# Perennial CMM West Virginia, LLC

# APPLICATION FOR
# 45CSR13 NEW SOURCE REVIEW

## Big Bend Ridge
## Upshur County, West Virginia

***Prepared by:***

**1375 County Road 8690**
**West Plains, MO 65775**
**(417) 256-2002**

**MAY 2016**

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# SECTION 1

## Cover Letter

11 May, 2016

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

RE: Application for NSR Permit
Big Bend Ridge Facility
Perennial CMM West Virginia, LLC
Upshur County, West Virginia

Greetings

On behalf of Perennial CMM West Virginia, LLC, we present the attached Application for NSR Permit for a Utility Flare fueled with Coal Mine Methane located in Upshur County. One original hard copy, and two digital copies on CDs are supplied.

A check for $1,000, payable to WVDEP-Division of Air Quality is attached to the original hard copy under Section 2- Fees.

This is a simple project consisting of a single 6" Utility Flare fed from a small electrically driven centrifugal blower. The blower is powered from the local electrical utility.

If there are any questions, concerns or comments please contact me at 417-256-2002 X 106, or eboys@perennialenergy.com and I will provide any clarification or additional information.

Respectfully,

Edward T Boys, PE
Engineering Manager

1375 County Road 8690 West Plains, MO 65775
Phone (417) 256-2002 Fax (417) 256-2801
www.PerennialEnergy.com PEI@PerennialEnergy.com

# SECTION 2

## Application Fee

A check for $1000 is attached to the original copy of this application.

# SECTION 3

## Application

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):*
Perennial CMM West Virginia, LLC

2. Federal Employer ID No. ***(FEIN):***
81-2059993

3. Name of facility *(if different from above):*
Big Bend Ridge

4. The applicant is the:
☐ **OWNER** ☐ **OPERATOR** ☒ **BOTH**

5A. Applicant's mailing address:
1375 County Road 8690
West Plains, MO 65775

5B. Facility's present physical address:
1375 County Road 8690
West Plains, MO 65775

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? ☒ **YES** ☐ **NO**

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

– If **NO,** provide a copy of the **Certificate of Authority/Authority of 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: Perennial CMM, LLC

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

– If **YES,** please explain: Leased 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.): Utility Flare

10. North American Industry Classification System **(NAICS)** code for the facility:
333999

11A. DAQ Plant ID No. (for existing facilities only):
–

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
None

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

12A.

- For **Modifications, Administrative Updates** or **Temporary permits** 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 B**.

Starting in Buckhannon, WV, go south on WV 20 7.4 miles. At Adrian, WV turn left (east) on Big Bend Ridge/Gould Road. Go 1.4 miles to fork, stay right, and go 0.7 miles. Site is on the left.

| | | |
|---|---|---|
| 12.B. New site address (if applicable): | 12C. Nearest city or town:<br>Buckhannon, WV | 12D. County:<br>Upshur |
| 12.E. UTM Northing (KM): 4305999 | 12F. UTM Easting (KM): 565814 | 12G. UTM Zone: 17S |

13. Briefly describe the proposed change(s) at the facility:
Install & operate a Utility Flare fueled by Coal Mine Methane

| | |
|---|---|
| 14A. Provide the date of anticipated installation or change: 7/11/2016<br>– If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: / / | 14B. Date of anticipated Start-Up if a permit is granted:<br>7/11/2016 |

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).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day 24 Days Per Week 7 Weeks Per Year 52

16. Is demolition or physical renovation at an existing facility involved? ☐ **YES** ☒ **NO**

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.

18**. Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process *(if known).* 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 *(if known).* Provide this information as **Attachment D.**

## *Section II. Additional attachments and supporting documents.*

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

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

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***) **.**

– Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F.**

23. Provide a **Process Description** as **Attachment G.**

– Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

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

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:

☐ Bulk Liquid Transfer Operations
☐ Chemical Processes
☐ Concrete Batch Plant
☐ Grey Iron and Steel Foundry
☒ General Emission Unit, specify Utility Flare
☒ Haul Road Emissions
☐ Hot Mix Asphalt Plant
☐ Incinerator
☐ Indirect Heat Exchanger
☐ Quarry
☐ Solid Materials Sizing, Handling and Storage Facilities
☐ Storage Tanks

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

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

☐ Absorption Systems
☐ Adsorption Systems
☐ Afterburner
☐ Baghouse
☐ Condenser
☐ Electrostatic Precipitator
☐ Flare
☐ Mechanical Collector
☐ Wet Collecting System

☐ Other Collectors, specify

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:

☐ Authority of Corporation or Other Business Entity
☐ Authority of Governmental Agency
☐ Authority of Partnership
☐ 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 _____ DATE: 5-10-2016

*(Please use blue ink)* *(Please use blue ink)*

| | | |
|---|---|---|
| 35B. Printed name of signee: Robby Whittingham | | 35C. Title: President & CEO |
| 35D. E-mail: rwhittingham@perennialenergy.com | 36E. Phone: 417-256-2002 | 36F. FAX: |
| 36A. Printed name of contact person (if different from above): Edward T Boys, PE | | 36B. Title: |
| 36C. E-mail: eboys@perennialenergy.com | 36D. Phone: 417-256-2002 | 36E. FAX: |

**PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:**

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

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

# SECTION 4

## ATTACHMENTS

# ATTACHMENT A:

## West Virginia Business Certificate

# State of West Virginia

# Certificate

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

Perennial CMM West Virginia LLC

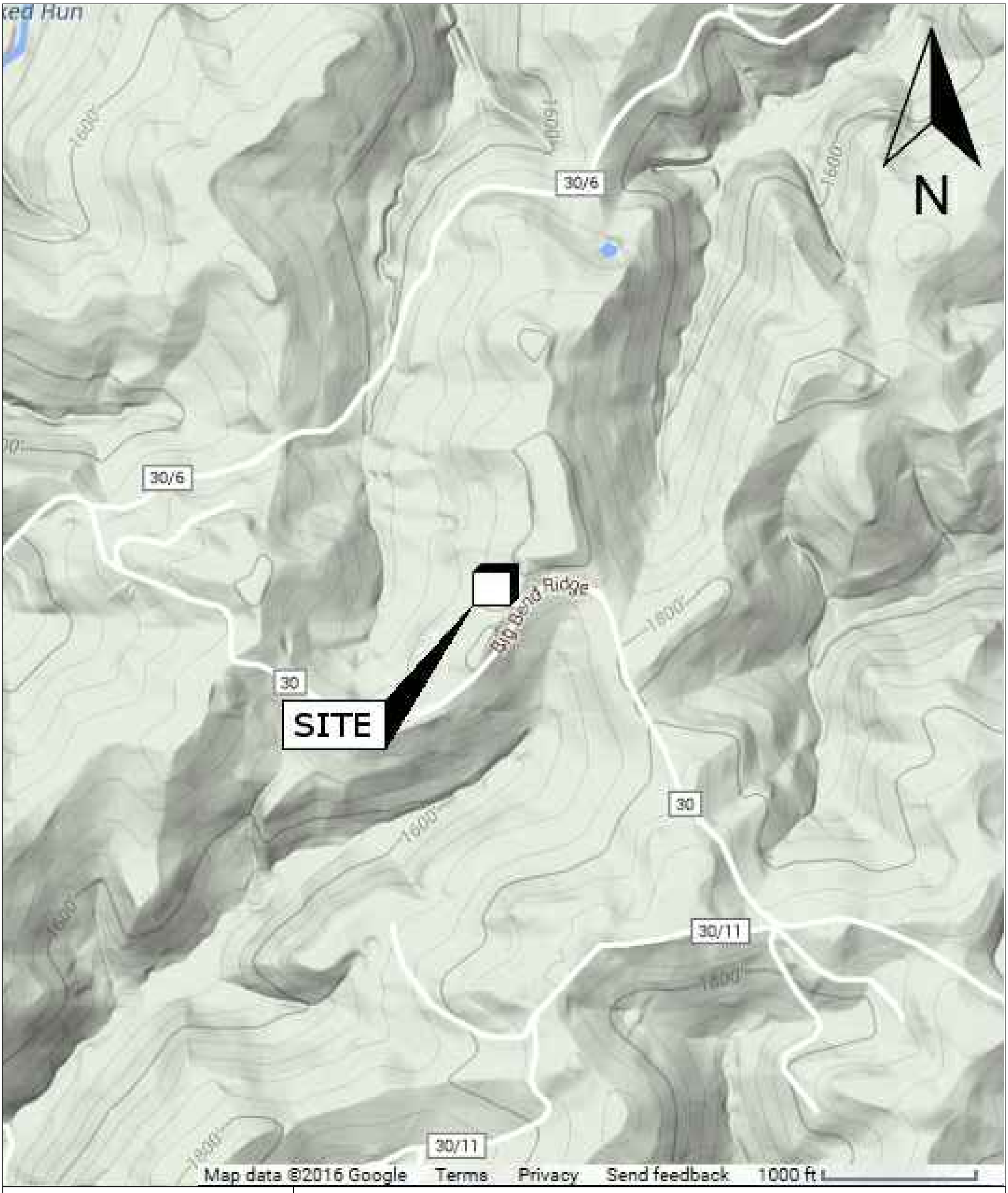
has filed the appropriate registration documents in my office according to the provisions of the West Virginia Code and hereby declare the organization listed above as duly registered with the Secretary of State's Office.

***Given under my hand and***
***the Great Seal of West Virginia***
***on this day of***
May 06, 2016

***Secretary of State***

# ATTACHMENT B:

## Map




REFERENCE: GOOGLE

UTM COORDINATES: 4305999mN 17S 565814mE

DRAWN BY: A.PARKER

CHECKED BY: E.T.BOYS

DATE: 5/5/16

SET JOB NO. WEST_VIRGINIA

SET DWG FILE BIG_BEND_RIDGE

DWG SCALE 1"=1000'

PERENNIAL CMM WEST VIRGINIA L L C

# BIG BEND RIDGE

# BIG BEND RIDGE

UPSHUR COUNTY, WEST VIRGINIA

## SITE LOCATION MAP

DWG NO. LOCATION_MAP_1

REV. 0

# ATTACHMENT C:

## Installation & Startup Schedules

# ATTACHMENT C- SCHEDULES

We anticipate that the project will be installed, commissioned and running within 30 days of permit approval.

# ATTACHMENT D:

## Regulatory Discussion

# ATTACHMENT D- Regulatory Discussion

**Federal Air Regulations:**

General Discussion:

Flares in this application are not addressed in subparts of 40 CFR parts 60, 61, 63 or 65. This application is subject to the Risk Management Plan requirements of the Clean Air Act and the non-application specific requirements for flares in 40 CFR 60.18

1) Clean Air Act Section 112 (r ) Risk Management Plan
   This project does not store regulated or toxic substances over the threshold quantities and is therefore exempt from developing a Risk Management Plan.

2) 40 CFR 60.18 paragraphs (c ) through (f) apply to flares. This is a nonassisted Flare. The applicable Federal Requirements are in *italics* below, with discussion following.

   *(c)(1) Flares shall be designed for and operated with no visible emissions as determined by the methods specified in paragraph (f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.*
   This project is in compliance, please refer to Attachment L: Emissions Unit Data Sheet & Attachment O: Monitoring/Recordkeeping/Reporting/ Testing Plan

   *(2) Flares shall be operated with a flame present at all times, as determined by the methods specified in paragraph (f).*
   The Flare Combustion Temperature is monitored with a thermocouple and has safeties to shut down when Flame is not present. Discussion of this documentation & testing is in Attachments L & O.

