west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25 4
Phone (304) 926-0475
Fax (304) 926-0479
www.dep.wv.gov

G70-C GENERAL PERMIT REGISTRATION APPLICATION

PREVENTION AND CONTROL OF AIR POLLUTION IN REGARD TO THE CONSTRUCTION, MODIFICATION, RELOCATION, ADMINISTRATIVE UPDATE AND OPERATION OF NATURAL GAS PRODUCTION FACILITIES LOCATED AT THE WELL SITE

☐CONSTRUCTION
☒MODIFICATION
☐RELOCATION
☐CLASS I ADMINISTRATIVE UPDATE
☐CLASS II ADMINISTRATIVE UPDATE

SECTION 1. GENERAL INFORMATION

Name of Applicant (as registered with the WV Secretary of State's Office):

Jay-Bee Oil & Gas, Inc.

Federal Employer ID No. (FEIN): **55-073-8862**

Applicant's Mailing Address: **3570 Shields Hill Rd.**

City: **Cairo** State: **WV** ZIP Code: **26337**

Facility Name: **RPT-8 Well Pad Production Facility**

Operating Site Physical Address: **None**
If none available, list road, city or town and zip of facility. **Big Run Road**

City: **Alma** Zip Code: **26320** County: **Tyler**

Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):
Latitude: **39.483171**
Longitude: **-80.786055**

SIC Code: **1311**

NAICS Code: **211111**

DAQ Facility ID No. (For existing facilities)
095-00040

CERTIFICATION OF INFORMATION

This G70-C General Permit Registration Application shall be signed below by a Responsible Official. A Responsible Official is a President, Vice President, Secretary, Treasurer, General Partner, General Manager, a member of the Board of Directors, or Owner, depending on business structure. A business may certify an Authorized Representative who shall have authority to bind the Corporation, Partnership, Limited Liability Company, Association, Joint Venture or Sole Proprietorship. Required records of daily throughput, hours of operation and maintenance, general correspondence, compliance certifications and all required notifications must be signed by a Responsible Official or an Authorized Representative. If a business wishes to certify an Authorized Representative, the official agreement below shall be checked off and the appropriate names and signatures entered. **Any administratively incomplete or improperly signed or unsigned G70-C Registration Application will be returned to the applicant. Furthermore, if the G70-C forms are not utilized, the application will be returned to the applicant. No substitution of forms is allowed.**

I hereby certify that is an Authorized Representative and in that capacity shall represent the interest of the business (e.g., Corporation, Partnership, Limited Liability Company, Association Joint Venture or Sole Proprietorship) and may obligate and legally bind the business. If the business changes its Authorized Representative, a Responsible Official shall notify the Director of the Division of Air Quality immediately.

I hereby certify that all information contained in this G70-C General Permit Registration Application and any supporting documents appended hereto is, to the best of my knowledge, true, accurate and complete, and that all reasonable efforts have been made to provide the most comprehensive information possible.

Responsible Official Signature: _____
Name and Title: **Shane Dowell, Office Manager** Phone: **304/628-3119** Fax: **304/628-3119**
Email: **sdowell@jaybeeoil.com** Date: 7-22-16

If applicable:
Authorized Representative Signature: _____
Name and Title: Phone: Fax:
Email: Date:

If applicable:
Environmental Contact
Name and Title: Phone: Fax:
Email: Date:

OPERATING SITE INFORMATION
Briefly describe the proposed new operation and/or any change(s) to the facility: **This is an existing facility operating under a G70-A Permit. Jay-Bee is seeking to add two new wells, three new GPU units and a glycol dehydration unit.**
Directions to the facility: **From intersection of SR-18 and CR 13 (Indian Creek Road) north of Alma, turn left onto CR 13 and follow 0.9 miles to CR 40 (Big Run Road) on the left. Turn onto Big Run Road and proceed for approximately 2 miles. Entrance to the facility is on the left. Follow access road for three miles. to the end of the lease road**

ATTACHMENTS AND SUPPORTING DOCUMENTS	
I have enclosed the following required documents:	
Check payable to WVDEP – Division of Air Quality with the appropriate application fee (per 45CSR13 and 45CSR22). ☒ Check attached to front of application. ☐ I wish to pay by electronic transfer. Contact for payment (incl. name and email address): ☐ I wish to pay by credit card. Contact for payment (incl. name and email address): ☒$500 (Construction, Modification, and Relocation) ☐$300 (Class II Administrative Update) ☐$1,000 NSPS fee for 40 CFR60, Subpart IIII, JJJJ and/or OOOO [1] ☒$2,500 NESHAP fee for 40 CFR63, Subpart ZZZZ and/or HH [2] [1] Only one NSPS fee will apply. [2] Only one NESHAP fee will apply. The Subpart ZZZZ NESHAP fee will be waived for new engines that satisfy requirements by complying with NSPS, Subparts IIII and/or JJJJ. *NSPS and NESHAP fees apply to new construction or if the source is being modified.*	
☒ Responsible Official or Authorized Representative Signature (if applicable)	
☒ Single Source Determination Form **(must be completed in its entirety)** – Attachment A	
☐ Siting Criteria Waiver (if applicable) – Attachment B	☒ Current Business Certificate – Attachment C
☒ Process Flow Diagram – Attachment D	☒ Process Description – Attachment E
☒ Plot Plan – Attachment F	☒ Area Map – Attachment G
☒ G70-C Section Applicability Form – Attachment H	☒ Emission Units/ERD Table – Attachment I
☒ Fugitive Emissions Summary Sheet – Attachment J	
☒ Gas Well Affected Facility Data Sheet (if applicable) – Attachment K	
☒ Storage Vessel(s) Data Sheet (include gas sample data, USEPA Tanks, simulation software (e.g. ProMax, E&P Tanks, HYSYS, etc.), etc. where applicable) – Attachment L	
☒ Natural Gas Fired Fuel Burning Unit(s) Data Sheet (GPUs, Heater Treaters, In-Line Heaters if applicable) – Attachment M	
☒ Internal Combustion Engine Data Sheet(s) (include manufacturer performance data sheet(s) if applicable) – Attachment N	
☒ Tanker Truck Loading Data Sheet (if applicable) – Attachment O	
☒ Glycol Dehydration Unit Data Sheet(s) (include wet gas analysis, GRI- GLYCalc™ input and output reports and information on reboiler if applicable) – Attachment P	
☐ Pneumatic Controllers Data Sheet – Attachment Q	
☒ Air Pollution Control Device/Emission Reduction Device(s) Sheet(s) (include manufacturer performance data sheet(s) if applicable) – Attachment R	
☒ Emission Calculations (please be specific and include all calculation methodologies used) – Attachment S	
☒ Facility-wide Emission Summary Sheet(s) – Attachment T	
☒ Class I Legal Advertisement – Attachment U	
☒ One (1) paper copy and two (2) copies of CD or DVD with pdf copy of application and attachments	

All attachments must be identified by name, divided into sections, and submitted in order.

ATTACHMENT A - SINGLE SOURCE DETERMINATION FORM

Classifying multiple facilities as one "stationary source" under 45CSR13, 45CSR14, and 45CSR19 is based on the definition of Building, structure, facility, or installation as given in §45-14-2.13 and §45-19-2.12. The definition states:

"Building, Structure, Facility, or Installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Pollutant-emitting activities are a part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same two (2)-digit code) as described in the Standard Industrial Classification Manual, 1987 (United States Government Printing Office stock number GPO 1987 0-185-718:QL 3).

Is there a facility owned by or associated with the natural gas industry located within one (1) mile of the proposed facility? Yes ☒ No ☐

If Yes, please complete the questionnaire on the following page (Attachment A).

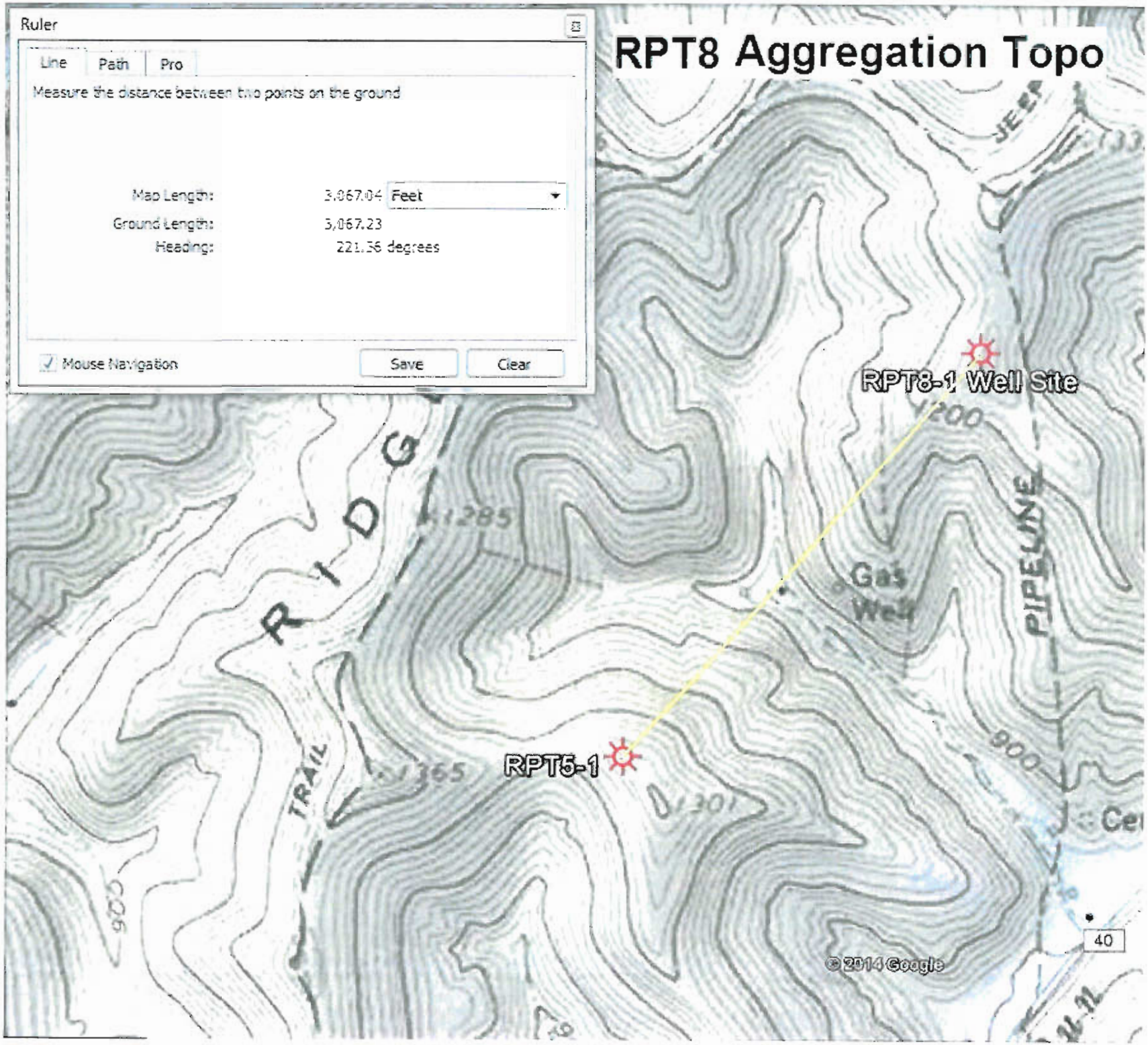
Please provide a source aggregation analysis for the proposed facility below:

ATTACHMENT A - SINGLE SOURCE DETERMINATION FORM

Answer each question with a detailed explanation to determine contiguous or adjacent properties which are under a common control and any support facilities. This section must be completed in its entirety.

The planned modification does not impact the previous single source determination analysis.

Provide a map of contiguous or adjacent facilities (production facilities, compressor stations, dehydration facilities, etc.) which are under common control and those facilities that are not under common control but are support facilities. Please indicate the SIC code, permit number (if applicable), and the distance between facilities in question on the map.	
Are the facilities owned by the same parent company or a subsidiary of the parent company? Provide the owners identity and the percentage of ownership of each facility. **Jay-Bee Oil & Gas 100%**	Yes ☒ No ☐
Does an entity such as a corporation have decision making authority over the operation of a second entity through a contractual agreement or voting interest? Please explain.	Yes ☐ No ☒
Is there a contract for service relationship between the two (2) companies or, a support/dependency relationship that exists between the two (2) companies? Please explain. Not relevant question. **Both owned and operated by Jay-Bee**	Yes ☐ No ☒
Do the facilities share common workforces, plant managers, security forces, corporate executive officers or board executives? **Jay-Bee owns and operates both facilities.**	Yes ☒ No ☐
Will managers or other workers frequently shuttle back and forth to be involved actively at both facilities? **Jay-Bee owns and operates both facilities.**	Yes ☒ No ☐
Do the facilities share common payroll activities, employee benefits, health plans, retirement funds, insurance coverage, or other administrative functions? Please explain. **Jay-Bee owns and operates both facilities.**	Yes ☒ No ☐
Does one (1) facility operation support the operation of the other facility?	Yes ☐ No ☒
Is one (1) facility dependent on the other? If one (1) facility shuts down, what are the limitations on the other to pursue outside business? Please explain.	Yes ☐ No ☒
Are there any financial arrangements between the two (2) entities? **Jay-Bee owns and operates both facilities.**	Yes ☒ No ☐
Are there any legal or lease agreements between the two (2) facilities? **Jay-Bee owns and operates both facilities.**	Yes ☒ No ☐
Do the facilities share products, byproducts, equipment, or other manufacturing or air pollution control device equipment? Please explain. **Well pads operate independently**.	Yes ☐ No ☒
Do all the pollutant-emitting activities at the facilities belong to the same SIC Code? Please provide the SIC Codes. **1311**	Yes ☒ No ☐
Was the location of the new facility chosen primarily because of its proximity to the existing facility to integrate the operation of the two (2) facilities? Please explain.	Yes ☐ No ☒
Will materials be routinely transferred between the two (2) facilities? Please explain the amount of transfer and how often the transfers take place and what percentages go to the various entities.	Yes ☐ No ☒
Does the facility influence production levels or compliance with environmental regulations at other facilities? Who accepts the responsibility for compliance with air quality requirements? Please explain. **No, facilities operate independently. Jay-Bee Office Manager is responsible for Air Quality Requirements for both facilities**	Yes ☐ No ☒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Feet
Ground Length:
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Heading:
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Mouse Navigation
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RPT8 Aggregation Topo
RPT8-1 Well Site
RPT5-1
RIDGE
TRAIL
PIPELINE
Gas Well
JEEP
1285
1200
1365
1301
900
905
40
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ATTACHMENT C – CURRENT BUSINESS CERTIFICATE

If the applicant is a resident of West Virginia, the applicant should provide a copy of the current Business Registration Certificate issued to them from the West Virginia Secretary of State's Office. If the applicant is not a resident of the State of West Virginia, the registrant should provide a copy of the Certificate of Authority/Authority of LLC/Registration. This information is required for all sources to operate a business in West Virginia regardless of whether it is a construction, modification, or administrative update.

If you are a new business to West Virginia and have applied to the West Virginia Secretary of State's Office for a business license, please include a copy of your application.

Please note: Under the West Virginia Bureau of Employment Programs, 96CSR1, the DAQ may not grant, issue, or renew approval of any permit, general permit registration, or Certificate to Operate to any employing unit whose account is in default with the Bureau of Employment Programs Unemployment Compensation Division.

Attachment C

Attached Current WV Business Certificate

WEST VIRGINIA
STATE TAX DEPARTMENT

BUSINESS REGISTRATION
CERTIFICATE

ISSUED TO:
JAY-BEE OIL & GAS INC
RR 1 BOX 5
CAIRO, WV 26337-9701

BUSINESS REGISTRATION ACCOUNT NUMBER: **1043-4424**

This certificate is issued on: 06/11/2010

This certificate is issued by the West Virginia State Tax Commissioner in accordance with W.Va. Code § 11-12-

The person or organization identified on this certificate is registered to conduct business in the State of West Virginia at the location above.

This certificate is not transferrable and must be displayed at the location for which issued.

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them.
CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

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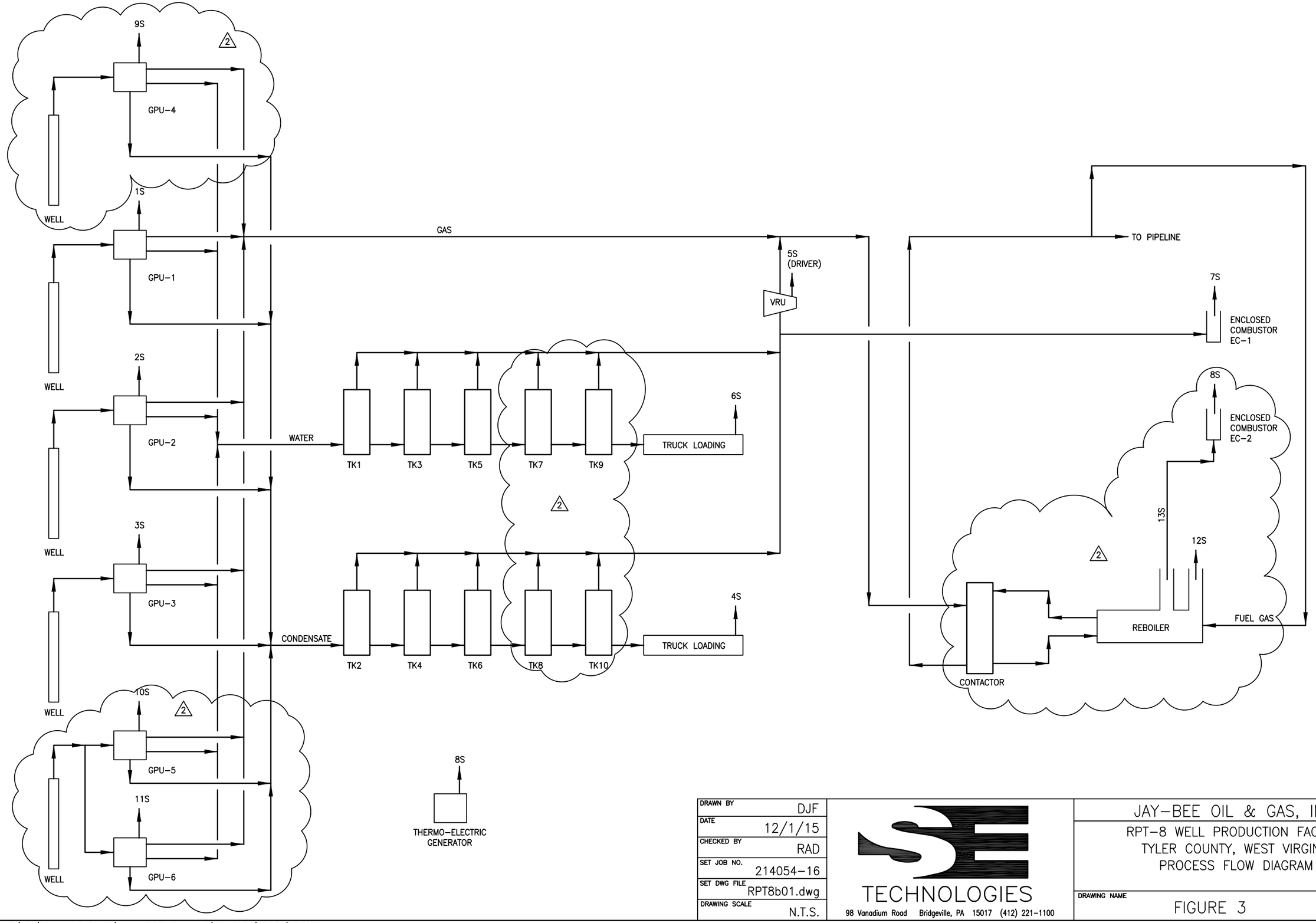
ATTACHMENT D – PROCESS FLOW DIAGRAM

Provide a diagram or schematic that supplements the process description of the operation. The process flow diagram must show all sources, components or facets of the operation in an understandable line sequence of operation. The process flow diagram should include the emission unit ID numbers, the pollution control device ID numbers, and the emission point ID numbers consistent with references in other attachments of the application. For a proposed modification, clearly identify the process areas, emission units, emission points, and/or control devices that will be modified, and specify the nature and extent of the modification.

Use the following guidelines to ensure a complete process flow diagram:

- The process flow diagram shall logically follow the entire process from beginning to end.
- Identify each emission source and air pollution control device with proper and consistent emission unit identification numbers, emission point identification numbers, and control device identification numbers.
- The process flow lines may appear different for clarity. For example, dotted lines may be used for vapor flow and solid lines used for liquid flow and arrows for direction of flow.
- The process flow lines may be color coded. For example: new or modified equipment may be red; old or existing equipment may be blue; different stages of preparation such as raw material may be green; and, finished product or refuse, another color.



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JAY–BEE OIL & GAS, INC.

RPT–8 WELL PRODUCTION FACILITY
TYLER COUNTY, WEST VIRGINIA
PROCESS FLOW DIAGRAM

DRAWING NAME: FIGURE 3

REV. 2

ATTACHMENT E – PROCESS DESCRIPTION

Provide a detailed written description of the operation for which the applicant is seeking a permit. The process description is used in conjunction with the process flow diagram to provide the reviewing engineer a complete understanding of the activity at the operation. Describe in detail and order the complete process operation.

Use the following guidelines to ensure a complete Process Description:

- The process flow diagram should be prepared first and used as a guide when preparing the process description. The written description shall follow the logical order of the process flow diagram.
- All emission sources, emission points, and air pollution control devices must be included in the process description.
- When modifications are proposed, describe the modifications and the effect the changes will have on the emission sources, emission points, control devices and the potential emissions.
- Proper emission source ID numbers must be used consistently in the process description, the process flow diagram, the emissions calculations, and the emissions summary information provided.
- Include any additional information that may facilitate the reviewers understanding of the process operation.

The process description is required for all sources regardless of whether it is a construction, modification, or administrative update.

Jay-Bee Oil & Gas, Incorporated
RTP-8 Well Pad Production Facility
Attachment E
Process Description

Jay-Bee currently operates the RTP-8 Well Pad Production Facility under a G70-A General Permit Registration. At this facility natural gas and Produced Fluids (condensate and water) are received from three wells and passed through Gas Processing Units (one per well for Marcellus Wells and two per well for the Utica Well) to avoid ice formation during subsequent pressure drops. The GPU also separates the gas from the liquids and separates the liquids into Condensate and Produced Water. The gas is routed to a gathering pipeline owned and operated by others.

Both the Condensate and Produced Water are accumulated in six 210 BBL tanks (three for Condensate and three for Produced Water), pending truck transportation by others. The Condensate is transported to a regional processing facility and the Produced Water to a regional disposal facility. Flash, working and breathing losses from these tanks is currently routed to a Vapor Recovery Unit (VRU) with the captured vapors routed back to the raw gas discharge line. In accordance with the G70-A permit registration a maximum capture and control efficiency of only 95% is claimed for the VRU. A back-up enclosed combustor was installed under a modification of the original G70-A permit registration early this year. Approval for the installation and operation of a Thermo-Electric Generator was also obtained at that time.

This modification application seeks approval for the installation of three additional GPU units associated with two new wells being installed on this well pad. Due to the additional liquid production anticipated with the added wells, four additional tanks will be installed, two for condensate and two for produced water. Additionally, Jay-Bee is seeking approval of a dehydration unit to reduce the water vapor content of the produced gas prior to injection into the gathering line owned and operated by others. The dehydration unit will not have a flash tank. Emissions from the reboiler will be controlled by an enclosed combustor (EC-2), separate from the current enclosed combustor utilized as backup for the VRU.

Lastly, in association with the additional storage tanks, Jay-Bee is requesting an increase in fugitive dust emissions due to an increase in potential truck traffic.

There are no other modifications being requested at this time

A Process Flow Diagram depicting the new and existing features is provided in Attachment D.

In summary, upon approval of this application, emission sources at this well pad will include the following. New sources are in bold.

- Six GPUs, each with a 1.5 MMBTU/Hr heater (Sources 1S, 2S, 3S, **9S**, **10S** and **11S**)
- Five Produced Water Tanks (Sources TK1, TK3, TK5, **TK7 and TK9**)
- Five Condensate Tanks (Sources TK0, TK4, TK6, **TK8 and TK10**)
- One Vapor Recovery Unit with Cummins driver engine (Source 5S), controlling emissions from TK1-TK10
- Backup Enclosed Combustor for VRU (Source 7S)
- Condensate Truck Loading (Source 4S)
- Produced Water Truck Loading (Source 6S)
- Dehydration Unit (Sources 12S – reboiler vent and 13S – still vent)
- Enclosed combustor for control of still vent emissions **EC-2**

ATTACHMENT F – PLOT PLAN

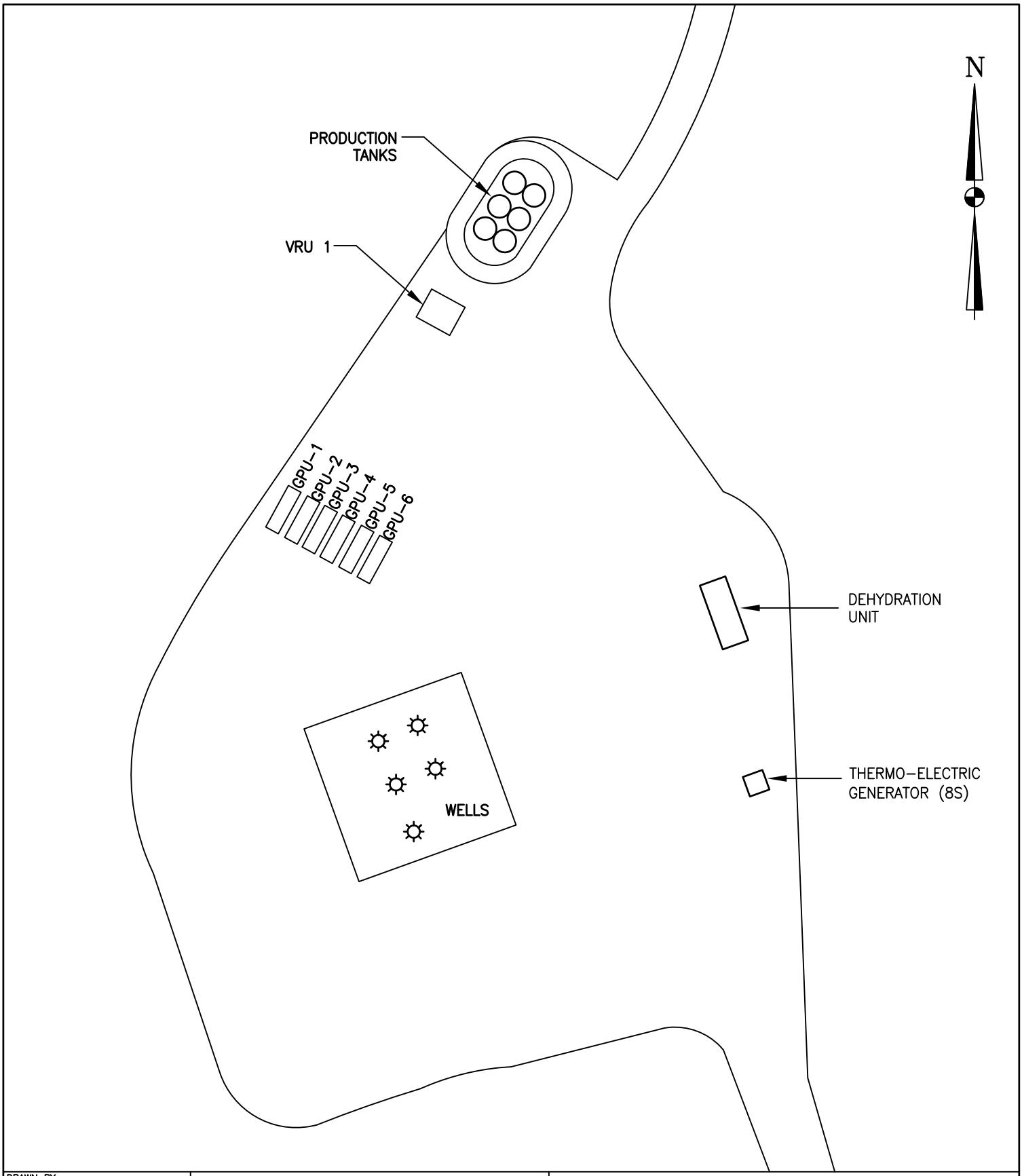
Provide an accurately scaled and detailed Plot Plan showing the locations of all emission units, emission points, and air pollution control devices. Show all emission units, affected facilities, enclosures, buildings and plant entrances and exits from the nearest public road(s) as appropriate. Note height, width and length of proposed or existing buildings and structures.

