October 28, 2015

TECHNOLOGIES

98 VANADIUM ROAD
BUILDING D, 2nd FLOOR
BRIDGEVILLE, PA 15017
(412) 221-1100
(412) 257-6103 (FAX)
http://www.se-env.com

West Virginia Dept. of Environmental Protection
Division of Air Quality – Permitting Section
601 57th Street, SE
Charleston, WV 25304

RE: Application for G70 A General Permit
Statler Well Pad Production Facility
Northeast Natural Energy, LLC.
Monongalia, West Virginia

To Whom It May Concern:

On behalf of our client, Northeast Natural Energy, LLC, we are pleased to submit one hard copy and 2 electronic copies of the Application for a G70-A General Permit for its Statler Well Pad in Monongalia County. This equipment is needed to allow proper management of liquid and natural gas produced by the wells prior to injection into nearby gathering lines.

An application fee in the amount of $1,500 ($500 Class II General Permit Fee + $1,000 NSPS) was determined to be applicable.

If there are any questions or concerns regarding this application, please contact me at 412/221-1100, x 1628 or rdhonau@se-env.com and we will provide any needed clarification or additional information immediately.

Sincerely,

SE TECHNOLOGIES, LLC

Roger A. Dhonau, PE, QEP
Principal

Enclosures
Cc: Northeast Natural Energy LLC, Brett Loflin

NORTHEAST NATURAL ENERGY, LLC

APPLICATION FOR GENERAL PERMIT

Statler Well Pad Production Facility
Monongalia County, West Virginia

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

APPLICATION FOR G70-A GENERAL PERMIT

Northeast Natural Energy, LLC

Statler Well Pad Production Facility

Monongalia County, West Virginia

Table of Contents

SECTION I

Application Form

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

APPLICATION FOR GENERAL PERMIT REGISTRATION

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

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

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

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

SECTION I. GENERAL INFORMATION

1. Name of applicant (as registered with the WV Secretary of State's Office):

Northeast Natural Energy, LLC

2. Federal Employer ID No. **(FEIN):**

270945493

3. Applicant's mailing address:

48 Donley Street Suite 601
Morgantown, WV 26501

4. Applicant's physical address:

48 Donley Street Suite 601
Morgantown, WV 26501

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

N/A

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

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

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

SECTION II. FACILITY INFORMATION

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

Natural Gas Well Pad Production Facility

8a. Standard Industrial Classification AND 8b. North American Industry

Classification (SIC) code: **1311** System (NAICS) code: **211111**

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

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

A: PRIMARY OPERATING SITE INFORMATION

11A. Facility name of primary operating site:	12A. Address of primary operating site:
Statler 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

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 Exit 155 on I-79, merge onto Chaplin Hill Road (CR 19/24) toward US Rt. 19/Star City. After 0.8 miles, turn left onto US Rt. 19. Continue On US Rt. 19 for 1.7 miles. Turn left on WV Rt. 7 and continue for approximately 12.7 miles. Well Pad entrance road is on the right.

15A. Nearest city or town:	16A. County:	17A. UTM Coordinates:
Pentress	**Monongalia**	Northing (KM): 4395.6501 Easting (KM): 570.4500 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, separation of liquids and compression	Latitude: 39.707806 Longitude -80.17817

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:

1 / 15 /16

If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: :

____/____/____

21. Date of anticipated Start-up if registration is granted:

1/ 20 / 16

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

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

SECTION III. ATTACHMENTS AND SUPPORTING DOCUMENTS

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

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

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

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

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

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

SECTION IV. CERTIFICATION OF INFORMATION

This General Permit Registration Application shall be signed below by a Responsible Official. A Responsible Official is a President, Vice President, Secretary, Treasurer, General Partner, General Manager, a member of a Board of Directors, or Owner, depending on business structure. A business may certify an Authorized Representative who shall have authority to bind the Corporation, Partnership, Limited Liability Company, Association, Joint Venture or Sole Proprietorship. Required records of daily throughput, hours of operation and maintenance, general correspondence, Emission Inventory, Certified Emission Statement, compliance certifications and all required notifications must be signed by a Responsible Official or an Authorized Representative. If a business wishes to certify an Authorized Representative, the official agreement below shall be checked off and the appropriate names and signatures entered. Any administratively incomplete or improperly signed or unsigned Registration Application will be returned to the applicant.

FOR A CORPORATION (domestic or foreign)

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

FOR A PARTNERSHIP

☐ I certify that I am a General Partner

FOR A LIMITED LIABILITY COMPANY

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

FOR AN ASSOCIATION

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

FOR A JOINT VENTURE

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

FOR A SOLE PROPRIETORSHIP

☐ I certify that I am the Owner and Proprietor

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

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

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

Signature _____ 10/22/15
(please use blue ink) Responsible Official Date

Name & Title **Brett Loflin - Vice President Regulatory Affairs**
(please print or type)

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

Applicant's Name _____

Phone & Fax **304/241-5752** **304/414-7061**
Phone Fax

Email bloflin@nne-llc.com

SECTION II

Attachments

ATTACHMENT A

Business Registration

State of West Virginia

Certificate

I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that

NORTHEAST NATURAL ENERGY LLC

Control Number: 99GX5

a limited liability company, organized under the laws of the State of Delaware

has filed its "Application for Certificate of Authority" in my office according to the provisions of West Virginia Code §31B-10-1002. I hereby declare the organization to be registered as a foreign limited liability company from its effective date of October 9, 2009, until a certificate of cancellation is filed with our office.

Therefore, I hereby issue this

CERTIFICATE OF AUTHORITY OF A FOREIGN LIMITED LIABILITY COMPANY

to the limited liability company authorizing it to transact business in West Virginia

Given under my hand and the Great Seal of the State of West Virginia on this day of October 9, 2009

Natalie E Tennant

Secretary of State

ATTACHMENT B

Process Description

Northeast Natural Energy, LLC
Statler Well Pad Production Facility
Attachment B
Process Description

Natural gas and Produced Fluids (water) is received from seven wells on this location at approximately 400 psi and pass through Gas Processing Units (one per well) to avoid ice and methane hydrate formation during subsequent pressure drops. These materials then pass through a separator where gas and water are separated. The gas will be routed to a gathering pipeline owned and operated by others.

The Produced Water is accumulated in four 210 BBL tanks, pending truck transportation by others. Produced Water is re-used at subsequent wells or disposed at a regional disposal facility. Flash, working and breathing losses from these tanks is allowed to vent to atmosphere. *There is no condensate generated at this facility*.

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

Currently, emissions at the Statler Well Pad are below permitting thresholds. However, Northeast plans to install a single gas-fired compressor engines used to drive a compressor which will boost the production gas to a pressure suitable for injection into the gathering line owned by others. The addition of this engine will raise facility-wide emissions above one or more permitting threshlolds. No dehydration units are proposed for this facility at this time. It is important to note that the compressor and driver engine are anticipated to operate only for a limited time period (approximately 12-18 months) pending construction and operation of a compressor station by the company providing midstream services for Northeast Energy.

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

40 CFR 60, Subpart OOOO requires that VOC emissions from each “storage vessel affected facility” installed after April 12, 2013 (GROUP 2) must be controlled by at least 95% by April 15, 2014 or within 60 days of installation when the VOC uncontrolled emissions exceed 6 tpy. VOC emissions from the tanks described above will be well below the 6 tpy threshold. Thus, the tanks at this facility will not be regulated under 40 CFR 60, Subpart OOOO.

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	2011	1.0 MMBTU/Hr	EXIST	None
GPU-2	2E	Gas Processing Unit	2011	1.0 MMBTU/Hr	EXIST	None
GPU-3	3E	Gas Processing Unit	2014	0.75 MMBTU/Hr	EXIST	None
GPU-4	4E	Gas Processing Unit	2014	0.75 MMBTU/Hr	EXIST	None
GPU-5	5E	Gas Processing Unit	2014	0.75 MMBTU/Hr	EXIST	None
GPU-6	6E	Gas Processing Unit	2015	0.75 MMBTU/Hr	EXIST	None
GPU-7	7E	Gas Processing Unit	2015	0.75 MMBTU/Hr	EXIST	None
CE-1	8E	CAT 3516B	Pending Permit	1380 HP	NEW	1C
T01	9E	Produced Water Tank	2011	210 BBL	EXIST	None
T02	10E	Produced Water Tank	2011	210 BBL	EXIST	None
T03	11E	Produced Water Tank	2014	210 BBL	EXIST	None
T03	12E	Produced Water Tank	2014	210 BBL	EXIST	None
TL-1	13E	Produced Water Loading	2011	105,900 BBL/Yr.	EXIST	None

[1] For Emission Units (or Sources) use the following numbering system:1S, 2S, 3S,... or other appropriate designation.
[2] For Emission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation.
[3] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

ATTACHMENT C

Description of Fugitive Emissions

Northeast Natural Energy, LLC
Statler Well Pad
Attachment C – Fugitive Emissions Data

Storage Tank and Haul Road Fugitive Emissions
Haul Road Fugitive Emissions for unpaved roads are calculated and presented in Attachment I. PM is estimated to be 0.09 tons per year and PM-10 to be 0.01 tons per year.

Produced Fluids received by this facility is accumulated in a four tanks prior to off-site shipment. Emissions from these tanks were determined by using direct measurements from the on-site produced water tanks. Uncontrolled emissions from these tanks were determined to be 0.35 tons per year of VOCs. There is no control on these emissions. *Note that there is no condensate at this facility.*

Emissions from these sources are summarized in the following fugitive emissions form and the calculations are included in the emissions summary in Attachment I.

Equipment Fugitive Emissions
As noted in the process description, Northeast plans to install various equipment at its Statler Well Pad. This equipment will contain a variety of piping containing natural gas and separated liquids under pressure. During the normal course of operation minor leaks from valves, pressure release devices and various fittings associated with this piping may occur. A potential emission rate of 0.01 tpy of VOCs and 76.6 tpy CO_2e has been estimated.

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

Pigging Emission Estimates
There will be no pigging operations under Northeast Natural Energy ownership/operation in association with this planned facility modification.

Facility Blowdown Emission Estimates
There will be one gas compressors at this facility that will require blowdowns to allow for routine maintenance. The volume of natural gas released per blowdown event from this unit and associated inlet separator and piping is approximately 1570 cubic feet of gas at STP (see attached calculations). There will be a maximum of 24 blow downs per compressor per year. Thus, there is a potential for 37,680 cubic feet of gas emitted from blowdowns per year (1570 x 24).

The density of this gas at STP is 0.046 pounds per cubic foot (see the Inlet Gas spreadsheet in the calculations). Thus, the mass of gas released per year is 1,733 pounds (37,680 cf x 0.046). As the percentage of VOCs in the gas (by weight) is 0.68 percent (see Inlet Gas spreadsheet in the calculations), the VOC (non-methane/non-ethane) emissions from blowdown operations are estimated at approximately 11.8 lbs (1,733 x 0.0068) or less than 0.01 tons per year. As the methane concentration in this gas is 92.6 % (by weight), methane emissions will be 1,605 pounds (1,733 x 0.926) per year. Using a GHG factor of 25, methane emissions from blowdowns in CO_{2e} will be 20.1 tons CO_2e (1605 x 25[GHG factor] /2000).