   *(3) An owner/operator has the choice of adhering to either the heat content specifications in paragraph (c)(3)(ii) of this section and the maximum tip velocity specifications in paragraph (c)(4) of this section, or adhering to the requirements in paragraph (c)(3)(i) of this section.*
   This project complies with the Maximum Tip Velocity Specifications of paragraph (c ) (4), below.

   *(ii) Flares shall be used only with the net heating value of the gas being combusted being 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted being 7.45 MJ/scm (200 Btu/scf) or greater if the flare is nonassisted. The net heating value of the gas being combusted shall be determined by the methods specified in paragraph (f)(3) of this section*.
   This project complies. Fuel BTU content is monitored on an ongoing basis and recorded every 15 minutes, please see Attachments L & O.

   *(4)(i) Steam-assisted and nonassisted flares shall be designed for and operated with an exit velocity, as determined by the methods specified in paragraph (f)(4) of this section, less than 18.3 m/sec (60 ft/sec), except as provided in paragraphs (c)(4) (ii) and (iii) of this section.*

Maximum Tip Velocity is less than 60 ft/sec. Flow through the flare is monitored and recorded on 15 minute intervals, and the flare has a high flow alarm and shutdown safety. Please see Attachments L, N, & O.

*(6) Flares used to comply with this section shall be steam-assisted, air-assisted, or nonassisted.*

This flare is nonassisted.

*(d) Owners or operators of flares used to comply with the provisions of this subpart shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs. Applicable subparts will provide provisions stating how owners or operators of flares shall monitor these control devices.*

Monitoring & control of Flow & BTU content are discussed in Attachments L & O.

*(e) Flares used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them.*

This project complies. A Thermocouple is used to monitor presence of flame and the flare has a low temperature shutdown.

*(f)(1) Method 22 of appendix A to this part shall be used to determine the compliance of flares with the visible emission provisions of this subpart. The observation period is 2 hours and shall be used according to Method 22.*

Please see Attachments L & O.

*(2) The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.*

The flare has a pilot thermocouple & is compliant.

**West Virginia State Air Regulations:**

General Discussion:

Flares in this application are regulated under 45 CSR 6. Other regulations are also evaluated for applicability & compliance below.

1) 45 CSR 06 (To Prevent and Control Air Pollution from Combustion of Refuse)
   Paragraph 45-6-4.3 limits Emission of Visible Particulate Matter to 20% Opacity or less. This project complies, see Attachments L & O.
   Paragraph 45-6-4.4 allows 40% opacity for 8 minutes at start up or 6 minutes in an hour. This project complies, see Attachments L & O.
   Paragraph 45-6-4.6 prohibits the emission of objectionable odors. This project complies, see Attachments L & O.
   Paragraph 45-6-5 requires incinerators are registered with the Secretary on forms provided. On line forms are for devices such a poultry incinerators, we assume that a Utility Flare in this application is exempt from this requirement.

Paragraph 45-6-6 requires adherence to West Virginia permitting requirements. This application complies with this paragraph.
Paragraph 45-6-7 covers Reporting & testing. Please see Attachments L & O.

2) 45 CSR 04 (To Prevent And Control The Discharge Of Air Pollutants Into The Open Air Which Causes Or Contributes To an Objectionable Odor Or Odors)
This is similar to the requirements of 45 -6-4.6 above. Please refer to this section.
3) 45 CSR 11 (Prevention of Air Pollution Emergency Episodes)
When requested by the WVDEP Commission, this project will prepare standby plans for reducing or eliminating pollutant emissions during Air Pollution Alerts, Warnings & Emergencies.
4) 45 SCR 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)
This application complies with this regulation.
5) 45 CSR 16 (Standards of Performance for New Stationary Sources)
As discussed above, 40 CFR 40 & 40 CFR 65 don't have subparts that address this specific application.
6) 45 CSR 19 (Permits for Construction and Major Modification of Major Stationary Sources Which Cause or Contribute to Nonattainment Areas )
This project is not a major stationary source.
7) 45 CSR 20 (Good Engineering Practice as Applies To Stack Heights)
The flare has a stack approximately 25 feet tall to the top of the wind shroud. This regulation is not applicable to this project.
8) 45 CSR 22 (Air Quality Management Fee Program)
Paragraph 3.4.a - A check for $1000 for the NSR permit fee is attached to this application.
Paragraph 4.4a. Group 9 requires an annual payment of $200 as this project falls under "All other sources.."
9) 45 CSR 27 (To Prevent And Control The Emissions Of Toxic Air Pollutants)
This project does not utilize equipment subject to this rule.
10) 45 CSR 29 (Reg Requiring The Submission Of Emission Statements For Volatile Organic Compound Emissions And Oxides)
The combustion process produces NOX. This project is located in Upshur County & is not subject to this rule that applies to Putnam, Kanawha, Cabell, Wayne, Wood and Greenbrier Counties.
11) 45 CSR 30 (Requirements for Operating Permits)

This project is not subject to the Title V Operating Permit program as the potential to emit is below the 100 ton per year threshold. The Fuel rate is limited by the control software to less than 18 MM BTU/hr. Please see Attachment N.

12) 45 CSR 31 (Confidential Information)
This application makes no claims of confidentiality.

13) 45 CSR 34 (Emission Standards for Hazardous Air Pollutants)
This project does not emit or have the potential to emit hazardous air pollutants

**Summation of Combined Federal & State Requirements:**

1) Opacity
The combined laws allow for no more than 5 minutes per two hours of an opacity of 20% or less, at startup this can go as high as 40%. EPA Method 22 is used to determine if there is a smoke plume.

2) Flow Rate, CFM
The flare is operated within a design minimum & maximum flow rate.

3) BTU Content of Fuel
The Flare is not operated on fuel below 200 BTU/Cubic Foot

4) Flame
The Flare always has flame present during operation

5) Firing Rate
Firing rate is limited to less than 18 MM BTU/hr.

6) Instrumentation
The Flare has instrumentation to measure and record flow rate, BTU content, Flame Temperature, and Firing Rate.

7) Controls
The Flare has controls to prevent operation at flows, BTU contents, Flame Temperatures or Firing Rates outside the design parameters.

8) Odors

The project does not emit objectionable odors.

9) Documentation & Record Keeping
Flow Rates, BTU Contents & Flame Temperatures are recorded

10) Permitting
The project complies with permitting requirements, including the payment of fees.

# ATTACHMENT E:

## Plot Plan

ELEVATION: 1781' AMSL

NEAREST OCCUPIED STRUCTURE:
475' DUE SOUTH

# PLAN VIEW

N
W E
S

REFERENCE: GOOGLE

UTM COORDINATES: 4305999mN 17S 565814mE

DRAWN BY:
A.PARKER

CHECKED BY:
E.T.BOYS

DATE:
5/5/16

SET JOB NO.
WEST_VIRGINIA

SET DWG FILE
BIG_BEND_RIDGE

DWG SCALE
1"=120'

PERENNIAL CMM WEST VIRGINIA L L C

BIG BEND RIDGE

BIG BEND RIDGE

UPSHUR COUNTY, WEST VIRGINIA

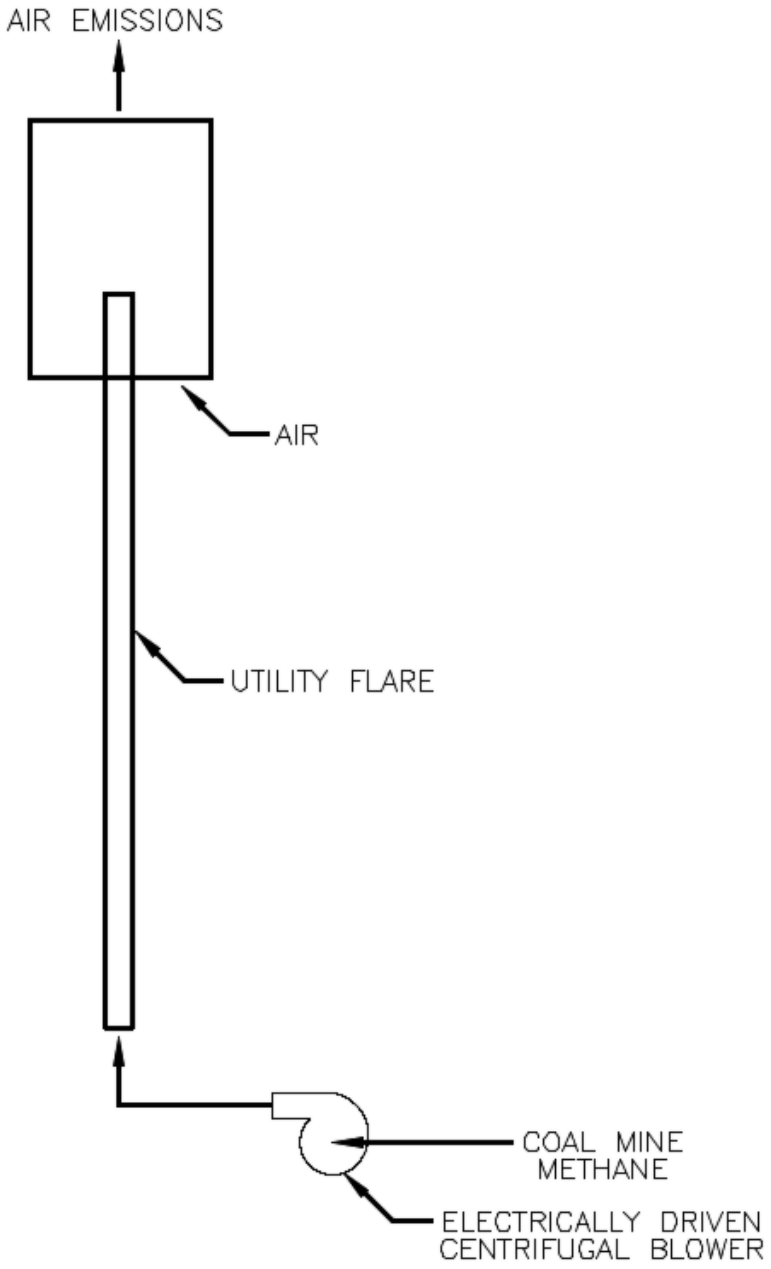
SITE LOCATION MAP

DWG NO. LOCATION_MAP_2

REV. 0

# ATTACHMENT F:

## Detailed Process Flow Diagram


AIR EMISSIONS
AIR
UTILITY FLARE
COAL MINE
METHANE
ELECTRICALLY DRIVEN
CENTRIFUGAL BLOWER

# ATTACHMENT G:

## Process Description

# ATTACHMENT G: Process Description

Coal Mine Methane is burned in a Utility Flare. An electrically driven centrifugal blower, powered by the local electrical utility, provides gas to the flare.

# ATTACHMENT H:

## Material Safety Data Sheets (MSDS)

# ATTACHMENT H: Material Safety Data Sheets

Compressed Nitrogen is used to operate a pneumatic safety shutdown valve on the flare.

The blower is lubricated with Gardner Denver AEON grease.

The blower motor is lubricated with the Mobile product.

