

CONSOL Energy, Inc.  
One Energy Drive  
P.O. Box 1248  
Jane Lew, WV 26378



August 18, 2016

WV Department of Environmental Protection  
Jerry Williams  
Division of Air Quality  
601 57<sup>th</sup> Street - SE  
Charleston, WV 25304

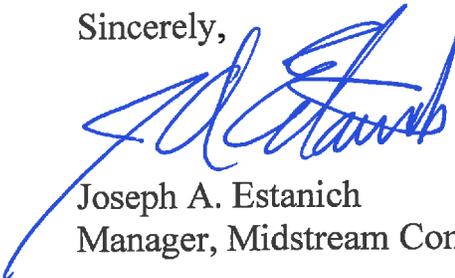
**Re: Permit Determination Form**

Jerry:

Enclosed please find a completed Permit Determination Form for the proposed installation of a natural gas compressor engine at our Hunting Hills Compressor Station, located in Monongalia County. Our plans are to remove two existing engines at this site, and replace them with a single unit. This engine will be equipped with a catalyst and AFRC for emissions control.

If you have any questions or need additional information, please contact me at 304-884-2013, or via e:mail at [josephestanich@consolenergy.com](mailto:josephestanich@consolenergy.com)

Sincerely,



Joseph A. Estanich  
Manager, Midstream Compliance



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

**PERMIT DETERMINATION FORM  
(PDF)**

FOR AGENCY USE ONLY: PLANT I.D. # \_\_\_\_\_

PDF # \_\_\_\_\_ PERMIT WRITER: \_\_\_\_\_

1. NAME OF APPLICANT (AS REGISTERED WITH THE WV SECRETARY OF STATE'S OFFICE):

**CNX Gas Company**

2. NAME OF FACILITY (IF DIFFERENT FROM ABOVE):

**Hunting Hills Compressor Station**

3. NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS) CODE:

**486210**

4A. MAILING ADDRESS:

**One Energy Drive – P.O. Box 1248,  
Jane Lew, WV 26378**

4B. PHYSICAL ADDRESS:

**One Energy Drive – P.O. Box 1248,  
Jane Lew, WV 26378**

5A. DIRECTIONS TO FACILITY (PLEASE PROVIDE MAP AS ATTACHMENT A): **From Morgantown, take Route 7 West towards Blacksville, WV. From Blacksville, continue on Route 7 West for approx. 8 miles and turn left into the Hunting Hills community. After crossing the bridge, turn left and follow road for 1 mile to site.**

5B. NEAREST ROAD:

**State Route 7**

5C. NEAREST CITY OR TOWN:

**Blacksville**

5D. COUNTY:

**Monongalia**

5E. UTM NORTHING (KM):

**4393.09063**

5F. UTM EASTING (KM):

**558.45206**

5G. UTM ZONE:

**17 S**

6A. INDIVIDUAL TO CONTACT IF MORE INFORMATION IS REQUIRED:

**Joseph (Joe) Estanich**

6B. TITLE:

**Manager, Midstream Operations  
Compliance**

6C. TELEPHONE:

**304-884-2013**

6D. FAX:

**304-884-2094**

6E. E-MAIL:

**josephestanich@consolenergy.com**

7A. DAQ PLANT I.D. NO. (FOR AN EXISTING FACILITY ONLY):

**N/A** \_\_\_\_\_

7B. PLEASE LIST ALL CURRENT 45CSR13, 45CSR14, 45CSR19 AND/OR TITLE V (45CSR30) PERMIT NUMBERS ASSOCIATED WITH THIS PROCESS (FOR AN EXISTING FACILITY ONLY):

**N/A**

7C. IS THIS PDF BEING SUBMITTED AS THE RESULT OF AN ENFORCEMENT ACTION? IF YES, PLEASE LIST: **NO**

8A. TYPE OF EMISSION SOURCE (CHECK ONE):

**NEW SOURCE**

ADMINISTRATIVE UPDATE

MODIFICATION

OTHER (PLEASE EXPLAIN IN 11B)

8B. IF ADMINISTRATIVE UPDATE, DOES DAQ HAVE THE APPLICANT'S CONSENT TO UPDATE THE EXISTING PERMIT WITH THE INFORMATION CONTAINED HEREIN?

YES

NO

**N/A**

9. IS DEMOLITION OR PHYSICAL RENOVATION AT AN EXISTING FACILITY INVOLVED?

**YES**

NO

10A. DATE OF ANTICIPATED INSTALLATION OR CHANGE:

**10/01/2016**

10B. DATE OF ANTICIPATED START-UP:

**10/15/2016**

11A. PLEASE PROVIDE A DETAILED PROCESS FLOW DIAGRAM SHOWING EACH PROPOSED OR MODIFIED PROCESS EMISSION POINT AS ATTACHMENT B.

11B. PLEASE PROVIDE A DETAILED PROCESS DESCRIPTION AS ATTACHMENT C.

12. PLEASE PROVIDE MATERIAL SAFETY DATA SHEETS (MSDS) FOR ALL MATERIALS PROCESSED, USED OR PRODUCED AS ATTACHMENT D. FOR CHEMICAL PROCESSES, PLEASE PROVIDE A MSDS FOR EACH COMPOUND EMITTED TO AIR.

**13A. REGULATED AIR POLLUTANT EMISSIONS:**

⇒ FOR A NEW FACILITY, PLEASE PROVIDE PLANT WIDE EMISSIONS BASED ON THE POTENTIAL TO EMIT (PTE) FOR THE FOLLOWING AIR POLLUTANTS INCLUDING ALL PROCESSES.

⇒ FOR AN EXISTING FACILITY, PLEASE PROVIDE THE PROPOSED CHANGE IN EMISSIONS BASED ON THE PTE OF ALL PROCESS CHANGES FOR THE FOLLOWING AIR POLLUTANTS.

PTE FOR A GIVEN POLLUTANT IS TYPICALLY BEFORE AIR POLLUTION CONTROL DEVICES AND IS COLLECTED BASED ON THE MAXIMUM DESIGN CAPACITY OF PROCESS EQUIPMENT.

