May 12, 2008

Daron Page
Part 71 Permit Contact
Air, Pesticides and Toxics Division, MC 6PD-R
U.S. EPA Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Re: 40 CFR Part 71 Operating Permit Renewal Application, R6FOPP71-04
Williams Four Corners, LLC Los Mestenios Compressor Station

Dear Mr. Page:

Enclosed please find 40 CFR Part 71 operating permit renewal application forms for Williams Four Corners, LLC Los Mestenios Compressor Station located on the Jicarilla Apache Indian Reservation in New Mexico.

If you have any questions, or require additional information, please contact me at (505) 632-4951 or Bobby Myers of Cirrus Consulting, LLC at (801) 484-4412.

Sincerely,

Robert L. Myers II
Principal

c: David Bays (Williams Four Corners, LLC)

Enclosures

Cirrus Consulting
951 Diestel Road
Salt Lake City, Utah 84105

Tel: (801) 484-4412
Fax: (801) 484-4192
bmyers@cirrusllc.com

U.S. ENVIRONMENTAL PROTECTION AGENCY (REGION 6)
APPLICATION FOR
FEDERAL OPERATING PERMIT RENEWAL
(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 S. Diestel Road
Salt Lake City, UT 84105

May 2008

List of Forms and Appendices

List of Appendices

Introduction

Williams Four Corners, LLC (Williams) is submitting this permit application to the Region 6 Environmental Protection Agency Air Permits Section to renew the Los Mestenios Compressor Station Title V Operating Permit, R6FOPP71-04, issued November 17, 2003.

This permit application updates emissions for the Solar Saturn 1200 turbine (Unit 1), in accordance with a current manufacturer's data sheet, and for the Caterpillar G-399-TA engine (Unit 2), based on manufacturer's data for similarly sized units. This particular Caterpillar model is no longer manufactured; therefore, worst-case emissions from similar units on the current Caterpillar datasheet were used. The liquid storage tank list was also updated in this application. All liquid storage tanks at this facility, with the exception of tank T-1, a 500-bbl condensate tank, are included in this application as insignificant sources.

Note that none of the fee forms are included with this renewal application as emission fees are submitted annually under separate cover.

The table below identifies equipment permitted for operation at the facility.

Los Mestenios Compressor Station Equipment List

Unit Number	Unit Description
1	Solar Saturn 1200 Turbine
2	Caterpillar G-399-TA Engine
3*	Fuel Gas Heater
4*	Heater
T-1	Condensate Tank
T-2*	Condensate Tank
T-3*	Produced Water Tank
T-4*	Lube Oil Tank
T-5*	Used Oil Tank
T-6*	Ambitrol Tank
T-7*	Methanol Tank
F-1	Fugitives: valves, pump seals, compressor seals, pressure relief valves, connectors, open ended valves
F-2	Condensate Liquid Loading Losses

* Insignificant sources

FEDERAL RULES, REGULATIONS, AND STANDARDS
APPLICABILITY CHECKLIST

Citation	Title	Applicable	Not Applicable
40 CFR 50	National Primary and Secondary Ambient Air Quality Standards	✓	
40 CFR 51	Requirements for Preparation, Adoption, and Submittal of Implementation Plans		✓
40 CFR 52	Approval and Promulgation of Implementation Plans		✓
40 CFR 60	Standards of Performance for New Stationary Sources (Subparts A and GG)	✓	
40 CFR 61	National Emission Standards for Hazardous Air Pollutants		✓
40 CFR 63	National Emission Standards for Hazardous Air Pollutants for Source Categories		✓
40 CFR 64	Compliance Assurance Monitoring		✓
40 CFR 68	Chemical Accident Prevention Provisions		✓
40 CFR 70	State Operating Permit Programs		✓
40 CFR 71	Federal Operating Permit Programs	✓	
40 CFR 72	Permits Regulation		✓
40 CFR 73	Sulfur Dioxide Allowance System		✓
40 CFR 75	Continuous Emission Monitoring		✓
40 CFR 76	Acid Rain Nitrogen Dioxide Emission Reduction Program		✓
40 CFR 77	Excess Emissions		✓
40 CFR 78	Appeal Procedures for Acid Rain Program		✓
40 CFR 82	Protection of Stratospheric Ozone		✓
40 CFR 89	Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines		✓
40 CFR 90	Control of Emissions from Nonroad Spark-Ignition Engines		✓
40 CFR 91	Control of Emissions from Marine Spark-Ignition Engines		✓
40 CFR 92	Control of Air Pollution from Locomotives and Locomotive Engines		✓
40 CFR 93	Determining Conformity of Federal Actions to State and Federal SIPs		✓
40 CFR 94	Control of Air Pollution from Marine Compressor-Ignition Engines		✓
40 CFR 95	Mandatory Patent Licenses		✓
40 CFR 96	NOx Budget Trading Program for State Implementation Plans		✓
40 CFR 97	Federal NOx Budget Trading Program		✓

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

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: David Bays Title: Sr. Environmental Specialist

Telephone (505) 634 – 4951 Ext. _____

Facsimile (505) 632 - 4781

B. Facility Location

Temporary source? ___Yes X No Plant site location: Section 25&26, Township 26N, Range 5W (UTMH 292.2 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) 634 - 4951 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? 11/16/2008

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

___ 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	500 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 242.0 tons/yr VOC 232.7 tons/yr SO2 Negligible tons/yr

PM-10 Negligible tons/yr CO 214.8 tons/yr Lead N/A tons/yr

Total HAP 10.7 tons/yr

Single HAP emitted in the greatest amount n-Hexane PTE 7.6 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):R6FOPP71-04 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

INSTRUCTIONS FOR GIS, GENERAL INFORMATION AND SUMMARY

Use this form to provide general and summary information about the part 71 source (facility or plant) and to indicate the permitting action requested. Submit this form once for each part 71 source. Several sections of this form ask for information you may not know until you complete other part 71 forms.

Section A - Enter the facility's official or legal name. The contact person should be a person familiar with the day-to-day operation of the facility, such as a plant site manager or similar individual.

Section B – If different from the mailing address, include the plant site location.

Sections C and D - If more than one owner or operator, list them on an attachment.

Section E - Mark initial permit issuance if you are applying for the first time. For all types of permit revisions, applicants must provide a brief narrative description of the changes.

Section F - Indicate the broad categories of applicable requirements that apply to the facility or any emissions units. Note that acid rain requirements must be included in part 71 permits the same as other requirements. Also see definition of “applicable requirement” in part 71.

Section G – List emission-limiting requirements that apply to the facility as a whole, such as restrictions on potential to emit or applicable requirements that apply identically to all emission units at a facility.

Section H - List, in descending order of priority, the 4-digit standard industrial classification (SIC) code(s) that best describes your facility in terms of its principal products or processes, and provide a brief narrative description for each classification. For a listing of SIC codes, see the Standard Industrial Classification Manual, 1987 edition, prepared by the Executive Office of the President, Office of Management and Budget, from the Government Printing Office, Washington DC.

Section I - Assign a unique identifier (unit ID) under the "emissions unit ID" column and provide a text description for each significant emissions unit at facility. These IDs will be used in other part 71 forms. A "significant emissions unit" is any unit that is not an insignificant emission unit or activities. Note that unit IDs need only be assigned if they will be referenced in subsequent portions of the application. You may choose any numbering system you wish to assign unit IDs. If a unit ID was previously assigned, use the original ID. If the unit is a new unit, assign a unit ID consistent with the existing units’ IDs.

You may group emissions units, activities, or pieces of equipment together and assign a single unique unit ID when they are subject to the same applicable requirement(s) and will have the same monitoring, record keeping, and reporting requirements in the permit.

In addition, assign a unit ID for each alternative operating scenario and each piece of pollution control equipment. When possible, assign these numbers so as to show with which emissions units or processes these scenarios or control devices are associated.

Section J - Show the total emissions for the source in terms of PTE for applicability purposes for each air pollutant listed below and the total actual emissions for fee purposes. Applications for permit revisions should report PTE after the change for the emissions units affected by the change.

Completion of form **PTE** is recommended prior to the entry of PTE information in this section.

"NOx" is an abbreviation for nitrogen oxides,
"VOC" is for volatile organic compounds,
"SO2" is for sulfur dioxide,
"PM10" is for particulate matter with an aerodynamic diameter of 10 micrometers or less,
"CO" is for carbon monoxide, and
“Lead” is for elemental lead regulated by a NAAQS (“compounds of lead” are HAP).

Also note that each individual HAP on the list of HAP in section 112(b) of the Act is a separate regulated air pollutant.

Include fugitive emissions when reporting PTE to the extent that they count toward major source applicability. All fugitive emissions of HAP count toward major source applicability.

Sources may also stipulate to major source status for the pollutants indicated on the form by entering "Major" in the space provided for PTE values.

You may use the value for actual emissions from section F, line 5, of form **FEE**. When totaling actual emissions for fee purposes, include all emissions, including fugitive emissions, regardless of whether they count for applicability purposes.

Section L - If any emissions unit within your facility is applying, has applied, or currently has a general permit, identify the emissions unit ID and name of the unit, consistent with section I of this form.

Section M - Attach copies of any cross-referenced documents that are not publicly available or otherwise available to the permitting authority.

END

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

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: 11/15/79

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) _____._____

INSTRUCTIONS FOR EUD-1
EMISSIONS UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES

Use this form is to describe emissions units that combust solid or liquid fuels, such as boilers, steam generators, electric generators and the like.

Section A – The emissions unit ID should be consistent with the one used in section I of form **GIS**. Enter the four-digit SIC code for the unit, which may be different from that used to describe the facility as a whole. Enter the source classification code (SCC), if known or readily available (not mandatory).

Section B - There may be other information that the permitting authority will need to know that is not specifically requested on the forms and that should be included on attachments. Such information would be critical to identifying the emissions unit and its applicable requirements.

Section C - Describe the primary fuel type is that used during the majority of its operating hours. Your fuel supplier should be able to provide the information requested here. If the supplier provides a range of values, use the highest or worst-case value. Identify and describe any associated air pollution control device. If data provided by the vendor, attach documentation (if available); if other basis, indicate how determined (e.g., AP-42).

Section D - Actual fuel usage will be used to calculate actual emissions for purposes of calculating fees. Maximum usage will be used to calculate PTE. If your fuel is a combination of several fuel types, indicate the average percentage of each fuel on an hourly and yearly basis in the appropriate column or on an attachment. The basis of this fuels usage data must be explained on an attachment. For example, actual fuel consumption could be established from purchase records or records of fuel consumption over the preceding calendar year or for sources that have not yet operated for a full year, from estimations of actual usage.

Section E - Identify and describe any associated air pollution control device for the unit described above. For control efficiency, you may need to contact the vendor, if so, attach copies of correspondence from the vendor documenting these values, if available, or indicate how these values were otherwise determined.

Section F - Complete this section only if ambient impact assessment is an applicable requirement or the facility is a temporary source. This is not common.

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

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

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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 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID F-2 Description Condensate Liquid Loading Losses

SIC Code (4-digit) 1389 SCC Code _

B. Emissions Unit Description

Equipment type Truck loading from T-1 or T-2. 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 Condensate	N/A	Natural Gas Condensate	N/A	2416	882,000	*

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

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

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 (500 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. Unknown

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)	*

(1) 2002 Condensate production plus 40% safety factor (see HYSYS model run, Appendix B)

Federal Operating Permit Program (40 CFR Part 71)

INSIGNIFICANT EMISSIONS (IE)

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
1	IEU -3 - Fuel Gas Heater (0.3 MMBtu/hr)	**X**	**X**
1	IEU-4 - Heater (0.3 MMBtu/hr)	**X**	**X**
1	IEU-T2 - Condensate Storage Tank (300 bbl)		**X**
1	IEU-T3 - Produced Water Storage Tank (70 bbl)	**X**	**X**
1	IEU-T4 - Lube Oil Storage Tank (500 gal)	**X**	**X**
1	IEU-T5 - Used Oil Storage Tank (300 gal)	**X**	**X**
1	IEU-T6 - Ambitrol Storage Tank (350 gal)	**X**	**X**
1	IEU-T7 - Methanol Storage Tank (500 gal)	**X**	**X**

INSTRUCTIONS FOR IE
INSIGNIFICANT ACTIVITIES

Use this form only if you have any equipment, emissions units, or emitting activities at your facility that qualify for insignificant treatment due to insignificant emissions levels (defined in the part 71 rule) and you desire such treatment.

Generally identify the source of emissions.

The "number" column is provided to indicate the total number or units or activities grouped together under one description, for example, equipment such as valves and flanges. However, units or activities that are similar should be listed separately in the form when the descriptions differ in a meaningful way, such as when capacities or sizes differ and this information is relevant, for example, to an applicability determination.

Check one of the columns provided to indicate which emission level criteria of part 71 is met for these units or activities that warrant such treatment. The rule provides 2 emission criteria:

- emissions of 2 tons per year or less or any regulated pollutants except HAP (RAP, except HAP) from any emission unit, or
- 1000 pounds per year or less of any HAP from any emission unit.

Note that part 71 does not exempt any insignificant units from major source applicability determinations.

In addition, attach to this form information concerning equipment, activities, or emissions units that are exempted from an otherwise applicable requirement (e.g., grandfathered emissions units. Please cite the basis for the exemption (e.g., State administrative code or Federal regulation).

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)	
PM10	NA	Negligible	Negligible	
SO2	NA	Negligible	Negligible	
NOx	NA	8.1	35.6	
CO	NA	15.8	69.3	
VOC	NA	0.4	1.9	
Formaldehyde	NA	Negligible	0.2	50-00-0
Acetaldehyde	NA	Negligible	0.2	75-07-0

Note: Negligible (less than 0.1 ton/year or 0.1 lb/hr)

Note: HAP emission rates rounded up to 0.1 tons/year only if calculated emission rates are 0.05 tons/year or greater. Otherwise, the emissions are considered negligible.

See Appendix A for supporting information for fuel combustion sources.

INSTRUCTIONS FOR EMISS
EMISSION CALCULATIONS

Use this form to quantify emissions for each significant emissions unit identified in section I of form **GIS**. This form will help you organize emissions data needed on forms **PTE** and **FEE**. Do not complete this form for any units or activities listed as insignificant on form **IE**. Sources applying for permit revisions only need complete this form for each emissions unit affected by the change.

Section A - The emissions unit ID should be the same as that used in section I of form **GIS**.

Section B - First, list each “regulated air pollutant” that is subject to an applicable requirement or that is emitted in major amounts (at the unit or facility). Please list each HAP separately.

Second, list any “regulated pollutant (for fee calculation)” emitted that has not already been listed. If you will not be submitting form FEE with your application, you do not need to perform this or the next step. For fee purposes, fugitive emissions count the same as stack emissions. Any HAP that has not been listed up to this point may be simply listed as "HAP." [There is no need to list carbon monoxide, Class I or II substances under title VI, and pollutants regulated solely by section 112(r) for fee purposes.]

Third, calculate actual emissions of "regulated pollutants (for fee calculation). Actual emissions are calculated based on actual operating hours, productions rates, and in-place control equipment, and the types of materials used during the preceding calendar year. If you already have a permit, you should use the compliance methods required by the permit, such as monitoring or source test data, whenever possible; if not possible, you may use other federally recognized procedures.

