

Rover Pipeline LLC

Rule 13 Permit Modification Application

Rover Pipeline LLC

Majorsville Compressor Station

SLR Ref: 116.01094.00011

May 2017



Rule 13 Permit Modification Application

Prepared for:

Rover Pipeline LLC

1300 Main Street
Houston, Texas 77002

This document has been prepared by SLR International Corporation. The material and data in this report were prepared under the supervision and direction of the undersigned.



Chris Boggess
Associate Engineer



Jesse Hanshaw, P.E.
Principal Engineer

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APPLICATION FEE

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ATTACHMENT H – Not applicable – SDS Sheets submitted with previous permit applications

ATTACHMENT Q – Not applicable – No information contained within this application claimed as confidential

ATTACHMENT R – Not applicable – No delegation of authority required

ATTACHMENT S – Not applicable – Facility is not subject to Title V

APPLICATION FOR PERMIT

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY

601 57th Street, SE
 Charleston, WV 25304
 (304) 926-0475
www.dep.wv.gov/daq

**APPLICATION FOR NSR PERMIT
 AND
 TITLE V PERMIT REVISION
 (OPTIONAL)**

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

- CONSTRUCTION MODIFICATION RELOCATION
 CLASS I ADMINISTRATIVE UPDATE TEMPORARY
 CLASS II ADMINISTRATIVE UPDATE AFTER-THE-FACT

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

- ADMINISTRATIVE AMENDMENT MINOR MODIFICATION
 SIGNIFICANT MODIFICATION

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant (as registered with the WV Secretary of State's Office): Rover Pipeline LLC		2. Federal Employer ID No. (FEIN): 47-1958303	
3. Name of facility (if different from above): Majorsville Compressor Station		4. The applicant is the: <input type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input checked="" type="checkbox"/> BOTH	
5A. Applicant's mailing address: 1300 Main Street Houston, TX 77002		5B. Facility's present physical address: Station Located off Ruth Hill Dallas, WV	
6. West Virginia Business Registration. Is the applicant a resident of the State of West Virginia? <input type="checkbox"/> YES <input checked="" 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 L.L.C./Registration (one page) including any name change amendments or other Business Certificate as Attachment A .			
7. If applicant is a subsidiary corporation, please provide the name of parent corporation:			
8. Does the applicant own, lease, have an option to buy or otherwise have control of the <i>proposed site</i> ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO – If YES , please explain: The applicant owns the site – If NO , you are not eligible for a permit for this source.			
9. Type of plant or facility (stationary source) to be constructed, modified, relocated, administratively updated or temporarily permitted (e.g., coal preparation plant, primary crusher, etc.): Natural Gas Compressor Station		10. North American Industry Classification System (NAICS) code for the facility: 486210	
11A. DAQ Plant ID No. (for existing facilities only): 051-00213		11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only): R13-3238	

<p>12A.</p> <ul style="list-style-type: none"> For Modifications, Administrative Updates or Temporary permits at an existing facility, please provide directions to the <i>present location</i> of the facility from the nearest state road; For Construction or Relocation permits, please provide directions to the <i>proposed new site location</i> from the nearest state road. Include a MAP as Attachment B. <p>From Elm Grove, WV take I-70 East for 5.4 miles and take a left onto Dallas Pike. Continue on Dallas Pike for 5.3 miles. Take a right onto Number 2 Ridge Rd for 2.7 miles. Turn right on Golden Ridge Rd. for 0.7 miles. Take a slight left on Ruth Hill for 0.7 miles. Dead ends at station.</p>		
12B. New site address (if applicable): N/A	12C. Nearest city or town: Dallas	12D. County: Marshall
12.E. UTM Northing (KM): 4,423.729	12F. UTM Easting (KM): 538.013	12G. UTM Zone: 17
<p>13. Briefly describe the proposed change(s) at the facility: This application will address the addition of one 4SLB reciprocating engine and the modification of two previously permitted 4SLB reciprocating engines to reflect increased formaldehyde control. The increase to catalyst efficiency for formaldehyde was in accordance with an update to the catalyst vendor's specifications from Miratech.</p>		
<p>14A. Provide the date of anticipated installation or change: 10/2017</p> <ul style="list-style-type: none"> If this is an After-The-Fact permit application, provide the date upon which the proposed change did happen: 		<p>14B. Date of anticipated Start-Up if a permit is granted: 02/2018</p>
<p>14C. Provide a Schedule of the planned Installation of/Change to and Start-Up of each of the units proposed in this permit application as Attachment C (if more than one unit is involved).</p>		
<p>15. Provide maximum projected Operating Schedule of activity/activities outlined in this application:</p> <p style="text-align: center;">Hours Per Day 24 Days Per Week 7 Weeks Per Year 52</p>		
<p>16. Is demolition or physical renovation at an existing facility involved? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>		
<p>17. Risk Management Plans. If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your Risk Management Plan (RMP) to U. S. EPA Region III.</p>		
<p>18. Regulatory Discussion. List all Federal and State air pollution control regulations that you believe are applicable to the proposed process (<i>if known</i>). A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance (<i>if known</i>). Provide this information as Attachment D.</p>		
<p>Section II. Additional attachments and supporting documents.</p>		
<p>19. Include a check payable to WVDEP – Division of Air Quality with the appropriate application fee (per 45CSR22 and 45CSR13). See attached check for \$2,000 which covers the Application and NSPS fees</p>		
<p>20. Include a Table of Contents as the first page of your application package.</p>		
<p>21. Provide a Plot Plan, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as Attachment E (Refer to Plot Plan Guidance) .</p> <ul style="list-style-type: none"> Indicate the location of the nearest occupied structure (e.g. church, school, business, residence). 		
<p>22. Provide a Detailed Process Flow Diagram(s) showing each proposed or modified emissions unit, emission point and control device as Attachment F.</p>		
<p>23. Provide a Process Description as Attachment G.</p> <ul style="list-style-type: none"> Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable). 		
<p>All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.</p>		

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H**.
 – For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I**.

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J**.

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K**.

28. Check all applicable **Emissions Unit Data Sheets** listed below:

<input type="checkbox"/> Bulk Liquid Transfer Operations	<input type="checkbox"/> Haul Road Emissions	<input type="checkbox"/> Quarry
<input type="checkbox"/> Chemical Processes	<input type="checkbox"/> Hot Mix Asphalt Plant	<input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities
<input type="checkbox"/> Concrete Batch Plant	<input type="checkbox"/> Incinerator	<input type="checkbox"/> Storage Tanks
<input type="checkbox"/> Grey Iron and Steel Foundry	<input type="checkbox"/> Indirect Heat Exchanger	

General Emission Unit, specify: Internal Combustion Engine Data Sheet

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L**.

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

<input type="checkbox"/> Absorption Systems	<input type="checkbox"/> Baghouse	<input type="checkbox"/> Flare
<input type="checkbox"/> Adsorption Systems	<input type="checkbox"/> Condenser	<input type="checkbox"/> Mechanical Collector
<input type="checkbox"/> Afterburner	<input type="checkbox"/> Electrostatic Precipitator	<input type="checkbox"/> Wet Collecting System

Other Collectors, specify – Oxidation Catalyst (OC)

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M**.

30. Provide all **Supporting Emissions Calculations** as **Attachment N**, or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O**.

➤ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and **Example Legal Advertisement** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

YES NO

➤ If **YES**, identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's **"Precautionary Notice – Claims of Confidentiality"** guidance found in the **General Instructions** as **Attachment Q**.

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

<input type="checkbox"/> Authority of Corporation or Other Business Entity	<input type="checkbox"/> Authority of Partnership
<input type="checkbox"/> Authority of Governmental Agency	<input type="checkbox"/> Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R**.

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

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned **Responsible Official** / **Authorized Representative**, hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE *Dutch Schuman* DATE: 6/23/17
(Please use blue ink) (Please use blue ink)

35B. Printed name of signee: Dutch Schuman 35C. Title: Sr. Director - Operations

35D. E-mail: dutch.schuman@energytransfer.com 36E. Phone: 501-322-9622 36F. FAX

36A. Printed name of contact person (if different from above): Jesse Hanshaw 36B. Title: Principal Engineer, SLR

36C. E-mail: jhanshaw@slrconsulting.com 36D. Phone: 304-545-8563 36E. FAX: 681-205-8969

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Attachment A: Business Certificate | <input type="checkbox"/> Attachment K: Fugitive Emissions Data Summary Sheet |
| <input checked="" type="checkbox"/> Attachment B: Map(s) | <input checked="" type="checkbox"/> Attachment L: Emissions Unit Data Sheet(s) |
| <input checked="" type="checkbox"/> Attachment C: Installation and Start Up Schedule | <input checked="" type="checkbox"/> Attachment M: Air Pollution Control Device Sheet(s) |
| <input checked="" type="checkbox"/> Attachment D: Regulatory Discussion | <input checked="" type="checkbox"/> Attachment N: Supporting Emissions Calculations |
| <input checked="" type="checkbox"/> Attachment E: Plot Plan | <input checked="" type="checkbox"/> Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans |
| <input checked="" type="checkbox"/> Attachment F: Detailed Process Flow Diagram(s) | <input type="checkbox"/> Attachment P: Public Notice |
| <input checked="" type="checkbox"/> Attachment G: Process Description | <input type="checkbox"/> Attachment Q: Business Confidential Claims |
| <input type="checkbox"/> Attachment H: Material Safety Data Sheets (MSDS) | <input type="checkbox"/> Attachment R: Authority Forms |
| <input checked="" type="checkbox"/> Attachment I: Emission Units Table | <input type="checkbox"/> Attachment S: Title V Permit Revision Information |
| <input checked="" type="checkbox"/> Attachment J: Emission Points Data Summary Sheet | <input checked="" type="checkbox"/> Application Fee |

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY - IF THIS IS A TITLE V SOURCE:

- Forward 1 copy of the application to the Title V Permitting Group and:
- For Title V Administrative Amendments:
 - NSR permit writer should notify Title V permit writer of draft permit,
- For Title V Minor Modifications:
 - Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,
 - NSR permit writer should notify Title V permit writer of draft permit.
- For Title V Significant Modifications processed in parallel with NSR Permit revision:
 - NSR permit writer should notify a Title V permit writer of draft permit,
 - Public notice should reference both 45CSR13 and Title V permits,
 - EPA has 45 day review period of a draft permit.

