Wortman, Eric

From: Wortman, Eric
Sent: Thursday, August 31, 2017 2:06 PM
To: Wortman, Eric
Subject: Notice of Issuance of Title V Operating Permit on the Uintah and Ouray Indian Reservation

This is to notify you that the EPA has issued a final Clean Air Act (CAA) Title V operating permit for the XTO Energy Inc., Little Canyon Unit Compressor Station pursuant to the Title V Operating Permit Program at 40 CFR Part 71 (Part 71). The final Part 71 permit will be posted in PDF format on our website at: https://www.epa.gov/caa-permitting/caa-permits-issued-epa-region-8.

In accordance with the regulations at §71.11(i), the permit will be effective immediately on August 31, 2017. Within 30 days after a final permit decision has been issued, any person who filed comments on the draft permit or participated in the public hearing may petition the Environmental Appeals Board (EAB) to review any condition of the permit decision. Any person who failed to file comments or failed to participate in the public hearing on the draft permit may petition for administrative review only to the extent of the changes from the draft to the final permit decision or other new grounds that were not reasonably foreseeable during the public comment period on the draft permit. The 30-day period within which a person may request review under this section begins when we have fulfilled the notice requirements for the final permit decision. Motions to reconsider a final order by the EAB must be filed within 10 days after service of the final order. A petition to the EAB is under Section 307(b) of the CAA, a prerequisite to seeking judicial review of the final agency action. For purposes of judicial review, final agency action occurs when we issue or deny a final permit and agency review procedures are exhausted.

Thank you,

Eric Wortman

Eric Wortman | Environmental Scientist
U.S. Environmental Protection Agency
Telephone: (617) 918-1624 | Email: wortman.eric@epa.gov

Wortman, Eric

From:	Wortman, Eric
Sent:	Thursday, August 31, 2017 1:48 PM
To:	'timothy_hermann@xtoenergy.com'
Cc:	'Allison, Craig'; 'Minnie Grant'; 'Bruce Pargeets'
Subject:	Final Title V Operating Permit for XTO Energy - Little Canyon Unit Compressor Station
Attachments:	XTO Little Canyon Unit CS Final Initial Part 71 Permit V-UO-000016-2006.00.pdf

Mr. Hermann,

I have attached the final part 71 permit for the Little Canyon Unit Compressor Station issued pursuant to the Title V Operating Permit Program at 40 CFR Part 71 (Part 71). We will also be posting the final Part 71 permit in PDF format on our website at: https://www.epa.gov/caa-permitting/caa-permits-issued-epa-region-8.

In accordance with the regulations at §71.11(i)(2)(iii), the permit is effective immediately as of August 31, 2017. Please review each condition carefully and note any restrictions placed on this source. Procedures for appealing this permit can be found in 40 CFR 71.11(l). A petition to the Environmental Appeals Board (EAB) must be filed within 30 days of receipt of this final permit action.

Sincerely,

Eric Wortman

____
Eric Wortman | Environmental Scientist
U.S. Environmental Protection Agency
Telephone: (617) 918-1624 | Email: wortman.eric@epa.gov

Public Notice: Request For Comments

Draft Air Quality Permit to Operate for Federal Clean Air Act Title V to Control Air Pollutant Emissions from Little Canyon Unit Compressor Station on the Uintah & Ouray Indian Reservation

Public notice issued:
June 23, 2017

Written comments due:
5 p.m., July 24, 2017

Where is the facility located?

Little Canyon Unit Compressor Station:
Uintah & Ouray Indian Reservation
Uintah County, Utah
Section 36, Township 10 South, Range 20 East
Latitude: 39.8969N
Longitude: -109.6055W

What is being proposed?

The EPA proposes to issue a Clean Air Act (CAA), Title V Permit to Operate in accordance with 40 Code of Federal Register, Part 71, for the Little Canyon Unit Compressor Station, owned and operated by XTO Energy, Inc. on Indian country lands within the Uintah & Ouray Indian Reservation.

EPA issues CAA Title V operating permits in Indian country where EPA has not approved a tribe to implement the Title V operating permit program. The Ute Indian Tribe does not have an approved Title V operating permit program.

Air pollutant emissions come from equipment operating at the compressor station. The draft operating permit includes all CAA control requirements that apply to the facilities and associated equipment emitting air pollutants.

Permit number:
Little Canyon Unit: V-UO-000016-2006.00

How can I review documents?

You can review the draft CAA Title V Operating Permit, the application, and Statement of Basis at:

Uintah County Clerk's Office
147 East Main St #6
Vernal, Utah 84078

Ute Indian Tribe
Energy and Minerals Department Office
988 South 7500 East, Annex Building
Fort Duchesne, Utah 84026

U.S. EPA Region 8
Air Program Office (8P-AR)
1595 Wynkoop St.
Denver, CO 80202
Phone: 303-312-6649

All documents will be available for review at the U.S. EPA Region 8 office Monday through Friday from 8:00 am to 4:00 pm (excluding Federal holidays).

Electronic copies of the draft Title V permits, Statement of Basis and all supporting materials may also be viewed at:
http://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8

What are EPA's responsibilities?

The U.S. EPA Region 8 Air Program is the regulatory agency that helps protect and preserve air quality on the Ute Indian Reservation.

One way the EPA does this is by issuing CAA Title V operating permits for major air emission sources that require air pollutant emissions control and monitoring. The purpose of this notice is to invite you to submit written comments on this proposed permit through the process detailed in this notice.

What happens next?

The EPA will review and consider all comments received during the comment period.

Following this review, the EPA may issue the permit as drafted, issue the permits with revisions, or deny the permit.

Public Comment Period:

The EPA will accept written comments on the draft Title V Operating Permits beginning:

June 23, 2017
through
5 p.m. July 24, 2017.

Where can I send written comments?

The EPA accepts comments by mail and e-mail.

How can I make comments by e-mail?

To make comments via e-mail, click on the name of the contact person at the website below.

U.S. EPA
Region 8 Air Program
Mail Code 8P-AR
Tribal Permit Program
1595 Wynkoop Street
Denver CO 80202
Phone: 800.227.8917

http://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region8

JUN 12 2017

Ref: 8P-AR

Timothy Herman
Manager of Mid Stream Operations
XTO Energy, Inc.
810 Houston Street
Fort Worth, Texas 76102

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Re: Draft Part 71 Operating Permit for Little Canyon Unit Compressor Station, XTO Energy, Inc., Permit #V-UO-000016-2006.00

Dear Mr. Herman:

The U.S. Environmental Protection Agency Region 8 has completed its review of XTO Energy Inc.'s application for the Little Canyon Unit Compressor Station to obtain initial Clean Air Act Title V operating permits pursuant to the Title V Operating Permit Program at 40 CFR part 71 (Part 71). The EPA received the initial application on September 8, 2009.

Enclosed you will find the draft Part 71 operating permit and the corresponding Statement of Basis. The regulations at 40 CFR 71.11(d) require that an applicant, the public and affected states (as defined in 40 CFR 71.2) have the opportunity to submit written comments on any draft Part 71 operating permit. All written comments submitted within 30 calendar days after the public notice is published will be considered by the agency in making its final permit decision. Enclosed is a copy of the public notice which will be published on the EPA's website located at: https://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8, on June 23, 2017. The public comment period will end at 5:00 p.m. MDT on July 24, 2017.

The conditions contained in the permit will become effective and enforceable by the agency if the permit is issued final. If you are unable to accept any term or condition of the draft permit, please submit your written comments, along with the reason(s) for non-acceptance to:

Part 71 Permitting Lead
U.S. EPA, Region 8
Air Program (8P-AR)
1595 Wynkoop Street
Denver, Colorado 80202

If you have any questions concerning the enclosed draft permits or Statement of Basis, please contact Eric Wortman of my staff at (303) 312-6649.

Sincerely,

Monica Morales

Monica Morales
Director
Air Program

Enclosures (2)

cc: Minnie Grant, Air Coordinator, Ute Indian Tribe
Craig Allison, Environmental Health & Safety Advisor, XTO Energy, Inc.

United States Environmental Protection Agency
Region 8
Air Program
1595 Wynkoop Street
Denver, Colorado 80202

Air Pollution Control Permit to Operate
Title V Operating Permit Program at 40 CFR Part 71

In accordance with the provisions of Title V of the Clean Air Act (CAA) and the Title V Operating Permit Program at 40 CFR part 71 (Part 71) and applicable rules and regulations,

XTO Energy, Inc.
Little Canyon Unit Compressor Station

is authorized to operate air emission units and to conduct other air pollutant emitting activities in accordance with the permit conditions listed in this permit.

This source is authorized to operate at the following location:

Uintah and Ouray Indian Reservation
Latitude 39.8969N, Longitude 109.6055W
Uintah County, Utah

Terms not otherwise defined in this permit have the meaning assigned to them in the referenced regulations. All terms and conditions of the permit are enforceable by the EPA and citizens under the CAA.

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Monica Morales, Director
Air Program
U.S. EPA Region 8

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Air Pollution Control Permit to Operate
Title V Operating Permit Program at 40 CFR Part 71

XTO Energy, Inc.
Little Canyon Unit Compressor Station

Permit Number: V-UO-000016-2006.00
Replaces Permit No.: N/A

Issue Date:
Effective Date:
Expiration Date:

The permit number cited above should be referenced in future correspondence regarding this source.

