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	WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF AIR QUALITY 601 57 th Street, SE Charleston, WV 25304 Phone: (304) 926-0475 • www.dep.wv.gov/daq	APPLICATION FOR GENERAL PERMIT REGISTRATION <i>CONSTRUCT, MODIFY, RELOCATE OR ADMINISTRATIVELY UPDATE</i> A STATIONARY SOURCE OF AIR POLLUTANTS										
	<input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> MODIFICATION <input type="checkbox"/> RELOCATION <input checked="" type="checkbox"/> CLASS I ADMINISTRATIVE UPDATE <input type="checkbox"/> CLASS II ADMINISTRATIVE UPDATE											
CHECK WHICH TYPE OF GENERAL PERMIT REGISTRATION YOU ARE APPLYING FOR:												
<table border="0"><tr><td><input type="checkbox"/> G10-D – Coal Preparation and Handling</td><td><input type="checkbox"/> G40-C – Nonmetallic Minerals Processing</td></tr><tr><td><input type="checkbox"/> G20-B – Hot Mix Asphalt</td><td><input type="checkbox"/> G50-B – Concrete Batch</td></tr><tr><td><input type="checkbox"/> G30-D – Natural Gas Compressor Stations</td><td><input type="checkbox"/> G60-C – Class II Emergency Generator</td></tr><tr><td><input type="checkbox"/> G33-A – Spark Ignition Internal Combustion Engines</td><td><input type="checkbox"/> G65-C – Class I Emergency Generator</td></tr><tr><td><input checked="" type="checkbox"/> G35-A – Natural Gas Compressor Stations (Flare/Glycol Dehydration Unit)</td><td><input type="checkbox"/> G70-A – Class II Oil and Natural Gas Production Facility</td></tr></table>			<input type="checkbox"/> G10-D – Coal Preparation and Handling	<input type="checkbox"/> G40-C – Nonmetallic Minerals Processing	<input type="checkbox"/> G20-B – Hot Mix Asphalt	<input type="checkbox"/> G50-B – Concrete Batch	<input type="checkbox"/> G30-D – Natural Gas Compressor Stations	<input type="checkbox"/> G60-C – Class II Emergency Generator	<input type="checkbox"/> G33-A – Spark Ignition Internal Combustion Engines	<input type="checkbox"/> G65-C – Class I Emergency Generator	<input checked="" type="checkbox"/> G35-A – Natural Gas Compressor Stations (Flare/Glycol Dehydration Unit)	<input type="checkbox"/> G70-A – Class II Oil and Natural Gas Production Facility
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<input type="checkbox"/> G33-A – Spark Ignition Internal Combustion Engines	<input type="checkbox"/> G65-C – Class I Emergency Generator											
<input checked="" type="checkbox"/> G35-A – Natural Gas Compressor Stations (Flare/Glycol Dehydration Unit)	<input type="checkbox"/> 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): CONE Gathering LLC		2. Federal Employer ID No. (FEIN): 45-3344658										
3. Applicant's mailing address: CONE Gathering LLC P.O. Box 1248 Jane Lew, WV 26378		4. Applicant's physical address: CONE Gathering LLC One Energy Drive Jane Lew, WV 26378										
5. If applicant is a subsidiary corporation, please provide the name of parent corporation: CONE Gathering LLC is a 50/50 Joint Venture between CONSOL Energy Inc and Noble Energy, Inc.												
6. WV BUSINESS REGISTRATION. Is the applicant a resident of the State of West Virginia? <input checked="" type="checkbox"/> YES <input type="checkbox"/> 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.): Alton Natural Gas Compressor Station	8a. Standard Industrial Classification Classification (SIC) code: 1311	AND	8b. North American Industry System (NAICS) code: 211111
9. DAQ Plant ID No. (for existing facilities only): 097 - 00060	10. List all current 45CSR13 and other General Permit numbers associated with this process (for existing facilities only): G35-A030A (effective April 11, 2011)		

A: PRIMARY OPERATING SITE INFORMATION

<p>11A. Facility name of primary operating site:</p> <p>Alton Compressor Station</p>	<p>12A. Address of primary operating site:</p> <p>Mailing: P.O. Box 1248 Jane Lew, WV 26378</p> <p>Physical: Hemlock Road (County Route 32/15) Alton, WV 26218</p>	
<p>13A. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>– IF YES, please explain: The applicant leases this existing site property.</p> <p>– IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.</p>		
<p>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;</p> <p>Site is located off of Hemlock Road (County Route 32/15), approximately 1.1 miles from the intersection of Queens Road (County Route 32) and Hemlock Road (County Route 32/15), near the community of Alton, in Upshur County.</p> <p>– 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.</p>		
<p>15A. Nearest city or town: Alton</p>	<p>16A. County: Upshur</p>	<p>17A. UTM Coordinates:</p> <p>Northing (KM): 4,294.25</p> <p>Easting (KM): 570.89</p> <p>Zone: 17</p>
<p>18A. Briefly describe the proposed new operation or change (s) to the facility:</p> <p>The applicant proposes to utilize one new compressor engine with catalyst to replace the two as-permitted compressor engines without catalysts; one permitted Wellhead Production Unit will be removed from the permit registration; minor updates to the storage tanks listed in the permit registration. Potential emissions of regulated air pollutants will drop significantly at this facility. The current permit registration is in the name of CNX Gas Company, LLC; the revised permit registration should be in the name of CONE Gathering LLC.</p>		<p>19A. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):</p> <p>Latitude: 38.794150</p> <p>Longitude: -80.183697</p>

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

<p>11B. Name of 1st alternate operating site:</p> <p>NA</p>	<p>12B. Address of 1st alternate operating site:</p> <p>Mailing: _____ Physical: _____</p> <p>_____</p>	
<p>13B. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>– IF YES, please explain: _____</p> <p>– IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.</p>		