ATTACHMENT A

BUSINESS CERTIFICATE

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

State of West Virginia



Certificate

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

ROVER PIPELINE LLC

Control Number: 9A6D4

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 July 10, 2014, 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 July 10, 2014



Natalie E. Tennant

Secretary of State

FILED

JUL 10 2014

H

Natalie E. Tennant
Secretary of State
1900 Kanawha Blvd E
Bldg 1, Suite 157-K
Charleston, WV 25305



Penney Barker, Manager
Corporations Division
IN THE OFFICE OF
WV SECRETARY OF STATE
Tel: (304)558-8000
Fax: (304)558-8381
Website: www.wvsos.com
E-mail: business@wvsos.com

FILE ONE ORIGINAL
(Two if you want a filed
stamped copy returned to you)
FEE: \$150

WV APPLICATION FOR
CERTIFICATE OF AUTHORITY OF
LIMITED LIABILITY COMPANY

Office Hours: Monday - Friday
8:30 a.m. - 5:00 p.m. ET

Control # GALED

1. The name of the company as registered in its home state is: Rover Pipeline LLC
and the state or country of organization is: Delaware

CHECK HERE to indicate you have obtained and submitted with this application a **CERTIFICATE OF EXISTENCE (GOOD STANDING)**, dated during the current tax year, from your home state of original organization as **required** to process your application. The certificate may be obtained by contacting the Secretary of State's Office in the home state of original organization.

2. The name to be used in West Virginia will be: Home State name as listed above, if available in WV (If name is not available, check DBA Name box below and follow special instructions in Section 2. attached.)
[The name must contain one of the required terms such as "limited liability company" or abbreviations such as "LLC" or "PLLC". See instructions for complete list of acceptable terms and requirements for use of trade name.] DBA name _____
(See special instructions in Section 2. Regarding the Letter of Resolution attached to this application.)

3. The company will be a: [See instructions for limitations on professions which may form P.L.L.C. in WV. All members must have WV professional license. In most cases, a Letter of Authorization/Approval from the appropriate State Licensing Board is required to process the application.] regular L.L.C.
 Professional L.L.C. for the profession of _____

4. The street address of the principal office is: No. & Street: 3738 Oak Lawn Ave.
City/State/Zip: Dallas, TX 75219
and the mailing address (if different) is: Street/Box: _____
City/State/Zip: _____

5. The address of the designated office of the company in WV, if any, will be: No. & Street: _____
City/State/Zip: _____

6. Agent of Process: Properly designated person to whom notice of legal process may be sent, if any: Name: Corporation Service Company
Address: 209 West Washington Street
City/State/Zip: Charleston, WV 25302

RECEIVED
JUL 10 2014

7. E-mail address where business correspondence may be received: peggy.harrison@energytransfer.com

8. Website address of the business, if any: _____

9. The company is: an at-will company, for an indefinite period
 a term company, for the term of _____ years,
 which will expire on _____.

10. The company is: member-managed. [List the names and addresses of all members.]
 manager-managed. [List the names and addresses of all managers.]

List the Name(s) and Address(es) of the Member(s)/Manager(s) of the company (attach additional pages if necessary).

<u>Name</u>	<u>Street Address</u>	<u>City, State, Zip</u>
ET Rover Pipeline LLC	3738 Oak Lawn Ave.	Dallas, TX 75219

11. All or specified members of a limited liability company are liable in their capacity as members for all or specified debts, obligations or liabilities of the company. No--All debts, obligations and liabilities are those of the company
 Yes--Those persons who are liable in their capacity as members for all debts, obligations or liability of the company have consented in writing to the adoption of the provision or to be bound by the provision.

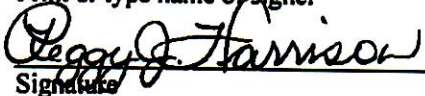
12. The purpose for which this limited liability company is formed are as follows:
 (Describe the type(s) of business activity which will be conducted, for example, "real estate," "construction of residential and commercial buildings," "commercial printing," "professional practice of architecture.")
Pipeline transportation services

13. Is the business a Scrap Metal Dealer?
 Yes [If "Yes," you must complete the Scrap Metal Dealer Registration Form (Form SMD-1) and proceed to question 14.]
 No [Proceed to question 14.]

14. The number of pages attached and included in this application is: 4

15. The requested effective date is: the date & time of filing in the Secretary of State's Office
 [Requested date *may not be earlier than*
filing nor later than 90 days after filing
in our office.] the following date _____ and time _____

16. Contact and Signature Information* (See below Important Legal Notice Regarding Signature):

a.	Peggy J Harrison	(918) 794-4559
	Contact Name	Phone Number
b.	Peggy J Harrison	Manager Corporate Governance
	Print or type name of signer	Title / Capacity of Signer
c.		6/27/2014
	Signature	Date

****Important Legal Notice Regarding Signature:*** Per West Virginia Code §31B-2-209. Liability for false statement in filed record. If a record authorized or required to be filed under this chapter contains a false statement, one who suffers loss by reliance on the statement may recover damages for the loss from a person who signed the record or caused another to sign it on the person's behalf and knew the statement to be false at the time the record was signed.

Delaware

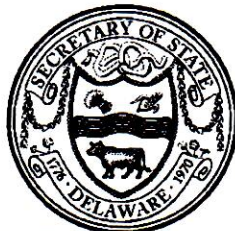
PAGE 1

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY "ROVER PIPELINE LLC" IS DULY FORMED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL EXISTENCE SO FAR AS THE RECORDS OF THIS OFFICE SHOW, AS OF THE NINTH DAY OF JULY, A.D. 2014.

AND I DO HEREBY FURTHER CERTIFY THAT THE ANNUAL TAXES HAVE NOT BEEN ASSESSED TO DATE.


AND I DO HEREBY FURTHER CERTIFY THAT THE SAID "ROVER PIPELINE LLC" WAS FORMED ON THE TWENTY-SIXTH DAY OF JUNE, A.D. 2014.



5559285 8300

140934897

You may verify this certificate online
at corp.delaware.gov/authver.shtml


Jeffrey W. Bullock, Secretary of State
AUTHENTICATION: 1520626

DATE: 07-09-14

ATTACHMENT B

MAP(S)

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002



May 2017

Attachment B - Area Map

Rover Pipeline LLC
Majorsville Compressor Station - Facility ID 051-00213

UTM Coordinates of Site:
Northing: 4,423.729 km, Easting: 538.013 km, Zone: 17

Legend

-  MAJORSVILLE
-  Majorsville Compressor Station



Google earth

© 2016 Google

3000 ft

Galitsville Rd

ATTACHMENT C

INSTALLATION AND START-UP

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

INSTALLATION AND STARTUP SCHEDULE

Rover Pipeline LLC (Rover) plans to install a four stroke lean burn Caterpillar G3612 reciprocating engine/compressor in the last quarter of 2017. Installation of the equipment is estimated to take a few months. Startup of the equipment at the station is estimated to begin around February of 2018.

ATTACHMENT D

REGULATORY DISCUSSION

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

REGULATORY DISCUSSION

APPLICABLE REGULATIONS

This facility is subject to the following applicable rules and regulations:

Federal and State:

45 CSR 13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary permits, General Permits, and Procedures for Evaluation)

The requirements of this WV State minor source permitting rule specifies all new stationary sources shall obtain a permit under this rule before commencing construction. A “Stationary source” is defined under 45CSR§13-2.24a as an emission unit subject to any substantive requirement of an emission control rule promulgated by the Secretary. Since this proposed new engine is subject to emission requirements under 45CSR16 and thus 40CFR60, subpart JJJJ, the proposed new compressor is considered subject to a substantive requirement.

40 CFR 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

The two previously permitted natural gas fueled compressor engines (CE-1S and CE-2S) are 3,550 Hp 4SLB G3612 Caterpillar units and are considered new units subject to Tier II JJJJ emission limits as a result of being manufactured after July 1, 2010. Therefore these engines are subject to the Table 1 emission limits for SI Engines greater than 500 Hp. Those emission limits are as follows;

Table 1 Emission Limits – SI 4SLB > 1350 Hp installed after 7-1-2010

g/Hp hr			ppm _{v,d} at 15% O ₂		
NOx	CO	VOC	NOx	CO	VOC
1.0	2.0	0.7	82	270	60

The newly proposed engine (CE-3S) is also a 3,550 hp 4SLB G3612 Caterpillar natural gas fueled compressor. This engine is being relocated from another site and was originally manufactured on July 1, 2002. However, as a result of a 2017 rebuild the existing source is going to be reclassified as a reconstructed engine as delivered to the Majorsville Station. The fixed capital cost of the rebuild work is estimated to fall between 59 and 69% of the cost of comparable new unit. The upper end of this range reflects the cost of also replacing the crankshaft if found to be damaged. As a result of triggering reconstruction under 40CFR§60.15 this engine will be subject to the emission limits defined within 40CFR§60.4233(f)(4) as listed below;

g/Hp hr			ppm _{v,d} at 15% O ₂		
NOx	CO	VOC	NOx	CO	VOC
3.0	4.0	1.0	250	540	86

40 CFR 60 Subpart OOOOa – Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015

Fugitive Components at Compressor Stations and Reciprocating Compressor Packing

Since the newly added compressor at this station, (CE-3S) will constitute a modification to the site in accordance with the definition 40CFR§60.5365a(j) after September 18, 2015, the collection of fugitive components at the site will become subject to the equipment leak standards of §60.5397a. As a result of this modification, the source will be required to develop and implement a fugitive monitoring plan and conduct quarterly OGI surveys. The initial survey will be required within 60 days of startup or by June 3, 2017, whichever is later in accordance with §60.5397a(f)(2). However, on April 18, 2017 the USEPA Administrator, E. Scott Pruitt, issued a letter of reconsideration based on comments received from industry groups on August 2, 2016. This letter authorizes a 90 day stay of the compliance date for fugitive emissions monitoring requirements.

The reciprocating compressor associated with emission unit (CE-3S) will also be subject to the rod packing standards of §60.5385a that requires them to be replaced/rebuilt every 26,000 hrs or 3 years. Records shall be maintained based on months or hours of operations since initial startup and each subsequent rebuild or replacement of the compressor's rod packing.

40 CFR 63 Subpart ZZZZ – NESHAP for Stationary Reciprocating Internal Combustion Engines (RICE)

Each of the three (3) RICE units proposed to be operated at this facility were manufactured or reconstructed after June 12, 2006 and therefore, the requirements of this regulation are to comply with new SI engines standards in accordance with 40CFR60, Subpart JJJJ.

