a combination of OEHHA-approved and non-approved CPs or RELs.

Section C – Review of Impacts Which May Trigger Further CEQA (concluded)			
	Yes	No	
7.	◉	○	**Will the project utilize a boiler, engine, or other combustion equipment that uses fuel (e.g., gasoline, diesel, natural gas, liquefied petroleum gas (LPG), or landfill gas)?** If "Yes" is checked, then the applicant will need to calculate the amount of GHGs from fuel use via on the Greenhouse Gas (GHG) online estimator [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms], and attaching the printout or by conducting hand calculations and providing the documentation. Refer to the Instructions for Form 400-CEQA for guidance.
8.	○	◉	**Will the project utilize other types of equipment not addressed in Question 7 that require the use of, or will generate, any chemicals listed on Form 400-CEQA, Table 3 - Greenhouse Gases** [http://www.aqmd.gov/home/regulations/ceqa/ceqa-permit-forms]**?** If "Yes" is checked, attach a separate sheet to identify each equipment unit, the chemical name(s), and the quantity of each chemical identified.
9.	○	◉	**Will the project include the open outdoor storage of dry bulk solid materials that could generate dust?** If "Yes" is checked, include a plot plan with the application package.
10.	○	◉	**Will the project result in or make worse noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements?** For example, landfills, materials recovery/recycling facilities (MRF), and compost materials or other types of greenwaste (e.g., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to SCAQMD Rule 402 – Nuisance.
11.	○	◉	**Will the project cause an increase of emissions from marine vessels, trains and/or airplanes?**
12.	○	◉	**Will the project increase demand for potable water at the facility by more than 262,820 gallons per day?** The following examples identify some, but not all, types of projects that may result in a "Yes" answer to this question: 1) a project that generates steam; 2) a project that uses water as part of operating air pollution control equipment; 3) a project that requires water as part of the production process; 4) a project that requires a new, or the expansion of an existing, sewage treatment facility, new water lines, sewage lines, sewage hook-ups etc.; 5) a project where the water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; 6) a project that requires new or the expansion of existing, water supply and conveyance facilities; and, 7) a project that requires water to hydrotest pipelines, storage tanks etc. for structural integrity.
13.	○	◉	**Will the project create an increase in the mass inflow of effluents to a public wastewater treatment facility that would require a new, or revision to an existing, National Pollutant Discharge Elimination System (NPDES) or other related permit at the facility?**
14.	○	◉	**Will the project result in the need for more than 350 new employees?**
15.	○	◉	**Will the project result in an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?**
16.	○	◉	**Will the project result in an increase in customer traffic by more than 700 visits per day?**
17.	○	◉	**Will the project result in temporary or permanent noise or vibration in excess of what is allowed by the applicable local noise ordinance?**
18.	○	◉	**Will the project create a permanent need for new or additional solid waste disposal?** Check "No" if the projected potential amount of solid waste to be generated by the project is less than five tons per day.
19.	○	◉	**Will the project create a permanent need for new or additional hazardous waste disposal?** Check "No" if the projected potential amount of hazardous wastes to be generated by the project is less than 42 cubic yards per day (or equivalent in pounds).
20.	○	◉	**Will the project include equipment that after installation or modification will change the visual character of the site and its surroundings or block views?**
21.	○	◉	**Will the project have equipment that will create a new source of external lighting that will be visible at the property line?**

Section D – SIGNATURES

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

1. Signature of Responsible Official of Firm:		2. Title of Responsible Official of Firm: Chief Operating Officer
3. Print Name of Responsible Official of Firm: Derek Kramer		4. Date Signed:
5. Phone # of Responsible Official of Firm: (380) 900-2739	6. Fax # of Responsible Official of Firm:	7. Email of Responsible Official of Firm: dkramer@archaea.energy
8. Signature of Preparer, (If prepared by person other than responsible official of firm):		9. Title of Preparer: Project Manager
10. Print Name of Preparer: Maria Bowen		11. Date Signed: 12/14/2023
12. Phone # of Preparer: (619) 455-9518	13. Fax # of Preparer:	14. Email of Preparer: mbowen@scsengineers.com

THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND ANY ATTACHMENTS WITH FORM 400-A.

South Coast Air Quality Management District

Form 400-E-18
Storage Tank

This form must be accompanied by a completed Application for a Permit to Construct/Operate - Forms 400-A, Form 400-CEQA, and Form 400-PS.

Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section A - Operator Information

Facility Name (Business Name of Operator That Appears On Permit): Biofuels Coyote Canyon Biogas, LLC

Valid AQMD Facility ID (Available On Permit Or Invoice Issued By AQMD):

Address where the equipment will be operated (for equipment which will be moved to various locations in AQMD's jurisdiction, please list the initial location site): 20661 Newport Coast Drive, Newport Beach, California 92657

(●) Fixed Location ( ) Various Locations

Tank Type (Select ONE)

( ) External Floating Roof Tank (EFRT) ( ) Internal Floating Roof Tank (IFRT) ( ) Horizontal Tank (HT)
(●) Vertical Fixed Roof Tank (VFRT) ( ) Domed External Roof Tank (DEFRT)

Identification

Tank Identification Number: CST-01 (A)

Tank Contents/Product (include MSDS): RNG Condensate

Section B - Tank Information

Tank Characteristics

Shell Diameter (ft.): 10

Shell Length (ft.): 10

Shell Height (ft.): 26

Turnovers Per Year: 24

Is Tank Heated? ( ) Yes (●) No

Is Tank Underground? ( ) Yes (●) No

Net Throughput (gal/year): 200000

Self Support Roof: (●) Yes ( ) No

Number of Columns? 1

Effective Column Diameter: ( ) 9" by 7" Built Up Column - 1.1 ( ) 8" Diameter Pipe - 0.7 ( ) Unknown - 1

External Shell Condition: (●) Good ( ) Poor

Internal Shell Color: ( ) Light Rust ( ) Dense Rust ( ) Gunite Lining

External Shell Color: (●) White/White ( ) Aluminum/Specular ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Gray/Medium ( ) Red/Primer

Average Liquid Height (ft.) (Vertical Only): 9

Maximum Liquid Height (ft.) (Vertical Only): 12

Working Volume (gal.) (Vertical Only): 13500

Actual Volume (gal.) (Vertical Only): 15000

Paint Condition: (●) Good ( ) Poor

Paint Color/Shade: (●) White/White ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Aluminum/Specular ( ) Gray/Medium ( ) Red/Primer

Roof Characteristics (Floating Roof Tank)

Roof Type: ( ) Pontoon ( ) Double Deck ( ) Dome Roof (Height ____ ft.) (●) Cone Roof (Height 26.5 ft.)

Roof Fitting Category: ( ) Typical (●) Detail

Roof Height (ft.): 26.5

Roof Paint Condition: (●) Good ( ) Poor

Roof Color/Shade: (●) White/White ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Aluminum/Specular ( ) Gray/Medium ( ) Red/Primer

Deck Characteristics (Floating Roof Tank)

Deck Type: ( ) Welded ( ) Bolted

Deck Fitting Characteristics: ( ) Typical ( ) Detailed (Complete Deck Seam)

Construction:	Deck Seam Length (ft.):	Deck Seam:
( ) Sheet		( ) 5 ft. wide ( ) 6 ft. wide ( ) 7 ft. wide
( ) Panel		( ) 5 x 7.5 ft. ( ) 5 x 12 ft.

Tank Construction and Rim -Seal System (Floating Roof Tank)

Tank Construction: (●) Welded ( ) Riveted

Primary Seal: ( ) Mechanical Shoe ( ) Liquid Mounted ( ) Vapor Mounted

Secondary Seal: ( ) Rim Mounted ( ) None ( ) Shoe Mounted

Breather Vent Setting

Vacuum Setting (psig):

Pressure Setting (psig):

* **Section D of the application MUST be completed.**

South Coast Air Quality Management District

Form 400-E-18
Storage Tank

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Mail To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765-0944

Tel: (909) 396-3385
www.aqmd.gov

Section B - Tank Information (cont.)

Site Selection

Nearest Major City: Newport Beach

Daily Average Ambient Temperature (˚F): 62 Annual Average Minimum Temperature (˚F): 56

Annual Average Maximum Temperature (˚F): 67 Average Wind Speed (mph): _____

Annual Average Solar Insulation Factor (Btu / (ft^3 * ft * day)): _____

Tank Contents

Chemical Category: (•) Organic Liquids ( ) Crude Oil ( ) Petroleum Distillates

Liquid: (•) Single ( ) Multiple

If Multiple, Select Speciation Option: ( ) Full Speciation ( ) Partial Speciation ( ) Various Weight Speciation ( ) None

Section C - Operation Information

Vapor Control

Vapor Control During Loading or Unloading: ☐ Sparger ☐ Vapor Balance System ☐ Vapor Return Line ☐ Vented to Air Pollution Control Equipment [1]

