JAY-BEE OIL & GAS, INC.

APPLICATION FOR GENERAL PERMIT MODIFICATION

Gorby Well Pad Production Facility
Tyler County, West Virginia

98 Vanadium Road
Bridgeville, PA 15017
(412) 221-1100

APPLICATION FOR G70-A GENERAL PERMIT MODIFICATION

Jay-Bee Oil & Gas, Inc.

Gorby Well Pad Production Facility

Tyler County, West Virginia

Table of Contents

SECTION I

Application Form

WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
601 57th Street, SE
Charleston, WV 25304
Phone: (304) 926-0475 • *www.dep.wv.gov/daq*

APPLICATION FOR GENERAL PERMIT REGISTRATION

CONSTRUCT, MODIFY, RELOCATE OR ADMINISTRATIVELY UPDATE
A STATIONARY SOURCE OF AIR POLLUTANTS

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

CHECK WHICH TYPE OF GENERAL PERMIT REGISTRATION YOU ARE APPLYING FOR:

☐ **G10-D –** Coal Preparation and Handling
☐ **G20-B –** Hot Mix Asphalt
☐ **G30-D –** Natural Gas Compressor Stations
☐ **G33-A –** Spark Ignition Internal Combustion Engines
☐ **G35-A –** Natural Gas Compressor Stations (Flare/Glycol Dehydration Unit)
☐ **G40-C –** Nonmetallic Minerals Processing
☐ **G50-B –** Concrete Batch
☐ **G60-C** - Class II Emergency Generator
☐ **G65-C –** Class I Emergency Generator
☒ **G70-A –** Class II Oil and Natural Gas Production Facility

SECTION I. GENERAL INFORMATION

1. Name of applicant (as registered with the WV Secretary of State's Office):
Jay-Bee Oil & Gas, Inc.

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

3. Applicant's mailing address:
3570 Shields Hill Rd
Cairo, WV 26337

4. Applicant's physical address:
3570 Shields Hill Rd
Cairo, WV 26337

5. If Applicant is a subsidiary corporation, please provide the name of parent corporation.
N/A

WV BUSINESS REGISTRATION. Is the applicant a resident of the State of West Virginia? ☒ **YES** ☐ **NO**

- IF **YES,** provide a copy of the Certificate of **Incorporation/ Organization / Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A**.

- IF **NO,** provide a copy of the **Certificate of Authority / Authority of LLC / Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A**.

SECTION II. FACILITY INFORMATION

7. Type of plant or facility (stationary source) to be constructed, modified, relocated or administratively updated (e.g., coal preparation plant, primary crusher, etc.):
Natural Gas Well Pad Production Facility

8a. Standard Industrial Classification AND 8b. North American Industry
Classification (SIC) code: **1311** System (NAICS) code: **211111**

9. DAQ Plant ID No. (for existing facilities only):
095-00054

10. List all current 45CSR13 and other General Permit numbers associated with this process (for existing facilities only):
G70-A128

A: PRIMARY OPERATING SITE INFORMATION

11A. Facility name of primary operating site:	12A. Address of primary operating site:
Gorby Well Pad Production Facility	Mailing: **None** Physical:

13A. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? ☒ **YES** ☐ **NO**

→ IF **YES**, please explain: **Applicant has a lease agreement with the land owner for installation of the Well Pad and associated equipment**

→ IF **NO**, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.

14A → For **Modifications or Administrative Updates** at an existing facility, please provide directions to the present location of the facility from the nearest state road;

→ For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a **MAP** as **Attachment F**.

From Clarksburg, take Route 50 West 25 miles to Route 18 north (West Union Exit). Turn right onto Route 18 north and travel Approximately 20 miles to the community of Alma. Pass through Alma. Continue on Route 18 approximately 1 mile to the intersection With County Route 1/3 (Indian Creek Road). Turn right onto Indian Creek Road and travel approximately 1mile and turn left onto Big Run Rd. Continue approximately 2 miles. Access road is on the left.

15A. Nearest city or town:	16A. County:	17A. UTM Coordinates:
Alma	**Tyler**	Northing (KM): 4368.686 Easting (KM): 517.4097 Zone: **17**

18A. Briefly describe the proposed new operation or change (s) to the facility:	19A. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):
Natural gas production and separation of liquids.	Latitude: 39.46758 Longitude: -80.79778

B: 1ST ALTERNATE OPERATING SITE INFORMATION (only available for G20, G40, & G50 General Permits)

11B. Name of 1st alternate operating site:	12B. Address of 1st alternate operating site:
	Mailing: Physical:

13B. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? ☐ **YES** ☐ **NO**

→ IF **YES**, please explain:

→ IF **NO**, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.

14B. → For **Modifications or Administrative Updates** at an existing facility, please provide directions to the present location of the facility from the nearest state road;

→ For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a **MAP** as **Attachment F**.

15B. Nearest city or town:	16B. County:	17B. UTM Coordinates: Northing (KM): _____ Easting (KM): _____ Zone: _____
18B. Briefly describe the proposed new operation or change (s) to the facility:		19B. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits): Latitude: _____ Longitude: _____

C: 2ND ALTERNATE OPERATING SITE INFORMATION (only available for G20, G40, & G50 General Permits):

11C. Name of 2nd alternate operating site:	12C. Address of 2nd alternate operating site: Mailing: _____ Physical: _____

13C. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? ☐ **YES** ☐ **NO**

→ IF **YES**, please explain: _____

→ IF **NO**, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.

14C. → For **Modifications or Administrative Updates** at an existing facility, please provide directions to the present location of the facility from the nearest state road;

→ For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a **MAP** as **Attachment F**.

15C. Nearest city or town:	16C. County:	17C. UTM Coordinates: Northing (KM): _____ Easting (KM): _____ Zone: _____
18C. Briefly describe the proposed new operation or change (s) to the facility:		19C. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits): Latitude: _____ Longitude: _____

20. Provide the date of anticipated installation or change: **2 / 10 / 16** If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: : ____/____/____	21. Date of anticipated Start-up if registration is granted: **2 / 20 / 16**

22. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application if other than 8760 hours/year. (Note: anything other than 24/7/52 may result in a restriction to the facility's operation).

Hours per day **24** Days per week **7** Weeks per year **52** Percentage of operation **100**

SECTION III. ATTACHMENTS AND SUPPORTING DOCUMENTS

23. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

24. Include a **Table of Contents** as the first page of your application package.

All of the required forms and additional information can be found under the Permitting Section (General Permits) of DAQ's website, or requested by phone.

25. Please check all attachments included with this permit application. Please refer to the appropriate reference document for an explanation of the attachments listed below.

- ☒ ATTACHMENT A : CURRENT BUSINESS CERTIFICATE
- ☒ ATTACHMENT B: PROCESS DESCRIPTION
- ☒ ATTACHMENT C: DESCRIPTION OF FUGITIVE EMISSIONS
- ☒ ATTACHMENT D: PROCESS FLOW DIAGRAM
- ☒ ATTACHMENT E: PLOT PLAN
- ☒ ATTACHMENT F: AREA MAP
- ☒ ATTACHMENT G: EQUIPMENT DATA SHEETS AND REGISTRATION SECTION APPLICABILITY FORM
- ☒ ATTACHMENT H: AIR POLLUTION CONTROL DEVICE SHEETS
- ☒ ATTACHMENT I: EMISSIONS CALCULATIONS
- ☒ ATTACHMENT J: CLASS I LEGAL ADVERTISEMENT
- ☒ ATTACHMENT K: ELECTRONIC SUBMITTAL
- ☒ ATTACHMENT L: GENERAL PERMIT REGISTRATION APPLICATION FEE
- ☐ ATTACHMENT M: SITING CRITERIA WAIVER
- ☐ ATTACHMENT N: MATERIAL SAFETY DATA SHEETS (MSDS)
- ☒ ATTACHMENT O: EMISSIONS SUMMARY SHEETS
- ☒ OTHER SUPPORTING DOCUMENTATION NOT DESCRIBED ABOVE (Equipment Drawings, Aggregation Discussion, etc.)

Please mail an original and two copies of the complete General Permit Registration Application with the signature(s) to the DAQ Permitting Section, at the address shown on the front page of this application. Please DO NOT fax permit applications. For questions regarding applications or West Virginia Air Pollution Rules and Regulations, please refer to the website shown on the front page of the application or call the phone number also provided on the front page of the application.

SECTION IV. CERTIFICATION OF INFORMATION

This 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 a 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, Emission Inventory, Certified Emission Statement, 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 Registration Application will be returned to the applicant.

FOR A CORPORATION (domestic or foreign)

☒ I certify that I am a President, Vice President, Secretary, Treasurer or in charge of a principal business function of the corporation

FOR A PARTNERSHIP

☐ I certify that I am a General Partner

FOR A LIMITED LIABILITY COMPANY

☐ I certify that I am a General Partner or General Manager

FOR AN ASSOCIATION

☐ I certify that I am the President or a member of the Board of Directors

FOR A JOINT VENTURE

☐ I certify that I am the President, General Partner or General Manager

FOR A SOLE PROPRIETORSHIP

☐ I certify that I am the Owner and Proprietor

☐ *I hereby certify that* (please print or type) _____

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 Office of Air Quality immediately, and/or,

I hereby certify that all information contained in this 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

Signature _____ 11-23-2015
(please use blue ink) Responsible Official Date

Name & Title **Shane Dowell, Office Manager**
(please print or type)

Signature _____
(please use blue ink) Authorized Representative (if applicable) Date

Applicant's Name _____

Phone & Fax **304/628-3119** **304/628-3119**
Phone Fax

Email **sdowell@jaybeeoil.com**

SECTION II

Attachments

ATTACHMENT A

Business Registration

Attachment A

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 s. 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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L1388190464

SCANNED

JUN 24 2010

ATTACHMENT B

Process Description

Jay-Bee Oil & Gas, Incorporated
Gorby Well Pad Production Facility
Attachment B
Process Description

Natural gas and Produced Fluids (condensate and water) are received from two wells at this location at approximately 2500 psi and pass through Gas Processing Units (one per well) to avoid ice formation during subsequent pressure drops. These materials then pass through a three-way separator where gas, condensate and water are separated. The gas is routed to a gathering pipeline owned and operated by others.

Both the condensate and Produced Water are accumulated in four 210 BBL tanks (two for Condensate and two 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.

Jay-Bee is seeking approval for installation of an enclosed combustor as a back-up for the VRU to capture and destroy tank emissions for those times when the VRU is not available (e.g. engine and compressor maintenance).