POLLUTANT	HOURLY PTE (LB/HR)	YEARLY PTE (TON/YR) (HOURLY PTE MULTIPLIED BY 8760 HR/YR) DIVIDED BY 2000 LB/TON
PM	0.016	0.071
PM <sub>10</sub>	0.016	0.071
VOCs	0.12	0.53
CO	1.94	8.5
NO <sub>x</sub>	0.97	4.25
SO <sub>2</sub>	0.001	0.004
Pb	N/A	N/A
HAPs (AGGREGATE AMOUNT)	0.055	0.241
TAPs (INDIVIDUALLY)*	N/A	N/A
OTHER (Formaldehyde)*	0.035	0.153

**NOx, CO, & VOC from Manufacturer. NOx & CO are post-catalyst. Others are via AP-42**

**13B. PLEASE PROVIDE ALL SUPPORTING CALCULATIONS AS ATTACHMENT E.**

CALCULATE AN HOURLY AND YEARLY PTE OF EACH PROCESS EMISSION POINT (SHOWN IN YOUR DETAILED PROCESS FLOW DIAGRAM) FOR ALL AIR POLLUTANTS LISTED ABOVE INCLUDING INDIVIDUAL HAP'S (LISTED IN SECTION 112[b] OF THE 1990 CAAA), TAP'S (LISTED IN 45CSR27), AND OTHER AIR POLLUTANTS (E.G. POLLUTANTS LISTED IN TABLE 45-13A OF 45CSR13, MINERAL ACIDS PER 45CSR7, ETC.).

**14. CERTIFICATION OF DATA**

I, CRAIG NEAL (TYPE NAME) ATTEST THAT ALL THE REPRESENTATIONS CONTAINED IN THIS APPLICATION, OR APPENDED HERETO, ARE TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE BASED ON INFORMATION AND BELIEF AFTER REASONABLE INQUIRY, AND THAT I AM A RESPONSIBLE OFFICIAL\*\* (PRESIDENT, VICE PRESIDENT, SECRETARY OR TREASURER, GENERAL PARTNER OR SOLE PROPRIETOR) OF THE APPLICANT.

SIGNATURE OF RESPONSIBLE OFFICIAL: \_\_\_\_\_

*Craig Neal*

TITLE: VICE-PRESIDENT, E&P OPERATIONS

DATE: 08 / 18 / 2016

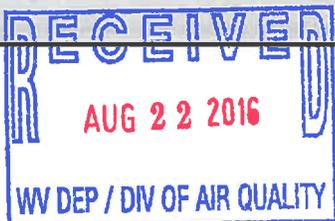
**NOTE: PLEASE CHECK ENCLOSED ATTACHMENTS:**

ATTACHMENT A     ATTACHMENT B     ATTACHMENT C     ATTACHMENT D     ATTACHMENT E

RECORDS ON ALL CHANGES ARE REQUIRED TO BE KEPT AND MAINTAINED ON-SITE FOR TWO (2) YEARS.

THE PERMIT DETERMINATION FORM WITH THE INSTRUCTIONS CAN BE FOUND ON DAQ'S PERMITTING SECTION WEB SITE:

[www.dep.wv.gov/daq](http://www.dep.wv.gov/daq)