NON-APPLICABILITY DETERMINATIONS

The following requirements have been determined “not applicable” due to the following:

Federal and State:

45 CSR 30 – Requirements for Operating Permits – Title V of the Clean Air Act

This facility does not meet the emission threshold to trigger a 45CSR30, Title V Operating Permit, nor is it subject to any Federal Standards that trigger the need for a Title V Permit.

40 CFR 60 Subpart OOOOa - Storage Vessel Requirements

The storage vessels at this site are not considered an affected source under this regulation since they commenced construction prior to September 18, 2015 or have a PTE of less than 6 tpy of VOCs.

40 CFR 60 Subpart OOOOa – Pneumatic Control Valve Requirements

The site was evaluated and found to contain only intermittent venting pneumatic control valves, which as a result of their design are rated at less than 6 scf/hr. Therefore the site is not proposing to install or operate any affected continuous bleed pneumatic devices defined by this NSPS.

ATTACHMENT E

PLOT PLAN

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

ATTACHMENT F

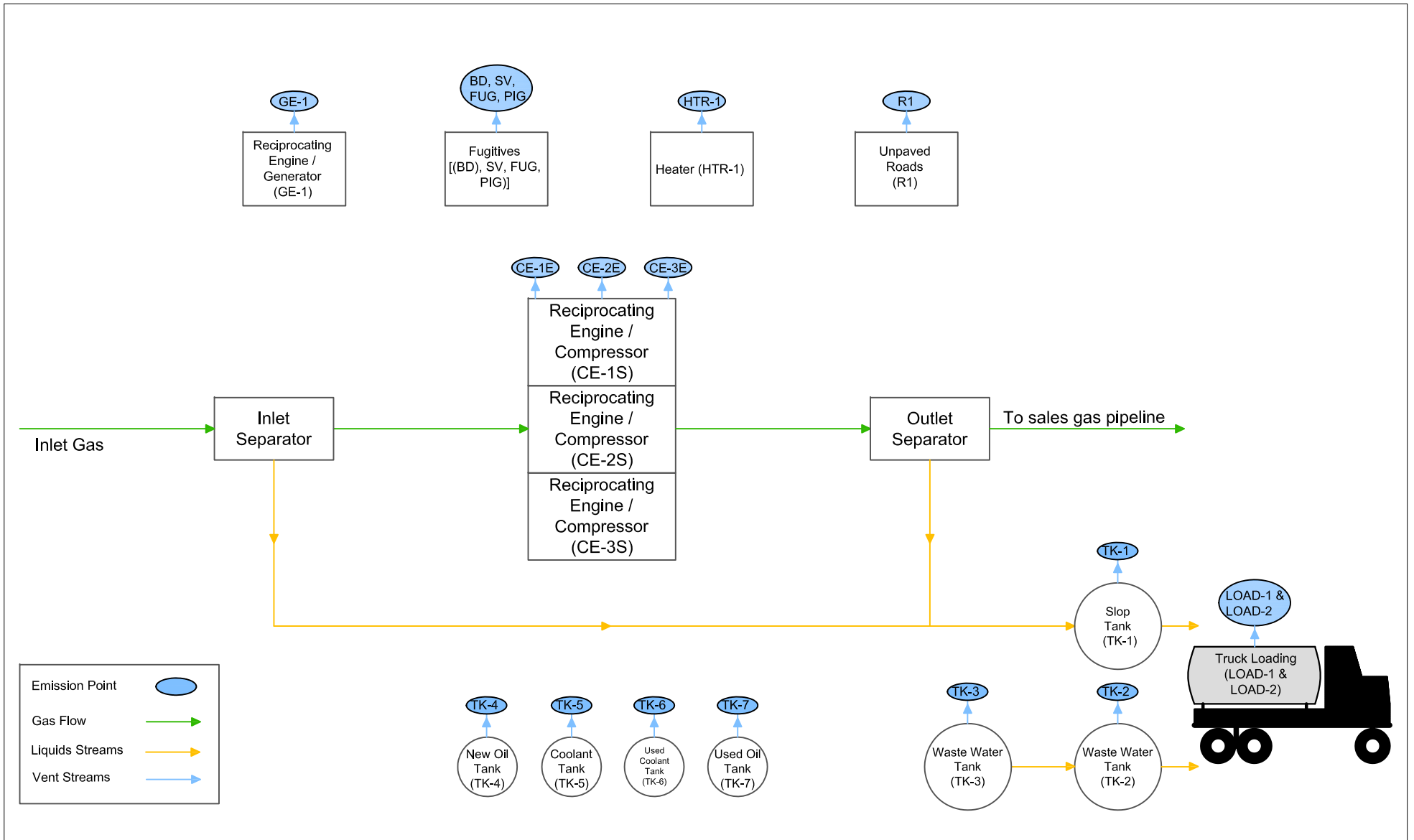
PROCESS FLOW DIAGRAM

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

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ATTACHMENT G

PROCESS DESCRIPTION

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

PROCESS DESCRIPTION

The Majorsville Compressor Station is applying for a permit to modify their existing Rule 13, R13-3238, for the installation and operation of a third compressor engine. This modification proposes the following changes:

- Addition of a reconstructed 4SLB G3612 Caterpillar SI RICE / reciprocating compressor to the facility.
- Update of emission factors for engines CE-1S and CE-2S to reflect greater control of formaldehyde by way of oxidation catalyst to ensure HAP levels remain below major source thresholds.
- Increase in fugitive emissions at the facility as a result of the engine addition.

The two compressors engines currently permitted are designed to increase the pressure of the incoming gas to satisfy demand within the transmission pipeline. The compressors are natural gas fired and have associated engine blowdowns and startups. Pigging operations of the pipeline are conducted periodically to maintain pipeline integrity. Liquids from the pipeline are separated and purged into a single slop tank. The slop tank contents are loaded via trucks for offsite disposal.

Additionally, two waste water tanks operate in series, one of which is an underground storage tank which collects cleanup and sump water. The underground storage tank contents are pumped to the second aboveground waste water storage tank where its contents are loaded via trucks for offsite disposal.

The station is also currently permitted to operate a small natural gas heater, a diesel emergency generator, and associated miscellaneous tanks. There are also emissions from equipment component leaks as well as fugitive emissions from unpaved haul roads.

ATTACHMENT H

SAFETY DATA SHEETS (SDS)

NOT APPLICABLE

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

ATTACHMENT I

EMISSION UNITS TABLE

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

Attachment I
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
CE-1S	CE-1E	Reciprocating Engine/Integral Compressor; Caterpillar G3612; 4SLB	2017 / 2017	3,550 hp	Modification	CC-1
CE-2S	CE-2E	Reciprocating Engine/Integral Compressor; Caterpillar G3612; 4SLB	2017 / 2017	3,550 hp	Modification	CC-2
CE-3S	CE-3E	Reciprocating Engine/Integral Compressor; Caterpillar G3612; 4SLB	2017	3,550 hp	New	CC-3

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 J

EMISSION POINTS DATA SUMMARY SHEET

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

**Attachment J
EMISSION POINTS DATA SUMMARY SHEET**

Table 1: Emissions Data															
Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type ¹	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS ³ (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions ⁴		Maximum Potential Controlled Emissions ⁵		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used ⁶	Emission Concentration ⁷ (ppmv or mg/m ⁴)
		ID No.	Source	ID No.	Device Type	Short Term ²	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
CE-1E	Vertical Stack	CE-1S	4SLB RICE CAT G3612	CC-1	OxCat	NA	NA	NO _x	4.30	17.14	4.30	17.14	Gas/ Vapor	EE	Can Supply Upon Request
								CO	23.67	94.27	4.74	18.85			
								VOC	5.60	22.28	2.80	11.14			
								SO ₂	0.02	0.07	0.02	0.07			
								PM ₁₀	0.29	1.17	0.29	1.17			
								CH ₂ O	2.24	8.91	0.67	2.67			
								HAPs	2.86	11.37	0.93	3.80			
								CO _{2e}	3123.3	13680	3123.3	13680			
CE-2E	Vertical Stack	CE-2S	4SLB RICE CAT G3612	CC-2	OxCat	NA	NA	NO _x	4.30	17.14	4.30	17.14	Gas/ Vapor	EE	Can Supply Upon Request
								CO	23.67	94.27	4.74	18.85			
								VOC	5.60	22.28	2.80	11.14			
								SO ₂	0.02	0.07	0.02	0.07			
								PM ₁₀	0.29	1.17	0.29	1.17			
								CH ₂ O	2.24	8.91	0.67	2.67			
								HAPs	2.86	11.37	0.93	3.80			
								CO _{2e}	3123.3	13680	3123.3	13680			
CE-3E	Vertical Stack	CE-3S	4SLB RICE CAT G3612	CC-3	OxCat	NA	NA	NO _x	4.30	17.14	4.30	17.14	Gas/ Vapor	EE	Can Supply Upon Request
								CO	23.67	94.27	4.74	18.85			
								VOC	5.60	22.28	2.80	11.14			
								SO ₂	0.02	0.07	0.02	0.07			
								PM ₁₀	0.29	1.17	0.29	1.17			
								CH ₂ O	2.24	8.91	0.67	2.67			
								HAPs	2.86	11.37	0.93	3.80			
								CO _{2e}	3123.3	13680	3123.3	13680			

The EMISSION POINTS DATA 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 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). 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 Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

³ List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS₂, VOCs, H₂S, Inorganics, Lead, Organics, O₃, NO, NO₂, SO₂, SO₃, all applicable Greenhouse Gases (including CO₂ and methane), etc. **DO NOT LIST** H₂, H₂O, N₂, O₂, and Noble Gases.

⁴ 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).

⁵ 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).

⁶ 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).

⁷ Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m³) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO₂, use units of ppmv (See 45CSR10).

Attachment J EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data								
Emission Point ID No. <i>(Must match Emission Units Table)</i>	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (°F)	Volumetric Flow ¹ (acfm) <i>at operating conditions</i>	Velocity (fps)	Ground Level <i>(Height above mean sea level)</i>	Stack Height ² <i>(Release height of emissions above ground level)</i>	Northing	Easting
CE-1E	2.5	838	24,022	81.56	1,247 ft	54 ft	4,423.729	538.013
CE-2E	2.5	838	24,022	81.56	1,247 ft	54 ft	4,423.729	538.013
CE-3E	2.5	838	24,022	81.56	1,247 ft	54 ft	4,423.729	538.013

¹ Give at operating conditions. Include inerts.