Jay Bee is also seeking approval install a single thermoelectric generator (TEG).

No other changes are being requested at this time.

A Process Flow Diagram depicting these features is provided in Attachment D.

There are no gas-fired compressor engines, other than a single engine for the vapor recovery unit (VRU), or dehydration units proposed for this facility.

All natural gas fired equipment (GPUs) use natural gas produced at the site as fuel.

The proposed change to the tank emissions control methodology will actually control the tank emissions to a greater degree than the VRU, actually reduce overall VOC and HAPs emissions. However, the presence of a permanent combustor warrants the modification being through a Modification rather than a Class II Administrative Update. It is also our understanding that in order for both control devices to be addressed within the confines of the G70-A permit registration, the application must show the emissions for both control units as if they were the only control. Thus, for permitting purposes, the enclosed application shows 2% of the potential tank emissions as un-captured/uncontrolled emissions from the combustor in addition to the 5% of potential uncaptured/uncontrolled tank emissions from the current VRU.

Emission Units Table

(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
HTR-1	1E	Gas Processing Unit	2015	1.5 MMBTU/Hr	EXIST	None
HTR-2	2E	Gas Processing Unit	2015	1.5 MMBTU/Hr	EXIST	None
T01	3E	Condensate Tank	2015	210 BBL	EXIST	VRU-1
T02	3E	Condensate Tank	2015	210 BBL	EXIST	VRU-1
T03	3E	Produced Water Tank	2015	210 BBL	EXIST	VRU-1
T04	3E	Produced Water Tank	2015	210 BBL	EXIST	VRU-1
TL-1	4E	Condensate Truck Loading	2015	30,000 BBL/Yr.	EXIST	None
TL-2	5E	Produced Water Loading	2015	63,600 BBL/Yr.	EXIST	None
CE-1	6E	VRU Driver	2015	84 Hp	EXIST	1C
EC-1	**7E**	**Enclosed Combustor**	**Upon Receipt of Permit**	**10.0 MMBTU/Hr**	**NEW**	**N/A**
TEG-1	**8E**	**Thermo-Electric Generator**	**Upon Receipt of Permit**	**4.4 kw/hr**	**NEW**	**None**
---	---	Fugitive VOC Emissions – Fittings and Connections	2015	N/A	EXIST	None
---	---	Haul Roads	2015	6 Trucks per day max.	EXIST	None

[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] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

ATTACHMENT C

Description of Fugitive Emissions

Jay-Bee Oil & Gas, Inc.
Gorby Well Pad Production Facility
Attachment C
Fugitive Emissions Data

Equipment Fugitive Emissions

As noted in the process description, Jay Bee plans to install an enclosed combustor at its Gorby 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 0.53 tpy of VOCs and 17.0 tpy CO_2e has been estimated.

Estimates of these emissions are included in the calculations (Attachment I) 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. The numbers presented in the following Fugitive Emissions Summary Sheet for blowdowns has not changed from the original application.

Storage Tank and Haul Road Fugitive Emissions

Produced Fluids (water and condensate) received by this facility are accumulated in four 400-BBL tanks (two condensate and two water) prior to off-site shipment. As presented in the original application, emissions from these tanks were determined by using flash gas measurements from pressurized condensate produced at an area Jay-Bee well pad and working/breathing losses using AP-42 methods using condensate vapor data from this same condensate. Uncontrolled emissions from these tanks were determined to be 592.6 tons of VOCs per year. These vapors are routed to a VRU with a minimum capture and control efficiency of 95%. Emission calculations are presented in Attachment I. Emissions associated with the proposed Enclosed Combustor are also presented in the calculations in Attachment I. For permitting purposes, it is assumed that both units will be operating at 100% capacity.

As noted in the Project Description (Attachment B), there are no changes to emissions from the VRU being requested at this time.

In addition, there are no changes being requested for potential emissions associated with Truck Loading Operations or haul road fugitive emissions.

FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS
1.) Will there be haul road activities? ☒ Yes ☐ No ☒ If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? ☐ Yes ☒ No ☐ If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? ☒ Yes ☐ No ☒ If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)? ☒ Yes ☐ No ☒ If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.
6.) Will there be General Clean-up VOC Operations? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered “NO” to all of the items above, it is not necessary to complete the following table, “Fugitive Emissions Summary.”

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS [1]	Maximum Potential Uncontrolled Emissions [2]		Maximum Potential Controlled Emissions [3]		Est. Method Used [4]
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads						
Unpaved Haul Roads	PM	30.42	5.16	30.42	5.16	EE
Loading/Unloading Operations	VOCs	11.09	1.86	11.09	1.86	EE
	Total HAPs	0.76	0.13	0.76	0.13	EE
Equipment Leaks	VOCs	Does Not Apply	0.53	Does Not Apply	0.53	EE
	Total HAPs	Does Not Apply	0.03	Does Not Apply	0.03	EE
Blowdowns	VOCs	N/A	0.10	N/A	0.10	EE
	Total HAPs	N/A	0.01	N/A	0.01	EE
Other:						

[1] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. DO NOT LIST H_2, H_2O, N_2, O_2, and Noble Gases.

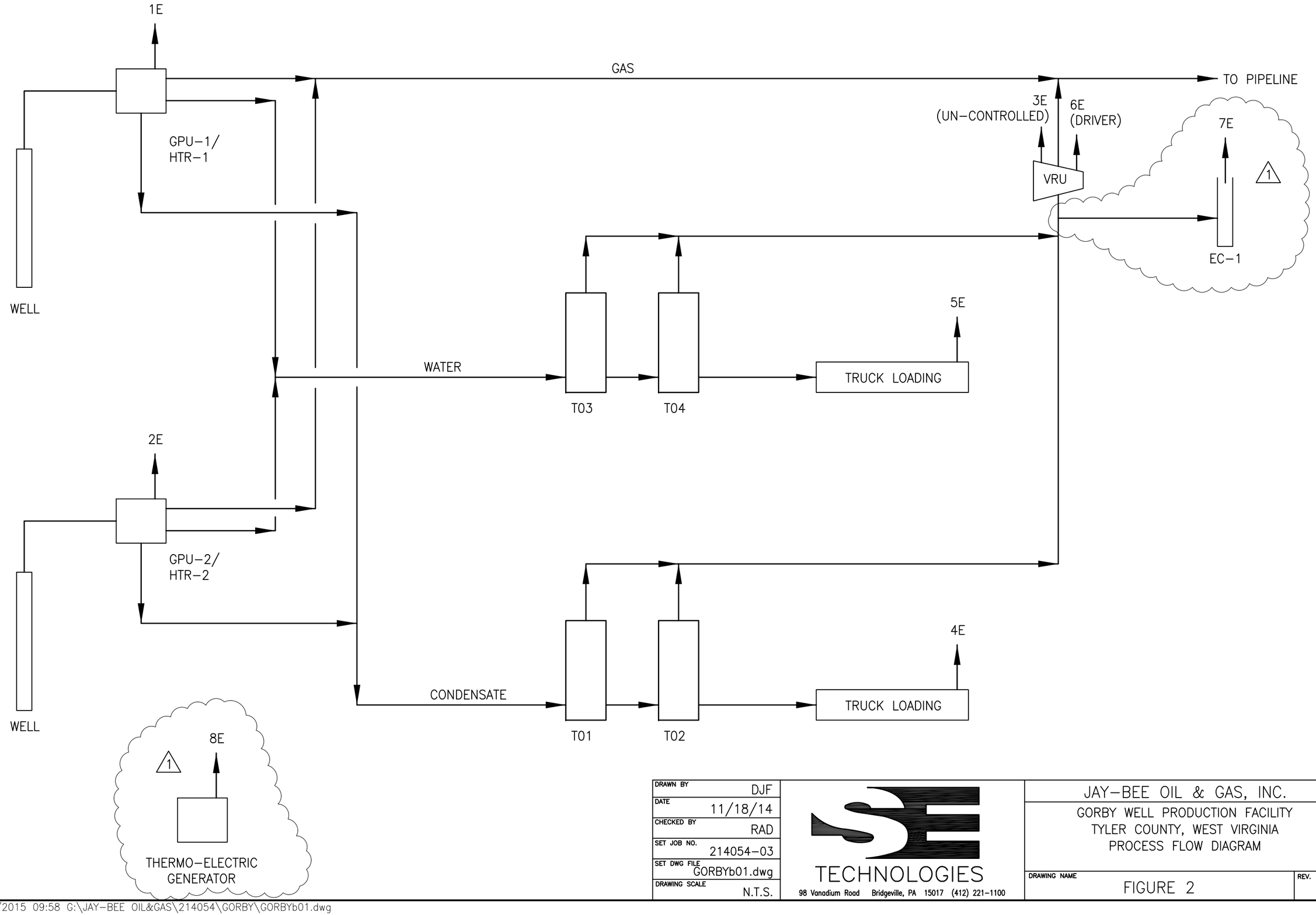
[2] Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[3] Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[4] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

ATTACHMENT D

Process Flow Diagram



DRAWN BY	DJF
DATE	11/18/14
CHECKED BY	RAD
SET JOB NO.	214054-03
SET DWG FILE	GORBYb01.dwg
DRAWING SCALE	N.T.S.

TECHNOLOGIES
98 Vanadium Road Bridgeville, PA 15017 (412) 221-1100

JAY-BEE OIL & GAS, INC.

GORBY WELL PRODUCTION FACILITY
TYLER COUNTY, WEST VIRGINIA
PROCESS FLOW DIAGRAM

DRAWING NAME: FIGURE 2

REV. 1

ATTACHMENT E

Plot Plan

GRID NORTH

West Virginia
State Plane
NAD '83
North Zone
RTK GPS

Orine
T.M. 6/21
D.B.305/793
41.62 Ac.

Gorby
T.M. 6/44
D.B.271/536
104.95 Ac.

Randall J. Broda
as Trustee of Randall
J. Broda Family Trust II
T.M. 9/2
D.B.415/865
66.5 Ac.

Gorby
T.M. 6/44
D.B.271/536
104.95 Ac.

— LEGEND —
Existing Contour
Property Line
Ditch
Fence
Proposed Well
Gravel
Slope Drainage Break (Typ.)
Reinforced Silt Fence (Typ.)
LOD

APPROVED
WVDEP OOG
SAY 3/20/2014

EX. ACCESS RD.

PROPOSED ACCESS ROAD 'B'

PROPOSED ACCESS ROAD 'A'

Key-In Toe of Fill per Detail (Typ.)

Slope Drainage Break (Typ.)

