September xxxxx, 2014

Part 71 Permit Contact,
Air, Pesticides and Toxics Division, MC 6PD-R
U.S. Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: 40 CFR Part 71 Operating Permit Renewal Application, NM-04-10-R1M1
Williams Four Corners, LLC Los Mestenios Compressor Station

Dear Madam/Sir:

Enclosed please find the 40 CFR Part 71 operating permit renewal application forms for Williams Four Corners LLC's Los Mestenios Compressor Station, permit number NM-04-10-R1M1, located within the exterior boundaries of the Jicarilla Apache Indian Reservation in New Mexico.

If you have any questions or require additional information, please contact Mr. Mitch Morris of Williams at (505) 632-4708 or me at (801) 484-4412.

Sincerely,

CIRRUS CONSULTING, LLC

Robert L. Myers II

cc: Mitch Morris, WFC

Cirrus Consulting, LLC
951 Diestel Road
Salt Lake City, Utah 84105
Tel: (801) 484-4412
bmyers@cirrusllc.com

U.S. ENVIRONMENTAL PROTECTION AGENCY (REGION 6)
APPLICATION TO RENEW FEDERAL OPERATING PERMIT R6NM-04-10-R1M1 (40 CFR PART 71)

LOS MESTENIOS COMPRESSOR STATION

Submitted By:

WILLIAMS FOUR CORNERS LLC
188 County Road 4900
Bloomfield, New Mexico 87413

Prepared By:

Cirrus Consulting, LLC
951 Diestel Road
Salt Lake City, Utah 84105
(801) 484-4412

September 2014

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Section 1

Application Summary

The WFC Los Mestenios Compressor Station currently operates under Part 71 Title V permit R6NM-04-10-R1M1, issued April 1, 2010. This application is being submitted to renew the Title V permit. No major modifications are being proposed for this renewal.

The Los Mestenios Compressor Station is a natural gas compressor station that accepts produced natural gas gathered from various wellheads from the gas field surrounding the facility, and compresses this gas for delivery to natural gas processing facilities. This is done on a contractual basis.

Under the existing Title V operating permit, the station is currently approved to operate a Solar Saturn T1200 natural gas fired turbine (Unit 1) and a Caterpillar G-399-TA 4SRB RICE (Unit 2), both driving natural gas compressors. The existing permit also includes a 500-bbl condensate storage tank T-1 for which both flashing and working/breathing losses are estimated, a 300-bbl condensate tank, fugitive emissions from valves, flanges, etc. (Unit F-1), fugitive emissions from truck loading losses (Unit F-2) and miscellaneous insignificant emission sources.

In addition to renewing the Part 71 Title V permit, this application proposes to modify emissions for Unit 2, the Caterpillar G-399-TA compressor engine in order to more accurately reflect the unit's Potential to Emit (PTE), in accordance with condition 3.2.4.3 of the Title V permit R6NM-04-10-R1M1. Also, existing startup, shutdown and malfunction (SSM) emissions will be added in this permitting action.

Tank T-1 is an existing tank identified in the current Title V permit as a 500-bbl tank. Repairs have been made to the tank, consisting of the installation of a new floor over the existing leaking floor. These repairs have reduced the capacity of the tank to 490 bbl. Additionally, the existing 300-bbl condensate storage tank was removed in August 2014 with a 400-bbl condensate storage tank T-2 to act as an overflow tank for tank T-1. This will prevent overflows from T-1 during times when haul truck access is limited due to outside factors such as weather and/or road conditions.

Section 2
Application Forms

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 06/30/2015

Federal Operating Permit Program (40 CFR Part 71)

GENERAL INFORMATION AND SUMMARY (GIS)

A. Mailing Address and Contact Information

Facility name: Los Mestenios Compressor Station

Mailing address: Street or P.O. Box: 188 County Road 4900

City: Bloomfield State: NM ZIP: 87413

Contact person: Mitch Morris Title: Environmental Specialist

Telephone (505) 632 – 4708 Ext. _____

Facsimile (505) 632 - 4782

B. Facility Location

Temporary source? ___Yes X No Plant site location: Section 25&26, Township 26N, Range 5W (UTMH 292.3 km, UTMV 4,036.5 km, UTM Zone 13)

City: 24 km northwest of Gavilan State: NM County: Rio Arriba EPA Region: 6

Is the facility located within:

Indian lands? X YES ___ NO OCS waters? ___YES X NO

Non-attainment area? ___ YES X NO If yes, for what air pollutants? _____

Within 50 miles of affected State? X YES __ NO If yes, What State(s)? Colorado

C. Owner

Name: Williams Street/P.O. Box: One Williams Center

City: Tulsa State: OK ZIP: 74172

Telephone (918) 588- 2984 Ext_____

D. Operator

Name: Williams Four Corners, LLC Street/P.O. Box: 188 County Road 4900

City: Bloomfield State: NM ZIP: 87413

Telephone (505) 632-4708 Ext_____

E. Application Type

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

___Initial Permit X Renewal ___ Significant Mod ___ Minor Permit Mod(MPM)

___ Group Processing, MPM ___ Administrative Amendment

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

For permit renewal, what is the expiration date of current permit? 4/1/2015

F. Applicable Requirement Summary

Mark all types of applicable requirements that apply.

___ SIP X FIP/TIP ___ PSD ___Non-attainment NSR

X Minor source NSR X Section 111 ___ Phase I acid rain ___Phase II acid rain

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

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

___ Tank Vessel requirements, sec. 183(f)) ___ Section 129 Standards/Requirement

___ Consumer / comm.. products, ' 183(e) ___ NAAQS, increments or visibility (temp. sources)

Has a risk management plan been registered? ___YES _X NO Regulatory agency _____

Phase II acid rain application submitted? ___YES X NO If yes, Permitting authority _____

G. Source-Wide PTE Restrictions and Generic Applicable Requirements

Cite and describe any emissions-limiting requirements and/or facility-wide "generic" applicable requirements.

Not applicable

H. Process Description

List processes, products, and SIC codes for the facility.

Process	Products	SIC
Natural Gas Compression	Natural Gas	1389
Condensate Storage	Natural Gas Condensate	1389

I. Emission Unit Identification

Assign an emissions unit ID and describe each 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
1	Solar Saturn 1200 Turbine
2	Caterpillar G-399-TA Engine
T-1	490 bbl Condensate Storage Tank
T-2	400 bbl Condensate Storage Tank
F-1	Piping Component Fugitive Emissions
F-2	Condensate Liquid Loading Losses

J. Facility Emissions Summary

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 129.5 tons/yr VOC 108.5 tons/yr SO2 Negligible tons/yr

PM-10 Negligible tons/yr CO 29.7 tons/yr Lead N/A tons/yr

Total HAP 9.3 tons/yr

Single HAP emitted in the greatest amount n-Hexane PTE 8.1 tons/yr

Total of regulated pollutants (for fee calculation), Sec. F, line 5 of form FEE NA tons/yr

K. Existing Federally-Enforceable Permits

Permit number(s):R6NM-04-10-R1-M1 Permit type: Part 71 Operating Permit Permitting authority: EPA Region 6

L. Emission Unit(s) Covered by General Permits

Emission unit(s) subject to general permit Not applicable

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)

INSTRUCTIONS FOLLOW

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 06/30/2015

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID: 1 Description: Solar Saturn 1200 Turbine
SIC Code (4-digit): 1389 SCC Code 20200201

B. Emissions Unit Description

Primary use: Compressor drive Temporary Source ___Yes x No

Manufacturer: Solar Turbines, Inc. Model No.: Saturn 1200

Serial Number: SC7895681 Installation Date: 1989

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 Heat Input NA MM BTU/hr Max. Design Heat Input [a] 10.84 MM BTU/hr

[a] Based on manufacturer's data

C. Fuel Data

Primary fuel type(s): Natural Gas Standby fuel type(s): Not applicable

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
Natural Gas	Negligible	Negligible	1200 Btu/cf

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	NA	11290 scf/hr	98.9 MMscf/yr

E. Associated 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 – N/A

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

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

Stack temp(^{o}F) _____._____ Design stack flow rate (ACFM) _____._____

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

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 06/30/2015

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID: 2 Description: Caterpillar Internal Combustion Engine-750 hp (site rated 690 hp)
SIC Code (4-digit): 1389 SCC Code 20200202

B. Emissions Unit Description

Primary use: Compressor drive Temporary Source ___Yes x No

Manufacturer: Caterpillar Model No.: G-399-TA

Serial Number: 49-C-200 Installation Date: 06/12/90

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 Heat Input NA MM BTU/hr Max. Design Heat Input 7.4 MM BTU/hr

C. Fuel Data

Primary fuel type(s): Natural Gas Standby fuel type(s): Not applicable

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
Natural Gas	Negligible	Negligible	1200 Btu/cf

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	NA	7694 scf/hr	67.4 MMscf/yr

E. Associated 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 – N/A

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

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

Stack temp(^{o}F) _____._____ Design stack flow rate (ACFM) _____.____

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

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 06/30/2015

Federal Operating Permit Program (40 CFR Part 71)

EMISSIONS UNIT DESCRIPTION FOR VOC EMITTING SOURCES (EUD-2)

A. General Information

Emissions unit ID F-1 Description Piping Component Fugitive Emissions

SIC Code (4-digit) 1389 SCC Code 31088811

B. Emissions Unit Description

Equipment type Valves, Flanges, Seals, etc. Temporary source: ___Yes X No

Manufacturer Unknown Model No. Unknown

Serial No. Unknown Installation date: Unknown

Articles being coated or degreased: NA

Application method NA

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

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

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

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

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

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

Substance Name (Chemical, Brand Name)	CAS No.	Substance Type	Actual Usage (gal/yr)	Max Usage (gal/day)	Max Usage (gal/year)	VOC Content (lb/gal)
Natural Gas	N/A	Natural Gas	N/A	N/A	N/A	*

Note: *See fugitive emission calculation sheet for composition (Appendix C)

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 06/30/2015

Federal Operating Permit Program (40 CFR Part 71)

EMISSIONS UNIT DESCRIPTION FOR VOC EMITTING SOURCES (EUD-2)

A. General Information

Emissions unit ID: SSM Description: Startup, Shutdown & Maintenance Emissions

SIC Code (4-digit): 1389 SCC Code _____

B. Emissions Unit Description

Equipment type: SSM Emissions Temporary source: ___Yes X No

Manufacturer: N/A Model No. N/A

Serial No. N/A Installation date: N/A

Articles being coated or degreased N/A

Application method N/A

Overspray (surface coating) (%)N/A Drying method N/A

No. of dryers N/A Tank capacity (degreasers) (gal) N/A

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

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

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

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

Substance Name (Chemical, Brand Name)	CAS No.	Substance Type	Actual Usage (gal/yr)	Max Usage (gal/day)	Max Usage (gal/year)	VOC Content (lb/gal)
Natural Gas	N/A	Natural Gas	N/A	N/A	N/A	*

Note: *See fugitive emission calculation sheet for composition (Appendix C)

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 06/30/2015

Federal Operating Permit Program (40 CFR Part 71)

EMISSIONS UNIT DESCRIPTION FOR VOC EMITTING SOURCES (EUD-2)

A. General Information

Emissions unit ID: T-1 Description: Condensate Storage Tank (490 bbl capacity)

SIC Code (4-digit): 1389 SCC Code _____

B. Emissions Unit Description

Equipment type: Fixed-roof Storage Tank Temporary source: ___Yes X No

Manufacturer: Permian Tank Model No. N/A

Serial No. 25428 Installation date: Unknown (manufacture date 1993)

Articles being coated or degreased N/A

Application method N/A

Overspray (surface coating) (%)N/A Drying method N/A

No. of dryers N/A Tank capacity (degreasers) (gal) N/A

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

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

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

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

Substance Name (Chemical, Brand Name)	CAS No.	Substance Type	Actual Usage (gal/yr)	Max Usage (gal/day)	Max Usage (gal/year)	VOC Content (lb/gal)
Natural Gas Condensate	N/A	Natural gas condensate	NA	2,416	882,000 (1)	5.7

(1) 2009 Condensate production plus approx. 10% safety factor (see HYSYS model run, Appendix B)

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 06/30/2015

Federal Operating Permit Program (40 CFR Part 71)

EMISSIONS UNIT DESCRIPTION FOR VOC EMITTING SOURCES (EUD-2)

A. General Information

Emissions unit ID: T-2 Description: Condensate Storage Tank (400 bbl capacity)

SIC Code (4-digit): 1389 SCC Code _____

B. Emissions Unit Description

Equipment type: Fixed-roof Storage Tank Temporary source: ___Yes X No

Manufacturer: American Tank & Steel Model No. N/A

Serial No. 831-2918 Installation date: 2014 (manufacture date 1965)

Articles being coated or degreased N/A

Application method N/A

Overspray (surface coating) (%)N/A Drying method N/A

No. of dryers N/A Tank capacity (degreasers) (gal) N/A

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

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

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

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

Substance Name (Chemical, Brand Name)	CAS No.	Substance Type	Actual Usage (gal/yr)	Max Usage (gal/day)	Max Usage (gal/year)	VOC Content (lb/gal)
Natural Gas Condensate	N/A	Natural gas condensate	NA	2,416	151,200	5.7

Federal Operating Permit Program (40 CFR Part 71)

INSIGNIFICANT EMISSIONS (IE)

On this page list each insignificant activity or emission unit. In the "number" column, indicate the number of units in this category. Descriptions should be brief but unique. Indicate which emissions criterion of part 71 is the basis for the exemption.

Number	Description of Activities or Emissions Units	RAP, except HAP	HAP
IEU 3	Fuel Gas Heater (0.3 MMBtu/hr)	x	x
IEU 4	Tank Heater (0.3 MMBtu/hr)	x	x
IEU T-3	Produced Water Tank (70 bbl)	x	x
IEU T-4	Lube Oil Storage Tank (500 gal)	x	x
IEU T-5	Used Oil Storage Tank (500 gal)	x	x
IEU T-6	Ambitrol Storage Tank (350 gal)	x	x
IEU T-7	Methanol Storage Tank (500 gal)	x	x
F-2	Truck Loading	x	x

Federal Operating Permit Program (40 CFR Part 71)

EMISSION CALCULATIONS (EMISS)

Calculate potential to emit (PTE) for applicability purposes and actual emissions for fee purposes for each emissions unit, control device, or alternative operating scenario identified in section I of form **GIS**. If form **FEE** does not need to be submitted with the application, do not calculate actual emissions.

A. Emissions Unit ID _1_

B. Identification and Quantification of Emissions

First, list each air pollutant that is either regulated at the unit or present in major amounts, then list any other regulated pollutant (for fee calculation) not already listed. HAP may be simply listed as "HAP." Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives for fee purposes. You may round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values.

Air Pollutants	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx	N/A	4.4	19.3	10102-44-0
CO	N/A	2.6	11.4	630-08-0
VOC	N/A	0.1	0.4	
SO2	N/A	0.0	0.2	7446-09-5
PM-10	N/A	0.1	0.3	
PM-2.5	N/A	0.1	0.3	
Formaldehyde	N/A	0.0	0.2	50-00-0
Acetaldehyde	N/A	0.0	0.2	75-07-0

Federal Operating Permit Program (40 CFR Part 71)

EMISSION CALCULATIONS (EMISS)

Calculate potential to emit (PTE) for applicability purposes and actual emissions for fee purposes for each emissions unit, control device, or alternative operating scenario identified in section I of form **GIS**. If form **FEE** does not need to be submitted with the application, do not calculate actual emissions.

A. Emissions Unit ID _2_

B. Identification and Quantification of Emissions

First, list each air pollutant that is either regulated at the unit or present in major amounts, then list any other regulated pollutant (for fee calculation) not already listed. HAP may be simply listed as "HAP." Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives for fee purposes. You may round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values.

Air Pollutants	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx	N/A	25.2	110.2	10102-44-0
CO	N/A	4.2	18.3	630-08-0
VOC	N/A	0.7	2.9	
SO2	N/A	0.0	0.2	7446-09-5
PM-10	N/A	0.1	0.6	
PM-2.5	N/A	0.1	0.6	
Formaldehyde	N/A	0.0	0.2	50-00-0
Benzene	N/A	0.0	0.1	71-43-2

Federal Operating Permit Program (40 CFR Part 71)

EMISSION CALCULATIONS (EMISS)

Calculate potential to emit (PTE) for applicability purposes and actual emissions for fee purposes for each emissions unit, control device, or alternative operating scenario identified in section I of form **GIS**. If form **FEE** does not need to be submitted with the application, do not calculate actual emissions.

A. Emissions Unit ID _F-1_

B. Identification and Quantification of Emissions

First, list each air pollutant that is either regulated at the unit or present in major amounts, then list any other regulated pollutant (for fee calculation) not already listed. HAP may be simply listed as "HAP." Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives for fee purposes. You may round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values.

Air Pollutants	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
VOC	N/A	Not specified	4.5	
n-Hexane	N/A	Not specified	0.1	110-54-3

Federal Operating Permit Program (40 CFR Part 71)

EMISSION CALCULATIONS (EMISS)

Calculate potential to emit (PTE) for applicability purposes and actual emissions for fee purposes for each emissions unit, control device, or alternative operating scenario identified in section I of form **GIS**. If form **FEE** does not need to be submitted with the application, do not calculate actual emissions.

A. Emissions Unit ID _SSM_

B. Identification and Quantification of Emissions

First, list each air pollutant that is either regulated at the unit or present in major amounts, then list any other regulated pollutant (for fee calculation) not already listed. HAP may be simply listed as "HAP." Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives for fee purposes. You may round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values.

Air Pollutants	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
VOC	N/A	Not specified	14.9	
n-Hexane	N/A	Not specified	0.3	110-54-3
Benzene	N/A	Not specified	0.1	71-43-2
Toluene	N/A	Not specified	0.1	108-88-3

Federal Operating Permit Program (40 CFR Part 71)

EMISSION CALCULATIONS (EMISS)

Calculate potential to emit (PTE) for applicability purposes and actual emissions for fee purposes for each emissions unit, control device, or alternative operating scenario identified in section I of form **GIS**. If form **FEE** does not need to be submitted with the application, do not calculate actual emissions.

A. Emissions Unit ID _T-1_

B. Identification and Quantification of Emissions

First, list each air pollutant that is either regulated at the unit or present in major amounts, then list any other regulated pollutant (for fee calculation) not already listed. HAP may be simply listed as "HAP." Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives for fee purposes. You may round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values.

