1st Renewal Title V Permit # V-SU-0022-05.00

bp

BP America Production Company
2906 CR 307
Durango, CO 81303

Phone: (970) 247-6913

December 1, 2005

12/1/05

Ms. Monica Morales
Air and Radiation Program, 8P-AR
U.S. Environmental Protection Agency
999 18th Street, Suite 300
Denver, CO 80202-2466

FedEx Tracking Number:

Re: Florida River Compression Facility
Title V Renewal Application
Permit No. V-SU-0022.00.04

Dear Ms. Morales:

BP America Production Company is submitting the Title V Renewal Application for the Florida River Compression Facility. The site currently operates under Permit Number V-SU-0022-00.04 which expires June 5, 2006. This application is being submitted in accordance with 40 CFR 71.5(a)(1)(iii) and includes all of the required forms.

In addition to the required forms, BP is requesting verbiage changes in order to clarify some permit conditions.

If you have any questions regarding this submittal, please contact Julie Best at (281) 366-0405.

Sincerely,

Daniel P. Fauth
P.E.; Environmental Coordinator

Enclosures

cc: Virgil Frazier – Southern Ute Tribe; P. O. Box 737; Ignacio, CO 81137
Julie Best – BP, Houston

BP America Production Company

Title V Renewal Application
Permit No. V-SU-0022-00.04

Florida River Compression Facility
La Plata County, CO

December 2005

BP America Production Company
Florida River Compression Facility
Title V Renewal Application

SITE INFORMATION

PROCESS FLOW DIAGRAM

PROPOSED PERMIT CONDITION CHANGES

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EUD FORMS- EMISSIONS UNIT DESCRIPTION

FORM PTE- POTENTIAL TO EMIT SUMMARY

FORM IE- INSIGNIFICANT EMISSIONS

FORM I-COMP- INITIAL COMPLIANCE PLAN

FORM CTAC- CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS

EMISSIONS INFORMATION:
- SITE EMISSIONS SUMMARY
- EMISSIONS CALCULATIONS
- ENGINE SPECIFICATIONS

INSIGNIFICANT EMISSIONS:
- INSIGNIFICANT SOURCE DESCRIPTIONS
- INSIGNIFICANT EMISSIONS SUMMARY
- EMISSIONS CALCULATIONS
- AMINECALC RUNS
- GRI-GLYCALC RUNS
- GAS ANALYSES
- TANKS 4.0 RUNS
- MSDS

SITE INFORMATION

Florida River Compression Facility Information

Latitude: 37-09-23.0
Longitude: 107-46-50

Driving Directions:
From the City of Durango, Colorado, go east on Highway 172 to County Road 307. Then go south on County Road 307 for approximately 2.8 miles. Then go east into the Florida River Compression Facility.

Safety Considerations:
FRC (Fire Resistant Clothing), Eye Protection, Hard Hat, Safety Shoes, and Hearing Protection

Process Description:
The Florida River Compression Facility processes coal bed methane (CBM) gas to reduce CO_2 and water content to within pipeline specifications and compresses this gas for delivery into interstate pipeline systems. The plant has four medium pressure gas inlets (Area 6, ECBM, MPP, Red Cedar) and two low pressure gas inlets (Area 1 East, Area West). Current plant throughput averages 380 million standard cubic feet per day (mmscfd) with plant process capacity around 400 mmscfd. Low pressure gas (about 105 mmscfd) enters the plant through an inlet separator to remove free liquids after which it is compressed from 50 to 300 psig. Initial compression of low pressure gas is done by two electric driven, ammonia refrigerated screw compressors and two electric driven reciprocating compressors. About 20 mmscfd of the low pressure gas is then commingled with medium pressure gas and treated by MethylDiethanolAmine (MDEA) sweetening to remove CO_2, followed by Triethylene Glycol (TEG) dehydration to remove water vapor from the gas. The low pressure gas bypassing amine mixes with amine treated gas in the dehy header such that all gas is blended and identical going to the three dehys. The CO_2 and water vapor are vented to the atmosphere. The gas is then compressed to 800 psig and sent to El Paso, Transwestern, or Northwest Pipeline for transport to market via interstate pipeline. Gas from Area 6, ECBM and Red Cedar (about 75 mmscfd) enters the plant at 300 psig, goes directly to the treating processes and is then compressed to 800 psig and sent to market. Gas from the Medium Pressure Pipeline enters the plant already low in CO_2 and previously dried at upstream compression. It is commingled with the processed gas and compressed for transport via pipeline.

The treating processes include two (MDEA) Trains to remove CO_2 and three (TEG) dehydration units. Gas fired heaters are utilized to heat Ethylene Glycol (EG) which is used as the heat medium to regenerate lean MDEA from CO_2 saturated (rich) MDEA and for heating some tanks in the plant. The dehydrators are fired on natural gas to evaporate water from rich TEG. Post treatment compression consists of three electric driven centrifugal compressors, two "temporary" electric driven reciprocating compressors and two natural gas fired Solar Centaur turbine driven centrifugal compressors.

The plant is equipped with a ground flare "candle" system to combust gases that for various reasons cannot be sent to market. The flare system disposes of a minimum of about 100 mscfd,

but is designed to handle the full inlet for a very brief period in emergency or plant upset situations.

Twelve 2922 hp diesel fired generator sets were installed at the plant in 2004 for the purpose of reducing plant electric load during times of monthly peak electrical grid load; which has the effect of significantly reducing the plant's electric bill. Due to the infrequency of use combined with use of selective catalytic reduction for NOx control, the emissions impact from these generators is minimal.

Pigging & Pipeline Clean-Out Information:
Current pigging operations include four receivers with varying diameters: two 16", one 12", one 10", and one 8", each about 6' long and operated at about 50 psi. Pigging operations occur once per month on average, totaling about 322 cubic feet at 50 psi. This data represents a good estimate based current operations but is not a potential to emit. Year to year volumes and emissions will vary.

Example calculation for 16" receiver:

$$\pi * \left(\frac{16\ in}{2}\right)^2 * 6\ ft * \left(\frac{1\ ft}{12\ in}\right)^2 = 8.4\ ft^3/pigging\ occurrence$$

$$\frac{1\ pigging}{mo} * \frac{12\ mo}{yr} * \frac{8.4\ ft^3}{pigging} = 100.8\ ft^3/yr$$

$$\frac{18.3\ gm}{mol} * 50\ psi * \frac{1\ atm}{14.7\ psi} * \frac{K-mol}{0.082058\ L-atm} * \frac{28.31685\ L}{ft^3} * \frac{1}{273\ K} = 78.7\ gm/ft^3$$

$$\frac{100.8\ ft^3}{yr} * \frac{78.7\ gm}{ft^3} * \frac{1\ lb}{453.6\ gm} * \frac{0.158\ wt\%\ VOC}{100} = 0.03\ lb\ VOC/yr$$

Compliance Assurance Monitoring (CAM) Applicability:
According to 40 CFR 64.2(a), the CAM rule applies to each Pollutant Specific Emission Unit that meets the following three criteria: 1) subject to an emission limitation or standard, and 2) use a control device to achieve compliance, and 3) have pre-control emissions that exceed or are equivalent to the major source threshold.

The turbines at the Florida River Compression Facility are subject to an emission limit, but neither of the turbines use any add-on control devices to achieve compliance. Therefore, the turbines are not subject to the CAM requirements.

The 12 diesel fired electric generating units are not each subject to an individual emission limit. The generating units are subject to a cumulative limit on NOx emissions and each unit uses a control device (SCR) to reduce NOx emissions. BP requested that the control devices and cumulative limit on NOx emissions be made enforceable conditions in the part 71 permit. The pre-control NOx emissions of each unit do not exceed the major source threshold of 100 tons per year. Therefore, the generating units are not subject to the CAM requirements.

Florida River Compression Facility Information

Alternate Responsible Official Information:

Name: (Last) _Tidwell_____ (First) __Chad_____ (Middle) __A._____

Title __ Durango Operations Center Manager_____

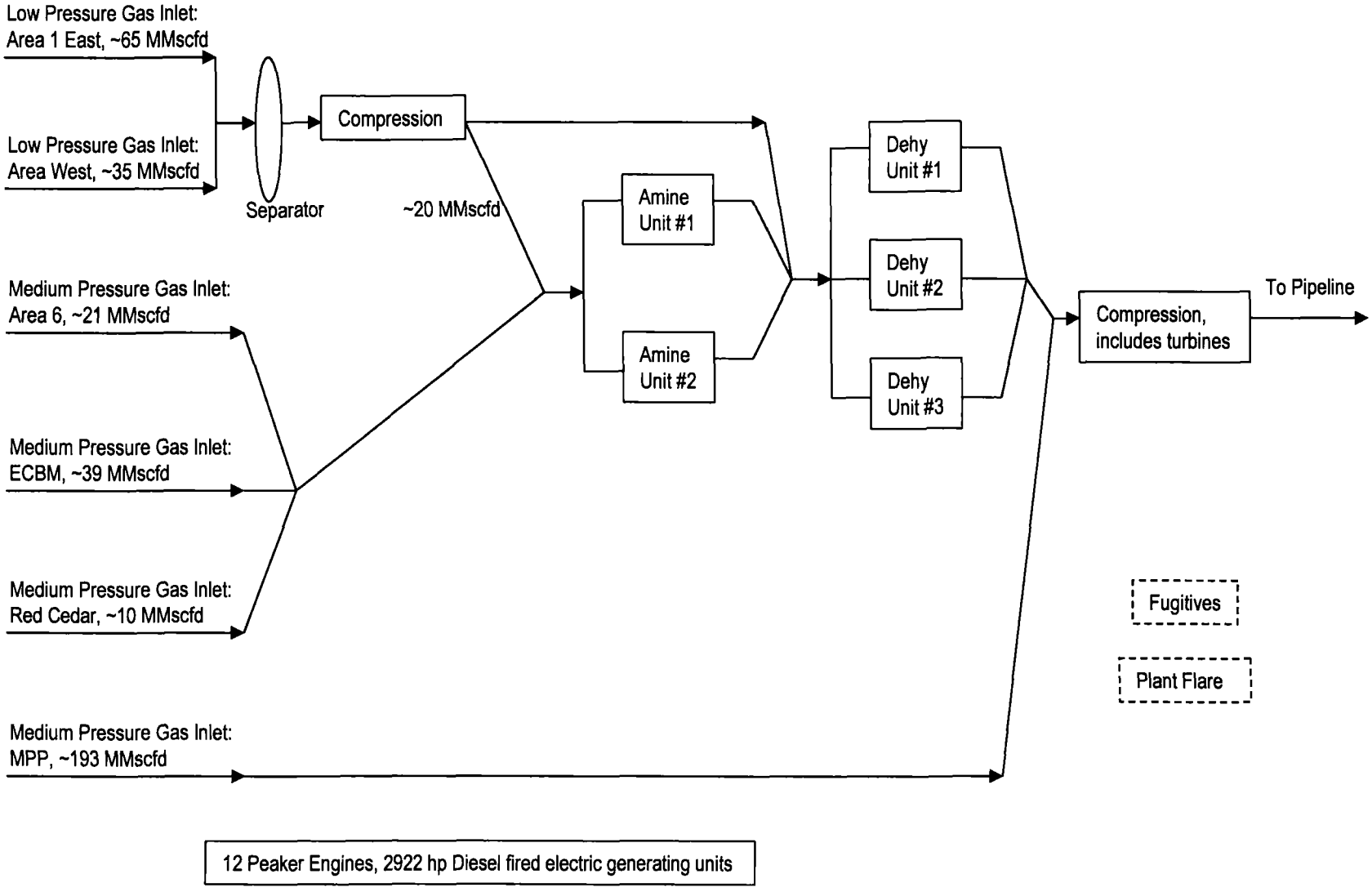
Street or Post Office Box __380 Airport Road_____

City ___Durango_____ State __CO_____ ZIP _81303_____ - _____

Telephone (_970_) _247_ - _6810____ Ext. _____ Facsimile (_970_) _247_ - _6825____

PROCESS FLOW DIAGRAM

FLORIDA RIVER COMPRESSION FACILITY
SIMPLIFIED PROCESS FLOW DIAGRAM



PROPOSED PERMIT CONDITION CHANGES

Florida River Compression Facility Proposed Permit Changes

I. Source Identification and Unit-Specific Information

I.A. General Source Information

City

Current Verbiage: 10 miles southwest of Durango, Colorado

Proposed Verbiage: 10 miles ***southeast*** of Durango, Colorado

Reason: BP is making a correction to the general location of the Florida River Compression Facility.

I.B. Source Emission Points

Table 1. Source Emission Points

Unit		Description
Current Verbiage	Proposed Verbiage	
A-01	T-1	45 MMBtu/hr Turbine #1, Natural gas-fired turbine, simple cycle, Solar Centaur H T5500
A-02	T-2	45 MMBtu/hr Turbine #2, Natural gas-fired turbine, simple cycle, Solar Centaur H T5700
Amine Heater #1	AH-1	44.5 MMBtu/hr Amine Heater #1
H761 Heater	AH-2	44.0 MMBtu/hr Amine Heater #2
Flare Pilot	Plant Flare	Plant Flare, 4 MMBtu/hr pilot, 0.1 - 400 MMscfd

Reason: BP is proposing more consistent EPNs for the emission sources in the Florida River Compression Facility permit.

FORM GIS- GENERAL INFORMATION AND SUMMARY

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR FEDERAL OPERATING PERMIT, 40 CFR PART 71

APPLICATION FORM GIS - GENERAL INFORMATION AND SUMMARY

Instructions: Complete this form once for the part 71 source (facility).

A. Mailing Address and Contact Information

Facility name __Florida River Compression Facility_____

Plant Contact
Mailing address: Street or P.O. Box _2906 CR 307_____

City _Durango_____ State __CO___ ZIP _81303_____ - _____

Contact person: _Daniel P. Fauth_____ Title _Environmental Coordinator_____

Telephone (_970_) _247_ - _6913_____ Ext. _____ Facsimile (_970__) _247___ - _6910_____

Company Contact
Mailing address: Street or P.O. Box _ 501 Westlake Park Blvd., M/S 2.170_____

City _Houston_____ State __TX___ ZIP _77079_____ - _____

Contact person: _Julie A. Best_____ Title _Environmental Specialist_____

Telephone (_281_) _366_ - _0405_____ Ext. _____ Facsimile (_281__) _366___ - _7945_____

B. Facility Location

Temporary source? ___ Yes _X_ No Plant site location __Section 25, Township 34 N, Range 9 W____

City __10 miles SE of Durango_____ State __CO___ County _La Plata___ EPA Region _8_____

Is the facility located within:

Indian lands? _X_YES ___ NO OCS waters? ___YES _X_ NO

Nonattainment area? ___ YES _X_ NO If yes, for what air pollutants? _____

Within 50 miles of affected State? _X_ YES ___ NO If yes, What State(s)? _Southern Ute Reservation, NM_

C. Owner

Name _BP America Production Company_____ Street/ P.O. Box _501 Westlake Park Blvd._____

City _Houston_____ State _TX____ ZIP _77079_____ - _____

Telephone (_281__) _366____ - _2000_____ Ext. _____

D. Operator

Name _BP America Production Company_____ Street/ P.O. Box _501 Westlake Park Blvd._____

City _Houston_____ State _TX____ ZIP _77079_____ - _____

Telephone (_281__) _366___ - _2000_____ Ext. _____

Form **GIS** Continued

E. Application Type

Instructions: Mark only one permit application type and answer the supplementary question appropriate for the type marked.

___ Initial Permit _X_ Permit Renewal ___ Significant Mod. ___ Minor Permit Mod. (MPM)

___ Group Processing, MPM ___ Administrative Amend.

For initial permits, when did operations commence? _____ /_____ /_____

For permit renewals, what is the expiration date of the existing permit? _06_ /_05_ /_2006_

F. Applicable Requirement Summary

Instructions: Mark all applicable requirements that apply.

___ SIP ___ FIP/TIP ___ PSD ___ Nonattainment NSR

___ Minor source NSR _X_ Section 111 ___ Phase I acid rain ___ Phase II acid rain

_X_ Stratospheric ozone ___ OCS regulations ___ NESHAP ___ Sec. 112(d) MACT*

___ Sec. 112(g) MACT ____Early reduction of HAP ___ Sec. 112(j) MACT _X_ RMP [Sec.112(r)]

___ Tank vessel reqt., section 183(f) ___ Section 129 Standards/Reqts.

___ Consumer/ commercial prod. reqts., section 183(e) ___ NAAQS, increments or visibility (for temporary sources)

Has a risk management plan been registered? _X_ YES ___ NO Regulatory agency _US EPA Region 8_____

Has a phase II acid rain application been submitted? ___ YES _X_ NO Permitting authority_____

*** This site is not a major source of HAPs.**
MACT HH for Oil & Natural Gas Production- not applicable: The site is not a major source as defined in this Subpart. The site does not have any tanks with the potential for flash emissions and the dehydration units have the potential to emit less than 10/25 tpy HAPs.
MACT ZZZZ for Stationary Reciprocating Internal Combustion Engines- not applicable: The site is not a major source as defined in this Subpart. The site does not have any tanks with the potential for flash emissions and the dehydration units and all engines have the potential to emit less than 10/25 tpy HAPs.
MACT DDDDD for Industrial, Commercial, and Institutional Boilers and Process Heaters- not applicable: The site is not a major source as defined in this Subpart. The site does not have any tanks with the potential for flash emissions and the dehydration units, reboilers, and heaters have the potential to emit less than 10/25 total tpy HAPs.
63.10(b)(3) Recordkeeping requirement for applicability determinations- applicable: The site emits HAPs, has equipment potentially subject to MACT standards, and is not subject to a MACT standard because of an exclusion. This signed permit application serves as the record for the site. Any future changes will be documented and kept with the permit file.

NSPS not properly addressed in the existing Statement of Basis:
NSPS Dc for Small Industrial-Commercial-Institutional Steam Generating Units – not applicable: The amine heaters were both constructed prior to 6-9-89 and have not been reconstructed. Amine Heater 1 was built 5-30-89 and installed in 1990. Amine Heater 2 was constructed in 1980 and installed in 1997. NSPS Dc does not contain definitions of construction, and the EPA online determinations do not include any clarification of construction for this subpart. There is an API Determination for NSPS GG (Turbines) regarding construction, and a copy of the abstract is below. API Determination Control Number 0300006 says that if the source was manufactured before the construction trigger date, the source is not subject to NSPS as long as it is not "modified" or "reconstructed" regardless of purchase date or start-up date. A copy of the determination is included following Form GIS.
NSPS LLL for Onshore Natural Gas Processing: SO2 Emissions – not applicable: There are two amine units at the site. However, the amine units do not process sour gas. Although "sour natural gas" is not defined in the regulation, the bid document states that sour gas is gas containing greater than 4 ppm H2S. A copy of page 3-3 of EPA's *SO2 Emissions in Natural Gas Production Industry – Background Information for Proposed Standards.* EPA-450/3-82-023a is included following Form GIS.

G. Source-Wide PTE Restrictions and Generic Applicable Requirements

Instructions: Cite and describe (1) any emissions-limiting requirements that apply to the facility as a whole, and (2) "generic" applicable requirements that apply broadly or in an identical fashion to all sources at the facility.

None

Form **GIS** Continued

H. Process Description

Instructions: List all processes, products, and SIC codes for normal operation, in order of priority. Also list any process, products, and SIC codes associated with any alternative operating scenarios, if different from those listed for normal operation

Process	Products	SIC
Separation, compression, and dehydration of natural gas from coal bed methane wells.	Natural gas	1311

I. Emission Unit Identification

Instructions: Assign an emissions unit ID and describe each significant emissions unit at the facility. Control equipment and/or alternative operating scenarios associated with emissions units should by listed on a separate line. Applicants may exclude from this list any insignificant emissions units or activities.

Emissions Unit ID	Description of Unit
T-1	45 MMBtu/hr Turbine #1, Natural gas-fired turbine, simple cycle, Solar Centaur H T5500
T-2	45 MMBtu/hr Turbine #2, Natural gas-fired turbine, simple cycle, Solar Centaur H T5700
AH-1	44.5 mmBtu/hr Amine Heater #1
AH-2	40.0 mmBtu/hr Amine Heater #2
AV-1	70 MMscfd Amine Unit #1 Vent
Plant Flare	Plant Flare, 4 MMBtu/hr pilot, 0.1 - 400 MMscfd
P-1	2922 hp Diesel-fired electric generation unit, Cummins QSK60
P-2	2922 hp Diesel-fired electric generation unit, Cummins QSK60
P-3	2922 hp Diesel-fired electric generation unit, Cummins QSK60
P-4	2922 hp Diesel-fired electric generation unit, Cummins QSK60
P-5	2922 hp Diesel-fired electric generation unit, Cummins QSK60
P-6	2922 hp Diesel-fired electric generation unit, Cummins QSK60
P-7	2922 hp Diesel-fired electric generation unit, Cummins QSK60
P-8	2922 hp Diesel-fired electric generation unit, Cummins QSK60
P-9	2922 hp Diesel-fired electric generation unit, Cummins QSK60
P-10	2922 hp Diesel-fired electric generation unit, Cummins QSK60
P-11	2922 hp Diesel-fired electric generation unit, Cummins QSK60
P-12	2922 hp Diesel-fired electric generation unit, Cummins QSK60

Form **GIS** Continued

J. Facility Emissions Summary

Instructions: Enter potential to emit (PTE) for the facility as a whole for each air pollutant listed below. Enter the name of the single HAP emitted in the greatest amount and its PTE. For all pollutants stipulations to major source status may be indicated by entering "major" in the space for PTE. Indicate the total actual emissions for fee purposes for the facility in the space provided. Applications for permit modifications need not include actual emissions information

NOx _282.07_ tons/yr VOC _30.27_ tons/yr SO2 _24.23_ tons/yr

PM-10 _7.95_ tons/yr CO _181.94_ tons/yr Lead _____ tons/yr

HAPs _4.14_ tons/yr

Which single HAP emitted in the greatest amount? _CH2O_____ PTE? _1.20_ tons/yr

Insignificant activities are listed on Form IE and emissions are listed in the Insignificant Emissions Summary. These emissions are not included in the major source determination.

Total emissions of regulated pollutants (for fee calculation) from section F, line 5 of form **FEE?** _____*_____ tons/yr

***Note: Fees are paid annually in accordance with the current permit. Since this is a renewal application, Form FEE is not required.**

K. Existing Federally Enforceable Permits:

Permit number(s) _V-SU-0022.00.04_____ Permit type _Title V Operating Permit_ Permitting authority __EPA_____
P-1 through P-12 engines have a cumulative NOx limit of 39.1 tpy.

Permit number(s) _____ Permit type _____ Permitting authority _____

L. Emission Unit(s) Covered by General Permits

Emission unit(s) subject to general permit __None_____

Check one: ___ Application made ___ Coverage granted

General permit identifier _____ Expiration Date ____/____/____

M. Cross-referenced Information

Does this application cross-reference information? ___ YES _X_ NO (If yes, see instructions)

U.S. Environmental Protection Agency

Compliance Assistance

using for DC non applicability

Search Applicability Determination Index

Determination Detail

Control Number: 0300006

Category: NSPS
EPA Office: Region 10
Date: 08/01/2002
Title: Turbine Relocations and Impacts on NSPS Applicability
Recipient: Jordan Jacobson
Author: Jeff KenKnight
Comments:

Subparts:	Part 60, A	General Provisions
	Part 60, GG	Stationary Gas Turbines

References: 60.14(e)(6)
60.2
60.330

Abstract:

Q1: Are turbines that were manufactured before October 3, 1977, but that did not begin operation on the TAPS pump stations until after October 3, 1977, subject to NSPS Subpart GG, no matter when they were purchased by Alyeska from the manufacturer or other owner?

A1: No. These stationary gas turbines, that are purchased in completed form, are not subject to NSPS GG provided they were not "modified" or "reconstructed" as defined in NSPS Subpart A, on or after October 3, 1977.

Q2: Do the requirements of subparts A and GG follow a new turbine wherever it is operated on the TAPS?

A2: Yes. The requirements of subparts A and GG follow a turbine constructed, modified or reconstructed after October 3, 1977, regardless of where the turbine is relocated to, but do not apply to the equipment that is powered by the turbine (such as a generator or a pump).

Q3: Do the Alyeska turbines that were manufactured before October 3, 1977 become subject to NSPS GG if they are relocated between TAPS pump stations as a pool of identical turbines to allow for maintenance of turbines?

A3: No. The relocation of a turbine as part of a pool of identical turbines would not make the turbine subject to NSPS subpart GG if the turbine is not "modified" or "reconstructed," as those terms are defined in 40 CFR subpart A, as a result of the relocation. Certain requirements are required in the Title V permit.

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-450/3-82-023a
November 1983

Air

PB84-151440

EPA

SO2 Emissions in Natural Gas Production Industry — Background Information for Proposed Standards

Draft EIS

NSPS

The next major processing operations applied to natural gas after it has been removed from gas wells or gas/oil wells are the gas-liquid separation operation and the sweetening operation. All the onshore natural gas that is "sour" is sweetened. Sweetening is the removal of hydrogen sulfide (H_2S) and carbon dioxide (CO_2) gases present in "sour" natural gas. Sour gas is natural gas with a H_2S concentration greater than 0.25 grains per 100 standard cubic feet.[1] Sour natural gas contains widely differing concentrations of H_2S and CO_2 and trace amounts of organic sulfur compounds such as mercaptans (RSH). H_2S is rarely less than 95 percent of the total sulfur content.[2]

Removal of H_2S and CO_2 from natural gas streams is necessary to make the natural gas suitable for consumer use. Specifications on the degree of H_2S removal allowed are essentially standard and uniform across the United States. The maximum H_2S content is 0.25 grains of H_2S per 100 standard cubic feet (4 ppmv H_2S) of sweetened natural gas. This standard remains unchanged as the criterion for "sweet gas" in most natural gas applications. Sweet natural gas is also termed "residue gas" in the industry. Generally, CO_2 may be transported in natural gas streams as long as the quantity of CO_2 does not reach the point of seriously lowering the heating value of the gas.

Currently, there are a number of processes used to sweeten sour natural gases. These processes are listed and described briefly in Table 3-1. Several processes are employed frequently for selective absorption of H_2S. A simplified flow diagram for a typical gas sweetening facility is shown in Figure 3-2. Amine treating of sour natural gas for the removal of H_2S and CO_2 is probably the most widely utilized process for sweetening the sour gas in the industry. This process involves scrubbing the gas with amine solutions that absorb H_2S and CO_2. Regeneration (stripping operation) of this absorbing solution produces an acid gas stream, containing H_2S, CO_2, the saturated amount of water vapor, and negligible amounts of hydrocarbons. This acid gas stream is either flared, incinerated, or processed further in a sulfur recovery facility to recover liquid elemental sulfur from H_2S in the acid gas stream.

EUD FORMS- EMISSIONS UNIT DESCRIPTION

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR FEDERAL OPERATING PERMIT, 40 CFR PART 71

APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **T-1** Description **45 MMBtu/hr Turbine #1, Natural gas-fired turbine, simple cycle, Solar Centaur H T5500**

SIC Code (4-digit) **1311** SCC Code **20200201**

B. Emissions Unit Description

Primary use **Natural gas compression** Temporary source ☐ Yes ☑ No Manufacturer **Solar**

Model **Centaur H T5500** Serial Number **0690-H** Installation date ___/___/ **1995**

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☐ Other (describe) _____

Boiler horsepower rating _____ Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input **35.05*** MM BTU/hr Maximum design heat input **45.00** MM BTU/hr
* 8/31/05 APT Quarterly Testing Data

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **natural gas** Standby fuel type(s) **none**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Natural gas	**Non detectable (1 ppm H2S)**	**Not applicable**	**800-1000 BTU/scf**

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural gas	**307.0 MMcf**	**56250 cf**	**492.75 MMcf**
	Based on 1Q-3Q 05 fuel usage	45 MMBtu/hr x scf/800 Btu x 8760 hr/yr (conservative heating value)	

E. Air Pollution Control Equipment- N/A

Emissions unit ID _____ Device type _____ Air pollutant(s) controlled _____

Manufacturer _____ Model No. _____ Serial No. _____

Installation date _____ Control efficiency (%)* _____ Efficiency estimation method _____

F. Ambient Impact Assessment Information- N/A

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____._____ Inside stack diameter (ft) _____._____ Stack temp(°F) _____._____

Design stack flow rate (ACFM) _____._____ Actual stack flow rate (ACFM) _____._____ Velocity (ft/sec) _____._____

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR FEDERAL OPERATING PERMIT, 40 CFR PART 71

APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **T-2** Description **45 MMBtu/hr Turbine #2, Natural gas-fired turbine, simple cycle, Solar Centaur H T5700**

SIC Code (4-digit) **1311** SCC Code **20200201**

B. Emissions Unit Description

Primary use **Natural gas compression** Temporary source ☐ Yes ☑ No Manufacturer **Solar**

Model **Centaur H T5700** Serial Number **0307-H** Installation date **08 / / 1999**

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☐ Other (describe) _____

Boiler horsepower rating _____ Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input **40.38** MM BTU/hr Maximum design heat input **45.00** MM BTU/hr
* 8/31/05 APT Quarterly Testing Data

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **natural gas** Standby fuel type(s) **none**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Natural gas	**Non detectable (1 ppm H2S)**	**Not applicable**	**800-1000 BTU/scf**

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural gas	**282.3**	**56250 cf**	**492.75 MMcf**
	Based on 1Q-3Q 05 fuel usage	45 MMBtu/hr x scf/800 Btu x 8760 hr/yr (conservative heating value)	

E. Air Pollution Control Equipment- N/A

Emissions unit ID _____ Device type _____ Air pollutant(s) controlled _____

Manufacturer _____ Model No. _____ Serial No. _____

Installation date _____ Control efficiency (%)* _____ Efficiency estimation method _____

F. Ambient Impact Assessment Information- N/A

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____._____ Inside stack diameter (ft) _____._____ Stack temp(°F) _____._____

Design stack flow rate (ACFM) _____._____ Actual stack flow rate (ACFM) _____._____ Velocity (ft/sec) _____._____

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APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **AH-1** Description **44.5 MMBtu/hr Amine Heater #1**

SIC Code (4-digit) **1311** SCC Code* **31000201**

* Does not impact regulatory applicability.

B. Emissions Unit Description

Primary use **Heat medium heater** Temporary source ☐ Yes ☑ No Manufacturer **Radco**

Model _____ Serial Number **421** Installation date __/__/ **1990***

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☐ Other (describe) _____

Boiler horsepower rating _____ Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input _____ MM BTU/hr Maximum design heat input **44.50** MM BTU/hr

*** Built 5-30-89**

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **natural gas** Standby fuel type(s) **none**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Natural gas	**Non detectable (1 ppm H2S)**	**Not applicable**	**800-1000 BTU/scf**

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural gas	**480.3 MMcf**	**55625 cf**	**487.28 MMcf**
	Based on 1Q-3Q 05 fuel usage	44.5 MMBtu/hr x scf/800 Btu x 8760 hr/yr (conservative heating value)	

E. Air Pollution Control Equipment- N/A

Emissions unit ID _____ Device type _____ Air pollutant(s) controlled _____

Manufacturer _____ Model No. _____ Serial No. _____

Installation date _____ Control efficiency (%)* _____ Efficiency estimation method _____

F. Ambient Impact Assessment Information- N/A

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____.____ Inside stack diameter (ft) _____.____ Stack temp(°F) _____.____

Design stack flow rate (ACFM) _____.____ Actual stack flow rate (ACFM) _____.____ Velocity (ft/sec) _____.____

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APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **AH-2** Description **44.0 MMBtu/hr Amine Heater #2**

SIC Code (4-digit) **1311** SCC Code* **31000201**

* Does not impact regulatory applicability.

B. Emissions Unit Description

Primary use **Heat medium heater** Temporary source ☐ Yes ☑ No Manufacturer **Born**

Model _____ Serial Number **2440** Installation date __/__/ **1997*** __

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☐ Other (describe) _____

Boiler horsepower rating _____ Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input _____ MM BTU/hr Maximum design heat input **40.00** MM BTU/hr

*** Constructed in 1980**

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **natural gas** Standby fuel type(s) **none**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Natural gas	**Non detectable (1 ppm H2S)**	**Not applicable**	**800-1000 BTU/scf**

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural gas	**326.6**	**55000 cf**	**481.8 MMcf**
	Based on 1Q-3Q 05 fuel usage.	44 MMBtu/hr x scf/800 Btu x 8760 hr/yr (conservative heating value)	

E. Air Pollution Control Equipment- N/A

Emissions unit ID _____ Device type _____ Air pollutant(s) controlled _____

Manufacturer _____ Model No. _____ Serial No. _____

Installation date _____ Control efficiency (%)* _____ Efficiency estimation method _____

F. Ambient Impact Assessment Information- N/A

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____._____ Inside stack diameter (ft) _____._____ Stack temp(°F) _____._____

Design stack flow rate (ACFM) _____._____ Actual stack flow rate (ACFM) _____._____ Velocity (ft/sec) _____._____

OMB Control No. 2060-0336

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APPLICATION FORM EUD-2 - EMISSIONS UNIT DESCRIPTION FOR VOC EMITTING SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a VOC emitting unit.

A. General Information

Emissions unit ID AV-1 Description Amine Unit #1 Still Vent

SIC Code (4-digit) 1311 SCC Code* 31000201

* Does not impact regulatory applicability.

B. Emissions Unit Description

Equipment type Amine Unit Still Vent Temporary source: ___ Yes X No

Manufacturer _____ Model No. _____
Serial No. _____ Installation date ____/____/ 1990*

Articles being coated or degreased _____

Application method _____

Overspray (surface coating) (%) _____ Drying method _____

No. of dryers _____ Tank capacity (degreasers) (gal) _____

* Based on Installation Date of 44.5 MMBtu/hr Amine Heater #1, Built 5-30-89.

C. Associated Air Pollution Control Equipment- N/A

Emissions unit ID _____ Device Type _____

Manufacturer _____ Model No. _____
Serial No. _____ Installation date ____/____/____

Control efficiency (%) _____.___ Capture efficiency (%) _____.___

Air pollutant(s) controlled _____ Efficiency estimation method _____

D. Ambient Impact Assessment - N/A

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____.____ Inside stack diameter (ft) _____.____

Stack temp(°F) _____.____ Design stack flow rate (ACFM) _____.____

Actual stack flow rate (ACFM) _____.____ Velocity (ft/sec) _____.____

E. VOC-containing Substance Data

Instructions: List each VOC-containing substance consumed, processed or produced at the emissions unit that is emitted into the atmosphere. In the name column, if providing a brand name of a substance, include the name of the manufacture; if the substance contains HAP, list the constituent HAP.