Table 1. Part 71 Permitting History

Date of Action	Permit Number	Type of Action	Description of Action
TBD	V-UO-000016-2006.00	Initial Permit	N/A

Table of Contents

I. Facility Information and Emission Unit Identification

A. Facility Information

Parent Company Name:	XTO Energy, Inc.
Plant Operator & Name:	Little Canyon Unit Compressor Station
Plant Location:	Latitude 39.8969N, Longitude 109.6055W
Region:	8
State:	Utah
County:	Uintah
Reservation:	Uintah and Ouray Indian Reservation
Tribe:	Ute Indian Tribe
Responsible Official:	Manager of Midstream Operations – XTO Energy, Inc.
SIC Code:	1311 – Crude Petroleum and Natural Gas

Description:

Little Canyon Unit is a natural gas compressor station. Natural gas produced from area wells is sent to the compressor station through gathering flowlines. Once the gas enters the station, it flows through a separator to reduce water and condensable liquids content in the gas stream prior to entry into the compressors. The liquids produced from the on-site separator are then sent to two (2) 400-barrel condensate tanks (LCT-1 and LCT-2) operating at atmospheric pressure for storage prior to being hauled offsite by truck. Following the inlet separator, the gas is compressed with two (2) natural gas internal combustion engine driven compressors (LCC-3, and LCC-4) to higher pressure of approximately 700 psig. The high-pressure gas leaving the two-phase separator then passes into a triethylene glycol (TEG) natural gas dehydration system. The TEG natural gas dehydration system consists of a 25 MMscfd capacity natural gas TEG dehydration process still vent (LCD-1), a 0.55 MMBtu/hr natural gas-fired process heater and a TEG regenerator. The TEG natural gas dehydration system emissions are controlled by a thermal oxidizer. The natural gas dehydration system uses a BTEX system that captures vapors from the still vent and sends the vapors to a thermal oxidizer for destruction.

Following dehydration, the dry natural gas stream leaves the station via a metered sales pipeline. The station has on-site electrical power supplied by a Capstone natural-gas fired microturbine-driven generator (insignificant emission unit). In addition, the pneumatic control devices are operated by plant air supplied by the on-site electric-driven air compressor.

In addition, the LCU 2-6GX natural gas wellsite is located approximately 1,000 feet from Little Canyon Unit. Natural gas produced from the LCU 2-6GX wellsite flows into the common, Little Canyon Unit area gas gathering system. The LCU 2-6GX wellsite consists of a small (< 1 MMscfd) natural gas dehydration system with a 0.5 MMBtu/hr natural gas-fired process heater, one (1) 300-barrel and one (1) 400-barrel condensate storage tanks, two (2) 0.25 MMBtu/hr process heaters, truck loading operations and one (1) 18 hp natural gas-fired pump engine.

B. Facility Emission Points

Table 2 - Emission Units and Emission Generating Activities

Unit ID	Description	Control Equipment
LCC-3	Caterpillar 3512 TALE; 810 hp* 4-Stroke Lean-Burn Reciprocating Internal Combustion Engine Natural Gas-Fired Serial No. 7NJ00735 Installed: 9/20/2016 Mfg*: 11/22/2000	Oxidation Catalyst (not enforceable)
LCC-4	Caterpillar 3516 LE; 1,260 hp* 4-Stroke Lean-Burn Reciprocating Internal Combustion Engine Natural Gas-Fired Serial No. 4EK03003 Installed: 3/28/2013 Mfg*: 8/30/2000	Oxidation Catalyst (not enforceable)
LCU 2-6GX PU	Arrow C-96; 18 hp* 4-Stroke Rich-Burn Internal Combustion Pumping Engine Natural Gas-Fired Serial No. 210024-C Installed: Pre-June 2006 Mfg*: 12/13/2003	None
LCD-1	25 MMscfd* Triethylene Glycol Dehydration Unit Serial No. Unknown Installed: 12/9/2005	Thermal Oxidizer
LCU 2-6GX D-1	0.2 MMscfd* Triethylene Glycol Dehydration Unit (LCU 2-6GX Wellsite) Serial No. Unknown Installed: 2000	None
LCT-1 LCT-2	400 bbl* Condensate Storage Tanks Serial #: 8801801-3 Installed: 9/15/2005 Serial #: 8J01801-4 Installed: 9/15/2005	None
LCF-1	Fugitive Emissions	None

* Mfg = Manufactured; hp = horsepower; bbl = barrel; MMscfd = million standard cubic feet per day; MMBtu = million British thermal units.

Table 3 – Insignificant Emission Units*

Description
Capstone 65 kW Microturbine Genset (Little Canyon Unit)
Condensate Truck Loading (Little Canyon Unit)
0.550 MMBtu/hr* TEG Dehydration Unit Reboiler (Little Canyon Unit)
0.500 MMBtu/hr* Tank Heater #1 (Little Canyon Unit)
0.500 MMBtu/hr* Tank Heater #2 (Little Canyon Unit)
0.250 MMBtu/hr* natural gas-fired separator heater (Little Canyon Unit)
2 MMBtu/hr* heater for Thermal Oxidizer (Little Canyon Unit)
Pipeline Pigging Operations (Little Canyon Unit)
Compressor Blowdown Emissions (Little Canyon Unit)
0.55 MMBtu/hr TEG Dehydration Unit Reboiler (LCU 2-6GX Wellsite)
300 bbl* Condensate Storage Tank (LCU 2-6GX Wellsite)
400 bbl* Condensate Storage Tank (LCU 2-6GX Wellsite)
0.5 MMBtu/hr Tank Heater (LCU 2-6GX Wellsite)

Description
0.25 MMBtu/hr Tank Heater (LCU 2-6GX Wellsite)
0.25 MMBtu/hr TEG Dehydration Unit Reboiler Heater (LCU 2-6GX Wellsite)
Condensate Truck Loading (LCU 2-6GX Wellsite)
Fugitive Emissions (LCU 2-6GX Wellsite)

*Insignificant emission units can change at the facility as long as the new or replacement units meet the criteria for insignificance, and XTO supplies information as required under 40 CFR part 71 and this permit. The insignificant emission unit status does not exempt these emission units from the requirements of any NSPS and MACT standards that may apply.

II. National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities: 40 CFR Part 63, Subpart HH

A. Applicability [40 CFR 63.760]

1. 40 CFR part 63, subpart HH applies to the 25 MMscfd glycol dehydrator identified as LCD-1 in Table 2 of this permit. [63.760(b)(1)(i)]

2. Notwithstanding conditions in this permit, the Permittee shall comply with all applicable requirements of 40 CFR part 63, subpart HH.

B. General Standards [40 CFR 63.764]

1. The General Provisions at 40 CFR part 63, subpart A apply as specified in Table 2 of 40 CFR part 63, subpart HH. Notwithstanding conditions in this permit, the Permittee shall comply with all applicable requirements of 40 CFR part 63, subpart A.

2. All reports required under 40 CFR part 63, subpart A shall be sent to the EPA at the following address as listed in §63.13:

   Director, Air and Toxics Technical Enforcement Program, 8ENF-AT
   Office of Enforcement, Compliance and Environmental Justice
   1595 Wynkoop Street, Denver, Colorado 80202–1129

3. Except as specified in §63.764(e), the Permittee shall comply with the following requirements for the glycol dehydrator:

   (a) The control requirements for glycol dehydrator process vents specified in §63.765;

   (b) The monitoring requirements specified in §63.773; and

   (c) The recordkeeping and reporting requirements specified in §63.774 and §63.775.

4. At all times the Permittee must operate and maintain any glycol dehydrator, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the EPA which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records and inspection of the unit.

C. **Glycol Dehydration Unit Process Vent Standards** [40 CFR 63.765]

The Permittee shall comply with the control equipment requirements as follows:

1. Except as specified in §63.765(c), the Permittee shall comply with the applicable requirements for controlling air emissions specified in §63.765(b);

2. For each closed-vent system, the Permittee shall comply with the closed-vent system requirements specified in §63.771(c);

3. For each control device, the Permittee shall comply with the applicable control device requirements specified in §63.771(d) or §63.771(f); and

4. For each process modification made to comply with glycol dehydrator process vent standards at §63.765(c)(2), the Permittee shall comply with the process modification standards specified in §63.771(e).

D. **Test Methods, Compliance Procedures, and Compliance Determination Requirements** [40 CFR 63.772]

The Permittee shall determine compliance with the requirements of 40 CFR part 63, subpart HH using the applicable test methods and compliance procedures specified in §63.772.

E. **Inspection and Monitoring Requirements** [40 CFR 63.773]

1. For each closed-vent system or cover required for the Permittee to comply with 40 CFR part 63, subpart HH, the Permittee shall comply with the inspection and monitoring requirements specified in §63.773(c).

2. For each control device required for the Permittee to comply with 40 CFR part 63, subpart HH, the Permittee shall comply with the inspection and monitoring requirements as specified in §63.773(b) or §63.773(d).

F. **Recordkeeping Requirements** [40 CFR 63.774]

1. The recordkeeping provisions of 40 CFR part 63, subpart A, that apply and those that do not apply to the Permittee are listed in Table 2 of 40 CFR part 63, subpart HH.

2. The Permittee shall maintain the records specified in §§63.774(b), (c), (d), (e), (g) and (h).

3. Except as specified in §63.774(c), §63.774(d), and §63.774(f), the Permittee shall maintain the records specified in §63.774(b).

4. If compliance with the benzene emission limit specified in §63.765(b)(1)(ii) is elected, the Permittee shall document, to the Administrator's satisfaction, the items in §63.774(c).

5. For glycol dehydrators operating at the source that meet the exemption criteria in §63.764(e)(1)(i) or §63.764(e)(1)(ii), the Permittee shall maintain records as specified in §63.774(d). The Permittee shall maintain the records as specified in §63.774(d) for emission unit LCU 2-6GX D-1 as identified in Table 2 of this permit.

6. The Permittee shall keep records of the requirements of §63.774(e) when using a flare to comply with §63.771(d).

7. The Permittee shall maintain records, pursuant to §63.774(g), of the occurrence and duration of each malfunction of operation (*i.e.,* process equipment) or the air pollution control equipment and monitoring equipment. The Permittee shall maintain records of actions taken during periods of malfunction to minimize emissions in accordance with §63.764(j), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

8. The Permittee shall keep records of the requirements of §63.774(h) when using a control device whose model is tested under §63.772(h) to comply with §§63.771(d), (e)(3)(ii) and (f)(1).