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 . <hr/> <hr/> <hr/>		
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 2 nd alternate operating site: NA <hr/>	12C. Address of 2 nd alternate operating site: Mailing: _____ Physical: _____ <hr/>	
13C. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? <input type="checkbox"/> YES <input type="checkbox"/> NO — IF YES , please explain: _____ <hr/> — 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 . <hr/> <hr/> <hr/>		
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: _____

<p>20. Provide the date of anticipated installation or change:</p> <p>12/01/15 Estimated date to install replacement compressor engine; operations at this existing site are on-going.</p> <p><input type="checkbox"/> If this is an After-The-Fact permit application, provide the date upon which the proposed change did happen:</p>	<p>21. Date of anticipated Start-up if registration is granted:</p> <p>12/01/15 Estimated date to start-up replacement compressor engine; operations at this existing site are on-going.</p>
<p>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).</p> <p>Hours per day <u>24</u> Days per week <u>7</u> Weeks per year <u>52</u> Percentage of operation <u>100</u></p>	

SECTION III. ATTACHMENTS AND SUPPORTING DOCUMENTS

<p>23. Include a check payable to WVDEP – Division of Air Quality with the appropriate application fee (per 45CSR22 and 45CSR13).</p>
<p>24. Include a Table of Contents as the first page of your application package.</p>
<p>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.</p>
<p>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.</p> <ul style="list-style-type: none"><input checked="" type="checkbox"/> ATTACHMENT A: CURRENT BUSINESS CERTIFICATE<input checked="" type="checkbox"/> ATTACHMENT B: PROCESS DESCRIPTION<input type="checkbox"/> ATTACHMENT C: DESCRIPTION OF FUGITIVE EMISSIONS<input type="checkbox"/> ATTACHMENT D: PROCESS FLOW DIAGRAM<input checked="" type="checkbox"/> ATTACHMENT E: PLOT PLAN<input type="checkbox"/> ATTACHMENT F: AREA MAP<input checked="" type="checkbox"/> ATTACHMENT G: EQUIPMENT DATA SHEETS AND REGISTRATION SECTION APPLICABILITY FORM<input type="checkbox"/> ATTACHMENT H: AIR POLLUTION CONTROL DEVICE SHEETS<input checked="" type="checkbox"/> ATTACHMENT I: EMISSIONS CALCULATIONS<input type="checkbox"/> ATTACHMENT J: CLASS I LEGAL ADVERTISEMENT<input checked="" type="checkbox"/> ATTACHMENT K: ELECTRONIC SUBMITTAL<input type="checkbox"/> ATTACHMENT L: GENERAL PERMIT REGISTRATION APPLICATION FEE<input type="checkbox"/> ATTACHMENT M: SITING CRITERIA WAIVER<input type="checkbox"/> ATTACHMENT N: MATERIAL SAFETY DATA SHEETS (MSDS)<input type="checkbox"/> ATTACHMENT O: EMISSIONS SUMMARY SHEETS<input checked="" type="checkbox"/> OTHER SUPPORTING DOCUMENTATION NOT DESCRIBED ABOVE (Equipment Drawings, Aggregation Discussion, etc.) <p>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.</p>

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 _____
(please use blue ink) Responsible Official Date

Name & Title Joseph Fink, Chief Operating Officer
(please print or type)

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

Applicant's Name: CONE Gathering LLC Technical contact: Joseph Estanich, Manager, Operations Compliance

Phone & Fax: (304) 884-2013 (Office) (304) 641-3649 (Cell) (304) 884-2188 (Fax)
Phone Fax

Email: JosephEstanich@consolenergy.com



Certificate

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

CONE GATHERING LLC

was duly authorized under the laws of this state to transact business in West Virginia as a foreign limited liability company on September 23, 2011.

The company is filed as an at-will company, for an indefinite period.

I further certify that the LLC (PLLC) has not been revoked by the State of West Virginia nor has a Certificate of Cancellation been issued.

Therefore, I hereby issue this

CERTIFICATE OF AUTHORIZATION

Validation ID:8WV1H_5P568



*Given under my hand and the
Great Seal of the State of
West Virginia on this day of
April 09, 2014*

Natalie E. Tennant

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Secretary of State

**WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION
CERTIFICATE**

ISSUED TO:
**CONE GATHERING LLC
1 ENERGY DRIVE- INDUSTRIAL PARK
JANE LEW, WV 26378-0000**

BUSINESS REGISTRATION ACCOUNT NUMBER: 2259-4120

This certificate is issued on: **06/25/2013**

*This certificate is issued by
the West Virginia State Tax Commissioner
in accordance with Chapter 11, Article 12, of the West Virginia Code*

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

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

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

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

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

atL006 v.4
L1040555904

ATTACHMENT B – PROCESS DESCRIPTION

CONE Gathering LLC (CONE), a 50/50 Joint Venture between CONSOL Energy and Noble Energy, is requesting that the Division of Air Quality (DAQ) grant a Class I administrative update of General Permit G35-A030A for equipment changes to the existing Alton Compressor Station, located in Upshur County. The site is located off of Hemlock Road (County Route 32/15), approximately 1.1 miles from the intersection of Queens Road (County Route 32) and Hemlock Road (County Route 32/15), near the community of Alton, in Upshur County, at UTM Zone 17 coordinates 4,294.25 km N, and 570.89 km E.

The Alton Compressor Station provides gathering and compression from several Marcellus Shale natural gas well pads in the area. The facility occupies less than two acres (2 ac. +/-) of developed land. A drawing of the Alton Compressor Station facility can be found on the Plot Plan in Attachment E.

The purpose of this administrative update application is to replace the existing natural gas compressor engines (E02 & E03) listed in G35-A030A with one new, ultra-lean burn natural gas compressor engine (E04) with oxidation catalyst (CAT1). Also, one permitted Wellhead Production Unit (P04) will be removed from the permit registration, and there are some updates to the storage tanks listed in the permit registration. As a result of these changes, potential hourly and annual emissions of regulated air pollutants will drop significantly at this facility.