# SAFETY DATA SHEET

Nitrogen

## Section 1. Identification

**GHS product identifier** : Nitrogen

**Chemical name** : nitrogen

**Other means of identification** : nitrogen (dot); nitrogen gas; Nitrogen NF, Nitrogen FG

**Product use** : Synthetic/Analytical chemistry.

**Synonym** : nitrogen (dot); nitrogen gas; Nitrogen NF, Nitrogen FG

**SDS #** : 001040

**Supplier's details** : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

**24-hour telephone** : 1-866-734-3438

## Section 2. Hazards identification

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** : GASES UNDER PRESSURE - Compressed gas

**GHS label elements**

**Hazard pictograms** :

**Signal word** : Warning

**Hazard statements** : Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

**Precautionary statements**

**General** : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction.

**Prevention** : Not applicable.

**Response** : Not applicable.

**Storage** : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

**Disposal** : Not applicable.

**Hazards not otherwise classified** : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

# Section 3. Composition/information on ingredients

**Substance/mixture** : Substance

**Chemical name** : nitrogen

**Other means of identification** : nitrogen (dot); nitrogen gas; Nitrogen NF, Nitrogen FG

## CAS number/other identifiers

**CAS number** : 7727-37-9

**Product code** : 001040

| Ingredient name | % | CAS number |
|---|---|---|
| Nitrogen | 100 | 7727-37-9 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

**Occupational exposure limits, if available, are listed in Section 8.**

# Section 4. First aid measures

## Description of necessary first aid measures

**Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

**Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

**Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

**Ingestion** : As this product is a gas, refer to the inhalation section.

## Most important symptoms/effects, acute and delayed

### Potential acute health effects

**Eye contact** : Contact with rapidly expanding gas may cause burns or frostbite.

**Inhalation** : No known significant effects or critical hazards.

**Skin contact** : Contact with rapidly expanding gas may cause burns or frostbite.

**Frostbite** : Try to warm up the frozen tissues and seek medical attention.

**Ingestion** : As this product is a gas, refer to the inhalation section.

### Over-exposure signs/symptoms

**Eye contact** : No specific data.

**Inhalation** : No specific data.

**Skin contact** : No specific data.

**Ingestion** : No specific data.

## Indication of immediate medical attention and special treatment needed, if necessary

**Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

## Section 4. First aid measures

**Specific treatments** : No specific treatment.

**Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

**See toxicological information (Section 11)**

## Section 5. Fire-fighting measures

### Extinguishing media

**Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media** : None known.

**Specific hazards arising from the chemical** : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

**Hazardous thermal decomposition products** : Decomposition products may include the following materials:
nitrogen oxides

**Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions** : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

**Small spill** : Immediately contact emergency personnel. Stop leak if without risk.

**Large spill** : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

**Protective measures** : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

# Section 7. Handling and storage

**Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

# Section 8. Exposure controls/personal protection

## Control parameters

### Occupational exposure limits

| Ingredient name | Exposure limits |
|---|---|
| Nitrogen | Oxygen Depletion [Asphyxiant] |

**Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## Individual protection measures

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

### Skin protection

**Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

**Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## Section 9. Physical and chemical properties

**Appearance**

| | | |
|---|---|---|
| **Physical state** | : | Gas. [Compressed gas.] |
| **Color** | : | Colorless. |
| **Molecular weight** | : | 28.02 g/mole |
| **Molecular formula** | : | N2 |
| **Boiling/condensation point** | : | -196°C (-320.8°F) |
| **Melting/freezing point** | : | -210.01°C (-346°F) |
| **Critical temperature** | : | -146.95°C (-232.5°F) |
| **Odor** | : | Odorless. |
| **Odor threshold** | : | Not available. |
| **pH** | : | Not available. |
| **Flash point** | : | [Product does not sustain combustion.] |
| **Burning time** | : | Not applicable. |
| **Burning rate** | : | Not applicable. |
| **Evaporation rate** | : | Not available. |
| **Flammability (solid, gas)** | : | Not available. |
| **Lower and upper explosive (flammable) limits** | : | Not available. |
| **Vapor pressure** | : | Not available. |
| **Vapor density** | : | 0.967 (Air = 1) Liquid Density@BP: 50.46 lb/ft3 (808.3 kg/m3) |
| **Specific Volume (ft $^3$/lb)** | : | 13.8889 |
| **Gas Density (lb/ft $^3$)** | : | 0.072 |
| **Relative density** | : | Not applicable. |
| **Solubility** | : | Not available. |
| **Solubility in water** | : | Not available. |
| **Partition coefficient: n-octanol/water** | : | 0.67 |
| **Auto-ignition temperature** | : | Not available. |
| **Decomposition temperature** | : | Not available. |
| **SADT** | : | Not available. |
| **Viscosity** | : | Not applicable. |

## Section 10. Stability and reactivity

| | | |
|---|---|---|
| **Reactivity** | : | No specific test data related to reactivity available for this product or its ingredients. |
| **Chemical stability** | : | The product is stable. |
| **Possibility of hazardous reactions** | : | Under normal conditions of storage and use, hazardous reactions will not occur. |
| **Conditions to avoid** | : | No specific data. |
| **Incompatible materials** | : | No specific data. |
| **Hazardous decomposition products** | : | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
| **Hazardous polymerization** | : | Under normal conditions of storage and use, hazardous polymerization will not occur. |

## Section 10. Stability and reactivity

### Irritation/Corrosion
Not available.

### Sensitization
Not available.

### Mutagenicity
Not available.

### Carcinogenicity
Not available.

### Reproductive toxicity
Not available.

### Teratogenicity
Not available.

### Specific target organ toxicity (single exposure)
Not available.

### Specific target organ toxicity (repeated exposure)
Not available.

### Aspiration hazard
Not available.

**Information on the likely routes of exposure** : Not available.

### Potential acute health effects

**Eye contact** : Contact with rapidly expanding gas may cause burns or frostbite.

**Inhalation** : No known significant effects or critical hazards.

**Skin contact** : Contact with rapidly expanding gas may cause burns or frostbite.

**Ingestion** : As this product is a gas, refer to the inhalation section.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : No specific data.

**Inhalation** : No specific data.

**Skin contact** : No specific data.

**Ingestion** : No specific data.

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

### Potential chronic health effects
Not available.

**General** : No known significant effects or critical hazards.

**Carcinogenicity** : No known significant effects or critical hazards.

## Section 11. Toxicological information

**Mutagenicity** : No known significant effects or critical hazards.

**Teratogenicity** : No known significant effects or critical hazards.

**Developmental effects** : No known significant effects or critical hazards.

**Fertility effects** : No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Not available.

## Section 12. Ecological information

### Toxicity

Not available.

### Persistence and degradability

Not available.

### Bioaccumulative potential

| Product/ingredient name | $LogP_{ow}$ | BCF | Potential |
|---|---|---|---|
| Nitrogen | 0.67 | - | low |

### Mobility in soil

**Soil/water partition coefficient ($K_{OC}$)** : Not available.

**Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

## Section 14. Transport information

| | DOT | TDG | Mexico | IMDG | IATA |
|---|---|---|---|---|---|
| **UN number** | UN1066 | UN1066 | UN1066 | UN1066 | UN1066 |
| **UN proper shipping name** | NITROGEN, COMPRESSED | NITROGEN, COMPRESSED | NITROGEN, COMPRESSED | NITROGEN, COMPRESSED | NITROGEN, COMPRESSED |
| **Transport hazard class(es)** | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |

## Section 14. Transport information

| | | | | | |
|---|---|---|---|---|---|
| **Packing group** | - | - | - | - | - |
| **Environment** | No. | No. | No. | No. | No. |
| **Additional information** | **Limited quantity**<br>Yes.<br><br>**Packaging instruction**<br>**Passenger aircraft**<br>Quantity limitation: 75 kg<br><br>**Cargo aircraft**<br>Quantity limitation: 150 kg | Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).<br><br>**Explosive Limit and Limited Quantity Index**<br>0.125<br><br>**Passenger Carrying Road or Rail Index**<br>75 | - | - | **Passenger and Cargo Aircraft**Quantity limitation: 75 kg<br>**Cargo Aircraft Only**<br>Quantity limitation: 150 kg |

**"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."**

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** : Not available.

## Section 15. Regulatory information

**U.S. Federal regulations** : **TSCA 8(a) CDR Exempt/Partial exemption**: This material is listed or exempted.
**United States inventory (TSCA 8b)**: This material is listed or exempted.

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

**SARA 302/304**

**Composition/information on ingredients**

No products were found.

**SARA 304 RQ** : Not applicable.

**SARA 311/312**

**Classification** : Sudden release of pressure

**Composition/information on ingredients**

| Name | % | Fire hazard | Sudden release of pressure | Reactive | Immediate (acute) health hazard | Delayed (chronic) health hazard |
|---|---|---|---|---|---|---|
| Nitrogen | 100 | No. | Yes. | No. | No. | No. |

## Section 15. Regulatory information

**State regulations**

| | | |
|---|---|---|
| **Massachusetts** | : | This material is listed. |
| **New York** | : | This material is not listed. |
| **New Jersey** | : | This material is listed. |
| **Pennsylvania** | : | This material is listed. |

**International regulations**

**International lists**

**National inventory**

| | | |
|---|---|---|
| **Australia** | : | This material is listed or exempted. |
| **Canada** | : | This material is listed or exempted. |
| **China** | : | This material is listed or exempted. |
| **Europe** | : | This material is listed or exempted. |
| **Japan** | : | Not determined. |
| **Malaysia** | : | Not determined. |
| **New Zealand** | : | This material is listed or exempted. |
| **Philippines** | : | This material is listed or exempted. |
| **Republic of Korea** | : | This material is listed or exempted. |
| **Taiwan** | : | This material is listed or exempted. |

**Canada**

**WHMIS (Canada)** : Class A: Compressed gas.

**CEPA Toxic substances**: This material is not listed.
**Canadian ARET**: This material is not listed.
**Canadian NPRI**: This material is not listed.
**Alberta Designated Substances**: This material is not listed.
**Ontario Designated Substances**: This material is not listed.
**Quebec Designated Substances**: This material is not listed.

## Section 16. Other information

**Canada Label requirements** : Class A: Compressed gas.

**Hazardous Material Information System (U.S.A.)**

| | |
|---|---|
| Health | 0 |
| Flammability | 0 |
| Physical hazards | 0 |

**Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.**

**The customer is responsible for determining the PPE code for this material.**

**National Fire Protection Association (U.S.A.)**

**Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.**

# Section 16. Other information

**Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.**

## Procedure used to derive the classification

| Classification | Justification |
|---|---|
| Press. Gas Comp. Gas, H280 | Expert judgment |

## History

**Date of printing** : 8/7/2015

**Date of issue/Date of revision** : 8/7/2015

**Date of previous issue** : No previous validation

**Version** : 0.01

**Key to abbreviations** : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

**References** : Not available.

**Indicates information that has changed from previously issued version.**

## Notice to reader

**To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.**
**Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.**

# OPERATION AND MAINTENCE MANUAL
# FOR CENTRIFUGAL BLOWER

| | |
|---|---|
| PROJECT: | P-CSF Rental |
| CUSTOMER: | Perennial Energy<br>Attn: Brad Hensley<br>1375 County Road 8690<br>West Plains, MO 65775<br>Phone: 417-256-2002 |
| PURCHASE ORDER: | 238947 |
| MANUFACTURER: | Gardner Denver<br>Attn: **Michael Bishop**<br>200 Simko Blvd<br>Charleroi, PA 15022<br>Phone: (724) 239-1500 |
| GARDNER DENVER SALES ORDER NO.: | 2739903 |
| NO. OF CUSTOMER COPIES: | 1 Email |
| DATE PREPARED: | 10/12/2015 |

**Safety Data Sheet**

**Company Identity: Gardner Denver Nash, LLC**
**Product Identity: AEON® Centrifugal Blower and Exhauster Bearing Lubricating Grease**
SDS Date: 04/22/2015
Original: 04/22/2015

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This Safety Data Sheet conforms to ANSI Z400.5, and to the format requirements of the Global Harmonizing System.