9. The Permittee shall keep records, pursuant to §63.774(i), of the date the semi-annual maintenance inspection required under §63.773(b) is performed when using a control device whose model was tested under §63.772(h).

G. **Reporting Requirements** [40 CFR 63.775]

1. The reporting provisions of subpart A of this part, that apply and those that do not apply to the Permittee are listed in Table 2 of this subpart.

2. The Permittee shall submit the information specified in §63.775(b).

3. The Permittee shall submit Notification of Compliance Status Reports as specified in §63.775(d).

4. The Permittee shall submit Periodic Reports as specified in §63.775(e).

5. The Permittee shall submit notifications of process changes as specified in §63.775(f).

6. The Permittee shall comply with any applicable electronic reporting provisions specified at §63.775(g).

III. **National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines: 40 CFR Part 63, Subpart ZZZZ**

A. **Applicability** [40 CFR 63.6585]

40 CFR part 63, subpart ZZZZ applies to the following emission unit:

1. Arrow C-96 engine identified as LCU 2-6GX PU in Table 2 of this permit.

B. General Provisions [40 CFR 63.6665]

1. The General Provisions at 40 CFR part 63, subpart A apply as specified in Table 8 of 40 CFR part 63, subpart ZZZZ. Notwithstanding conditions in this permit, the Permittee shall comply with all applicable requirements of 40 CFR part 63, subpart A.

2. All reports required under 40 CFR part 63, subpart A shall be sent to the EPA at the following address as listed in §63.13:

   Director, Air and Toxics Technical Enforcement Program, 8ENF–AT
   Office of Enforcement, Compliance and Environmental Justice
   1595 Wynkoop Street,
   Denver, Colorado 80202–1129

C. Work, Operation and Management Practices

1. The permittee shall comply with the applicable 40 CFR part 63, subpart ZZZZ operating limitations and other requirements at all times. [40 CFR 63.6605(a)]

2. The permittee shall change the oil and filter and inspect and replace as necessary all spark plugs, hoses and belts every 1,440 hours of operation or annually, whichever comes first. [40 CFR 63.6603(a) and Table 2d of 40 CFR, subpart ZZZZ]

3. The permittee shall have the option of utilizing an oil analysis program to extend the specified oil change requirement in Table 2d of 40 CFR part 63, subpart ZZZZ. [40 CFR 63.6625(j)]

4. The permittee shall operate and maintain the stationary RICE according to the manufacture's emission-related operation and maintenance instructions or the permittee may develop and follow the permittee's own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engines in a manner consistent with good air pollution control practices for minimizing emissions. [40 CFR 63.6640(a), 40 CFR 63.6625(e)(8), and Table 6 of 40 CFR 63, subpart ZZZZ]

5. During periods of startup the permittee must minimize the engine's time spent at idle and minimize the engine's time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. [40 CFR 63.6603, 40 CFR 63.6625(h) and Table 2d of 40 CFR 63, subpart ZZZZ]

6. At all times, the permittee must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions to the levels required by 40 CFR part 63, subpart ZZZZ. The general duty to minimize emissions does not require the permittee to make any further efforts to reduce emissions if the required levels have been achieved. Determination of whether such operations and maintenance procedures are being used will be based on information available to the Administrator, which may include, but is not limited to, monitoring results, review

of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [40 CFR 63.6605(b)]

D. Continuous Compliance Requirements

1. The permittee shall demonstrate continuous compliance with the applicable operating limitations and other requirements in Table 2d according to the methods specified in Table 6 of 40 CFR part 63, subpart ZZZZ. [40 CFR 63.6605(a) and 40 CFR 63.6640(a)]

2. The permittee must report each instance in which an operating limit was not met. These instances are deviations from the operating limitations and must be reported according to the reporting requirements of §63.6650(f) and the Facility-Wide Reporting Requirements section of this permit. [40 CFR 63.6640(b)]

3. The permittee must also report each instance in which the requirements in Table 8 of 40 CFR part 63, subpart ZZZZ, were not met. [40 CFR 63.6640(e)]

E. Recordkeeping Requirements

1. The permittee must keep the following records to comply with the 40 CFR part 63, subpart ZZZZ operating limitations:

   (a) A copy of each notification and report that was submitted to comply with 40 CFR part 63, subpart ZZZZ.

   (b) Records of the occurrence and duration of each malfunction of operation (i.e. process equipment).

   (c) Records of actions taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process to its normal or usual manner of operation. [40 CFR 63.6655(a)]

2. The permittee must keep the records required in Table 6 of 40 CFR part 63, subpart ZZZZ to show continuous compliance with each operating limitation that applies. [40 CFR 63.6655(d)]

3. The permittee must keep records of the maintenance conducted on the stationary RICE in order to demonstrate that the stationary RICE is operated and maintained according to the manufacturer's or the permittee's own maintenance plan. [40 CFR 63.6655(d) and (e), and Table 6 of 40 CFR 63, subpart ZZZZ]

4. The permittee must keep each record in a form suitable and readily available for expeditious review, accessible in hard copy or electronic form for 5 years after the date

of each occurrence, measurement, maintenance, corrective action, report or record. [40 CFR 63.10(b)(1), 40 CFR 63.10(f), and 40 CFR 63.6660]

F. Reporting Requirements

The permittee must report all deviations as defined in 40 CFR 63, subpart ZZZZ in the semiannual monitoring report required under the Facility-Wide Reporting Requirements Section of this permit. [40 CFR 63.6650(f) and 40 CFR 63.6640(e)]

IV. <u>Facility-Wide Requirements</u> [40 CFR 71.6(a)(1)]

Conditions in this section of this permit apply to all emissions units located at the source, including any units not specifically listed in Table 2 and Table 3 of the Facility Emission Points section of this permit.

A. Recordkeeping Requirements [40 CFR 71.6(a)(3)(ii)]

The Permittee shall comply with the following generally applicable recordkeeping requirements:

1. If the Permittee determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants (HAPs) is not subject to a relevant standard or other requirement established under 40 CFR part 63, the Permittee shall keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination shall include an analysis (or other information) that demonstrates why the Permittee believes the source is unaffected (e.g., because the source is an area source). [40 CFR 63.10(b)(3)]

2. The permittee is the owner or operator of a glycol dehydration unit that is exempt from the control requirements under §63.764(e) (Unit LCU 2-6GX D-1). The permittee shall retain each determination used to demonstrate that actual flowrate of natural gas throughput is less than 85,000 scm/day (3,000,000 scf/day) or the actual average benzene emissions are below 1 tpy. [40 CFR 63.764(e)(1), 63.772(b)(2) and 63.774(d)(1)]

3. Records shall be kept of off permit changes, as required by the Off Permit Changes section of this permit.

B. Reporting Requirements [40 CFR 71.6(a)(3)(iii)]

1. The Permittee shall submit to the EPA all reports of any required monitoring under this permit semiannually. The first report shall cover the period from the effective date of this permit through December 31, 2017. Thereafter, the report shall be submitted semi-annually, by April 1st and October 1st of each year. The report due on April 1st shall cover the six-month period ending on the last day of December before the report is due. The report due on October 1st shall cover the six-month period ending on the last day of

June before the report is due. All instances of deviations from permit requirements shall be clearly identified in such reports. All required reports shall be certified by a responsible official consistent with the Submissions section of this permit.

To help Part 71 Permittees meet reporting responsibilities, the EPA has developed a form "SIXMON" for 6-month monitoring reports. The form may be found on the EPA's website at: https://www.epa.gov/title-v-operating-permits/epa-issued-operating-permits]

2. "Deviation" means any situation in which an emissions unit fails to meet a permit term or condition. A deviation is not always a violation. A deviation can be determined by observation or through review of data obtained from any testing, monitoring or recordkeeping established in accordance with §71.6(a)(3)(i) and (a)(3)(ii). For a situation lasting more than 24 hours which constitutes a deviation, each 24-hour period is considered a separate deviation. Included in the meaning of deviation are any of the following:

   (a) A situation where emissions exceed an emission limitation or standard;

   (b) A situation where process or emissions control device parameter values indicate that an emission limitation or standard has not been met; or

   (c) A situation in which observations or data collected demonstrate noncompliance with an emission limitation or standard or any work practice or operating condition required by the permit.

3. The Permittee shall promptly report to the EPA deviations from permit requirements, including those attributable to upset conditions as defined in this permit, the probable cause of such deviations and any corrective actions or preventive measures taken. "Prompt" is defined as follows:

   (a) Any definition of "prompt" or a specific time frame for reporting deviations provided in an underlying applicable requirement as identified in this permit.

   (b) Where the underlying applicable requirement fails to address the time frame for reporting deviations, reports of deviations will be submitted based on the following schedule:

      (i) For emissions of a HAP or a toxic air pollutant (as identified in the applicable regulation) that continue for more than an hour in excess of permit requirements, the report must be made within 24 hours of the occurrence.
      (ii) For emissions of any regulated air pollutant, excluding a HAP or a toxic air pollutant that continues for more than 2 hours in excess of permit requirements, the report must be made within 48 hours.
      (iii) For all other deviations from permit requirements, the report shall be submitted with the semi-annual monitoring report.

   (c) If any of the conditions in (i) or (ii) of paragraph (b) above are met, the Permittee must notify the EPA by telephone (1-800-227-6312), facsimile (303-

312-6409), or by email to r8airreportenforcement@epa.gov based on the timetables listed above. *[Notification must specify that this notification is a deviation report for a Part 71 permit]*. A written notice, certified consistent with the Submissions section of this permit must be submitted within ten working days of the occurrence. All deviations reported under this section must also be identified in the 6-month report required under Condition 1 in this section of this permit.

[Explanatory note: To help Part 71 Permittees meet reporting responsibilities, the EPA has developed a form "PDR" for prompt deviation reporting. The form may be found on the EPA's website at: https://www.epa.gov/title-v-operating-permits/epa-issued-operating-permits]

V. General Provisions

A. Annual Fee Payment [40 CFR 71.9]

1. The Permittee shall pay an annual permit fee in accordance with the procedures outlined below.

2. The Permittee shall pay the annual permit fee each year no later than April 1st. The fee shall cover the previous calendar year.