Air Pollutants	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
VOC	N/A	Not specified	84.3	
n-Hexane	N/A	Not specified	6.9	110-54-3
Benzene	N/A	Not specified	0.4	71-43-2
Toluene	N/A	Not specified	0.5	108-88-3
Xylenes	N/A	Not specified	0.1	1330-20-7

Federal Operating Permit Program (40 CFR Part 71)

EMISSION CALCULATIONS (EMISS)

Calculate potential to emit (PTE) for applicability purposes and actual emissions for fee purposes for each emissions unit, control device, or alternative operating scenario identified in section I of form **GIS**. If form **FEE** does not need to be submitted with the application, do not calculate actual emissions.

A. Emissions Unit ID _T-2_

B. Identification and Quantification of Emissions

First, list each air pollutant that is either regulated at the unit or present in major amounts, then list any other regulated pollutant (for fee calculation) not already listed. HAP may be simply listed as "HAP." Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives for fee purposes. You may round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values.

Air Pollutants	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
VOC	N/A	Not specified	2.0	
n-Hexane	N/A	Not specified	0.4	110-54-3

United States Environmental Protection Agency

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POTENTIAL TO EMIT (PTE)

For each unit with emissions that count towards applicability, list the emissions unit ID and the PTE for the air pollutants listed below and sum them up to show totals for the facility. You may find it helpful to complete form **EMISS** before completing this form. Show other pollutants not listed that are present in major amounts at the facility on attachment in a similar fashion. You may round values to the nearest tenth of a ton. Also report facility totals in section **J** of form **GIS**.

Emissions Unit ID	Regulated Air Pollutants and Pollutants for which the Source is Major (tons/yr)						
	NOx	VOC	SO2	PM10	CO	Lead	HAP
Unit 1	19.3	0.4	0.2	0.3	11.4	Negl.	0.4
Unit 2	110.2	2.9	Negl.	0.6	18.3	Negl.	0.4
Unit T-1	N/A	84.2	N/A	N/A	N/A	N/A	8.0
Unit T-2	N/A	2.0	N/A	N/A	N/A	N/A	Negl.
Unit F-1	N/A	4.5	N/A	N/A	N/A	N/A	0.1
Unit SSM	N/A	14.9	N/A	N/A	N/A	N/A	0.4
FACILITY TOTALS	129.5	108.5	0.2	0.9	29.7	Negl.	9.3

United States Environmental Protection Agency

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INITIAL COMPLIANCE PLAN AND COMPLIANCE CERTIFICATION (I-COMP)

SECTION A - COMPLIANCE STATUS AND COMPLIANCE PLAN

Complete this section for each unique combination of applicable requirements and emissions units at the facility. List all compliance methods (monitoring, recordkeeping and reporting) you used to determine compliance with the applicable requirement described above. Indicate your compliance status at this time for this requirement and compliance methods and check "YES" or "NO" to the follow-up question.

Emission Unit ID(s): Unit 1

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 1.2 Table 2
Emission Limitations: NOx 19.3 tpy; CO 11.4 tpy; VOC 0.4 tpy; HAPs 0.4 tpy

Compliance Methods for the Above (Description and Citation):
Monitoring of fuel consumption as per Condition 3.2.2; and initial performance test as per condition 3.2.4; and recordkeeping of maintenance and repair activities as per Condition 3.2.5.2

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

Emission Unit ID(s): Unit 1

Applicable Requirement (Description and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 3.2.1
NSPS GG pollution control equipment to be maintained and tested per the requirements and compliance measures of Subparts A and GG.

Compliance Methods for the Above (Description and Citation):
Unit 1 does not utilize pollution control equipment for compliance with NSPS GG.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes _____No

Emission Unit ID(s): Unit 1

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Conditions 3.2.2
The amount of natural gas burned in unit 1 shall not exceed 99.9 mmscf/yr.

Compliance Methods for the Above (Description and Citation):
Fuel consumption monitoring as per condition 3.2.5.1.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

Emission Unit ID(s): Unit 1

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Conditions 3.2.4, 3.2.6.1, 3.2.6.7.4 & 3.2.6.7.6
Initial performance test to determine PTE for CO, VOC and formaldehyde, including recordkeeping and reporting.

Compliance Methods for the Above (Description and Citation):
Testing was completed in accordance with EPA test methods, including recordkeeping of operating parameters as per 3.2.4.1.5. Results were reported as required.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

Emission Unit ID(s): Unit 1

Applicable Requirement (Description and Citation):
Title V Operating Permit R6NM-04-10R1M1; Conditions 3.2.5.1, 3.2.6.4 & 3.2.6.7.1
The fuel consumption of Unit 1 shall be monitored continuously and the average daily rate, as well as the monthly and rolling twelve-month averages, be recorded in a monthly report.

Compliance Methods for the Above (Description and Citation):
Recordkeeping and reporting – demonstrated by maintaining required records and reported in the Six-Month report.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes _____No

Emission Unit ID(s): Unit 1

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 3.2.5.3, 3.2.6.2 & 3.2.6.7.3
Maintenance and repair activities for Unit 1 shall be monitored, and the records kept and reported.

Compliance Methods for the Above (Description and Citation):
Recordkeeping and reporting – demonstrated by maintaining required records and reported in the Six-Month report.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

Emission Unit ID(s): Unit 1

Applicable Requirement (Description and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 3.2.6.3 & 3.2.6.7
Record of Unit 1's serial number shall be maintained and a change of serial number shall be included in the appropriate six-month report.

Compliance Methods for the Above (Description and Citation):
Recordkeeping and reporting – demonstrated by maintaining record of the unit's serial number and reporting any change in the appropriate Six-Month report.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes _____No

Emission Unit ID(s): Unit 1

Applicable Requirement (Description and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 3.2.6.5 & 3.2.6.7.2
Record of Unit 1's hours of operation.

Compliance Methods for the Above (Description and Citation):
Recordkeeping and reporting – demonstrated by maintaining hours of operation, which in conjunction with monthly fuel consumption records, are used to determine actual hourly fuel consumption, with results reported in the Six-Month report. Though not a monitoring requirement, monthly fuel heat input is monitored and records retained.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes _____No

Emission Unit ID(s): Unit 1

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 3.2.6.6
Records of Unit 1's monitoring and supporting information is to be maintained for at least five years.

Compliance Methods for the Above (Description and Citation):
Records are maintained for at least five years.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

Emission Unit ID(s): Unit 1

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 3.2.6.7
Six-month reports are to be submitted to EPA within forty-five days following every six months from the date of issuance of the permit.

Compliance Methods for the Above (Description and Citation):
Records are maintained as per condition 3.2.6.6, documenting timely submittal of the six-month reports.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

Emission Unit ID(s): Unit 1

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 3.2.6.8
A copy of all records submitted to EPA shall also be submitted to the Jicarilla Apache Reservation.

Compliance Methods for the Above (Description and Citation):
Records are maintained as per condition 3.2.6.6, documenting submittal of reports to the Tribe.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

Emission Unit ID(s): Unit 2

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 1.2 Table 2
Emission Limitations: NOx 153 tpy; CO 107 tpy; VOC 2.9 tpy; HAPs 0.7 tpy

Compliance Methods for the Above (Description and Citation):
Monitoring of fuel consumption as per Condition 3.2.2; initial and subsequent performance tests as per condition 3.2.4; and recordkeeping of maintenance and repair activities as per Condition 3.2.5.2

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

Emission Unit ID(s): Unit 2

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Conditions 3.2.2
The amount of natural gas burned in unit 2 shall not exceed 46 mmscf/yr.

Compliance Methods for the Above (Description and Citation):
Fuel consumption monitoring as per condition 3.2.5.1.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes _____No

Emission Unit ID(s): Unit 2

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 3.2.3
Actual heat input for unit 2 shall not exceed 6.9 MMBtu/hr.

Compliance Methods for the Above (Description and Citation):
Monthly heat input rate monitoring as per condition 3.2.5.2.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

Emission Unit ID(s): Unit 2

Applicable Requirement (Description and Citation):
Title V Operating Permit R6NM-04-10R1M1; Conditions 3.2.4.1, 3.2.6.1, 3.2.6.7.4 & 3.2.6.7.6
Initial performance test to determine PTE for CO, VOC and formaldehyde, including recordkeeping and reporting.

Compliance Methods for the Above (Description and Citation):
Testing was completed in accordance with EPA test methods, including recordkeeping of operating parameters as per 3.2.4.1.5. Results were reported as required.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes _____No

Emission Unit ID(s): Unit 2

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Conditions 3.2.4, 3.2.6.1, 3.2.6.7.5 & 3.2.6.7.6
Subsequent performance tests to determine PTE for CO, VOC and formaldehyde, including recordkeeping and reporting.

Compliance Methods for the Above (Description and Citation):
Testing was completed in accordance with EPA test methods, including recordkeeping of operating parameters as per 3.2.4.1.5. Results were reported as required.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

Emission Unit ID(s): Unit 2

Applicable Requirement (Description and Citation):
Title V Operating Permit R6NM-04-10R1M1; Conditions 3.2.5.1, 3.2.6.4 & 3.2.6.7.1
The fuel consumption of Unit 2 shall be monitored continuously and the average daily rate, as well as the monthly and rolling twelve-month averages, be recorded in a monthly report.

Compliance Methods for the Above (Description and Citation):
Recordkeeping and reporting – demonstrated by maintaining required records and reported in the Six-Month report.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes _____No

Emission Unit ID(s): Unit 2

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 3.2.5.2, 3.2.6.5 & 3.2.6.7.2
The actual heat input rate for Unit 2 shall be monitored on a monthly basis, and the records kept and reported.

Compliance Methods for the Above (Description and Citation):
Recordkeeping and reporting – demonstrated by maintaining required records and reported in the Six-Month report.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

Emission Unit ID(s): Unit 2

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 3.2.5.3, 3.2.6.2 & 3.2.6.7.3
Maintenance and repair activities for Unit 2 shall be monitored, and the records kept and reported.

Compliance Methods for the Above (Description and Citation):
Recordkeeping and reporting – demonstrated by maintaining required records and reported in the Six-Month report.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

Emission Unit ID(s): Unit 2

Applicable Requirement (Description and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 3.2.6.3 & 3.2.6.7
Record of Unit 2's serial number shall be maintained and a change of serial number shall be included in the appropriate six-month report.

Compliance Methods for the Above (Description and Citation):
Recordkeeping and reporting – demonstrated by maintaining record of the unit's serial number and reporting any change in the appropriate Six-Month report.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes _____No

Emission Unit ID(s): Unit 2

Applicable Requirement (Description and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 3.2.6.5 & 3.2.6.7.2
Record of Unit 2's hours of operation.

Compliance Methods for the Above (Description and Citation):
Recordkeeping and reporting – demonstrated by maintaining hours of operation, which in conjunction with monthly fuel consumption records, are used to determine actual hourly fuel consumption and the actual heat input, with results reported in the Six-Month report.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes _____No

Emission Unit ID(s): Unit 2

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 3.2.6.6
Records of Unit 2's monitoring and supporting information is to be maintained for at least five years.

Compliance Methods for the Above (Description and Citation):
Records are maintained for at least five years.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

Emission Unit ID(s): Unit 2

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 3.2.6.7
Six-month reports are to be submitted to EPA within forty-five days following every six months from the date of issuance of the permit.

Compliance Methods for the Above (Description and Citation):
Records are maintained as per condition 3.2.6.6, documenting timely submittal of the six-month reports.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_ Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

Emission Unit ID(s): Unit 2

Applicable Requirement (Describe and Citation):
Title V Operating Permit R6NM-04-10R1M1; Condition 3.2.6.8
A copy of all records submitted to EPA shall also be submitted to the Jicarilla Apache Reservation.

Compliance Methods for the Above (Description and Citation):
Records are maintained as per condition 3.2.6.6, documenting submittal of reports to the Tribe.

Compliance Status:

_x_ In Compliance: Will you continue to comply up to permit issuance? _x_Yes ____No

___ Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

___ Future-Effective Requirement: Do you expect to meet this on a timely basis? ____Yes ____No

B. SCHEDULE OF COMPLIANCE – not applicable

Complete this section if you answered "NO" to any of the questions in section A. Also complete this section if required to submit a schedule of compliance by an applicable requirement. Please attach copies of any judicial consent decrees or administrative orders for this requirement.

Unit(s)_____ Requirement_____

Reason for Noncompliance. Briefly explain reason for noncompliance at time of permit issuance or that future-effective requirement will not be met on a timely basis:

Narrative Description of how Source Compliance Will be Achieved. Briefly explain your plan for achieving compliance:

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

C. SCHEDULE FOR SUBMISSION OF PROGRESS REPORTS – not applicable

Only complete this section if you are required to submit one or more schedules of compliance in section B or if an applicable requirement requires submittal of a progress report. If a schedule of compliance is required, your progress report should start within 6 months of application submittal and subsequently, no less than every six months. One progress report may include information on multiple schedules of compliance.

Contents of Progress Report (describe):

First Report____/____/___ Frequency of Submittal_____

Contents of Progress Report (describe):

First Report____/____/___ Frequency of Submittal_____

D. SCHEDULE FOR SUBMISSION OF COMPLIANCE CERTIFICATIONS

This section must be completed once by every source. Indicate when you would prefer to submit compliance certifications during the term of your permit (at least once per year).

Frequency of submittal __annual___ Beginning_12_/_31_/_2004_

E. COMPLIANCE WITH ENHANCED MONITORING & COMPLIANCE CERTIFICATION REQUIREMENTS

This section must be completed once by every source. To certify compliance with these, you must be able to certify compliance for every applicable requirement related to monitoring and compliance certification at every unit.

Enhanced Monitoring Requirements: _x_ In Compliance ____ Not In Compliance

Compliance Certification Requirements: _x_ In Compliance ____ Not In Compliance

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 6/30/2015

Federal Operating Permit Program (40 CFR Part 71)

CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS (CTAC)

This form must be completed, signed by the "Responsible Official" designated for the facility or emission unit, and sent with each submission of documents (i.e., application forms, updates to applications, reports, or any information required by a part 71 permit).

A. Responsible Official

Name: (Last) _Wicburg__ (First) _Don _ (MI) ____

Title _Vice President and General Manager, Four Corners Area__

Street or P.O. Box _188 County Road 4900_____

City _Bloomfield_____ State _NM_ ZIP _87413___ - _____

Telephone (_505_) _632_ - _4628_ Ext. __ Facsimile (_505_) _632_ - _4782_

B. Certification of Truth, Accuracy and Completeness (to be signed by the responsible official)

I certify under penalty of law, 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 (typed) _Don Wicburg_ Date: _____ /_____ /_____

Section 3
Emission Calculations

Turbines – Unit 1 Solar Saturn T1200

The nitrogen oxide (NOx), carbon monoxide (CO), and volatile organic compound (VOC) combustion emissions from the Solar Saturn T1200 turbine (Unit 1) are taken from previous applications and permits. SO2 and particulate combustion emissions are calculated using the AP-42 emission factors from Table 3.1-2a. Lead combustion emissions are calculated using the AP-42 emission factor from Table 1.4-2 (even though the turbines are internal combustion sources, the emission factor for external combustion is acceptable as lead is not a produced pollutant; rather, emissions are directly related to the lead content of the natural gas). Hazardous air pollutant (HAP) combustion emissions are calculated using GRI-HAPCalc 3.0. Emissions are calculated assuming each turbine operates at full site capacity for 8,760 hours per year.

The criteria pollutant emissions are carried forward from the last Title V permit renewal application. No modifications are being made to the turbines or their operation.

Engines – Unit 2 Caterpillar G-399-TA

An extensive effort was put forth by both EPA and Williams during the 2010 Title V permit application review process to establish emissions and operational parameters for the Caterpillar G-399-TA reciprocating engine (Unit 2). This included reviewing manufacturer's specifications, historic emissions testing, past semi-annual reports and emissions inventories, as well as records from the Bureau of Land Management (BLM) and Oklahoma Corporation Commission (OCC), which keeps track of significant natural gas and oil production pipeline statistics. The results of this effort, as borrowed from the current Statement of Basis, and the results of the subsequent emissions testing required in the current Title V permit, are used in this renewal application to establish Potential to Emit emissions and fuel consumption limits.

The following paragraphs are extracted from the current Statement of Basis to provide an understanding of the Title V permit's emission and fuel use limits for the Caterpillar G-399-TA, Unit 2.

A request in the application that the IC engine (Unit No. 2), rated at either 8.7 or 7.4 MMBtu/hr with an additional 25% safety factor on emissions to equal a maximum of 242 tpy NOx is denied, based on a combination of modeling results (see discussion in Section 4.g below) and reasonable evaluation of data (normal operational data from all submitted fee schedules and manufacturers' data). A request in the application that the IC engine (Unit No. 2), rated at 7.4 MMBtu/hr, operated at 8760 hours for Unit No. 2, with a 10% safety factor, based on modeling results and a reasonable evaluation of data, is therefore also denied, unless these levels are limited. A limit on the maximum heat input rate of the IC engine at 6.9 MMBtu/hr for Unit No. 2, in addition to the fuel usage rate limit of 46 mmscf/yr, without further consideration of emission limitations, which is the higher of reasonable alternatives presented by EPA

evaluations of data, will be placed in the permit to allow tracking of the emissions for this unit. At this rating and fuel use, the calculated NOx emission levels are 153 tpy for the IC engine and 184 tpy for the source. Initial screening results indicate these emission levels will not significantly impact the NO_2 NAAQS. Additionally, the corresponding CO will decrease to 158 tpy, per similar compliance report maximum levels reported for the IC engine since the current Title V issuance. The worst case scenario emissions levels for CO and VOC currently permitted, will be allowed until the source has tested the emissions, two months after permit issuance date, to verify the general emissions data from the particular version of the IC engine that replaced the original. A condition will be placed in the permit to reapply for modification to the permit, should the tests show either a greater than insignificant increase (> 2 tpy) or greater than 10% decrease from proposed PTE for this unit in this notice and the resultant permitting action. This replacement will also assure that removal of the specific emissions limitations for this unit, through removal of the 40 CFR Part 63, Subpart GG requirements, will not cause a case of backsliding in permitted conditions, or an exceedance of the NAAQS.