Reinforced Filter Fence (Typ.)

Temporary Topsoil Stockpile

Berm

Center Pad
State Plane NAD83
WV North (Feet)
355068.8 N
1601284.0 E

PROFILE

Drill Pit
4,000 Barrels @ 14' Depth & 1.5:1 Slope
Use 60 Mil. Liner
(Use Safety Fence around Perimeter) (Typ.)

PROPOSED PAD
Top of Pad Elev.:1275.96'

NOTE: Maintain a 10' Buffer Area from Fenceline in this Area

10' (Typ.)

Ramp Road Over Berm (Typ. Each Side)

Sump to Discharge Pipe to Original Ground (Typ.)

Temporary Topsoil Stockpile

EX. FARM RD.

EXISTING ACCESS ROAD (GRAVEL)

EX. FARM RD.

EX. FARM RD.

PROPOSED ACCESS ROAD 'A'

Excess Spoil to Backfill Drill Pits

Log Pile to be Removed

Log Storage Area During Construction to be Converted to Pipe & Equipment Storage After Construction.

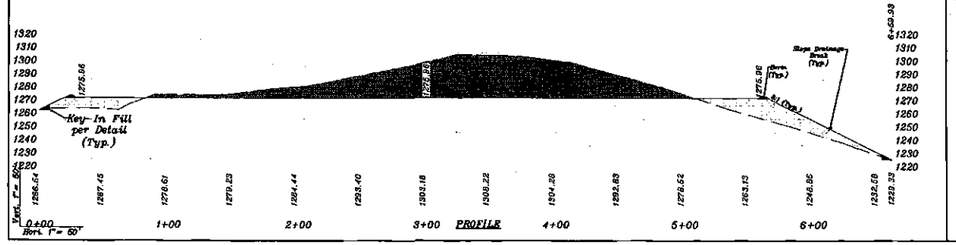
NOTE: NO WATER WELLS WERE FOUND WITHIN 250' OF THE WELL LOCATION. NO DWELLINGS OR AGRICULTURAL BUILDINGS WERE FOUND WITHIN 625' OF THE CENTER OF THE WELL PAD.

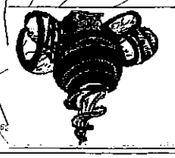
NOTE: ALL DRILL PITS & SUMPS SHALL BE LINED WITH HDPE LINER HAVING A MINIMUM THICKNESS OF 60 MILLS.

TOTAL DISTURBED AREA: 9.6 ACRES
ROAD A DISTURBED AREA: 1.6 ACRES
ROAD B DISTURBED AREA: 0.3 ACRES
PAD DISTURBED AREA: 7.6 ACRES

— LEGEND —
Proposed Cut
Proposed Fill
Existing Grade
Proposed Grade

Scale: 1" = 50'





Jay Bee
Oil & Gas
DRILLING
into the future

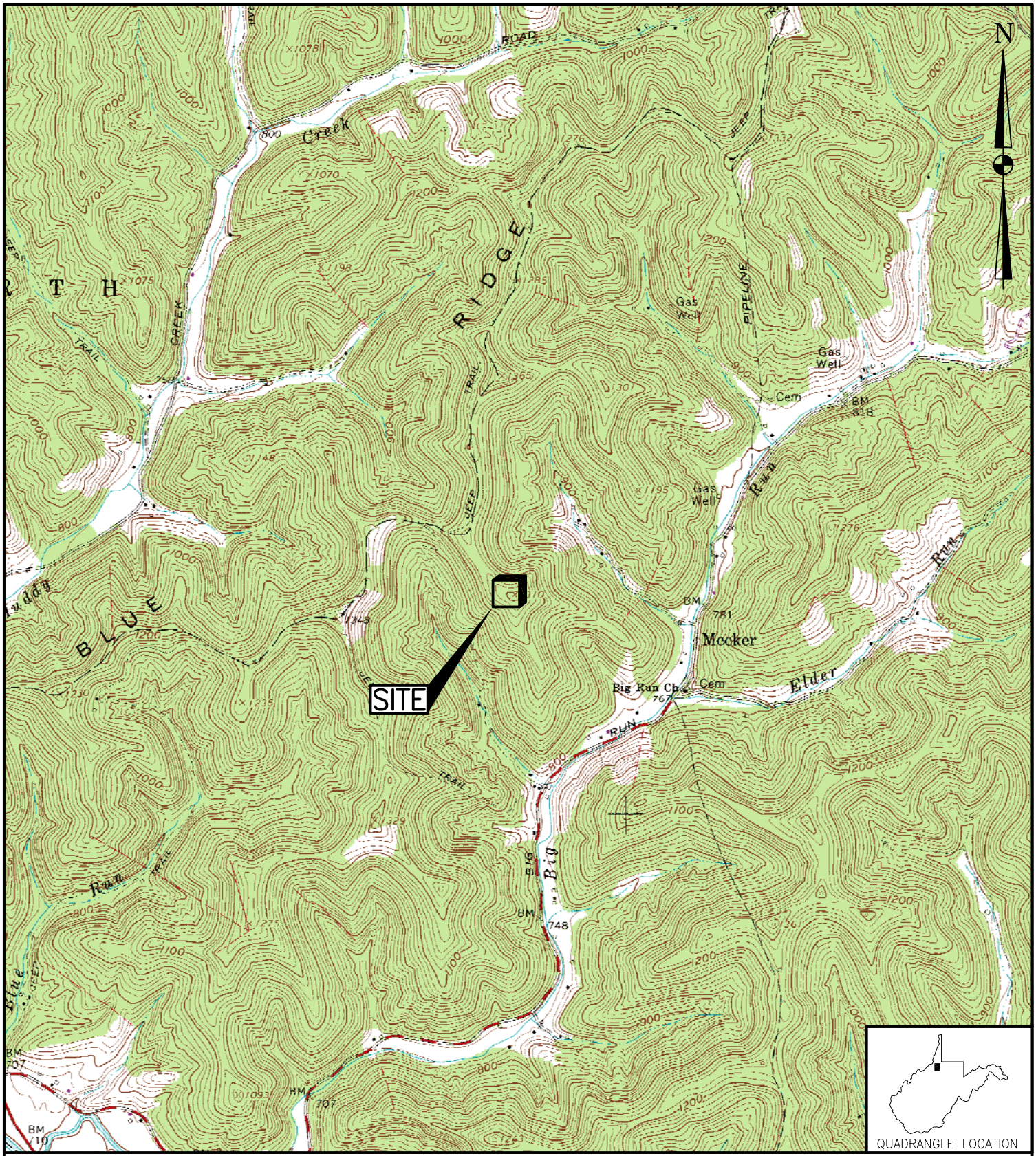
DLF.
Dennis L. Fisher, RPE
PO Box 281
Philippi, WV 26416
Cell: 304-677-4129
E-Mail: Fisher.Engineering@gmx.com

Jackson Surveying Inc.
677 W. Main St.
Clarksburg, Wv 26301
304-623-5851

Pad Plan & Profile
Sheet 7 of 14
Gorby Well Pad Site Plan

ATTACHMENT F

Area Map



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

DRAWN BY	DJF
DATE	11/3/14
CHECKED BY	RAD
SET JOB NO.	214054-03
SET DWG FILE	GORBYm01.dwg
DRAWING SCALE	1"=2000'

SE TECHNOLOGIES
98 Vanadium Road Bridgeville, PA 15017 (412) 221-1100

JAY-BEE OIL & GAS, INC.

GORBY WELL PAD
TYLER COUNTY, WEST VIRGINIA
SITE LOCATION MAP

DRAWING NO.	REV.
FIGURE 1	0

Plot: env045 11/03/2014 12:38 G:\JAY-BEE OIL&GAS\GORBY\GORBYm01.dwg

ATTACHMENT G

Equipment Data Sheets and Registration Section Applicability Form

General Permit G70-A Registration
Section Applicability Form

General Permit G70-A was developed to allow qualified applicants to seek registration for a variety of sources. These sources include natural gas well affected facilities, storage tanks, natural gas-fired compressor engines (RICE), natural gas producing units, natural gas-fired in-line heaters, pneumatic controllers, heater treaters, tank truck loading, glycol dehydration units, 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-A 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.

Section 5	Natural Gas Well Affected Facility	☒
Section 6	Storage Vessels*	☒
Section 7	Gas Producing Units, In-Line Heaters, Heater Treaters, and Glycol Dehydration Reboilers	☒
Section 8	Pneumatic Controllers Affected Facility(NSPS, Subpart OOOO)	☐
Section 9	*Reserved*	☐
Section 10	Natural gas-fired Compressor Engine(s) (RICE)**	☒
Section 11	Tank Truck Loading Facility ***	☒
Section 12	Standards of Performance for Storage Vessel Affected Facilities (NSPS, Subpart OOOO)	☒
Section 13	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (NSPS, Subpart JJJJ)	☒
Section 14	Control Devices not subject to NSPS, Subpart OOOO	☒
Section 15	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (40CFR63, Subpart ZZZZ)	☐
Section 16	Glycol Dehydration Units	☐
Section 17	Dehydration Units With Exemption from NESHAP Standard, Subpart HH § 63.764(d) (40CFR63, Subpart HH)	☐
Section 18	Dehydration Units Subject to NESHAP Standard, Subpart HH and Not Located Within an UA/UC (40CFR63, Subpart HH)	☐
Section 19	Dehydration Units Subject to NESHAP Standard, Subpart HH and Located Within an UA/UC (40CFR63, Subpart HH)	☐

***** *Applicants that are subject to Section 6 may also be subject to Section 12 if the applicant is subject to the NSPS, Subpart OOOO control requirements or the applicable control device requirements of Section 14.*

****** *Applicants that are subject to Section 10 may also be subject to the applicable RICE requirements of Section 13 and/or Section 15.*

******* *Applicants that are subject to Section 11 may also be subject to control device requirements of Section 14.*

NATURAL GAS FIRED BOILER/LINE HEATER DATA SHEET

Source ID #[1]	Status[2]	Design Heat Input (mmBtu/hr)[3]	Hours of Operation (hrs/yr)[4]	Fuel Heating Value (Btu/scf)[5]	
HTR-1	EXIST	1.5 MMBTU/Hr	8760	1270 BTU/scf (HHV)	
HTR-2	EXSIT	1.5 MMBTU/Hr	8760	1270 BTU/scf (HHV)	
TEG-1	**NEW**	**0.013 MMBTU/Hr**	**8760**	**1270 BTU/scf (HHV)**	

1. Enter the appropriate Source Identification Numbers (Source ID #) for each boiler or line heater located at the compressor station. Boilers should be designated BLR-1, BLR-2, BLR-3, etc. Heaters or Line Heaters should be designated HTR-1, HTR-2, HTR-3, etc. Enter glycol dehydration unit Reboiler Vent data on the *Glycol Dehydration Unit Data Sheet*.
2. Enter the Status for each boiler or line heater using the following:

   EXIST Existing Equipment NEW Installation of New Equipment
   REM Equipment Removed
3. Enter boiler or line heater design heat input in mmBtu/hr.
4. Enter the annual hours of operation in hours/year for each boiler or line heater.
5. Enter the fuel heating value in Btu/standard cubic foot.