FUGITIVE EMISSIONS DATA SUMMARY SHEET

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

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

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

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS [1]	Maximum Potential Uncontrolled Emissions [2]		Maximum Potential Controlled Emissions [3]		Est. Method Used [4]
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads						
Unpaved Haul Roads	PM	0.26	0.09	0.26	0.09	EE
	PM-10	0.04	0.01	0.04	0.01	EE
Loading and Unloading Produced Water	VOCs	NA	<0.01	NA	<0.01	EE
Equipment Leaks	VOCs	Does Not Apply	0.01	Does Not Apply	0.01	EE
	CO2e	Does Not Apply	76.5	Does Not Apply	76.5	EE
Blowdowns	VOCs	N/A	<0.01	N/A	<0.01	EE
	CO2e	N/A	20	N/A	20	EE
Other:						

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

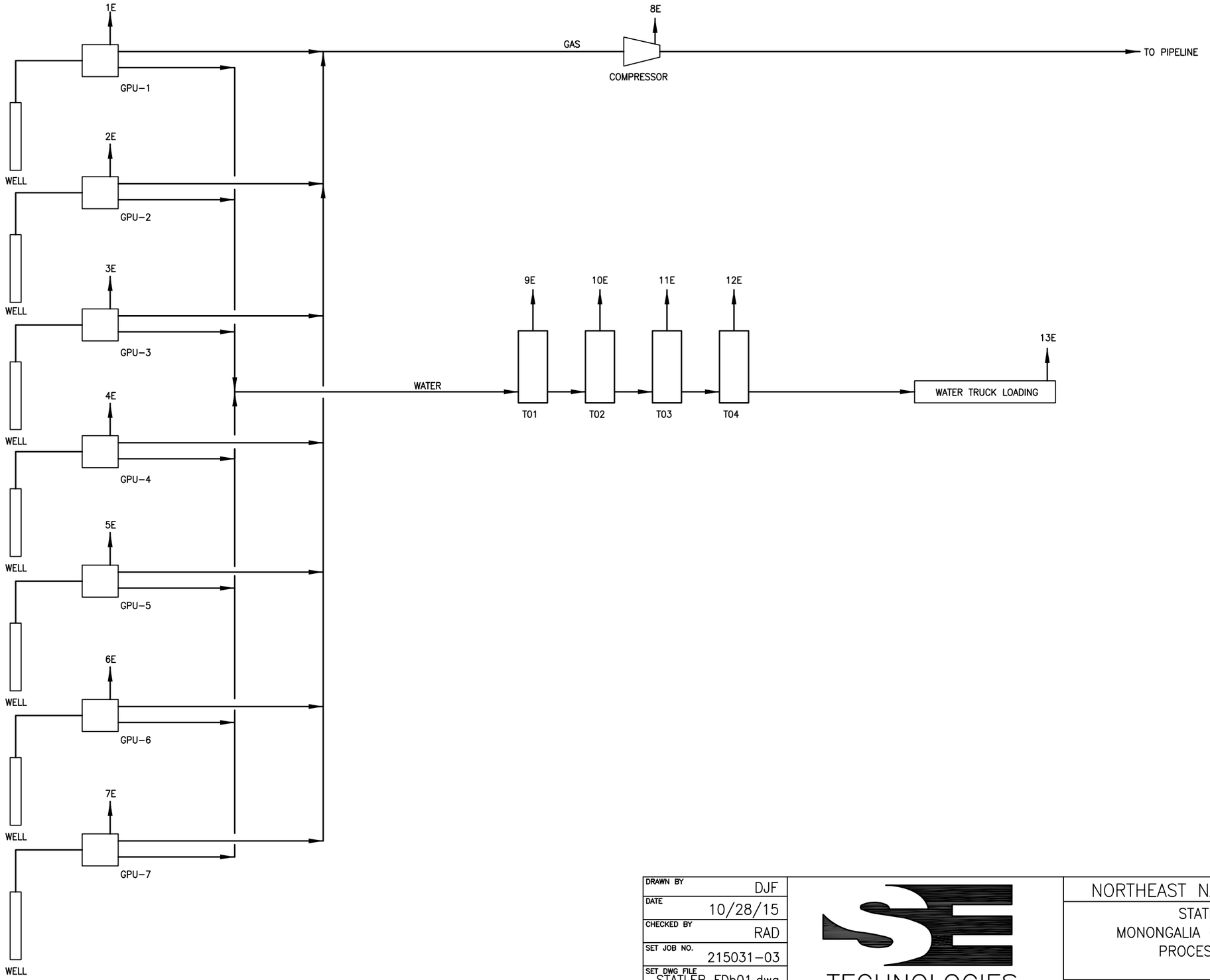
[2] Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

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

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

ATTACHMENT D

Process Flow Diagram



DRAWN BY	DJF
DATE	10/28/15
CHECKED BY	RAD
SET JOB NO.	215031-03
SET DWG FILE	STATLER FDb01.dwg
DRAWING SCALE	N.T.S.

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

NORTHEAST NATIONAL ENERGY, LLC

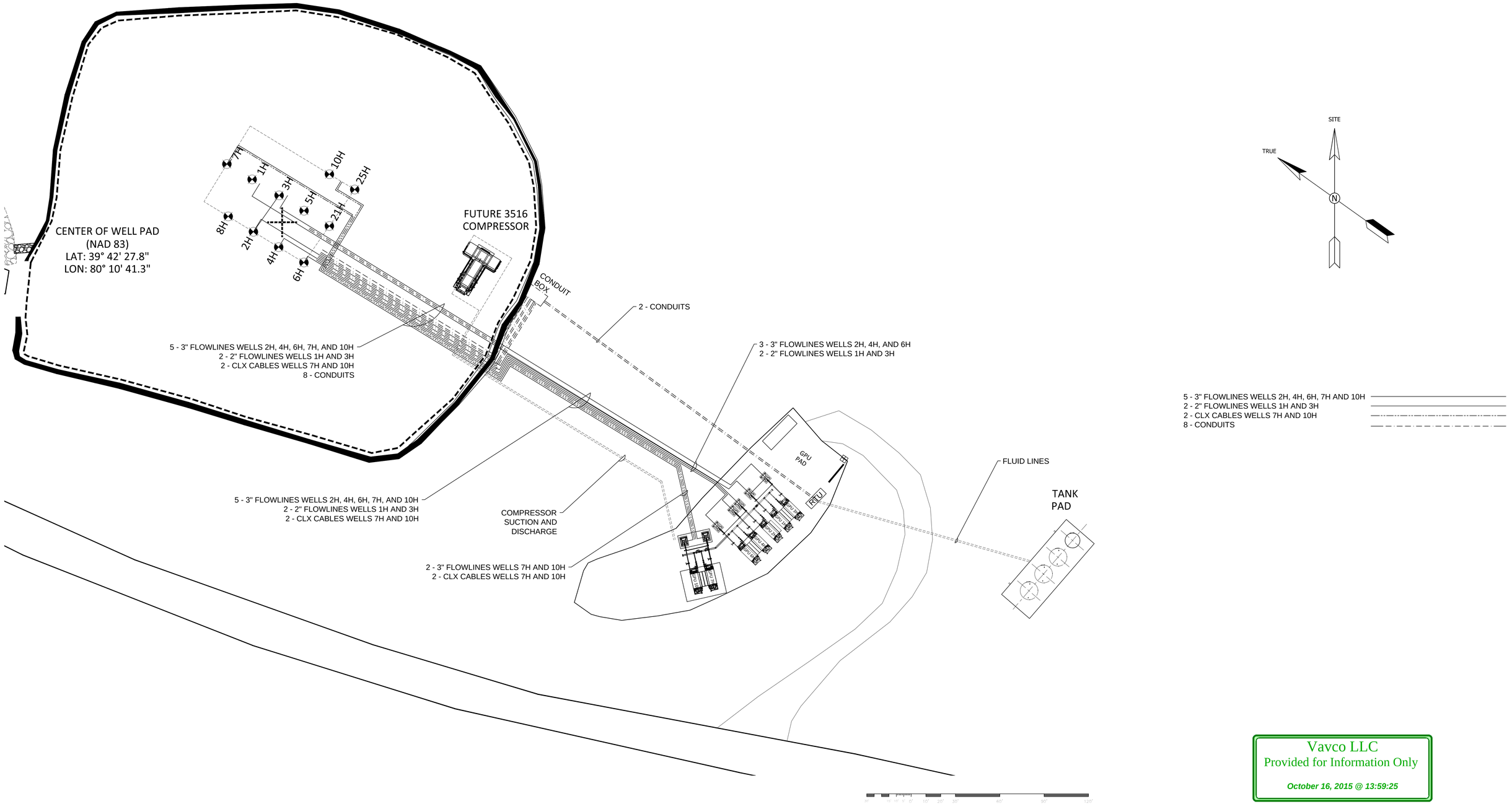
STATLER WELL PAD
MONONGALIA COUNTY, WEST VIRGINIA
PROCESS FLOW DIAGRAM

DRAWING NAME: FIGURE 2

REV. 0

ATTACHMENT E

Plot Plan



SCALE 1"=30'

Vavco LLC
Provided for Information Only

October 16, 2015 @ 13:59:25

REV	DESCRIPTION	DATE	BY:
1	ADDED TANK BATTERY AND LOCATION OF FUTURE COMPRESSOR	10/16/2015	MCCOY
ASB	ISSUED FOR AS BUILT	10/12/2015	MCCOY

"LETTERED REVISIONS (i.e., 'A', 'B' etc.) INDICATE DRAWINGS FOR REVIEW/APPROVAL. NO WORK SHALL BE DONE BASED ON THESE DRAWINGS. AFTER APPROVAL DRAWINGS SHALL MARKED AS REVISION # 0. ALL SUBSEQUENT CHANGES TO THE DRAWING SHALL BE SEQUENTIALLY NUMBERED AND LISTED HERE. AFTER APPROVAL REFERENCES TO LETTERED REVISIONS SHALL BE REMOVED.

VAVCO LLC.

101 MAHOOD ROAD, BUTLER, PA 16001

FOR: NORTHEAST NATURAL ENERGY, LLC PROJ: STATLER WELL PAD

SITE LAYOUT
OVERALL PLAN VIEW

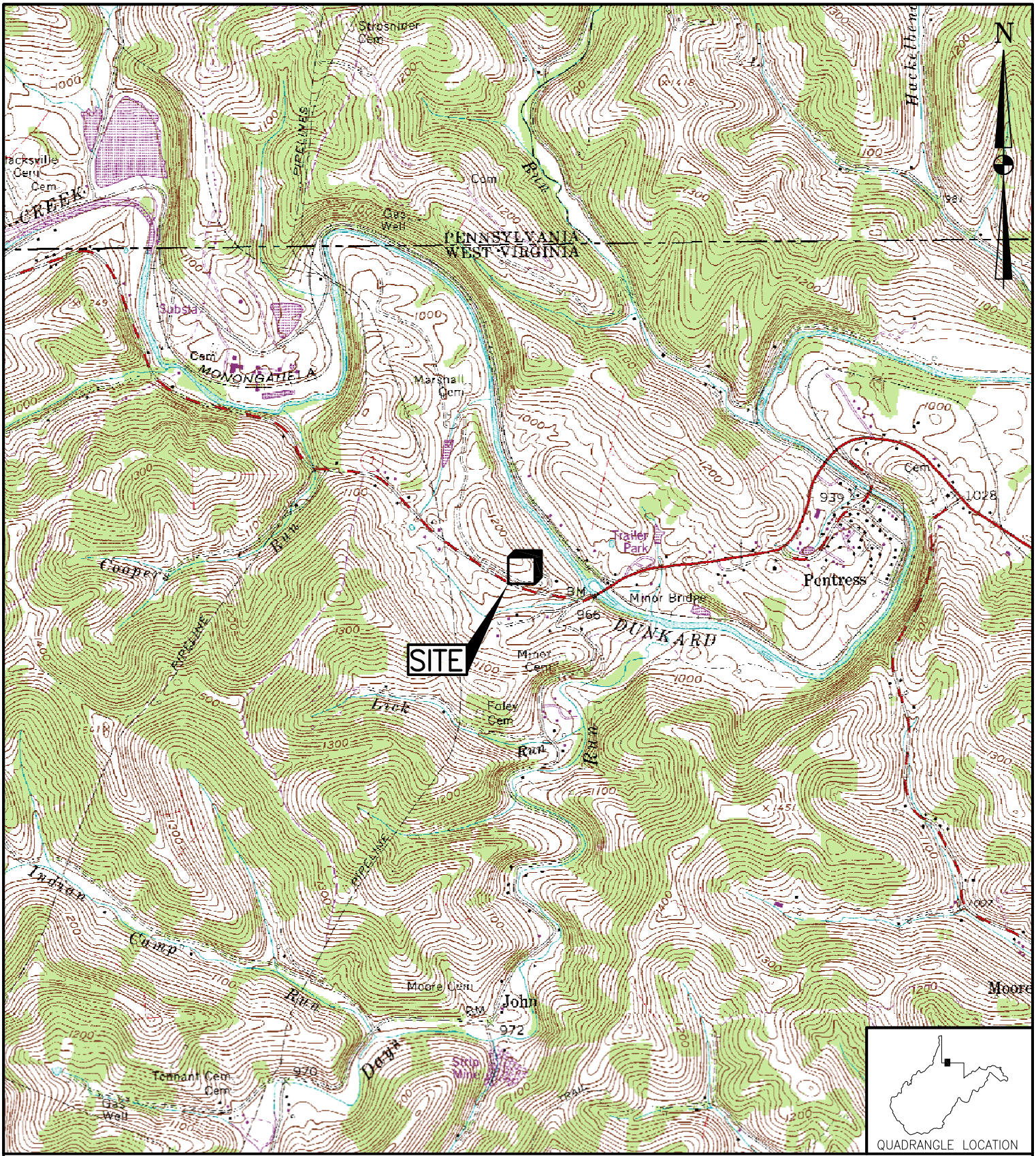
TOWN: -
COUNTY: -
DIR/FILE: NNE-1485-P-100.dwg

SCALE	DRAWN BY:	CHECKED:	ISSUED FOR:
1" = 30'-0"	MCCOY 10/16/2015	SINKLIC 10/16/2015	INFORMATION

PROJ#	DWG. NO.	REV.
1485	NNE-1485-P-100	1

ATTACHMENT F

Area Map



REFERENCE: USGS 7.5' QUADRANGLE MAP OF: BLACKSVILLE, WEST VIRGINIA–PENNSYLVANIA; DATED 1958, PHOTOREVISED 1976, PHOTOINSPECTED 1976.