Most sources will calculate actual emissions for the preceding calendar year. Sources that commenced operation during the preceding calendar year shall estimate emissions for the current calendar year. Certain sources have the option of estimating their actual emissions for the preceding calendar year, instead of calculating them based on actual emissions data, see the instructions for form **FEE** for more on this topic.

Your emission calculations may be based on generally available information rather than new source testing or studies not already required. If you have listed a pollutant but are unable to calculate its actual emissions without conducting new source testing or extensive studies, you may enter "UN" (for "unknown") in the space provided.

You may round to the nearest ton or use greater precision if you believe it will result in a lower fee.

Fourth, calculate PTE for each “regulated air pollutant.” For pollutants not specifically regulated at this emission unit, do not calculate PTE in pounds/hour. You may stipulate that the unit alone triggers major source status for this pollutant by entering "MU" in the space provided for annual PTE values. You may stipulate that the unit does not trigger major source status, but that the aggregate facility emissions or another unit triggers major source status by entering "MS" in the space provided for annual PTE values.

Do not calculate PTE values for emissions that are not counted for major source applicability purposes or for emissions listed solely for fee purposes, however, enter "NA" for "not applicable" in the space provided for PTE values for these emissions.

If you are unable to calculate PTE values for air pollutants counted for applicability purposes without conducting new source testing or extensive studies, enter "UN" (for "unknown") in the space provided.

Within applications for permit revisions, PTE should be calculated assuming the proposed change has occurred.

“Potential to emit” is defined as "the maximum capacity of a stationary source to emit any pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation is enforceable by the Administrator."

Enter values for PTE by rounding to the nearest ton in the space for tons/year or to the nearest pound in the space for pounds/hour. If greater precision is needed or desired, do not round these values until you calculate the total on form **PTE**.

Provide the chemical abstract service number (CAS No.), if available.

END

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)	
PM10	Negligible	Negligible	Negligible	
SO2	Negligible	Negligible	Negligible	
NOx	NA	47.1	206.4	
CO	NA	33.2	145.5	
VOC	NA	0.3	1.1	
Formaldehyde	NA	Negligible	0.3	50-00-0
Benzene	NA	Negligible	0.2	71-43-2
Toluene	NA	Negligible	0.1	108-88-3

Note: Negligible (less than 0.1 ton/year or 0.1 lb/hr)

Note: HAP emission rates rounded up to 0.1 tons/year only if calculated emission rates are 0.05 tons/year or greater. Otherwise, the emissions are considered negligible.

See Appendix A for supporting information for fuel combustion sources.

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	NA	0.7	3.2	
n-Hexane	NA	Negligible	0.1	110-54-3

Note: Negligible (less than 0.01 ton/year or 0.01 lb/hr)
Note: HAP emission rates rounded up to 0.1 tons/year only if calculated emission rates are 0.05 tons/year or greater. Otherwise, the emissions are considered negligible.
See Appendix C for supporting information

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-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	NA	101.3	2.7	
n-Hexane	NA	Negligible	0.5	110-54-3

Note: Negligible (less than 0.01 ton/year or 0.01 lb/hr)
Note: HAP emission rates rounded up to 0.1 tons/year only if calculated emission rates are 0.05 tons/year or greater. Otherwise, the emissions are considered negligible.
See Appendix C for supporting information

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	NA	Not specified	223.8	
Benzene	NA	Not specified	0.9	71-43-2
Toluene	NA	Not specified	1.0	108-88-3
Xylene (m,p,o)	NA	Not specified	0.2	1330-20-7
n-Hexane	NA	Not specified	7.0	110-54-3

See Appendix B for supporting information.
Note: HAP emission rates rounded up to 0.1 tons/year only if calculated emission rates are 0.05 tons/year or greater. Otherwise, the emissions are considered negligible.

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Federal Operating Permit Program (40 CFR Part 71)

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
1	35.6	1.9	Negligible	Negligible	69.3	Negligible	0.4
2	206.4	1.1	Negligible	Negligible	145.5	Negligible	0.6
T-1	NA	223.8	NA	NA	NA	NA	9.1
F-1	NA	3.2	NA	NA	NA	NA	0.1
F-2	NA	2.7	NA	NA	NA	NA	0.5
FACILTY TOTALS	242.0	232.7	Negligible	Negligible	214.8	Negligible	10.7

INSTRUCTIONS FOR PTE
POTENTIAL TO EMIT

Calculate the total PTE for each air pollutant at the facility for purposes of determining major source applicability.

On each line (row) in the table provided, enter the emissions unit ID and the quantity of each air pollutant identified on the form. If form **EMISS** was prepared previously, simply copy the emission values (or stipulations to major source status) contained on those forms to this form. You may round to the nearest ton.

Applicants may stipulate to major source status for an air pollutant and, thereby, avoid detailed PTE calculations. If a unit emits in major amounts, enter "MU" in the column for that air pollutant. If the facility is a major source for a pollutant but the emissions unit in question does not trigger major source status, enter "MS" in the space provided. If a listed pollutant is emitted at a unit but PTE cannot be calculated based on readily available information, enter "UN" (for "unknown") in the space provided. If the source is a major source for air pollutants not represented by columns on this form, please provide an attachment stipulating major source status or the calculation of the total for that air pollutant. The column for lead is for elemental lead regulated by a NAAQS, while compounds of lead are HAP.

The total line is provided at the bottom of each column to enter the total facility-wide PTE for applicability purposes (or stipulations to major source status) for each air pollutant reported above. Enter these totals, as well as the total PTE and the name of the HAP emitted in the greatest amount, in section J of form **GIS**.

Only include emissions or emissions units on form **PTE** that count toward major source applicability. Some of the emissions units for which form **EMISS** may have been prepared may not have emissions that count towards major source applicability or may have been included in order to calculate fees. In particular, fugitive emissions are not always included in major source applicability determinations for non-HAP. However, for major source determinations for HAP, all fugitive HAP must be included.

END

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Federal Operating Permit Program (40 CFR Part 71)

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): **1**

Applicable Requirement (Describe and Cite):
NSPS Stationary Gas Turbines: Notification Requirements
40 CFR 60 Subpart A (40 CFR 60.7(a)(1),(3) and (4))

Compliance Methods for the Above (Description and Citation):
Reporting – Notification of date of commencement of construction, date of initial startup, date of actual startup, and notification of any physical or operational change which may increase emission rate of unit. Williams did not own the station at the time of turbine initial startup; and consequently was not responsible for the notifications. There have been no physical or operational changes to the turbine which may increase emission rate of the unit.

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): **1**

Applicable Requirement (Description and Citation):
NSPS Stationary Gas Turbines: Startup, shutdown, and malfunction records (40 CFR 60.7(b))

Compliance Methods for the Above (Description and Citation):
Recordkeeping – Recording occurrence and duration of any startup, shutdown, or malfunction. Demonstrated through review of records.

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): **1**

Applicable Requirement (Describe and Cite)
NSPS Stationary Gas Turbines: Performance Test (40 CFR 60.8)

Compliance Methods for the Above (Description and Citation):
Notification, recordkeeping, and reporting – Williams did not own the station at the time of turbine initial startup.

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): **1**

Applicable Requirement (Description and Citation):
NSPS Stationary Gas Turbines: Maintenance requirement (40 CFR 60.11(d))

Compliance Methods for the Above (Description and Citation):
Recordkeeping – Maintain and operate source and control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

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): **1**

Applicable Requirement (Describe and Cite):
NSPS Stationary Gas Turbines: Standard for Nitrogen Dioxide (40 CFR 60.332) and Monitoring of Operations (40 CFR 60.334 and 40 CFR 60.335)
Nitrogen dioxide emissions shall not exceed specified emission limitations (40 CFR 60.332)
Nitrogen dioxide concentration in turbine exhaust gas shall not exceed 150 ppmv at 15% oxygen on a dry basis. (40 CFR 60.335)

Compliance Methods for the Above (Description and Citation):
Testing and recordkeeping – Compliance tests may be required by permitting authority for NOx for the turbine. NOx concentrations shall be determined by EPA reference test Method 20. No allowance for fuel bound nitrogen shall be allowed. Results of all stack tests conducted shall be maintained for a period of two years and shall be made available on request to representatives of the EPA. Monitoring of nitrogen is not required while pipeline quality natural gas is used as fuel.

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): **1**

Applicable Requirement (Description and Citation):
NSPS Stationary Gas Turbines: Standard for Sulfur Dioxide (40 CFR 60.333) and Monitoring of Operations (40 CFR 60.334 and 40 CFR 60.335)
Sulfur dioxide concentration in the turbine exhaust gas shall not exceed 150 ppmv at 15% oxygen on a dry basis, or the fuel burned in the turbine shall not exceed 0.8 percent by weight sulfur.

Compliance Methods for the Above (Description and Citation):
Testing, monitoring and recordkeeping – A custom fuel monitoring schedule has been approved by EPA (8/17/97). Results of all fuel sampling conducted shall be maintained for a period of two years and shall be made available on request to representatives of the EPA. Maintain records of testing or monitoring. Monitoring results included in applicable 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): **1**

Applicable Requirement (Describe and Cite):
Title V Operating Permit R6FOPP71-04; Condition 1.2 Table 2
Emission Limitations: NOx 19.4 tpy; CO 11.4 tpy; VOC 0.4 tpy; HAPs 0.4 tpy
Revised with this application: NOx 35.6 tpy; CO 69.3 tpy; VOC 1.9 tpy; HAPs 0.2 tpy

Compliance Methods for the Above (Description and Citation):
Monitoring of fuel consumption as per Condition 3.2.2 and recordkeeping of maintenance and repair activities as per Condition 3.2.4.

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): **1**

Applicable Requirement (Describe and Cite):
Title V Operating Permit R6FOPP71-04; Condition 3.2.2 and 3.2.3
Natural gas burned shall not exceed 99.9 MMScf/yr; maximum design heat input 10.3 MMBtu/hr.
Revised with this application to 98.92 MMscf/yr and 10.84 MMBtu/hr.

Compliance Methods for the Above (Description and Citation):
Recordkeeping and Reporting – demonstrated by recording fuel flow/consumption on a monthly basis and reporting in 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): **1**

Applicable Requirement (Describe and Cite):
Title V Operating Permit R6FOPP71-04; Condition 3.2.5 and 3.2.6
Record fuel flow/consumption on a monthly basis. Maintain records at least 5 years from date recorded.

Compliance Methods for the Above (Description and Citation):
Recordkeeping and Reporting – demonstrated by maintaining required records and reporting in 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): **1**

Applicable Requirement (Description and Citation):
Title V Operating Permit R6FOPP71-04; Condition 1.2 Table 1
Fuel fired in turbine is limited to sweet natural gas of pipeline quality containing a maximum of 0.25 grains of H2S per 100 cubic feet.

Compliance Methods for the Above (Description and Citation):
Monitoring, Recordkeeping and Reporting – demonstrated by maintaining required records of fuel sulfur monitoring in accordance with Custom Fuel Monitoring Schedule. Results included 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): **2**

Applicable Requirement (Description and Citation):
Title V Operating Permit R6FOPP71-04; Condition 1.2 Table 2
Emission Limitations: NOx 63.1 tpy; CO 228.0 tpy; VOC 2.6 tpy; HAPs 0.5 tpy
Revised with this application: NOx 206.4 tpy; CO 145.5 tpy; VOC 0.9 tpy; HAPs 0.6 tpy

Compliance Methods for the Above (Description and Citation):
Recordkeeping and Reporting – demonstrated by recording annual hours of operation, fuel usage, and calculation of emission rates using prior emission source test data and/or AP-42 emission factors. Emissions will be calculated and reported at least once per year.

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): **2**

Applicable Requirement (Description and Citation):
Title V Operating Permit R6FOPP71-04; Condition 3.2.2 and 3.2.3
Natural gas burned shall not exceed 61 MMScf/yr; maximum design heat input 8.7MMBtu/hr as per 12/1/2004 permit modification.
Revised with this application: 67.4 MMscf/yr and 7.4 MMBtu/hr

Compliance Methods for the Above (Description and Citation):
Recordkeeping and Reporting – demonstrated by recording fuel flow/consumption on a monthly basis.

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): **2**

Applicable Requirement (Description and Citation):
Title V Operating Permit R6FOPP71-04; Condition 3.2.5 and 3.2.6
Record fuel flow/consumption on a monthly basis. Maintain records at least 5 years from date recorded.

Compliance Methods for the Above (Description and Citation):
Recordkeeping and Reporting – demonstrated by maintaining required records and reporting in 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): **2**

Applicable Requirement (Description and Citation):
Title V Operating Permit R6FOPP71-04; Condition 1.2 Table 1
Fuel fired in engine is limited to sweet natural gas of pipeline quality containing a maximum of 0.25 grains of H2S per 100 cubic feet.

Compliance Methods for the Above (Description and Citation):
Monitoring, Recordkeeping and Reporting – demonstrated by maintaining required records of fuel sulfur monitoring in accordance with Custom Fuel Monitoring Schedule. Results included 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): **T-1**

Applicable Requirement (Description and Citation):
Title V Operating Permit R6FOPP71-04; Condition 1.2 Table 2
Emission Limitations: VOC 222 tpy; HAPs 1.1 tpy
Revised with this application: VOC 223.8 tpy; HAPs 9.1 tpy

Compliance Methods for the Above (Description and Citation):
No requirements in current permit.

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): **Facility-wide**

Applicable Requirement (Description and Citation):
Title V Operating Permit R6FOPP71-04; Condition 3.2.4
Keep records on all repair and maintenance activities for all emission units.

Compliance Methods for the Above (Description and Citation):
Recordkeeping – demonstrated by recording all repair and maintenance activities by identifying relevant emission unit and describing work performed.

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): **Facility-wide**

Applicable Requirement (Description and Citation):
Title V Operating Permit R6FOPP71-04; Condition 3.2.7
Keep records of serial numbers for each emission unit

Compliance Methods for the Above (Description and Citation):
Recordkeeping and Reporting – demonstrated by maintaining records of serial numbers for each emission unit. Changes in serial number should be reflected 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): **Facility-wide**

Applicable Requirement (Description and Citation):
Title V Operating Permit R6FOPP71-04; Condition 3.2.9
Submit Semiannual Monitoring Report

Compliance Methods for the Above (Description and Citation):
Recordkeeping and Reporting – Six-Month Report shall be submitted to EPA Region 6 Office by January 1 and July 1 for the previous semiannual period. The report will include fuel flow/consumption records showing monthly and yearly average of fuel usage; repair and maintenance records of each emission unit; and change of serial number.

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): **Facility-wide**

Applicable Requirement (Description and Citation):
Title V Operating Permit R6FOPP71-04; Condition 5
Submit Annual Fee Payment and Annual Report, including updated fee calculation worksheet, submitted by July 20 each year

Compliance Methods for the Above (Description and Citation):
Recordkeeping and Reporting – Submit reports to EPA Region 6 Office by July 20 of each year for the previous calendar year's emissions. Include hours of operation of the facility, calculated annual emissions for pollutants listed in Table 2 of the Permit, summary of periods of noncompliance, and payment of annual fees.

