JAY-BEE OIL & GAS, INC.

APPLICATION
FOR
CLASS II ADMINISTRATIVE UPDATE

Sneezy Well Pad
Doddridge County, West Virginia

TECHNOLOGIES

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

Jay-Bee Oil & Gas Inc
Sneezy Well Pad
670-A096A
017-00128
Roy Kees

APPLICATION FOR

CLASS II ADMINISTRATIVE UPDATE

Jay-Bee Oil & Gas, Inc.

Sneezy Well Pad

Doddridge County, West Virginia

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

9. DAQ Plant ID No. (for existing facilities only):
017-00128

10. List all current 45CSR13 and other General Permit numbers associated with this process (for existing facilities only):
G70-A096

RECEIVED
MAY 28 2015
WV DEP / DIV OF AIR QUALITY

A: PRIMARY OPERATING SITE INFORMATION

11A. Facility name of primary operating site:	12A. Address of primary operating site:
Sneezy Well Pad	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 WV 23 in Ashley, Doddridge County, go north on CR 4 (Broad Run) approximately 0.4 miles. Turn left onto CR 4/4 and proceed 1.9 miles. Bear right onto access road. Site ist approximately 0.1 miles on right.

15A. Nearest city or town:	16A. County:	17A. UTM Coordinates:
Ashley	**Doddrige**	Northing (KM): 4364.613 Easting (KM): 528.363 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: 39.43059 Longitude: -80.67044

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:	21. Date of anticipated Start-up if registration is granted:
6 / 15 /15 If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: : ___/___/___	6/ 20 / 15

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 MODIFICATION 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 _____ 5-19-2015
(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@laybeeoil.com**

RECEIVED
MAY 28 2015
WV DEP / DIV. OF AIR QUALITY

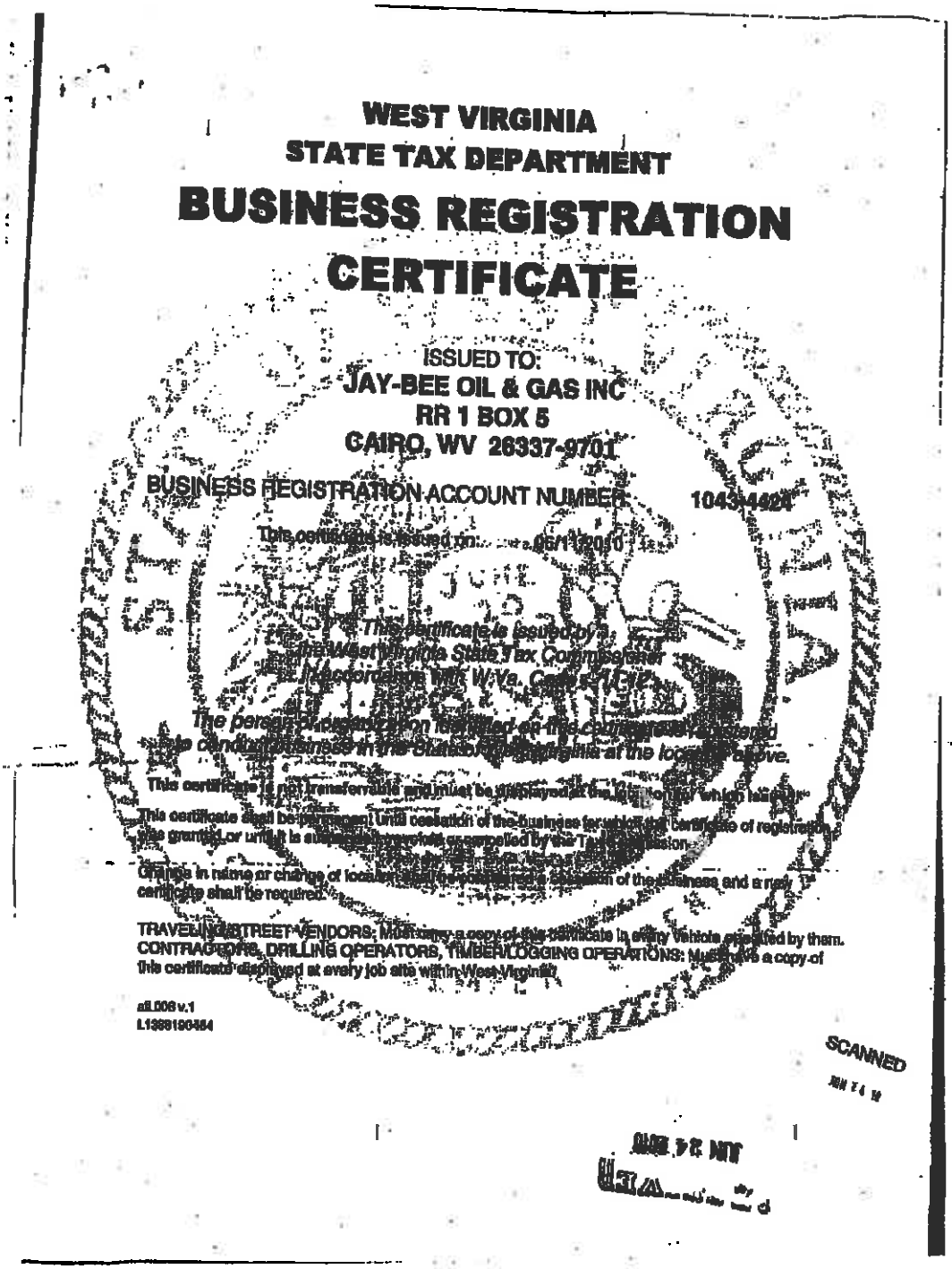
Date of Last Application Revision 10/18/2013

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: 1043-4428

This certificate is issued on: 06/17/2010

This certificate is issued by the West Virginia State Tax Commissioner in accordance with W.Va. Code §[illegible]

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

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

Changes in name or change of location shall be reported at once. Upon sale 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.

aBL008 v.1
L1358190464

SCANNED

ATTACHMENT B

Process Description

Jay-Bee Oil & Gas, Incorporated
Sneezy Well Pad
Attachment B
Process Description

Jay-Bee Oil & Gas currently operates the Sneezy Well Pad under G70-A General Permit registration number G70-A096. The following describes the current operations and the desired changes.

Natural gas and Produced Fluids (condensate and water) are currently received from two wells on this well pad and passed through Gas Processing Units or GPU (one per well) to avoid ice and methane hydrate formation during subsequent pressure drops. These materials then pass through a three-way separator where gas, condensate and water are separated. The gas is then routed to a gathering pipeline owned and operated by others. There is no compression or dehydration of the gas prior to injection into this pipeline.

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 a regional disposal facility. Flash, working and breathing losses from these tanks are currently routed to a Vapor Recovery Unit (VRU) with the captured vapors routed back to the raw gas discharge line.

The volume of condensate and water produced by these wells is much less than anticipated. Thus, the volume of vapor produced by the storage tanks is also much less than anticipated. As a result, it is not cost effective to recover these emissions via the VRU. Jay-Bee Oil & Gas is seeking approval to replace the VRU with an enclosed combustor.

Additionally, Jay-Bee is seeking approval for installation of a third GPU in anticipation of installation of a third well in the near future.

Lastly, Jay-Bee is seeking approval for installation of a Thermo-electric generator.

The proposed change to the tank emissions control methodology will actually control the tank emissions to a greater degree than the VRU. This, combined with the absence of emissions from the VRU driver engine will actually reduce overall emissions. However, the presence of a permanent combustor warrants the modification being through a Class II Administrative Update rather than a Class I update.

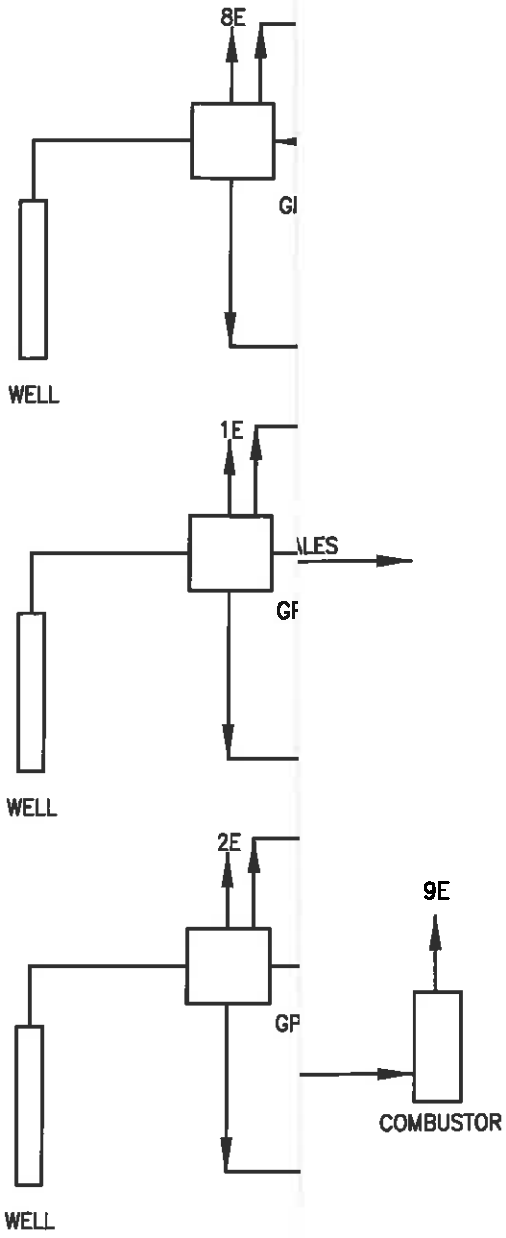
A Process Flow Diagram depicting these features is provided in Attachment D.