The slop oil/pipeline fluids storage tanks (A12 & A13; 4,200 gallons each), lube oil storage tanks (A14 to A17; 500 gallons each), and the used oil storage tank (A18; 500 gallons) will have negligible emissions of regulated air pollutants due to the low vapor pressure of their contents and due to their low annual throughputs.

Please see the following page for a table listing the proposed revised Emission Units table in the G35-A030B permit registration.

The proposed changes to the emission units, control devices and vent points included at the facility are listed in the Equipment List Table on the last page of this Attachment.

A process flow diagram for the proposed new compressor engine can be found in Attachment D.

The new compressor engine (E04) is planned to be installed about 12/01/15, and start-up of the new compressor engine is planned to occur soon thereafter. The two existing compressor engines (E02 & E03) will be permanently shut down prior to start-up of the new compressor engine.

The current permit registration G35-A030A is in the name of CNX Gas Company, LLC; the revised permit registration should be in the name of CONE Gathering LLC.

ATTACHMENT B – PROCESS DESCRIPTION

Proposed Revised Emission Units Table in G35-A030B

Emission Unit ID	Emission Unit Description (Make, Model, Serial No.)	Year Installed	Design Capacity
E04	Caterpillar G3516BLE Compressor Engine	2015	1,380 hp / 1,400 rpm
RBLR2	Exterran Dehydration Unit Reboiler	2011	1.50 mmBtu/hr
DEHY2	Exterran Glycol Dehydration Still Vent	2011	50.0 mmscf/day
P01	Wellhead Production Unit	2011	1.50 mmBtu/hr
P02	Wellhead Production Unit	2011	1.50 mmBtu/hr
P03	Wellhead Production Unit	2011	1.50 mmBtu/hr
A05	Slop Oil/Pipeline Fluids Storage Tank	2011	4,200 gal
A06	Dehydrator Glycol Storage Tank	2011	325 gal
A08	Produced Water Storage Tank	2011	12,600 gal
A09	Produced Water Storage Tank	2011	12,600 gal
A10	Produced Water Storage Tank	2011	12,600 gal
A12	Slop Oil/Pipeline Fluids Storage Tank	2012	4,200 gal
A13	Slop Oil/Pipeline Fluids Storage Tank	2012	4,200 gal
A14	Lube Oil Storage Tank	2012	500 gal
A15	Lube Oil Storage Tank	2012	500 gal
A16	Lube Oil Storage Tank	2012	500 gal
A17	Lube Oil Storage Tank	2012	500 gal
A18	Used Oil Storage Tank	2012	500 gal

ATTACHMENT B (Continued) – EQUIPMENT LIST TABLE

Type Change, if any (New, Modification, or Removal)	Date of Change	Emissions Unit (Source)		Air Pollution Control Device		Emission Point	
		ID No. ¹	Source	ID No. ²	Device Type	ID No. ³	Emission Type ⁴
Removal	12/01/15	E02	Natural Gas-Fueled Compressor RICE	NA	None	E2E	Vertical Stack
Removal	12/01/15	E03	Natural Gas-Fueled Compressor RICE	NA	None	E3E	Vertical Stack
Removal	12/01/15	P04	Wellhead Production Unit #4	NA	None	P04E	Vertical Stack
Removal	12/01/15	A11	Produced Water (Brine) Tank	NA	None	A11E	Vertical Stack
New	12/01/15	E04	Natural Gas-Fueled Compressor RICE	CAT1	Catalyst	E4E	Vertical Stack
Existing	12/01/15	A12	Waste Oil Storage Tank	NA	None	A12E	Vertical Stack
Existing	12/01/15	A13	Waste Oil Storage Tank	NA	None	A13E	Vertical Stack
Existing	12/01/15	A14	Lube Oil Storage Tank	NA	None	A14E	Vertical Stack
Existing	12/01/15	A15	Lube Oil Storage Tank	NA	None	A15E	Vertical Stack
Existing	12/01/15	A16	Lube Oil Storage Tank	NA	None	A16E	Vertical Stack
Existing	12/01/15	A17	Lube Oil Storage Tank	NA	None	A17E	Vertical Stack
Existing	12/01/15	A18	Used Oil Storage Tank	NA	None	A18E	Vertical Stack

Include **all** process equipment that will be part of this permit application review, including previously unpermitted emissions units (sources) and air pollution control devices.¹

¹ Number as 1s, 2s, 3s . . . or other appropriate designation. Must match process flow diagram.

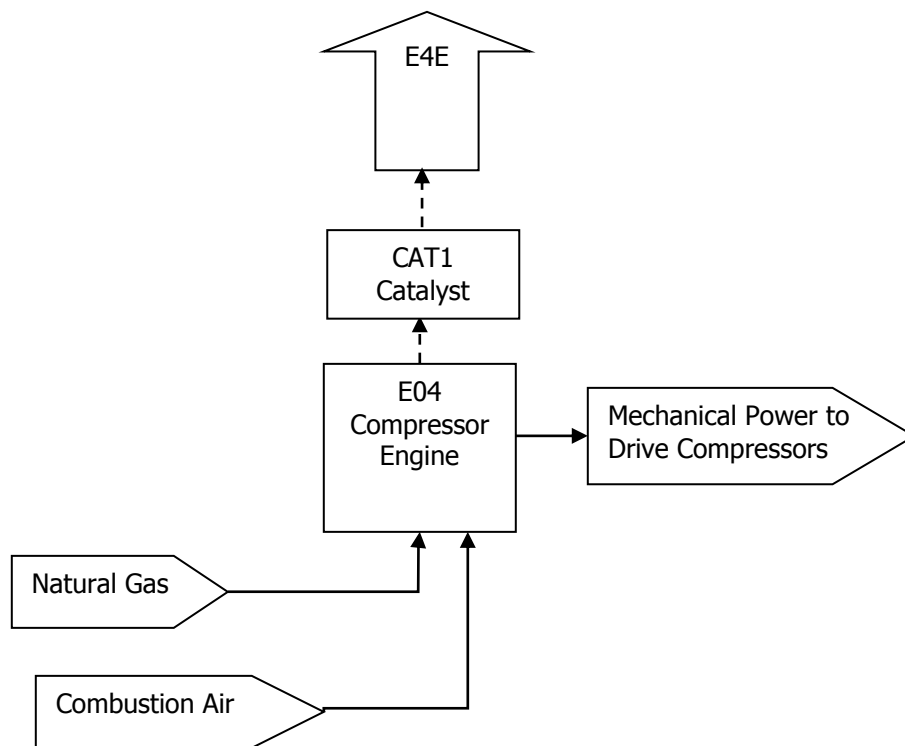
² Number as 1c, 2c, 3c . . . or other appropriate designation. Must match process flow diagram.