THIS SDS COMPLIES WITH 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD)
IMPORTANT: Read this SDS before handling & disposing of this product.
Pass this information on to employees, customers, & users of this product.

## SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

Product Identity: AEON® Centrifugal Blower and Exhauster Bearing Lubricating Grease

| | |
|---|---|
| SYNONYMS: | None |
| PRODUCT USES: | Grease |
| COMPANY IDENTITY: | GARDNER DENVER NASH, LLC |
| COMPANY ADDRESS: | 200 SIMKO BLVD |
| COMPANY CITY: | CHARLEROI, PA 15022 |
| COMPANY PHONE: | 1-724-239-1500 |
| EMERGENCY PHONES: | CHEMTREC: 1-800-424-9300 (USA)<br>CANUTEC: !-613-996-6666 (CANADA) |

## SECTION 2. HAZARDS IDENTIFICATION

### CAUTION

2.1 HAZARD STATEMENTS: (CAT = Hazard Category)
This product does not meet the Global Harmonizing System criteria for classification.
Hazard(s) not otherwise classified: Not Classified.
GHS PICTOGRAMS: Not Applicable
GHS SIGNAL WORD: Not Applicable
GHS HAZARD STATEMENTS: Not Applicable
GHS PRECAUTIONARY STATEMENTS: Not Applicable

2.2 PRECAUTIONARY STATEMENTS:
PREVENTION: Observe good industrial hygiene practices. Isolate from extreme heat & flame.
RESPONSE: Wash hands after handling.
STORAGE: Store away from incompatible materials.
DISPOSAL: Dispose of waste and residues in accordance with local authority requirements.

**SEE SECTIONS 8, 11 & 12 FOR TOXICOLOGICAL INFORMATION.**

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| MATERIAL | CAS# | EINECS# | WT % |
|---|---|---|---|
| Mineral Oil | Confidential | | 80-90 |
| 1H-Benzotriazole-1-Methanamine N,N-Bis(2-Ethylhexyl)-Methyl- | 94270-86-7 | | 1- 5 |
| Benzenamine, N-Phenyl-, Reaction Products with 2,4,4-Trimethylpentene | 68411-46-1 | | 1- 5 |
| Zinc Dithiophosphate | 68649-42-3 | | 1- 2.5 |
| Lithium Salt of Aliphatic Acid | Confidential | | 1- 5 |
| Methylene Bis-(DibutylDithiocarbamate) | 10254-57-6 | | 1- 5 |
| Lithium Hydroxide | 1310-66-3 | | 0.1- 1 |

The specific chemical component identities and/or the exact component percentages of this material may be withheld as trade secrets. This information is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of 29 CFR 1910.1200 (I)(1).

TRACE COMPONENTS: Trace ingredients (if any) are present in < 1% concentration,(< 0.1% for potential carcinogens, reproductive toxins, respiratory tract mutagens, and sensitizers). None of the trace ingredients contribute significant additional hazards at the concentrations that may be present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalents, and Canadian Hazardous Materials Identification System Standard (CPR 4).

## SECTION 4. FIRST AID MEASURES

4.1 MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE & CHRONIC:
See Section 11 for Symptoms/Effects (acute & chronic).

4.2 EYE CONTACT:
For eyes, flush with plenty of water for 15 minutes & get medical attention.

4.3 SKIN CONTACT:
In case of contact with skin immediately remove contaminated clothing.
Wash thoroughly with soap & water. Wash contaminated clothing before reuse.

4.4 INHALATION:
After high vapor exposure, remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, trained personnel should immediately begin artificial respiration. If the heart has stopped, trained personnel should immediately begin cardiopulmonary resuscitation (CPR).

4.5 SWALLOWING:
Rinse mouth. Give plenty of water to drink. Do NOT induce vomiting. GET MEDICAL ATTENTION IMMEDIATELY. Do NOT give liquids to an unconscious or convulsing person.

## SECTION 5. FIRE FIGHTING MEASURES

5.1 FIRE & EXPLOSION PREVENTIVE MEASURES:
NO open flames.

5.2 SUITABLE (& UNSUITABLE) EXTINGUISHING MEDIA:
Use water fog, foam, dry chemical or carbon dioxide. Do not use straight streams of water.

5.3 SPECIAL PROTECTIVE EQUIPMENT & PRECAUTIONS FOR FIRE FIGHTERS:
Water spray may be ineffective on fire but can protect fire-fighters
& cool closed containers. Use fog nozzles if water is used.
Do not enter confined fire-space without full bunker gear.
(Helmet with face shield, bunker coats, gloves & rubber boots).

## SECTION 5. FIRE FIGHTING MEASURES (CONTINUED)

5.4 SPECIFIC HAZARDS OF CHEMICAL & HAZARDOUS COMBUSTION PRODUCTS: SLIGHTLY COMBUSTIBLE!
Isolate from oxidizers, heat, & open flame.
Closed containers may explode if exposed to extreme heat.
Applying to hot surfaces requires special precautions.
Continue all label precautions!

## SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 SPILL AND LEAK RESPONSE AND ENVIRONMENTAL PRECAUTIONS:
Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. No action shall be taken involving personal risk without suitable training. Keep unnecessary and unprotected personnel from entering spill area. Do not touch or walk through material. Avoid breathing vapor or mist. Provide adequate ventilation. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel. ELIMINATE all ignition sources (no smoking, flares, sparks, or flames in immediate area).

6.2 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, EMERGENCY PROCEDURES:
The proper personal protective equipment for incidental releases (such as: 1 Liter of the product released in a well-ventilated area), use impermeable gloves, they should be Level B: **triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant Suit and boots, hard-hat, and Self-Contained Breathing Apparatus** specific for the material handled, goggles, face shield, and appropriate body protection. In the event of a large release, use impermeable gloves, specific for the material handled, chemically resistant suit and boots, and hard hat, and Self-Contained Breathing Apparatus or respirator.

Personal protective equipment are required wherever engineering controls are not adequate or conditions for potential exposure exist. Select NIOSH/MSHA approved based on actual or potential airborne concentrations in accordance with latest OSHA and/or ANSI recommendations.

## SECTION 6. ACCIDENTAL RELEASE MEASURES (CONTINUED)

6.3 ENVIRONMENTAL PRECAUTIONS:
Stop spill at source. Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material. Close or cap valves and/or block or plug hole in leaking container and transfer to another container. Keep from entering storm sewers and ditches which lead to waterways, and if necessary, call the local fire or police department for immediate emergency assistance.

6.4 METHODS AND MATERIAL FOR CONTAINMENT & CLEAN-UP:
Absorb spilled liquid with polypads or other suitable absorbent materials. If necessary, neutralize using suitable buffering material, (acid with soda ash or base with phosphoric acid), and test area with litmus paper to confirm neutralization. Clean up with non-combustible absorbent (such as: sand, soil, and so on). Shovel up and place all spill residue in suitable containers. dispose of at an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal (see Section 13 - Disposal Considerations).

6.5 NOTIFICATION PROCEDURES:
In the event of a spill or accidental release, notify relevant authorities in accordance With all applicable regulations. US regulations require reporting release of this material To the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

## SECTION 7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING:
Isolate from oxidizers, heat, & open flame. Use only with adequate ventilation. Avoid prolonged or repeated contact with skin. Consult Safety Equipment Supplier. Wear goggles, face shield, gloves, apron & footwear impervious to material. Wash clothing before reuse. Avoid free fall of solid. Ground containers when transferring. Do not flame cut, braze, or weld. Continue all label precautions! NEVER pour water into this substance. When dissolving or diluting, always add it slowly to the water.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:
Keep separated from strong acids, metals, food & feedstuffs. Keep dry. Do not store above 49 C/120 F. Keep container tightly closed & upright when not in use to prevent leakage.

7.3 NONBULK: CONTAINERS:
Store containers in a cool, dry location, away from direct sunlight, sources of intense Heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Empty containers should be handled with care. Never store food, feed, or drinking water in containers which held this product.

7.4 BULK CONTAINERS:
All tanks and pipelines which contain this material must be labeled. Perform routine maintenance on tanks or pipelines which contain this product. Report all leaks immediately to the proper personnel.

7.5 TANK CAR SHIPMENTS:
Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendation and all established on-site safety procedures. Appropriate personal protective equipment must be used (see Section 8, Engineering Controls and Personal Protective Equipment.). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level, brakes must be set or wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tanks (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

7.6 PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:
Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Collect all rinsates and dispose of according to applicable Federal, State, Provincial, or local procedures.

7.7 EMPTY CONTAINER WARNING:
Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or

disposal through suitably qualified or licensed contractor and in accordance with governmental regulations.

**DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY BURST AND CAUSE INJURY OR DEATH.**

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 EXPOSURE LIMITS:

| MATERIAL | CAS# | EINECS# | TWA (OSHA) | TLV (ACGIH) |
|---|---|---|---|---|
| Mineral Oil | Confidential | | None Known | None Known |
| 1H-Benzotriazole-1-Methanamine, N,N-Bis(2-Ethylhexyl)-Methyl-Benzenamine, N-Phenyl-, Reaction Products with | 94270-86-7 | | None Known | None Known |
| 2,4,4-Trimethylpentene | 68411-46-1 | | None Known | None Known |
| Zinc Dithiophosphate | 68649-42-3 | | None Known | None Known |
| Lithium Salt of Aliphatic Acid | Confidential | | None Known | None Known |
| Methylene Bis-(DibutylDithiocarbamate) | 10254-57-6 | | None Known | None Known |
| Lithium Hydroxide | 1310-66-3 | | None Known | None Known |

This product contains no EPA Hazardous Air Pollutants (HAP) in amounts > 0.1%.

8.2 APPROPRIATE ENGINEERING CONTROLS:

RESPIRATORY EXPOSURE CONTROLS

Airborne concentrations should be kept to lowest levels possible. If vapor, dust or mist is generated and the occupational exposure limit of the product, or any component of the product, is exceeded, use appropriate NIOSH or MSHA approved air purifying or air-supplied respirator authorized in 29 CFR 1910.134, European Standard EN 149, or applicable State Regulations, after determining the airborne concentration of the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown. Maintain airborne contaminant concentrations below exposure limits. If adequate ventilation is not available or there is potential for airborne exposure above the exposure limits, a respirator may be worn up to the respirator exposure limitations, check with respirator equipment manufacturer's recommendations/limitations. For particulates, a particulate respirator (NIOSH Type N95 or better filters) may be worn. If oil particles (such as: lubricants, cutting fluids, glycerine, and so on) are present, use a NIOSH Type R or P filter. For a higher level of protection, use positive pressure supplied air respiration protection or Self-Contained Breathing Apparatus or if oxygen levels are below 19.5% or are unknown.