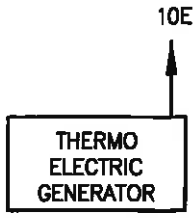
Emission Units Table

(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]
GPU-1	1e	Gas Processing Unit	2014	1.5 MMBTU/Hr	EXIST	None
GPU-2	2e	Gas Processing Unit	2014	1.5 MMBTU/Hr	EXIST	None
GPU-3	8e	Gas Processing Unit	2014	1.5 MMBTU/Hr	**NEW**	None
TL-1	Fugitive	Condensate Truck Loading	2014	91,980 Gal /Yr	EXIST	None
VRU-1	3e	VRU Compressor Arrow VRC2	2014	84 Hp	**REM**	NSCR
T01	4e	Produced Water Tank	2014	210 BBL	EXIST	**EC-1**
T02	5e	Produced Water Tank	2014	210 BBL	EXIST	**EC-1**
T03	6e	Condensate Tank	2014	210 BBL	EXIST	**EC-1**
T04	7e	Condensate Tank	2014	210 BBL	EXIST	**EC-1**
EC-1	9e	Enclosed Combustor	2015	2.38 MMBTU/Hr	**NEW**	N/A
TEG-1	10e	Thermoelectric Generator	2015	4.4 KW/Hr	**NEW**	None
---	---	Fugitive VOC Emissions – Fittings and Connections	2014	N/A	EXIST	None
---	---	Haul Roads	2015	1 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.





JAY-BEE OIL & GAS, INC.

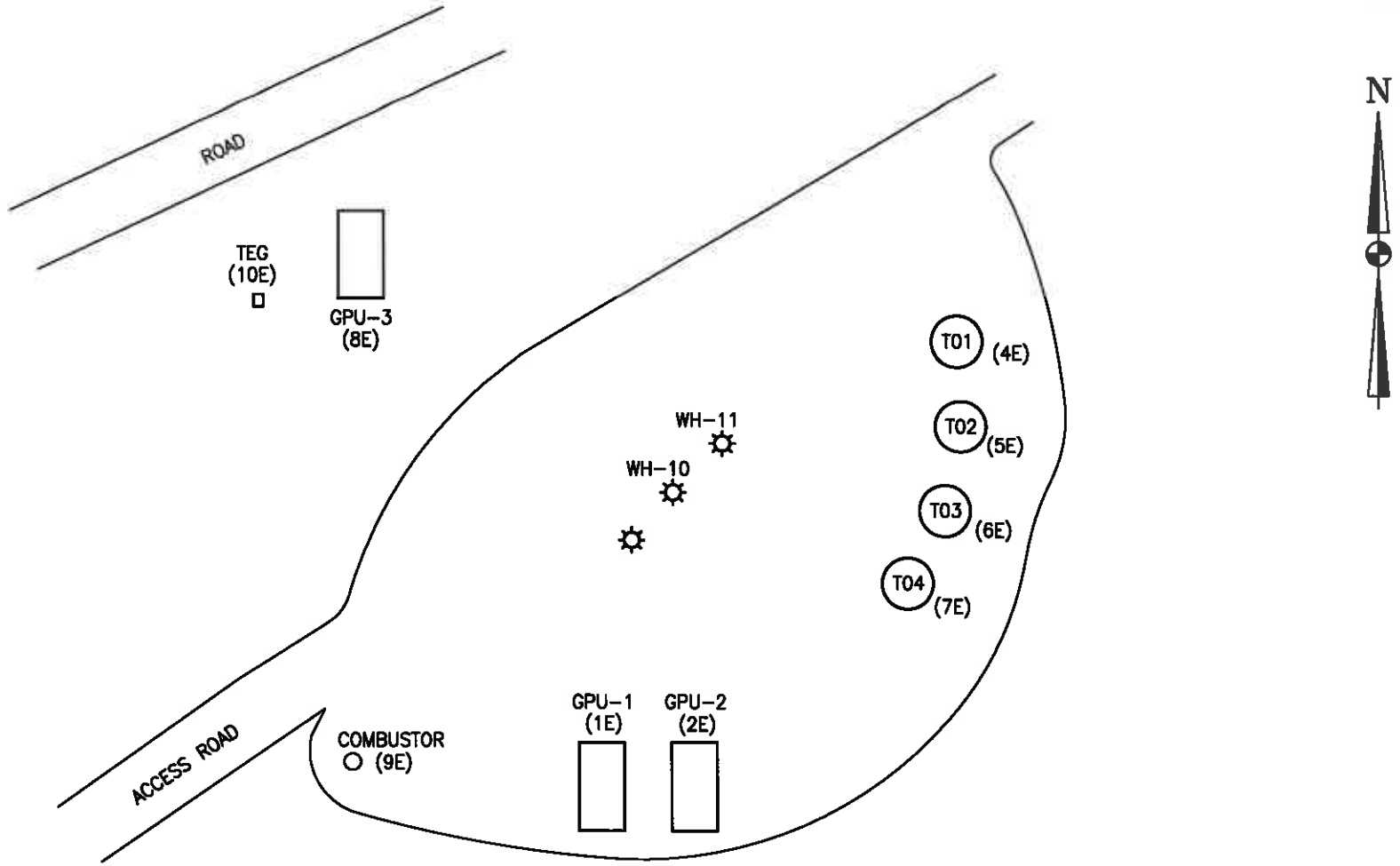
SNEEZY WELL PAD
ASHLEY, WEST VIRGINIA
PROCESS FLOW DIAGRAM

DRAWING NAME: FIGURE 3

REV. 0

ATTACHMENT E

Plot Plan



DRAWN BY	DJF
DATE	4/14/15
CHECKED BY	RAD
SET JOB NO.	214054-09
SET DWG FILE	SNEEZYa01.dwg
DRAWING SCALE	N.T.S.

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

JAY-BEE OIL & GAS, INC.

SNEEZY WELL PAD
ASHLEY, WEST VIRGINIA
SITE PLAN

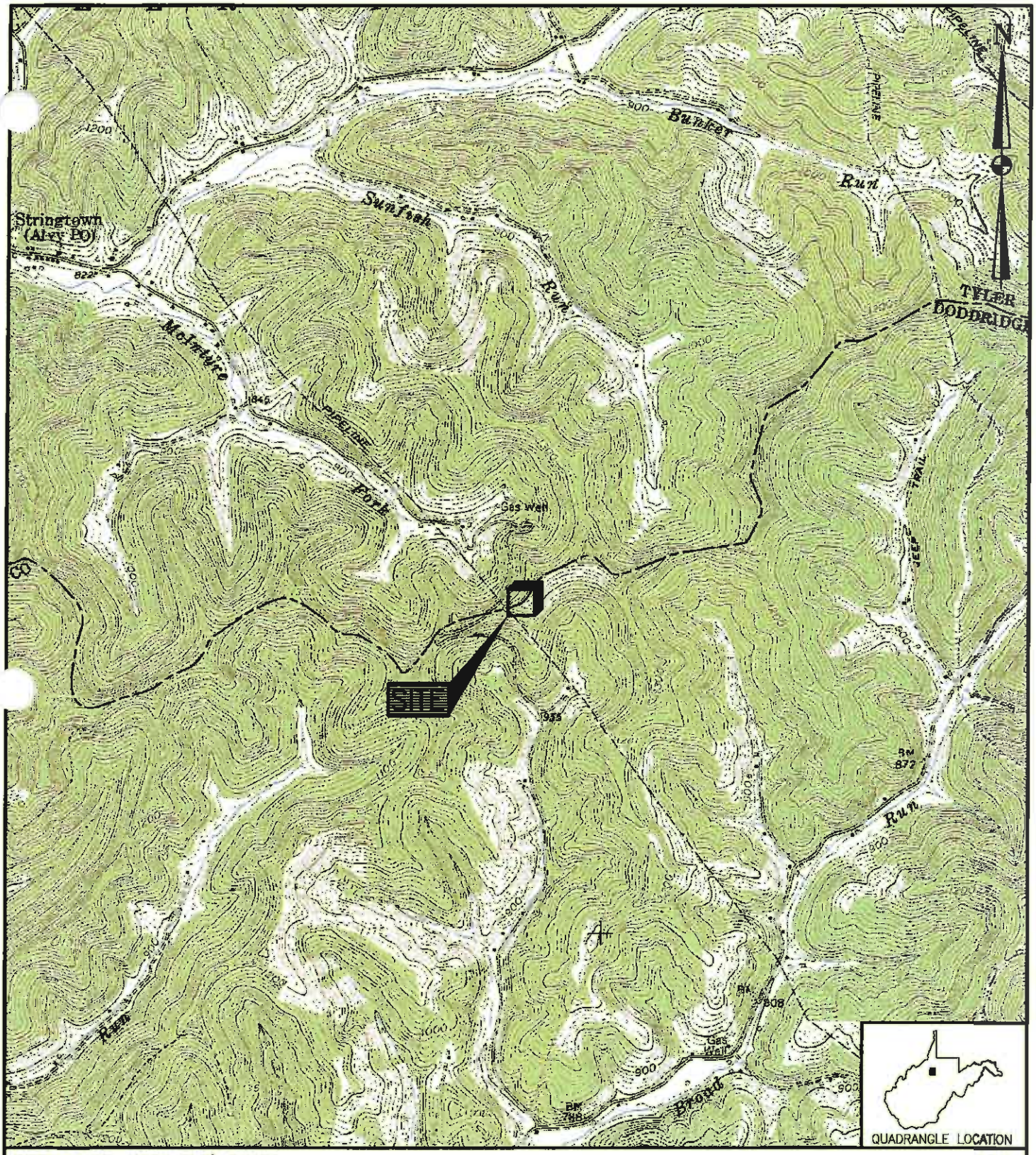
DRAWING NAME: FIGURE 2

REV. 0

Plot: env045 04/14/2015 14:12 G:\JAY BEE OIL & GAS\214054\SNEEZY\SNEEZYa01.dwg

ATTACHMENT F

Area Map



REFERENCE: USGS 7.5' QUADRANGLE MAP OF: CENTER POINT, WEST VIRGINIA; DATED 1961, PHOTOREVISED 1976.

DRAWN BY	DJF
DATE	4/13/15
CHECKED BY	RAD
JOB NO.	214054-09
SET DWG FILE	SNEEZYm01.dwg
DRAWING SCALE	1"=2000'

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

JAY-BEE OIL & GAS, INC.

SNEEZY WELL PAD
TYLER COUNTY, WEST VIRGINIA
SITE LOCATION MAP

DRAWING NO.	REV.
FIGURE 1	0

Plot: env045 04/13/2015 13:40 G:\JAY-BEE OIL&GAS\SNEEZY\SNEEZYm01.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 FUEL BURNING UNITS
EMISSION DATA SHEET

Complete the information on this data for each Gas Producing Unit(s), Heater Treater(s), and in-line heater(s) at the production pad. Reboiler information should be entered on the Glycol Dehydration Emission Unit Data Sheet.