DRAWN BY	DJF
DATE	10/28/15
CHECKED BY	RAD
SET JOB NO.	215031-03
SET DWG FILE	STATLERm01.dwg
DRAWING SCALE	1"=2000'

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

NORTHEAST NATURAL ENERGY, LLC

STATLER WELL PAD PRODUCTION FACILITY
MONONGALIA COUNTY, WEST VIRGINIA
SITE LOCATION MAP

DRAWING NO.	REV.
FIGURE 1	0

Plot: env045 10/28/2015 10:16 G:\NORTHEAST NATIONAL ENERGY\215031\STATLER\STATLERm01.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 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:	
047-061-01625	047-061-01697
047-061-01626	047-061-01698
047-061-01656	
047-061-01658	
047-061-01660	

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 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	2011	EXIST	None	1.0 MMBTU/Hr	1028
GPU-2	2E	Gas Processing Unit	2011	EXIST	None	1.0 MMBTU/Hr	1028
GPU-3	3E	Gas Processing Unit	2014	EXIST	None	0.75 MMBTU/Hr	1028
GPU-4	3E	Gas Processing Unit	2014	EXIST	None	0.75 MMBTU/Hr	1028
GPU-5	3E	Gas Processing Unit	2014	EXIST	None	0.75 MMBTU/Hr	1028
GPU-6	3E	Gas Processing Unit	2015	EXIST	None	0.75 MMBTU/Hr	1028
GPU-7	3E	Gas Processing Unit	2015	EXIST	None	0.75 MMBTU/Hr	1028

[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)

STORAGE VESSEL EMISSION UNIT DATA SHEET

Provide the following information for each new or modified bulk liquid storage tank.

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name **Statler Tank Farm**	2. Tank Name **T01-T04**
3. Emission Unit ID number **T01-T04**	4. Emission Point ID number **9E-12E**
5. Date Installed or Modified *(for existing tanks)* **2011-2015**	6. Type of change: ☒ New construction ☐ New stored material ☐ Other
7A. Description of Tank Modification *(if applicable)*	
7B. Will more than one material be stored in this tank? *If so, a separate form must be completed for each material.* ☐ Yes ☒ No	
7C. Provide any limitations on source operation affecting emissions. (production variation, etc.) **A maximum of 26,475 BBL per year throughput for each of Tanks T01 through T04.**	

II. TANK INFORMATION (required)

8. Design Capacity *(specify barrels or gallons).* Use the internal cross-sectional area multiplied by internal height. **210 BBL**	
9A. Tank Internal Diameter (ft.) **10**	9B. Tank Internal Height (ft.)**15**
10A. Maximum Liquid Height (ft.)**14**	10B. Average Liquid Height (ft.) **8**
11A. Maximum Vapor Space Height (ft.) **14.5**	11B. Average Vapor Space Height (ft.) **7**
12. Nominal Capacity *(specify barrels or gallons).* This is also known as "working volume. **190 BBL**	
13A. Maximum annual throughput (gal/yr) **1,111,950(each)**	13B. Maximum daily throughput (gal/day) **3500**
14. Number of tank turnovers per year **133 (max)**	15. Maximum tank fill rate (gal/min) **6**
16. Tank fill method ☐ Submerged ☐ Splash ☒ Bottom Loading	
17. Is the tank system a variable vapor space system? ☐ Yes ☒ No If yes, (A) What is the volume expansion capacity of the system (gal)? (B) What are the number of transfers into the system per year?	
18. Type of tank (check all that apply): ☒ Fixed Roof __X_ vertical ___ horizontal ___ flat roof ___ cone roof ___ dome roof ___ other (describe) ☐ External Floating Roof ___ pontoon roof ___ double deck roof ☐ Domed External (or Covered) Floating Roof ☐ Internal Floating Roof ___ vertical column support ___ self-supporting ☐ Variable Vapor Space ___ lifter roof ___ diaphragm ☐ Pressurized ___ spherical ___ cylindrical ☐ Underground ☐ Other (describe)	

III. TANK CONSTRUCTION AND OPERATION INFORMATION *(check which one applies)*

☐ Refer to enclosed TANKS Summary Sheets
☒ Refer to the responses to items 19 – 26 in section VII

IV. SITE INFORMATION *(check which one applies)*

☐ Refer to enclosed TANKS Summary Sheets
☒ Refer to the responses to items 27 – 33 in section VII

V. LIQUID INFORMATION *(check which one applies)*

☐ Refer to enclosed TANKS Summary Sheets
☒ Refer to the responses to items 34 – 39 in section VII

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply):

☒ Does Not Apply
☐ Carbon Adsorption[1]
☐ Vent to Vapor Combustion Device[1] (vapor combustors, flares, thermal oxidizers)
☐ Condenser[1]
☐ Other[1] (describe)
☐ Rupture Disc (psig)
☐ Inert Gas Blanket of _____
☐ Conservation Vent (psig
Vacuum Setting Pressure Setting
☐ Emergency Relief Valve (psig)

[1] Complete appropriate Air Pollution Control Device Sheet

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

Material Name and CAS No.	Flashing Loss		Breathing Loss		Working Loss		Total Emissions Loss		Estimation Method[1]
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	
VOCs	0.08	0.35					0.08	0.35	Flash Measurements
(Un-controlled)									from well pad water
Tanks T01-T04 Combined									sample
Emissions									

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

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

SECTION VII (required if did not provide TANKS Summary Sheets)

TANK CONSTRUCTION AND OPERATION INFORMATION

19. Tank Shell Construction:
☒ Riveted ☐ Gunite lined ☐ Epoxy-coated rivets ☐ Other (describe)

20A. Shell Color: **White**	20B. Roof Color: **White**	20C. Year Last Painted: **2014**

21. Shell Condition (if metal and unlined):
☒ No Rust ☐ Light Rust ☐ Dense Rust ☐ Not applicable

22A. Is the tank heated? ☐ Yes ☒ No	22B. If yes, operating temperature:	22C. If yes, how is heat provided to tank?

23. Operating Pressure Range (psig): **Less than 0.3 psig**

24. Is the tank a **Vertical Fixed Roof Tank**? ☒ Yes ☐No	24A. If yes, for dome roof provide radius (ft): **N/A**	24B. If yes, for cone roof, provide slop (ft/ft) **N/A**

25. Complete item 25 for **Floating Roof Tanks** ☐ Does not apply ☒

25A. Year Internal Floaters Installed:

25B. Primary Seal Type *(check one):* ☐ Metallic (mechanical) shoe seal ☐ Liquid mounted resilient seal ☐ Vapor mounted resilient seal ☐ Other (describe):

25C. Is the Floating Roof equipped with a secondary seal? ☐ Yes ☐No

25D. If yes, how is the secondary seal mounted? *(check one)* ☐ Shoe ☐ Rim ☐ Other (describe):

25E. Is the floating roof equipped with a weather shield? ☐ Yes ☐ No			
25F. Describe deck fittings:			
26. Complete the following section for **Internal Floating Roof Tanks** ☒ Does not apply			
26A. Deck Type: ☐ Bolted ☐ Welded		26B. For bolted decks, provide deck construction:	
26C. Deck seam. Continuous sheet construction: ☐ 5 ft. wide ☐ 6 ft. wide ☐ 7 ft. wide ☐ 5 x 7.5 ft. wide ☐ 5 x 12 ft. wide ☐ other (describe)			
26D. Deck seam length (ft.):	26E. Area of deck (ft^2):	26F. For column supported tanks, # of columns:	26G. For column supported tanks, diameter of column:
SITE INFORMATION:			
27. Provide the city and state on which the data in this section are based:			
28. Daily Avg. Ambient Temperature (°F):		29. Annual Avg. Maximum Temperature (°F):	
30. Annual Avg. Minimum Temperature (°F):		31. Avg. Wind Speed (mph):	
32. Annual Avg. Solar Insulation Factor (BTU/ft^2-day):		33. Atmospheric Pressure (psia):	
LIQUID INFORMATION:			
34. Avg. daily temperature range of bulk liquid (°F): **60**	34A. Minimum (°F): **50**	34B. Maximum (°F**): 70**	
35. Avg. operating pressure range of tank (psig): **0-0.3 psig**	35A. Minimum (psig): **0 psig**	35B. Maximum (psig): **0.3 psig**	
36A. Minimum liquid surface temperature (°F):		36B. Corresponding vapor pressure (psia):	
37A. Avg. liquid surface temperature (°F):		37B. Corresponding vapor pressure (psia):	
38A. Maximum liquid surface temperature (°F):		38B. Corresponding vapor pressure (psia):	
39. Provide the following for each liquid or gas to be stored in the tank. Add additional pages if necessary.			
39A. Material name and composition:	**Produced Water**		
39B. CAS number:	N/A		
39C. Liquid density (lb/gal):	**8.347**		
39D. Liquid molecular weight (lb/lb-mole):	**18.04**		
39E. Vapor molecular weight (lb/lb-mole):	**17.68**		
39F. Maximum true vapor pressure (psia):			
39G. Maxim Reid vapor pressure (psia):			
39H. Months Storage per year. From: To:	**Continuous**		

Attachment G
EMISSIONS UNIT DATA SHEET
BULK LIQUID TRANSFER OPERATIONS

Furnish the following information for each new or modified bulk liquid transfer area or loading rack, as shown on the *Equipment List Form* and other parts of this application. This form is to be used for bulk liquid transfer operations such as to and from drums, marine vessels, rail tank cars, and tank trucks.

Identification Number (as assigned on *Equipment List Form*):	
1. Loading Area Name: **Tank Un-Loading Area**	
2. Type of cargo vessels accommodated at this rack or transfer point (check as many as apply): ☐ Drums ☐ Marine Vessels ☐Rail Tank Cars ☒ Tank Trucks	
3. Loading Rack or Transfer Point Data:	
Number of pumps	1 (on truck)
Number of liquids loaded	1
Maximum number of marine vessels, tank trucks, tank cars, and/or drums loading at one time	1
4. Does ballasting of marine vessels occur at this loading area? ☐ Yes ☐ No ☒ Does not apply	
5. Describe cleaning location, compounds and procedure for cargo vessels using this transfer point: **None**	
6. Are cargo vessels pressure tested for leaks at this or any other location? ☐ Yes ☒ No If YES, describe:	

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

Maximum	Jan. - Mar.	Apr. - June	July - Sept.	Oct. - Dec.
hours/day	**3**	**3**	**3**	**3**

8. Bulk Liquid Data *(add pages as necessary):*

Pump ID No.	**N/A**	**N/A**				
Liquid Name	**Produced Water**					
Max. daily throughput (1000 gal/day)	**7.5**					
Max. annual throughput (1000 gal/yr)	**4,445.7**					
Max. Fill Rate (gal/min)	**70**					
Average Fill Time (min/loading)	**60**					
Max. Bulk Liquid Temperature (^{o}F)	**70**					
True Vapor Pressure [2]	**N/A**					
Cargo Vessel Condition [3]	U					
Control Equipment or Method [4]	**None**					
Minimum control efficiency (%)	**N/A**					

Maximum Emission Rate	Loading (lb/hr)	N/A					
	Annual (lb/yr)	N/A					
Estimation Method [5]		**N/A**					

[1] BF = Bottom Fill SP = Splash Fill SUB = Submerged Fill

[2] At maximum bulk liquid temperature

[3] B = Ballasted Vessel, C = Cleaned, U = Uncleaned (dedicated service), O = other (describe)

[4] List as many as apply (complete and submit appropriate *Air Pollution Control Device Sheets*):CA = Carbon Adsorption LOA = Lean Oil AdsorptionCO = Condensation SC = Scrubber (Absorption)CRA = Compressor-Refrigeration-Absorption TO = Thermal Oxidation or Incineration
CRC = Compression-Refrigeration-Condensation VB = Dedicated Vapor Balance (closed system)
O = other (descibe)

[5] EPA = EPA Emission Factor as stated in AP-42
MB = Material Balance
TM = Test Measurement based upon test data submittal
O = other (describe)

9. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING Truck load-outs per month and volume of liquid removed each load-out	RECORDKEEPING Truck load-outs per month and volume of liquid removed each load-out
REPORTING Truck load-outs per month and volume of liquid removed each load-out	TESTING None

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty **N/A**

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

Complete this section for any natural gas-fired reciprocating internal combustion engine.