A scale between 1"=10' and 1"=200' should be used with the determining factor being the level of detail necessary to show operation or plant areas, affected facilities, emission unit sources, transfer points, etc. An overall small scale plot plan (e.g., 1"=300') should be submitted in addition to larger scale plot plans for process or activity areas (e.g., 1"=50') if the plant is too large to allow adequate detail on a single plot plan. Process or activity areas may be grouped for the enlargements as long as sufficient detail is shown.

Use the following guidelines to ensure a complete Plot Plan:

- Facility name
- Company name
- Company facility ID number (for existing facilities)
- Plot scale, north arrow, date drawn, and submittal date.
- Facility boundary lines
- Base elevation
- Lat/Long reference coordinates from the area map and corresponding reference point elevation
- Location of all point sources labeled with proper and consistent source identification numbers

This information is required for all sources regardless of whether it is a construction, modification, or administrative update.



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JAY-BEE OIL & GAS, INC.

RPT-8 WELL WELL PAD
TYLER COUNTY, WEST VIRGINIA
FACILITY ID No. 095-00040
SITE LAYOUT PLAN

DRAWING NAME	REV.
FIGURE 2	0

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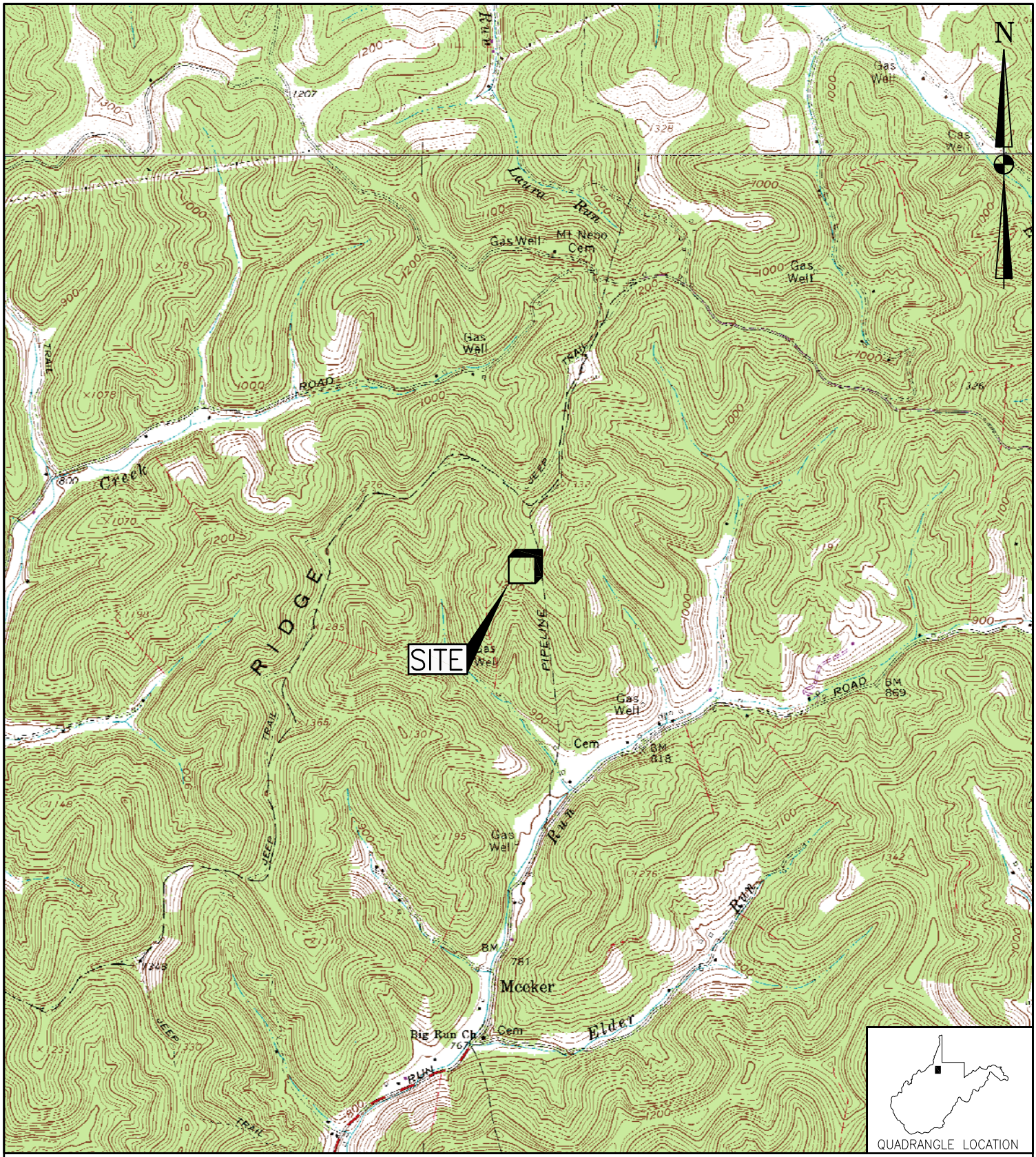
ATTACHMENT G – AREA MAP

Provide an Area Map showing the current or proposed location of the operation. On this map, identify plant or operation property lines, access roads and any adjacent dwelling, business, public building, school, church, cemetery, community or institutional building or public park within a 300’ boundary circle of the collective emission units.

Please provide a 300’ boundary circle on the map surrounding the proposed emission units collectively.

This information is required for all sources regardless of whether it is a construction, modification, or administrative update.



REFERENCE: USGS 7.5' QUADRANGLE MAP OF: SHIRLEY, WEST VIRGINIA; DATED 1961, PHOTOREVISED 1989.

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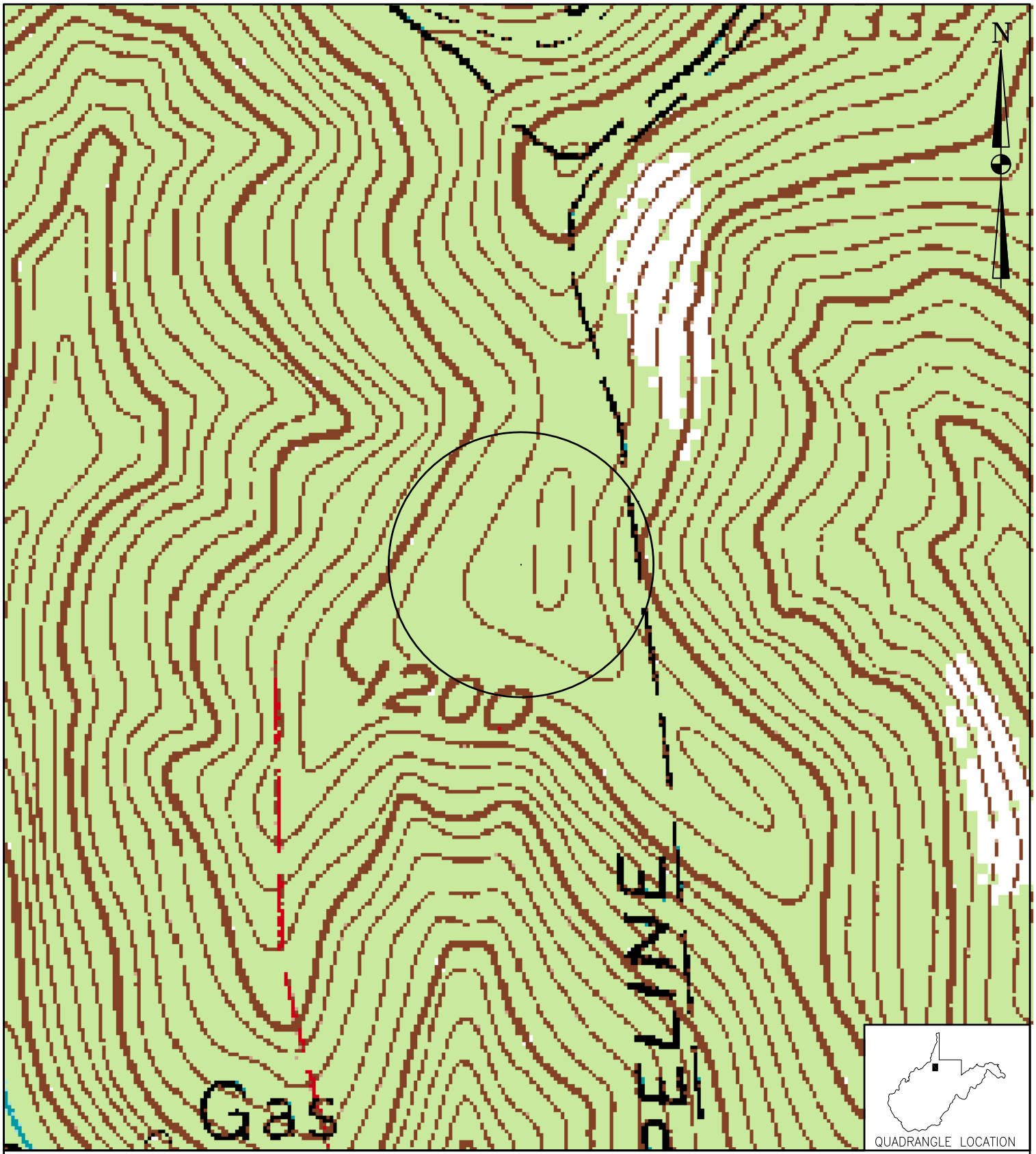
JAY-BEE OIL & GAS, INC.

RPT-8 PRODUCTION FACILITY
TYLER COUNTY, WEST VIRGINIA
SITE LOCATION MAP

DRAWING NO.	REV.
FIGURE 1	0



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JAY-BEE OIL & GAS, INC.

RPT-8 PRODUCTION FACILITY
TYLER COUNTY, WEST VIRGINIA
SITE LOCATION MAP

DRAWING NO. FIGURE 1A

REV. 0

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ATTACHMENT H – G70-C SECTION APPLICABILITY FORM

General Permit G70-C Registration
Section Applicability Form

General Permit G70-C was developed to allow qualified applicants to seek registration for a variety of sources. These sources include gas well affected facilities, storage vessels, gas production units, in-line heaters, heater treaters, glycol dehydration units and associated reboilers, pneumatic controllers, centrifugal compressors, reciprocating compressors, reciprocating internal combustion engines (RICEs), tank truck loading, fugitive emissions, completion combustion devices, flares, enclosed combustion devices, and vapor recovery systems. All registered facilities will be subject to Sections 1.0, 2.0, 3.0, and 4.0.

General Permit G70-C allows the registrant to choose which sections of the permit they are seeking registration under. Therefore, please mark which additional sections that you are applying for registration under. If the applicant is seeking registration under multiple sections, please select all that apply. Please keep in mind, that if this registration is approved, the issued registration will state which sections will apply to your affected facility.

GENERAL PERMIT G70-C APPLICABLE SECTIONS	
☒Section 5.0	Gas Well Affected Facility (NSPS, Subpart OOOO)
☒Section 6.0	Storage Vessels Containing Condensate and/or Produced Water[1]
☐Section 7.0	Storage Vessel Affected Facility (NSPS, Subpart OOOO)
☒Section 8.0	Control Devices and Emission Reduction Devices not subject to NSPS Subpart OOOO and/or NESHAP Subpart HH
☒Section 9.0	Small Heaters and Reboilers not subject to 40CFR60 Subpart Dc
☐Section 10.0	Pneumatic Controllers Affected Facility (NSPS, Subpart OOOO)
☐Section 11.0	Centrifugal Compressor Affected Facility (NSPS, Subpart OOOO)[2]
☒Section 12.0	Reciprocating Compressor Affected Facility (NSPS, Subpart OOOO)[2]
☒Section 13.0	Reciprocating Internal Combustion Engines, Generator Engines, Microturbines
☒Section 14.0	Tanker Truck Loading[3]
☒Section 15.0	Glycol Dehydration Units[4]

1 *Applicants that are subject to Section 6 may also be subject to Section 7 if the applicant is subject to the NSPS, Subpart OOOO control requirements or the applicable control device requirements of Section 8.*

2 *Applicants that are subject to Section 11 and 12 may also be subject to the applicable RICE requirements of Section 13.*

3 *Applicants that are subject to Section 14 may also be subject to control device and emission reduction device requirements of Section 8.*

4 *Applicants that are subject to Section 15 may also be subject to the requirements of Section 9 (reboilers). Applicants that are subject to Section 15 may also be subject to control device and emission reduction device requirements of Section 8.*

ATTACHMENT I – EMISSION UNITS / EMISSION REDUCTION DEVICES (ERD) TABLE

Include ALL emission units and air pollution control devices/ERDs that will be part of this permit application review. Do not include fugitive emission sources in this table. Deminimis storage tanks shall be listed in the Attachment L table. This information is required for all sources regardless of whether it is a construction, modification, or administrative update.

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed	Manufac. Date[3]	Design Capacity	Type[4] and Date of Change	Control Device(s)[5]	ERD(s)[6]
GPU-1	1S	GPU	2013		1.5 MMBTU/Hr	EXIST	None	
GPU-2	2S	GPU	2013		1.5 MMBTU/Hr	EXIST	None	
GPU-3	3S	GPU	2013		1.5 MMBTU/Hr	EXIST	None	
TLU-1	4S	Condensate Truck Loading	2013			EXIST	None	
VRU-1	5S	VRU Driver	2013	3/19/12		EXIST	1C	
TLU-2	6S	Produced Water Truck Loading	2013			EXIST	None	
TNK1	5S/7S	Produced Water Tank	2013		210 BBL	EXIST	EC-1	VRU-1
TNK2	5S/7S	Condensate Tank	2013		210 BBL	EXIST	EC-1	VRU-1
TNK3	5S/7S	Produced Water Tank	2013		210 BBL	EXIST	EC-1	VRU-1
TNK4	5S/7S	Condensate Tank	2013		210 BBL	EXIST	EC-1	VRU-1
TNK5	5S/7S	Produced Water Tank	2013		210 BBL	EXIST	EC-1	VRU-1
TNK6	5S/7S	Condensate Tank	2013		210 BBL	EXIST	EC-1	VRU-1
TNK7	**5S/7S**	**Produced Water Tank**	**Pending**		**210 BBL**	**NEW**	**EC-1**	**VRU-1**
TNK8	**5S/7S**	**Condensate Tank**	**Pending**		**210 BBL**	**NEW**	**EC-1**	**VRU-1**
TNK9	**5S/7S**	**Produced Water Tank**	**Pending**		**210 BBL**	**NEW**	**EC-1**	**VRU-1**
TNK10	**5S/7S**	**Condensate Tank**	**Pending**		**210 BBL**	**NEW**	**EC-1**	**VRU-1**
EC-1	7S	Enclosed Combustor	2016		10.0 MMBTU/Hr	EXIST	N/A	
TEG-1	8S	Thermoelectric Generator	2016		4.4 KW/Hr	EXIST	None	
GPU-4	**9S**	**GPU**	**Pending**		**1.5 MMBTU/Hr**	**NEW**	None	
GPU-5	**10S**	**GPU**	**Pending**		**1.5 MMBTU/Hr**	**NEW**	None	
GPU-6	**11S**	**GPU**	**Pending**		**1.5 MMBTU/Hr**	**NEW**	None	
RBV-1	**12S**	**Reboiler Vent**	**Pending**		**0.3 MMBTU/Hr**	**NEW**	None	
RSV-1	**13S**	**Still Vent**	**Pending**		**40 MMSCFD**	**NEW**	EC-2	
EC-2	**13S**	**Enclosed Combustor**	**Pending**		**10.0 MMBTU/Hr**	**NEW**	**N/A**	

[1] For Emission Units (or Sources) use the following numbering system:1S, 2S, 3S,... or other appropriate designation.
[2] For Emission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation.
[3] When required by rule
[4] New, modification, removal, existing
[5] For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.
[6] For ERDs use the following numbering system: 1D, 2D, 3D,... or other appropriate designation.

ATTACHMENT J – FUGITIVE EMISSIONS SUMMARY SHEET

Sources of fugitive emissions may include loading operations, equipment leaks, blowdown emissions, etc.
Use extra pages for each associated source or equipment if necessary.

Source/Equipment:

Leak Detection Method Used	☒ Audible, visual, and olfactory (AVO) inspections	☐ Infrared (FLIR) cameras	☐ Other (please describe)	☐ None required

Component Type	Closed Vent System	Count	Source of Leak Factors (EPA, other (specify))	Stream type (gas, liquid, etc.)	Estimated Emissions (tpy)		
					VOC	HAP	GHG (CO_2e)
Pumps	☐ Yes ☒ No	1	API	☒ Gas ☐ Liquid ☐ Both	<0.01	<0.01	0.34
Valves	☐ Yes ☒ No	44	EPA	☐ Gas ☐ Liquid ☒ Both	0.26	<0.01	2.65
Safety Relief Valves	☐ Yes ☒ No	20	EPA	☐ Gas ☐ Liquid ☒ Both	0.04	<0.01	3.02
Open Ended Lines	☐ Yes ☒ No	6	EPA	☒ Gas ☐ Liquid ☐ Both	0.02	<0.01	0.01
Sampling Connections	☐ Yes ☒ No	10	EPA	☐ Gas ☐ Liquid ☒ Both	1.16	0.01	23.59
Connections (Not sampling)	☐ Yes ☒ No	98	EPA	☐ Gas ☐ Liquid ☒ Both	1.86	0.02	1.357
Compressors	☐ Yes ☒ No	1	API	☒ Gas ☐ Liquid ☐ Both	<0.01	<0.01	0.07
Flanges	☐ Yes ☒ No	90	EPAAPI	☐ Gas ☐ Liquid ☒ Both	0.04	<0.01	4.47
Other[1]	☐ Yes ☒ No		N/A	☒ Gas ☐ Liquid ☐ Both	<0.01	0.01	7.5

[1] Other equipment types may include compressor seals, relief valves, diaphragms, drains, meters, etc.

Please provide an explanation of the sources of fugitive emissions (e.g. pigging operations, equipment blowdowns, pneumatic controllers, etc.):
Blowdowns (no change in this modification request) are presented under Other. Un-captured/controlled Tank Emissions are addressed in Attachment L. Truck Loading emissions are addressed in Attachment O

Please indicate if there are any closed vent bypasses (include component):
Thief Hatch set at 14 oz. VRU and Combustor to control pressure to below this set point.

Specify all equipment used in the closed vent system (e.g. VRU, ERD, thief hatches, tanker truck loading, etc.)
Thief Hatch, VRU and Enclosed Combustor

Jay-Bee Oil & Gas, Inc.
RTP-8 Well Pad Production Facility
Attachment J
Fugitive Emissions Data

Equipment Fugitive Emissions

As noted in the process description, Jay-Bee plans to install an enclosed combustor at its RTP-8 Well Pad Production Facility. This equipment will contain a variety of piping containing natural gas and tank vapors. During the normal course of operation minor leaks from valves, pressure release devices and various fittings associated with this piping may occur. The number of valves, flanges, etc. has been revised to reflect the inclusion of additional equipment that will be installed with this modification. A new potential emission rate of 3.44 tpy of VOCs and 35.15 tpy CO_2e has been estimated.

Estimates of these emissions are included in the calculations (Attachment S) and summarized on the form included in this section. These calculations are based on emission factors accepted by the American Petroleum Institute and EPA.

Pigging Emission Estimates

There are no pigging operations in association with this facility.

Facility Blowdown Emission Estimates

The proposed modification will not result in any changes to the blowdown emissions at this facility.

Storage Tank and Haul Road Fugitive Emissions

Produced Fluids (water and condensate) received by this facility are currently accumulated in six 210-BBL tanks (three condensate and three water) prior to off-site shipment. With this modification, the number is being expanded to ten 210-BBL tanks (five condensate and five produced water). Updated emissions from these tanks were determined by using flash gas measurements from pressurized condensate samples collected at this well pad and working/breathing losses using AP-42 methods using condensate vapor data from this facility. Given changes in condensate and water production and more accurate sample data, un-controlled emissions from these tanks were determined to be a maximum of 348.32 tons per year of VOCs. These vapors are routed to a VRU with an enclosed combustor backup for a capture and control efficiency of 98%. Emission calculations are presented in Attachment S.

Emissions from Truck Loading Operations have been correspondingly revised to match the current maximum water and condensate production rates.

Fugitive dust emissions from truck traffic on the access road have been revised in accordance with the revised produced water and condensate production and subsequent transportation needs.

ATTACHMENT K – GAS WELL AFFECTED FACILITY DATA SHEET

Complete this data sheet if you are the owner or operator of a gas well affected facility for which construction, modification or reconstruction commenced after August 23, 2011. This form must be completed for natural gas well affected facilities regardless of when flowback operations occur (or have occurred).

API Number	Date of Flowback	Date of Well Completion	Green Completion and/or Combustion Device
47-095-0283	2-28-2014	2-28-2014	Flow to separator and into gathering line as soon as practical
47-095-0284	2-28-2014	2-28-2014	Flow to separator and into gathering line as soon as practical
47-095-0285	2-28-2014	2-28-2014	Flow to separator and into gathering line as soon as practical
47-95-02329	Pending	Pending	Flow to separator and into gathering line as soon as practical
47-95-02330	Pending	Pending	Flow to separator and into gathering line as soon as practical

Note: If future wells are planned and no API number is available please list as PLANNED. If there are existing wells that commenced construction prior to August 23, 2011, please acknowledge as existing.

This is the same API (American Petroleum Institute) well number(s) provided in the well completion notification and as provided to the WVDEP, Office of Oil and Gas for the well permit. The API number may be provided on the application without the state code (047).

Every oil and gas well permitted in West Virginia since 1929 has been issued an API number. This API is used by agencies to identify and track oil and gas wells.

The API number has the following format: 047-001-00001

Where,

047 = State code. The state code for WV is 047.

001 = County Code. County codes are odd numbers, beginning with 001 (Barbour) and continuing to 109 (Wyoming).

00001= Well number. Each well will have a unique well number.

ATTACHMENT L – STORAGE VESSEL DATA SHEET

Complete this data sheet if you are the owner or operator of a storage vessel that contains condensate and/or produced water. This form must be completed for ***each*** new or modified bulk liquid storage vessel(s) that contains condensate and/or produced water. (If you have more than one (1) identical tank (i.e. 4-400 bbl condensate tanks), then you can list all on one (1) data sheet). **Include gas sample analysis, flashing emissions, working and breathing losses, USEPA Tanks, simulation software (ProMax, E&P Tanks, HYSYS, etc.), and any other supporting documents where applicable.**

The following information is REQUIRED:

□ Composition of the representative sample used for the simulation
□ For each stream that contributes to flashing emissions:
  □ Temperature and pressure (inlet and outlet from separator(s))
  □ Simulation-predicted composition
  □ Molecular weight
  □ Flow rate
□ Resulting flash emission factor or flashing emissions from simulation
□ Working/breathing loss emissions from tanks and/or loading emissions if simulation is used to quantify those emissions

Additional information may be requested if necessary.

GENERAL INFORMATION (REQUIRED)

1. Bulk Storage Area Name **RPT-8**	2. Tank Name **Tank 7 and Tank 9**
3. Emission Unit ID number **TNK7 and TNK9**	4. Emission Point ID number **5S/7S**
5. Date Installed , Modified or Relocated *(for existing tanks)* Was the tank manufactured after August 23, 2011? ☒ Yes ☐ No	6. Type of change: ☒ New construction ☐ New stored material ☐ Other ☐ Relocation
7A. Description of Tank Modification *(if applicable)*	
7B. Will more than one material be stored in this tank? *If so, a separate form must be completed for each material.* ☐ Yes ☒ No	
7C. Was USEPA Tanks simulation software utilized? ☐ Yes ☒ No ***If Yes, please provide the appropriate documentation and items 8-42 below are not required.***	

TANK INFORMATION

8. Design Capacity *(specify barrels or gallons).* Use the internal cross-sectional area multiplied by internal height. **210 BBL**	
9A. Tank Internal Diameter (ft.) **12.5**	9B. Tank Internal Height (ft.) **15**
10A. Maximum Liquid Height (ft.) **13**	10B. Average Liquid Height (ft.) **8**
11A. Maximum Vapor Space Height (ft.) **14**	11B. Average Vapor Space Height (ft.) **7**
12. Nominal Capacity *(specify barrels or gallons).* This is also known as "working volume". **180 BBL**	
13A. Maximum annual throughput (gal/yr) **200,000**	13B. Maximum daily throughput (gal/day) **7,000**
14. Number of tank turnovers per year **27**	15. Maximum tank fill rate (gal/min) **50**
16. Tank fill method ☐ Submerged ☒ Splash ☐ Bottom Loading	
17. Is the tank system a variable vapor space system? ☐ Yes ☒ No If yes, (A) What is the volume expansion capacity of the system (gal)? (B) What are the number of transfers into the system per year?	
18. Type of tank (check all that apply): ☒ Fixed Roof ☐ vertical ☐ horizontal ☐ flat roof ☐ cone roof ☐ dome roof ☐ other (describe) ☐ External Floating Roof ☐ pontoon roof ☐ double deck roof ☐ Domed External (or Covered) Floating Roof ☐ Internal Floating Roof ☐ vertical column support ☐ self-supporting ☐ Variable Vapor Space ☐ lifter roof ☐ diaphragm ☐ Pressurized ☐ spherical ☐ cylindrical ☐ Other (describe)	

PRESSURE/VACUUM CONTROL DATA

19. Check as many as apply:

☐ Does Not Apply ☐ Rupture Disc (psig)

☐ Inert Gas Blanket of _____ ☐ Carbon Adsorption[1]

☒ Vent to Vapor Combustion Device[1] (vapor combustors, flares, thermal oxidizers, enclosed combustors) **as back-up to VRU**

☒ Conservation Vent (psig) ☐ Condenser[1]

0.4 oz. Vacuum Setting **14 oz.** Pressure Setting

☐ Emergency Relief Valve (psig)

Vacuum Setting Pressure Setting

☒ Thief Hatch Weighted ☒ Yes ☐ No

[1] Complete appropriate Air Pollution Control Device Sheet

20. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name	**Flashing Loss**		**Breathing Loss**		**Working Loss**		**Total Emissions Loss**		**Estimation Method[1]**
	lb/hr	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	
VOC	0.03	0.15					0.03	0.15	MB
HAPs	<0.01	0.01					<0.01	0.01	MB

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

Remember to attach emissions calculations, including TANKS Summary Sheets and other modeling summary sheets if applicable.