3. The fee payment shall be in United States currency and shall be paid by money order, bank draft, certified check, corporate check or electronic funds transfer payable to the order of the U.S. Environmental Protection Agency.

4. The Permittee shall send fee payment and a completed fee filing form to:

For regular U.S. Postal Service mail

U.S. Environmental Protection Agency
FOIA and Miscellaneous Payments
Cincinnati Finance Center
P.O. Box 979078
St. Louis, Missouri 63197-9000

For non-U.S. Postal Service express mail
(FedEx, Airborne, DHL and UPS)

U.S. Bank
Government Lockbox 979078
U.S. EPA FOIA & Misc. Payments
1005 Convention Plaza
SL-MO-C2-GL
St. Louis, Missouri 63101

5. The Permittee shall send an updated fee calculation worksheet form and a photocopy of each fee payment check (or other confirmation of actual fee paid) submitted annually by the same deadline as required for fee payment to the address listed in the Submissions section of this permit.

[Explanatory note: The fee filing form "FF" and the fee calculation worksheet form "FEE" may be found on the EPA's website at: https://www.epa.gov/title-v-operating-permits/epa-issued-operating-permits*]*

6. Basis for calculating annual fee:

(a) The annual emissions fee shall be calculated by multiplying the total tons of actual emissions of all "regulated pollutants (for fee calculation)" emitted from the source by the presumptive emissions fee (in dollars per ton) in effect at the time of calculation:

(i) "Actual emissions" means the actual rate of emissions in tpy of any regulated pollutant (for fee calculation) emitted from a Part 71 source over the preceding calendar year. Actual emissions shall be calculated using each emissions unit's actual operating hours, production rates, in-place control equipment and types of materials processed, stored or combusted during the preceding calendar year.

(ii) Actual emissions shall be computed using methods required by the permit for determining compliance, such as monitoring or source testing data.

(iii) If actual emissions cannot be determined using the compliance methods in the permit, the Permittee shall use other federally recognized procedures.

[Explanatory note: The presumptive fee amount is revised each calendar year to account for inflation, and it is available from the EPA prior to the start of each calendar year.]

(b) The annual emissions fee shall be increased by a GHG fee adjustment for any source that has initiated an activity listed in table at §71.9(c)(8) since the fee was last paid. The GHG fee adjustment shall be equal to the set fee provided in the table at §71.9(c)(8) for each activity that has been initiated since the fee was last paid.

(c) The Permittee shall exclude the following emissions from the calculation of fees:

(i) The amount of actual emissions of each regulated pollutant (for fee calculation) that the source emits in excess of 4,000 tpy;

(ii) Actual emissions of any regulated pollutant (for fee calculation) already included in the fee calculation; and

(iii) The quantity of actual emissions (for fee calculation) of insignificant activities [defined in §71.5(c)(11)(i)] or of insignificant emissions levels from emissions at the source identified in the Permittee's application pursuant to §71.5(c)(11)(ii).

7. Fee calculation worksheets shall be certified as to truth, accuracy, and completeness by a responsible official.

[Explanatory note: The fee calculation worksheet form already incorporates a section to help you meet this responsibility.]

8. The Permittee shall retain fee calculation worksheets and other emissions-related data used to determine fee payment for 5 years following submittal of fee payment. [Emission-related data include, for example, emissions-related forms provided by the

EPA and used by the Permittee for fee calculation purposes, emissions-related spreadsheets and emissions-related data, such as records of emissions monitoring data and related support information required to be kept in accordance with §71.6(a)(3)(ii).]

9. Failure of the Permittee to pay fees in a timely manner shall subject the Permittee to assessment of penalties and interest in accordance with §71.9(l).

10. When notified by the EPA of underpayment of fees, the Permittee shall remit full payment within 30 days of receipt of notification.

11. A Permittee who thinks an EPA-assessed fee is in error and who wishes to challenge such fee, shall provide a written explanation of the alleged error to the EPA along with full payment of the EPA assessed fee.

B. Annual Emissions Inventory [40 CFR 71.9(h)(1) and (2)]

1. The Permittee shall submit an annual emissions report of its actual emissions for both criteria pollutants and regulated HAPs for this source for the preceding calendar year for fee assessment purposes. The annual emissions report shall be certified by a responsible official and shall be submitted each year to the EPA by April 1st.

2. The annual emissions report shall be submitted to the EPA at the address listed in the Submissions section of this permit.

[Explanatory note: An annual emissions report, required at the same time as the fee calculation worksheet by §71.9(h), has been incorporated into the fee calculation worksheet form as a convenience.]

C. Compliance Requirements [40 CFR 71.6(a)(6), Section 113(a) and 113(e)(1) of the CAA, and 40 CFR 51.212, 52.12, 52.33, 60.11(g), 61.12]

1. Compliance with the Permit

   (a) The Permittee must comply with all conditions of this Part 71 permit. Any permit noncompliance constitutes a violation of the CAA and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

   (b) It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

   (c) For the purpose of submitting compliance certifications in accordance with §71.6(c)(5), or establishing whether or not a person has violated or is in violation of any requirement of this permit, nothing shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

2. Compliance Schedule [40 CFR 71.5(c)(8)(iii)]

(a) For applicable requirements with which the source is in compliance, the source will continue to comply with such requirements.

(b) For applicable requirements that will become effective during the permit term, the source shall meet such requirements on a timely basis.

3. Compliance Certifications [40 CFR 71.6(c)(5)]

(a) The Permittee shall submit to the EPA a certification of compliance with permit terms and conditions, including emission limitations, standards or work practices annually by April 1st, and shall cover the same 12-month period as the two (2) consecutive semi-annual monitoring reports.

[Explanatory note: To help Part 71 Permittees meet reporting responsibilities, the EPA has developed a reporting form for annual compliance certifications. The form may be found on the EPA's website at: https://www.epa.gov/title-v-operating-permits/epa-issued-operating-permits*]*

(b) The compliance certification shall be certified as to truth, accuracy, and completeness by a responsible official consistent with §71.5(d).

(c) The certification shall include the following:

(i) Identification of each permit term or condition that is the basis of the certification;
(ii) The identification of the method(s) or other means used for determining the compliance status of each term and condition during the certification period, and whether such methods or other means provide continuous or intermittent data. Such methods and other means shall include, at a minimum, the methods and means required in this permit. If necessary, the Permittee also shall identify any other material information that must be included in the certification to comply with section 113(c)(2) of the CAA, which prohibits knowingly making a false certification or omitting material information;
(iii) The status of compliance with each term and condition of the permit for the period covered by the certification based on the method or means designated in (ii) above. The certification shall identify each deviation and take it into account in the compliance certification;
(iv) Such other facts as the EPA may require to determine the compliance status of the source; and
(v) Whether compliance with each permit term was continuous or intermittent.

D. Duty to Provide and Supplement Information
[40 CFR 71.6(a)(6)(v), 71.5(a)(3), and 71.5(b)]

1. The Permittee shall furnish to the EPA, within a reasonable time, any information that the EPA may request in writing to determine whether cause exists for modifying, revoking, and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the Permittee shall also furnish to the EPA copies of records that are required to be kept pursuant to the terms of the permit, including information claimed to be confidential. Information claimed to be confidential must be accompanied by a claim of confidentiality according to the provisions of 40 CFR part 2, subpart B.

2. The Permittee, upon becoming aware that any relevant facts were omitted or incorrect information was submitted in the permit application, shall promptly submit such supplementary facts or corrected information. In addition, a Permittee shall provide additional information as necessary to address any requirements that become applicable after the date a complete application is filed, but prior to release of a draft permit.

E. Submissions [40 CFR 71.5(d), 71.6(c)(1) and 71.9(h)(2)]

1. Any document (application form, report, compliance certification, etc.) required to be submitted under this permit shall be certified by a responsible official as to truth, accuracy and completeness. Such certifications shall state that based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

[Explanatory note: the EPA has developed a reporting form "CTAC" for certifying truth, accuracy and completeness of Part 71 submissions. The form may be found on the EPA's website at: https://www.epa.gov/title-v-operating-permits/epa-issued-operating-permits*]*

2. All fee calculation worksheets and applications for renewals and permit modifications shall be submitted to:

    Part 71 Permit Contact, Air Program, 8P-AR
    U.S. Environmental Protection Agency,
    1595 Wynkoop Street
    Denver, Colorado 80202

3. Except where otherwise specified, all reports, test data, monitoring data, notifications and compliance certifications shall be submitted to:

    Director, Air Toxics and Technical Enforcement Program, 8ENF-AT
    U.S. Environmental Protection Agency,
    1595 Wynkoop Street
    Denver, Colorado 80202

F. Severability Clause [40 CFR 71.6(a)(5)]

The provisions of this permit are severable, and in the event of any challenge to any portion of this permit, or if any portion is held invalid, the remaining permit conditions shall remain valid and in force.

G. Permit Actions [40 CFR 71.6(a)(6)(iii)]

This permit may be modified, revoked, reopened, and reissued or terminated for cause. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

H. Administrative Permit Amendments [40 CFR 71.7(d)]

The Permittee may request the use of administrative permit amendment procedures for a permit revision that:

1. Corrects typographical errors;

2. Identifies a change in the name, address or phone number of any person identified in the permit, or provides a similar minor administrative change at the source;

3. Requires more frequent monitoring or reporting by the Permittee;

4. Allows for a change in ownership or operational control of a source where the EPA determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee has been submitted to the EPA;

5. Incorporates into the Part 71 permit the requirements from preconstruction review permits authorized under an EPA-approved program, provided that such a program meets procedural requirements substantially equivalent to the requirements of §71.7 and §71.8 that would be applicable to the change if it were subject to review as a permit modification, and compliance requirements substantially equivalent to those contained in §71.6; or

6. Incorporates any other type of change which the EPA has determined to be similar to those listed in (1) through (5) above.