Emission Unit (Source) ID No.[1]		CE-1					
Emission Point ID No. [2]		6E					
Engine Manufacturer and Model		Caterpillar 3516B					
Manufacturer's Rated bhp/rpm		1380 @ 1400					
Source Status[3]		NS					
Date Installed/Modified/Removed[4]		Upon Receipt of Permit					
Engine Manufactured/Reconstruction Date[5]		After 1/1/2012					
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]	LB4S					
	APCD Type[8]	CAT					
	Fuel Type[9]	RG					
	H_2S (gr/100 scf)	<1					
	Operating bhp/rpm	1380 @ 1400					
	BSFC (Btu/bhp-hr)	8255					
	Fuel throughput (ft^3/hr)	11,028					
	Fuel throughput ($MMft^3$/yr)	96.61					
	Operation (hrs/yr)	8760					
Reference[10]	Potential Emissions[11]	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
	NO_X	1.52	6.66				
	CO	0.52	2.27				
	VOC	0.73	3.20				
	SO_2	<0.01	0.03				
	PM_{10}	0.11	0.50				
	Formaldehyde	0.13	0.57				
MRR[12]	Proposed Monitoring:	Engine Hours					
	Proposed Recordkeeping:	Engine Hours					
	Proposed Reporting:	Calculated Gas Consumption and associated 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

USA COMPRESSION

USA Unit 1399 G3516BLE Engine Emissions

Date of Manufacture	June 27, 2013	Engine Serial Number	JEF02325	Date Modified/Reconstructed	TBD
Driver Rated HP	1380	Rated Speed in RPM	1400	Combustion Type	Spark Ignited 4 Stroke
Number of Cylinders	16	Compression Ratio	8:1	Combustion Setting	Ultra Lean Burn
Total Displacement (in^3)	4230	Fuel Delivery Method	Carburetor	Combustion Air Treatment	T.C./Aftercooled

Raw Engine Emissions (With Customer Fuel Gas with little to no H2S)

Fuel Consumption *7442 LHV BTU/bhp-hr or 8255 HHV BTU/bhp-hr*
Altitude *1200 ft*
Maximum Air Inlet Temp *90 F*

	g/bhp-hr [1]	lb/MMBTU [2]	lb/hr	TPY
Nitrogen Oxides (NOx)	0.5		1.52	6.66
Carbon Monoxide (CO)	2.43		7.39	32.38
Volatile Organic Compounds (VOC or NMNEHC excluding CH2O)	0.48		1.46	6.40
Formaldehyde (CH2O)	0.43		1.31	5.73
Particulate Matter (PM) Filterable+Condensable		9.99E-03	1.14E-01	4.98E-01
Sulfur Dioxide (SO2)		5.88E-04	6.70E-03	2.93E-02

	g/bhp-hr [1]	lb/hr	Metric Tonne/yr
Carbon Dioxide (CO2)	472	1436	5705
Methane (CH4)	4.04	12.29	48.83

[1] g/bhp-hr are based on Caterpillar Specifications (GERP) assuming customer fuel gas, 1200 ft elevation, and 90 F Max Air Inlet Temperature. Note that g/bhp-hr values are based on 100% Load Operation. For Air Permitting, it is recommended to add a safety margin to CO, VOC, and Formaldehyde to account for variations in fuel gas composition and load.

[2] Emission Factor obtained from EPA's AP-42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combution Sources (Section 3.2 Natural Gas-Fired Reciprocating Engines, Table 3.2-2).

Catalytic Converter Emissions

Catalytic Converter Make and Model: *DCL, 2DC65-14*
Element Type: *Oxidation, 30.75" Round*
Number of Elements in Housing: *(2) Full Elements*
Air/Fuel Ratio Control *Caterpillar ADEM3, NOx Feedback*

	% Reduction		**lb/hr**	**TPY**
Nitrogen Oxides (NOx)	0		**1.52**	**6.66**
Carbon Monoxide (CO)	93		**0.52**	**2.27**
Volatile Organic Compounds (VOC or NMNEHC)	50	(use 30% DRE for High BTU Fuels)	**0.73**	**3.20**
Formaldehyde (CH2O)	90		**0.13**	**0.57**
Particulate Matter (PM)	0		**1.14E-01**	**4.98E-01**
Sulfur Dioxide (SO2)	0		**6.70E-03**	**2.93E-02**

	% Reduction	**lb/hr**	**Metric Tonne/yr**
Carbon Dioxide (CO2)	0	**1436**	**5705**
Methane (CH4)	0	**12.29**	**48.83**

DCL America Inc.

1610 Woodstead Ct, Suite 245, The Woodlands, Texas 77380 USA
Tel: 877-965-8989 *Fax:* 281-605-5858 info@dcl-inc.com www.dcl-inc.com

GLOBAL LEADER IN EMISSION CONTROL SOLUTIONS

To:	Chris Magee	**Phone:**	814-746-6942
Company:	USA Compression	**Email**	CMagee@usacompression.com
Date:	March 20, 2015	**No. Pages:**	1

Dear Chris,

We hereby guarantee that our Model DC65-14 specified below with one (2) elements installed as described below, and sized for the following engine:

Engine Data	
Engine Model	Caterpillar G3516B
Power	1380HP
Fuel	PQNG
Exhaust Flow Rate	9127 acfm
Exhaust Temperature	994°F

Catalyst Data	
Catalyst Model	DC65-14
Type	Oxidation- A
# of Elements	2
Cell Density	300 cpsi
Approx Dimensions	See attached drawing
Approx Pressure Drop	4.0" w.c

will perform as follows:

Exhaust Component	Engine Output g/bhp-hr or % reduction	Converter Output g/bhp-hr or % reduction
CO	2.43	93
VOC	0.48	0.25
CH20	0.43	0.05

for a period of 1 year or 8000 hours, whichever comes first, subject to all terms and conditions contained in the attached warranty document being respected and met.

Best Regards,

On behalf of DCL America Inc.

Lisa Barber

416-788-8021
lbarber@dcl-inc.com

G3516B

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA
Northeast Quote 4-10-15

CATERPILLAR®

ENGINE SPEED (rpm):	1400	RATING STRATEGY:	STANDARD
COMPRESSION RATIO:	8:1	RATING LEVEL:	CONTINUOUS
AFTERCOOLER TYPE:	SCAC	FUEL SYSTEM:	CAT WIDE RANGE WITH AIR FUEL RATIO CONTROL
AFTERCOOLER - STAGE 2 INLET (°F):	130		
AFTERCOOLER - STAGE 1 INLET (°F):	201	**SITE CONDITIONS:**	
JACKET WATER OUTLET (°F):	210	FUEL:	Northeast 4-10-15
ASPIRATION:	TA	FUEL PRESSURE RANGE(psig):	7.0-40.0
COOLING SYSTEM:	JW+OC+1AC, 2AC	FUEL METHANE NUMBER:	90.5
CONTROL SYSTEM:	ADEM3	FUEL LHV (Btu/scf):	931
EXHAUST MANIFOLD:	DRY	ALTITUDE(ft):	1200
COMBUSTION:	LOW EMISSION	MAXIMUM INLET AIR TEMPERATURE(°F):	90
NOx EMISSION LEVEL (g/bhp-hr NOx):	0.5	STANDARD RATED POWER:	1380 bhp@1400rpm
SET POINT TIMING:	30		

				MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE		
RATING		**NOTES**	**LOAD**	**100%**	**100%**	**75%**	**50%**
ENGINE POWER	(WITHOUT FAN)	(1)	bhp	1380	1380	1035	690
INLET AIR TEMPERATURE			°F	90	90	90	90
ENGINE DATA							
FUEL CONSUMPTION (LHV)		(2)	Btu/bhp-hr	7442	7442	7971	8561
FUEL CONSUMPTION (HHV)		(2)	Btu/bhp-hr	8255	8255	8842	9497
AIR FLOW (@inlet air temp, 14.7 psia)	(WET)	(3)(4)	ft3/min	3199	3202	2511	1756
AIR FLOW	(WET)	(3)(4)	lb/hr	13860	13860	10873	7601
FUEL FLOW (60ºF, 14.7 psia)			scfm	184	184	148	106
INLET MANIFOLD PRESSURE		(5)	in Hg(abs)	94.6	94.6	76.8	54.0
EXHAUST TEMPERATURE - ENGINE OUTLET		(6)	°F	992	992	986	1006
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia)	(WET)	(7)(4)	ft3/min	9106	9106	7122	5053
EXHAUST GAS MASS FLOW	(WET)	(7)(4)	lb/hr	14341	14341	11259	7878
EMISSIONS DATA - ENGINE OUT							
NOx (as NO2)		(8)(9)	g/bhp-hr	0.50	0.50	0.50	0.50
CO		(8)(9)	g/bhp-hr	2.43	2.43	2.60	2.55
THC (mol. wt. of 15.84)		(8)(9)	g/bhp-hr	4.75	4.75	5.09	5.17
NMHC (mol. wt. of 15.84)		(8)(9)	g/bhp-hr	0.71	0.71	0.76	0.78
NMNEHC (VOCs) (mol. wt. of 15.84)		(8)(9)(10)	g/bhp-hr	0.48	0.48	0.51	0.52
HCHO (Formaldehyde)		(8)(9)	g/bhp-hr	0.43	0.43	0.43	0.42
CO2		(8)(9)	g/bhp-hr	472	472	504	548
EXHAUST OXYGEN		(8)(11)	% DRY	9.0	9.0	8.7	8.3
HEAT REJECTION							
HEAT REJ. TO JACKET WATER (JW)		(12)	Btu/min	23610	23610	21688	20035
HEAT REJ. TO ATMOSPHERE		(12)	Btu/min	6110	6110	5092	4074
HEAT REJ. TO LUBE OIL (OC)		(12)	Btu/min	4475	4475	3978	3363
HEAT REJ. TO A/C - STAGE 1 (1AC)		(12)(13)	Btu/min	11577	11577	9642	3428
HEAT REJ. TO A/C - STAGE 2 (2AC)		(12)(13)	Btu/min	5517	5517	5202	3396

COOLING SYSTEM SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+OC+1AC)	(13)(14)	Btu/min	43496
TOTAL AFTERCOOLER CIRCUIT (2AC)	(13)(14)	Btu/min	5793
A cooling system safety factor of 0% has been added to the cooling system sizing criteria.			

CONDITIONS AND DEFINITIONS

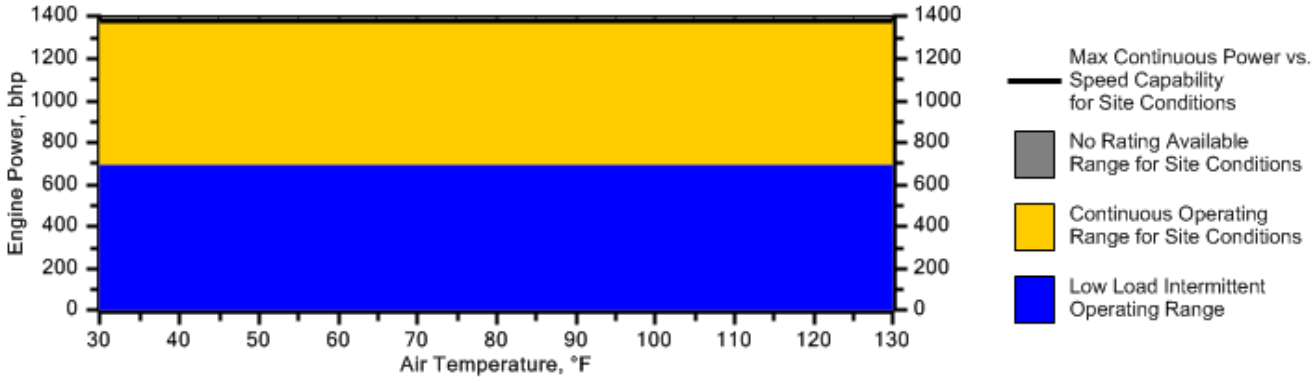
Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature. 100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature. Maximum rating is the maximum capability at the specified aftercooler inlet temperature for the specified fuel at site altitude and reduced inlet air temperature. Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

For notes information consult page three.