VOC-Containing Substance Name (e.g., Chemical or Brand Name)	CAS No. (if available)	Substance Type (e.g., coating, solvent, ink, etc.)	Actual Usage (gal/yr)	Maximum Usage		VOC Content (lb/gal)
				gal/day	gal/year	

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APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **P-1** Description **Cummins QSK60**

SIC Code (4-digit) **1311** SCC Code **20200102**

B. Emissions Unit Description **Cummins QSK60 (P-1)**

Primary use **Peak Electrical Power Generation** Temporary source ☐ Yes ☑ No Manufacturer **Cummins**

Model **QSK60** Serial Number **33149137** Installation date **04 / / 2004**

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☑ Other (describe) **Peak Electrical Power Generator**

Boiler horsepower rating **2922** Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input **20.45** MM BTU/hr Maximum design heat input _____ MM BTU/hr

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **Diesel** Standby fuel type(s) **N/A**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Number 2 Diesel	**0.5**	**Not applicable**	**19,300 BTU/lb**
	[12/1/04 representative test data indicates 0.0409%]		

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Number 2 Diesel		**150 gal/hr**	**162,000 gal/yr**

E. Air Pollution Control Equipment

Emissions unit ID **P-1** Device type **Diesel Engine with Controls** Air pollutant(s) controlled **NOx**

Manufacturer **Cummins** Model No. **QSK60** Serial No. **33149137**

Installation date **04/04** Control efficiency (%)* **90% NOx** Efficiency estimation method **Vendor data**

F. Ambient Impact Assessment Information- **N/A**

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____.____ Inside stack diameter (ft) _____.____ Stack temp(°F) _____.____

Design stack flow rate (ACFM) _____.____ Actual stack flow rate (ACFM) _____.____ Velocity (ft/sec) _____.____

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APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **P-2** Description **Cummins QSK60**

SIC Code (4-digit) **1311** SCC Code **20200102**

B. Emissions Unit Description **Cummins QSK60 (P-2)**

Primary use **Peak Electrical Power Generation** Temporary source ☐ Yes ☑ No Manufacturer **Cummins**

Model **QSK60** Serial Number **33149295** Installation date **04 / / 2004**

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☑ Other (describe) **Peak Electrical Power Generator**

Boiler horsepower rating **2922** Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input **20.45** MM BTU/hr Maximum design heat input _____ MM BTU/hr

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **Diesel** Standby fuel type(s) **N/A**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Number 2 Diesel	**0.5**	**Not applicable**	**19,300 BTU/lb**
	[12/1/04 representative test data indicates 0.0409%]		

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Number 2 Diesel		**150 gal/hr**	**162,000 gal/yr**

E. Air Pollution Control Equipment

Emissions unit ID P-2 Device type **Diesel Engine with Controls** Air pollutant(s) controlled **NOx**

Manufacturer **Cummins** Model No. **QSK60** Serial No. **33149295**

Installation date **04/04** Control efficiency (%)* **90% NOx** Efficiency estimation method **Vendor data**

F. Ambient Impact Assessment Information- **N/A**

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____.____ Inside stack diameter (ft) _____.____ Stack temp(°F) _____.____

Design stack flow rate (ACFM) _____.____ Actual stack flow rate (ACFM) _____.____ Velocity (ft/sec) _____.____

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APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **P-3** Description **Cummins QSK60**

SIC Code (4-digit) **1311** SCC Code **20200102**

B. Emissions Unit Description **Cummins QSK60 (P-3)**

Primary use **Peak Electrical Power Generation** Temporary source ☐ Yes ☑ No Manufacturer **Cummins**

Model **QSK60** Serial Number **33148889** Installation date **04** / ___ / **2004**

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☑ Other (describe) **Peak Electrical Power Generator**

Boiler horsepower rating **2922** Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input **20.45** MM BTU/hr Maximum design heat input _____ MM BTU/hr

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **Diesel** Standby fuel type(s) **N/A**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Number 2 Diesel	**0.5**	**Not applicable**	**19,300 BTU/lb**
	[12/1/04 representative test data indicates 0.0409%]		

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Number 2 Diesel		**150 gal/hr**	**162,000 gal/yr**

E. Air Pollution Control Equipment

Emissions unit ID **P-3** Device type **Diesel Engine with Controls** Air pollutant(s) controlled **NOx**

Manufacturer **Cummins** Model No. **QSK60** Serial No. **33148889**

Installation date **04/04** Control efficiency (%)* **90% NOx** Efficiency estimation method **Vendor data**

F. Ambient Impact Assessment Information- **N/A**

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____.____ Inside stack diameter (ft) _____.____ Stack temp(°F) _____.____

Design stack flow rate (ACFM) _____.____ Actual stack flow rate (ACFM) _____.____ Velocity (ft/sec) _____.____

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APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **P-4** Description **Cummins QSK60**

SIC Code (4-digit) **1311** SCC Code **20200102**

B. Emissions Unit Description **Cummins QSK60 (P-4)**

Primary use **Peak Electrical Power Generation** Temporary source ☐ Yes ☑ No Manufacturer **Cummins**

Model **QSK60** Serial Number **33149128** Installation date **04 / / 2004**

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☑ Other (describe) **Peak Electrical Power Generator**

Boiler horsepower rating **2922** Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input **20.45** MM BTU/hr Maximum design heat input _____ MM BTU/hr

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **Diesel** Standby fuel type(s) **N/A**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Number 2 Diesel	**0.5**	**Not applicable**	**19,300 BTU/lb**
	[12/1/04 representative test data indicates 0.0409%]		

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Number 2 Diesel		**150 gal/hr**	**162,000 gal/yr**

E. Air Pollution Control Equipment

Emissions unit ID **P-4** Device type **Diesel Engine with Controls** Air pollutant(s) controlled **NOx**

Manufacturer **Cummins** Model No. **QSK60** Serial No. **33149128**

Installation date **04/04** Control efficiency (%)* **90% NOx** Efficiency estimation method **Vendor data**

F. Ambient Impact Assessment Information- **N/A**

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____.____ Inside stack diameter (ft) _____.____ Stack temp(°F) _____.____

Design stack flow rate (ACFM) _____.____ Actual stack flow rate (ACFM) _____.____ Velocity (ft/sec) _____.____

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APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **P-5** Description **Cummins QSK60**

SIC Code (4-digit) **1311** SCC Code **20200102**

B. Emissions Unit Description **Cummins QSK60 (P-5)**

Primary use **Peak Electrical Power Generation** Temporary source ☐ Yes ☑ No Manufacturer **Cummins**

Model **QSK60** Serial Number **J000160545** Installation date **04 / / 2004**

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☑ Other (describe) **Peak Electrical Power Generator**

Boiler horsepower rating **2922** Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input **20.45** MM BTU/hr Maximum design heat input _____ MM BTU/hr

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **Diesel** Standby fuel type(s) **N/A**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Number 2 Diesel	**0.5**	**Not applicable**	**19,300 BTU/lb**
	[12/1/04 representative test data indicates 0.0409%]		

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Number 2 Diesel		**150 gal/hr**	**162,000 gal/yr**

E. Air Pollution Control Equipment

Emissions unit ID P-5 Device type Diesel Engine with Controls Air pollutant(s) controlled NOx

Manufacturer Cummins Model No. QSK60 Serial No. J000160545

Installation date 04/04 Control efficiency (%)* 90% NOx Efficiency estimation method Vendor data

F. Ambient Impact Assessment Information- N/A

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____.____ Inside stack diameter (ft) _____.____ Stack temp(°F) _____.____

Design stack flow rate (ACFM) _____.____ Actual stack flow rate (ACFM) _____.____ Velocity (ft/sec) _____.____

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APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **P-6** Description **Cummins QSK60**

SIC Code (4-digit) **1311** SCC Code **20200102**

B. Emissions Unit Description **Cummins QSK60 (P-6)**

Primary use **Peak Electrical Power Generation** Temporary source ☐ Yes ☑ No Manufacturer **Cummins**

Model **QSK60** Serial Number **K000176265** Installation date **04 / / 2004**

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☑ Other (describe) **Peak Electrical Power Generator**

Boiler horsepower rating **2922** Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input **20.45** MM BTU/hr Maximum design heat input _____ MM BTU/hr

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **Diesel** Standby fuel type(s) **N/A**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Number 2 Diesel	**0.5**	**Not applicable**	**19,300 BTU/lb**
	[12/1/04 representative test data indicates 0.0409%]		

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Number 2 Diesel		**150 gal/hr**	**162,000 gal/yr**

E. Air Pollution Control Equipment

Emissions unit ID P-6 Device type Diesel Engine with Controls Air pollutant(s) controlled NOx

Manufacturer Cummins Model No. QSK60 Serial No. K000176265

Installation date 04/04 Control efficiency (%)* 90% NOx Efficiency estimation method Vendor data

F. Ambient Impact Assessment Information- N/A

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____.____ Inside stack diameter (ft) _____.____ Stack temp(°F) _____.____

Design stack flow rate (ACFM) _____.____ Actual stack flow rate (ACFM) _____.____ Velocity (ft/sec) _____.____

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APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **P-7** Description **Cummins QSK60**

SIC Code (4-digit) **1311** SCC Code **20200102**

B. Emissions Unit Description **Cummins QSK60 (P-7)**

Primary use **Peak Electrical Power Generation** Temporary source ☐ Yes ☑ No Manufacturer **Cummins**

Model **QSK60** Serial Number **K000172343** Installation date **04 / / 2004**

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☑ Other (describe) **Peak Electrical Power Generator**

Boiler horsepower rating **2922** Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input **20.45** MM BTU/hr Maximum design heat input _____ MMBTU/hr

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **Diesel** Standby fuel type(s) **N/A**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Number 2 Diesel	**0.5**	**Not applicable**	**19,300 BTU/lb**
	[12/1/04 representative test data indicates 0.0409%]		

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Number 2 Diesel		**150 gal/hr**	**162,000 gal/yr**

E. Air Pollution Control Equipment

Emissions unit ID P-7 Device type **Diesel Engine with Controls** Air pollutant(s) controlled **NOx**

Manufacturer **Cummins** Model No. **QSK60** Serial No. **K000172343**

Installation date **04/04** Control efficiency (%)* **90% NOx** Efficiency estimation method **Vendor data**

F. Ambient Impact Assessment Information- **N/A**

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____.____ Inside stack diameter (ft) _____.____ Stack temp(°F) _____.____

Design stack flow rate (ACFM) _____.____ Actual stack flow rate (ACFM) _____.____ Velocity (ft/sec) _____.____

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APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **P-8** Description **Cummins QSK60**

SIC Code (4-digit) **1311** SCC Code **20200102**

B. Emissions Unit Description **Cummins QSK60 (P-8)**

Primary use **Peak Electrical Power Generation** Temporary source ☐ Yes ☑ No Manufacturer **Cummins**

Model **QSK60** Serial Number **1000155267** Installation date **04 / / 2004**

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☑ Other (describe) **Peak Electrical Power Generator**

Boiler horsepower rating **2922** Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input **20.45** MM BTU/hr Maximum design heat input _____ MM BTU/hr

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **Diesel** Standby fuel type(s) **N/A**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Number 2 Diesel	**0.5**	**Not applicable**	**19,300 BTU/lb**
	[12/1/04 representative test data indicates 0.0409%]		

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Number 2 Diesel		**150 gal/hr**	**162,000 gal/yr**

E. Air Pollution Control Equipment

Emissions unit ID P-8 Device type Diesel Engine with Controls Air pollutant(s) controlled NOx

Manufacturer Cummins Model No. QSK60 Serial No. 1000155267

Installation date 04/04 Control efficiency (%)* 90% NOx Efficiency estimation method Vendor data

F. Ambient Impact Assessment Information- N/A

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____.____ Inside stack diameter (ft) _____.____ Stack temp(°F) _____.____

Design stack flow rate (ACFM) _____.____ Actual stack flow rate (ACFM) _____.____ Velocity (ft/sec) _____.____

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR FEDERAL OPERATING PERMIT, 40 CFR PART 71

APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **P-9** Description **Cummins QSK60**

SIC Code (4-digit) **1311** SCC Code **20200102**

B. Emissions Unit Description **Cummins QSK60 (P-9)**

Primary use **Peak Electrical Power Generation** Temporary source ☐ Yes ☑ No Manufacturer **Cummins**

Model **QSK60** Serial Number **1000155269** Installation date **04 / / 2004**

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☑ Other (describe) **Peak Electrical Power Generator**

Boiler horsepower rating **2922** Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input **20.45** MM BTU/hr Maximum design heat input _____ MM BTU/hr

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **Diesel** Standby fuel type(s) **N/A**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Number 2 Diesel	**0.5**	**Not applicable**	**19,300 BTU/lb**
	[12/1/04 representative test data indicates 0.0409%]		

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Number 2 Diesel		**150 gal/hr**	**162,000 gal/yr**

E. Air Pollution Control Equipment

Emissions unit ID P-9 Device type Diesel Engine with Controls Air pollutant(s) controlled NOx

Manufacturer Cummins Model No. QSK60 Serial No. 1000155269

Installation date 04/04 Control efficiency (%)* 90% NOx Efficiency estimation method Vendor data

F. Ambient Impact Assessment Information- N/A

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____.____ Inside stack diameter (ft) _____.____ Stack temp(°F) _____.____

Design stack flow rate (ACFM) _____.____ Actual stack flow rate (ACFM) _____.____ Velocity (ft/sec) _____.____

U.S. ENVIRONMENTAL PROTECTION AGENCY
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APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **P-10** Description **Cummins QSK60**

SIC Code (4-digit) **1311** SCC Code **20200102**

B. Emissions Unit Description **Cummins QSK60 (P-10)**

Primary use **Peak Electrical Power Generation** Temporary source ☐ Yes ☑ No Manufacturer **Cummins**

Model **QSK60** Serial Number **1000148783** Installation date **04 / / 2004**

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☑ Other (describe) **Peak Electrical Power Generator**

Boiler horsepower rating **2922** Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input **20.45** MM BTU/hr Maximum design heat input _____ MM BTU/hr

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **Diesel** Standby fuel type(s) **N/A**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Number 2 Diesel	**0.5**	**Not applicable**	**19,300 BTU/lb**
	[12/1/04 representative test data indicates 0.0409%]		

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Number 2 Diesel		**150 gal/hr**	**162,000 gal/yr**

E. Air Pollution Control Equipment

Emissions unit ID **P-10** Device type **Diesel Engine with Controls** Air pollutant(s) controlled **NOx**

Manufacturer **Cummins** Model No. **QSK60** Serial No. **1000148783**

Installation date **04/04** Control efficiency (%)* **90% NOx** Efficiency estimation method **Vendor data**

F. Ambient Impact Assessment Information- **N/A**

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____.____ Inside stack diameter (ft) _____.____ Stack temp(°F) _____.____

Design stack flow rate (ACFM) _____.____ Actual stack flow rate (ACFM) _____.____ Velocity (ft/sec) _____.____

U.S. ENVIRONMENTAL PROTECTION AGENCY
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APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **P-11** Description **Cummins QSK60**

SIC Code (4-digit) **1311** SCC Code **20200102**

B. Emissions Unit Description **Cummins QSK60 (P-11)**

Primary use **Peak Electrical Power Generation** Temporary source ☐ Yes ☑ No Manufacturer **Cummins**

Model **QSK60** Serial Number **L000190130** Installation date **04 / / 2004**

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☑ Other (describe) **Peak Electrical Power Generator**

Boiler horsepower rating **2922** Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input **20.45** MM BTU/hr Maximum design heat input _____ MM BTU/hr

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **Diesel** Standby fuel type(s) **N/A**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Number 2 Diesel	**0.5**	**Not applicable**	**19,300 BTU/lb**
	[12/1/04 representative test data indicates 0.0409%]		

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Number 2 Diesel		**150 gal/hr**	**162,000 gal/yr**

E. Air Pollution Control Equipment

Emissions unit ID P-11 Device type Diesel Engine with Controls Air pollutant(s) controlled NOx

Manufacturer Cummins Model No. QSK60 Serial No. L000190130

Installation date 04/04 Control efficiency (%)* 90% NOx Efficiency estimation method Vendor data

F. Ambient Impact Assessment Information- N/A

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____.____ Inside stack diameter (ft) _____.____ Stack temp(°F) _____.____

Design stack flow rate (ACFM) _____.____ Actual stack flow rate (ACFM) _____.____ Velocity (ft/sec) _____.____

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APPLICATION FORM EUD-1 - EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

INSTRUCTIONS: Complete this form for each significant emissions unit best described as a fuel combusting unit.

A. General Information

Emissions unit ID **P-12** Description **Cummins QSK60**

SIC Code (4-digit) **1311** SCC Code **20200102**

B. Emissions Unit Description **Cummins QSK60 (P-12)**

Primary use **Peak Electrical Power Generation** Temporary source ☐ Yes ☑ No Manufacturer **Cummins**

Model **QSK60** Serial Number **K000172346** Installation date **04 / / 2004**

Boiler type ☐ Industrial boiler ☐ Process burner ☐ Electric utility boiler ☑ Other (describe) **Peak Electrical Power Generator**

Boiler horsepower rating **2922** Boiler steam flow (lb/hr) _____

Type of fuel burning equipment (coal burning only):

☐ Hand fired ☐ Spreader stoker ☐ Underfeed stoker

☐ Overfeed stoker ☐ Traveling grate ☐ Shaking grate

☐ Pulverized, wet bed ☐ Pulverized, dry bed

Actual (average) heat input **20.45** MM BTU/hr Maximum design heat input _____ MM BTU/hr

C. Fuel Data

Instructions: Describe each fuel expected to be used during the term of the permit.

Primary fuel type(s) **Diesel** Standby fuel type(s) **N/A**

Fuel Type (e.g., natural gas, oil, coal, etc.)	Max Sulfur (%)	Max Ash (%)	BTU Value (per cf, gal or lb)
Number 2 Diesel	**0.5**	**Not applicable**	**19,300 BTU/lb**
	[12/1/04 representative test data indicates 0.0409%]		

D. Fuel Usage Rates

Instructions: For each fuel described above, enter actual and maximum fuel usage rates on a worst-case hourly and annual basis. Indicate the dimension for the fuel usage rate (e.g., gallons, cords, cubic feet).

Fuel Type (e.g., natural gas, oil, coal, etc.)	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Number 2 Diesel		**150 gal/hr**	**162,000 gal/yr**

E. Air Pollution Control Equipment

Emissions unit ID P-12 Device type Diesel Engine with Controls Air pollutant(s) controlled NOx

Manufacturer Cummins Model No. QSK60 Serial No. K000172346

Installation date 04/04 Control efficiency (%)* 90% NOx Efficiency estimation method Vendor data

F. Ambient Impact Assessment Information- N/A

Instructions: This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit.

Stack height (ft) _____.____ Inside stack diameter (ft) _____.____ Stack temp(°F) _____.____

Design stack flow rate (ACFM) _____.____ Actual stack flow rate (ACFM) _____.____ Velocity (ft/sec) _____.____

FORM PTE- POTENTIAL TO EMIT SUMMARY

U.S. ENVIRONMENTAL PROTECTION AGENCY
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FORM PTE - POTENTIAL TO EMIT SUMMARY

INSTRUCTIONS: Complete this form once for the facility. You may find it helpful to complete form **EMISS** for each emissions unit before completing this form. For each emissions unit with emissions that count towards applicability, list the emissions unit ID and the PTE for the air pollutants listed below. If there are other air pollutants not listed below for which the source is a major source, provide attachments naming the air pollutant and showing calculation of the total for that pollutant. Round values to the nearest tenth of a ton. Add all values together in each column and enter the total in the space provided at the bottom of the table. Also report these totals in section J of form **GIS**.

Emissions Unit ID	Regulated Air Pollutants and Pollutants for which the Source is Major						
	NOx (tons/yr)	VOC (tons/yr)	SO2 (tons/yr)	PM10 (tons/yr)	CO (tons/yr)	Lead (tons/yr)	CH2O (tons/yr)
T-1	91.4544	7.1942	0.0185	1.3009	35.0838		0.5755
T-2	100.7181	7.1942	0.0185	1.3009	55.7793		0.5755
AH-1	24.3638	1.3400	0.0460	1.8516	20.4656		0.0183
AH-2	24.0900	1.3250	0.0455	1.8308	20.2356		0.0181
AV-1	0.0000	4.9010	0.0000	0.0000	0.0000		-----
Plant Flare	2.3856	0.0071	0.0065	0.0000	12.9806		-----
P-1	39.0615	8.3099	24.0988	1.6620	37.3946		0.0104
P-2	39.0615	8.3099	24.0988	1.6620	37.3946		0.0104
P-3	39.0615	8.3099	24.0988	1.6620	37.3946		0.0104
P-4	39.0615	8.3099	24.0988	1.6620	37.3946		0.0104
P-5	39.0615	8.3099	24.0988	1.6620	37.3946		0.0104
P-6	39.0615	8.3099	24.0988	1.6620	37.3946		0.0104
P-7	39.0615	8.3099	24.0988	1.6620	37.3946		0.0104
P-8	39.0615	8.3099	24.0988	1.6620	37.3946		0.0104
P-9	39.0615	8.3099	24.0988	1.6620	37.3946		0.0104
P-10	39.0615	8.3099	24.0988	1.6620	37.3946		0.0104
P-11	39.0615	8.3099	24.0988	1.6620	37.3946		0.0104
P-12	39.0615	8.3099	24.0988	1.6620	37.3946		0.0104
TOTALS	_282.07_	_30.27_	_24.23_	_7.95_	_181.94_	_____	_1.20_

Insignificant activities are listed on Form IE and emissions are listed in the Insignificant Emissions Summary. These emissions are not included in the major source determination.

BP America Production Company
Facility: **Florida River Compression Facility**
Description: **Insignificant Source Emissions**

EPN	Description	Emissions (TPY)						
		NO_x	CO	PM	SO_2	VOC	CH_2O	HAPs
	70 MMscfd Amine Unit #2 Vent [1]	—	—	—	—	0.0240	—	0.0000
	Amine #2 Flash Tank [1]	—	—	—	—	0.0410	—	0.0010
	2.5 MMBtu/hr Dehy Reboiler #1a	1.3688	1.1498	0.1040	0.0026	0.0753	0.0010	0.0010
	2.5 MMBtu/hr Dehy Reboiler #1b	1.3688	1.1498	0.1040	0.0026	0.0753	0.0010	0.0010
	2.5 MMBtu/hr Dehy Reboiler #2	1.3688	1.1498	0.1040	0.0026	0.0753	0.0010	0.0010
	2.14 MMBtu/hr Dehy Reboiler #3a	1.1717	0.9842	0.0890	0.0022	0.0644	0.0009	0.0009
	2.14 MMBtu/hr Dehy Reboiler #3b	1.1717	0.9842	0.0890	0.0022	0.0644	0.0009	0.0009
	Dehy #1 Flash Tank [2]	—	—	—	—	0.0383	—	—
	Dehy #2 Flash Tank [2]	—	—	—	—	0.0278	—	—
	Dehy #3 Flash Tank [2]	—	—	—	—	0.1655	—	—
	90 MMscfd Glycol Still Column Vent #1 [2]	—	—	—	—	0.8054	—	—
	35 MMscfd Glycol Still Column Vent #2 [2]	—	—	—	—	0.4763	—	—
	180 MMscfd Glycol Still Column Vent #3 [2]	—	—	—	—	1.1817	—	—
	Process Fugitive Emissions	—	—	—	—	0.0187	—	—
	1,000 gal Gasoline Tank [3]	—	—	—	—	0.2446	—	—
	250 bbl MDEA Tank [3]	—	—	—	—	0.0007	—	—
	300 bbl EG Tank [3]	—	—	—	—	0.0002	—	—
	1,500 gal EG Tank [3]	—	—	—	—	0.0002	—	—
	100 bbl TEG Tank [3]	—	—	—	—	0.0002	—	—
	12,000 gal Diesel Fuel Tank [3]	—	—	—	—	0.0041	—	—
	100 gal Diesel Fuel Tank [3]	—	—	—	—	0.0041	—	—
	300 gal Diesel Tank [3]	—	—	—	—	0.0041	—	—
	(4) 2,400 gal Peaker Diesel Fuel Tanks [3]	—	—	—	—	0.0165	—	—
	(8) 3,200 gal Peaker Diesel Fuel Tanks [3]	—	—	—	—	0.0329	—	—
	300 bbl Waste Oil Tank [3]	—	—	—	—	0.0032	—	—
	210 bbl Lube Oil Tank [3]	—	—	—	—	0.0032	—	—
	100 bbl Oily Water Tank [3]	—	—	—	—	0.0032	—	—
	(3) 550 gal Lube Oil Tanks [3]	—	—	—	—	0.0097	—	—
	(4) 500 gal Lube Oil Tanks [3]	—	—	—	—	0.0130	—	—
	238 gal Compressor Lube Oil Drain and Sump [3]	—	—	—	—	0.0032	—	—
	(6) 55 gal Lube Oil Tanks [3]	—	—	—	—	0.0194	—	—
	250 bbl Treated Water Tank [4]	—	—	—	—	—	—	—
	100 bbl Well Water Tank [4]	—	—	—	—	—	—	—
	4,000 gal Produced Water Tank [4]	—	—	—	—	—	—	—
	(2) 400 bbl Water Breakout Tanks [4]	—	—	—	—	—	—	—
	7,500 gal Ammonia Storage Tank [4]	—	—	—	—	—	—	—
	80 bbl Condensation Tank [4]	—	—	—	—	—	—	—
	(2) 3,000 gallon Evaporative Cooler Fresh Water Tanks [4]	—	—	—	—	—	—	—
	1,260 gallon Evaporative Cooler Fresh Water Tank [4]	—	—	—	—	—	—	—
	Total	**6.4496**	**5.4176**	**0.4902**	**0.0122**	**3.4962**	**0.0048**	**0.0058**

[1] See attached AMINECalc runs.

[2] See attached GLYCalc runs.

[3] See attached Tanks 4.0 runs.

Since TEG is not in the chemical database, the ethylene glycol run is being conservatively used to represent emissions.

Since diesel fuel is not in the chemical database, distillate fuel oil no. 2 is conservatively being used to estimate emissions.

Since lube oil is not in the chemical database, jet kerosene is conservatively being used to estimate emissions.

[4] Not storing VOL - listed for purposes of equipment counts only.

Insignificant Sources Florida River Compression Facility

Equipment	Size	Units	Comments
Amine unit #2 vent	**70**	**MMscfd**	**1 unit**

Emissions were calculated using AMINECalc 1.0. This unit emits 0.02 tons per year of VOC and 0 tons per year of HAPs. Therefore, this emission unit is insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Amine unit #2 flash tank vent	**70**	**MMscfd**	**1 unit**

Emissions were calculated using AMINECalc 1.0. This unit emits 0.04 tons per year of VOC and 0.001 tons per year of HAPs. Therefore, this emission unit is insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Glycol reboiler #1a	**2.5**	**MMBTU/hr**	**1 unit**

Emissions were calculated using AP-42 factors. The unit emits 1.37 tons per year of NOx, 1.15 tons per year of CO, 0.08 tons per year of VOC, and < 0.01 tons per year of HAPs. Therefore, this emission unit is insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Glycol reboiler #1b	**2.5**	**MMBTU/hr**	**1 unit**

Emissions were calculated using AP-42 factors. The unit emits 1.37 tons per year of NOx, 1.15 tons per year of CO, 0.08 tons per year of VOC, and < 0.01 tons per year of HAPs. Therefore, this emission unit is insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Glycol reboiler #2	**2.5**	**MMBTU/hr**	**1 unit**

Emissions were calculated using AP-42 factors. The unit emits 1.37 tons per year of NOx, 1.15 tons per year of CO, 0.08 tons per year of VOC, and < 0.01 tons per year of HAPs. Therefore, this emission unit is insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Glycol reboiler #3a	**2.14**	**MMBTU/hr**	**1 unit**

Emissions were calculated using AP-42 factors. The unit emits 1.17 tons per year of NOx, 0.98 tons per year of CO, 0.06 tons per year of VOC, and < 0.01 tons per year of HAPs. Therefore, this emission unit is insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Glycol reboiler #3b	**2.14**	**MMBTU/hr**	**1 unit**

Emissions were calculated using AP-42 factors. The unit emits 1.17 tons per year of NOx, 0.98 tons per year of CO, 0.06 tons per year of VOC, and < 0.01 tons per year of HAPs. Therefore, this emission unit is insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Glycol dehy #1 flash tank vent	**90**	**MMscfd**	**1 unit**

Emissions were calculated using GRI-GLYCalc 4.0. This unit emits 0.04 tons per year of VOC and 0 tons per year of HAPs. Therefore, this emission unit is insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Glycol dehy #2 flash tank vent	**35**	**MMscfd**	**1 unit**

Emissions were calculated using GRI-GLYCalc 4.0. This unit emits 0.03 tons per year of VOC and 0 tons per year of HAPs. Therefore, this emission unit is insignificant. *Calculations are attached.*

Insignificant Sources Florida River Compression Facility

Equipment	Size	Units	Comments
Glycol dehy #3 flash tank vent	**180**	**MMscfd**	**1 unit**

Emissions were calculated using GRI-GLYCalc 4.0. This unit emits 0.17 tons per year of VOC and 0 tons per year of HAPs. Therefore, this emission unit is insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Glycol still column vent #1	**90**	**MMscfd**	**1 unit**

Emissions were calculated using GRI-GLYCalc 4.0. This unit emits 0.81 tons per year of VOC and 0 tons per year of HAPs. Therefore, this emission unit is insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Glycol still column vent #2	**35**	**MMscfd**	**1 unit**

Emissions were calculated using GRI-GLYCalc 4.0. This unit emits 0.48 tons per year of VOC and 0 tons per year of HAPs. Therefore, this emission unit is insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Glycol still column vent #3	**180**	**MMscfd**	**1 unit**

Emissions were calculated using GRI-GLYCalc 4.0. This unit emits 1.18 tons per year of VOC and 0 tons per year of HAPs. Therefore, this emission unit is insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Fugitive sources	**3548**	**Components**	**Estimate**

Emissions were calculated using EPA's "Protocol For Equipment Leak Emission Estimates". Fugitive sources emit an estimated <0.01 tons per year of VOC. Thus, emissions are insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Gasoline tank	**1,000**	**gal**	**1 tank**

Emissions were calculated using the EPA Tanks 4.0 emission model. Using this model and assuming 20 complete turnovers per year, emissions were estimated to be 0.24 tons per year. Thus, emissions are insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
MDEA tank	**250**	**bbl**	**1 tank**

Emissions were calculated using the EPA Tanks 4.0 emission model. Emissions were estimated to be <0.001 tons per year. Thus, emissions are insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Ethylene glycol tanks	**300 bbl and 1500 gal**		**2 tanks**

Emissions were calculated using the EPA Tanks 4.0 emission model. Using this model based on the 300 bbl tank, emissions were estimated to be 0.002 tons per year per tank. Thus, emissions are insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
TEG tank	**100**	**bbl**	**1 tank**

The vapor pressure of triethylene glycol is 0.00015 psia which is much lower than the vapor pressure of ethylene glycol (0.001 psia). Since triethylene glycol is not in the Tanks 4.0 chemical database, emissions from this tank are conservatively assumed to be the same as the emissions from the 300 bbl ethylene glycol tank. At 0.002 tons per year, emissions are insignificant. *Calculations are attached.*

Insignificant Sources Florida River Compression Facility

Equipment	Size	Units	Comments
Diesel fuel tanks	**3,200 – 12,000**	**gal**	**15 tanks**

Emissions were calculated using the EPA Tanks 4.0 emission model. The Tanks 4.0 model does not have diesel in its chemical database, and distillate fuel oil no. 2 was used as a conservative surrogate in the emission calculations. Conservatively using the 12,000 gallon diesel fuel Tank run, emissions were estimated to be 0.004 tons per year per tank. Thus, emissions are insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Lube oil tanks	**55 gal – 300 bbl**		**17 tanks**

Emissions were calculated using the EPA Tanks 4.0 emission model. The Tanks 4.0 model does not have lube oil in its chemical database, and kerosene (jet fuel) was used as a conservative surrogate in the emission calculations. Conservatively using the 300 bbl lube oil Tank run, emissions were estimated to be 0.003 tons per year per tank. Thus, emissions are insignificant. *Calculations are attached.*

Equipment	Size	Units	Comments
Tanks storing non-VOLs	**1,260 gal – 400 bbl**		**10 tanks**

These tanks do not store VOLs, and are listed for purposes of equipment counts only.

FORM IE- INSIGNIFICANT EMISSIONS

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR FEDERAL OPERATING PERMIT, 40 CFR PART 71

APPLICATION FORMIE - INSIGNIFICANT EMISSIONS

INSTRUCTIONS: List each source eligible for insignificant treatment under § 71.5(c)(11)(ii). In the "number" column, indicate the number of units qualifying under each description. Each description must be specific enough to describe the source of emissions. List emission units separately if they have dissimilar descriptions, including dissimilar capacities or sizes and other factors. Please check the appropriate column to indicate whether the source meets the emissions criteria under § 71.5(c)(11)(ii)(A) and (B) for regulated air pollutants except hazardous air pollutant (RAP, except HAP), and for HAP, respectively.

Number	Description of Activities or Emission Units	RAP, except HAP	HAP
1	70 MMscfd Amine Unit #2 Vent	✓	✓
1	Amine #2 Flash Tank	✓	✓
1	2.5 MMBtu/hr Dehy Reboiler #1a	✓	✓
1	2.5 MMBtu/hr Dehy Reboiler #1b	✓	✓
1	2.5 MMBtu/hr Dehy Reboiler #2	✓	✓
1	2.14 MMBtu/hr Dehy Reboiler #3a	✓	✓
1	2.14 MMBtu/hr Dehy Reboiler #3b	✓	✓
1	Dehy #1 Flash Tank	✓	✓
1	Dehy #2 Flash Tank	✓	✓
1	Dehy #3 Flash Tank	✓	✓
1	90 MMscfd Glycol Still Column Vent #1	✓	✓
1	35 MMscfd Glycol Still Column Vent #2	✓	✓
1	180 MMscfd Glycol Still Column Vent #3	✓	✓
	Process Fugitive Emissions	✓	✓
1	1,000 gal Gasoline Tank	✓	✓
1	250 bbl MDEA Tank	✓	✓
1	300 bbl EG Tank	✓	✓
1	1,500 gal EG Tank	✓	✓
1	100 bbl TEG Tank	✓	✓
1	12,000 gal Diesel Fuel Tank	✓	✓
1	100 gal Diesel Fuel Tank	✓	✓
1	300 gal Diesel Tank	✓	✓
4	(4) 2,400 gal Peaker Diesel Fuel Tanks	✓	✓
8	(8) 3,200 gal Peaker Diesel Fuel Tanks	✓	✓
1	300 bbl Waste Oil Tank	✓	✓
1	210 bbl Lube Oil Tank	✓	✓
1	100 bbl Oily Water Tank	✓	✓
3	(3) 550 gal Lube Oil Tanks	✓	✓
4	(4) 500 gal Lube Oil Tanks	✓	✓
1	238 gal Compressor Lube Oil Drain and Sump	✓	✓
6	(6) 55 gal Lube Oil Tanks	✓	✓

NSPS K, Ka, and Kb- not applicable: All tanks are less than 471 bbl (19,810 gal). [60.110(a), 60.110(b), 60.110a(a), 60.110a(b), 60.110b(b), 60.110(d)(4)]

FORM I-COMP- INITIAL COMPLIANCE PLAN

OMB Control No. 2060-0336

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR FEDERAL OPERATING PERMIT, 40 CFR PART 71

FORM I-COMP - INITIAL COMPLIANCE PLAN & COMPLIANCE CERTIFICATION

INSTRUCTIONS: There are 3 pages to this form. On this page, complete Sections A, B, and C for each applicable requirement. If different portions of an applicable requirement or compliance methods vary from unit to unit, prepare a separate form for each unique set of requirements, methods, and units. For compliance plan purposes, assume permit issuance will occur by March 22, 2001, unless you are not required to submit an application until after March 22, 2000, in which case assume issuance will occur no later than 18 months after submittal.

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.A.1. Emission units A-01 and A-02 are limited to 174 ppm NOx, and the SO2 fuel sulfur content can not exceed 0.8% by weight.	**A-01 and A-02**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

Quarterly testing has shown that the turbines operate with emissions well below the applicable NOx limit. The third quarter 2005 monitoring was completed on 8-31-05. A-01 tested at 93.07 ppm, and A-02 tested at 87.05 ppm.

Semi-annual draeger (length of stain) tube readings have shown fuel sulfur content to be negligible. Sulfur testing of the turbine fuel gas was done on 8-31-05, and no H2S was detected.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.A.2. Cumulative NOx emissions for the 12 diesel fired electric generating units must not exceed 39.1 tons during any consecutive 12 months.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

Operation commenced in November 2004 and extrapolation of data to date projects emission for 12 months to be far below the limit. The cumulative NOx emissions for all 12 engines are 4.49 tons for November 2004 through October 2005.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

OMB Control No. 2060-0336

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR FEDERAL OPERATING PERMIT, 40 CFR PART 71

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A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.A.3. Cumulative hours of operation for all 12 diesel fired electric generating units must not exceed 12,900 hours per year during any consecutive 12 months. The cumulative hours of start-ups for all 12 generating units must not exceed 3,000 hours per year during any consecutive 12 months.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

Operation commenced in November 2004 and extrapolation of data to date projects emission for 12 months to be far below the limit. The cumulative run time for all 12 engines is 1657 hours for November 2004 through October 2005. The cumulative number of starts for all 12 engines is 1092 for the same time period.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date _____/_____/_____	____ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.B.1. Equip each of the 12 diesel fired electric generating units with a selective catalytic reduction (SCR) system for the control of NOx.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

SCRs utilizing aqueous ammonia injection were part of the original equipment installation.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date _____/_____/_____	____ Yes _____ No

OMB Control No. 2060-0336

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A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.B.2. Install thermocouples on each of the diesel fired electric generating units to monitor the inlet temperature of the SCR. The thermocouples must be accurate +/- 3°F.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

Units are equipped with Thermo/Probes, Inc. type K thermocouples upstream of the catalysts; Type K has a digital accuracy of 0.90 °F and D/A accuracy of 0.03% of span (max span: -292 to 2502 gives maximum inaccuracy of 1.7 °F.)

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
__X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.B.3. Follow the manufacturer's recommended maintenance schedule and procedures for each electric generating unit and associated SCR system to ensure optimum performance.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

The units are maintained in accordance with the manufacturer's recommendations.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

OMB Control No. 2060-0336

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A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.B.4. Maintain the inlet temperature to each SCR between 500°F and 1200°F while an electric generating unit is operating.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

The temperature monitors have a high range of 1050 °F and the individual units are set to alarm at no more than 750 °F based on temperatures measured at the time of initial testing. No excursions from the required temperature range have yet been encountered.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes ____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes ____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.B.6. Maintain the pressure drop across each SCR system within 4" of water from the baseline pressure drop reading taken during the initial performance test.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

An alarm was set for each unit at 4" above the initial reading taken during the initial performance testing. No exceedances of the pressure alarms set points have yet been encountered. [Maximum pressure drops during initial performance testing: P-1- 9.7, P-2- 7.8, P-3- 7.5, P-4- 7.4, P-5- 7.8, P-6- 8.5, P-7- 8.0, P-8- 8.2, P-9- 9.4, P-10- 7.7, P-11- 8.8, P-12- 11.0.]

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes ____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes ____ No

OMB Control No. 2060-0336

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR FEDERAL OPERATING PERMIT, 40 CFR PART 71

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A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.B.7. Equip each electric generating unit with a dedicated ammonia injection system.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

Each unit is equipped with a dedicated ammonia injection pump and injection spray system with aqueous ammonia delivered to the pump by piping from a common storage tank.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	___ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.B.9.The maximum sulfur content of the number 1 and number 2 diesel fuels fired in the electric generating units must not exceed 0.5 percent.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

Testing by an independent lab showed 0.0409 wt% sulfur in the diesel blend delivered and sampled 12/1/04. The tested sample is believed to be representative of the diesel provided by the vendor

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	___ Yes _____ No

OMB Control No. 2060-0336

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A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.C.1. Conduct a performance test for each of the 12 diesel fired electric generating units for NOx. within 45 days of initial startup.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

The units were started up in November 2004, and testing was completed on 12/8/04. (Testing occurred on 12-2-04, 12-3-04, 12-6-04, 12-7-04, and 12-8-04).

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	___ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.C.2. Measure the inlet temperature to the SCR and the pressure drop across the SCR system for each electric generating unit during the initial performance test.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

Initial testing was completed on 12/8/04 and included measurements of the inlet temperature to the SCR and the pressure drop across the SCR. (Testing occurred on 12-2-04, 12-3-04, 12-6-04, 12-7-04, and 12-8-04).

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	___ Yes _____ No

OMB Control No. 2060-0336

U.S. ENVIRONMENTAL PROTECTION AGENCY
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A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.C.3. All performance tests for NOx emissions for the diesel fired electric generating units must meet the following requirements: **(a) Perform at a maximum operating rate (90-110% of engine design capacity)** **(b) Collect data on all parameters necessary to document how NOx emissions in pounds per hour were measured or calculated.** **(c) Include three 1-hour test runs. Report emissions as arithmetic average of test runs in lb/hr and tons/year.** **(d) Submit a source test plan to EPA within 30 calendar days of the effective date of the permit (effective date was 6-4-04).**	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

The initial performance testing occurred on 12-2-04, 12-3-04, 12-6-04, 12-7-04, and 12-8-04. It was completed by Air Pollution Testing, Inc.