[Note to Permittee: If 1 through 5 above do not apply, please contact the EPA for a determination of similarity prior to submitting your request for an administrative permit amendment under this provision.]

I. Minor Permit Modifications [40 CFR 71.7(e)(1)]

1. The Permittee may request the use of minor permit modification procedures only for those modifications that:

   (a) Do not violate any applicable requirement;

(b) Do not involve significant changes to existing monitoring, reporting or recordkeeping requirements in the permit;

(c) Do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient impacts or a visibility or increment analysis;

(d) Do not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:

(i) A federally enforceable emissions cap assumed to avoid classification as a modification under any provision of Title I; and
(ii) An alternative emissions limit approved pursuant to regulations promulgated under Section 112(i)(5) of the CAA;

(e) Are not modifications under any provision of Title I of the CAA; and

(f) Are not required to be processed as a significant modification.

2. Notwithstanding the list of changes ineligible for minor permit modification procedures in 1 above, minor permit modification procedures may be used for permit modifications involving the use of economic incentives, marketable permits, emissions trading and other similar approaches, to the extent that such minor permit modification procedures are explicitly provided for in an applicable implementation plan or in applicable requirements promulgated by the EPA.

3. An application requesting the use of minor permit modification procedures shall meet the requirements of §71.5(c) and shall include the following:

(a) A description of the change, the emissions resulting from the change and any new applicable requirements that will apply if the change occurs;

(b) The source's suggested draft permit;

(c) Certification by a responsible official, consistent with §71.5(d), that the proposed modification meets the criteria for use of minor permit modification procedures and a request that such procedures be used; and

(d) Completed forms for the permitting authority to use to notify affected States as required under §71.8.

4. The source may make the change proposed in its minor permit modification application immediately after it files such application. After the source makes the change allowed by the preceding sentence, and until the permitting authority takes any of the actions authorized by §71.7(e)(1)(iv)(A) through (C), the source must comply with both the applicable requirements governing the change and the proposed permit terms and conditions. During this time, the source need not comply with the existing permit terms

and conditions it seeks to modify. However, if the source fails to comply with its proposed permit terms and conditions during this time, the existing permit terms and conditions it seeks to modify may be enforced against it.

5. The permit shield under §71.6(f) may not extend to minor permit modifications.

J. Significant Permit Modifications [40 CFR 71.7(e)(3), 71.8(d), and 71.5(a)(2)]

1. The Permittee must request the use of significant permit modification procedures for those modifications that:

   (a) Do not qualify as minor permit modifications or as administrative amendments;

   (b) Are significant changes in existing monitoring permit terms or conditions; or

   (c) Are relaxations of reporting or recordkeeping permit terms or conditions.

2. Nothing herein shall be construed to preclude the Permittee from making changes consistent with Part 71 that would render existing permit compliance terms and conditions irrelevant.

3. Permittees must meet all requirements of Part 71 for applications, public participation, and review by affected states and tribes for significant permit modifications. For the application to be determined complete, the Permittee must supply all information that is required by §71.5(c) for permit issuance and renewal, but only that information that is related to the proposed change.

K. Reopening for Cause [40 CFR 71.7(f)]

The permit may be reopened and revised prior to expiration under any of the following circumstances:

1. Additional applicable requirements under the CAA become applicable to a major Part 71 source with a remaining permit term of three or more years. Such a reopening shall be completed no later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions have been extended pursuant to §71.7(c)(3);

2. Additional requirements (including excess emissions requirements) become applicable to an affected source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into the permit;

3. The EPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit; or

4. The EPA determines that the permit must be revised or revoked to assure compliance with the applicable requirements.

L. Property Rights [40 CFR 71.6(a)(6)(iv)]

This permit does not convey any property rights of any sort, or any exclusive privilege.

M. Inspection and Entry [40 CFR 71.6(c)(2)]

1. Upon presentation of credentials and other documents as may be required by law, the Permittee shall allow the EPA or an authorized representative to perform the following:

2. Enter upon the Permittee's premises where a Part 71 source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;

3. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;

4. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices or operations regulated or required under the permit; and

5. As authorized by the CAA, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.

N. Transfer of Ownership or Operation [40 CFR 71.7(d)(1)(iv)]

A change in ownership or operational control of this source may be treated as an administrative permit amendment if the EPA determines no other change in this permit is necessary and provided that a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee has been submitted to the EPA.

O. Off Permit Changes [40 CFR 71.6(a)(12) and 40 CFR 71.6(a)(3)(ii)]

The Permittee is allowed to make certain changes without a permit revision, provided that the following requirements are met, and that all records required by this section are kept for a period of 5 years:

1. Each change is not addressed or prohibited by this permit;

2. Each change shall meet with all applicable requirements and shall not violate any existing permit term or condition;

3. Changes under this provision may not include changes subject to any requirement of 40 CFR parts 72 through 78 or modifications under any provision of Title I of the CAA;

4. The Permittee must provide contemporaneous written notice to the EPA of each change, except for changes that qualify as insignificant activities under §71.5(c)(11). The written notice must describe each change, the date of the change, any change in

emissions, pollutants emitted and any applicable requirements that would apply as a result of the change;

5. The permit shield does not apply to changes made under this provision;

6. The Permittee must keep a record describing all changes that result in emissions of any regulated air pollutant subject to any applicable requirement not otherwise regulated under this permit, and the emissions resulting from those changes;

7. The notice shall be kept on site and made available to the EPA on request, in accordance with the general recordkeeping provision of this permit; and

8. Submittal of the written notice required above shall not constitute a waiver, exemption or shield from applicability of any applicable standard or PSD permitting requirements under 40 CFR 52.21 that would be triggered by the change.

P. Permit Expiration and Renewal [40 CFR 71.5(a)(1)(iii), 71.5(a)(2), 71.5(c)(5), 71.6(a)(11), 71.7(b), 71.7(c)(1), and 71.7(c)(3)]

1. This permit shall expire upon the earlier occurrence of the following events:

   (a) Five years elapse from the date of issuance; or

   (b) The source is issued a Part 70 or Part 71 permit under an EPA-approved or delegated permit program.

2. Expiration of this permit terminates the Permittee's right to operate unless a timely and complete permit renewal application has been submitted at least 6 months but not more than 18 months prior to the date of expiration of this permit.

3. If the Permittee submits a timely and complete permit application for renewal, consistent with §71.5(a)(2), but the EPA has failed to issue or deny the renewal permit, then all the terms and conditions of the permit, including any permit shield granted pursuant to §71.6(f) shall remain in effect until the renewal permit has been issued or denied.

4. The Permittee's failure to have a Part 71 permit is not a violation of this part until the EPA takes final action on the permit renewal application. This protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit any additional information identified as being needed to process the application by the deadline specified in writing by the EPA.

5. Renewal of this permit is subject to the same procedural requirements that apply to initial permit issuance, including those for public participation, affected State, and tribal review.

6. The application for renewal shall include the current permit number, description of permit revisions and off permit changes that occurred during the permit term, any applicable requirements that were promulgated and not incorporated into the permit during the permit term and other information required by the application form.

Air Pollution Control
Federal Clean Air Act (CAA) Title V Permit to Operate
Statement of Basis for Draft Permit No. V-UO-000016-2006.00

XTO Energy, Inc.
Little Canyon Unit Compressor Station
Uintah & Ouray Reservation
Uintah County, Utah

I. Facility Information

A. Location

The Little Canyon Unit Compressor Station (Little Canyon Unit), owned and operated by XTO Energy, Inc. (XTO), is located on Indian country lands within the Uintah and Ouray Indian Reservation in northeastern Utah. The exact location is Latitude 39.8969N, Longitude 109.6055W. The mailing address is:

XTO Energy, Inc.
810 Houston Street
Fort Worth, Texas 76102

B. Contacts

Facility Contact:
Craig Allison
XTO Energy, Inc.
810 Houston Street
Fort Worth, Texas 76102
Phone: (817) 885-2672

Responsible Official:
Timothy Herman, Manager of Mid Stream Operations
XTO Energy
810 Houston Street
Fort Worth, Texas 76102
Phone: (817) 885-2584

Tribal Contact:
Minnie Grant, Air Coordinator, Energy, Minerals and Air
Ute Indian Tribe
P.O. Box 70
Fort Duchesne, Utah 84026
Phone: (435) 725-4950

C. Description of Operations

Little Canyon Unit is a natural gas compressor station. Natural gas produced from area wells is sent to the compressor station through gathering flowlines. Once the gas enters the station, it flows through a separator in order to reduce water and condensable liquids content in the gas stream prior to entry into the compressors. The liquids produced from the on-site separator are then sent to two (2) 400-barrel condensate tanks (LCT-1 and LCT-2) operating at atmospheric pressure for storage prior to being hauled offsite by truck. Following the inlet separator, the gas is compressed with two (2) natural gas internal combustion engine driven compressors (LCC-3, and LCC-4) to higher pressure of approximately 700 psig. The high-pressure gas leaving the two-phase separator then passes into a triethylene glycol (TEG) natural gas dehydration system. The TEG natural gas dehydration system consists of a 25 MMscfd capacity natural gas TEG dehydration process still vent (LCD-1), a 0.55 MMBtu/hr natural gas-fired process heater and a TEG regenerator. The TEG natural gas dehydration system emissions are controlled by a thermal oxidizer. The natural gas dehydration system uses a BTEX system that captures vapors from the still vent and sends the vapors to a thermal oxidizer for destruction.

Following dehydration, the dry natural gas stream leaves the station via a metered sales pipeline. The station has on-site electrical power supplied by a Capstone natural-gas fired microturbine-driven generator (insignificant emission unit). In addition, the pneumatic control devices are operated by plant air supplied by the on-site electric-driven air compressor.