³ Number as 1e, 2e, 3e . . . or other appropriate designation. Must match process flow diagram.

⁴ Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

ATTACHMENT D – PROCESS FLOW DIAGRAM

Figure 1 – Compressor Engine



Attachment E – Plot Plan

General Permit G35-A Registration Section Applicability Form

General Permit G35-A was developed to allow qualified registrants to seek registration for a variety of sources. These sources include internal combustion engines, boilers, reboilers, line heaters, tanks, emergency generators, dehydration units not subject to MACT standards, dehydration units not subject to MACT standards and being controlled by a flare control device, dehydration units not subject to MACT standards and being controlled by recycling the dehydration unit back to flame zone of reboiler, dehydration units not subject to MACT standards being controlled by a thermal oxidizer, and permit exemptions including the less than 1 ton/year benzene exemption, the 40CFR63 Subpart HH - Annual Average Flow of Gas Exemption (3 mmscf/day), and the 40CFR63 Subpart HHH - Annual Average Flow of Gas Exemption (10 mmscf/day). All registered facilities will be subject to Sections 1.0, 1.1, 2.0, 3.0, and 4.0.

General Permit G35-A allows the registrant to choose which sections of the permit that they wish to seek registration under. Therefore, please mark which sections that you are applying for registration under. 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	Reciprocating Internal Combustion Engines (R.I.C.E.)*	<input checked="" type="checkbox"/>
Section 6	Boilers, Reboilers, and Line Heaters	<input checked="" type="checkbox"/>
Section 7	Tanks	<input checked="" type="checkbox"/>
Section 8	Emergency Generators	<input type="checkbox"/>
Section 9	Dehydration Units Not Subject to MACT Standards	<input checked="" type="checkbox"/>
Section 10	Dehydration Units Not Subject to MACT Standards and being controlled by a flare control device	<input type="checkbox"/>
Section 11	Dehydration Units Not Subject to MACT Standards being controlled by recycling the dehydration unit back to the flame zone of the reboiler	<input type="checkbox"/>
Section 12	Dehydration Units Not Subject to MACT Standards and being controlled by a thermal oxidizer	<input type="checkbox"/>
Section 13	Permit Exemption (Less than 1 ton/year of benzene exemption)	<input checked="" type="checkbox"/>
Section 14	Permit Exemption (40CFR63 Subpart HH – Annual average flow of gas exemption (3 mmscf/day))	<input type="checkbox"/>
Section 15	Permit Exemption (40CFR63 Subpart HHH – Annual average flow of gas exemption (10 mmscf/day))	<input type="checkbox"/>
Section 16	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (40CFR60 Subpart JJJJ)	<input checked="" type="checkbox"/>

*** Affected facilities that are subject to Section 5 may also be subject to Section 16. Therefore, if the applicant is seeking registration under both sections, please select both.**

NATURAL GAS FIRED BOILER/LINE HEATER DATA SHEET

Source ID # ¹	Status ²	Design Heat Input (mmBtu/hr) ³	Hours of Operation (hrs/yr) ⁴	Fuel Heating Value (Btu/scf) ⁵	
P04	REM	1.50	8,760	1,000	

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

EXIST Existing Equipment

REM Equipment Removed

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

STORAGE TANK DATA SHEET

Source ID # ¹	Status ²	Content ³	Volume ⁴	Dia ⁵	Throughput ⁶	Orientation ⁷	Liquid Height ⁸
A07	REM	Dehydrator Condensate Storage Tank	4,200	8.5	NA	VERT	NA
A11	REM	Produced Water (Brine)	12,600	12	NA	VERT	NA
A05	EXIST	Slop Oil/Pipeline Fluids Storage Tank	4,200	8.5	25,200	VERT	5
A06	EXIST	Dehydrator Glycol Storage Tank	325	3.5	2,500	HORZ	3
A12	EXIST	Slop Oil/Pipeline Fluids Storage Tank	4,200	8.5	25,200	VERT	5
A13	EXIST	Slop Oil/Pipeline Fluids Storage Tank	4,200	8.5	25,200	VERT	5
A14	EXIST	Lube Oil Storage Tank	500	4	2,500	HORZ	3
A15	EXIST	Lube Oil Storage Tank	500	4	2,500	HORZ	3
A16	EXIST	Lube Oil Storage Tank	500	4	2,500	HORZ	3
A17	EXIST	Lube Oil Storage Tank	500	4	2,500	HORZ	3
A18	EXIST	Used Oil Storage Tank	500	4	10,000	HORZ	3

- Enter the appropriate Source Identification Numbers (Source ID #) for each storage tank located at the compressor station. Tanks should be designated T01, T02, T03, etc.
- Enter storage tank Status using the following:

EXIST Existing Equipment

REM Equipment Removed

NEW Installation of New Equipment
- Enter storage tank content such as condensate, pipeline liquids, glycol (DEG or TEG), lube oil, etc.
- Enter storage tank volume in gallons.
- Enter storage tank diameter in feet.
- Enter storage tank throughput in gallons per year.
- Enter storage tank orientation using the following:

VERT Vertical Tank

HORZ Horizontal Tank
- Enter storage tank average liquid height in feet.