As stated in the 1-31-05 test result submittal, the tests were conducted at rates below the 2922 hp and 20.4 MMBtu/hr ratings listed in the Title V permit. However the tests were conducted at the maximum load for which the units are allowed to operate per supplier warranty restrictions.

Sufficient data was collected to document how the pound per hour NOx emission rates were calculated for the initial performance tests. This information is included in the test report.

Each of the initial performance tests included three 1-hour runs and emissions were averaged to lb/hr rates. This information is included in the test report.

EPA's Ms. Cynthia Reynolds granted BP a 30 day extension (due date of 8-3-04) in her 6-28-04 email. The source test plan was submitted to EPA on 8-2-04, but the actual test dates were not known at that time as stated in the submittal. EPA approval of the test protocol was dated 9-20-04.

Notification of testing dates was originally sent to EPA on 9-2-04. Due to catalyst damage and ammonia injection design changes, two additional letters were submitted on 9-23-04 and 11-2-04 informing EPA of the changes to the testing schedule.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.D.1. Fuel Monitoring for the Turbines **(a) If natural gas is the only fuel fired in the turbines, monitoring of fuel nitrogen content is not required. Monitoring of fuel nitrogen content must be done daily if another fuel is used.** **(b) Monitor fuel sulfur semi-annually using the "length of stain tube" method. (Phase III after initial 4 year term). Monitoring of fuel sulfur content must be done daily if an emergency fuel is used.** **(c) Immediately notify the EPA if there is a change in the fuel supply (quality, makeup, or supplier). Conduct daily sulfur and nitrogen monitoring while custom fuel monitoring schedule is being re-examined.**	**A-01 and A-02**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

The turbines are configured to burn only natural gas, therefore fuel nitrogen content monitoring is not required.

Draeger (length of stain) tube testing of the turbine fuel gas was done on 8-31-05, and no H2S was detected.

There have not been any changes in the fuel supply.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

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APPLICATION FOR FEDERAL OPERATING PERMIT, 40 CFR PART 71

FORM I-COMP - INITIAL COMPLIANCE PLAN & COMPLIANCE CERTIFICATION

INSTRUCTIONS: There are 3 pages to this form. On this page, complete Sections A, B, and C for each applicable requirement. If different portions of an applicable requirement or compliance methods vary from unit to unit, prepare a separate form for each unique set of requirements, methods, and units. For compliance plan purposes, assume permit issuance will occur by March 22, 2001, unless you are not required to submit an application until after March 22, 2000, in which case assume issuance will occur no later than 18 months after submittal.

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.D.2. Measure NOx emissions quarterly to show compliance with the limit of 174 ppm. **Use a portable analyzer and the monitoring protocol approved by EPA (5-6-02 EPA letter-Appendix E).**	**A-01 and A-02**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

Air Pollution Testing, Inc. conducts the quarterly testing. The third quarter 2005 monitoring was completed on 8-31-05. A-01 tested at 93.07 ppm, and A-02 tested at 87.05 ppm.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.D.3. Measure NOx emissions from 3 of the 12 diesel fired electric generating units per quarter to demonstrate compliance with the cumulative NOx emission limit of 39.1 tons per year. Monitor each of the units for NOx emissions at least once during a calendar year. **Use a portable analyzer and the monitoring protocol approved by EPA (5-6-02 EPA letter-Appendix E).**	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

Quarterly monitoring of three of the units commenced in the first quarter of 2005 and is conducted by Air Pollution Testing, Inc.. Third quarter 2005 monitoring was completed on 7-7-05 for units P-7, P-9, and P-10. The tested lb/hr rates were 8.54, 4.68, and 3.59 respectively. The cumulative NOx emissions for all 12 engines are 4.49 tons for November 2004 through October 2005.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

OMB Control No. 2060-0336

U.S. ENVIRONMENTAL PROTECTION AGENCY
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A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.D.4. Measure the inlet temperatures to the SCR systems at least hourly during the operation of each electric generating unit. **Measure the pressure drop across the SCR systems at least hourly during the operation of each electric generating unit.**	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

Inlet temperature and pressure drop are monitored continuously during operation of the units.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
__X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.D.5. Monitor the ammonia pump on each electric generating unit in operation every hour to ensure that the pump is operating and ammonia is being injected.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

The engines are set up with interlocks that require the dedicated ammonia pumps to be operational in order for the engine to operate. Failure to detect flow after startup automatically shuts down each engine.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
__X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

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A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.E. 1. Keep records of occurrence and duration of any startup, shutdown, or malfunction of the sources, any air pollution control equipment, or any periods during which a continuous monitoring system or monitoring device is inoperative. **Keep a file of all measurements, including performance testing measurements, monitoring device calibration checks, and other information required by NSPS conditions of this permit** **2. If emergency fuel is used in the turbines, keep records of daily fuel sulfur content and nitrogen content monitoring. If a fuel other than pipeline quality natural gas is used in the turbines, keep records of daily fuel nitrogen content monitoring.**	**A-01 and A-02**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

Electronic records of turbine operation are stored in the plant data acquisition system. Hard copies of turbine maintenance are stored in the plant office.

The turbines are not equipped with any air pollution control equipment, and they do not have any continuous monitoring systems.

Records of required monitoring are maintained in the Durango Operations Center library.

Emergency fuel is not used by the turbines, and the turbines are set up to operate only on pipeline quality natural gas.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes ____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes ____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.E.3. Record number of hours of operation and the number of start-ups per calendar month for each of the 12 diesel fired electric generating units. Calculate and record the cumulative hours of operation and the cumulative number of start-ups. **Calculate and record the 12 month rolling totals for hours of operation and number of start-ups.**	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

A spreadsheet for tracking cumulative NOx emissions, operating hours and number of starts is maintained on a monthly basis and submitted as part of the semi-annual monitoring report. The cumulative run time for all 12 engines is 1657 hours for November 2004 through October 2005. The cumulative number of starts for all 12 engines is 1092 for the same time period.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes ____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes ____ No

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A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.E.4. At the end of the calendar month following the NOx initial performance tests, calculate and record the individual and cumulative NOx emissions (tons) for the 12 diesel fired electric generating based on the results from the performance tests. **Calculate and record individual and cumulative NOx emissions (tons) at the end of each calendar month for the 12 diesel fired electric generating units. Calculate and record a 12 month rolling total.** **Calculate emissions by multiplying the most recent NOx quarterly monitoring test result for that unit by the number of operating hours for that unit in the calendar month. Sum the individual NOx emissions for each unit to get cumulative emissions.**	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

A spreadsheet for tracking cumulative NOx emissions, operating hours and number of starts is maintained on a monthly basis and submitted as part of the semi-annual monitoring report. The cumulative NOx emissions for all 12 engines are 4.49 tons for November 2004 through October 2005.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
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A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.E.5.(a) Keep records of all required temperature measurements and a description of any corrective actions taken.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

Electronic data files are kept in a data historian and data archives which include the required temperature measurements.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.E.5.(b) Keep records of all required pressure drop measurements and a description of any corrective actions taken.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

Electronic data files are kept in a data historian and data archives which include the required pressure drop measurements.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
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A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.E.5.(c) Keep records to demonstrate that the maximum sulfur content of the number 1 and number 2 diesel fuels fired in the electric generating units has not exceeded 0.5 percent.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

Testing by an independent lab showed 0.0409 wt% sulfur in diesel blend delivered and sampled 12/1/04. Based on clean fuels technology currently employed by refineries, this analysis is believed to be representative of all diesel fuel delivered for use in the peaker engines.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.E.5.(d) Keep records of the vendor specifications to demonstrate the accuracy of the temperature-sensing thermocouples on each SCR system.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

A copy of the thermocouple specification sheet is kept in the plant environmental files.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

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Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.E.6. Keep records of all required monitoring that include: the date, place, and time of sampling or measurements; the date(s) analyses were performed; the company or entity that performed the analyses; the analytical techniques or methods used; the results of such analyses; and the operating conditions as existing at the time of sampling or measurement.	**A-01, A-02, P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

Records are maintained as required.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
__X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.E.7. Keep records of off-permit changes.	**Facility**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

There is a 9-30-04 Memo To File regarding the off permit change for the installation of a 12,000 gallon diesel tank.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
__X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

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A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.E.8. Keep records of all required monitoring data and support information, sample analyses, fuel supplier, fuel quality, and fuel make-up pertinent to the custom fuel monitoring schedule for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. **Make records available upon request by EPA Region VIII.** **Support information includes all calibration and maintenance records, all original strip-chart recording for continuous monitoring instrumentation, and copies of all reports required by the operating permit.**	**A-01 and A-02**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

Records are maintained as required.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.E.9. If sources that emit hazardous air pollutants (HAPs) are not subject to a relevant MACT standard, keep a record of the applicability determination. Record must include demonstration of why the source is unaffected.	**Dehydrators, engines, reboilers, and heaters**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

The site is a minor source of HAPs.

MACT HH for Oil & Natural Gas Production- The site is not a major source as defined in this subpart. The site does not have any tanks with the potential for flash emissions and the dehydration units have the potential to emit less than 10/25 tpy HAPs.

MACT ZZZZ for Stationary Reciprocating Internal Combustion Engines- The site is not a major source as defined in this subpart. The site does not have any tanks with the potential for flash emissions and the dehydration units and the engines have the potential to emit less than 10/25 total tpy HAPs.
MACT DDDDD for Industrial, Commercial, and Institutional Boilers and Process Heaters- The site is not a major source as defined in this subpart. The site does not have any tanks with the potential for flash emissions and the dehydration units and the reboilers and heaters have the potential to emit less than 10/25 total tpy HAPs.

This signed permit application serves as the record for the site. Any future changes will be documented and kept with the permit file.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

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A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.F.1. Submit a written report of the results of the initial NOx performance tests and temperature and pressure drop measurements. **Submit report within 60 calendar days of the date of testing completion.**	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

The initial performance test report was sent to EPA on 1-31-05. (Testing was completed on 12-8-04.)

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.F.2. Submit monitoring results and recordkeeping required under the operating permit semi-annually by April 1 (for Sept. 1 – end of Feb) and October 1 (for Mar 1 – end of Aug) of each year. **Identify all instances of deviations.** **A responsible official must certify the reports.**	**Facility**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

Semi-annual monitoring reports have been submitted at the required schedule. The last semi-annual monitoring report was submitted on 9-13-05.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. *If in compliance at this time,* I will continue to comply.	2. *If not in compliance at this time, I will be in* compliance by expected date of permit issuance.	3. *For future-effective requirements. I* will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

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A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.F.3. The semi-annual monitoring report must include any instances where an SCR system inlet temperature or pressure drop across the SCR deviates from the acceptable range. If no such instances have been detected, then a statement shall be provided to say so.	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

No deviations have been noted to date.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.F.4. & 5. Promptly report any deviations from permit requirements, the probable cause of such deviations, and any corrective actions or preventative measures taken.	**Facility**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

No deviations have been noted to date.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

OMB Control No. 2060-0336

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR FEDERAL OPERATING PERMIT, 40 CFR PART 71

FORM I-COMP - INITIAL COMPLIANCE PLAN & COMPLIANCE CERTIFICATION

INSTRUCTIONS: There are 3 pages to this form. On this page, complete Sections A, B, and C for each applicable requirement. If different portions of an applicable requirement or compliance methods vary from unit to unit, prepare a separate form for each unique set of requirements, methods, and units. For compliance plan purposes, assume permit issuance will occur by March 22, 2001, unless you are not required to submit an application until after March 22, 2000, in which case assume issuance will occur no later than 18 months after submittal.

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.G.1. At *all times, including periods of startup, shutdown, and malfunction, the permittee shall,* to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution practices for minimizing emissions.	**A-01 and A-02**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

The turbines are operated in accordance with manufacturer's recommendations consistent with good air pollution practices for minimizing emissions. The turbines are not equipped with any air pollution control equipment.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.H.1. Replacement of an existing permitted turbine with a new or overhauled turbine of the same make, model, heat input capacity rating, and configured to operate in the same manner as the turbine being replaced, and which satisfies all of the provisions for Off Permit Changes under the operating permit, including the provisions specific to turbine replacement, shall be considered an allowed alternative operating scenario under the operating permit. **Any emission standards, requirements, or provisions that apply to the turbines that are replaced under this section shall also apply to the replacement turbines. (Note: A replacement turbine would be considered a new unit under 40 CFR part 60, subpart GG. It would be subject to initial compliance testing under 60.8 and all other requirements of NSPS GG.)**	**A-01 and A-02**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with the requirement)

Neither of the turbines has been replaced. Portions of the turbines have been replaced as part of normal maintenance. Quarterly monitoring has shown such parts replacement to have no significant impact on emissions.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

OMB Control No. 2060-0336

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR FEDERAL OPERATING PERMIT, 40 CFR PART 71

FORM I-COMP - INITIAL COMPLIANCE PLAN & COMPLIANCE CERTIFICATION

INSTRUCTIONS: There are 3 pages to this form. On this page, complete Sections A, B, and C for each applicable requirement. If different portions of an applicable requirement or compliance methods vary from unit to unit, prepare a separate form for each unique set of requirements, methods, and units. For compliance plan purposes, assume permit issuance will occur by March 22, 2001, unless you are not required to submit an application until after March 22, 2000, in which case assume issuance will occur no later than 18 months after submittal.

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
II.H.2. Replacement of an existing permitted diesel fired electric generating unit with a new or overhauled diesel fired electric generating unit of the same make, model, heat input capacity rating, and configured to operate in the same manner as the diesel fired electric generating unit being replaced, and which satisfies all of the provisions for Off Permit Changes under the operating permit, including the provisions specific to diesel fired electric generating unit replacement, shall be considered an allowed alternative operating scenario under the operating permit. **Any emission standards, requirements, or provisions that apply to the diesel fired electric generating units that are replaced under this section shall also apply to the replacement diesel fired electric generating units.**	**P-1, P-2, P-3, P-4, P-5, P-6, P-7, P-8, P-9, P-10, P-11, and P-12**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

None of the diesel fired electric generating units have been replaced.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
III.C.1. Comply with the requirements of the Chemical Accident Prevention provisions at 40 CFR part 68 for any regulated substance above the threshold quantity of a regulated substance.	**Facility**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

As stated in the statement of basis, the risk management plan for ammonia was determined complete on July 14,1999. (Plan Sequence Number 12123)

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

OMB Control No. 2060-0336

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR FEDERAL OPERATING PERMIT, 40 CFR PART 71

FORM I-COMP - INITIAL COMPLIANCE PLAN & COMPLIANCE CERTIFICATION

INSTRUCTIONS: There are 3 pages to this form. On this page, complete Sections A, B, and C for each applicable requirement. If different portions of an applicable requirement or compliance methods vary from unit to unit, prepare a separate form for each unique set of requirements, methods, and units. For compliance plan purposes, assume permit issuance will occur by March 22, 2001, unless you are not required to submit an application until after March 22, 2000, in which case assume issuance will occur no later than 18 months after submittal.

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
IV.A. Pay annual fee no later than April 1st. Send payment to Mellon Bank lockbox. Send fee calculation worksheet and copy of payment check to Part 71 Permit Contact at EPA. **IV.B. Submit annual emissions report by April 1st to the Part 71 Permit Contact.**	**Facility**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

The file includes a copy of the annual fee submittal which was received by the agency on 3-29-05. An additional check was submitted 5-19-05 for the shortage amount of $140.05. The original fee payment was incorrectly based on the "Calendar Year 2004" fee rate of $38.72 per ton.

The file includes a copy of the fee calculation worksheet (includes emissions inventory) which was received by the agency on 3-30-05.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
IV.D. Submit compliance certification to EPA by April 1st.	**Facility**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

The file includes a copy of the certification which was received by the agency on 3-30-05.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
_X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	____ Yes _____ No

OMB Control No. 2060-0336

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR FEDERAL OPERATING PERMIT, 40 CFR PART 71

FORM I-COMP - INITIAL COMPLIANCE PLAN & COMPLIANCE CERTIFICATION

INSTRUCTIONS: There are 3 pages to this form. On this page, complete Sections A, B, and C for each applicable requirement. If different portions of an applicable requirement or compliance methods vary from unit to unit, prepare a separate form for each unique set of requirements, methods, and units. For compliance plan purposes, assume permit issuance will occur by March 22, 2001, unless you are not required to submit an application until after March 22, 2000, in which case assume issuance will occur no later than 18 months after submittal.

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
IV.S. Submit renewal application at least 6 months prior to expiration date. (Permit expires 6-5-06 *so renewal must be submitted by 12-5-05.)*	**Facility**	_X_ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

This renewal application is being submitted by 12-5-05.

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
__X_ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	___ Yes _____ No

A. COMPLIANCE STATUS OF EACH APPLICABLE REQUIREMENT (Describe each applicable requirement and determine its compliance status)

Cite and Describe the Applicable Requirement	Unit ID(s):	Compliance status at time of application :
		___ In Compliance ___ Not In Compliance

B. METHODS USED TO DETERMINE COMPLIANCE (Describe all methods you used to determine compliance with this requirement)

C. COMPLIANCE PLAN STATEMENTS (Respond to one of these statements for this applicable requirement)

1. If in compliance at this time, I will continue to comply.	2. If not in compliance at this time, I will be in compliance by expected date of permit issuance.	3. For future-effective requirements. I will meet this requirement on a timely basis.
___ Yes _____ No	___ Yes ___ No Expected Date ____/____/____	___ Yes _____ No

D. ADDITIONAL INFORMATION FOR COMPLIANCE PLAN STATEMENT #2

Complete this section if you answered "YES" to the second statement in Section C. Complete this section for each such applicable requirement. Identify the applicable requirement and describe the actions you will take prior to permit issuance to come into compliance.

1. **Applicable Requirement.**

Unit(s) _____ Applicable Requirement _____

2. **Narrative Description of how Source will Achieve Compliance.**

_____

_____

E. SCHEDULE OF COMPLIANCE

Complete this section if you answered "NO" to any of the statements in Section C. Complete this section for each such applicable requirement. Identify the emission unit and the applicable requirement, the reasons for noncompliance, and describe how the source will achieve compliance. If there are consent decrees or administrative orders that apply to this requirement, attach a copy of them to this form. Finally, all sources required to complete this section must include a detailed schedule of compliance.

1. **Applicable Requirement.**

Unit(s) _____ Applicable Requirement _____

2. **Reason for Noncompliance.** Briefly explain why the source will not be in compliance at time of permit issuance or not meet future-effective requirements on a timely basis.)

_____

3. **Narrative Description of how Source will Achieve Compliance.** Briefly explain what you will do to bring the source into compliance with this requirement.

_____

_____

4. **Consent Decrees or Administrative Orders.** Please attach a copy of any judicial consent decrees or administrative orders for this applicable requirement.

5. **Schedule of Compliance.** Provide a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance, including a date for final compliance.

Remedial Measure or Action	Date to be Achieved

INSTRUCTIONS: Complete sections E, F, and G once for each facility.

F. SCHEDULE FOR SUBMISSION OF PROGRESS REPORTS

This section need only be prepared if you are required to submit one or more schedules of compliance (by completing section E) or if an applicable requirement requires you to submit a progress report. For most sources, the time frame for submittal of progress reports will be at least every 6 months. One progress report may include information on multiple schedules of compliance.

Contents of Progress Report (describe)

_____

Report Starting date ___/___/___ Submittal Frequency _____

Contents of Progress Report (describe)

_____

Report Starting date ___/___/___ Submittal Frequency _____

G. SCHEDULE FOR SUBMISSION OF COMPLIANCE CERTIFICATIONS

This section must be prepared by every source. Indicate how often you are required to submit compliance certifications after your permit is issued and when the first one will be submitted. Compliance certifications are required to be submitted at least once per year during the term of the permit.

Frequency of submittal ___annually_____ Beginning _*4_/_1_/_06*_

H. COMPLIANCE STATUS FOR ENHANCED MONITORING AND COMPLIANCE CERTIFICATION REQUIREMENTS

This section of the form must be completed for every source. Indicate compliance status for the requirement as a whole (to certify compliance with the requirement as a whole, you must be able to certify compliance with each individual requirement that can be categorized under this designation).

Enhanced Monitoring Requirements: _X_ In Compliance ____ Not In Compliance

Compliance Certification Requirements: _X_ In Compliance ____ Not In Compliance

FORM CTAC- CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR FEDERAL OPERATING PERMIT, 40 CFR PART 71

APPLICATION FORM CTAC - CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS BY RESPONSIBLE OFFICIAL

INSTRUCTIONS: One copy of this form must be completed, signed, and sent with each submission of documents (i.e., application forms, including any updates to applications), and for every document required by a part 71 permit (e.g., annual compliance certification, 6-month monitoring reports, progress reports, and notices required by the terms of a part 71 permit).

Responsible Official. Identify the responsible official and provide contact information.

Name: (Last) _Page_____ (First) __Stan_____ (Middle) __G._____

Title __ Florida Operations Manager_____

Street or Post Office Box __2906 C.R. 307_____

City ___Durango_____ State __CO____ ZIP _81303_____-_____

Telephone (_970_) _247_ - _6901_____ Ext. _____ Facsimile (_970_) _247_ - _6910_____

Certification of Truth, Accuracy and Completeness. The Responsible Official must sign this statement.

I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in these documents are true, accurate and complete.

Name (signed) _____

Name (printed or typed) __Stan G. Page_____ Date: 11 / 30 / 05

EMISSIONS INFORMATION:
SITE EMISSIONS SUMMARY
EMISSIONS CALCULATIONS
ENGINE SPECIFICATIONS

BP America Production Company
Facility: **Florida River Compression Facility**
Description: **Emissions Summary**

EPN	Description	Emissions (TPY)						
		NO_x	CO	PM	SO_2	VOC	CH_2O	HAPs
T-1	45 MMBtu/hr Turbine #1, Natural gas-fired turbine, simple cycle, Solar Centaur H T5500	91.4544	35.0838	1.3009	0.0185	7.1942	0.5755	0.5755
T-2	45 MMBtu/hr Turbine #2, Natural gas-fired turbine, simple cycle, Solar Centaur H T5700	100.7181	55.7793	1.3009	0.0185	7.1942	0.5755	0.5755
AH-1	44.5 MMBtu/hr Amine Heater #1	24.3638	20.4656	1.8516	0.0460	1.3400	0.0183	0.0183
AH-2	44.0 MMBtu/hr Amine Heater #2	24.0900	20.2356	1.8308	0.0455	1.3250	0.0181	0.0181
AV-1	70 MMscfd Amine Unit #1 Vent [1]	0.0000	0.0000	0.0000	0.0000	4.9010	—	—
Plant Flare	Plant Flare, 4 MMBtu/hr pilot, 0.1 - 400 MMscfd	2.3856	12.9808	0.0000	0.0065	0.0071	—	—
P-1- P12	2922 hp Diesel-fired electric generation units, Cummins QSK60	39.0615	37.3946	1.6620	24.0988	8.3099	0.0104	2.9573
	Total	**282.0733**	**181.9394**	**7.9462**	**24.2337**	**30.2713**	**1.1978**	**4.1447**

Description: **Insignificant Source Emissions**

EPN	Description	Emissions (TPY)						
		NO_x	CO	PM	SO_2	VOC	CH_2O	HAPs
	70 MMscfd Amine Unit #2 Vent [1]	—	—	—	—	0.0240	—	0.0000
	Amine #2 Flash Tank [1]	—	—	—	—	0.0410	—	0.0010
	2.5 MMBtu/hr Dehy Reboiler #1a	1.3688	1.1498	0.1040	0.0026	0.0753	0.0010	0.0010
	2.5 MMBtu/hr Dehy Reboiler #1b	1.3688	1.1498	0.1040	0.0026	0.0753	0.0010	0.0010
	2.5 MMBtu/hr Dehy Reboiler #2	1.3688	1.1498	0.1040	0.0026	0.0753	0.0010	0.0010
	2.14 MMBtu/hr Dehy Reboiler #3a	1.1717	0.9842	0.0890	0.0022	0.0644	0.0009	0.0009
	2.14 MMBtu/hr Dehy Reboiler #3b	1.1717	0.9842	0.0890	0.0022	0.0644	0.0009	0.0009
	Dehy #1 Flash Tank [2]	—	—	—	—	0.0383	—	—
	Dehy #2 Flash Tank [2]	—	—	—	—	0.0278	—	—
	Dehy #3 Flash Tank [2]	—	—	—	—	0.1655	—	—
	90 MMscfd Glycol Still Column Vent #1 [2]	—	—	—	—	0.8054	—	—
	35 MMscfd Glycol Still Column Vent #2 [2]	—	—	—	—	0.4763	—	—
	180 MMscfd Glycol Still Column Vent #3 [2]	—	—	—	—	1.1817	—	—
	Process Fugitive Emissions	—	—	—	—	0.0187	—	—
	1,000 gal Gasoline Tank [3]	—	—	—	—	0.2446	—	—
	250 bbl MDEA Tank [3]	—	—	—	—	0.0007	—	—
	300 bbl EG Tank [3]	—	—	—	—	0.0002	—	—
	1,500 gal EG Tank [3]	—	—	—	—	0.0002	—	—
	100 bbl TEG Tank [3]	—	—	—	—	0.0002	—	—
	12,000 gal Diesel Fuel Tank [3]	—	—	—	—	0.0041	—	—
	100 gal Diesel Fuel Tank [3]	—	—	—	—	0.0041	—	—
	300 gal Diesel Tank [3]	—	—	—	—	0.0041	—	—
	(4) 2,400 gal Peaker Diesel Fuel Tanks [3]	—	—	—	—	0.0165	—	—
	(8) 3,200 gal Peaker Diesel Fuel Tanks [3]	—	—	—	—	0.0329	—	—
	300 bbl Waste Oil Tank [3]	—	—	—	—	0.0032	—	—
	210 bbl Lube Oil Tank [3]	—	—	—	—	0.0032	—	—
	100 bbl Oily Water Tank [3]	—	—	—	—	0.0032	—	—
	(3) 550 gal Lube Oil Tanks [3]	—	—	—	—	0.0097	—	—
	(4) 500 gal Lube Oil Tanks [3]	—	—	—	—	0.0130	—	—
	238 gal Compressor Lube Oil Drain and Sump [3]	—	—	—	—	0.0032	—	—
	(6) 55 gal Lube Oil Tanks [3]	—	—	—	—	0.0194	—	—
	250 bbl Treated Water Tank [4]	—	—	—	—	—	—	—
	100 bbl Well Water Tank [4]	—	—	—	—	—	—	—
	4,000 gal Produced Water Tank [4]	—	—	—	—	—	—	—
	(2) 400 bbl Water Breakout Tanks [4]	—	—	—	—	—	—	—
	7,500 gal Ammonia Storage Tank [4]	—	—	—	—	—	—	—
	80 bbl Condensation Tank [4]	—	—	—	—	—	—	—
	(2) 3,000 gallon Evaporative Cooler Fresh Water Tanks [4]	—	—	—	—	—	—	—
	1,260 gallon Evaporative Cooler Fresh Water Tank [4]	—	—	—	—	—	—	—
	Total	**6.4496**	**5.4176**	**0.4902**	**0.0122**	**3.4962**	**0.0048**	**0.0058**

[1] See attached AMINECalc runs.

[2] See attached GLYCalc runs.

[3] See attached Tanks 4.0 runs.

Since TEG is not in the chemical database, the ethylene glycol run is being conservatively used to represent emissions.

Since diesel fuel is not in the chemical database, distillate fuel oil no. 2 is conservatively being used to estimate emissions.

Since lube oil is not in the chemical database, jet kerosene is conservatively being used to estimate emissions.

[4] Not storing VOL - listed for purposes of equipment counts only.

	Emissions (TPY)						
	NO_x	CO	PM	SO_2	VOC	CH_2O	HAPs
Total Site Emissions	**288.52**	**187.36**	**8.44**	**24.25**	**33.77**	**1.20**	**4.15**

BP America Production Company
Facility: **Florida River Compression Facility**
Description: **45 MMBtu/hr Turbine #1, Natural gas-fired turbine, simple cycle, Solar Centaur H T5500**
EPN: **T-1**

Source Information:

Heat Input	45 MMBtu/hr
Fuel Heating Value[1]	800 Btu/scf
Hours of Operation	8760 hr/yr
Fuel Usage	492.8 MMscf/yr

Emissions Calculations:

Pollutant	Emission Factor (lb/MMBtu)	Factor Units	Emissions (lb/hr)	Emissions (TPY)
NO_X[2]	4.64E-01	lb/MMBtu	20.8800	91.4544
CO[2]	1.78E-01	lb/MMBtu	8.0100	35.0838
VOC[2]	3.65E-02	lb/MMBtu	1.6425	7.1942
SO_2[3,4]	9.40E-05	lb/MMBtu	0.0042	0.0185
PM[3]	6.60E-03	lb/MMBtu	0.2970	1.3009
CH_2O[5]	2.92E-03	lb/MMBtu	0.1314	0.5755

Example Calculations:

NO_X Emissions (lb/hr) = 0.46 lb/MMBtu * 45 MMBtu/hr = 20.88 lb/hr

NO_X Emissions (TPY) = 20.88 lb/hr * 8760 hr/yr * 1 Ton/2000 lb = 91.45 tpy

[1] Fuel heating value will be between 800 - 1000 Btu/scf. To calculate the highest fuel usage for potential to emit, the lowest heating value is being used.

[2] Factors based on historical El Paso permit tpy limits. Limit basis, vendor specifications, and historical stack test results are being researched in order to update the emission factors.

[3] Based on AP-42, Fifth Edition, Volume 1, Chapter 3, Section 3.1, Table 3.1-2a Emission Factors for Criteria Pollutants and Greenhouse Gases from Stationary Gas Turbines, 4/00.

[4] All sulfur in the fuel is assumed to be converted to SO2. Emission Factor is 0.94S, where S = percent sulfur in fuel. In this case, the sulfur content is less than 1 ppm per historical sampling, so S = 0.0001% sulfur in fuel.

[5] Based on "Emission Factors for Non-Warranted Pollutants - Formaldehyde" memo from Solar dated 7/22/2003.

BP America Production Company
Facility: **Florida River Compression Facility**
Description: **45 MMBtu/hr Turbine #2, Natural gas-fired turbine, simple cycle, Solar Centaur H T5700**
EPN: **T-2**

Source Information:

Heat Input	45 MMBtu/hr
Fuel Heating Value[1]	800 Btu/scf
Hours of Operation	8760 hr/yr
Fuel Usage	492.8 MMscf/yr

Criteria Pollutant Emissions Calculations:

Pollutant	Emission Factor	Factor Units	Emissions (lb/hr)	Emissions (TPY)
NO_X[2]	5.11E-01	lb/MMBtu	22.9950	100.7181
CO[2]	2.83E-01	lb/MMBtu	12.7350	55.7793
VOC[2]	3.65E-02	lb/MMBtu	1.6425	7.1942
SO_2[3,4]	9.40E-05	lb/MMBtu	0.0042	0.0185
PM[3]	6.60E-03	lb/MMBtu	0.2970	1.3009
CH_2O[5]	2.92E-03	lb/MMBtu	0.1314	0.5755

Example Calculations:

NO_X Emissions (lb/hr) = 0.51 lb/MMBtu * 45 MMBtu/hr = 23.00 lb/hr

NO_X Emissions (TPY) = 23.00 lb/hr * 8760 hr/yr * 1 Ton/2000 lb = 100.72 tpy

[1] Fuel heating value will be between 800 - 1000 Btu/scf. To calculate the highest fuel usage for potential to emit, the lowest heating value is being used.

[2] Factors based on historical El Paso permit tpy limits. Limit basis, vendor specifications, and historical stack test results are being researched in order to update the emission factors.

[3] Based on AP-42, Fifth Edition, Volume 1, Chapter 3, Section 3.1, Table 3.1-2a Emission Factors for Criteria Pollutants and Greenhouse Gases from Stationary Gas Turbines, 4/00.

[4] All sulfur in the fuel is assumed to be converted to SO2. Emission Factor is 0.94S, where S = percent sulfur in fuel. In this case, the sulfur content is less than 1 ppm per historical sampling, so S = 0.0001% sulfur in fuel.

[5] Based on "Emission Factors for Non-Warranted Pollutants - Formaldehyde" memo from Solar dated 7/22/2003.

BP America Production Company
Facility: **Florida River Compression Facility**
Description: **44.5 MMBtu/hr Amine Heater #1**
EPN: **AH-1**

Source Information:

Heater Design Burning Rate	44.5 MMBtu/hr
Fuel Heating Value[1]	800 Btu/scf
Hours of Operation	8,760 hr/yr
Fuel Usage	487.3 MMscf/yr

Emissions:

Pollutant	Emission Factor (lb/MMscf)[2]	Emissions (lb/hr)	Emissions (TPY)
NO_X	100	5.5625	24.3638
CO	84	4.6725	20.4656
VOC	5.5	0.3059	1.3400
SO_2[3]	0.19	0.0105	0.0460
PM	7.6	0.4228	1.8516
CH2O	0.075	0.0042	0.0183

Example Calculations:

NO_X Emissions (lb/hr) = 487.3 MMscf/yr * yr/8760 hr * 100 lb/MMscf = 5.5625

NO_X Emissions (TPY) = 5.56 lb/hr * 8760 hr/yr * Ton/2000 lb = 24.3638

[1] Fuel heating value will be between 800 - 1000 Btu/scf. To calculate the highest fuel usage for potential to emit, the lowest heating value is being used.

[2] Based on AP-42, Fifth Edition, Volume 1, Chapter 1, Section 1.4, Table 1.4-1, 1.4-2, and 1.4-3, 7/98.

[3] Based on 100% conversion of fuel sulfur to SO2. AP-42 factor of 0.6 lb/MMscf assumes sulfur content in natural gas of 2,000 grains/MMscf (= 3.18 ppm). Emission factor is converted to other natural gas sulfur contents by multiplying the SO2 emission factor by the ratio of the site-specific sulfur content (ppm) to the 3.18 ppm. Site fuel H2S content is less than 1 ppm. (0.6 * 1/3.18)

BP America Production Company
Facility: **Florida River Compression Facility**
Description: **44.0 MMBtu/hr Amine Heater #2**
EPN: **AH-2**

Source Information:

Heater Design Burning Rate	44 MMBtu/hr
Fuel Heating Value[1]	800 Btu/scf
Hours of Operation	8,760 hr/yr
Fuel Usage	481.8 MMscf/yr

Emissions:

Pollutant	Emission Factor (lb/MMscf)[2]	Emissions (lb/hr)	Emissions (TPY)
NO_X	100.0000	5.5000	24.0900
CO	84.0000	4.6200	20.2356
VOC	5.5000	0.3025	1.3250
SO_2[3]	0.1887	0.0104	0.0455
PM	7.6000	0.4180	1.8308
CH2O	0.0750	0.0041	0.0181

Example Calculations:

NO_X Emissions (lb/hr) = 481.8 MMscf/yr * yr/8760 hr * 100 lb/MMscf = 5.5000

NO_X Emissions (TPY) = 5.50 lb/hr * 8760 hr/yr * Ton/2000 lb = 24.0900

[1] Fuel heating value will be between 800 - 1000 Btu/scf. To calculate the highest fuel usage for potential to emit, the lowest heating value is being used.

[2] Based on AP-42, Fifth Edition, Volume 1, Chapter 1, Section 1.4, Table 1.4-1, 1.4-2, and 1.4-3, 7/98.

[3] Based on 100% conversion of fuel sulfur to SO2. AP-42 factor of 0.6 lb/MMscf assumes sulfur content in natural gas of 2,000 grains/MMscf (= 3.18 ppm). Emission factor is converted to other natural gas sulfur contents by multiplying the SO2 emission factor by the ratio of the site-specific sulfur content (ppm) to the 3.18 ppm. Site fuel H2S content is less than 1 ppm. (0.6 * 1/3.18)

BP America Production Company

Facility: **Florida River Compression Facility**

Description: **70 MMscfd Amine Unit #1 Vent 1**

EPN: **AV-1**

Calculation of Emissions from Regenerator Off Gas

Source Information

Gas Feed Flow Rate	**70.0**	MMscf/d
Annual Operating Rate	**8760**	hr/yr

Acid Gas Flow from Amine Regenerator (AMINECalc)[1]

Component	Uncontrolled lb/hr	Uncontrolled TPY
H2S	0.000	0.000
CO2	7246.518	31739.210
DEA	0.000	0.000
H20	0.000	0.000
N2	2.068	9.055
Methane	80.324	351.813
Ethane	0.414	1.815
Propane	0.020	0.088
Isobutane	0.546	2.393
n-Butane	0.516	2.260
Isopentane	0.027	0.117
n-Pentane	0.009	0.039
Hexanes	0.000	0.002
Heptanes	0.000	0.000
Octanes	0.000	0.001
Nonanes	0.000	0.000
C10+	0.000	0.000
Benzene	0.000	0.000
Toluene	0.000	0.000
Ethyl benzene	0.000	0.000
Xylenes	0.000	0.000
n-Hexane	0.000	0.001
Total	7330.44	32106.794
Total VOCs	1.12	4.90

[1] Vent Gas Emissions were calculated using AMINECalc.

Based on Gas analyses of 20 MMscfd of low pressure gas commingled with all medium pressure gas except MPP. Samples taken 2/25/2004.

BP America Production Company
Facility: **Florida River Compression Facility**
Description: **Plant Flare, 4 MMBtu/hr pilot, 0.1 - 400 MMscfd**
EPN: **Plant Flare**
Emissions estimate only. This is not an allowable limit.

The plant is equipped with a ground flare "candle" system to combust gases that for various reasons cannot be sent to market. The flare system disposes of a minimum of about 100,000 scf per day but is designed to handle the full inlet for a very brief period in emergency or plant upset situations.