An additional requirement is being placed in the permit to conduct a single compliance test within 2 months of the effective date of the permit for the IC engine to verify compliance with all other recalculated PTEs for the IC engine, and for the PTEs for all pollutants source-wide for all units, plus safety factors, along with individual limitations without safety. A condition will be placed in the permit to retest to verify results, should the tests show either a greater than insignificant increase (> 2 tpy) or greater than 10% decrease from proposed PTE for this unit and the source-wide estimates in this notice and the resultant permitting action, and reapply for modification to the permit if the difference is an increase in emissions. A requirement to model emissions for the source, based on cited changes in fuel usage and engine rating, and resultant errors in previous source modeling (see Section 5.g below), was conducted to verify combustion source changes to heat input rate and fuel consumption for compliance with modeling and the NAAQS. The resultant permit requirements will assure that removal of the emissions limitation for this unit, through removal of the 40 CFR Part 63, Subpart GG requirements, will not cause a case of backsliding in permitted conditions, or an exceedance of the NAAQS.

Table 2 presents a summary of results of the emissions testing as required by condition 3.2.4 of the Title V permit. The maximum NOx and CO emission rate of the four tests was selected as the basis for the proposed Potential to Emit (PTE) permit limits found in this application. The VOC limit from the current Title V permit has been brought forward as the proposed PTE limit in this application.

Table 2 – Unit 2 Caterpillar G-399-TA Summary of Testing and Proposed Emissions

			NOx pph	CO pph	VOC pph	HCHO pph
5/11/2010	EPA Method test		18.8	2.7	0.1	0.12
5/11/2010	portable analyzer		22.88	2.61		
8/31/2010	EPA Method test		17.4	3.7	0	0.29
12/10/2010	EPA Method test		21.6	3.8		0.12
	tpy, based on max test pph		100.2	16.6	0.4	1.3
	permit PTE, tpy		**153.0**	**107.0**	**2.9**	
	tested vs. PTE, %		65%	16%	15%	
	test results +	10%	110.2	18.3	0.5	
	bhp during test at max rate		598		581	619
	permit site-rated hp		598	598	598	598

Propose to reduce NOx & CO to max test rate + 10%, as per SOB, but leave VOC as permitted

	NOx, tpy	CO, tpy	VOC, tpy
proposed emissions	110.2	18.3	2.9

Heaters

Two heaters are utilized at this facility, a fuel gas heater (Insignificant Emission Unit IEU-3) and a tank heater (IEU- 4), both rated at 0.3 MMBtu/hr heat input. The criteria pollutant emissions are calculated using AP-42 emission factors from Tables 1.4-1 & 1.4-2. HAP emissions are calculated using GRI-HAPCalc 3.0. Emissions are calculated assuming the heaters all operate at capacity for 8,760 hours per year.

Equipment Leaks Emissions

VOC and HAP emissions from equipment leaks (Unit F1) are calculated using emission factors from Table 2.4 of the 1995 Protocol for Equipment Leak Emission Estimates published by the Environmental Protection Agency (EPA) and the gas stream composition obtained from an extended gas analysis (found in section 4).

Emissions are calculated assuming the equipment operates 8,760 hours per year. Due to the nature of the source, it is estimated that SSM emissions from the equipment are accounted for in the calculations.

Compressors and Associated Piping (SSM)

Emissions associated with startups, shutdowns and routine maintenance (SSM) from the turbine and engine driving the compressors, and from the associated piping, are vented to the atmosphere.

The VOC, HAP, and greenhouse gas emissions from blowdown of the compressors and piping associated with the facility are calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events. The quantity of gas vented during each event is estimated by Williams. The composition of the gas is based on a recent gas analysis from the facility. The estimated annual number of blowdown events includes an added safety factor because emissions from each blowdown event are dependent on the composition of the gas in the pipeline and the number of blowdowns in a year may vary. Experience indicates the composition of the gas will vary.

The SSM emissions identified in this application are routine or predictable startup/shutdown and scheduled maintenance and do not include malfunctions or upsets.

Storage Tanks

Emissions from the condensate storage tank T-1 are calculated using TANKS 4.0.9d for working/breathing losses and using VMGSim for flash emissions. Emissions are calculated using the condensate (post-flash) throughput of 21,000 barrels per year. These emissions have been updated with the new tank capacity as discussed in Section 1 using the VMGSim model, rather than the HYSYS model used in the past (due to expired license). A 10% safety factor has been added to the new results, for a new total that is less than the previously permitted total.

Tank T-2 has been added to the facility to operate as an overflow tank for T-1, and will only have working and breathing losses. Its emissions are conservatively based on the assumption that it will have the same condensate throughput as tank T-1, though the site throughput and truck loadout of 21,000 bbl/yr is unchanged.

Where required, VOC and HAP emissions (working/breathing losses) from the remaining storage tanks are calculated using TANKS 4.0.9d. These tanks are insignificant emission sources as their emissions are less than 2 tpy VOC, each. The following assumptions are made for the emissions calculations:

- The natural gasoline liquid composition identified in HAPCalc 3.0 was used to estimate hydrocarbon emissions from the produced water tank (IEU T-3). The tanks are estimated to contain 99 percent water and one percent hydrocarbons, with a throughput of approximately 7000 barrels per year (297,432 gallons) per year, each.

- Residual oil #6 is used to estimate lubrication oil and used lubrication oil emissions from the lube oil storage tank IEU T-4 and the used oil tank IEU T-5.

- Tanks 4.09d and its chemical database are used to estimate ambitrol and methanol emissions.

Condensate Liquid Loading Losses

The VOC emissions from condensate liquid loading (F-2) are brought forward from the previous Title V permit application. The emissions are calculated using the AP-42 emissions factor identified in Section 5.2-1, and are based on a maximum historical annual condensate throughput of 21,000 bbl/yr (from a calendar year 2009 maximum of 18,213 bbl/yr plus approximately 10%). HAP emissions are identified as percentages of the VOC emission rate, based on the HAP percentages predicted by TANKS 4.0.9.d.

Greenhouse Gas (GHG) Emissions

For the combustion sources (the turbine Unit 1, the engine Unit 2 and the insignificant heaters), carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O) combustion emissions are calculated using emission factors from the 40 Code of Federal Regulations (CFR), Part C, Tables C-1 & C-2 and the turbine higher heating value (HHV) design heat rates. GHG emissions for this and all source types are found in the Excel workbook included on the enclosed compact disk.

CO2 and CH4 emissions from equipment leaks and from SSM are calculated using Subpart W equations and the facility extended gas analysis.

There are no GHG emissions associated with the condensate storage tanks or loading losses.

Facility Total Projected Emissions (Criteria Pollutants)

Company: **Williams Four Corners LLC**
Facility: **Los Mestenios Compressor Station**
Date/Rev: **September 2014; Rev. 0**

Unit Number	Description	NOX,		VOC,		SOX,		PM10,		CO,		Lead,	
		pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy
1	Solar Saturn T1200 turbine	4.41	19.30	0.09	0.40	0.04	0.16	0.07	0.31	2.60	11.40	6.02E-06	2.64E-05
2	Caterpillar G399TA	25.16	110.20	0.66	2.90	4.06E-03	0.02	0.13	0.59	4.18	18.30	3.83E-06	1.68E-05
SSM	SSM	-	-	-	14.90	-	-	-	-	-	-	-	-
F1	Leaks	-	-	1.03	4.52	-	-	-	-	-	-	-	-
F2	Truck Loading	-	-	-	-	-	-	-	-	-	-	-	-
T-1	Condensate Tank - 480 bbl	-	-		84.23	-	-	-	-	-	-	-	-
T-2	Condensate Tank - 400 bbl				1.99								
3 & 4	Heaters	-	-	-	-	-	-	-	-	-	-	-	-
T-3	Lube Oil Tank - 500 gal	-	-		-	-	-	-	-	-	-	-	-
T-4	Produced H2O Tank - 2940 gal			-	-								
T-5	Methanol Tank - 500 gal			-	-								
T-6	Ambitrol Tank - 350 gal				-								
	Total	29.57	129.50	1.79	108.94	0.04	0.18	0.21	0.90	6.78	29.70	0.00	0.00

Facility Total Projected Emissions (HAPs)

Company: **Williams Four Corners LLC**
Facility: **Los Mestenios Compressor Station**
Revision: **September 2014; Rev. 0**

Unit Number	Description	Total HAPs,		Acetaldehyde		Formaldehyde		n-Hexane		Benzene		Toluene		Ethylbenzene		Xylenes	
		pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy
1	Solar Saturn T1200 turbine	0	0.38	-	0.19	-	0.19	-	-	-	-	-	-	-	-	-	-
2	Caterpillar G399TA	0	0.37	-	-	-	0.24	-	-	-	0.13	-	-	-	-	-	-
SSM	SSM	0	0.46	-	-	-	-	-	0.32	-	0.05	-	0.06	-	-	-	-
F1	Leaks	0.02	0.13	-	-	-	-	0.02	0.10	-	0.01	-	0.02	-	-	-	-
F2	Truck Loading	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T-1	Condensate Tank - 480 bbl	0	7.96	-	-	-	-	-	6.91	-	0.42	-	0.50	-	0.01	-	0.12
T-2	Condensate Tank - 400 bbl	-	-	-	-	-	-	-	0.35	-	0.01	-	0.02	-	-	-	-
3 & 4	Heaters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T-3	Lube Oil Tank - 500 gal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T-4	Produced H2O Tank - 2940 gal	-	-	-	-	-	-	-	0.45	-	0.01	-	0.01	-	0.01	-	0.00
T-5	Methanol Tank - 500 gal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T-6	Ambitrol Tank - 350 gal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	0.02	9.30	-	0.19	-	0.43	0.02	8.13	-	0.64	-	0.60	-	0.02	0.00	0.12

Turbine Exhaust Emissions Calculations

Unit Number: 1
Description: Solar Saturn T1200

Note: The data on this worksheet applies to each individual emissions unit identified above.

Horsepower Calculations

6,715	ft above MSL	Elevation	
1,200	hp	Nameplate hp	Mfg. data
1,136	hp	Site-rated hp	Mfg. data

Fuel Consumption

10.84	MMBtu/hr	Hourly fuel consumption	Btu/hp-hr x NMAQB site-rated hp / 1,000,000
12,044	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Williams Four Corners LLC
94,958	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
105.51	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutants	Uncontrolled Emission Rates, pph	tpy
NOX	4.41	19.30
CO	2.60	11.40
VOC	9.13E-02	4.00E-01

Emissions brought forward from Part 71 TV permit R6NM-04-10-M1

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	tpy
SO2	3.40E-03	3.69E-02	1.61E-01
TSP	6.60E-03	7.15E-02	3.13E-01
PM10	6.60E-03	7.15E-02	3.13E-01
PM2.5	6.60E-03	7.15E-02	3.13E-01

Emission factors taken from AP-42, Table 3.1-2a
Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Pollutant	Emission Factor, lb/MMscf	Uncontrolled Emission Rates, pph	tpy
Lead	5.00E-04	6.02E-06	2.64E-05

Emission factor taken from AP-42, Table 1.4-2
Uncontrolled Emission Rate (pph) = lb/MMscf x (scf/hr / 1,000,000)
Uncontrolled Emission Rate (tpy) = Uncontrolled Emission Rate (pph) x hr/yr / 2,000 lb/ton

Engine Exhaust Emissions Calculations

Unit Number: 2
Description: Caterpillar G399TA 4SRB RICE

Note: The data on this worksheet applies to each individual emissions unit identified above.

Horsepower Calculations

6,715	ft above MSL	Elevation	
750	hp	Nameplate hp	Mfg. data
598	hp	Site-rated hp	Mfg. product bulletin Power Derate, S8154-6, April 2001 (loss of 2% per 1,000 ft over 6,000 ft)
	as per Part 71 TV permit R6NM-04-10-M1		

Fuel Consumption

6.900	MMBtu/hr	Hourly fuel consumption	as per Part 71 TV permit R6NM-04-10-M1
7,667	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Williams Four Corners LLC
60,444	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
67.16	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutants	Proposed Emission Rates, pph	tpy
NOX	25.16	110.2
CO	4.18	18.3
VOC	0.66	2.9

NOx and CO missions based on max of permit-required test results plus 10%
VOC emissions brought forward from Part 71 permit

Pollutants	Emission Factors, lb/MMBtu	Emission Rates, pph	tpy
SO2	5.88E-04	4.06E-03	1.78E-02
TSP	1.94E-02	1.34E-01	0.59
PM10	1.94E-02	1.34E-01	0.59
PM2.5	1.94E-02	1.34E-01	0.59

Emission factors taken from AP-42, Table 3.2-3
Particulate factors include both filterable and condensible emissions
Emission Rates (pph) = lb/MMBtu x MMBtu/hr
Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Pollutant	Emission Factor, lb/MMscf	Emission Rates, pph	tpy
Lead	5.00E-04	3.83E-06	1.68E-05

Emission factor taken from AP-42, Table 1.4-2
Emission Rate (pph) = lb/MMscf x (scf/hr / 1,000,000)
Emission Rate (tpy) = Uncontrolled Emission Rate (pph) x hr/yr / 2,000 lb/ton

Turbine & Compressor Blowdown Emissions Calculations

Unit Number: SSM1
Description: Turbine, Compressor & Piping Associated With Station

Throughput

1	# of units	Number of units	Williams Four Corners LLC
100	events/yr/unit	Blowdowns per year per unit	Williams Four Corners LLC
5,780	scf/event	Gas loss per blowdown (compressor)	Williams Four Corners LLC
12,400	scf/event	Gas loss per blowdown (turbine)	Williams Four Corners LLC
1,818,000	scf/yr	Annual gas loss	# of units x events/yr/unit x [scf/event (compressor) + scf/event (turbine)]

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	1.211E-02	11.01
2,2,4-Trimethylpentane	2.166E-05	1.97E-02
Benzene	3.892E-05	3.54E-02
Ethylbenzene	1.120E-06	1.02E-03
n-Hexane	2.628E-04	2.39E-01
Toluene	5.101E-05	4.64E-02
Xylene	9.517E-06	8.65E-03

Emission factors calculated from gas composition (see table below)
Uncontrolled Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	0.8696	44.01	1.009E-03
Hydrogen sulfide	0	34.07	0.000E+00
Nitrogen	0.447	28.01	3.301E-04
Methane	79.8665	16.04	3.377E-02
Ethane	10.3308	30.07	8.190E-03
Propane	4.7293	44.09	5.497E-03
Isobutane	0.8253	58.12	1.265E-03
n-Butane	1.4011	58.12	2.147E-03
Isopentane	0.5284	72.15	1.005E-03
n-Pentane	0.3942	72.15	7.498E-04
Cyclopentane	0	70.14	0.000E+00
n-Hexane	0.1157	86.17	2.628E-04
Cyclohexane	0.0545	84.16	1.209E-04
Other hexanes	0.2265	86.18	5.146E-04
Heptanes	0.0869	100.20	2.296E-04
Methylcyclohexane	0.0539	98.19	1.395E-04
2,2,4-Trimethylpentane	0.0082	100.21	2.166E-05
Benzene	0.0189	78.11	3.892E-05
Toluene	0.021	92.14	5.101E-05
Ethylbenzene	0.0004	106.17	1.120E-06
Xylenes	0.0034	106.17	9.517E-06
C8+ Heavies	0.0184	110.00	5.336E-05
Total	100.0000		
Total VOC			1.211E-02

Gas stream composition obtained from Los Mestenios extended gas analysis dated 5/8/13
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.3 scf/lb-mole

Compressor Blowdown Emissions Calculations

Unit Number: SSM2
Description: RICE Compressor & Piping Associated With Station

Throughput

1	# of units	Number of units	Williams Four Corners LLC
100	events/yr/unit	Blowdowns per year per unit	Williams Four Corners LLC
6,442	scf/event	Gas loss per blowdown	Williams Four Corners LLC
644,200	scf/yr	Annual gas loss	# of units x events/yr/unit x scf/event

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	1.211E-02	3.90
2,2,4-Trimethylpentane	2.166E-05	6.98E-03
Benzene	3.892E-05	1.25E-02
Ethylbenzene	1.120E-06	3.61E-04
n-Hexane	2.628E-04	8.47E-02
Toluene	5.101E-05	1.64E-02
Xylene	9.517E-06	3.07E-03

Emission factors calculated from gas composition (see table below)
Uncontrolled Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	0.8696	44.01	1.009E-03
Hydrogen sulfide	0	34.07	0.000E+00
Nitrogen	0.447	28.01	3.301E-04
Methane	79.8665	16.04	3.377E-02
Ethane	10.3308	30.07	8.190E-03
Propane	4.7293	44.09	5.497E-03
Isobutane	0.8253	58.12	1.265E-03
n-Butane	1.4011	58.12	2.147E-03
Isopentane	0.5284	72.15	1.005E-03
n-Pentane	0.3942	72.15	7.498E-04
Cyclopentane	0	70.14	0.000E+00
n-Hexane	0.1157	86.17	2.628E-04
Cyclohexane	0.0545	84.16	1.209E-04
Other hexanes	0.2265	86.18	5.146E-04
Heptanes	0.0869	100.20	2.296E-04
Methylcyclohexane	0.0539	98.19	1.395E-04
2,2,4-Trimethylpentane	0.0082	100.21	2.166E-05
Benzene	0.0189	78.11	3.892E-05
Toluene	0.021	92.14	5.101E-05
Ethylbenzene	0.0004	106.17	1.120E-06
Xylenes	0.0034	106.17	9.517E-06
C8+ Heavies	0.0184	110.00	5.336E-05
Total	100.0000		
Total VOC			1.211E-02

Gas stream composition obtained from Los Mestenios extended gas analysis dated 5/8/13
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.3 scf/lb-mole

Heater Exhaust Emissions Calculations

Unit Number: IEU 3 & IEU 4
Description: Fuel Gas Heater and Tank Heater

Note: The data on this worksheet applies to each individual emissions unit identified above.