[1] A separate permit is required. If APC equipment is already permitted, provide Permit or Device Number: _____

Vent Valve Data

Indicate Type of Setting and Vapor Disposal

	Number	Pressure Setting	Vaccum Setting	Discharging to (Check Appropriate Box)		
				Atmosphere	Vapor Control	Flare
Combination				☐	☐	☐
Pressure				☐	☐	☐
Vaccum				☐	☐	☐
Open	1			☐	☒	☐

Materials

Name all liquids, vapors, gases, or mixtures of such material to be stored in this tank:
Liquid RNG condensate

If material is stored in a solution, supply the following information:

Name of Solvent: _____ Name of Materials Dissolved: _____

Concentration of Materials Dissolved: _____ % by Weight **OR** _____ % by Volume **OR** 8.33 lbs/gal

Section D - Roof/Deck Fitting

Section D is required for the following tanks: External Floating Roof Tank, Internal Floating Roof Tanks, or Domed External Floating Roof Tanks.

Select the number of fittings for each applicable question. Examples: 3 Unbolted Cover, Ungasketed; _____ Unbolted Cover, Gasketed

Roof/Deck Fitting Details

1. Access Hatch (24" diameter well)	2. Automatic Gauge Float Well (20" diameter well)	3. Column Well (24" diameter well)
1 Bolted Cover, Gasketed	_____ Bolted Cover, Gasketed	_____ Built-Up Col - Sliding Cover, Gasketed
_____ Unbolted Cover, UnGasketed	_____ Unbolted Cover, Ungasketed	_____ Built-Up Col - Sliding Cover, Ungasketed
_____ Unbolted Cover, Gasketed	_____ Unbolted Cover, Gasketed	_____ Pipe Col - Flex, Fabric Sleeve Seal
		_____ Pipe Col - Sliding Cover, Gasketed
		_____ Pipe Col - Sliding Cover, Ungasketed

South Coast Air Quality Management District

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Section D - Roof/Deck Fitting (cont.)

Roof/Deck Fitting Details (cont.)

4. Gauge Hatch/Sample Well (8" diameter well)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

5. Ladder Well (36" diameter)
- _____ Sliding Cover, Gasketed
- _____ Sliding Cover, Ungasketed

6. Rim Vent (6" diameter)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

7. Roof Drain (3" diameter)
- _____ Open
- _____ 90% Close

8. Roof Leg (3" diameter leg)
- _____ Adjustable, Pontoon Area, Ungasketed
- _____ Adjustable, Center Area, Ungasketed
- _____ Adjustable, Double-Deck Roofs
- _____ Fixed
- _____ Adjustable, Pontoon Area, Gasketed
- _____ Adjustable, Pontoon Area, Sock
- _____ Adjustable, Center Area, Gasketed
- _____ Adjustable, Center Area, Sock

9. Roof Leg or Hang Well
- _____ Adjustable
- _____ Fixed

10. Sample Pipe (24" diameter)
- _____ Slotted Pipe – Sliding Cover, Gasketed
- _____ Slotted Pipe – Sliding Cover, Ungasketed
- _____ Slit Fabric Seal, 10% Open

11. Guided Pole/Sample Well
- _____ Ungasketed, Sliding Cover, Without Float
- _____ Ungasketed Sliding Cover, With Float
- _____ Gasketed Sliding Cover, Without Float
- _____ Gasketed Sliding Cover, With Float
- _____ Gasketed Sliding Cover, With Pole Sleeve
- _____ Gasketed Sliding Cover, With Pole Wiper
- _____ Gasketed Sliding Cover, With Float, Wiper
- _____ Gasketed Sliding Cover, With Float, Sleeve, Wiper
- _____ Gasketed Sliding Cover, With Pole Sleeve, Wiper

12. _____ Stub Drain (1" diameter)

13. Unslotted Guide – Pole Well
- _____ Ungasketed, Sliding Cover
- _____ Gasketed Sliding Cover
- _____ Ungasketed Sliding Cover with Sleeve
- _____ Gasketed Sliding Cover with Sleeve
- _____ Gasketed Sliding Cover with Wiper

14. Vacuum Breaker (10" diameter well)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info

Signature:	**Date:** 12/14/2023
Name: Maria Bowen	
Title: Project Manager	**Company Name:** SCS Engineers
Phone #: (619) 455-9518	**Fax #:**
Email: mbowen@scsengineers.com	

Contact Info

Name: Nevin Edwards	
Title: Air Permitting Mgr.	**Company Name:** Archaea
Phone #: (724) 766-8388	**Fax #:**
Email: newards@archaea.energy	