STORAGE TANK DATA SHEET

Source ID #[1]	Status[2]	Content[3]	Volume[4]	Dia[5]	Throughput[6]	Orientation[7]	Liquid Height[8]
T01	EXIST	Condensate	210 BBL	10.0	630,000 gallons/yr	VERT	10 feet
T02	EXIST	Condensate	210 BBL	10.0	630,000 gallons/yr	VERT	10 feet
T03	EXIST	Produced Water	210 BBL	10.0	1,335,600 gallons/yr	VERT	10 feet
T04	EXIST	Produced Water	210 BBL	10.0	1,335,600 gallons/yr	VERT	10 feet

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, etc.
4. Enter storage tank volume in gallons.
5. Enter storage tank diameter in feet.
6. Enter storage tank throughput in gallons per year.
7. Enter storage tank orientation using the following:

   VERT Vertical Tank HORZ Horizontal Tank
8. Enter storage tank average liquid height in feet.

AIR POLLUTION CONTROL DEVICE
Vapor Combustion Control Device Sheet

Complete this vapor combustion control device sheet for each enclosed combustion device, flare, thermal oxidizer, or completion combustion device that is located at the natural gas production pad for the purpose of thermally destructing waste gas to control emissions of regulated pollutants to the atmosphere.

IMPORTANT: READ THE INSTRUCTIONS ACCOMPANYING THIS FORM BEFORE COMPLETING.

General Information

1. Control Device ID#: **EC-1**	2. Installation Date: **Upon receipt of Permit** ☒ New	
3. Maximum Rated Total Flow Capacity: **No limit. Only limit on total BTU/Hr**	4. Maximum Design Heat Input: **10.0 MMBtu/hr**	5. Design Heat Content: **No limit. Only limit on total BTU/hr**

Control Device Information

6. Select the type of vapor combustion control device being used: ☒ Enclosed Combustion Device

☐ Elevated Flare ☐ Ground Flare ☐ Thermal Oxidizer ☐ Completion Combustion Device

7. Manufacturer: **Hy-Bon Engineering, Inc.** Model No. **CH 10.0**	8. Hours of operation per year: **8760 Potential.**

9. List the emission units whose emissions are controlled by this vapor combustion control device: (Emission Point ID#: 7E)

10. Emission Unit ID#	Emission Source Description:	Emission Unit ID#	Emission Source Description:
T01	**Produced Water Tank**	**T03**	**Condensate Tank**
T02	**Produced Water Tank**	**T04**	**Condensate Tank**

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

11. Assist Type	12. Flare Height	13. Tip Diameter	14. Was the design per §60.18?
☐ Steam - ☐ Air - ☐ Pressure - ☒ Non -	**11 ft**	**0.25 ft**	☒Yes ☐No

Waste Gas Information

15. Maximum waste gas flow rate (scfm):	16. Heat value of waste gas stream (BTU/ft3)	17. Temperature of the emissions stream (°F)	18. Exit Velocity of the emissions stream (ft/s)
20	**1257-2345**	**1400-2100**	**78.4 (at max flow)**

19. Provide an attachment with the characteristics of the waste gas stream to be burned. **See Calculations (Tank Emissions) in Attachment I - Calculations**

Pilot Information

20. Type/Grade of pilot fuel:	21. Number of pilot lights:	22. Fuel flow rate to pilot flame per pilot (scf/hr):	23. Heat input per pilot (BTU/hr):	24. Will automatic re-ignition be used?
Natural Gas	1	63	80,000	☒ Yes ☐ No

25. If automatic re-ignition will be used, describe the method:
The unit will try to reignite up to 25 times. After that it will go into manual mode which means someone will need to come out and start it up again.

26. Describe the method of controlling flame: **Ignition module located in the combustor control panel**

27. Is pilot flame equipped with a monitor to detect the presence of the flame? ☒ Yes ☐ No	28. If yes, what type? ☒ Thermocouple ☐ Infra-Red ☐ Ultra Violet ☐ Camera with monitoring control room ☐ Other, describe:

29. Pollutant(s) Controlled	30. % Capture Efficiency	31. Manufacturer's Guaranteed Control Efficiency (%)
Tank VOCs	**>99% (hard piped)**	**99%**
	For Permitting Purposes a capture and control efficiency of only 98% is claimed.	

32. Has the control device been tested by the manufacturer and certified? **Yes**

33. Describe all operating ranges and maintenance procedures required by the manufacturer to maintain warranty: **Combustor burner, pilot, and air inlet arrestor must be checked for foreign debris (dust, sand, etc.) and cleaned at least quarterly**.

34. Additional Information Attached? ☒ **YES** ☐ **NO**

Please attach a copy of manufacturer's data sheet.
Please attach a copy of manufacturer's drawing.
Please attach a copy of the manufacturer's performance testing.

If any of the requested information is not available, please contact the manufacturer.

ATTACHMENT H

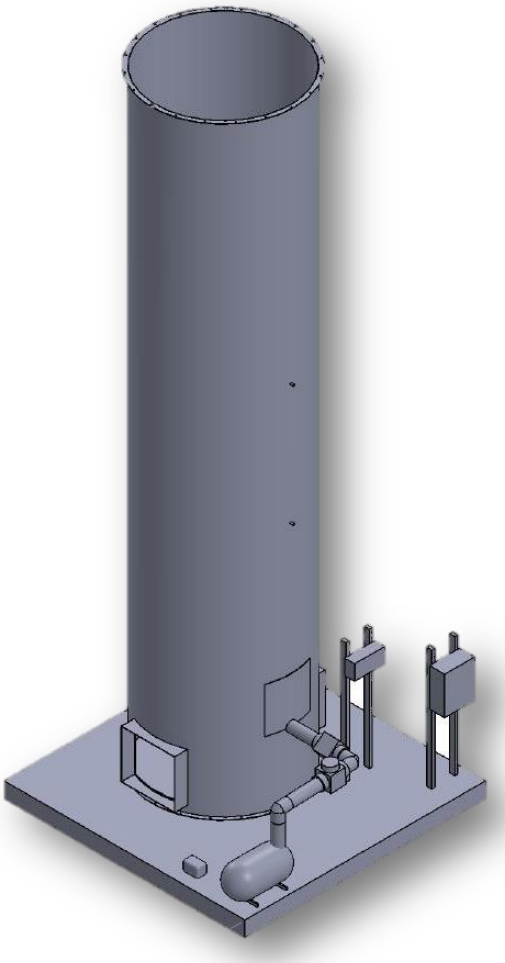
Air Pollution Control Device Sheets

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

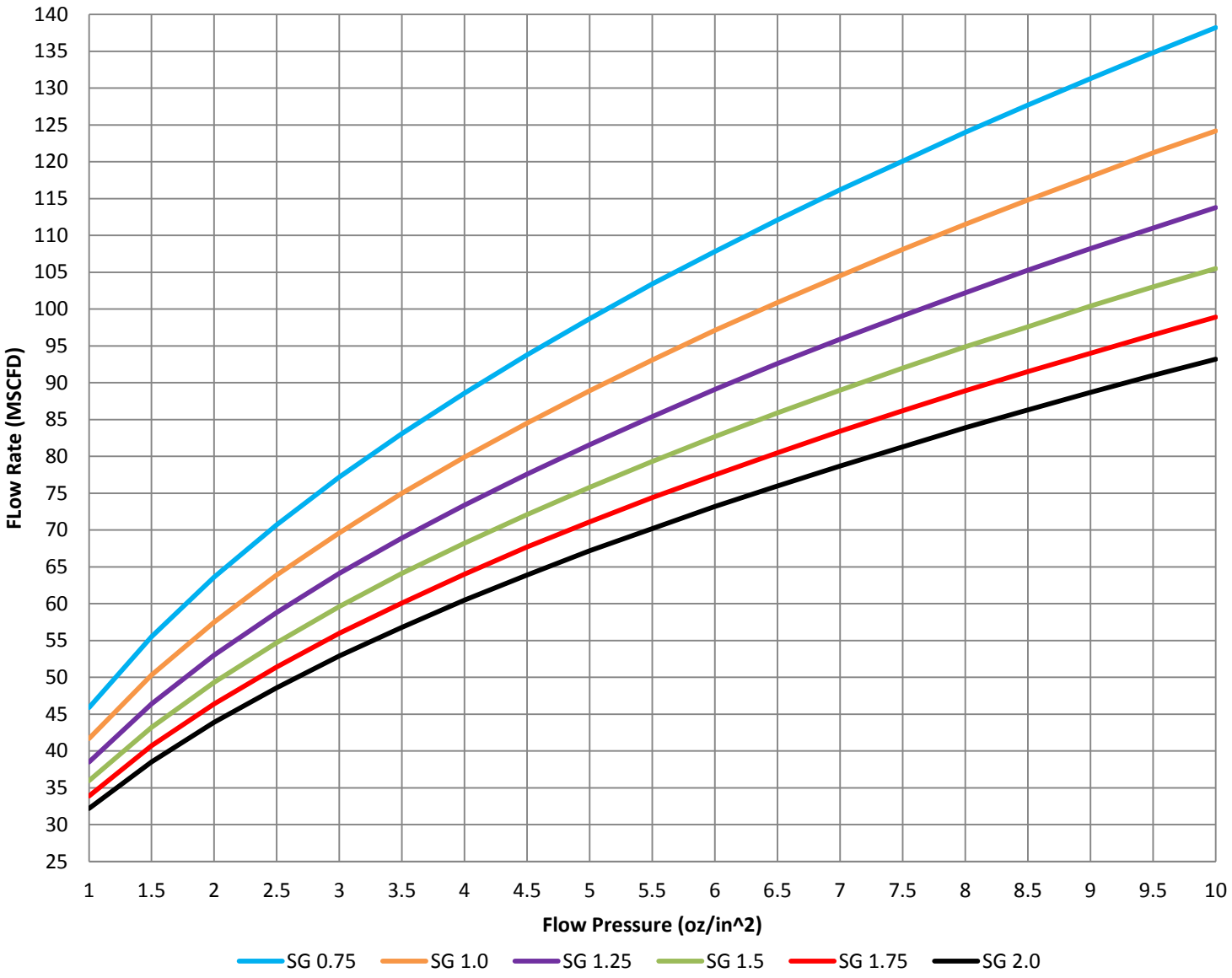
Revision #3: 09/04/2015

HY-BON EDI
Vent Gas Management

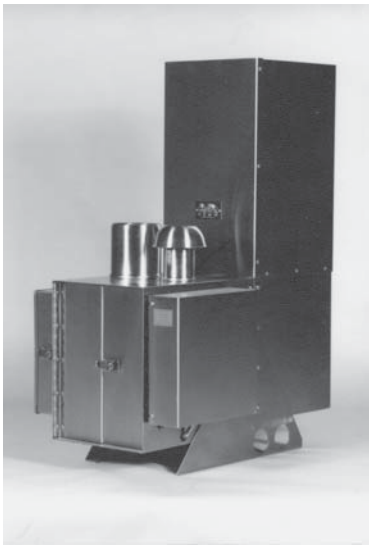
2404 Commerce Dr.
Midland, TX 79703
432-697-2292
hy-bon.com