In addition, the LCU 2-6GX natural gas wellsite is located approximately 1,000 feet from Little Canyon Unit. Natural gas produced from the LCU 2-6GX wellsite flows into the common, Little Canyon Unit area gas gathering system. The LCU 2-6GX wellsite consists of a small (< 1 MMscfd) natural gas dehydration system with a 0.5 MMBtu/hr natural gas-fired process heater, one (1) 300-barrel and one (1) 400-barrel condensate storage tanks, two (2) 0.25 MMBtu/hr process heaters, truck loading operations and one (1) 18 hp natural gas-fired pump engine.

D. Emission Points

The Title V Operating Permit Program at 40 CFR part 71 (Part 71) allows the Permittee to separately list in the permit application units or activities that qualify as “insignificant” based on potential emissions below 2 tons per year (tpy) for all regulated pollutants that are not listed as hazardous air pollutants (HAPs) under section 112(b) and below 1,000 lbs/year or the de minimis level established under section 112(g), whichever is lower for HAPs. However, the application may not omit information needed to determine the applicability of or to impose, any applicable requirement. Units and activities that qualify as “insignificant” for the purposes of the Part 71 application are in no way exempt from applicable requirements or any requirements of the Part 71 permit.

Tables 1 and 2 lists emission units and emission generating activities, including any air pollution control devices.

Table 1 – Emission Units and Emission Generating Activities

Unit ID	Description	Control Equipment
LCC-3	Caterpillar 3512 TALE; 810 hp* 4-Stroke Lean-Burn Reciprocating Internal Combustion Engine Natural Gas-Fired Serial No. 7NJ00735 Installed: 9/20/2016 Mfg*: 11/22/2000	Oxidation Catalyst (not enforceable)
LCC-4	Caterpillar 3516 LE; 1,260 hp* 4-Stroke Lean-Burn Reciprocating Internal Combustion Engine Natural Gas-Fired Serial No. 4EK03003 Installed: 3/28/2013 Mfg*: 8/30/2000	Oxidation Catalyst (not enforceable)

Unit ID	Description	Control Equipment
LCU 2-6GX PU	Arrow C-96; 18 hp* 4-Stroke Rich-Burn Internal Combustion Pumping Engine Natural Gas-Fired Serial No. 210024-C Installed: Pre-June 2006 Mfg*: 12/13/2003	None
LCD-1	25 MMscfd* Triethylene Glycol Dehydration Unit Serial No. Unknown Installed: 12/9/2005	Thermal Oxidizer
LCU 2-6GX D-1	0.2 MMscfd* Triethylene Glycol Dehydration Unit (LCU 2-6GX Wellsite) Serial No. Unknown Installed: 2000	None
LCT-1 LCT-2	400 bbl* Condensate Storage Tanks Serial #: 8801801-3 Installed: 9/15/2005 Serial #: 8J01801-4 Installed: 9/15/2005	None
LCF-1	Fugitive Emissions	None

* Mfg = Manufactured; hp = horsepower; bbl = barrel; MMscfd = million standard cubic feet per day; MMBtu/hr = million British thermal units per hour

Table 2 – Insignificant Emission Units*

Description
Capstone 65 kW Microturbine Genset (Little Canyon Unit)
Condensate Truck Loading (Little Canyon Unit)
0.550 MMBtu/hr* TEG Dehydration Unit Reboiler (Little Canyon Unit)
0.500 MMBtu/hr* Tank Heater #1 (Little Canyon Unit)
0.500 MMBtu/hr* Tank Heater #2 (Little Canyon Unit)
0.250 MMBtu/hr* natural gas-fired separator heater (Little Canyon Unit)
2 MMBtu/hr* heater for Thermal Oxidizer (Little Canyon Unit)
Pipeline Pigging Operations (Little Canyon Unit)
Compressor Blowdown Emissions (Little Canyon Unit)
0.55 MMBtu/hr TEG Dehydration Unit Reboiler (LCU 2-6GX Wellsite)
300 bbl* Condensate Storage Tank (LCU 2-6GX Wellsite)
400 bbl* Condensate Storage Tank (LCU 2-6GX Wellsite)
0.5 MMBtu/hr Tank Heater (LCU 2-6GX Wellsite)
0.25 MMBtu/hr Tank Heater (LCU 2-6GX Wellsite)
0.25 MMBtu/hr TEG Dehydration Unit Reboiler Heater (LCU 2-6GX Wellsite)
Condensate Truck Loading (LCU 2-6GX Wellsite)
Fugitive Emissions (LCU 2-6GX Wellsite)

*Insignificant emission units can change at the facility as long as the new or replacement units meet the criteria for insignificance, and XTO supplies information as required under 40 CFR part 71 and this permit. The insignificant emission unit status does not exempt these emission units from the requirements of any NSPS and MACT standards that may apply.

E. Potential to Emit

Pursuant to 40 CFR 52.21, potential to emit (PTE) is defined as the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a 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, or the effect it would have on emissions, is federally enforceable. Independently enforceable applicable requirements are considered enforceable to the extent that the source is in compliance with the standard. In addition, beneficial reductions in non-targeted pollutants resulting from compliance with an independently enforceable applicable requirement may be counted towards PTE provided the emission reduction of the non-targeted pollutant is enforceable as a practical matter and compliance is being met. See the 1995 guidance memo signed by John Seitz, Director of the Office of Air Quality Planning and Standards titled, “Options for Limiting Potential to Emit of a Stationary Source under Section 112 and Title V of the Clean Air Act.”

XTO reported the controlled emission unit-specific PTE in their Part 71 permit application. The controlled emissions in Table 3 are based on the legally and practically enforceable requirements set forth in this proposed permit.

Table 3 – Potential-to-Emit with Legally and Practically Enforceable Controls

Regulated Air Pollutants (tpy)											
Unit ID	**NO_X***	**CO***	**VOC***	**PM***	**SO_2***	**CH_2O***	**Total HAPs***	**CO_2***	**CH_4* (as CO_2e)**	**N_2O* (as CO_2e)**	**CO_2e***
LCC-3	15.6	17.6	7.8	0.3	0.0	2.2	2.2	3,707.3	1.7	2.1	3,711.1
LCC-4	25.9	30.3	12.9	0.5	0.0	3.6	3.6	5,900.3	2.8	3.3	5,906.4
LCD-1	2.1	2.9	5.3	0.3	0.0	0.0	3.0	4,170.6	8.1	2.3	4,181.0
LCT-1	0.0	0.0	1.8	0.0	0.0	0.0	0.2	0.0	28.0	0.0	28.0
LCT-2	0.0	0.0	1.8	0.0	0.0	0.0	0.2	0.0	28.0	0.0	28.0
LCF-1	0.0	0.0	3.9	0.0	0.0	0.0	0.1	0.0	593.2	0.0	593.2
LCU 2-6GX Pump Engine	2.1	0.9	0.0	0.0	0.0	0.0	0.0	112.7	5.89	0.0	118.6
LCU 2-6GX D-1	0.0	0.0	4.0	0.0	0.0	0.0	1.4	0.1	27.5	0.0	27.6
IEUs	2.2	3.5	11.1	0.1	0.0	0.0	0.3	1,316.8	723.2	0.7	2,040.7
TOTAL	**47.9**	**55.2**	**48.6**	**1.2**	**0.0**	**5.8**	**11.0**	**15,095.0**	**1,385.0**	**8.4**	**16,488.4**

*NO_X = nitrogen oxide; CO = carbon monoxide; VOC = volatile organic compound; PM = particulate matter; SO_2 = sulfur dioxide; CH_2O = formaldehyde; HAP = hazardous air pollutant; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = equivalent CO_2.

II. Applicable Requirement Review

The discussions in the following sections are based on the information provided by XTO in their Part 71 application, certified to be true and accurate by the Responsible Official of this facility.

A. 40 CFR 52.21: Prevention of Significant Deterioration

The Prevention of Significant Deterioration Permit Program at 40 CFR part 52 (PSD) is a preconstruction review requirement of the CAA that applies to proposed projects that are sufficiently large (in terms of emissions) to be a “major” stationary source or “major” modification of an existing stationary source. Source size is defined in terms of “potential to emit,” which is its capability at maximum design capacity to emit a pollutant, except as constrained by existing legally and practically enforceable conditions applicable to the source. A new stationary source or a modification to an existing minor stationary source is major if the proposed project has the PTE of any pollutant regulated under 40 CFR part 52 in amounts equal to or exceeding specified major source thresholds, which are 100 tpy for 28 listed industrial source categories and 250 tpy for all other sources. PSD also applies to modifications at existing major sources that cause a “significant net emissions increase” at that source. Significance levels for each pollutant are defined in the PSD regulations at 40 CFR 52.21.

According to the emissions information provided by XTO in their Part 71 application, this facility is currently a minor source with respect to PSD as the PTE does not exceed the threshold of criteria pollutants regulated under PSD.

B. Source Determination

At 40 CFR 71.2, a major source is generally defined as any stationary source (or any group of stationary sources that are located on one or more contiguous or adjacent properties, are under common control of the same person (or persons under common control)), and belonging to a single major industrial grouping. On June 3, 2016, the EPA published a final rule clarifying when oil and natural gas sector equipment and activities must be deemed a single source when determining whether major source permitting programs (PSD and New Source Review preconstruction Permit Programs, and the Part 71 Permit Program) apply (81 FR 35622). By defining the term "adjacent," the rule specifies that equipment and activities in the oil and natural gas sector that are under common control will be considered part of the same source if they are located on the same surface site or on individual surface sites that share equipment and are within a quarter mile of each other.

According to information provided by XTO, the LCU 2-6GX wellsite and Little Canyon Unit are located within a quarter mile of each other and share equipment. Therefore, the EPA has determined that LCU 2-6GX wellsite is adjacent to Little Canyon Unit and thus part of the same stationary source. A more detailed source determination is included in the docket for this permit action.