THIS IS A PUBLIC DOCUMENT

Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐

South Coast Air Quality Management District

Form 400-E-18
Storage Tank

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Identification

Tank Identification Number: CST-01 (B)

Tank Contents/Product (include MSDS): RNG Condensate

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Tank Characteristics

Shell Diameter (ft.): 10

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Shell Height (ft.): 26

Turnovers Per Year: 24

Is Tank Heated? ( ) Yes (●) No

Is Tank Underground? ( ) Yes (●) No

Net Throughput (gal/year): 200000

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Number of Columns? 1

Effective Column Diameter: ( ) 9" by 7" Built Up Column - 1.1 ( ) 8" Diameter Pipe - 0.7 ( ) Unknown - 1

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Internal Shell Color: ( ) Light Rust ( ) Dense Rust ( ) Gunite Lining

External Shell Color: (●) White/White ( ) Aluminum/Specular ( ) Aluminum/Diffuse ( ) Gray/Light ( ) Gray/Medium ( ) Red/Primer

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Working Volume (gal.) (Vertical Only): 13500

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Paint Condition: (●) Good ( ) Poor

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Primary Seal: ( ) Mechanical Shoe ( ) Liquid Mounted ( ) Vapor Mounted

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Breather Vent Setting

Vacuum Setting (psig):

Pressure Setting (psig):

* **Section D of the application MUST be completed.**

South Coast Air Quality Management District

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Liquid: (•) Single ( ) Multiple

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Indicate Type of Setting and Vapor Disposal

	Number	Pressure Setting	Vaccum Setting	Discharging to (Check Appropriate Box)		
				Atmosphere	Vapor Control	Flare
Combination				☐	☐	☐
Pressure				☐	☐	☐
Vaccum				☐	☐	☐
Open	1			☐	☒	☐

Materials

Name all liquids, vapors, gases, or mixtures of such material to be stored in this tank:
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_____ Unbolted Cover, UnGasketed	_____ Unbolted Cover, Ungasketed	_____ Built-Up Col - Sliding Cover, Ungasketed
_____ Unbolted Cover, Gasketed	_____ Unbolted Cover, Gasketed	_____ Pipe Col - Flex, Fabric Sleeve Seal
		_____ Pipe Col - Sliding Cover, Gasketed
		_____ Pipe Col - Sliding Cover, Ungasketed

Form 400-E-18
Storage Tank

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Section D - Roof/Deck Fitting (cont.)

Roof/Deck Fitting Details (cont.)

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- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

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- _____ 90% Close

8. Roof Leg (3" diameter leg)
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- _____ Adjustable, Center Area, Ungasketed
- _____ Adjustable, Double-Deck Roofs
- _____ Fixed
- _____ Adjustable, Pontoon Area, Gasketed
- _____ Adjustable, Pontoon Area, Sock
- _____ Adjustable, Center Area, Gasketed
- _____ Adjustable, Center Area, Sock

9. Roof Leg or Hang Well
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- _____ Gasketed Sliding Cover, With Float
- _____ Gasketed Sliding Cover, With Pole Sleeve
- _____ Gasketed Sliding Cover, With Pole Wiper
- _____ Gasketed Sliding Cover, With Float, Wiper
- _____ Gasketed Sliding Cover, With Float, Sleeve, Wiper
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12. _____ Stub Drain (1" diameter)

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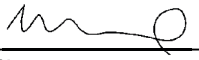
14. Vacuum Breaker (10" diameter well)
- _____ Weighted Mechanical Actuation, Gasketed
- _____ Weighted Mechanical Actuation, Ungasketed

Section D - Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

Preparer Info	**Signature:**  **Date:** 12/14/2023 **Title:** Project Manager **Company Name:** SCS Engineers	**Name:** Maria Bowen **Phone #:** (619) 455-9518 **Fax #:** **Email:** mbowen@scsengineers.com
Contact Info	**Name:** Nevin Edwards **Title:** Air Permitting Mgr. **Company Name:** Archaea	**Phone #:** (724) 766-8388 **Fax #:** **Email:** newards@archaea.energy

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Pursuant to the California Public Records Act, your permit application and any supplemental documentation are public records and may be disclosed to a third party. If you wish to claim certain limited information as exempt from disclosure because it qualifies as a trade secret, as defined in the District's Guidelines for Implementing the California Public Records Act, you must make such claim at the time of submittal to the District.

Check here if you claim that this form or its attachments contain confidential trade secret information. ☐