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

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



Model 5120 Thermoelectric Generators



Global Thermoelectric's Model 5120 Thermoelectric Generator contains no moving parts. It is a reliable, low maintenance source of DC electrical power for any application where regular utilities are unavailable or unreliable.

Power Specifications

Power Rating at 20°C

120 Watts at 6.7 Volts

108 Watts at 12 Volts

108 Watts at 24 Volts

108 Watts at 48 Volts

Electrical

Adjustment:	6.7V	up to 11 Volts
	12 V	12 -18 Volts
	24 V	24 - 30 Volts
	48 V	48 - 60 Volts

Reverse current protection included.

Output: Terminal block which accepts up to 8 AWG wire. Opening for 3/4" conduit in the base of the cabinet.

Fuel

Natural Gas:	8.8 m^3/day (311 Sft^3/day) of Std. 1000 BTU/Sft^3 (37.7 MJ/SM^3) gas max 115 mg/Sm^3 (~170 ppm) H_2S max 120 mg/Sm^3 H_2O max 1% free O_2
Propane:	11.4 l/day (3.0 US gal/day)
Max. Supply Pressure:	172 kPa (25 psi)
Min. Supply Pressure:	69 kPa (10 psi)
Fuel Connection:	1/4" MNPT

Environmental

Ambient Operation Temperature: Max. 45°C (115°F) Min. -40°C (-40°F).

Operating Conditions: Unsheltered operation

Please contact Global for operating conditions below -40°C or above +45°C.

Materials of Construction

Cabinet:	304 SS
Cooling Type:	Natural Convection
Fuel System:	Brass, Aluminum & SS

Standard Features

- Automatic Spark Ignition (SI)
- Automatic Fuel Shut-off (SO)
- Fuel Filter
- Low Voltage Alarm Contacts (VSR)
- Volt & Amp Meter

Optional Features

- Cathodic Protection Interface
- Pole Mount or bench stand
- Corrosive Environmental Fuel System
- Flame Arrestor
- Marine Service

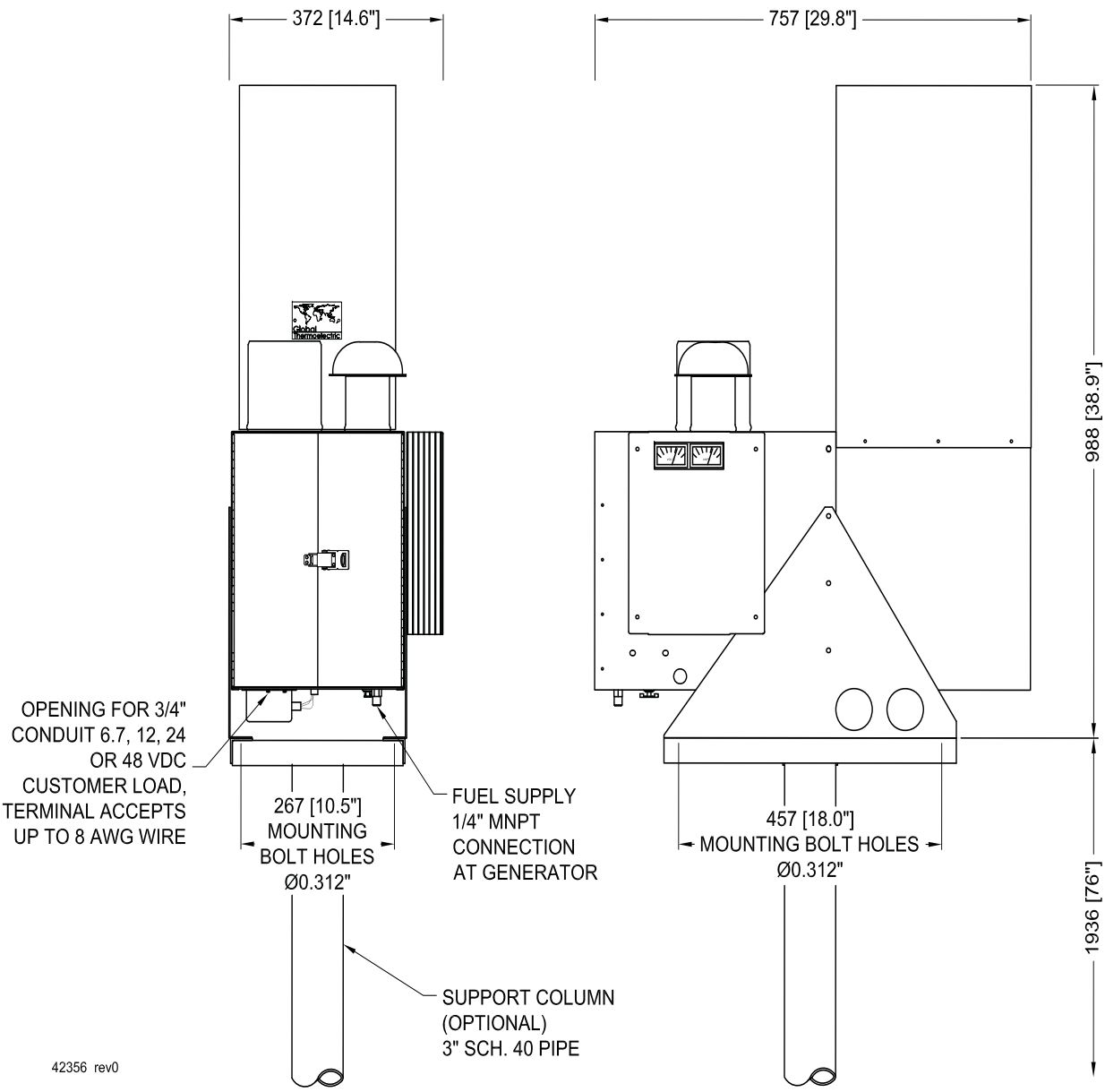
Note: Specifications shown are for standard configurations. Global Thermoelectric's Integrated Systems Engineering Department is available to design custom voltages, fuel supply systems and non-standard operating temperatures.

Global Thermoelectric
ISO Registered 9001:2008

CANADA EXPORT AWARD

Rev 01-12

Typical Installation



NOTES:
1. GENERATOR WEIGHT: 60 kg [132 lb]
2. DIMENSIONS IN mm [INCHES].

Global Thermoelectric

Power where you need it.®

Corporate Office
9, 3700 - 78 Avenue SE
Calgary, Alberta T2C 2L8 CANADA
Phone: (403) 236-5556
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P.O. Box 38624
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Fax: (281) 445-6060
Toll Free: 1 800 848-4113

ATTACHMENT I

Emissions Calculations

Jay-Bee Oil & Gas, Inc.

Gorby 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
CE-1	VRU Compressor [4]	0.19	0.37	89.36	0.05	0.000	0.013		0.001	0.017	0.024
HTR-1	GPU #1	0.15	0.13	181.18	0.01	0.001	0.011	0.003	0.002	0.000	0.003
HTR-2	GPU #2	0.15	0.13	181.18	0.01	0.001	0.011	0.003	0.000	0.000	0.012
TEG-1	Thermoelectric Generator	0.00	0.00	1.57	0.00	0.000	0.000	0.000	0.000	0.000	0.000
---	Blowdowns[1]			N/A	N/A						
T01-T04	Condensate Tanks + Water Tanks[2]			23.90	6.76			0.210			0.219
EC-1	Condensate Tanks + Water Tanks[2]	0.28	1.50	489.47	2.71	0.000	0.014	0.082	0.000		0.089
TL-1 & TL-2	Truck Loading[3]				11.09						0.760
---	Truck Traffic Fugitive Dust						30.420				
---	Fittings Fugitive Emissions			3.42	0.12						
Total		0.77	2.12	970	20.74	0.00	30.47	0.30	0.00	0.02	1.11

Source		NOx tpy	CO tpy	CO2e tpy	VOC tpy	SO2 tpy	PM tpy	n-Hexane TPY	benzene tpy	formaldehyde tpy	Total HAPs tpy
CE-1	VRU Compressor [4]	0.81	1.62	391	0.21	0.002	0.06		0.00	0.07	0.11
HTR-1	GPU #1	0.66	0.55	794	0.04	0.004	0.05	0.01	0.00	0.00	0.01
HTR-2	GPU #2	0.66	0.55	794	0.04	0.004	0.05	0.01	0.00	0.00	0.01
TEG-1	Thermoelectric Generator	0.01	0.00	7	0.00	0.000	0.00	0.00	0.00	0.00	0.00
---	Blowdowns[1]				0.10						
T01-T04	Condensate Tanks + Water Tanks[2]			105	29.63			0.90			0.96
EC-1	Condensate Tanks + Water Tanks[2]	1.23	6.56	2,211	11.85	0.00	0.06	0.36	0.00		0.39
	Truck Loading[3]				1.86						0.13
"---	Truck Traffic Fugitive Dust						5.16				
---	Fittings Fugitive Emissions			17	0.53						
Total		3.37	9.29	4,318	44.25	0.01	5.38	1.28	0.00	0.08	1.61
	Existing Permit Registration	2.12	2.73	2,099	32.38	0.01	5.32	0.92	0.00	0.08	1.22
	Increase/Decrease	**1.25**	**6.56**	**2,219**	**11.87**	**0.00**	**0.06**	**0.36**	**0.00**	**0.00**	**0.39**

[1] See Attachment C for Blowdown Calculations

[2] Condensate and water tank emissions will be controlled by a VRU at 95% . This entry represents the un-controlled 5%.