NATURAL GAS COMPRESSOR/GENERATOR ENGINE DATA SHEET

Source Identification Number ¹		E02		E03		E04	
Engine Manufacturer and Model		Caterpillar G3516TALE		Caterpillar G3516TALE		Caterpillar G3516BLE	
Manufacturer's Rated bhp/rpm		1,340 @ 1,400 rpm		1,340 @ 1,400 rpm		1,380 @ 1,400 rpm	
Source Status ²		RS		RS		NS	
Date Installed/Modified/Removed ³		4/1/11		4/1/11		12/1/15	
Engine Manufactured/Reconstruction Date ⁴		March 11, 2009		March 11, 2009		August 28, 2013	
Is this a Certified Stationary Spark Ignition Engine according to 40CFR60 Subpart JJJJ? (Yes or No) ⁵		Yes		Yes		No	
Engine, Fuel and Combustion Data	Engine Type ⁶	LB4S		LB4S		LB4S	
	APCD Type ⁷	None		None		Oxidation Catalyst	
	Fuel Type ⁸	PQ		PQ		PQ	
	H ₂ S (gr/100 scf)	0.2 (AP-42)		0.2 (AP-42)		0.2 (AP-42)	
	Operating bhp/rpm	1,340 @ 1,400 rpm		1,340 @ 1,400 rpm		1,380 @ 1,400 rpm	
	BSFC (Btu/bhp-hr)	7,548		7,548		8,255	
	Fuel throughput (ft ³ /hr)	9,877		9,877		11,392	
	Fuel throughput (MMft ³ /yr)	86.52		86.52		99.8	
	Operation (hrs/yr)	8,760		8,760		8,760	
Reference ⁹	Potential Emissions ¹⁰	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
MD	NO _x	5.91	25.88	5.91	25.88	1.52	6.66
MD	CO	5.49	24.07	5.49	24.07	0.52	2.27
MD	VOC	0.77	3.36	0.77	3.36	0.76	3.33
AP	SO ₂	0.01	0.03	0.01	0.03	0.01	0.03
AP	PM ₁₀	0.10	0.44	0.10	0.44	0.11	0.50
MD	Formaldehyde	0.77	3.36	0.77	3.36	0.14	0.63
MD, AP	CO _{2e}	1,563.3	6,847.4	1,563.3	6,847.4	1,750.6	7,667.5

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

2. Enter the Source Status using the following codes:

NS Construction of New Source (installation)
MS Modification of Existing Source

ES Existing Source
RS Removal of Source

3. Enter the date (or anticipated date) of the engine's installation (construction of source), modification or removal.
4. Enter the date that the engine was manufactured, modified or reconstructed.
5. Is the engine a certified stationary spark ignition internal combustion engine according to 40CFR60 Subpart 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.

6. Enter the Engine Type designation(s) using the following codes:
LB2S Lean Burn Two Stroke RB4S Rich Burn Four Stroke
LB4S Lean Burn Four Stroke
7. Enter the Air Pollution Control Device (APCD) type designation(s) using the following codes:
A/F Air/Fuel Ratio IR Ignition Retard
HEIS High Energy Ignition System SIPC Screw-in Precombustion Chambers
PSC Prestratified Charge LEC Low Emission Combustion
NSCR Rich Burn & Non-Selective Catalytic Reduction SCR Lean Burn & Selective Catalytic Reduction
8. Enter the Fuel Type using the following codes:
PQ Pipeline Quality Natural Gas RG Raw Natural Gas
9. Enter the Potential Emissions Data Reference designation using the following codes. Attach all referenced data to this *Compressor/Generator Data Sheet(s)*.
MD Manufacturer's Data AP AP-42
GR GRI-HAPCalc™ OT Other _____ (please list)
10. Enter each engine's Potential to Emit (PTE) for the listed regulated pollutants in pounds per hour and tons per year. PTE shall be calculated at manufacturer's rated brake horsepower and may reflect reduction efficiencies of listed Air Pollution Control Devices. Emergency generator engines may use 500 hours of operation when calculating PTE. PTE data from this data sheet shall be incorporated in the *Emissions Summary Sheet*.

USA Compression Unit 1539 Caterpillar G3516BLE Engine Emissions

Date of Manufacture	<u>8/28/2013</u>	Engine Serial Number	<u>JEF02831</u>	Date Modified/Reconstructed	<u>Not Any</u>
Driver Rated HP	<u>1380</u>	Rated Speed in RPM	<u>1400</u>	Combustion Type	<u>Spark Ignited 4 Stroke</u>
Number of Cylinders	<u>16</u>	Compression Ratio	<u>8:1</u>	Combustion Setting	<u>Ultra Lean Burn</u>
Total Displacement (in ³)	<u>4211</u>	Fuel Delivery Method	<u>Carburetor</u>	Combustion Air Treatment	<u>T.C./Aftercooled</u>

Raw Engine Emissions (Customer Supplied 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

	<u>g/bhp-hr¹</u>	<u>lb/MMBTU²</u>	<u>lb/hr</u>	<u>TPY</u>
Nitrogen Oxides (NOx)	0.5		1.52	6.66
Carbon Monoxide (CO)	2.43		7.39	32.38
Volatile Organic Compounds (VOC or NMNEHC)	0.48		1.46	6.40
Formaldehyde (CH2O)	0.43		1.31	5.73
Particulate Matter (PM) <small>Filterable+Condensable</small>		9.99E-03	1.14E-01	4.98E-01
Sulfur Dioxide (SO2)		5.88E-04	6.70E-03	2.93E-02
	<u>g/bhp-hr¹</u>		<u>lb/hr</u>	<u>Metric Tonne/yr</u>
Carbon Dioxide (CO2)	472		1436	5705
Methane (CH4)	4.04		12.29	48.83

¹ g/bhp-hr are based on Caterpillar Specifications (GERP) customer supplied 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 Combustion Sources (Section 3.2 Natural Gas-Fired Reciprocating Engines, Table 3.2-2).