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**A. Area Map**

**B. Flow Diagram**

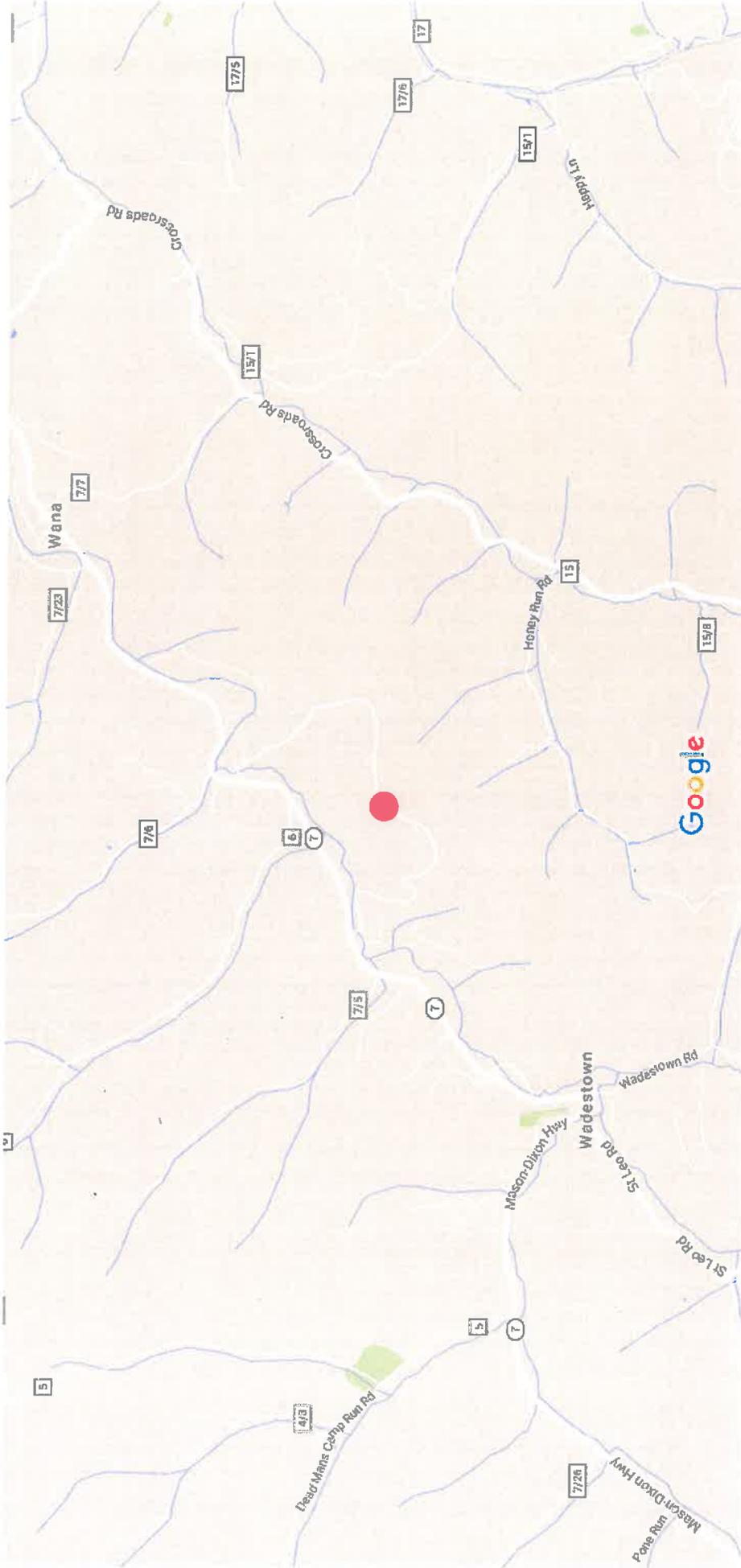
**C. Process Description**

**D. Material Safety Data Sheets**

**E. Emissions Calculations**

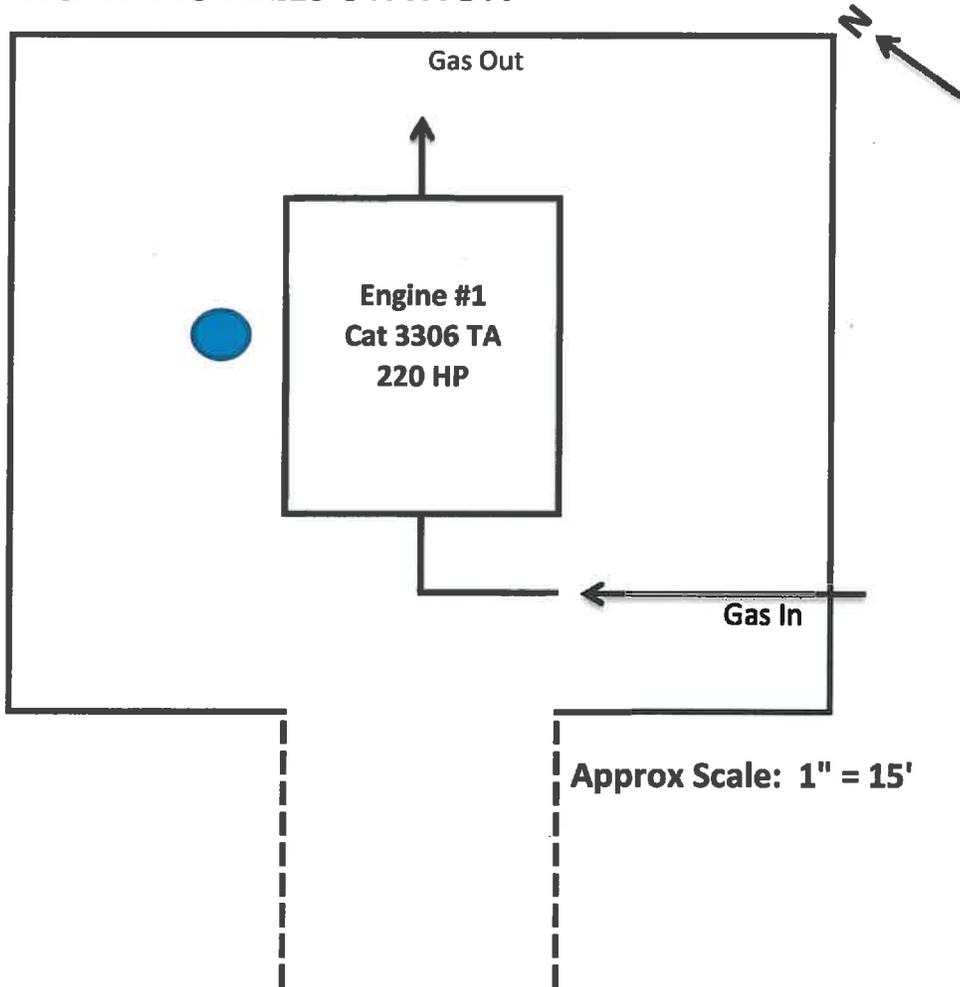


# HUNTING HILLS STATION



Map data ©2016 Google 2000 ft

# HUNTING HILLS STATION



ATTACHMENT 'B'

# **HUNTING HILLS COMPRESSOR STATION**

## **ATTACHMENT C – PROCESS DESCRIPTION**

**The Hunting Hills Compressor Station ('Hunting Hills') is owned and operated by CNX Gas Company. Natural gas from area production wells flow into Hunting Hills and will be compressed via a newly-installed compressor engine. This gas then flows to our Pine Bank facility (Greene County, PA) and ultimately into the Columbia Gas pipeline system.**

# Natural Gas

## Safety Data Sheet

### Section 1: Identification of the substance or mixture and of the supplier

**Product Name:** Natural Gas  
**SDS Number:** 724330

**Synonyms/Other Means of Identification:** Fuel Gas  
Residue Gas  
Processed Gas  
Natural Gas, Dry  
Compressed Natural Gas

**Intended Use:** Fuel

**Manufacturer:**

**Emergency Health and Safety Number:** Chemtrec: 800-424-9300 (24 Hours)

**SDS Information:**

### Section 2: Hazard(s) Identification

#### GHS Classification

H220 -- Flammable gases -- Category 1

H280 -- Gases under pressure -- Compressed gas

#### Label Elements



#### **DANGER**

**Extremely flammable gas. (H220)\***

**Contains gas under pressure. May explode if heated. (H280)\***

**Gas may reduce oxygen in confined spaces.**

#### Precautionary Statement(s):

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. (P210)\*

Leaking gas fire: Do not extinguish, unless leak can be stopped safely. (P377)\*

Eliminate all ignition sources if safe to do so. (P381)\*

Protect from sunlight. Store in a well ventilated place. (P410+P403)\*

\* (Applicable GHS hazard code.)