C. 40 CFR Part 60, Subpart A: General Provisions

This subpart applies to the owner or operator of any stationary source which contains an affected facility, the construction or modification of which is commenced after the date of publication of any standard in 40 CFR part 60 (Part 60). The general provisions under subpart A apply to sources that are subject to the specific subparts of Part 60.

As explained below, Little Canyon Unit is not subject to any specific subparts of Part 60; therefore, the General Provisions of Part 60 do not apply.

D. 40 CFR Part 60, Subpart GG: Standards of Performance for Stationary Gas Turbines

This rule applies to stationary gas turbines, with a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 MMBtu/hr), that commenced construction, modification or reconstruction after October 3, 1977.

Based on the information provided by XTO in their Part 71 application, the stationary gas turbine located at Little Canyon Unit has a maximum heat input less than 10.7 gigajoules per hour; therefore, this rule does not apply. The maximum heat input for the Capstone Microturbine at the facility is 0.2 MMBtu/hr.

E. 40 CFR Part 60, Subpart Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced After July 23, 1984

This subpart establishes requirements for controlling VOC emissions from storage vessels with a capacity greater than or equal to 75 cubic meters that are used to store volatile organic liquids for which construction, reconstruction or modification commenced after July 23, 1984.

Based on the information provided by XTO in their Part 71 application, the condensate tanks (LCT-1, LCT-2, LCU 2-6GX Tank 1, and LCU 2-6GX Tank 2) at Little Canyon Unit and LCU 2-6GX wellsite are exempt from these requirements because they have a capacity of less than 10,000 bbls.

F. 40 CFR Part 60, Subpart KKK: Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011

This subpart establishes requirements for controlling fugitive VOC emissions from onshore natural gas processing plants. It applies to natural gas processing plants that commenced construction, reconstruction, or modification after January 20, 1984 and on or before August 23, 2011.

Based on the information provided by XTO in their Part 71 application, Little Canyon Unit is not a natural gas processing plant, therefore the facility is not subject to this subpart.

G. 40 CFR Part 60, Subpart LLL: Standards of Performance for SO_2 Emissions from Onshore Natural Gas Processing for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011

This subpart applies to sweetening units and sulfur recovery units at onshore natural gas processing facilities. As defined in this subpart, sweetening units are process devices that separate hydrogen sulfide (H_2S) and CO_2 from a sour natural gas stream. Sulfur recovery units are defined as process devices that recover sulfur from the acid gas (consisting of H_2S and CO_2) removed by a sweetening unit.

Based on the information provided by XTO in their Part 71 application, neither sweetening nor sulfur recovery are performed at the facility. Therefore, Little Canyon Unit is not subject to this subpart.

H. 40 CFR Part 60, Subpart JJJJ: Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

This subpart establishes emission standards and compliance requirements for the control of emissions from stationary spark ignition internal combustion engines that commenced construction, modification, or reconstruction after June 12, 2006, and are manufactured on or after specified manufacture trigger dates. The manufacture trigger dates are based on the engine type, fuel used and maximum engine horsepower.

Based on the information provided by XTO in their Part 71 application, the engines operating at the facility were manufactured prior to the manufacture trigger dates in the rule (January 1, 2008 for engines LCU-3 and LCU-4, and July 1, 2008 for the Arrow C-96 pump engine). Therefore, this subpart does not apply.

I. 40 CFR Part 60, Subpart KKKK: Standards of Performance for Stationary Combustion Turbines

This subpart establishes emission standards and compliance schedules for the control of emissions from stationary combustion turbines that commenced construction, modification or reconstruction after February 18, 2005. The rule applies to stationary combustion turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour.

Based on the information provided by XTO in their Part 71 application, the stationary gas turbine located at Little Canyon has a maximum heat input less than 10.7 gigajoules per hour; therefore, this rule does not apply. The maximum heat input for the Capstone Microturbine at the facility is 0.2 MMBtu/hr.

J. 40 CFR Part 60, Subpart OOOO: Standards of Performance for Crude Oil and Natural Gas production, Transmission, and Distribution After August 23, 2011, and on or Before September 18, 2015

This subpart establishes emission standards for the control of VOC and SO_2 emissions from affected facilities that commence construction, modification, or reconstruction after August 23, 2011 and on or before September 18, 2015. Affected facilities include, but are not limited to well completions, centrifugal compressors, reciprocating compressors, pneumatic controllers, storage vessels and sweetening units.

Based on the information provided by XTO in their Part 71 application, the current equipment at Little Canyon Unit and LCU 2-6GX wellsite that are affected facilities predates the applicability date for this subpart. Therefore, Little Canyon Unit and LCU 2-6GX wellsite are not subject to this subpart.

K. 40 CFR part 60, Subpart OOOOa: Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015

This subpart establishes emission standards for the control of VOC and SO_2 emissions from affected facilities that commence construction, modification or reconstruction after September 18, 2015. Affected facilities include, but are not limited to well completions, centrifugal compressors, reciprocating compressors, pneumatic controllers, storage vessels and sweetening units.

Based on the information provided by XTO in their Part 71 application, the current equipment at Little Canyon Unit and LCU 2-6GX wellsite that are affected facilities predate the applicability date for this subpart. Therefore, Little Canyon Unit and LCU 2-6GX wellsite are not subject to this subpart.

L. 40 CFR Part 63, Subpart A: National Emission Standards for Hazardous Air Pollutants for Source Categories, General Provisions.

The requirements of 40 CFR part 63, subpart A apply to sources that are subject to the specific subparts of 40 CFR part 63.

As explained below, Little Canyon Unit and LCU 2-6GX wellsite are subject to 40 CFR part 63, subpart HH, National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities and subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines; therefore, the General Provisions of 40 CFR part 63 apply.

M. 40 CFR Part 63, Subpart HH: National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities

This subpart establishes emission standards for the control of HAP emissions from affected units located at natural gas production facilities that process, upgrade or store natural gas prior to the point of custody transfer, or that process, upgrade or store natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category or is delivered to a final end user. The affected units are glycol dehydration units, storage vessels with the potential for flash emissions (as defined in the rule) and the group of ancillary equipment and compressors intended to operate in volatile HAP service which are located at natural gas processing plants.

Based on the information provided by XTO in their Part 71 application, Little Canyon Unit and LCU 2-6GX wellsite do not operate any storage vessels with the potential for flash emissions (as defined in the rule). Uncontrolled emissions from dehydration unit LCD-1 exceed the major source thresholds for HAPs. Therefore, dehydration unit LCD-1 is subject to the major source requirements of this subpart.

As defined in §63.761, emissions from any oil and gas exploration or production well, and emissions from any pipeline compressor station shall not be aggregated with emissions from other similar units to determine whether such emission points are major sources. Therefore, the LCU 2-6GX wellsite is an area source under the rule and dehydration unit LCU 2-6GX D-1 is subject to the area source requirements of the rule. However, dehydration unit LCU 2-6GX D-1 meets the exemption criteria in §63.764(e) because according to the information provided by XTO in their Part 71 application the actual annual average flowrate of natural gas to the dehydration unit is less than 85 thousand standard cubic meters per day. XTO is subject to the recordkeeping requirements for the exemption criteria at §63.774(d)(1).

N. 40 CFR Part 63, Subpart YYYY: National Emission Standards for Hazardous Air Pollutants from Stationary Combustion Turbines.

This rule establishes national emission limitations and work practice standards for HAPs emitted from Stationary Combustion Turbines. The affected source includes the stationary combustion turbine located at a major source of HAP emissions.

As defined in §63.6090(b)(3), an existing, new or reconstructed stationary combustion turbine with a rated peak power output of less than 1.0 megawatt (MW) does not have to meet the requirements of this subpart. Based on the information provided by XTO in their Part 71 application, although Little Canyon Unit is a major source of HAP emissions, the 65 kw Capstone Microturbine Generator at the facility is exempt from the requirements of this subpart because according to XTO it has a peak power output of less than 1.0 MW. The maximum heat input for the Capstone Microturbine at the facility is 0.2 MMBtu/hr.

O. 40 CFR Part 63, Subpart ZZZZ (MACT ZZZZ): National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

This subpart establishes emission standards and operating limitations for the control of HAP emissions from spark ignition and compression ignition reciprocating internal combustion engines.

According to the regulations at §63.6585(b), a major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site. Since the LCU 2-6GX wellsite and Little Canyon Unit are not located on the same surface site, the emissions from neither the wellsite nor the compressor station shall not be aggregated for the purposes of determining a major source of HAPs.

As defined in §63.6675, for production field facilities, only HAP emissions from glycol dehydration units, storage vessels with the potential for flash emissions, combustion turbines and reciprocating internal combustion engines shall be aggregated to determine whether such emission points are major sources. Based on the information provided by XTO in their Part 71 application, the reciprocating internal combustion engines (LCC-3 and LCC-4) at Little Canyon Unit are considered existing engines because they commenced construction prior to December 19, 2002. The regulations at §63.6590(b)(3)(ii) exempt existing engines greater than 500 hp at a major source of HAPs from the requirements of subpart ZZZZ. Therefore, there are no requirements for LCC-3 or LCC-4 in the Part 71 permit. Should XTO replace LCC-3 or LCC-4 with an engine subject to subpart ZZZZ, the off-permit changes provision of the permit will not apply and XTO will be required to submit an application for a modification to the Part 71 permit.

The Arrow C-96 pump engine at the LCU 2-6GX wellsite (LCU 2-6GX PU) is subject to the area source requirements of subpart ZZZZ.

P. 40 CFR Part 63, Subpart DDDDD (Boiler MACT): National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

This rule establishes national emission limitations and operating limitations for HAPs emitted from new and existing industrial boilers, institutional boilers, commercial boilers and process heaters that are located at major sources of HAPs. For the purposes of this subpart, a major source of HAPs is as defined in §63.2, except that for oil and natural gas production facilities, a major source of HAPs is as defined in §63.761. Boilers or process heaters that combust natural gas for fuel or have a maximum designed heat input capacity less than 10 MMBtu/hr are subject to work practice standards in lieu of emission limits. For the purposes of this subpart, an affected unit is an existing unit if it was constructed prior to June 4, 2010.