Catalytic Converter Emissions

Catalytic Converter Make and Model: DCL, DC665
Element Type: Oxidation
Number of Elements in Housing: 2
Air/Fuel Ratio Control Caterpillar ADEM3, NOx Feedback

	<u>% Reduction</u>	<u>lb/hr</u>	<u>TPY</u>
Nitrogen Oxides (NOx)	0	1.52	6.66
Carbon Monoxide (CO)	93	0.52	2.27
Volatile Organic Compounds (VOC or NMNEHC)	48	0.76	3.33
Formaldehyde (CH2O)	89	0.14	0.63
Particulate Matter (PM)	0	1.14E-01	4.98E-01
Sulfur Dioxide (SO2)	0	6.70E-03	2.93E-02
	<u>% Reduction</u>	<u>lb/hr</u>	<u>Metric Tonne/yr</u>
Carbon Dioxide (CO2)	0	1436	5705
Methane (CH4)	0	12.29	48.83



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
Company:	USA Compression
Date:	March 20, 2015

Phone:	814-746-6942
Email	CMagee@usacompression.com
No. Pages:	1

Dear Chris,

We hereby guarantee that our Model DC65-14 specified below with one (1) elements installed as described below, and sized for the following engine:

Engine Data	
Engine Model	Caterpillar G3516B
Power	1380HP
Fuel	PQNG
Exhaust Flow Rate	91 acfm
Exhaust Temperature	99 °F

Catalyst Data	
Catalyst Model	DC65-14
Type	Oxidation- A
# of Elements	1
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.	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

GAS COMPRESSION APPLICATION

ENGINE SPEED (rpm): 1400
 COMPRESSION RATIO: 8:1
 AFTERCOOLER TYPE: SCAC
 AFTERCOOLER - STAGE 2 INLET (°F): 130
 AFTERCOOLER - STAGE 1 INLET (°F): 201
 JACKET WATER OUTLET (°F): 210
 ASPIRATION: TA
 COOLING SYSTEM: JW+OC+1AC, 2AC
 CONTROL SYSTEM: ADEM3
 EXHAUST MANIFOLD: DRY
 COMBUSTION: LOW EMISSION
 NOx EMISSION LEVEL (g/bhp-hr NOx): 0.5
 SET POINT TIMING: 30

RATING STRATEGY:
 RATING LEVEL:
 FUEL SYSTEM:

STANDARD
 CONTINUOUS
 CAT WIDE RANGE
 WITH AIR FUEL RATIO CONTROL

SITE CONDITIONS:

FUEL: CNX Alton 10-23-15
 FUEL PRESSURE RANGE(psig): 7.0-40.0
 FUEL METHANE NUMBER: 94.6
 FUEL LHV (Btu/scf): 920
 ALTITUDE(ft): 1200
 MAXIMUM INLET AIR TEMPERATURE(°F): 90
 STANDARD RATED POWER: 1380 bhp@1400rpm

RATING	NOTES	LOAD	MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE			
			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	8259	8259	8846	9501	
AIR FLOW (@inlet air temp, 14.7 psia) (WET)	(3)(4)	ft ³ /min	3202	3202	2511	1756	
AIR FLOW (WET)	(3)(4)	lb/hr	13860	13860	10872	7601	
FUEL FLOW (60°F, 14.7 psia)		scfm	186	186	149	107	
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)	ft ³ /min	9108	9108	7124	5055	
EXHAUST GAS MASS FLOW (WET)	(7)(4)	lb/hr	14341	14341	11259	7878	

EMISSIONS DATA - ENGINE OUT							
NOx (as NO ₂)	(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	0.77	
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	
CO ₂	(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	23607	23607	21686	20034	
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	11576	11576	9641	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	43493
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.			

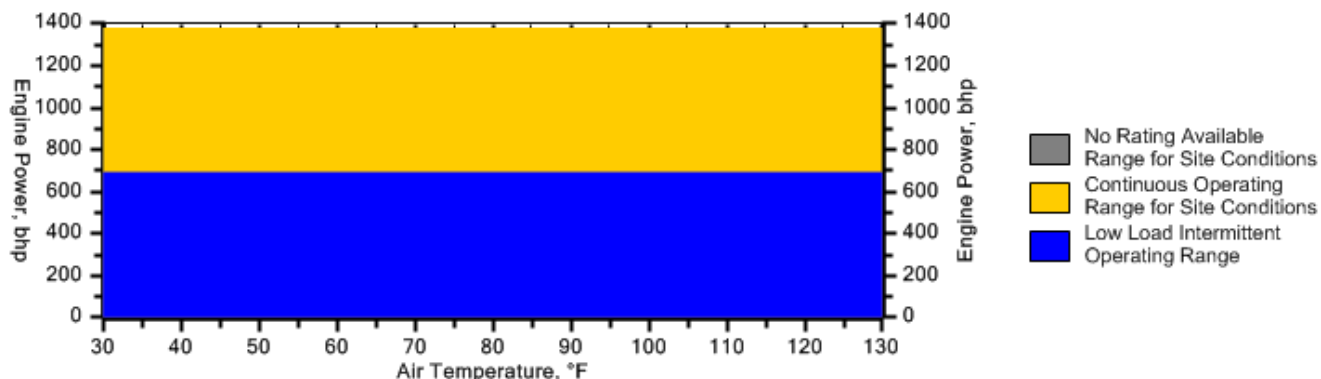
CONDITIONS AND DEFINITIONS

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.