Emission Unit ID #[1]	Emission Point ID#[2]	Emission Unit Description (Manufacturer / Model #)	Year Installed/ Modified	Type[3] and Date of Change	Control Device[4]	Design Heat Input (mmBtu/hr)[5]	Fuel Heating Value (Btu/scf)[6]
GPU-1	1e	Gas Processing Unit	2014	EXIST	None	1.5 MMBTU/Hr	1269
GPU-2	2e	Gas Processing Unit	2014	EXIST	None	1.5 MMBTU/Hr	1269
GPU-3	8e	Gas Processing Unit	2015	NEW	None	1.5 MMBTU/Hr	1269
TEG-1	9e	Thermoelectric Generator	2015	NEW	None	0.013 MMBTU/Hr	1269

1 Enter the appropriate Emission Unit (or Sources) 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 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 Complete appropriate air pollution control device sheet for any control device.

5 Enter design heat input capacity in mmBtu/hr.

6 Enter the fuel heating value in Btu/standard cubic foot.(HHV)

NATURAL 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).

Please provide the API number(s) for each NG well at this facility:	
047-095-02133	
047-095-02136	

Note: This is the same API 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 (American Petroleum Institute) 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.

NATURAL GAS-FIRED COMPRESSOR ENGINE (RICE)
EMISSION UNIT DATA SHEET

Emission Unit (Source) ID No.[1]		VRU-1					
Emission Point ID No. [2]		3e					
Engine Manufacturer and Model		Cummins G5.9					
Manufacturer's Rated bhp/rpm		84 @ 1800					
Source Status[3]		**RS**					
Date Installed/Modified/Removed[4]		Upon Receipt of Permit					
Engine Manufactured/Reconstruction Date[5]		3/2012					
Is this engine subject to 40CFR60, Subpart JJJJ?		Yes					
Is this a Certified Stationary Spark Ignition Engine according to 40CFR60, Subpart JJJJ? (Yes or No)[6]		No					
Is this engine subject to 40CFR63, Subpart ZZZZ? (yes or no)		No					
Engine, Fuel and Combustion Data	Engine Type[7]	RB4S					
	APCD Type[8]	NSCR					
	Fuel Type[9]	RG					
	H_2S (gr/100 scf)	<1					
	Operating bhp/rpm	84 @ 1800					
	BSFC (Btu/bhp-hr)	7914					
	Fuel throughput (ft^3/hr)	526.4					
	Fuel throughput ($MMft^3$/yr)	4.62					
	Operation (hrs/yr)	8760					
Reference[10]	Potential Emissions[11]	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
AP	NO_X	0.52	2.27				
AP	CO	0.89	3.89				
AP	VOC	0.02	0.09				
AP	SO_2	<0.001	<0.01				
AP	PM_{10}	0.006	0.028				
AP	Formaldehyde	0.014	0.06				
MRR[12]	Monitoring:	Engine Hours					
	Recordkeeping:	Engine Hours retained for 5 years					
	Proposed Reporting	Calculated Emissions					

Instructions for completing the Engine Emission Unit Data Sheet:

[1] Enter the appropriate Emission Unit (Source) identification number for each natural gas-fueled reciprocating internal combustion compressor/generator engine located at the production pad. Multiple compressor engines should be designated CE-1S, CE-2S, etc. or other

appropriate designation. Generator engines should be designated GE-1S, GE-2S, etc. or other appropriate designation. If more than three (3) engines exist, please use additional sheets.

2 For Emission Points, use the following numbering system: 1E, 2E, etc. or other appropriate designation.

3 Enter the Source Status using the following codes: NS = Construction of New Source (installation); ES = Existing Source; MS = Modification of Existing Source; and RS = Removal of Source

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

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

6 Is the engine a certified stationary spark ignition internal combustion engine according to 40CFR60 Subpart 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 according to 40CFR§60.4243a(2)(i) through (iii), as appropriate. ***Provide a manufacturer's data sheet for all engines being registered and a manufacturer's EPA certification of conformity sheet.***

7 Enter the Engine Type designation(s) using the following codes: LB2S = Lean Burn Two Stroke, RB4S = Rich Burn Four Stroke, and LB4S =Lean Burn Four Stroke.

8 Enter the Air Pollution Control Device (APCD) type designation(s) using the following codes: NSCR = Rich Burn & Non-Selective Catalytic Reduction, PSC = Rich Burn & Prestratified Charge, SCR = Lean Burn & Selective Catalytic Reduction, or CAT = Lean Burn & Catalytic Oxidation

9 Enter the Fuel Type using the following codes: PQ = Pipeline Quality Natural Gas, or RG = Raw Natural Gas

10 Enter the Potential Emissions Data Reference designation using the following codes. Attach all referenced data to this *Compressor/Generator Data Sheet(s)*. Codes: MD = Manufacturer's Data, AP = AP-42 Factors, GR = GRI-HAPCalc™ , or OT = Other _____ (please list)

11 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 as Attachment O*.

12 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the operation of this engine operation and associated air pollution control device. Include operating ranges and maintenance procedures required by the manufacturer to maintain the warranty.

ATTACHMENT H

Air Pollution Control Device Sheets

(740) 401-4000 Fax (740) 401-4005
100 AYERS BLVD. BELPRE, OHIO 45714
www.ediplungerlift.com

(423) 697-2292 (423) 520-2292 Fax (432)697-2310
P.O. Box 4185 MIDLAND, TEXAS 79704
2404 COMMERCE MIDLAND, TEXAS 79703
www.hy-bon.com

DATE: **11/4/2013**

TO: **Shane Dowell**

QUOTE NO.: N/A (VALID FOR 30 DAYS)

REFERENCE: (N/A)

MODEL: **The Abutec 20 & Abutec 100 Vapor Combustor Unit**

Shane:

In response to your inquiry, HY-BON Engineering, Co. is pleased to offer the following proposal for a HY-BON enclosed Vapor Combustor Unit (VCU). There are two models: ***Abutec 20*** (up to 22 mcfd) and ***Abutec 100*** (up to 100 mcfd) Medium Temperature Flares (MTF). Our VCU design incorporates HY-BON's 60+ years' experience with tank vapors with a combustor design which is highly effective, tested and certified "99% plus" for destruction of vent emissions from oil and condensate tank batteries, loading operations and storage facilities. The following items will show the advantages and benefits of incorporating this equipment into the Storage Tank facility:

ADVANTAGES OF USING HY-BON's UNIQUE Combustor Technology:

- **Operating Temperatures** up to 2100 degrees Fahrenheit
- **Compact & Easy to Install Design** (UNIT ARRIVES FULLY ASSEMBLED AND TESTED)
- **Completely Enclosed Combustion** prevents the environment from being exposed to IR radiation, heat and light. Low risk of fire.

Economically Efficient Vapor Elimination:

- Our enclosed VCU is a stainless steel enclosed flare design capable of meeting industry's regulations while offering you significant cost savings. This flare is proven throughout the world and is scalable to your application.

- Highest Destruction Removal Efficiency (DRE) in the industry
- Our Combustors are tested and certified according to EPA 40 CFR 60, Quad O. The MTF model achieves 99%+ DRE
- Offers "Alternate Operating Scenario" for Permit Compliance during maintenance of Vapor Recovery Units and other site operations.

Other relative points to note for the *Abutec 20* and *Abutec 100*:

- CDM Compliant
- EPA 40 CFR 60, Quad O Compliant
- Completely Enclosed Combustion
- Low Capital and Operating Costs
- Meets 40 CFR 60.18 regulations
- 99%+ Destruction Efficiency (third party verified)
- Very High Turndown Ratio
- Only requires 220 btu/ft^3 gas to maintain combustion
- Fully automated system based on pressure, with data logging on temperature, pressure, run time (additional parameters optional).
- Output via thumb drive, to a SCADA system, or wireless connection to company computer or IPHONE.
- High Temperature Flares (HTF) with 99.99% DRE are also available

Stack/Vent Height

- Stack/Vent height is important in dispersion of emissions and permitting.
- Effective stack height shall be calculated by the equation specified in 30 TAC §111.151(c) http://www.tceq.state.tx.us/assets/public/permitting/air/Announcements/og_pro_010018106.pdf
- The ***Abutec 20*** stack height is normally 12 ft. and ***Abutec 100*** is normally 16 ft. stack height but both come with an extension option of 20 ft. stack height.

Technical Summary:

Flare Gas Stream: *Abutec 20 Mscfd*
Type: Enclosed Tank Battery Flare Composition: 2200 btu/ft3 **gas**
Temperature: Ambient to 100°F +/- 20 deg°F
Flow Rate: up to 22,110 scfd (standard cubic feet per day) or 15 scfm
Auxiliary Fuel Requirements: Propane or Site Gas
Burner Size: 2.39 million BTU/hr (0.7 MW)
Inlet Pressure Requirements: 2-4 oz/in2 (3.5-7.0 "w.c.")
Turndown Ratio: 2:1
Mechanical
Design Wind Speed: 100 mph
Ambient Temperature: -30 deg°F up to 120 deg°F
Electrical Area Classification: General Area Classification (non-hazardous)

CUSTOMER: Jay Bee Oil
QUOTE #: 20962SB

Elevation: Up to 3,000 ft ASL – please advise if higher elevation
Process
Smokeless Capacity: 100% Operating Temperature 1400 deg°F to 2100 deg°F (1500 deg°F Nominal); Retention Time 0.3 sec Flare Inlet Pressure 2-4 oz/in2 (3.5-7.0 "w.c.")
Utilities
Pilot Gas Process Gas
Electricity 1 Phase, 60 Hz, 120V / 10A (Solar Option) Auxiliary Fuel N/A
Emissions
Destruction Efficiency: 99% DRE