Fuel Consumption

0.30	MMBtu/hr	Capacity	Mfg. data
333	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Williams Four Corners LLC
2,628	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
2.92	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates, pph	tpy
NOX	100	0.03	0.15
CO	84	0.03	0.12
VOC	5.5	1.83E-03	8.03E-03
SO2	0.6	2.00E-04	8.76E-04
TSP	7.60	2.53E-03	1.11E-02
PM10	7.60	2.53E-03	1.11E-02
PM2.5	7.60	2.53E-03	1.11E-02
Lead	5.00E-04	1.67E-07	7.30E-07

Emission factors taken from AP-42, Tables 1.4-1 & 1.4-2
Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Equipment Leaks Emissions Calculations

Unit Number: F1
Description: Valves, Connectors, Seals & Open-Ended Lines

Steady-State Emission Rates

Equipment	Number of Components, # of sources	Emission Factors, kg/hr/source	Emission Factors, lb/hr/source	Uncontrolled TOC Emission Rates, pph	tpy
Valves	315	0.0045	0.0099	3.12	13.66
Connectors	263	0.0002	0.0004	0.12	0.51
Pump Seals	0	0.0024	0.0053	0.00	0.00
Compressor Seals	32	0.0088	0.0194	0.62	2.71
Pressure Relief Valves	19	0.0088	0.0194	0.37	1.61
Open-Ended Lines	88	0.0020	0.0044	0.39	1.70
Total				**4.61**	**20.19**

Number of components based on the numbers of compressors and dehydrators at the station (see next page)
Emission factors taken from the EPA "1995 Protocol for Equipment Leak Emission Estimates"
Emission factors (lb/hr/source) = Emission factors (kg/hr/source) x 2.2 lb/kg
Uncontrolled TOC Emission Rates (pph) = lb/hr/source x # of sources
Uncontrolled TOC Emission Rates (tpy) = Uncontrolled TOC Emission Rates (pph) x 8,760 hr/yr / 2,000 lb/ton

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of TOC, %	Uncontrolled Emission Rates, pph	tpy
Carbon dioxide	0.8696	44.010				
Hydrogen sulfide	0	34.070				
Nitrogen	0.447	28.013				
Methane	79.8665	16.043	1281.298	62.460		
Ethane	10.3308	30.070	310.647	15.143		
Propane	4.7293	44.097	208.548	10.166	4.69E-01	2.05E+00
Isobutane	0.8253	58.123	47.969	2.338	1.08E-01	4.72E-01
n-Butane	1.4011	58.123	81.436	3.970	1.83E-01	8.01E-01
Isopentane	0.5284	72.150	38.124	1.858	8.57E-02	3.75E-01
n-Pentane	0.3942	72.150	28.442	1.386	6.39E-02	2.80E-01
Cyclopentane	0	70.134	0.000	0.000	0.00E+00	0.00E+00
n-Hexane	0.1157	86.177	9.971	0.486	2.24E-02	9.81E-02
Cyclohexane	0.0545	84.161	4.587	0.224	1.03E-02	4.51E-02
Other hexanes	0.2265	86.177	19.519	0.952	4.39E-02	1.92E-01
Heptanes	0.0869	100.204	8.708	0.424	1.96E-02	8.57E-02
Methylcyclohexane	0.0539	98.188	5.292	0.258	1.19E-02	5.21E-02
2,2,4-Trimethylpentane	0.0082	114.231	0.937	0.046	2.10E-03	9.22E-03
Benzene	0.0189	78.114	1.476	0.072	3.32E-03	1.45E-02
Toluene	0.021	92.141	1.935	0.094	4.35E-03	1.90E-02
Ethylbenzene	0.0004	106.167	0.042	0.002	9.54E-05	4.18E-04
Xylenes	0.0034	106.167	0.361	0.018	8.11E-04	3.55E-03
C8+ Heavies	0.0184	114.231	2.102	0.102	4.72E-03	2.07E-02
Total	100.0000		2051.394			
Total VOC				22.397	1.03E+00	4.52E+00

Gas stream composition obtained from Los Mestenios extended gas analysis dated 5/8/13
Component Weights (lb/lb-mole) = (% / 100) * Molecular Weights (lb/lb-mole)
Weight Percent of TOC (%) = 100 x Component Weights (lb/lb-mole) / Total Component Weight (lb/lb-mole)
Uncontrolled Emission Rates (pph) = Total Uncontrolled TOC Emission Rate (pph) x (% / 100)
Uncontrolled Emission Rates (tpy) = Total Uncontrolled TOC Emission Rate (tpy) x (% / 100)

Equipment Leaks Emissions Calculations

Unit Number: F1
Description: Valves, Connectors, Seals & Lines

Number of Compression Units at the Facility: 2
Number of Dehydrators at the Facility: 0

Process Equipment Description	Equipment Count						Instrument Count		
	Valves	Connectors	Pump Seals	Compressor Seals	Pressure Relief Valves	Open-end	Flow	Level	Pressure
Station inlet, meter run to pulsation dampener	17	14	0	0	1	13	3	0	3
Pulsation dampener	12	8	0	0	0	2	0	4	1
Compressor suction header	7	4	0	0	0	3	0	0	1
Suction header feed to instrument gas header	3	1	0	0	0	1	0	0	0
Compressor discharge header and bypass to station discharge	6	5	0	0	0	3	0	1	1
Compressor discharge header and suction header bypass lines	4	2	0	0	0	2	0	0	1
Fuel gas header	2	2	0	0	1	2	0	0	1
Instrument gas header	2	2	0	0	1	2	0	0	0
Station discharge header	9	5	0	0	1	6	0	0	2
Fuel gas recovery header	2	2	0	0	1	2	0	0	0
Fuel gas feed and filter loop	15	9	0	0	0	1	0	4	1
Instrument gas feed and filter loop	9	11	0	0	0	3	0	0	0
Produced water storage tank	1	0	0	0	0	1	0	1	0
ESD panel	12	0	0	0	0	0	0	0	0
Starting gas header	6	2	0	0	1	3	0	0	0
Hot gas header	2	2	0	0	0	2	0	0	0
Volume bottle lop	12	4	0	24	1	2	0	0	1
Components from Compressors	88	118	0	8	12	22	0	8	18
Components from dehydrators	0	0	0	0	0	0	0	0	0
Total	209	191	0	32	19	70	3	18	30
Adjusted Total	315	263	0	32	19	88			

The following additions are included in the Adjusted Total:

1 valve is added for each open end line
2 connectors are added for each flow meter
2 valves, 2 connectors and 1 open end line are added for each level gauge
1 connector is added for each pressure gauge

The component count is based on an evaluation of the Sim Mesa Compressor Station (two stage compression)

Truck Loading Emissions Calculations

Unit Number: F2
Description: Truck Loading

Emission Factor

0.6		Saturation factor, S	AP-42, Table 5.2-1 (submerged loading & dedicated service)
2.28	psia	True vapor pressure of liquid, P	TANKS 4.0 output file
78.1	lb/lb-mole	Molecular weight of vapors, M	TANKS 4.0 output file
65	°F	Temperature of liquid	TANKS 4.0 output file
524.6	°R	Temperature of liquid, T	°F + 459.67
2.54	lb/10^3 gal	Emission factor, L	AP-42, Section 5.2, Equation 1 L =12.46 (SPM/T)

Production Rate

0.10	10^3 gal/hr	Maximum hourly production rate (= annual production rate / 8760 hrs/yr)	Williams Four Corners LLC
882.00	10^3 gal/yr	Maximum annual production rate (= 21,000 bbl/yr, which is approx. max historical throughput plus 10%)	Williams Four Corners LLC

Steady-State Emission Rates

Pollutant	Emission Rates, pph	Emission Rates, tpy
VOC	0.26	1.12

Emission Rate (pph) = lb/10^3 gal x 10^3 gal/hr
Emission Rate (tpy) = lb/10^3 gal x 10^3 gal/yr / 2,000 lb/ton

Pollutants	Percent of VOC, %	Emission Rates, pph	Emission Rates, tpy
Benzene	0.93	2.38E-03	1.04E-02
Ethylbenzene	0.42	1.07E-03	4.70E-03
n-Hexane	14.88	3.80E-02	1.67E-01
Toluene	4.19	1.07E-02	4.69E-02
m-Xylene	3.55	9.07E-03	3.97E-02

Liquid percent of VOC calculated from the TANKS 4.0 results
Percent of VOC (%) = 100 x Pollutant Emission Rate (lb/yr) / Total VOC Emission Rate (lb/yr)
Emission Rates (pph) = VOC Emission Rate (pph) x (% / 100)
Emission Rates (tpy) = VOC Emission Rate (tpy) x (% / 100)

Storage Tank Emissions Data and Calculations

Unit Number: T1 & T2
Description: Condensate Storage Tanks

Emission Rates

Source/Pollutants	Working/Breathing Losses, ppy	Working/Breathing Losses, tpy	Flash Losses, tpy	Uncontrolled Emission Rates, tpy	inc. 10% Safety Factor tpy
T1					
VOC	4,750.53	2.38	74.20	76.58	84.23
Benzene	32.51	1.63E-02	3.70E-01	3.86E-01	0.42
Ethylbenzene	1.41	7.05E-04	1.00E-02	1.07E-02	0.01
n-Hexane	845.15	4.23E-01	5.86E+00	6.28E+00	6.91
Toluene	42.10	2.11E-02	4.30E-01	4.51E-01	0.50
Xylene	9.96	4.98E-03	1.00E-01	1.05E-01	0.12
T2					
VOC	3,970.67	1.99	0.00	1.99	
Benzene	27.17	1.36E-02	0.00E+00	1.36E-02	
Ethylbenzene	1.18	5.90E-04	0.00E+00	5.90E-04	
n-Hexane	706.40	3.53E-01	0.00E+00	3.53E-01	
Toluene	35.19	1.76E-02	0.00E+00	1.76E-02	
Xylene	8.32	4.16E-03	0.00E+00	4.16E-03	
Combined Total					
VOC	8,721.20	4.36	74.20	78.56	
Benzene	59.68	2.98E-02	0.37	0.40	
Ethylbenzene	2.59	1.30E-03	0.01	0.01	
n-Hexane	1,551.55	7.76E-01	5.86	6.64	
Toluene	77.29	3.86E-02	0.43	0.47	
Xylene	18.28	9.14E-03	0.10	0.11	

Working/breathing losses taken from TANKS 4.0 results
Flash emissions taken from VMGSim results

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	Los Mestenios Tank T-1
City:	Bloomfield
State:	New Mexico
Company:	Williams
Type of Tank:	Vertical Fixed Roof Tank
Description:	490-bbl condensate tank W&B emissions for 21,000 bbl/yr

Tank Dimensions

Shell Height (ft):	15.55
Diameter (ft):	14.50
Liquid Height (ft) :	15.00
Avg. Liquid Height (ft):	8.00
Volume (gallons):	20,073.01
Turnovers:	43.94
Net Throughput(gal/yr):	882,007.95
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good
Roof Color/Shade:	Gray/Light
Roof Condition:	Good

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

Meterological Data used in Emissions Calculations: Albuquerque, New Mexico (Avg Atmospheric Pressure = 12.15 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Los Mestenios Tank T-1 - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
condensate	All	64.94	53.24	76.64	58.39	2.2765	1.7176	2.9703	78.0958			97.84	
2,2,4-Trimethylpentane (isooctane)						0.6857	0.4887	0.9450	114.2300	0.0159	0.0060	114.23	Option 2: A=6.8118, B=1257.84, C=220.74
Benzene						1.3372	0.9653	1.8208	78.1100	0.0093	0.0068	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Decane (-n)						0.0374	0.0286	0.0489	142.2900	0.0766	0.0016	142.29	Option 1: VP60 = .033211 VP70 = .041762
Ethylbenzene						0.1286	0.0854	0.1894	106.1700	0.0042	0.0003	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Heptane (-n)						0.7080	0.4981	0.9910	100.2000	0.3207	0.1250	100.20	Option 3: A=37358, B=8.2585
Hexane (-n)						2.1727	1.6003	2.9030	86.1700	0.1488	0.1779	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Isopentane						11.2522	8.5746	14.3915	72.1500	0.0421	0.2607	72.15	Option 1: VP60 = 10.005 VP70 = 12.53
Nonane (-n)						0.0741	0.0558	0.0981	128.2600	0.0697	0.0028	128.26	Option 1: VP60 = .065278 VP70 = .08309
Octane (-n)						0.1666	0.1231	0.2250	114.2300	0.1412	0.0129	114.23	Option 1: VP60 = .145444 VP70 = .188224
Pentane (-n)						7.6199	5.8716	9.7769	72.1500	0.0942	0.3950	72.15	Option 3: A=27691, B=7.558
Toluene						0.3844	0.2666	0.5435	92.1300	0.0419	0.0089	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1073	0.0710	0.1586	106.1700	0.0355	0.0021	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

Los Mestenios Tank T-1 - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Annual Emission Calcaulations

Standing Losses (lb):	1,579.2251
Vapor Space Volume (cu ft):	1,246.7312
Vapor Density (lb/cu ft):	0.0316
Vapor Space Expansion Factor:	0.2100
Vented Vapor Saturation Factor:	0.5233
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,246.7312
Tank Diameter (ft):	14.5000
Vapor Space Outage (ft):	7.5500
Tank Shell Height (ft):	15.5500
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	0.0000
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.0000
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0000
Shell Radius (ft):	7.2500
Vapor Density	
Vapor Density (lb/cu ft):	0.0316
Vapor Molecular Weight (lb/lb-mole):	78.0958
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.2765
Daily Avg. Liquid Surface Temp. (deg. R):	524.6094
Daily Average Ambient Temp. (deg. F):	56.1542
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	518.0642
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.2100
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	1.2527
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.2765
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	1.7176
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	2.9703
Daily Avg. Liquid Surface Temp. (deg R):	524.6094
Daily Min. Liquid Surface Temp. (deg R):	512.9100
Daily Max. Liquid Surface Temp. (deg R):	536.3088
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.5233
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	2.2765

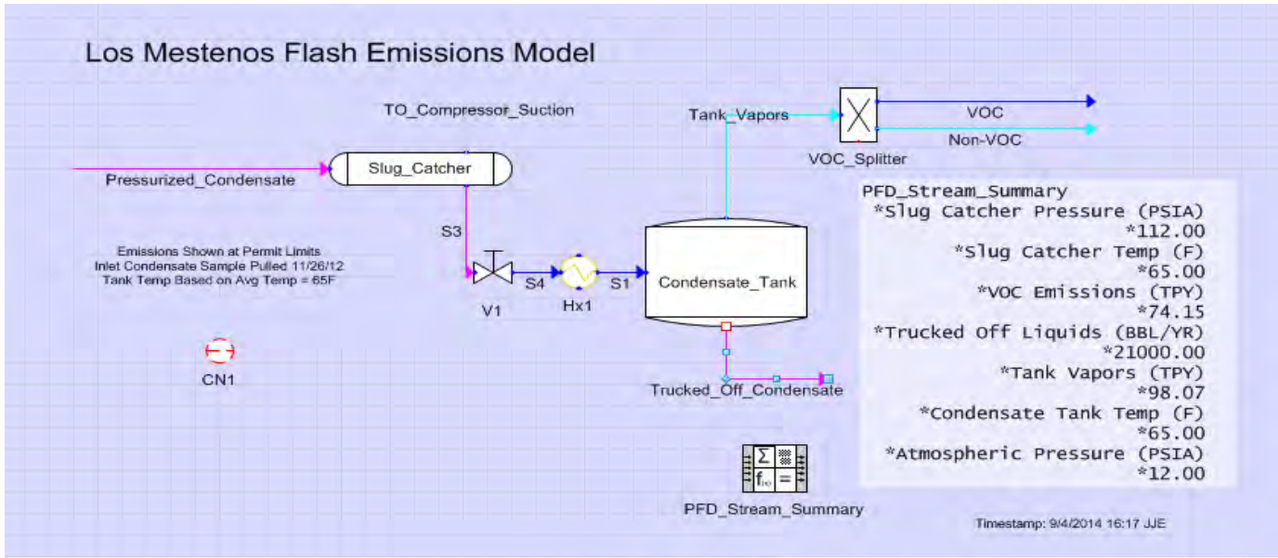
Vapor Space Outage (ft):	7.5500
Working Losses (lb):	3,171.3071
Vapor Molecular Weight (lb/lb-mole):	78.0958
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.2765
Annual Net Throughput (gal/yr.):	882,007.9507
Annual Turnovers:	43.9400
Turnover Factor:	0.8494
Maximum Liquid Volume (gal):	20,073.0075
Maximum Liquid Height (ft):	15.0000
Tank Diameter (ft):	14.5000
Working Loss Product Factor:	1.0000
Total Losses (lb):	4,750.5322

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Los Mestenios Tank T-1 - Vertical Fixed Roof Tank
Bloomfield, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
condensate	3,171.31	1,579.23	4,750.53
Pentane (-n)	1,252.66	623.79	1,876.45
Isopentane	826.71	411.68	1,238.39
Hexane (-n)	564.19	280.95	845.15
Heptane (-n)	396.26	197.33	593.59
Benzene	21.70	10.81	32.51
Toluene	28.10	14.00	42.10
Octane (-n)	41.05	20.44	61.49
Ethylbenzene	0.94	0.47	1.41
Xylene (-m)	6.65	3.31	9.96
Nonane (-n)	9.01	4.49	13.50
2,2,4-Trimethylpentane (isooctane)	19.03	9.47	28.50
Decane (-n)	5.00	2.49	7.50



VMGSim Model Results

Facility: **Los Mesteños Compressor**

2013 Condensate Volume (post-flash): 21,000 bbls/yr throughput limit

2013 VOC Emissions : 74.2 Tons/yr

Name	Pressurized Condensate (Pre Flash Condensate)	Flashed (Trucked Off) Condensate	Flash Gas from Tanks (Tank Vapors)	VOC from Tank (Emissions)
Vapor Fraction	0.0	0.0	1.0	1.0
Temperature [F]	65.0	65.0	65.0	65.0
Pressure [psia]	112.0	12.0	12.0	12.0
Molar Flow [MMSCFD]	6.042E-02	5.561E-02	4.795E-03	2.685E-03
Mass Flow [tons/yr*]	2642.6	2544.5	98.1	74.2
Liquid Volume Flow [barrels/Year*]	22,141.2	21000.0	1,141.2	739.1
Molecular Weight	90.95	95.14	42.42	57.44