[3] This represents un-captured truck loading emissions.

[4] Emission presented herein for VOCs and Formaldehyde represent un-controlled Mfg. specs. + 15%. The Catalyst Warranty had 0% reduction for these parameters

[5] Condensate and water tank emissions are alternately controlled by an Enclosed Combustor at 98%. The entries for VOC, n-hexane, HAPs and CO2e represents emissions of organics based on a 98% capture and control efficiency.

Jay-Bee Oil &Gas ,LLC

Gorby Well Pad Production Facility
Tyler County, WV

Controlled Emission Rates

Source CE-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	1.000	0.19	0.81	84	4.44		453.59 grams = 1 pound
Carbon Monoxide CO	2.000	0.37	1.62	168	8.89		2,000 pounds = 1 ton
VOC (NMNEHC)	0.253	0.05	0.21	21	1.12		
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	0.092	0.0170	0.0746				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		0.0242	0.1062				

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

Gorby Well Pad Production Facility
Tyler County, WV

Potential Emission Rates

Source HTR-1

Burner Duty Rating	1500.0	Mbtu/hr
Burner Efficiency	98.0	%
Gas Heat Content (HHV)	1263.0	Btu/scf
Total Gas Consumption	29086.0	scfd
H2S Concentration	0.000	Mole %
Hours of Operation	8760	

NOx	0.1501	lbs/hr	0.657	TPY
CO	0.1261	lbs/hr	0.552	TPY
CO2	180.1	lbs/hr	788.7	TPY
CO2e	181	lbs/hr	794	tpy
VOC	0.0083	lbs/hr	0.036	TPY
SO2	0.0009	lbs/hr	0.004	TPY
H2S	0.0000	lbs/hr	0.000	TPY
PM10	0.0114	lbs/hr	0.050	TPY
CHOH	0.0001	lbs/hr	0.000	TPY
Benzene	0.0000	lbs/hr	0.000	TPY
N-Hezane	0.0027	lbs/hr	0.012	TPY
Toluene	0.0000	lbs/hr	0.000	TPY
Total HAPs	0.0028	lbs/hr	0.012	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 ,LLC

Gorby Well Pad Production Facility
Tyler County, WV

Potential Emission Rates

Source HTR-2

Burner Duty Rating	1500.0	Mbtu/hr
Burner Efficiency	98.0	%
Gas Heat Content (HHV)	1263.0	Btu/scf
Total Gas Consumption	29086.0	scfd
H2S Concentration	0.000	Mole %
Hours of Operation	8760	

NOx	0.1501	lbs/hr	0.657	TPY
CO	0.1261	lbs/hr	0.552	TPY
CO2	180.1	lbs/hr	788.7	TPY
CO2e	181	lbs/hr	794	tpy
VOC	0.0083	lbs/hr	0.036	TPY
SO2	0.0009	lbs/hr	0.004	TPY
H2S	0.0000	lbs/hr	0.000	TPY
PM10	0.0114	lbs/hr	0.050	TPY
CHOH	0.0001	lbs/hr	0.000	TPY
Benzene	0.0000	lbs/hr	0.000	TPY
N-Hezane	0.0027	lbs/hr	0.012	TPY
Toluene	0.0000	lbs/hr	0.000	TPY
Total HAPs	0.0028	lbs/hr	0.012	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**	

Gorby Well Pad Production Facility
Tyler County, WV

'otential Emission Rate

Enclosed Combustor Pilot

Burner Duty Rating	80.0	Mbtu/hr
Burner Efficiency	99.0	%
Gas Heat Content (HHV)	1263.0	Btu/scf
Total Gas Consumption	1535.6	scfd
H2S Concentration	0.000	Mole %
Hours of Operation	8760	

NOx	0.0079	lbs/hr	0.035	TPY
CO	0.0067	lbs/hr	0.029	TPY
CO2	9.5	lbs/hr	41.6	TPY
CO2e	10	lbs/hr	42	TPY
VOC	0.0004	lbs/hr	0.002	TPY
SO2	0.0000	lbs/hr	0.000	TPY
H2S	0.0000	lbs/hr	0.000	TPY
PM10	0.0006	lbs/hr	0.003	TPY
CHOH	0.0000	lbs/hr	0.000	TPY
Benzene	0.0000	lbs/hr	0.000	TPY
N-Hexane	0.0001	lbs/hr	0.001	TPY
Toluene	0.0000	lbs/hr	0.000	TPY
Total HAPs	0.0001	lbs/hr	0.001	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 =310**
HCOH	**0.075**	**Lbs/MMCF**	
Benzene	**0.0021**	**Lbs/MMCF**	
n-Hexane	**1.8**	**Lbs/MMCF**	
Toluene	**0.0034**	**Lbs/MMCF**	

Gorby 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)	2290.5	Btu/scf		
Max Flow to T-E	0.042	MMSCFD	15.410	MMCF/Yr
Max BTUs to Flare	4.028	MMBTU/Hr	35,297	MMBTU/Yr

NOx	0.27	lbs/hr	1.20	tpy
CO	1.49	lbs/hr	6.53	tpy
CO2	470.78	lbs/hr	2,062.9	tpy
CO2e	479.90	lb/hr	2,168.9	tpy
VOC	2.71	lb/hr	11.85	tpy
CH4	0.38	lbs/hr	4.1880	tpy
N2O	0.0009	lbs/hr	0.0039	tpy
PM	0.0134	lb/hr	0.0586	tpy
Benzene	0.0000	lb/hr	0.0000	tpy
CHOH	0.0001	lb/hr	0.0006	tpy
n-Hexane	0.0820	lb/hr	0.3600	tpy
Toluene	0.0000	lb/hr	0.0000	tpy
Total HAP	0.0890	lb/hr	0.3900	tpy

Notes:
1. VOC, Total HAP, N-Hexane and CH4 emissions are taken from the Condensate and Produced Water Tank Emissions sheet in the Calculations Section.
2. Hourly VOC emissions occur when Combustor is down.
3. HAP emissions are based on AP-42 factors for combustion.
4. Max Hourly rates are based on combustor flow capacity. Annual emissions are based on annual potential vapor loading from the tanks.

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

Gorby 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

Gorby 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:	8	0.02700 scf/hr	18.4	0.002	0.010	0.000	0.000	0.007	0.0326	0.814
Light Liquid:	24	0.05000 scf/hr	100.0	0.070	0.305					0.000
Heavy Liquid (Oil):	-	0.00050 scf/hr	100.0	0.000	0.000					0.000
Low Bleed Pneumatic	2	1.39000 scf/hr	18.4	0.030	0.130	0.096	0.419	0.096	0.4190	10.895
Relief Valves:	12	0.04000 scf/hr	18.4	0.005	0.022	0.000	0.000	0.017	0.0724	1.809
Open-ended Lines, gas:	2	0.06100 sfc/hr	18.4	0.001	0.006					0.000
Open-ended Lines, liquid:	-	0.05000 lb/hr	100.0	0.000	0.000					0.000
Pump Seals:										0.000
Gas:	-	0.00529 lb/hr	18.4	0.000	0.000	0.000	0.000	0.000	0.0000	0.000
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:										0.000
Gas:	4	0.00300 scf/hr	18.4	0.000	0.001	0.000	0.000	0.000	0.0018	0.045
Light Liquid:	4	0.00700 scf/hr	100.0	0.028	0.123					0.000
Heavy Liquid (Oil):	-	0.00030 scf/hr	100.0	0.000	0.000					0.000
Flanges:										0.000
Gas:	24	0.00086 lb/hr	18.4	0.004	0.017	0.000	0.000	0.012	0.0537	1.342
Light Liquid:	12	0.00300 scf/hr	100.0	0.002	0.009					0.000
Heavy Liquid:		0.0009 scf/hr	100.0	0.000	0.000					0.000

Fugitive Calculations:

	lb/hr	t/y
VOC	**0.116**	**0.508**
CH4	**0.037**	**0.163**
CO2	**0.000**	**0.001**
CO2e	**3.420**	**14.98**

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

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

Gorby 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	59.350	701.0	778.5	7.346		0.7693	
Ethane, C2H6	14.832	4.460	0.154	21.406	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	0.158	0.136	0.005	0.654	7.0	7.5	0.072	0.654	0.0016	0.065
Heptane	0.064	0.064	0.002	0.308	3.3	3.5	0.034	0.308	0.0006	0.029
	100.000	20.836	0.719		1,140.7	1,257.6	11.875	18.396	0.9958	6.172

Gas Density (STP) = 0.058

Ideal Gross (HHV)	1,257.6
Ideal Gross (sat'd)	1,236.5
GPM	-
Real Gross (HHV)	1,263.0
Real Net (LHV)	1,145.6

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

Jay-Bee Oil & Gas, Incorporated
Gorby Well Pad Production Facility
Condensate and Produced Water Tank Emissions

Utilizing direct measurements of the Gas to Oil (GOR) ratio and flash gas composition from a nearby Jay-Bee well pad, the attached calculation spreadsheet was used to determine un-controlled VOC and HAP emissions from the Condensate tanks of 580.3 tpy and 19.0 tpy respectively for the maximum annual throughput of 30,000 BBL/Yr. In a similar manner, emissions from the Produced Water tanks were projected to be 12.3 tpy of VOCs and 0.40 tpy of HAPs. Thus, total uncontrolled tank emissions are projected to be 592.6 tpy of VOCs and 19.4 tpy of HAPs. As emissions from these tanks is anticipated to be continuous, this is equivalent to 135.3 pounds per hour VOCs and 4.4 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 17.8 tons per year or 4.1 pounds per hour.

Methane are also be emitted at a maximum rate of 82.1 tpy from the condensate tanks and 1.74 tpy from the produced water tanks for a total of 83.8 tpy of Methane. Using the GHG factor of 25 for Methane, the CO_{2e} uncontrolled emission rate is 83.8 x 25 or 2095 tpy. This is equivalent to 478 lb/hr of CO_{2e}

During operation of the VRU, emissions are controlled at a minimum of 95%. Actual control efficiency is anticipated to be much higher, but only 95% is claimed as allowed under the G70-A General Permit. Thus, when in operation, emissions will be controlled to 6.76 pounds per hour of VOCs and 0.22 pounds per hour of HAPs. CO_{2e} emissions will be controlled to 23.9 lb/hr while n-Hexane will be controlled to 0.21 pounds per hour.