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): **Facility-wide**

Applicable Requirement (Description and Citation):
Title V Operating Permit R6FOPP71-04; Condition 5.3
Submit Annual Compliance Certification

Compliance Methods for the Above (Description and Citation):
Recordkeeping and Reporting – Submit report to EPA Region 6 Office by January 1 of each year describing compliance with permit terms and conditions, including emission limitations, standards, work practices, fuel usage and heat input.

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): **Facility-wide**

Applicable Requirement (Description and Citation):
Title V Operating Permit R6FOPP71-04; Condition 5.17
Submit Permit Renewal

Compliance Methods for the Above (Description and Citation):
Reporting - submit renewal application 6-18 months prior to permit's expiration date.

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 - NA

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 - NA

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

INSTRUCTIONS FOR I-COMP
INITIAL COMPLIANCE PLAN AND COMPLIANCE CERTIFICATION

Section A (Compliance Status and Compliance Plan)

Description of Applicable Requirement: Complete Section A for each unique combination of applicable requirements (emission limitations, standards or other similar requirements of federal rules, SIP, TIP, FIP, or federally-enforceable permits) that apply to particular emissions units. You will likely have to complete this section numerous times to include all requirements at all emission units.

The emissions unit ID(s) should be the ones defined in section I of form GIS. If the requirement, including compliance method, applies in the same way to multiple emission units, you may list multiple units for a particular requirement.

The descriptions here should be detailed to the individual requirement level, rather than the standard level (if a MACT applies to you, describe each requirement of the MACT, rather than just a citation to the MACT as a whole). If the requirement imposes a particular numerical limit or range, include that in your description.

Citations to the requirements should unambiguously identify the requirement to the lowest level necessary.

Compliance Methods: List all compliance methods (monitoring, recordkeeping and reporting) you used to determine compliance with the applicable requirement described above. Such methods may be required by the applicable requirements or performed for other reasons. List all compliance methods required by applicable requirements, whether you used them to determine compliance or not.

To describe monitoring, indicate the monitoring device, the equipment, process, or pollutant monitored, averaging time, frequency, and a citation or cross-reference to the requirement. To describe recordkeeping, describe the records kept, the frequency of collection, and include a citation or cross-reference to the requirement. Please indicate whether monitoring data, results, or other records kept for compliance purposes may be kept on-site rather than reported. To describe reporting requirements, describe what is reported, when it is reported, and cite or cross-reference the requirement.

The citation or cross-reference here must unambiguously identify the requirement to the lowest level necessary.

Note that Compliance Assurance Monitoring (CAM) under part 64 is also an applicable requirement that may impose compliance methods for title V sources and require the submittal of a CAM plan with this application. Also note that periodic monitoring (which may be monitoring or recordkeeping designed to serve as monitoring) under part 71 may be required in certain limited circumstances: when there is no monitoring required, monitoring is required but there is no frequency specified, or only a one-time test is required. You may propose periodic monitoring in your application, but the permitting authority will make the final decision. If you wish to propose periodic monitoring, please do so in an attachment that clearly identifies the requirements, the units they apply to, and what you propose for periodic monitoring.

Compliance Status: For each requirement and associated compliance methods described above, indicate whether you are in compliance, not in compliance, or it is a future-effective requirement (only check one). This is with respect to your compliance status at the time of application submittal. You should consider all available information or knowledge that you have when evaluating your compliance status, including reference test methods and other compliance requirements that are required directly by a statute, regulation, or permit and "credible evidence" (e.g., non-reference test methods and other information "readily available" to you and already being utilized by you). For each compliance status indication, you must answer "YES" or "NO" as to your expectations for continuing (or future) compliance. If you answer "NO" to any of these questions, you will have to complete the schedule of compliance section (section B).

Section B (Schedule of Compliance)

Complete this section if you answered ■NO• to any of the questions in section A. Regardless of how you answered the questions in section A, complete this section if required to have a schedule of compliance by an applicable requirement, or if a judicial consent decree or administrative order includes a schedule of compliance.

Identify the applicable requirement using the same information you used in section A. Provide a brief explanation of the reason for noncompliance (either now or in the future). [e.g., "do not have control device required as BACT."] Next, provide a brief description of what the schedule of compliance is trying to achieve. Then in the table provided, include a detailed schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with the applicable requirement. This schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject. Any such schedule of compliance must be supplemental to, and not sanction noncompliance with, the applicable requirements on which it is based. For each remedial measure, provide the date by which the action will be completed. This schedule or one approved by the permitting authority will be included in the permit.

Lastly, attach a copy of any judicial consent decrees or administrative orders for which you are providing a schedule of compliance.

Section C (Schedule for Submission of Progress Reports)

If you must submit one or more schedules of compliance (specified in section B), or if an applicable requirement requires submittal of a progress report, complete this section. Progress reports describe your progress in meeting the milestone dates for the remedial measures required by the schedule of compliance. Progress reports must be submitted at least every 6 months, but specific applicable requirements may require them more frequently. One progress report may include information on one or more schedules of compliance. Describe the contents of the progress report, including the date that your facility will begin submitting them and the frequency they will be submitted.

Section D (Schedule for Submission of Compliance Certifications)

All applicants must complete this section. Compliance certifications must be submitted at least every year unless the applicable requirement or EPA requires them more frequently. Provide the date when the first compliance certification will be sent.

Section E (Compliance Status for Enhanced Monitoring and Compliance Certification)

All applicants must complete this section. The completion of this section does not satisfy the requirement for the responsible official to submit a certification of truth, accuracy, and completeness (instead this is met by completing form CTAC and submitting it with the other forms you send to EPA).

To certify compliance with "Enhanced Monitoring," you must be in compliance at all emission units with CAM and "Periodic Monitoring" [required by •71.6(a)(3)(i)(B)], if they apply. "Compliance Certification Requirements" include requirements for compliance certification in title V applications and permits, and possibly through applicable requirements (e.g., certain MACT standards). If you have fully completed sections A - E of this form, you will be in compliance with the compliance certification requirement for applications. If you do not have a title V permit at this time, you can assume you are in compliance with the compliance certification requirements for permits and with periodic monitoring requirements. If you indicate you are "not in compliance" with either of these requirements, attach an explanation.

END

EPA United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 09/30/2010

Federal Operating Permit Program (40 CFR Part 71)

CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS (CTAC)

Los Mestenios Compressor Station

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 Director, Four Corner Area Operations

Street or P.O. Box 188 County Road 4900

City Bloomfield State NM ZIP 87413

Telephone (505) 632 – 4628 Ext. _____ Facsimile (505) 632 - 4781

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) Don Wicburg

Name (typed) Don Wicburg Date: 5 / 5 / 2008

APPENDIX A

SUPPORTING INFORMATION FOR FUEL COMBUSTION SOURCES

Turbine Emissions

Emission Unit No. 1

Model: Solar Saturn 1200

Horsepower Calculations

6600 ft MSL	Altitude	
1200 hp	Sea level horsepower	Mfg. data
1136 hp	Derated hp at site elevation	2% per 1000 feet above 4000 feet

Emission Rates

NOx	CO	VOC	Units	Emission Rate
8.1	15.8	0.4	lb/hr	Potential to emit-hourly (1)
35.6	69.3	1.9	ton/yr	Potential to emit-annual (1)

Basis for Calculations:

(1) Based on manufacturer's data plus 25% safety factor for NOx and VOC, and 50% safety factor for CO.

Fuel Consumption

1200	Btu/cf	Fuel heat value	Nominal heat value for natural gas
98.92	MMScf/yr	Max fuel usage	Assume 8760 hr/yr (includes 25% safety factor)
10.84	MMBtu/hr	Max heat input	Manufacturer's data sheet

Engine Emissions

Emission Unit No. 2

Model: Caterpillar G399 TA Reciprocating Engine

Horsepower Calculations

6600 ft MSL	Altitude	
750 hp	Sea level horsepower	Mfg. data
690 hp	Derated hp at site elevation	3% per 1000 feet above 4000 feet

Emission Rates

NOx (1)	CO (2)	VOC (3)	Units	Emission Rate
47.1	33.2	0.3	lb/hr	Hourly emission rate
206.4	145.5	1.1	ton/yr	Annual potential to emit (4)

Basis for Calculations:

(1) NOx emissions from Cat data sheet, picking highest emission setting for any TA model unit (not including TA low emission models), plus 25% safety factor

(2) CO emissions from Cat data sheet, picking highest emission setting for any TA model unit (not including TA low emission models); plus 50% safety factor

(3) VOC emissions from AP-42 Table 3.2-3 (VOC/TOC * BTU ratio 1200/1020), plus 25% safety factor

(4) Based on 8760 hours /year operation

Fuel Consumption

1200 Btu/cf	Fuel heat value	Nominal heat value for natural gas
67.4 MMscf/yr	Max fuel usage	Assume 8760 hour/year (includes 25% safety factor)
7.4 MMBtu/hr	Max Heat input	Cat datasheet, picking highest fuel Consumption for any TA model (not including TA low emission models)

Insignificant Emissions Units

Fuel Gas Heater Emissions – Emission Unit No. 3
Heater Emissions - Emission Unit No. 4
Unit No. 3 Model: Unknown
Unit No. 4 Model: Unknown

Emission Rates

NOx (1)	CO (2)	VOC (3)	Units	Emission Rate
0.04	0.03	0.002	lb/hr	Hourly emission rate
0.17	0.14	0.009	ton/yr	Annual potential to emit (4)

Basis for Calculations:

(1) NOx emissions calculated from AP-42 emission factor, Section 1.4 (NOx factor = 100 lb/MMcf) + 20% safety factor

(2) CO emissions calculated from AP-42 emission factor, Section 1.4 (CO factor = 84 lb/MMcf) + 20% safety factor

(3) VOC emissions calculated from AP-42 emission factor, Section 1.4 (VOC factor = 5.5 lb/MMcf) + 20% safety factor

(4) Based on 8760 hours /year operation

Fuel Data

0.3 MMBtu/hr	Heat rate	Nameplate
939 Btu/cf	Fuel heat value	Nominal heat value for natural gas
0.32 Mscf/hr	Fuel usage	Heat rate / Fuel heat value
2.8 MMscf/yr	Annual fuel usage	Assume 8760 hours/year operation

Los Mestenios Compressor Station Emissions and Fuel Consumption Calculations

Current Part 71 Permit R6FOPP71-04 Limits

	NOx tpy	CO tpy	VOC tpy	Fuel mmcf/yr
Solar	19.4	11.4	0.4	99.9
Cat	63.1	228	2.6	61
total	82.5	239.4	3.0	160.9

+225.2 tpy VOC from tank flash & fugitives

Proposed Emissions for the Renewal of Part 71 Permit R6FOPP71-04

	NOx tpy	CO tpy	UHC tpy	VOC	Fuel mmcf/yr
Solar	28.47	46.22	6.62	1.49	79.13
Cat	165.10	96.99	9.27	0.90	54
total	193.57	143.21	15.89	2.39	133.0
plus tankflash & fug	193.57	143.21	15.89	227.59	

include a 25% safety factor for NOx & VOC, and fuel consumption
include a 50% safety factor for CO

	NOx tpy	CO tpy	UHC tpy	VOC tpy	Fuel mmcf/yr
Solar w/safety factor	35.59	69.33	8.28	1.86	98.92
Cat w/safety factor	206.37	145.48	11.59	1.13	67.38
	241.96	214.81	19.86	2.99	166.3
plus tankflash & fug	241.96	214.81	19.86	228.19	

Sc T1200 Emissions

	NOx tpy	CO tpy	UHC tpy	VOC
Solar	28.47	46.22	6.62	1.49

*NOx, CO, UHC from Solar datasheet; VOC from AP-42 Table 3.1-2a (VOC/TOC * Btu ratio 1200/1020)

Cat 399TA Emissions at Standard settings

	rating hp	rating rpm	NOx g/hp-hr	CO g/hp-hr	VOC g/hp-hr	NOx tpy	CO tpy	VOC tpy
TA LCR Std	930	1200	18.5	0.8	1.1	148.27	6.41	8.82
TA LCR Std	830	1200	20.6	0.8	0.8	165.10	6.41	6.41
TA LCR Std	800	1000	16.9	0.9	1.2	130.55	6.95	9.27
TA LCR Std	730	1000	19	0.9	0.9	133.93	6.34	6.34
TA HCR Std	930	1200	12.5	1.5	0.9	112.25	13.47	8.08
TA HCR Std	800	1000	10.8	1	0.8	83.43	7.72	6.18

Cat 399TA Emissions at Catalyst settings

	rating hp	rating rpm	NOx g/hp-hr	CO g/hp-hr	VOC g/hp-hr	NOx tpy	CO tpy	VOC tpy
TA LCR Catalyst	830	1200	9.6	8.1	0.8	76.94	64.92	6.41
TA LCR Catalyst	730	1000	9.7	9.7	0.9	68.37	68.37	6.34
TA HCR Catalyst	930	1200	10.4	10.8	1	93.39	96.99	8.98
TA HCR Catalyst	800	1000	8.9	9.6	1	68.75	74.16	7.72

NOx, CO, UHC from Cat datasheet, picking highest emissions setting for any TA model unit (not inc. TA low emis models)

VOC from AP-42 Table 3.2-3 (VOC/TOC * Btu ratio 1200/1020)

Fuel Consumption

	MMBtu/hr	MMBtu/yr	equiv mmcf/yr	+safety factor MMBtu/yr	+safety factor equiv mmcf/yr	
Solar	10.84	94,958	79.13	118,698	98.92	from Solar datasheet
Cat	7.38	64,686	53.90	80,857	67.38	from Cat datasheet, picking highest fuel consumption for any TA model unit (not inc. TA low emis models)

Cat	rating hp	rating rpm	BSCF Btu/hp-hr	MMBtu/hr	MMBtu/yr	equiv mmcf/yr
TA LCR Std	930	1200	7940	7.38	64686	53.90
TA LCR Std	830	1200	7825	6.49	56894	47.41
TA LCR Std	800	1000	7852	6.28	55027	45.86
TA LCR Std	730	1000	7810	5.70	49943	41.62
TA HCR Std	930	1200	7560	7.03	61590	51.32
TA HCR Std	800	1000	7500	6.00	52560	43.80
TA LCR Catalyst	830	1200	8089	6.71	58814	49.01
TA LCR Catalyst	730	1000	7866	5.74	50301	41.92
TA HCR Catalyst	930	1200	7662	7.13	62421	52.02
TA HCR Catalyst	800	1000	7650	6.12	53611	44.68

assume 1200 Btu/scf

GRI-HAPCalc® 3.0
Detailed Emissions Report

Facility ID:	**LOS MESTENIOS**	**Notes:**	
Operation Type:	**COMPRESSOR STATION**		
Facility Name:	**LOS MESTENIOS**		
User Name:			
Units of Measure:	**U.S. STANDARD**		

Number of Process Units

Amine (Natural Gas) Units:	**0**	**Flares:**	**0**
Amine (Rich/Lean) Units:	**0**	**Liquid Hydrocarbon Storage Tanks:**	**0**
Sulfur Recovery Units:	**0**	**Truck Loading Units:**	**0**
Engines:	**1**	**Miscellaneous Vents:**	**0**
Turbines:	**1**	**Fugitives:**	**No**
External Combustion Devices:	**2**		

Note: Emissions less than 5.00E-09 tons (or tonnes) per year are considered insignificant and are treated as zero. These emissions are indicated on the report with a "0". Emissions between 5.00E-09 and 5.00E-05 tons (or tonnes) per year are represented on the report with "0.0000".