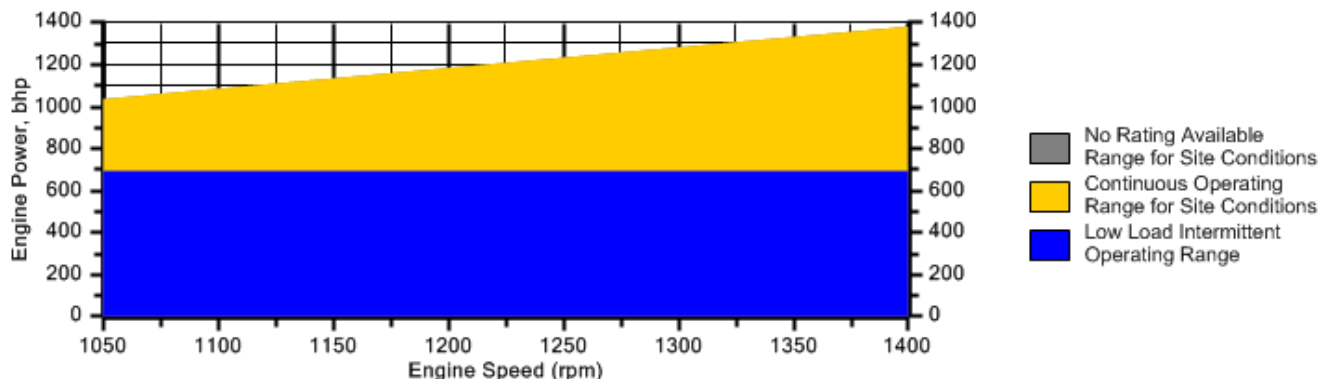
For notes information consult page three.

Engine Power vs. Inlet Air Temperature

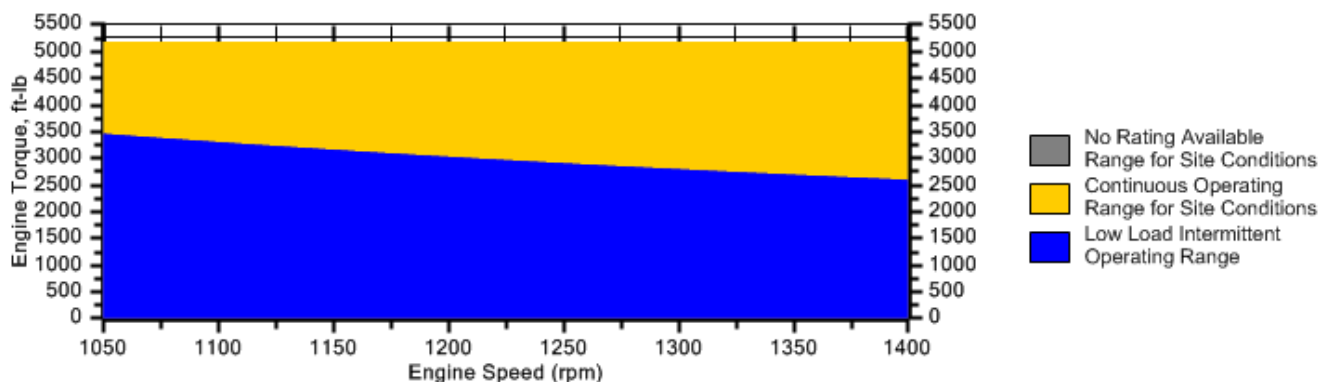
Data represents temperature sweep at 1200 ft and 1400 rpm

**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 $\pm 3\%$ of full load.
2. Fuel consumption tolerance is $\pm 3.0\%$ of full load data.
3. Air flow value is on a 'wet' basis. Flow is a nominal value with a tolerance of $\pm 5\%$.
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 $\pm 5\%$.
6. Exhaust temperature is a nominal value with a tolerance of $(+)63^{\circ}\text{F}$, $(-)54^{\circ}\text{F}$.
7. Exhaust flow value is on a "wet" basis. Flow is a nominal value with a tolerance of $\pm 6\%$.
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 $\pm 10\%$ for jacket water circuit, $\pm 50\%$ for radiation, $\pm 20\%$ for lube oil circuit, and $\pm 5\%$ 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	97.5262	97.5262
Ethane	C2H6	1.8202	1.8202
Propane	C3H8	0.0565	0.0565
Isobutane	iso-C4H10	0.0014	0.0014
Norbutane	nor-C4H10	0.0029	0.0029
Isopentane	iso-C5H12	0.0000	0.0000
Norpentane	nor-C5H12	0.0000	0.0000
Hexane	C6H14	0.0000	0.0000
Heptane	C7H16	0.0000	0.0000
Nitrogen	N2	0.2863	0.2863
Carbon Dioxide	CO2	0.3065	0.3065
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: CNX Alton 10-23-15
Unit of Measure: English

Calculated Fuel Properties

Caterpillar Methane Number: 94.6

Lower Heating Value (Btu/scf): 920
Higher Heating Value (Btu/scf): 1021
WOBBE Index (Btu/scf): 1221

THC: Free Inert Ratio: 167.69
Total % Inerts (% N2, CO2, He): 0.59%
RPC (%) (To 905 Btu/scf Fuel): 100%

Compressibility Factor: 0.998
Stoich A/F Ratio (Vol/Vol): 9.61
Stoich A/F Ratio (Mass/Mass): 16.94
Specific Gravity (Relative to Air): 0.568
Specific Heat Constant (K): 1.313