² Release height of emissions above ground level.

ATTACHMENT K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

ATTACHMENT K – FUGITIVE EMISSIONS SUMMARY SHEET

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

Source/Equipment: Fugitives									
Leak Detection Method Used		<input type="checkbox"/> Audible, visual, and olfactory (AVO) inspections		<input checked="" type="checkbox"/> Infrared (FLIR) cameras		<input type="checkbox"/> Other (please describe)		<input type="checkbox"/> None required	
Is the facility subject to quarterly LDAR monitoring under 40CFR60 Subpart OOOOa? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No. If no, why?									
Component Type	Closed Vent System	Count	Source of Leak Factors (EPA, other (specify))	Stream type (gas, liquid, etc.)	Estimated Emissions (tpy)				
					VOC	HAP	GHG (CO ₂ e)		
Pumps	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	--	--	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input type="checkbox"/> Both	--	--	--		
Valves	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	296	<i>TCEQ Technical Guidance Document for Equipment Leak Fugitives, Oct. 2000 (lb/hr-component</i> Gas Streams – 9.92 E-03 Water/Light Oil Streams – 2.16 E-04 Light Oil Streams – 5.50 E-03 Heavy Liquid – 1.85 E-05	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Both	1.28	--	192.68		
Safety Relief Valves	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	30	<i>TCEQ Technical Guidance Document for Equipment Leak Fugitives, Oct. 2000 (lb/hr-component</i> Gas Streams – 1.94 E-02	<input checked="" type="checkbox"/> Gas <input type="checkbox"/> Liquid <input type="checkbox"/> Both	0.05	--	57.38		
Open Ended Lines	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	--	--	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input type="checkbox"/> Both	--	--	--		
Sampling Connections	<input type="checkbox"/> Yes <input type="checkbox"/> No	--	--	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input type="checkbox"/> Both	--	--	--		
Connections (Not sampling)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	997	<i>TCEQ Technical Guidance Document for Equipment Leak Fugitives, Oct. 2000 (lb/hr-component</i> Gas Streams – 4.40 E-04 Water/Light Oil Streams – 2.43 E-04 Light Oil Streams – 4.63 E-04 Heavy Liquid – 1.65 E-05	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Both	0.46	--	24.21		
Compressors	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	--	--	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input type="checkbox"/> Both	--	--	--		
Flanges	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	195	<i>TCEQ Technical Guidance Document for Equipment Leak Fugitives, Oct. 2000 (lb/hr-component</i> Gas Streams – 8.60 E-04 Water/Light Oil Streams – 6.00 E-06 Light Oil Streams – 2.43 E-04	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Both	0.05	--	10.94		

Other ¹ (Compressor Seals)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	12	<i>TCEQ Technical Guidance Document for Equipment Leak Fugitives, Oct. 2000 (lb/hr-component Gas Streams – 1.94 E-02</i>	<input checked="" type="checkbox"/> Gas <input type="checkbox"/> Liquid <input type="checkbox"/> Both	0.02	--	22.95
¹ Other equipment types may include compressor seals, relief valves, diaphragms, drains, meters, etc.							
² Assumption made that flange connections are included in connections (not sampling) count							
Please indicate if there are any closed vent bypasses (include component):							
Specify all equipment used in the closed vent system (e.g. VRU, ERD, thief hatches, tanker truck loading, etc.)							

ATTACHMENT L

EMISSION UNIT DATA SHEET

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

ATTACHMENT L – INTERNAL COMBUSTION ENGINE DATA SHEET

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

Emission Unit ID# ¹		CE-1S		CE-2S		CE-3S	
Engine Manufacturer/Model		Caterpillar G3612		Caterpillar G3612		Caterpillar G3612	
Manufacturers Rated bhp/rpm		3,550 / 1,000		3,550 / 1,000		3,550 / 1,000	
Source Status ²		MS		MS		NS	
Date Installed/ Modified/Removed/Relocated ³		2017		2017		2017	
Engine Manufactured /Reconstruction Date ⁴		2016		2016		2002 / 2017	
Check all applicable Federal Rules for the engine (include EPA Certificate of Conformity if applicable) ⁵		<input checked="" type="checkbox"/> 40CFR60 Subpart JJJJ <input type="checkbox"/> JJJJ Certified? <input type="checkbox"/> 40CFR60 Subpart IIII <input type="checkbox"/> IIII Certified? <input checked="" type="checkbox"/> 40CFR63 Subpart ZZZZ <input type="checkbox"/> NESHAP ZZZZ/ NSPS JJJJ Window <input type="checkbox"/> NESHAP ZZZZ Remote Sources		<input checked="" type="checkbox"/> 40CFR60 Subpart JJJJ <input type="checkbox"/> JJJJ Certified? <input type="checkbox"/> 40CFR60 Subpart IIII <input type="checkbox"/> IIII Certified? <input checked="" type="checkbox"/> 40CFR63 Subpart ZZZZ <input type="checkbox"/> NESHAP ZZZZ/ NSPS JJJJ Window <input type="checkbox"/> NESHAP ZZZZ Remote Sources		<input checked="" type="checkbox"/> 40CFR60 Subpart JJJJ <input type="checkbox"/> JJJJ Certified? <input type="checkbox"/> 40CFR60 Subpart IIII <input type="checkbox"/> IIII Certified? <input checked="" type="checkbox"/> 40CFR63 Subpart ZZZZ <input type="checkbox"/> NESHAP ZZZZ/ NSPS JJJJ Window <input type="checkbox"/> NESHAP ZZZZ Remote Sources	
Engine Type ⁶		4SLB		4SLB		4SLB	
APCD Type ⁷		OxCat		OxCat		OxCat	
Fuel Type ⁸		PQ		PQ		PQ	
H ₂ S (gr/100 scf)		0.25		0.25		0.25	
Operating bhp/rpm		3,550 / 1,000		3,550 / 1,000		3,550 / 1,000	
BSFC (BTU/bhp-hr)		7,519		7,519		7,519	
Hourly Fuel Throughput		24,120	ft ³ /hr gal/hr	24,120	ft ³ /hr gal/hr	24,120	ft ³ /hr gal/hr
Annual Fuel Throughput (Must use 8,760 hrs/yr unless emergency generator)		211.29	MMft ³ /yr gal/yr	211.29	MMft ³ /yr gal/yr	211.29	MMft ³ /yr gal/yr
Fuel Usage or Hours of Operation Metered		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Calculation Methodology ⁹	Pollutant ¹⁰	Hourly PTE (lb/hr) ¹¹	Annual PTE (tons/year) _{II}	Hourly PTE (lb/hr) ¹¹	Annual PTE (tons/year) _{II}	Hourly PTE (lb/hr) ¹¹	Annual PTE (tons/year) _{II}
MD	NO _x	4.30	17.14	4.30	17.14	4.30	17.14
MD	CO	4.74	18.85	4.74	18.85	4.74	18.85
MD	VOC	2.80	11.14	2.80	11.14	2.80	11.14
AP	SO ₂	0.02	0.07	0.02	0.07	0.02	0.07
AP	PM ₁₀	0.29	1.17	0.29	1.17	0.29	1.17
MD	Formaldehyde	0.67	2.67	0.67	2.67	0.67	2.67
AP	Total HAPs	0.93	3.80	0.93	3.80	0.93	3.80
AP	GHG (CO ₂ e)	3,123.3	13,680.0	3,123.3	13,680.0	3,123.3	13,680.0

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

2 Enter the Source Status using the following codes:

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

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

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

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

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

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

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

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

- 8 Enter the Fuel Type using the following codes:

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

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

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

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

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

ATTACHMENT M

AIR POLLUTION CONTROL DEVICE SHEET(S)

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

Attachment M
Air Pollution Control Device Sheet
(Oxidation Catalyst)

Control Device ID No. (CC-1, CC-2 & CC-3):

Equipment Information

1. Manufacturer: Miratech Model No.	2. Control Device Name: CC-1, CC-2 & CC-3 Type: Oxidation Catalyst (OxCat)
3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.	
4. On a separate sheet(s) supply all data and calculations used in selecting or designing this collection device.	
5. Provide a scale diagram of the control device showing internal construction	
6. Submit a schematic and diagram with dimensions and flow rates.	
7. Guaranteed minimum collection efficiency for each pollutant collected: The catalyst manufacturer estimates the unit will meet the following reductions: CO – 80.0% / VOCs – 50.0% / CH ₂ O – 70.0%	
8. Attached efficiency curve and/or other efficiency information. NA	
9. Design inlet volume: 9,771.7 SCFM	10. Capacity: NA
11. Indicate the liquid flow rate and describe equipment provided to measure pressure drop and flow rate, if any. No liquid flow associated with this catalytic converter and pressure drop may be measured periodically.	
12. Attach any additional data including auxiliary equipment and operation details to thoroughly evaluate the control equipment. NA	
13. Description of method of handling the collected material(s) for reuse or disposal. NA	

Gas Stream Characteristics

14. Are halogenated organics present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Are particulates present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Are metals present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
15. Inlet Emission stream parameters:	Maximum	Typical	
Pressure (mmHg):			
Heat Content (BTU/scf):			
Oxygen Content (%):			
Moisture Content (%):			
Relative Humidity (%):			

16. Type of pollutant(s) controlled: <input type="checkbox"/> SO _x <input type="checkbox"/> Odor <input type="checkbox"/> Particulate (type): <input checked="" type="checkbox"/> Other CO, VOCs, CH ₂ O				
17. Inlet gas velocity: 81.56 ft/sec	18. Pollutant specific gravity: 0.9667 - CO			
19. Gas flow into the collector: 24,022 ACFM @ 838°F and 14.7 PSIA	20. Gas stream temperature: Inlet: 550 – 1,250 °F Outlet: 1,350 °F			
21. Gas flow rate: Design Maximum: 24,022 ACFM Average Expected: 18,978 ACFM	22. Particulate Grain Loading in grains/scf: Inlet: NA Outlet:			
23. Emission rate of each pollutant (specify) into and out of collector:				
Pollutant	IN Pollutant	Emission Capture Efficiency %	OUT Pollutant	Control Efficiency %
	lb/hr	grains/acf	lb/hr	grains/acf
A CO	23.67	-	4.74	-
B VOCs	5.60	-	2.80	-
C CH ₂ O	2.24	-	0.67	-
D				
E				
24. Dimensions of stack: Height 54.0 ft. Diameter 2.5 ft.				
25. Supply a curve showing proposed collection efficiency versus gas volume from 25 to 130 percent of design rating of collector. Not Available just 90% above 700F				

Particulate Distribution

26. Complete the table:	Particle Size Distribution at Inlet to Collector	Fraction Efficiency of Collector
Particulate Size Range (microns)	Weight % for Size Range	Weight % for Size Range
0 – 2		
2 – 4		
4 – 6		
6 – 8		
8 – 10		
10 – 12		
12 – 16		
16 – 20		
20 – 30		
30 – 40		
40 – 50		
50 – 60		
60 – 70		
70 – 80		
80 – 90		
90 – 100		
>100		

27. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification): NA

28. Describe the collection material disposal system: NA

29. Have you included **Other Collectores Control Device** in the Emissions Points Data Summary Sheet? No

30. 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:

The inlet temperature will be monitored across the catalyst.