Amine (Natural Gas) Units

NO AMINE (NG Balance) UNITS DATA.

Engine Units

Unit Number: CAT 399TA
Hours of Operation: 8,760 Yearly
Rated Horsepower: 690 hp
Fuel Type: FIELD GAS
Engine Type: 4-Stroke, Rich Burn
Emission Factor Set: FIELD > EPA > LITERATURE
Additional EF Set: -NONE-

Calculated Emissions

Chemical Name	Emissions (ton/yr)	Emission Factor	EF Set
HAPs			
Formaldehyde	0.2788	0.0418834000 g/bhp-hr	GRI Field
Methanol	0.0444	0.0066667000 g/bhp-hr	GRI Field
Benzene	0.1471	0.0221000000 g/bhp-hr	GRI Field
Toluene	0.0473	0.0071000000 g/bhp-hr	GRI Field
Xylenes(m,p,o)	0.0113	0.0017000000 g/bhp-hr	GRI Field
Naphthalene	0.0018	0.0002754000 g/bhp-hr	GRI Field
2-Methylnaphthalene	0.0003	0.0000505000 g/bhp-hr	GRI Field
Acenaphthylene	0.0001	0.0000189000 g/bhp-hr	GRI Field
Acenaphthene	0.0001	0.0000109000 g/bhp-hr	GRI Field
Dibenzofuran	0.0000	0.0000057000 g/bhp-hr	GRI Field
Fluorene	0.0001	0.0000172000 g/bhp-hr	GRI Field
Anthracene	0.0000	0.0000040000 g/bhp-hr	GRI Field
Phenanthrene	0.0002	0.0000321000 g/bhp-hr	GRI Field
Fluoranthene	0.0001	0.0000126000 g/bhp-hr	GRI Field
Pyrene	0.0001	0.0000086000 g/bhp-hr	GRI Field
Benz(a)anthracene	0.0000	0.0000018000 g/bhp-hr	GRI Field
Chrysene	0.0000	0.0000022000 g/bhp-hr	GRI Field
Benzo(a)pyrene	0.0000	0.0000004000 g/bhp-hr	GRI Field
Benzo(b)fluoranthene	0.0000	0.0000022000 g/bhp-hr	GRI Field
Benzo(k)fluoranthene	0.0000	0.0000022000 g/bhp-hr	GRI Field
Benzo(g,h,i)perylene	0.0000	0.0000007000 g/bhp-hr	GRI Field
Indeno(1,2,3-c,d)pyrene	0.0000	0.0000005000 g/bhp-hr	GRI Field
Dibenz(a,h)anthracene	0.0000	0.0000002000 g/bhp-hr	GRI Field
Total HAPs:	0.5319		
Criteria Pollutants			
CO	60.4672	9.0834921000 g/bhp-hr	GRI Field
NMEHC	1.7572	0.2639682000 g/bhp-hr	GRI Field
NOx	50.1029	7.5265467000 g/bhp-hr	GRI Field
Other Pollutants			
Methane	6.5237	0.9800000000 g/bhp-hr	GRI Field
Ethylene	0.8432	0.1266667000 g/bhp-hr	GRI Field
Ethane	2.0414	0.3066667000 g/bhp-hr	GRI Field

Propylene	0.1598	0.0240000000 g/bhp-hr	GRI Field
Propane	0.6391	0.0960000000 g/bhp-hr	GRI Field

Turbine Units

Unit Number: T1200
Hours of Operation: 8,760 Yearly
Rated Horsepower: 1,136 hp
Fuel Type: NATURAL GAS
Emission Factor Set: FIELD > EPA > LITERATURE
Additional EF Set: -NONE-

Calculated Emissions

Chemical Name	Emissions (ton/yr)	Emission Factor	EF Set
HAPs			
Formaldehyde	0.1856	0.0169368000 g/bhp-hr	GRI Field
Acetaldehyde	0.1900	0.0173357000 g/bhp-hr	GRI Field
1,3-Butadiene	0.0007	0.0000616000 g/bhp-hr	GRI Field
Acrolein	0.0028	0.0002600000 g/bhp-hr	GRI Field
Propional	0.0095	0.0008650000 g/bhp-hr	GRI Field
Propylene Oxide	0.0014	0.0001248000 g/bhp-hr	EPA
n-Nitrosodimethylamine	0.0000	0.0000010000 g/bhp-hr	EPA
Benzene	0.0059	0.0005384000 g/bhp-hr	GRI Field
Toluene	0.0045	0.0004110000 g/bhp-hr	GRI Field
Ethylbenzene	0.0011	0.0001033000 g/bhp-hr	EPA
Xylenes(m,p,o)	0.0136	0.0012441000 g/bhp-hr	GRI Field
2,2,4-Trimethylpentane	0.0176	0.0016053000 g/bhp-hr	GRI Field
n-Hexane	0.0165	0.0015058000 g/bhp-hr	GRI Field
Phenol	0.0012	0.0001101000 g/bhp-hr	GRI Field
n-Nitrosomorpholine	0.0000	0.0000010000 g/bhp-hr	EPA
Naphthalene	0.0001	0.0000076000 g/bhp-hr	GRI Field
2-Methylnaphthalene	0.0000	0.0000013000 g/bhp-hr	GRI Field
Biphenyl	0.0036	0.0003305000 g/bhp-hr	GRI Field
Phenanthrene	0.0000	0.0000005000 g/bhp-hr	GRI Field
Chrysene	0.0000	0.0000010000 g/bhp-hr	GRI Field
Beryllium	0.0000	0.0000001000 g/bhp-hr	GRI Field
Phosphorous	0.0007	0.0000652000 g/bhp-hr	GRI Field
Chromium	0.0001	0.0000082000 g/bhp-hr	GRI Field
Chromium	0.0001	0.0000056000 g/bhp-hr	EPA
Manganese	0.0002	0.0000175000 g/bhp-hr	GRI Field
Nickel	0.0001	0.0000061000 g/bhp-hr	GRI Field
Cobalt	0.0000	0.0000016000 g/bhp-hr	GRI Field
Arsenic	0.0000	0.0000006000 g/bhp-hr	GRI Field
Selenium	0.0000	0.0000003000 g/bhp-hr	GRI Field
Cadmium	0.0000	0.0000002000 g/bhp-hr	GRI Field
Mercury	0.0000	0.0000027000 g/bhp-hr	GRI Field
Lead	0.0000	0.0000034000 g/bhp-hr	GRI Field
Total HAPs:	0.4554		

Criteria Pollutants

PM	0.3490	0.0318468000 g/bhp-hr	EPA
CO	23.1061	2.1082842000 g/bhp-hr	GRI Field
NMHC	2.1248	0.1938780000 g/bhp-hr	GRI Field
NMEHC	0.1321	0.0120501000 g/bhp-hr	EPA
NOx	13.7233	1.2521629000 g/bhp-hr	GRI Field
SO2	0.0113	0.0010272000 g/bhp-hr	GRI Field
Other Pollutants			
Methane	10.8193	0.9871923000 g/bhp-hr	GRI Field
Acetylene	0.0785	0.0071654000 g/bhp-hr	GRI Field
Ethylene	0.1529	0.0139545000 g/bhp-hr	GRI Field
Ethane	1.6449	0.1500837000 g/bhp-hr	GRI Field
Propane	0.1754	0.0160000000 g/bhp-hr	GRI Field
Isobutane	0.0526	0.0048000000 g/bhp-hr	GRI Field
Butane	0.0570	0.0052000000 g/bhp-hr	GRI Field
Trimethylamine	0.0000	0.0000007000 g/bhp-hr	EPA
Cyclopentane	0.0181	0.0016511000 g/bhp-hr	GRI Field
Butyrald/Isobutyraldehyde	0.0147	0.0013400000 g/bhp-hr	GRI Field
n-Pentane	0.8894	0.0811500000 g/bhp-hr	GRI Field
Cyclohexane	0.0671	0.0061240000 g/bhp-hr	GRI Field
Methylcyclohexane	0.0968	0.0088312000 g/bhp-hr	GRI Field
n-Octane	0.0349	0.0031889000 g/bhp-hr	GRI Field
1,3,5-Trimethylbenzene	0.0329	0.0030000000 g/bhp-hr	GRI Field
n-Nonane	0.0058	0.0005326000 g/bhp-hr	GRI Field
CO2	5,188.2765	473.3981155000 g/bhp-hr	EPA
Vanadium	0.0000	0.0000007000 g/bhp-hr	GRI Field
Copper	0.0002	0.0000205000 g/bhp-hr	GRI Field
Molybdenum	0.0002	0.0000203000 g/bhp-hr	GRI Field
Barium	0.0003	0.0000229000 g/bhp-hr	GRI Field

External Combustion Devices

Unit Number: FUEL HTR
Hours of Operation: 8,760 Yearly
Heat Input: 0.30 MMBtu/hr
Fuel Type: NATURAL GAS
Device Type: HEATER
Emission Factor Set: FIELD > EPA > LITERATURE
Additional EF Set: -NONE-

Calculated Emissions

Chemical Name	Emissions (ton/yr)	Emission Factor	EF Set
HAPs			
7,12-Dimethylbenz(a)anthr	0.0000	0.0000000157 lb/mmbtu	EPA
Formaldehyde	0.0011	0.0008440090 lb/mmbtu	GRI Field
Methanol	0.0013	0.0009636360 lb/mmbtu	GRI Field
Acetaldehyde	0.0010	0.0007375920 lb/mmbtu	GRI Field
1,3-Butadiene	0.0004	0.0003423350 lb/mmbtu	GRI Field
Benzene	0.0010	0.0007480470 lb/mmbtu	GRI Field
Toluene	0.0013	0.0010163310 lb/mmbtu	GRI Field
Ethylbenzene	0.0028	0.0021128220 lb/mmbtu	GRI Field
Xylenes(m,p,o)	0.0017	0.0013205140 lb/mmbtu	GRI Field
2,2,4-Trimethylpentane	0.0037	0.0028417580 lb/mmbtu	GRI Field
n-Hexane	0.0018	0.0014070660 lb/mmbtu	GRI Field
Phenol	0.0000	0.0000001070 lb/mmbtu	GRI Field
Styrene	0.0027	0.0020788960 lb/mmbtu	GRI Field
Naphthalene	0.0000	0.0000005100 lb/mmbtu	GRI Field
2-Methylnaphthalene	0.0000	0.0000001470 lb/mmbtu	GRI Field
Acenaphthylene	0.0000	0.0000000670 lb/mmbtu	GRI Field
Biphenyl	0.0000	0.0000004730 lb/mmbtu	GRI Field
Acenaphthene	0.0000	0.0000000900 lb/mmbtu	GRI Field
Fluorene	0.0000	0.0000000800 lb/mmbtu	GRI Field
Anthracene	0.0000	0.0000000870 lb/mmbtu	GRI Field
Phenanthrene	0.0000	0.0000000600 lb/mmbtu	GRI Field
Fluoranthene	0.0000	0.0000000900 lb/mmbtu	GRI Field
Pyrene	0.0000	0.0000000830 lb/mmbtu	GRI Field
Benz(a)anthracene	0.0000	0.0000000870 lb/mmbtu	GRI Field
Chrysene	0.0000	0.0000001170 lb/mmbtu	GRI Field
Benzo(a)pyrene	0.0000	0.0000000700 lb/mmbtu	GRI Field
Benzo(b)fluoranthene	0.0000	0.0000001500 lb/mmbtu	GRI Field
Benzo(k)fluoranthene	0.0000	0.0000007600 lb/mmbtu	GRI Field
Benzo(g,h,i)perylene	0.0000	0.0000002600 lb/mmbtu	GRI Field
Indeno(1,2,3-c,d)pyrene	0.0000	0.0000001200 lb/mmbtu	GRI Field
Dibenz(a,h)anthracene	0.0000	0.0000001030 lb/mmbtu	GRI Field
Lead	0.0000	0.0000004902 lb/mmbtu	EPA
Total HAPs:	0.0189		

Criteria Pollutants			
VOC	0.0071	0.0053921569 lb/mmbtu	EPA
PM	0.0098	0.0074509804 lb/mmbtu	EPA
PM, Condensible	0.0073	0.0055882353 lb/mmbtu	EPA
PM, Filterable	0.0024	0.0018627451 lb/mmbtu	EPA
CO	0.0425	0.0323636360 lb/mmbtu	GRI Field
NMHC	0.0112	0.0085294118 lb/mmbtu	EPA
NOx	0.1275	0.0970167730 lb/mmbtu	GRI Field
SO2	0.0008	0.0005880000 lb/mmbtu	EPA
Other Pollutants			
Dichlorobenzene	0.0000	0.0000011765 lb/mmbtu	EPA
Methane	0.0138	0.0105212610 lb/mmbtu	GRI Field
Acetylene	0.0184	0.0140000000 lb/mmbtu	GRI Field
Ethylene	0.0012	0.0009476310 lb/mmbtu	GRI Field
Ethane	0.0035	0.0026312210 lb/mmbtu	GRI Field
Propylene	0.0031	0.0023454550 lb/mmbtu	GRI Field
Propane	0.0014	0.0010686280 lb/mmbtu	GRI Field
Isobutane	0.0019	0.0014640770 lb/mmbtu	GRI Field
Butane	0.0018	0.0013766990 lb/mmbtu	GRI Field
Cyclopentane	0.0015	0.0011304940 lb/mmbtu	GRI Field
Pentane	0.0046	0.0034671850 lb/mmbtu	GRI Field
n-Pentane	0.0019	0.0014221310 lb/mmbtu	GRI Field
Cyclohexane	0.0012	0.0009183830 lb/mmbtu	GRI Field
Methylcyclohexane	0.0029	0.0022011420 lb/mmbtu	GRI Field
n-Octane	0.0038	0.0028538830 lb/mmbtu	GRI Field
1,2,3-Trimethylbenzene	0.0045	0.0034224540 lb/mmbtu	GRI Field
1,2,4-Trimethylbenzene	0.0045	0.0034224540 lb/mmbtu	GRI Field
1,3,5-Trimethylbenzene	0.0045	0.0034224540 lb/mmbtu	GRI Field
n-Nonane	0.0048	0.0036604170 lb/mmbtu	GRI Field
CO2	154.5882	117.6470588235 lb/mmbtu	EPA

Unit Number: HEATER
Hours of Operation: 8,760 Yearly
Heat Input: 0.30 MMBtu/hr
Fuel Type: NATURAL GAS
Device Type: HEATER
Emission Factor Set: FIELD > EPA > LITERATURE
Additional EF Set: -NONE-

Calculated Emissions

Chemical Name	Emissions (ton/yr)	Emission Factor	EF Set
HAPs			
7,12-Dimethylbenz(a)anthr	0.0000	0.0000000157 lb/mmbtu	EPA
Formaldehyde	0.0011	0.0008440090 lb/mmbtu	GRI Field
Methanol	0.0013	0.0009636360 lb/mmbtu	GRI Field
Acetaldehyde	0.0010	0.0007375920 lb/mmbtu	GRI Field