TANK CONSTRUCTION AND OPERATION INFORMATION			
21. Tank Shell Construction: ☐ Riveted ☐ Gunite lined ☐ Epoxy-coated rivets ☒ Other (describe) **Welded**			
21A. Shell Color: **Blue**	21B. Roof Color: **Blue**	21C. Year Last Painted: **NEW**	
22. Shell Condition (if metal and unlined): ☒ No Rust ☐ Light Rust ☐ Dense Rust ☐ Not applicable			
22A. Is the tank heated? ☐ Yes ☒ No	22B. If yes, operating temperature:	22C. If yes, how is heat provided to tank?	
23. Operating Pressure Range (psig): **2 oz – 14 oz** **Must be listed for tanks using VRUs with closed vent system.**			
24. Is the tank a **Vertical Fixed Roof Tank**? ☒ Yes ☐ No	24A. If yes, for dome roof provide radius (ft):	24B. If yes, for cone roof, provide slop (ft/ft):	
25. Complete item 25 for **Floating Roof Tanks** ☐ Does not apply ☒			
25A. Year Internal Floaters Installed:			
25B. Primary Seal Type *(check one):* ☐ Metallic (mechanical) shoe seal ☐ Liquid mounted resilient seal ☐ Vapor mounted resilient seal ☐ Other (describe):			
25C. Is the Floating Roof equipped with a secondary seal? ☐ Yes ☐ No			
25D. If yes, how is the secondary seal mounted? *(check one)* ☐ Shoe ☐ Rim ☐ Other (describe):			
25E. Is the floating roof equipped with a weather shield? ☐ Yes ☐ No			
25F. Describe deck fittings:			
26. Complete the following section for **Internal Floating Roof Tanks** ☒ Does not apply			
26A. Deck Type: ☐ Bolted ☐ Welded	26B. For bolted decks, provide deck construction:		
26C. Deck seam. Continuous sheet construction: ☐ 5 ft. wide ☐ 6 ft. wide ☐ 7 ft. wide ☐ 5 x 7.5 ft. wide ☐ 5 x 12 ft. wide ☐ other (describe)			
26D. Deck seam length (ft.):	26E. Area of deck (ft^2):	26F. For column supported tanks, # of columns:	26G. For column supported tanks, diameter of column:
27. Closed Vent System with VRU? ☒ Yes ☐ No			
28. Closed Vent System with Enclosed Combustor? ☒ Yes ☐ No **Back-up to VRU**			
SITE INFORMATION			
29. Provide the city and state on which the data in this section are based:			
30. Daily Avg. Ambient Temperature (°F):	31. Annual Avg. Maximum Temperature (°F):		
32. Annual Avg. Minimum Temperature (°F):	33. Avg. Wind Speed (mph):		
34. Annual Avg. Solar Insulation Factor (BTU/ft^2-day):	35. Atmospheric Pressure (psia):		
LIQUID INFORMATION			
36. Avg. daily temperature range of bulk liquid (°F): **60**	36A. Minimum (°F): **36**	36B. Maximum (°F):	
37. Avg. operating pressure range of tank (psig): **0-0.5 pis**	37A. Minimum (psig): **<0.1 psi**	37B. Maximum (psig): **0.8 psi**	
38A. Minimum liquid surface temperature (°F): **36**	38B. Corresponding vapor pressure (psia): **0.11**		
39A. Avg. liquid surface temperature (°F): **65**	39B. Corresponding vapor pressure (psia): **0.31**		
40A. Maximum liquid surface temperature (°F): **100**	40B. Corresponding vapor pressure (psia): **0.95**		
41. Provide the following for each liquid or gas to be stored in the tank. Add additional pages if necessary.			
41A. Material name and composition:	**Brine/Produced Water**		
41B. CAS number:	7732-18-5, 7747-40-7, 7647-14-5		
41C. Liquid density (lb/gal):	**9-10 lb/gal**		
41D. Liquid molecular weight (lb/lb-mole):	**Varies**		
41E. Vapor molecular weight (lb/lb-mole):	**18**		
41F. Maximum true vapor pressure (psia):	**0.95**		
41G. Maximum Reid vapor pressure (psia):			
41H. Months Storage per year. From: **Jan** To: **Dec**	**12**		
42. Final maximum gauge pressure and temperature prior to transfer into tank used as inputs into flashing emission calculations.	**N/A**		

ATTACHMENT L – STORAGE VESSEL DATA SHEET

Complete this data sheet if you are the owner or operator of a storage vessel that contains condensate and/or produced water. This form must be completed for ***each*** new or modified bulk liquid storage vessel(s) that contains condensate and/or produced water. (If you have more than one (1) identical tank (i.e. 4-400 bbl condensate tanks), then you can list all on one (1) data sheet). **Include gas sample analysis, flashing emissions, working and breathing losses, USEPA Tanks, simulation software (ProMax, E&P Tanks, HYSYS, etc.), and any other supporting documents where applicable.**

The following information is REQUIRED:

□ Composition of the representative sample used for the simulation
□ For each stream that contributes to flashing emissions:
  □ Temperature and pressure (inlet and outlet from separator(s))
  □ Simulation-predicted composition
  □ Molecular weight
  □ Flow rate
□ Resulting flash emission factor or flashing emissions from simulation
□ Working/breathing loss emissions from tanks and/or loading emissions if simulation is used to quantify those emissions

Additional information may be requested if necessary.

GENERAL INFORMATION (REQUIRED)

1. Bulk Storage Area Name **RPT-8**	2. Tank Name **Tank 8 and Tank 10**
3. Emission Unit ID number **TNK10 and TNK10**	4. Emission Point ID number **5S/7S**
5. Date Installed , Modified or Relocated *(for existing tanks)* Was the tank manufactured after August 23, 2011? ☒ Yes ☐ No	6. Type of change: ☒ New construction ☐ New stored material ☐ Other ☐ Relocation
7A. Description of Tank Modification *(if applicable)*	
7B. Will more than one material be stored in this tank? *If so, a separate form must be completed for each material.* ☐ Yes ☒ No	
7C. Was USEPA Tanks simulation software utilized? ☐ Yes ☒ No ***If Yes, please provide the appropriate documentation and items 8-42 below are not required.***	

TANK INFORMATION

8. Design Capacity *(specify barrels or gallons).* Use the internal cross-sectional area multiplied by internal height. **210 BBL**	
9A. Tank Internal Diameter (ft.) **12.5**	9B. Tank Internal Height (ft.) **15**
10A. Maximum Liquid Height (ft.) **13**	10B. Average Liquid Height (ft.) **8**
11A. Maximum Vapor Space Height (ft.) **14**	11B. Average Vapor Space Height (ft.) **7**
12. Nominal Capacity *(specify barrels or gallons).* This is also known as "working volume". **180**	
13A. Maximum annual throughput (gal/yr) **200,000**	13B. Maximum daily throughput (gal/day) **7,000**
14. Number of tank turnovers per year **40**	15. Maximum tank fill rate (gal/min) **50**
16. Tank fill method ☐ Submerged ☐ Splash ☒ Bottom Loading	
17. Is the tank system a variable vapor space system? ☐ Yes ☐ No If yes, (A) What is the volume expansion capacity of the system (gal)? (B) What are the number of transfers into the system per year?	
18. Type of tank (check all that apply): ☒ Fixed Roof ☐ vertical ☐ horizontal ☐ flat roof ☐ cone roof ☐ dome roof ☐ other (describe) ☐ External Floating Roof ☐ pontoon roof ☐ double deck roof ☐ Domed External (or Covered) Floating Roof ☐ Internal Floating Roof ☐ vertical column support ☐ self-supporting ☐ Variable Vapor Space ☐ lifter roof ☐ diaphragm ☐ Pressurized ☐ spherical ☐ cylindrical ☐ Other (describe)	

PRESSURE/VACUUM CONTROL DATA

19. Check as many as apply:

☐ Does Not Apply ☐ Rupture Disc (psig)

☐ Inert Gas Blanket of _____ ☐ Carbon Adsorption[1]

☒ Vent to Vapor Combustion Device[1] (vapor combustors, flares, thermal oxidizers, enclosed combustors) **as back-up to VRU**

☒ Conservation Vent (psig) ☐ Condenser[1]

0.4 oz. Vacuum Setting **14 oz.** Pressure Setting

☐ Emergency Relief Valve (psig)

Vacuum Setting Pressure Setting

☒ Thief Hatch Weighted ☒ Yes ☐ No

[1] Complete appropriate Air Pollution Control Device Sheet

20. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name	**Flashing Loss**		**Breathing Loss**		**Working Loss**		**Total Emissions Loss**		**Estimation Method[1]**
	lb/hr	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	
VOC	79.5	348.17	0.05	0.22	0.11	0.49	79.7	348.9	MB and EPA
HAP	2.60	11.4	0.007	0.03	0.016	0.07	2.62	11.5	MB

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

Remember to attach emissions calculations, including TANKS Summary Sheets and other modeling summary sheets if applicable.

TANK CONSTRUCTION AND OPERATION INFORMATION			
21. Tank Shell Construction: ☐ Riveted ☐ Gunite lined ☐ Epoxy-coated rivets ☒ Other (describe) **Welded**			
21A. Shell Color: **Blue**	21B. Roof Color: **Blue**	21C. Year Last Painted: **NEW**	
22. Shell Condition (if metal and unlined): ☒ No Rust ☐ Light Rust ☐ Dense Rust ☐ Not applicable			
22A. Is the tank heated? ☐ Yes ☒ No	22B. If yes, operating temperature:	22C. If yes, how is heat provided to tank?	
23. Operating Pressure Range (psig): **2 oz – 14 oz** **Must be listed for tanks using VRUs with closed vent system.**			
24. Is the tank a **Vertical Fixed Roof Tank**? ☒ Yes ☐ No	24A. If yes, for dome roof provide radius (ft):	24B. If yes, for cone roof, provide slop (ft/ft):	
25. Complete item 25 for **Floating Roof Tanks** ☐ Does not apply ☐			
25A. Year Internal Floaters Installed:			
25B. Primary Seal Type *(check one):* ☐ Metallic (mechanical) shoe seal ☐ Liquid mounted resilient seal ☐ Vapor mounted resilient seal ☐ Other (describe):			
25C. Is the Floating Roof equipped with a secondary seal? ☐ Yes ☐ No			
25D. If yes, how is the secondary seal mounted? *(check one)* ☐ Shoe ☐ Rim ☐ Other (describe):			
25E. Is the floating roof equipped with a weather shield? ☐ Yes ☐ No			
25F. Describe deck fittings:			
26. Complete the following section for **Internal Floating Roof Tanks** ☐ Does not apply			
26A. Deck Type: ☐ Bolted ☐ Welded	26B. For bolted decks, provide deck construction:		
26C. Deck seam. Continuous sheet construction: ☐ 5 ft. wide ☐ 6 ft. wide ☐ 7 ft. wide ☐ 5 x 7.5 ft. wide ☐ 5 x 12 ft. wide ☐ other (describe)			
26D. Deck seam length (ft.):	26E. Area of deck (ft^2):	26F. For column supported tanks, # of columns:	26G. For column supported tanks, diameter of column:
27. Closed Vent System with VRU? ☒ Yes ☐ No			
28. Closed Vent System with Enclosed Combustor? ☒ Yes ☐ No **Back-up to VRU**			
SITE INFORMATION			
29. Provide the city and state on which the data in this section are based:			
30. Daily Avg. Ambient Temperature (°F):	31. Annual Avg. Maximum Temperature (°F):		
32. Annual Avg. Minimum Temperature (°F):	33. Avg. Wind Speed (mph):		
34. Annual Avg. Solar Insulation Factor (BTU/ft^2-day):	35. Atmospheric Pressure (psia):		
LIQUID INFORMATION			
36. Avg. daily temperature range of bulk liquid (°F): **60**	36A. Minimum (°F): **36**	36B. Maximum (°F):	
37. Avg. operating pressure range of tank (psig): **0-0.5 pis**	37A. Minimum (psig): **<0.1 psi**	37B. Maximum (psig): **0.8 psi**	
38A. Minimum liquid surface temperature (°F): **36**	38B. Corresponding vapor pressure (psia): **0.11**		
39A. Avg. liquid surface temperature (°F): **65**	39B. Corresponding vapor pressure (psia): **0.31**		
40A. Maximum liquid surface temperature (°F): **100**	40B. Corresponding vapor pressure (psia): **0.95**		
41. Provide the following for each liquid or gas to be stored in the tank. Add additional pages if necessary.			
41A. Material name and composition:	**Condensate**		
41B. CAS number:	**68919-39-1**		
41C. Liquid density (lb/gal):	**5.49**		
41D. Liquid molecular weight (lb/lb-mole):	**81.3**		
41E. Vapor molecular weight (lb/lb-mole):	**39.56**		
41F. Maximum true vapor pressure (psia):			
41G. Maximum Reid vapor pressure (psia):	**5.28**		
41H. Months Storage per year. From: **Jan** To: **Dec**	**12**		
42. Final maximum gauge pressure and temperature prior to transfer into tank used as inputs into flashing emission calculations.			

STORAGE TANK DATA TABLE

List all deminimis storage tanks (i.e. lube oil, glycol, diesel etc.)

Source ID #[1]	Status[2]	Content[3]	Volume[4]
TNK11	**NEW**	TEG	200

1. Enter the appropriate Source Identification Numbers (Source ID #) for each storage tank located at the compressor station. Tanks should be designated T01, T02, T03, etc.
2. Enter storage tank Status using the following:
   - EXIST Existing Equipment
   - NEW Installation of New Equipment
   - REM Equipment Removed
3. Enter storage tank content such as condensate, pipeline liquids, glycol (DEG or TEG), lube oil, diesel, mercaptan etc.
4. Enter the maximum design storage tank volume in gallons.

ATTACHMENT M – SMALL HEATERS AND REBOILERS NOT SUBJECT TO 40CFR60 SUBPART DC
DATA SHEET

Complete this data sheet for each small heater and reboiler not subject to 40CFR60 Subpart Dc at the facility. ***The Maximum Design Heat Input (MDHI) must be less than 10 MMBTU/hr.***

Emission Unit ID#[1]	Emission Point ID#[2]	Emission Unit Description (manufacturer, model #)	Year Installed/ Modified	Type[3] and Date of Change	Maximum Design Heat Input (MMBTU/hr)[4]	Fuel Heating Value (BTU/scf)[5]
GPU-1	1S	Gas Processing Unit	2013	EXIST	1.5 MMBTU/Hr	1263
GPU-2	2S	Gas Processing Unit	2013	EXIST	1.5 MMBTU/Hr	1263
GPU-3	3S	Gas Processing Unit	2013	EXIST	1.5 MMBTU/Hr	1263
GPU-4	**9S**	Gas Processing Unit	**Pending**	**NEW**	1.5 MMBTU/Hr	1263
GPU-5	**10S**	Gas Processing Unit	**Pending**	**NEW**	1.5 MMBTU/Hr	1263
GPU-6	**11S**	Gas Processing Unit	**Pending**	**NEW**	1.5 MMBTU/Hr	1263
RBV-1	**12S**	Exterran HANO-488750011	**Pending**	**NEW**	0.5 MMBTU/Hr	1263

1 Enter the appropriate Emission Unit (or Source) identification number for each fuel burning unit located at the production pad. Gas Producing Unit Burners should be designated GPU-1, GPU-2, etc. Heater Treaters should be designated HT-1, HT-2, etc. Heaters or Line Heaters should be designated LH-1, LH-2, etc. For sources, use 1S, 2S, 3S…or other appropriate designation. Enter glycol dehydration unit Reboiler Vent data on the Glycol Dehydration Unit Data Sheet.

2 Enter the appropriate Emission Point identification numbers for each fuel burning unit located at the production pad. Gas Producing Unit Burners should be designated GPU-1, GPU-2, etc. Heater Treaters should be designated HT-1, HT-2, etc. Heaters or Line Heaters should be designated LH-1, LH-2, etc. For emission points, use 1E, 2E, 3E…or other appropriate designation.

3 New, modification, removal

4 Enter design heat input capacity in MMBtu/hr.

5 Enter the fuel heating value in BTU/standard cubic foot.

ATTACHMENT N – INTERNAL COMBUSTION ENGINE DATA SHEET

Complete this data sheet for each internal combustion engine at the facility. Include manufacturer performance data sheet(s) or any other supporting document if applicable. Use extra pages if necessary. *Generator(s) and microturbine generator(s) shall also use this form.*

Emission Unit ID#[1]	VRU-1		
Engine Manufacturer/Model	Cummins G5.9		
Manufacturers Rated bhp/rpm	84 hp/1800 rpm		
Source Status[2]	ES		
Date Installed/ Modified/Removed/Relocated[3]	4-12-14		
Engine Manufactured /Reconstruction Date[4]	3/19/12		
Check all applicable Federal Rules for the engine (include EPA Certificate of Conformity if applicable)[5]	☒40CFR60 Subpart JJJJ ☐JJJJ Certified? ☐40CFR60 Subpart IIII ☐IIII Certified? ☐40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/ NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources	☐40CFR60 Subpart JJJJ ☐JJJJ Certified? ☐40CFR60 Subpart IIII ☐IIII Certified? ☐40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/ NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources	☐40CFR60 Subpart JJJJ ☐JJJJ Certified? ☐40CFR60 Subpart IIII ☐IIII Certified? ☐40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/ NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources
Engine Type[6]	4SRB		
APCD Type[7]	NSCR		
Fuel Type[8]	RG		
H_2S (gr/100 scf)	N/A		
Operating bhp/rpm	84 hp/ 1800 rpm		
BSFC (BTU/bhp-hr)	7,914		
Hourly Fuel Throughput	583 ft^3/hr gal/hr	ft^3/hr gal/hr	ft^3/hr gal/hr
Annual Fuel Throughput (Must use 8,760 hrs/yr unless emergency generator)	5.1 $MMft^3$/yr gal/yr	$MMft^3$/yr gal/yr	$MMft^3$/yr gal/yr
Fuel Usage or Hours of Operation Metered	Yes ☒ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

Calculation Methodology[9]	**Pollutant[10]**	**Hourly PTE (lb/hr)[11]**	**Annual PTE (tons/year)[11]**	**Hourly PTE (lb/hr)[11]**	**Annual PTE (tons/year)[11]**	**Hourly PTE (lb/hr)[11]**	**Annual PTE (tons/year)[11]**
	NO_x	0.52	2.27				
	CO	0.89	3.89				
	VOC	0.02	0.09				
	SO_2	<0.01	<0.01				
	PM_{10}	0.013	0.06				
	Formaldehyde	0.01	0.06				
	Total HAPs	0.02	0.09				
	GHG (CO_2e)	89	391				

1 Enter the appropriate Source Identification Number for each natural gas-fueled reciprocating internal combustion compressor/generator engine located at the compressor station. Multiple compressor engines should be designated CE-1, CE-2, CE-3 etc. Generator engines should be designated GE-1, GE-2, GE-3 etc. Microturbine generator engines should be designated MT-1, MT-2, MT-3 etc. If more than three (3) engines exist, please use additional sheets.

2 Enter the Source Status using the following codes:

NS	Construction of New Source (installation)	ES	Existing Source
MS	Modification of Existing Source	RS	Relocated Source
REM	Removal of Source		

3 Enter the date (or anticipated date) of the engine's installation (construction of source), modification, relocation or removal.

4 Enter the date that the engine was manufactured, modified or reconstructed.

5 Is the engine a certified stationary spark ignition internal combustion engine according to 40CFR60 Subpart IIII/JJJJ? If so, the engine and control device must be operated and maintained in accordance with the manufacturer's emission-related written instructions. You must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. If the certified engine is not operated and maintained in accordance with the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and you must demonstrate compliance as appropriate.

Provide a manufacturer's data sheet for all engines being registered.

6 Enter the Engine Type designation(s) using the following codes:

2SLB	Two Stroke Lean Burn	4SRB	Four Stroke Rich Burn
4SLB	Four Stroke Lean Burn		

7 Enter the Air Pollution Control Device (APCD) type designation(s) using the following codes:

A/F	Air/Fuel Ratio	IR	Ignition Retard
HEIS	High Energy Ignition System	SIPC	Screw-in Precombustion Chambers
PSC	Prestratified Charge	LEC	Low Emission Combustion
NSCR	Rich Burn & Non-Selective Catalytic Reduction	OxCat	Oxidation Catalyst
SCR	Lean Burn & Selective Catalytic Reduction		

8 Enter the Fuel Type using the following codes:

PQ	Pipeline Quality Natural Gas	RG	Raw Natural Gas /Production Gas	D	Diesel

9 Enter the Potential Emissions Data Reference designation using the following codes. Attach all reference data used.

MD	Manufacturer's Data	AP	AP-42	
GR	GRI-HAPCalc™	OT	Other	(please list)

10 Enter each engine's Potential to Emit (PTE) for the listed regulated pollutants in pounds per hour and tons per year. PTE shall be calculated at manufacturer's rated brake horsepower and may reflect reduction efficiencies of listed Air Pollution Control Devices. Emergency generator engines may use 500 hours of operation when calculating PTE. PTE data from this data sheet shall be incorporated in the *Emissions Summary Sheet*.

11 PTE for engines shall be calculated from manufacturer's data unless unavailable.

USA COMPRESSION

USA Compression Partners, LLC

Date: May 27, 2014
Unit #: 6041
Customer: To Be Determined

To:

Lease Location: To Be Determined

Please find the below information for the USA Compression unit number listed above:

Package Information	
Compressor Manufacturer:	Arrow
Compressor Model:	VRC2
Compressor Serial Number:	12095
Compressor Cylinders:	6.5" x 4.0" x 2.25"
Driver Manufacturer:	Cummins
Driver Model:	G5.9
Rated HP & Speed	84 HP @ 1800 RPM
Driver Type:	4-stroke Rich Burn
Engine Serial Number:	73364060
Engine Manufacturing Date:	3/19/2012
Engine Catalyst Model:	VXC-1408-04-HSG
Engine Catalyst Element:	VX-RE-08XC
Engine AFR Model:	AFR-1RD-10-TK2
Engine Stack Height:	9' 5"
Engine Stack Diameter:	4"
Operating Information	
Suction Pressure:	N/A psig
Discharge Pressure:	N/A psig
Design Capacity:	N/A MSCFD
Gas Specific Gravity:	N/A

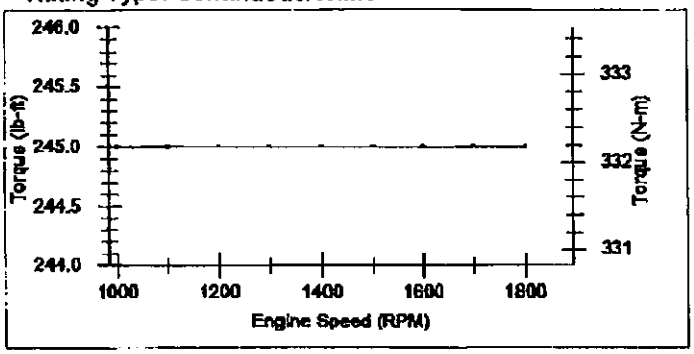
Emission Output information included in the attached catalyst specification sheet.

Engine Performance Data	Industrial	84 BHP (63 kW) @ 1800 RPM 245 lb-ft (332 N-m) @ 1800 RPM		
Cummins Inc Columbus, Indiana 47202-3005 http://www.cummins.com	G5.9 FR 9961	Configuration D491010CX02	CPL Code 8655	Revision 12-May-2011

Compression Ratio:	10.5:1	Displacement:	359 in3 (5.9 L)
Fuel System:	Field Gas, Dry Processed Nat Gas	Aspiration:	Naturally Aspirated
Emission Certification:	Non-certified		

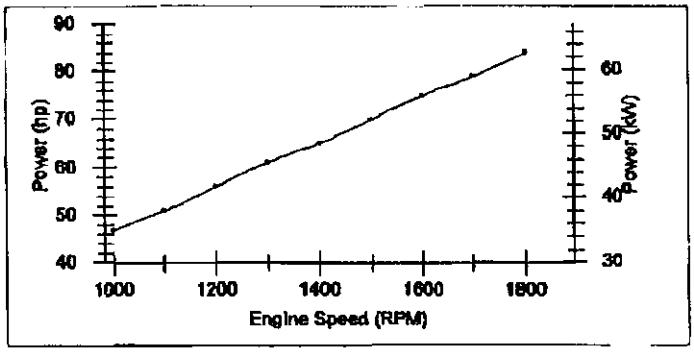
All data is based on the engine operating with fuel system, water pump, and 7 in H2O (1.74 kPa) inlet air restriction with 3.5 in (89 mm) inner diameter, and with 1 in Hg (3 kPa) exhaust restriction with 3 in (76 mm) inner diameter; not included are alternator, fan, optional equipment and driven components. Coolant flows and heat rejection data based on coolants as 50% ethylene glycol/50% water. All data is subject to change without notice.

Rating Type: Continuous/WMR



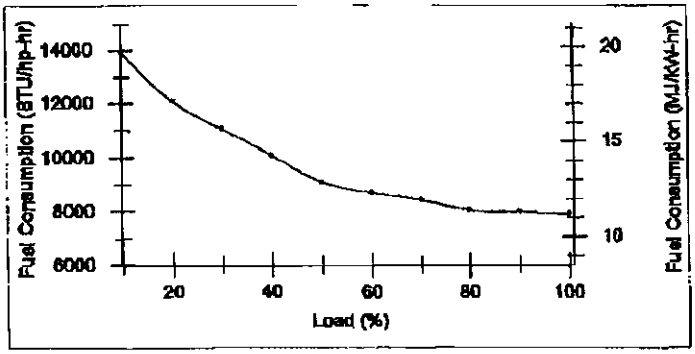
Torque Output

RPM	lb-ft	N-m
1,000	245	332
1,100	245	332
1,200	245	332
1,300	245	332
1,400	245	332
1,500	245	332
1,600	245	332
1,700	245	332
1,800	245	332



Power Output

RPM	hp	kW
1,000	47	35
1,100	51	38
1,200	56	42
1,300	61	45
1,400	65	48
1,500	70	52
1,600	75	56
1,700	79	59
1,800	84	63



Fuel Consumption @ 1,800 RPM

hp	kW	% Load	BTU/hp-hr	MJ/kW-hr
84	63	100	7,914	11.2
76	57	90	7,987	11.3
67	50	80	8,056	11.4
59	44	70	8,452	11.96
50	37	60	8,689	12.29
42	31	50	9,094	12.87
34	25	40	10,083	14.27
25	19	30	11,069	15.66
17	13	20	12,116	17.14
8	6	10	13,889	19.65

Data represents gross engine capabilities obtained and corrected in accordance with SAE J1995 using dry processed natural gas fuel with 905 BTU per standard cubic foot lower heating value. Deration may be required due to altitude, temperature and type of fuel. Consult Cummins Customer Engineering for operation above this altitude.