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

Report Date: Apr 29, 2015 7:29a

Client: Consol Gas
 Site: ALTON COMPRESS
 Field No: 9998
 Meter: 070-10-001
 Source Laboratory: Clarksburg (Bridgeport), WV
Lab File No: X_CH1-2854.CHR
 Sample Type: Spot
 Reviewed By:

Date Sampled: Apr 22, 2015
 Analysis Date: Apr 28, 2015 1:16p
 Collected By: G. Cutright GAS
 Date Effective: Apr 22, 2015 12:00a
 Sample Pressure (PSI): 607.0
 Sample Temp (°F):
 Field H2O (lb/MMSCFD): No Test
 Field H2S (PPM): No Test

Component	Mol %	Gal/MSCF
Methane	97.5262	
Ethane	1.8202	0.48
Propane	0.0565	0.02
I-Butane	0.0014	0.00
N-Butane	0.0029	0.00
I-Pentane	<MDL	0.00
N-Pentane	<MDL	0.00
Nitrogen	0.2863	
Oxygen	<MDL	
CO2	0.3065	
Hexanes+	<MDL	0.00
TOTAL	100.0000	0.50

Analytical Results at Base Conditions (Real)

BTU/SCF (Dry): 1,022.9017 BTU/ft³
 BTU/SCF (Saturated): 1,005.9764 BTU/ft³
 PSIA: 14.730 PSI
 Temperature (°F): 60.00 °F
 Z Factor (Dry): 0.99795
 Z Factor (Saturated): 0.99760

Analytical Results at Contract Conditions (Real)

BTU/SCF (Dry): 1,022.9017 BTU/ft³
 BTU/SCF (Saturated): 1,005.9764 BTU/ft³
 PSIA: 14.730 PSI
 Temperature (°F): 60.00 °F
 Z Factor (Dry): 0.99795
 Z Factor (Saturated): 0.99760

Calculated Specific Gravities

Ideal Gravity: 0.5675 Real Gravity: 0.5684
 Molecular Wt: 16.4355 lb/lbmol

Gross Heating Values are Based on:

GPA 2145-09, 2186
 Compressibility is Calculated using AGA-8.

Source	Date	Notes
--------	------	-------

Compressor Engine (Source ID# E04) Calculations Summary & Rationale

Catepillar 3516 ULB @ 1,400 rpm/100% Load [4-Stroke Lean-Burn Engine]								Max. Annual Operating Hours = 8,760	
Pollutant	Pre-Catalyst Emission Factor	Emission Factor Units	Emission Factor Basis / Source	Equation Used to Calc. Hourly Emis.	Engine BSFC at HHV (Btu/bhp-hr)	Catalyst Control Efficiency (%)	Engine Power (bhp)	Max. Hourly Emis. (lb/hr)	Max. Annual Emis. (tpy)
NOx	0.5	gm/bhp-hr	Engine Vendor	[1]	8,255	0	1,380	1.52	6.66
CO	2.43	gm/bhp-hr	Engine Vendor	[1]	8,255	93	1,380	0.52	2.27
VOC	0.48	gm/bhp-hr	Engine Vendor	[1]	8,255	48	1,380	0.76	3.33
PM	0.010	lb/MMBtu	AP-42, Table 3.2-2 [PM10 Filterable + PM Condensable]	[2]	8,255	---	1,380	0.11	0.50
SO2	0.2	grains H2S per 100 scf	G-30A Calculation; AP-42, Table 3.2-3	[3]	8,255	---	1,380	0.006	0.027
Benzene	4.40E-04	lb/MMBtu	AP-42, Table 3.2-2	[2]	8,255	0	1,380	0.005	0.022
Ethylbenzene	3.97E-05	lb/MMBtu	AP-42, Table 3.2-2	[2]	8,255	0	1,380	0.0005	0.002
Formaldehyde	0.43	gm/bhp-hr	Engine Vendor	[1]	8,255	89	1,380	0.14	0.630
n-Hexane	1.11E-03	lb/MMBtu	AP-42, Table 3.2-2	[2]	8,255	0	1,380	NF	NF
Toluene	4.08E-04	lb/MMBtu	AP-42, Table 3.2-2	[2]	8,255	0	1,380	0.005	0.020
Xylenes	1.84E-04	lb/MMBtu	AP-42, Table 3.2-2	[2]	8,255	0	1,380	0.002	0.009
GHGs:									
CO2	472	gm/bhp-hr	Engine Vendor	[1]	8,255	0	1,380	1,436.0	6,289.6
Nitrous Oxide	2.16E-03	lb/MMBtu	AP-42, Table 1.4-2	[2]	8,255	0	1,380	0.02	0.11
Methane	4.04	gm/bhp-hr	Engine Vendor	[1]	8,255	0	1,380	12.29	53.83
Total CO2 Equivalent								1,750.6	7,667.5

NOTES:

NA = Not Applicable

NF = No Emission Factor

>>>AP-42, Chapter 3.2 references are from the July 2000 revision.

>>>Max. Annual Emissions based upon Max. Hourly Emissions @ Max. Annual Operating Hours.

>>>CO2 Equivalent is based upon global warming potential values of 298 x tons N2O and 25 x tons CH4.

EXAMPLE EQUATIONS:

[1] Max. Hourly Emis. Rate (lb/hr) = Emission Factor (gm/bhp-hr) x Engine Power (bhp) x Conversion Factor (lb/453.6 gm)

[2] Max. Hourly Emis. Rate (lb/hr) = Emission Factor (lb/MMBtu) x Engine BSFC (Btu/bhp-hr) x Engine Power (bhp) x Conversion Factor (MMBtu/1000000 Btu)

[3] Max. Hourly Emis. Rate (lb/hr) = Emission Factor (grains H2S per 100 scf) x Engine BSFC (Btu/bhp-hr) x Engine Power (bhp) x Conversion Factor (scf/1000 Btu) x Conversion Factor (lb/7000 grains) x Molar Ratio (64 lb SO2/34 lb H2S)