1,3-Butadiene	0.0004	0.0003423350 lb/mmbtu	GRI Field
Benzene	0.0010	0.0007480470 lb/mmbtu	GRI Field
Toluene	0.0013	0.0010163310 lb/mmbtu	GRI Field
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Acenaphthene	0.0000	0.0000000900 lb/mmbtu	GRI Field
Fluorene	0.0000	0.0000000800 lb/mmbtu	GRI Field
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Chrysene	0.0000	0.0000001170 lb/mmbtu	GRI Field
Benzo(a)pyrene	0.0000	0.0000000700 lb/mmbtu	GRI Field
Benzo(b)fluoranthene	0.0000	0.0000001500 lb/mmbtu	GRI Field
Benzo(k)fluoranthene	0.0000	0.0000007600 lb/mmbtu	GRI Field
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Indeno(1,2,3-c,d)pyrene	0.0000	0.0000001200 lb/mmbtu	GRI Field
Dibenz(a,h)anthracene	0.0000	0.0000001030 lb/mmbtu	GRI Field
Lead	0.0000	0.0000004902 lb/mmbtu	EPA
Total HAPs:	0.0189		

Criteria Pollutants

VOC	0.0071	0.0053921569 lb/mmbtu	EPA
PM	0.0098	0.0074509804 lb/mmbtu	EPA
PM, Condensible	0.0073	0.0055882353 lb/mmbtu	EPA
PM, Filterable	0.0024	0.0018627451 lb/mmbtu	EPA
CO	0.0425	0.0323636360 lb/mmbtu	GRI Field
NMHC	0.0112	0.0085294118 lb/mmbtu	EPA
NOx	0.1275	0.0970167730 lb/mmbtu	GRI Field
SO2	0.0008	0.0005880000 lb/mmbtu	EPA

Other Pollutants

Dichlorobenzene	0.0000	0.0000011765 lb/mmbtu	EPA
Methane	0.0138	0.0105212610 lb/mmbtu	GRI Field
Acetylene	0.0184	0.0140000000 lb/mmbtu	GRI Field
Ethylene	0.0012	0.0009476310 lb/mmbtu	GRI Field
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Butane	0.0018	0.0013766990 lb/mmbtu	GRI Field

Cyclopentane	0.0015	0.0011304940 lb/mmbtu	GRI Field
Pentane	0.0046	0.0034671850 lb/mmbtu	GRI Field
n-Pentane	0.0019	0.0014221310 lb/mmbtu	GRI Field
Cyclohexane	0.0012	0.0009183830 lb/mmbtu	GRI Field
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CO2	154.5882	117.6470588235 lb/mmbtu	EPA

Solar Turbines
A Caterpillar Company

PREDICTED ENGINE PERFORMANCE

Customer: *Williams*	Model: **SATURN 10-1200**
Job ID: **TBD**	Package Type: **CS/MD**
Run By: **Michael E Clay** / Date Run: **28-Dec-07**	Match: **STANDARD**
Engine Performance Code: **REV. 3.40** / Engine Performance Data: **REV. 0.0**	Fuel System: **GAS**
	Fuel Type: **SD NATURAL GAS**

DATA FOR MINIMUM PERFORMANCE

Elevation	feet	6700
Inlet Loss	in H20	2.2
Exhaust Loss	in H20	3.3

		1	2	3	4	5	6
Engine Inlet Temperature	deg F	0	20.0	40.0	60.0	80.0	100.0
Relative Humidity	%	60.0	60.0	60.0	60.0	60.0	60.0
Driven Equipment Speed	RPM	22300	22300	22289	22224	22050	21624
Specified Load	HP	FULL	FULL	FULL	FULL	FULL	FULL
Net Output Power	HP	960	942	914	881	837	771
Fuel Flow	mmBtu/hr	10.84	10.64	10.37	10.07	9.75	9.28
Heat Rate	Btu/HP-hr	11295	11296	11351	11437	11645	12036
Therm Eff	%	22.526	22.524	22.415	22.247	21.850	21.139
Engine Exhaust Flow	lbm/hr	42233	41050	39871	38645	37142	35087
Exhaust Temperature	deg F	766	794	818	841	863	887

Fuel Gas Composition (Volume Percent)

Methane (CH4)	92.79
Ethane (C2H6)	4.16
Propane (C3H8)	0.84
N-Butane (C4H10)	0.18
N-Pentane (C5H12)	0.04
Hexane (C6H14)	0.04
Carbon Dioxide (CO2)	0.44
Hydrogen Sulfide (H2S)	0.0001
Nitrogen (N2)	1.51

Fuel Gas Properties

LHV (Btu/Scf)	939.2	Specific Gravity	0.5970	Wobbe Index at 60F	1215.6

This performance was calculated with a basic inlet and exhaust system. Special equipment such as low noise silencers, special filters, heat recovery systems or cooling devices will affect engine performance. Performance shown is "Expected" performance at the pressure drops stated, not guaranteed.

Notes
Los Mestenios

Solar Turbines
A Caterpillar Company

PREDICTED EMISSION PERFORMANCE

Customer: **Williams**	Engine Model: **SATURN 10-1200 CS/MD STANDARD**
Job ID: **TBD**	
Inquiry Number: **TBD**	Fuel Type: **SD NATURAL GAS** / Water Injection: **NO**
Run By: **Michael E Clay** / Date Run: **28-Dec-07**	Engine Emissions Data: **REV. 0.0**

	NOx EMISSIONS	CO EMISSIONS	UHC EMISSIONS
1 — 960 Hp, 100.0% Load, Elev. 6700 ft, Rel. Humidity 60.0%, Temperature 0 Deg. F			
PPMvd at 15% O2	150.00	400.00	100.00
ton/yr	28.47	46.22	6.62
lbm/MMBtu (Fuel LHV)	0.600	0.973	0.139
lbm/hr	6.50	10.55	1.51
g/(Hp-hr) (gas turbine shaft pwr)	3.07	4.99	0.71
2 — 942 Hp, 100.0% Load, Elev. 6700 ft, Rel. Humidity 60.0%, Temperature 20.0 Deg. F			
PPMvd at 15% O2	150.00	400.00	100.00
ton/yr	27.92	45.33	6.49
lbm/MMBtu (Fuel LHV)	0.599	0.973	0.139
lbm/hr	6.37	10.35	1.48
g/(Hp-hr) (gas turbine shaft pwr)	3.07	4.98	0.71

Notes

1. For short-term emission limits such as lbs/hr., Solar recommends using "worst case" anticipated operating conditions specific to the application and the site conditions. Worst case for one pollutant is not necessarily the same for another.
2. Solar's typical SoLoNOx warranty, for ppm values, is available for greater than 0 deg F, and between 50% and 100% load for gas fuel, and between 65% and 100% load for liquid fuel (except for the Centaur 40). An emission warranty for non-SoLoNOx equipment is available for greater than 0 deg F and between 80% and 100% load.
3. Fuel must meet Solar standard fuel specification ES 9-98. Emissions are based on the attached fuel composition, or, San Diego natural gas or equivalent.
4. If needed, Solar can provide Product Information Letters to address turbine operation outside typical warranty ranges, as well as non-warranted emissions of SO2, PM10/2.5, VOC, and formaldehyde.
5. Solar can provide factory testing in San Diego to ensure the actual unit(s) meet the above values within the tolerances quoted. Pricing and schedule impact will be provided upon request.
6. Any emissions warranty is applicable only for steady-state conditions and does not apply during start-up, shut-down, malfunction, or transient event.

Solar Turbines
A Caterpillar Company

PREDICTED EMISSION PERFORMANCE

Customer: **Williams**	Engine Model: **SATURN 10-1200 CS/MD STANDARD**
Job ID: **TBD**	
Inquiry Number: **TBD**	Fuel Type: **SD NATURAL GAS** / Water Injection: **NO**
Run By: **Michael E Clay** / Date Run: **28-Dec-07**	Engine Emissions Data: **REV. 0.0**

	NOx EMISSIONS	CO EMISSIONS	UHC EMISSIONS
3 — 914 Hp, 100.0% Load, Elev. 6700 ft, Rel. Humidity 60.0%, Temperature 40.0 Deg. F			
PPMvd at 15% O2	150.00	400.00	100.00
ton/yr	27.15	44.08	6.31
lbm/MMBtu (Fuel LHV)	0.598	0.970	0.139
lbm/hr	6.20	10.06	1.44
g/(Hp-hr) (gas turbine shaft pwr)	3.08	5.00	0.72
4 — 881 Hp, 100.0% Load, Elev. 6700 ft, Rel. Humidity 60.0%, Temperature 60.0 Deg. F			
PPMvd at 15% O2	150.00	400.00	100.00
ton/yr	26.26	42.63	6.10
lbm/MMBtu (Fuel LHV)	0.595	0.966	0.138
lbm/hr	6.00	9.73	1.39
g/(Hp-hr) (gas turbine shaft pwr)	3.09	5.01	0.72

Notes

1. For short-term emission limits such as lbs/hr., Solar recommends using "worst case" anticipated operating conditions specific to the application and the site conditions. Worst case for one pollutant is not necessarily the same for another.
2. Solar's typical SoLoNOx warranty, for ppm values, is available for greater than 0 deg F, and between 50% and 100% load for gas fuel, and between 65% and 100% load for liquid fuel (except for the Centaur 40). An emission warranty for non-SoLoNOx equipment is available for greater than 0 deg F and between 80% and 100% load.
3. Fuel must meet Solar standard fuel specification ES 9-98. Emissions are based on the attached fuel composition, or, San Diego natural gas or equivalent.
4. If needed, Solar can provide Product Information Letters to address turbine operation outside typical warranty ranges, as well as non-warranted emissions of SO2, PM10/2.5, VOC, and formaldehyde.
5. Solar can provide factory testing in San Diego to ensure the actual unit(s) meet the above values within the tolerances quoted. Pricing and schedule impact will be provided upon request.
6. Any emissions warranty is applicable only for steady-state conditions and does not apply during start-up, shut-down, malfunction, or transient event.

Solar Turbines
A Caterpillar Company

PREDICTED EMISSION PERFORMANCE

Customer: **Williams**	Engine Model: **SATURN 10-1200 CS/MD STANDARD**
Job ID: **TBD**	
Inquiry Number: **TBD**	Fuel Type: **SD NATURAL GAS** / Water Injection: **NO**
Run By: **Michael E Clay** / Date Run: **28-Dec-07**	Engine Emissions Data: **REV. 0.0**

	NOx EMISSIONS	CO EMISSIONS	UHC EMISSIONS
5 — 837 Hp, 100.0% Load, Elev. 6700 ft, Rel. Humidity 60.0%, Temperature 80.0 Deg. F			
PPMvd at 15% O2	150.00	400.00	100.00
ton/yr	25.21	40.92	5.86
lbm/MMBtu (Fuel LHV)	0.590	0.958	0.137
lbm/hr	5.76	9.34	1.34
g/(Hp-hr) (gas turbine shaft pwr)	3.12	5.06	0.72
6 — 771 Hp, 100.0% Load, Elev. 6700 ft, Rel. Humidity 60.0%, Temperature 100.0 Deg. F			
PPMvd at 15% O2	150.00	400.00	100.00
ton/yr	23.64	38.38	5.50
lbm/MMBtu (Fuel LHV)	0.581	0.944	0.135
lbm/hr	5.40	8.76	1.25
g/(Hp-hr) (gas turbine shaft pwr)	3.17	5.15	0.74

Notes

1. For short-term emission limits such as lbs/hr., Solar recommends using "worst case" anticipated operating conditions specific to the application and the site conditions. Worst case for one pollutant is not necessarily the same for another.
2. Solar's typical SoLoNOx warranty, for ppm values, is available for greater than 0 deg F, and between 50% and 100% load for gas fuel, and between 65% and 100% load for liquid fuel (except for the Centaur 40). An emission warranty for non-SoLoNOx equipment is available for greater than 0 deg F and between 80% and 100% load.
3. Fuel must meet Solar standard fuel specification ES 9-98. Emissions are based on the attached fuel composition, or, San Diego natural gas or equivalent.
4. If needed, Solar can provide Product Information Letters to address turbine operation outside typical warranty ranges, as well as non-warranted emissions of SO2, PM10/2.5, VOC, and formaldehyde.
5. Solar can provide factory testing in San Diego to ensure the actual unit(s) meet the above values within the tolerances quoted. Pricing and schedule impact will be provided upon request.
6. Any emissions warranty is applicable only for steady-state conditions and does not apply during start-up, shut-down, malfunction, or transient event.