Flare Gas Stream: ***Abutec 100 Mscfd***
Type: Enclosed Tank Battery Flare
Composition: 2200 btu/ft3 gas
Temperature: Ambient to 100°F +/- 20 deg°F
Flow Rate: up to 100,000 scfd (standard cubic feet per day) or 69.5 scfm
Auxiliary Fuel Requirements: Propane or Site Gas
Burner Size: 9.21 million BTU/hr (2.7 MW), Inlet Pressure Requirements 2-4 oz/in2 (3.5-7.0 "w.c.") Turndown Ratio 5:1
Mechanical
Design Wind Speed: 100 mph
Ambient Temperature: -30 deg°F up to 120 deg°F
Electrical Area Classification: General Area Classification (non-hazardous)
Elevation: Up to 3,000 ft ASL – please advise if higher elevation
Process
Smokeless Capacity: 100%
Operating Temperature: 1400 deg°F to 2100 deg°F (1500 deg°F Nominal); Retention Time 0.3 sec
Flare Inlet Pressure: 2-4 oz/in2 (3.5-7.0 "w.c.")
Utilities
Pilot Gas Process Gas
Electricity 1 Phase, 60 Hz, 120V / 10A (Solar Option) Auxiliary Fuel N/A
Emissions
Destruction Efficiency: 99% DRE

EPA Federal Environmental Compliance:

- The recent publication of the Federal Register applies the Quad O New Point Source regulations that state that all Storage Tank facilities constructed on or after August 23, 2011 will need to be at or below 6 Tons of VOC's per year.
  - Includes new source performance standards for VOC's and sulfur dioxide and new air toxics standards for oil and natural gas production and natural gas transmission.
  - "Condensate & crude oil storage tanks – Effects every tank battery (and all major modifications) installed since August 2011 with the "potential to emit" 6 tons or more of VOC's. This equates to 20 to 50 barrels of oil a day throughput, or 1 to 10 barrels of condensate – *basically every new tank battery in the United States.*
  - Requires all crude oil and condensate tanks to control their air toxics by at least 95 percent. In addition, emissions from these tanks will be counted towards determining whether a facility is a major source.
  - These new regulations require, by federal statute, a VRU, Combustor or a Flare on every new or modified oil and condensate tank battery across the United States installed or

modified between August 23, 2011 and April 12, 2013. Each site must be in compliance by April 15, 2015 for Group 1 Tanks. New Tanks (Group 2) installed after April 12, 2013 must be in compliance after April 15, 2014.

- The use of a HY-BON Enclosed Vapor Combustor, when combined with a HY-BON Vapor Recovery Tower and/or, HY-BON Vapor Recovery Unit (VRU) is considered a "Total Solutions Approach" to reducing emissions.

Commercial Summary:

Quantity	Model/Description	Pricing
One (1)	***Abutec 20*** Vapor Combustor Unit Handling up to 22 mcfd (includes basic automation package)	$10,250.00
One (1)	***Abutec 100*** Vapor Combustor Unit Handling up to 100 mcfd (includes basic automation package)	$20,525.00
Options	1 Year Service Package (Tuning of unit at site, Field Maintenance, Spare Parts, and 24/6 support)	$2,250.00 Price per Unit (depending on location)
	Pricing based on unit location within 150 miles from Hy-Bon Service Center. If not, pricing to be determined and quoted separately.	
Options	Solar Package (when site power is not Available)	$7,800.00 Price per Unit
Options	Stainless Steel Knock Out pot with Manual drain valve (20 model)	$815.00 Price per Unit
Options	Stainless Steel Knock Out pot with Manual drain valve (100 model)	$1,190.00 Price per Unit
Options	Transport to Site (FOB Destination) 10% service charge added for coordination / handling	Prepay and add
Options	Stainless Steel Bird Screen ***(20-100)*** Wind Guards for air intakes ***(20-100)***	$525.00-$725.00 $285.00 -$365.00
Options	Extended Stack ***Abutec 20 & 100*** Stack extension to achieve a total system height of 20 ft.	$1,400.00

CUSTOMER: Jay Bee Oil
QUOTE #: 20962SB

Delivery

Typical Spare Parts List

The following is a list of spare parts suggested for the system being specified. The prices are net unit prices and represent FOB Kennesaw, GA (ABUTEC Facility). Typical lead-time is 2-4 weeks.

75-00750014	Thermocouple, Type K (QTY: 1)	$115.00
75-00750013	Pressure Transmitter, (QTY: 1)	$535.00
75-00750016	Ignition Transformer (QTY: 1)	$448.75
75-00750015	Ignition Electrode (QTY: 1)	$25.00

Our field Engineering and Technical Staff are available to make a site visit to make recommendations to insure the proper installation and construction procedures.

We look forward to this opportunity to provide our equipment and services.

Highest Regards,

Wes Allen

HY-BON/EDI
Mobile: 304-679-6077
Office: 740-401-4000
wallen@hy-bon.com

CUSTOMER: Jay Bee Oil
QUOTE #: 20962SB

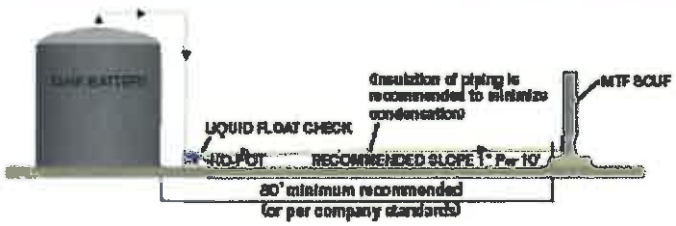
QUAD O COMPLIANT ENCLOSED VAPOR COMBUSTORS

ABUTEC 20

- Flow – 0 – 20MSCFD
- Inlet pressure – as low as 2oz/in² and up to 120psig

ABUTEC 100

- Flow – 20 – 100MSCFD
- Inlet pressure – as low as 2oz/in² and up to 120psig



ATTACHMENT I

Emissions Calculations

Jay-Bee Oil & Gas, Inc.

Sneezy Well Pad
Doddridge County 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 **REMOVED**	0.00	0.00	0.0	0.00	0.000	0.000	0.000	0.000	0.000	0.000
GPU-1	GPU #1	0.15	0.13	181.2	0.01	0.001	0.011	0.003	0.002	0.000	0.003
GPU-2	GPU #2	0.15	0.13	181.2	0.01	0.001	0.011	0.003	0.000	0.000	0.003
GPU-3	GPU #3	0.15	0.13	181.2	0.01	0.001	0.011	0.003	0.000	0.000	0.003
TEG-1	Thermoeletric Generator	0.001	0.001	1.570	0.000	0.000	0.000	0.000	0.000	0.000	0.000
---	Blowdowns[1]			N/A	N/A						
T01-T02	Produced Water Tanks[2]										
T03-T04	Condensate Tanks[2]			0.0	0.00			0.000			0.00
EC-1	Combustor + Pilot	0.15	0.78	255.7	0.22		0.008	0.005	0.000		0.05
TLU-1	Condensate Truck Loading[3]				25.50			1.190			1.250
---	Truck Traffic Fugitive Dust						N/A				
---	Fittings Fugitive Emissions			1.0	0.08						
Total		0.60	1.16	802	25.82	0.00	0.04	1.20	0.00	0.00	1.31

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 **REMOVED**	0.00	0.00	0	0.00	0.000	0.00	0.00	0.00	0.00	0.00
GPU-1	GPU #1	0.66	0.55	794	0.04	0.004	0.05	0.01	0.00	0.00	0.01
GPU-2	GPU #2	0.66	0.55	794	0.04	0.004	0.05	0.01	0.00	0.00	0.01
GPU-3	GPU #3	0.66	0.55	789	0.04	0.004	0.05	0.01	0.00	0.00	0.01
TEG-1	Thermoeletric Generator	0.01	0.00	6.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	Blowdowns[1]			0	0.00						
T01-T02	Produced Water Tanks[2]			0	0.00						
T03-T04	Condensate Tanks[2]			0	0.00			0.00			0.00
EC-1	Combustor +Pilot	0.13	0.54	208	2.03		0.01	0.04	0.00	0.00	0.04
TLU-1	Condensate Truck Loading[3]				0.28			0.01			0.01
---	Truck Traffic Fugitive Dust						N/A				
---	Fittings Fugitive Emissions			4	0.34						
Total		2.11	2.20	2,595	2.76	0.01	0.16	0.09	0.00	0.00	0.09
	Currently Permitted	3.56	4.98	1,889	15.96	0.01	0.13	0.18	<0.01	0.06	0.27
	Change in Emissions	-1.45	-2.78	706	-13.20	0.00	0.03	-0.09	0.00	-0.06	-0.18

[1] No Blowdowns with removal of VRU

[2] Condensate and water tank emissions will be controlled by a VCU at 98% . Emissions are presented under the VCU.

Jay-Bee Oil &Gas ,LLC

Sneezy Well Pad
Doddridge County County, WV

Potential Emission Rates

GPU-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-Hexane	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

Sneezy Well Pad
Doddridge County County, WV

Potential Emission Rates

Source GPU-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-Hexane	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

Sneezy Well Pad
Doddridge County County, WV

Potential Emission Rates

Source GPU-3

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-Hexane	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

Grumpy 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**	

Sneezy Well Pad
Doddridge County County, WV

'otential Emission Rate

Enclosed Combustor Pilot

Burner Duty Rating	80.0	Mbtu/hr
Burner Efficiency	99.0	%
Gas Heat Content (HHV)	1257.6	Btu/scf
Total Gas Consumption	1542.1	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-Hezane	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**	

Sneezy Well Pad
Doddridge County County, WV

Potential Emission Rates

Source EC-1

Enclosed Vapor Combustor - Control of Tank Emissions

Destruction Efficiency	98.0 %		
Gas Heat Content (HHV)	2282.4 Btu/scf		
Max Flow to T-E	0.022 MMSCFD	1.209	MMCF/Yr
Max BTUs to Flare	2.092 MMBTU/Hr	2,759	MMBTU/Yr

NOx	0.14	lbs/hr	0.09	tpy
CO	0.77	lbs/hr	0.51	tpy
CO2	244.56	lbs/hr	161.3	tpy
CO2e	246.16	lb/hr	165.9	tpy
VOC	0.22	lb/hr	2.03	tpy
CH4	0.03	lbs/hr	0.1800	tpy
N2O	0.0005	lbs/hr	0.0003	tpy
PM	0.0070	lb/hr	0.0046	tpy
Benzene	0.0000	lb/hr	0.0000	tpy
CHOH	0.0001	lb/hr	0.0000	tpy
n-Hexane	0.0050	lb/hr	0.0400	tpy
Toluene	0.0000	lb/hr	0.0000	tpy
Total HAP	0.0050	lb/hr	0.0500	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, based on 200 hrs per year of combustor down time.
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, Inc.
FUGITIVE EMISSIONS