Source Information:

Minimum Daily Plant Flow to Flare	100,000 scf/d
Pilot	99,758 scf/d
Total Minimum Daily Volume to Flare	199,758 scf/d
Total Annual Volume to Flare	72,911,500 scf/yr
Average Heating Value[1]	962.3 Btu/scf

Emissions Calculations:

Pollutant	Emissions Factor (lb/MMBtu)	Emissions (avg lb/hr)	Emissions (TPY)
NO_x[2]	0.068	0.5447	2.3856
CO[2]	0.37	2.9636	12.9806
SO_2[3]	0.0002	0.0015	0.0065
VOC - Pilot[2]	0.0002	0.0009	0.0039
VOC - Plant Flow[4]	98% Destructed	0.0007	0.0032
Total VOC	N/A	0.0016	0.0071

[1] Average heating value of the inlet gas streams (986, 991, 946, 919, 993, & 939)

[2] AP-42, Industrial Flares, Table 13.5-1 Emission Factors For Flare Operations, September 1991. The VOC emissions are for the pilot only, and the factor for THC has been changed based on the fuel gas % VOC of THC (0.14 lb THC/MMBtu x 0.16% VOC). Using 3-1-04 Red Cedar gas analysis because it has the highest % VOC of THC.

[3] AP-42, Natural Gas Combustion, Table 1.4-2 Emission Factors for Criteria Pollutants 7/98. Based on 100% conversion of fuel sulfur to SO2. AP-42 factor of 0.6 lb/MMscf assumes sulfur content in natural gas of 2,000 grains/MMscf (= 3.18 ppm). Emission factor is converted to other natural gas sulfur contents by multiplying the SO2 emission factor by the ratio of the site-specific sulfur content (ppm) to the 3.18 ppm. Site fuel H2S content is less than 1 ppm. (0.6 * 1/3.18 * 1/1020)

[4] Assumes 98% DRE of plant flow to flare.
lb/hr = (scf/d)(d/24 hr)(MW of gas, lb/lb-mole)(1 lb-mol/379 scf)(wt fraction VOC)(1-.98)
= 100,000 * 1/24 * 16.94 * 1/379 * 0.00020 * .02

Facility: **Florida River Compression Facility**
Description: **All Low Pressure and Medium Pressure Gas Inlets - Commingled for Flare and Fugitives Calculations**

Description:	***Area 1 East***	***Area West***	***Area 6***	***ECBM***	***Red Cedar***	***MPP***
Inlet (MMscfd):	***21***	***39***	***21***	***39***	***10***	***193***

	Area 1 East	Area West	Area 6	ECBM	Red Cedar	MPP	**Commingled**	MW	Component	**Wt %**
Component	Mole %	Mole %	Mole %	Mole %	Mole %	Mole %	**Mole %**	lb/lb-mole	lb/lb-mole	**Gas Stream**
CO2	2.8976	2.4152	6.9213	3.4495	7.7889	2.0784	2.8295	44.01	1.2453	7.3451%
H2S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	34.086	0.0000	0.0000%
N2	0.0509	0.0513	0.0228	6.1701	0.0197	0.1399	0.8402	28.01	0.2353	1.3881%
C1H4	96.8589	97.3882	92.8057	90.1368	91.8068	97.6855	96.1851	16.04	15.4281	91.0007%
C2H6	0.1885	0.1434	0.2457	0.2261	0.3382	0.0936	0.1392	30.07	0.0419	0.2470%
C3H8	0.0000	0.0000	0.0000	0.0126	0.0324	0.0000	0.0025	44.1	0.0011	0.0066%
iC4H10	0.0011	0.0007	0.0014	0.0018	0.0047	0.0008	0.0011	58.12	0.0006	0.0037%
nC4H10	0.0011	0.0006	0.0013	0.0015	0.0051	0.0008	0.0010	58.12	0.0006	0.0036%
iC54H12	0.0007	0.0005	0.0010	0.0008	0.0018	0.0005	0.0006	72.15	0.0004	0.0026%
nC5H12	0.0002	0.0001	0.0002	0.0003	0.0009	0.0002	0.0002	72.15	0.0002	0.0009%
C6H14	0.0002	0.0000	0.0004	0.0003	0.0006	0.0001	0.0002	84.993917	0.0001	0.0008%
C7H16	0.0001	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	109.6	0.0000	0.0001%
C8H18+	0.0004	0.0000	0.0001	0.0001	0.0003	0.0001	0.0001	113.779	0.0001	0.0008%
Benzene	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	78.1134	0.0000	0.0000%
Toluene	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	92.1402	0.0000	0.0000%
Ethylbenzene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	106.167	0.0000	0.0000%
Xylenes	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	318.501	0.0000	0.0001%
n-Hexane	0.0001	0.0000	0.0001	0.0001	0.0002	0.0001	0.0001	86.1766	0.0001	0.0005%
	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000		16.9538	100%
						Wt % of TOC Gas Stream that is VOC (C3+)				**0.022%**
						Wt % of Total Gas Stream that is VOC (C3+)				**0.020%**

BP America Production Company

Facility: Florida River Compression Facility

Description[1]: 2922 hp Diesel-fired electric generation units, Cummins QSK60

EPN: P-1 thru P-12 engines

Selective Catalytic Reduction for NOx is federally enforceable- calculations are controlled

Oxidation Catalyst for VOC & CO is not federally enforceable- calculations are uncontrolled

Source Information:

Rating[1,3]	2,922	hp
Number of Engines	12	
Typical Operation (single unit)	1,075	hr/yr
Maximum Operation (total)[2]	12,900	hr/yr
Typical Start-ups (single unit)	250	starts/yr
Maximum Start-ups (total)[2]	3,000	starts/yr
Ave BSFC (BTU/hp-hr) AP-42	7,000	Btu/hp-hr

Criteria Pollutant Emissions Calculations:

Pollutant	Emission Factor	Factor Units	Emissions Per Engine (lb/hr)	Emissions per Engine (TPY)	Total Emissions (lb/hr)	Total Emissions (TPY)
Controlled NO_X[3,4] - non start-up	0.70	g/hp-hr	4.5093	1.8601	54.1111	22.3208
Controlled NO_X[3,5]- start-up	1.73	g/hp-hr	11.1604	1.3951	133.9250	16.7406
Total NOx	N/A	N/A	15.6697	3.2551	188.0361	39.0615
CO[3,6]	0.90	g/hp-hr	5.7976	3.1162	69.5714	37.3946
VOC[3,6]	0.20	g/hp-hr	1.2884	0.6925	15.4603	8.3099
SO_2[3,7]	0.58	g/hp-hr	3.7362	2.0082	44.8349	24.0988
PM[3]	0.04	g/hp-hr	0.2577	0.1385	3.0921	1.6620
CH_2O[8]	7.89E-05	lb/MMBtu	0.0016	0.0009	0.0194	0.0104

Example Calculations:

Single engine NO_X Emissions- non start-up (lb/hr) = 2922 hp * 0.70 g/hp-hr * lb/453.6 g = 4.51 lb/hr

Single engine NO_X Emissions- non start up (TPY) = 4.51 lb/hr * (1075 total hr/yr - 250 start ups/yr) * 1 Ton/2000 lb = 1.86 tpy

[1] Full standby rating for turbocharged and low temperature aftercooled unit

[2] Limited by Title V Permit to 12,900 total operating hours and 3,000 starts per year

[3] Exhaust Emission Data Sheet, 2000DQKC, 60 Hz Diesel Generator Set - Cummins Power Generation EDS-169B.

[4] NOx is controlled by SCR for 90% control during non start up hours.

[5] It is conservatively assumed that there is no control for the first 5 minutes, 46.5% control for 10 minutes, and 90% control for 45 minutes. g/hp-hr = (7*5/60)+((7*0.535)*10/60)+((7*0.1)*45/60)

[6] Oxidation control is expected to reduce CO by 90% and VOC by 60%. Since the oxidation is not federally enforceable, emissions are calculated as uncontrolled.

[7] SO2 factor is based on the maximum sulfur content of number 2 diesel fuel. It was assumed that all of the sulfur would be converted into SO2.

[8] Based on AP-42, Fifth Edition, Volume 1, Chapter 3, Section 3.4, Table 3.4-3 Speciated Organic Compound Emission Factors for Large Uncontrolled Stationary Diesel Engines, 10/96 (for engines > 600 hp).

HAP Emissions:

	AP-42 Factor[8] (lb/MMBtu)	Emissions Per Engine (lb/hr)	Emissions per Engine (TPY)	Total Emissions (lb/hr)	Total Emissions (TPY)
Benzene	7.76E-04	0.0159	0.0085	0.1905	0.1024
Toluene	2.81E-04	0.0057	0.0031	0.0690	0.0371
Xylenes	1.93E-04	0.0039	0.0021	0.0474	0.0255
Propylene	2.79E-04	0.0057	0.0031	0.0685	0.0368
Formaldehyde	7.89E-05	0.0016	0.0009	0.0194	0.0104
Acetaldehyde	2.52E-05	0.0005	0.0003	0.0062	0.0033
Acrolein	7.88E-06	0.0002	0.0001	0.0019	0.0010
Note: Actual emissions are likely to be lower as a result of the controls.				**Total**	**0.2165**

Ammonia- 10 ppm ammonia slip		Emissions Per Engine (lb/hr)	Emissions per Engine (TPY)	Total Emissions (lb/hr)	Total Emissions (TPY)
Exhaust flow rate (cfm)	15,810	0.42	0.23	5.10	**2.74**

Total HAPs **2.96** **tons/year**

INSIGNIFICANT EMISSIONS:
INSIGNIFICANT SOURCE DESCRIPTIONS
INSIGNIFICANT EMISSIONS SUMMARY
EMISSIONS CALCULATIONS
AMINECALC RUNS
GRI-GLYCALC RUNS
GAS ANALYSES
TANKS 4.0 RUNS
MSDS

BP America Production Company

Facility: **Florida River Compression Facility**

Description: **70 MMscfd Amine Unit #2 Vent 1**

Calculation of Emissions from Regenerator Off Gas

Source Information

Gas Feed Flow Rate	**70.0**	MMscf/d
Annual Operating Rate	**8760**	hr/yr

Acid Gas Flow from Amine Regenerator (AMINECalc)[1]

Component	Uncontrolled lb/hr	Uncontrolled TPY
H2S	0.000	0.000
CO2	7964.081	34882.080
DEA	0.000	0.000
H20	0.000	0.000
N2	0.369	1.618
Methane	24.701	108.187
Ethane	0.125	0.550
Propane	0.005	0.024
Isobutane	0.000	0.000
n-Butane	0.000	0.000
Isopentane	0.000	0.000
n-Pentane	0.000	0.000
Hexanes	0.000	0.000
Heptanes	0.000	0.000
Octanes	0.000	0.000
Nonanes	0.000	0.000
C10+	0.000	0.000
Benzene	0.000	0.000
Toluene	0.000	0.000
Ethyl benzene	0.000	0.000
Xylenes	0.000	0.000
n-Hexane	0.000	0.000
Total	7989.28	34992.459
Total VOCs	0.01	0.02

[1] Vent Gas Emissions were calculated using AMINECalc.

Based on Gas analyses of 20 MMscfd of low pressure gas commingled with all medium pressure gas except MPP. Samples taken 2/25/2004.

BP America Production Company
Facility: **Florida River Compression Facility**
Description: **2.5 MMBtu/hr Dehy Reboiler #1a**
2.5 MMBtu/hr Dehy Reboiler #1b

Source Information:

Design Rating[1]	2.5 MMBtu/hr
Fuel Heating Value[2]	800 Btu/scf
Hours of Operation	8,760 hr/yr
Fuel Usage	27.4 MMscf/yr

Emissions:

Pollutant	Emission Factor (lb/MMscf)[3]	Emissions per Unit (lb/hr)	Emissions per Unit (TPY)
NO_X	100.0000	0.3125	1.3688
CO	84.0000	0.2625	1.1498
VOC	5.5000	0.0172	0.0753
SO_2[4]	0.1887	0.0006	0.0026
PM	7.6000	0.0238	0.1040
CH2O	0.0750	0.0002	0.0010

Example Calculations:

NO_X Emissions (lb/hr) = 27.4 MMscf/yr * yr/8760 hr * 100 lb/MMScf = 0.3125

NO_X Emissions (TPY) = 0.31 lb/hr * 8760 hr/yr * Ton/2000 lb = 1.3688

[1] Note: There are actually two burners each rated at 2.5 MMBtu/hr.

[2] Fuel heating value will be between 800 - 1000 Btu/scf. To calculate the highest fuel usage for potential to emit, the lowest heating value is being used.

[3] Based on AP-42, Fifth Edition, Volume 1, Chapter 1, Section 1.4, Table 1.4-1, 1.4-2, and 1.4-3, 7/98.

[4] Based on 100% conversion of fuel sulfur to SO2. AP-42 factor of 0.6 lb/MMscf assumes sulfur content in natural gas of 2,000 grains/MMscf (= 3.18 ppm). Emission factor is converted to other natural gas sulfur contents by multiplying the SO2 emission factor by the ratio of the site-specific sulfur content (ppm) to the 3.18 ppm. Site fuel H2S content is less than 1 ppm. (0.6 * 1/3.18)

BP America Production Company
Facility: **Florida River Compression Facility**
Description: **2.5 MMBtu/hr Dehy Reboiler #2**

Source Information:

Design Rating	2.5 MMBtu/hr
Fuel Heating Value[2]	800 Btu/scf
Hours of Operation	8,760 hr/yr
Fuel Usage	27.4 MMscf/yr

Emissions:

Pollutant	Emission Factor (lb/MMscf)[2]	Emissions per Unit (lb/hr)	Emissions per Unit (TPY)
NO_X	100.0000	0.3125	1.3688
CO	84.0000	0.2625	1.1498
VOC	5.5000	0.0172	0.0753
SO_2[3]	0.1887	0.0006	0.0026
PM	7.6000	0.0238	0.1040
CH2O	0.0750	0.0002	0.0010

Example Calculations:

NO_X Emissions (lb/hr) = 27.4 MMscf/yr * yr/8760 hr * 100 lb/MMScf = 0.3125

NO_X Emissions (TPY) = 0.31 lb/hr * 8760 hr/yr * Ton/2000 lb = 1.3688

[1] Fuel heating value will be between 800 - 1000 Btu/scf. To calculate the highest fuel usage for potential to emit, the lowest heating value is being used.

[2] Based on AP-42, Fifth Edition, Volume 1, Chapter 1, Section 1.4, Table 1.4-1, 1.4-2, and 1.4-3, 7/98.

[3] Based on 100% conversion of fuel sulfur to SO2. AP-42 factor of 0.6 lb/MMscf assumes sulfur content in natural gas of 2,000 grains/MMscf (= 3.18 ppm). Emission factor is converted to other natural gas sulfur contents by multiplying the SO2 emission factor by the ratio of the site-specific sulfur content (ppm) to the 3.18 ppm. Site fuel H2S content is less than 1 ppm. (0.6 * 1/3.18)

BP America Production Company
Facility: **Florida River Compression Facility**
Description: **2.14 MMBtu/hr Dehy Reboiler #3a**
2.14 MMBtu/hr Dehy Reboiler #3b

Source Information:

Design Rating[1]	2.1 MMBtu/hr
Fuel Heating Value[2]	800 Btu/scf
Hours of Operation	8,760 hr/yr
Fuel Usage	23.4 MMscf/yr

Emissions:

Pollutant	Emission Factor (lb/MMscf)[3]	Emissions per Unit (lb/hr)	Emissions per Unit (TPY)
NO_X	100.0000	0.2675	1.1717
CO	84.0000	0.2247	0.9842
VOC	5.5000	0.0147	0.0644
SO_2[4]	0.1887	0.0005	0.0022
PM	7.6000	0.0203	0.0890
CH2O	0.0750	0.0002	0.0009

Example Calculations:

NO_X Emissions (lb/hr) = 23.4 MMscf/yr * yr/8760 hr * 100 lb/MMScf = 0.2675

NO_X Emissions (TPY) = 0.27 lb/hr * 8760 hr/yr * Ton/2000 lb = 1.1717

[1] Note: There are actually two burners each rated at 2.14 MMBtu/hr.

[2] Fuel heating value will be between 800 - 1000 Btu/scf. To calculate the highest fuel usage for potential to emit, the lowest heating value is being used.

[3] Based on AP-42, Fifth Edition, Volume 1, Chapter 1, Section 1.4, Table 1.4-1, 1.4-2, and 1.4-3, 7/98.

[4] Based on 100% conversion of fuel sulfur to SO2. AP-42 factor of 0.6 lb/MMscf assumes sulfur content in natural gas of 2,000 grains/MMscf (= 3.18 ppm). Emission factor is converted to other natural gas sulfur contents by multiplying the SO2 emission factor by the ratio of the site-specific sulfur content (ppm) to the 3.18 ppm. Site fuel H2S content is less than 1 ppm. (0.6 * 1/3.18)

BP America Production Company
Facility: **Florida River Compression Facility**
Description: **Process Fugitive Emissions**

Emissions:

Equipment Type	Service	THC Emission Factor (lb/hr/source)[1]	Source Count[2]	Percent VOC[3]	VOC Emissions (lb/hr)	VOC Emissions (TPY)
Connectors	Gas	0.000440	329	0.02%	0.0000	0.0001
Flanges	Gas	0.000860	1392	0.02%	0.0003	0.0011
Open-ended Lines	Gas	0.004410	15	0.02%	0.0000	0.0001
Other[4]	Gas	0.019400	39	0.02%	0.0002	0.0007
Pumps	Gas	0.005290	12	0.02%	0.0000	0.0001
Valves	Gas	0.009920	1761	0.02%	0.0038	0.0165
Total			3548		**0.0043**	**0.0187**

[1] Based on EPA's "Protocol For Equipment Leak Emission Estimates", Table 2-4, November 1995.

[2] Based on GHG workbook counts

[3] VOC concentrations for gas service are based on the commingling of the analyses from all six gas inlets.

[4] Derived from compressors, diaphragms, drains, dump arms, hatches, instruments, meters, pressure relief valves, relief valves and vents; applied to all equipment types other than valves, pump seals, connectors, or flanges.

Example Calculations:
VOC Emissions (lb/hr) = 0.0009 lb/hr/gas flange * 1392 flanges * 0.02% VOC = 0.0003
VOC Emissions (TPY) = 0.0003 lb/hr * 8760 hr/yr * Ton/2000 lb = 0.0011

Facility: Florida River Compression Facility
Description: All Low Pressure and Medium Pressure Gas Inlets - Commingled for Flare and Fugitives Calculations

Description:	***Area 1 East***	***Area West***	***Area 6***	***ECBM***	***Red Cedar***	***MPP***
Inlet (MMscfd):	***21***	***39***	***21***	***39***	***10***	***193***

	Area 1 East	Area West	Area 6	ECBM	Red Cedar	MPP	**Commingled**	MW	Component	**Wt %**
Component	Mole %	Mole %	Mole %	Mole %	Mole %	Mole %	**Mole %**	lb/lb-mole	lb/lb-mole	**Gas Stream**
CO2	2.8976	2.4152	6.9213	3.4495	7.7889	2.0784	2.8295	44.01	1.2453	7.3451%
H2S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	34.086	0.0000	0.0000%
N2	0.0509	0.0513	0.0228	6.1701	0.0197	0.1399	0.8402	28.01	0.2353	1.3881%
C1H4	96.8589	97.3882	92.8057	90.1368	91.8068	97.6855	96.1851	16.04	15.4281	91.0007%
C2H6	0.1885	0.1434	0.2457	0.2261	0.3382	0.0936	0.1392	30.07	0.0419	0.2470%
C3H8	0.0000	0.0000	0.0000	0.0126	0.0324	0.0000	0.0025	44.1	0.0011	0.0066%
iC4H10	0.0011	0.0007	0.0014	0.0018	0.0047	0.0008	0.0011	58.12	0.0006	0.0037%
nC4H10	0.0011	0.0006	0.0013	0.0015	0.0051	0.0008	0.0010	58.12	0.0006	0.0036%
iC54H12	0.0007	0.0005	0.0010	0.0008	0.0018	0.0005	0.0006	72.15	0.0004	0.0026%
nC5H12	0.0002	0.0001	0.0002	0.0003	0.0009	0.0002	0.0002	72.15	0.0002	0.0009%
C6H14	0.0002	0.0000	0.0004	0.0003	0.0006	0.0001	0.0002	84.993917	0.0001	0.0008%
C7H16	0.0001	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	109.6	0.0000	0.0001%
C8H18+	0.0004	0.0000	0.0001	0.0001	0.0003	0.0001	0.0001	113.779	0.0001	0.0008%
Benzene	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	78.1134	0.0000	0.0000%
Toluene	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	92.1402	0.0000	0.0000%
Ethylbenzene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	106.167	0.0000	0.0000%
Xylenes	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	318.501	0.0000	0.0001%
n-Hexane	0.0001	0.0000	0.0001	0.0001	0.0002	0.0001	0.0001	86.1766	0.0001	0.0005%
	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000	100.0000		16.9538	100%
						Wt % of TOC Gas Stream that is VOC (C3+)				**0.022%**
						Wt % of Total Gas Stream that is VOC (C3+)				**0.020%**

LP- Area 1 East

Facility: **Florida River Compression Facility**
Description: **Area 1 East Combined**

Analysis Type: ***Gas***
Analytical Lab: ***Questar Applied Technology***
Sample Date: ***2/25/2004***
Lab Analysis Date: ***3/1/2004***
Flow Rate: ***65 MMscfd***
Pressure: ***58 psig***

Component	Mole %	MW lb/lb-mole	Component lb/lb-mole	Wt % Gas Stream
CO2	2.8976	44.01	1.275	7.5525%
H2S	0.0000	34.09	0.000	0.0000%
N2	0.0509	28.01	0.014	0.0844%
C1H4	96.8589	16.04	15.536	92.0116%
C2H6	0.1885	30.07	0.057	0.3357%
C3H8	0.0000	44.10	0.000	0.0000%
iC4H10	0.0011	58.12	0.001	0.0038%
nC4H10	0.0011	58.12	0.001	0.0038%
iC54H12	0.0007	72.15	0.001	0.0030%
nC5H12	0.0002	72.15	0.000	0.0009%
C6H14	0.0002	84.99	0.000	0.0010%
C7H16	0.0001	109.60	0.000	0.0006%
C8H18+	0.0004	113.78	0.000	0.0027%
Benzene	0.0000	78.11	0.000	0.0000%
Toluene	0.0001	92.14	0.000	0.0005%
Ethylbenzene	0.0000	106.17	0.000	0.0000%
Xylenes	0.0001	318.50	0.000	0.0019%
n-Hexane	0.0001	86.18	0.000	0.0005%
	100.0000		16.885	100.00%
	Wt % of TOC Gas Stream that is VOC (C3+)			**0.02%**
	Wt % of Total Gas Stream that is VOC (C3+)			**0.02%**

Notes:
1. For gas mol-volume conversion, assume T = 68°F and P=14.7 psia.
2. Numbers shown in red are input values.

LP- Area West

Facility: **Florida River Compression Facility**
Description: **Area West Combined**

Analysis Type: ***Gas***
Analytical Lab: ***Questar Applied Technology***
Sample Date: ***2/25/2004***
Lab Analysis Date: ***2/27/2004***
Flow Rate: ***35 MMscfd***
Pressure: ***58 psig***

Component	Mole %	MW lb/lb-mole	Component lb/lb-mole	Wt % Gas Stream
CO2	2.4152	44.01	1.063	6.3486%
H2S	0.0000	34.09	0.000	0.0000%
N2	0.0513	28.01	0.014	0.0858%
C1H4	97.3882	16.04	15.621	93.3009%
C2H6	0.1434	30.07	0.043	0.2575%
C3H8	0.0000	44.10	0.000	0.0000%
iC4H10	0.0007	58.12	0.000	0.0024%
nC4H10	0.0006	58.12	0.000	0.0021%
iC54H12	0.0005	72.15	0.000	0.0022%
nC5H12	0.0001	72.15	0.000	0.0004%
C6H14	0.0000	84.99	0.000	0.0000%
C7H16	0.0000	109.60	0.000	0.0000%
C8H18+	0.0000	113.78	0.000	0.0000%
Benzene	0.0000	78.11	0.000	0.0000%
Toluene	0.0000	92.14	0.000	0.0000%
Ethylbenzene	0.0000	106.17	0.000	0.0000%
Xylenes	0.0000	318.50	0.000	0.0000%
n-Hexane	0.0000	86.18	0.000	0.0000%
	100.0000		16.743	100.00%
	Wt % of TOC Gas Stream that is VOC (C3+)			**0.01%**
	Wt % of Total Gas Stream that is VOC (C3+)			**0.01%**

Notes:
1. For gas mol-volume conversion, assume T = 68°F and P=14.7 psia.
2. Numbers shown in red are input values.

LP- Comingled

Facility: **Florida River Compression Facility**
Description: **Low Pressure Gas Inlets - Commingled**

Description: ***Area East*** ***Area East***
Flow Rate (MMscfd): ***65*** ***35***

	Area East	Area West	**Commingled**
Component	Mole %	Mole %	**Mole %**
CO2	2.8976	2.4152	2.7288
H2S	0.0000	0.0000	0.0000
N2	0.0509	0.0513	0.0510
C1H4	96.8589	97.3882	97.0442
C2H6	0.1885	0.1434	0.1727
C3H8	0.0000	0.0000	0.0000
iC4H10	0.0011	0.0007	0.0010
nC4H10	0.0011	0.0006	0.0009
iC54H12	0.0007	0.0005	0.0006
nC5H12	0.0002	0.0001	0.0002
C6H14	0.0002	0.0000	0.0001
C7H16	0.0001	0.0000	0.0001
C8H18+	0.0004	0.0000	0.0003
Benzene	0.0000	0.0000	0.0000
Toluene	0.0001	0.0000	0.0001
Ethylbenzene	0.0000	0.0000	0.0000
Xylenes	0.0001	0.0000	0.0001
n-Hexane	0.0001	0.0000	0.0001
	100.0000	100.0000	100.0000
Mol % of TOC Gas Stream that is VOC (C3+)			**0.00%**
Mol % of Total Gas Stream that is VOC (C3+)			**0.33%**

Facility: **Florida River Compression Facility**
Description: **Area 6**

Analysis Type: ***Gas***
Analytical Lab: ***Questar Applied Technology***
Sample Date: ***2/25/2004***
Lab Analysis Date: ***2/27/2004***
Flow Rate: ***21 MMscfd***
Pressure: ***310 psig***

Component	Mole %	MW lb/lb-mole	Component lb/lb-mole	Wt % Gas Stream
CO2	6.9213	44.01	3.046	16.9082%
H2S	0.0000	34.09	0.000	0.0000%
N2	0.0228	28.01	0.006	0.0354%
C1H4	92.8057	16.04	14.886	82.6302%
C2H6	0.2457	30.07	0.074	0.4101%
C3H8	0.0000	44.10	0.000	0.0000%
iC4H10	0.0014	58.12	0.001	0.0045%
nC4H10	0.0013	58.12	0.001	0.0042%
iC54H12	0.0010	72.15	0.001	0.0040%
nC5H12	0.0002	72.15	0.000	0.0008%
C6H14	0.0004	84.99	0.000	0.0019%
C7H16	0.0000	109.60	0.000	0.0000%
C8H18+	0.0001	113.78	0.000	0.0006%
Benzene	0.0000	78.11	0.000	0.0000%
Toluene	0.0000	92.14	0.000	0.0000%
Ethylbenzene	0.0000	106.17	0.000	0.0000%
Xylenes	0.0000	318.50	0.000	0.0000%
n-Hexane	0.0001	86.18	0.000	0.0005%
	100.0000		18.015	100.00%
	Wt % of TOC Gas Stream that is VOC (C3+)			**0.02%**
	Wt % of Total Gas Stream that is VOC (C3+)			**0.02%**

Notes:
1. For gas mol-volume conversion, assume T = 68°F and P=14.7 psia.
2. Numbers shown in red are input values.

MP- ECBM

Facility: **Florida River Compression Facility**
Description: **ECBM**

Analysis Type: ***Gas***
Analytical Lab: ***Questar Applied Technology***
Sample Date: ***2/25/2004***
Lab Analysis Date: ***3/1/2004***
Flow Rate: ***39 MMscfd***
Pressure: ***315 psig***

		MW	Component	Wt %
Component	Mole %	lb/lb-mole	lb/lb-mole	Gas Stream
CO2	3.4495	44.01	1.518	8.5379%
H2S	0.0000	34.09	0.000	0.0000%
N2	6.1701	28.01	1.728	9.7197%
C1H4	90.1368	16.04	14.458	81.3115%
C2H6	0.2261	30.07	0.068	0.3824%
C3H8	0.0126	44.10	0.006	0.0313%
iC4H10	0.0018	58.12	0.001	0.0059%
nC4H10	0.0015	58.12	0.001	0.0049%
iC54H12	0.0008	72.15	0.001	0.0032%
nC5H12	0.0003	72.15	0.000	0.0012%
C6H14	0.0003	84.99	0.000	0.0014%
C7H16	0.0000	109.60	0.000	0.0000%
C8H18+	0.0001	113.78	0.000	0.0006%
Benzene	0.0000	78.11	0.000	0.0000%
Toluene	0.0000	92.14	0.000	0.0000%
Ethylbenzene	0.0000	106.17	0.000	0.0000%
Xylenes	0.0000	318.50	0.000	0.0000%
n-Hexane	0.0001	86.18	0.000	0.0005%
	100.0000		17.781	100.00%
	Wt % of TOC Gas Stream that is VOC (C3+)			**0.06%**
	Wt % of Total Gas Stream that is VOC (C3+)			**0.05%**

Notes:
1. For gas mol-volume conversion, assume T = 68°F and P=14.7 psia.
2. Numbers shown in red are input values.

MP- Red Cedar

Facility: **Florida River Compression Facility**
Description: **Red Cedar Inlet**

Analysis Type: ***Gas***
Analytical Lab: ***Questar Applied Technology***
Sample Date: ***2/25/2004***
Lab Analysis Date: ***3/1/2004***
Flow Rate: ***10 MMscfd***
Pressure: ***310 psig***

Component	Mole %	MW lb/lb-mole	Component lb/lb-mole	Wt % Gas Stream
CO2	7.7889	44.01	3.428	18.7480%
H2S	0.0000	34.09	0.000	0.0000%
N2	0.0197	28.01	0.006	0.0302%
C1H4	91.8068	16.04	14.726	80.5392%
C2H6	0.3382	30.07	0.102	0.5562%
C3H8	0.0324	44.10	0.014	0.0781%
iC4H10	0.0047	58.12	0.003	0.0149%
nC4H10	0.0051	58.12	0.003	0.0162%
iC54H12	0.0018	72.15	0.001	0.0071%
nC5H12	0.0009	72.15	0.001	0.0036%
C6H14	0.0006	84.99	0.001	0.0028%
C7H16	0.0003	109.60	0.000	0.0018%
C8H18+	0.0003	113.78	0.000	0.0019%
Benzene	0.0001	78.11	0.000	0.0004%
Toluene	0.0000	92.14	0.000	0.0000%
Ethylbenzene	0.0000	106.17	0.000	0.0000%
Xylenes	0.0000	318.50	0.000	0.0000%
n-Hexane	0.0002	86.18	0.000	0.0009%
	100.0000		18.284	100.00%
	Wt % of TOC Gas Stream that is VOC (C3+)			**0.16%**
	Wt % of Total Gas Stream that is VOC (C3+)			**0.13%**

Notes:
1. For gas mol-volume conversion, assume T = 68°F and P=14.7 psia.
2. Numbers shown in red are input values.

MP- MPP

Facility: **Florida River Compression Facility**
Description: **Medium Pressure Pipeline (MPP)**

Analysis Type: ***Gas***
Analytical Lab: ***Questar Applied Technology***
Sample Date: ***2/25/2004***
Lab Analysis Date: ***3/1/2004***
Flow Rate: ***193 MMscfd***
Pressure: ***285 psig***

Component	Mole %	MW lb/lb-mole	Component lb/lb-mole	Wt % Gas Stream
CO2	2.0784	44.01	0.915	5.4929%
H2S	0.0000	34.09	0.000	0.0000%
N2	0.1399	28.01	0.039	0.2353%
C1H4	97.6855	16.04	15.669	94.0929%
C2H6	0.0936	30.07	0.028	0.1690%
C3H8	0.0000	44.10	0.000	0.0000%
iC4H10	0.0008	58.12	0.000	0.0028%
nC4H10	0.0008	58.12	0.000	0.0028%
iC54H12	0.0005	72.15	0.000	0.0022%
nC5H12	0.0002	72.15	0.000	0.0009%
C6H14	0.0001	84.99	0.000	0.0005%
C7H16	0.0000	109.60	0.000	0.0000%
C8H18+	0.0001	113.78	0.000	0.0007%
Benzene	0.0000	78.11	0.000	0.0000%
Toluene	0.0000	92.14	0.000	0.0000%
Ethylbenzene	0.0000	106.17	0.000	0.0000%
Xylenes	0.0000	318.50	0.000	0.0000%
n-Hexane	0.0001	86.18	0.000	0.0005%
	100.0000		16.652	100.00%
	Wt % of TOC Gas Stream that is VOC (C3+)			**0.01%**
	Wt % of Total Gas Stream that is VOC (C3+)			**0.01%**

Notes:
1. For gas mol-volume conversion, assume T = 68°F and P=14.7 psia.
2. Numbers shown in red are input values.

Facility: **Florida River Compression Facility**
Description: **Medium Pressure Gas Inlets - Commingled**

Description:	***Area 6***	***ECBM***	***Red Cedar***
Flow Rate (MMscfd):	***21***	***39***	***10***

	Area 6	ECBM	Red Cedar	**Commingled**
Component	Mole %	Mole %	Mole %	**Mole %**
CO2	6.9213	3.4495	7.7889	5.1110
H2S	0.0000	0.0000	0.0000	0.0000
N2	0.0228	6.1701	0.0197	3.4473
C1H4	92.8057	90.1368	91.8068	91.1760
C2H6	0.2457	0.2261	0.3382	0.2480
C3H8	0.0000	0.0126	0.0324	0.0116
iC4H10	0.0014	0.0018	0.0047	0.0021
nC4H10	0.0013	0.0015	0.0051	0.0020
iC54H12	0.0010	0.0008	0.0018	0.0010
nC5H12	0.0002	0.0003	0.0009	0.0004
C6H14	0.0004	0.0003	0.0006	0.0004
C7H16	0.0000	0.0000	0.0003	0.0000
C8H18+	0.0001	0.0001	0.0003	0.0001
Benzene	0.0000	0.0000	0.0001	0.0000
Toluene	0.0000	0.0000	0.0000	0.0000
Ethylbenzene	0.0000	0.0000	0.0000	0.0000
Xylenes	0.0000	0.0000	0.0000	0.0000
n-Hexane	0.0001	0.0001	0.0002	0.0001
	100.0000	100.0000	100.0000	100.0000
	Mol % of TOC Gas Stream that is VOC (C3+)			**0.02%**
	Mol % of Total Gas Stream that is VOC (C3+)			**1.77%**

Notes:

1. Gas from the Medium Pressure Pipeline enters the plant already low in CO2 and previously dried at upstream compression. It is commingled with the processed gas and compressed for transport via pipeline.

LP and MP- Comingled to Amines

Facility: **Florida River Compression Facility**
Description: **Low Pressure and Medium Pressure - Commingled to Amine Inlets**

Description: ***Low Pressure*** ***Medium Pressure***
Flow Rate (MMscfd): ***20*** ***70***

	Low Pressure	Medium Pressure	**Commingled**
Component	Mole %	Mole %	**Mole %**
CO2	2.7288	5.1110	4.5816
H2S	0.0000	0.0000	0.0000
N2	0.0510	3.4473	2.6926
C1H4	97.0442	91.1760	92.4801
C2H6	0.1727	0.2480	0.2313
C3H8	0.0000	0.0116	0.0091
iC4H10	0.0010	0.0021	0.0018
nC4H10	0.0009	0.0020	0.0017
iC54H12	0.0006	0.0010	0.0009
nC5H12	0.0002	0.0004	0.0003
C6H14	0.0001	0.0004	0.0003
C7H16	0.0001	0.0000	0.0000
C8H18+	0.0003	0.0001	0.0002
Benzene	0.0000	0.0000	0.0000
Toluene	0.0001	0.0000	0.0000
Ethylbenzene	0.0000	0.0000	0.0000
Xylenes	0.0001	0.0000	0.0000
n-Hexane	0.0001	0.0001	0.0001
	100.0000	100.0000	100.0000
Mol % of TOC Gas Stream that is VOC (C3+)			**0.02%**
Mol % of Total Gas Stream that is VOC (C3+)			**1.45%**

LP and MP- Comingled to Dehys

Facility: Florida River Compression Facility
Description: Remainder of Low Pressure Gas Commingled with Outlet of Amine - to Dehys

Description:	***Low Pressure***	***Amine #1 Outlet***	***Amine #2 Outlet***
Flow Rate (MMscfd):	***80***	***45***	***45***

	Low Pressure	Amine #1 Outlet	Amine #1 Outlet	Amine #2 Outlet	Amine #2 Outlet	Commingled
Component	Mole %	Mole %	Mole %, Dry Basis	Mole %	Mole %, Dry Basis	Mole %
CO2	2.7288	2.4880%	2.4943	2.2740%	2.2817	2.5484
H2S	0.0000	0.0000%	0.0000	0.0000%	0.0000	0.0000
N2	0.0510	2.7450%	2.7519	2.7490%	2.7583	1.4826
C1H4	97.0442	94.2650%	94.5031	94.3890%	94.7091	95.7534
C2H6	0.1727	0.2360%	0.2366	0.2360%	0.2368	0.2066
C3H8	0.0000	0.0090%	0.0090	0.0090%	0.0090	0.0048
iC4H10	0.0010	0.0020%	0.0020	0.0020%	0.0020	0.0015
nC4H10	0.0009	0.0020%	0.0020	0.0020%	0.0020	0.0015
iC54H12	0.0006	0.0010%	0.0010	0.0010%	0.0010	0.0008
nC5H12	0.0002	0.0000%	0.0000	0.0000%	0.0000	0.0001
C6H14	0.0001	0.0000%	0.0000	0.0000%	0.0000	0.0001
C7H16	0.0001	0.0000%	0.0000	0.0000%	0.0000	0.0000
C8H18+	0.0003	0.0000%	0.0000	0.0000%	0.0000	0.0001
Benzene	0.0000	0.0000%	0.0000	0.0000%	0.0000	0.0000
Toluene	0.0001	0.0000%	0.0000	0.0000%	0.0000	0.0000
Ethylbenzene	0.0000	0.0000%	0.0000	0.0000%	0.0000	0.0000
Xylenes	0.0001	0.0000%	0.0000	0.0000%	0.0000	0.0000
n-Hexane	0.0001	0.0000%	0.0000	0.0000%	0.0000	0.0000
Water		0.2520%	----	0.3380%	----	
	100.0000	100.0000%	100.0000	100.0000%	100.0000	100.0000
		Mol % of TOC Gas Stream that is VOC (C3+)				0.01%
		Mol % of Total Gas Stream that is VOC (C3+)				0.90%

Table 3.1-1. EMISSION FACTORS FOR NITROGEN OXIDES (NO_X) AND CARBON MONOXIDE (CO) FROM STATIONARY GAS TURBINES

Emission Factors[a]				
Turbine Type	Nitrogen Oxides		Carbon Monoxide	
Natural Gas-Fired Turbines[b]	(lb/MMBtu)[c] (Fuel Input)	Emission Factor Rating	(lb/MMBtu)[c] (Fuel Input)	Emission Factor Rating
Uncontrolled	3.2 E-01	A	8.2 E-02[d]	A
Water-Steam Injection	1.3 E-01	A	3.0 E-02	A
Lean-Premix	9.9 E-02	D	1.5 E-02	D
Distillate Oil-Fired Turbines[e]	(lb/MMBtu)[f] (Fuel Input)	Emission Factor Rating	(lb/MMBtu)[f] (Fuel Input)	Emission Factor Rating
Uncontrolled	8.8 E-01	C	3.3 E-03	C
Water-Steam Injection	2.4 E-01	B	7.6 E-02	C
Landfill Gas-Fired Turbines[g]	(lb/MMBtu)[h] (Fuel Input)	Emission Factor Rating	(lb/MMBtu)[h] (Fuel Input)	Emission Factor Rating
Uncontrolled	1.4 E-01	A	4.4 E-01	A
Digester Gas-Fired Turbines[j]	(lb/MMBtu)[k] (Fuel Input)	Emission Factor Rating	(lb/MMBtu)[k] (Fuel Input)	Emission Factor Rating
Uncontrolled	1.6 E-01	D	1.7 E-02	D

[a] Factors are derived from units operating at high loads (≥80 percent load) only. For information on units operating at other loads, consult the background report for this chapter (Reference 16), available at "www.epa.gov/ttn/chief".