PREPARED BY: Chris Magee, USAC
Data generated by Gas Engine Rating Pro Version 5.01.01
Ref. Data Set DM8800-07-001, Printed 10Apr2015

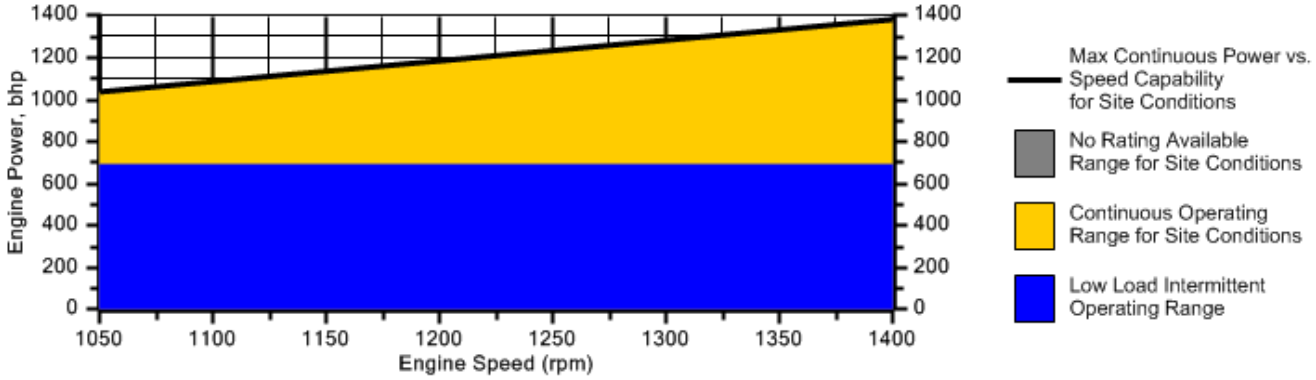
Engine Power vs. Inlet Air Temperature

Data represents temperature sweep at 1200 ft and 1400 rpm



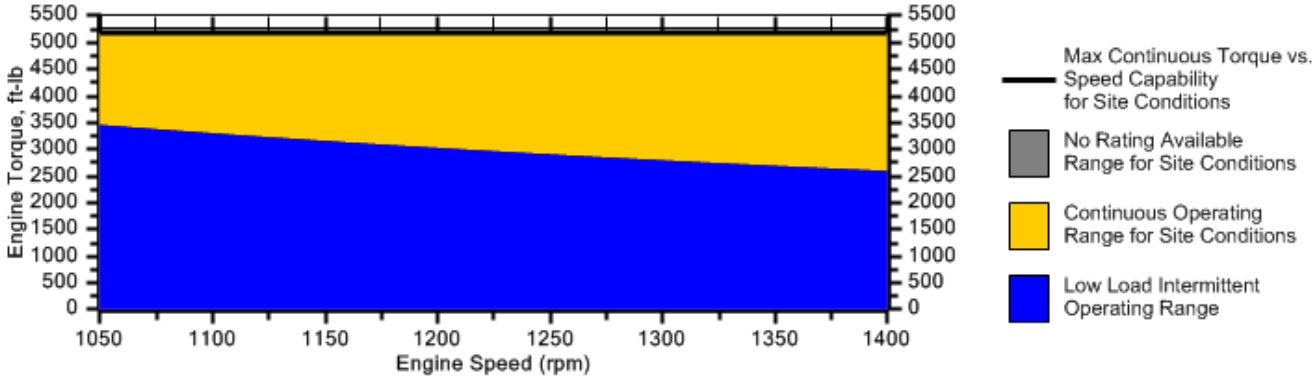
Engine Power vs. Engine Speed

Data represents speed sweep at 1200 ft and 90 °F



Engine Torque vs. Engine Speed

Data represents speed sweep at 1200 ft and 90 °F



Note: At site conditions of 1200 ft and 90°F inlet air temp., constant torque can be maintained down to 1050 rpm. The minimum speed for loading at these conditions is 1050 rpm.

NOTES

1. Engine rating is with two engine driven water pumps. Tolerance is ± 3% of full load.

2. Fuel consumption tolerance is ± 3.0% of full load data.

3. Air flow value is on a 'wet' basis. Flow is a nominal value with a tolerance of ± 5 %.

4. Inlet and Exhaust Restrictions must not exceed A&I limits based on full load flow rates from the standard technical data sheet.

5. Inlet manifold pressure is a nominal value with a tolerance of ± 5 %.

6. Exhaust temperature is a nominal value with a tolerance of (+)63°F, (-)54°F.

7. Exhaust flow value is on a "wet" basis. Flow is a nominal value with a tolerance of ± 6 %.

8. Emissions data is at engine exhaust flange prior to any after treatment.

9. Emission values are based on engine operating at steady state conditions. Fuel methane number cannot vary more than ± 3. Values listed are higher than nominal levels to allow for instrumentation, measurement, and engine-to-engine variations. They indicate "Not to Exceed" values. THC, NMHC, and NMNEHC do not include aldehydes. An oxidation catalyst may be required to meet Federal, State or local CO or HC requirements.

10. VOCs - Volatile organic compounds as defined in US EPA 40 CFR 60, subpart JJJJ

11. Exhaust Oxygen level is the result of adjusting the engine to operate at the specified NOx level. Tolerance is ± 0.5.

12. Heat rejection values are nominal. Tolerances, based on treated water, are ± 10% for jacket water circuit, ± 50% for radiation, ± 20% for lube oil circuit, and ± 5% for aftercooler circuit.

13. Aftercooler heat rejection includes an aftercooler heat rejection factor for the site elevation and inlet air temperature specified. Aftercooler heat rejection values at part load are for reference only. Do not use part load data for heat exchanger sizing.

14. Cooling system sizing criteria are maximum circuit heat rejection for the site, with applied tolerances.

Constituent	Abbrev	Mole %	Norm
Water Vapor	H2O	0.0000	0.0000
Methane	CH4	96.4087	96.4087
Ethane	C2H6	2.8479	2.8479
Propane	C3H8	0.1781	0.1781
Isobutane	iso-C4H1O	0.0055	0.0055
Norbutane	nor-C4H1O	0.0157	0.0157
Isopentane	iso-C5H12	0.0013	0.0013
Norpentane	nor-C5H12	0.0015	0.0015
Hexane	C6H14	0.0226	0.0226
Heptane	C7H16	0.0000	0.0000
Nitrogen	N2	0.2819	0.2819
Carbon Dioxide	CO2	0.2368	0.2368
Hydrogen Sulfide	H2S	0.0000	0.0000
Carbon Monoxide	CO	0.0000	0.0000
Hydrogen	H2	0.0000	0.0000
Oxygen	O2	0.0000	0.0000
Helium	HE	0.0000	0.0000
Neopentane	neo-C5H12	0.0000	0.0000
Octane	C8H18	0.0000	0.0000
Nonane	C9H20	0.0000	0.0000
Ethylene	C2H4	0.0000	0.0000
Propylene	C3H6	0.0000	0.0000
TOTAL (Volume %)		100.0000	100.0000

Fuel Makeup:	Northeast 4-10-15
Unit of Measure:	English

Calculated Fuel Properties

Caterpillar Methane Number:	90.5
Lower Heating Value (Btu/scf):	931
Higher Heating Value (Btu/scf):	1033
WOBBE Index (Btu/scf):	1229
THC: Free Inert Ratio:	191.79
Total % Inerts (% N2, CO2, He):	0.52%
RPC (%) (To 905 Btu/scf Fuel):	100%
Compressibility Factor:	0.998
Stoich A/F Ratio (Vol/Vol):	9.72
Stoich A/F Ratio (Mass/Mass):	16.94
Specific Gravity (Relative to Air):	0.574
Specific Heat Constant (K):	1.311

CONDITIONS AND DEFINITIONS

Caterpillar Methane Number represents the knock resistance of a gaseous fuel. It should be used with the Caterpillar Fuel Usage Guide for the engine and rating to determine the rating for the fuel specified. A Fuel Usage Guide for each rating is included on page 2 of its standard technical data sheet.

RPC always applies to naturally aspirated (NA) engines, and turbocharged (TA or LE) engines only when they are derated for altitude and ambient site conditions.

Project specific technical data sheets generated by the Caterpillar Gas Engine Rating Pro program take the Caterpillar Methane Number and RPC into account when generating a site rating.

Fuel properties for Btu/scf calculations are at 60F and 14.696 psia.

Caterpillar shall have no liability in law or equity, for damages, consequently or otherwise, arising from use of program and related material or any part thereof.

FUEL LIQUIDS

Field gases, well head gases, and associated gases typically contain liquid water and heavy hydrocarbons entrained in the gas. To prevent detonation and severe damage to the engine, hydrocarbon liquids must not be allowed to enter the engine fuel system. To remove liquids, a liquid separator and coalescing filter are recommended, with an automatic drain and collection tank to prevent contamination of the ground in accordance with local codes and standards.

To avoid water condensation in the engine or fuel lines, limit the relative humidity of water in the fuel to 80% at the minimum fuel operating temperature.

GAS ANALYTICAL SERVICES

C6+ Gas Analysis Report

Gas Analytical

Report Date: Mar 25, 2015 9:43a

Client:	Northeast Natural Energy	Date Sampled:	Mar 20, 2015
Site:	Beach 6H	Analysis Date:	Mar 23, 2015 2:28p
Field No:		Collected By:	
Meter:		Date Effective:	Mar 1, 2015 12:00a
Source Laboratory	Clarksburg (Bridgeport), WV	Sample Pressure (PSI):	939.0
Lab File No:	**X_CH1-2124.CHR**	Sample Temp (°F):	
Sample Type:	Spot	Field H2O (lb/MMSCFD):	No Test
Reviewed By:		Field H2S (PPM):	No Test

Component	Mol %	Gal/MSCF
Methane	96.4087	
Ethane	2.8479	0.76
Propane	0.1781	0.05
I-Butane	0.0055	0.00
N-Butane	0.0157	0.00
I-Pentane	0.0013	0.00
N-Pentane	0.0015	0.00
Nitrogen	0.2819	
Oxygen	<MDL	
CO2	0.2368	
Hexanes+	0.0226	0.01
TOTAL	100.0000	0.82

Analytical Results at Base Conditions (Real)		
BTU/SCF (Dry):	1,034.7950	BTU/ft³
BTU/SCF (Saturated):	1,017.6626	BTU/ft³
PSIA:	14.730	PSI
Temperature (°F):	60.00	°F
Z Factor (Dry):	0.99789	
Z Factor (Saturated):	0.99754	

Analytical Results at Contract Conditions (Real)		
BTU/SCF (Dry):	1,034.7950	BTU/ft³
BTU/SCF (Saturated):	1,017.6626	BTU/ft³
PSIA:	14.730	PSI
Temperature (°F):	60.00	°F
Z Factor (Dry):	0.99789	
Z Factor (Saturated):	0.99754	

Calculated Specific Gravities			
Ideal Gravity:	0.5738	Real Gravity:	0.5748
Molecular Wt:	16.6198	lb/lbmol	

Gross Heating Values are Based on:
GPA 2145-09, 2186
Compressibility is Calculated using AGA-8.

Source	Date	Notes
Gas Analytical	Mar 23, 2015	results to RWarner@NNE-LLC.com

<MDL = Less than Method Detection Limits, NG = Not Given, NT = Not Tested

ATTACHMENT I

Emissions Calculations

EMISSIONS SUMMARY

Statler Well Pad
Northeast Natural Energy
Monongalia County

Source	Description	NOx lb/hr	CO lb/hr	CO2e lb/hr	VOC lb/hr	SO2 lb/hr	PM lb/hr	n-Hexane lb/Hr	benzene lb/hr	formaldehyde lb/hr	Total HAPs lb/hr
CE-1	Compressor Engine #1	1.52	0.52	1744	0.730	0.01	0.11	0.00	0.00	0.13	0.29
GPU-1- GPU-7	Seven GPUs	0.58	0.48	695	0.03	0.00	0.04	0.01	0.00	0.00	0.01
---	Haul Road Fugitive Dust						0.260				
T01-T04	Produced Water Tanks[2]			117	0.08						0.02
---	Equipment Fugitive Emissions			17	0.00						
---	Blowdowns[1]			N/A	N/A						
Total		2.10	1.00	2,573	0.84	0.01	0.42	0.01	0.00	0.13	0.32

Source		NOx tpy	CO tpy	CO2e tpy	VOC tpy	SO2 tpy	PM tpy	n-Hexane TPY	benzene tpy	formaldehyde tpy	Total HAPs tpy
CE-1	Compressor Engine #1	6.66	2.27	7,639	3.20	0.03	0.50	0.01	0.00	0.57	1.27
GPU-1- GPU-7	Seven GPUs	2.52	2.12	3,042	0.14	0.02	0.19	0.05	0.00	0.00	0.05
---	Haul Road Fugitive Dust						0.09				
T01-T04	Produced Water Tanks[2]			514	0.35						0.07
---	Equipment Fugitive Emissions			77	0.01						
---	Blowdowns[1]			20	0.01						
Total		9.18	4.38	11,291	3.70	0.04	0.78	0.05	0.00	0.57	1.39

[1] See Attachment C for Blowdown Calculations
[2] Water tank emissions are uncontrolled.