STATUS FOR CURVES AND DATA: Limited-(measured data)

TOLERANCE: Within +/- 5 %

CHIEF ENGINEER:

Alfred S Weber

Bold entries revised after 1-Mar-2010

Intake Air System

Maximum allowable air temperature rise over ambient at Intake Manifold (Naturally Aspirated Engines) or Turbo Compressor Inlet (Turbo-charged Engines): (This parameter impacts emissions, LAT and/or altitude capability)	15 delta deg F	8.3 delta deg C

Cooling System

Maximum coolant temperature for engine protection controls	215 deg F	102 deg C
Maximum coolant operating temperature at engine outlet (max. top tank temp):	212 deg F	100 deg C

Exhaust System

Maximum exhaust back pressure:	2 in-Hg	7 kPa
Recommended exhaust piping size (inner diameter):	3 in	76 mm

Lubrication System

Nominal operating oil pressure		
@ minimum low idle	10 psi	69 kPa
@ maximum rated speed	50 psi	345 kPa
Minimum engine oil pressure for engine protection devices		
@ minimum low idle	10 psi	69 kPa

Fuel System

Maximum fuel inlet pressure:	1 psi	5 kPa

Performance Data

Engine low idle speed:	900 RPM
Maximum low idle speed:	1,800 RPM
Minimum low idle speed:	800 RPM
Engine high idle speed	1,800 RPM
Governor break speed:	
Maximum torque available at closed throttle low idle speed:	50 lb-ft 68 N-m

	100% Load		75% Load		50% Load	
Engine Speed	1,800 RPM		1,800 RPM		1,800 RPM	
Output Power	84 hp	63 kW	63 hp	47 kW	42 hp	31 kW
Torque	245 lb-ft	332 N-m	184 lb-ft	249 N-m	123 lb-ft	167 N-m
Intake Manifold Pressure	-1 in-Hg	-3 kPa	-5 in-Hg	-17 kPa	-9 in-Hg	-30 kPa
Inlet Air Flow	121 ft3/min	57 L/s	101 ft3/min	48 L/s	82 ft3/min	39 L/s
Exhaust Gas Flow	430 ft3/min	203 L/s	360 ft3/min	170 L/s	292 ft3/min	138 L/s
Exhaust Gas Temperature	1,078 deg F	581 deg C	999 deg F	537 deg C	902 deg F	483 deg C
Heat Rejection to Coolant	3,824 BTU/min	67 kW	3,244 BTU/min	57 kW	2,596 BTU/min	46 kW
Heat Rejection to Ambient	1,194 BTU/min	21 kW	784 BTU/min	14 kW	613 BTU/min	11 kW
Heat Rejection to Exhaust	2,523 BTU/min	44 kW	1,916 BTU/min	34 kW	1,371 BTU/min	24 kW
Fuel Consumption	7,914 BTU/hp-hr	11 MJ/kW-hr	8,214 BTU/hp-hr	12 MJ/kW-hr	9,094 BTU/hp-hr	13 MJ/kW-hr
Air Fuel Ratio (dry)	16.52 vol/vol		16.51 vol/vol		16.52 vol/vol	
Ignition timing (BTDC)	26 deg	26 deg	26 deg	26 deg	26 deg	26 deg
Total Hydrocarbons	1.48 g/hp-hr		1.3 g/hp-hr		1.62 g/hp-hr	
VOC ppm w/o Catalyst						
VOC ppm with Catalyst						
NOx	11.41 g/hp-hr	15.3 g/kW-hr	13.7 g/hp-hr	18.37 g/kW-hr	12.86 g/hp-hr	17.23 g/kW-hr
NOx ppm w/o Catalyst						
NOx ppm with Catalyst						
CO	14.64 g/hp-hr	19.63 g/kW-hr	0.82 g/hp-hr	1.1 g/kW-hr	1.38 g/hp-hr	1.85 g/kW-hr
CO ppm w/o Catalyst						
CO ppm with Catalyst						
CO2	449 g/hp-hr	602 g/kW-hr	489 g/hp-hr	656 g/kW-hr	540 g/hp-hr	724 g/kW-hr
O2	0.45 %		1.66 %		3.87 %	

Bold entries revised after 1-Mar-2010

Cranking System (Cold Starting Capability)

Unaided Cold Start:	
Minimum cranking speed	250 RPM
Cold starting aids available	Block Heater, Oil Pan Heater
Maximum parasitic load at 10 deg F @	

Noise Emissions

Top	89.9 dBa
Right Side	90.1 dBa
Left Side	89.8 dBa
Front	90.5 dBa
Exhaust noise emissions	103.1 dBa

Estimated Free Field Sound Pressure Level at 3.28ft (1m) and Full-Load Governed Speed
(Excludes Noise from Intake, Exhaust, Cooling System and Driven Components)

Aftercooler Heat Rejection - Heat Load on Aftercooler
BTU/min (kW)

Altitude ft (m)	Ambient Temp deg F (deg C)					
	120 (49)	110 (43)	100 (38)	90 (32)	80 (27)	70 (21)
0 (0)	(.0)	(.0)	(.0)	(.0)	(.0)	(.0)
1000 (305)	(.0)	(.0)	(.0)	(.0)	(.0)	(.0)
2000 (610)	(.0)	(.0)	(.0)	(.0)	(.0)	(.0)
3000 (914)	(.0)	(.0)	(.0)	(.0)	(.0)	(.0)
4000 (1219)	(.0)	(.0)	(.0)	(.0)	(.0)	(.0)
5000 (1524)	(.0)	(.0)	(.0)	(.0)	(.0)	(.0)
6000 (1829)	(.0)	(.0)	(.0)	(.0)	(.0)	(.0)
7000 (2134)	(.0)	(.0)	(.0)	(.0)	(.0)	(.0)
8000 (2438)	(.0)	(.0)	(.0)	(.0)	(.0)	(.0)
9000 (2743)	(.0)	(.0)	(.0)	(.0)	(.0)	(.0)
10000 (3048)	(.0)	(.0)	(.0)	(.0)	(.0)	(.0)

End of Report

Bold entries revised after 1-Mar-2010

Engine Air Pollution Control Device
Emission Unit ID# VRU-1

Air Pollution Control Device Manufacturer's Data Sheet included?
Yes ☒ No ☐

☒ NSCR	☐ SCR	☐ Oxidation Catalyst

Provide details of process control used for proper mixing/control of reducing agent with gas stream: **N/A**

Manufacturer: **Miratech**	Model #: **VXC-1408-04-HSG**
Design Operating Temperature: **1078 °F**	Design gas volume**: 430** acfm
Service life of catalyst: **Variable**	Provide manufacturer data? ☒Yes ☐ No
Volume of gas handled: **430 acfm at 1078 °F**	Operating temperature range for NSCR/Ox Cat: **From 750 °F to 1250 °F**
Reducing agent used, if any: **N/A**	Ammonia slip (ppm): **N/A**

Pressure drop against catalyst bed (delta P): **3.0 inches of H_2O**

Provide description of warning/alarm system that protects unit when operation is not meeting design conditions:
None

Is temperature and pressure drop of catalyst required to be monitored per 40CFR63 Subpart ZZZZ?
☐ Yes ☒ No

How often is catalyst recommended or required to be replaced (hours of operation)?
As warranted by maintenance checks or two years, whichever comes first.

How often is performance test required?
☐ Initial
☐ Annual
☐ Every 8,760 hours of operation
☐ Field Testing Required
☒ No performance test required. If so, why (please list any maintenance required and the applicable sections in NSPS/GACT, Not required for engines <100 Hp

Gas/Site Analysis & Engine Selection/Derate

Cummins Stationary Natural Gas Engines

Date: 4/10/2014

Industrial	NG
G5.9	84 HP (63 kW) @1800 RPM & 10.5:1 Compression Ratio
Available FR Number(s) From Selection: FR9936, FR9961	Catalyst Fuel Rating: Industrial Continuous

Engine (as entered by user)		
Application:	Industrial	
Fuel Type:	NG	
Engine:	G5.9	
Fuel Rating:	Catalyst	
Compression Ratio:	10.5:1	
RPM:	1800	
HP (Natural Gas):	84 HP (63 kW)	
HP (Propane):	NA HP (NA kW)	
Site (as entered by user)		
Ambient Air Temperature:	90° F	
Relative Humidity:	30%	
Altitude:	1200 ft	
Cooling Fan Load:	8 HP	
Generator Efficiency:	93%	
Vapor Pressure (Calculated from Site Conditions Entered):	0.427 inHg	
Dew Point (Calculated from Site Conditions Entered):	54.4° F	
Dry Barometer (Calculated from Site Conditions Entered):	28.22 inHg	
Derate (Natural Gas)		
Advertised NG Rating:	84 HP (63 kW)	
Engine Derate Due to Site Altitude and Temperature:	2%	
Engine Derate Due to Gas Composition:		⚠ The sample percentage for "Name Sample" is 99.991%. Results are based on the input sample normalized to 100%.
Derate Due to Low BTU Fuel:	0%	
Derate Due to Methane Number:	0%	
Total Power Available (%) After All Applicable Derates:	98% of rated	
Total Site Derate due to Altitude, Temperature, and Gas Composition:	2 HP (1 kW)	
Total Available Horsepower from Selected Engine Running on Specified Fuel Composition at Specified Site (Includes 8 HP reduction for for cooling fan load):	74 HP (55 kW)	
Derate (Propane)		
Advertised Propane Rating:	NA HP (NA kW)	
Engine Derate Due to Site Altitude and Temperature:	NA%	
Total Power Available (%) After All Applicable Derates:	NA% of rated	
Total Site Derate due to Altitude and Temperature:	NA HP (NA kW)	
Total Available Horsepower from Selected Engine Running on Propane at Specified Site (Includes 8 HP reduction for for cooling fan load):	NA HP (NA kW)	
Intake Manifold Requirements for Turbocharged Engines		
Maximum Allowed Intake Manifold Temperature for Selected Engine is na °F with a Maximum Aftercooler Water Inlet (CAC air inlet) of na °F based on FR9936		

Factory Set Points	Factory Supplied	Recommended
Engine Speed Target:	1800 rpm	⚠ NOTICE: A Change to Ignition Timing is Recommended Due to Methane Number of Fuel
Spark Plug Gap:	0.020 in	
Excess Oxygen Target-PV:	na %O2	
Propane Engine Timing Target:	na °BTDC	
Propane Gas over air Press at Carb Low:	na inH2O	
Propane Gas Press at Sec Reg Target:	na inH2O	
Excess Oxygen Target-NG:	0.45% O_2	
Natural Gas Engine Timing Target:	Factory: 26 °BTDC	Recommended Timing: 25 ° BTDC
Natural Gas over air Press at Carb Target:	5 inH2O	
Natural Gas Press at Sec Reg Target:	15 inH2O	

FR9936 Created/Revised On: 4/30/2013. Data Files Updated On: 12/12/2013

Gas Sample Analysis			
			⚠ The sample percentage for "Name Sample" is 99.981%. Results are based on the input sample normalized to 100%.
Sample Name: Name Sample			
Gas Compound:		Volume Fraction % (User Input)	Mass Fraction % (Calculated)
Methane:		77.09	59.36
Ethane:		14.83	21.41
Propane:		4.97	10.51
I-Butane:		0.62	1.72
n-Butane:		1.21	3.38
I-Pentane:		0.27	0.92
n-Pentane:		0.26	0.91
n-Hexane:		0.15	0.62
n-Heptane:		0.04	0.2
n-Octane:		0.02	0.09
n-Nonane:		0	0
n-Decane:		0	0.02
Hydrogen:		0	0
Hydrogen Sulfide (H_2S):		0 ppm	0 ppm
Carbon Dioxide:		0.15	0.32
Carbon Monoxide:		0	0
Nitrogen:		0.39	0.53
Oxygen:		0	0
Total Percent: (Sample Input Percentage: 99.981%)		Normalized Percentage: 100%	
Performance Parameters:		Standard Units	Metric Units
Lower Heating Value (LHV): Standard Conditions (60F/14.696psia)	by volume	1140.6 Btu/scf	42.5 MJ/scm
	by mass	20776 Btu/lbm	48.326 MJ/kg
Higher Heating Value (HHV): Standard Conditions (60F/14.696psia)	by volume	1257.5 Btu/scf	46.85 MJ/scm
	by mass	22906 Btu/lbm	53.280 MJ/kg
Methane Number:		56.1	56.1
Specific Gravity (SG):		0.7193	0.7193
Wobbe Index :	LHV/√SG	1345 Btu/scf	50.11 MJ/scm
	HV/√SG	1483 Btu/scf	55.24 MJ/scm
Molecular Weight:		20.83 g/mol	20.83 g/mol
Specific Heat (Cp):		0.473 BTU/lbm-R	1.979 kJ/kg-K
Specific Heat Ratio (Cp/Cv):		1.253	1.253
Ideal Gas Density:		0.0549 lbm/ft3	0.8788 kg/m3 std
H/C Ratio:		3.492	3.492
Gas Constant (R_{GAS}):		95.3 BTU/lbm-°R	399.1 kJ/kg-°K
Stoich Air Fuel Ratio (Dry):		16.64	16.64
Fuel Flow Data			
BTU/HP-HR:		7914	
Maximum Fuel Flow (SCFH):		583	
Maximum Fuel Flow Calculation is Based on 100% Continuous Rating of 84 HP at 1800 RPM and 10.5:1 Compression Ratio from FR9936			
Gas Regulator Details			
The Industrial G5.9 uses a Maxitrol Regulator			Notes:

MIRATECH CORPORATION

CONFIDENTIAL

MIRATECH Emissions Control Equipment Specification Summary

Engine Data

Number of Engines:	1
Application:	Air Compression
Engine Manufacturer:	Cummins
Model Number:	G 5.9
Power Output:	84 bhp
Lubrication Oil:	0.6 wt% sulfated ash or less
Type of Fuel:	Natural Gas
Exhaust Flow Rate:	430 acfm (cfm)
Exhaust Temperature:	1,078°F

System Details

Housing Model Number:	VXC-1408-04-HSG
Element Model Number:	VX-RE-08XC
Number of Catalyst Layers:	1
Number of Spare Catalyst Layers:	1
System Pressure Loss:	3.0 inches of WC (Fresh)
Sound Attenuation:	28-32 dBA insertion loss
Exhaust Temperature Limits:	750 -- 1250°F (catalyst inlet); 1350°F (catalyst outlet)

NSCR Housing & Catalyst Details

Model Number:	VXC-1408-04-XC1
Material:	Carbon Steel
Diameter:	14 inches
Inlet Pipe Size & Connection:	4 inch FF Flange, 150# ANSI standard bolt pattern
Outlet Pipe Size & Connection:	4 inch FF Flange, 150# ANSI standard bolt pattern
Overall Length:	53 inches
Weight Without Catalyst:	152 lbs
Weight Including Catalyst:	162 lbs
Instrumentation Ports:	1 inlet/1 outlet (1/2" NPT)

Emission Requirements

Exhaust Gases	Engine Outputs (g/ bhp-hr)	Reduction (%)	Warranted Converter Outputs (g/ bhp-hr)	Requested Emissions Targets
NO	11.41	75	2.8	2.8 g/bhp-hr
CO	14.64	67	4.8	4.8 g/bhp-hr
Oxygen	0.5%			

MIRATECH warrants the performance of the converter, as stated above, per the MIRATECH General Terms and Conditions of Sale.

ATTACHMENT O – TANKER TRUCK LOADING DATA SHEET

Complete this data sheet for each new or modified bulk liquid transfer area or loading rack at the facility. This is to be used for bulk liquid transfer operations to tanker trucks. Use extra pages if necessary.

Truck Loadout Collection Efficiencies

The following applicable capture efficiencies of a truck loadout are allowed:

- For tanker trucks passing the MACT level annual leak test – 99.2%
- For tanker trucks passing the NSPS level annual leak test – 98.7%
- For tanker trucks not passing one of the annual leak tests listed above – 70%

Compliance with this requirement shall be demonstrated by keeping records of the applicable MACT or NSPS Annual Leak Test certification for ***every*** truck and railcar loaded/unloaded. This requirement can be satisfied if the trucking company provided certification that its entire fleet was compliant. This certification must be submitted in writing to the Director of the DAQ. These additional requirements must be noted in the Registration Application.

Emission Unit ID#: **TLU-1**	Emission Point ID#: **4S**	Year Installed/Modified: **2014**
Emission Unit Description: **Condensate and Produced Water Truck Loading Area**		
Loading Area Data		
Number of Pumps: **2 (on truck)**	Number of Liquids Loaded: **2**	Max number of trucks loading at one (1) time: **2**
Are tanker trucks pressure tested for leaks at this or any other location? ☐ Yes ☒ No ☐ Not Required If Yes, Please describe:		
Provide description of closed vent system and any bypasses. **None**		
Are any of the following truck loadout systems utilized? **No** ☐ Closed System to tanker truck passing a MACT level annual leak test? ☐ Closed System to tanker truck passing a NSPS level annual leak test? ☐ Closed System to tanker truck not passing an annual leak test and has vapor return?		

Projected Maximum Operating Schedule (for rack or transfer point as a whole)

Time	Jan – Mar	Apr - Jun	Jul – Sept	Oct - Dec
Hours/day	24	24	24	24
Days/week	7	7	7	7

Bulk Liquid Data (use extra pages as necessary)

Liquid Name	**Condensate**	**Produced Water**	
Max. Daily Throughput (1000 gal/day)	**6.72**	**6.72**	
Max. Annual Throughput (1000 gal/yr)	**756**	**756**	
Loading Method[1]	**Sub**	**Sub**	
Max. Fill Rate (gal/min)	**50**	**50**	
Average Fill Time (min/loading)	**120**	**120**	
Max. Bulk Liquid Temperature (°F)	**75**	**75**	
True Vapor Pressure[2]	**3.6**	**0.3**	
Cargo Vessel Condition[3]	**U**	**U**	
Control Equipment or Method[4]	**None**	**None**	
Max. Collection Efficiency (%)	**N/A**	**N/A**	

Max. Control Efficiency (%)		**N/A**	**N/A**	
Max.VOC Emission Rate	Loading (lb/hr)	**11.1**	**0.07**	
	Annual (ton/yr)	**1.25**	**0.02**	
Max.HAP Emission Rate	Loading (lb/hr)	**0.55**	**<0.01**	
	Annual (ton/yr)	**0.06**	**<0.01**	
Estimation Method[5]		**EPA**	**EPA**	

1 BF Bottom Fill SP Splash Fill SUB Submerged Fill

2 At maximum bulk liquid temperature

3 B Ballasted Vessel C Cleaned U Uncleaned (dedicated service)
O Other (describe)

4 List as many as apply (complete and submit appropriate Air Pollution Control Device Sheets)
CA Carbon Adsorption VB Dedicated Vapor Balance (closed system)
ECD Enclosed Combustion Device F Flare
TO Thermal Oxidization or Incineration

5 EPA EPA Emission Factor in AP-42 MB Material Balance
TM Test Measurement based upon test data submittal O Other (describe)

ATTACHMENT P – GLYCOL DEHYDRATION UNIT DATA SHEET

Complete this data sheet for each Glycol Dehydration Unit, Reboiler, Flash Tank and/or Regenerator at the facility. Include gas sample analysis and GRI- GLYCalc™ input and aggregate report. Use extra pages if necessary.

Manufacturer: **Exterran**	Model: **N/A**
Max. Dry Gas Flow Rate: **40** mmscf/day	Reboiler Design Heat Input: **0.5 MMBTU/hr**
Design Type: ☒ TEG ☐ DEG ☐ EG	Source Status[1]: **NS**
Date Installed/Modified/Removed[2]: **9/1/16**	Regenerator Still Vent APCD/ERD[3]: **TO**
Control Device/ERD ID#[3]: **EC-2**	Fuel HV (BTU/scf): **1263**
H_2S Content (gr/100 scf): **Non-Detect**	Operation (hours/year): **8760**
Pump Rate (gpm): **7.5**	
Water Content (wt %) in: Wet Gas: **Saturated**	Dry Gas: **7.0 lb/MMSCF**

Is the glycol dehydration unit exempt from 40CFR63 Section 764(d)? **x** Yes ☐ No: If Yes, answer the following:

The actual annual average flowrate of natural gas to the glycol dehydration unit is less than 85 thousand standard cubic meters per day, as determined by the procedures specified in §63.772(b)(1) of this subpart. ☐ Yes **x** No

The actual average emissions of benzene from the glycol dehydration unit process vent to the atmosphere are less than 0.90 megagram per year (1 ton per year), as determined by the procedures specified in §63.772(b)(2) of this subpart. **x** Yes ☐ No

Is the glycol dehydration unit located within an Urbanized Area (UA) or Urban Cluster (UC)? ☐ Yes **x** No

Is a lean glycol pump optimization plan being utilized? ☐ Yes **x** No

Recycling the glycol dehydration unit back to the flame zone of the reboiler.
☐ Yes ☒ No

Recycling the glycol dehydration unit back to the flame zone of the reboiler and mixed with fuel.
☐ Yes ☒ No

What happens when temperature controller shuts off fuel to the reboiler**? Still vent to enclosed combustor**
☐ Still vent emissions to the atmosphere.
☐ Still vent emissions stopped with valve.
☐ Still vent emissions to glow plug.

Please indicate if the following equipment is present.
☐ Flash Tank
☐ Burner management system that continuously burns condenser or flash tank vapors

Control Device Technical Data

Pollutants Controlled	Manufacturer's Guaranteed Control Efficiency (%)
Hydrocarbons	**99+%**

Emissions Data

Emission Unit ID / Emission Point ID[4]	**Description**	**Calculation Methodology[5]**	**PTE[6]**	**Controlled Maximum Hourly Emissions (lb/hr)**	**Controlled Maximum Annual Emissions (tpy)**
RBV-1	Reboiler Vent	AP-42	NO_x	0.05	0.219
		AP-42	CO	0.042	0.184
		AP-42	VOC	0.003	0.012
		AP-42	SO_2	<0.001	0.001
		AP-42	PM_{10}	0.004	0.017
		EPA	GHG (CO_2e)	60	265

RSV-1	Glycol Regenerator Still Vent	GRI-GlyCalc™	VOC	0.801	3.51
		GRI-GlyCalc™	Benzene	0.010	0.043
		GRI-GlyCalc™	Toluene	0.033	0.146
		GRI-GlyCalc™	Ethylbenzene	<0.001	<0.001
		GRI-GlyCalc™	Xylenes	<0.001	<0.001
		GRI-GlyCalc™	n-Hexane	0.020	0.086
N/A	Glycol Flash Tank	GRI-GlyCalc™	VOC		
		GRI-GlyCalc™	Benzene		
		GRI-GlyCalc™	Toluene		
		GRI-GlyCalc™	Ethylbenzene		
		GRI-GlyCalc™	Xylenes		
		GRI-GlyCalc™	n-Hexane		

1 Enter the Source Status using the following codes:

NS Construction of New Source ES Existing Source
MS Modification of Existing Source

2 Enter the date (or anticipated date) of the glycol dehydration unit's installation (construction of source), modification or removal.

3 Enter the Air Pollution Control Device (APCD)/Emission Reduction Device (ERD) type designation using the following codes and the device ID number:

NA None CD Condenser FL Flare
CC Condenser/Combustion Combination TO Thermal Oxidizer O Other (please list)

4 Enter the appropriate Emission Unit ID Numbers and Emission Point ID Numbers for the glycol dehydration unit reboiler vent and glycol regenerator still vent. The glycol dehydration unit reboiler vent and glycol regenerator still vent should be designated RBV-1 and RSV-1, respectively. If the compressor station incorporates multiple glycol dehydration units, a Glycol Dehydration Emission Unit Data Sheet shall be completed for each, using Source Identification RBV-2 and RSV-2, RBV-3 and RSV-3, etc.

5 Enter the Potential Emissions Data Reference designation using the following codes:

MD Manufacturer's Data AP AP-42
GR GRI-GLYCalc™ OT Other (please list)

6 Enter the Reboiler Vent and Glycol Regenerator Still Vent Potential to Emit (PTE) for the listed regulated pollutants in lbs per hour and tons per year. The Glycol Regenerator Still Vent potential emissions may be determined using the most recent version of the thermodynamic software model GRI-GLYCalc™ (Radian International LLC & Gas Research Institute). **Attach all referenced Potential Emissions Data (or calculations) and the GRI-GLYCalc™ Aggregate Calculations Report (shall include emissions reports, equipment reports, and stream reports) to this Glycol Dehydration Emission Unit Data Sheet(s). Backup pumps do not have to be considered as operating for purposes of PTE.** This PTE data shall be incorporated in the Emissions Summary Sheet.

ATTACHMENT Q – PNEUMATIC CONTROLLERS DATA SHEET
Are there any continuous bleed natural gas driven pneumatic controllers at this facility that commenced construction, modification or reconstruction after August 23, 2011? ☐ Yes ☐ No Please list approximate number.
Are there any continuous bleed natural gas driven pneumatic controllers at this facility with a bleed rate greater than 6 standard cubic feet per hour that are required based on functional needs, including but not limited to response time, safety and positive actuation that commenced construction, modification or reconstruction after August 23, 2011? ☐ Yes ☒ No Please list approximate number.

VAPOR COMBUSTION
(Including Enclosed Combustors)

General Information

Control Device ID#: **EC-2**	Installation Date: 2016 ☒ New ☐ Modified ☐ Relocated	
Maximum Rated Total Flow Capacity scfh scfd (See attached curves)	Maximum Design Heat Input (from mfg. spec sheet) 10.0 MMBTU/hr	Design Heat Content BTU/scf

Control Device Information

Type of Vapor Combustion Control?

☒ Enclosed Combustion Device ☐ Elevated Flare ☐ Ground Flare
☐ Thermal Oxidizer

Manufacturer: **Hy-Bon** Model: **CH 10.0**	Hours of operation per year? **8760**

List the emission units whose emissions are controlled by this vapor control device (Emission Point ID#)

Emission Unit ID#	Emission Source Description	Emission Unit ID#	Emission Source Description
RBV-1	Dehydration Still Vent		

If this vapor combustor controls emissions from more than six (6) emission units, please attach additional pages.

Assist Type (Flares only)	Flare Height	Tip Diameter	Was the design per §60.18?
☐ Steam ☐ Air ☐ Pressure ☐ Non	feet	feet	☐ Yes ☐ No Provide determination.

Waste Gas Information

Maximum Waste Gas Flow Rate	Heat Value of Waste Gas Stream	Exit Velocity of the Emissions Stream
64.2 (scfm)	**653 BTU/ft^3**	(ft/s)

Provide an attachment with the characteristics of the waste gas stream to be burned.

Pilot Gas Information

Number of Pilot Lights	Fuel Flow Rate to Pilot Flame per Pilot	Heat Input per Pilot	Will automatic re-ignition be used?
1	**780 scfh**	**985.1 MBTU/hr**	☒ Yes ☐ No

If automatic re-ignition is used, please describe the method.