Sneezy Well Pad
Doddridge County 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:	9	0.02700 scf/hr	18.4	0.003	0.011	0.000	0.000	0.008	0.0366	0.916
Light Liquid:	12	0.05000 scf/hr	100.0	0.035	0.152					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:	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:	3	0.06100 sfc/hr	18.4	0.002	0.009					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:	-	0.01940 lb/hr	18.4	0.000	0.000	0.000	0.000	0.000	0.0000	0.000
Connectors:										0.000
Gas:	12	0.00300 scf/hr	18.4	0.000	0.002	0.000	0.000	0.001	0.0054	0.136
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:	4	0.00300 scf/hr	100.0	0.001	0.003					0.000
Heavy Liquid:		0.0009 scf/hr	100.0	0.000	0.000					0.000

Fugitive Calculations:

	lb/hr	t/y
VOC	0.077	0.339
CH4	0.038	0.168
CO2	0.000	0.001
CO2e	0.959	4.20

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

Sneezy Well Pad
Doddridge County 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

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

Sneezy Well Pad
Doddridge County County, WV

Condensate Tank 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	0.032	0.009	0.000	0.023			-		0.0003	
Carbon Dioxide, CO2	0.093	0.041	0.001	0.103			-		0.0009	
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	21.006	3.370	0.116	8.461	191.0	212.2	2.002		0.2096	
Ethane, C2H6	26.977	8.112	0.280	20.368	436.7	477.4	4.500		0.2676	7.176
Propane	25.650	11.311	0.391	28.399	593.8	645.4	6.110	28.399	0.2520	7.030
Iso-Butane	5.272	3.064	0.106	7.694	158.2	171.4	1.633	7.694	0.0512	1.715
Normal Butane	11.899	6.916	0.239	17.365	358.3	388.2	3.685	17.365	0.1150	3.731
Iso Pentane	3.281	2.367	0.082	5.944	121.4	131.3	1.250	5.944	0.0328	1.195
Normal Pentane	3.198	2.307	0.080	5.793	118.5	128.2	1.219	5.793	0.0320	1.152
Hexane	1.905	1.642	0.057	4.122	83.9	90.6	0.862	4.122	0.0188	0.779
Heptane	0.687	0.688	0.024	1.728	35.0	37.8	0.360	1.728	0.0068	0.315
	100.000	39.828	1.375		2,096.8	2,282.4	21.621	71.046	0.9872	23.094

Gas Density (STP) = **0.111**

Ideal Gross (HHV)	2,282.4
Ideal Gross (sat'd)	2,243.4
GPM	-
Real Gross (HHV)	2,312.1
Real Net (LHV)	2,124.0

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	17.488

Jay-Bee Oil & Gas, Incorporated
Sneezy Well Pad Production Facility
Condensate and Produced Water Tanks Gas Flow

Using measured gas flow from condensate and produced water tanks at nearby well pads, the following calculations represent maximum gas flow to the combustor:

Condensate Flash Gas:
534 scf/bbl x 2190 bbl/yr = 1,169,460 scf/yr

Produced Water Flash Gas:
0.41 scf/bbl x 37,000 bbl/yr = 15,170 scf/yr

Condensate W&B Losses:

2688 lb (from TANKS 4.0.9)/ 0.111 lb/scf = 24,216 scf/yr

Total Gas to Flare/yr = 1,208,846 or **1.209 MMSCF/yr**

Jay-Bee Oil & Gas - Sneezy

Flash Emission Calculations

Using Gas-Oil Ratio Method

Un-Controlled

Site specific data			
Gas-Oil-ratio	=	534	scf/bbl Using Actual GOR from T 103-6
Throughput	=	2,190	bbl/yr
Stock tank gas molecular weight	=	39.84	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	64.9302	E_{TOT}
VOC	**46.1355**	Sum of C3+
Nitrogen	1.49E-02	
Carbon Dioxide	6.69E-02	
Methane	5.49E+00	
Ethane	1.32E+01	
Propane	1.84E+01	
Isobutane	4.99E+00	
n-Butane	1.13E+01	
2,2 Dimethylpropane	1.41E-01	
Isopentane	3.72E+00	
n-Pentane	3.76E+00	
2,2 Dimethylbutane	1.12E-01	
Cyclopentane	0.00E+00	
2,3 Dimethylbutane	1.56E-01	
2 Methylpentane	8.01E-01	
3 Methylpentane	4.69E-01	
n-Hexane	9.56E-01	HAP
Methylcyclopentane	6.88E-02	
Benzene	1.62E-02	HAP
Cyclohexane	9.03E-02	
2-Methylhexane	1.75E-01	
3-Methylhexane	1.70E-01	
2,2,4 Trimethylpentane	0.00E+00	
Other C7's	1.76E-01	
n-Heptane	2.16E-01	
Methylcyclohexane	1.36E-01	
Toluene	2.73E-02	HAP
Other C8's	1.56E-01	
n-Octane	3.70E-02	
Ethylbenzene	1.95E-03	HAP
M & P Xylenes	8.44E-03	HAP
O-Xylene	0.00E+00	HAP
Other C9's	3.12E-02	
n-Nonane	3.90E-03	
Other C10's	2.60E-03	
n-Decane	2.60E-03	
Undecanes (11)	0.00E+00	

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide	< 0.001		< 0.001
Nitrogen	0.032		0.023
Carbon Dioxide	0.093		0.103
Methane	21.006		8.457
Ethane	26.977	7.272	20.363
Propane	25.650	7.122	28.393
Isobutane	5.272	1.739	7.692
n-Butane	11.899	3.781	17.361
2,2 Dimethylpropane	0.120	0.046	0.217
Isopentane	3.161	1.165	5.725
n-Pentane	3.198	1.168	5.792
2,2 Dimethylbutane	0.080	0.034	0.173
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.111	0.046	0.240
2 Methylpentane	0.570	0.238	1.233
3 Methylpentane	0.334	0.137	0.723
n-Hexane	0.681	0.282	1.473
Methylcyclopentane	0.050	0.017	0.106
Benzene	0.013	0.004	0.025
Cyclohexane	0.066	0.023	0.139
2-Methylhexane	0.107	0.050	0.269
3-Methylhexane	0.104	0.048	0.262
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.109	0.048	0.271
n-Heptane	0.132	0.061	0.332
Methylcyclohexane	0.085	0.034	0.210
Toluene	0.018	0.006	0.042
Other C8's	0.087	0.041	0.241
n-Octane	0.020	0.010	0.057
Ethylbenzene	0.001	0.000	0.003
M & P Xylenes	0.005	0.002	0.013
O-Xylene	0.000	0.000	0.000
Other C9's	0.015	0.008	0.048
n-Nonane	0.002	0.001	0.006
Other C10's	0.001	0.001	0.004
n-Decane	0.001	0.001	0.004
Undecanes (11)	0.000	0.000	0.000
Totals	100.000	23.385	100.000

Jay-Bee O&G Sneezy

Flash Emission Calculations

Using Gas-Water Ratio Method

Site specific data			
Gas-water-ratio	=	0.41	scf/bbl Using Actual Data from T 103-6
Throughput	=	37,000.0	bbl/yr
Stock tank gas molecular weight	=	37.74	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	0.7979
VOC	**0.2920**
Nitrogen	5.19E-03
Carbon Dioxide	2.27E-02
Methane	3.83E-01
Ethane	9.49E-02
Propane	6.22E-02
Isobutane	3.45E-02
n-Butane	3.82E-02
2,2 Dimethylpropane	0.00E+00
Isopentane	3.03E-02
n-Pentane	2.16E-02
2,2 Dimethylbutane	2.72E-03
Cyclopentane	3.19E-04
2,3 Dimethylbutane	1.67E-03
2 Methylpentane	9.63E-03
3 Methylpentane	5.86E-03
n-Hexane	1.16E-02
Methylcyclopentane	1.92E-03
Benzene	2.36E-03
Cyclohexane	2.76E-03
2-Methylhexane	5.35E-03
3-Methylhexane	4.74E-03
2,2,4 Trimethylpentane	0.00E+00
Other C7's	5.39E-03
n-Heptane	7.13E-03
Methylcyclohexane	6.41E-03
Toluene	5.19E-03
Other C8's	1.05E-02
n-Octane	3.97E-03
Ethylbenzene	2.39E-04
M & P Xylenes	2.66E-03
O-Xylene	4.47E-04
Other C9's	8.37E-03
n-Nonane	1.98E-03
Other C10's	2.59E-03
n-Decane	4.55E-04
Undecanes (11)	8.70E-04

E_{TOT}

Sum of C3+

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

Identification

User Identification:	T01 and T02
City:	Huntington
State:	West Virginia
Company:	Jay-Bee Oil & Gas
Type of Tank:	Vertical Fixed Roof Tank
Description:	Condensate Tanks Sneezy Well Pad

Tank Dimensions

Shell Height (ft):	15.00
Diameter (ft):	10.00
Liquid Height (ft) :	15.00
Avg. Liquid Height (ft):	7.50
Volume (gallons):	8,225.29
Turnovers:	5.55
Net Throughput(gal/yr):	45,650.35
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)	0.30
Slope (ft/ft) (Cone Roof)	0.06

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 - Summary Format
Liquid Contents of Storage Tank

T01 and T02 - 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 15.0)	All	61.42	53.10	69.74	57.09	8.3617	7.1698	9.7046	60.0000			92.00	Option 4: RVP=15, ASTM Slope=3

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

Emissions Report for: Annual

T01 and T02 - Vertical Fixed Roof Tank
Huntington, West Virginia

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 15.0)	545.30	2,142.74	2,688.04

Jay-Bee Oil & Gas, Incorporated
Sneezy 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 flash emissions from the Condensate tanks of 46.1 tpy and 1.0 tpy respectively for the maximum annual throughput of 2,190 BBL/Yr. Using EPA's Tank 4.0.9, uncontrolled working and breathing losses were determined to be 1.34 tons per year. Using the assumption that HAP emissions for working and breathing losses would be in the same ratio to VOC emissions as with the flash losses, working and breathing HAP losses are estimated at 0.03 tpy. Thus, total VOC and HAP emissions from the condensate tanks are estimated at 47.4 tpy and 1.0 tpy respectively.