G399 EMISSIONS DATA

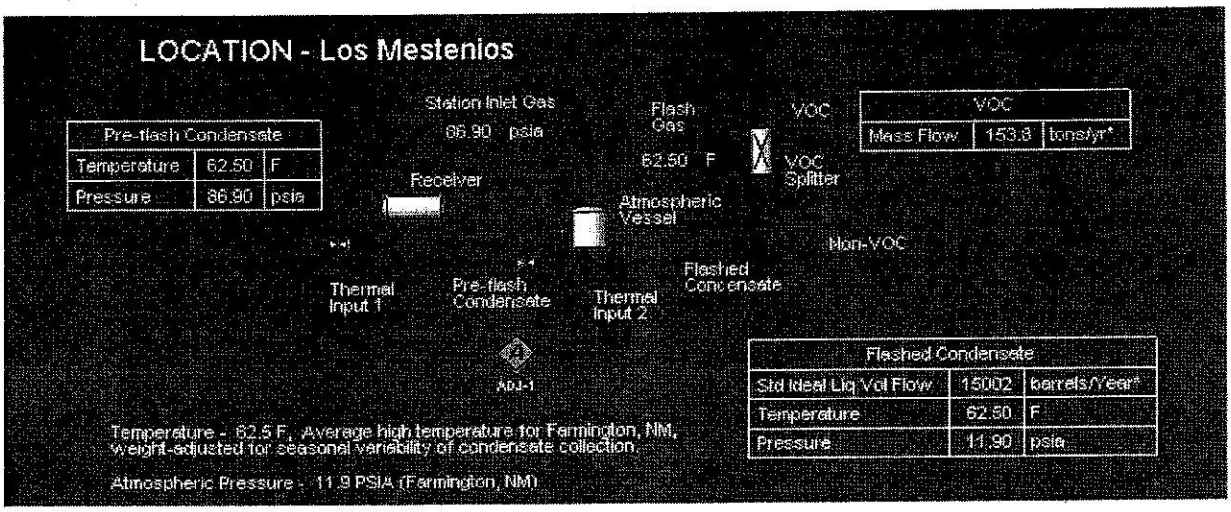
G399 EMISSIONS DATA @ STANDARD RATINGS

ENGINE	RATING (hp/rpm)	NOx	CO (gram/hp-hr)	HC	%02	A/FR vol/vol	Tstack deg F	EXH FLOW cfm	AIR FLOW kg/hr	BSFC Btu/hp-hr
NA HCR	660/1200									
	stand/catalyst	12.7	13.9	1.8	0.5	9.4	1105	2986	1900	7895
NA HCR	550/1000									
	stand	13.4	1.0	1.6	1.0	10.0	1060	2497	1636	7600
	catalyst	7.8	8.2	1.7	0.5	9.5	1070	2420	1575	7700
NA LCR	600/1200									
	stand/catalyst	11.2	11.5	0.8	0.5	9.5	1200	3151	1890	8936
NA LCR	500/1000									
	stand	14.9	0.8	0.8	2.0	10.4	1140	2454	1535	8398
	catalyst	11.1	11.8	0.8	0.5	9.5	1150	2353	1455	8712
TA LCR	830/1200									
	stand	20.6	0.8	0.8	2.0	10.5	1046	3847	2560	7825
	catalyst	9.6	8.1	0.8	0.5	9.5	1108	3767	2394	8089
TA LCR	730/1000									
	stand	19.0	0.9	0.9	2.0	10.4	1019	3242	2196	7810
	catalyst	9.7	9.7	0.9	0.5	9.5	1063	3128	2020	7966
TA LCR	930/1200									
	stand	18.5	0.8	1.1	2.0	—	1105	4154	2659	7940
TA HCR	930/1200									
	stand	12.5	1.5	0.9	2.0	10.5	1100	4103	2636	7560
	catalyst	10.4	10.8	1.0	0.5	9.5	1129	3854	2417	7662
TA LCR	800/1000									
	stand	16.9	0.9	1.2	2.0	—	1029	3362	2260	7852
TA HCR	800/1000									
	stand	10.8	1.0	0.8	2.0	10.2	1060	3453	2273	7500
	catalyst	8.9	9.6	1.0	0.5	9.5	1071	3317	2159	7650
TA HCR 32C LOW EMIS	930/1200									
	stand	5.0	1.5	1.1	6.8	13.9	1019	5610	3853	7755
		2.0	1.6	1.6	7.5	14.5	1010	5901	4085	8167
		1.5	1.7	1.7	7.6	14.6	1010	6015	4165	8203
TA HCR 32C LOW EMIS	800/1000									
	stand	5.0	1.4	1.9	7.0	14.5	994	4979	3485	7354
		2.0	1.4	2.3	7.6	15.0	992	5001	3510	7778
		1.5	1.4	2.5	7.8	15.2	992	5158	3622	7849
TA HCR 54C LOW EMIS	930/1200									
	stand	5.0	1.5	1.3	6.7	13.6	1040	5060	3424	7663
		2.0	1.6	1.9	7.5	14.4	1061	5424	3628	7886
		1.5	1.7	2.2	7.8	14.6	1062	5505	3662	8202
TA HCR 54C LOW EMIS	730/1000									
	stand	5.0	1.1	1.6	6.7	13.9	967	4454	2836	7256
		2.0	1.3	2.2	7.6	14.8	975	4269	3030	7531
		1.5	1.3	2.5	7.8	15.0	973	4452	3166	7600

Lowest permitted @ 9.5 $\frac{g\ NOx}{hp\ hr}$: 34.3 $\frac{g\ CO}{hp\ hr}$ @ 690 site hp as per 1993 EPA NSR permit
CO from test (what level)

APPENDIX B

SUPPORTING INFORMATION FOR STORAGE TANKS



HYSYS Model Results

Location: **Los Mestenios Compressor Station**

2002 Condensate Volume (post-flash): 15,002 bbls

2002 VOC Emissions: 153.8 Tons

Name	Pre-flash Condensate	Flashed Condensate	Flash Gas	VOC	VOC w/40% Safety Factor
Vapour Fraction	0.0	0.0	1.0	1.0	
Temperature [F]	62.5	62.5	62.5	75.0	
Pressure [psia]	86.9	11.9	11.9	11.2	
Molar Flow [MMSCFD]	4.936E-02	4.115E-02	8.210E-03	5.591E-03	
Mass Flow [tons/yr*]	2001.7	1816.4	185.2	153.8	215.35
Liquid Volume Flow [barrels/Year*]	17,055.2	15,002.0	2,053.2	1,532.5	
Molecular Weight	84.26	91.71	46.88	57.16	
Name	**Pre-flash Condensate**	**Flashed Condensate**	**Flash Gas**	**Tons of VOC (calculated)**	**Tons of VOC w/ Safety Factor**
Comp Mass Frac (CO2)	0.00035	0.00002	0.00351	na	na
Comp Mass Frac (Nitrogen)	0.00000	0.00000	0.00000	na	na
Comp Mass Frac (Methane)	0.00391	0.00009	0.04135	na	na
Comp Mass Frac (Ethane)	0.01316	0.00178	0.12473	na	na
Comp Mass Frac (Propane)	0.03949	0.01541	0.27559	51.05	71.47
Comp Mass Frac (i-Butane)	0.02248	0.01489	0.09698	17.96	25.15
Comp Mass Frac (n-Butane)	0.05384	0.04074	0.18229	33.77	47.27
Comp Mass Frac (i-Pentane)	0.05596	0.05264	0.08849	16.39	22.95
Comp Mass Frac (n-Pentane)	0.05658	0.05542	0.06797	12.59	17.63
Comp Mass Frac (2-Mpentane)	0.07274	0.07626	0.03821	7.08	9.91
Comp Mass Frac (n-Hexane)	0.05682	0.06046	0.02116	3.92	5.49
Comp Mass Frac (Mcyclopentan)	0.00000	0.00000	0.00000	0.00	0.00
Comp Mass Frac (Benzene)	0.01002	0.01069	0.00348	0.65	0.90
Comp Mass Frac (Cyclohexane)	0.04049	0.04344	0.01153	2.14	2.99
Comp Mass Frac (2-Mhexane)	0.14269	0.15494	0.02252	4.17	5.84
Comp Mass Frac (n-Heptane)	0.05350	0.05833	0.00615	1.14	1.60
Comp Mass Frac (Mcyclohexane)	0.00000	0.00000	0.00000	0.00	0.00
Comp Mass Frac (Toluene)	0.03978	0.04344	0.00383	0.71	0.99
Comp Mass Frac (2-Mheptane)	0.18069	0.19818	0.00917	1.70	2.38
Comp Mass Frac (n-Octane)	0.03318	0.03644	0.00117	0.22	0.30
Comp Mass Frac (E-Benzene)	0.00302	0.00332	0.00009	0.02	0.02
Comp Mass Frac (m-Xylene)	0.02555	0.02809	0.00063	0.12	0.16
Comp Mass Frac (o-Xylene)	0.00000	0.00000	0.00000	0.00	0.00
Comp Mass Frac (n-Nonane)	0.05598	0.06162	0.00063	0.12	0.16
Comp Mass Frac (Cumene)	0.03979	0.04379	0.00051	0.09	0.13
Comp Mass Frac (n-PBenzene)	0.00000	0.00000	0.00000	0.00	0.00
Comp Mass Frac (124-MBenzene)	0.00000	0.00000	0.00000	0.00	0.00
Comp Mass Frac (n-Decane)	0.00000	0.00000	0.00000	0.00	0.00
Comp Mass Frac (n-C11)	0.00000	0.00000	0.00000	0.00	0.00
TOTAL	1.00000	1.00000	1.00000	153.82	215.35

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

Identification

User Identification:	21,000 gal Condensate Tank (T-1)
City:	Bloomfield
State:	New Mexico
Company:	Williams
Type of Tank:	Vertical Fixed Roof Tank
Description:	Los Mestenios

Tank Dimensions

Shell Height (ft):	20.00
Diameter (ft):	14.00
Liquid Height (ft) :	19.00
Avg. Liquid Height (ft):	10.00
Volume (gallons):	21,000.00
Turnovers:	42.00
Net Throughput(gal/yr):	882,000.00
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

21,000 gal Condensate 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	5.4918	4.2037	7.0904	74.2364			77.61	
Benzene						1.3372	0.9653	1.8208	78.1100	0.0061	0.0016	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.1286	0.0854	0.1894	106.1700	0.0010	0.0000	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.1727	1.6003	2.9030	86.1700	0.4140	0.1712	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Pentane (-n)						7.6199	5.8716	9.7769	72.1500	0.5699	0.8267	72.15	Option 3: A=27691, B=7.558
Toluene						0.3844	0.2666	0.5435	92.1300	0.0065	0.0005	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1073	0.0710	0.1586	106.1700	0.0025	0.0001	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)

21,000 gal Condensate Tank (T-1) - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Annual Emission Calcaulations

Standing Losses (lb):	5,345.0143
Vapor Space Volume (cu ft):	1,539.3804
Vapor Density (lb/cu ft):	0.0724
Vapor Space Expansion Factor:	0.5137
Vented Vapor Saturation Factor:	0.2557
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,539.3804
Tank Diameter (ft):	14.0000
Vapor Space Outage (ft):	10.0000
Tank Shell Height (ft):	20.0000
Average Liquid Height (ft):	10.0000
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):	7.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0724
Vapor Molecular Weight (lb/lb-mole):	74.2364
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.4918
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:	0.5137
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	2.8867
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.4918
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.2037
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	7.0904
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:	0.2557
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	5.4918

Vapor Space Outage (ft):	10.0000
Working Losses (lb):	7,542.3415
Vapor Molecular Weight (lb/lb-mole):	74.2364
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.4918
Annual Net Throughput (gal/yr.):	882,000.0000
Annual Turnovers:	42.0000
Turnover Factor:	0.8810
Maximum Liquid Volume (gal):	21,000.0000
Maximum Liquid Height (ft):	19.0000
Tank Diameter (ft):	14.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	12,887.3557

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

Emissions Report for: Annual

21,000 gal Condensate Tank (T-1) - Vertical Fixed Roof Tank
Bloomfield, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Condensate	7,542.34	5,345.01	12,887.36
Benzene	11.71	8.30	20.01
Ethylbenzene	0.18	0.13	0.32
Hexane (-n)	1,291.46	915.22	2,206.68
Pentane (-n)	6,235.01	4,418.55	10,653.56
Toluene	3.59	2.54	6.13
Xylene (-m)	0.39	0.27	0.66

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

Identification

User Identification:	300 bbl Condensate Tank
City:	Albuquerque
State:	New Mexico
Company:	Williams
Type of Tank:	Vertical Fixed Roof Tank
Description:	Los Mestenios

Tank Dimensions

Shell Height (ft):		15.00
Diameter (ft):		13.00
Liquid Height (ft) :		12.00
Avg. Liquid Height (ft):		8.00
Volume (gallons):		12,600.00
Turnovers:		12.00
Net Throughput(gal/yr):		151,200.00
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

300 bbl Condensate Tank - Vertical Fixed Roof Tank
Albuquerque, 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	5.4918	4.2037	7.0904	74.2364			77.61	
Benzene						1.3372	0.9653	1.8208	78.1100	0.0061	0.0016	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.1286	0.0854	0.1894	106.1700	0.0010	0.0000	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.1727	1.6003	2.9030	86.1700	0.4140	0.1712	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Pentane (-n)						7.6199	5.8716	9.7769	72.1500	0.5699	0.8267	72.15	Option 3: A=27691, B=7.558
Toluene						0.3844	0.2666	0.5435	92.1300	0.0065	0.0005	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-m)						0.1073	0.0710	0.1586	106.1700	0.0025	0.0001	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)

300 bbl Condensate Tank - Vertical Fixed Roof Tank
Albuquerque, New Mexico

Annual Emission Calcaulations

Standing Losses (lb):	4,153.5256
Vapor Space Volume (cu ft):	929.1260
Vapor Density (lb/cu ft):	0.0724
Vapor Space Expansion Factor:	0.5137
Vented Vapor Saturation Factor:	0.3292
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	929.1260
Tank Diameter (ft):	13.0000
Vapor Space Outage (ft):	7.0000
Tank Shell Height (ft):	15.0000
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):	6.5000
Vapor Density	
Vapor Density (lb/cu ft):	0.0724
Vapor Molecular Weight (lb/lb-mole):	74.2364
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.4918
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:	0.5137
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	2.8867
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.4918
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.2037
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	7.0904
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:	0.3292
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	5.4918

Vapor Space Outage (ft):	7.0000
Working Losses (lb):	1,467.6989
Vapor Molecular Weight (lb/lb-mole):	74.2364
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.4918
Annual Net Throughput (gal/yr.):	151,200.0000
Annual Turnovers:	12.0000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	12,600.0000
Maximum Liquid Height (ft):	12.0000
Tank Diameter (ft):	13.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	5,621.2244

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

Emissions Report for: Annual

300 bbl Condensate Tank - Vertical Fixed Roof Tank
Albuquerque, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Condensate	1,467.70	4,153.53	5,621.22
Benzene	2.28	6.45	8.73
Ethylbenzene	0.04	0.10	0.14
Hexane (-n)	251.31	711.20	962.51
Pentane (-n)	1,213.30	3,433.59	4,646.88
Toluene	0.70	1.98	2.67
Xylene (-m)	0.07	0.21	0.29

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:	2940 gal Produced Water Tank
City:	Bloomfield
State:	New Mexico
Company:	Williams
Type of Tank:	Vertical Fixed Roof Tank
Description:	Los Mestenios

Tank Dimensions

Shell Height (ft):	7.00
Diameter (ft):	8.00
Liquid Height (ft) :	7.00
Avg. Liquid Height (ft):	3.00
Volume (gallons):	2,632.09
Turnovers:	40.00
Net Throughput(gal/yr):	105,283.69
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

2940 gal Produced Water 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
Produced Water	All	64.94	53.24	76.64	58.39	0.3257	0.2167	0.4801	20.7974			18.14	
Benzene						1.3372	0.9653	1.8208	78.1100	0.0001	0.0002	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Butane						28.6704	23.0459	35.2667	58.1300	0.0008	0.0586	58.13	Option 1: VP60 = 26.098 VP70 = 31.306
Ethylbenzene						0.1286	0.0854	0.1894	106.1700	0.0000	0.0000	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.1727	1.6003	2.9030	86.1700	0.0042	0.0245	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Pentane (-n)						7.6199	5.8716	9.7769	72.1500	0.0049	0.0992	72.15	Option 3: A=27691, B=7.558
Toluene						0.3844	0.2666	0.5435	92.1300	0.0001	0.0001	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Water						0.3084	0.2031	0.4583	18.0000	0.9900	0.8174	18.00	Option 1: VP60 = .255246 VP70 = .362758
Xylene (-m)						0.1073	0.0710	0.1586	106.1700	0.0000	0.0000	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)

2940 gal Produced Water Tank - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Annual Emission Calcaulations

Standing Losses (lb):	8.7894
Vapor Space Volume (cu ft):	201.0619
Vapor Density (lb/cu ft):	0.0012
Vapor Space Expansion Factor:	0.1064
Vented Vapor Saturation Factor:	0.9354
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	201.0619
Tank Diameter (ft):	8.0000
Vapor Space Outage (ft):	4.0000
Tank Shell Height (ft):	7.0000
Average Liquid Height (ft):	3.0000
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):	4.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0012
Vapor Molecular Weight (lb/lb-mole):	20.7974
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3257
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:	0.1064
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	0.2634
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3257
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.2167
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.4801
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:	0.9354
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.3257

Vapor Space Outage (ft):	4.0000
Working Losses (lb):	15.5653
Vapor Molecular Weight (lb/lb-mole):	20.7974
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3257
Annual Net Throughput (gal/yr.):	105,283.6864
Annual Turnovers:	40.0000
Turnover Factor:	0.9167
Maximum Liquid Volume (gal):	2,632.0922
Maximum Liquid Height (ft):	7.0000
Tank Diameter (ft):	8.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	24.3547