Is pilot flame equipped with a monitor to detect the presence of the flame? ☒ Yes ☐ No	If Yes, what type? ☒ Thermocouple ☐ Infrared ☐ Ultraviolet ☐ Camera ☐ Other:

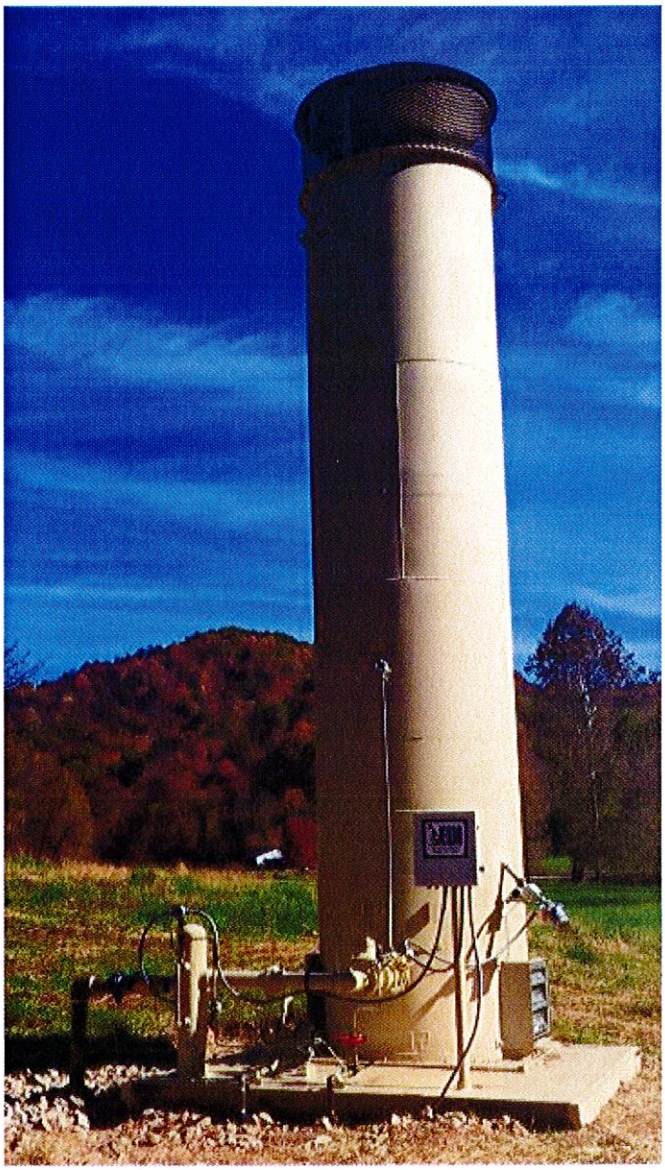
Describe all operating ranges and maintenance procedures required by the manufacturer to maintain the warranty. *(If unavailable, please indicate).* **Operating Range is dependent upon gas being combusted. See attached literature**

Additional information attached? ☒ Yes ☐ No
Please attach copies of manufacturer's data sheets, drawings, flame demonstration per §60.18 or §63.11(b) and performance testing.

HY-BON/EDI
Vent Gas Management

Vapor Combustor Unit (VCU)

HY-BON/EDI is pleased to provide the CH2.5 and CH10.0 enclosed combustors as an effective solution for eliminating VOC emissions. HY-BON/EDI's insulated combustors are automated and have been successfully tested per EPA 40, CFR 60 guidelines – making it the perfect blend of performance and safety. The combustor comes as a complete, skid mounted package containing the liquid knock-out vessel, liquid transfer pump, flame arrestor, bird screen and burner control system. Installation is simple and field performance adjustments can be made as production changes – making it the most flexible solution in the industry.



- EPA 40 CFR 60, Quad O Compliant
  List of EPA Approved Combustion Control Devices
- Completely Enclosed Combustion
- 99.99% Destruction Efficiency
- User Friendly Automated System
- Operational and Quad O reporting data can be saved to a USB Key
- RS-232 or RS-485 Communication supports satellite, cellular, or radio
- Modbus Slave Protocol allows it to communicate with SCADA systems and other devices/software

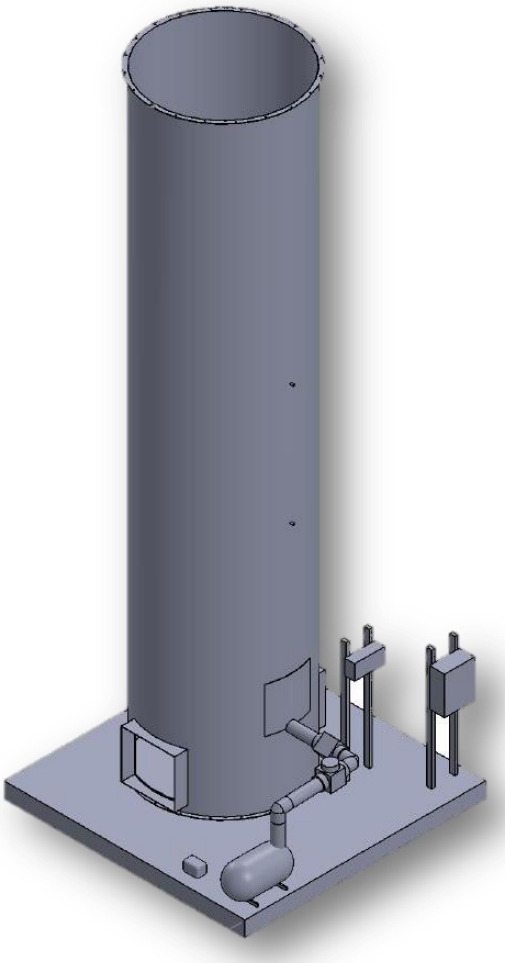
GENERAL PROPERTIES	CH2.5	CH10.0
BURNER SIZE (MMBTU/hr)	2.5	10.0
OUTER DIAMETER (inches)	34	54
HEIGHT (feet)	16	20
INLET PRESSURE (oz/in²)	≥ 0.5	
DESTRUCTION EFFICIENCY	≥ 99.99%	
SMOKELESS CAPACITY	100%	
TURN DOWN	SCALABLE	

HY-BON EDI
Vent Gas Management

2404 Commerce Dr.
Midland, TX 79703
432-697-2292
hy-bon.com

100 Ayers Blvd.
Belpre, OH 45714
740-401-4000
ediplungerlift.com

With the fairly recent publication of the NSPS OOOO emission standard, all storage tank facilities constructed on or after August 23, 2011 will be allowed to emit 6 Tons or less of VOC's per year. This regulation not only forces companies to monitor and control their emissions, but it also forces the *means* of emission monitoring and controlling to be more reliable and exact. In response to such a stringent protocol, HY-BON Engineering Company is pleased to offer the **CH10.0** enclosed Vapor Combustor Unit (VCU). Built upon a foundation of 60+ years' experience with tank vapors, the VCU is the solution for reducing residual tank vapor emissions when a Vapor Recovery Unit (VRU) is not sufficient or a viable option.



- EPA 40 CFR 60, Quad O Compliant
- Completely Enclosed Combustion
- 99.99% Destruction Efficiency
- Fully Automated System
- Output Operational Data via Thumb Drive
- Capable of SCADA Integration

GENERAL PROPERTIES	
TYPE	Enclosed Tank Battery Flare
AMBIENT TEMPERATURE	-20 °F to +100 °F
PILOT FUEL REQUIREMENTS	Propane or Site Gas @5psi of natural gas = 13.3 SCFM @5psi of propane = 12.5 SCFM
BURNER SIZE	10.0 million BTU/hr
INLET PRESSURE REQUIRMENTS	Minimum 0.5 oz/in^2 (~1.0 inches w.c.)
TURN DOWN RATIO	5:1
DESTRUCTION EFFICIENCY	99.99% DRE
MECHANICAL PROPERTIES	
DESIGN WIND SPEED	100 MPH
AMBIENT TEMPERATURE	-20 °F to +120 °F
ELECTRICAL AREA CLASSIFICATION	General Area Classification (Non-Hazardous)
ELEVATION	up to 3,000ft ASL
PROCESS PROPERTIES	
SMOKELESS CAPACITY	100%
OPERATING TEMPERATURE	800 °F to 2000 °F (1500 °F Nominal)
UTILITIES	
PILOT GAS	Process Gas
ELECTRICITY	1 Phase, 60 Hz, 120V/10A
SOLAR PANEL OPTION AVAILABLE	YES

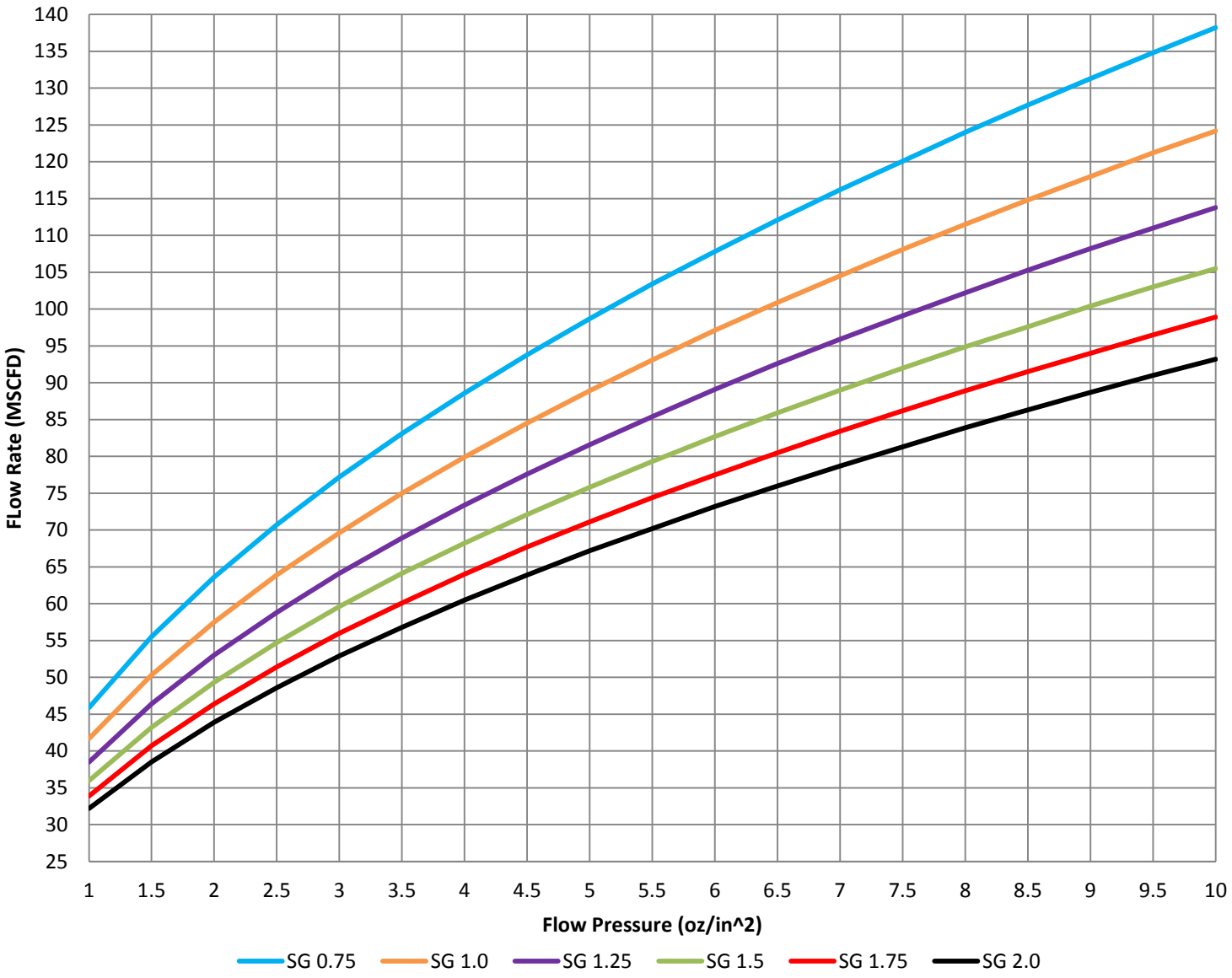
Revision #3: 09/04/2015

HY-BON EDI
Vent Gas Management

2404 Commerce Dr.
Midland, TX 79703
432-697-2292
hy-bon.com

100 Ayers Blvd.
Belpre, OH 45714
740-401-4000
ediplungerlift.com

CH10.0: Flow Rate vs Flow Pressure with Corresponding Specific Gravity



VAPOR RECOVERY UNIT
(See Attachment N - Existing Unit)

General Information

Emission Unit ID#:	Installation Date: ☐ New ☐ Modified ☐ Relocated

Device Information

Manufacturer:
Model:

List the emission units whose emissions are controlled by this vapor recovery unit (Emission Point ID#)

Emission Unit ID#	Emission Source Description	Emission Unit ID#	Emission Source Description

If this vapor recovery unit controls emissions from more than six (6) emission units, please attach additional pages.

Additional information attached? ☐ Yes ☐ No
Please attach copies of manufacturer's data sheets, drawings, and performance testing.

The registrant may claim a capture and control efficiency of 95 % (which accounts for 5% downtime) for the vapor recovery unit.

The registrant may claim a capture and control efficiency of 98% if the VRU has a backup flare that meet the requirements of Section 8.1.2 of this general permit.

The registrant may claim a capture and control efficiency of 98% if the VRU has a backup VRU.

ATTACHMENT S – EMISSIONS CALCULATIONS

Provide detailed potential to emit (PTE) emission calculations for criteria and hazardous air pollutants (HAPs) for each emission point identified in the application. For hazardous air pollutants and volatile organic compounds (VOCs), the speciated emission calculations must be included.

Use the following guidelines to ensure complete emission calculations:

- All emission sources and fugitive emissions are included in the emission calculations, as well as all methods used to calculate the emissions.
- Proper emission point identification numbers and APCD and ERD identification numbers are used consistently in the emission calculations that are used throughout the application.
- A printout of the emission summary sheets is attached to the registration application.
- Printouts of any modeling must be included with the emission calculations. The modeling printout must show all inputs/outputs or assumptions that the modeled emissions are based upon.
- If emissions are provided from the manufacturer, the manufacturer's documentation and/or certified emissions must also be included.
- The emission calculations results must match the emissions provided on the emissions summary sheet.
- If calculations are based on a compositional analysis of the gas, attach the laboratory analysis. Include the following information: the location that the sample was taken (and whether the sample was taken from the actual site or a representative site); the date the sample was taken; and, if the sample is considered representative, the reasons that it is considered representative (same gas field, same formation and depth, distance from actual site, etc.).
- Provide any additional clarification as necessary. Additional clarification or information is especially helpful when reviewing modeling calculations to assist the engineer in understanding the basis of assumptions and/or inputs.

Please follow specific guidance provided on the emissions summary sheet when providing the calculations.

Jay-Bee Oil & Gas, Inc.

RPT-8 Well Pad Production Facility
Tyler County, WV

Source	Description	NOx lb/hr	CO lb/hr	CO2e lb/hr	VOC lb/hr	SO2 lb/hr	PM lb/hr	n-Hexane lb/Hr	benzene lb/hr	formaldehyde lb/hr	Total HAPs lb/hr
VRU-1	VRU Compressor	0.52	0.89	89.36	0.02	0.000	0.013		0.001	0.014	0.021
GPU-1 to GPU-6	GPU's	0.90	0.76	1086.85	0.05	0.005	0.068	0.016	0.002	0.001	0.017
RBV-1	Dehy Reboiler	0.05	0.04	60.38	0.00	0.000	0.004	0.001	0.000	0.000	0.001
---	Blowdowns[1]			N/A	N/A						
EC-1	Condensate Tanks + Water Tanks[2]	0.26	0.96	400.03	1.60	0.001	0.015	0.212	0.000		0.050
EC-2	Still Vent Controlled Emissions	0.27	1.01	433.61	0.81	0.000	0.037	0.020	0.010	0.000	0.063
TEG-1	Thermo-Electric Generator	0.00	0.00	1.57	0.00	0.000	0.000	0.000	0.000	0.000	0.000
TL-1	Condensate Truck Loading[3]				11.10						1.510
TL-2	Water Truck Loading[3]				0.07						
---	Truck Traffic Fugitive Dust						29.30				
---	Fittings Fugitive Emissions			8.03	0.78						0.010
Total		2.00	3.66	2,080	14.43	0.01	29.44	0.25	0.01	0.02	1.67

Source		NOx tpy	CO tpy	CO2e tpy	VOC tpy	SO2 tpy	PM tpy	n-Hexane TPY	benzene tpy	formaldehyde tpy	Total HAPs tpy
VRU-1	VRU Compressor	2.27	3.89	391	0.09	0.002	0.06		0.005	0.062	0.093
GPU-1 to GPU-6	GPU's	3.94	3.31	4,760	0.22	0.024	0.30	0.071	0.000	0.003	0.074
RBV-1	Dehy Reboiler	0.22	0.18	264	0.01	0.001	0.02	0.004	0.000	0.000	0.004
---	Blowdowns[1]			1	0.01						
EC-1	Condensate Tanks + Water Tanks[2]	1.13	4.19	1,751	6.98	0.00	0.07	0.218	0.000		0.228
EC-2	Still Vent Controlled Emissions	1.18	4.44	1,913	3.53	0.00	0.16	0.093	0.043	0.001	0.284
TEG-1	Thermo-Electric Generator	0.01	0.00	7	0.00	0.00	0.00	0.000	0.000	0.000	0.000
TL-1	Condensate Truck Loading[3]				1.25						0.090
TL-2	Water Truck Loading[3]				0.02						
---	Truck Traffic Fugitive Dust						2.93				
---	Fittings Fugitive Emissions			35	3.44						0.040
Total		8.75	16.02	9,124	15.55	0.03	3.53	0.39	0.05	0.07	0.81
	Existing Permit Registration	4.89	8.89	3,882	30.96	0.01	3.17	1.70	0.00	0.06	2.80
	Increase	**3.86**	**7.13**	**5,242**	**-15.41**	**0.02**	**0.36**	**-1.31**	**0.04**	**0.00**	**-1.99**

[1] Blowdown emissions from initial permit submittal

[2] Condensate and water tank emissions are currently controlled by a VRU + Enclosed Combustor at 98% . This entry represents the un-controlled 2%.

[3] Truck loading is un-controlled.

Jay-Bee Oil &Gas ,LLC
ENGINE EMISSIONS

RPT-8 Well Pad Production Facility
Tyler County, WV

Controlled Emission Rates

Source VRU-1
Flash Gas Compressor

Engine Data:

Engine Manufacturer	Cummins	
Engine Model	G5.9	
Type (Rich-burn or Low Emission)	Rich Burn	
Aspiration (Natural or Turbocharged)	Natural	
Manufacturer Rating	84	hp
Speed at Above Rating	1,800	rpm
Configeration (In-line or Vee)	In-line	
Number of Cylinders	6	
Engine Bore	4.020	inches
Engine Stroke	4.720	inches
Engine Displacement	359	cu. in.
Engine BMEP	103	psi
Fuel Consumption (HHV)	7,914	Btu/bhp-hr

Emission Rates:	g/bhp-hr	lb/hr	tons/year	g/hr	lb/day	AP-42 4strokerich lb/mmbtu	Comment
Oxides of Nitrogen, NOx	2.800	0.52	2.27	235	12.44		453.59 grams = 1 pound
Carbon Monoxide CO	4.800	0.89	3.89	403	21.33		2,000 pounds = 1 ton
VOC (NMNEHC)	0.110	0.02	0.09	9	0.49		
CO2	449	83	364	37,716	1,996		
CO2e		89	391				
Total Annual Hours of Operation	**8,760**						
SO2		0.0004	0.0017			0.0006	
PM2.5		0.0063	0.0277			0.0095	
PM (Condensable)		0.0066	0.0289			0.00991	
CH_4		0.1262	0.5529			0.0022	Factor From 40 CFR 98, Table C-2
N_2O		0.0115	0.0503			0.0002	Factor From 40 CFR 98, Table C-2
acrolein		0.0017	0.0077			0.00263	
acetaldehyde		0.0019	0.0081			0.00279	
formaldehyde	0.0760	0.0141	0.0616				Per Mfg.
benzene		0.0011	0.0046			0.00158	
toluene		0.0004	0.0016			0.000558	
ethylbenzene		2E-05	0.0001			2.48E-05	
xylene s		0.0001	0.0006			0.000195	
methanol		0.002	0.0089			0.00306	
total HAPs		0.0213	0.0932				

Exhaust Parameters:

Exhaust Gas Temperature	1,078	deg. F
Exhaust Gas Mass Flow Rate		lb/hr
Exhaust Gas Mass Flow Rate	430	acfm
Exhaust Stack Height	96	inches
	8.00	feet
Exhaust Stack Inside Diameter	4	inches
	0.333	feet
Exhaust Stack Velocity	82.1	ft/sec
	4,927.4	ft/min

Jay-Bee Oil &Gas ,LLC

RPT-8 Well Pad Production Facility
Tyler County, WV

Potential Emission Rates

Sources GPU-1 to GPU-6

Burner Duty Rating	9000.0	Mbtu/hr	6 GPU's at 1500 MBTU/Hr Each
Burner Efficiency	98.0	%	
Gas Heat Content (HHV)	1263.0	Btu/scf	
Total Gas Consumption	174508.7	scfd	
H2S Concentration	0.000	Mole %	
Hours of Operation	8760		

NOx	0.9004	lbs/hr	3.944	TPY
CO	0.7563	lbs/hr	3.313	TPY
CO2	1080.4	lbs/hr	4732.3	TPY
CO2e	1,087	lbs/hr	4,760	tpy
VOC	0.0495	lbs/hr	0.217	TPY
SO2	0.0054	lbs/hr	0.024	TPY
H2S	0.0000	lbs/hr	0.000	TPY
PM10	0.0684	lbs/hr	0.300	TPY
CHOH	0.0007	lbs/hr	0.003	TPY
Benzene	0.0000	lbs/hr	0.000	TPY
N-Hexane	0.0162	lbs/hr	0.071	TPY
Toluene	0.0000	lbs/hr	0.000	TPY
Total HAPs	0.0169	lbs/hr	0.074	TPY

AP-42 Factors Used

NOx	**100**	**Lbs/MMCF**	
CO	**84**	**Lbs/MMCF**	
CO_2	**120,000**	**Lbs/MMCF**	**Global Warming Potential = 1**
VOC	**5.5**	**Lbs/MMCF**	
PM	**7.6**	**Lbs/MMCF**	
SO_2	**0.6**	**Lbs/MMCF**	
CH_4	**2.3**	**Lbs/MMCF**	**Global Warming Potential = 25**
N_2O	**2.2**	**Lbs/MMCF**	**Global Warming Potential =298**
HCOH	**0.075**	**Lbs/MMCF**	
Benzene	**0.0021**	**Lbs/MMCF**	
n-Hexane	**1.8**	**Lbs/MMCF**	
Toluene	**0.0034**	**Lbs/MMCF**	

Icon Midstream Pipeline,LLC

RPT-8 Well Pad Production Facility
Tyler County, WV

Potential Emission Rates

Source RBV-1

Burner Duty Rating	500.0	Mbtu/hr
Burner Efficiency	98.0	%
Gas Heat Content (HHV)	1263.0	Btu/scf
Total Gas Consumption	9,695	scfd
H2S Concentration	0.000	Mole %
Hours of Operation	8760	

NOx	0.0500	lbs/hr	0.219	TPY
CO	0.0420	lbs/hr	0.184	TPY
CO2	60.0	lbs/hr	262.9	TPY
CO2e	60	lbs/hr	264	tpy
VOC	0.0028	lbs/hr	0.012	TPY
SO2	0.0003	lbs/hr	0.001	TPY
H2S	0.0000	lbs/hr	0.000	TPY
PM10	0.0038	lbs/hr	0.017	TPY
CHOH	0.0000	lbs/hr	0.000	TPY
Benzene	0.0000	lbs/hr	0.000	TPY
N-Hexane	0.0009	lbs/hr	0.004	TPY
Toluene	0.0000	lbs/hr	0.000	TPY
Total HAPs	0.0009	lbs/hr	0.004	TPY

AP-42 Factors Used

NOx	**100**	**Lbs/MMCF**	
CO	**84**	**Lbs/MMCF**	
CO_2	**120,000**	**Lbs/MMCF**	**Global Warming Potential = 1**
VOC	**5.5**	**Lbs/MMCF**	
PM	**7.6**	**Lbs/MMCF**	
SO_2	**0.6**	**Lbs/MMCF**	
CH_4	**2.3**	**Lbs/MMCF**	**Global Warming Potential = 25**
N_2O	**2.2**	**Lbs/MMCF**	**Global Warming Potential =298**
HCOH	**0.075**	**Lbs/MMCF**	
Benzene	**0.0021**	**Lbs/MMCF**	
n-Hexane	**1.8**	**Lbs/MMCF**	
Toluene	**0.0034**	**Lbs/MMCF**	

RPT-8 Well Pad Production Facility
Tyler County, WV

Potential Emission Rate

Enclosed Combustor Pilot

Burner Duty Rating	985.1	Mbtu/hr
Burner Efficiency	99.0	%
Gas Heat Content (HHV)	1263.0	Btu/scf
Total Gas Consumption	18908.0	scfd
H2S Concentration	0.000	Mole %
Hours of Operation	8760	

NOx	0.0976	lbs/hr	0.427	TPY
CO	0.0819	lbs/hr	0.359	TPY
CO2	117.1	lbs/hr	512.7	TPY
CO2e	118	lbs/hr	516	TPY
VOC	0.0054	lbs/hr	0.024	TPY
SO2	0.0006	lbs/hr	0.003	TPY
H2S	0.0000	lbs/hr	0.000	TPY
PM10	0.0074	lbs/hr	0.032	TPY
CHOH	0.0001	lbs/hr	0.000	TPY
Benzene	0.0000	lbs/hr	0.000	TPY
N-Hexane	0.0018	lbs/hr	0.008	TPY
Toluene	0.0000	lbs/hr	0.000	TPY
Total HAPs	0.0018	lbs/hr	0.008	TPY

AP-42 Factors Used (Tables 1.4.1-1.4.3)

NOx	**100**	**Lbs/MMCF**	
CO	**84**	**Lbs/MMCF**	
CO_2	**120,000**	**Lbs/MMCF**	**Global Warming Potential = 1**
VOC	**5.5**	**Lbs/MMCF**	
PM	**7.6**	**Lbs/MMCF**	
SO_2	**0.6**	**Lbs/MMCF**	
CH_4	**2.3**	**Lbs/MMCF**	**Global Warming Potential = 25**
N_2O	**2.2**	**Lbs/MMCF**	**Global Warming Potential =298**
HCOH	**0.075**	**Lbs/MMCF**	
Benzene	**0.0021**	**Lbs/MMCF**	
n-Hexane	**1.8**	**Lbs/MMCF**	
Toluene	**0.0034**	**Lbs/MMCF**	

RPT-8 Well Pad Production Facility
Tyler County, WV

Potential Emission Rates

Source EC-1

Enclosed Vapor Combustor - Control of Tank Emissions

Destruction Efficiency	98.0	%		
Gas Heat Content (HHV)	2292.0	Btu/scf		
Max Flow to T-E	0.025	MMSCFD	9.040	MMCF/Yr
Max BTUs to Flare	2.367	MMBTU/Hr	20,719	MMBTU/Yr

NOx	0.16	lbs/hr	0.70	tpy
CO	0.88	lbs/hr	3.83	tpy
CO2	276.66	lbs/hr	1,210.9	tpy
CO2e	282.27	lb/hr	1,235.7	tpy
VOC	1.59	lb/hr	6.96	tpy
CH4	0.22	lbs/hr	0.9600	tpy
N2O	0.0005	lbs/hr	0.0023	tpy
PM	0.0078	lb/hr	0.0344	tpy
Benzene	0.0000	lb/hr	0.0000	tpy
CHOH	0.0001	lb/hr	0.0003	tpy
n-Hexane	0.0500	lb/hr	0.2100	tpy
Toluene	0.0000	lb/hr	0.0000	tpy
Total HAP	0.0500	lb/hr	0.2200	tpy

Notes: VOC, Total HAP, N-Hexane and CH4 emissions are taken from the Condensate and Produced Water Tank Emissions sheet in the Calculations Section.