RECORDKEEPING:

All maintenance records will be maintained and made available upon request.

REPORTING:

A report containing the initial performance test results shall be submitted to the EPA within 60 days of completion. In addition, any equipment malfunction shall be reported. Subsequent compliance testing will be reported every 8760 hours of operation or 3 years whichever comes first.

TESTING:

Initial performance testing shall be completed. Testing shall consist of 3 one hour runs conducted within 10% of 100% peak load for the unit. Subsequent testing will be conducted every 8760 hours of operation or 3 years whichever comes first.

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 or air control device.

RECORDKEEPING:

Please describe the proposed recordkeeping that will accompany the monitoring.

REPORTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

TESTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

31. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

CO – 80.0% / VOCs – 50.0% / CH₂O – 70.0%

32. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

CO – 80.0% / VOCs – 50.0% / CH₂O – 70.0%

33. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

NA

ATTACHMENT N

SUPPORTING EMISSIONS CALCULATIONS

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

**Table 1. Annual Potential To Emit (PTE) Summary
Rover Pipeline LLC - Majorsville Compressor Station**

Proposed Rule 13 Permit Modification Application Allowables

Source	PM/PM10/PM2.5	SO2	NOx	CO	VOC**	Formaldehyde	Total HAPs	CO2e
Engine - CE-1S (ton/yr)	1.167	0.069	17.140	18.854	13.814	2.674	3.802	13679.971
Engine - CE-2S (ton/yr)	1.167	0.069	17.140	18.854	13.814	2.674	3.802	13679.971
Engine - CE-3S (ton/yr)	1.167	0.069	17.140	18.854	13.814	2.674	3.802	13679.971
Fugitives (ton/yr)	-	-	-	-	1.860	-	-	308.155
Blowdown Venting (ton/yr)	-	-	-	-	0.088	-	0.002	99.125
Engine Starter Venting (ton/yr)	-	-	-	-	-	-	-	-
Total Emissions (ton/yr)	3.500	0.206	51.419	56.561	43.391	8.021	11.407	41447.193
Total Emissions (lb/hr)	0.799	0.047	11.739	12.913	9.907	1.831	2.604	9462.829

** Total VOC emissions include CH2O emissions

Current Rule 13 Permit Allowables (R13-3238)

Source	PM/PM10/PM2.5	SO2	NOx	CO	VOC**	Formaldehyde	Total HAPs	CO2e
Engine - CE-1S (ton/yr)	1.170	0.070	17.140	18.850	15.600	4.460	5.590	13680.000
Engine - CE-2S (ton/yr)	1.170	0.070	17.140	18.850	15.600	4.460	5.590	13680.000
Generator - GE-1 (ton/yr)	0.010	0.080	1.470	0.150	0.020	< 0.01	< 0.01	128.000
Catalytic Heater - HTR-1 (ton/yr)	0.020	< 0.01	0.220	0.190	0.010	< 0.01	< 0.01	263.000
Slop Storage Tank - TK-1 (ton/yr)	-	-	-	-	< 0.01	-	< 0.01	-
Waste Water Tank - TK-2 (ton/yr)	-	-	-	-	< 0.01	-	< 0.01	-
Waste Water Tank - TK-3 (ton/yr)	-	-	-	-	< 0.01	-	< 0.01	-
Slop Truck Loading - LOAD-1 (ton/yr)	-	-	-	-	< 0.01	-	< 0.01	-
Waste Water Loading - LOAD-2 (ton/yr)	-	-	-	-	< 0.01	-	< 0.01	-
Fugitives (ton/yr)	-	-	-	-	1.240	-	< 0.01	205.110
Blowdown Venting (ton/yr)	-	-	-	-	0.060	-	< 0.01	66.080
Engine Starter Venting (ton/yr)	-	-	-	-	0.080	-	< 0.01	86.730
Pigging Operations (ton/yr)	-	-	-	-	0.040	-	< 0.01	41.490
Unpaved Haulroads (ton/yr)	0.720	-	-	-	-	-	-	-
Total Emissions (ton/yr)	3.090	0.220	35.970	38.040	32.650	8.920	11.180	28150.410
Total Emissions (lb/hr)	0.705	0.050	8.212	8.685	7.454	2.037	2.553	6427.034

** Total VOC emissions include CH2O emissions

Proposed Rule 13 Permit Allowables (R13-3238A)

Source	PM/PM10/PM2.5	SO2	NOx	CO	VOC**	Formaldehyde	Total HAPs	CO2e
Engine - CE-1S (ton/yr)	1.167	0.069	17.140	18.854	13.814	2.674	3.802	13679.971
Engine - CE-2S (ton/yr)	1.167	0.069	17.140	18.854	13.814	2.674	3.802	13679.971
Engine - CE-3S (ton/yr)	1.167	0.069	17.140	18.854	13.814	2.674	3.802	13679.971
Generator - GE-1 (ton/yr)	0.010	0.080	1.470	0.150	0.020	< 0.01	< 0.01	128.000
Catalytic Heater - HTR-1 (ton/yr)	0.020	< 0.01	0.220	0.190	0.010	< 0.01	< 0.01	263.000
Slop Storage Tank - TK-1 (ton/yr)	-	-	-	-	< 0.01	-	< 0.01	-
Waste Water Tank - TK-2 (ton/yr)	-	-	-	-	< 0.01	-	< 0.01	-
Waste Water Tank - TK-3 (ton/yr)	-	-	-	-	< 0.01	-	< 0.01	-
Slop Truck Loading - LOAD-1 (ton/yr)	-	-	-	-	< 0.01	-	< 0.01	-
Waste Water Loading - LOAD-2 (ton/yr)	-	-	-	-	< 0.01	-	< 0.01	-
Fugitives (ton/yr)	-	-	-	-	1.860	-	< 0.01	308.155
Blowdown Venting (ton/yr)	-	-	-	-	0.088	-	< 0.01	99.125
Engine Starter Venting (ton/yr)	-	-	-	-	0.116	-	< 0.01	130.113
Pigging Operations (ton/yr)	-	-	-	-	0.040	-	< 0.01	41.490
Unpaved Haulroads (ton/yr)	0.720	-	-	-	-	-	-	-
Total Emissions (ton/yr)	4.250	0.286	53.109	56.901	43.577	8.021	11.405	42009.797
Total Emissions (lb/hr)	0.970	0.065	12.125	12.991	9.949	1.831	2.604	9591.278

** Total VOC emissions include CH2O emissions

Proposed Difference of Emissions

Source	PM/PM10/PM2.5	SO2	NOx	CO	VOC**	Formaldehyde	Total HAPs	CO2e
Total Emissions (ton/yr)	1.160	0.066	17.139	18.861	10.927	-0.899	0.225	13859.387
Total Emissions (lb/hr)	0.265	0.015	3.913	4.306	2.495	-0.205	0.051	3164.243

** Total VOC emissions include CH2O emissions

Table 2. Reciprocating Engine / Integral Compressor Emissions (CE-1S - CE-3S)