EMERGENCY OR PLANNED ENTRY INTO UNKNOWN CONCENTRATIONS OR IDLH CONDITIONS

Positive pressure, full-face piece Self-Contained Breathing Apparatus; or positive pressure, full-face piece Self-Contained Breathing Apparatus with an auxiliary positive pressure Self-Contained Breathing Apparatus.

VENTILATION

| | |
|---|---|
| LOCAL EXHAUST: | Necessary |
| MECHANICAL (GENERAL): | Necessary |
| SPECIAL: | None |
| OTHER: | None |

Please refer to ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

8.3 INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT:

EYE PROTECTION:

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, chemical splash goggles should be worn, when a higher degree of protection is necessary, use splash goggles or safety glasses. Face-shields are recommended when the operation can generate splashes, sprays or mists.

HAND PROTECTION:

Use gloves chemically resistant to this material. Glove must be inspected prior to use. Preferred examples: Butyl rubber, Chlorinated Polyethylene, Polyethylene, Ethyl vinyl alcohol laminate ("EVAL"), Polyvinyl alcohol ("PVA"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"), Neoprene, Nitrile/butadiene rubber ("nitrile") or ("NBR"), Polyvinyl chloride ("PVC") or "vinyl"), Viton. Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be

different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good practices. Wash and dry hands.

BODY PROTECTION:
Use body protection appropriate for task. Cover-all, rubber aprons, or chemical protective clothing made from impervious materials are generally acceptable, depending on the task.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

WORK & HYGIENIC PRACTICES:
Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using toilet facilities and at the end of the working period. Provide readily accessible eye wash stations & safety showers. Remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

## SECTION 9. PHYSICAL & CHEMICAL PROPERTIES

| | |
|---|---|
| APPEARANCE: | Solid, Red |
| ODOR: | None |
| ODOR THRESHOLD: | Not Available |
| pH (Neutrality): | Not Available |
| MELTING POINT/FREEZING POINT: | Not Available |
| BOILING RANGE (IBP,50%,Dry Point): | > 316 C / > 600 F |
| FLASH POINT (TEST METHOD): | > 204 C / > 400 F (PM) |
| EVAPORATION RATE (n-Butyl Acetate=1): | Not Applicable |
| FLAMMABILITY CLASSIFICATION: | Class III-B |
| LOWER FLAMMABLE LIMIT IN AIR (% by vol): | 10.0 (Lowest Component) |
| UPPER FLAMMABLE LIMIT IN AIR (% by vol): | Not Available |
| VAPOR PRESSURE (mm of Hg)@20 C | < 0.013 kPa (0.1 mm Hg) @ 20 C |
| VAPOR DENSITY (air=1): | Not Applicable |
| GRAVITY @ 68/68F / 20/20C: | |
| DENSITY: | 0.999 |
| SPECIFIC GRAVITY (Water=1): | 1.000 |
| POUNDS/GALLON: | 8.330 |
| WATER SOLUBILITY: | Negligible |
| PARTITION COEFFICIENT (n-Octane/Water): | > 3.5 (Estimate) |
| AUTO IGNITION TEMPERATURE: | Not Applicable |
| DECOMPOSITION TEMPERATURE: | Not Available |
| VISCOSITY @ 20 C (ASTM D445): | 100 cSt @ 40 C / 104 F |

* Using CARB (California Air Resources Board Rules).

## SECTION 10. STABILITY & REACTIVITY

10.1 REACTIVITY & CHEMICAL STABILITY:
Stable under normal conditions, no hazardous reactions when kept from incompatibles.

10.2 POSSIBILITY OF HAZARDOUS REACTIONS & CONDITIONS TO AVOID:
Isolate from extreme heat, & open flame.

10.3 INCOMPATIBLE MATERIALS:
Isolate from strong oxidizers.

10.4 HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Oxides from burning.

10.5 HAZARDOUS POLYMERIZATION: Will not occur.

## SECTION 11. TOXICOLOGICAL INFORMATION

11.1 ACUTE HAZARDS

11.1.1 SKIN CONTACT: Primary irritation to skin, defatting, dermatitis.

11.1.2 EYE CONTACT: Primary irritation to eyes, redness, tearing, blurred vision. Solid can cause eye irritation.

11.1.3 INHALATION: Vapor harmful. The applicable occupational exposure limit value should not be exceeded during any part of the working exposure.

11.1.4 SWALLOWING: Swallowing can cause abdominal irritation, nausea, vomiting & diarrhea.

11.2 SUBCHRONIC HAZARDS/CONDITIONS AGGRAVATED
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing disorders of any target organs mentioned in this Document can be aggravated by over-exposure by routes of entry to components of this product. Persons with these disorders should avoid use of this product.

11.3 CHRONIC HAZARDS
11.3.1 CANCER, REPRODUCTIVE & OTHER CHRONIC HAZARDS: This product has no carcinogens listed by IARC, NTP, NIOSH, OSHA or ACGIH, as of this date, greater or equal to 0.1%.

## SECTION 11. TOXICOLOGICAL INFORMATION (CONTINUED)

11.3.2 TARGET ORGANS: May cause damage to target organs, based on animal data.

11.3.3 IRRITANCY: Irritating to contaminated tissue.

11.3.4 SENSITIZATION: No component is known as a sensitizer.

11.3.5 MUTAGENICITY: No known reports of mutagenic effects in humans.

11.3.6 EMBRYOTOXICITY: No known reports of embryotoxic effects in humans.

11.3.7 TERATOGENICITY: No known reports of teratogenic effects in humans.

11.3.8 REPRODUCTIVE TOXICITY: No known reports of reproductive effects in humans.

A MUTAGEN is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate across generational lines. An EMBRYOTOXIN is a chemical which causes damage to a developing embryo (such as: within the first 8 weeks of pregnancy in humans), but the damage does not propagate across generational lines. A TERATOGEN is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A REPRODUCTIVE TOXIN is any substance which interferes in any way with the reproductive process.

11.4 MAMMALIAN TOXICITY INFORMATION: No mammalian information is available on this product.

## SECTION 12. ECOLOGICAL INFORMATION

**12.1 ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.**

12.2 EFFECT OF MATERIAL ON PLANTS AND ANIMALS:
This product may be harmful or fatal to plant and animal life if released Into the environment. Refer to Section 11 (Toxicological Information) for further data on the effects of this product's components on test animals.

12.3 EFFECT OF MATERIAL ON AQUATIC LIFE: The substance may be hazardous in the environment. Special attention should be given to water organisms.

| | |
|---|---|
| EL50 (72 hours): | > 1000 mg/L (Pseudokirchneriella subcapitata) |
| LL0 (96 hours): | 1000 mg/L (Oncorhynchus mykiss) |
| EL0 (48 hours): | 1000 mg/L (Daphnia magna) |

12.4 MOBILITY IN SOIL
Mobility of this material has not been determined.

12.5 DEGRADABILITY
This product is completely biodegradable.

12.6 ACCUMULATION
Bioaccumulation of this product has not been determined.

## SECTION 13. DISPOSAL CONSIDERATIONS

**THE GENERATION OF WASTE SHOULD BE AVOIDED OR MINIMIZED WHEREVER POSSIBLE.**
Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers and liners may retain some product residues. Vapor from some product residues may create a highly flammable or explosive atmosphere inside the container.

**DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE USED CONTAINERS TO HEAT, FLAME, SPARKS, STATICELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY BURST AND CAUSE INJURY OR DEATH.**

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Processing, use or contamination may change the waste disposal requirements. Do not dispose of on land, in surface waters, or in storm drains. Waste should be recycled or disposed of in accordance with regulations. Large amounts should be collected for reuse or consigned to licensed hazardous waste haulers for disposal.

**ALL DISPOSAL MUST BE IN ACCORDANCE WITH ALL FEDERAL, STATE, PROVINCIAL, AND LOCAL REGULATIONS. IF IN DOUBT, CONTACT PROPER AGENCIES.**

## SECTION 14. TRANSPORT INFORMATION

| | |
|---|---|
| MARINE POLLUTANT: | No |
| DOT/TDG SHIP NAME: | Not Regulated |
| DRUM LABEL: | None |
| IATA / ICAO: | Not Regulated |
| IMO / IMDG: | Not Regulated |
| EMERGENCY RESPONSE GUIDEBOOK NUMBER: | None |

## SECTION 15. REGULATORY INFORMATION

15.1 EPA REGULATION: SARA SECTION 311/312 HAZARDS: None Known

All components of this product are on the TSCA list. This material contains no known products restricted under SARA Title III, Section 313 in amounts greater or equal to 1%.

Any release equal to or exceeding the RQ must be reported to the National Response Center (800-424-8802) and appropriate state and local regulatory agencies as described in 40 CFR 302.6 and 40 CFR 355.40 respectively. Failure to report may result in substantial civil and criminal penalties. State & local regulations may be more restrictive than federal regulations.

15.2 STATE REGULATIONS:

CALIFORNIA SAFE DRINKING WATER & TOXIC ENFORCEMENT ACT (PROPOSITION 65):
This product contains no chemicals known to the State of California to cause cancer or reproductive toxicity.

15.3 INTERNATIONAL REGULATIONS

The identified components of this product are listed on the chemical inventories of the following countries: Australia (AICS), Canada (DSL or NDSL), China (IECSC), Europe (EINECS, ELINCS), Japan (METI/CSCL, MHLW/ISHL), South Korea (KECI), New Zealand (NZIoC), Philippines (PICCS), Switzerland (SWISS), Taiwan (NECSI), USA (TSCA).

15.4 CANADA: WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

D2B: Irritating to skin / eyes.

This product was classified using the hazard criteria of the Controlled Products Regulations (CPR). This Document contains all information required by the CPR.

## SECTION 16. OTHER INFORMATION

16.1 HAZARD RATINGS

**HEALTH (NFPA): 0, HEALTH (HMIS): 0, FLAMMABILITY: 1, PHYSICAL HAZARD: 0**
(Personal Protection Rating to be supplied by user based on use conditions.) This information is intended solely for the use of individuals trained in the NFPA & HMIS hazard rating systems.

16.2 EMPLOYEE TRAINING

See Section 2 (Hazards Identification). Employees should be made aware of all hazards of this material (as stated in this SDS) before handling it.

16.3 SDS DATE: 04/22/2015

## Notice

The supplier disclaims all expressed or implied warranties of merchantability or fitness for a specific use, with respect to the product or the information provided herein, except for conformation to contracted specifications. All information appearing herein is based upon data obtained from manufacturers and/or recognized technical sources. While the information is believed to be accurate, we make no representations as to its accuracy or sufficiency. Conditions of use are beyond our control, and therefore users are responsible for verifying the data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their handling, and disposal of the product. Users also assume all risks in regards to the publication or use of, or reliance upon information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or process.

Unless updated, the Safety Data Sheet is valid until 04/22/2018.