Factors Used

AP-42 Table 13.5-1	**NOx**	**0.068**	**Lbs/MMBTU**
AP-42 Table 13.5-1	**CO**	**0.37**	**Lbs/MMBTU**
40 CFR 98 Table C-1	**CO2**	**116.89**	**Lbs/MMBTU**
40 CFR 98 Table C-2	**CH4**	**0.0022**	**Lbs/MMBTU**
40 CFR 98 Table C-2	**N2O**	**0.00022**	**Lbs/MMBTU**
AP-42 Table 1.4-2	**PM**	**7.6**	**lb/MMSCF**
AP-42 Table 1.4-3	**Benzene**	**0.0021**	**lb/MMSCF**
AP-42 Table 1.4-3	**Toluene**	**0.0034**	**lb/MMSCF**
AP-42 Table 1.4-3	**Hexane**	**1.8**	**lb/MMSCF**
AP-42 Table 1.4-3	**CHOH**	**0.075**	**lb/MMSCF**

RPT-8 Well Pad Production Facility
Tyler County, WV

Potential Emission Rates

Source EC-2

Enclosed Vapor Combustor - Control Still Vent Emissions

Destruction Efficiency	98.0	%		
Gas Heat Content (HHV)	653.4	Btu/scf		
Max Flow to T-E	0.0924	MMSCFD	33.726	MMCF/Yr
Max BTUs to Flare	2.516	MMBTU/Hr	22,037	MMBTU/Yr

NOx	0.17	lbs/hr	0.75	tpy
CO	0.93	lbs/hr	4.08	tpy
CO2	294.05	lbs/hr	1,288.0	tpy
CO2e	315.85	lb/hr	1,397.2	tpy
VOC	0.801	lb/hr	3.5066	tpy
CH4	0.99	lbs/hr	4.3362	tpy
N2O	0.0006	lbs/hr	0.0024	tpy
PM	0.0293	lb/hr	0.1282	tpy
Benzene	0.0097	lb/hr	0.0425	tpy
CHOH	0.0003	lb/hr	0.0013	tpy
n-Hexane	0.0196	lb/hr	0.0857	tpy
Toluene	0.0334	lb/hr	0.1463	tpy
Total HAP	0.0630	lb/hr	0.2758	tpy

Notes: VOC, Total HAP, N-Hexane and CH4 emissions are taken as 2% of Still Vent Uncontrolled from the GLYCalc Run

Factors Used

AP-42 Table 13.5-1	**NOx**	**0.068**	**Lbs/MMBTU**
AP-42 Table 13.5-1	**CO**	**0.37**	**Lbs/MMBTU**
40 CFR 98 Table C-1	**CO2**	**116.89**	**Lbs/MMBTU**
40 CFR 98 Table C-2	**CH4**	**0.0022**	**Lbs/MMBTU**
40 CFR 98 Table C-2	**N2O**	**0.00022**	**Lbs/MMBTU**
AP-42 Table 1.4-2	**PM**	**7.6**	**lb/MMSCF**
AP-42 Table 1.4-3	**Benzene**	**0.0021**	**lb/MMSCF**
AP-42 Table 1.4-3	**Toluene**	**0.0034**	**lb/MMSCF**
AP-42 Table 1.4-3	**Hexane**	**1.8**	**lb/MMSCF**
AP-42 Table 1.4-3	**CHOH**	**0.075**	**lb/MMSCF**

Jay-Bee Oil &Gas ,LLC

RPT-8 Well Pad Production Facility
Tyler County, WV

Potential Emission Rates

Source TEG-1

Burner Duty Rating	13.0	Mbtu/hr
Burner Efficiency	98.0	%
Gas Heat Content (HHV)	1263.0	Btu/scf
Total Gas Consumption	252.1	scfd
H2S Concentration	0.000	Mole %
Hours of Operation	8760	

NOx	0.0013	lbs/hr	0.006	TPY
CO	0.0011	lbs/hr	0.005	TPY
CO2	1.6	lbs/hr	6.8	TPY
CO2e	2	lbs/hr	7	tpy
VOC	0.0001	lbs/hr	0.000	TPY
SO2	0.0000	lbs/hr	0.000	TPY
H2S	0.0000	lbs/hr	0.000	TPY
PM10	0.0001	lbs/hr	0.000	TPY
CHOH	0.0000	lbs/hr	0.000	TPY
Benzene	0.0000	lbs/hr	0.000	TPY
N-Hexane	0.0000	lbs/hr	0.000	TPY
Toluene	0.0000	lbs/hr	0.000	TPY
Total HAPs	0.0000	lbs/hr	0.000	TPY

AP-42 Factors Used

NOx	**100**	**Lbs/MMCF**	
CO	**84**	**Lbs/MMCF**	
CO_2	**120,000**	**Lbs/MMCF**	**Global Warming Potential = 1**
VOC	**5.5**	**Lbs/MMCF**	
PM	**7.6**	**Lbs/MMCF**	
SO_2	**0.6**	**Lbs/MMCF**	
CH_4	**2.3**	**Lbs/MMCF**	**Global Warming Potential = 25**
N_2O	**2.2**	**Lbs/MMCF**	**Global Warming Potential =310**
HCOH	**0.075**	**Lbs/MMCF**	
Benzene	**0.0021**	**Lbs/MMCF**	
n-Hexane	**1.8**	**Lbs/MMCF**	
Toluene	**0.0034**	**Lbs/MMCF**	

Jay-Bee Oil & Gas, Inc.
FUGITIVE EMISSIONS

RPT-8 Well Pad Production Facility
Tyler County, WV

Fugitive VOC Emissions

Volatile Organic Compounds, NMNEHC from gas analysis:	18.40	weight percent
Methane from gas analysis:	59.35	weight percent
Carbon Dioxide from gas analysis:	0.32	weight percent
Gas Density	0.0580	lb/scf

Emission Source:	Number	Oil & Gas Production*	VOC %	VOC, lb/hr	VOC TPY	CO2 lb/Hr	CO2 TPY	CH4 lb/hr	CH4 TPY	CO2e
Valves:										
Gas/Vapor:	26	0.02700 scf/hr	18.4	0.007	0.033	0.000	0.001	0.024	0.1058	2.646
Light Liquid:	18	0.05000 scf/hr	100.0	0.052	0.229					0.000
Heavy Liquid (Oil):	-	0.00050 scf/hr	100.0	0.000	0.000					0.000
Low Bleed Pneumatic	-	1.39000 scf/hr	18.4	0.000	0.000	0.000	0.000	0.000	0.0000	0.000
Relief Valves:	20	0.04000 scf/hr	18.4	0.009	0.037	0.000	0.001	0.028	0.1206	3.015
Open-ended Lines, gas:	6	0.06100 sfc/hr	18.4	0.004	0.017	0.000	0.000	0.000	0.0003	0.008
Open-ended Lines, liquid:	-	0.05000 lb/hr	100.0	0.000	0.000					0.000
Pump Seals:										
Gas:	1	0.00529 lb/hr	18.4	0.001	0.004	0.000	0.000	0.003	0.0138	0.344
Light Liquid:	-	0.02866 lb/hr	100.0	0.000	0.000					0.000
Heavy Liquid (Oil):	-	0.00133 lb/hr	100.0	0.000	0.000					0.000
Compressor Seals, Gas:	1	0.01940 lb/hr	18.4	0.004	0.016	0.000	0.000	0.001	0.0029	0.073
Connectors:										
Gas:	120	0.00300 scf/hr	18.4	0.004	0.017	0.000	0.000	0.012	0.0543	1.357
Light Liquid:	60	0.00700 scf/hr	100.0	0.420	1.840					0.000
Heavy Liquid (Oil):	-	0.00030 scf/hr	100.0	0.000	0.000					0.000
Sampling Connectors:										
Gas:	11	0.03300 lb/hr	18.4	0.067	0.293	0.000	0.000	0.215	0.9436	23.590
Light Liquid:	6	0.03300 lb/hr	100.0	0.198	0.867					0.000
Flanges:										
Gas:	80	0.00086 lb/hr	18.4	0.013	0.055	0.000	0.001	0.041	0.1788	4.472
Light Liquid:	40	0.00300 scf/hr	100.0	0.007	0.030					0.000
Heavy Liquid:		0.0009 scf/hr	100.0	0.000	0.000					0.000

Fugitive Calculations:

	lb/hr	t/y
VOC	**0.785**	**3.438**
CH4	**0.324**	**1.420**
CO2	**0.001**	**0.003**
CO2e	**8.026**	**35.15**

Notes: *Factors are from 40 CFR 98, Table W-1A (scf/hr), where available.
. Sampling Connectors are from TCEQ. Remaining are API (lb/hr)

Jay-Bee Oil & Gas, Inc.
GAS ANALYSIS INFORMATION

RPT-8 Well Pad Production Facility
Tyler County, WV

Inlet Gas Composition Information:

	Fuel Gas mole %	Fuel M.W. lb/lb-mole	Fuel S.G.	Fuel Wt. %	LHV, dry Btu/scf	HHV, dry Btu/scf	AFR vol/vol	VOC NM / NE	Z Factor	GPM
Nitrogen, N2	0.394	0.110	0.004	0.530			-		0.0039	
Carbon Dioxide, CO2	0.151	0.066	0.002	0.319			-		0.0015	
Hydrogen Sulfide, H2S	0.000	0.000	0.000	0.000	0.0	0.0	0.000		0.0000	
Helium, He	-	-	-	-			-		-	
Oxygen, O2	-	-	-	-			-		-	
Methane, CH4	77.080	12.366	0.427	59.347	701.0	778.5	7.346		0.7693	
Ethane, C2H6	14.832	4.460	0.154	21.404	240.1	262.5	2.474		0.1471	3.945
Propane	4.967	2.190	0.076	10.512	115.0	125.0	1.183	10.512	0.0488	1.361
Iso-Butane	0.616	0.358	0.012	1.718	18.5	20.0	0.191	1.718	0.0060	0.200
Normal Butane	1.210	0.703	0.024	3.375	36.4	39.5	0.375	3.375	0.0117	0.379
Iso Pentane	0.266	0.192	0.007	0.921	9.8	10.6	0.101	0.921	0.0027	0.097
Normal Pentane	0.262	0.189	0.007	0.907	9.7	10.5	0.100	0.907	0.0026	0.094
Hexane	0.151	0.130	0.004	0.625	6.6	7.2	0.068	0.625	0.0015	0.062
Heptane	0.071	0.071	0.002	0.341	3.6	3.9	0.037	0.341	0.0007	0.033
	100.000	20.837	0.719		1,140.8	1,257.7	11.875	18.400	0.9958	6.172

Gas Density (STP) = 0.058

Ideal Gross (HHV)	1,257.7
Ideal Gross (sat'd)	1,236.6
GPM	-
Real Gross (HHV)	1,263.0
Real Net (LHV)	1,145.6

Jay-Bee Oil & Gas, Inc.
GAS ANALYSIS INFORMATION

RPT-8 Well Pad Production Facility
Tyler County County, WV

Condensate Tank Flash Vapor Composition Information:

	Fuel Gas mole %	Fuel M.W. lb/lb-mole	Fuel S.G.	Fuel Wt. %	LHV, dry Btu/scf	HHV, dry Btu/scf	AFR vol/vol	VOC NM / NE	Z Factor	GPM
Nitrogen, N2	0.036	0.010	0.000	0.026			-		0.0004	
Carbon Dioxide, CO2	0.141	0.062	0.002	0.157			-		0.0014	
Hydrogen Sulfide, H2S	0.000	0.000	0.000	0.000	0.0	0.0	0.000		0.0000	
Helium, He	-	-	-	-			-		-	
Oxygen, O2	-	-	-	-			-		-	
Methane, CH4	24.485	3.928	0.136	9.940	222.7	247.3	2.333		0.2444	
Ethane, C2H6	25.943	7.801	0.269	19.741	419.9	459.1	4.327		0.2573	6.901
Propane	23.253	10.254	0.354	25.947	538.3	585.1	5.539	25.947	0.2285	6.373
Iso-Butane	4.773	2.774	0.096	7.020	143.2	155.2	1.478	7.020	0.0464	1.553
Normal Butane	10.980	6.382	0.220	16.150	330.6	358.2	3.401	16.150	0.1061	3.443
Iso Pentane	3.135	2.262	0.078	5.724	116.0	125.4	1.195	5.724	0.0314	1.141
Normal Pentane	3.175	2.291	0.079	5.797	117.7	127.3	1.210	5.797	0.0318	1.144
Hexane	2.378	2.049	0.071	5.186	104.7	113.1	1.076	5.186	0.0235	0.972
Heptane	1.701	1.704	0.059	4.313	86.8	93.6	0.891	4.313	0.0169	0.781
	100.000	39.518	1.364		2,079.8	2,264.3	21.451	70.137	0.9879	22.309

Gas Density (STP) = 0.110

Ideal Gross (HHV)	2,264.3
Ideal Gross (sat'd)	2,225.5
GPM	-
Real Gross (HHV)	2,292.0
Real Net (LHV)	2,105.2

Jay-Bee Oil & Gas, Inc.
GAS ANALYSIS INFORMATION

RPT-8 Well Pad Production Facility
Tyler County County, WV

Water Tank Flash Vapor Composition Information:

	Fuel Gas mole %	Fuel M.W. lb/lb-mole	Fuel S.G.	Fuel Wt. %	LHV, dry Btu/scf	HHV, dry Btu/scf	AFR vol/vol	VOC NM / NE	Z Factor	GPM
Nitrogen, N2	0.575	0.161	0.006	0.652			-		0.0057	
Carbon Dioxide, CO2	1.602	0.705	0.024	2.855			-		0.0160	
Hydrogen Sulfide, H2S	0.000	0.000	0.000	0.000	0.0	0.0	0.000		0.0000	
Helium, He	-	-	-	-			-		-	
Oxygen, O2	-	-	-	-			-		-	
Methane, CH4	74.187	11.902	0.411	48.188	674.7	749.3	7.070		0.7404	
Ethane, C2H6	9.798	2.946	0.102	11.929	158.6	173.4	1.634		0.0972	2.606
Propane	4.384	1.933	0.067	7.827	101.5	110.3	1.044	7.827	0.0431	1.202
Iso-Butane	1.841	1.070	0.037	4.332	55.2	59.9	0.570	4.332	0.0179	0.599
Normal Butane	2.043	1.187	0.041	4.808	61.5	66.6	0.633	4.808	0.0197	0.641
Iso Pentane	1.305	0.942	0.033	3.812	48.3	52.2	0.497	3.812	0.0131	0.475
Normal Pentane	0.928	0.670	0.023	2.711	34.4	37.2	0.354	2.711	0.0093	0.334
Hexane	1.149	0.990	0.034	4.009	50.6	54.6	0.520	4.009	0.0114	0.470
Heptane	2.188	2.192	0.076	8.877	111.6	120.4	1.147	8.877	0.0218	1.004
	100.000	24.699	0.853		1,296.4	1,424.0	13.469	36.376	0.9954	7.331

Gas Density (STP) = 0.069

Ideal Gross (HHV)	1,424.0
Ideal Gross (sat'd)	1,399.9
GPM	-
Real Gross (HHV)	1,430.5
Real Net (LHV)	1,302.3

Jay-Bee Oil & Gas, Inc.
GAS ANALYSIS INFORMATION

RPT-8 Well Pad Production Facility
Tyler County, WV

Still Vent Vapors Composition Information:

	Fuel Gas mole %	Fuel M.W. lb/lb-mole	Fuel S.G.	Fuel Wt. %	LHV, dry Btu/scf	HHV, dry Btu/scf	AFR vol/vol	VOC NM / NE	Z Factor	GPM
Nitrogen, N2	0.157	0.044	0.002	0.210			-		0.0016	
Carbon Dioxide, CO2	0.163	0.072	0.002	0.343			-		0.0016	
Hydrogen Sulfide, H2S	0.000	0.000	0.000	0.000	0.0	0.0	0.000		0.0000	
Water	55.040	9.907	0.342	47.331			-		0.5507	
Oxygen, O2	-	-	-	-			-		-	
Methane, CH4	30.530	4.898	0.169	23.400	277.6	308.4	2.910		0.3047	
Ethane, C2H6	7.640	2.297	0.079	10.976	123.7	135.2	1.274		0.0758	2.032
Propane	3.290	1.451	0.050	6.931	76.2	82.8	0.784	6.931	0.0323	0.902
Iso-Butane	0.504	0.293	0.010	1.400	15.1	16.4	0.156	1.400	0.0049	0.164
Normal Butane	1.190	0.692	0.024	3.304	35.8	38.8	0.369	3.304	0.0115	0.373
Iso Pentane	0.276	0.199	0.007	0.951	10.2	11.0	0.105	0.951	0.0028	0.100
Normal Pentane	0.327	0.236	0.008	1.127	12.1	13.1	0.125	1.127	0.0033	0.118
Hexane	0.299	0.258	0.009	1.231	13.2	14.2	0.135	1.231	0.0030	0.122
Heptane	0.584	0.585	0.020	2.796	29.8	32.1	0.306	2.796	0.0058	0.268
	100.000	20.932	0.723		593.7	652.0	6.163	17.740	0.9979	4.080

Gas Density (STP) = 0.058

Ideal Gross (HHV)	652.0
Ideal Gross (sat'd)	641.5
GPM	-
Real Gross (HHV)	653.4
Real Net (LHV)	594.9

GAS DATA INFORMATION

Specific Graivity of Air, @ 29.92 in. Hg and 60 -F, 28.9625
One mole of gas occupies, @ 14.696 psia & 32 -F, 359.2 cu ft. per lb-mole
One mole of gas occupies, @ 14.696 psia & 60 -F, 379.64 cu ft. per lb-mole

Hydrogen Sulfide (H2S) conversion chart:

0 grains H2S/100 scf	=	0.00000 mole % H2S
		0.0 ppmv H2S
0 mole % H2S	=	0 grains H2S/100 scf
		0.0 ppmv H2S
0 ppmv H2S	=	0.000 grains H2S/100 scf
		0.00000 mole % H2S

Ideal Gas at 14.696 psia and 60°F

		MW lb/mol	Specific Gravity	Lb per Cu Ft	Cu Ft per Lb	LHV, dry Btu/scf	HHV, dry Btu/scf	LHV Btu/lb	HHV Btu/lb	cu ft of air / 1 cu ft of gas	Z factor
Nitrogen	N2	28.013	0.9672	0.0738	13.552	0	0	0	0	0	0.9997
Carbon Dioxide	CO2	44.010	1.5196	0.1159	8.626	0	0	0	0	0	0.9964
Hydrogen Sulfide	H2S	34.076	1.1766	0.0898	11.141	587	637	6,545	7,100	7.15	0.9846
Water	H20	18.000	0.6215	0.0474	21.091	0	0	0	0	0	1.0006
Oxygen	O2	31.999	1.1048	0.0843	11.864	0	0	0	0	0	0.9992
Methane	CH4	16.043	0.5539	0.0423	23.664	909.4	1,010.0	21,520	23,879	9.53	0.9980
Ethane	C2H6	30.070	1.0382	0.0792	12.625	1,618.7	1,769.6	20,432	22,320	16.68	0.9919
Propane	C3H8	44.097	1.5226	0.1162	8.609	2,314.9	2,516.1	19,944	21,661	23.82	0.9825
Iso-Butane	C4H10	58.124	2.0069	0.1531	6.532	3,000.4	3,251.9	19,629	21,257	30.97	0.9711
Normal Butane	C4H10	58.124	2.0069	0.1531	6.532	3,010.8	3,262.3	19,680	21,308	30.97	0.9667
Iso Pentane	C5H12	72.151	2.4912	0.1901	5.262	3,699.0	4,000.9	19,478	21,052	38.11	1.0000
Normal Pentane	C5H12	72.151	2.4912	0.1901	5.262	3,706.9	4,008.9	19,517	21,091	38.11	1.0000
Hexane	C6H14	86.178	2.9755	0.2270	4.405	4,403.8	4,755.9	19,403	20,940	45.26	0.9879
Heptane	C7H16	100.205	3.4598	0.2639	3.789	5,100.0	5,502.5	22,000	23,000	52.41	0.9947

Real Gas at 14.696 psia and 60°F

		MW lb/mol	Specific Gravity	Lb per Cu Ft	Cu Ft per Lb	LHV, dry Btu/scf	HHV, dry Btu/scf	LHV Btu/lb	HHV Btu/lb	cu ft of air / 1 cu ft of gas	Gal/Mole	
Nitrogen	N2	28.013	0.9672	0.0738	13.552	0	0	0	0	0	4.1513	
Carbon Dioxide	CO2	44.010	1.5196	0.1159	8.626	0	0	0	0	0	6.4532	
Hydrogen Sulfide	H2S	34.076	1.1766	0.0898	11.141	621	672	6,545	7,100	7.15	5.1005	
Water	H2O	18.000	0.6215	0.0474	21.091						3.8376	
Oxygen	O2	31.999	1.1048	0.0843	11.864	0	0	0	0	0	3.3605	
Methane	CH4	16.043	0.5539	0.0423	23.664	911	1,012	21,520	23,879	9.53	6.4172	
Ethane	C2H6	30.070	1.0382	0.0792	12.625	1,631	1,783	20,432	22,320	16.68	10.126	
Propane	C3H8	44.097	1.5226	0.1162	8.609	2,353	3,354	19,944	21,661	23.82	10.433	
Iso-Butane	C4H10	58.124	2.0069	0.1531	6.532	3,101	3,369	19,629	21,257	30.97	12.386	
Normal Butane	C4H10	58.124	2.0069	0.1531	6.532	3,094	3,370	19,680	21,308	30.97	11.937	
Iso Pentane	C5H12	72.151	2.4912	0.1901	5.262	3,709	4,001	19,478	21,052	38.11	13.86	
Normal Pentane	C5H12	72.151	2.4912	0.1901	5.262	3,698	4,009	19,517	21,091	38.11	13.713	
Hexane	C6H14	86.178	2.9755	0.2270	4.405	4,404	4,756	19,403	20,940	45.26	15.566	16.3227
Heptane	C7H16	100.205	3.4598	0.2639	3.789	5,101	5,503	22,000	23,000	52.41	17.468	17.468

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Jay-Bee - RPT-8
File Name: C:\Rogers_Files\Misc\Jay-Bee Oil & Gas\RPT-8 Expansion July 2016\RPT-8 No Cond 7-05-16.ddf
Date: July 08, 2016

DESCRIPTION:

Description: 40 MMSCFD
Still Vent to Combustor
No Flash Tank

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 85.00 deg. F
Pressure: 500.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	0.1510
Nitrogen	0.3940
Methane	77.0800
Ethane	14.8320
Propane	4.9670
Isobutane	0.6160
n-Butane	1.2100
Isopentane	0.2660
n-Pentane	0.2620
n-Hexane	0.0580
Cyclohexane	0.0060
Other Hexanes	0.0930
Heptanes	0.0420
Benzene	0.0010
Toluene	0.0020
C8+ Heavies	0.0200

DRY GAS:

Flow Rate: 40.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 7.5 gpm

PUMP:

Glycol Pump Type: Gas Injection
Gas Injection Pump Volume Ratio: 0.080 acfm gas/gpm glycol

REGENERATOR OVERHEADS CONTROL DEVICE:

Control Device:	Combustion Device
Destruction Efficiency:	98.0 %
Excess Oxygen:	5.0 %
Ambient Air Temperature:	60.0 deg. F

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Jay-Bee - RPT-8
File Name: C:\Rogers_Files\Misc\Jay-Bee Oil & Gas\RPT-8 Expansion July 2016\RPT-8 No Cond 7-05-16.ddf
Date: July 05, 2016

DESCRIPTION:

Description: 40 MMSCFD
Still Vent to Combustor
No Flash Tank

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.9905	23.773	4.3386
Ethane	0.4659	11.181	2.0405
Propane	0.2941	7.059	1.2883
Isobutane	0.0594	1.426	0.2602
n-Butane	0.1401	3.362	0.6136
Isopentane	0.0404	0.970	0.1770
n-Pentane	0.0478	1.146	0.2092
n-Hexane	0.0196	0.470	0.0857
Cyclohexane	0.0075	0.180	0.0328
Other Hexanes	0.0249	0.598	0.1091
Heptanes	0.0302	0.724	0.1321
Benzene	0.0097	0.232	0.0423
Toluene	0.0334	0.801	0.1462
C8+ Heavies	0.0887	2.129	0.3886
Total Emissions	2.2521	54.050	9.8641
Total Hydrocarbon Emissions	2.2521	54.050	9.8641
Total VOC Emissions	0.7957	19.096	3.4850
Total HAP Emissions	0.0626	1.502	0.2742
Total BTEX Emissions	0.0430	1.033	0.1885

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	49.5274	1188.657	216.9300
Ethane	23.2939	559.053	102.0271
Propane	14.7066	352.958	64.4148
Isobutane	2.9699	71.277	13.0081
n-Butane	7.0041	168.099	30.6781
Isopentane	2.0204	48.489	8.8492
n-Pentane	2.3881	57.313	10.4597
n-Hexane	0.9788	23.491	4.2871
Cyclohexane	0.3748	8.995	1.6416
Other Hexanes	1.2451	29.882	5.4534
Heptanes	1.5077	36.186	6.6039
Benzene	0.4825	11.581	2.1135
Toluene	1.6687	40.050	7.3091

C8+ Heavies	4.4359	106.461	19.4291
Total Emissions	112.6038	2702.492	493.2047
Total Hydrocarbon Emissions	112.6038	2702.492	493.2047
Total VOC Emissions	39.7826	954.781	174.2476
Total HAP Emissions	3.1301	75.121	13.7097
Total BTEX Emissions	2.1513	51.630	9.4226

EQUIPMENT REPORTS:

COMBUSTION DEVICE

Ambient Temperature: 60.00 deg. F
Excess Oxygen: 5.00 %
Combustion Efficiency: 98.00 %
Supplemental Fuel Requirement: 5.46e-001 MM BTU/hr

Component	Emitted	Destroyed
Methane	2.00%	98.00%
Ethane	2.00%	98.00%
Propane	2.00%	98.00%
Isobutane	2.00%	98.00%
n-Butane	2.00%	98.00%
Isopentane	2.00%	98.00%
n-Pentane	2.00%	98.00%
n-Hexane	2.00%	98.00%
Cyclohexane	2.00%	98.00%
Other Hexanes	2.00%	98.00%
Heptanes	2.00%	98.00%
Benzene	2.00%	98.00%
Toluene	2.00%	98.00%
C8+ Heavies	2.00%	98.00%

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25
Calculated Dry Gas Dew Point: 3.55 lbs. H2O/MMSCF

Temperature: 85.0 deg. F
Pressure: 500.0 psig
Dry Gas Flow Rate: 40.0000 MMSCF/day
Glycol Losses with Dry Gas: 0.1475 lb/hr
Wet Gas Water Content: Saturated
Calculated Wet Gas Water Content: 63.67 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio: 4.45 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	5.56%	94.44%
Carbon Dioxide	99.83%	0.17%
Nitrogen	99.99%	0.01%

Methane	99.99%	0.01%
Ethane	99.96%	0.04%
Propane	99.93%	0.07%
Isobutane	99.89%	0.11%
n-Butane	99.85%	0.15%
Isopentane	99.84%	0.16%
n-Pentane	99.79%	0.21%
n-Hexane	99.63%	0.37%
Cyclohexane	98.39%	1.61%
Other Hexanes	99.73%	0.27%
Heptanes	99.26%	0.74%
Benzene	86.02%	13.98%
Toluene	79.47%	20.53%
C8+ Heavies	97.12%	2.88%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	38.47%	61.53%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.33%	99.67%
n-Pentane	0.36%	99.64%
n-Hexane	0.41%	99.59%
Cyclohexane	3.05%	96.95%
Other Hexanes	0.77%	99.23%
Heptanes	0.45%	99.55%
Benzene	4.97%	95.03%
Toluene	7.88%	92.12%
C8+ Heavies	11.75%	88.25%