[b] Source Classification Codes (SCCs) for natural gas-fired turbines include 2-01-002-01, 2-02-002-01, 2-02-002-03, 2-03-002-02, and 2-03-002-03. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value.

[c] Emission factors based on an average natural gas heating value (HHV) of 1020 Btu/scf at 60°F. To convert from (lb/MMBtu) to ($lb/10^6$ scf), multiply by 1020.

[d] It is recognized that the uncontrolled emission factor for CO is higher than the water-steam injection and lean-premix emission factors, which is contrary to expectation. The EPA could not identify the reason for this behavior, except that the data sets used for developing these factors are different.

[e] SCCs for distillate oil-fired turbines include 2-01-001-01, 2-02-001-01, 2-02-001-03, and 2-03-001-02.

[f] Emission factors based on an average distillate oil heating value of 139 MMBtu/10^3 gallons. To convert from (lb/MMBtu) to ($lb/10^3$ gallons), multiply by 139.

[g] SCC for landfill gas-fired turbines is 2-03-008-01.

[h] Emission factors based on an average landfill gas heating value of 400 Btu/scf at 60°F. To convert from (lb/MMBtu), to ($lb/10^6$ scf) multiply by 400.

[j] SCC for digester gas-fired turbine is 2-03-007-01.

[k] Emission factors based on an average digester gas heating value of 600 Btu/scf at 60°F. To convert from (lb/MMBtu) to ($lb/10^6$ scf) multiply by 600.

Table 3.1-2a. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM STATIONARY GAS TURBINES

Pollutant	Emission Factors[a] - Uncontrolled			
	Natural Gas-Fired Turbines[b]		Distillate Oil-Fired Turbines[d]	
	(lb/MMBtu)[c] (Fuel Input)	Emission Factor Rating	(lb/MMBtu)[e] (Fuel Input)	Emission Factor Rating
CO_2[f]	110	A	157	A
N_2O	0.003[g]	E	ND	NA
Lead	ND	NA	1.4 E-05	C
SO_2	0.94S[h]	B	1.01S[h]	B
Methane	8.6 E-03	C	ND	NA
VOC	2.1 E-03	D	4.1 E-04[j]	E
TOC[k]	1.1 E-02	B	4.0 E-03[l]	C
PM (condensible)	4.7 E-03[l]	C	7.2 E-03[l]	C
PM (filterable)	1.9 E-03[l]	C	4.3 E-03[l]	C
PM (total)	6.6 E-03[l]	C	1.2 E-02[l]	C

[a] Factors are derived from units operating at high loads (≥80 percent load) only. For information on units operating at other loads, consult the background report for this chapter (Reference 16), available at "www.epa.gov/ttn/chief". ND = No Data, NA = Not Applicable.

[b] SCCs for natural gas-fired turbines include 2-01-002-01, 2-02-002-01 & 03, and 2-03-002-02 & 03.

[c] Emission factors based on an average natural gas heating value (HHV) of 1020 Btu/scf at 60°F. To convert from (lb/MMBtu) to (lb/10^6 scf), multiply by 1020. Similarly, these emission factors can be converted to other natural gas heating values.

[d] SCCs for distillate oil-fired turbines are 2-01-001-01, 2-02-001-01, 2-02-001-03, and 2-03-001-02.

[e] Emission factors based on an average distillate oil heating value of 139 MMBtu/10^3 gallons. To convert from (lb/MMBtu) to (lb/10^3 gallons), multiply by 139.

[f] Based on 99.5% conversion of fuel carbon to CO_2 for natural gas and 99% conversion of fuel carbon to CO_2 for distillate oil. CO_2 (Natural Gas) [lb/MMBtu] = (0.0036 scf/Btu)(%CON)(C)(D), where %CON = weight percent conversion of fuel carbon to CO_2, C = carbon content of fuel by weight, and D = density of fuel. For natural gas, C is assumed at 75%, and D is assumed at 4.1 E+04 lb/10^6scf. For distillate oil, CO_2 (Distillate Oil) [lb/MMBtu] = (26.4 gal/MMBtu) (%CON)(C)(D), where C is assumed at 87%, and the D is assumed at 6.9 lb/gallon.

[g] Emission factor is carried over from the previous revision to AP-42 (Supplement B, October 1996) and is based on limited source tests on a single turbine with water-steam injection (Reference 5).

[h] All sulfur in the fuel is assumed to be converted to SO_2. S = percent sulfur in fuel. Example, if sulfur content in the fuel is 3.4 percent, then S = 3.4. If S is not available, use 3.4 E-03 lb/MMBtu for natural gas turbines, and 3.3 E-02 lb/MMBtu for distillate oil turbines (the equations are more accurate).

[j] VOC emissions are assumed equal to the sum of organic emissions.

[k] Pollutant referenced as THC in the gathered emission tests. It is assumed as TOC, because it is based on EPA Test Method 25A.

[l] Emission factors are based on combustion turbines using water-steam injection.

Emission Factors for Non-Warranted Pollutants

Formaldehyde

Formaldehyde, with respect to gas turbines, is a product of incomplete combustion. Data suggests that Hazardous Air Pollutant (HAP) and likewise formaldehyde emissions have a strong correlation with engine load. As load decreases, the combustor zone flame temperatures are lower resulting in incomplete combustion. Unburned hydrocarbons in the fuel remain from the incomplete combustion and the hydrocarbons can be oxidized to form formaldehyde and other HAPs.

When necessary to support the air permitting process, Solar refers customers to EPA's AP-42 document, which is a collection of emission factors for different emission sources. The AP-42 emission factors are an accepted way of estimating emissions when data is not available. The most recent version of AP-42 for gas turbines (4/00) is found at: www.epa.gov/ttn/chief/ap42/index.html. The formaldehyde data used to develop the emission factors in the current version of AP-42 was gathered during the Industrial Combustion Coordinated Rulemaking (ICCR) process. The data can be found at: www.epa.gov/ttn/uatw/combust/turbine/turbpg.html.

Most of the data was measured in the late 1980's and early 90's. Very few data points are representative of today's lean pre-mix combustion technology (DLN, DLE, SoLoNOx, etc). In August 2001, EPA issued a memo that referenced 8 source tests all on lean pre-mix gas turbines. At writing, the "new" data for the 8 tests was not available for review. Per the "new" test data, EPA states the formaldehyde emissions from lean pre-mix gas turbines is less than formaldehyde emissions from diffusion flame combustors.

There are some who believe that the formaldehyde emissions produced in a lean pre-mix combustor will be less than their conventional/diffusion flame counterparts and others who believe the opposite. The data in the ICCR database is inconclusive on the issue. The emission factor documentation shows a high degree of variability in formaldehyde emissions from gas turbines depending on the manufacturer, size of equipment, and combustor design. Most of the Solar Turbines data in the database (submitted to EPA by customers) doesn't meet the ICCR data qualification requirements due to significant missing data.

The formaldehyde emission factors are shown in the following table (Revised per August memo).

Engine Load	# of tests	Average Emission Factor (lb/MMBtu)	Emission Factor Range (min-max) lb/MMBtu
>80% Load	20	7.76 E-04	(2.21E-06 – 5.61E-03)
All Loads	28	2.92 E-03	(2.21E-06 – 2.54E-02)
Solar Only Data – subset of ICCR database (limited sample, mostly non-SoLoNOx data)			
>50% Load		3.68 E-04	
100% Load		1.843 E-04	
August Memo – Lean Pre-mix Data			
Lean Pre-mix (>80% Load)	8	6.49 E-05	Unknown as of 8/30/01
Lean Pre-mix (95th Upper Percentile)		2.02 E-04	

Please contact Ralph Ordoñez (858.694.6594, ordonez_ralph_v@solarturbines.com) or Leslie Witherspoon (858.694.6609, witherspoon_leslie_h@solarturbines.com) if you have any questions or run into permitting/dispersion modeling issues using the emission factors above.

Table 1.4-1. EMISSION FACTORS FOR NITROGEN OXIDES (NO_x) AND CARBON MONOXIDE (CO) FROM NATURAL GAS COMBUSTION[a]

Combustor Type (MMBtu/hr Heat Input) [SCC]	NO_x[b]		CO	
	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
Large Wall-Fired Boilers (>100) [1-01-006-01, 1-02-006-01, 1-03-006-01]				
Uncontrolled (Pre-NSPS)[c]	280	A	84	B
Uncontrolled (Post-NSPS)[c]	190	A	84	B
Controlled - Low NO_x burners	140	A	84	B
Controlled - Flue gas recirculation	100	D	84	B
Small Boilers (<100) [1-01-006-02, 1-02-006-02, 1-03-006-02, 1-03-006-03]				
Uncontrolled	100	B	84	B
Controlled - Low NO_x burners	50	D	84	B
Controlled - Low NO_x burners/Flue gas recirculation	32	C	84	B
Tangential-Fired Boilers (All Sizes) [1-01-006-04]				
Uncontrolled	170	A	24	C
Controlled - Flue gas recirculation	76	D	98	D
Residential Furnaces (<0.3) [No SCC]				
Uncontrolled	94	B	40	B

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. Emission factors are based on an average natural gas higher heating value of 1,020 Btu/scf. To convert from $lb/10^6$ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. SCC = Source Classification Code. ND = no data. NA = not applicable.

[b] Expressed as NO_2. For large and small wall fired boilers with SNCR control, apply a 24 percent reduction to the appropriate NO_x emission factor. For tangential-fired boilers with SNCR control, apply a 13 percent reduction to the appropriate NO_x emission factor.

[c] NSPS=New Source Performance Standard as defined in 40 CFR 60 Subparts D and Db. Post-NSPS units are boilers with greater than 250 MMBtu/hr of heat input that commenced construction modification, or reconstruction after August 17, 1971, and units with heat input capacities between 100 and 250 MMBtu/hr that commenced construction modification, or reconstruction after June 19, 1984.

TABLE 1.4-2. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION[a]

Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
CO_2[b]	120,000	A
Lead	0.0005	D
N_2O (Uncontrolled)	2.2	E
N_2O (Controlled-low-NO_X burner)	0.64	E
PM (Total)[c]	7.6	D
PM (Condensable)[c]	5.7	D
PM (Filterable)[c]	1.9	B
SO_2[d]	0.6	A
TOC	11	B
Methane	2.3	B
VOC	5.5	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $lb/10^6$ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. TOC = Total Organic Compounds. VOC = Volatile Organic Compounds.

[b] Based on approximately 100% conversion of fuel carbon to CO_2. $CO_2[lb/10^6 scf] = (3.67)(CON)(C)(D)$, where CON = fractional conversion of fuel carbon to CO_2, C = carbon content of fuel by weight (0.76), and D = density of fuel, $4.2x10^4$ $lb/10^6$ scf.

[c] All PM (total, condensible, and filterable) is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors presented here may be used to estimate PM_{10}, $PM_{2.5}$ or PM_1 emissions. Total PM is the sum of the filterable PM and condensible PM. Condensible PM is the particulate matter collected using EPA Method 202 (or equivalent). Filterable PM is the particulate matter collected on, or prior to, the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Based on 100% conversion of fuel sulfur to SO_2. Assumes sulfur content is natural gas of 2,000 grains/10^6 scf. The SO_2 emission factor in this table can be converted to other natural gas sulfur contents by multiplying the SO_2 emission factor by the ratio of the site-specific sulfur content (grains/10^6 scf) to 2,000 grains/10^6 scf.

TABLE 1.4-3. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION[a]

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
91-57-6	2-Methylnaphthalene[b, c]	2.4E-05	D
56-49-5	3-Methylchloranthrene[b, c]	<1.8E-06	E
	7,12-Dimethylbenz(a)anthracene[b,c]	<1.6E-05	E
83-32-9	Acenaphthene[b,c]	<1.8E-06	E
203-96-8	Acenaphthylene[b,c]	<1.8E-06	E
120-12-7	Anthracene[b,c]	<2.4E-06	E
56-55-3	Benz(a)anthracene[b,c]	<1.8E-06	E
71-43-2	Benzene[b]	2.1E-03	B
50-32-8	Benzo(a)pyrene[b,c]	<1.2E-06	E
205-99-2	Benzo(b)fluoranthene[b,c]	<1.8E-06	E
191-24-2	Benzo(g,h,i)perylene[b,c]	<1.2E-06	E
205-82-3	Benzo(k)fluoranthene[b,c]	<1.8E-06	E
106-97-8	Butane	2.1E+00	E
218-01-9	Chrysene[b,c]	<1.8E-06	E
53-70-3	Dibenzo(a,h)anthracene[b,c]	<1.2E-06	E
25321-22-6	Dichlorobenzene[b]	1.2E-03	E
74-84-0	Ethane	3.1E+00	E
206-44-0	Fluoranthene[b,c]	3.0E-06	E
86-73-7	Fluorene[b,c]	2.8E-06	E
50-00-0	Formaldehyde[b]	7.5E-02	B
110-54-3	Hexane[b]	1.8E+00	E
193-39-5	Indeno(1,2,3-cd)pyrene[b,c]	<1.8E-06	E
91-20-3	Naphthalene[b]	6.1E-04	E
109-66-0	Pentane	2.6E+00	E
85-01-8	Phenanathrene[b,c]	1.7E-05	D

TABLE 1.4-3. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION (Continued)

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
74-98-6	Propane	1.6E+00	E
129-00-0	Pyrene[b, c]	5.0E-06	E
108-88-3	Toluene[b]	3.4E-03	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $1b/10^6$ scf to lb/MMBtu, divide by 1,020. Emission Factors preceeded with a less-than symbol are based on method detection limits.

[b] Hazardous Air Pollutant (HAP) as defined by Section 112(b) of the Clean Air Act.

[c] HAP because it is Polycyclic Organic Matter (POM). POM is a HAP as defined by Section 112(b) of the Clean Air Act.

[d] The sum of individual organic compounds may exceed the VOC and TOC emission factors due to differences in test methods and the availability of test data for each pollutant.

Exhaust Emission Data Sheet

2000DQKC

60 Hz Diesel Generator Set

Engine Information:

Model:	Cummins QSK60-G6	Bore:	6.25 in. (159 mm)
Type:	4 Cycle, 90°V, 16 Cylinder Diesel	Stroke	7.48 in. (190 mm)
Aspiration:	Turbocharged and Low Temperature Aftercooled	Displacement:	3673 cu. in. (60.2 liters)
		Compression Ratio:	14.5:1

Emission Control Device: Turbocharged and Low Temperature Aftercooled

PERFORMANCE DATA	1/4 Standby	1/2 Standby	3/4 Standby	Full Standby	Full Prime
BHP @ 1800 RPM (60 Hz)	731	1461	2190	2922	2647
Fuel Consumption (gal/Hr)	41.0	71.0	102.8	137.3	123.2
Exhaust Gas Flow (CFM)	6110	9130	12420	15810	14450
Exhaust Gas Temperature (°F)	705	785	820	890	860
EXHAUST EMISSION DATA					
HC (Total Unburned Hydrocarbons)	0.50	0.26	0.21	0.20	0.18
NOx (Oxides of Nitrogen as NO2)	5.40	6.20	6.40	7.00	7.10
CO (Carbon Monoxide)	0.70	0.70	0.80	0.90	1.00
PM (Particulate Matter)	0.21	0.09	0.05	0.04	0.04
SO2 (Sulfur Dioxide)	0.71	0.61	0.58	0.58	0.57
Smoke (Bosch)	0.7	0.4	0.3	0.4	0.4

All values are Grams per HP-Hour
Smoke is Bosch #

TEST CONDITIONS

Data was recorded during steady-state rated engine speed (± 25 RPM) with full load (± 2%).
Pressures, temperatures, and emission rates were stablized.

Fuel Specification:	ASTM D975 No. 2-D diesel fuel with 0.2% sulfur content (by weight), and 42-50 cetane number.
Fuel Temperature:	99 ± 9 ° F (at fuel pump inlet)
Intake Air Temperature:	77 ± 9 ° F
Barometric Pressure:	29.6 ± 1 in. Hg
Humidity:	NOx measurement corrected to 75 grains H2O/lb dry air

The NOx, HC, CO and PM emission data tabulated here were taken from a single engine under the test conditions of 40 CFR 89. Data for the other components are estimated. These data are subject to instrumentation, and engine to engine variability. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.

Table 3.4-3. SPECIATED ORGANIC COMPOUND EMISSION FACTORS FOR LARGE (>600hp) UNCONTROLLED STATIONARY DIESEL ENGINES[a]

EMISSION FACTOR RATING: E

Pollutant	Emission Factor (lb/MMBtu) (fuel input)
Benzene[b]	7.76 E-04
Toluene[b]	2.81 E-04
Xylenes[b]	1.93 E-04
Propylene	2.79 E-03
Formaldehyde[b]	7.89 E-05
Acetaldehyde[b]	2.52 E-05
Acrolein[b]	7.88 E-06

[a]Based on 1 uncontrolled diesel engine from Reference 7. Source Classification Code 2-02-004-01. Not enough information to calculate the output-specific emission factors of lb/hp-hr. To convert from lb/MMBtu to ng/J, multiply by 430.
[b]Hazardous air pollutant listed in the *Clean Air Act.*

Since flares do not lend themselves to conventional emission testing techniques, only a few attempts have been made to characterize flare emissions. Recent EPA tests using propylene as flare gas indicated that efficiencies of 98 percent can be achieved when burning an offgas with at least 11,200 kJ/m^3 (300 Btu/ft^3). The tests conducted on steam-assisted flares at velocities as low as 39.6 meters per minute (m/min) (130 ft/min) to 1140 m/min (3750 ft/min), and on air-assisted flares at velocities of 180 m/min (617 ft/min) to 3960 m/min (13,087 ft/min) indicated that variations in incoming gas flow rates have no effect on the combustion efficiency. Flare gases with less than 16,770 kJ/m^3 (450 Btu/ft^3) do not smoke.

Table 13.5-1 presents flare emission factors, and Table 13.5-2 presents emission composition data obtained from the EPA tests.[1] Crude propylene was used as flare gas during the tests. Methane was a major fraction of hydrocarbons in the flare emissions, and acetylene was the dominant intermediate hydrocarbon species. Many other reports on flares indicate that acetylene is always formed as a stable intermediate product. The acetylene formed in the combustion reactions may react further with hydrocarbon radicals to form polyacetylenes followed by polycyclic hydrocarbons.[2]

In flaring waste gases containing no nitrogen compounds, NO is formed either by the fixation of atmospheric nitrogen (N) with oxygen (O) or by the reaction between the hydrocarbon radicals present in the combustion products and atmospheric nitrogen, by way of the intermediate stages, HCN, CN, and OCN.[2] Sulfur compounds contained in a flare gas stream are converted to SO_2 when burned. The amount of SO_2 emitted depends directly on the quantity of sulfur in the flared gases.

Table 13.5-1 (English Units). EMISSION FACTORS FOR FLARE OPERATIONS[a]

EMISSION FACTOR RATING: B

Component	Emission Factor (lb/10^6 Btu)
Total hydrocarbons[b]	0.14
Carbon monoxide	0.37
Nitrogen oxides	0.068
Soot[c]	0 - 274

[a] Reference 1. Based on tests using crude propylene containing 80% propylene and 20% propane.
[b] Measured as methane equivalent.
[c] Soot in concentration values: nonsmoking flares, 0 micrograms per liter (µg/L); lightly smoking flares, 40 µg/L; average smoking flares, 177 µg/L; and heavily smoking flares, 274 µg/L.

Fugitives

TABLE 2-4. OIL AND GAS PRODUCTION OPERATIONS AVERAGE EMISSION FACTORS (kg/hr/source)

Equipment Type	Service[a]	Emission Factor (kg/hr/source)[b]
Valves	Gas	4.5E-03
	Heavy Oil	8.4E-06
	Light Oil	2.5E-03
	Water/Oil	9.8E-05
Pump seals	Gas	2.4E-03
	Heavy Oil	NA
	Light Oil	1.3E-02
	Water/Oil	2.4E-05
Others[c]	Gas	8.8E-03
	Heavy Oil	3.2E-05
	Light Oil	7.5E-03
	Water/Oil	1.4E-02
Connectors	Gas	2.0E-04
	Heavy Oil	7.5E-06
	Light Oil	2.1E-04
	Water/Oil	1.1E-04
Flanges	Gas	3.9E-04
	Heavy Oil	3.9E-07
	Light Oil	1.1E-04
	Water/Oil	2.9E-06
Open-ended lines	Gas	2.0E-03
	Heavy Oil	1.4E-04
	Light Oil	1.4E-03
	Water/Oil	2.5E-04

[a]Water/Oil emission factors apply to water streams in oil service with a water content greater than 50%, from the point of origin to the point where the water content reaches 99%. For water streams with a water content greater than 99%, the emission rate is considered negligible.

[b]These factors are for total organic compound emission rates (including non-VOC's such as methane and ethane) and apply to light crude, heavy crude, gas plant, gas production, and off shore facilities. "NA" indicates that not enough data were available to develop the indicated emission factor.

[c]The "other" equipment type was derived from compressors, diaphrams, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves, and vents. This "other" equipment type should be applied for any equipment type other than connectors, flanges, open-ended lines, pumps, or valves.

Project Name:	FRCF - Amine #1 Florida River Compression Facility December 2005 Renewal Application	
Model:	Gas Model	
Amine:	MDEA	
Lean Amine Pressure:	350.000	[psia]
Lean Amine Temperature:	100.000	[F]
Lean Amine Flowrate:	750.000	[gal/min]
Lean Amine Weight:	55.000	[%]
H2S Loading:	0.000	[mol/mol]
CO2 Loading:	0.001	[mol/mol]
Emission Control Efficiency	50.000	
Operating Hours/Day:	24	[hours/day]
Operating Days/Year:	365	[days/year]
Gas Feed Pressure:	320.000	[psia]
Gas Feed Temperature:	80.000	[F]
Gas Feed Flowrate:	70.000	[MMSCFD]
Number of Trays in Column:	20	
Flash Tank Pressure:	350.000	[psia]
H2S	0.00000	[%]
CO2	4.58160	[%]
MDEA	0.00000	[%]
H2O	0.00000	[%]
N2	2.69260	[%]
O2	0.00000	[%]
C1	92.48010	[%]
C2	0.23130	[%]
C3	0.00910	[%]
i-C4	0.00180	[%]
n-C4	0.00170	[%]
i-C5	0.00090	[%]
n-C5	0.00030	[%]
Hexanes	0.00030	[%]
Heptanes	0.00000	[%]
Octanes	0.00020	[%]
Nonanes	0.00000	[%]
C10+	0.00000	[%]
MeSH	0.00000	[%]
EtSH	0.00000	[%]
Benzene	0.00000	[%]
Toluene	0.00000	[%]
Ethylbenzene	0.00000	[%]
Xylenes	0.00000	[%]
n-C6	0.00010	[%]
224Trimeth	0.00000	[%]

Stream 1 Gas Feed to Absorber

Component	Mol Fraction	[lb/h]	[ton/yr]
H2S	0.000000	0.000	0.000
CO2	0.045820	15497.260	67876.860
MDEA	0.000000	0.000	0.000
H2O	0.000000	0.000	0.000
N2	0.026930	5797.278	25391.650
C1	0.924800	114030.300	499444.300
C2	0.002310	534.559	2341.328
C3	0.000090	30.842	135.084
i-C4	0.000020	8.041	35.219
n-C4	0.000020	7.594	33.263
i-C5	0.000010	4.991	21.860
n-C5	0.000000	1.664	7.286
Hexanes	0.000000	1.987	8.703
Octanes	0.000000	1.756	7.691
n-C6	0.000000	0.662	2.901
Total:	1.000000	135916.900	595306.100

Pressure 320.000 [psia]
Temperature 80.000 [F]

Stream 2 Rich Amine From Absorber

Component	Mol Fraction	[lb/h]	[ton/yr]
H2S	0.000000	0.000	0.000
CO2	0.014060	7326.925	32091.390
MDEA	0.153970	217268.100	951618.000
H2O	0.831570	177422.700	777098.200
N2	0.000010	1.846	8.086
C1	0.000400	76.294	334.161
C2	0.000000	0.396	1.733
C3	0.000000	0.019	0.083
i-C4	0.000000	0.000	0.001
n-C4	0.000000	0.000	0.001
i-C5	0.000000	0.000	0.001
n-C5	0.000000	0.000	0.000
Hexanes	0.000000	0.000	0.002
Octanes	0.000000	0.000	0.001
n-C6	0.000000	0.000	0.001
Total:	1.000000	402096.200	1761152.000

Pressure 320.000 [psia]
Temperature 107.447 [F]

Stream 3 Flash Gas Vent Flow from Flash Tank

	----- Controlled -----		----- Uncontrolled -----	
Component	[lb/h]	[ton/yr]	[lb/h]	[ton/yr]
H2S	0.000	0.000	0.000	0.000
CO2	0.000	0.000	0.000	0.000
MDEA	0.000	0.000	0.000	0.000
H2O	0.000	0.000	0.000	0.000
N2	0.000	0.000	0.000	0.001
C1	0.001	0.007	0.003	0.013
C2	0.000	0.000	0.000	0.000
C3	0.000	0.000	0.000	0.000
i-C4	0.000	0.001	0.000	0.002
n-C4	0.000	0.001	0.000	0.002
i-C5	0.000	0.000	0.000	0.000
n-C5	0.000	0.000	0.000	0.000
Hexanes	0.000	0.000	0.000	0.000
Octanes	0.000	0.000	0.000	0.000
n-C6	0.000	0.000	0.000	0.000
Total:	0.001	0.009	0.004	0.018

Pressure	350.000	[psia]
Temperature	107.447	[F]

Stream 4 Rich Amine Feed to Regenerator

Component	Mol Fraction	[lb/h]	[ton/yr]
H2S	0.000000	0.000	0.000
CO2	0.014060	7326.756	32090.650
MDEA	0.153960	217262.900	951595.500
H2O	0.831550	177418.500	777079.900
N2	0.000010	2.068	9.055
C1	0.000420	80.324	351.813
C2	0.000000	0.414	1.815
C3	0.000000	0.020	0.088
i-C4	0.000000	0.546	2.393
n-C4	0.000000	0.516	2.260
i-C5	0.000000	0.027	0.117
n-C5	0.000000	0.009	0.039
Hexanes	0.000000	0.000	0.002
Octanes	0.000000	0.000	0.001
n-C6	0.000000	0.000	0.001
Total:	1.000000	402092.100	1761134.000

Pressure	350.000	[psia]
Temperature	107.447	[F]

Stream 5 Acid Gas Flow from Regenerator

	----- Controlled -----		----- Uncontrolled -----	
Component	[lb/h]	[ton/yr]	[lb/h]	[ton/yr]
H2S	0.000	0.000	0.000	0.000
CO2	7246.518	31739.210	7246.518	31739.210
MDEA	0.000	0.000	0.000	0.000
H2O	0.000	0.000	0.000	0.000
N2	1.034	4.528	2.068	9.055
C1	40.162	175.907	80.324	351.813
C2	0.207	0.907	0.414	1.815
C3	0.010	0.044	0.020	0.088
i-C4	0.273	1.196	0.546	2.393
n-C4	0.258	1.130	0.516	2.260
i-C5	0.013	0.058	0.027	0.117
n-C5	0.004	0.020	0.009	0.039
Hexanes	0.000	0.001	0.000	0.002
Octanes	0.000	0.001	0.000	0.001
n-C6	0.000	0.001	0.000	0.001
Total:	7288.479	31923.000	7330.443	32106.800

Pressure	N/A	[psia]
Temperature	N/A	[F]

Stream 6 Lean Amine from Regenerator

Component	Mol Fraction	[lb/h]	[ton/yr]
H2S	0.000000	0.000	0.000
CO2	0.000160	80.238	351.437
MDEA	0.155950	217268.400	951619.300
H2O	0.843900	177765.000	778597.600
N2	0.000000	0.000	0.000
C1	0.000000	0.000	0.000
C2	0.000000	0.000	0.000
C3	0.000000	0.000	0.000
i-C4	0.000000	0.000	0.000
n-C4	0.000000	0.000	0.000
i-C5	0.000000	0.000	0.000
n-C5	0.000000	0.000	0.000
Hexanes	0.000000	0.000	0.000
Octanes	0.000000	0.000	0.000
n-C6	0.000000	0.000	0.000
Total:	1.000000	395113.600	1730568.000

Pressure	350.000	[psia]
Temperature	100.000	[F]

Stream 7 Sweet Gas Flow from Absorber

Component	Mol Fraction	[lb/h]	[ton/yr]
H2S	0.000000	0.000	0.000
CO2	0.024880	8250.844	36138.080
MDEA	0.000000	0.259	1.136
H2O	0.002520	342.308	1499.282
N2	0.027450	5795.429	25383.550
C1	0.942640	113954.000	499109.900
C2	0.002360	534.163	2339.594
C3	0.000090	30.823	135.001
i-C4	0.000020	8.041	35.218
n-C4	0.000020	7.594	33.262
i-C5	0.000010	4.991	21.858
n-C5	0.000000	1.664	7.286
Hexanes	0.000000	1.987	8.701
Octanes	0.000000	1.756	7.690
n-C6	0.000000	0.662	2.900
Total:	1.000000	128934.500	564723.400

Pressure	350.000	[psia]
Temperature	100.663	[F]

Project Name:	FRCF - Amine #2 Florida River Compression Facility December 2005 Renewal Application	
Model:	Gas Model	
Amine:	MDEA	
Lean Amine Pressure:	350.000	[psia]
Lean Amine Temperature:	110.000	[F]
Lean Amine Flowrate:	600.000	[gal/min]
Lean Amine Weight:	55.000	[%]
H2S Loading:	0.000	[mol/mol]
CO2 Loading:	0.001	[mol/mol]
Emission Control Efficiency	50.000	
Operating Hours/Day:	24	[hours/day]
Operating Days/Year:	365	[days/year]
Gas Feed Pressure:	320.000	[psia]
Gas Feed Temperature:	80.000	[F]
Gas Feed Flowrate:	70.000	[MMSCFD]
Number of Trays in Column:	20	
Flash Tank Pressure:	130.000	[psia]
H2S	0.00000	[%]
CO2	4.58160	[%]
MDEA	0.00000	[%]
H2O	0.00000	[%]
N2	2.69260	[%]
O2	0.00000	[%]
C1	92.48010	[%]
C2	0.23130	[%]
C3	0.00910	[%]
i-C4	0.00180	[%]
n-C4	0.00170	[%]
i-C5	0.00090	[%]
n-C5	0.00030	[%]
Hexanes	0.00030	[%]
Heptanes	0.00000	[%]
Octanes	0.00020	[%]
Nonanes	0.00000	[%]
C10+	0.00000	[%]
MeSH	0.00000	[%]
EtSH	0.00000	[%]
Benzene	0.00000	[%]
Toluene	0.00000	[%]
Ethylbenzene	0.00000	[%]
Xylenes	0.00000	[%]
n-C6	0.00010	[%]
224Trimeth	0.00000	[%]

Stream 1 Gas Feed to Absorber

Component	Mol Fraction	[lb/h]	[ton/yr]
H2S	0.000000	0.000	0.000
CO2	0.045820	15497.260	67876.860
MDEA	0.000000	0.000	0.000
H2O	0.000000	0.000	0.000
N2	0.026930	5797.278	25391.650
C1	0.924800	114030.300	499444.300
C2	0.002310	534.559	2341.328
C3	0.000090	30.842	135.084
i-C4	0.000020	8.041	35.219
n-C4	0.000020	7.594	33.263
i-C5	0.000010	4.991	21.860
n-C5	0.000000	1.664	7.286
Hexanes	0.000000	1.987	8.703
Octanes	0.000000	1.756	7.691
n-C6	0.000000	0.662	2.901
Total:	1.000000	135916.900	595306.100

Pressure 320.000 [psia]
Temperature 80.000 [F]

Stream 2 Rich Amine From Absorber

Component	Mol Fraction	[lb/h]	[ton/yr]
H2S	0.000000	0.000	0.000
CO2	0.019180	8028.516	35164.300
MDEA	0.153340	173814.200	761293.200
H2O	0.827100	141753.900	620871.400
N2	0.000010	1.411	6.182
C1	0.000380	58.033	254.181
C2	0.000000	0.286	1.254
C3	0.000000	0.014	0.061
i-C4	0.000000	0.000	0.001
n-C4	0.000000	0.000	0.001
i-C5	0.000000	0.000	0.001
n-C5	0.000000	0.000	0.000
Hexanes	0.000000	0.000	0.001
Octanes	0.000000	0.000	0.000
n-C6	0.000000	0.000	0.001
Total:	1.000000	323656.300	1417591.000

Pressure 320.000 [psia]
Temperature 117.315 [F]

Stream 3 Flash Gas Vent Flow from Flash Tank

	----- Controlled -----		----- Uncontrolled -----	
Component	[lb/h]	[ton/yr]	[lb/h]	[ton/yr]
H2S	0.000	0.000	0.000	0.000
CO2	0.245	1.074	0.245	1.074
MDEA	0.000	0.001	0.000	0.002
H2O	0.197	0.863	0.394	1.727
N2	0.521	2.282	1.042	4.563
C1	16.666	72.997	33.333	145.994
C2	0.080	0.353	0.161	0.704
C3	0.004	0.019	0.008	0.036
i-C4	0.000	0.000	0.000	0.001
n-C4	0.000	0.000	0.000	0.001
i-C5	0.000	0.000	0.000	0.001
n-C5	0.000	0.000	0.000	0.000
Hexanes	0.000	0.000	0.000	0.001
Octanes	0.000	0.000	0.000	0.000
n-C6	0.000	0.000	0.000	0.001
Total:	17.713	77.588	35.185	154.107

Pressure	130.000	[psia]
Temperature	117.315	[F]

Stream 4 Rich Amine Feed to Regenerator

Component	Mol Fraction	[lb/h]	[ton/yr]
H2S	0.000000	0.000	0.000
CO2	0.019180	8028.271	35163.230
MDEA	0.153370	173814.200	761293.200
H2O	0.827280	141753.500	620869.700
N2	0.000000	0.369	1.618
C1	0.000160	24.701	108.187
C2	0.000000	0.125	0.550
C3	0.000000	0.005	0.024
i-C4	0.000000	0.000	0.000
n-C4	0.000000	0.000	0.000
i-C5	0.000000	0.000	0.000
n-C5	0.000000	0.000	0.000
Hexanes	0.000000	0.000	0.000
Octanes	0.000000	0.000	0.000
n-C6	0.000000	0.000	0.000
Total:	1.000000	323621.100	1417437.000

Pressure	130.000	[psia]
Temperature	117.315	[F]

Stream 5 Acid Gas Flow from Regenerator

	----- Controlled -----		----- Uncontrolled -----	
Component	[lb/h]	[ton/yr]	[lb/h]	[ton/yr]
H2S	0.000	0.000	0.000	0.000
CO2	7964.081	34882.080	7964.081	34882.080
MDEA	0.000	0.000	0.000	0.000
H2O	0.000	0.000	0.000	0.000
N2	0.185	0.809	0.369	1.618
C1	12.350	54.094	24.701	108.187
C2	0.063	0.274	0.125	0.550
C3	0.003	0.012	0.005	0.024
i-C4	0.000	0.000	0.000	0.000
n-C4	0.000	0.000	0.000	0.000
i-C5	0.000	0.000	0.000	0.000
n-C5	0.000	0.000	0.000	0.000
Hexanes	0.000	0.000	0.000	0.000
Octanes	0.000	0.000	0.000	0.000
n-C6	0.000	0.000	0.000	0.000
Total:	7976.682	34937.270	7989.282	34992.460

Pressure	N/A	[psia]
Temperature	N/A	[F]