### Section 3: Composition / Information on Ingredients

Component	CASRN	Concentration <sup>1</sup>
Natural gas, dried	68410-63-9	100

<sup>1</sup> All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

### Section 4: First Aid Measures

**Eye Contact:** If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

**Skin Contact:** First aid is not normally required. However, it is good practice to wash any chemical from the skin.

**Inhalation (Breathing):** If respiratory symptoms develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If breathing is difficult, oxygen or artificial respiration should be administered by qualified personnel. If symptoms persist, seek medical attention.

**Ingestion (Swallowing):** This material is a gas under normal atmospheric conditions and ingestion is unlikely.

#### Most important symptoms and effects

**Acute:** Anesthetic effects at high concentrations.

**Delayed:** None known or anticipated. See Section 11 for information on effects from chronic exposure, if any.

**Notes to Physician:** Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias.

### Section 5: Fire-Fighting Measures



#### NFPA 704 Hazard Class

**Health: 1 Flammability: 4 Instability: 0** (0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

**Unusual Fire & Explosion Hazards:** Extremely flammable. This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. If container is not properly cooled, it can rupture in the heat of a fire. Contents under pressure.

**Extinguishing Media:** Dry chemical or carbon dioxide is recommended. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

**Fire Fighting Instructions:** For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. If this cannot be done, allow fire to burn. Move undamaged containers from immediate hazard area if it can be done safely. Stay away from ends of container. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely.

**Hazardous Combustion Products:** Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of nitrogen and sulfur may also be formed.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

## Section 6: Accidental Release Measures

**Personal Precautions:** Extremely flammable. Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. Beware of accumulation of gas in low areas or contained areas, where explosive concentrations may occur. Prevent from entering drains or any place where accumulation may occur. Ventilate area and allow to evaporate. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

**Environmental Precautions:** Stop spill/release if it can be done safely. Water spray may be useful in minimizing or dispersing vapors. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.

**Methods for Containment and Clean-Up:** Notify relevant authorities in accordance with all applicable regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

## Section 7: Handling and Storage

**Precautions for safe handling:** Keep away from ignition sources such as heat/sparks/open flame – No smoking. Take precautionary measures against static discharge. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8).

Contents under pressure. Gas can accumulate in confined spaces and limit oxygen available for breathing. Use only with adequate ventilation. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-70 and/or API RP 2003 for specific bonding/grounding requirements. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Cold burns may occur during filling operations. Containers and delivery lines may become cold enough to present cold burn hazard.

The use of hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of incomplete combustion products (e.g. carbon monoxide, oxides of sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels.

**Conditions for safe storage:** Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. Avoid exposing any part of a compressed-gas cylinder to temperatures above 125F(51.6C). Gas cylinders should be stored outdoors or in well ventilated storerooms at no lower than ground level and should be quickly removable in an emergency.

## Section 8: Exposure Controls / Personal Protection

Component	ACGIH	OSHA	Other
Natural gas, dried	1000 ppm TWA as Aliphatic Hydrocarbons C1-4	--	--

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

**Engineering controls:** If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

**Eye/Face Protection:** The use of eye/face protection is not normally required; however, good industrial hygiene practice suggests the use of eye protection that meets or exceeds ANSI Z.87.1 whenever working with chemicals.

**Skin/Hand Protection:** The use of skin protection is not normally required; however, good industrial hygiene practice suggests the use of gloves or other appropriate skin protection whenever working with chemicals.

**Respiratory Protection:** A NIOSH approved, self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode should be used in situations of oxygen deficiency (oxygen content less than 19.5 percent), unknown exposure concentrations, or situations that are immediately dangerous to life or health (IDLH).

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use.

**Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.**

## Section 9: Physical and Chemical Properties

**Note:** Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

<b>Appearance:</b>	Colorless
<b>Physical Form:</b>	Compressed Gas
<b>Odor:</b>	Slight hydrocarbon
<b>Odor Threshold:</b>	No data
<b>pH:</b>	Not applicable
<b>Vapor Density (air=1):</b>	0.5
<b>Initial Boiling Point/Range:</b>	No data
<b>Melting/Freezing Point:</b>	No data
<b>Solubility in Water:</b>	Slight
<b>Partition Coefficient (n-octanol/water) (Kow):</b>	No data
<b>Percent Volatile:</b>	100%
<b>Flammability (solid, gas):</b>	Extremely Flammable
<b>Evaporation Rate (nBuAc=1):</b>	No data
<b>Flash Point:</b>	-299 °F / -184 °C
<b>Test Method:</b>	(estimate)
<b>Lower Explosive Limits (vol % in air):</b>	2.0
<b>Upper Explosive Limits (vol % in air):</b>	10.0
<b>Auto-ignition Temperature:</b>	999 °F / 537 °C

## Section 10: Stability and Reactivity

**Stability:** Stable under normal ambient and anticipated conditions of use.

**Conditions to Avoid:** Avoid all possible sources of ignition. Heat will increase pressure in the storage tank.

**Materials to Avoid (Incompatible Materials):** Avoid contact with acids, aluminum chloride, chlorine, chlorine dioxide, halogens and oxidizing agents.

**Hazardous Decomposition Products:** Not anticipated under normal conditions of use.

**Hazardous Polymerization:** Not known to occur.

## Section 11: Toxicological Information

### Information on Toxicological Effects of Substance/Mixture

<u>Acute Toxicity</u>	<u>Hazard</u>	<u>Additional Information</u>	<u>LC50/LD50 Data</u>
Inhalation	Unlikely to be harmful	Asphyxiant. High concentrations in confined spaces may limit oxygen available for breathing. See Signs and Symptoms.	> 20,000 ppm (gas)
Skin Absorption	Skin absorption is not anticipated		Not Applicable
Ingestion (Swallowing)	Ingestion is not anticipated		Not Applicable

**Aspiration Hazard:** Not applicable

**Skin Corrosion/Irritation:** Skin exposure is not anticipated.

**Serious Eye Damage/Irritation:** Not expected to be irritating.

**Signs and Symptoms:** Light hydrocarbon gases are simple asphyxiants and can cause anesthetic effects at high concentrations. Symptoms of overexposure, which are reversible if exposure is stopped, can include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances and vomiting. Continued exposure can lead to hypoxia (inadequate oxygen), rapid breathing, cyanosis (bluish discoloration of the skin), numbness of the extremities, unconsciousness and death.