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Name	Pre-flash Condensate	Flashed Condensate	Flash Gas from Tanks	Tons of VOC per Year (calculated)
Comp Mass Frac (CO2)	0.0006	0.0000	0.0068	na
Comp Mass Frac (Nitrogen)	0.0005	0.0000	0.0038	na
Comp Mass Frac (Methane)	0.0179	0.0002	0.0812	na
Comp Mass Frac (Ethane)	0.0228	0.0020	0.1521	na
Comp Mass Frac (Propane)	0.0442	0.0124	0.2543	24.94
Comp Mass Frac (i-Butane)	0.0200	0.0102	0.0802	7.87
Comp Mass Frac (n-Butane)	0.0544	0.0299	0.1596	15.65
Comp Mass Frac (n-Pentane)	0.0516	0.0395	0.0787	7.72
Comp Mass Frac (i-Pentane)	0.0542	0.0421	0.0652	6.39
Comp Mass Frac (n-Hexane)	0.1535	0.1488	0.0597	5.86
Comp Mass Frac (n-Heptane)	0.2817	0.3207	0.0401	3.93
Comp Mass Frac (n-Octane)	0.1084	0.1412	0.0056	0.55
Comp Mass Frac (n-Nonane)	0.0476	0.0697	0.0009	0.09
Comp Mass Frac (Benzene)	0.0106	0.0093	0.0037	0.37
Comp Mass Frac (Toluene)	0.0400	0.0419	0.0044	0.43
Comp Mass Frac (E-Benzene)	0.0035	0.0042	0.0001	0.01
Comp Mass Frac (Xylene)	0.0293	0.0355	0.0010	0.10
Comp Mass Frac (2,2,4-Trimethlpentane)	0.0122	0.0159	0.0023	0.2229
Comp Mass Frac (n-Decane)	0.0471	0.0766	0.0003	0.0304
TOTAL	1.0000	1.0000	1.0000	74.1503

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	Los Mestenios 400-bbl overflow condensate tank
City:	Bloomfield
State:	New Mexico
Company:	Williams
Type of Tank:	Vertical Fixed Roof Tank
Description:	400-bbl overflow condensate tank W&B emissions for 21,000 bbl/yr

Tank Dimensions

Shell Height (ft):	13.00
Diameter (ft):	15.00
Liquid Height (ft) :	12.00
Avg. Liquid Height (ft):	8.00
Volume (gallons):	15,863.06
Turnovers:	55.60
Net Throughput(gal/yr):	881,985.88
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good
Roof Color/Shade:	Gray/Light
Roof Condition:	Good

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

Meterological Data used in Emissions Calculations: Albuquerque, New Mexico (Avg Atmospheric Pressure = 12.15 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Los Mestenios 400-bbl overflow condensate tank - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
condensate	All	64.94	53.24	76.64	58.39	2.2765	1.7176	2.9703	78.0958			97.84	
2,2,4-Trimethylpentane (isooctane)						0.6857	0.4887	0.9450	114.2300	0.0159	0.0060	114.23	Option 2: A=6.8118, B=1257.84, C=220.74
Benzene						1.3372	0.9653	1.8208	78.1100	0.0093	0.0068	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Decane (-n)						0.0374	0.0286	0.0489	142.2900	0.0766	0.0016	142.29	Option 1: VP60 = .033211 VP70 = .041762
Ethylbenzene						0.1286	0.0854	0.1894	106.1700	0.0042	0.0003	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Heptane (-n)						0.7080	0.4981	0.9910	100.2000	0.3207	0.1250	100.20	Option 3: A=37358, B=8.2585
Hexane (-n)						2.1727	1.6003	2.9030	86.1700	0.1488	0.1779	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Isopentane						11.2522	8.5746	14.3915	72.1500	0.0421	0.2607	72.15	Option 1: VP60 = 10.005 VP70 = 12.53
Nonane (-n)						0.0741	0.0558	0.0981	128.2600	0.0697	0.0028	128.26	Option 1: VP60 = .065278 VP70 = .08309
Octane (-n)						0.1666	0.1231	0.2250	114.2300	0.1412	0.0129	114.23	Option 1: VP60 = .145444 VP70 = .188224
Pentane (-n)						7.6199	5.8716	9.7769	72.1500	0.0942	0.3950	72.15	Option 3: A=27691, B=7.558
Toluene						0.3844	0.2666	0.5435	92.1300	0.0419	0.0089	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1073	0.0710	0.1586	106.1700	0.0355	0.0021	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

Los Mestenios 400-bbl overflow condensate tank - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Annual Emission Calcaulations

Standing Losses (lb):	1,333.9931
Vapor Space Volume (cu ft):	883.5729
Vapor Density (lb/cu ft):	0.0316
Vapor Space Expansion Factor:	0.2100
Vented Vapor Saturation Factor:	0.6237
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	883.5729
Tank Diameter (ft):	15.0000
Vapor Space Outage (ft):	5.0000
Tank Shell Height (ft):	13.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	0.0000
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.0000
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0000
Shell Radius (ft):	7.5000
Vapor Density	
Vapor Density (lb/cu ft):	0.0316
Vapor Molecular Weight (lb/lb-mole):	78.0958
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.2765
Daily Avg. Liquid Surface Temp. (deg. R):	524.6094
Daily Average Ambient Temp. (deg. F):	56.1542
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	518.0642
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.2100
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	1.2527
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.2765
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	1.7176
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	2.9703
Daily Avg. Liquid Surface Temp. (deg R):	524.6094
Daily Min. Liquid Surface Temp. (deg R):	512.9100
Daily Max. Liquid Surface Temp. (deg R):	536.3088
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.6237
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	2.2765

Vapor Space Outage (ft):	5.0000
Working Losses (lb):	2,636.6732
Vapor Molecular Weight (lb/lb-mole):	78.0958
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.2765
Annual Net Throughput (gal/yr.):	881,985.8820
Annual Turnovers:	55.6000
Turnover Factor:	0.7062
Maximum Liquid Volume (gal):	15,863.0554
Maximum Liquid Height (ft):	12.0000
Tank Diameter (ft):	15.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	3,970.6663

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Los Mestenios 400-bbl overflow condensate tank - Vertical Fixed Roof Tank
Bloomfield, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
condensate	2,636.67	1,333.99	3,970.67
Pentane (-n)	1,041.48	526.92	1,568.40
Isopentane	687.34	347.75	1,035.09
Hexane (-n)	469.08	237.32	706.40
Heptane (-n)	329.46	166.68	496.14
Benzene	18.04	9.13	27.17
Toluene	23.37	11.82	35.19
Octane (-n)	34.13	17.27	51.39
Ethylbenzene	0.78	0.40	1.18
Xylene (-m)	5.53	2.80	8.32
Nonane (-n)	7.49	3.79	11.28
2,2,4-Trimethylpentane (isooctane)	15.82	8.00	23.82
Decane (-n)	4.16	2.11	6.27

Storage Tank Emissions Calculations

Unit Number: IEU - Tank T-3
Description: 70-bbl Open-Topped Produced Water Tank

Note: The data on this worksheet applies to each individual emissions unit identified above.

Throughput

2,940	gal/turnover	Tank capacity	Williams Four Corners LLC
12	turnover/yr	Turnovers per year	Williams Four Corners LLC
35,280	gal/yr	Annual liquid throughput	gal/turnover x turnover/yr

Composition

1.00	%	Weight percent hydrocarbon in produced water	Estimate
6.00	lb/gal	Density of hydrocarbon	Estimate

Emission Rates

Pollutant	Uncontrolled, Emission Rate, tpy
VOC	1.06

It is estimated the hydrocarbon portion of the produced water is 100% VOC
It is estimated 100% of the hydrocarbon is emitted to the atmosphere
Uncontrolled Emission Rate (tpy) = gal/yr x (% / 100) x Density (lb/gal) / 2,000 lb/ton
Uncontrolled Emission Rate (tpy) = gal/yr x Total Liquid Density (lb/gal) x (% / 100) / 2,000 lb/ton

Pollutants	Weight Percents, %	Uncontrolled, Emission Rates, tpy
Benzene	0.62	6.56E-03
Ethylbenzene	1.00	1.06E-02
n-Hexane	42.18	4.46E-01
Toluene	0.66	6.99E-03
Xylenes	0.25	2.65E-03

Weight percents are taken from the GRI-HAPCalc speciation for natural gasoline liquids
Uncontrolled Emission Rates (tpy) = Uncontrolled VOC Emission Rate (tpy) x (% / 100)

Green House Gas Emissions Data and Calculations

Sources	Facility Total Emissions				
	CO2, tpy	CH4, tpy	N2O, tpy	GHG, tpy	CO2e, tpy
Engine & Turbine Exhaust Emissions	10,078.02	1.90E-01	1.90E-02	10,078.23	10088.43
SSM Emissions	1.24	41.58	--	42.82	1040.73
Reciprocating Compressor Venting Emissions	1.80	60.41	--	62.21	1512.13
Centrifugal Compressor Venting Emissions	6.76	226.55	--	233.31	5670.47
Heater & Boiler Exhaust Emissions	284.05	5.35E-03	5.35E-04	284.05	284.34
Equipment Leak Emissions	0.22	7.25	--	7.47	181.53
Total	10,372.08	335.99	1.95E-02	10,708.09	18,777.63

Engine & Turbine Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	CH4, kg/MMBtu	N2O, kg/MMBtu	CO2, tpy	CH4, tpy	N2O, tpy
1	Turbine - Solar Saturn T1200	53.06	1.00E-03	1.00E-04	6,158.16	1.16E-01	1.16E-02
2	Engine - Caterpillar G399TA	53.06	1.00E-03	1.00E-04	3,919.86	7.39E-02	7.39E-03
	Total				10,078.02	1.90E-01	1.90E-02

The emissions factors are taken from 40 CFR 98, Subpart C, Tables C-1 & C-2
Emission Rates (tpy) = kg/MMBtu x 2.2 lb/kg x MMBtu/yr / 2,000 lb/ton

Unit Numbers	Description	Fuel Types	Operating Times, hr/yr	LHV Design Heat Rates, MMBtu/hr	HHV	
					Design Heat Rates, MMBtu/hr	Fuel Usages, MMBtu/yr
1	Turbine - Solar Saturn T1200	Nat. Gas	8,760	10.84	12.04	105,509
2	Engine - Caterpillar G399TA	Nat. Gas	8,760	6.90	7.67	67,160

The fuel types and operating times are provided by Williams
The LHV design heat rates are taken from manufacturers data
HHV Design Heat Rates (MMBtu/hr) = LHV Design Heat Rates (MMBtu/hr) / 0.9 LHV/HHV
HHV Fuel Usages (MMBtu/yr) = HHV Design Heat Rates (MMBtu/hr) x hr/yr

SSM Emissions

Unit Numbers	Description	Total Gas Losses, scf/yr	CO2 Emission Factors, lb/scf	CH4 Emission Factors, lb/scf	Emission Rates	
					CO2, tpy	CH4, tpy
SSM	SSM	2,462,200	0.0010	0.0338	1.24	41.58

The annual blowdown volumes are calculated from data provided by Williams
The CO2 and CH4 emission factors are calculated from the facility extended gas analysis
Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton

Reciprocating Compressor Venting Emissions

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
NA	Blowdown Valve Leakage	0.00	0.00
NA	Rod Packing Emissions	0.00	0.00
NA	Isolation Valve Leakage	1.80	60.41
	Total	1.80	60.41

Operating or standby mode - includes blowdown valve leakage through blowdown vent stack
Operating mode - includes rod packing emissions
Non-operating depressurized mode - includes isolation valve leakage through open blowdown vents (without blind flanges)
Rod packing gas emissions assume 4 cylinders per compressor
A combination of equations W-26 & W-36 (Subpart W) is used to calculate reciprocating compressor emissions
As the NMED requires CO2 & CH4 emissions rather than CO2e emissions, it is not necessary to include the global warming potential from equation W-36
CO2 Emission Rates (tpy) = # x scf/hr x hr/yr x (CO2 Mole Percent (%) / 100) x CO2 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne
CH4 Emission Rates (tpy) = # x scf/hr x hr/yr x (CH4 Mole Percent (%) / 100) x CH4 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

Green House Gas Emissions Data and Calculations

Unit Numbers	Description	Number of Compressors #	Gas Emissions, scf/hr	Operating Times, hr/yr	CO2 Mole Percents, %	CH4 Mole Percents, %	CO2 Density, kg/scf	CH4 Density, kg/scf
NA	Blowdown Valve Leakage	1	30	0	0.87	79.87	0.0526	0.0192
NA	Rod Packing Emissions	1	360	0	0.87	79.87	0.0526	0.0192
NA	Isolation Valve Leakage	1	408	8,760	0.87	79.87	0.0526	0.0192

The number of compressors are provided by Williams
The gas emissions are BAMM
The operating times (the average operating times for all station compressors combined) are provided by Williams
The facility CO2 and CH4 contents are taken from the facility extended gas analysis
The CO2 & CH4 densities (kg/scf) are taken from Subpart W, Paragraph 98.233(v)

Centrifugal Compressor Venting Emissions

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
NA	Blowdown Valve Leakage	0.13	4.44
NA	Oil Degassing Vents	6.63	222.11
NA	Isolation Valve Leakage	0.00	0.00
	Total	6.76	226.55

Operating mode - includes blowdown valve leakage (wet and dry seal) and the oil degassing vents (wet seal)
Non-operating depressurized mode - includes isolation valve leakage (wet & dry seal) through open blowdown vents (without blind flanges)
A combination of equations W-22 & W-36 (Subpart W) is used to calculate centrifugal compressor emissions
As the NMED requires CO2 & CH4 emissions rather than CO2e emissions, it is not necessary to include the global warming potential from equation W-36
CO2 Emission Rates (tpy) = # x scf/hr x hr/yr x (CO2 Mole Percent (%) / 100) x CO2 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne
CH4 Emission Rates (tpy) = # x scf/hr x hr/yr x (CH4 Mole Percent (%) / 100) x CH4 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

Unit Numbers	Description	Number of Compressors #	Gas Emissions, scf/hr	Operating Times, hr/yr	CO2 Mole Percents, %	CH4 Mole Percents, %	CO2 Density, kg/scf	CH4 Density, kg/scf
NA	Blowdown Valve Leakage	1	30	8,760	0.87	79.87	0.0526	0.0192
NA	Oil Degassing Vents	1	1500	8,760	0.87	79.87	0.0526	0.0192
NA	Isolation Valve Leakage	1	408	0	0.87	79.87	0.0526	0.0192

The number of compressors are provided by Williams
The gas emissions are BAMM
The operating times (the average operating times for all station compressors combined) is provided by Williams
The facility CO2 and CH4 contents are taken from the facility extended gas analysis
The CO2 & CH4 densities (kg/scf) are taken from Subpart W, Paragraph 98.233(v)

Heater & Boiler Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	CH4, kg/MMBtu	N2O, kg/MMBtu	CO2, tpy	CH4, tpy	N2O, tpy
NA	Heater	53.06	1.00E-03	1.00E-04	142.02	2.68E-03	2.68E-04
NA	Heater	53.06	1.00E-03	1.00E-04	142.02	2.68E-03	2.68E-04
	Total				284.05	5.35E-03	5.35E-04

The emissions factors are taken from 40 CFR 98, Subpart C, Tables C-1 & C-2
Emission Rates (tpy) = kg/MMBtu x 2.2 lb/kg x MMBtu/yr / 2,000 lb/ton

Unit Numbers	Description	Fuel Types	Operating Times, hr/yr	LHV Design Heat Rates, MMBtu/hr	HHV	
					Design Heat Rates, MMBtu/hr	Fuel Usages, MMBtu/yr
NA	Heater	Nat. Gas	8,760	0.250	0.278	2,433
NA	Heater	Nat. Gas	8,760	0.250	0.278	2,433

The fuel type and operating time are provided by Williams
The LHV design heat rates are taken from manufacturers data
HHV Design Heat Rates (MMBtu/hr) = LHV Design Heat Rate (MMBtu/hr) / 0.9 LHV/HHV
HHV Fuel Usages (MMBtu/yr) = HHV Design Heat Rate (MMBtu/hr) x hr/yr

Green House Gas Emissions Data and Calculations

Equipment Leaks Emissions

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
NA	Valves	0.2	5.6
NA	Connectors	0.0	0.7
NA	Open-Ended Lines	0.0	0.4
NA	Pressure Relief Valves	0.0	0.5
	Total	0.2	7.3

A combination of equations W-31 & W-36 (Subpart W) is used to calculate uncombusted CO2 & CH4 emissions
As the NMED requires CO2 & CH4 emissions rather than CO2e emissions, it is not necessary to include the global warming potential from equation W-36
CO2 Emission Rate (tpy) = # x scf/hr/component x (CO2 Content (mole %) / 100) x hr/yr x CO2 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne
CH4 Emission Rate (tpy) = # x scf/hr/component x (CH4 Content (mole %) / 100) x hr/yr x CH4 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

Unit Numbers	Description	Number of Components, #	Emission Factors, scf/hr /component	CO2 Contents, mole %	CH4 Contents, mole %	Operating Times, hr/yr	CO2 Density, kg/scf	CH4 Density, kg/scf
NA	Valves	315	0.121	0.87	79.87	8,760	0.0526	0.0192
NA	Connectors	263	0.017	0.87	79.87	8,760	0.0526	0.0192
NA	Open-Ended Lines	88	0.031	0.87	79.87	8,760	0.0526	0.0192
NA	Pressure Relief Valves	19	0.193	0.87	79.87	8,760	0.0526	0.0192

The number of sources are calculated based on the number of compressors and dehydrators at the station (see criteria pollutant and HAP equipment leaks calculations)
The emission factors are taken from Subpart W, Table W-1A (Western U.S. - Gas Service)
The facility CO2 and CH4 contents are taken from the facility extended gas analysis
The operating times are provided by Williams (default is the entire year)
The CO2 & CH4 densities are taken from Subpart W, Paragraph 98.233(v)

Gas Stream Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of Total, %	Emission Factors, lb/scf
Carbon Dioxide	0.8696	44.01	0.38	1.8209	0.0010
Hydrogen Sulfide	0	34.07	0.00	0.0000	0.0000
Nitrogen	0.447	28.01	0.13	0.5957	0.0003
Methane	79.8665	16.04	12.81	60.9531	0.0338
Ethane	10.3308	30.07	3.11	14.7807	0.0082
Propane	4.7293	44.09	2.09	9.9212	0.0055
IsoButane	0.8253	58.12	0.48	2.2823	0.0013
Normal Butane	1.4011	58.12	0.81	3.8746	0.0021
IsoPentane	0.5284	72.15	0.38	1.8140	0.0010
Normal Pentane	0.3942	72.15	0.28	1.3533	0.0007
Cyclopentane	0	70.14	0.00	0.0000	0.0000
n-Hexane	0.1157	86.17	0.10	0.4744	0.0003
Cyclohexane	0.0545	84.16	0.05	0.2182	0.0001
Other Hexanes	0.2265	86.18	0.20	0.9288	0.0005
Heptanes	0.0869	100.20	0.09	0.4143	0.0002
Methylcyclohexane	0.0539	98.19	0.05	0.2518	0.0001
2,2,4-Trimethylpentane	0.0082	100.21	0.01	0.0391	0.0000
Benzene	0.0189	78.11	0.01	0.0702	0.0000
Toluene	0.021	92.14	0.02	0.0921	0.0001
Ethylbenzene	0.0004	106.17	0.00	0.0020	0.0000
Xylenes	0.0034	106.17	0.00	0.0172	0.0000
C8+ heavies	0.0184	110.00	0.02	0.0963	0.0001
Total	100.0000		21.02	100.0000	0.0554
VOC			4.59	--	0.0121

Gas stream composition obtained from Los Mestenios extended gas analysis dated 5/8/13
Component Weights (lb/lb-mole) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole)
Weight Percent of Total (%) = 100 x Component Weights (lb/lb-mole) / Total Component Weight (lb/lb-mole)
Emission Factors (lb/scf) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole) / 379.3 scf/lb-mole

Section 4

Information Used To Determine Emissions

Table 3.1-2a. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM STATIONARY GAS TURBINES

Emission Factors[a] - Uncontrolled				
Pollutant	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 $lb/10^6$scf. 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.