In a similar manner, flash emissions from the Produced Water tanks were projected to be 0.29 tpy of VOCs and 0.02 tpy of HAPs for a maximum water production of 37,000 BBL/Yr. Working and breathing losses from the produced water storage are anticipated to be nominal as the vast majority of the organic components forced into solution when the water is in the shale formation would be released as flash gas.

Total uncontrolled VOC and HAP emissions for the Produced Water and Condensate Tanks are therefore 47.7 tpy and 1.1 tpy respectively. As emissions are anticipated to be continuous over the course of the year, potential hourly emissions are anticipated to be 10.89 lb/hr and 0.25 lb/hr respectively. Additionally, approximately 95% of the total uncontrolled HAP emissions are due to n-hexane. Hence, un-controlled n-hexane emissions are estimated at 0.24 lb/hr and 1.04 tpy.

Methane will also be emitted at a maximum rate of 5.49 tpy from the condensate tanks and 0.38 tpy from the produced water tanks for a total of 5.87 tpy of Methane. Using the GHG factor of 25 for Methane, the CO_{2e} uncontrolled emission rate is 5.87 x 25 or 146.75 tpy. This is equivalent to 33.5 lb/hr of CO_{2e}

During operation of the VCU, emissions will be controlled at a minimum of 98%. Thus, when the VCU is in operation, emissions will be controlled to 0.22 pounds per hour of VOCs (10.89 x 0.02) and 0.005 pounds per hour of HAPs (0.25 x 0.02). As n-hexane comprises approximately 95% of the HAPs, it will also be approximately 0.005 pounds per hour. CO_{2e} (methane) emissions will be controlled to 0.67 lb/hr.

The VCU is anticipated to be operated continuously, except for brief intervals for preventive maintenance (8 hours per month or 96 hours per year). Additionally, time must be allotted for potential equipment failures and emergency repairs. Thus, it is conservatively estimated that the VCU will not be available for 200 hours per year. Therefore, total annual potential tank emissions are calculated as follows:

VOCs

0.22 lb/hr (controlled) x (8760-200) = 1,883 lb/yr
10.89 lb/hr (Un-controlled) x 200 = 2,178 lb/yr
=4061 lb/yr or 2.03 tons per year

HAPs

0.005 lb/Hr (controlled) x (8760-200) = 42.8 lb/yr
0.25 lb/Hr (Un-controlled) x 200 = 50 lb/yr
= 92.8 lb/yr or 0.05 tons per year

n-Hexane

0.95 x 92.8 = 88.2 lb/yr or 0.04 tpy

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: 6.6 psia (see attached condensate analysis report)
M= Molecular weight of vapor in lb/lb-mole 64.35 (see attached breathing vapor report)
T= temperature of bulk liquid loaded in deg R or 460+deg F (60 Deg F)

Thus, $L_L = 12.46[0.6 \times 6.6 \times 64.35]/[460+60]$
$L_L = 6.11$ lb/1000 gallons loaded

Based on sample data of breathing vapor (attached), these emissions are 99.7% 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 100 BBL (4200 gallons) a day, uncontrolled VOC emissions are estimated at 25.5 lb of VOC per day [4.20 x 6.11 x .997]. There is no control on tank truck loading. With all daily loading taking place within 1 hour, the average hourly un-controlled emission rate is therefore estimated at 25.5 lb/hr.

Maximum annual throughput is 91,980 gallons (2,190 barrels) per year. Thus, un-captured/un-controlled VOC emissions are conservatively estimated at 560.3 pounds per year [91.98 x 6.11 x .997] or 0.28 tons per year.

Based on the attached analysis of a representative tank's breathing emissions, HAPs represent 4.9 percent of the emissions. Thus, daily HAPs emissions equal 4.20 x 6.11 x 0.049 or 1.25 lb/hr. Annual maximum HAPs emissions are estimated at 27.5 lb/yr [91.98 x 6.11 x 0.049] or 0.013 tpy. As n-hexane is approximately 95% of the total HAPs, its hourly and annual emission rates are 1.19 lb/hr and 0.012 tpy.

There are no significant VOC or HAP emissions anticipated from the loading of produced water.

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: T 103-6
Separator Hydrocarbon Liquid
Sampled @ 300 psig & 55 °F

Date Sampled: 04/07/14

Job Number: 42799.002

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2186-M

COMPONENT	MOL %	LIQ VOL %	WT %
Nitrogen	0.014	0.004	0.005
Carbon Dioxide	0.033	0.015	0.019
Methane	7.177	3.237	1.527
Ethane	9.830	6.997	3.920
Propane	12.024	8.817	7.031
Isobutane	3.637	3.168	2.803
n-Butane	10.238	8.591	7.891
2,2 Dimethylpropane	0.160	0.184	0.173
Isopentane	5.670	5.519	5.425
n-Pentane	7.291	7.035	6.976
2,2 Dimethylbutane	0.259	0.288	0.296
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.388	0.423	0.443
2 Methylpentane	2.911	3.215	3.328
3 Methylpentane	1.892	2.056	2.163
n-Hexane	4.861	5.320	5.555
Heptanes Plus	33.596	45.132	52.448
Totals:	100.000	100.000	100.000

Characteristics of Heptanes Plus:

Specific Gravity	0.7391	(Water=1)
°API Gravity	59.95	@ 60°F
Molecular Weight	117.7	
Vapor Volume	19.93	CF/Gal
Weight	6.16	Lbs/Gal

Characteristics of Total Sample:

Specific Gravity	0.6360	(Water=1)
°API Gravity	90.98	@ 60°F
Molecular Weight	75.4	
Vapor Volume	26.77	CF/Gal
Weight	5.30	Lbs/Gal

Base Conditions: 14.650 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

Analyst: XG
Processor: JCdjv
Cylinder ID: W-2415

David Dannhaus 361-661-7015

FESCO, Ltd.

Job Number: 42799.002

TANKS DATA INPUT REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Carbon Dioxide	0.033	0.015	0.019
Nitrogen	0.014	0.004	0.005
Methane	7.177	3.237	1.527
Ethane	9.530	6.997	3.920
Propane	12.024	8.817	7.031
Isobutane	3.637	3.168	2.803
n-Butane	10.418	8.775	8.084
Isopentane	5.670	5.519	5.425
n-Pentane	7.291	7.035	6.976
Other C-6's	5.450	5.982	6.228
Heptanes	10.149	12.070	13.219
Octanes	9.740	12.234	14.005
Nonanes	3.918	5.705	6.591
Decanes Plus	7.574	12.950	15.644
Benzene	0.090	0.067	0.093
Toluene	0.505	0.450	0.617
E-Benzene	0.427	0.438	0.601
Xylenes	1.193	1.218	1.679
n-Hexane	4.861	5.320	5.555
2,2,4 Trimethylpentane	0.000	0.000	0.000
Totals:	100.000	100.000	100.000

Characteristics of Total Sample:

Specific Gravity	0.6360	(Water=1)
°API Gravity	90.98	@ 60°F
Molecular Weight	75.4	
Vapor Volume	26.77	CF/Gal
Weight	5.30	Lbs/Gal

Characteristics of Decanes (C10) Plus:

Specific Gravity	0.7683	(Water=1)
Molecular Weight	155.8	

Characteristics of Atmospheric Sample:

°API Gravity	71.19	@ 60°F
Reid Vapor Pressure (ASTM D-5191)	9.33	psi

QUALITY CONTROL CHECK			
	Sampling Conditions	Test Samples	
Cylinder Number	------	W-2515*	W-2277
Pressure, PSIG	300	288	285
Temperature, °F	55	66	66

* Sample used for analysis

FESCO, Ltd.

TOTAL EXTENDED REPORT - GPA 2186-M

Job Number: 42799.002

COMPONENT	Mol %	LiqVol %	Wt %
Nitrogen	0.014	0.004	0.005
Carbon Dioxide	0.033	0.015	0.019
Methane	7.177	3.237	1.527
Ethane	9.830	6.997	3.920
Propane	12.024	8.817	7.031
Isobutane	3.637	3.168	2.803
n-Butane	10.238	8.591	7.891
2,2 Dimethylpropane	0.180	0.184	0.173
Isopentane	5.670	5.619	5.425
n-Pentane	7.291	7.035	6.976
2,2 Dimethylbutane	0.259	0.288	0.298
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.368	0.423	0.443
2 Methylpentane	2.911	3.215	3.326
3 Methylpentane	1.892	2.056	2.163
n-Hexane	4.861	5.320	5.555
Methylcyclopentane	0.433	0.408	0.483
Benzene	0.090	0.087	0.093
Cyclohexane	0.749	0.678	0.836
2-Methylhexane	2.360	2.921	3.137
3-Methylhexane	1.985	2.425	2.638
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C-7's	1.191	1.425	1.587
n-Heptane	3.430	4.212	4.558
Methylcyclohexane	2.138	2.288	2.784
Toluene	0.505	0.450	0.617
Other C-8's	5.647	7.144	8.107
n-Octane	2.055	2.602	3.113
E-Benzene	0.427	0.438	0.601
M & P Xylenes	0.523	0.540	0.736
O-Xylene	0.670	0.678	0.943
Other C-9's	2.764	3.975	4.626
n-Nonane	1.155	1.730	1.964
Other C-10's	2.343	3.704	4.390
n-decane	0.629	1.028	1.187
Undecanes(11)	1.946	3.156	3.794
Dodecanes(12)	1.166	2.043	2.469
Tridecanes(13)	0.722	1.357	1.676
Tetradecanes(14)	0.362	0.728	0.911
Pentadecanes(15)	0.194	0.418	0.530
Hexadecanes(16)	0.099	0.229	0.293
Heptadecanes(17)	0.051	0.123	0.159
Octadecanes(18)	0.033	0.085	0.110
Nonadecanes(19)	0.017	0.046	0.060
Eicosanes(20)	0.005	0.014	0.018
Heneicosanes(21)	0.003	0.009	0.012
Docosanes(22)	0.002	0.005	0.007
Tricosanes(23)	0.001	0.002	0.003
Tetracosanes(24)	0.000	0.001	0.002
Pentacosanes(25)	0.000	0.001	0.001
Hexacosanes(26)	0.000	0.001	0.001
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

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: T 103-6
Gas Evolved from Hydrocarbon Liquid Flashed
From 300 psig & 55 °F to 0 psig & 70 °F

Date Sampled: 04/07/14

Job Number: 42799.001

CHROMATOGRAPH EXTENDED ANALYSIS - SUMMATION REPORT - GPA 2286

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	0.032	
Carbon Dioxide	0.093	
Methane	21.006	
Ethane	28.977	7.272
Propane	25.650	7.122
Isobutane	5.272	1.739
n-Butane	11.899	3.781
2-2 Dimethylpropane	0.120	0.046
Isopentane	3.161	1.185
n-Pentane	3.198	1.168
Hexanes	1.776	0.738
Heptanes Plus	0.816	0.356
Totals	100.000	23.386

Computed Real Characteristics Of Heptanes Plus:
Specific Gravity ---------- 3.475 (Air=1)
Molecular Weight ---------- 99.15
Gross Heating Value ---------- 5311 BTU/CF

Computed Real Characteristics Of Total Sample:
Specific Gravity ---------- 1.396 (Air=1)
Compressibility (Z) ---------- 0.9851
Molecular Weight ---------- 39.84
Gross Heating Value
Dry Basis ---------- 2340 BTU/CF
Saturated Basis ---------- 2300 BTU/CF

*Hydrogen Sulfide tested in laboratory by: Stained Tube Method (GPA 2377)
Results: 0.083 Gr/100 CF, 1.0 PPMV or 0.0001 Mol %

Base Conditions: 14.650 PSI & 60 Deg F

Analyst: MR
Processor: AL
Cylinder ID: FL# 14 S

Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015

FESCO, Ltd.