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

Emissions Report for: Annual

2940 gal Produced Water Tank - Vertical Fixed Roof Tank
Bloomfield, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Pentane (-n)	1.54	0.87	2.42
Hexane (-n)	0.38	0.22	0.60
Produced Water	15.57	8.79	24.35
Water	12.72	7.18	19.91
Benzene	0.00	0.00	0.01
Toluene	0.00	0.00	0.00
Ethylbenzene	0.00	0.00	0.00
Xylene (-m)	0.00	0.00	0.00
Butane	0.91	0.51	1.43

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

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

APPENDIX C

SUPPORTING INFORMATION FOR FUGITIVE EMISSIONS

CONVENTIONAL GAS SERVICE FUGITIVE EMISSION SPECIATION & CALCULATIONS
WFS LOS MESTENIOS COMPRESSOR STATION (Emissions Unit F-1)

Component	Molecular Weight	Mole %	Weighted Sum	Weight %	VOC Emissions (tpy)
C_1 through C_6 Compounds[a]					
Nitrogen (N_2)	28.013	0.4200%	0.1177	0.5757%	-
Methane (C_1)	16.043	81.8340%	13.1286	64.2432%	-
Ethane (C_2)	30.070	9.8050%	2.9484	14.4274%	-
Carbon Dioxide (CO_2)	44.010	0.8990%	0.3956	1.9361%	-
Propane (C_3)	44.097	3.8240%	1.6863	8.2515%	1.4141
IsoButane (i-C_4)	58.123	0.7450%	0.4330	2.1189%	0.3631
Normal Butane (n-C_4)	58.123	1.1960%	0.6952	3.4016%	0.5830
IsoPentane (i-C_5)	72.150	0.4090%	0.2951	1.4440%	0.2475
Normal Pentane (n-C_5)	72.150	0.2840%	0.2049	1.0027%	0.1718
Hexanes (C_6+)		0.5840%			
C_6+ Compounds[b]					
Benzene	78.114	0.0222%	0.0173	0.0848%	0.0145
Cyclohexane	84.162	0.0572%	0.0482	0.2357%	0.0404
n-Hexane	86.177	0.1226%	0.1057	0.5172%	0.0886
Other C_6+	86.177	0.2126%	0.1832	0.8964%	0.1536
Toluene	92.141	0.0175%	0.0161	0.0790%	0.0135
Methylcyclohexane	98.189	0.0420%	0.0413	0.2020%	0.0346
Heptanes	100.204	0.0841%	0.0843	0.4124%	0.0707
Ethylbenzene	106.167	0.0006%	0.0006	0.0030%	0.0005
Xylenes	106.167	0.0035%	0.0037	0.0182%	0.0031
C_8+ heavies	114.232	0.0269%	0.0307	0.1502%	0.0257
Total		100.01%	20.44	100.00%	
Total VOC		**7.04%**		**18.82%**	**3.22**
Total HAPs		0.17%		0.70%	0.12

Component	Number of Components[c]	Emission Factor (kg/hr/source)[d]	Emission Factor (lb/hr/source)	Fugitive TOC Emissions (lb/hr)	Gas Stream VOC Content (wt %)	Total VOC Fugitive Emissions (lb/hr)[e]
Valves	311	4.5E-03	9.9E-03	3.079	18.82%	0.579
Pump Seals	0	2.4E-03	5.3E-03	0.000	18.82%	0.000
Compressor Seals	5	8.8E-03	1.9E-02	0.097	18.82%	0.018
Pressure Relief Valves	12	8.8E-03	1.9E-02	0.232	18.82%	0.044
Connectors	237	2.0E-04	4.4E-04	0.104	18.82%	0.020
Flanges	0	3.9E-04	8.6E-04	0.000	18.82%	0.000
Open-Ended Lines	91	2.0E-03	4.4E-03	0.400	18.82%	0.075
Total Fugitive Emissions						
lb/hr				3.91		**0.74**
ton/yr				17.14		**3.22**

[a] Los Mestenios conventional gas composition from WFS standard gas analysis (02/99).

[b] Based on WFS Ojito extended conventional gas analysis (05/98).

[c] Number of components based on combined component counts from WFS 29-7#1 CDP and Gobernador Compressor Station (02/95).

[d] Emission factors from the EPA document "Protocol for Equipment Leak Emission Estimates", Table 2-4 (11/95).

[e] Total VOC fugitive emissions include C_3 compounds and heavier.

CORE LABORATORIES

LABORATORY TESTS RESULTS
05/26/98

JOB NUMBER: 982613 CUSTOMER: WILLIAMS FIELD SERVICES ATTN: BOBBY MYERS

CLIENT I.D.........:
DATE SAMPLED.......: 05/13/98
TIME SAMPLED.......: 00:00
WORK DESCRIPTION...: Ojito

LABORATORY I.D...: 982613-0002
DATE RECEIVED....: 05/21/98
TIME RECEIVED....: 17:00
REMARKS..........:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Extended Natural Gas Analysis		*1			05/26/98	TSH
Oxygen	0.02	0.01	Mol %	GPA 2261-90		
Nitrogen	0.52	0.01	Mol %	GPA 2261-90		
Carbon Dioxide	0.64	0.01	Mol %	GPA 2261-90		
Methane	82.07	0.01	Mol %	GPA 2261-90		
Ethane	9.36	0.01	Mol %	GPA 2261-90		
Propane	4.25	0.01	Mol %	GPA 2261-90		
Isobutane	0.72	0.01	Mol %	GPA 2261-90		
n-Butane	1.15	0.01	Mol %	GPA 2261-90		
Isopentane	0.43	0.01	Mol %	GPA 2261-90		
n-Pentane	0.34	0.01	Mol %	GPA 2261-90		
Hexanes Plus	0.50	0.01	Mol %	GPA 2261-90		
Total	100.00	0.01	Mol %			
elative Density	0.70593	0		GPA 2172-86		
pressibility Factor	0.99676	0		GPA 2172-86		
oss Heating Value (Dry/Real)	1221.9	0	BTU/CF 14.696			
Heating Value (Dry)	1107.5	0	BTU/CF (Real)			
/imethylbutane	0.010	0.001	Mol %	GPA 2286-86		
2-Methyl Pentane	0.115	0.001	Mol %	GPA 2286-86		
3-Methyl Pentane	0.054	0.001	Mol %	GPA 2286-86		
n-Hexane	0.105	0.001	Mol %	GPA 2286-86		
Methylcyclopentane	0.003	0.001	Mol %	GPA 2286-86		
Benzene	0.019	0.001	Mol %	GPA 2286-86		
Cyclohexane	0.049	0.001	Mol %	GPA 2286-86		
2-Methyl Hexane	0.021	0.001	Mol %	GPA 2286-86		
3-Methylhexane	0.020	0.001	Mol %	GPA 2286-86		
Dimethylcyclopentanes	0.011	0.001	Mol %	GPA 2286-86		
n-Heptane	0.020	0.001	Mol %	GPA 2286-86		
Methylcyclohexane	0.036	0.001	Mol %	GPA 2286-86		
Trimethylcyclopentanes	0.003	0.001	Mol %	GPA 2286-86		
Toluene	0.015	0.001	Mol %	GPA 2286-86		
2-Methylheptane	0.003	0.001	Mol %	GPA 2286-86		
3-Methylheptane	0.001	0.001	Mol %	GPA 2286-86		
Dimethylcyclohexanes	0.003	0.001	Mol %	GPA 2286-86		
n-Octane	0.003	0.001	Mol %	GPA 2286-86		
Ethyl Benzene	<0.001	0.001	Mol %	GPA 2286-86		
Xylenes (total)	0.003	0.001	Mol %	GPA 2286-86		
C9 Paraffins	<0.001	0.001	Mol %	GPA 2286-86		
n-Nonane	0.009	0.001	Mol %	GPA 2286-86		
Decanes Plus	<0.001	0.001	Mol %	GPA 2286-86		
Hexanes Plus Mol WT	90.3	0.1	#/#-mol	GPA 2286-86		
Hexanes Plus Relative Density	0.7021	0.0001	60/60	GPA 2286-86		
Hexanes Plus Heating Value	4886.0	0.1	BTU/CF (Ideal)	GPA 2286-86		
Hexanes Plus Vapor Equivalent	24.608	0.001	CF/gal	GPA 2286-86		

P O BOX 34766
HOUSTON, TX 77234-4282
(713) 943-9776

PAT

100 GAS ANALYSIS INFORMATION (GANL) 249256

Station: LOS MESTENOS COMP FUEL

Lab Identification:	K637	Helium	(He)	0.0000	
		Carbon Dioxide	(CO2)	0.8990	
Effective Date:	03/01/99	Nitrogen	(N2)	0.4200	
Analyzed Date:	02/02/99	Methane	(CH4)	81.8340	
Sample Date On:	02/01/99	Ethane	(C2)	9.8050	2.622
Sample Date Off:	02/01/99	Propane	(C3)	3.8240	1.054
Sample Type:	S	I-butane	(IC4)	0.7450	0.244
Sample Gravity:	0.7081	N-butane	(NC4)	1.1960	0.377
Dry BTU:	1224.1136	I-pentane	(IC5)	0.4090	0.150
BTU Pressure Base:	14.730	N-pentane	(NC5)	0.2840	0.103
Ideal Specific Grav:	0.7060	Hexanes	(C6)	0.5840	0.255
Ideal BTU:	1220.0116	Heptanes	(C7)	0.0000	0.000
Close out:		Octanes	(C8)	0.0000	0.000
Sample thru GANL:	C6	Nonanes	(C9)	0.0000	0.000
		Decanes	(C10)	0.0000	0.000
Normalize:					
		TOTAL:		100.0000	4.805
Remarks:					
LOS MESTENOS COMP FUEL					

Revised by DE on 02/06/99

WILLIAMS KUTZ LAB ID:505-632-4469

Facility Identification: San Juan 29-7 No.1 CDP, New Mexico
Drawing Number: 29-7-1-P2

Number of Compression Units at the Facility:	1
Number of Dehydrators at the Facility:	0
Number of Compression Stages	2

STREAM VOC CONCENTRATION (wt frac)	
1 - Gas	0.0029
2 - Glycol, amine and aqueous	0.020
3 - Condensate	1.000

Start	End	Stream Code	Process/Equipment Description	EQUIPMENT COUNT						INSTRUMENT		
				Valves	Connectors	Pump Seal	Compressor Seal	PRVs	Open-ends	Flow	Level	Pressure
1	A	1	Station inlet, meter run to pulsation dampener	29	16			1	13	2		2
2	B	1	Compressor suction header	2	4				3			1
3	C	1	Compressor suction header to discharge header bypass	4	3				2			
4	D	3	Compressor/station discharge header and drain	8	4			1	5		1	1
5	E	1	Fuel/starting gas header	2	2			1	2			1
6	F	1	Instrument gas header	2	2			1	2			1
7	G	1	Fuel gas filter loop	14	8				3		2	2
8	H	1	Instrument gas dryer loop and miscellaneous equipment	9	11				3			1
9	I	1	Discharge header to station outlet	8	3				4			
10	J	1	ESD panel	6								
12	-	1	Components from Compressors	44	59	0	4	6	11	0	4	9
13	-	2	Components from Dehydrators	0	0	0	0	0	0	0	0	0
			TOTAL	128	112	0	4	10	48	2	7	18
			ADJUSTED TOTAL*	197	148	0	4	10	55 .			

* . The following fugitive emission components from process instruments have been added to the adjusted total: 1 valve is added for each open end line; 2 connectors are added for each flow meter; two valves, two connectors and one open end line are added for each level gauge; and one connector is added for each pressure gauge.

Facility Identification: Gobernador Compressor Station

Drawing Number: ESD diagram only, no P&ID

Number of Compression Units at the Facility:	1
Number of Dehydrators at the Facility:	0
Number of Compression Stages	1

STREAM VOC CONCENTRATION (wt frac)	
1 - Gas	0.0029
2 - Glycol, amine and aqueous	0.020
3 - Condensate	1.000

Start	End	Stream Code	Process/Equipment Description	EQUIPMENT COUNT						INSTRUMENT		
				Valves	Connectors	Pump Seal	Compressor Seal	PRVs	Open-ends	Flow	Level	Pressure
1	A	1	20" Suction line to inlet gas scrubber	4	3				2			1
2	-	3	Inlet gas scrubber	8	7			1	4		4	2
3	B	1	Inlet gas scrubber to compressor	5			1		1	1		1
4	C	1	Compressor discharge to meter run and station discharge	8	7				3		3	3
5	D	1	Fuel gas feed and filter loop	22	18			1	12	1	7	4
6	E	1	Fuel gas supply to compressor	3	10							1
			SUBTOTAL	50	45	0	1	2	22	2	14	12
			ADJUSTED FACILITY TOTAL	114	89	0	1	2	36			

The following fugitive emission components from process instruments have been added to the adjusted total: 1 valve is added for each open end line; 2 connectors are added for each flow meter; two valves, two connectors and one open end line are added for each level gauge; and one connector is added for each pressure gauge.

Comment: Assume one turbine compressor. Component count based on equipment shown on ESD diagram and information from P&ID for similar equipment at other facilities and field observation of other compressor stations. Assume single stage compression, no dehydration unit.

EPA-453/R-95-017

1995 Protocol for Equipment Leak Emission Estimates

Emission Standards Division

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

November 1995

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.

Condensate Liquid Loading Losses

Location: WFS Los Mestenios Compressor Station
Emissions Unit: F-2

from AP-42 Section 5.2, Transportation and Marketing of Petroleum Liquids

L_L = 12.46*S*P*M/T = loading loss (lb/10^3 gal) of liquid loaded

where S = 0.60 = saturation factor (Table 5.2-1), submerged loading
P = 5.80 = true vapor pressure of liquid loaded (psia)
M = 74.3 = vapor molecular weight (lb/lb-mol)
T = 519.2 = temperature of bulk liquid loaded (^{o}R)

L_L = 6.20 lb/1000 gal

Tank truck capacity = 9240 gallons, with approximately 7.3 truck loadings every month
= 882,000 gallons/year

Total VOC losses = (6.20 lb/1000gal)*(498,960 gal/yr)*(1 ton/2000 lb)

Total VOC losses = 2.74 tpy
@ one hour per loading, (1.55 tpy)*(1 yr/54 hr)*(2000 lb/ton) = 101.34 lb/hr

Condensate vapor mass fractions from TANKS4.0 output,

	wt fraction	lb/hr	tpy
n-Hexane	0.1725	17.482	0.472
benzene	0.0016	0.162	0.004
toluene	0.0005	0.051	0.001
ethylbenzene	0	0.000	0.000
xylenes	0.0001	0.010	0.000

5.2 Transportation And Marketing Of Petroleum Liquids[1-3]

5.2.1 General

The transportation and marketing of petroleum liquids involve many distinct operations, each of which represents a potential source of evaporation loss. Crude oil is transported from production operations to a refinery by tankers, barges, rail tank cars, tank trucks, and pipelines. Refined petroleum products are conveyed to fuel marketing terminals and petrochemical industries by these same modes. From the fuel marketing terminals, the fuels are delivered by tank trucks to service stations, commercial accounts, and local bulk storage plants. The final destination for gasoline is usually a motor vehicle gasoline tank. Similar distribution paths exist for fuel oils and other petroleum products. A general depiction of these activities is shown in Figure 5.2-1.