Perennial Energy Inc.
P-CSF
PO# 238947
SO# 2739903

# SAFETY DATA SHEET

## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT**

**Product Name:** **MOBIL POLYREX EM**
**Product Description:** Base Oil and Additives
**Product Code:** 2015A020G010, 641688-00, 97Y278
**Intended Use:** Grease

**COMPANY IDENTIFICATION**

**Supplier:** **EXXON MOBIL CORPORATION**
3225 GALLOWS RD.
FAIRFAX, VA. 22037 USA

| | |
|---|---|
| **24 Hour Health Emergency** | 609-737-4411 |
| **Transportation Emergency Phone** | 800-424-9300 or 703-527-3887 CHEMTREC |
| **Product Technical Information** | 800-662-4525, 800-947-9147 |
| **MSDS Internet Address** | http://www.exxon.com, http://www.mobil.com |

## SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

**Other hazard information:**

**HAZARD NOT OTHERWISE CLASSIFIED (HNOC):** None as defined under 29 CFR 1900.1200.

**PHYSICAL / CHEMICAL HAZARDS**

No significant hazards.

**HEALTH HAZARDS**

High-pressure injection under skin may cause serious damage. Mildly irritating to skin. May be irritating to the eyes, nose, throat, and lungs.

**ENVIRONMENTAL HAZARDS**

No significant hazards.

| | | | | | | |
|---|---|---|---|---|---|---|
| **NFPA Hazard ID:** | Health: | 0 | Flammability: | 1 | Reactivity: | 0 |
| **HMIS Hazard ID:** | Health: | 0 | Flammability: | 1 | Reactivity: | 0 |

**NOTE:** This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

## SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

**Hazardous Substance(s) or Complex Substance(s) required for disclosure**

| Name | CAS# | Concentration * | GHS Hazard Codes |
|---|---|---|---|
| 1H-IMIDAZOLE-1-ETHANOL, 4,5-DIHYDRO-, 2-NORTALL-OIL ALKYL DERIVS | 61791-39-7 | 0.1 - < 1% | H314(1B) |
| AMINES, C12-14-ALKYL, ISOOCTYL PHOSPHATES | 68187-67-7 | 1 - < 5% | H315 |

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

## SECTION 4 FIRST AID MEASURES

**INHALATION**

Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

**SKIN CONTACT**

Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

**EYE CONTACT**

Flush thoroughly with water. If irritation occurs, get medical assistance.

**INGESTION**

First aid is normally not required. Seek medical attention if discomfort occurs.

## SECTION 5 FIRE FIGHTING MEASURES

### EXTINGUISHING MEDIA

**Appropriate Extinguishing Media:** Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

**Inappropriate Extinguishing Media:** Straight Streams of Water

### FIRE FIGHTING

**Fire Fighting Instructions:** Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

**Hazardous Combustion Products:** Smoke, Fume, Aldehydes, Sulfur oxides, Incomplete combustion products, Oxides of carbon

### FLAMMABILITY PROPERTIES

**Flash Point [Method]:** >204°C (399°F) [EST. FOR OIL, ASTM D-92 (COC)]
**Flammable Limits (Approximate volume % in air):** LEL: N/D UEL: N/D
**Autoignition Temperature:** N/D

## SECTION 6 ACCIDENTAL RELEASE MEASURES

### NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

### PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually

adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

**SPILL MANAGEMENT**

**Land Spill:** Scrape up spilled material with shovels into a suitable container for recycle or disposal.

**Water Spill:** Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Skim from surface.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

**ENVIRONMENTAL PRECAUTIONS**

Prevent entry into waterways, sewers, basements or confined areas.

## SECTION 7 HANDLING AND STORAGE

**HANDLING**

Avoid contact with skin. Prevent small spills and leakage to avoid slip hazard.

**Static Accumulator:** This material is not a static accumulator.

**STORAGE**

Do not store in open or unlabelled containers.

## SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

**ENGINEERING CONTROLS**

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:
No special requirements under ordinary conditions of use and with adequate ventilation.

**PERSONAL PROTECTION**

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

**Respiratory Protection:** If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No protection is ordinarily required under normal conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

**Hand Protection:** Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

Chemical resistant gloves are recommended. If contact with forearms is likely wear gauntlet style gloves.

**Eye Protection:** If contact is likely, safety glasses with side shields are recommended.

**Skin and Body Protection:** Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

Chemical/oil resistant clothing is recommended.

**Specific Hygiene Measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

## ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

**Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.**

### GENERAL INFORMATION

**Physical State:** Solid
**Form:** Semi-fluid
**Color:** Blue
**Odor:** Characteristic
**Odor Threshold:** N/D

### IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

**Relative Density (at 15 °C):** 0.884
**Flammability (Solid, Gas):** N/A
**Flash Point [Method]:** >204°C (399°F) [EST. FOR OIL, ASTM D-92 (COC)]
**Flammable Limits (Approximate volume % in air):** LEL: N/D UEL: N/D
**Autoignition Temperature:** N/D
**Boiling Point / Range:** > 330°C (626°F) [Estimated]
**Decomposition Temperature:** N/D
**Vapor Density (Air = 1):** N/D
**Vapor Pressure:** < 0.013 kPa (0.1 mm Hg) at 20 °C [Estimated]
**Evaporation Rate (n-butyl acetate = 1):** N/D
**pH:** N/A
**Log Pow (n-Octanol/Water Partition Coefficient):** > 3.5 [Estimated]
**Solubility in Water:** Negligible
**Viscosity:** 95 cSt (95 mm2/sec) at 40 °C
**Oxidizing Properties:** See Hazards Identification Section.

### OTHER INFORMATION

**Freezing Point:** N/D
**Melting Point:** >250°C (482°F)
**DMSO Extract (mineral oil only), IP-346:** < 3 %wt

NOTE: Most physical properties above are for the oil component in the material.

## SECTION 10 STABILITY AND REACTIVITY

**REACTIVITY:** See sub-sections below.

**STABILITY:** Material is stable under normal conditions.

**CONDITIONS TO AVOID:** Excessive heat. High energy sources of ignition.

**MATERIALS TO AVOID:** Strong oxidizers

**HAZARDOUS DECOMPOSITION PRODUCTS:** Material does not decompose at ambient temperatures.

**POSSIBILITY OF HAZARDOUS REACTIONS:** Hazardous polymerization will not occur.

## SECTION 11 TOXICOLOGICAL INFORMATION

### INFORMATION ON TOXICOLOGICAL EFFECTS

| Hazard Class | Conclusion / Remarks |
|---|---|
| **Inhalation** | |
| Acute Toxicity: No end point data for material. | Minimally Toxic. Based on assessment of the components. |
| Irritation: No end point data for material. | Negligible hazard at ambient/normal handling temperatures. |
| **Ingestion** | |
| Acute Toxicity: No end point data for material. | Minimally Toxic. Based on assessment of the components. |
| **Skin** | |
| Acute Toxicity: No end point data for material. | Minimally Toxic. Based on assessment of the components. |
| Skin Corrosion/Irritation: No end point data for material. | Mildly irritating to skin with prolonged exposure. Based on assessment of the components. |
| **Eye** | |
| Serious Eye Damage/Irritation: No end point data for material. | May cause mild, short-lasting discomfort to eyes. Based on assessment of the components. |
| **Sensitization** | |
| Respiratory Sensitization: No end point data for material. | Not expected to be a respiratory sensitizer. |
| Skin Sensitization: No end point data for material. | Not expected to be a skin sensitizer. Based on assessment of the components. |
| **Aspiration:** Data available. | Not expected to be an aspiration hazard. Based on physico-chemical properties of the material. |
| **Germ Cell Mutagenicity:** No end point data for material. | Not expected to be a germ cell mutagen. Based on assessment of the components. |
| **Carcinogenicity:** No end point data for material. | Not expected to cause cancer. Based on assessment of the components. |
| **Reproductive Toxicity:** No end point data for material. | Not expected to be a reproductive toxicant. Based on assessment of the components. |
| **Lactation:** No end point data for material. | Not expected to cause harm to breast-fed children. |
| **Specific Target Organ Toxicity (STOT)** | |
| Single Exposure: No end point data for material. | Not expected to cause organ damage from a single exposure. |
| Repeated Exposure: No end point data for material. | Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components. |

## OTHER INFORMATION

**Contains:**
Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

**The following ingredients are cited on the lists below:** None.

--REGULATORY LISTS SEARCHED--

| | | |
|---|---|---|
| 1 = NTP CARC | 3 = IARC 1 | 5 = IARC 2B |
| 2 = NTP SUS | 4 = IARC 2A | 6 = OSHA CARC |

## SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

**ECOTOXICITY**
Material -- Not expected to be harmful to aquatic organisms.

**MOBILITY**
Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

**PERSISTENCE AND DEGRADABILITY**
**Biodegradation:**
Base oil component -- Expected to be inherently biodegradable

**BIOACCUMULATION POTENTIAL**
Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

## SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

**DISPOSAL RECOMMENDATIONS**

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

**REGULATORY DISPOSAL INFORMATION**

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

**Empty Container Warning** Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

## SECTION 14 TRANSPORT INFORMATION

**LAND (DOT):** Not Regulated for Land Transport

**LAND (TDG):** Not Regulated for Land Transport

**SEA (IMDG):** Not Regulated for Sea Transport according to IMDG-Code

**Marine Pollutant:** No

**AIR (IATA):** Not Regulated for Air Transport

## SECTION 15 REGULATORY INFORMATION

**OSHA HAZARD COMMUNICATION STANDARD:** This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

**Complies with the following national/regional chemical inventory requirements:** AICS, IECSC, KECI, TSCA

**Special Cases:**

| Inventory | Status |
|---|---|
| NDSL | Restrictions Apply |

**EPCRA SECTION 302:** This material contains no extremely hazardous substances.

**SARA (311/312) REPORTABLE HAZARD CATEGORIES:** None.

**SARA (313) TOXIC RELEASE INVENTORY:** This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

**The following ingredients are cited on the lists below:**

| Chemical Name | CAS Number | List Citations |
|---|---|---|
| DIPHENYLAMINE | 122-39-4 | 18 |

--REGULATORY LISTS SEARCHED--

| | | | |
|---|---|---|---|
| 1 = ACGIH ALL | 6 = TSCA 5a2 | 11 = CA P65 REPRO | 16 = MN RTK |
| 2 = ACGIH A1 | 7 = TSCA 5e | 12 = CA RTK | 17 = NJ RTK |
| 3 = ACGIH A2 | 8 = TSCA 6 | 13 = IL RTK | 18 = PA RTK |
| 4 = OSHA Z | 9 = TSCA 12b | 14 = LA RTK | 19 = RI RTK |
| 5 = TSCA 4 | 10 = CA P65 CARC | 15 = MI 293 | |

Code key: CARC=Carcinogen; REPRO=Reproductive

## SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

**KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):**
H314(1B): Causes severe skin burns and eye damage; Skin Corr/Irritation, Cat 1B
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2

**THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:**
Updates made in accordance with implementation of GHS requirements.