**Caterpillar G3612; 4SLB
Rover Pipeline LLC - Majorsville Compressor Station**

Pollutant	Maximum Hourly Emissions		Annual Emissions	
	Emission Factor	PTE per Engine (lb/hr)*	Emission Factor	PTE per Engine (tons/yr)
Criteria Pollutants				
PM/PM10/PM2.5**	9.98E-03 lb/MMBtu (1)	0.29 (a)	9.98E-03 lb/MMBtu (1)	1.17 (c)
SO ₂	5.88E-04 lb/MMBtu (1)	0.02 (a)	5.88E-04 lb/MMBtu (1)	0.07 (c)
NOx	5.00E-01 g/hp-hr (2)	4.30 (b)	5.00E-01 g/hp-hr (2)	17.14 (d)
CO	5.50E-01 g/hp-hr (2)	4.73 (b)	5.50E-01 g/hp-hr (2)	18.85 (d)
VOC	3.25E-01 g/hp-hr (2)	2.80 (b)	3.25E-01 g/hp-hr (2)	11.14 (d)
Hazardous Air Pollutants				
1,1,2,2-Tetrachloroethane	2.00E-05 lb/MMBtu (1)	0.001 (a)	2.00E-05 lb/MMBtu (1)	0.002 (c)
1,1,2-Trichloroethane	1.59E-05 lb/MMBtu (1)	0.000 (a)	1.59E-05 lb/MMBtu (1)	0.002 (c)
1,3-Butadiene	1.34E-04 lb/MMBtu (1)	0.004 (a)	1.34E-04 lb/MMBtu (1)	0.016 (c)
1,3-Dichloropropene	1.32E-05 lb/MMBtu (1)	0.000 (a)	1.32E-05 lb/MMBtu (1)	0.002 (c)
2-Methylnaphthalene	1.66E-05 lb/MMBtu (1)	0.000 (a)	1.66E-05 lb/MMBtu (1)	0.002 (c)
2,2,4-Trimethylpentane	1.25E-04 lb/MMBtu (1)	0.003 (a)	1.25E-04 lb/MMBtu (1)	0.015 (c)
Acetaldehyde	4.18E-03 lb/MMBtu (1)	0.112 (a)	4.18E-03 lb/MMBtu (1)	0.489 (c)
Acrolein	2.57E-03 lb/MMBtu (1)	0.069 (a)	2.57E-03 lb/MMBtu (1)	0.300 (c)
Benzene	2.20E-04 lb/MMBtu (1)	0.006 (a)	2.20E-04 lb/MMBtu (1)	0.026 (c)
Biphenyl	1.06E-04 lb/MMBtu (1)	0.003 (a)	1.06E-04 lb/MMBtu (1)	0.012 (c)
Carbon Tetrachloride	1.84E-05 lb/MMBtu (1)	0.000 (a)	1.84E-05 lb/MMBtu (1)	0.002 (c)
Chlorobenzene	1.52E-05 lb/MMBtu (1)	0.000 (a)	1.52E-05 lb/MMBtu (1)	0.002 (c)
Chloroform	1.43E-05 lb/MMBtu (1)	0.000 (a)	1.43E-05 lb/MMBtu (1)	0.002 (c)
Ethylbenzene	1.99E-05 lb/MMBtu (1)	0.001 (a)	1.99E-05 lb/MMBtu (1)	0.002 (c)
Ethylene Dibromide	2.22E-05 lb/MMBtu (1)	0.001 (a)	2.22E-05 lb/MMBtu (1)	0.003 (c)
Formaldehyde	7.80E-02 g/hp-hr (2)	0.671 (b)	7.80E-02 g/hp-hr (2)	2.674 (d)
Methanol	1.25E-03 lb/MMBtu (1)	0.033 (a)	1.25E-03 lb/MMBtu (1)	0.146 (c)
Methylene Chloride	1.00E-05 lb/MMBtu (1)	0.000 (a)	1.00E-05 lb/MMBtu (1)	0.001 (c)
n-Hexane	5.55E-04 lb/MMBtu (1)	0.015 (a)	5.55E-04 lb/MMBtu (1)	0.065 (c)
Naphthalene	0.00E+00 lb/MMBtu (1)	0.000 (a)	0.00E+00 lb/MMBtu (1)	0.000 (c)
PAH (POM)	1.35E-05 lb/MMBtu (1)	0.000 (a)	1.35E-05 lb/MMBtu (1)	0.002 (c)
Phenol	1.20E-05 lb/MMBtu (1)	0.000 (a)	1.20E-05 lb/MMBtu (1)	0.001 (c)
Styrene	1.18E-05 lb/MMBtu (1)	0.000 (a)	1.18E-05 lb/MMBtu (1)	0.001 (c)
Tetrachloroethane	1.24E-06 lb/MMBtu (1)	0.000 (a)	1.24E-06 lb/MMBtu (1)	0.000 (c)
Toluene	2.04E-04 lb/MMBtu (1)	0.005 (a)	2.04E-04 lb/MMBtu (1)	0.024 (c)
Vinyl Chloride	7.45E-06 lb/MMBtu (1)	0.000 (a)	7.45E-06 lb/MMBtu (1)	0.001 (c)
Xylenes	9.20E-05 lb/MMBtu (1)	0.002 (a)	9.20E-05 lb/MMBtu (1)	0.011 (c)
Total HAP		0.929		3.802
Greenhouse Gas Emissions				
CO ₂	116.89 lb/MMBtu (3)	3120.06 (a)	116.89 lb/MMBtu (3)	13665.85 (c)
CH ₄	2.2E-03 lb/MMBtu (3)	0.06 (a)	2.2E-03 lb/MMBtu (3)	0.26 (c)
N ₂ O	2.2E-04 lb/MMBtu (3)	0.01 (a)	2.2E-04 lb/MMBtu (3)	0.03 (c)
CO ₂ e ^(g)	-	3123.28	-	13679.97

* A 10% Safety Factor has been applied to all Criteria Pollutants and Formaldehyde hourly emissions to account for potential fluctuations for gas fired engines

** PM emission factor includes condensables and filterables

Calculations:

Hourly Emissions - If emission factor note 1 or 4 is used, use calculation (a). If emission factor note 3 is used, use calculation (b).

(a) Hourly Emissions (lb/hr) = Emission factor (lb/MMBtu) * (1MMBtu/1000000 Btu) * Engine Power Output (hp) * Average BSFC (Btu/hp-hr)

(b) Hourly Emissions (lb/hr) = Emission factor (g/hp-hr) * Engine Power Output (hp) * (lb / 453.6 g)

Annual Emissions - If emission factor note 1 or 4 is used, use calculation (c). If emission factor note 3 is used, use calculation (d).

(c) Annual emissions (tons/yr) = Emission factor (lb/MMBtu) * (1MMBtu/1000000Btu) * Engine Power Output (hp) * Average BSFC (Btu/hp-hr) * Annual Hours of operation (hr/yr) * (1ton/2000lbs)

(d) Annual emissions (tons/yr) = Emission factor (g/hp-hr) * Engine Power Output (hp) * Annual Hours of operation (hr/yr) * (1ton/2000lbs) * (lb / 453.6)

MAXIMUM HOURLY EMISSION INPUTS	
Engine Power Output (kW) =	2647
Engine Power Output (hp) =	3,550
Number of Engines =	3
Average BSFC (BTU/HP-hr) =	7,519 (4)
Heat Content Natural Gas(Btu/scf) =	1,106.7 (5)
Fuel Throughput (R3/hr) =	24,120.0 (6)
PTE Hours of Operation =	8,760

(g) CO₂ equivalent = [(CO₂ emissions)*(GWP_{CO2})]+[(CH₄ emissions)*(GWP_{CH4})]+[(N₂O emissions)*(GWP_{N2O})]
Global Warming Potential (GWP)

CO ₂	1	(7)
CH ₄	25	(7)
N ₂ O	298	(7)

Notes:

(1) AP-42, Chapter 3.2, Table 3.2-2. *Natural Gas-fired Reciprocating Engines* (7/00). Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines.

(2) Emission factors supplied from manufacturer's specification sheets

(3) Emission factors are from 40 CFR 98, Subpart C, Table C-1 and C-2.

(4) Fuel consumption from manufacturer's specification sheet.

(5) Value obtained from AP-42, Chapter 3.2, Table 3.2-1, footnote b

(6) Fuel throughput = BSFC (BTU/HP-hr) x Power (HP) / Heat Content (BTU/scf)

(7) Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-1

**Table 3. Reciprocating Engine Blowdown Venting Emissions
Rover Pipeline LLC - Majorsville Compressor Station**

Pollutant:	Volume of Gas (ft³/event)	Moles (lb_{mol})	Specific Gravity of Gas	Molecular Weight of Gas (lbs/lb_{mol})	Wt % Pollutant	lb_{Pollutant}/event	Events/yr**	Emissions (lbs/hr)	Emissions (ton/yr)
VOC	5164.00	13.63	0.62	28.96	2.00%	4.89	36	4.89	0.09
Benzene	5164.00	13.63	0.62	28.96	0.05%	0.12	36	0.12	0.00
Methane	5164.00	13.63	0.62	28.96	90.00%	220.18	36	220.18	3.96
Carbon Dioxide	5164.00	13.63	0.62	28.96	1.00%	2.45	36	2.45	0.04
CO₂e^(a)	-	-	-	-	-	-	36	22.63	99.13

** Each unit estimated to blowdown once per month: [(1 event/month) x (12 months/year) x (total number of units=3)] = 36 events/yr

(a) CO₂ equivalent = [(CO₂ emissions)*(GWP_{CO2})]+[(CH₄ emissions)*(GWP_{CH4})]+[(N₂O emissions)*(GWP_{N2O})]
Global Warming Potential (GWP)

CO₂ = 1 (1)
CH₄ = 25 (1)
N₂O = 298 (1)

(1) Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-1

**Table 4. Reciprocating Engine Starter Venting Emissions
Rover Pipeline LLC - Majorsville Compressor Station**

Pollutant:	Volume of Gas (ft³/event)	Moles (lb_{mol})	Specific Gravity of Gas	Molecular Weight of Gas (lbs/lb_{mol})	Wt % Pollutant	lb_SPollutant/e vent	Events/yr**	Emissions (lbs/hr)	Emissions (ton/yr)
VOC	2324.00	6.13	0.62	28.96	2.00%	2.20	105	2.20	0.12
Benzene	2324.00	6.13	0.62	28.96	0.05%	0.06	105	0.06	0.00
Methane	2324.00	6.13	0.62	28.96	90.00%	99.09	105	99.09	5.20
Carbon Dioxide	2324.00	6.13	0.62	28.96	1.00%	1.10	105	1.10	0.06
CO₂e^(a)	-	-	-	-	-	-	105	29.71	130.11

** Each unit estimated to start up 35 times per year: [(35 event/yr) x (total number of units=3)] = 105 events/yr

(a) CO₂ equivalent = [(CO₂ emissions)*(GWP_{CO2})]+[(CH₄ emissions)*(GWP_{CH4})]+[(N₂O emissions)*(GWP_{N2O})]
Global Warming Potential (GWP)

CO₂ = 1 (1)
CH₄ = 25 (1)
N₂O = 298 (1)

(1) Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-1

Table 5. Fugitive Equipment Leak Emissions
Rover Pipeline LLC - Majorsville Compressor Station

Component	Number of Components	Emission Factors (lb/hr-component) ^(a)	Annual Operating Hours	Max VOC Wt %	Max CH ₄ Wt %	Max CO ₂ Wt %	Reduction Credit Wt % ^(a)	PTE VOC emissions (lb/hr) ^(b)	PTE VOC emissions tpy ^(c)	PTE CH ₄ emissions tpy ^(c)	PTE CO ₂ emissions tpy ^(c)	PTE CO ₂ e emissions tpy ^{(c)(d)}
Valves:												
Gas Streams	197	9.92E-03	8760	2.0%	90.0%	1.0%	0.0%	0.039	0.171	7.704	0.086	192.676
Water/Light Oil Streams	24	2.16E-04	8760	100.0%	0.0%	0.0%	0.0%	0.005	0.023	0.000	0.000	0.000
Light Oil Streams	45	5.50E-03	8760	100.0%	0.0%	0.0%	0.0%	0.248	1.084	0.000	0.000	0.000
Heavy Liquid	30	1.85E-05	8760	100.0%	0.0%	0.0%	0.0%	0.001	0.002	0.000	0.000	0.000
Relief Valves:												
Gas Streams	30	1.94E-02	8760	2.0%	90.0%	1.0%	0.0%	0.012	0.051	2.294	0.025	57.382
Compressor Seals:												
Gas Streams	12	1.94E-02	8760	2.0%	90.0%	1.0%	0.0%	0.005	0.020	0.918	0.010	22.953
Flanges:												
Gas Streams	129	8.60E-04	8760	2.0%	90.0%	1.0%	0.0%	0.002	0.010	0.437	0.005	10.938
Light Oil Streams	33	2.43E-04	8760	100.0%	0.0%	0.0%	0.0%	0.008	0.035	0.000	0.000	0.000
Water/Light Oil Streams	33	6.00E-06	8760	100.0%	0.0%	0.0%	0.0%	0.000	0.001	0.000	0.000	0.000
Connectors:												
Gas Streams	558	4.40E-04	8760	2.0%	90.0%	1.0%	0.0%	0.005	0.022	0.968	0.011	24.207
Water/Light Oil Streams	83	2.43E-04	8760	100.0%	0.0%	0.0%	0.0%	0.020	0.088	0.000	0.000	0.000
Light Oil Streams	167	4.63E-04	8760	100.0%	0.0%	0.0%	0.0%	0.077	0.339	0.000	0.000	0.000
Heavy Liquid	189	1.65E-05	8760	100.0%	0.0%	0.0%	0.0%	0.003	0.014	0.000	0.000	0.000
Totals:								0.425	1.860	12.321	0.137	308.155