ENGINE EMISSIONS

Statler Well Pad
Northeast Natural Energy
Monongalia County

Proposed Emission Rates

Source CE-1

Engine Data:

Engine Manufacturer	CAT	
Engine Model	3516 B	
Type (Rich-burn or Low Emission)	Low Emissions	
Aspiration (Natural or Turbocharged)	Natural	
Turbocharge Cooler Temperature	130	deg. F
Manufacturer Rating	1,380	hp
Speed at Above Rating	1,400	rpm
Configeration (In-line or Vee)	V-16	
Number of Cylinders	16	
Engine Bore	6.700	inches
Engine Stroke	7.500	inches
Fuel Heat Content	926	BTU/scf
Engine Displacement	4,231	cu. in.
Fuel Consumption (HHV)	8,255	Btu/bhp-hr

Emission Rates:	g/bhp-hr	lb/hr	tons/year	g/hr	lb/day	AP-42 4strokelean lb/mmbtu	
Oxides of Nitrogen, NOx	0.50	1.52	6.66	690	36.51		Comment
Carbon Monoxide CO	0.17	0.52	2.27	235	12.41		453.59 grams = 1 pound
VOC (NMNEHC)	0.24	0.73	3.20	331	17.52		2,000 pounds = 1 ton
CO2e		1744	7638.66				
CO2	472	1436	6289.70	651,360	34464.10		
Total Annual Hours of Operation	**8,760**						
SO2		0.0067	0.0293			0.000588	
PM (Condensable+ Filterable)		0.1138	0.4985			0.00999	
CH_4 as CO_{2e}	4.04	307.28	1345.9				**Mfg. Spec Used**
N_2O as CO_{2e}		0.7063	3.0936			0.0002	Factor From 40 CFR 98, Table C-2
acrolein		0.0586	0.2565			0.00514	
acetaldehyde		0.0952	0.4171			0.00836	
formaldehyde	0.043	0.1308	0.5730				**Mfg. Spec Used**
biphenyl		0.0002	0.0010			0.000212	
benzene		0.0005	0.0021			0.00044	
toluene		0.0004	0.0019			0.000408	
ethylbenzene		4E-05	0.0002			3.97E-05	
xylene		0.0002	0.0009			0.000184	
methanol		0.0027	0.0118			0.0025	
n-hexane		0.0012	0.0052			0.00111	
total HAPs		0.2899	1.2696			0.018394	

Exhaust Parameters:

Exhaust Gas Temperature	992	deg. F
Exhaust Gas Flow Rate	9216	acfm
Total Exhaust Gas Volume Flow, wet	9,216	acfm
Total Exhaust Gas Volume Flow, wet	153.6	acf per sec
Exhaust Stack Height	260	inches
	21.67	feet
Exhaust Stack Inside Diameter	20	inches
	1.667	feet
Exhaust Stack Velocity	70.4	ft/sec
	4,224.3	ft/min

$$\frac{4 \times \text{acfm}}{3.1416 \times (\text{stack diameter})^2}$$

Statler Well Pad
Northeast Natural Energy
Monongalia County

Potential Emission Rates

Sources GPU-1 to GPU-7

Burner Duty Rating	5750.0	Mbtu/hr	Two Units at 1.0 Mbtu/Hr Each
Burner Efficiency	98.0	%	Five Units at 0.75 Mmbut/Hr each
Gas Heat Content (HHV)	1027.9	Btu/scf	
Total Gas Consumption	136994.1	scfd	
H2S Concentration	0.000	Mole %	
Hours of Operation	8760		

NOx	0.5752	lbs/hr	2.520	TPY
CO	0.4832	lbs/hr	2.116	TPY
CO2	690.3	lbs/hr	3023.4	TPY
CO2e	695	lbs/hr	3,042	tpy
VOC	0.0316	lbs/hr	0.139	TPY
SO2	0.0035	lbs/hr	0.015	TPY
H2S	0.0000	lbs/hr	0.000	TPY
PM10	0.0437	lbs/hr	0.191	TPY
CHOH	0.0004	lbs/hr	0.002	TPY
Benzene	0.0000	lbs/hr	0.000	TPY
N-Hezane	0.0104	lbs/hr	0.045	TPY
Toluene	0.0000	lbs/hr	0.000	TPY
Total HAPs	0.0108	lbs/hr	0.047	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**	

FUGITIVE EMISSIONS

Statler Well Pad
Northeast Natural Energy
Monongalia County

Fugitive VOC Emissions

Volatile Organic Compounds, NMNEHC from gas analysis:	0.57	weight percent
Methane from gas analysis:	92.58	weight percent
Carbon Dioxide from gas analysis:	0.42	weight percent
Gas Density	0.0463	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:	42	0.02700 scf/hr	0.6	0.000	0.001	0.000	0.001	0.049	0.2129	5.324
Light Liquid:	-	0.05000 scf/hr	100.0	0.000	0.000					0.000
Heavy Liquid (Oil):	-	0.00050 scf/hr	100.0	0.000	0.000					0.000
Low Bleed Pneumatic	7	1.39000 scf/hr	0.6	0.003	0.011	0.417	1.827	0.417	1.8271	47.503
Relief Valves:	14	0.04000 scf/hr	0.6	0.000	0.001	0.000	0.000	0.024	0.1052	2.629
Open-ended Lines, gas:	-	0.06100 sfc/hr	0.6	0.000	0.000					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	0.6	0.000	0.000	0.000	0.000	0.000	0.0000	0.000
Light Liquid:	-	0.02866 lb/hr	100.0	0.000	0.000					0.000
Heavy Liquid (Oil):	-	0.00133 lb/hr	100.0	0.000	0.000					0.000
Compressor Seals, Gas:	1	0.01940 lb/hr	0.6	0.000	0.000	0.000	0.000	0.001	0.0036	0.091
Connectors:										0.000
Gas:	190	0.00300 scf/hr	0.6	0.000	0.001	0.000	0.000	0.024	0.1070	2.676
Light Liquid:	0	0.00700 scf/hr	100.0	0.000	0.000					0.000
Heavy Liquid (Oil):	-	0.00030 scf/hr	100.0	0.000	0.000					0.000
Flanges:										0.000
Gas:	210	0.00086 lb/hr	0.6	0.001	0.005	0.001	0.003	0.167	0.7323	18.312
Light Liquid:	0	0.00300 scf/hr	100.0	0.000	0.000					0.000
Heavy Liquid:		0.0009 scf/hr	100.0	0.000	0.000					0.000

Fugitive Calculations:

	lb/hr	t/y
VOC	**0.002**	**0.008**
CH4	**0.265**	**1.161**
CO2	**0.001**	**0.006**
CO2e	**17.474**	**76.54**

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

GAS ANALYSIS INFORMATION

Statler Well Pad
Northeast Natural Energy
Monongalia County

Fuel 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	0.7619	0.213	0.007	1.283			-		0.0076	
Carbon Dioxide, CO2	0.1586	0.070	0.002	0.419			-		0.0016	
Hydrogen Sulfide, H2S		-	-	-			-		-	
Helium, He		-	-	-			-		-	
Oxygen, O2		-	-	-			-		-	
Methane, CH4	96.0242	15.405	0.532	92.581	873.2	969.8	9.151		0.9583	
Ethane, C2H6	2.8453	0.856	0.030	5.142	46.1	50.4	0.475		0.0282	0.757
Propane	0.1882	0.083	0.003	0.499	4.4	4.7	0.045	0.499	0.0018	0.052
Iso-Butane	0.0055	0.003	0.000	0.019	0.2	0.2	0.002	0.019	0.0001	0.002
Normal Butane	0.0163	0.009	0.000	0.057	0.5	0.5	0.005	0.057	0.0002	0.005
Iso Pentane		-	-	-			-	-	-	-
Normal Pentane		-	-	-			-	-	-	-
Hexane		-	-	-			-	-	-	-
Heptane		-	-	-			-	-	-	-
	100.000	16.640	0.575		924.3	1,025.6	9.677	0.575	0.9978	0.815

Gas Density (STP) = 0.046

Ideal Gross (HHV)	1,025.6
Ideal Gross (sat'd)	1,008.6
GPM	-
Real Gross (HHV)	1,027.9
Real Net (LHV)	926.4

GAS DATA INFORMATION

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

Hydrogen Sulfide (H2S) conversion chart:

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

Ideal Gas at 14.696 psia and 60°F

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

Real Gas at 14.696 psia and 60°F

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

Attachment I
FUGITIVE EMISSIONS FROM UNPAVED HAULROADS

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

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

Item Number	Description	Number of Wheels	Mean Vehicle Weight (tons)	Mean Vehicle Speed (mph)	Miles per Trip	Maximum Trips per Hour	Maximum Trips per Year	Control Device ID Number	Control Efficiency (%)
1	Produced Water Tanker Truck	14	27	10	0.04	1	730	None	0
2									
3									
4									
5									
6									
7									
8									

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

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

Where:

		PM	PM-10
k =	Particle size multiplier	0.80	0.36
s =	Silt content of road surface material (%)	10	3
S =	Mean vehicle speed (mph)	10	10
W =	Mean vehicle weight (tons)	27	27
w =	Mean number of wheels per vehicle	14	14
p =	Number of days per year with precipitation >0.01 in.	157	157

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

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

SUMMARY OF UNPAVED HAULROAD EMISSIONS

Item No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	0.26	0.09	0.26	0.09	0.035	0.01	0.035	0.01
2								
3								
4								
5								
6								
7								
8								
TOTALS	0.26	0.09	0.26	0.09	0.035	0.01	0.035	0.01

FUGITIVE EMISSIONS FROM PAVED HAULROADS

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

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

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

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

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

Where:

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

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

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

SUMMARY OF PAVED HAULROAD EMISSIONS

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

Northeast Natural Energy, LLC
Statler Well Pad
Produced Water Tank Emissions

Utilizing direct measurements of tank vent emissions from Produced Water Tanks at this well pad (attached), gas emissions were determined to be 3.80 scf per barrel of water. Thus, with an anticipated maximum water production rate at the Statler Well Pad being 290 BBL/day, an emission rate of 1100 SCFD is anticipated. The natural gas constituents were forced into solution in the Produced Water by the high pressures in the gas production zone. As they are not soluble in water, they are quickly volatilized as the pressure on the water is released as it progresses from the well to the atmospheric pressure tank (flash gas). Working and breathing emissions from Produced Water are nominal.

The composition of the flash gas is assumed to be very similar to that of the nearby pad where flash gas testing was performed. As noted on the attached analysis, the specific gravity of the flash gas was measured to be 0.612. Thus, as shown in the following calculation spreadsheet, annual flash emissions at the maximum production rate of 105,900 BBL/yr is 22.19 tpy of total vapors and 0.35 tpy of VOCs (0.08 lb/hr). Potential HAP emissions are 0.07 tpy (0.02 lb/hr).

Methane comprises approximately 92.6% of the gas by weight. Thus, methane emissions are projected to be 20.5 tpy. Using a GHG factor of 25, potential CO_{2e} emissions will be 513.7 tpy or 117.3 lb/Hr CO_{2e}

Northeast Natural Energy - Statler

Flash Emission Calculations - Produced Water

Using Gas-Water Ratio Method

Un-Controlled

Site specific data				
Gas-Water-ratio	=	3.8	scf/bbl	Using GOW from comparable well pad
Throughput	=	105,900	bbl/yr	(290 BBL/Day)
Stock tank gas molecular weight	=	39.56	g/mole	

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

Equations

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

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

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

Q = Throughput (bbl/yr)

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

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

E_{spec} = Flash emission from constituent

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

Flash Emissions

Constituent	TPY	
Total	22.1859	E_{TOT}
VOC	**0.3474**	Sum of C3+
Nitrogen	2.18E-01	
Carbon Dioxide	2.04E+00	
Methane	1.88E+01	
Ethane	8.13E-01	
Propane	4.66E-02	
Isobutane	5.77E-03	
n-Butane	1.02E-02	
2,2 Dimethylpropane	0.00E+00	
Isopentane	8.87E-04	
n-Pentane	7.32E-03	
2,2 Dimethylbutane	0.00E+00	
Cyclopentane	0.00E+00	
2,3 Dimethylbutane	2.22E-03	
2 Methylpentane	8.65E-03	
3 Methylpentane	1.20E-02	
n-Hexane	3.68E-02	HAP
Methylcyclopentane	1.06E-02	
Benzene	2.88E-03	HAP
Cyclohexane	1.69E-02	
2-Methylhexane	3.77E-03	
3-Methylhexane	3.77E-03	
2,2,4 Trimethylpentane	0.00E+00	
Other C7's	7.54E-03	
n-Heptane	7.54E-03	
Methylcyclohexane	8.65E-03	
Toluene	1.04E-02	HAP
Other C8's	2.35E-02	
n-Octane	1.58E-02	
Ethylbenzene	1.33E-03	HAP
M & P Xylenes	1.46E-02	HAP
O-Xylene	2.66E-03	HAP
Other C9's	3.33E-02	
n-Nonane	1.44E-02	
Other C10's	2.66E-02	
n-Decane	5.32E-03	
Undecanes (11)	7.32E-03	

May 19, 2014

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

For: Northeast Natural Energy LLC
707 Virginia St. East, Suite 1200
Charleston, West Virginia 25301

Date Sampled: 04/16/14

Date Analyzed: 04/30/14

Job Number: J42910

Sample: Statler No. 6H

FLASH LIBERATION OF SEPARATOR WATER		
	Separator	**Stock Tank**
Pressure, psig	670	0
Temperature, °F	73	70
Gas Water Ratio (1)	------	3.80
Gas Specific Gravity (2)	------	0.612
Separator Volume Factor (3)	1.000	1.000

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

Piston No. : WF-305*

Base Conditions: 14.85 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015

May 1, 2014

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

For: Northeast Natural Energy LLC
707 Virginia St. East, Suite 1200
Charleston, West Virginia 25301

Sample: Statler No. 6H
Gas Liberated from Separator Water
From 670 psig & 73 °F to 0 psig & 70 °F