Stream 6 Lean Amine from Regenerator

Component	Mol Fraction	[lb/h]	[ton/yr]
H2S	0.000000	0.000	0.000
CO2	0.000160	64.191	281.150
MDEA	0.155950	173814.700	761295.500
H2O	0.843900	142212.000	622878.100
N2	0.000000	0.000	0.000
C1	0.000000	0.000	0.000
C2	0.000000	0.000	0.000
C3	0.000000	0.000	0.000
i-C4	0.000000	0.000	0.000
n-C4	0.000000	0.000	0.000
i-C5	0.000000	0.000	0.000
n-C5	0.000000	0.000	0.000
Hexanes	0.000000	0.000	0.000
Octanes	0.000000	0.000	0.000
n-C6	0.000000	0.000	0.000
Total:	1.000000	316090.900	1384455.000

Pressure	350.000	[psia]
Temperature	110.000	[F]

Stream 7 Sweet Gas Flow from Absorber

Component	Mol Fraction	[lb/h]	[ton/yr]
H2S	0.000000	0.000	0.000
CO2	0.022740	7533.464	32996.010
MDEA	0.000000	0.410	1.797
H2O	0.003380	458.068	2006.304
N2	0.027490	5795.861	25385.440
C1	0.943880	113972.200	499189.700
C2	0.002360	534.272	2340.072
C3	0.000090	30.828	135.023
i-C4	0.000020	8.041	35.218
n-C4	0.000020	7.594	33.262
i-C5	0.000010	4.991	21.858
n-C5	0.000000	1.664	7.286
Hexanes	0.000000	1.987	8.701
Octanes	0.000000	1.756	7.691
n-C6	0.000000	0.662	2.900
Total:	1.000000	128351.800	562171.200

Pressure	350.000	[psia]
Temperature	110.980	[F]

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: FRCF - Dehy #1
File Name: \\Amhous301\group\SanJuan\HSE\Environmental\Air\Colorado\Florida\12-05 Renewal\GLYCalc\Dehy #1.ddf
Date: November 18, 2005

DESCRIPTION:

Description: Florida River Compression Facility
December 2005 Renewal Application
Dehy #1, 90 MMscfd

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	5.0458	121.099	22.1006
Ethane	0.1753	4.208	0.7679
Propane	0.0165	0.397	0.0725
Isobutane	0.0128	0.306	0.0559
n-Butane	0.0186	0.445	0.0813
Isopentane	0.0154	0.370	0.0676
n-Pentane	0.0027	0.064	0.0116
Other Hexanes	0.0048	0.116	0.0212
C8+ Heavies	0.1131	2.714	0.4953
Total Emissions	5.4050	129.720	23.6739
Total Hydrocarbon Emissions	5.4050	129.720	23.6739
Total VOC Emissions	0.1839	4.413	0.8054

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	9.4482	226.756	41.3830
Ethane	0.0837	2.008	0.3665
Propane	0.0035	0.084	0.0154
Isobutane	0.0017	0.040	0.0073
n-Butane	0.0018	0.043	0.0079
Isopentane	0.0012	0.030	0.0054
n-Pentane	0.0002	0.004	0.0007

Other Hexanes	0.0002	0.005	0.0009
C8+ Heavies	0.0002	0.004	0.0007
Total Emissions	9.5406	228.974	41.7878
Total Hydrocarbon Emissions	9.5406	228.974	41.7878
Total VOC Emissions	0.0087	0.210	0.0383

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25
Calculated Dry Gas Dew Point:	1.72 lbs. H2O/MMSCF
Temperature:	60.0 deg. F
Pressure:	285.0 psig
Dry Gas Flow Rate:	90.0000 MMSCF/day
Glycol Losses with Dry Gas:	0.0463 lb/hr
Wet Gas Water Content:	Saturated
Calculated Wet Gas Water Content:	44.76 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	9.29 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.85%	96.15%
Carbon Dioxide	99.81%	0.19%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.96%	0.04%
Propane	99.90%	0.10%
Isobutane	99.83%	0.17%
n-Butane	99.76%	0.24%
Isopentane	99.71%	0.29%
n-Pentane	99.60%	0.40%
Other Hexanes	99.41%	0.59%
C8+ Heavies	93.27%	6.73%

FLASH TANK

Flash Control: Vented to atmosphere
Flash Temperature: 100.0 deg. F
Flash Pressure: 95.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	100.00%	0.00%
Carbon Dioxide	88.66%	11.34%
Nitrogen	34.31%	65.69%
Methane	34.81%	65.19%
Ethane	67.69%	32.31%
Propane	82.47%	17.53%
Isobutane	88.45%	11.55%
n-Butane	91.19%	8.81%
Isopentane	92.61%	7.39%
n-Pentane	94.18%	5.82%
Other Hexanes	95.91%	4.09%
C8+ Heavies	99.88%	0.12%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	56.65%	43.35%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.54%	99.46%
n-Pentane	0.53%	99.47%
Other Hexanes	1.04%	98.96%
C8+ Heavies	12.05%	87.95%

STREAM REPORTS:

WET GAS STREAM

Temperature: 60.00 deg. F
Pressure: 299.70 psia
Flow Rate: 3.75e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.43e-002	1.68e+002
Carbon Dioxide	2.55e+000	1.11e+004
Nitrogen	1.48e+000	4.10e+003
Methane	9.57e+001	1.52e+005
Ethane	2.06e-001	6.14e+002
Propane	4.80e-003	2.09e+001
Isobutane	1.50e-003	8.62e+000
n-Butane	1.50e-003	8.62e+000
Isopentane	7.99e-004	5.71e+000
n-Pentane	9.99e-005	7.13e-001
Other Hexanes	9.99e-005	8.52e-001
C8+ Heavies	9.99e-005	1.68e+000
Total Components	100.00	1.68e+005

DRY GAS STREAM

Temperature: 60.00 deg. F
Pressure: 299.70 psia
Flow Rate: 3.75e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	3.63e-003	6.46e+000
Carbon Dioxide	2.54e+000	1.11e+004
Nitrogen	1.48e+000	4.10e+003
Methane	9.58e+001	1.52e+005
Ethane	2.07e-001	6.14e+002
Propane	4.80e-003	2.09e+001
Isobutane	1.50e-003	8.60e+000
n-Butane	1.50e-003	8.60e+000
Isopentane	7.98e-004	5.69e+000
n-Pentane	9.96e-005	7.10e-001
Other Hexanes	9.94e-005	8.47e-001
C8+ Heavies	9.33e-005	1.57e+000
Total Components	100.00	1.68e+005

LEAN GLYCOL STREAM

Temperature: 60.00 deg. F
Flow Rate: 2.50e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.39e+004
Water	1.50e+000	2.11e+002
Carbon Dioxide	1.53e-011	2.15e-009
Nitrogen	2.84e-013	3.99e-011
Methane	3.46e-018	4.87e-016
Ethane	8.69e-010	1.22e-007
Propane	5.80e-012	8.16e-010
Isobutane	3.08e-012	4.33e-010
n-Butane	3.59e-012	5.05e-010
Isopentane	5.95e-007	8.38e-005
n-Pentane	1.01e-007	1.42e-005
Other Hexanes	3.63e-007	5.11e-005
C8+ Heavies	1.10e-004	1.55e-002
Total Components	100.00	1.41e+004

RICH GLYCOL STREAM

Temperature: 60.00 deg. F
Pressure: 299.70 psia
Flow Rate: 2.54e+001 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.71e+001	1.39e+004
Water	2.61e+000	3.73e+002
Carbon Dioxide	1.51e-001	2.15e+001
Nitrogen	2.80e-003	3.99e-001
Methane	1.02e-001	1.45e+001
Ethane	1.81e-003	2.59e-001
Propane	1.41e-004	2.01e-002
Isobutane	1.01e-004	1.44e-002
n-Butane	1.43e-004	2.04e-002
Isopentane	1.17e-004	1.68e-002
n-Pentane	1.99e-005	2.83e-003
Other Hexanes	3.58e-005	5.11e-003
C8+ Heavies	9.02e-004	1.29e-001
Total Components	100.00	1.43e+004

FLASH TANK OFF GAS STREAM

Temperature: 100.00 deg. F
Pressure: 109.70 psia
Flow Rate: 2.49e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.22e-002	6.17e-003
Carbon Dioxide	8.42e+000	2.44e+000
Nitrogen	1.42e+000	2.62e-001
Methane	8.97e+001	9.45e+000
Ethane	4.24e-001	8.37e-002
Propane	1.21e-002	3.52e-003
Isobutane	4.37e-003	1.67e-003
n-Butane	4.70e-003	1.79e-003
Isopentane	2.61e-003	1.24e-003
n-Pentane	3.48e-004	1.65e-004
Other Hexanes	3.69e-004	2.09e-004
C8+ Heavies	1.38e-004	1.54e-004
Total Components	100.00	1.22e+001

FLASH TANK GLYCOL STREAM

Temperature: 100.00 deg. F
Flow Rate: 2.54e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.72e+001	1.39e+004
Water	2.61e+000	3.73e+002
Carbon Dioxide	1.34e-001	1.90e+001
Nitrogen	9.60e-004	1.37e-001
Methane	3.54e-002	5.05e+000
Ethane	1.23e-003	1.75e-001
Propane	1.16e-004	1.65e-002
Isobutane	8.95e-005	1.28e-002
n-Butane	1.30e-004	1.86e-002
Isopentane	1.09e-004	1.55e-002
n-Pentane	1.87e-005	2.67e-003
Other Hexanes	3.43e-005	4.90e-003
C8+ Heavies	9.02e-004	1.29e-001
Total Components	100.00	1.43e+004

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 3.69e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.22e+001	1.62e+002
Carbon Dioxide	4.45e+000	1.90e+001
Nitrogen	5.02e-002	1.37e-001
Methane	3.23e+000	5.05e+000
Ethane	5.99e-002	1.75e-001
Propane	3.86e-003	1.65e-002
Isobutane	2.26e-003	1.28e-002
n-Butane	3.28e-003	1.86e-002
Isopentane	2.20e-003	1.54e-002
n-Pentane	3.78e-004	2.65e-003
Other Hexanes	5.78e-004	4.85e-003
C8+ Heavies	6.82e-003	1.13e-001
Total Components	100.00	1.86e+002

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: FRCF - Dehy #2
File Name: \\Amhous301\group\SanJuan\HSE\Environmental\Air\Colorado\Florida\12-05 Renewal\GLYCalc\Dehy #2.ddf
Date: November 18, 2005

DESCRIPTION:

Description: Florida River Compression Facility
December 2005 Renewal Application
Dehy #2, 35 MMscfd

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	2.6111	62.667	11.4367
Ethane	0.0986	2.366	0.4318
Propane	0.0095	0.229	0.0417
Isobutane	0.0075	0.179	0.0327
n-Butane	0.0109	0.263	0.0479
Isopentane	0.0091	0.219	0.0400
n-Pentane	0.0016	0.038	0.0069
Other Hexanes	0.0029	0.070	0.0127
C8+ Heavies	0.0672	1.612	0.2943
Total Emissions	2.8184	67.643	12.3448
Total Hydrocarbon Emissions	2.8184	67.643	12.3448
Total VOC Emissions	0.1088	2.610	0.4763

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	6.1389	147.333	26.8882
Ethane	0.0582	1.398	0.2551
Propane	0.0025	0.061	0.0111
Isobutane	0.0012	0.029	0.0053
n-Butane	0.0013	0.032	0.0057
Isopentane	0.0009	0.022	0.0040
n-Pentane	0.0001	0.003	0.0005

Other Hexanes	0.0002	0.004	0.0007
C8+ Heavies	0.0001	0.003	0.0005
Total Emissions	6.2034	148.882	27.1710
Total Hydrocarbon Emissions	6.2034	148.882	27.1710
Total VOC Emissions	0.0063	0.152	0.0278

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25	
Calculated Dry Gas Dew Point:	1.56	lbs. H2O/MMSCF
Temperature:	60.0	deg. F
Pressure:	285.0	psig
Dry Gas Flow Rate:	35.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.0180	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	44.76	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	14.28	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.48%	96.52%
Carbon Dioxide	99.70%	0.30%
Nitrogen	99.98%	0.02%
Methane	99.99%	0.01%
Ethane	99.93%	0.07%
Propane	99.85%	0.15%
Isobutane	99.74%	0.26%
n-Butane	99.63%	0.37%
Isopentane	99.55%	0.45%
n-Pentane	99.39%	0.61%
Other Hexanes	99.08%	0.92%
C8+ Heavies	89.72%	10.28%

FLASH TANK

Flash Control: Vented to atmosphere
Flash Temperature: 100.0 deg. F
Flash Pressure: 80.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	100.00%	0.00%
Carbon Dioxide	86.15%	13.85%
Nitrogen	29.45%	70.55%
Methane	29.84%	70.16%
Ethane	62.87%	37.13%
Propane	79.01%	20.99%
Isobutane	86.04%	13.96%
n-Butane	89.29%	10.71%
Isopentane	91.04%	8.96%
n-Pentane	92.91%	7.09%
Other Hexanes	95.03%	4.97%
C8+ Heavies	99.86%	0.14%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	66.76%	33.24%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.55%	99.45%
n-Pentane	0.54%	99.46%
Other Hexanes	1.05%	98.95%
C8+ Heavies	12.04%	87.96%

STREAM REPORTS:

WET GAS STREAM

Temperature: 60.00 deg. F
Pressure: 299.70 psia
Flow Rate: 1.46e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.43e-002	6.54e+001
Carbon Dioxide	2.55e+000	4.31e+003
Nitrogen	1.48e+000	1.60e+003
Methane	9.57e+001	5.90e+004
Ethane	2.06e-001	2.39e+002
Propane	4.80e-003	8.14e+000
Isobutane	1.50e-003	3.35e+000
n-Butane	1.50e-003	3.35e+000
Isopentane	7.99e-004	2.22e+000
n-Pentane	9.99e-005	2.77e-001
Other Hexanes	9.99e-005	3.31e-001
C8+ Heavies	9.99e-005	6.55e-001
Total Components	100.00	6.53e+004

DRY GAS STREAM

Temperature: 60.00 deg. F
Pressure: 299.70 psia
Flow Rate: 1.46e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	3.28e-003	2.27e+000
Carbon Dioxide	2.54e+000	4.30e+003
Nitrogen	1.48e+000	1.60e+003
Methane	9.58e+001	5.90e+004
Ethane	2.07e-001	2.39e+002
Propane	4.79e-003	8.13e+000
Isobutane	1.50e-003	3.34e+000
n-Butane	1.49e-003	3.34e+000
Isopentane	7.97e-004	2.21e+000
n-Pentane	9.94e-005	2.76e-001
Other Hexanes	9.91e-005	3.28e-001
C8+ Heavies	8.97e-005	5.88e-001
Total Components	100.00	6.52e+004

LEAN GLYCOL STREAM

Temperature: 60.00 deg. F
Flow Rate: 1.50e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	8.32e+003
Water	1.50e+000	1.27e+002
Carbon Dioxide	1.53e-011	1.29e-009
Nitrogen	2.86e-013	2.42e-011
Methane	3.48e-018	2.94e-016
Ethane	8.76e-010	7.40e-008
Propane	5.81e-012	4.91e-010
Isobutane	3.09e-012	2.61e-010
n-Butane	3.60e-012	3.04e-010
Isopentane	5.98e-007	5.05e-005
n-Pentane	1.01e-007	8.54e-006
Other Hexanes	3.65e-007	3.08e-005
C8+ Heavies	1.09e-004	9.20e-003
Total Components	100.00	8.45e+003

RICH GLYCOL STREAM

Temperature: 60.00 deg. F
Pressure: 299.70 psia
Flow Rate: 1.52e+001 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.75e+001	8.32e+003
Water	2.22e+000	1.90e+002
Carbon Dioxide	1.51e-001	1.29e+001
Nitrogen	2.83e-003	2.42e-001
Methane	1.03e-001	8.75e+000
Ethane	1.84e-003	1.57e-001
Propane	1.41e-004	1.21e-002
Isobutane	1.02e-004	8.69e-003
n-Butane	1.44e-004	1.23e-002
Isopentane	1.18e-004	1.01e-002
n-Pentane	2.00e-005	1.71e-003
Other Hexanes	3.61e-005	3.08e-003
C8+ Heavies	8.97e-004	7.65e-002
Total Components	100.00	8.53e+003

FLASH TANK OFF GAS STREAM

Temperature: 100.00 deg. F
Pressure: 94.70 psia
Flow Rate: 1.64e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.09e-002	3.95e-003
Carbon Dioxide	9.42e+000	1.79e+000
Nitrogen	1.41e+000	1.71e-001
Methane	8.86e+001	6.14e+000
Ethane	4.49e-001	5.82e-002
Propane	1.33e-002	2.53e-003
Isobutane	4.83e-003	1.21e-003
n-Butane	5.23e-003	1.31e-003
Isopentane	2.90e-003	9.05e-004
n-Pentane	3.89e-004	1.21e-004
Other Hexanes	4.11e-004	1.53e-004
C8+ Heavies	1.46e-004	1.07e-004
Total Components	100.00	8.17e+000

FLASH TANK GLYCOL STREAM

Temperature: 100.00 deg. F
Flow Rate: 1.52e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.76e+001	8.32e+003
Water	2.23e+000	1.90e+002
Carbon Dioxide	1.31e-001	1.11e+001
Nitrogen	8.35e-004	7.12e-002
Methane	3.06e-002	2.61e+000
Ethane	1.16e-003	9.86e-002
Propane	1.12e-004	9.53e-003
Isobutane	8.77e-005	7.48e-003
n-Butane	1.28e-004	1.09e-002
Isopentane	1.08e-004	9.19e-003
n-Pentane	1.86e-005	1.59e-003
Other Hexanes	3.44e-005	2.93e-003
C8+ Heavies	8.96e-004	7.64e-002
Total Components	100.00	8.52e+003

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 1.49e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.92e+001	6.31e+001
Carbon Dioxide	6.44e+000	1.11e+001
Nitrogen	6.47e-002	7.12e-002
Methane	4.15e+000	2.61e+000
Ethane	8.35e-002	9.86e-002
Propane	5.51e-003	9.53e-003
Isobutane	3.28e-003	7.48e-003
n-Butane	4.80e-003	1.09e-002
Isopentane	3.23e-003	9.14e-003
n-Pentane	5.57e-004	1.58e-003
Other Hexanes	8.57e-004	2.90e-003
C8+ Heavies	1.00e-002	6.72e-002
Total Components	100.00	7.71e+001

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: FRCF - Dehy #3
File Name: \\Amhous301\group\SanJuan\HSE\Environmental\Air\Colorado\Florida\12-05 Renewal\GLYCalc\Dehy #3.ddf
Date: November 18, 2005

DESCRIPTION:

Description: Florida River Compression Facility
December 2005 Renewal Application
Dehy #3, 180 MMscfd

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	5.8248	139.794	25.5125
Ethane	0.2097	5.033	0.9184
Propane	0.0215	0.516	0.0941
Isobutane	0.0170	0.407	0.0743
n-Butane	0.0252	0.606	0.1106
Isopentane	0.0210	0.503	0.0918
n-Pentane	0.0037	0.088	0.0161
Other Hexanes	0.0069	0.165	0.0301
C8+ Heavies	0.1746	4.190	0.7647
Total Emissions	6.3042	151.302	27.6126
Total Hydrocarbon Emissions	6.3042	151.302	27.6126
Total VOC Emissions	0.2698	6.475	1.1817

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	17.2706	414.495	75.6453
Ethane	0.2022	4.852	0.8855
Propane	0.0106	0.253	0.0462
Isobutane	0.0061	0.146	0.0266
n-Butane	0.0072	0.174	0.0317
Isopentane	0.0056	0.135	0.0247
n-Pentane	0.0008	0.020	0.0036

Other Hexanes	0.0012	0.029	0.0052
C8+ Heavies	0.0063	0.151	0.0275
Total Emissions	17.5106	420.253	76.6963
Total Hydrocarbon Emissions	17.5106	420.253	76.6963
Total VOC Emissions	0.0378	0.907	0.1655

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25	
Calculated Dry Gas Dew Point:	1.85	lbs. H2O/MMSCF
Temperature:	60.0	deg. F
Pressure:	285.0	psig
Dry Gas Flow Rate:	180.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.0926	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	44.76	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	7.46	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	4.13%	95.87%
Carbon Dioxide	99.85%	0.15%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.97%	0.03%
Propane	99.92%	0.08%
Isobutane	99.87%	0.13%
n-Butane	99.81%	0.19%
Isopentane	99.77%	0.23%
n-Pentane	99.68%	0.32%
Other Hexanes	99.53%	0.47%
C8+ Heavies	94.63%	5.37%

FLASH TANK

Flash Control: Vented to atmosphere
Flash Temperature: 175.0 deg. F
Flash Pressure: 72.5 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.98%	0.02%
Carbon Dioxide	74.35%	25.65%
Nitrogen	24.81%	75.19%
Methane	25.22%	74.78%
Ethane	50.91%	49.09%
Propane	67.07%	32.93%
Isobutane	73.65%	26.35%
n-Butane	77.72%	22.28%
Isopentane	78.94%	21.06%
n-Pentane	81.90%	18.10%
Other Hexanes	85.39%	14.61%
C8+ Heavies	96.95%	3.05%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	51.19%	48.81%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.63%	99.37%
n-Pentane	0.61%	99.39%
Other Hexanes	1.17%	98.83%
C8+ Heavies	12.41%	87.59%

STREAM REPORTS:

WET GAS STREAM

Temperature: 60.00 deg. F
Pressure: 299.70 psia
Flow Rate: 7.51e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.43e-002	3.36e+002
Carbon Dioxide	2.55e+000	2.22e+004
Nitrogen	1.48e+000	8.21e+003
Methane	9.57e+001	3.04e+005
Ethane	2.06e-001	1.23e+003
Propane	4.80e-003	4.18e+001
Isobutane	1.50e-003	1.72e+001
n-Butane	1.50e-003	1.72e+001
Isopentane	7.99e-004	1.14e+001
n-Pentane	9.99e-005	1.43e+000
Other Hexanes	9.99e-005	1.70e+000
C8+ Heavies	9.99e-005	3.37e+000
Total Components	100.00	3.36e+005

DRY GAS STREAM

Temperature: 60.00 deg. F
Pressure: 299.70 psia
Flow Rate: 7.50e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	3.90e-003	1.39e+001
Carbon Dioxide	2.54e+000	2.21e+004
Nitrogen	1.48e+000	8.21e+003
Methane	9.58e+001	3.04e+005
Ethane	2.07e-001	1.23e+003
Propane	4.80e-003	4.18e+001
Isobutane	1.50e-003	1.72e+001
n-Butane	1.50e-003	1.72e+001
Isopentane	7.98e-004	1.14e+001
n-Pentane	9.97e-005	1.42e+000
Other Hexanes	9.95e-005	1.70e+000
C8+ Heavies	9.46e-005	3.19e+000
Total Components	100.00	3.35e+005

LEAN GLYCOL STREAM

Temperature: 60.00 deg. F
Flow Rate: 4.00e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	2.22e+004
Water	1.50e+000	3.38e+002
Carbon Dioxide	1.52e-011	3.43e-009
Nitrogen	2.82e-013	6.35e-011
Methane	3.45e-018	7.76e-016
Ethane	8.63e-010	1.94e-007
Propane	5.79e-012	1.30e-009
Isobutane	3.07e-012	6.91e-010
n-Butane	3.58e-012	8.06e-010
Isopentane	5.93e-007	1.34e-004
n-Pentane	1.00e-007	2.26e-005
Other Hexanes	3.61e-007	8.13e-005
C8+ Heavies	1.10e-004	2.47e-002
Total Components	100.00	2.25e+004

RICH GLYCOL STREAM

Temperature: 60.00 deg. F
Pressure: 299.70 psia
Flow Rate: 4.08e+001 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.69e+001	2.22e+004
Water	2.88e+000	6.60e+002
Carbon Dioxide	1.50e-001	3.43e+001
Nitrogen	2.77e-003	6.35e-001
Methane	1.01e-001	2.31e+001
Ethane	1.80e-003	4.12e-001
Propane	1.40e-004	3.20e-002
Isobutane	1.01e-004	2.30e-002
n-Butane	1.42e-004	3.25e-002
Isopentane	1.17e-004	2.67e-002
n-Pentane	1.97e-005	4.52e-003
Other Hexanes	3.55e-005	8.13e-003
C8+ Heavies	8.98e-004	2.06e-001
Total Components	100.00	2.29e+004

FLASH TANK OFF GAS STREAM

Temperature: 175.00 deg. F
Pressure: 87.20 psia
Flow Rate: 4.97e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.70e-001	1.34e-001
Carbon Dioxide	1.53e+001	8.80e+000
Nitrogen	1.30e+000	4.77e-001
Methane	8.23e+001	1.73e+001
Ethane	5.14e-001	2.02e-001
Propane	1.83e-002	1.06e-002
Isobutane	7.98e-003	6.07e-003
n-Butane	9.52e-003	7.24e-003
Isopentane	5.96e-003	5.63e-003
n-Pentane	8.66e-004	8.18e-004
Other Hexanes	1.05e-003	1.19e-003
C8+ Heavies	2.82e-003	6.28e-003
Total Components	100.00	2.69e+001

FLASH TANK GLYCOL STREAM

Temperature: 175.00 deg. F
Flow Rate: 4.07e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.70e+001	2.22e+004
Water	2.89e+000	6.60e+002
Carbon Dioxide	1.12e-001	2.55e+001
Nitrogen	6.88e-004	1.57e-001
Methane	2.55e-002	5.82e+000
Ethane	9.17e-004	2.10e-001
Propane	9.40e-005	2.15e-002
Isobutane	7.42e-005	1.70e-002
n-Butane	1.10e-004	2.52e-002
Isopentane	9.22e-005	2.11e-002
n-Pentane	1.62e-005	3.70e-003
Other Hexanes	3.04e-005	6.95e-003
C8+ Heavies	8.71e-004	1.99e-001
Total Components	100.00	2.29e+004

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 7.15e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.49e+001	3.22e+002
Carbon Dioxide	3.08e+000	2.55e+001
Nitrogen	2.98e-002	1.57e-001
Methane	1.93e+000	5.82e+000
Ethane	3.70e-002	2.10e-001
Propane	2.59e-003	2.15e-002
Isobutane	1.55e-003	1.70e-002
n-Butane	2.31e-003	2.52e-002
Isopentane	1.54e-003	2.10e-002
n-Pentane	2.71e-004	3.68e-003
Other Hexanes	4.23e-004	6.86e-003
C8+ Heavies	5.44e-003	1.75e-001
Total Components	100.00	3.54e+002

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A	Description:	Area 1 East Combined
Analysis Date/Time:	3/1/04 10:47	Field:	Florida Fac.
Analyst Initials:	ABK	ML#:	BP America
Instrument ID:	Instrument 1	GC Method:	Quesbtex
Data File:	QPC62.D		
Date Sampled:	2/25/04		

65 MMSCFD

Component	Mol%	Wt%	LV%
Methane	96.8589	92.0112	96.7484
Ethane	0.1885	0.3357	0.2980
Propane	0.0000	0.0000	0.0000
Isobutane	0.0011	0.0038	0.0021
n-Butane	0.0011	0.0037	0.0020
Neopentane	0.0001	0.0003	0.0002
Isopentane	0.0006	0.0024	0.0012
n-Pentane	0.0002	0.0008	0.0004
2,2-Dimethylbutane	0.0000	0.0000	0.0000
2,3-Dimethylbutane	0.0000	0.0002	0.0001
2-Methylpentane	0.0001	0.0004	0.0002
3-Methylpentane	0.0000	0.0002	0.0001
n-Hexane	0.0001	0.0006	0.0003
Heptanes	0.0005	0.0021	0.0009
Octanes	0.0001	0.0012	0.0006
Nonanes	0.0002	0.0019	0.0007
Decanes plus	0.0000	0.0000	0.0000
Nitrogen	0.0509	0.0844	0.0329
Carbon Dioxide	2.8976	7.5511	2.9119
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties		Units
Gross BTU/Real CF	986.1	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	970.1	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9979	
Specific Gravity	0.5844	air=1
Avg Molecular Weight	16.888	gm/mole
Propane GPM	0.000000	gal/MCF
Butane GPM	0.000705	gal/MCF
Gasoline GPM	0.000657	gal/MCF
26# Gasoline GPM	0.001059	gal/MCF
Total GPM	0.001418	gal/MCF
Base Mol%	99.361	%v/v

Sample Temperature:	N/A	°F
Sample Pressure:	58	psig
Hydrogen Sulfide	0.0000	Mole%

Reviewed By: _____

Component	Mol%	Wt%	LV%
Benzene	0.0000	0.0000	0.0000
Toluene	0.0001	0.0004	0.0001
Ethylbenzene	0.0000	0.0000	0.0000
M&P Xylene	0.0001	0.0009	0.0003
O-Xylene	0.0000	0.0000	0.0000
2,2,4-Trimethylpentane	0.0000	0.0000	0.0000
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0001	0.0003	0.0001
Methylcyclohexane	0.0002	0.0009	0.0004
Description:	Area 1 East Combined		

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	2.8976	7.5511	2.9119
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	0.0509	0.0844	0.0329
Methane	96.8589	92.0112	96.7484
Ethane	0.1885	0.3357	0.2980
Propane	0.0000	0.0000	0.0000
Isobutane	0.0011	0.0038	0.0021
n-Butane	0.0011	0.0037	0.0020
Isopentane	0.0007	0.0027	0.0014
n-Pentane	0.0002	0.0008	0.0004
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0001	0.0006	0.0003
Cyclohexane	0.0001	0.0003	0.0001
Other Hexanes	0.0001	0.0008	0.0004
Heptanes	0.0001	0.0005	0.0003
Methylcyclohexane	0.0002	0.0009	0.0004
2,2,4 Trimethylpentane	0.0000	0.0000	0.0000
Benzene	0.0000	0.0000	0.0000
Toluene	0.0001	0.0004	0.0001
Ethylbenzene	0.0000	0.0000	0.0000
Xylenes	0.0001	0.0009	0.0003
C8+ Heavies	0.0002	0.0022	0.0010
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A	Description:	Area/West Combined
Analysis Date/Time:	2/27/04 16:07	Field:	Florida Fac
[redacted] Analyst Initials:	BRS	ML#:	BP America
Instrument ID:	Instrument 1	GC Method:	Quesbtex
Data File:	QPC58.D		
Date Sampled:	2/25/04		35 MMscFD

Component	Mol%	Wt%	LV%
Methane	97.3882	93.3017	97.3082
Ethane	0.1434	0.2575	0.2267
Propane	0.0000	0.0000	0.0000
Isobutane	0.0007	0.0024	0.0013
n-Butane	0.0006	0.0022	0.0012
Neopentane	0.0001	0.0002	0.0001
Isopentane	0.0004	0.0017	0.0009
n-Pentane	0.0001	0.0006	0.0003
2,2-Dimethylbutane	0.0000	0.0000	0.0000
2,3-Dimethylbutane	0.0000	0.0000	0.0000
2-Methylpentane	0.0000	0.0002	0.0001
3-Methylpentane	0.0000	0.0000	0.0000
n-Hexane	0.0000	0.0002	0.0001
Heptanes	0.0000	0.0000	0.0000
Octanes	0.0000	0.0000	0.0000
Nonanes	0.0000	0.0000	0.0000
Decanes plus	0.0000	0.0000	0.0000
Nitrogen	0.0513	0.0858	0.0332
Carbon Dioxide	2.4152	6.3475	2.4279
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties		Units
Gross BTU/Real CF	990.5	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	974.5	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9979	
Specific Gravity	0.5795	air=1
Avg Molecular Weight	16.746	gm/mole
Propane GPM	0.000000	gal/MCF
Butane GPM	0.000417	gal/MCF
Gasoline GPM	0.000220	gal/MCF
26# Gasoline GPM	0.000409	gal/MCF
Total GPM	0.000638	gal/MCF
Base Mol%	98.676	%v/v

Sample Temperature:	N/A	°F
Sample Pressure:	58	psig
Hydrogen Sulfide	0.0000	Mole%

Reviewed By: _____

Component	Mol%	Wt%	LV%
Benzene	0.0000	0.0000	0.0000
Toluene	0.0000	0.0000	0.0000
Ethylbenzene	0.0000	0.0000	0.0000
M&P Xylene	0.0000	0.0000	0.0000
O-Xylene	0.0000	0.0000	0.0000
2,2,4-Trimethylpentane	0.0000	0.0000	0.0000
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0000	0.0000	0.0000
Methylcyclohexane	0.0000	0.0000	0.0000
Description:	Area/West Combined		

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	2.4152	6.3475	2.4279
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	0.0513	0.0858	0.0332
Methane	97.3882	93.3017	97.3082
Ethane	0.1434	0.2575	0.2267
Propane	0.0000	0.0000	0.0000
Isobutane	0.0007	0.0024	0.0013
n-Butane	0.0006	0.0022	0.0012
Isopentane	0.0005	0.0019	0.0010
n-Pentane	0.0001	0.0006	0.0003
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0000	0.0002	0.0001
Cyclohexane	0.0000	0.0000	0.0000
Other Hexanes	0.0000	0.0002	0.0001
Heptanes	0.0000	0.0000	0.0000
Methylcyclohexane	0.0000	0.0000	0.0000
2,2,4 Trimethylpentane	0.0000	0.0000	0.0000
Benzene	0.0000	0.0000	0.0000
Toluene	0.0000	0.0000	0.0000
Ethylbenzene	0.0000	0.0000	0.0000
Xylenes	0.0000	0.0000	0.0000
C8+ Heavies	0.0000	0.0000	0.0000
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A	*Description:*	AREA 6
Analysis Date/Time:	2/27/04 14:49	Field:	Florida Fac
Analyst Initials:	ABK	*ML#:*	BP America
Instrument ID:	Instrument 1	GC Method:	Quesbtex
Data File:	QPC57.D		
Date Sampled:	2/25/04		

21 MMSCFD

Component	Mol%	Wt%	LV%
Methane	92.8057	82.6325	92.6375
Ethane	0.2457	0.4101	0.3881
Propane	0.0000	0.0000	0.0000
Isobutane	0.0014	0.0045	0.0027
n-Butane	0.0013	0.0041	0.0024
Neopentane	0.0001	0.0002	0.0001
Isopentane	0.0009	0.0037	0.0020
n-Pentane	0.0002	0.0009	0.0005
2,2-Dimethylbutane	0.0001	0.0003	0.0001
2,3-Dimethylbutane	0.0000	0.0002	0.0001
2-Methylpentane	0.0001	0.0004	0.0002
3-Methylpentane	0.0001	0.0003	0.0001
n-Hexane	0.0001	0.0004	0.0002
Heptanes	0.0002	0.0012	0.0005
Octanes	0.0000	0.0000	0.0000
Nonanes	0.0000	0.0002	0.0001
Decanes plus	0.0000	0.0000	0.0000
Nitrogen	0.0228	0.0354	0.0147
Carbon Dioxide	6.9213	16.9056	6.9507
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties		Units	
Gross BTU/Real CF	946.1	BTU/SCF at 60°F and14.73 psia	
Sat.Gross BTU/Real CF	930.8	BTU/SCF at 60°F and14.73 psia	
Gas Compressibility (Z)	0.9978		
Specific Gravity	0.6235	air=1	
Avg Molecular Weight	18.018	grn/mole	
Propane GPM	0.000000	gal/MCF	
Butane GPM	0.000866	gal/MCF	
Gasoline GPM	0.000678	gal/MCF	
26# Gasoline GPM	0.001087	gal/MCF	
~~Total GPM~~	~~0.001544~~	~~gal/MCF~~	
Base Mol%	98.695	%v/v	

Sample Temperature:	N/A		°F
Sample Pressure:		310	psig
Hydrogen Sulfide		0.0000	Mole%

Reviewed By: _____

Component	Mol%	Wt%	LV%
Benzene	0.0000	0.0000	0.0000
Toluene	0.0000	0.0000	0.0000
Ethylbenzene	0.0000	0.0000	0.0000
M&P Xylene	0.0000	0.0002	0.0001
O-Xylene	0.0000	0.0000	0.0000
2,2,4-Trimethylpentane	0.0000	0.0000	0.0000
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0001	0.0003	0.0001
Methylcyclohexane	0.0001	0.0004	0.0002

Description: PREA 6

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	6.9213	16.9056	6.9507
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	0.0228	0.0354	0.0147
Methane	92.8057	82.6325	92.6375
Ethane	0.2457	0.4101	0.3881
Propane	0.0000	0.0000	0.0000
Isobutane	0.0014	0.0045	0.0027
n-Butane	0.0013	0.0041	0.0024
Isopentane	0.0010	0.0039	0.0021
n-Pentane	0.0002	0.0009	0.0005
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0001	0.0004	0.0002
Cyclohexane	0.0001	0.0003	0.0001
Other Hexanes	0.0003	0.0012	0.0005
Heptanes	0.0000	0.0005	0.0002
Methylcyclohexane	0.0001	0.0004	0.0002
2,2,4 Trimethylpentane	0.0000	0.0000	0.0000
Benzene	0.0000	0.0000	0.0000
Toluene	0.0000	0.0000	0.0000
Ethylbenzene	0.0000	0.0000	0.0000
Xylenes	0.0000	0.0002	0.0001
C8+ Heavies	0.0000	0.0000	0.0000
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A	Description:	ECBM
Analysis Date/Time:	3/1/04 13:42	Field:	Florida Fac.
Analyst Initials:	BRS	ML#:	BP America
Instrument ID:	Instrument 1	GC Method:	Quesbtex
Data File:	QPC65.D		
Date Sampled:	2/25/04		39 MMSCFD