5.2.2 Emissions And Controls

Evaporative emissions from the transportation and marketing of petroleum liquids may be considered, by storage equipment and mode of transportation used, in four categories:

1. Rail tank cars, tank trucks, and marine vessels: loading, transit, and ballasting losses.
2. Service stations: bulk fuel drop losses and underground tank breathing losses.
3. Motor vehicle tanks: refueling losses.
4. Large storage tanks: breathing, working, and standing storage losses. (See Chapter 7, "Liquid Storage Tanks".)

Evaporative and exhaust emissions are also associated with motor vehicle operation, and these topics are discussed in AP-42 *Volume II: Mobile Sources*.

5.2.2.1 Rail Tank Cars, Tank Trucks, And Marine Vessels -

Emissions from these sources are from loading losses, ballasting losses, and transit losses.

5.2.2.1.1 Loading Losses -

Loading losses are the primary source of evaporative emissions from rail tank car, tank truck, and marine vessel operations. Loading losses occur as organic vapors in "empty" cargo tanks are displaced to the atmosphere by the liquid being loaded into the tanks. These vapors are a composite of (1) vapors formed in the empty tank by evaporation of residual product from previous loads, (2) vapors transferred to the tank in vapor balance systems as product is being unloaded, and (3) vapors generated in the tank as the new product is being loaded. The quantity of evaporative losses from loading operations is, therefore, a function of the following parameters:

- Physical and chemical characteristics of the previous cargo;
- Method of unloading the previous cargo;
- Operations to transport the empty carrier to a loading terminal;
- Method of loading the new cargo; and
- Physical and chemical characteristics of the new cargo.

The principal methods of cargo carrier loading are illustrated in Figure 5.2-2, Figure 5.2-3, and Figure 5.2-4. In the splash loading method, the fill pipe dispensing the cargo is lowered only part way into the cargo tank. Significant turbulence and vapor/liquid contact occur during the splash

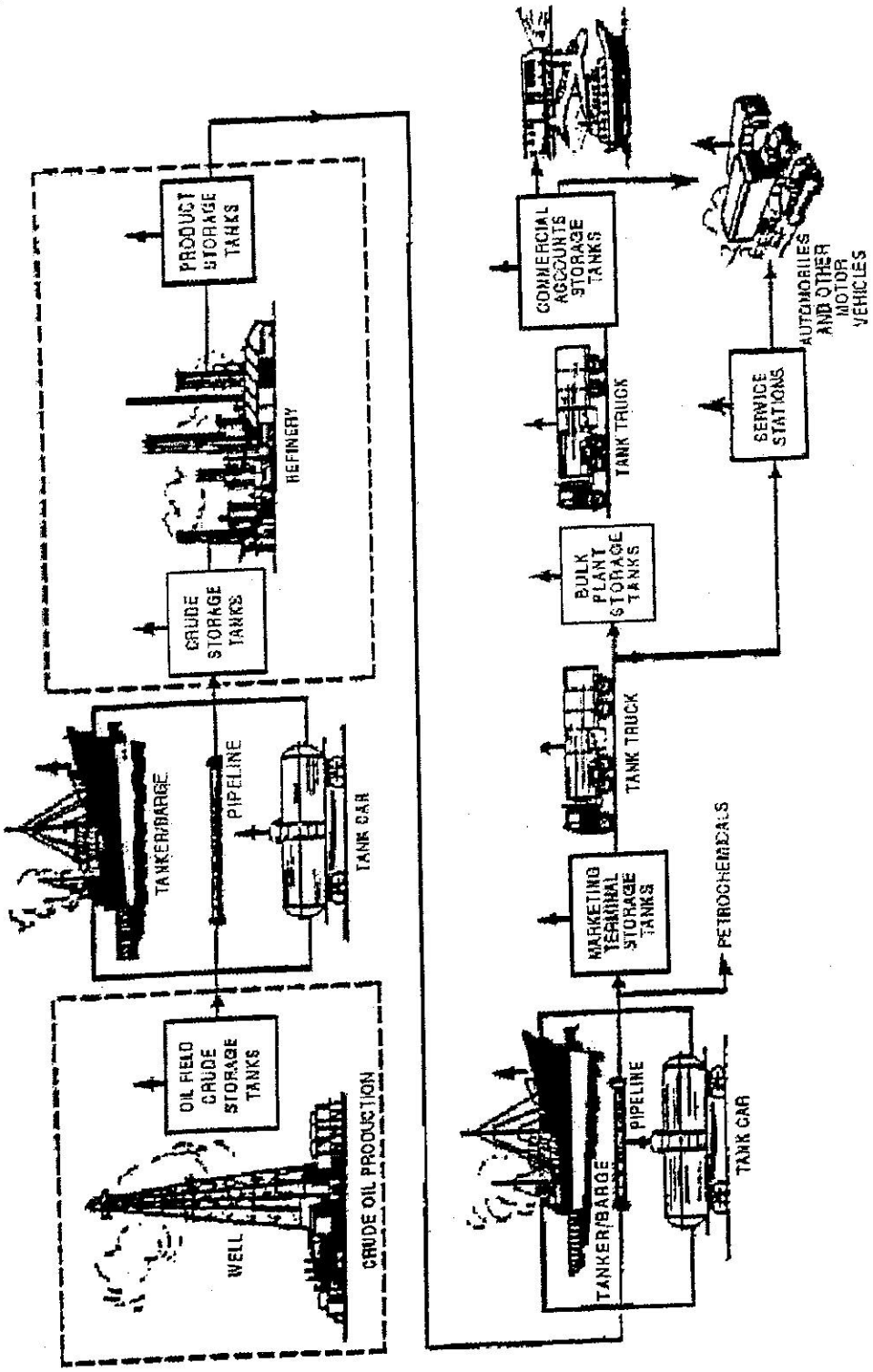


Figure 5.2-1. Flow sheet of petroleum production, refining, and distribution systems.

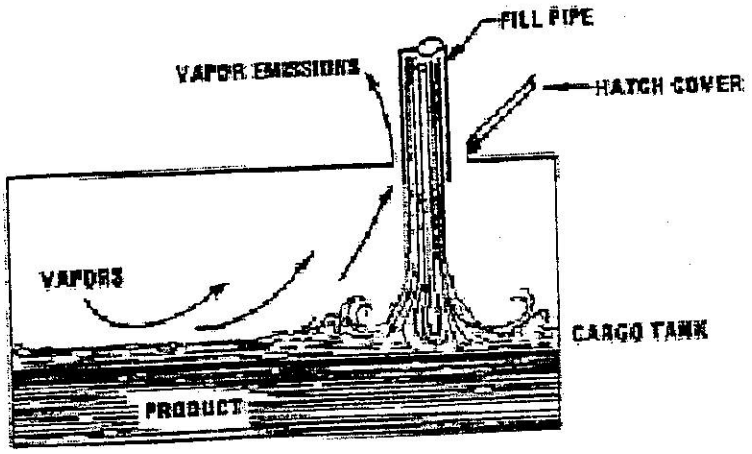


Figure 5.2-2. Splash loading method.

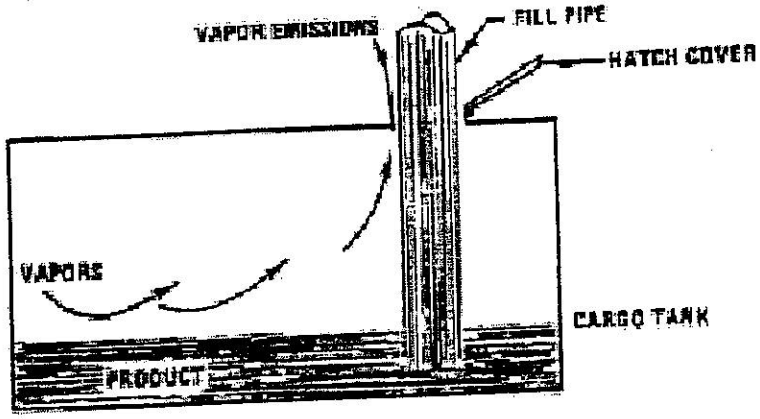


Figure 5.2-3. Submerged fill pipe.

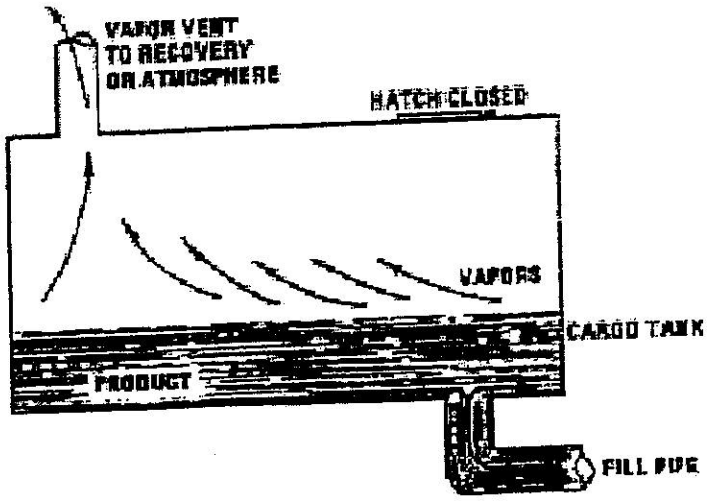


Figure 5.2-4. Bottom loading.

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)

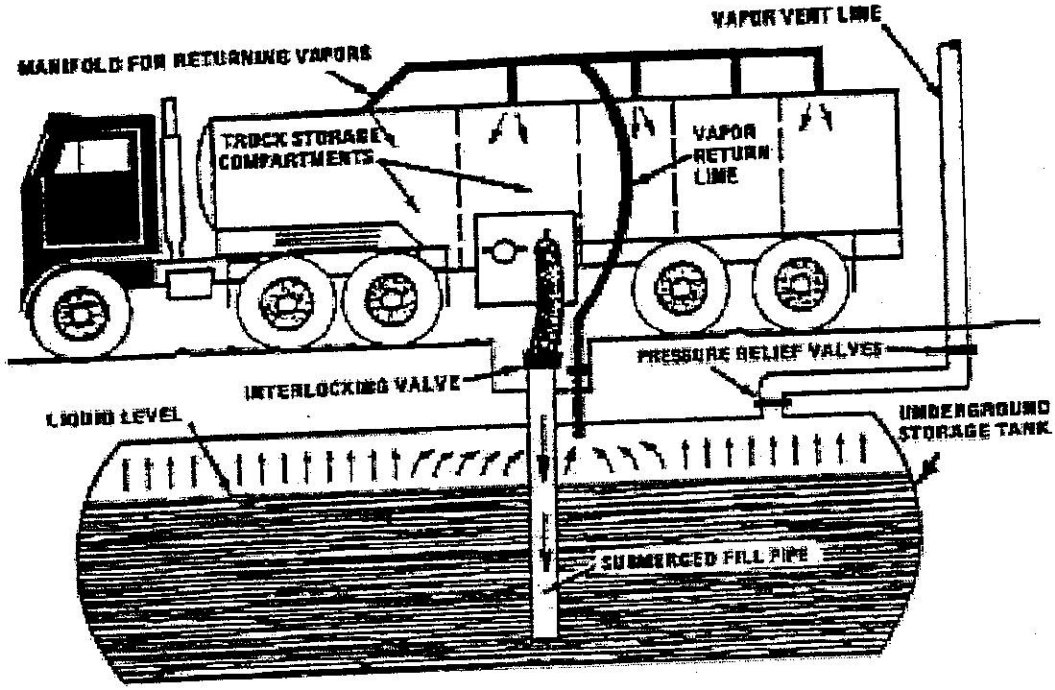


Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

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.

The saturation factor, S, represents the expelled vapor's fractional approach to saturation, and it accounts for the variations observed in emission rates from the different unloading and loading methods. Table 5.2-1 lists suggested saturation factors.

Emissions from controlled loading operations can be calculated by multiplying the uncontrolled emission rate calculated in Equation 1 by an overall reduction efficiency term:

$$\left(1 - \frac{\text{eff}}{100}\right)$$

The overall reduction efficiency should account for the capture efficiency of the collection system as well as both the control efficiency and any downtime of the control device. Measures to reduce loading emissions include selection of alternate loading methods and application of vapor recovery equipment. The latter captures organic vapors displaced during loading operations and recovers the vapors by the use of refrigeration, absorption, adsorption, and/or compression. The recovered product is piped back to storage. Vapors can also be controlled through combustion in a thermal oxidation unit, with no product recovery. Figure 5.2-6 demonstrates the recovery of gasoline vapors from tank trucks during loading operations at bulk terminals. Control efficiencies for the recovery units range from 90 to over 99 percent, depending on both the nature of the vapors and the type of control equipment used.[5-6] However, only 70 to 90 percent of the displaced vapors reach the control device, because of leakage from both the tank truck and collection system.[6] The collection efficiency should be assumed to be 90 percent for tanker trucks required to pass an annual leak test. Otherwise, 70 percent should be assumed.

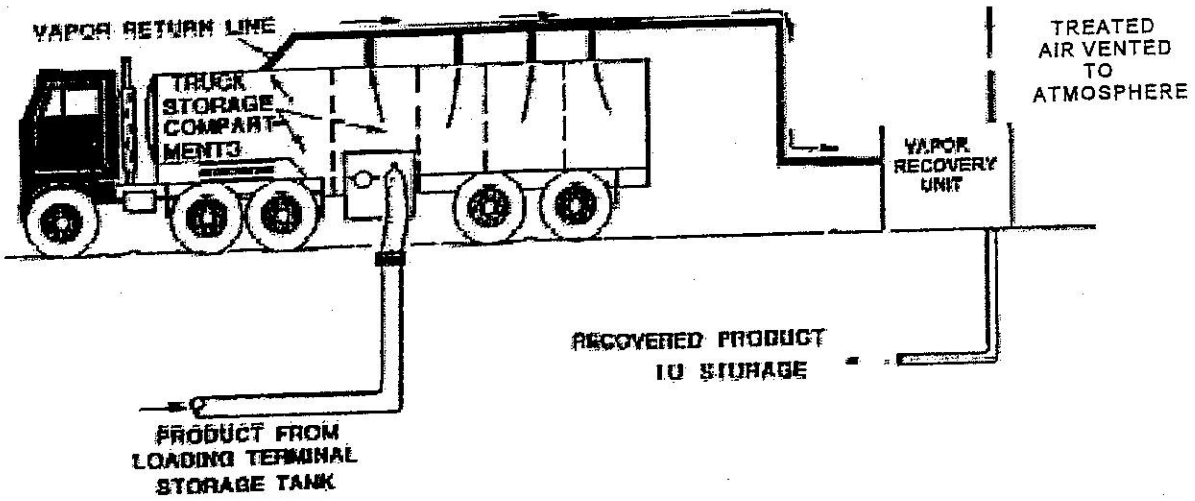


Figure 5.2-6. Tank truck loading with vapor recovery.