Notes:

(a) Fugitive Emission Factors and reduction credits are per TCEQ Technical Guidance Document for Equipment Leak Fugitives, dated October 2000. The emission factors are for total hydro carbons

(b) Hourly emission rates calculated as follows: (Number of components) * (emission factor (lb/hr-component)) * (max wt %) * (100-reduction credit %)

(c) Annual emission rates calculated as follows: (number of components) * (emission factor (lb/hr-component)) * (annual operating hours) * (max wt %) * (100% - reduction credit %) * (ton/2000lbs)

(d) CO₂ equivalent = [(CO₂ emissions)*(GWP_{CO2})]+[(CH₄ emissions)*(GWP_{CH4})]+[(N₂O emissions)*(GWP_{N2O})]

Global Warming Potential (GWP)

CO₂ = 1 (e)

CH₄ = 25 (e)

N₂O = 298 (e)

(e) Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-1

GAS COMPRESSION APPLICATION

ENGINE SPEED (rpm):	1000	RATING STRATEGY:	STANDARD
COMPRESSION RATIO:	9.2:1	RATING LEVEL:	CONTINUOUS
AFTERCOOLER TYPE:	SCAC	FUEL SYSTEM:	GAV
AFTERCOOLER WATER INLET (°F):	130		WITH AIR FUEL RATIO CONTROL
JACKET WATER OUTLET (°F):	190	SITE CONDITIONS:	
ASPIRATION:	TA	FUEL:	ETC Rover - Current Fuel
COOLING SYSTEM:	JW, OC+AC	FUEL PRESSURE RANGE(psig):	42.8-47.0
CONTROL SYSTEM:	CIS/ADEM3	FUEL METHANE NUMBER:	73.3
EXHAUST MANIFOLD:	DRY	FUEL LHV (Btu/scf):	999
COMBUSTION:	LOW EMISSION	ALTITUDE(ft):	1200
NOx EMISSION LEVEL (g/bhp-hr NOx):	0.5	MAXIMUM INLET AIR TEMPERATURE(°F):	100
		STANDARD RATED POWER:	3550 bhp@1000rpm

RATING	NOTES	LOAD	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE			
			100%	100%	75%	50%
ENGINE POWER (WITHOUT FAN)	(1)	bhp	3550	3550	2662	1775
INLET AIR TEMPERATURE		°F	100	100	100	100

ENGINE DATA						
FUEL CONSUMPTION (LHV)	(2)	Btu/bhp-hr	6791	6791	7082	7684
FUEL CONSUMPTION (HHV)	(2)	Btu/bhp-hr	7519	7519	7841	8507
AIR FLOW (@inlet air temp, 14.7 psia) (WET)	(3)(4)	ft ³ /min	9765	9758	7488	5122
AIR FLOW (WET)	(3)(4)	lb/hr	41490	41490	31836	21777
FUEL FLOW (60°F, 14.7 psia)		scfm	402	402	315	228
INLET MANIFOLD PRESSURE	(5)	in Hg(abs)	73.4	73.4	57.0	39.1
EXHAUST TEMPERATURE - ENGINE OUTLET	(6)	°F	838	838	876	925
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET)	(7)(4)	ft ³ /min	24022	24022	18978	13500
EXHAUST GAS MASS FLOW (WET)	(7)(4)	lb/hr	42630	42630	32727	22422

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	2.75	2.75	2.75	2.74
THC (mol. wt. of 15.84)	(8)(9)	g/bhp-hr	6.45	6.45	6.62	6.82
NMHC (mol. wt. of 15.84)	(8)(9)	g/bhp-hr	1.47	1.47	1.51	1.55
NMNEHC (VOCs) (mol. wt. of 15.84)	(8)(9)(10)	g/bhp-hr	0.65	0.65	0.66	0.68
HCHO (Formaldehyde)	(8)(9)	g/bhp-hr	0.26	0.26	0.28	0.31
CO ₂	(8)(9)	g/bhp-hr	441	441	459	498
EXHAUST OXYGEN	(8)(11)	% DRY	12.8	12.8	12.1	11.0

HEAT REJECTION						
HEAT REJ. TO JACKET WATER (JW)	(12)	Btu/min	36625	36625	31417	29714
HEAT REJ. TO ATMOSPHERE	(12)	Btu/min	14063	14063	13200	12502
HEAT REJ. TO LUBE OIL (OC)	(12)	Btu/min	18081	18081	17286	17049
HEAT REJ. TO AFTERCOOLER (AC)	(12)(13)	Btu/min	34480	34480	18629	2698

COOLING SYSTEM SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW)	(13)	Btu/min	44316
TOTAL AFTERCOOLER CIRCUIT (OC+AC)	(13)(14)	Btu/min	63692
A cooling system safety factor of 10% has been added to the cooling system sizing criteria.			

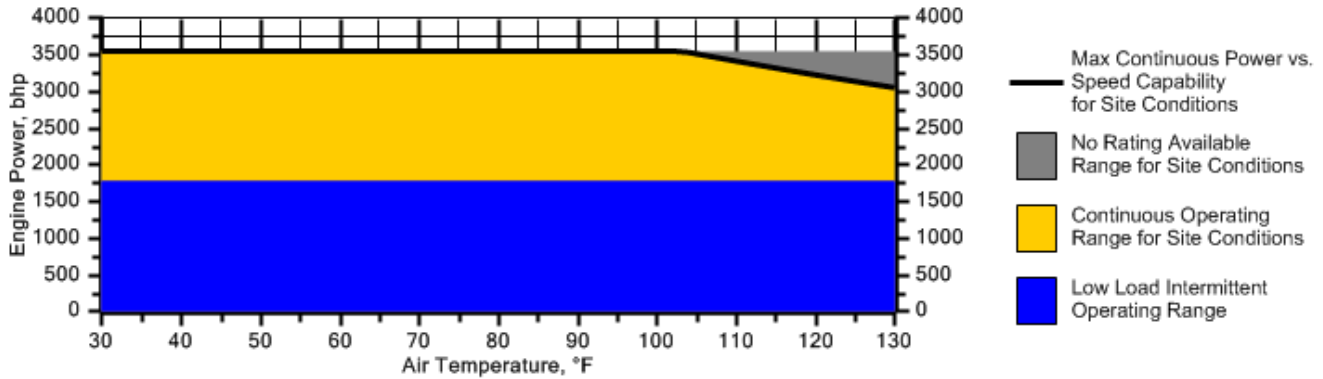
CONDITIONS AND DEFINITIONS

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.

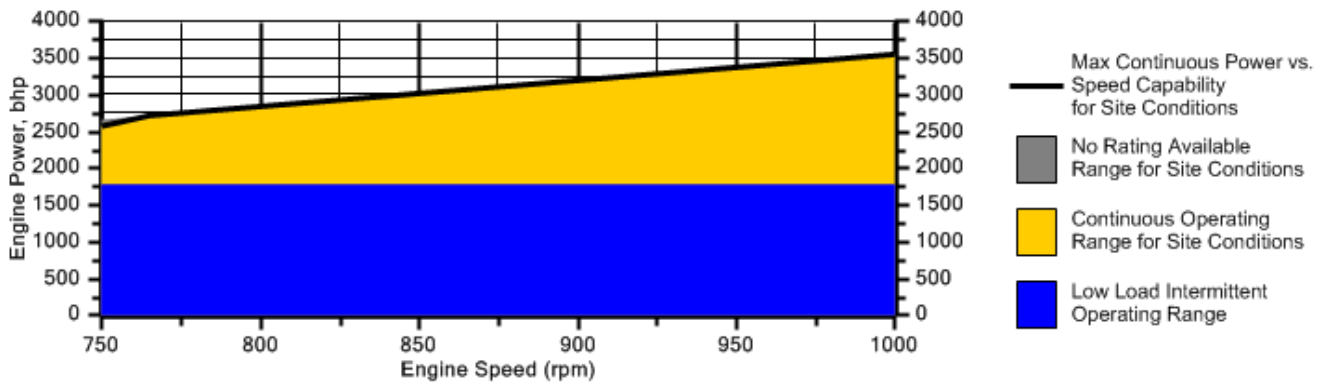
Engine Power vs. Inlet Air Temperature

Data represents temperature sweep at 1200 ft and 1000 rpm



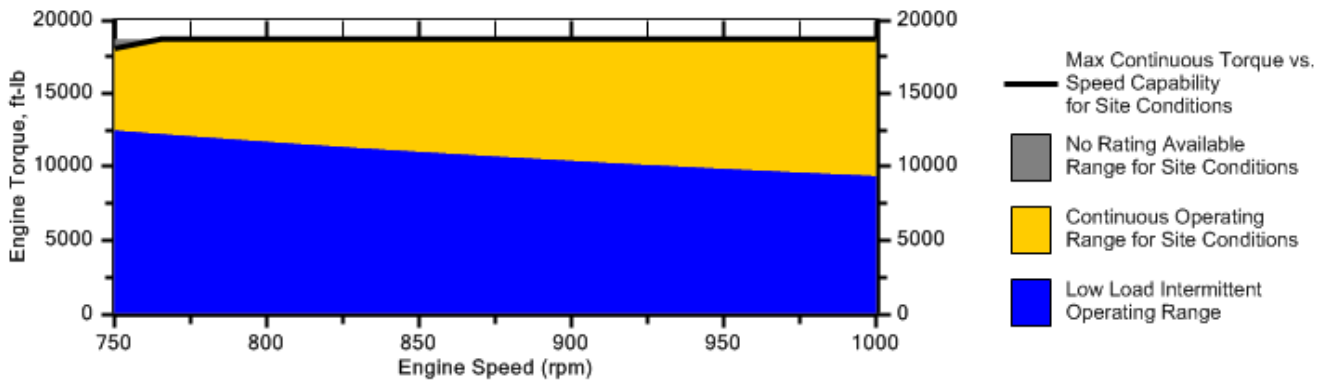
Engine Power vs. Engine Speed

Data represents speed sweep at 1200 ft and 100 °F



Engine Torque vs. Engine Speed

Data represents speed sweep at 1200 ft and 100 °F



Note: At site conditions of 1200 ft and 100°F inlet air temp., constant torque can be maintained down to 770 rpm. The minimum speed for loading at these conditions is 750 rpm.