Table 3.2-3. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE RICH-BURN ENGINES[a]
(SCC 2-02-002-53)

Pollutant	Emission Factor (lb/MMBtu)[b] (fuel input)	Emission Factor Rating
Criteria Pollutants and Greenhouse Gases		
NO_x[c] 90 - 105% Load	2.21 E+00	A
NO_x[c] <90% Load	2.27 E+00	C
CO[c] 90 - 105% Load	3.72 E+00	A
CO[c] <90% Load	3.51 E+00	C
CO_2[d]	1.10 E+02	A
SO_2[e]	5.88 E-04	A
TOC[f]	3.58 E-01	C
Methane[g]	2.30 E-01	C
VOC[h]	2.96 E-02	C
PM10 (filterable)[i,j]	9.50 E-03	E
PM2.5 (filterable)[j]	9.50 E-03	E
PM Condensable[k]	9.91 E-03	E
Trace Organic Compounds		
1,1,2,2-Tetrachloroethane[l]	2.53 E-05	C
1,1,2-Trichloroethane[l]	<1.53 E-05	E
1,1-Dichloroethane	<1.13 E-05	E
1,2-Dichloroethane	<1.13 E-05	E
1,2-Dichloropropane	<1.30 E-05	E
1,3-Butadiene[l]	6.63 E-04	D
1,3-Dichloropropene[l]	<1.27 E-05	E
Acetaldehyde[l,m]	2.79 E-03	C
Acrolein[l,m]	2.63 E-03	C
Benzene[l]	1.58 E-03	B
Butyr/isobutyraldehyde	4.86 E-05	D
Carbon Tetrachloride[l]	<1.77 E-05	E

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 $1b/10^6$ 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 1b/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. $CO_2[lb/10^6 \text{ scf}] = (3.67)(CON)(C)(D)$, where CON = fractional conversion of fuel carbon to CO_2, C = carbon content of fuel by weight (0.76), and D = density of fuel, 4.2×10^4 $lb/10^6$ 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.

loading operation, resulting in high levels of vapor generation and loss. If the turbulence is great enough, liquid droplets will be entrained in the vented vapors.

A second method of loading is submerged loading. Two types are the submerged fill pipe method and the bottom loading method. In the submerged fill pipe method, the fill pipe extends almost to the bottom of the cargo tank. In the bottom loading method, a permanent fill pipe is attached to the cargo tank bottom. During most of submerged loading by both methods, the fill pipe opening is below the liquid surface level. Liquid turbulence is controlled significantly during submerged loading, resulting in much lower vapor generation than encountered during splash loading.

The recent loading history of a cargo carrier is just as important a factor in loading losses as the method of loading. If the carrier has carried a nonvolatile liquid such as fuel oil, or has just been cleaned, it will contain vapor-free air. If it has just carried gasoline and has not been vented, the air in the carrier tank will contain volatile organic vapors, which will be expelled during the loading operation along with newly generated vapors.

Cargo carriers are sometimes designated to transport only one product, and in such cases are practicing "dedicated service". Dedicated gasoline cargo tanks return to a loading terminal containing air fully or partially saturated with vapor from the previous load. Cargo tanks may also be "switch loaded" with various products, so that a nonvolatile product being loaded may expel the vapors remaining from a previous load of a volatile product such as gasoline. These circumstances vary with the type of cargo tank and with the ownership of the carrier, the petroleum liquids being transported, geographic location, and season of the year.

One control measure for vapors displaced during liquid loading is called "vapor balance service", in which the cargo tank retrieves the vapors displaced during product unloading at bulk plants or service stations and transports the vapors back to the loading terminal. Figure 5.2-5 shows a tank truck in vapor balance service filling a service station underground tank and taking on displaced gasoline vapors for return to the terminal. A cargo tank returning to a bulk terminal in vapor balance service normally is saturated with organic vapors, and the presence of these vapors at the start of submerged loading of the tanker truck results in greater loading losses than encountered during nonvapor balance, or "normal", service. Vapor balance service is usually not practiced with marine vessels, although some vessels practice emission control by means of vapor transfer within their own cargo tanks during ballasting operations, discussed below.

Emissions from loading petroleum liquid can be estimated (with a probable error of ±30 percent)[4] using the following expression:

$$L_L = 12.46 \frac{SPM}{T} \quad (1)$$

where:

L_L = loading loss, pounds per 1000 gallons ($lb/10^3$ gal) of liquid loaded

S = a saturation factor (see Table 5.2-1)
P = true vapor pressure of liquid loaded, pounds per square inch absolute (psia) (see Figure 7.1-5, Figure 7.1-6, and Table 7.1-2)
M = molecular weight of vapors, pounds per pound-mole (lb/lb-mole) (see Table 7.1-2)
T = temperature of bulk liquid loaded, °R (°F + 460)

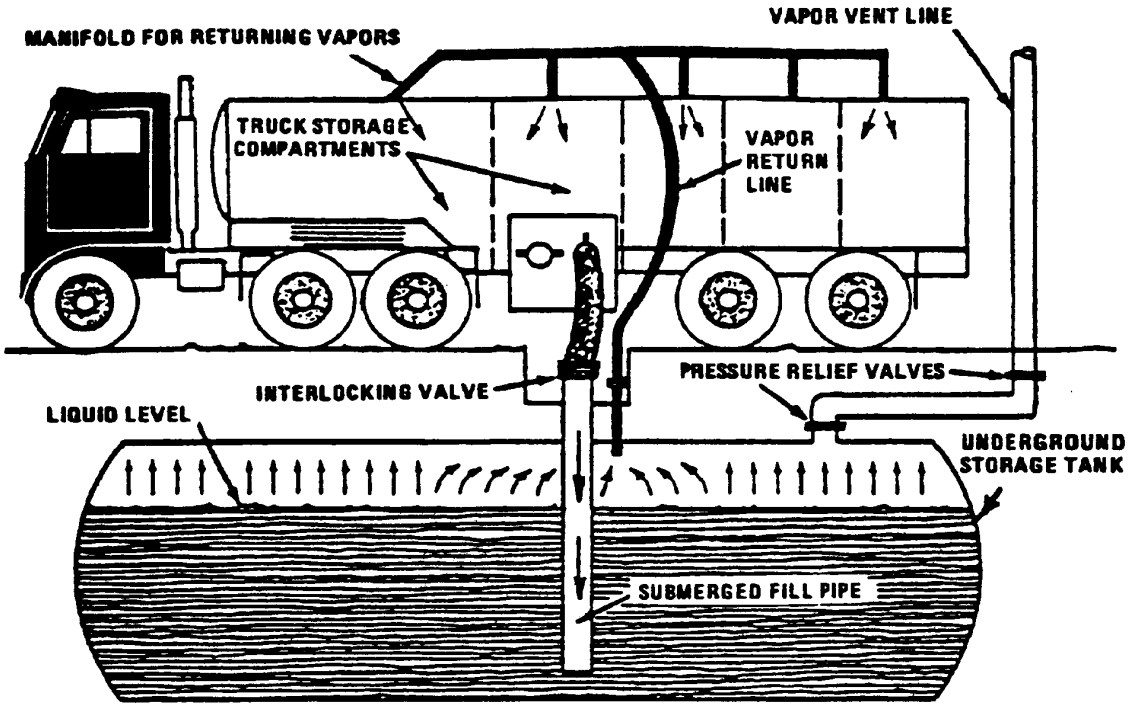

Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

Table 5.2-1. SATURATION (S) FACTORS FOR CALCULATING PETROLEUM LIQUID LOADING LOSSES

Cargo Carrier	Mode Of Operation	S Factor
Tank trucks and rail tank cars	Submerged loading of a clean cargo tank	0.50
	Submerged loading: dedicated normal service	0.60
	Submerged loading: dedicated vapor balance service	1.00
	Splash loading of a clean cargo tank	1.45
	Splash loading: dedicated normal service	1.45
	Splash loading: dedicated vapor balance service	1.00
Marine vessels[a]	Submerged loading: ships	0.2
	Submerged loading: barges	0.5

[a] For products other than gasoline and crude oil. For marine loading of gasoline, use factors from Table 5.2-2. For marine loading of crude oil, use Equations 2 and 3 and Table 5.2-3.

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.

Table A-1 to Subpart A of Part 98—Global Warming Potentials

GLOBAL WARMING POTENTIALS

[100-Year Time Horizon]

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
Carbon dioxide	124-38-9	CO_2	1
Methane	74-82-8	CH_4	[a]25
Nitrous oxide	10024-97-2	N_2O	[a]298
HFC-23	75-46-7	CHF_3	[a]14,800
HFC-32	75-10-5	CH_2F_2	[a]675
HFC-41	593-53-3	CH_3F	[a]92
HFC-125	354-33-6	C_2HF_5	[a]3,500
HFC-134	359-35-3	$C_2H_2F_4$	[a]1,100
HFC-134a	811-97-2	CH_2FCF_3	[a]1,430
HFC-143	430-66-0	$C_2H_3F_3$	[a]353
HFC-143a	420-46-2	$C_2H_3F_3$	[a]4,470
HFC-152	624-72-6	CH_2FCH_2F	53
HFC-152a	75-37-6	CH_3CHF_2	[a]124
HFC-161	353-36-6	CH_3CH_2F	12
HFC-227ea	431-89-0	C_3HF_7	[a]3,220
HFC-236cb	677-56-5	$CH_2FCF_2CF_3$	1,340
HFC-236ea	431-63-0	CHF_2CHFCF_3	1,370
HFC-236fa	690-39-1	$C_3H_2F_6$	[a]9,810
HFC-245ca	679-86-7	$C_3H_3F_5$	[a]693
HFC-245fa	460-73-1	$CHF_2CH_2CF_3$	1,030
HFC-365mfc	406-58-6	$CH_3CF_2CH_2CF_3$	794
HFC-43-10mee	138495-42-8	$CF_3CFHCFHCF_2CF_3$	[a]1,640
Sulfur hexafluoride	2551-62-4	SF_6	[a]22,800
Trifluoromethyl sulphur pentafluoride	373-80-8	SF_5CF_3	17,700
Nitrogen trifluoride	7783-54-2	NF_3	17,200
PFC-14 (Perfluoromethane)	75-73-0	CF_4	[a]7,390
PFC-116 (Perfluoroethane)	76-16-4	C_2F_6	[a]12,200
PFC-218 (Perfluoropropane)	76-19-7	C_3F_8	[a]8,830
Perfluorocyclopropane	931-91-9	$C\text{-}C_3F_6$	17,340
PFC-3-1-10 (Perfluorobutane)	355-25-9	C_4F_{10}	[a]8,860
PFC-318 (Perfluorocyclobutane)	115-25-3	$C\text{-}C_4F_8$	[a]10,300
PFC-4-1-12 (Perfluoropentane)	678-26-2	C_5F_{12}	[a]9,160
PFC-5-1-14 (Perfluorohexane, FC-72)	355-42-0	C_6F_{14}	[a]9,300
PFC-9-1-18	306-94-5	$C_{10}F_{18}$	7,500
HCFE-235da2 (Isoflurane)	26675-46-7	$CHF_2OCHClCF_3$	350
HFE-43-10pccc (H-Galden 1040x, HG-11)	E1730133	$CHF_2OCF_2OC_2F_4OCHF_2$	1,870

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A		Description:	Los Mestenios CS Suction
Analysis Date/Time:	5/8/2013	2:51 PM	Field:	Jicsrilla Dist
Analyst Initials:	PRP		ML#:	Williams
Instrument ID:	Instrument 1		GC Method:	Quesbtex
Data File:	QPC64.D			
Date Sampled:	N/A			

Component	Mol%	Wt%	LV%
Methane	79.8665	60.9510	70.8578
Ethane	10.3308	14.7773	14.5005
Propane	4.7293	9.9205	6.8250
Isobutane	0.8253	2.2819	1.4140
n-Butane	1.4011	3.8737	2.3134
Neopentane	0.0126	0.0434	0.0254
Isopentane	0.5158	1.7703	0.9888
n-Pentane	0.3942	1.3530	0.7478
2,2-Dimethylbutane	0.0114	0.0467	0.0249
2,3-Dimethylbutane	0.0404	0.1658	0.0868
2-Methylpentane	0.1078	0.4417	0.2342
3-Methylpentane	0.0669	0.2741	0.1429
n-Hexane	0.1157	0.4743	0.2491
Heptanes	0.2434	1.0896	0.5005
Octanes	0.0155	0.0832	0.0397
Nonanes	0.0067	0.0374	0.0164
Decanes plus	0.0000	0.0000	0.0000
Nitrogen	0.4470	0.5956	0.2566
Carbon Dioxide	0.8696	1.8205	0.7762
Oxygen	0.0000	0.0000	0.0000
Hydrogen Sulfide	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties		Units
Gross BTU/Real CF	1255.1	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	1234.6	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9964	
Specific Gravity	0.7278	air=1
Avg Molecular Weight	21.022	gm/mole
Propane GPM	1.296125	gal/MCF
Butane GPM	0.709964	gal/MCF
Gasoline GPM	0.568119	gal/MCF
26# Gasoline GPM	1.009039	gal/MCF
Total GPM	5.539734	gal/MCF
Base Mol%	99.880	%v/v
Sample Temperature:	54	°F
Sample Pressure:	94	psig
H2SLength of Stain Tube	N/A	ppm

Component	Mol%	Wt%	LV%

Benzene	0.0189	0.0702	0.0277
Toluene	0.0210	0.0919	0.0367
Ethylbenzene	0.0004	0.0023	0.0009
M&P Xylene	0.0029	0.0149	0.0060
O-Xylene	0.0005	0.0025	0.0010
2,2,4-Trimethylpentane	0.0082	0.0443	0.0215
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0545	0.2181	0.0971
Methylcyclohexane	0.0539	0.2516	0.1134
Description:	Los Mestenios CS Suction		

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	0.8696	1.8205	0.7762
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	0.4470	0.5956	0.2566
Methane	79.8665	60.9510	70.8578
Ethane	10.3308	14.7773	14.5005
Propane	4.7293	9.9205	6.8250
Isobutane	0.8253	2.2819	1.4140
n-Butane	1.4011	3.8737	2.3134
Isopentane	0.5284	1.8137	1.0142
n-Pentane	0.3942	1.3530	0.7478
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.1157	0.4743	0.2491
Cyclohexane	0.0545	0.2181	0.0971
Other Hexanes	0.2265	0.9283	0.4888
Heptanes	0.0869	0.4135	0.2041
Methylcyclohexane	0.0539	0.2516	0.1134
2,2,4 Trimethylpentane	0.0082	0.0443	0.0215
Benzene	0.0189	0.0702	0.0277
Toluene	0.0210	0.0919	0.0367
Ethylbenzene	0.0004	0.0023	0.0009
Xylenes	0.0034	0.0174	0.0070
C8+ Heavies	0.0184	0.1009	0.0482
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

HFE-125	3822-68-2	CHF_2OCF_3	14,900
HFE-134 (HG-00)	1691-17-4	CHF_2OCHF_2	6,320
HFE-143a	421-14-7	CH_3OCF_3	756
HFE-227ea	2356-62-9	$CF_3CHFOCF_3$	1,540
HFE-236ca12 (HG-10)	78522-47-1	$CHF_2OCF_2OCHF_2$	2,800
HFE-236ea2 (Desflurane)	57041-67-5	$CHF_2OCHFCF_3$	989
HFE-236fa	20193-67-3	$CF_3CH_2OCF_3$	487
HFE-245cb2	22410-44-2	$CH_3OCF_2CF_3$	708
HFE-245fa1	84011-15-4	$CHF_2CH_2OCF_3$	286
HFE-245fa2	1885-48-9	$CHF_2OCH_2CF_3$	659
HFE-254cb2	425-88-7	$CH_3OCF_2CHF_2$	359
HFE-263fb2	460-43-5	$CF_3CH_2OCH_3$	11
HFE-329mcc2	134769-21-4	$CF_3CF_2OCF_2CHF_2$	919
HFE-338mcf2	156053-88-2	$CF_3CF_2OCH_2CF_3$	552
HFE-338pcc13 (HG-01)	188690-78-0	$CHF_2OCF_2CF_2OCHF_2$	1,500
HFE-347mcc3 (HFE-7000)	375-03-1	$CH_3OCF_2CF_2CF_3$	575
HFE-347mcf2	171182-95-9	$CF_3CF_2OCH_2CHF_2$	374
HFE-347pcf2	406-78-0	$CHF_2CF_2OCH_2CF_3$	580
HFE-356mec3	382-34-3	$CH_3OCF_2CHFCF_3$	101
HFE-356pcc3	160620-20-2	$CH_3OCF_2CF_2CHF_2$	110
HFE-356pcf2	50807-77-7	$CHF_2CH_2OCF_2CHF_2$	265
HFE-356pcf3	35042-99-0	$CHF_2OCH_2CF_2CHF_2$	502
HFE-365mcf3	378-16-5	$CF_3CF_2CH_2OCH_3$	11
HFE-374pc2	512-51-6	$CH_3CH_2OCF_2CHF_2$	557
HFE-449s1 (HFE-7100)	163702-07-6	$C_4F_9OCH_3$	297
Chemical blend	163702-08-7	$(CF_3)_2CFCF_2OCH_3$	
HFE-569sf2 (HFE-7200)	163702-05-4	$C_4F_9OC_2H_5$	59
Chemical blend	163702-06-5	$(CF_3)_2CFCF_2OC_2H_5$	
Sevoflurane (HFE-347mmz1)	28523-86-6	$CH_2FOCH(CF_3)_2$	345
HFE-356mm1	13171-18-1	$(CF_3)_2CHOCH_3$	27
HFE-338mmz1	26103-08-2	$CHF_2OCH(CF_3)_2$	380
(Octafluorotetramethy-lene) hydroxymethyl group	NA	$X\text{-}(CF_2)_4CH(OH)\text{-}X$	73
HFE-347mmy1	22052-84-2	$CH_3OCF(CF_3)_2$	343
Bis(trifluoromethyl)-methanol	920-66-1	$(CF_3)_2CHOH$	195
2,2,3,3,3-pentafluoropropanol	422-05-9	$CF_3CF_2CH_2OH$	42
PFPMIE (HT-70)	NA	$CF_3OCF(CF_3)CF_2OCF_2OCF_3$	10,300

[a]The GWP for this compound is different than the GWP in the version of Table A-1 to subpart A of part 98 published on October 30, 2009.