Component	Mol%	Wt%	LV%
Methane	90.1368	81.3136	91.9874
Ethane	0.2261	0.3822	0.3650
Propane	0.0126	0.0312	0.0209
Isobutane	0.0018	0.0058	0.0035
n-Butane	0.0015	0.0049	0.0029
Neopentane	0.0001	0.0003	0.0002
Isopentane	0.0007	0.0028	0.0015
n-Pentane	0.0003	0.0011	0.0006
2,2-Dimethylbutane	0.0000	0.0002	0.0001
2,3-Dimethylbutane	0.0001	0.0003	0.0001
2-Methylpentane	0.0001	0.0004	0.0002
3-Methylpentane	0.0000	0.0002	0.0001
n-Hexane	0.0001	0.0005	0.0002
Heptanes	0.0002	0.0010	0.0005
Octanes	0.0000	0.0000	0.0000
Nonanes	0.0000	0.0000	0.0000
Decanes plus	0.0000	0.0000	0.0000
Nitrogen	6.1701	9.7191	4.0752
Carbon Dioxide	3.4495	8.5364	3.5416
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties		Units
Gross BTU/Real CF	918.8	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	903.9	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9981	
Specific Gravity	0.6154	air=1
Avg Molecular Weight	17.784	gm/mole
Propane GPM	0.003464	gal/MCF
Butane GPM	0.001059	gal/MCF
Gasoline GPM	0.000600	gal/MCF
26# Gasoline GPM	0.001071	gal/MCF
Total GPM	0.005123	gal/MCF
Base Mol%	99.432	%v/v

Sample Temperature:	N/A		°F
Sample Pressure:		315	psig
Hydrogen Sulfide		0.0000	Mole%

Reviewed By: _____

Component	Mol%	Wt%	LV%
Benzene	0.0000	0.0000	0.0000
Toluene	0.0000	0.0000	0.0000
Ethylbenzene	0.0000	0.0000	0.0000
M&P Xylene	0.0000	0.0000	0.0000
O-Xylene	0.0000	0.0000	0.0000
2,2,4-Trimethylpentane	0.0000	0.0000	0.0000
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0001	0.0002	0.0001
Methylcyclohexane	0.0001	0.0004	0.0002

Description: FCBM

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	3.4495	8.5364	3.5416
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	6.1701	9.7191	4.0752
Methane	90.1368	81.3136	91.9874
Ethane	0.2261	0.3822	0.3650
Propane	0.0126	0.0312	0.0209
Isobutane	0.0018	0.0058	0.0035
n-Butane	0.0015	0.0049	0.0029
Isopentane	0.0008	0.0031	0.0017
n-Pentane	0.0003	0.0011	0.0006
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0001	0.0005	0.0002
Cyclohexane	0.0001	0.0002	0.0001
Other Hexanes	0.0002	0.0011	0.0005
Heptanes	0.0000	0.0004	0.0002
Methylcyclohexane	0.0001	0.0004	0.0002
2,2,4 Trimethylpentane	0.0000	0.0000	0.0000
Benzene	0.0000	0.0000	0.0000
Toluene	0.0000	0.0000	0.0000
Ethylbenzene	0.0000	0.0000	0.0000
Xylenes	0.0000	0.0000	0.0000
C8+ Heavies	0.0000	0.0000	0.0000
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A	Description:	Medium Pressure Pipeline
Analysis Date/Time:	3/1/04 12:42	Field:	Florida Fac
Analyst Initials:	ABK	ML#:	BP America
Instrument ID:	Instrument 1	GC Method:	Quesbtex
Data File:	QPC64.D		
Date Sampled:	2/25/04		

193 MMSCFD

Component	Mol%	Wt%	LV%
Methane	97.6855	94.0934	97.6658
Ethane	0.0936	0.1690	0.1481
Propane	0.0000	0.0000	0.0000
Isobutane	0.0008	0.0029	0.0016
n-Butane	0.0008	0.0029	0.0015
Neopentane	0.0000	0.0001	0.0000
Isopentane	0.0005	0.0021	0.0010
n-Pentane	0.0002	0.0007	0.0003
2,2-Dimethylbutane	0.0000	0.0000	0.0000
2,3-Dimethylbutane	0.0000	0.0000	0.0000
2-Methylpentane	0.0001	0.0003	0.0001
3-Methylpentane	0.0000	0.0000	0.0000
n-Hexane	0.0001	0.0003	0.0001
Heptanes	0.0001	0.0008	0.0003
Octanes	0.0000	0.0000	0.0000
Nonanes	0.0000	0.0002	0.0001
Decanes plus	0.0000	0.0000	0.0000
Nitrogen	0.1399	0.2354	0.0905
Carbon Dioxide	2.0784	5.4919	2.0906
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties		Units	
Gross BTU/Real CF	992.7	BTU/SCF at 60°F and14.73 psia	
Sat.Gross BTU/Real CF	976.6	BTU/SCF at 60°F and14.73 psia	
Gas Compressibility (Z)	0.9980		
Specific Gravity	0.5764	air=1	
Avg Molecular Weight	16.655	gm/mole	
Propane GPM	0.000000	gal/MCF	
Butane GPM	0.000513	gal/MCF	
Gasoline GPM	0.000377	gal/MCF	
26# Gasoline GPM	0.000629	gal/MCF	
Total GPM	0.000890	gal/MCF	
Base Mol%	98.958	%v/v	

Sample Temperature:	N/A		°F
Sample Pressure:	285		psig
Hydrogen Sulfide	0.0000	Mole%	

Reviewed By: _____

Component	Mol%	Wt%	LV%
Benzene	0.0000	0.0000	0.0000
Toluene	0.0000	0.0000	0.0000
Ethylbenzene	0.0000	0.0002	0.0001
M&P Xylene	0.0000	0.0000	0.0000
O-Xylene	0.0000	0.0000	0.0000
2,2,4-Trimethylpentane	0.0000	0.0000	0.0000
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0000	0.0000	0.0000
Methylcyclohexane	0.0001	0.0004	0.0001
Description:	Medium Pressure Pipeline		

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	2.0784	5.4919	2.0906
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	0.1399	0.2354	0.0905
Methane	97.6855	94.0934	97.6658
Ethane	0.0936	0.1690	0.1481
Propane	0.0000	0.0000	0.0000
Isobutane	0.0008	0.0029	0.0016
n-Butane	0.0008	0.0029	0.0015
Isopentane	0.0005	0.0022	0.0010
n-Pentane	0.0002	0.0007	0.0003
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0001	0.0003	0.0001
Cyclohexane	0.0000	0.0000	0.0000
Other Hexanes	0.0001	0.0003	0.0001
Heptanes	0.0000	0.0004	0.0002
Methylcyclohexane	0.0001	0.0004	0.0001
2,2,4 Trimethylpentane	0.0000	0.0000	0.0000
Benzene	0.0000	0.0000	0.0000
Toluene	0.0000	0.0000	0.0000
Ethylbenzene	0.0000	0.0002	0.0001
Xylenes	0.0000	0.0000	0.0000
C8+ Heavies	0.0000	0.0000	0.0000
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A	Description:	Red Cedar Inlet
Analysis Date/Time:	3/1/04 11:37	Field:	Florida Fac
Analyst Initials:	BRS	ML#:	BP America
Instrument ID:	Instrument 1	GC Method:	Quesbtex
Data File:	QPC63.D		
Date Sampled:	2/25/04		

10 MMSCFD

Component	Mol%	Wt%	LV%
Methane	91.8068	80.5405	91.5580
Ethane	0.3382	0.5561	0.5336
Propane	0.0324	0.0780	0.0525
Isobutane	0.0047	0.0149	0.0090
n-Butane	0.0051	0.0163	0.0095
Neopentane	0.0000	0.0002	0.0001
Isopentane	0.0018	0.0069	0.0038
n-Pentane	0.0009	0.0035	0.0019
2,2-Dimethylbutane	0.0000	0.0002	0.0001
2,3-Dimethylbutane	0.0001	0.0006	0.0003
2-Methylpentane	0.0003	0.0012	0.0006
3-Methylpentane	0.0001	0.0006	0.0003
n-Hexane	0.0002	0.0011	0.0006
Heptanes	0.0007	0.0042	0.0018
Octanes	0.0001	0.0004	0.0002
Nonanes	0.0000	0.0003	0.0001
Decanes plus	0.0000	0.0000	0.0000
Nitrogen	0.0197	0.0302	0.0127
Carbon Dioxide	7.7889	18.7448	7.8149
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties		**Units**
Gross BTU/Real CF	938.8	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	923.6	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9978	
Specific Gravity	0.6328	air=1
Avg Molecular Weight	18.287	gm/mole
Propane GPM	0.008908	gal/MCF
Butane GPM	0.003138	gal/MCF
Gasoline GPM	0.001591	gal/MCF
26# Gasoline GPM	0.003195	gal/MCF
Total GPM	0.013637	gal/MCF
Base Mol%	99.881	%v/v

Sample Temperature:	N/A	°F
Sample Pressure:	310	psig
Hydrogen Sulfide	0.0000	Mole%

Reviewed By: _____

Component	Mol%	Wt%	LV%
Benzene	0.0001	0.0003	0.0001
Toluene	0.0000	0.0002	0.0001
Ethylbenzene	0.0000	0.0000	0.0000
M&P Xylene	0.0000	0.0002	0.0001
O-Xylene	0.0000	0.0000	0.0000
2,2,4-Trimethylpentane	0.0000	0.0000	0.0000
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0001	0.0006	0.0003
Methylcyclohexane	0.0002	0.0010	0.0004
Description:	Red Cedar Inlet		

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	7.7889	18.7448	7.8149
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	0.0197	0.0302	0.0127
Methane	91.8068	80.5405	91.5580
Ethane	0.3382	0.5561	0.5336
Propane	0.0324	0.0780	0.0525
Isobutane	0.0047	0.0149	0.0090
n-Butane	0.0051	0.0163	0.0095
Isopentane	0.0018	0.0071	0.0039
n-Pentane	0.0009	0.0035	0.0019
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0002	0.0011	0.0006
Cyclohexane	0.0001	0.0006	0.0003
Other Hexanes	0.0005	0.0026	0.0013
Heptanes	0.0003	0.0021	0.0009
Methylcyclohexane	0.0002	0.0010	0.0004
2,2,4 Trimethylpentane	0.0000	0.0000	0.0000
Benzene	0.0001	0.0003	0.0001
Toluene	0.0000	0.0002	0.0001
Ethylbenzene	0.0000	0.0000	0.0000
Xylenes	0.0000	0.0002	0.0001
C8+ Heavies	0.0001	0.0005	0.0002
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

TANKS 4.0
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	FRCF - 1,000 gal Gasoline Tank
City:	Durango
State:	Colorado
Company:	BP America Production Company
Type of Tank:	Vertical Fixed Roof Tank
Description:	

Tank Dimensions

Shell Height (ft):	11.91
Diameter (ft):	3.79
Liquid Height (ft):	11.91
Avg. Liquid Height (ft):	1.00
Volume (gallons):	1,000.00
Turnovers:	20.00
Net Throughput (gal/yr):	20,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Medium
Shell Condition:	Poor
Roof Color/Shade:	Gray/Medium
Roof Condition:	Poor

Roof Characteristics

Type:	Dome
Height (ft):	0.00
Radius (ft) (Dome Roof):	0.00

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Alamosa, Colorado (Avg Atmospheric Pressure = 11.19 psia)

TANKS 4.0
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (RVP 10)	All	52.75	37.73	67.77	44.52	4.4966	3.3028	6.0152	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3

TANKS 4.0
Emissions Report - Summary Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	141.32	347.92	489.24

TANKS 4.0
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	FRCF - 250 bbl MDEA Tank
City:	Durango
State:	Colorado
Company:	BP America Production Company
Type of Tank:	Vertical Fixed Roof Tank
Description:	

Tank Dimensions

Shell Height (ft):	15.00
Diameter (ft):	12.00
Liquid Height (ft):	12.41
Avg. Liquid Height (ft):	9.00
Volume (gallons):	10,500.00
Turnovers:	1.00
Net Throughput (gal/yr):	10,500.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Medium
Shell Condition:	Poor
Roof Color/Shade:	Gray/Light
Roof Condition:	Poor

Roof Characteristics

Type:	*Dome*
Height (ft):	0.00
Radius (ft) (Dome Roof):	0.00

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Alamosa, Colorado (Avg Atmospheric Pressure = 11.19 psia)

TANKS 4.0
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Methyldiethanolamine	All	51.84	37.47	66.21	44.19	0.0020	0.0020	0.0020	119.1900			119.19	Option 1: VP50 = .002 VP60 = .002

TANKS 4.0
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	FRCF - 300 bbl EG Tank
City:	Durango
State:	Colorado
Company:	BP America Production Company
Type of Tank:	Horizontal Tank
Description:	

Tank Dimensions

Shell Length (ft):	18.00
Diameter (ft):	12.00
Volume (gallons):	12,600.00
Turnovers:	1.00
Net Throughput (gal/yr):	12,600.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Medium
Shell Condition:	Poor

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Alamosa, Colorado (Avg Atmospheric Pressure = 11.19 psia)

TANKS 4.0
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Ethylene Glycol	All	52.75	37.73	67.77	44.52	0.0007	0.0003	0.0016	62.0682			62.07	Option 2: A=8.79, B=2614.93, C=244.75

TANKS 4.0
Emissions Report - Summary Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Ethylene Glycol	0.01	0.45	0.46

TANKS 4.0
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	FRCF - 12,000 Diesel Tank
City:	Durango
State:	Colorado
Company:	BP America Production Company
Type of Tank:	Vertical Fixed Roof Tank
Description:	

Tank Dimensions

Shell Height (ft):	18.00
Diameter (ft):	12.00
Liquid Height (ft):	14.18
Avg. Liquid Height (ft):	10.00
Volume (gallons):	12,000.00
Turnovers:	20.00
Net Throughput (gal/yr):	240,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Medium
Shell Condition:	Poor
Roof Color/Shade:	Gray/Medium
Roof Condition:	Poor

Roof Characteristics

Type:	Cone
Height (ft):	0.00
Slope (ft/ft) (Cone Roof):	0.00

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Alamosa, Colorado (Avg Atmospheric Pressure = 11.19 psia)

TANKS 4.0
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	All	52.75	37.73	67.77	44.52	0.0051	0.0031	0.0083	130.0000			188.00	Option 5: A=12.101, B=8907

TANKS 4.0
Emissions Report - Summary Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	3.78	4.45	8.23

TANKS 4.0
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	FRCF - 300 bbl Lube Oil Tank
City:	Durango
State:	Colorado
Company:	BP America Production Company
Type of Tank:	Vertical Fixed Roof Tank
Description:	

Tank Dimensions

Shell Height (ft):	18.00
Diameter (ft):	12.00
Liquid Height (ft):	14.89
Avg. Liquid Height (ft):	10.00
Volume (gallons):	12,600.00
Turnovers:	1.00
Net Throughput (gal/yr):	12,600.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Medium
Shell Condition:	Poor
Roof Color/Shade:	Gray/Medium
Roof Condition:	Poor

Roof Characteristics

Type:	Dome
Height (ft):	0.00
Radius (ft) (Dome Roof):	0.00

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Alamosa, Colorado (Avg Atmospheric Pressure = 11.19 psia)

TANKS 4.0
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Jet kerosene	All	52.75	37.73	67.77	44.52	0.0065	0.0041	0.0106	130.0000			162.00	Option 5: A=12.39, B=8933

TANKS 4.0
Emissions Report - Summary Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Jet kerosene	0.25	6.23	6.48

MATERIAL SAFETY DATA SHEET from SJ

GASOLINES (LEAD-FREE)
Covers all Amoco lead-free gasolines, including those with oxygenates
MSDS No. 09748000 ANSI/ENGLISH

1.0 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: GASOLINES (LEAD-FREE)

MANUFACTURER/SUPPLIER:

Amoco Oil Company
200 East Randolph Drive
Chicago, Illinois 60601 U.S.A.

EMERGENCY HEALTH INFORMATION:
1 (800) 447-8735

EMERGENCY SPILL INFORMATION:
1 (800) 424-9300 CHEMTREC (USA)

OTHER PRODUCT SAFETY INFORMATION:
(630) 836-5441

2.0 COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Range % by Wt.
Gasoline	8006-61-9	80-100
Benzene	71-43-2	1-4
Butane	106-97-8	1-12
Cyclohexane	110-82-7	1-5
Ethylbenzene	100-41-4	1-2
Heptane	142-82-5	1-2
Hexane	110-54-3	1-5
Pentane	109-66-0	1-10
Toluene	108-88-3	1-22
Trimethylbenzene	95-63-6	1-7
Xylene	1330-20-7	1-10
Methyl tertiary butyl ether (MTBE)	1634-04-4	0-18
Ethanol (ethyl alcohol)	64-17-5	0-10
Ethyl tertiary butyl ether	637-92-3	0-21
Tert-amyl methyl ether (TAME)	994-05-8	0-20
Isopentane	78-78-4	1-20

Naphthalene	91-20-3	0-1.1

(See Section 8.0, "Exposure Controls/Personal Protection", for exposure guidelines)

3.0 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Danger! Extremely flammable. Inhalation of vapor/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness, and nausea, and may lead to unconsciousness or death. Harmful if swallowed and/or aspirated into the lungs. Prolonged or repeated contact may cause irritation and/or dermatitis. Use as motor fuel only. Long-term exposure to vapors has caused cancer in laboratory animals.

POTENTIAL HEALTH EFFECTS:

EYE CONTACT: High concentrations of vapor/mist may cause eye discomfort.

SKIN CONTACT: Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.

INHALATION: Inhalation of vapor/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness, and nausea, and may lead to unconsciousness or death. See "Toxicological Information" section (Section 11.0).

INGESTION: Harmful or fatal if liquid is aspirated into lungs. Ingestion causes gastrointestinal irritation and diarrhea. See "Toxicological Information" section (Section 11.0).

HMIS CODE: (Health:1) (Flammability:3) (Reactivity:0) CHRONIC HEALTH HAZARD.

NFPA CODE: (Health:1) (Flammability:3) (Instability:0)

4.0 FIRST AID MEASURES

EYE: Flush eyes with plenty of water. Get medical attention if irritation persists.

SKIN: Wash exposed skin with soap and water. Remove contaminated clothing, including shoes, and thoroughly clean and dry before reuse. Get medical attention if irritation develops.

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get medical attention.

INGESTION: If swallowed, do NOT induce vomiting. Get immediate medical attention.

5.0 FIRE FIGHTING MEASURES

FLASHPOINT: -45°F

UEL: 7.6%

LEL: 1.3%

AUTOIGNITION TEMPERATURE: 495.0°F

FLAMMABILITY CLASSIFICATION: Extremely Flammable Liquid.

EXTINGUISHING MEDIA: Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, foam, steam) or water fog. Water may be ineffective but should be used to cool-fire exposed containers, structures and to protect personnel.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Extremely flammable vapor/air mixtures form. Extinguishment of fire before source of vapor is shut off can create an explosive mixture in air. Product gives off vapors that are heavier than air which can travel considerable distances to a source of ignition and flashback. Runoff to sewer may cause a fire or explosion hazard.

FIRE-FIGHTING EQUIPMENT: Firefighters should wear full bunker gear, including a positive pressure self-contained breathing apparatus.

PRECAUTIONS: Keep away from sources of ignition (e.g., heat and open flames). Keep container closed. Use with adequate ventilation.

HAZARDOUS COMBUSTION PRODUCTS: Combustion of this product in an area without adequate ventilation may result in hazardous levels of combustion products (e.g., carbon monoxide, carbon dioxide) and inadequate oxygen levels.

6.0 ACCIDENTAL RELEASE MEASURES

Remove or shut off all sources of ignition. Wear respirator and spray with water to disperse vapors. Increase ventilation if possible. Prevent spreading by diking, ditching, or absorbing on inert materials. Keep out of sewers and waterways.

7.0 HANDLING AND STORAGE

HANDLING: Use with adequate ventilation. Keep away from ignition sources (e.g., heat, sparks, or open flames). Ground and bond containers when transferring materials. Wash thoroughly after handling.

STORAGE: Store in flammable liquids storage area. Keep container closed. Store away from heat, ignition sources, and open flame in accordance with applicable regulations.

SPECIAL PRECAUTIONS: Keep out of sewers and waterways. Avoid strong oxidizers. Report spills to appropriate authorities. USE AS MOTOR FUEL ONLY.

8.0 EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE: None required; however, use of eye protection is good industrial practice.

SKIN: Avoid prolonged or repeated skin contact. Wear protective clothing and gloves if prolonged or repeated contact is likely.

INHALATION: Use with adequate ventilation. Avoid breathing vapor and/or mist. If ventilation is inadequate, use NIOSH certified respirator that will protect against organic vapor and dust/mist.

ENGINEERING CONTROLS: Control airborne concentrations below the exposure guidelines.

EXPOSURE GUIDELINES:

Component	CAS#	Exposure Limits
Gasoline	8006-61-9	OSHA PEL: 300 ppm (1989); Not established. (1971) OSHA STEL: 500 ppm (1989); Not established. (1971) ACGIH TLV-TWA: 300 ppm ACGIH TLV-STEL: 500 ppm
Benzene	71-43-2	OSHA PEL: 1 ppm OSHA STEL: 5 ppm ACGIH TLV-TWA: 0.5 ppm (skin) ACGIH TLV-STEL: 2.5 ppm (skin) Mexico TWA: 10 ppm Mexico STEL: 25 ppm
Butane	106-97-8	OSHA PEL: 800 ppm (1989); Not established. (1971) ACGIH TLV-TWA: 800 ppm Mexico TWA: 800 ppm
Cyclohexane	110-82-7	OSHA PEL: 300 ppm (1989)(1971) ACGIH TLV-TWA: 300 ppm Mexico TWA: 300 ppm Mexico STEL: 375 ppm
Ethylbenzene	100-41-4	OSHA PEL: 100 ppm (1989)(1971) OSHA STEL: 125 ppm(1989); Not established. (1971) ACGIH TLV-TWA: 100 ppm ACGIH TLV-STEL: 125 ppm Mexico TWA: 100 ppm Mexico STEL: 125 ppm
Heptane	142-82-5	OSHA PEL: 400 ppm (1989); 500 ppm (1971) OSHA STEL: 500 ppm (1989); Not established. (1971) ACGIH TLV-TWA: 400 ppm ACGIH TLV-STEL: 500 ppm Mexico TWA: 400 ppm (skin) Mexico STEL: 500 ppm (skin)
Hexane	110-54-3	OSHA PEL: 50 ppm (1989); 500 ppm (1971) ACGIH TLV-TWA: 50 ppm (skin)

		Mexico TWA: 100 ppm
Pentane	109-66-0	OSHA PEL: 600 ppm (1989); 1000 ppm (1971) OSHA STEL: 750 ppm (1989); Not established. (1971) ACGIH TLV-TWA: 600 ppm Mexico TWA: 600 ppm Mexico STEL: 760 ppm
Toluene	108-88-3	OSHA PEL: 100 ppm (1989); 200 ppm (1971) OSHA STEL: 150 ppm (1989); Not established. (1971) OSHA Ceiling: 300 ppm (1971) ACGIH TLV-TWA: 50 ppm (skin) Mexico TWA: 100 ppm Mexico STEL: 150 ppm
Trimethylbenzene	95-63-6	OSHA PEL: 25 ppm (1989); Not established. (1971) ACGIH TLV-TWA: 25 ppm Mexico TWA: 25 ppm Mexico STEL: 35 ppm
Xylene	1330-20-7	OSHA PEL: 100 ppm (1989)(1971) OSHA STEL: 150 ppm (1989); Not established. (1971) ACGIH TLV-TWA: 100 ppm ACGIH TLV-STEL: 150 ppm Mexico TWA: 100 ppm (skin) Mexico STEL: 150 ppm (skin)
Methyl tertiary butyl ether (MTBE)	1634-04-4	ACGIH TLV-TWA: 40 ppm
Ethanol (ethyl alcohol)	64-17-5	OSHA PEL: 1000 ppm (1989)(1971) ACGIH TLV-TWA: 1000 ppm Mexico TWA: 1000 ppm
Ethyl tertiary butyl ether	637-92-3	No exposure limit established
Tert-amyl methyl ether (TAME)	994-05-8	No exposure limit established
Isopentane	78-78-4	ACGIH TLV-TWA: 600 ppm
Naphthalene	91-20-3	OSHA PEL: 10 ppm (1989)(1971) OSHA STEL: 15 ppm (1989); Not established. (1971) ACGIH TLV-TWA: 10 ppm ACGIH TLV-STEL: 15 ppm Mexico TWA: 10 ppm Mexico STEL: 15 ppm

9.0 CHEMICAL AND PHYSICAL PROPERTIES

APPEARANCE AND ODOR: Clear. Liquid. Hydrocarbon odor.

pH: Not determined.

VAPOR PRESSURE: 7-15 lb RVP (ASTM D323)

VAPOR DENSITY: 3.0-4.0

BOILING POINT: 80.0-430.0°F (range)

MELTING POINT: Not determined.

SOLUBILITY IN WATER: Negligible, below 0.1%.

SPECIFIC GRAVITY (WATER=1): 0.75

10.0 STABILITY AND REACTIVITY

STABILITY: Burning can be started easily.

CONDITIONS TO AVOID: Keep away from ignition sources (e.g. heat, sparks, and open flames).

MATERIALS TO AVOID: Avoid chlorine, fluorine, and other strong oxidizers.

HAZARDOUS DECOMPOSITION: None identified.

HAZARDOUS POLYMERIZATION: Will not occur.

11.0 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA:

EYE IRRITATION: This product had a primary eye irritation score (PEIS) of 0/110.0 (rabbit)

SKIN IRRITATION: This product had a primary skin irritation score (PDIS) of 1.1/8.0 (rabbit)

DERMAL LD50: greater than 5 ml/kg (rabbit).

ORAL LD50: 18.8 ml/kg (rat).

INHALATION LC50: 20.7 mg/l (rat)

OTHER TOXICITY DATA: Excess exposure to vapors may produce headaches, dizziness, nausea, drowsiness, irritation of eyes, nose and throat and central nervous system depression. Aspiration of this material into the lungs can cause chemical pneumonia and can be fatal. Aspiration into the lungs can occur while vomiting after ingestion of this product. Inhalation of unleaded gasoline vapors did not produce birth defects in laboratory animals. Ingestion of this material can cause gastrointestinal irritation and diarrhea.

In a long-term inhalation study of whole unleaded gasoline vapors, exposure-related kidney damage and kidney tumors were observed in male rats. Similar kidney effects were not seen in female rats or in mice. At the highest exposure level (2056 ppm), female mice had an increased incidence of liver tumors. Results from subsequent

scientific studies have shown that a broad variety of chemicals cause these kidney effects only in the male rat. Further studies have discovered the means by which the physiology of the male rat uniquely predispose it to these effects. Consequently, the Risk Assessment Forum of the Environmental Protection Agency has recognized that these responses are not predictive of a human health hazard. The liver tumors that were increased in the high-dose female mice are likewise of questionable significance because of their high spontaneous occurrence even without chemical exposure and because the rate of their occurrence is accelerated by a broad spectrum of chemicals not commonly considered to be carcinogens (e.g., phenobarbital). Thus, the significance of the mouse liver tumor response in terms of human health is questionable.

Gasoline is a complex mixture of hydrocarbons and contains benzene (typically no more than 2 volume%), toluene, and xylene. Chronic exposure to high levels of benzene has been shown to cause cancer (leukemia) in humans and other adverse blood effects (anemia). Benzene is considered a human carcinogen by IARC, NTP and OSHA. Over exposure to xylene and toluene can cause irritation to the upper respiratory tract, headache and narcosis. Some liver damage and lung inflammation were seen in chronic studies on xylene in guinea pigs but not in rats.

Solvent "sniffing" (abuse) or intentional overexposure to vapors can produce serious central nervous system effects, including unconsciousness, and possibly death.

This product contains/may contain methyl tertiary-butyl ether (MTBE). In a long-term inhalation study with laboratory rodents, very high exposures (>3000 ppm) to MTBE produced liver and kidney tumors. Both IARC and NTP do not consider these data sufficient for classification of MTBE as a probable human carcinogen. MTBE has produced developmental toxicity to the offspring of mice, but only at maternally toxic concentrations (>4000 ppm). Similar studies in rats and rabbits were negative.

This product contains/may contain ethyl tertiary-butyl ether (ETBE). In rats exposed by inhalation to ETBE, testicular degeneration was observed in males and bone marrow degeneration was observed in females that were exposed to 1750 and 5000 ppm for 90 days. Neither effect was seen at 500 ppm. Slight blood and organ weight changes have been observed in rats following 28-day inhalation exposure to ETBE at 2000 ppm and higher.

This product contains/may contain tertiary-amyl methyl ether (TAME). Chronic inhalation exposure of rats and mice to high levels of TAME (250-3500 ppm) for 90 days resulted in slight blood and organ weight effects. However, these were either transient during the exposure period, or reversible after exposure ceased.

12.0 ECOLOGICAL INFORMATION

Ecological testing has not been conducted on this material by BP Amoco.

13.0 DISPOSAL INFORMATION

Residues and spilled material are hazardous waste due to ignitability. Disposal must be in accordance with applicable federal, state, or local regulations. Enclosed-controlled incineration is recommended unless directed otherwise by applicable ordinances.

The container for this product can present explosion or fire hazards, even when emptied! To avoid risk of injury, do not cut, puncture, or weld on or near this container. Since the emptied containers retain product

residue, follow label warnings even after container is emptied.

14.0 TRANSPORTATION INFORMATION

U.S. DEPT OF TRANSPORTATION

Shipping Name Gasoline
Hazard Class 3
Identification Number UN1203
Packing Group II

INTERNATIONAL INFORMATION:

Sea (IMO/IMDG)

Shipping Name Gasoline
Class 3.1
Packing Group II
UN Number UN1203

Air (ICAO/IATA)

Shipping Name Gasoline , UN1203
Class 3
Packing Group II

European Road/Rail (ADR/RID)

Shipping Name Not determined.

Canadian Transportation of Dangerous Goods

Shipping Name Gasoline
Hazard Class 3
UN Number UN1203
Packing Group II

15.0 REGULATORY INFORMATION

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR Part 302.4): This product is exempt from the CERCLA reporting requirements under 40 CFR Part 302.4. However, if spilled into waters of the United States, it may be reportable under 33 CFR Part 153 if it produces a sheen.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR Part 355): This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

SARA TITLE III SECTIONS 311/312 HAZARDOUS CATEGORIZATION (40 CFR Part 370): This product is defined as hazardous by OSHA under 29 CFR Part 1910.1200(d). Hazardous categories for this product are: Acute = yes; Chronic = yes; Fire = yes; Pressure = no; Reactive = no.

SARA TITLE III SECTION 313 (40 CFR Part 372): This product contains the following substance(s), which is on the Toxic Chemicals List in 40 CFR Part 372:

Component/CAS Number	Weight Percent
Benzene 71-43-2	4
Trimethylbenzene 95-63-6	7
Cyclohexane 110-82-7	5
Ethylbenzene 100-41-4	2
Xylene 1330-20-7	10
Methyl tertiary butyl ether (MTBE) 1634-04-4	18
Hexane 110-54-3	5
Naphthalene 91-20-3	1.1
Toluene 108-88-3	22

U.S. INVENTORY (TSCA): Listed on inventory.

This product may contain methyl tertiary-butyl ether (CAS #1634-04-4) or tert-amyl methyl ether (CAS #994-05-8), both of which are currently undergoing review and testing under TSCA Section 4. Notification to the U.S. EPA Office of Toxic Substances is required prior to export of this material from the United States.

OSHA HAZARD COMMUNICATION STANDARD: Flammable liquid. Irritant. Contains components listed by ACGIH. Contains components listed by OSHA. Contains a carcinogenic component.

WHMIS Controlled Product Classification: B2, D2A, D2B.

EC INVENTORY (EINECS/ELINCS): One or more components not listed on inventory.

JAPAN INVENTORY (MITI): One or more components not listed on inventory.

AUSTRALIA INVENTORY (AICS): One or more components not listed on the inventory.

KOREA INVENTORY (ECL): One of more components not listed on inventory.

CANADA INVENTORY (DSL): One or more of the components of this product is not listed on the DSL.

PHILIPPINE INVENTORY (PICCS): One or more components not listed on the inventory.

16.0 OTHER INFORMATION

When gasoline is mixed with ethyl alcohol, the DOT proper shipping name for domestic shipments is:

Gasohol, 3, NA1203, II.

This material contains an ingredient/ingredients present on the following State Right-To-Know lists:

-Florida- -Massachusetts- -New Jersey- -Pennsylvania- -California- -Minnesota-

This product contains an ingredient/ingredients known to the state of California to cause cancer and/or reproductive toxicity.

Prepared by:

Environment, Health and Safety Department

Issued: July 16, 1999

Supersedes: December 28, 1998

This Material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. However, no warranty or representation, express or implied, is made as to the accuracy or completeness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.

Representative MSDS

ATOFINA

METHYLDIETHANOLAMINE

Material Safety Data Sheet

ATOFINA Chemicals, Inc.

1 PRODUCT AND COMPANY IDENTIFICATION

Organic Chemicals
ATOFINA Chemicals, Inc.
2000 Market Street
Philadelphia, PA 19103

EMERGENCY PHONE NUMBERS:
Chemtrec: (800) 424-9300 (24hrs) or (703) 527-3887
Medical: Rocky Mountain Poison Control Center
(303) 623-5716 (24Hrs)

Information Telephone Numbers	Phone Number	Available Hrs
Customer Service	1-800-628-4453	8:30 to 5:30 EST

Product Name	METHYLDIETHANOLAMINE
Product Synonym(s)	MDEA
Chemical Family	Alkyl Alkanolamine
Chemical Formula	CH3N(C2H4OH)2
Chemical Name	Ethanol, 2,2'-(Methylimino) bis-
EPA Reg Num	
Product Use	

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS RegistryNumber	Typical Wt. %	OSHA
Methyldiethanolamine	105-59-9	99%	Y
Water	7732-18-5	0.3%	N

The substance(s) marked with a "Y" in the OSHA column, are identified as hazardous chemicals according to the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200)

This material is classified as hazardous under Federal OSHA regulation.

The components of this product are all on the TSCA Inventory list.

3 HAZARDS IDENTIFICATION

Emergency Overview
Pale straw liquid with amine odor

WARNING!
CAUSES EYE IRRITATION.

Potential Health Effects

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Based on single exposure animal tests, it is considered to be slightly toxic if swallowed, practically non-toxic if absorbed through skin, severely irritating to eyes and practically non-irritating to skin.

4 FIRST AID MEASURES

IF IN EYES, immediately flush with plenty of water for at least 15 minutes. Get medical attention.

IF ON SKIN, immediately flush with plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

IF SWALLOWED, do NOT induce vomiting. Give water to drink. Get medical attention immediately. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

IF INHALED, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

5 FIRE FIGHTING MEASURES

Fire and Explosive Properties

Auto-Ignition Temperature	770 F (410 C)		
Flash Point	240 F	Flash Point Method	PMCC
Flammable Limits- Upper	8.8		
Lower	1.4		

Extinguishing Media

Use water spray, carbon dioxide, foam or dry chemical.

Fire Fighting Instructions

Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent). Fire fighting equipment should be thoroughly decontaminated after use.

Fire and Explosion Hazards

When burned, the following hazardous products of combustion can occur:
Oxides of carbon and nitrogen

6 ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Small spills may be flushed away with large volume of water. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

7 HANDLING AND STORAGE

Handling

Avoid contact with eyes.
Wash thoroughly after handling.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

Storage

This material is not hazardous under normal storage conditions; however, material should be stored in closed containers, in a secure area to prevent container damage and subsequent spillage.

7 HANDLING AND STORAGE

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Investigate engineering techniques to reduce exposures. Provide ventilation if necessary to minimize exposure. Dilution ventilation is acceptable, but local mechanical exhaust ventilation preferred, if practical, at sources of air contamination such as open process equipment.

Eye / Face Protection

Where there is potential for eye contact, wear chemical goggles and have eye flushing equipment immediately available.

Skin Protection

Minimize skin contamination by following good industrial hygiene practice. Wearing rubber gloves is recommended. Wash hands and contaminated skin thoroughly after handling.

Respiratory Protection

Where airborne exposure is likely, use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. If exposures cannot be kept at a minimum with engineering controls, consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Airborne Exposure Guidelines for Ingredients

The components of this product have no established Airborne Exposure Guidelines

-Only those components with exposure limits are printed in this section.
-Skin contact limits designated with a "Y" above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required.
-ACGIH Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic reactions.
-WEEL-AIHA Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic skin reactions.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance/Odor	Pale straw liquid with amine odor
pH	NE
Specific Gravity	1.04 @ 20 C
Vapor Pressure	<0.01 mmHg @ 20 C
Vapor Density	4
Melting Point	NA
Freezing Point	-21 C (-5.8 F)
Boiling Point	240-255 C (464-491 F)
Solubility In Water	Complete
Evaporation Rate	NE
Percent Volatile	100
Molecular Weight	119.2

10 STABILITY AND REACTIVITY

Stability

This material is chemically stable under normal and anticipated storage and handling conditions.

Incompatibility

Avoid contact with strong acids, strong alkalis, and strong oxidizers.

Hazardous Decomposition Products

Thermal decomposition giving off toxic and corrosive products: ammonia, carbon dioxide, nitrogen dioxides.

11 TOXICOLOGICAL INFORMATION

Toxicological Information

Data on this material and/or its components are summarized below.

Single exposure (acute) studies indicate:
Oral - Slightly Toxic to Rats (LD50 4,780 mg/kg)
Dermal - Practically Non-toxic to Rabbits (LD50 6,300 mg/kg)
Inhalation - No deaths in rats following exposure to saturated vapor for 8-hours
Eye Irritation - Severely Irritating to Rabbits (59/110)
Skin Irritation - Practically Non-irritating to Rabbits (4-hr exposure, 0.2/8.0)
No skin allergy was observed in guinea pigs following repeated exposure. Severe irritation, but no systemic effects, were observed following repeated application to the skin of rats. No birth defects were observed in the offspring of rats following application to the skin during pregnancy, even a doses which produced adverse effects on the mothers. No genetic changes were observed in tests using bacteria or animals.

12 ECOLOGICAL INFORMATION

Ecotoxicological Information

No data are available.

Chemical Fate Information

No data are available.