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Internal Use Only
MHC: 0B, 0B, 0, 0, 2, 0 PPEC: A

DGN: 2031547XUS (1008419)

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# ATTACHMENT I:

## Emission Units Table

## 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] |
|---|---|---|---|---|---|---|
| 1S | 1E | Utility Flare | 2016 | 40 MM BTU/hr | New | None |
| 2S | 2E | Fugitives | 2016 | N/A | New | None |
| | | | | | | |
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[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

# 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 | | | |
| 1E | Upward Vertical Stack | 1S | Utility Flare | N/A | N/A | N/A | N/A | NOX<br>CO<br>VOC<br>CO2 | 1.2<br>5.6<br>10.3<br>2106 | 5.4<br>24.4<br>44.9<br>9224 | 1.2<br>5.6<br>10.3<br>2106 | 5.4<br>24.4<br>44.9<br>9224 | Gas<br>Gas<br>Gas<br>Gas | AP-42<br>AP-42<br>AP-42<br>MB | N/A<br>N/A<br>N/A<br>N/A |
| 2E | Fugitives | 2E | Haul Road | None | | N/A | N/A | PM<br>PM 10 | 0.06<br>0.03 | 0.25<br>0.11 | 0.06<br>0.03 | 0.25<br>0.11 | Solid<br>Solid | EE<br>EE | N/A<br>N/A |
| | | | | | | | | | | | | | | | |

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, $CS_2$, VOCs, $H_2S$, Inorganics, Lead, Organics, $O_3$, NO, $NO_2$, $SO_2$, $SO_3$, all applicable Greenhouse Gases (including $CO_2$ and methane), etc. **DO NOT LIST** $H_2$, $H_2O$, $N_2$, $O_2$, and Noble Gases.

[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/m$^3$) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is $SO_2$, use units of ppmv (See 45CSR10).

## Attachment J
## EMISSION POINTS DATA SUMMARY SHEET

| Table 2: Release Parameter Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Emission Point ID No. *(Must match Emission Units Table)* | Inner Diameter (ft.) | Exit Gas | | | Emission Point Elevation (ft) | | UTM Coordinates (km) | |
| | | Temp. (°F) | Volumetric Flow [1] (acfm) *at operating conditions* | Velocity (fps) | Ground Level *(Height above mean sea level)* | Stack Height [2] *(Release height of emissions above ground level)* | Northing | Easting |
| 1E | 0.53 | 120 | 750 ACFM | 57 | 1781 | 22.5 | 4305999 | 565814 |
| 2E | | | | | 1781 | 0 | 4305999 | 565814 |
| | | | | | | | | |
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[1] Give at operating conditions. Include inerts.
[2] Release height of emissions above ground level.

# ATTACHMENT K:

## Fugitive Emission Data Summary Sheet

## Attachment K

## FUGITIVE EMISSIONS DATA SUMMARY SHEET

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

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

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

| **FUGITIVE EMISSIONS SUMMARY** | All Regulated Pollutants - Chemical Name/CAS [1] | Maximum Potential Uncontrolled Emissions [2] | | Maximum Potential Controlled Emissions [3] | | Est. Method Used [4] |
|---|---|---|---|---|---|---|
| | | lb/hr | ton/yr | lb/hr | ton/yr | |
| Haul Road/Road Dust Emissions<br>Paved Haul Roads | | | | | | |
| Unpaved Haul Roads | PM<br>PM 10 | 0.06<br>0.03 | 0.25<br>0.11 | 0.06<br>0.03 | 0.25<br>0.11 | EE |
| Storage Pile Emissions | | | | | | |
| Loading/Unloading Operations | | | | | | |
| Wastewater Treatment Evaporation & Operations | | | | | | |
| Equipment Leaks | | Does not apply | | Does not apply | | |
| General Clean-up VOC Emissions | | | | | | |
| Other | | | | | | |

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

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

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

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

# ATTACHMENT L:

## Emission Unit Data Sheets

A) Utility Flare
   i) EUDS
   ii) Manufacture's Data Sheet
B) Haul Road EUDS

**Attachment L**
**EMISSIONS UNIT DATA SHEET**
**GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): 1S

| |
|---|
| 1. Name or type and model of proposed affected source:<br><br>The proposed Utility Flare is a Perennial Energy Model CSF6- 750. Manufactures's Equipment Data Sheet is attached. |
| 2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants. |
| 3. Name(s) and maximum amount of proposed process material(s) charged per hour:<br><br>The Utility Flare is rated for the lesser of 750 SCFM or 18 MM BTU/Hr. |
| 4. Name(s) and maximum amount of proposed material(s) produced per hour:<br><br>N/A |
| 5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:<br><br>Primary Reaction $CH_4 + O_2 \Rightarrow CO_2 + H_2O$<br><br>CO forms from Incomplete Combustion $CH_4 + O_2 \Rightarrow CO + H_2O$<br><br>NOX forms from Oxidation of Atmospheric Nitrogen $N_2 + O_2 \Rightarrow NOX$ |

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

Utility Flare will burn up to 18 MM BTU/hr of Coal Mine Methane

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

Coal Mine Methane is typically 80% $CH_4$, 20% $N_2$

(c) Theoretical combustion air requirement (ACF/unit of fuel):

9.7 SCFM Air @ 68 °F and 14.696 psia.

(d) Percent excess air: N/A

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

This project utilizes a Utility Flare with a maximum firing rate of 18 MM BTU/hr

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

N/A

(g) Proposed maximum design heat input: 18 $\times 10^6$ BTU/hr.

7. Projected operating schedule:

| | | | | | |
|---|---|---|---|---|---|
| Hours/Day | 24 | Days/Week | 7 | Weeks/Year | 52 |

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ 500-1500 °F and 14.696 psia

| | | | | | |
|---|---|---|---|---|---|
| a. | $NO_X$ | 1.224 | lb/hr | N/A | grains/ACF |
| b. | $SO_2$ | | lb/hr | | grains/ACF |
| c. | CO | 5.58 | lb/hr | N/A | grains/ACF |
| d. | $PM_{10}$ | | lb/hr | | grains/ACF |
| e. | Hydrocarbons | | lb/hr | | grains/ACF |
| f. | VOCs | 10.26 | lb/hr | N/A | grains/ACF |
| g. | Pb | | lb/hr | | grains/ACF |
| h. | Specify other(s) | | | | |
| | | | lb/hr | | grains/ACF |
| | | | lb/hr | | grains/ACF |
| | | | lb/hr | | grains/ACF |
| | | | lb/hr | | grains/ACF |

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

| MONITORING | RECORDKEEPING |
|---|---|
| Please See Attachment O | Please See Attachment O |
| **REPORTING** | **TESTING** |
| Please See Attachment O | Please See Attachment O |

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

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

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

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

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

The Utility Flare must be operated with the specified capacities (Minimum BTU content per cubic foot, Maximum flow rate in ACFM, and Maximum Firing Rate).

*Equipment Data Sheet*

# 6” Utility Flare

| | |
|---|---|
| Spec. # | 1E |
| Sheet # | 1 of 1 |
| By: | ETB |
| Date: | 01 May 2016 |

| Reference Designator or Item # | 1S, 1E | Big Bend Ridge |
|---|---|---|
| Quantity | 1 | |
| Manufacturer or Approved Equal | Perennial Energy, LLC. | West Plains, MO 65775 USA |
| Model # | CSFS6-750 | Open / Non-Assisted |
| Capacity | 100-750 SCFM | 2.0 to 18 MMBtu/hr |
| Design Criteria | EPA- 40 CFR, §60.18 | |
| Theoretical NMOC Destruction Efficiency | 98% | Per EPA-CICA Fact Sheet-Flare |
| Theoretical Maximum Emissions (NOx / CO / VOC) | 0.068 / 0.31 / 0.57 lb/MMBtu | Per AP-42 |
| Design Heat Flux | 550 Btu/hr-ft$^2$ | Total Flux, 6’ above ground |
| Pilot Monitoring | Yes | Thermocouple (Type “K”) |
| Flame Presence Monitoring | Yes | Thermocouple (Type “K”) |
| Burner Tip O.D. / I.D. | 6.625” / 6.357” | 304L/316L S.S. |
| Overall Flare Height to top of Wind Shroud | 25’ | From bottom of base |
| Fuel Gas Nozzle Adjustment | Yes | Manual |
| Wind Shroud Air Inlet Adjustment | Yes | Manual |
| Wind Shroud Diameter /Height | 26” / 48” | |
| Wind Shroud Insulation | 1” Ceramic Fiber | |
| Insulation Attachment | Inconel Studs & Retainers | |
| Insulation Layers | 1 | |
| Insulation Density | 8 lb/ft$^3$ density | |
| Inlet Nozzle Size | 6" | ANSI 150# Flange Pattern |
| Flare Burner -- Construction Material | 304L S.S. | |
| Wind Shroud -- Construction Material | 304L S.S. | |
| Self Supporting Base | Yes | No Guys Required |
| | | |
| Flare Mounted Equipment | 6” Flame Arrester & Safety Shutdown | |
| Supplied with other Equipment | Yes | |

COMMENTS or NOTES:

**CSF provided with the following controls & safeties:**

High/low fuel flow (SCFM), Low Fuel BTU, High Fuel Loading Rate, High/low flame temperature, & pilot thermocouple.

# Attachment L
## FUGITIVE EMISSIONS FROM UNPAVED HAULROADS

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

| | | PM | PM-10 |
|---|---|---|---|
| k = | Particle size multiplier | 0.80 | 0.36 |
| s = | Silt content of road surface material (%) | 75 | 75 |
| p = | Number of days per year with precipitation >0.01 in. | 170 | 170 |

| Item Number | Description | Number of Wheels | Mean Vehicle Weight (tons) | Mean Vehicle Speed (mph) | Miles per Trip | Maximum Trips per Hour | Maximum Trips per Year | Control Device ID Number | Control Efficiency (%) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Typ Vehicle- 3/4 ton truck | 4 | 3.75 | 10 | .2 | .05 | 400 | | 0% |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |

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

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

Where:

| | | PM | PM-10 |
|---|---|---|---|
| k = | Particle size multiplier | 0.80 | 0.36 |
| s = | Silt content of road surface material (%) | 75 | 75 |
| S = | Mean vehicle speed (mph) | 10 | 10 |
| W = | Mean vehicle weight (tons) | 3.75 | 3.75 |
| w = | Mean number of wheels per vehicle | 4 | 4 |
| p = | Number of days per year with precipitation >0.01 in. | 170 | 170 |

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

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

SUMMARY OF UNPAVED HAULROAD EMISSIONS

| Item No. | PM | | | | PM-10 | | | |
|---|---|---|---|---|---|---|---|---|
| | Uncontrolled | | Controlled | | Uncontrolled | | Controlled | |
| | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY |
| 1 | 0.056 | 0.25 | 0.056 | 0.25 | 0.025 | 0.11 | 0.025 | 0.11 |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| TOTALS | | | | | | | | |

## FUGITIVE EMISSIONS FROM PAVED HAULROADS

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

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

| Item Number | Description | Mean Vehicle Weight (tons) | Miles per Trip | Maximum Trips per Hour | Maximum Trips per Year | Control Device ID Number | Control Efficiency (%) |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |

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

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

Where:

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

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

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

SUMMARY OF PAVED HAULROAD EMISSIONS

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

# ATTACHMENT M:

## Air Pollution Control Device Sheets

This Project does not utilize Air Pollution Control Devices, therefore Attachment M is not applicable to this permit application.