The proposed Enclosed Combustor 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-A General Permit. Thus, when in operation, organic emissions from the combustor will be controlled to 6.76 pounds per hour of VOCs and 0.22 pounds per hour of HAPs. CO_{2e} emissions will be controlled to 23.9 lb/hr while n-Hexane will be controlled to 0.21 pounds per hour.

VRU Emissions

The VRU is permitted to operate continuously, except for brief intervals for preventive maintenance. Additionally, time must be allotted for potential equipment failures and emergency repairs. Thus, it is conservatively estimated that the VRU will capture and control 95% of potential emissions. Thus, total potential tank emissions are calculated as follows:

VOCs
135.3 lb/hr (Un-controlled) x 8760 x 0.05 = 59,261 lb/yr or 29.63 tpy

HAPs
4.4 lb/Hr (Un-controlled) x 8760 x 0.05 = 1,927 lb/yr or 0.96 tpy

n-Hexane
4.1 lb/Hr (Un-controlled) x 8760 x 0.05 = 1796 lb/yr or .90 tons per year

CO_{2e}
478 lb/Hr (Un-controlled) x 8760 x 0.05 = 209,364 lb/yr or 104.7 tons per year

Enclosed Combustor Emissions
In order to include the enclosed combustor into the G70-A 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
135.3 lb/hr (Un-controlled) x 8760 x 0.02 = 23,705 lb/yr or 11.85 tpy

HAPs
4.4 lb/Hr (Un-controlled) x 8760 x 0.02 = 771 lb/yr or 0.39 tpy

n-Hexane
4.1 lb/Hr (Un-controlled) x 8760 x 0.02 = 718 lb/yr or .36 tons per year

CO_{2e} from Methane
478 lb/Hr (Un-controlled) x 8760 x 0.02 = 209,364 lb/yr or 104.7 tons per year

Gas Flow to Combustor
Total gas flow to the combustor is derived from the condensate and produced water flash calculation spreadsheets [826.97 tpy (condensate tanks) + 17.53 tpy (produced water tanks) plus working and breathing losses for the condensate tanks (two tanks at 2,781 lb/yr or 2.78 tpy) for a total of 847.28 tpy. Using the density of the condensate vapor shown in the Excel spreadsheet (1.10 lb/scf), an annual gas flow to the combustor of 15.41 MMSCF/yr or 42,205 scfd was determined.

Using the HHV of 2290 BTU/scf of the condensate tank vapors as a conservative surrogate, this results in a maximum heat loading of 4.03 MMBTU/Hr, well below the maximum 10 MMBTU/Hr limit of the combustor.

Jay-Bee Oil & Gas - Gorby

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	=	30,000	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	826.9700	E_{TOT}
VOC	**580.2765**	Sum of C3+
Nitrogen	2.07E-01	
Carbon Dioxide	1.30E+00	
Methane	8.21E+01	
Ethane	1.63E+02	
Propane	2.14E+02	
Isobutane	5.80E+01	
n-Butane	1.33E+02	
2,2 Dimethylpropane	1.63E+00	
Isopentane	4.57E+01	
n-Pentane	4.79E+01	
2,2 Dimethylbutane	1.73E+00	
Cyclopentane	0.00E+00	
2,3 Dimethylbutane	2.51E+00	
2 Methylpentane	1.33E+01	
3 Methylpentane	7.95E+00	
n-Hexane	1.74E+01	HAP
Methylcyclopentane	1.27E+00	
Benzene	2.98E-01	HAP
Cyclohexane	1.79E+00	
2-Methylhexane	3.85E+00	
3-Methylhexane	3.79E+00	
2,2,4 Trimethylpentane	0.00E+00	
Other C7's	3.61E+00	
n-Heptane	5.57E+00	
Methylcyclohexane	3.47E+00	
Toluene	6.78E-01	HAP
Other C8's	5.66E+00	
n-Octane	1.89E+00	
Ethylbenzene	4.13E-02	HAP
M & P Xylenes	4.88E-01	HAP
O-Xylene	6.62E-02	HAP
Other C9's	2.35E+00	
n-Nonane	5.62E-01	
Other C10's	8.85E-01	
n-Decane	1.16E-01	
Undecanes (11)	1.24E-01	

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	66.64	
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

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
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

Jay-Bee Oil & Gas - Gorby

Flash Emission Calculations - Produced Water

Using Gas-Water Ratio Method

Un-Controlled

Site specific data			
Gas-Water-ratio	=	5	scf/bbl Using GOW from comparable well pad
Throughput	=	63,600	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	17.5318	E_{TOT}
VOC	**12.3019**	Sum of C3+
Nitrogen	4.38E-03	
Carbon Dioxide	2.75E-02	
Methane	1.74E+00	
Ethane	3.46E+00	
Propane	4.54E+00	
Isobutane	1.23E+00	
n-Butane	2.83E+00	
2,2 Dimethylpropane	3.45E-02	
Isopentane	9.68E-01	
n-Pentane	1.02E+00	
2,2 Dimethylbutane	3.66E-02	
Cyclopentane	0.00E+00	
2,3 Dimethylbutane	5.31E-02	
2 Methylpentane	2.82E-01	
3 Methylpentane	1.68E-01	
n-Hexane	3.68E-01	HAP
Methylcyclopentane	2.68E-02	
Benzene	6.31E-03	HAP
Cyclohexane	3.80E-02	
2-Methylhexane	8.17E-02	
3-Methylhexane	8.03E-02	
2,2,4 Trimethylpentane	0.00E+00	
Other C7's	7.64E-02	
n-Heptane	1.18E-01	
Methylcyclohexane	7.35E-02	
Toluene	1.44E-02	HAP
Other C8's	1.20E-01	
n-Octane	4.00E-02	
Ethylbenzene	8.77E-04	HAP
M & P Xylenes	1.03E-02	HAP
O-Xylene	1.40E-03	HAP
Other C9's	4.98E-02	
n-Nonane	1.19E-02	
Other C10's	1.88E-02	
n-Decane	2.45E-03	
Undecanes (11)	2.63E-03	

July 28, 2014

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

For: SE Technologies, LLC
Building D, Second Floor
98 Vanadium Road
Bridgeville, Pennsylvania 15017-3061

Sample: [redacted]6H
Gas Liberated from Separator Water
From 197 psig & 65 °F to 0 psig & 70 °F

Date Sampled: 07/15/14 Job Number: 44304.001

CHROMATOGRAPH EXTENDED ANALYSIS - SUMMATION REPORT

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	4.661	
Carbon Dioxide	0.993	
Methane	41.510	
Ethane	15.219	4.047
Propane	10.282	2.817
Isobutane	2.863	0.932
n-Butane	7.027	2.203
2-2 Dimethylpropane	0.000	0.000
Isopentane	3.722	1.353
n-Pentane	4.186	1.509
Hexanes	5.394	2.212
Heptanes Plus	4.143	1.817
Totals	100.000	16.890

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity	3.535	(Air=1)
Molecular Weight	101.04	
Gross Heating Value	5356	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity	1.321	(Air=1)
Compressibility (Z)	0.9868	
Molecular Weight	37.74	
Gross Heating Value		
Dry Basis	2086	BTU/CF
Saturated Basis	2051	BTU/CF

*Hydrogen Sulfide tested in laboratory by: Stain 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: OA
Cylinder ID: WF-1S

David Dannhaus 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS
TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	4.661		3.460
Carbon Dioxide	0.993		1.158
Methane	41.510		17.646
Ethane	15.219	4.047	12.125
Propane	10.282	2.817	12.013
Isobutane	2.863	0.932	4.409
n-Butane	7.027	2.203	10.822
2,2 Dimethylpropane	0.000	0.000	0.000
Isopentane	3.722	1.353	7.115
n-Pentane	4.186	1.509	8.002
2,2 Dimethylbutane	0.205	0.085	0.468
Cyclopentane	0.369	0.153	0.686
2,3 Dimethylbutane	0.000	0.000	0.000
2 Methylpentane	1.592	0.657	3.635
3 Methylpentane	0.996	0.404	2.274
n-Hexane	2.232	0.913	5.096
Methylcyclopentane	0.174	0.060	0.388
Benzene	0.036	0.010	0.075
Cyclohexane	0.230	0.078	0.513
2-Methylhexane	0.548	0.253	1.455
3-Methylhexane	0.521	0.236	1.383
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.533	0.231	1.401
n-Heptane	0.707	0.324	1.877
Methylcyclohexane	0.418	0.167	1.087
Toluene	0.057	0.019	0.139
Other C8's	0.553	0.256	1.615
n-Octane	0.163	0.083	0.493
Ethylbenzene	0.004	0.002	0.011
M & P Xylenes	0.020	0.008	0.058
O-Xylene	0.004	0.002	0.011
Other C9's	0.145	0.073	0.485
n-Nonane	0.030	0.017	0.102
Other C10's	0.000	0.000	0.000
n-Decane	0.000	0.000	0.000
Undecanes (11)	0.000	0.000	0.000
Totals	100.000	16.890	100.000

Computed Real Characteristics Of Total Sample:

Specific Gravity	1.321	(Air=1)
Compressibility (Z)	0.9868	
Molecular Weight	37.74	
Gross Heating Value		
Dry Basis	2086	BTU/CF
Saturated Basis	2051	BTU/CF

ATTACHMENT J

Class I Legal Advertisement

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 G70A General Permit Registration for its Gorby Well Pad Production Facility located off of Big Run Road near Middlebourne, WV in Tyler County., West Virginia (Lat.39.46758, Long. -80.79778)

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

1.25 tons of Nitrogen Oxides per year
6.56 tons of Carbon Monoxide per year
11.87 tons of Volatile Organics per year
0.00 tons of Sulfur Dioxide per year
0.06 tons of Particulate Matter per year
0.00 tons of Formaldehyde per year
0.36 tons of n-Hexane
2,219 tons of Greenhouse Gases per year

Startup of operation is planned to begin on or about the 20th day of February, 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 1227, during normal business hours.

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

By: Mr. Shane Dowell
Office Manager
Jay-Bee Oil & Gas, Inc.