Date Sampled: 04/16/14 Job Number: 42910.001

CHROMATOGRAPH EXTENDED ANALYSIS - SUMMATION REPORT - GPA 2286

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	0.619	
Carbon Dioxide	3.691	
Methane	93.208	
Ethane	2.155	0.581
Propane	0.084	0.023
Isobutane	0.008	0.003
n-Butane	0.014	0.004
2-2 Dimethylpropane	0.000	0.000
Isopentane	0.001	0.000
n-Pentane	0.008	0.003
Hexanes	0.055	0.023
Heptanes Plus	0.157	0.072
Totals	100.000	0.709

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity	3.811	(Air=1)
Molecular Weight	110.14	
Gross Heating Value	5776	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity	0.612	(Air=1)
Compressibility (Z)	0.9977	
Molecular Weight	17.68	
Gross Heating Value		
Dry Basis	1007	BTU/CF
Saturated Basis	990	BTU/CF

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

Base Conditions: 14.850 PSI & 60 Deg F

Certified: FESCO, Ltd. - Alice, Texas

Analyst: MR
Processor: AL
Cylinder ID: WF# 13 S

David Dannhaus 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS
TOTAL REPORT - GPA 2286

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	0.619		0.981
Carbon Dioxide	3.691		9.190
Methane	93.208		84.597
Ethane	2.155	0.581	3.666
Propane	0.084	0.023	0.210
Isobutane	0.008	0.003	0.026
n-Butane	0.014	0.004	0.046
2,2 Dimethylpropane	0.000	0.000	0.000
Isopentane	0.001	0.000	0.004
n-Pentane	0.008	0.003	0.033
2,2 Dimethylbutane	0.000	0.000	0.000
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.002	0.001	0.010
2 Methylpentane	0.008	0.003	0.039
3 Methylpentane	0.011	0.005	0.054
n-Hexane	0.034	0.014	0.166
Methylcyclopentane	0.010	0.003	0.048
Benzene	0.003	0.001	0.013
Cyclohexane	0.016	0.005	0.076
2-Methylhexane	0.003	0.001	0.017
3-Methylhexane	0.003	0.001	0.017
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.006	0.003	0.034
n-Heptane	0.006	0.003	0.034
Methylcyclohexane	0.007	0.003	0.039
Toluene	0.009	0.003	0.047
Other C8's	0.017	0.008	0.106
n-Octane	0.011	0.006	0.071
Ethylbenzene	0.001	0.000	0.006
M & P Xylenes	0.011	0.004	0.066
O-Xylene	0.002	0.001	0.012
Other C9's	0.021	0.011	0.150
n-Nonane	0.009	0.005	0.065
Other C10's	0.015	0.009	0.120
n-Decane	0.003	0.002	0.024
Undecanes (11)	0.004	0.002	0.033
Totals	100.000	0.709	100.000

Computed Real Characteristics Of Total Sample:

Specific Gravity	0.612	(Air=1)
Compressibility (Z)	0.9977	
Molecular Weight	17.68	
Gross Heating Value		
Dry Basis	1007	BTU/CF
Saturated Basis	990	BTU/CF

G3516TALE JGT-4, 2 Stage

(Note: assumed ideal gas behavior and used OD for volume calc)

Cylinders	Bore, in	Stroke, in	Rod Diameter, in	Pocket Clearance, in^3	Total Cylinder Volume, in^3
1st Stage Cylinder	6.38	4.50	2.00	0.00	129
1st Stage Cylinder	6.38	4.50	2.00	0.00	129
2nd Stage Cylinder	6.38	4.50	2.00	0.00	129
2nd Stage Cylinder	6.38	4.50	2.00	0.00	129

Scrubbers/Suction & Discharge Drums	OD, in	Height/Length, in	Total Volume, in^3
1st Stage Scrubber	24.00	68.00	30762
1st Stage Suction Drum	16.00	114.50	23022
1st Stage Discharge Drum	16.00	114.50	23022
2nd Stage Scrubber	24.00	68.00	30762
2nd Stage Suction Drum	16.00	114.50	23022
2nd Stage Discharge Drum	16.00	114.50	23022

Cooler Section	No. of Tubes	OD, in	Length, in	Total Cooler Tube Volume, in^3
1st Stage Cooler Section	86	0.75	216	8207
2nd Stage Cooler Section	146	0.75	216	13932

Piping	OD, in	Length, in	Total Piping Volume, in^3
1st Stg Piping	6.00	150.00	4241
2nd Stg Piping	6.00	150.00	4241

Equipment	Volume, in^3	Temperature, R	Pressure, psig	Calculated Moles
1st Stage Total	89512	718	160	1.17
2nd Stage Total	95238	715	390	2.91
			Total Moles	4.08

Estimated

Total Volume of Blowdown Gas @ STP = 1570 ft^3 *Does not include fuel scrubber*

GAS ANALYTICAL SERVICES

C6+ Gas Analysis Report

Gas Analytical

Report Date: Sep 11, 2015 1:27p

Client:	Northeast Natural Energy	Date Sampled:	Sep 1, 2015
Site:	Coastal 7H	Analysis Date:	Sep 8, 2015 11:16a
Field No:		Collected By:	G. Cutright GAS
Meter:		Date Effective:	Sep 1, 2015 12:00a
Source Laboratory	Clarksburg (Bridgeport), WV	Sample Pressure (PSI):	975.0
Lab File No:	**X_CH1-5930.CHR**	Sample Temp (°F):	
Sample Type:	Spot	Field H2O:	No Test
Reviewed By:		Field H2S:	No Test

Component	Mol %	Gal/MSCF
Methane	96.0242	
Ethane	2.8453	0.76
Propane	0.1882	0.05
I-Butane	0.0055	0.00
N-Butane	0.0163	0.01
I-Pentane	<MDL	0.00
N-Pentane	<MDL	0.00
Nitrogen	0.7619	
Oxygen	<MDL	
Carbon Dioxide	0.1586	
Hexanes+	<MDL	0.00
TOTAL	100.0000	0.82

Analytical Results at Base Conditions (Real)		
BTU/SCF (Dry):	1,029.8303	BTU/ft³
BTU/SCF (Saturated):	1,012.7844	BTU/ft³
PSIA:	14.730	PSI
Temperature (°F):	60.00	°F
Z Factor (Dry):	0.99790	
Z Factor (Saturated):	0.99756	

Analytical Results at Contract Conditions (Real)		
BTU/SCF (Dry):	1,029.8303	BTU/ft³
BTU/SCF (Saturated):	1,012.7844	BTU/ft³
PSIA:	14.730	PSI
Temperature (°F):	60.00	°F
Z Factor (Dry):	0.99790	
Z Factor (Saturated):	0.99756	

Calculated Specific Gravities			
Ideal Gravity:	0.5745	Real Gravity:	0.5755
Molecular Wt:	16.6391	lb/lbmol	

Gross Heating Values are Based on:
GPA 2145-09, 2186
Compressibility is Calculated using AGA-8.

Source	Date	Notes
Gas Analytical	Sep 8, 2015	RWarner@nne-llc.com

<MDL = Less than Method Detection Limits, NG = Not Given, NT = Not Tested

ATTACHMENT J

Class I Legal Advertisement

Affidavit Notice Will Be Submitted Upon Receipt

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Northeast Natural Energy LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a G70A General Permit Registration for its Statler Well Pad located off of State Route 7 near Pentress in Monongalia County, West Virginia (Lat.39.70781, Long.-80.17817).

The applicant estimates the potential to discharge the following regulated air pollutants:

9.18 tons of Nitrogen Oxides per year
4.38 tons of Carbon Monoxide per year
3.70 tons of Volatile Organics per year
0.04 tons of Sulfur Dioxide per year
0.78 tons of Particulate Matter per year
0.57 tons of Formaldehyde per year
0.05 tons of n-Hexane
11,291 tons of Greenhouse Gases per year

Startup of operation is planned to begin upon approval of this permit. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

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

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

By: Mr. Brett Loflin
Vice President Regulatory Affairs
Northeast Natural Energy, LLC

ATTACHMENT N

Material Safety Data Sheets

Health	1
Flammability	4
Reactivity	0
PPE	

Material Safety Data Sheet

Material Name: Produced Water

*** Section 1 - Chemical Product and Company Identification ***

Product name: Produced Water - Sweat
Synonyms: Salt Water, H_2O, Oily Water, Formation Water
Chemical Family: Water
Formula: Complex mixture

Emergency Phone Number: Chemtrec – 800-424-9300

*** Section 2 - Hazards Identification ***

Emergency Overview
May cause eye, skin, respiratory and gastrointestinal tract irritation.

Potential Health Effects: Eyes
May cause eye irritation.

Potential Health Effects: Skin
Contact may cause skin irritation.

Potential Health Effects: Ingestion
Ingestion may cause irritation of the digestive tract that may result in nausea, vomiting and diarrhea.

Potential Health Effects: Inhalation
Breathing the mist and vapors may be irritating to the respiratory tract.

HMIS Ratings: Health: 1 **Fire:** 4 **HMIS Reactivity** 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 3 - Composition / Information on Ingredients ***

Produced water is a mixture of varying amounts of water and oil produced from various exploration and production processes. Produced water may contain an upper layer of flammable liquid and vapor hydrocarbons. Produced water may include small amounts of natural gas condensate, and benzene may be present.

CAS #	Component	Percent
7732-18-5	Water	>88
Not Available	Dissolved Minerals	<32
71-43-2	Benzene	<1
8002-05-9	Petroleum distillates (naphtha)	<1

Normal composition ranges are shown. Exceptions may occur depending on the source of the produced water.

*** Section 4 - First Aid Measures ***

First Aid: Eyes
Flush eyes with clean, low-pressure water for at least 15 minutes, occasionally lifting the eyelids. If pain or redness persists after flushing, obtain medical attention. If eye is exposed to hot liquid, cover eyes with cloth and seek medical attention immediately.

First Aid: Skin
In case of hot liquid exposure, do not remove clothing or treat-wash only unburned area and seek medical attention immediately.

First Aid: Ingestion
Do not induce vomiting. Seek medical attention.

First Aid: Inhalation
Immediately remove person to area of fresh air. For respiratory distress, give oxygen, rescue breathing, or administer CPR if necessary. Obtain prompt medical attention.

*** Section 5 - Fire Fighting Measures ***

General Fire Hazards

See Section 9 for Flammability Properties.

May react with strong oxidizing materials and a wide variety of chemicals. Forms explosive mixtures with air.

Hazardous Combustion Products

Not Determined.

Extinguishing Media

Dry chemical, foam, carbon dioxide, or water spray.

Fire Fighting Equipment/Instructions

Any fire would be associated with any natural gas condensate floating on the surface of the produced water. Water may be ineffective on flames but should be used to keep fire exposed containers cool. Keep the surrounding areas cool by using water mists. Firefighters should wear self-contained breathing apparatus and full protective clothing.

NFPA Ratings: Health: 1 Fire: 4 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

*** Section 6 - Accidental Release Measures ***

Containment Procedures

Stop the source of the leak or release. Clean up releases as soon as possible, observing precautions in Personal Protection Equipment section. Contain liquid to prevent further contamination of soil and surface water.

Clean-Up Procedures

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Response and clean-up crews must be properly trained and must utilize proper protective equipment. Where feasible and appropriate, remove contaminated soil or flush with fresh water. Follow prescribed procedures for reporting and responding to larger releases. Advise authorities and the National Response Center (800-424-8802) if the release is to a watercourse.

Evacuation Procedures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible.

Special Procedures

Avoid excessive skin contact with the spilled material.

*** Section 7 - Handling and Storage ***

Handling Procedures

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Storage Procedures

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition. Do not enter storage areas and confined spaces without adequate ventilation. Use appropriate respiratory protection if there is a potential to exceed component exposure limit(s).

*** Section 8 - Exposure Controls / Personal Protection ***

A: Component Exposure Limits

Petroleum distillates (naphtha) (8002-05-9)

OSHA: 500 ppm TWA; 2000 mg/m^3 TWA

NIOSH: 350 mg/m^3 TWA

1800 mg/m^3 Ceiling (15 min)

Benzene (71-43-2)

ACGIH:	0.5 ppm TWA
	2.5 ppm STEL
	Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA:	10 ppm TWA; 25 ppm ceiling; 50 ppm (10 min.)
NIOSH:	0.1 ppm TWA
	1 ppm STEL

Engineering Controls

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Chemical goggles or face shield should be worn when handling product if the possibility of spray exists.

Personal Protective Equipment: Skin

Normal working clothes should be worn. Wash contaminated clothing prior to reuse.

Personal Protective Equipment: Respiratory

Respiratory protection is not required for normal use. At excessive concentrations, wear a NIOSH approved air purifying respirator with organic vapor cartridges.

Personal Protective Equipment: General

A source of clean water should be in the work area for flushing eyes and skin.