NOTES

1. Engine rating is with two engine driven water pumps. Tolerance is $\pm 3\%$ of full load.
2. Fuel consumption tolerance is $\pm 2.5\%$ 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 for total flow rate with a tolerance of $\pm 6\%$. Exhaust gas vented through the wastegate flows only to the right exhaust outlet. The total flow through the wastegate may be as great as 15% of the total value for conditions under which the wastegate is open. For installations that use dual exhaust runs this difference must be taken into account when specifying any items to be connected to the exhaust outlets. The flow in the right exhaust outlet must be sized for at least 65% of the total flow to allow for the wastegate full open condition, while the left outlet must be sized for 50% of the total flow for the wastegate closed condition. Both runs must meet the allowable backpressure requirement as described in the Exhaust Systems A&I Guide.
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 factory tolerances and an additional cooling system factor of 10%.

Constituent	Abbrev	Mole %	Norm
Water Vapor	H2O	0.0000	0.0000
Methane	CH4	86.7670	86.7670
Ethane	C2H6	12.4290	12.4290
Propane	C3H8	0.2460	0.2460
Isobutane	iso-C4H10	0.0040	0.0040
Norbutane	nor-C4H10	0.0040	0.0040
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	0.4040	0.4040
Carbon Dioxide	CO2	0.1460	0.1460
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: ETC Rover - Current
Unit of Measure: English

Calculated Fuel Properties

Caterpillar Methane Number:	73.3
Lower Heating Value (Btu/scf):	999
Higher Heating Value (Btu/scf):	1106
WOBBE Index (Btu/scf):	1268
THC: Free Inert Ratio:	180.82
Total % Inerts (% N2, CO2, He):	0.55%
RPC (%) (To 905 Btu/scf Fuel):	100%
Compressibility Factor:	0.998
Stoich A/F Ratio (Vol/Vol):	10.40
Stoich A/F Ratio (Mass/Mass):	16.78
Specific Gravity (Relative to Air):	0.620
Specific Heat Constant (K):	1.298

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.

Application Data Report

Proposal Information	Proposal Number: JB-14-2808 Rev(8)	Date: 4/28/2017
	Project Reference: SEC's Rover Project - 3612 (Majorsville)	

Engine Information	Application: Gas Compression	Engine Operation: Gas Compression
	Number of Engines: 1	Fuel Description: Natural Gas
	Engine Make: Caterpillar	Type of Lube Oil: 0.6 wt% sulfated ash or less
	Engine Model: G 3612 LE TA	Lube Oil Consumption: 0.1 % Fuel Consumption
	Rated Speed: 1000 RPM	Number of Exhaust Manifolds: 2
	Design Back Pressure: 8 In. of WC	

Engine Cycle Data	Load	Speed	Power	Exhaust Flow	Exhaust Temp.	Fuel Cons.	O ₂	H ₂ O
	%		<i>bhp</i>	<i>acfm (cfm)</i>	<i>F</i>	<i>btu/bhp-hr</i>	%	%
	100	Rated	3,550	24,022	838	6,629	12.8	17

Engine Cycle Data	Load	Speed	NO _x	CO	NMHC	NMNEHC	CH ₂ O
	%		<i>g/bhp-hr</i>	<i>g/bhp-hr</i>	<i>g/bhp-hr</i>	<i>g/bhp-hr</i>	<i>g/bhp-hr</i>
	100	Rated	0.5	2.75	0.97	0.65	0.26

Emission Data (100% Load)	Emission	Raw Engine Emissions					Target Outlet Emissions						Calculated Reduction	
		<i>g/bhp-hr</i>	<i>tons/yr</i>	<i>ppmvd @ 15% O₂</i>	<i>ppmvd</i>	<i>lb/MW-hr</i>	<i>g/kW-hr</i>	<i>g/bhp-hr</i>	<i>tons/yr</i>	<i>ppmvd @ 15% O₂</i>	<i>ppmvd</i>	<i>lb/MW-hr</i>		<i>g/kW-hr</i>
	NO _x *	0.5	17.14	49	67	1.48	0.671							N/A
	CO	2.75	94.27	443	608	8.13	3.688	0.55	18.85	89	122	1.63	0.738	80%
	NMNEHC**	0.65	22.28	183	251	1.92	0.872	0.32	11.14	91	126	0.96	0.436	50%
	CH ₂ O	0.26	8.91	39	54	0.77	0.349	0.08	2.67	12	16	0.23	0.105	70%

System Specifications	<u>Oxidation (SP-RQSIGA-90S3624x61-30-XH3B3)</u>	
	Design Exhaust Flow Rate:	24,090 acfm (cfm)
	Design Exhaust Temperature:	838°F
	Housing Model Number:	SP-RQSIGA-90S3624x61-30-HSG
	Element Model Number:	RXS-RE-304-S3624XH, RXS-RE-S3624BLIND
	Number of Catalyst Elements:	3
	Number of Spare Catalyst Tracks:	3
	System Pressure Loss:	8.0 inches of WC (Clean)
Exhaust Temperature Limits:	550 – 1250°F (catalyst inlet); 1350°F (catalyst outlet)	

* MW referenced as NO₂

** MW referenced as CH₄. Assumed as 100% unsaturated HCs. Average at steady state per EPA 40CFR60 Method 25A for HC or mutually agreed test method.

ATTACHMENT O

**MONITORING/RECORDKEEPING/REPORTING/
TESTING PLANS**

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

MONITORING, RECORD KEEPING, REPORTING, TESTING PLANS

Monitoring

Since the new compressor at this station, CE-3S will commence construction after September 18, 2015, the site-wide fugitive components will become subject to the equipment leak standards of §60.5397a. As a result of the modification, the site will be required to develop and implement a fugitive monitoring plan and conduct quarterly OGI surveys. The initial survey will be required within 60 days of startup or by June 3, 2017, whichever is later in accordance with §60.5397a(f)(2). However, on April 18, 2017 the USEPA Administrator, E. Scott Pruitt, issued a letter of reconsideration based on comments received from industry groups on August 2, 2016. This letter authorizes a 90 day stay of the compliance date for fugitive emissions monitoring requirements.

In addition to that mentioned above, Rover Pipeline LLC (Rover) will at a minimum monitor hours of operation, site production throughputs, malfunctions of equipment, as well as planned and unplanned maintenance of permitted equipment comprising the facility.

Recordkeeping

Rover will retain records of the following for five (5) years, two (2) years on site, certified by a company official at such time that the DAQ may request said records.

Records of maintenance conducted on the engine shall be kept in accordance with §60.4243(b)(2)(ii).

The unit, CE-3S, will also be subject to the rod packing standards of §60.5385a that require them to be replaced/rebuilt every 26,000 hrs or 3 years. Records shall be maintained based on months or hours of operations since initial startup and each subsequent rebuild or replacement of the compressor's rod packing.

In addition to those mentioned above, the company will keep records of the items monitored, such as condensate throughput, hours of operation, planned maintenance activities, and unplanned maintenance activities.

Reporting

Rover, at a minimum, will submit results of the initial performance test and subsequent performance testing to the EPA Regional Office within sixty (60) days of completion of such tests. In addition, the company will report any control equipment malfunctions or emission limit deviations.

Testing

Rover will demonstrate initial compliance by conducting a performance test as specified in §60.4243(b)(2)(ii) showing the emission limitations in Table 1 to Subpart JJJJ of Part 60 are being met for units CE-1S and CE-2S. Since emission unit CE-3S is an engine that met the reconstruction requirements of JJJJ, it will be required to meet the following emission limitations to demonstrate initial compliance; NO_x – 3.0 g/hp-hr, CO – 4.0 g/hp-hr, and VOC – 1.0 g/hp-hr. Subsequent performance testing shall be conducted every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

ATTACHMENT P

PUBLIC NOTICE

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

ATTACHMENT Q

BUSINESS CONFIDENTIAL CLAIMS

NOT APPLICABLE

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Rover Pipeline LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Rule 13 Permit Modification, for a natural gas compressor station located off Ruth Hill near Dallas, in Marshall County, West Virginia. The latitude and longitude coordinates are 39.96285 and -80.55491.

The applicant estimates the increased potential to discharge of the following Regulated Air Pollutants will be:

Pollutant	Tons/yr
PM/PM ₁₀ /PM _{2.5}	1.16
SO ₂	0.07
NO _x	17.14
CO	18.86
VOCs	10.93
Total HAPs	0.23

Modification of operations is expected to begin in the last quarter of 2017. 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 XX day of May, 2017.

By: Rover Pipeline LLC
Mark Ryan
VP Operations, Midwest Division
8910 Purdue Rd.
Indianapolis, IN 46268

ATTACHMENT R

AUTHORITY FORMS

NOT APPLICABLE

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

ATTACHMENT S

TITLE V PERMIT REVISION INFORMATION

NOT APPLICABLE

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

**Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002**

May 2017

APPLICATION FEE

Rule 13 Permit Modification Application

**Majorsville Compressor Station,
Dallas, West Virginia**

Rover Pipeline LLC
1300 Main St.
Houston, Texas 77002

May 2017

Permit Application Fee Breakdown		
		Cost
Standard Application fee for WV NSR Rule 13 Modifcation		\$ 1,000.00
Subject to NSPS - 40 CFR 60 Subpart IIII, JJJJ, OOOO or OOOOa		\$ 1,000.00
	Total:	\$ 2,000.00