ATTACHMENT O

Emissions Summary Sheets

G70-A EMISSIONS SUMMARY SHEET

Emission Point ID No.	Emission Point Type[1]	Emission Unit Vented Through This Point		Air Pollution Control Device		All Regulated Pollutants - Chemical Name/CAS[2]	Maximum Potential Uncontrolled Emissions[3]		Maximum Potential Controlled Emissions[4]		Emission Form or Phase	Est. Method Used[5]
		ID No.	Source	ID No.	Device Type	*(Speciate VOCs & HAPS)*	lb/hr	ton/yr	lb/hr	ton/yr	*(At exit conditions, Solid, Liquid or Gas/Vapor)*	
1E	Upward Vertical Stack	HTR-1	GPU	None		NOx	0.15	0.66	0.15	0.66	Gas	EE
						CO	0.13	0.55	0.13	0.55	Gas	EE
						VOC	0.01	0.04	0.01	0.04	Gas	EE
						PM	0.01	0.05	0.01	0.05	Solid	EE
						HCOH	<0.01	<0.01	<0.01	<0.01	Gas	EE
						Total HAPs	<0.01	0.01	<0.01	0.01	Gas	EE
						CO2e	181.2	794	181.2	794	Gas	EE
2E	Upward Vertical Stack	HTR-2	GPU	None		NOx	0.15	0.66	0.15	0.66	Gas	EE
						CO	0.13	0.55	0.13	0.55	Gas	EE
						VOC	0.01	0.04	0.01	0.04	Gas	EE
						PM	0.01	0.05	0.01	0.05	Solid	EE
						HCOH	<0.01	<0.01	<0.01	<0.01	Gas	EE
						Total HAPs	<0.01	0.01	<0.01	0.01	Gas	EE
						CO2e	181.2	794	181.2	794	Gas	EE
3E	Fugitive	VRU	Un-Controlled Tank Emissions	VRU-1	VRU	NOx					Gas	EE
						CO					Gas	EE
						VOC			6.76	29.63	Gas	EE
						PM					Solid	EE
						HCOH					Gas	EE
						Total HAPs			0.22	0.96	Gas	EE
						CO2e			23.9	105	Gas	EE
4E	Fugitive	TL-1	Condensate Truck Loading	None		NOx					Gas	EE
						CO					Gas	EE
						VOC	111.09	1.86	11.09	1.86	Gas	EE
						PM					Solid	EE
						HCOH	0.76	0.13	0.76	0.13	Gas	EE
						Total HAPs					Gas	EE
						CO2e					Gas	EE
5E	Fugitive	TL-2	Water Truck Loading	None		NOx					Gas	EE
						CO					Gas	EE
						VOC	<0.01	<0.01	<0.01	<0.01	Gas	EE
						PM					Solid	EE
						HCOH	<0.01	<0.01	<0.01	<0.01	Gas	EE
						Total HAPs					Gas	EE
						CO2e					Gas	EE

G70-A EMISSIONS SUMMARY SHEET

6E	Upward Vertical Stack	CE-1	Engine	1C	NSCR	NOx	2.11	9.25	0.19	0.81	Gas	EE
						CO	2.71	11.87	0.37	1.62	Gas	EE
						VOC	0.05	0.21	0.05	0.21	Gas	EE
						PM	0.01	0.06	0.01	0.06	Solid	EE
						HCOH	0.02	0.07	0.02	0.07	Gas	EE
						Total HAPs	0.02	0.11	0.02	0.11	Gas	EE
						CO2e	89.4	391	89.4	391	Gas	EE
7E	Upward Vertical Stack	T01-T04	Enclosed Combustor	None		NOx			0.28	1.23	Gas	EE
						CO			1.50	6.56	Gas	EE
						VOC	135.3	592.6	2.71	11.85	Gas	EE
						PM			0.01	0.06	Solid	EE
						HCOH			<0.01	<0.01	Gas	EE
						Total HAPs	4.4	19.4	0.09	0.39	Gas	EE
						CO2e	478	2094	489	2,211	Gas	EE
8E	Upward Vertical Stack	TEG-1	Thermo-Electric Generator	None		NOx	<0.01	<0.01	<0.01	<0.01	Gas	EE
						CO	<0.01	<0.01	<0.01	<0.01	Gas	EE
						VOC	<0.01	<0.01	<0.01	<0.01	Gas	EE
						PM	<0.01	<0.01	<0.01	<0.01	Solid	EE
						HCOH	<0.01	<0.01	<0.01	<0.01	Gas	EE
						Total HAPs	<0.01	<0.01	<0.01	<0.01	Gas	EE
						CO2e	1.57	7	1.57	7	Gas	EE
						NOx					Gas	EE
						CO					Gas	EE
						VOC					Gas	EE
						PM					Solid	EE
						Total HAPs					Gas	EE
						CO2e					Gas	EE

The EMISSION SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSIONS SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. **DO NOT LIST** H_2, H_2O, N_2, O_2, and Noble Gases

[3] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[4] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).4C

[5] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; M = modeling; O = other (specify).

ATTACHMENT P

Other Supporting Documentation

Gorby Well Pad Production Facility
Attachment P
Regulatory Analysis

Both State and Federal environmental regulations governing air emissions apply to the planned modification to the Gorby Well Pad Production Facility. The West Virginia Department of Environmental Protection (WVDEP) has been delegated the authority to implement certain federal air quality requirements for the state. Air quality regulations that potentially affect the modification are discussed herein.

1.1 PSD and NSR

The facility will remain a minor source with respect to Prevention of Significant Deterioration (PSD) regulations as it will not have the potential to emit more than the annual emission thresholds of any PSD regulated pollutant with the voluntary restrictions (e.g., catalytic converter on the engine).

The facility is within an area designated as attainment for all criteria pollutants. Consequently, the facility is not subject to the New Source Review (NSR) regulations. Consequently, NSR requirements are not applicable to this project.

1.2 Title V Operating Permit Program

West Virginia has incorporated provisions of the federal Title V operating permit program. Thresholds for inclusion under the Title V program are 10 tpy of any single Hazardous Air Pollutant (HAP) or 25 tons of any combination of HAP and/or 100 tpy of all other regulated pollutants. Additionally, facilities regulated under certain New Source Performance Standards (NSPS) require facilities to have Title V permits.

The expanded facility will remain a minor source. Additionally, the NSPS regulating this facility does not trigger a Title V permit. Hence, a Title V permit will not be required for the Gorby Well Pad Production Facility.

1.3 Aggregation

The addition of an enclosed combustor at the Gorby Well Pad will not impact the aggregation analysis completed and submitted with the initial application.

1.4 New Source Performance Standards

New Source Performance Standards (NSPS) regulations promulgated under 40 CFR 60 require new and reconstructed facilities to control emissions to the level achievable by Best-Available Control Technology (BACT). There are no potentially applicable NSPS requirements associated with the installation of the enclosed combustor at the Gorby Well Pad. Additionally, there are no potentially applicable NSPS requirements associated with the installation of the Thermo-electric Generator.

1.5 National Emission Standards for Hazardous Air Pollutants

National Emission Standards for Hazardous Air Pollutants (NESHAPs) promulgated under 40 CFR 63 regulate the emission of Hazardous Air Pollutants (HAPs) from certain industrial processes. In general, these rules apply to major sources of HAPs with a major source being defined as having the potential to emit more than 10 tpy of any individual HAP or 25 tpy of total HAPs. Emissions standards under these rules have been established as the Maximum Achievable Control Technology (MACT) for each source category. There are no NESHAP source category standards which are potentially applicable to the planned installation of a small enclosed combustor at the Gorby Well Pad Production Facility. Additionally, there are no NESHAP source category standards which are potentially applicable to the planned installation of the Thermo-electric Generator.

1.6 Chemical Accident Prevention

Subparts B-D of 40 CFR 68 present the requirements for the assessment and subsequent preparation of a Risk Management Plan (RMP) for a facility that stores more than a threshold quantity of a regulated substance listed in 40 CFR 68.130. If a facility stores, handles or processes one or more regulated substances in an amount greater than its corresponding threshold, the facility must prepare and implement an RMP. The Gorby Well Pad Production Facility stores more than 10,000 lbs of a flammable mixture (condensate) containing several of the substances listed in Table 3 in 40 CFR 68.130. However, an RMP is not required as this facility qualifies for the exclusion provided for remote oil and gas production facilities (40 CFR 68.115).

1.7 West Virginia State Requirements

1.7.1 45 CSR 2

The purpose of 45CSR2 is to control smoke and particulate matter emissions from fuel burning units. The facility is subject to the opacity requirement of 45 CSR 2. Emissions from the facility cannot exceed 10% over any six minute period.

1.7.2 45 CSR 4

This regulation prohibits the emission of objectionable odors. Jay-Bee Oil & Gas is obligated to run the station in a manner that does not produce objectionable odors.

1.7.3 45 CSR 6

This rule establishes emission standards for particulate matter and other requirements for incineration of refuse not subject to or specifically exempted from federal regulation. The planned combustor falls under this rule and must meet the visible emission requirements as well as the permitting requirements.

1.7.4 45 CSR 10

This regulation limits emissions of sulfur oxides. As the sulfur content of the Inlet Gas contains no measurable sulfur, emissions of sulfur oxides is negligible. Thus, while parts of this rule are applicable to the planned facility, no actions are required on the part of Jay-Bee Oil & Gas to attain compliance. The various non-engine process combustion units have a design heat input less than 10 MMBTU/Hr and are therefore exempt from the requirements of this rule.

1.7.5 45 CSR 13

The state regulations applicable to the permitting of the proposed construction are in Title 45 Series 13 of the Code of State Regulations. The proposed modification to the Gorby Well Pad Production Facility will result in a minor increase in potential emisions several regulated pollutants. Hence, this modification must be integrated into the facility's permit..

1.7.6 45 CSR 16

This series of regulations is an incorporation, by reference, of the New Source Performance Standards codified under 40 CFR 60. As discussed under the federal regulations, the Gorby Well Pad Production Facility will remain subject to the emission limitations, monitoring, testing and recordkeeping of Subpart JJJJ. The facility will also remain subject to Subpart OOOO.

1.7.7 45 CSR 30

The state regulations applicable to Title V operating permits are in Title 45 Series 30. The planned modification to the Gorby Well Pad Production Facility does not result in the facility having the potential to emit any regulated pollutant about the threshold that would define it as a major facility. Additionally, although the facility is subject to certain New Source Performance Standards, the NSPS applicable to this facility do not trigger the need to submit a Title V application and obtain a Title V permit. Hence this rule is not applicable.

1.7.8 Other Applicable Requirements

Through Series 34, WVDEP has adopted the National Emission Standards for Hazardous Air Pollutants for Source Categories. Both of these topics have been addressed above.