# ATTACHMENT N:

## Supporting Emissions Calculations

A) Utility Flare
B) Haul Road

# ATTACHMENT N Supporting Calculations

**MAIN BURNER- Design**

| | | |
|---|---|---|
| Flare Tip Internal Diameter | 6.357 | inches |
| Flare Tip CSA | 0.220299 | Sq. Ft |
| Maximum Exit Velocity (1) | 60 | Ft/sec |
| Maximum flow | 793.0747 | CFM |
| | | |
| Manufacturer's Rated Maximum Flow | 750 | SCFM |

Manufacturer's rated maximum flow is less than that allowed by 40 CFR 60.18

**MAIN BURNER- Emissions**

| | | |
|---|---|---|
| Flare Maximum Firing Rate | 18 | MM BTU/hr |
| | | |
| NOX Emission Factor Value (2) | 0.068 | lb./MM BTU |
| Maximum NOX/hr | 1.224 | lb. NOX/hr |
| Maximum NOX/year | 5.36112 | tons NOX/year |
| | | |
| CO Emissions Factor (3) | 0.31 | lb./MM BTU |
| Maximum CO/hr | 5.58 | lb. CO/hr |
| Maximum CO/year | 24.4404 | tons CO/year |
| | | |
| VOC Emission Factor (4) | 0.57 | lb./MM BTU |
| Maximum VOC/hr | 10.26 | lb. VOC/hr |
| Maximum VOC/year | 44.9388 | tons VOC/year |
| | | |
| CO2 Emission Factor (5) | 117 | lb./MM BTU |
| Max CO2/hr | 2106 | lb. CO2/hr |
| Max CO2/year | 9224.28 | tons CO2/year |

(1) per 40 CFR 60.18
(2) From EPA AP 42, Table 13.5-1, published 4/15
(3) From EPA AP 42, Table 13.5-2, published 4/15
(4) Ibid
(5) https://www.eia.gov/tools/faqs/faq.cfm?id=73&t=11

**PILOT BURNER- SOX Emission considerations**

Assumptions:
During commissioning & annual testing the pilot
is used 50 times

| | | | |
|---|---|---|---|
| During normal operations the pilot cycles a maximum of | 52 | times per year | |
| The pilot cycle time is | 60 | seconds | |
| The pilot consumes | 45000 | BTU/hr | |
| Total annual run time | 1.7 | Hours per year | |
| Total Pilot Fuel Consumption | 76500 | BTU/year | |
| Assume propane gas as | 93000 | btu/gal | |
| This equals | 0.822581 | Gallons/year | |
| Ethyl Mercaptan per 10,000 gal | 1 | Lbs./gal | Per NFPA 58 |
| Assumes odorant rate | 2.5 | Times minimum | |
| Total pounds Ethyl Mercaptan | 0.000206 | per year | Considered de Minimis for this project |

Haul Road Fugitive Emissions Calculator

E = k*5.9*(s/12)*(S/30)*(W/3)0.7*(w/4)0.5*((365-p)/365) = Pounds per Vehicle Mile Traveled

Where

| | | | | |
|---|---|---|---|---|
| k | Particle Size Multiplier | PM= | 0.8 | |
| | | PM 10 = | 0.36 | |
| s | Silt Content of road surface, % | | 75 | From USDA Soils Report |
| S | vehicle Speed, mph | | 10 | Assume 10 MPH |
| W | Vehicle weight, in tons | | 3.75 | Tons |
| w | Number of wheels | | 4 | Pickup Truck |
| p | Number of days with precip >0.01" | | 170 | From EPA 42 -13.2 |

| | |
|---|---|
| s/12 = | 6.25 |
| S/30= | 0.333333 |
| (W/3)0.7 | 1.169061 |
| (w/4)0.5 | 1 |
| (365-p)/365= | 0.534247 |

| | PM | PM10 | |
|---|---|---|---|
| E = | 6.141572 | 2.763707 | Pounds per vehicle mile |

| | | |
|---|---|---|
| Miles per trip | 0.2 | Round Trip distance |
| Trips per year | 400 | |
| Trips/hr | 0.045662 | |

| | PM | PM10 |
|---|---|---|
| Pounds per hour | 0.056087 | 0.025239 |
| Tons per year | 0.245663 | 0.110548 |

From EPA-42 Chapter 13.2- Unpaved Roads- Mean Number of days with 0.01 inch or more of precipitation

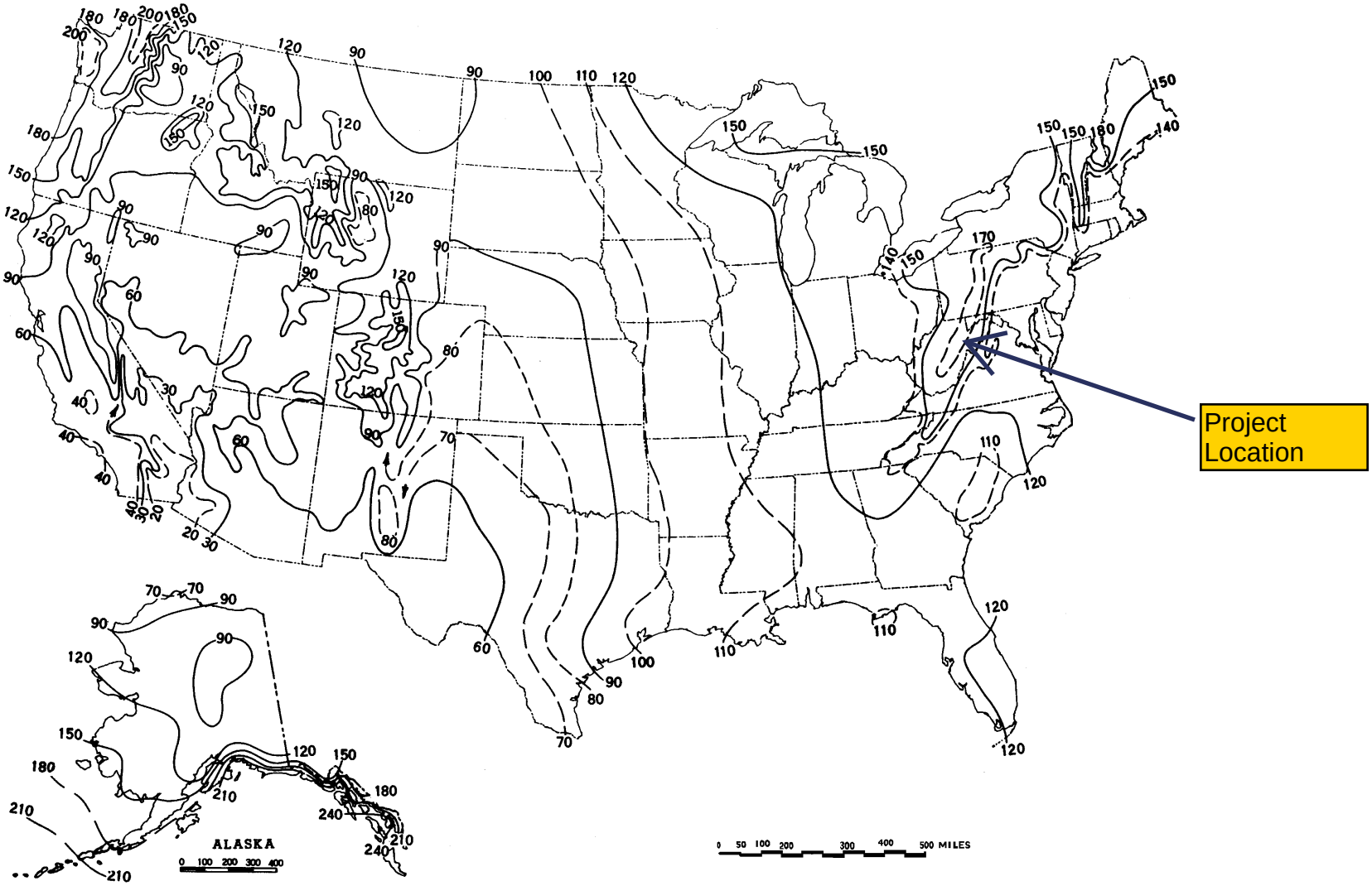


Figure 13.2.2-1. Mean number of days with 0.01 inch or more of precipitation in United States.

# ATTACHMENT O:

## Monitoring/Record Keeping/Reporting/Testing Plans

# ATTACHMENT O – Monitoring, Recording, Reporting & Testing Plans

| Control Objective | Monitoring | Recording | Reporting | Testing |
|---|---|---|---|---|
| Opacity<br>No more than 5 minutes per two hours at 20% or less, At startup cannot exceed 40%. | Monitoring is by EPA method 22. If a plume is present Opacity is determined by EPA method 9. | Recorded in routine manual data logs | Reports furnished upon request | 1) Two hour observation at initial commissioning.<br>2) Two hour observation at annual testing/calibration<br>3) Observation at each time the flare is manually started<br>4) Observation as requested by WVDEP |
| Flow rate does not exceed 750 CFM | Flare has a flow meter to measure flow and safety to limit flow to maximum value. | Recorded in digital data logger in 15 minute intervals | Reports furnished upon request | 1) Flow measurement & control functionality tested at initial commissioning<br>2) Flow measurement & control functionality tested at annual testing/calibration |
| BTU content of Fuel is above 200 BTU/SCF | Flare has gas analysis cabinet to monitor BTU content and safety to limit minimum BTU content of fuel. | Recorded in digital data logger in 15 minute intervals | Reports furnished upon request | 1) Minimum BTU measurement & control functionality tested at initial commissioning<br>2) Minimum BTU measurement & control functionality tested at annual testing/calibration |
| Flame present during operation | Thermocouple measures main flame temperature | Recorded in digital data logger in 15 minute intervals | Reports furnished upon request | 1) Minimum Flame Temperature measurement & control functionality tested at initial commissioning<br>2) Minimum Flame Temperature measurement & control functionality tested at annual testing/calibration |
| Maximum Firing Rate does not exceed 18 MM BTU/hr | Firing rate is calculated from Flow Rate & BTU Content | Recorded in digital data logger in 15 minute intervals | Reports furnished upon request | 1) Firing Rate measurement & control functionality tested at initial commissioning<br>2) Firing Rate measurement & control functionality tested at annual testing/calibration |
| The Project does not emit objectionable odors | By staff | Recorded in routine manual data logs | Reports furnished upon request | Observation by staff. Objectionable odors remediated when found. |

# ATTACHMENT P:

## Public Notice

The following Class 1 Legal Notice was submitted to The Record Delta, 2B Clarksburg Road, Buckhannon, WV 26201 for publication on May 18, 2016. Certificate of publication will be forwarded upon receipt.

Notice is given that Perennial CMM West Virginia, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Construction Permit for a Utility Flare located on Big Bend Ridge Road, near Adrian, in Upshur County, West Virginia. The latitude and longitude coordinates are: 38.900417, -80.24100737.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be: Oxides of Nitrogen (NOX) 5.4 Tons/year, Carbon Monoxide (CO) 24.4 Tons/year, Volatile Organic Compounds (VOCs) 44.9 Tons/year, Particulate Matter (PM) 0.25 Tons/year, Particulate Matter less than 10 Microns (PM 10) 0.11 Tons/year, and Carbon Dioxide 9224 Tons/year.

Startup of operation is planned to begin on or about the 11th day of July, 2016. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.
Dated this the 18th day of May, 2016.

By: Perennial CMM West Virginia, LLC
Robby Whittingham
President & CEO
1375 County Road 8690
West Plains, MO 65775

# ATTACHMENT Q:

## Business Confidential Claims

This permit application does not contain Business Confidential Information, therefore, Attachment Q is not applicable to this permit application.

# ATTACHMENT R:

## Authority Forms

The Application is signed by Perennial CMM West Virginia, LLC's Responsible Official, therefore no Authority Form is required.

# ATTACHMENT S:

## Title V Permit Revision Information

This Application does not revise a Title V Permit, therefore Attachment S is not required.