13 DISPOSAL CONSIDERATIONS

Waste Disposal

Incineration is the recommended method for disposal observing all local, state and federal regulations. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

14 TRANSPORT INFORMATION

DOT Name	Not Regulated by DOT
DOT Technical Name	
DOT Hazard Class	
UN Number	
DOT Packing Group	PG
RQ	

15 REGULATORY INFORMATION

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370)

Immediate (Acute) Health	Y	Fire	N
Delayed (Chronic) Health	N	Reactive	N
		Sudden Release of Pressure	N

The components of this product are all on the TSCA Inventory list.

Ingredient Related Regulatory Information:

SARA Reportable Quantities	CERCLA RQ	SARA TPQ
Water	NE	
Methyldiethanolamine	NE	

Chemical Weapons Convention
Methyldiethanolamine

16 OTHER INFORMATION

Revision Information

Revision Date	08 APR 2003	Revision Number 6
Supercedes Revision Dated	21-FEB-2003	

Revision Summary
Reviewed and revised.

Key
NE= Not Established NA= Not Applicable (R) = Registered Trademark

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Representative MSDS from SJ IMP

MATERIAL SAFETY DATA SHEET

I. MATERIAL IDENTIFICATION

Name: Antifreeze/Coolant, Ice King
Conoco Product Code: 2060
Synonyms: Ethylene Glycol
Manufacturer: Conoco Inc.
Address: P.O. Box 1267, Ponca City, OK 74603

CAS Registry No.: Mixture; major components may be some combination of 107-21-1
Transportation Emergency No.: (800) 424-9300 (Chemtrec)
Product Information No.: (405) 767-6000

II. HAZARDOUS INGREDIENTS HAZARD DATA

Hazard Determination:

Health Effect Properties:

Ethylene glycol	Toxic to nervous system, kidney and liver.

Physical Effect Properties:

Product/Mixture: None.	Not Applicable.

III. PHYSICAL DATA

Appearance and Odor: Fluorescent green liquid; mild glycol odor.

Boiling Point (Deg.F)	320	Specific Gravity (H_2O=1)	1.125
Vapor Pressure (mmHg)	0.05	% Volatile (by volume)	Not Applicable
Vapor Density (Air=1)	2.14	Evaporation Rate (=1)	Not Applicable
Solubility in Water	Completely		

IV. REACTIVITY DATA Stable: X Unstable:

Hazardous Decomposition Products: Carbon dioxide, carbon monoxide, vapors of ethylene glycol.

Conditions To Avoid: Strong oxidizing agents.

Hazardous Polymerization: Will not occur.

November 4, 1985

CAS Registry No.: 107-21-1

IX. SPILL, LEAK AND DISPOSAL PROCEDURES

RCRA HAZARDOUS WASTE: Yes____ No X

In Case Of Spill Or Leak: Contain spill immediately in smallest area possible. Recover as much of the product itself as possible by such methods as vacuuming, followed by soaking up residual fluids by use of absorbent materials. Remove contaminated items including soils and place in proper container for disposal. Avoid washing, draining or directing material to storm or sanitary sewers.

Waste Disposal Method: Recycle as much of the recoverable product as possible. Dispose of nonrecyclable material by such methods as controlled incineration, complying with federal, state and local regulations.

X. PRECAUTIONARY MEASURES

Respiratory Protection: None normally required except under unusual circumstances such as described in Section V.

Ventilation: Normal shop ventilation.

Protective Gloves: Impervious.

Eye Protection: Chemical goggles.

Other Protective Equipment: Not normally required.

November 4, 1985

VII. HEALTH HAZARD INFORMATION (continued)

Primary Routes of Exposure/Entry: Skin, inhalation.

Signs and Symptoms of Exposure/Medical Conditions Aggravated By Exposure:
No adverse health effect has been identified specifically for this product. Health effect information has been included for components of the product.

Ethylene glycol may cause irritation to eyes, lungs, or skin. Overexposure may cause central nervous system depression and liver or kidney toxicity.

Reproduction studies in mice and rats have shown that extremely high doses, which were toxic to the pregnant female, were also toxic to the newborn and caused birth defects. In this regard, the volatility of ethylene glycol is quite low and exposure to the chemical should be easy to control.

Listed as Carcinogen or Potential Carcinogen by: NTP No IARC No OSHA No

VIII. EMERGENCY AND FIRST AID PROCEDURES

Eyes: Immediately wash with fresh water for at least 15 minutes and get medical attention.

Skin: Remove contaminated clothing as soon as possible. Wash exposed skin thoroughly with soap and water. If irritation persists, consult a physician.

Launder contaminated clothing before reuse. Extremely contaminated leather shoes should be discarded.

Inhalation: If overexposure occurs, remove individual to fresh air. If breathing stops, administer artificial respiration.

Ingestion: If this material is swallowed, induce vomiting. If vomiting begins, lower victim's head in an effort to prevent vomitus from entering lungs. Immediately consult a physician. Do not attempt to give liquid to an unconscious person.

Note to Physicians: Emergency procedure for ethylene glycol intoxication should be followed.

from SJ IMP

Representative MSDS

chemists helping chemists in research & industry

aldrich chemical co.

P.O. Box 355, Milwaukee, Wisconsin 53201 USA • (414) 273-3850

ATTN: SAFETY DIRECTOR
AMOCO CHEMICALS CORPORATION
P O BOX 568
TEXAS CITY TX 77590
KATHY A LOWE/PUR SUPERVISOR

MATERIAL SAFETY DATA SHEET

DATE: 03/31/86 CUST # 104264 P.O. # PAGE:

SECTION I PRODUCT IDENTIFICATION

T5945-5 TRIETHYLENE GLYCOL, 99%
CAS # 112-27-6
MOLECULAR FORMULA: C6H1404

SECTION II TOXICITY HAZARDS

RTECS # YE4550000
TRIETHYLENE GLYCOL

SKN-RBT 500 MG/24H MOD FCTXAV 17,913,79
ORL-HMN LDLO:5000 MG/KG FCTXAV 17,913,79
ORL-RAT LD50:17 GM/KG JIHTAB 28,40,46
IVN-RAT LD50:11700 MG/KG ARZNAD 18,1536,68
IPR-MUS LD50:8141 MG/KG FEPRA7 6,342,47
SCU-MUS LD50:8750 MG/KG JPETAB 65,89,39
IVN-MUS LD50:6500 MG/KG JPETAB 65,89,39
ORL-RBT LD50:8400 MG/KG JIHTAB 28,40,46
IVN-RBT LD50:1900 MG/KG ARZNAD 18,1536,68
ORL-GPG LD50:7900 MG/KG JIHTAB 28,40,46
IVN-GPG LD50:10600 MG/KG ARZNAD 18,1536,68
REPORTED IN EPA TSCA INVENTORY, 1983
MEETS CRITERIA FOR PROPOSED OSHA MEDICAL RECORDS RULE FEREAC 47,30420, 82

SECTION III PHYSICAL DATA

MELTING POINT: -7 C
BOILING POINT: 285 C
DENSITY: 1.125

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 330 F

EXTINGUISHING MEDIA:

WATER SPRAY.
CARBON DIOXIDE, DRY CHEMICAL POWDER, ALCOHOL OR POLYMER FOAM.

SPECIAL FIRE FIGHTING PROCEDURES:

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

USA
Aldrich Chemical Co., Inc.
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Telex 714838 Aldri D
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aldrich chemical co.
P.O. Box 355, Milwaukee, Wisconsin 53201 USA • (414) 273-3850

MATERIAL SAFETY DATA SHEET

DATE: 03/31/86 CATALOG # T5945-5 CUST # 104264 P.O. #

SECTION V HEALTH HAZARD DATA

CAUSES EYE IRRITATION.
MAY CAUSE SKIN IRRITATION.
MAY BE READILY ABSORBED THROUGH SKIN.
PROLONGED EXPOSURE CAN CAUSE:
NAUSEA, HEADACHE AND VOMITING
FIRST AID:
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION, PREFERABLY MOUTH-TO-MOUTH. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
CALL A PHYSICIAN.
WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION VI REACTIVITY DATA

INCOMPATIBILITY:

STRONG OXIDIZING AGENTS
STRONG BASES

HAZARDOUS DECOMPOSITION PRODUCTS:

CARBON MONOXIDE, CARBON DIOXIDE

SECTION VII SPILL OR LEAK PROCEDURES

SPILLS OR LEAKS:

WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
ABSORB ON SAND OR VERMICULITE AND PLACE IN CLOSED CONTAINERS FOR DISPOSAL.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

WASTE DISPOSAL:

DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.

OBSERVE ALL FEDERAL, STATE & LOCAL LAWS.

SECTION VIII PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

DO NOT BREATHE VAPOR.
AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
USE PROTECTIVE CLOTHING, GLOVES AND MASK.
CHEMICAL SAFETY GOGGLES.
WASH THOROUGHLY AFTER HANDLING.
KEEP CONTAINER CLOSED. USE WITH ADEQUATE VENTILATION.
HYGROSCOPIC.
PROTECT FROM MOISTURE.
STORE IN A COOL DRY PLACE.

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MATERIAL SAFETY DATA SHEET

DATE: 03/31/86 CATALOG # T5945-5 CUST # 104264 P.O. # PAGE: 3

SECTION IX SPECIAL PRECAUTIONS AND COMMENTS

NOT APPLICABLE

THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. ALDRICH SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE ABOVE PRODUCT. SEE REVERSE SIDE OF INVOICE OR PACKING SLIP FOR ADDITIONAL TERMS AND CONDITIONS OF SALE.

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West Germany
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Telephone: (07329) 87 0
Telex: 716636 Aldri D
FAX: (07329) 87 30

Using to show vapor pressure of TEG

1. Chemical Product and Company Identification

Product name	TRIETHYLENE GLYCOL
MSDS#	0000000112
Historic MSDS#:	*746081 (Erdolchemie)*
Chemical Formula	C6-H14-O4
Product Use	Industrial use
Manufacturer	Deutsche BP Aktiengesellschaft Chemicals Production Köln Postfach 750212 D-50754 Köln GERMANY
Supplier	BP Amoco Chemical Company 150 West Warrenville Road Naperville, Illinois 60563-8460 USA Tel: 1 (877) 701-2726
EMERGENCY HEALTH INFORMATION:	1 (800) 447-8735
EMERGENCY SPILL INFORMATION:	1 (800) 424-9300 CHEMTREC (USA)
OTHER PRODUCT INFORMATION	1 (866) 4 BP - MSDS (866-427-6737 Toll Free - North America) email: bpcares@bp.com

2. Composition / information on ingredients

Ingredient Name	CAS #	% by Weight	Exposure Limits
TRIETHYLENE GLYCOL	112-27-6	>99	None assigned.

3. Hazards identification

Physical state Liquid.

Color Colorless.

Emergency Overview

This product has been evaluated and does not require any hazard warning on the label under established regulatory criteria.

Routes of Entry Skin contact. Eye contact. Inhalation. Ingestion.

POTENTIAL HEALTH EFFECTS

Eyes	No significant health hazards identified.
Skin	No significant health hazards identified.
Inhalation	No significant health hazards identified.
Ingestion	No significant health hazards identified.

See Toxicological Information (section 11)

4. First-aid measures

Eye Contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.
Inhalation	If inhaled, remove to fresh air. Get medical attention if symptoms appear.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately.

5. Fire-fighting measures

Flammability of the Product	May be combustible at high temperature.
Autoignition temperature	371.06 °C
Flash point	176.73 °C (Closed cup) Pensky-Martens.
Explosion Limits	LOWER: 0.9 % UPPER: 9.2 %
Products of Combustion	These products are carbon oxides (CO, CO2).
Unusual fire/explosion hazards	Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. This material is not explosive as defined by established regulatory criteria.
Fire Fighting Media and Instructions	Use DRY chemicals, CO2, water spray or foam. Water or foam may cause frothing.
Protective Clothing (Fire)	Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

6. Accidental release measures

Personal Precautions	Immediately contact emergency personnel. Keep unnecessary personnel away. Do not touch or walk through spilled material. Use suitable protective equipment (Section 8). Follow all fire fighting procedures (Section 5).
Environmental Precautions and Clean-up Methods	If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) scoop up material and place in a sealed, liquid-proof container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal. Minimize contact of spilled material with soils to prevent runoff to surface waterways. See Section 13 for Waste Disposal Information.
Personal Protection in Case of a Large Spill	Wear suitable protective clothing and gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

7. Handling and storage

Handling	Avoid strong oxidizers. Use with adequate ventilation.
Storage	Hygroscopic; keep container tightly closed. Keep container tightly closed. Keep container in a cool, well-ventilated area. May form explosive mixtures with air.

8. Exposure controls/personal protection

Occupational Exposure Limits

Ingredient Name	Occupational Exposure Limits
TRIETHYLENE GLYCOL	None assigned.

Control Measures	Local exhaust ventilation should be provided. Ensure that eyewash stations and safety showers are proximal to the work-station location.
Hygiene measures	After handling, always wash hands thoroughly with soap and wate
Personal Protection	
Eyes	Avoid contact with eyes. Chemical splash goggles.
Skin and Body	Avoid prolonged or repeated contact with skin. Wear suitable protective clothing.
Respiratory	None required; however, use of adequate ventilation is good industrial practice.

The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the *supplier/manufacturer and with a full assessment of the working conditions.*

Consult local authorities for acceptable exposure limits.

9. Physical and chemical properties

Physical state	Liquid.
pH	7 to 8
Odor	Odorless.
Color	Colorless.
Boiling Point / range	285.06 °C
Melting Point / range	-6.94 °C
Chemical Formula	C6-H14-O4
Specific Gravity	1.1
Density	1125 kg/m³ (1.1 g/cm³)
Vapor Pressure	< 0.001 kPa (0.008 mmHg) (at 20°C)
Vapor Density (Air = 1)	5.2
Evaporation Rate	<0.005 compared to Butyl acetate.
Solubility	Easily soluble in cold water, hot water.
Dispersion Properties	See solubility in water.
LogK$_{ow}$	-1.2
Viscosity	Dynamic: 0.1 Pa·s (50 cP) at 20°C

10. Stability and reactivity

Stability and Reactivity	The product is stable.
Conditions to avoid	Keep away from heat, sparks and flame.
Incompatibility with Various Substances	Highly reactive with oxidizing agents.
Hazardous Decomposition Products	carbon oxides (CO, CO2)
Hazardous Polymerization	Will not occur.

11. Toxicological information

Acute toxicity

Ingredient Name	Test	Result	Route	Species
TRIETHYLENE GLYCOL	LD50	8400 mg/kg	Oral	Rabbit
	LD50	7900 mg/kg	Oral	Guinea pig
	LD50	8150 mg/kg	Oral	Mammal

Chronic toxicity

Carcinogenic Effects No component of this product at levels greater than 0.1% is identified as a carcinogen by ACGIH or International Agency for Research on Cancer (IARC).

Mutagenic Effects No component of this product at levels greater than 0.1% is classified by established regulatory criteria as a mutagen.

Teratogenic effects	No component of this product at levels greater than 0.1% is classified by established regulatory criteria as teratogenic or embryotoxic.

12. Ecological information

Ecotoxicity	Ecological testing has not been conducted on this product by BP.
Other Ecological Information	Not classified as dangerous.

13. Disposal considerations

Waste Information	Avoid contact of spilled material and runoff with soil and surface waterways. Consult an environmental professional to determine if state or federal regulations would classify spilled or contaminated materials as hazardous waste. Use only approved transporters, recyclers, treatment, storage or disposal facilities. Empty containers or liners may retain some product residues. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose containers to heat or sources of ignition. Comply with all federal, state and local laws pertaining to waste management.

Consult your local or regional authorities.

14. Transport information

Not classified as hazardous for transport (DOT, TDG, UN , IMO, IATA/ICAO).

15. Regulatory information

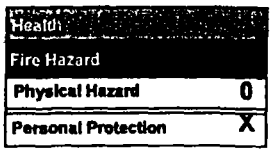
U.S. Federal Regulations	US INVENTORY (TSCA): Listed on inventory.
	SARA Title III Section 302 Extremely Hazardous Substances (40 CFR Part 355): This product is not regulated under Section 302 of SARA and 40 CFR Part 355. SARA Title III Sections 311/312 Hazardous Categorization (40 CFR Part 370): TRIETHYLENE GLYCOL: Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard
	SARA 313 toxic chemical notification and release reporting: No products were found.
	CERCLA Sections 102a/103 Hazardous Substances (40 CFR Part 302.4): This material is not regulated under CERCLA Sections 103 and 107.
State Regulations	Rhode Island RTK hazardous substances: TRIETHYLENE GLYCOL Pennsylvania RTK: TRIETHYLENE GLYCOL: (generic environmental hazard)
	California prop. 65: No products were found.
Inventories	AUSTRALIAN INVENTORY (AICS): Listed on inventory.
	CANADA INVENTORY (DSL): Listed on inventory.
	CHINA INVENTORY (IECS): Listed on inventory.
	EC INVENTORY (EINECS): Listed on inventory.
	JAPAN INVENTORY (ENCS): Listed on inventory.
	KOREA INVENTORY (ECL): Listed on inventory.
	PHILIPPINE INVENTORY (PICCS): Listed on inventory.

16. Other information

Label Requirements

This product has been evaluated and does not require any hazard warning on the label under established regulatory criteria.

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



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

HISTORY

Date of issue 11/10/2003.

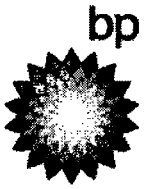
Prepared by Product Stewardship

Notice to Reader

NOTICE : This Material Safety Data Sheet is based upon data considered to be accurate at the time of its preparation. Despite our efforts, it may not be up to date or applicable to the circumstances of any particular case. We are not responsible for any damage or injury resulting from abnormal use, from any failure to follow appropriate practices or from hazards inherent in the nature of the product.

Representative MSDS from SJ

MATERIAL SAFETY DATA SHEET



========== CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ==========

TRADE NAME: DIESEL OIL
CAS NUMBER: 68334-30-5
SYNONYM(S): AG9; AK6; AB0/AA9-2; DIESEL FUEL; PROCESS STREAM; DIESEL SUPREME
MSDS NUMBER: 1038
PRODUCT CODE: NA
HIERARCHY: NA
MANUFACTURER/SUPPLIER: BP Oil Company
ADDRESS: 200 Public Square, Cleveland, OH 44114-2375
TELEPHONE NUMBERS - 24 HOUR EMERGENCY ASSISTANCE:
BP America: 800-321-8642
CHEMTREC Assistance (In U.S.): 800-424-9300
CHEMTREC Assistance (Elsewhere): 703-527-3887
TELEPHONE NUMBERS - GENERAL ASSISTANCE: (Normal Office Hours): (8:00-4:30 M-F, EST):
Technical: 216-586-6184
MSDS Contact: 216-586-8023

========== COMPOSITION/INFORMATION ON INGREDIENTS ==========

COMPONENT:Diesel oil
CAS NO.: 68334-30-5
% BY WT.: 99.9 - 100
EXPOSURE LIMITS: None Established

========== HAZARDS IDENTIFICATION ==========

EMERGENCY OVERVIEW:

Clear Liquid With a Hydrocarbon Odor, Dyed Red For Identification. Danger! Harmful or Fatal If Swallowed. Aspiration Hazard If Swallowed--Can Enter Lungs and Cause Damage. May Be Irritating To the Eyes and Respiratory Tract. Causes Skin Irritation. Vapors May Be Harmful. Possible Cancer Hazard - Contains Material Which May Cause Cancer Based On Animal Data. Combustible Liquid & Vapor.

POTENTIAL HEALTH EFFECTS:

SKIN:

Repeated or prolonged contact may result in defatting, redness, itching, inflammation, cracking and possible secondary infection. May cause allergic reactions in some individuals. Absorption from prolonged or massive skin contact may cause poisoning. High pressure skin injections are Serious Medical Emergencies. Injury may not appear serious at first; within a few hours, tissue will become swollen, discolored and extremely painful (see Notes to Physician section).

EYE:

Exposure to vapors, fumes or mists may cause irritation.

INHALATION:

May cause respiratory tract irritation. Exposure may cause central nervous system symptoms similar to those listed under "Ingestion" (see Ingestion section). Degenerative changes in the liver, kidneys and bone marrow may occur with prolonged, high concentrations. Repeated or prolonged exposures may cause behavioral changes.

INGESTION:

Aspiration into lungs may cause pneumonitis. May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea. May cause harmful central nervous system effects. Effects may include excitation, euphoria, headache, dizziness, drowsiness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death.

SPECIAL TOXIC EFFECTS:

Based on animal studies, repeated overexposure may produce skin tumors upon repeated and prolonged skin contact in the absence of good personal hygiene. However, long-term dermal application studies of similar materials, i.e. middle distillates, in animals have shown that skin tumors are produced only when marked and prolonged skin irritation takes place during the study. Therefore, this product should not present a significant hazard of skin tumor formation when the "Skin Protection" recommendations are followed. IARC has determined that diesel engine exhaust is probably carcinogenic to humans. (IARC Class- 2A). Lifetime exposure to whole diesel exhaust has been shown to cause cancer in laboratory animals. NIOSH recommends that whole diesel exhaust be regarded as a potential occupational carcinogen. Warning: The use of any hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of combustion products and inadequate oxygen levels. IARC has determined that occupational exposures in petroleum refining are probably carcinogenic to humans.

========== FIRST AID MEASURES ==========

SKIN:

Remove contaminated clothing immediately. Wash area of contact thoroughly with soap and water. Get medical attention if irritation

persists. High pressure skin injections are serious medical emergencies. Thermal burns require immediate medical attention. Get immediate medical attention.

EYE:

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention if irritation persists. Thermal burns require immediate medical attention.

INHALATION:

Remove affected person from source of exposure. If not breathing, ensure clear airway and institute cardiopulmonary resuscitation (CPR). If breathing is difficult, administer oxygen if available. After administration of oxygen, continue to monitor closely. Get medical attention.

INGESTION:

Do not induce vomiting because of danger of aspirating liquid into lungs. Get immediate medical attention. If spontaneous vomiting occurs, monitor for breathing difficulty.

NOTES TO PHYSICIAN:

In case of ingestion, gastric lavage with activated charcoal can be used promptly to prevent absorption. Consideration should be given to the use of an endotracheal tube, to prevent aspiration. Individuals intoxicated by Diesel Fuel No. 2 should be hospitalized immediately, with acute and continuing attention to neurologic and cardiopulmonary function. Positive pressure ventilation may be necessary. After the initial episode, individuals should be followed for changes in blood variables and the delayed appearance of pulmonary edema and chemical pneumonitis. Such patients should be followed for several days or weeks for delayed effects, including bone marrow toxicity, hepatic and renal impairment. Individuals with chronic pulmonary disease will be more seriously impaired, and recovery from inhalation exposure may be complicated. In case of skin injection, prompt debridement of the wound is necessary to minimize necrosis and tissue loss.

========== FIREFIGHTING MEASURES ==========

FLASH POINT:	51.7 C (125.06 F)
AUTOIGNITION TEMPERATURE:	ND
FLAMMABILITY LIMITS IN AIR (% BY VOL.) LOWER:	> 0.7
FLAMMABILITY LIMITS IN AIR (% BY VOL.) UPPER:	< 5

HAZARDOUS COMBUSTION PRODUCTS:

Combustion may produce CO, CO2 and reactive hydrocarbons.

BASIC FIRE FIGHTING PROCEDURES:

Use water spray, dry chemical, foam or carbon dioxide to extinguish fire. Use water spray to cool fire-exposed containers, structures and

to protect personnel. If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapor and to protect personnel attempting to stop leak. Use water to flush spills away from sources of ignition. Do not flush down public sewers or other drainage systems. Exposed firefighters must wear MSHA/NIOSH approved positive pressure self-contained breathing apparatus with full face mask and full protective clothing.

UNUSUAL FIRE & EXPLOSION HAZARDS:

Irritating and/or toxic substances may be emitted upon thermal decomposition. Dangerous when exposed to heat or flame. Runoff to sewer may cause fire or explosion hazard. Containers may explode in heat of fire.

ACCIDENTAL RELEASE MEASURES

If your facility or operation has an "Oil or Hazardous Substance Contingency Plan", activate its procedures. Take immediate steps to stop and contain the spill. Caution should be exercised regarding personnel safety and exposure to the spilled material. For technical advice and assistance related to chemicals, contact CHEMTREC (800/424-9300) and your local fire department. Notify the National Response Center, if required. Also notify appropriate state and local regulatory agencies, the LEPC and the SERC. Contact the local Coast Guard if the release is into a waterway. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. (Also see Personal Protection Information section.) Shut off ignition sources; no flares, smoking or flames in hazard area. Stop leak if you can do it without risk. Water spray may reduce vapor; but it may not prevent ignition in closed spaces. Small Spills: Take up with sand or other noncombustible absorbent material and place into containers for later disposal. Large Spills: Dike far ahead of liquid spill for later disposal.

During an accidental release, personal protection equipment may be required (see Section EXPOSURE CONTROLS/PERSONAL PROTECTION). Additional regulatory requirements may apply (see Section REGULATORY INFORMATION).

HANDLING AND STORAGE

HANDLING:

Use non-sparking tools. Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire or explosion.

Empty containers may contain toxic, flammable/combustible or explosive residue or vapors. Do not cut, grind, drill, weld, reuse or dispose containers unless adequate precautions are taken against these hazards.

STORAGE:

Store in tightly closed containers in cool, dry, isolated, well-ventilated area away from heat, sources of ignition and

incompatibles.

========== EXPOSURE CONTROLS / PERSONAL PROTECTION ==========

ENGINEERING CONTROLS:

Ventilation may be used to control or reduce airborne concentrations.

PERSONAL PROTECTION EQUIPMENT (PPE):

EYE PROTECTION:

Wear safety glasses or chemical goggles to prevent eye contact. Do not wear contact lenses when working with this substance. Have eye washing facilities readily available where eye contact can occur.

SKIN PROTECTION:

Wear impervious gloves and protective clothing to prevent skin contact.

RESPIRATORY PROTECTION:

NIOSH/MSHA approved breathing equipment may be required for non-routine and emergency use.

See Section COMPOSITION/INFORMATION ON INGREDIENTS For Exposure Guidelines.

========== PHYSICAL AND CHEMICAL PROPERTIES ==========

BOILING POINT:	160 C (320 F)
SP. GRAVITY (Water=1):	0.83 @ 15.5556 C (60 F)
MELTING POINT:	NA
% VOLATILE:	Negligible
VAPOR PRESSURE:	0.4 MM HG @ 20 C (68 F)
EVAPORATION RATE:	Slower
VAPOR DENSITY (Air=1):	4.7
VISCOSITY:	2.4 - 3.96 CST @ 37.8 C (100.04 F)
% SOLUBILITY IN WATER:	Negligible
POUR POINT:	-23.3 C (-9.94 F)
pH:	NEUTRAL
MOLECULAR WEIGHT:	NA
MOLECULAR FORMULA:	Mixture

ODOR/APPEARANCE:
Clear Liquid With a Hydrocarbon Odor, Dyed Red For Identification.

========== STABILITY AND REACTIVITY ==========

STABILITY/INCOMPATIBILITY:

Stable. Avoid contact with strong oxidizers.

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS:

Thermal decomposition or combustion may produce CO, CO2 and reactive hydrocarbons.

========== TOXICOLOGICAL INFORMATION ==========

OTHER:

An extensive profile which characterizes adverse health effects information for this material has been prepared by the Agency for Toxic Substances Disease Registry (ATSDR). Individuals interested in a summary of the toxicology of this material should reference this document. This profile can be obtained from the National Technical Information Services (NTIS).

========== DISPOSAL CONSIDERATIONS ==========

WASTE DISPOSAL (Resource Conservation & Recovery Act - RCRA):

This material, when discarded or disposed of, is a characteristic hazardous waste according to Federal regulations (40 CFR 261). This material exhibits the characteristic of ignitability and is assigned the EPA Hazardous Waste Number of D001. The discarding or disposal of this material must be done at a properly permitted facility in accordance with the regulations of 40 CFR 262, 263, 264, and 268. Additionally, the discarding or disposal of this material may be further regulated by state, regional, or local regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate, or otherwise inappropriate. The transportation, storage, treatment and disposal of this waste material must be conducted in compliance with all applicable Federal, state, and local regulations.

There may be specific current regulations at the local, regional, or state level that pertain to this information. Chemical additions, processing, or otherwise altering this material may make the waste management information presented in this MSDS, incomplete, inaccurate, or otherwise inappropriate.

========== TRANSPORT INFORMATION ==========

U.S. DEPARTMENT OF TRANSPORTATION (D.O.T.):

Proper Shipping Name (49 CFR 172.101):	Fuel Oil (No. 2)
Hazard Class (49 CFR 172.101):	3
UN/NA Code (49 CFR 172.101):	NA 1993
Packing Group (49 CFR 179.101):	PG III
Bill Of Lading Desc. (49 CFR 172.101):	Fuel Oil (No. 2), 3, NA 1993, PG III
Labels Required (49 CFR 172.101):	Not Regulated
Placards Required (49 CFR 172.101):	Combustible

INTERNATIONAL AND DOMESTIC AIR TRANSPORTATION:

IATA Proper Shipping Name:	Diesel Fuel
Hazard Class:	3
Subsidiary Risk:	NA
UN Code:	UN 1202
Package Specification:	309, 310
Labels Required:	Flammable Liquid, Orientation

INTERNATIONAL WATER TRANSPORTATION:

IMDG Proper Shipping Name:	Diesel Fuel
Hazard Class:	3.3
UN Code:	UN 1202
IMDG Page Number:	3375
Labels Required:	Flammable Liquid
Placards Required:	Flammable

CANADIAN TRANSPORTATION OF DANGEROUS GOODS (T.D.G.):

Shipping Name:	Fuel Oil, No. 2
PIN (UN/NA):	UN 1202
Regulated Class:	3
Division:	NA
Packaging Group:	PG III
Labels Required:	Flammable Liquid
Placards Required:	Flammable

REGULATORY INFORMATION

NOTIFICATION:

Any spill or release, or substantial threat of release, of this material to navigable water (virtually any surface water) sufficient to cause a visible sheen upon the water must be reported immediately to the National Response Center (800/424-8802), as required by U.S. Federal Law. Failure to report may result in substantial civil and criminal penalties. Also contact the Coast Guard and appropriate state and local regulatory agencies.

US EPA TOXIC SUBSTANCE CONTROL ACT (TSCA):

All components of this product are listed on the TSCA inventory.

US EPA SUPERFUND AMENDMENTS & REAUTHORIZATION ACT (SARA) TITLE III INFORMATION:

Listed below are the hazard catagories for SARA Section 311/312 (40 CFR 370):

Immediate Hazard:	X
Delayed Hazard:	X
Fire Hazard:	X
Pressure Hazard:	-
Reactivity Hazard:	-

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA):

All components of this product are listed on the Canadian DSL or NDSL inventories.

CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

CATEGORIES:
The following WHMIS categories apply to this product:

Compressed Gas:	-	Other Toxic Effects:	X
Flammable/Combustible:	X	Bio Hazardous:	-
Oxidizer:	-	Corrosive:	-
Acutely Toxic:	X	Dangerously Reactive:	-

========== OTHER INFORMATION ==========

NFPA RATINGS:		HMIS RATINGS:	
Health:	0	Health:	0
Flammability:	2	Flammability:	2
Reactivity:	0	Reactivity:	0
Special Hazards:	-	Personal Protective Equipment:	H

REVISION DATE: 18-oct-1996
REPLACES SHEET DATED: 02-feb-1994
COMPLETED BY: BP OIL HSEQ DEPARTMENT
REVISION SUMMARY: The following section(s) have been revised since the previous issue of this MSDS:
HAZARDS IDENTIFICATION
PHYSICAL AND CHEMICAL PROPERTIES

ND: No Data NA: Not Applicable *See specific note or section

Representative MSDS from SJ IMP

MATERIAL SAFETY DATA SHEET

Date Issued: August 18, 2000

SECTION A - IDENTIFICATION & EMERGENCY INFORMATION

Manufacturer's Name: **Castrol Heavy Duty Lubricants Inc**
Emergency Telephone Number: 410-574-5000
800-777-1466

Address: 9300 Pulaski Highway
Baltimore, MD 21220

PRODUCT NAME: Lube-Cut 32 HD
Product Grades
Chemical Name: Petroleum Lubricating Oil
Product Appearance & Odor: Light Amber Liquid
Petroleum Odor

Part Number: W411

CAS Number (For Finished Product):
COMPLEX MIXTURE
CAS Number Not Applicable

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)
Health - 1 Flammability - 1 Reactivity - 0
Hazard Rating: Least-0 Slight-1 Moderate-2 High-3 Extreme-4

SECTION B - COMPONENTS & HAZARD INFORMATION

COMPONENTS	CAS NO. OF COMPONENTS	APPROXIMATE CONCENTRATION
Lubricating Oil Base Stock	64741-88-4 64742-57-0	Greater thsn 80% Less than 20%
Proprietary Additives	Mixture	

Exposure Limit for Total Product: 5mg/m³ oil mist for an 8-hour work day. Basis: OSHA Reg 29 CFR 1910.1000
CERLA Hazardous Substances: None known. If this product is accidentally spilled, it is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). We recommend you contact local authorities to determine if there may be other local reporting requirements. **US TSCA Inventory:** All components of this material are on the US TSCA Inventory. **Threshold Planning Quantity** (TPQ), EPA Regulation 40 CFR 355 Extremely Hazardous Substances (SARA Sections 301-304): None. **Toxic Chemical Release Reporting**, EPA Regulation 40 CFR 372 (SARA Section 313): Not Applicable

SECTION C - PHYSICAL DATA (THE FOLLOWING DATA ARE APPROXIMATE OR TYPICAL VALUES.)

Boiling Range: Not Determined
Specific Gravity (H_2O=1): 0.889
Pour Point: +5.F
Viscosity: 31 cSt @ 40.C
Solubility in Water: Negligible, Below 0.1%

Percent Volatile by Volume: NEGLIGIBLE
Vapor Pressure: NEGLIGIBLE
Vapor Density: GREATER THAN AIR
Evaporation Rate: NEGLIGIBLE

SECTION D - FIRE PROTECTION INFORMATION

FLASH POINT & METHOD: Min. ASTM D-92 C.O.C. C, (F.)
193(380)

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)-Hazard Identification
Health - 1
Flammability - 1
Reactivity - 0
Basis: Recommended by Castrol Heavy Duty Lubricants Inc
Hazard Rating (NFPA):
4-Extreme 3-High 2-Moderate
1-Slight 0-Insignificant

AUTOIGNITION TEMPERATURE:
NOT DETERMINED

UNUSUAL FIRE & EXPLOSION HAZARDS:

None

Flammability Limits (% by volume in air):
Lower: Not determined Upper: Not determined

SECTION D - FIRE PROTECTION INFORMATION (Continued)

HANDLING PRECAUTIONS: Use product with caution around heat, sparks, pilot lights, static electricity and open flame.
DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS: Fumes, smoke, carbon monoxide, sulfur oxides, and other decomposition products, in the case of incomplete combustion.
EXTINGUISHING MEDIA & FIRE FIGHTING PROCEDURES: Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on the size or potential size of fire and circumstances related to the situation. Plant fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.
The following procedures for this type of product are based on the recommendations in the National Fire Protection Associations' *Fire Protection Guide on Hazardous Materials*. Use water spray, dry chemical, foam, or carbon dioxide to extinguish the fire.
Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.
EMPTY CONTAINER WARNING: "Empty" containers retain residue (liquid and/or vapor) and can 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. Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION E - PROTECTION & PRECAUTIONS

VENTILATION: Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, flame or other ignition sources.
RESPIRATORY PROTECTION: Use supplied-air respiratory protection in confined or enclosed spaces, if needed.
PROTECTIVE GLOVES: Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.
EYE PROTECTION: Use splash goggles or face shield when eye contact may occur.
OTHER PROTECTIVE EQUIPMENT: Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.
WORK PRACTICES / ENGINEERING CONTROLS : Keep containers closed when not is use. Do not store near heat, sparks, flame or strong oxidants. In order to prevent fire or explosion hazards, use appropriate equipment.
PERSONAL HYGIENE: Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing: launder or dry-clean before re-use. Remove contaminated shoes and thoroughly clean before re-use; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed skin by waterless hand cleaners followed by washing thoroughly with soap and water.
VARIABILITY AMONG INDIVIDUALS: Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

SECTION F - SPILL OR LEAK PROCEDURE

ENVIRONMENTAL IMPACT: Report spills as required to the appropriate authorities. U.S. Coast Guard Regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to the Coast Guard toll free number 800-424-8802. **PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:** Recover free product. Add sand, earth, or other suitable absorbent material to the spill area. Minimize breathing vapors. Minimize skin contact.
Keep product out of sewers and watercourses by diking or impounding. Advise authorities if the product has entered or may enter sewers, watercourses, or extensive land areas. **ASSURE CONFORMITY WITH ALL APPLICABLE REGULATIONS.**
WASTE DISPOSAL: Dispose of in an environmentally safe manner and in accordance with all government regulations to include Federal, State, and local requirements.

SECTION G - REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS & MATERIALS TO AVOID: Avoid heat, open flames and oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION H - EMERGENCY & FIRST AID PROCEDURES AND PRIMARY ROUTES OF ENTRY

EYE CONTACT: If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritations persists, call a physician. **SKIN CONTACT:** In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.
INGESTION: If ingested, DO NOT induce vomiting; call a physician immediately.
INHALATION: Vapor pressure is very low. Vapor inhalation under ambient temperature conditions is not normally a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. Administer oxygen, if available. If over-exposed to oil mist, remove from further exposure until excessive mist oil condition subsides.

SECTION I - EFFECTS OF OVEREXPOSURE

SKIN: Prolonged or repeated skin contact may cause skin irritation. **EYE:** May cause eye irritation. **INGESTION:** Relatively non-toxic.

SECTION J - TRANSPORTATION INFORMATION

DEPARTMENT OF TRANSPORTATION (DOT) - DOT Identification Number: Not Applicable.
THE PRECISE COMPOSITION OF THIS MIXTURE IS PROPRIETARY INFORMATION. A MORE COMPLETE DISCLOSURE WILL BE PROVIDED TO A PHYSICIAN OR NURSE IN THE EVENT OF A MEDICAL EMERGENCY.