STREAM REPORTS:

WET GAS STREAM

Temperature: 85.00 deg. F
Pressure: 514.70 psia
Flow Rate: 1.67e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.34e-001	1.06e+002
Carbon Dioxide	1.51e-001	2.92e+002
Nitrogen	3.93e-001	4.85e+002
Methane	7.70e+001	5.43e+004
Ethane	1.48e+001	1.96e+004

Propane	4.96e+000	9.62e+003
Isobutane	6.15e-001	1.57e+003
n-Butane	1.21e+000	3.09e+003
Isopentane	2.66e-001	8.43e+002
n-Pentane	2.62e-001	8.31e+002
n-Hexane	5.79e-002	2.20e+002
Cyclohexane	5.99e-003	2.22e+001
Other Hexanes	9.29e-002	3.52e+002
Heptanes	4.19e-002	1.85e+002
Benzene	9.99e-004	3.43e+000
Toluene	2.00e-003	8.10e+000
C8+ Heavies	2.00e-002	1.50e+002
Total Components	100.00	9.17e+004

DRY GAS STREAM

Temperature: 85.00 deg. F
Pressure: 514.70 psia
Flow Rate: 1.67e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.47e-003	5.91e+000
Carbon Dioxide	1.51e-001	2.91e+002
Nitrogen	3.94e-001	4.85e+002
Methane	7.71e+001	5.43e+004
Ethane	1.48e+001	1.96e+004
Propane	4.96e+000	9.62e+003
Isobutane	6.15e-001	1.57e+003
n-Butane	1.21e+000	3.09e+003
Isopentane	2.66e-001	8.42e+002
n-Pentane	2.61e-001	8.29e+002
n-Hexane	5.78e-002	2.19e+002
Cyclohexane	5.90e-003	2.18e+001
Other Hexanes	9.28e-002	3.51e+002
Heptanes	4.17e-002	1.84e+002
Benzene	8.60e-004	2.95e+000
Toluene	1.59e-003	6.43e+000
C8+ Heavies	1.94e-002	1.45e+002
Total Components	100.00	9.16e+004

LEAN GLYCOL STREAM

Temperature: 85.00 deg. F
Flow Rate: 7.44e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	4.12e+003
Water	1.50e+000	6.28e+001
Carbon Dioxide	1.18e-012	4.93e-011
Nitrogen	1.35e-013	5.66e-012
Methane	4.78e-018	2.00e-016
Ethane	8.54e-008	3.58e-006
Propane	6.79e-009	2.84e-007
Isobutane	1.22e-009	5.12e-008

n-Butane	2.68e-009	1.12e-007
Isopentane	1.61e-004	6.75e-003
n-Pentane	2.07e-004	8.65e-003
n-Hexane	9.63e-005	4.03e-003
Cyclohexane	2.82e-004	1.18e-002
Other Hexanes	2.32e-004	9.72e-003
Heptanes	1.63e-004	6.83e-003
Benzene	6.03e-004	2.53e-002
Toluene	3.41e-003	1.43e-001
C8+ Heavies	1.41e-002	5.91e-001
Total Components	100.00	4.19e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 85.00 deg. F
Pressure: 514.70 psia
Flow Rate: 7.89e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.37e+001	4.12e+003
Water	3.71e+000	1.63e+002
Carbon Dioxide	1.65e-002	7.27e-001
Nitrogen	1.01e-002	4.45e-001
Methane	1.13e+000	4.95e+001
Ethane	5.29e-001	2.33e+001
Propane	3.34e-001	1.47e+001
Isobutane	6.75e-002	2.97e+000
n-Butane	1.59e-001	7.00e+000
Isopentane	4.61e-002	2.03e+000
n-Pentane	5.45e-002	2.40e+000
n-Hexane	2.23e-002	9.83e-001
Cyclohexane	8.78e-003	3.87e-001
Other Hexanes	2.85e-002	1.25e+000
Heptanes	3.44e-002	1.51e+000
Benzene	1.15e-002	5.08e-001
Toluene	4.12e-002	1.81e+000
C8+ Heavies	1.14e-001	5.03e+000
Total Components	100.00	4.40e+003

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 3.85e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.50e+001	1.00e+002
Carbon Dioxide	1.63e-001	7.27e-001
Nitrogen	1.57e-001	4.45e-001
Methane	3.05e+001	4.95e+001
Ethane	7.64e+000	2.33e+001
Propane	3.29e+000	1.47e+001
Isobutane	5.04e-001	2.97e+000
n-Butane	1.19e+000	7.00e+000

Isopentane	2.76e-001	2.02e+000
n-Pentane	3.27e-001	2.39e+000
n-Hexane	1.12e-001	9.79e-001
Cyclohexane	4.39e-002	3.75e-001
Other Hexanes	1.43e-001	1.25e+000
Heptanes	1.48e-001	1.51e+000
Benzene	6.10e-002	4.83e-001
Toluene	1.79e-001	1.67e+000
C8+ Heavies	2.57e-001	4.44e+000
Total Components	100.00	2.14e+002

COMBUSTION DEVICE OFF GAS STREAM

Temperature: 1000.00 deg. F
Pressure: 14.70 psia
Flow Rate: 3.43e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Methane	6.82e+001	9.91e-001
Ethane	1.71e+001	4.66e-001
Propane	7.37e+000	2.94e-001
Isobutane	1.13e+000	5.94e-002
n-Butane	2.66e+000	1.40e-001
Isopentane	6.19e-001	4.04e-002
n-Pentane	7.32e-001	4.78e-002
n-Hexane	2.51e-001	1.96e-002
Cyclohexane	9.84e-002	7.50e-003
Other Hexanes	3.19e-001	2.49e-002
Heptanes	3.33e-001	3.02e-002
Benzene	1.37e-001	9.65e-003
Toluene	4.00e-001	3.34e-002
C8+ Heavies	5.76e-001	8.87e-002
Total Components	100.00	2.25e+000

Jay-Bee Oil & Gas, Incorporated
RPT-8 Well Pad Production Facility
Condensate Tank Emissions

Utilizing direct measurements of the Gas to Oil (GOR) ratio and flash gas composition from this well pad, the attached calculation spreadsheet was used to determine un-controlled VOC and HAP flash emissions from the Condensate tanks of 348.17 tpy and 11.4 tpy respectively for the **revised** maximum annual throughput of 18,000 BBL/Yr. Working and Breathing losses were calculated using EPA's Tanks 4.0.9 to be 0.71 tpy VOCs and 0.06 tpy HAPs (est.). RVP 6 Gasoline was used as a surrogate. As the RVP of the condensate at atmospheric pressure was measured at 5.48, this was deemed appropriate. Thus, total uncontrolled tank emissions are projected to be 348.9 tpy of VOCs and 11.5 tpy of HAPs. As emissions from these tanks are anticipated to be continuous, this is equivalent to 79.7 pounds per hour VOCs and 2.63 pounds per hour HAPs.

The largest component to the HAPs is Hexane. Using the process described above, potential un-controlled n-Hexane emissions were determined to be 10.4 tons per year or 2.37 pounds per hour.

Methane is also be emitted (as a component of the flash gas) at a maximum rate of 49.3 tpy (11.26 lb/hr) from the condensate tanks. Using the GHG factor of 25 for Methane, the CO_{2e} uncontrolled emission rate is 1,232.5 tpy. This is equivalent to 281.4 lb/hr of CO_{2e}

The control system, comprised of a VRU with an Enclosed Combustor backup will control organic vapor emissions to at least 98%. Actual control efficiency is anticipated to be higher, but only 98% is claimed as allowed under the G70-C General Permit. Thus, when in operation, organic emissions from the combustor will be controlled to 1.59 pounds per hour of VOCs and 0.05 pounds per hour of HAPs. Methane emissions will be controlled to 0.22 lb/hr while n-Hexane will be controlled to 0.05 pounds per hour.

Enclosed Combustor Emissions

In order to include the enclosed combustor into the G70-C permit, it is assumed that the combustor will operate full time. Thus, it is conservatively estimated that the combustor will capture and control 98% of potential emissions. Total potential tank emissions via the combustor are therefore calculated as follows:

VOCs
1.59 lb/hr (Controlled) x 8760 = 13,928 lb/yr or 6.96 tpy

HAPs
0.05 lb/Hr (Controlled) x 8760 = 438 lb/yr or 0.22 tpy

n-Hexane
0.05 lb/Hr (Controlled) x 8760 = 438 lb/yr or 0.21 tpy

Methane
0.22 lb/Hr (Controlled) x 8760 = 1,927 lb/yr or 0.96 tpy

Gas Flow to Combustor

Total gas flow to the combustor from the condensate tanks is derived from the condensate flash calculation spreadsheets (496.2 tpy total organics) plus working and breathing losses for the condensate tanks (0.71 tpy) for a total of 496.9 tpy. Using the density of the condensate vapor shown in the Excel spreadsheet (0.110 lb/scf), an annual gas flow to the combustor of 9.03 MMSCF/yr or 24,752 scfd was determined.

Using the HHV of 2292 BTU/scf of the condensate tank flash vapors as a conservative surrogate, this results in a maximum heat loading of 2.36 MMBTU/Hr.

Jay-Bee Oil & Gas - RTP-8

Flash Emission Calculations

Using Gas-Oil Ratio Method

Un-Controlled

Site specific data

Gas-Oil-ratio	=	500	scf/bbl **(Using Actual GOR from RPT-8)**
Throughput	=	18,000	bbl/yr
Stock tank gas molecular weight	=	39.56	g/mole

Conversions

1 lb	=	453.6	g
1 mole	=	22.4	L
1 scf	=	28.32	L
1 ton	=	2000	lb

Equations

$$E_{TOT} = Q\frac{(bbl)}{(yr)} \times R\frac{(scf)}{(bbl)} \times \frac{28.32(L)}{1(scf)} \times \frac{1(mole)}{22.4(L)} \times MW\frac{(g)}{(mole)} \times \frac{1(lb)}{453.6(g)}) \times \frac{1(ton)}{2000(lb)}$$

E_{TOT} = Total stock tank flash emissions (TPY)

R = Measured gas-oil ratio (scf/bbl)

Q = Throughput (bbl/yr)

MW = Stock tank gas molecular weight (g/mole)

$$E_{spec} = E_{TOT} \times X_{spec}$$

E_{spec} = Flash emission from constituent

X_{spec} = Weight fraction of constituent in stock tank gas

Flash Emissions

Constituent	TPY	
Total	496.1820	E_{TOT}
VOC	**348.1659**	Sum of C3+
Nitrogen	1.24E-01	
Carbon Dioxide	7.79E-01	
Methane	4.93E+01	
Ethane	9.78E+01	
Propane	1.29E+02	
Isobutane	3.48E+01	
n-Butane	8.00E+01	
2,2 Dimethylpropane	9.77E-01	
Isopentane	2.74E+01	
n-Pentane	2.87E+01	
2,2 Dimethylbutane	1.04E+00	
Cyclopentane	0.00E+00	
2,3 Dimethylbutane	1.50E+00	
2 Methylpentane	7.98E+00	
3 Methylpentane	4.77E+00	
n-Hexane	1.04E+01	HAP
Methylcyclopentane	7.59E-01	
Benzene	1.79E-01	HAP
Cyclohexane	1.08E+00	
2-Methylhexane	2.31E+00	
3-Methylhexane	2.27E+00	
2,2,4 Trimethylpentane	0.00E+00	
Other C7's	2.16E+00	
n-Heptane	3.34E+00	
Methylcyclohexane	2.08E+00	
Toluene	4.07E-01	HAP
Other C8's	3.40E+00	
n-Octane	1.13E+00	
Ethylbenzene	2.48E-02	HAP
M & P Xylenes	2.93E-01	HAP
O-Xylene	3.97E-02	HAP
Other C9's	1.41E+00	
n-Nonane	3.37E-01	
Other C10's	5.31E-01	
n-Decane	6.95E-02	
Undecanes (11)	7.44E-02	

April 24, 2014

FESCO, Ltd.
1100 Fesco Avenue - Alice, Texas 78332

For: Jay-Bee Oil & Gas, Inc.
1720 Route 22 East
Union, New Jersey 07083

Date Sampled: 04/07/14

Date Analyzed: 04/21/14

Sample: RPT 8-1

Job Number: J42794

FLASH LIBERATION OF HYDROCARBON LIQUID		
	Separator HC Liquid	**Stock Tank**
Pressure, psig	340	0
Temperature, °F	65	70
Gas Oil Ratio (1)	------	500
Gas Specific Gravity (2)	------	1.387
Separator Volume Factor (3)	1.2987	1.000

STOCK TANK FLUID PROPERTIES	
Shrinkage Recovery Factor (4)	0.7700
Oil API Gravity at 60 °F	70.79
Reid Vapor Pressure, psi (5)	5.28

Quality Control Check			
	Sampling Conditions	**Test Samples**	
Cylinder No.	------	W-2408*	W-2423
Pressure, psig	340	299	297
Temperature, °F	65	66	66

(1) - Scf of flashed vapor per barrel of stock tank oil
(2) - Air = 1.000
(3) - Separator volume / Stock tank volume
(4) - Fraction of first stage separator liquid
(5) - Absolute pressure at 100 deg F
Analyst: M. G.
* Sample used for flash study
Base Conditions: 14.85 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015

April 23, 2014

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: Jay-Bee Oil & Gas, Inc.
1720 Route 22 East
Union, New Jersey 07083

Sample: RPT 8-1
Gas Evolved from Hydrocarbon Liquid Flashed
From 340 psig & 65 °F to 0 psig & 70 °F

Date Sampled: 04/07/14 Job Number: 42794.001

CHROMATOGRAPH EXTENDED ANALYSIS - SUMMATION REPORT - GPA 2286

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	0.036	
Carbon Dioxide	0.141	
Methane	24.485	
Ethane	25.943	6.993
Propane	23.253	6.457
Isobutane	4.773	1.574
n-Butane	10.980	3.489
2-2 Dimethylpropane	0.108	0.042
Isopentane	3.027	1.116
n-Pentane	3.175	1.160
Hexanes	2.378	0.988
Heptanes Plus	1.701	0.761
Totals	100.000	22.579

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity	3.599	(Air=1)
Molecular Weight	102.69	
Gross Heating Value	5488	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity	1.387	(Air=1)
Compressibility (Z)	0.9850	
Molecular Weight	39.56	
Gross Heating Value		
Dry Basis	2321	BTU/CF
Saturated Basis	2282	BTU/CF

*Hydrogen Sulfide tested in laboratory by: Stained Tube Method (GPA 2377)
Results: <0.013 Gr/100 CF, <0.2 PPMV or <0.001 Mol %

Base Conditions: 14.850 PSI & 60 Deg F

Certified: FESCO, Ltd. - Alice, Texas

Analyst: MR
Processor: AL
Cylinder ID: ST# 20

David Dannhaus 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS
TOTAL REPORT - GPA 2286

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	0.036		0.025
Carbon Dioxide	0.141		0.157
Methane	24.485		9.930
Ethane	25.943	6.993	19.719
Propane	23.253	6.457	25.920
Isobutane	4.773	1.574	7.013
n-Butane	10.980	3.489	16.132
2,2 Dimethylpropane	0.108	0.042	0.197
Isopentane	3.027	1.116	5.521
n-Pentane	3.175	1.160	5.791
2,2 Dimethylbutane	0.096	0.040	0.209
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.139	0.057	0.303
2 Methylpentane	0.738	0.309	1.608
3 Methylpentane	0.441	0.181	0.961
n-Hexane	0.964	0.400	2.100
Methylcyclopentane	0.072	0.025	0.153
Benzene	0.018	0.005	0.036
Cyclohexane	0.102	0.035	0.217
2-Methylhexane	0.184	0.086	0.466
3-Methylhexane	0.181	0.083	0.458
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.174	0.076	0.436
n-Heptane	0.266	0.124	0.674
Methylcyclohexane	0.169	0.068	0.419
Toluene	0.035	0.012	0.082
Other C8's	0.246	0.115	0.685
n-Octane	0.079	0.041	0.228
Ethylbenzene	0.002	0.001	0.005
M & P Xylenes	0.022	0.009	0.059
O-Xylene	0.003	0.001	0.008
Other C9's	0.089	0.046	0.284
n-Nonane	0.021	0.012	0.068
Other C10's	0.030	0.018	0.107
n-Decane	0.004	0.002	0.014
Undecanes (11)	0.004	0.002	0.015
Totals	100.000	22.579	100.000

Computed Real Characteristics Of Total Sample:

Specific Gravity	1.387	(Air=1)
Compressibility (Z)	0.9850	
Molecular Weight	39.56	
Gross Heating Value		
Dry Basis	2321	BTU/CF
Saturated Basis	2282	BTU/CF

May 2, 2014

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: Jay-Bee Oil & Gas, Inc.
1720 Route 22 East
Union, New Jersey 07083

Sample: RPT 8-1
Breathing Vapor
From 0 psig & 70 °F to 0 psig & 100 °F

Date Sampled: 04/07/14 Job Number: 42794.011

CHROMATOGRAPH EXTENDED ANALYSIS - SUMMATION REPORT - GPA 2286

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	0.185	
Carbon Dioxide	0.018	
Methane	0.000	
Ethane	0.202	0.054
Propane	10.137	2.815
Isobutane	8.852	2.920
n-Butane	30.167	9.586
2-2 Dimethylpropane	0.370	0.142
Isopentane	15.123	5.574
n-Pentane	17.412	6.361
Hexanes	13.160	5.466
Heptanes Plus	4.374	1.881
Totals	100.000	34.799

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity	3.547	(Air=1)
Molecular Weight	98.01	
Gross Heating Value	5251	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity	2.412	(Air=1)
Compressibility (Z)	0.9539	
Molecular Weight	66.84	
Gross Heating Value		
Dry Basis	3921	BTU/CF
Saturated Basis	3853	BTU/CF

*Hydrogen Sulfide tested in laboratory by: Stained Tube Method (GPA 2377)
Results: <0.013 Gr/100 CF, <0.2 PPMV or <0.001 Mol %

Base Conditions: 14.850 PSI & 60 Deg F

Certified: FESCO, Ltd. - Alice, Texas

Analyst: MR
Processor: AL
Cylinder ID: ST# 21

David Dannhaus 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS
TOTAL REPORT - GPA 2286

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	0.185		0.078
Carbon Dioxide	0.018		0.012
Methane	0.000		0.001
Ethane	0.202	0.054	0.091
Propane	10.137	2.815	6.708
Isobutane	8.852	2.920	7.721
n-Butane	30.167	9.586	26.312
2,2 Dimethylpropane	0.370	0.142	0.401
Isopentane	15.123	5.574	16.374
n-Pentane	17.412	6.361	18.852
2,2 Dimethylbutane	0.570	0.240	0.737
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.805	0.332	1.041
2 Methylpentane	4.259	1.782	5.508
3 Methylpentane	2.477	1.019	3.203
n-Hexane	5.049	2.093	6.529
Methylcyclopentane	0.356	0.124	0.450
Benzene	0.078	0.022	0.091
Cyclohexane	0.432	0.148	0.545
2-Methylhexane	0.606	0.284	0.911
3-Methylhexane	0.569	0.261	0.856
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.649	0.285	0.966
n-Heptane	0.658	0.306	0.989
Methylcyclohexane	0.408	0.165	0.601
Toluene	0.071	0.024	0.098
Other C8's	0.379	0.178	0.627
n-Octane	0.082	0.042	0.141
Ethylbenzene	0.002	0.001	0.003
M & P Xylenes	0.020	0.008	0.032
O-Xylene	0.002	0.001	0.003
Other C9's	0.048	0.025	0.091
n-Nonane	0.007	0.004	0.013
Other C10's	0.005	0.003	0.011
n-Decane	0.002	0.001	0.004
Undecanes (11)	0.000	0.000	0.000
Totals	100.000	34.799	100.000

Computed Real Characteristics Of Total Sample:

Specific Gravity	2.412	(Air=1)
Compressibility (Z)	0.9539	
Molecular Weight	66.64	
Gross Heating Value		
Dry Basis	3921	BTU/CF
Saturated Basis	3853	BTU/CF

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	Jay Bee RTP-8 Condensate
City:	Huntington
State:	West Virginia
Company:	Jay-Bee Oil & Gas
Type of Tank:	Vertical Fixed Roof Tank
Description:	Condensate Tank W&B Emissions

Tank Dimensions

Shell Height (ft):	15.00
Diameter (ft):	10.00
Liquid Height (ft) :	14.00
Avg. Liquid Height (ft):	10.00
Volume (gallons):	8,225.29
Turnovers:	24.00
Net Throughput(gal/yr):	197,406.91
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good
Roof Color/Shade:	Gray/Light
Roof Condition:	Good

Roof Characteristics

Type:	Cone
Height (ft)	0.25
Slope (ft/ft) (Cone Roof)	0.05

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Huntington, West Virginia (Avg Atmospheric Pressure = 14.33 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Jay Bee RTP-8 Condensate - Vertical Fixed Roof Tank
Huntington, West Virginia

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (RVP 6)	All	61.42	53.10	69.74	57.09	3.0220	2.5373	3.5797	69.0000			92.00	Option 4: RVP=6, ASTM Slope=3

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

Jay Bee RTP-8 Condensate - Vertical Fixed Roof Tank
Huntington, West Virginia

Annual Emission Calcaulations	
Standing Losses (lb):	451.6638
Vapor Space Volume (cu ft):	399.2441
Vapor Density (lb/cu ft):	0.0373
Vapor Space Expansion Factor:	0.1508
Vented Vapor Saturation Factor:	0.5512
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	399.2441
Tank Diameter (ft):	10.0000
Vapor Space Outage (ft):	5.0833
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	10.0000
Roof Outage (ft):	0.0833
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.0833
Roof Height (ft):	0.2500
Roof Slope (ft/ft):	0.0500
Shell Radius (ft):	5.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0373
Vapor Molecular Weight (lb/lb-mole):	69.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.0220
Daily Avg. Liquid Surface Temp. (deg. R):	521.0866
Daily Average Ambient Temp. (deg. F):	54.8458
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	516.7558
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,246.2101
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.1508
Daily Vapor Temperature Range (deg. R):	33.2847
Daily Vapor Pressure Range (psia):	1.0425
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.0220
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.5373
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	3.5797
Daily Avg. Liquid Surface Temp. (deg R):	521.0866
Daily Min. Liquid Surface Temp. (deg R):	512.7654
Daily Max. Liquid Surface Temp. (deg R):	529.4077
Daily Ambient Temp. Range (deg. R):	20.0583
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.5512
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	3.0220
Vapor Space Outage (ft):	5.0833

Working Losses (lb):	980.0821
Vapor Molecular Weight (lb/lb-mole):	69.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.0220
Annual Net Throughput (gal/yr.):	197,406.9120
Annual Turnovers:	24.0000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	8,225.2880
Maximum Liquid Height (ft):	14.0000
Tank Diameter (ft):	10.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	1,431.7459

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Jay Bee RTP-8 Condensate - Vertical Fixed Roof Tank
Huntington, West Virginia

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 6)	980.08	451.66	1,431.75

April 29, 2014

FESCO, Ltd.
1100 FESCO Avenue - Alice, Texas 78332

For: Jay-Bee Oil & Gas, Inc.
1720 Route 22 East
Union, New Jersey 07083

Sample: RPT 8-1
Separator Hydrocarbon Liquid
Sampled @ 340 psig & 65 °F

Date Sampled: 04/07/14 Job Number: 42794.002

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2186-M

COMPONENT	MOL %	LIQ VOL %	WT %
Nitrogen	0.011	0.003	0.004
Carbon Dioxide	0.025	0.011	0.014
Methane	7.015	3.036	1.384
Ethane	7.995	5.461	2.958
Propane	9.072	6.384	4.919
Isobutane	2.654	2.218	1.896
n-Butane	7.473	6.018	5.341
2,2 Dimethylpropane	0.192	0.168	0.170
Isopentane	4.335	4.049	3.845
n-Pentane	5.799	5.369	5.144
2,2 Dimethylbutane	0.319	0.341	0.338
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.532	0.557	0.564
2 Methylpentane	3.616	3.833	3.831
3 Methylpentane	2.379	2.481	2.521
n-Hexane	6.324	6.642	6.701
Heptanes Plus	42.259	53.409	60.372
Totals:	100.000	100.000	100.000

Characteristics of Heptanes Plus:

Specific Gravity	0.7441	(Water=1)
°API Gravity	58.86	@ 60°F
Molecular Weight	116.2	
Vapor Volume	20.33	CF/Gal
Weight	6.20	Lbs/Gal

Characteristics of Total Sample:

Specific Gravity	0.6583	(Water=1)
°API Gravity	83.46	@ 60°F
Molecular Weight	81.3	
Vapor Volume	25.69	CF/Gal
Weight	5.48	Lbs/Gal

Base Conditions: 14.650 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

Analyst: XG
Processor: JCdjv
Cylinder ID: W-2408

David Dannhaus 361-661-7015

FESCO, Ltd. Job Number: 42794.002

TANKS DATA INPUT REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Carbon Dioxide	0.025	0.011	0.014
Nitrogen	0.011	0.003	0.004
Methane	7.015	3.036	1.384
Ethane	7.995	5.461	2.958
Propane	9.072	6.384	4.919
Isobutane	2.654	2.218	1.896
n-Butane	7.666	6.206	5.511
Isopentane	4.335	4.049	3.845
n-Pentane	5.799	5.389	5.144
Other C-6's	6.846	7.212	7.264
Heptanes	13.266	15.122	16.031
Octanes	12.697	15.144	16.932
Nonanes	4.935	6.806	7.697
Decanes Plus	8.665	13.799	16.337
Benzene	0.113	0.081	0.108
Toluene	0.613	0.525	0.695
E-Benzene	0.534	0.526	0.697
Xylenes	1.436	1.407	1.875
n-Hexane	6.324	6.842	6.701
2,2,4 Trimethylpentane	0.000	0.000	0.000
Totals:	100.000	100.000	100.000

Characteristics of Total Sample:

Specific Gravity	0.6583	(Water=1)
°API Gravity	83.46	@ 60°F
Molecular Weight	81.3	
Vapor Volume	25.69	CF/Gal
Weight	5.48	Lbs/Gal

Characteristics of Decanes (C10) Plus:

Specific Gravity	0.7794	(Water=1)
Molecular Weight	153.3	

Characteristics of Atmospheric Sample:

°API Gravity	70.79	@ 60°F
Reid Vapor Pressure (ASTM D-5191)	5.28	psi

QUALITY CONTROL CHECK			
	Sampling Conditions	Test Samples	
Cylinder Number	-----	W-2408*	W-2423
Pressure, PSIG	340	299	297
Temperature, °F	65	66	66

* Sample used for analysis

FESCO, Ltd.