**Skin Sensitization:** Skin contact is not anticipated.

**Respiratory Sensitization:** Not expected to be a respiratory sensitizer.

**Specific Target Organ Toxicity (Single Exposure):** Not expected to cause organ effects from single exposure.

**Specific Target Organ Toxicity (Repeated Exposure):** Not expected to cause organ effects from repeated exposure.

**Carcinogenicity:** Not expected to cause cancer. This substance is not listed as a carcinogen by IARC, NTP or OSHA.

**Germ Cell Mutagenicity:** Not expected to cause heritable genetic effects.

**Reproductive Toxicity:** Not expected to cause reproductive toxicity.

**Other Comments:** High concentrations may reduce the amount of oxygen available for breathing, especially in confined spaces. Hypoxia (inadequate oxygen) during pregnancy may have adverse effects on the developing fetus.

## Section 12: Ecological Information

**Toxicity:** Petroleum gases will readily evaporate from the surface and would not be expected to have significant adverse effects in the aquatic environment. Classification: No classified hazards.

**Persistence and Degradability:** The hydrocarbons in this material are expected to be inherently biodegradable. In practice, hydrocarbon gases are not likely to remain in solution long enough for biodegradation to be a significant loss process. Hydrogen sulfide, if present in refinery gas streams, will be rapidly oxidized in water and insoluble sulfides precipitated from water when metallic radicals are present.

**Bioaccumulative Potential:** Since the log Kow values measured for refinery gas constituents are below 3, they are not regarded as having the potential to bioaccumulate.

**Mobility in Soil:** Due to the extreme volatility of petroleum gases, air is the only environmental compartment in which they will be found. In air, these hydrocarbons undergo photodegradation by reaction with hydroxyl radicals with half-lives ranging from 3.2 days for n-butane to 7 days for propane.

**Other Adverse Effects:** None anticipated.

### Section 13: Disposal Considerations

This material is a gas and would not typically be managed as a waste.

### Section 14: Transport Information

#### U.S. Department of Transportation (DOT)

**Shipping Description:** UN1971, Natural gas, compressed, 2.1  
**Non-Bulk Package Marking:** Natural gas, compressed, UN1971  
**Non-Bulk Package Labeling:** Flammable gas  
**Bulk Package/Placard Marking:** Flammable gas / 1971  
**Packaging - References:** 49 CFR 173.306; 173.302; 173.302  
(Exceptions; Non-bulk; Bulk)  
**Hazardous Substance:** None  
**Emergency Response Guide:** 115

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

#### International Maritime Dangerous Goods (IMDG)

**Shipping Description:** UN1971, Natural gas, compressed, 2.1  
**Non-Bulk Package Marking:** Natural gas, compressed, UN1971  
**Labels:** Flammable gas  
**Placards/Marking (Bulk):** Flammable gas / 1971  
**Packaging - Non-Bulk:** P200  
**EMS:** F-D, S-U

#### International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)

**UN/ID #:** UN1971  
**Proper Shipping Name:** Natural gas, compressed  
**Hazard Class/Division:** 2.1  
**Subsidiary risk:** None  
**Packing Group:** None  
**Non-Bulk Package Marking:** Natural gas, compressed, UN1971  
**Labels:** Flammable gas, Cargo Aircraft Only  
**ERG Code:** 10L

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
<b>Packaging Instruction #:</b>	Forbidden	Forbidden	200
<b>Max. Net Qty. Per Package:</b>	Forbidden	Forbidden	150 kg

### Section 15: Regulatory Information

#### CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):

This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

#### CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

**Acute Health:** Yes  
**Chronic Health:** No  
**Fire Hazard:** Yes  
**Pressure Hazard:** Yes  
**Reactive Hazard:** No

#### CERCLA/SARA - Section 313 and 40 CFR 372:

This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

**EPA (CERCLA) Reportable Quantity (in pounds):**

EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).

**California Proposition 65:**

This material does not contain any chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65.

**International Hazard Classification**

**Canada:**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the Regulations.

**WHMIS Hazard Class:**

A - Compressed Gas  
B1 - Flammable Gases

**National Chemical Inventories**

All components are either listed on the US TSCA Inventory, or are not regulated under TSCA  
All components are either on the DSL, or are exempt from DSL listing requirements

U.S. Export Control Classification Number: EAR99

**Section 16: Other Information**

<b>Date of Issue:</b>	02-Apr-2012
<b>Status:</b>	FINAL
<b>Previous Issue Date:</b>	09-Feb-2012
<b>Revised Sections or Basis for Revision:</b>	Identified Hazards (Section 2) Precautionary Statement(s) (Section 2) First Aid (Section 4) Shipping information (Section 14) Regulatory information (Section 15)
<b>SDS Number:</b>	724330

**Guide to Abbreviations:**

ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

**Disclaimer of Expressed and implied Warranties:**

The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.