Job Number: 42799.001

CHROMATOGRAPH EXTENDED ANALYSIS
TOTAL REPORT - GPA 2286

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	0.032		0.023
Carbon Dioxide	0.093		0.103
Methane	21.006		8.457
Ethane	26.977	7.272	20.363
Propane	25.650	7.122	28.393
Isobutane	5.272	1.739	7.692
n-Butane	11.899	3.781	17.361
2,2 Dimethylpropane	0.120	0.046	0.217
Isopentane	3.161	1.165	5.725
n-Pentane	3.198	1.168	5.792
2,2 Dimethylbutane	0.080	0.034	0.173
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.111	0.046	0.240
2 Methylpentane	0.570	0.238	1.233
3 Methylpentane	0.334	0.137	0.723
n-Hexane	0.681	0.282	1.473
Methylcyclopentane	0.050	0.017	0.106
Benzene	0.013	0.004	0.025
Cyclohexane	0.066	0.023	0.139
2-Methylhexane	0.107	0.050	0.269
3-Methylhexane	0.104	0.048	0.262
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.109	0.048	0.271
n-Heptane	0.132	0.061	0.332
Methylcyclohexane	0.085	0.034	0.210
Toluene	0.018	0.006	0.042
Other C8's	0.087	0.041	0.241
n-Octane	0.020	0.010	0.057
Ethylbenzene	0.001	0.000	0.003
M & P Xylenes	0.005	0.002	0.013
O-Xylene	0.000	0.000	0.000
Other C9's	0.015	0.008	0.048
n-Nonane	0.002	0.001	0.006
Other C10's	0.001	0.001	0.004
n-Decane	0.001	0.001	0.004
Undecanes (11)	0.000	0.000	0.000
Totals	100.000	23.386	100.000

Computed Real Characteristics Of Total Sample:

Specific Gravity	1.396	(Air=1)
Compressibility (Z)	0.9851	
Molecular Weight	39.84	
Gross Heating Value		
Dry Basis	2340	BTU/CF
Saturated Basis	2300	BTU/CF

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: T 103-6

Job Number: J42789

FLASH LIBERATION OF HYDROCARBON LIQUID		
	Separator HC Liquid	Stock Tank
Pressure, psig	300	0
Temperature, °F	55	70
Gas Oil Ratio (1)	-----	534
Gas Specific Gravity (2)	-----	1.396
Separator Volume Factor (3)	1.3818	1.000

STOCK TANK FLUID PROPERTIES	
Shrinkage Recovery Factor (4)	0.7343
Oil API Gravity at 60 °F	71.19
Reid Vapor Pressure, psi (5)	9.33

Quality Control Check			
	Sampling Conditions	Test Samples	
Cylinder No.	-----	W-2515*	W-2277
Pressure, psig	300	268	265
Temperature, °F	55	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: E.F.
* Sample used for flash study
Base Conditions: 14.65 PSI & 60 °F

Certified: FESCO, Ltd. • Alice, Texas

David Dannhaus 361-661-7015

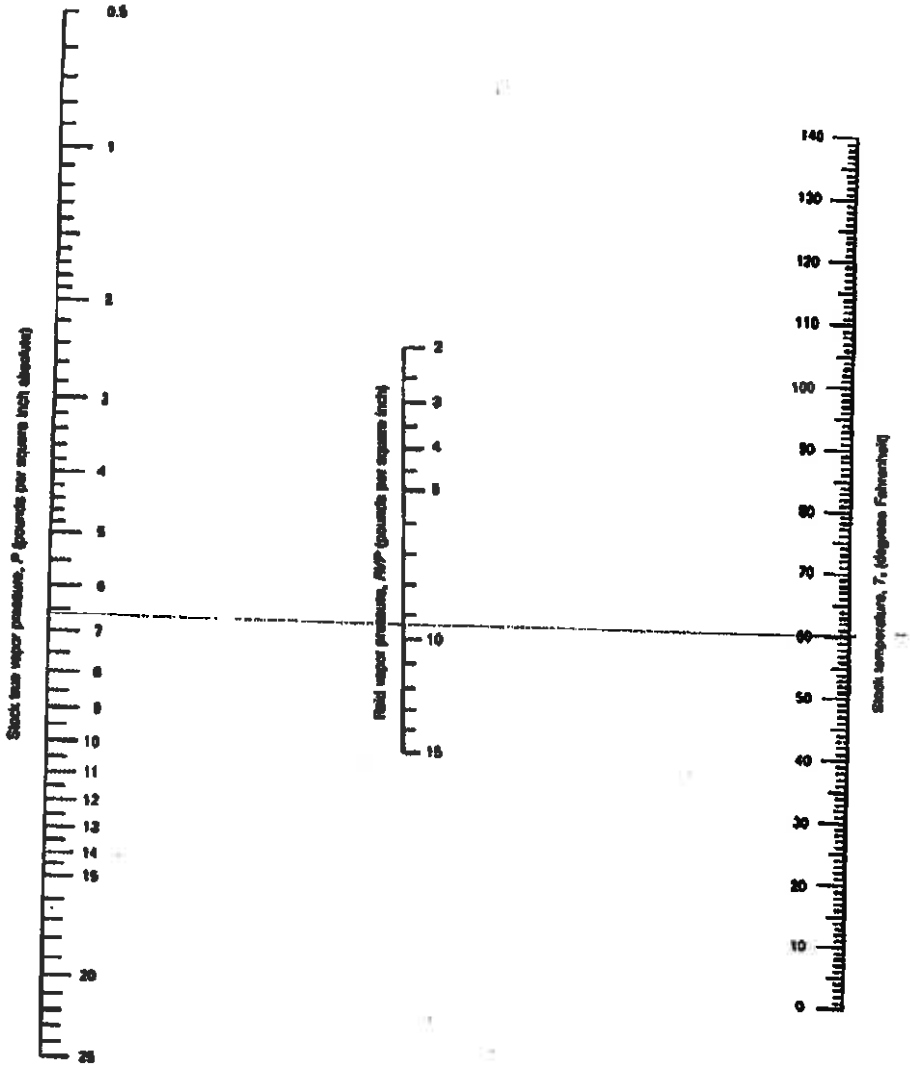


Figure 7.1-13a. True vapor pressure of crude oils with a Reid vapor pressure of 2 to 15 pounds per square inch.[4]

May 9, 2014

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

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

Sample: T 103-6
Breathing Vapor
From 0 psig & 70 °F to 0 psig & 100 °F

Date Sampled: 04/07/14 Job Number: 42799.011

CHROMATOGRAPH EXTENDED ANALYSIS - SUMMATION REPORT - GPA 2286

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	0.000	
Carbon Dioxide	0.032	
Methane	0.023	
Ethane	0.533	0.144
Propane	13.569	3.768
Isobutane	9.746	3.214
n-Butane	31.720	10.079
2-2 Dimethylpropane	0.415	0.160
Isopentane	15.075	5.557
n-Pentane	16.449	6.010
Hexanes	9.639	4.004
Heptanes Plus	2.799	1.199
Totals	100.000	34.134

Computed Real Characteristics Of Heptanes Plus:
Specific Gravity ---------- 3.621 (Air=1)
Molecular Weight ---------- 97.70
Gross Heating Value ---------- 5232 BTU/CF

Computed Real Characteristics Of Total Sample:
Specific Gravity ---------- 2.319 (Air=1)
Compressibility (Z) ---------- 0.9579
Molecular Weight ---------- 64.35
Gross Heating Value
Dry Basis ---------- 3761 BTU/CF
Saturated Basis ---------- 3716 BTU/CF

*Hydrogen Sulfide tested in laboratory by: Stained Tube Method (GPA 2377)
Results: 0.031 Gr/100 CF, 0.5 PPMV or 0.0001 Mol %

Base Conditions: 14.650 PSI & 60 Deg F

Certified: FESCO, Ltd. - Alice, Texas

Analyst: MR
Processor: AL
Cylinder ID: ST# 2

David Dannhaus 361-661-7015

FESCO, Ltd.