Job Number: 42794.002

TOTAL EXTENDED REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Nitrogen	0.011	0.003	0.004
Carbon Dioxide	0.025	0.011	0.014
Methane	7.015	3.036	1.384
Ethane	7.995	5.481	2.956
Propane	9.072	6.384	4.919
Isobutane	2.854	2.218	1.896
n-Butane	7.473	6.018	5.341
2,2 Dimethylpropane	0.192	0.188	0.170
Isopentane	4.335	4.049	3.845
n-Pentane	5.799	5.369	5.144
2,2 Dimethylbutane	0.319	0.341	0.338
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.532	0.557	0.564
2 Methylpentane	3.616	3.833	3.831
3 Methylpentane	2.379	2.481	2.521
n-Hexane	6.324	6.642	6.701
Methylcyclopentane	0.537	0.486	0.556
Benzene	0.113	0.081	0.108
Cyclohexane	0.966	0.831	0.989
2-Methylhexane	3.063	3.637	3.774
3-Methylhexane	2.577	3.022	3.175
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C-7's	1.532	1.725	1.888
n-Heptane	4.601	5.422	5.669
Methylcyclohexane	2.764	2.838	3.337
Toluene	0.613	0.525	0.695
Other C-8's	7.205	8.736	9.764
n-Octane	2.728	3.569	3.831
E-Benzene	0.534	0.526	0.697
M & P Xylenes	0.616	0.611	0.804
O-Xylene	0.820	0.796	1.071
Other C-9's	3.468	4.696	5.383
n-Nonane	1.467	2.109	2.314
Other C-10's	2.979	4.434	5.175
n-decane	0.771	1.208	1.349
Undecanes(11)	2.240	3.420	4.048
Dodecanes(12)	1.277	2.107	2.529
Tridecanes(13)	0.746	1.320	1.606
Tetradecanes(14)	0.349	0.660	0.814
Pentadecanes(15)	0.160	0.324	0.404
Hexadecanes(16)	0.078	0.169	0.213
Heptadecanes(17)	0.037	0.085	0.108
Octadecanes(18)	0.018	0.043	0.055
Nonadecanes(19)	0.007	0.017	0.022
Eicosanes(20)	0.002	0.005	0.006
Heneicosanes(21)	0.001	0.003	0.003
Docosanes(22)	0.001	0.001	0.002
Tricosanes(23)	0.000	0.001	0.001
Tetracosanes(24)	0.000	0.001	0.001
Pentacosanes(25)	0.000	0.000	0.000
Hexacosanes(26)	0.000	0.000	0.000
Heptacosanes(27)	0.000	0.000	0.000
Octacosanes(28)	0.000	0.000	0.000
Nonacosanes(29)	0.000	0.000	0.000
Triacontanes(30)	0.000	0.000	0.000
Hentriacontanes Plus(31+)	0.000	0.000	0.000
Total	100.000	100.000	100.000

= HAP

Jay-Bee Oil & Gas, Incorporated
RPT-8 Well Pad Production Facility
Water Tank Emissions

Utilizing direct measurements of the Gas to Water (GOW) ratio and flash gas composition from a nearby Jay-Bee well pad (Schulberg), the attached calculation spreadsheet was used to determine un-controlled VOC and HAP flash emissions from the Water tanks of 0.15 tpy and 0.01 tpy respectively for the **revised** maximum annual throughput of 18,000 BBL/Yr. Working and Breathing losses were deemed negligible. Thus, total uncontrolled produced water tank emissions are projected to be 0.15 tpy of VOCs and 0.01 tpy of HAPs. As emissions from these tanks are anticipated to be continuous, this is equivalent to 0.034 pounds per hour VOCs and 0.003 pounds per hour HAPs.

The largest component to the HAPs is Hexane. Using the process described above, potential un-controlled n-Hexane emissions were determined to be <0.01 tons per year and <0.01 pounds per hour.

Methane is also be emitted at a maximum rate of 0.195 tpy (0.04 lb/hr) from the water tanks. Using the GHG factor of 25 for Methane, the CO_{2e} uncontrolled emission rate is 4.9 tpy. This is equivalent to 1.1 lb/hr of CO_{2e}

Emissions are controlled at a minimum of 98% (VRU + Backup Combustor). Actual control efficiency is anticipated to be much higher, but only 98% is claimed as allowed under the G70-C General Permit. Thus, when in operation, un-captured/controlled produced water tank emissions will be controlled to <0.01 pounds per hour of VOCs and <0.01 pounds per hour of HAPs. Methane and n-hexane emissions will also be controlled to< 0.01 lb/hr and <0.01 lb/hr respectively.

Gas Flow to Combustor

Total gas flow to the combustor from the water tanks is derived from the water flash calculation spreadsheets (0.407 tpy total organics). Using the annual average density of the vapor from the water tanks shown in the Excel calculation spreadsheet (0.069 lb/scf), an annual gas flow to the combustor of 0.012 MMSCF/yr or 32 scfd was determined.

Using the HHV of 1431 BTU/scf of the water tank flash vapors as a conservative surrogate, this results in a maximum heat loading of 0.002 MMBTU/Hr.

Flash Emission Calculations - Produced Water

Using Gas-Water Ratio Method

Un-Controlled

Site specific data

Gas-Water-ratio	=	0.41	scf/bbl Using GOW from comparable well pad
Throughput	=	18,000	bbl/yr
Stock tank gas molecular weight	=	39.56	g/mole

Conversions

1 lb	=	453.6	g
1 mole	=	22.4	L
1 scf	=	28.32	L
1 ton	=	2000	lb

Equations

$$E_{TOT} = Q\frac{(bbl)}{(yr)} \times R\frac{(scf)}{(bbl)} \times \frac{28.32(L)}{1(scf)} \times \frac{1(mole)}{22.4(L)} \times MW\frac{(g)}{(mole)} \times \frac{1(lb)}{453.6(g)}) \times \frac{1(ton)}{2000(lb)}$$

E_{TOT} = Total stock tank flash emissions (TPY)

R = Measured gas-oil ratio (scf/bbl)

Q = Throughput (bbl/yr)

MW = Stock tank gas molecular weight (g/mole)

$$E_{spec} = E_{TOT} \times X_{spec}$$

E_{spec} = Flash emission from constituent

X_{spec} = Weight fraction of constituent in stock tank gas

Flash Emissions

Constituent	TPY	
Total	0.4069	E_{TOT}
VOC	**0.1489**	Sum of C3+
Nitrogen	2.64E-03	
Carbon Dioxide	1.16E-02	
Methane	1.95E-01	
Ethane	4.84E-02	
Propane	3.17E-02	
Isobutane	1.76E-02	
n-Butane	1.95E-02	
2,2 Dimethylpropane	0.00E+00	
Isopentane	1.55E-02	
n-Pentane	1.10E-02	
2,2 Dimethylbutane	1.39E-03	
Cyclopentane	1.63E-04	
2,3 Dimethylbutane	8.50E-04	
2 Methylpentane	4.91E-03	
3 Methylpentane	2.99E-03	
n-Hexane	5.93E-03	HAP
Methylcyclopentane	9.81E-04	
Benzene	1.20E-03	HAP
Cyclohexane	1.41E-03	
2-Methylhexane	2.73E-03	
3-Methylhexane	2.42E-03	
2,2,4 Trimethylpentane	0.00E+00	
Other C7's	2.75E-03	
n-Heptane	3.64E-03	
Methylcyclohexane	3.27E-03	
Toluene	2.65E-03	HAP
Other C8's	5.35E-03	
n-Octane	2.03E-03	
Ethylbenzene	1.22E-04	HAP
M & P Xylenes	1.36E-03	HAP
O-Xylene	2.28E-04	HAP
Other C9's	4.27E-03	
n-Nonane	1.01E-03	
Other C10's	1.32E-03	
n-Decane	2.32E-04	
Undecanes (11)	4.43E-04	

September 14, 2012

FESCO, Ltd.
1100 Fesco Avenue - Alice, Texas 78332

For: Jay-Bee Oil & Gas, Inc.
1720 Route 22 East
Union, New Jersey 07083

Date Sampled: 08/21/2012

Date Analyzed: 08/27/2012

Job Number: J25159

Sample: Schulberg 1-HF

FLASH LIBERATION OF SEPARATOR WATER		
	Separator	Stock Tank
Pressure, psig	165	0
Temperature, °F	NA	70
Gas Water Ratio (1)	-----	0.41
Gas Specific Gravity (2)	-----	0.860
Separator Volume Factor (3)	1.000	1.000

(1) - Scf of water saturated vapor per barrel of stock tank water
(2) - Air = 1.000
(3) - Separator volume / Stock tank volume
Analyst: J. G.

Piston No.: WF-306

Base Conditions: 14.65 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015

September 14, 2012

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: Jay-Bee Oil & Gas, Inc.
1720 Route 22 East
Union, New Jersey 07083

Sample: Schulberg 1-HF
Gas Evolved from Separator Water Flashed
From 155 psig & NA °F to 0 psig & 70 °F

Date Sampled: 08/21/2012 Job Number: 25159.001

CHROMATOGRAPH EXTENDED ANALYSIS - SUMMATION REPORT

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	0.575	
Carbon Dioxide	1.602	
Methane	74.187	
Ethane	9.798	2.605
Propane	4.384	1.201
Isobutane	1.841	0.599
n-Butane	2.043	0.640
2-2 Dimethylpropane	0.000	0.000
Isopentane	1.305	0.475
n-Pentane	0.928	0.334
Hexanes	1.149	0.471
Heptanes Plus	2.188	0.952
Totals	100.000	7.278

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity	3.616	(Air=1)
Molecular Weight	104.18	
Gross Heating Value	5424	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity	0.860	(Air=1)
Compressibility (Z)	0.9946	
Molecular Weight	24.76	
Gross Heating Value		
Dry Basis	1426	BTU/CF
Saturated Basis	1402	BTU/CF

*Hydrogen Sulfide tested in laboratory by Stained Tube Method (GPA 2377)
Results: <0.013 Gr/100 CF, <0.2 PPMV or <0.001 Mol %

Base Conditions: 14.650 PSI & 60 Deg F

Certified: FESCO, Ltd. - Alice, Texas

Analyst: MR
Processor: MFG
Cylinder ID: FL-9

David Dannhaus 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS
TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	0.575		0.650
Carbon Dioxide	1.602		2.845
Methane	74.187		48.024
Ethane	9.798	2.605	11.888
Propane	4.384	1.201	7.800
Isobutane	1.841	0.599	4.318
n-Butane	2.043	0.640	4.791
2,2 Dimethylpropane	0.000	0.000	0.000
Isopentane	1.305	0.475	3.799
n-Pentane	0.928	0.334	2.702
2,2 Dimethylbutane	0.098	0.041	0.341
Cyclopentane	0.014	0.006	0.040
2,3 Dimethylbutane	0.060	0.024	0.209
2 Methylpentane	0.347	0.143	1.207
3 Methylpentane	0.211	0.086	0.734
n-Hexane	0.419	0.171	1.457
Methylcyclopentane	0.071	0.024	0.241
Benzene	0.094	0.026	0.298
Cyclohexane	0.102	0.035	0.346
2-Methylhexane	0.168	0.077	0.671
3-Methylhexane	0.147	0.067	0.594
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.169	0.073	0.676
n-Heptane	0.221	0.101	0.894
Methylcyclohexane	0.203	0.081	0.804
Toluene	0.175	0.058	0.651
Other C8's	0.296	0.137	1.316
n-Octane	0.108	0.055	0.498
Ethylbenzene	0.007	0.003	0.030
M & P Xylenes	0.078	0.030	0.334
O-Xylene	0.013	0.005	0.056
Other C9's	0.206	0.104	1.049
n-Nonane	0.046	0.027	0.248
Other C10's	0.057	0.033	0.325
n-Decane	0.010	0.006	0.057
Undecanes (11)	0.017	0.010	0.109
Totals	100.000	7.276	100.000

Computed Real Characteristics Of Total Sample:

Specific Gravity	0.860	(Air=1)
Compressibility (Z)	0.9946	
Molecular Weight	24.78	
Gross Heating Value		
Dry Basis	1426	BTU/CF
Saturated Basis	1402	BTU/CF

Condensate
Truck Loading Lost Emissions Per AP-42

Per AP-42, Chapter 5.2.2.1.1, the uncontrolled loading loss emission factor L_L can be estimated as follows:

$$L_L = 12.46[SPM/T]$$

Where:

L_L = uncontrolled loading loss in pounds per 1000 gallons of liquid loaded
S= saturation factor (0.6)
P=true vapor pressure of liquid loaded: 3.6 psia (per AP-42 conversion of RVP to TVP)
M= Molecular weight of vapor in lb/lb-mole 64.35 (see attached breathing vapor analysis report)
T= temperature of bulk liquid loaded in deg R or 460+deg F (60 Deg F)

Thus, $L_L = 12.46[0.6 \times 3.6 \times 64.35]/[460+60]$
$L_L = 3.33$ lb/1000 gallons loaded

Based on sample data of breathing vapor (attached), these emissions are 99.4% VOCs. It is assumed that vapor composition from truck loading is the same as that from the tank breathing vapors.

Given a maximum loading of 160 BBL (6,720 gallons) a day, uncontrolled VOC emissions are estimated at 22.2 lb of VOC per day [6.72 x 3.33 x .994]. With all daily loading taking place within 2 hours, the average hourly un-controlled emission rate is therefore estimated at 11.1 lb/hr VOCs. Emissions from truck loading are un-controlled.

Maximum annual throughput is 756,000 gallons (18,000 barrels) per year. Thus, un-captured/un-controlled VOC emissions are conservatively estimated at 2502 pounds per year [756 x 3.33 x .994] or 1.25 tons per year.

Based on the attached analysis of a representative tank's breathing emissions, HAPs represent 6.76 percent of the emissions. Thus, hourly HAPs emissions equal 1.51 lb/hr [6.72 x 3.33 x 0.0676 x 0.5]. Annual maximum HAPs emissions are estimated at 170 lb/yr [756 x 3.33 x 0.0676] or 0.09 tpy.

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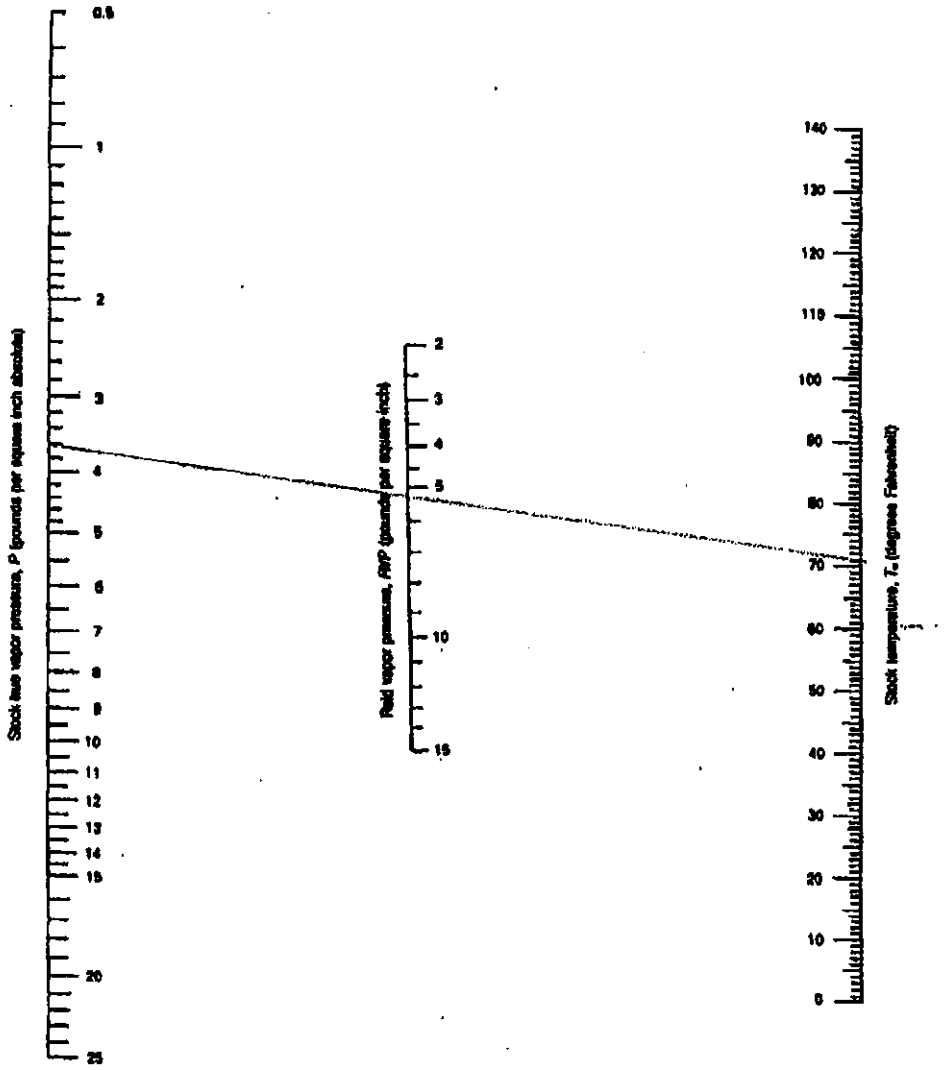

Figure 7.1-13a. True vapor pressure of crude oils with a Reid vapor pressure of 2 to 15 pounds per square inch.[4]

Produced Water
Truck Loading Lost Emissions Per AP-42

Per AP-42, Chapter 5.2.2.1.1, the uncontrolled loading loss emission factor L_L can be estimated as follows:

$$L_L = 12.46[SPM/T]$$

Where:

L_L = uncontrolled loading loss in pounds per 1000 gallons of liquid loaded
S= saturation factor (0.6)
P=true vapor pressure of liquid loaded: 0.3 psia (water at 60 Deg. F)
M= Molecular weight of vapor in lb/lb-mole 24.78 (flash gas of comparable water sample)
T= temperature of bulk liquid loaded in deg R or 460+deg F (60 Deg F)

Thus, $L_L = 12.46[0.6 \times 0.3 \times 24.78]/[460+60]$
$L_L = 0.11$ lb/1000 gallons loaded

Based on sample data of breathing vapor (attached), these emissions are 36.59% VOCs. It is assumed that vapor composition from truck loading is the same as that from the tank breathing vapors.

Given a maximum loading of 80 BBL (3,360 gallons) a day, uncontrolled VOC emissions are estimated at 0.14 lb of VOC per day [3.36 x 0.11 x .366]. With all daily loading taking place within 2 hours, the average hourly un-controlled emission rate is therefore estimated at 0.07 lb/hr VOCs. Emissions from truck loading are un-controlled.

Maximum annual throughput is 756,000 gallons (18,000 barrels) per year. Thus, un-captured/un-controlled VOC emissions are conservatively estimated at 30.4 pounds per year [756 x 0.11 x .366] or 0.02 tons per year.

Attachment I
FUGITIVE EMISSIONS FROM UNPAVED HAULROADS

UNPAVED HAULROADS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

		PM	PM-10
k =	Particle size multiplier	0.80	0.36
s =	Silt content of road surface material (%)	10	3
p =	Number of days per year with precipitation >0.01 in.	157	157

Item Number	Description	Number of Wheels	Mean Vehicle Weight (tons)	Mean Vehicle Speed (mph)	Miles per Trip	Maximum Trips per Hour	Maximum Trips per Year	Control Device ID Number	Control Efficiency (%)
1	Produced Water Tanker Truck	10	27	10	6.0	1	225	None	0
2	Condensate Tanker Truck	18	27	10	6.0	1	225	None	0
3									
4									
5									
6									
7									
8									

Source: *AP-42 Fifth Edition – 13.2.2 Unpaved Roads*

$E = k \times 5.9 \times (s \div 12) \times (S \div 30) \times (W \div 3)^{0.7} \times (w \div 4)^{0.5} \times ((365 - p) \div 365) =$ lb/Vehicle Mile Traveled (VMT)

Where:

		PM	PM-10
k =	Particle size multiplier	0.80	0.36
s =	Silt content of road surface material (%)	10	3
S =	Mean vehicle speed (mph)	10	10
W =	Mean vehicle weight (tons)	27	27
w =	Mean number of wheels per vehicle	18	18
p =	Number of days per year with precipitation >0.01 in.	157	157

For lb/hr: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] = lb/hr

For TPY: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] × [Ton ÷ 2000 lb] = Tons/year

SUMMARY OF UNPAVED HAULROAD EMISSIONS

Item No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	11.50	1.29	11.50	1.29	2.42	0.27	2.4	0.27
2	17.80	2.00	17.80	2.00	1.55	0.17	1.6	0.17
3								
4								
5								
6								
7								
8								
TOTALS	29.30	3.29	29.30	3.29	3.97	0.44	4.0	0.44

FUGITIVE EMISSIONS FROM PAVED HAULROADS

INDUSTRIAL PAVED HAULROADS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

I =	Industrial augmentation factor (dimensionless)	
n =	Number of traffic lanes	
s =	Surface material silt content (%)	
L =	Surface dust loading (lb/mile)	

Item Number	Description	Mean Vehicle Weight (tons)	Miles per Trip	Maximum Trips per Hour	Maximum Trips per Year	Control Device ID Number	Control Efficiency (%)
1	None						
2							
3							
4							
5							
6							
7							
8							

Source: *AP-42 Fifth Edition – 11.2.6 Industrial Paved Roads*

$E = 0.077 \times I \times (4 \div n) \times (s \div 10) \times (L \div 1000) \times (W \div 3)^{0.7} =$ lb/Vehicle Mile Traveled (VMT)

Where:

I =	Industrial augmentation factor (dimensionless)	
n =	Number of traffic lanes	
s =	Surface meterial silt content (%)	
L =	Surface dust loading (lb/mile)	
W =	Average vehicle weight (tons)	

For lb/hr: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] = lb/hr

For TPY: [lb ÷ VMT] × [VMT ÷ trip] × [Trips ÷ Hour] × [Ton ÷ 2000 lb] = Tons/year

SUMMARY OF PAVED HAULROAD EMISSIONS

Item No.	Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY
1				
2				
3				
4				
5				
6				
7				
8				
TOTALS				

ATTACHMENT T – FACILITY-WIDE CONTROLLED EMISSIONS SUMMARY SHEET

List all sources of emissions in this table. Use extra pages if necessary.

Emission Point ID#	NO_x		CO		VOC		SO_2		PM_{10}		$PM_{2.5}$		GHG (CO_2e)	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	0.15	0.66	.013	0.55	0.01	0.04	<0.01	<0.01	0.01	0.05	0.01	0.05	181	793
2S	0.15	0.66	.013	0.55	0.01	0.04	<0.01	<0.01	0.01	0.05	0.01	0.05	181	793
3S	0.15	0.66	.013	0.55	0.01	0.04	<0.01	<0.01	0.01	0.05	0.01	0.05	181	793
4S					11.1	1.25								
5S	0.52	2.27	0.89	3.89	0.02	0.09	<0.01	<0.01	0.01	0.06	0.01	0.06	89	391
6S					0.07	0.02								
7S	0.26	1.13	0.96	4.19	1.60	6.98	<0.01	<0.01	0.02	0.07	0.02	0.07	400	1,751
8S	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	2	7
9S	0.15	0.66	0.13	0.55	0.01	0.04	<0.01	<0.01	0.01	0.05	0.01	0.05	181	793
10S	0.15	0.66	0.13	0.55	0.01	0.04	<0.01	<0.01	0.01	0.05	0.01	0.05	181	793
11S	0.15	0.66	0.13	0.55	0.01	0.04	<0.01	<0.01	0.01	0.05	0.01	0.05	181	793
12S	0.05	0.22	0.04	0.18	<0.01		<0.01	<0.01	<0.01	0.02	<0.01	0.02	60	264
13S	0.27	1.18	1.01	4.44	0.81	3.53	<0.01	<0.01	0.04	0.16	0.04	0.16	434	1,913
TOTAL														

Annual emissions shall be based on 8,760 hours per year of operation for all emission units except emergency generators.
According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories in Table 1. Therefore, fugitive emissions shall not be included in the PTE above.

ATTACHMENT T – FACILITY-WIDE HAP CONTROLLED EMISSIONS SUMMARY SHEET

List all sources of emissions in this table. Use extra pages if necessary.

Emission Point ID#	Formaldehyde		Benzene		Toluene		Ethylbenzene		Xylenes		Hexane		Total HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.003	0.012	0.003	0.012
2S	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.003	0.012	0.003	0.012
3S	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.003	0.012	0.003	0.012
4S	<0.01	<0.01	0.010	0.001	0.011	0.001	<0.01	<0.01	<0.01	<0.01	0.72	0.082	1.51	0.085
5S	0.014	0.062	0.001	0.005	<0.01	0.002	<0.01	0.001	<0.01	<0.01	<0.01	<0.01	0.021	0.093
6S	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
7S	0.001	0.003	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.050	0.210	0.051	0.220
8S	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
9S	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.003	0.012	0.003	0.012
10S	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.003	0.012	0.003	0.012
11S	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.003	0.012	0.003	0.012
12S	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.001	0.004	0.001	0.004
13S	<0.01	0.001	0.010	0.086	0.033	0.147	<0.01	<0.01	<0.01	<0.01	0.020	0.086	0.063	0.276
TOTAL														

Annual emissions shall be based on 8,760 hours per year of operation for all emission units except emergency generators.
According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories in Table 1. Therefore, fugitive emissions shall not be included in the PTE above.

ATTACHMENT U – CLASS I LEGAL ADVERTISEMENT

Publication of a proper Class I legal advertisement is a requirement of the G70-C registration process. In the event the applicant's legal advertisement fails to follow the requirements of 45CSR13, Section 8 or the requirements of Chapter 59, Article 3, of the West Virginia Code, the application will be considered incomplete and no further review of the application will occur until this is corrected.

The applicant, utilizing the format for the Class I legal advertisement example provided on the following page, shall have the legal advertisement appear a minimum of one (1) day in the newspaper most commonly read in the area where the facility exists or will be constructed. The notice must be published no earlier than five (5) working days of receipt by this office of your application. The original affidavit of publication must be received by this office no later than the last day of the public comment period.

The advertisement shall contain, at a minimum, the name of the applicant, the type and location of the source, the type and amount of air pollutants that will be discharged (excluding fugitive emissions), the nature of the permit being sought, the proposed start-up date for the source, and a contact telephone number for more information.

The location of the source should be as specific as possible starting with: 1.) the street address of the source; 2.) the nearest street or road; 3.) the nearest town or unincorporated area, 4.) the county, and 5.) latitude and longitude coordinates in decimal format.

Types and amounts of pollutants discharged must include all regulated pollutants (Nitrogen Oxides, Carbon Monoxide, Particulate Matter-2.5, Particulate Matter-10, Volatile Organic Compounds, Sulfur Dioxide, Formaldehyde, Benzene, Toluene, Ethylbenzene, Xylenes, Hexane, Total Hazardous Air Pollutants and their potential to emit or the permit level being sought in units of tons per year.

In the event the 30th day is a Saturday, Sunday, or legal holiday, the comment period will be extended until 5:00 p.m. on the following regularly scheduled business day.

A list of qualified newspapers that are eligible to publish legal ads may be found:

http://www.sos.wv.gov/elections/resource/Documents/Qualified%20Newspapers.pdf

Affidavit Notice Will Be Submitted Upon Receipt

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Jay-Bee Oil & Gas, Inc. has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for modification of the G70-A General Permit Registration for its RTP-8 Well Pad Production Facility located off of Big Run Road near Alma, WV in Tyler County., West Virginia. The latitude and longitude coordinates are: Lat.39.48317, Long. -80.78606.

The applicant estimates following increases in the potential to emit the following regulated air pollutants:

3.86 tons of Nitrogen Oxides per year
7.13 tons of Carbon Monoxide per year
0.02 tons of Sulfur Dioxide per year
0.04 tons of Benzene per year
0.36 tons of Particulate Matter
5,242 tons of Greenhouse Gases per year

Startup of operation is planned to begin on or about the 1st day of October, 2016. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.

Dated this the **(Day)** day of **(Month)**, **(Year)**.

By: Mr. Shane Dowell
Office Manager
Jay-Bee Oil & Gas, Inc.
3570 Shields Ave.
Cairo, WV 26337