# SAFETY DATA SHEET

## 1. Identification

<b>Product identifier</b>	Compressor Oil
<b>Other means of identification</b>	
<b>Product code</b>	SL22131, SL22133
<b>Recommended use</b>	Compressor oil
<b>Recommended restrictions</b>	None known.
<b>Manufacturer/Importer/Supplier/Distributor information</b>	
<b>Manufactured or sold by:</b>	
<b>Company name</b>	CRC Industries, Inc.
<b>Address</b>	885 Louis Dr. Warminster, PA 18974 US
<b>Telephone</b>	
<b>General Information</b>	215-674-4300
<b>Technical Assistance</b>	800-521-3168
<b>Customer Service</b>	800-272-4620
<b>24-Hour Emergency (CHEMTREC)</b>	800-424-9300 (US) 703-527-3887 (International)
<b>Website</b>	www.crcindustries.com

## 2. Hazard(s) identification

<b>Physical hazards</b>	Not classified.
<b>Health hazards</b>	Not classified.
<b>Environmental hazards</b>	Not classified.
<b>OSHA defined hazards</b>	Not classified.
<b>Label elements</b>	
<b>Hazard symbol</b>	None.
<b>Signal word</b>	None.
<b>Hazard statement</b>	The mixture does not meet the criteria for classification.
<b>Precautionary statement</b>	
<b>Prevention</b>	Use with adequate ventilation. Open doors and windows or use other means to ensure a fresh air supply during use. Observe good industrial hygiene practices.
<b>Response</b>	Wash hands after handling.
<b>Storage</b>	Store away from incompatible materials.
<b>Disposal</b>	Dispose of waste and residues in accordance with local authority requirements.
<b>Hazard(s) not otherwise classified (HNOC)</b>	None known.

## 3. Composition/information on Ingredients

### Mixtures

Chemical name	Common name and synonyms	CAS number	%
Distillates (petroleum), solvent-refined heavy naphthenic		64741-96-4	60 - 70
Distillates (petroleum), hydrotreated light naphthenic		64742-53-6	20 - 30
Distillates (petroleum), solvent-dewaxed heavy paraffinic		64742-65-0	1 - 3
Kerosene		8008-20-6	1 - 3

Specific chemical identity and/or percentage of composition has been withheld as a trade secret.

#### 4. First-aid measures

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<b>Inhalation</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
<b>Skin contact</b>	Wash off with plenty of water. Remove and isolate contaminated clothing and shoes. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse.
<b>Eye contact</b>	Rinse immediately with plenty of water, also under the eyelids. Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Rinse mouth. Drink 1 or 2 glasses of water. Do not induce vomiting without advice from poison control center. Never give anything by mouth to a victim who is unconscious or is having convulsions. Get medical attention if symptoms occur. If ingestion of a large amount does occur, call a poison control center immediately.
<b>Most important symptoms/effects, acute and delayed</b>	Direct contact with eyes may cause temporary irritation.
<b>Indication of immediate medical attention and special treatment needed</b>	Treat symptomatically.
<b>General information</b>	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

#### 5. Fire-fighting measures

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<b>Suitable extinguishing media</b>	Use fire-extinguishing media appropriate for surrounding materials.
<b>Unsuitable extinguishing media</b>	None known.
<b>Specific hazards arising from the chemical</b>	During fire, gases hazardous to health may be formed.
<b>Special protective equipment and precautions for firefighters</b>	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
<b>Fire fighting equipment/instructions</b>	Cool containers exposed to heat with water spray and remove container, if no risk is involved.
<b>General fire hazards</b>	No unusual fire or explosion hazards noted.

#### 6. Accidental release measures

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<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. For personal protection, see section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	<p>The product is immiscible with water and will spread on the water surface.</p> <p>Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.</p> <p>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.</p> <p>Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Prevent entry into waterways, sewer, basements or confined areas.</p>
<b>Environmental precautions</b>	Avoid discharge into drains, water courses or onto the ground.

#### 7. Handling and storage

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<b>Precautions for safe handling</b>	Wear appropriate personal protective equipment. Avoid prolonged or repeated contact with skin. Avoid prolonged exposure. Use only in well-ventilated areas. When using, do not eat, drink or smoke. Wash contaminated clothing before reuse. Use appropriate container to avoid environmental contamination. For product usage instructions, please see the product label.
<b>Conditions for safe storage, including any incompatibilities</b>	Keep away from heat and sources of ignition. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Keep container tightly closed. Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)	PEL	5 mg/m3	Mist.
		2000 mg/m3 500 ppm	
Distillates (petroleum), solvent-dewaxed heavy paraffinic (CAS 64742-65-0)	PEL	5 mg/m3	Mist.
		2000 mg/m3 500 ppm	
Distillates (petroleum), solvent-refined heavy naphthenic (CAS 64741-96-4)	PEL	5 mg/m3	Mist.
		2000 mg/m3 500 ppm	

#### US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)	TWA	5 mg/m3	Inhalable fraction.
Distillates (petroleum), solvent-dewaxed heavy paraffinic (CAS 64742-65-0)	TWA	5 mg/m3	Inhalable fraction.
Distillates (petroleum), solvent-refined heavy naphthenic (CAS 64741-96-4)	TWA	5 mg/m3	Inhalable fraction.
Kerosene (CAS 8008-20-6)	TWA	200 mg/m3	Non-aerosol.

#### US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)	Ceiling	1800 mg/m3	
	STEL	10 mg/m3	Mist.
Distillates (petroleum), solvent-dewaxed heavy paraffinic (CAS 64742-65-0)	Ceiling	1800 mg/m3	
	STEL	10 mg/m3	Mist.
	TWA	5 mg/m3	Mist.
Distillates (petroleum), solvent-refined heavy naphthenic (CAS 64741-96-4)	Ceiling	1800 mg/m3	
	STEL	10 mg/m3	Mist.
Kerosene (CAS 8008-20-6)	TWA	100 mg/m3	

#### Biological limit values

No biological exposure limits noted for the ingredient(s).

#### Exposure guidelines

##### US ACGIH Threshold Limit Values: Skin designation

Kerosene (CAS 8008-20-6)

Can be absorbed through the skin.