Table C-1 to Subpart C of Part 98—Default CO_2 Emission Factors and High Heat Values for Various Types of Fuel

DEFAULT CO_2 EMISSION FACTORS AND HIGH HEAT VALUES FOR VARIOUS TYPES OF FUEL

Fuel type	Default high heat value	Default CO_2 emission factor
Coal and coke	mmBtu/short ton	kg CO_2/mmBtu
Anthracite	25.09	103.69
Bituminous	24.93	93.28
Subbituminous	17.25	97.17
Lignite	14.21	97.72
Coal Coke	24.80	113.67
Mixed (Commercial sector)	21.39	94.27
Mixed (Industrial coking)	26.28	93.90
Mixed (Industrial sector)	22.35	94.67
Mixed (Electric Power sector)	19.73	95.52
Natural gas	mmBtu/scf	kg CO_2/mmBtu
(Weighted U.S. Average)	1.026×10^{-3}	53.06
Petroleum products	mmBtu/gallon	kg CO_2/mmBtu
Distillate Fuel Oil No. 1	0.139	73.25
Distillate Fuel Oil No. 2	0.138	73.96
Distillate Fuel Oil No. 4	0.146	75.04
Residual Fuel Oil No. 5	0.140	72.93
Residual Fuel Oil No. 6	0.150	75.10
Used Oil	0.138	74.00
Kerosene	0.135	75.20
Liquefied petroleum gases (LPG)[1]	0.092	61.71
Propane[1]	0.091	62.87
Propylene[2]	0.091	67.77
Ethane[1]	0.068	59.60
Ethanol	0.084	68.44
Ethylene[2]	0.058	65.96
Isobutane[1]	0.099	64.94
Isobutylene[1]	0.103	68.86
Butane[1]	0.103	64.77
Butylene[1]	0.105	68.72
Naphtha (<401 deg F)	0.125	68.02
Natural Gasoline	0.110	66.88
Other Oil (>401 deg F)	0.139	76.22
Pentanes Plus	0.110	70.02

Petrochemical Feedstocks	0.125	71.02
Petroleum Coke	0.143	102.41
Special Naphtha	0.125	72.34
Unfinished Oils	0.139	74.54
Heavy Gas Oils	0.148	74.92
Lubricants	0.144	74.27
Motor Gasoline	0.125	70.22
Aviation Gasoline	0.120	69.25
Kerosene-Type Jet Fuel	0.135	72.22
Asphalt and Road Oil	0.158	75.36
Crude Oil	0.138	74.54
Other fuels—solid	mmBtu/short ton	kg CO_2/mmBtu
Municipal Solid Waste	9.95[3]	90.7
Tires	28.00	85.97
Plastics	38.00	75.00
Petroleum Coke	30.00	102.41
Other fuels—gaseous	mmBtu/scf	kg CO_2/mmBtu
Blast Furnace Gas	0.092×10^{-3}	274.32
Coke Oven Gas	0.599×10^{-3}	46.85
Propane Gas	2.516×10^{-3}	61.46
Fuel Gas[4]	1.388×10^{-3}	59.00
Biomass fuels—solid	mmBtu/short ton	kg CO_2/mmBtu
Wood and Wood Residuals (dry basis)[5]	17.48	93.80
Agricultural Byproducts	8.25	118.17
Peat	8.00	111.84
Solid Byproducts	10.39	105.51
Biomass fuels—gaseous	mmBtu/scf	kg CO_2/mmBtu
Landfill Gas	0.485×10^{-3}	52.07
Other Biomass Gases	0.655×10^{-3}	52.07
Biomass Fuels—Liquid	mmBtu/gallon	kg CO_2/mmBtu
Ethanol	0.084	68.44
Biodiesel (100%)	0.128	73.84
Rendered Animal Fat	0.125	71.06
Vegetable Oil	0.120	81.55

[1]The HHV for components of LPG determined at 60 °F and saturation pressure with the exception of ethylene.

[2]Ethylene HHV determined at 41 °F (5 °C) and saturation pressure.

[3]Use of this default HHV is allowed only for: (a) Units that combust MSW, do not generate steam, and are allowed to use Tier 1; (b) units that derive no more than 10 percent of their annual heat input from MSW and/or tires; and (c) small batch incinerators that combust no more than 1,000 tons of MSW per year.

[4]Reporters subject to subpart X of this part that are complying with §98.243(d) or subpart Y of this part may only use the default HHV and the default CO_2 emission factor for fuel gas combustion under the conditions prescribed in §98.243(d)(2)(i) and (d)(2)(ii) and §98.252(a)(1) and (a)(2), respectively. Otherwise, reporters subject to subpart X or subpart Y shall use either Tier 3 (Equation C-5) or Tier 4.

[5]Use the following formula to calculate a wet basis HHV for use in Equation C-1: $HHV_w = ((100 - M)/100)*HHV_d$where HHV_w = wet basis HHV, M = moisture content (percent) and HHV_d = dry basis HHV from Table C-1.

[78 FR 71950, Nov. 29, 2013]

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Table C-2 to Subpart C of Part 98—Default CH_4 and N_2O Emission Factors for Various Types of Fuel

Fuel type	Default CH_4 emission factor (kg CH_4/mmBtu)	Default N_2O emission factor (kg N_2O/mmBtu)
Coal and Coke (All fuel types in Table C-1)	1.1×10^{-02}	1.6×10^{-03}
Natural Gas	1.0×10^{-03}	1.0×10^{-04}
Petroleum (All fuel types in Table C-1)	3.0×10^{-03}	6.0×10^{-04}
Fuel Gas	3.0×10^{-03}	6.0×10^{-04}
Municipal Solid Waste	3.2×10^{-02}	4.2×10^{-03}
Tires	3.2×10^{-02}	4.2×10^{-03}
Blast Furnace Gas	2.2×10^{-05}	1.0×10^{-04}
Coke Oven Gas	4.8×10^{-04}	1.0×10^{-04}
Biomass Fuels—Solid (All fuel types in Table C-1, except wood and wood residuals)	3.2×10^{-02}	4.2×10^{-03}
Wood and wood residuals	7.2×10^{-03}	3.6×10^{-03}
Biomass Fuels—Gaseous (All fuel types in Table C-1)	3.2×10^{-03}	6.3×10^{-04}
Biomass Fuels—Liquid (All fuel types in Table C-1)	1.1×10^{-03}	1.1×10^{-04}

Note: Those employing this table are assumed to fall under the IPCC definitions of the “Energy Industry” or “Manufacturing Industries and Construction”. In all fuels except for coal the values for these two categories are identical. For coal combustion, those who fall within the IPCC “Energy Industry” category may employ a value of 1g of CH_4/mmBtu.

Table W-1A of Subpart W of Part 98—Default Whole Gas Emission Factors for Onshore Petroleum and Natural Gas Production

Onshore petroleum and natural gas production	Emission factor (scf/hour/ component)
Eastern U.S.	
Population Emission Factors—All Components, Gas Service[1]	
Valve	0.027
Connector	0.003
Open-ended Line	0.061
Pressure Relief Valve	0.040
Low Continuous Bleed Pneumatic Device Vents[2]	1.39
High Continuous Bleed Pneumatic Device Vents[2]	37.3
Intermittent Bleed Pneumatic Device Vents[2]	13.5
Pneumatic Pumps[3]	13.3
Population Emission Factors—All Components, Light Crude Service[4]	
Valve	0.05
Flange	0.003
Connector	0.007
Open-ended Line	0.05
Pump	0.01
Other[5]	0.30
Population Emission Factors—All Components, Heavy Crude Service[6]	
Valve	0.0005
Flange	0.0009
Connector (other)	0.0003
Open-ended Line	0.006
Other[5]	0.003
Western U.S.	
Population Emission Factors—All Components, Gas Service[1]	
Valve	0.121
Connector	0.017
Open-ended Line	0.031
Pressure Relief Valve	0.193
Low Continuous Bleed Pneumatic Device Vents[2]	1.39
High Continuous Bleed Pneumatic Device Vents[2]	37.3
Intermittent Bleed Pneumatic Device Vents[2]	13.5
Pneumatic Pumps[3]	13.3
Population Emission Factors—All Components, Light Crude Service[4]	
Valve	0.05
Flange	0.003

Connector (other)	0.007
Open-ended Line	0.05
Pump	0.01
Other[5]	0.30
Population Emission Factors—All Components, Heavy Crude Service[6]	
Valve	0.0005
Flange	0.0009
Connector (other)	0.0003
Open-ended Line	0.006
Other[5]	0.003

[1]For multi-phase flow that includes gas, use the gas service emissions factors.

[2]Emission Factor is in units of "scf/hour/device."

[3]Emission Factor is in units of "scf/hour/pump."

[4]Hydrocarbon liquids greater than or equal to 20°API are considered "light crude."

[5]"Others" category includes instruments, loading arms, pressure relief valves, stuffing boxes, compressor seals, dump lever arms, and vents.

[6]Hydrocarbon liquids less than 20°API are considered "heavy crude."

Storage Tank Emissions Calculations

Unit Number: IEU - Tank T-3
Description: 70-bbl Open-Topped Produced Water Tank

Note: The data on this worksheet applies to each individual emissions unit identified above.

Throughput

2,940	gal/turnover	Tank capacity	Williams Four Corners LLC
12	turnover/yr	Turnovers per year	Williams Four Corners LLC
35,280	gal/yr	Annual liquid throughput	gal/turnover x turnover/yr

Composition

1.00	%	Weight percent hydrocarbon in produced water	Estimate
6.00	lb/gal	Density of hydrocarbon	Estimate

Emission Rates

Pollutant	Uncontrolled, Emission Rate, tpy
VOC	1.06

It is estimated the hydrocarbon portion of the produced water is 100% VOC
It is estimated 100% of the hydrocarbon is emitted to the atmosphere
Uncontrolled Emission Rate (tpy) = gal/yr x (% / 100) x Density (lb/gal) / 2,000 lb/ton
Uncontrolled Emission Rate (tpy) = gal/yr x Total Liquid Density (lb/gal) x (% / 100) / 2,000 lb/ton

Pollutants	Weight Percents, %	Uncontrolled, Emission Rates, tpy
Benzene	0.62	6.56E-03
Ethylbenzene	1.00	1.06E-02
n-Hexane	42.18	4.46E-01
Toluene	0.66	6.99E-03
Xylenes	0.25	2.65E-03

Weight percents are taken from the GRI-HAPCalc speciation for natural gasoline liquids
Uncontrolled Emission Rates (tpy) = Uncontrolled VOC Emission Rate (tpy) x (% / 100)

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	500 gal Lube Oil
City:	Bloomfield
State:	New Mexico
Company:	Williams
Type of Tank:	Horizontal Tank
Description:	Los Mestenios

Tank Dimensions

Shell Length (ft):		6.00
Diameter (ft):		4.00
Volume (gallons):		500.00
Turnovers:		12.00
Net Throughput(gal/yr):		6,000.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Albuquerque, New Mexico (Avg Atmospheric Pressure = 12.15 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

500 gal Lube Oil - Horizontal Tank
Bloomfield, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Residual oil no. 6	All	64.94	53.24	76.64	58.39	0.0000	0.0000	0.0001	190.0000			387.00	Option 1: VP60 = .00004 VP70 = .00006

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

500 gal Lube Oil - Horizontal Tank
Bloomfield, New Mexico

Annual Emission Calcaulations

Standing Losses (lb):	0.0025
Vapor Space Volume (cu ft):	48.0243
Vapor Density (lb/cu ft):	0.0000
Vapor Space Expansion Factor:	0.0843
Vented Vapor Saturation Factor:	1.0000
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	48.0243
Tank Diameter (ft):	4.0000
Effective Diameter (ft):	5.5293
Vapor Space Outage (ft):	2.0000
Tank Shell Length (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0000
Vapor Molecular Weight (lb/lb-mole):	190.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Daily Avg. Liquid Surface Temp. (deg. R):	524.6094
Daily Average Ambient Temp. (deg. F):	56.1542
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	518.0642
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0843
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0000
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0001
Daily Avg. Liquid Surface Temp. (deg R):	524.6094
Daily Min. Liquid Surface Temp. (deg R):	512.9100
Daily Max. Liquid Surface Temp. (deg R):	536.3088
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	1.0000
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.0000
Vapor Space Outage (ft):	2.0000
Working Losses (lb):	0.0014
Vapor Molecular Weight (lb/lb-mole):	190.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0000
Annual Net Throughput (gal/yr.):	6,000.0000

Annual Turnovers:	12.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	4.0000
Working Loss Product Factor:	1.0000

Total Losses (lb):	0.0038

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

500 gal Lube Oil - Horizontal Tank
Bloomfield, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Residual oil no. 6	0.00	0.00	0.00

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	350 gal Ambitrol Tank
City:	Bloomfield
State:	New Mexico
Company:	Williams
Type of Tank:	Horizontal Tank
Description:	Los Mestenios

Tank Dimensions

Shell Length (ft):		5.00
Diameter (ft):		4.00
Volume (gallons):		350.00
Turnovers:		6.00
Net Throughput(gal/yr):		2,100.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Albuquerque, New Mexico (Avg Atmospheric Pressure = 12.15 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

350 gal Ambitrol Tank - Horizontal Tank
Bloomfield, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Propylene glycol	All	64.94	53.24	76.64	58.39	0.0012	0.0006	0.0023	76.1100			76.11	Option 2: A=8.2082, B=2085.9, C=203.54

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

350 gal Ambitrol Tank - Horizontal Tank
Bloomfield, New Mexico

Annual Emission Calcaulations

Standing Losses (lb):	0.0206
Vapor Space Volume (cu ft):	40.0203
Vapor Density (lb/cu ft):	0.0000
Vapor Space Expansion Factor:	0.0844
Vented Vapor Saturation Factor:	0.9999
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	40.0203
Tank Diameter (ft):	4.0000
Effective Diameter (ft):	5.0475
Vapor Space Outage (ft):	2.0000
Tank Shell Length (ft):	5.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0000
Vapor Molecular Weight (lb/lb-mole):	76.1100
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0012
Daily Avg. Liquid Surface Temp. (deg. R):	524.6094
Daily Average Ambient Temp. (deg. F):	56.1542
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	518.0642
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0844
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	0.0016
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0012
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0006
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0023
Daily Avg. Liquid Surface Temp. (deg R):	524.6094
Daily Min. Liquid Surface Temp. (deg R):	512.9100
Daily Max. Liquid Surface Temp. (deg R):	536.3088
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9999
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.0012
Vapor Space Outage (ft):	2.0000
Working Losses (lb):	0.0047
Vapor Molecular Weight (lb/lb-mole):	76.1100
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0012
Annual Net Throughput (gal/yr.):	2,100.0000

Annual Turnovers:	6.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	4.0000
Working Loss Product Factor:	1.0000

Total Losses (lb):	0.0253

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

350 gal Ambitrol Tank - Horizontal Tank
Bloomfield, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Propylene glycol	0.00	0.02	0.03

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	500 gal Methanol
City:	Bloomfield
State:	New Mexico
Company:	Williams
Type of Tank:	Horizontal Tank
Description:	Los Mestenios

Tank Dimensions

Shell Length (ft):		6.00
Diameter (ft):		4.00
Volume (gallons):		500.00
Turnovers:		12.00
Net Throughput(gal/yr):		6,000.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Albuquerque, New Mexico (Avg Atmospheric Pressure = 12.15 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

500 gal Methanol - Horizontal Tank
Bloomfield, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Methyl alcohol	All	64.94	53.24	76.64	58.39	1.6820	1.1617	2.3895	32.0400			32.04	Option 2: A=7.897, B=1474.08, C=229.13

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

500 gal Methanol - Horizontal Tank
Bloomfield, New Mexico

Annual Emission Calcaulations

Standing Losses (lb):	28.5886
Vapor Space Volume (cu ft):	48.0243
Vapor Density (lb/cu ft):	0.0096
Vapor Space Expansion Factor:	0.2008
Vented Vapor Saturation Factor:	0.8487
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	48.0243
Tank Diameter (ft):	4.0000
Effective Diameter (ft):	5.5293
Vapor Space Outage (ft):	2.0000
Tank Shell Length (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0096
Vapor Molecular Weight (lb/lb-mole):	32.0400
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.6820
Daily Avg. Liquid Surface Temp. (deg. R):	524.6094
Daily Average Ambient Temp. (deg. F):	56.1542
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	518.0642
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.2008
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	1.2278
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.6820
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	1.1617
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	2.3895
Daily Avg. Liquid Surface Temp. (deg R):	524.6094
Daily Min. Liquid Surface Temp. (deg R):	512.9100
Daily Max. Liquid Surface Temp. (deg R):	536.3088
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.8487
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	1.6820
Vapor Space Outage (ft):	2.0000
Working Losses (lb):	7.6985
Vapor Molecular Weight (lb/lb-mole):	32.0400
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.6820
Annual Net Throughput (gal/yr.):	6,000.0000

Annual Turnovers:	12.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	4.0000
Working Loss Product Factor:	1.0000

Total Losses (lb):	36.2872

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

500 gal Methanol - Horizontal Tank
Bloomfield, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Methyl alcohol	7.70	28.59	36.29

Section 5

Map(s)

A 7.5 minute topographic quadrangle map showing the exact location of the source is found on the following page.