Job Number: 42799.011

CHROMATOGRAPH EXTENDED ANALYSIS
TOTAL REPORT - GPA 2286

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	0.000		0.000
Carbon Dioxide	0.032		0.022
Methane	0.023		0.004
Ethane	0.533	0.144	0.249
Propane	13.569	3.768	9.299
Isobutane	9.746	3.214	8.803
n-Butane	31.720	10.079	28.652
2,2 Dimethylpropane	0.415	0.160	0.465
Isopentane	15.075	5.557	16.903
n-Pentane	16.449	6.010	18.443
2,2 Dimethylbutane	0.444	0.187	0.595
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.617	0.255	0.826
2 Methylpentane	3.194	1.336	4.278
3 Methylpentane	1.835	0.755	2.458
n-Hexane	3.549	1.471	4.753
Methylcyclopentane	0.250	0.087	0.327
Benzene	0.052	0.015	0.063
Cyclohexane	0.293	0.101	0.383
2-Methylhexane	0.386	0.181	0.601
3-Methylhexane	0.362	0.166	0.564
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.440	0.193	0.678
n-Heptane	0.390	0.181	0.607
Methylcyclohexane	0.251	0.102	0.383
Toluene	0.040	0.014	0.057
Other C8's	0.234	0.110	0.401
n-Octane	0.053	0.027	0.094
Ethylbenzene	0.001	0.000	0.002
M & P Xylenes	0.009	0.003	0.015
O-Xylene	0.001	0.000	0.002
Other C9's	0.034	0.017	0.067
n-Nonane	0.003	0.002	0.006
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	34.134	100.000

Computed Real Characteristics Of Total Sample:

Specific Gravity	2.319	(Air=1)
Compressibility (Z)	0.9579	
Molecular Weight	64.36	
Gross Heating Value		
Dry Basis	3781	BTU/CF
Saturated Basis	3716	BTU/CF

ATTACHMENT J

Class I Legal Advertisement

To Be Provided Upon Receipt of Affidavit

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 a Class II Administrative Update to its G70-A General Permit Registration for its Sneezy Well Pad off of County Route 4/4 near Ashley in Doddridge County, West Virginia. (Lat. 39.43059, Long. -80.67044)

The applicant estimates the following reduction in potential emissions of Regulated Air Pollutants will be:

1.45 tons of Nitrogen Oxides per year
2.78 tons of Carbon Monoxide per year
0.01 tons of Sulfur Dioxide per year
13.20 tons of Volatile Organics per year

The applicant estimates the following increases in potential emissions of Regulated Air Pollutants will be:

0.03 tons of Particulate Matter per year
706 tons of Greenhouse Gases per year

Startup of operational modifications is planned to begin on or about the 15th day of June 2015. 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.
3570 Shields Hill Rd.
Cairo, WV 26337

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 (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used[5]
		ID No.	Source	ID No.	Device Type	(Speciate VOCs & HAPS)	lb/hr	ton/yr	lb/hr	ton/yr		
1e	Upward Vertical Stack	GPU-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	GPU-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
8e	Upward Vertical Stack	GPU-3	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
4e	Tank Vent	T01	Produced Water Tank Emissions	None		NOx					Gas	EE
						CO					Gas	EE
						VOC	0.017	0.076	0.017	0.076	Gas	EE
						PM					Solid	EE
						HCOH					Gas	EE
						Total HAPs			-		Gas	EE
						CO2e					Gas	EE

5e	Tank Vent	T02	Produced Water Tank Emissions	VCU		NOx	0.017	0.076	0.017	0.076	Gas	EE
						CO					Gas	EE
						VOC					Gas	EE
						PM					Solid	EE
						HCOH					Gas	EE
						Total HAPs					Gas	EE
						CO2e					Gas	EE
6e	Tank Vent	T03	Condensate Tank Emissions	VCU		NOx	5.45	23.85	0.11	1.01	Gas	EE
						CO					Gas	EE
						VOC					Gas	EE
						PM					Solid	EE
						HCOH	0.125	0.55	<0.01	0.03	Gas	EE
						Total HAPs					Gas	EE
						CO2e					Gas	EE
7e	Tank Vent	T03	Condensate Tank Emissions	VCU		NOx	5.45	23.85	0.11	1.01	Gas	EE
						CO					Gas	EE
						VOC					Gas	EE
						PM					Solid	EE
						HCOH	0.125	0.55	<0.01	0.03	Gas	EE
						Total HAPs					Gas	EE
						CO2e					Gas	EE
9e	Upward Vertical Stack	EC-1	Enclosed Combustor	N/A		NOx	0.14	0.09	0.14	0.09	Gas	EE
						CO	0.77	0.51	0.77	0.51	Gas	EE
						VOC	0.22	2.03	0.22	2.03	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	245.6	161.5	245.6	161.5	Gas	EE
10e	Upward Vertical Stack	TEG-1	Thermoelectric 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	2	7	2	7	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

Sneezy Well Pad
Attachment P
Regulatory Analysis

Both State and Federal environmental regulations governing air emissions apply to the Sneezy Well Pad. 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.

This 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 Sneezy Well Pad.

1.3 Aggregation

Source aggregation determinations are typically made based on the following criteria:

- Whether the facilities are under common control,
- Whether the facilities belong to the same Major Group (i.e. the first two digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement;
- Whether the facilities are located on one or more contiguous or adjacent properties; and the distance between all pollutant emitting activities,
- Whether the facilities can operate independently

Only if all criteria are met does a permitting authority aggregate the facilities into a single source.

The planned changes to this facility will not impact the previous aggregation analysis performed as part of the initial permitting process.

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). Specific NSPS requirements potentially applicable to the Sneezy Well Pad Production Facility are as follows:

- 40 CFR 60, Subpart Dc—Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
- 40 CFR 60, Subpart KKK – Equipment Leaks of VOC from Onshore Natural Gas Processing Stations
- 40 CFR 60, Subpart LLL – Onshore Natural Gas Processing Stations: SO_2 Emissions
- 40 CFR 60, Subpart JJJJ – Stationary Spark Ignition Internal Combustion Engines
- 40 CFR 60, Subpart OOOO - Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution

1.4.1 Subpart Dc

This subpart limits SO2 and PM emissions from boilers and heaters fired by various fuels. While the primary thrust of this set of regulations it to control SOx and PM emissions from coal and oil-fired boilers and heaters, natural gas fired units are also covered under this rule. The planned Gas Processing Units have heat inputs that are well below the threshold of coverage for this rule (10 MMBTU/Hr). Thus, this rule does not apply.

1.4.2 Subpart KKK

This subpart limits VOC emissions from equipment at a natural gas processing station. The planned Sneezy Well Pad does not meet the definition of a processing station under this rule. Hence, this rule does not apply.

1.4.3 Subpart LLL

This set of regulations governs emissions from processes used to remove sulfur gases from the field gas stream (sweetening unit) and subsequent sulfur recovery operations. The raw gas that will be received by the Sneezy Well Pad does not contain sufficient sulfur compounds to warrant a sweetening unit. Accordingly, no such equipment will be present. Hence, this rule does not apply.

1.4.4 Subpart IIII

This subpart governs emissions from new compression ignition internal combustion engines CI ICE) manufactured after July 11, 2005. There will be no compression ignition engines (e.g. diesel-fired emergency generator) at this station. Hence, this rule does not apply.

1.4.5 Subpart JJJJ

This subpart governs emissions from new stationary spark ignition internal combustion engines (SI ICE) manufactured after July 1, 2007. The Vapor Recovery Unit, along with its natural gas-fired driver engine will be removed as part of the Class II Administrative Update. Hence, this rule will no longer apply to the Sneezy Well Pad.

1.4.6 Subpart OOOO

This subpart governs emissions from a broad spectrum of operations in the oil and natural gas industries, including operations at natural gas well pads. The potentially applicable sections of this rule sets restrictions, recordkeeping and reporting requirements on emissions from storage vessels with potential VOC emissions greater than 6 tons per year, fugitive emissions, reciprocating compressors and pneumatic controllers.

One of the key components to this rule [40 CFR 60.5390(b)] applicable to the Sneezy Well Pad Production Facility is the requirement that all pneumatic controllers located between the well head and a processing plant must have a bleed rate of less than 6 scfh. All pneumatic controllers installed at Sneezy Well Pad Production Facility meet these criteria. The proposed changes under this Class II Administrative Update will not change the regulatory status for pneumatic controllers at this facility.

This rule also stipulates that storage vessels with VOC emissions equal to or greater than 6 tpy must control those emissions by 95% by October 15, 2013. The condensate tanks at Sneezy have an estimated *uncontrolled* VOC emission rate well in excess of this threshold. Jay-Bee Oil & Gas will install a replacement control system that will capture vapors released from the tank and route them to a vapor combustor unit (VCU). This unit will control VOC emissions to at least 98%. As described in 40 CFR 60.5365(e), *the determination may take into account requirements under a legally and practically enforceable limit in an operating permit or other requirement established under a Federal, State, local or tribal authority*. The control systems proposed in this update application will keep VOC emissions from the tanks described above to rates well below the 6 tpy limit and operation of these controls will become part of the updated permit. Thus, the tanks at this facility will not be regulated under 40 CFR 60, Subpart OOOO.

Lastly, in accordance with 40 CFR 63.5385(a) and 63.5415(c), Jay-Bee was required to replace the rod packers of the VRU compressor every 26,000 hours or 36 months, whichever comes first. As the VRU will be removed, this requirement will no longer apply to the Sneezy Well Pad.

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. The following NESHAP source category standards are potentially applicable to the planned Sneezy Well Pad Production Facility:

- 40 CFR 63, Subpart ZZZZ – NESHAP from Stationary Reciprocating Internal Combustion Engines
- 40 CFR 63, Subpart DDDDD – NESHAP for Industrial, Commercial and Institutional Boilers and Process Heaters

1.5.1 Subpart ZZZZ

This Subpart governs emissions from a stationary reciprocating internal combustion engine (RICE) located both at major and area source of HAPs. The facility will not be a major source of HAPs, but will be considered an area source of HAPs. Hence, this rule is potentially applicable to the facility. However, the single engine (the VRU driver) will be removed as part of this Class II Administrative Update. Hence, this rule will no longer apply.

1.5.2 Subpart DDDDD

This Subpart applies to industrial boilers and process heaters of various sizes and fuel types located at facilities that are classified as a major source of HAPs. As the facility is not a major source of HAPs, this rule does not apply.

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 Sneezy Well Pad Production Facility will potentially store more than 10,000 lbs of a flammable mixture 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 Vapor VCU falls under Section 4.1 of this rule. PM emissions from the VCU must remain below the allowable limit calculated under this rule.

The VCU must also meet the visible emissions requirements of this rule limiting visible emissions to 20% opacity.

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 facility, no actions are required on the part of Jay-Bee Oil & Gas to attain compliance. The various non-engine 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 Sneezy Well Pad Production Facility will continue to have the potential to emit regulated pollutants in excess of the thresholds that define a Stationary Source.

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 Sneezy Well Pad will no longer be subject to the emission limitations, monitoring, testing and recordkeeping of Subpart JJJJ. However, the proposed modifications to the facility will not impact its coverage under 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 Sneezy Well Pad, as noted above, does not have 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.