<b>Appropriate engineering controls</b>	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. General ventilation normally adequate.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	Wear safety glasses with side shields (or goggles).
<b>Skin protection</b>	
<b>Hand protection</b>	Wear protective gloves such as: Nitrile. Polyvinyl chloride (PVC).
<b>Other</b>	Wear suitable protective clothing.
<b>Respiratory protection</b>	If engineering controls are not feasible or if exposure exceeds the applicable exposure limits, use a NIOSH-approved cartridge respirator with an organic vapor cartridge. Use a self-contained breathing apparatus in confined spaces and for emergencies. Air monitoring is needed to determine actual employee exposure levels.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

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### Appearance

<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Color</b>	Amber.
<b>Odor</b>	Mild petroleum.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	347 °F (175 °C) estimated
<b>Flash point</b>	350 °F (176.7 °C) Pensky-Martens Closed Cup
<b>Evaporation rate</b>	Very slow.
<b>Flammability (solid, gas)</b>	Not available.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	0.7 % estimated
<b>Flammability limit - upper (%)</b>	5 % estimated
<b>Vapor pressure</b>	0.6 hPa estimated
<b>Vapor density</b>	> 5 (air = 1)
<b>Relative density</b>	0.9 - 0.92
<b>Solubility (water)</b>	Insoluble.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	410 °F (210 °C) estimated
<b>Decomposition temperature</b>	Not available.
<b>Viscosity (kinematic)</b>	107 mm <sup>2</sup> /s (104 °F (40 °C))
<b>Percent volatile</b>	70.3 % estimated

## 10. Stability and reactivity

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<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Heat, flames and sparks. Contact with incompatible materials.

**Incompatible materials** Strong oxidizing agents.  
**Hazardous decomposition products** Carbon oxides.

## 11. Toxicological information

### Information on likely routes of exposure

**Inhalation** Prolonged or excessive inhalation may cause respiratory tract irritation.  
**Skin contact** Prolonged skin contact may cause temporary irritation. Repeated exposure may cause skin dryness or cracking.  
**Eye contact** Direct contact with eyes may cause temporary irritation.  
**Ingestion** Expected to be a low ingestion hazard.  
**Symptoms related to the physical, chemical and toxicological characteristics** Direct contact with eyes may cause temporary irritation.

### Information on toxicological effects

**Acute toxicity** Not available.

Product	Species	Test Results
Compressor Oil		
<b>Acute</b>		
<b>Dermal</b>		
LD50	Rabbit	5134 mg/kg estimated
<b>Inhalation</b>		
LC50	Rat	8229 mg/m <sup>3</sup> , 4 hours estimated
<b>Oral</b>		
LD50	Rat	5085 mg/kg estimated

\* Estimates for product may be based on additional component data not shown.

**Skin corrosion/irritation** Prolonged skin contact may cause temporary irritation.

**Serious eye damage/eye irritation** Direct contact with eyes may cause temporary irritation.

**Respiratory sensitization** Not a respiratory sensitizer.

**Skin sensitization** This product is not expected to cause skin sensitization.

**Germ cell mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity** This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Not available.

#### US. National Toxicology Program (NTP) Report on Carcinogens

Not available.

**Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure** Not classified.

**Specific target organ toxicity - repeated exposure** Not classified.

**Aspiration hazard** Not classified.

**Chronic effects** Prolonged inhalation may be harmful.

**Further information** This product has no known adverse effect on human health.

## 12. Ecological information

**Ecotoxicity** The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Product	Species	Test Results
Compressor Oil		
Aquatic		
Crustacea	EC50 Daphnia	42245.6719 mg/l, 48 hours estimated
Fish	LC50 Fish	30691.2148 mg/l, 96 hours estimated

\* Estimates for product may be based on additional component data not shown.

**Persistence and degradability** No data is available on the degradability of this product.

**Bioaccumulative potential**

**Mobility in soil** No data available.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

### 13. Disposal considerations

**Disposal of waste from residues / unused products** This product is not a RCRA hazardous waste (See 40 CFR Part 261.20 – 261.33). Empty containers may be recycled. Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose in accordance with all applicable regulations.

**Hazardous waste code** Not regulated.

**Contaminated packaging** Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

### 14. Transport information

#### DOT

Not regulated as dangerous goods.

#### IATA

Not regulated as dangerous goods.

#### IMDG

Not regulated as dangerous goods.

### 15. Regulatory information

**US federal regulations** This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

#### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

#### US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

#### SARA 304 Emergency release notification

Not regulated.

#### US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Not listed.

#### CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

#### CERCLA Hazardous Substances: Reportable quantity

Not listed.

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center (800-424-8802) and to your Local Emergency Planning Committee.

#### Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

#### Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

**Safe Drinking Water Act (SDWA)** Not regulated.

**Food and Drug Administration (FDA)** Not regulated.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Section 311/312** Immediate Hazard - No  
**Hazard categories** Delayed Hazard - No  
 Fire Hazard - No  
 Pressure Hazard - No  
 Reactivity Hazard - No

**SARA 302 Extremely hazardous substance** No

**US state regulations**

**US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))**

Distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)  
 Distillates (petroleum), solvent-dewaxed heavy paraffinic (CAS 64742-65-0)  
 Distillates (petroleum), solvent-refined heavy naphthenic (CAS 64741-96-4)  
 Kerosene (CAS 8008-20-6)

**US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)**  
 Not listed.

**US. Massachusetts RTK - Substance List**

Distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)  
 Distillates (petroleum), solvent-refined heavy naphthenic (CAS 64741-96-4)  
 Kerosene (CAS 8008-20-6)

**US. New Jersey Worker and Community Right-to-Know Act**

Kerosene (CAS 8008-20-6)

**US. Rhode Island RTK**

None.

**US. Pennsylvania Worker and Community Right-to-Know Law**

Phenol (CAS 108-95-2)  
 Kerosene (CAS 8008-20-6)

**US. California Proposition 65**

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

**Volatile organic compounds (VOC) regulations****EPA**

**VOC content (40 CFR 51.100(s))** Not determined

**Consumer products (40 CFR 59, Subpt. C)** Not regulated

**State**

**Consumer products** Not regulated

**VOC content (CA)** 0 %

**VOC content (OTC)** 0 %

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

Country(s) or region	Inventory name	On Inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)  
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information, including date of preparation or last revision

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Issue date	10-26-2015
Prepared by	Allison Cho
Version #	01
Further Information	Not available.
HMIS® ratings	Health: 1 Flammability: 1 Physical hazard: 0 Personal protection: B
NFPA ratings	Health: 1 Flammability: 1 Instability: 0

NFPA ratings



### Disclaimer

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. This information is accurate to the best of CRC Industries' knowledge or obtained from sources believed by CRC to be accurate. Before using any product, read all warnings and directions on the label. For further clarification of any information contained on this (M)SDS consult your supervisor, a health & safety professional, or CRC Industries.