Williams Four Corners LLC - Los Mestenios Compressor Station

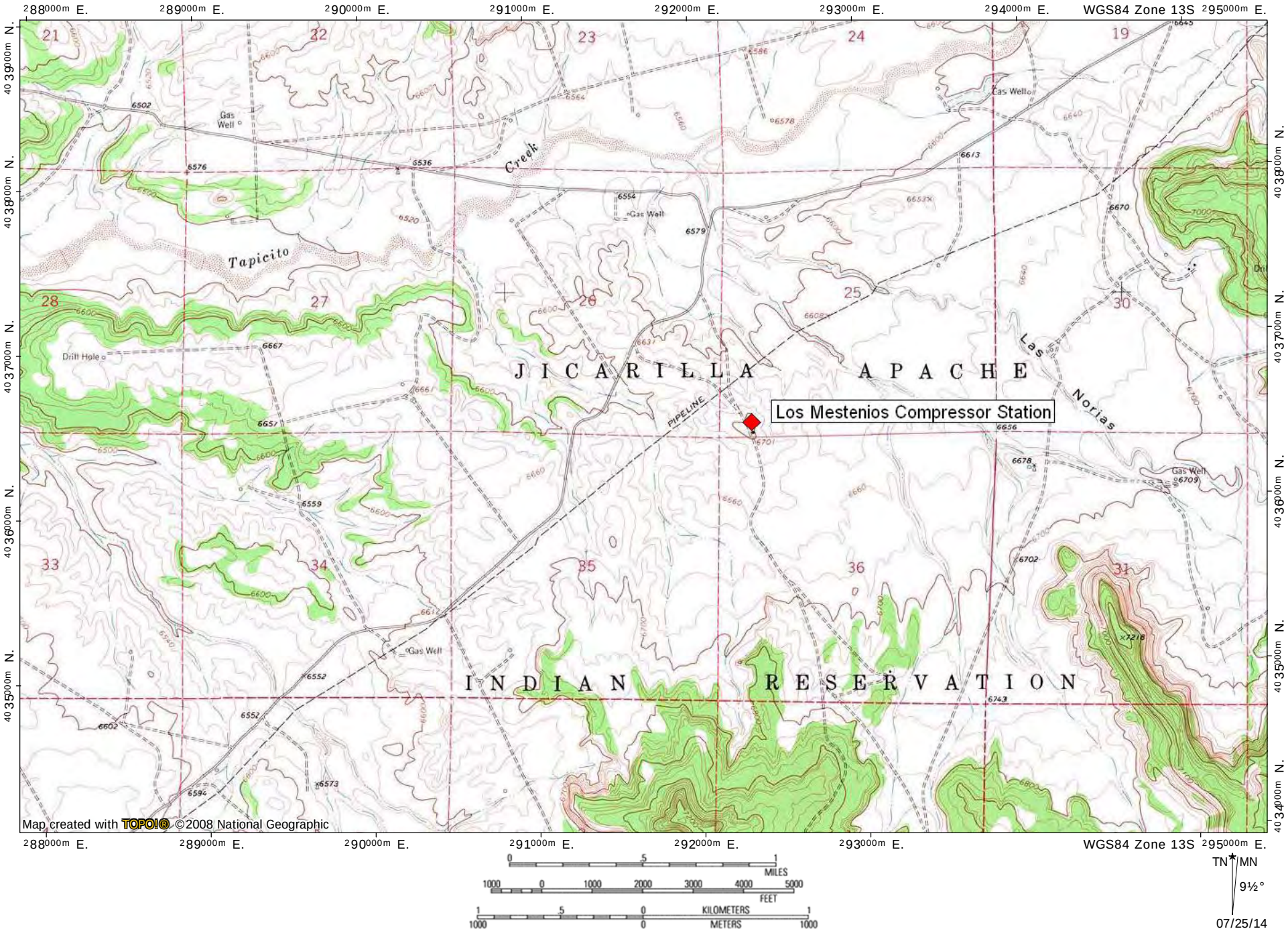
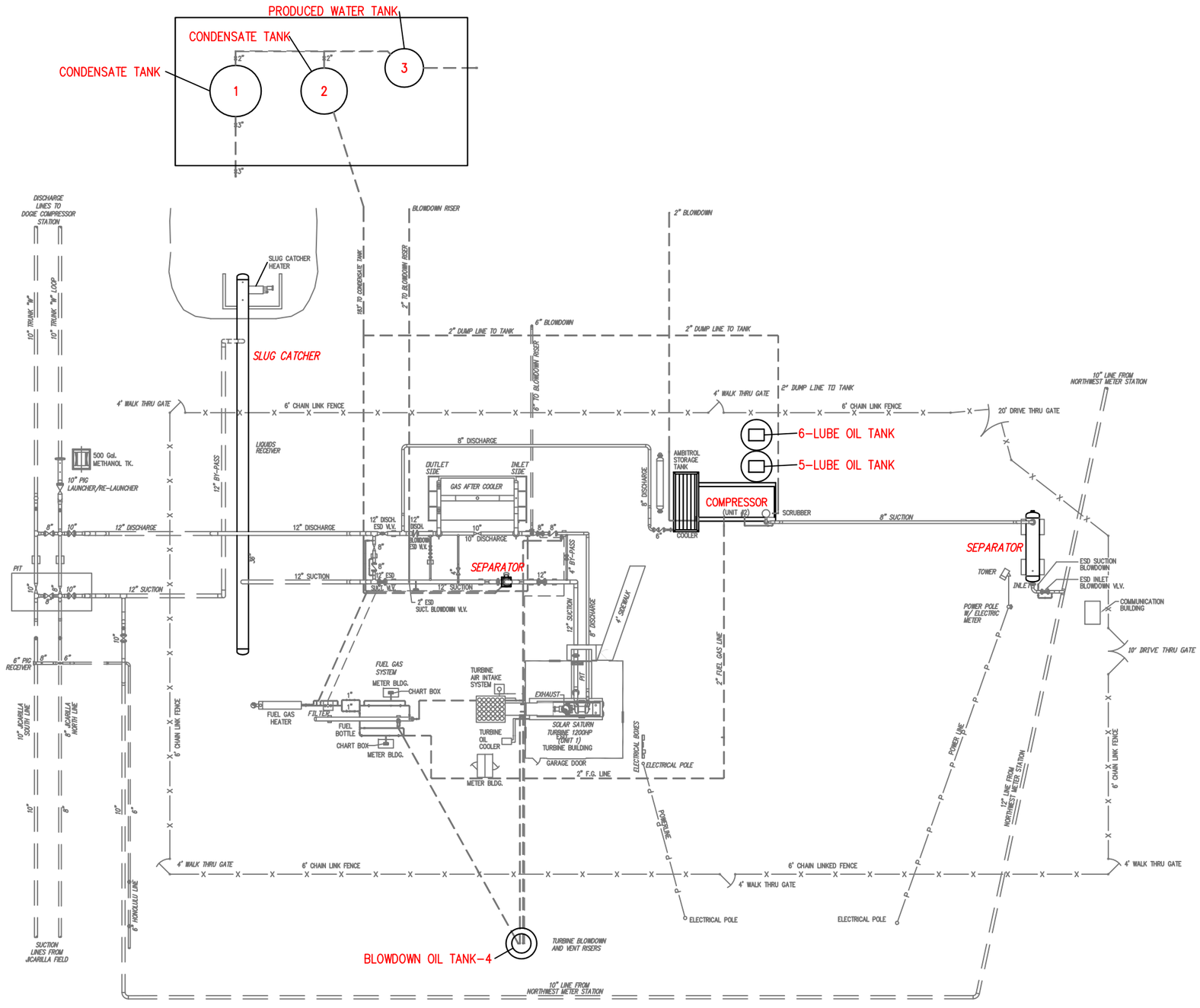


FIGURE 2

FACILITY LAYOUT
WILLIAMS FOUR CORNERS LLC
LOS MESTINIOS FACILITY
SW¼ SW¼, SECTION 25, T26N, R5W
RIO ARRIBA COUNTY, NEW MEXICO
N36.45096, W107.31759



Animas Environmental Services, LLC

DRAWN BY:	DATE DRAWN:
C. Lameman	December 11, 2013
REVISIONS BY:	**DATE REVISED:**
C. Lameman	December 11, 2013
CHECKED BY:	**DATE CHECKED:**
K. Christiansen	December 11, 2013
APPROVED BY:	**DATE APPROVED:**
E. McNally	December 11, 2013

NOTE: SITE DIAGRAM OBTAINED FROM WILLIAMS.

N

SCALE
30 20 0 30
10
(1 INCH = 30 FEET)

Section 6

Discussion Demonstrating Compliance with Each Applicable Federal Regulation

FEDERAL REGU-LATIONS CITATION	Title	Applies to Entire Facility	Applies to Unit No(s).	Does Not Apply	JUSTIFICATION:
40 CFR 50	NAAQS	✓			Defined as applicable at 20.2.70.7.E.11, Any national ambient air quality standard
NSPS 40 CFR 60, Subpart A	General Provisions		Unit 1		Applies if any other NSPS subpart applies.
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for **Storage Vessels for Petroleum Liquids** for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and **Prior** to July 23, 1984			✓	The affected facility to which this subpart applies are storage tanks with capacity greater than 151,416 liters (40,000 gallons) that are used to store petroleum liquids for which construction is commenced after May 18, 1978. As all of the storage tanks have a capacity less than 40,000 gallons, none are an affected facility as defined in the regulation; therefore, the subpart does not apply.
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for **Volatile Organic Liquid Storage Vessels** (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced **After** July 23, 1984			✓	The affected facility to which this subpart applies is any storage vessels with a capacity greater than or equal to 75 cubic meters (m^3) (472 barrels) used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984. The overflow condensate tank T-2, the lube oil tanks IEU T-3 and IEU T-4, and the ambitrol and methanol tanks IEU T-5 and IEU T-6 all have a design capacity less than 472 bbl, and are therefore not affected facilities. The 500-bbl condensate tank T-1 is less than 1,589.874 m^3 (10,000 bbl) and is used to store petroleum prior to custody transfer; therefore, under §60.110b(d)(4), the regulation does not apply.
NSPS 40 CFR 60.330 Subpart GG	**Stationary Gas Turbines**		Unit 1		Affected facilities under the subpart are stationary gas turbines of 10 MMBtu/hour or greater, installed on or after October 3, 1977. The Solar Saturn T1200, Unit 1 has a heat input = 10.84 Btu/hour which is greater than the 10 MMBtu/hour threshold. Although constructed in 1979, this unit was installed at Los Mestenios in 1989, both of which dates are after the October 3, 1977 applicability date. Therefore, this regulation does apply.
NSPS 40 CFR 60, Subpart KKK	Leaks of VOC from **Onshore Gas Plants**			✓	Affected Facility with Leaks of VOC from Onshore Gas Plants. Any affected facility under paragraph (a) of this section that commences construction, reconstruction, or modification after January 20, 1984, is subject to the requirements of this subpart. The group of all equipment (each pump, pressure relief device, open-ended valve or line,

FEDERAL REGU-LATIONS CITATION	Title	Applies to Entire Facility	Applies to Unit No(s).	Does Not Apply	JUSTIFICATION:
					valve, compressor, and flange or other connector that is in VOC service or in wet gas service, and any device or system required by this subpart) except compressors (definied in § 60.631) within a process unit is an affected facility. A compressor station, dehydration unit, sweetening unit, underground storage tank, field gas gathering system, or liquefied natural gas unit is covered by this subpart if it is located at an onshore natural gas processing plant. If the unit is not located at the plant site, then it is exempt from the provisions of this subpart. The facility is not an onshore gas plant; therefore, the subpart does not apply.
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for **Onshore Natural Gas Processing**: SO_2 Emissions			✓	An affected facility is each sweetening unit, and each sweetening unit followed by a sulfur recovery unit, for which construction or modification commenced after January 20, 1984 at a natural gas processing plant. The facility is not a natural gas processing plant and does not include any affected units as defined by the subpart; therefore the subpart does not apply.
NSPS 40 CFR Part 60 Subpart JJJJ				✓	Under § 60.4230, the requirements of the subpart apply to spark-ignition (SI), reciprocating internal combustion engines (RICE) constructed, modified or reconstructed after June 12, 2006. The Caterpillar G-399-TA, Unit 2, driving a compressor at this facility, is a stationary four stroke rich burn (4SRB) spark ignition (SI) internal combustion engine (ICE) with a maximum engine power greater than 500 hp that was manufactured before July 1, 2007, and therefore under §60.4230(a)(4)(i), this unit is not subject to the provisions of this subpart.
NSPS 40 CFR Part 60 Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution			✓	The rule applies to "affected" facilities that are constructed, modified, or reconstructed after Aug 23, 2011 (40 CFR 60.5365): gas wells, including fractured and hydraulically re-fractured wells, centrifugal compressors, reciprocating compressors, pneumatic controllers, certain equipment at natural gas processing plants, sweetening units at natural gas processing plants, and storage vessels. The potentially affected facilities, including the existing 480-bbl condensate tank T-1 and the 'new' relocated 400-bbl condensate tank T-2, which was were all constructed before the applicability date, and therefore the provisions of this subpart do not apply.
NESHAP 40 CFR 61 Subpart A	General Provisions			✓	This part applies to the owner or operator of any stationary source for which a standard is prescribed under this part.
NESHAP 40 CFR 61 Subpart V	National Emission Standards for **Equipment Leaks** (Fugitive Emission Sources)			✓	The provisions of this subpart apply to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and control devices or systems required by this subpart. VHAP service means a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight of VHAP. VHAP means a substance

FEDERAL REGU-LATIONS CITATION	Title	Applies to Entire Facility	Applies to Unit No(s).	Does Not Apply	JUSTIFICATION:
					regulated under this subpart for which a standard for equipment leaks of the substance has been promulgated. The potentially affected facilities do not contact or contain VHAP, and therefore the provisions of this subpart do not apply.
MACT 40 CFR 63, Subpart A	General Provisions		Unit 2		Applies if any other subpart applies.
MACT 40 CFR 63.760 Subpart HH	**Oil and Natural Gas Production Facilities**			✓	Under § 63.760, Subpart HH applies to owners and operators of affected sources located at oil and natural gas production facilities, including facilities that are major and area sources of hazardous air pollutants (HAP). As the condensate tanks do not meet the definition of 'storage vessel with the potential for flash emissions,' there are no affected sources located at the facility, as defined in the regulation. Therefore, the regulation does not apply.
MACT 40 CFR 63 Subpart HHH				✓	Under §63.1270, Subpart HHH applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company), and that are major sources of hazardous air pollutants (HAP) emissions as defined in §63.1271. An upstream natural gas compression facility is not considered a part of the natural gas transmission and storage source category. Therefore, the regulation does not apply.
MACT 40 CFR 63 Subpart YYYY	National Emissions Standards for Hazardous Air Pollutants for Stationary Combustion Turbines			✓	Under §63.6080, Subpart YYYY applies to stationary combustion turbines located at major sources of HAP emissions. The facility is an **area** source of HAP, as defined under the regulation. Therefore, the regulation does not apply.
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)		Unit 2		40 CFR 63, Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from existing, new, modified and reconstructed stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. The regulation contains provisions for initial and continuous compliance demonstration. The facility is an **area** source of HAP, as defined under the regulation. Under §63.6590(a)(2)(iii), a RICE located at an area source of HAP is a *new* or *reconstructed* unit if it is constructed or reconstructed on or after June 12, 2006. Those constructed or reconstructed prior to this date are *existing* units. The Caterpillar G-399-TA, Unit 2 was constructed in 1990 and is therefore an existing non-emergency, non-black start remote 4SRB of greater than 500 hp. This unit must meet the maintenance and inspection requirements of Table 2 to subpart ZZZZ for paragraph 11.

FEDERAL REGU-LATIONS CITATION	Title	Applies to Entire Facility	Applies to Unit No(s).	Does Not Apply	JUSTIFICATION:
NESHAP 40 CFR 64	**Compliance Assurance Monitoring**			✓	40 CFR 64, *Compliance Assurance Monitoring* (CAM) monitoring requirements are applicable to sources with uncontrolled criteria pollutant emission rates equal to or exceeding the major source threshold (100 tons per year) that use a control device to achieve compliance with an emission limit or standard, and which the resulting controlled emissions are less than the major source threshold. Passive control devices such as lean-burn technology are not considered a control device as defined in 40 CFR 64 definitions and as clarified in discussions with EPA. None of the sources at this facility uses a control device to achieve compliance with an emission limit or standard. Therefore, the regulation does not apply.
NESHAP 40 CFR 68	**Chemical Accident Prevention**			✓	40 CFR 68, *Chemical Accident Prevention Provisions*, is not applicable because the facility does not store any of the identified toxic and flammable substances in quantities exceeding the applicability thresholds.
Title V – 40 CFR 70	**State Operating Permit Programs**			✓	40 CFR 70, Federal Operating Permit Programs, is not applicable because the facility is located within the exterior boundaries of the Jicarilla Apache Indian Reservation, and therefore not within the jurisdiction of the State of New Mexico Environment Department.
Title V – 40 CFR 71	**Federal Operating Permit Programs**	✓			40 CFR 71, Federal Operating Permit Programs, is applicable because the facility is located within the exterior boundaries of the Jicarilla Apache Indian Reservation.
Title IV – Acid Rain 40 CFR 72	**Acid Rain**			✓	40 CFR 72, *Permits Regulation*, is not applicable because the facility does not operate a source subject to Title IV of the Clean Air Act (CAA).
Title IV – Acid Rain 40 CFR 73	**Sulfur Dioxide** Allowance Emissions			✓	40 CFR 73, *Sulfur Dioxide Allowance System*, is not applicable to the facility because it does not operate a source subject to Title IV of the Clean Air Act (CAA).
Title IV – Acid Rain 40 CFR 76	**Acid Rain** Nitrogen Oxides **Emission Reduction Program**			✓	40 CFR 76, *Acid Rain Nitrogen Dioxide Emission Reduction Program*, is not applicable to the facility because it does not operate a source subject to Title IV of the Clean Air Act (CAA).
Title VI – 40 CFR 82	Protection of **Stratospheric Ozone**			✓	40 CFR 82, *Protection of Stratospheric Ozone*, is not applicable to the facility because it does not produce, manufacture, transform, destroy, import, or export ozone-depleting substances; does not maintain or service motor vehicle air conditioning units or refrigeration equipment; and does not sell, distribute, or offer for sale or distribution any product that contains ozone-depleting substances.