*** Section 9 - Physical & Chemical Properties ***

Appearance:	Clear or opaque	**Odor:**	Salty with a slight hydrocarbon odor.
Physical State:	Liquid	**pH:**	4.9-8.5
Vapor Pressure:	NA	**Vapor Density:**	1.2
Boiling Point:	212°F	**Melting Point:**	ND
Solubility (H2O):	Soluble	**Specific Gravity:**	>1 @ 0°C
Freezing Point:	<32°F	**Evaporation Rate:**	ND
VOC:	ND	**Octanol/H2O Coeff.:**	ND
Flash Point:	ND	**Flash Point Method:**	ND
		Lower Flammability Limit (LFL):	4.0
		Upper Flammability Limit (UFL):	46.0
		Burning Rate:	ND
		Auto Ignition:	NA

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Stable under normal ambient and anticipated conditions of storage and handling.

Chemical Stability: Conditions to Avoid

Keep material away from heat, sparks, and open flames.

Incompatibility

Keep away from strong oxidizers.

Hazardous Decomposition

Not Determined.

Possibility of Hazardous Reactions

Will not occur.

*** Section 11 - Toxicological Information ***

Acute Dose Effects

Component Analysis - LD50/LC50

Water (7732-18-5)
Oral LD50 Rat: >90 mL/kg

Petroleum distillates (naphtha) (8002-05-9)
Oral LD50 Rat: >4300 mg/kg; Dermal LD50 Rabbit: >2000 mg/kg

Benzene (71-43-2)
Inhalation LC50 Rat: 13050-14380 ppm/4H; Oral LD50 Rat:1800 mg/kg

Carcinogenicity

Component Carcinogenicity

Petroleum distillates (naphtha) (8002-05-9)
IARC: Monograph 45 [1989] (Group 3 (not classifiable))

Benzene (71-43-2)
ACGIH: A1 - Confirmed Human Carcinogen
OSHA: 10 ppm TWA; 25 ppm ceiling; 50 ppm (10 min.)
NIOSH: potential occupational carcinogen
NTP: Known Human Carcinogen (Select Carcinogen)
IARC: Supplement 7 [1987], Monograph 29 [1982] (Group 1 (carcinogenic to humans))

*** Section 12 - Ecological Information ***

Ecotoxicity

Component Analysis - Ecotoxicity - Aquatic Toxicity

Petroleum distillates (naphtha) (8002-05-9)

Test & Species		Conditions
96 Hr LC50 Salmo gairdneri	258 mg/L [static]	
24 Hr EC50 Daphnia magna	36 mg/L	

Benzene (71-43-2)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	12.6 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	5.3 mg/L [flow-through]	
96 Hr LC50 Lepomis macrochirus	22 mg/L [static]	
96 Hr LC50 Poecilia reticulata	28.6 mg/L [static]	
72 Hr EC50 Selenastrum capricornutum	29 mg/L	
48 Hr EC50 water flea	356 mg/L [Static]	
48 Hr EC50 Daphnia magna	10 mg/L	

Material Safety Data Sheet

Material Name: Produced Water

*** Section 13 - Disposal Considerations ***

This product as produced is not specifically listed as an EPA RCRA hazardous waste according to federal regulations (40 CFR 261). However, when discarded or disposed of, it may meet the criteria of a "characteristic" hazardous waste. This product could also contain benzene at low concentrations and may exhibit the characteristic of "toxicity" (D018) as determined by the toxicity characteristic leaching procedure (TCLP). This material could become a hazardous waste if mixed with or contaminated with a hazardous waste or other substance(s). It is the responsibility of the user to determine if disposal material is hazardous according to federal, state and local regulations.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Not Regulated

Additional Info.: This may not apply to all shipping situations. Consult 49CFR 172 for additional information.

*** Section 15 - Regulatory Information ***

US Federal Regulations

Component Analysis

This material may contain one or more of the following chemicals identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Benzene (71-43-2)

SARA 313: 0.1 % de minimis concentration

CERCLA: 10 lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule); 4.54 kg final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule)

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Petroleum distillates (naphtha)	8002-05-9	No	Yes	Yes	Yes	Yes	Yes
Benzene	71-43-2	Yes	Yes	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.
WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Benzene	71-43-2	0.1 %

Additional Regulatory Information

Material Name: Produced Water

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Water	7732-18-5	Yes	DSL	EINECS
Petroleum distillates (naphtha)	8002-05-9	Yes	DSL	EINECS
Benzene	71-43-2	Yes	DSL	EINECS

*** Section 16 - Other Information ***

Other Information

The information presented herein has been compiled from sources considered to be dependable and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgement.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

Key/Legend

NA - Not Applicable
ND - Not Determined
ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
TLV - Threshold Limit Value
PEL - Permissible Exposure Limit
RQ - Reportable Quantity
TWA - Time Weighted Average
STEL - Short Term Exposure Limit
NTP - National Toxicology Program
IARC - International Agency for Research on Cancer

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	0.10	0.44	0.10	0.44	Gas	EE
						CO	0.08	0.37	0.08	0.37	Gas	EE
						VOC	<0.01	0.02	<0.01	0.02	Gas	EE
						PM	<0.01	0.03	<0.01	0.03	Solid	EE
						HCOH	<0.01	<0.01	<0.01	<0.01	Gas	EE
						Total HAPs	<0.01	0.03	<0.01	0.03	Gas	EE
						CO2e	121	529	121	529	Gas	EE
2E	Upward Vertical Stack	GPU-2	GPU	None		NOx	0.10	0.44	0.10	0.44	Gas	EE
						CO	0.08	0.37	0.08	0.37	Gas	EE
						VOC	<0.01	0.02	<0.01	0.02	Gas	EE
						PM	<0.01	0.03	<0.01	0.03	Solid	EE
						HCOH	<0.01	<0.01	<0.01	<0.01	Gas	EE
						Total HAPs	<0.01	0.03	<0.01	0.03	Gas	EE
						CO2e	121	529	121	529	Gas	EE
3E	Upward Vertical Stack	GPU-3	GPU	None		NOx	0.08	0.33	0.08	0.33	Gas	EE
						CO	0.06	0.28	0.06	0.28	Gas	EE
						VOC	<0.01	0.02	<0.01	0.02	Gas	EE
						PM	<0.01	0.02	<0.01	0.02	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	91	397	91	397	Gas	EE
4E	Upward Vertical Stack	GPU-4	GPU	None		NOx	0.08	0.33	0.08	0.33	Gas	EE
						CO	0.06	0.28	0.06	0.28	Gas	EE
						VOC	<0.01	0.02	<0.01	0.02	Gas	EE
						PM	<0.01	0.02	<0.01	0.02	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	91	397	91	397	Gas	EE

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*	Est. Method Used[5]
5E	Upward Vertical Stack	GPU-5	GPU	None		NOx	0.08	0.33	0.08	0.33	Gas	EE
						CO	0.06	0.28	0.06	0.28	Gas	EE
						VOC	<0.01	0.02	<0.01	0.02	Gas	EE
						PM	<0.01	0.02	<0.01	0.02	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	91	397	91	397	Gas	EE
6E	Upward Vertical Stack	GPU-6	GPU	None		NOx	0.08	0.33	0.08	0.33	Gas	EE
						CO	0.06	0.28	0.06	0.28	Gas	EE
						VOC	<0.01	0.02	<0.01	0.02	Gas	EE
						PM	<0.01	0.02	<0.01	0.02	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	91	397	91	397	Gas	EE
7E	Upward Vertical Stack	GPU-7	GPU	None		NOx	0.08	0.33	0.08	0.33	Gas	EE
						CO	0.06	0.28	0.06	0.28	Gas	EE
						VOC	<0.01	0.02	<0.01	0.02	Gas	EE
						PM	<0.01	0.02	<0.01	0.02	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	91	397	91	397	Gas	EE
8E	Upward Vertical Stack	CE-1	Engine	None		NOx	1.52	6.66	1.52	6.66	Gas	EE
						CO	7.39	32.38	0.52	2.27	Gas	EE
						VOC	1.46	6.40	0.73	3.20	Gas	EE
						PM	0.11	0.50	0.114	0.50	Solid	EE
						HCOH	1.31	5.73	0.131	0.57	Gas	EE
						Total HAPs	1.47	6.43	0.290	1.27	Gas	EE
						CO2e	1744	7639	1744	7639	Gas	EE

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	Est. Method Used [5]
9E-12E	Relief Vents	T01-T04	Produced Water	None		NOx					Gas	EE
						CO					Gas	EE
						VOC	0.08	0.35	0.08	0.35	Gas	EE
						PM					Solid	EE
						HCOH					Gas	EE
						Total HAPs	0.02	0.07	0.02	0.07	Gas	EE
						CO2e	108	473	108	473	Gas	EE
13E	Fugitive	TL-1	Produced Water Truck Loading	None		NOx					Gas	EE
						CO					Gas	EE
						VOC	<0.01	<0.01	<0.01	<0.01	Gas	EE
						PM					Solid	EE
						HCOH					Gas	EE
						Total HAPs	<0.01	<0.01	<0.01	<0.01	Gas	EE
						CO2e					Gas	EE

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

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

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

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

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

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

ATTACHMENT P

Other Supporting Documentation

Statler Well Pad Production Facility
Attachment P
Regulatory Analysis

Both State and Federal environmental regulations governing air emissions apply to the Statler 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, as permitted, will be 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. Thus, NSR requirements are not applicable to this project.

1.2 Title V Operating Permit Program

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

The facility, as permitted, will be 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 Statler Well Pad Production Facility.

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.

This Northeast Natural Energy facility will receive and manage raw natural gas and associated produced water from the on-site wells. After separation of the produced water, the gas is injected into gathering lines for transportation (via pipeline owned and operated by others) to a compressor station, again, owned and operated by others. At this location, it will be compressed, dehydrated and injected into a transmission line for transportation to customers.

The Statler Well Pad and the receiving compressor station are under the same general SIC Code. They are not under common ownership and will not have a sharing of staff. Additionally, as the gas can also flow to other compressor stations further away, there is no dependency of the Statler Well Pad on this compressor station. Additionally, operation of this compressor station is not dependent upon the Statler Well Pad as it also receives gas from other well pads. Lastly, the distance between the planned Statler Well Pad and the receiving compressor station (> 1.0 miles) does not rise to the definition of contiguous or adjacent. Thus, not all of the criteria for aggregation are met. Hence, emissions from the Statler Well Pad should not be aggregated with those of the receiving compressor station.

The closest Northeast Natural Energy facility to the Statler Well Pad is its Campbell Well Pad. This facility is under common ownership, under the same SIC code and may, from time to time, have a sharing of staff. However, these two well pads are approximately 0.63 miles apart. Lastly, there is no interconnection or interdependency between these two facilities. Gas from one well pad does not flow to the other. Accordingly, the operation of one well pad is not dependent upon the operation of the other. Thus, given the lack of dependency and the distance of separation, emissions from these two well pads should not be aggregated.

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 Statler 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 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 Well Pad Production Facility 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 field gas that will be extracted at this 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 driver for sole gas compressor at this facility will be SI ICE units manufactured after this date. Accordingly, this rule applies to this engine. More specifically, 60.4233(e) stipulates that non-emergency natural gas-fired lean burn engines >500 HP and <1350 HP must comply with the applicable emission standards of Table 1 of this Subpart. The engine, including the catalytic control unit, will meet this standard.

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. This rule applies to the Statler Well Pad Production Facility.

One of the key components to this rule [40 CFR 60.5390(b)] applicable to the Statler Well Pad 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 to be installed at Statler Well Pad will meet these criteria.

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 Produced Water tanks at the Statler Well Pad will have an estimated *uncontrolled* VOC emission rate well below this threshold. Thus, emissions from these tanks do not fall under NSPS Subpart OOOO.

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 Statler 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. In accordance with 40 CFR 63.6590(a)(2)(iii), the single engine at the planned Statler Well Pad Production Facility will not be considered an Existing Stationary RICE. Rather, it will be considered "new" engine. Thus, the engine will meet the requirements of this rule by meeting the requirements of NSPS, Subpart JJJJ as described above.

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 Statler Well Pad will not store more than 10,000 lbs of a flammable mixture comprised of the substances listed in Table 3 in 40 CFR 68.130. Hence, it is not covered under this rule.

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. Northeast Natural Energy 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 GPUs and compressor engine fall under Section 4.1 of this rule. PM emissions from these devices must remain below the allowable limit calculated under this rule.

The emissions 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 planned facility, no actions are required on the part of Northeast Natural Energy 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 proposed Statler Well Pad facility has the potential to emit a regulated pollutant in excess of the thresholds that define a Stationary Source (formaldehyde). Additionally, the presence of a source (the compressor engine) is regulated under NSPS, Subpart JJJJ. As such, a permit is warranted, independent of the exceedance (or lack thereof) of any emission thresholds triggering permitting.

When taking into consideration the voluntary limit to operate the engines equipped with catalysts only when the catalytic converters are properly functioning, the facility's potential to emit is less than the thresholds that would classify the facility as a Major Source under 45 CSR 14.

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 Statler Well Pad Production Facility is subject to the emission limitations, monitoring, testing and recordkeeping of Subpart JJJJ. The facility is also subject to Subpart OOOO.

1.7.7 45 CSR 30

The state regulations applicable to Title V operating permits are in Title 45 Series 30. The planned Statler Well Pad Production Facility, 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.