## HUNTING HILLS COMPRESSOR STATION

### EXISTING

	<u>ENGINE #1</u> Cat 3306 NA - 145 HP		<u>ENGINE #2</u> Cat 3306 TA - 203 HP		<u>TOTALS</u>
	<u>grams/HP-Hr</u>	<u>lbs/hr</u>	<u>grams/HP-Hr</u>	<u>lbs/hr</u>	
NOx	10.9	3.48	2.0	0.90	4.38
CO	13.1	4.19	2.0	0.90	5.08
NMHCs	0.33	0.11	0.18	0.08	0.19

NOTES: Engine #2 is equipped with a 3-way catalyst  
 Engine #1's build-date was June 1999  
 Engine #2's build-date was August 2002

### PROPOSED

	<u>ENGINE #1</u> Cat 3306 TA - 220 HP			<u>TPY</u>
	<u>grams/HP-Hr</u>	<u>lbs/hr</u>		
NOx	2.0	0.97	4.25	
CO	4.0	1.94	8.50	
NMHCs	0.24	0.12	0.51	
Formaldehyde	----	0.035	0.153	
PM-10	----	0.016	0.071	
SO2	----	0.001	0.004	
HAPs	----	0.055	0.241	

NOTES: Engine is equipped with a 3-way catalyst  
 Engine's build-date was October 2004  
 Formaldehyde, PM-10, SO2, and HAPs are from AP-42

## ATTACHMENT E

### HUNTING HILLS COMPRESSOR STATION (Proposed Engine)

<b>Engine BSFC (BTU/HP-Hr)</b>	<b>7724</b>
<b>Engine HP</b>	<b>220</b>
<b>Annual Hours of Operation</b>	<b>8760</b>

<b>POLLUTANT</b>	<b>EMISSION FACTOR (US EPA's AP-42)</b>	<b>POTENTIAL EMISSIONS</b>	
	<b>(lb/MMBTU)</b>	<b>(lb/hr)</b>	<b>(TPY)</b>
Formaldehyde	2.05E-02	0.035	0.153
PM-10	9.50E-03	0.016	0.071
SO2	5.89E-04	0.001	0.004
HAPs	3.24E-02	0.055	0.241

#### Individual HAPs

1,1,2,2-Tetrachloroethane	2.53E-05	4.30E-05	1.88E-04
1,1,2-Trichloroethane	1.53E-05	2.60E-05	1.14E-04
1,3-Butadiene	6.63E-04	1.13E-03	4.93E-03
1,3-Dichloropropene	1.27E-05	2.16E-05	9.45E-05
Acetaldehyde	2.79E-03	4.74E-03	2.08E-02
Acrolein	2.63E-03	4.47E-03	1.96E-02
Benzene	1.58E-03	2.68E-03	1.18E-02
Carbon Tetrachloride	1.77E-05	3.01E-05	1.32E-04
Chlorobenzene	1.29E-05	2.19E-05	9.60E-05
Chloroform	1.37E-05	2.33E-05	1.02E-04
Ethylbenzene	2.48E-05	4.21E-05	1.85E-04
Ethylene Dibromide	2.13E-05	3.62E-05	1.59E-04
Formaldehyde	2.05E-02	3.48E-02	1.53E-01
Methanol	3.06E-03	5.20E-03	2.28E-02
Methylene Chloride	4.12E-05	7.00E-05	3.07E-04
Naphthalene	9.71E-05	1.65E-04	7.23E-04
PAH	1.41E-04	2.40E-04	1.05E-03
Styrene	1.19E-05	2.02E-05	8.86E-05
Toluene	5.58E-04	9.48E-04	4.15E-03
Vinyl Chloride	7.18E-06	1.22E-05	5.34E-05
Xylene	1.95E-04	3.31E-04	1.45E-03
<b>Total HAPs</b>	<b>3.24E-02</b>	<b>0.055</b>	<b>0.241</b>

To	Consol Energy	Phone	724-710-5083
	Brad Calvert	Fax	
Date	7/29/16	Email	williamcalvert@consolenergy.com

**Performance Expectation for CAT 3306TA**

**ENGINE DATA**

<b>Engine Model</b>	<b>Caterpillar 3406TA</b>
<b>Power</b>	<b>220 hp @ 1800 rpm</b>
<b>Fuel</b>	<b>NG</b>
<b>Exhaust Flow</b>	<b>954/acfm</b>
<b>Exhaust Temperature</b>	<b>1038°F</b>

**CATALYST SYSTEM DATA**

<b>Catalyst Model</b>	<b>1013205</b>
<b>Catalyst Type</b>	<b>Brazed Metal Foil</b>
<b>Number of Elements</b>	<b>1</b>
<b>Cell Density</b>	<b>100 cpsi Herringbone Flat</b>
<b>Approx. Dimensions</b>	<b>14.5" dia x 3.5" deep</b>
<b>Connection Size</b>	<b>6" Recommended</b>

**EMISSION REQUIREMENTS\***

<b>Exhaust Gas Component</b>	<b>Raw Exhaust (g/bhp-hr)</b>	<b>Performance (g/bhp-hr)</b>
<b>NO<sub>x</sub></b>	11.4	2.00
<b>CO</b>	12.7	4.00
<b>NMHC</b>	.25	
<b>Oxygen</b>	<0.5%	

\*Engine out numbers are estimated

\*Expected emissions reductions are based on the use of the catalyst in conjunction with a properly tuned air fuel ratio controller.