The dehydration unit reboiler and heaters at Little Canyon Unit meet the definition of process heaters in the rule. However, because Little Canyon Unit is subject to the major source requirements of 40 CFR part 63, subpart HH, EPA's "once in, always in" policy[1] allows XTO to account for the reductions of PTE achieved through compliance with previous MACT standards prior to the first compliance date of subsequent MACT standards. Based on the information provided by XTO in their Part 71 application, the PTE at Little Canyon Unit with federally enforceable controls was below major source thresholds for HAPs as of the first compliance date of this subpart (January 1, 2016 for existing process heaters and April 1, 2013 for new process heaters). Therefore, Little Canyon Unit does not meet the definition of a major source under the rule and this subpart does not apply. This subpart does not apply to LCU 2-6GX wellsite because it does not meet the definition of a major source under the rule.

[1] See EPA's May 16, 1995 guidance document titled "Potential to Emit for MACT Standards -- Guidance on Timing Issues"

Q. 40 CFR Part 63, Subpart JJJJJJ (Boiler MACT (for area sources)): National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers.

This rule establishes national emission standards and operating limitations for HAPs emitted from new and existing industrial boilers, institutional boilers, and commercial boilers that are fueled by coal, biomass, or oil and are located at area sources of HAPs. For the purposes of this subpart, an affected unit is an existing unit if it was constructed prior to June 4, 2010.

Based on the information provided by XTO in their Part 71 application, there are no industrial, commercial, or institutional boilers located at Little Canyon Unit or LCU 2-6GX wellsite as defined in the rule. Therefore, subpart JJJJJJ does not apply.

R. 40 CFR Part 64: Compliance Assurance Monitoring

Pursuant to requirements concerning enhanced monitoring and compliance certification under the CAA, the EPA promulgated regulations to implement compliance assurance monitoring (CAM) for major stationary sources of air pollution, for purposes of Title V permitting that are required to obtain operating permits under Part 71. The rule requires owners or operators of such sources to conduct monitoring that provide a reasonable assurance of compliance with applicable requirements under the CAA.

1. CAM Applicability

According to §64.2(a), CAM applies to <u>each</u> pollutant specific emission unit (PSEU) located at a major source which is required to obtain a Part 71 permit if the unit satisfies all of the following criteria:

(a) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant other than an emissions limitation or standard that is exempt under §64.2(b)(1);

(b) The unit uses a control device to achieve compliance with any such limit or standard; and

(c) The unit has pre-control device emissions of the applicable regulated pollutant that are equal to or greater than 100 percent of the amount, in tpy, required for a source to be classified as a major Title V source.

2. CAM Plan Submittal Deadlines

(a) <u>Large pollutant-specific emissions units</u>. A CAM plan submittal for all PSEUs with the PTE (taking into account control devices) of any one regulated air pollutant in an amount equal to or greater than 100 percent of the amount, in tpy, required for a source to be classified as a major source, is due at the following times:

(i) On or after April 20, 1998, if by that date, a Part 71 application has either:

(A) Not been filed; or
(B) Not yet been determined to be complete.

(ii) On or after April 20, 1998, if a Part 71 permit application for a significant modification is submitted with respect to those PSEUs for which the requested permit revision is applicable; or

(iii) Upon application for a renewed Part 71 permit and a CAM plan has not yet been submitted with an initial or a significant modification application, as specified above.

(b) Other pollutant-specific emissions units. A CAM Plan must be submitted for all PSEUs that are not large PSEUs, but are subject to this rule, upon application for a Part 71 renewal permit.

Based on the information provided by XTO in their Part 71 application, dehydration unit LCD-1 is a PSEU with pre-controlled emissions that equal or exceed 100 percent of VOC and HAP thresholds. However, LCD-1 is subject to the major source requirements of 40 CFR part 63, subpart HH and thus meets the exemption criteria of §64.2(b)(1). Since no other PSEUs at the facility have pre-controlled emissions that exceed or equal 100 percent of major source thresholds, Little Canyon Unit is not subject to CAM requirements.

S. 40 CFR Part 68: Chemical Accident Prevention Provisions.

This rule applies to stationary sources that manufacture, process, use, store or otherwise handle more than the threshold quantity of a regulated substance in a process. Regulated substances include 77 toxic and 63 flammable substances which are potentially present in the natural gas stream entering the facility and in the storage vessels located at the facility. The quantity of a regulated substance in a process is determined according to the procedures presented under §68.115. Sections 68.115(b)(l) and (2)(i) indicate that toxic and flammable substances in a mixture do not need to be considered when determining whether more than a threshold quantity is present at a stationary source if the concentration of the substance is below one percent by weight of the mixture. Section 68.115(b)(2)(iii) indicates that prior to entry into a natural gas processing plant, regulated substances in naturally occurring hydrocarbon mixtures need not be considered when determining whether more than a threshold quantity is present at a stationary source. Naturally occurring hydrocarbon mixtures include condensate, field gas, and produced water. Based on the updated information provided in XTO's application, Little Canyon Unit and LCU 2-6GX wellsite do not have regulated substances above the threshold quantities in this rule; and therefore, are not subject to the requirement to develop and submit a risk management plan.

T. 40 CFR Part 71: Emergency Provisions

In this draft initial Part 71 permit, the EPA is proposing to not include the "Emergency Provisions" contained in the regulations in 40 CFR part 71 applicable to federal operating permit programs. Specifically, in the regulations discussing the contents of Title V operating permits issued under the federal operating permits program, 40 CFR 71.6(g) provides that certain "emergency" events can constitute "an affirmative defense in an action brought for non-compliance" with certain emission limits contained in the permit, when certain conditions are met. However, nothing in the CAA or 40 CFR part 71 requires that these types of emergency provisions be included as conditions in operating permits issued by the EPA, and for the reasons discussed below, we are exercising our discretion not to include them in this draft initial Part 71 permit.

In 2014, a federal court ruled that the CAA does not authorize the EPA to create affirmative defense provisions applicable to certain enforcement actions. *See NRDC v. EPA,* 749 F.3d 1055

(D.C. Cir. 2014). The court ruled that Sections 113 and 304 of the CAA preclude the EPA from creating affirmative defense provisions in the Agency's regulations imposing HAP emission limits on sources. The court concluded that those affirmative defense provisions purported to alter the jurisdiction of federal courts generally provided in the CAA to assess liability and impose penalties for violations of emission limits in private civil enforcement cases, and that the CAA did not provide authority for the EPA to do so. Consistent with the reasoning in the *NRDC v. EPA* court decision, the EPA has determined that it is also not appropriate under the CAA to alter the jurisdiction of the federal courts through affirmative defenses provisions in its Title V regulations, such as those contained in the emergency provisions of 40 CFR 71.6(g), and that such provisions are inconsistent with the CAA. In light of the above-described D.C. Circuit Court decision and the EPA's obligation to issue Title V permits consistent with the applicable requirements of the Act, it is no longer appropriate to propose to include permit conditions modeled on affirmative defenses such as those contained in the emergency provisions of 40 CFR 71.6(g) in operating permits issued by the EPA.

Although the EPA views the Part 71 emergency provisions as discretionary (i.e., neither the statute nor the regulations mandate their inclusion in Part 71 permits), the EPA is considering whether to make changes to the Part 71 Permit Program regulations in order to ensure the EPA's regulations are consistent with the recent D.C. Circuit decisions; and if so, how best to make those changes. Until that time, as part of the normal permitting process, it is appropriate for the EPA permitting authorities to rely on the discretionary nature of the existing emergency provisions to choose not to continue to include permit terms modeled on those provisions in Part 71 permits that we are issuing in the first instance or renewing. By doing so, we are not only fulfilling the EPA's obligation to issue Title V permits consistent with the applicable requirements of the Act, but we will also help ensure that permittee's do not continue to rely on permit provisions that have been found legally invalid.

Accordingly, in this draft initial Part 71 permit, the EPA is exercising its discretion to not include the "Emergency Provisions," in order to ensure the Part 71 permit is in compliance with the applicable requirements of the Act.

III. <u>EPA Authority</u>

Title V of the CAA requires that the EPA promulgate, administer, and enforce a federal operating permit program when a state does not submit an approvable program within the time frame set by Title V or does not adequately administer and enforce its EPA approved program. On July 1, 1996 (61 FR 34202), the EPA adopted regulations codified at 40 CFR part 71 setting forth the procedures and terms under which the agency would administer a federal operating permit program. These regulations were updated on February 19, 1999 (64 FR 8247) to incorporate the EPA's approach for issuing federal operating permits to stationary sources in Indian country.

As described in 40 CFR 71.4(a), the EPA will implement a Part 71 program in areas where a state, local or tribal agency has not developed an approved Part 70 program. Unlike states, tribes are not required to develop operating permits programs, though the EPA encourages tribes to do so. See, e.g., Indian Tribes: Air Quality Planning and Management (63 FR 7253, February 12, 1998) (also known as the "Tribal Authority Rule"). Therefore, within Indian country, the EPA will administer and enforce a Part 71 federal operating permit program for stationary sources until a tribe receives approval to administer their own operating permit program. The Ute Indian Tribe has not applied for or received approval to administer their own operating permit program, so the EPA administers Part 71 within the exterior boundaries of the Uintah & Ouray Indian Reservation.

IV. Use of All Credible Evidence

Determinations of deviations, continuous or intermittent compliance status or violations of the permit are not limited to the testing or monitoring methods required by the underlying regulations or this permit; other credible evidence (including any evidence admissible under the Federal Rules of Evidence) must be considered by the Permittee and the EPA in such determinations.

V. Public Participation

A. Public Notice

As described in 40 CFR 71.11(a)(5), all Part 71 draft operating permits shall be publicly noticed and made available for public comment. The public notice of permit actions and public comment period is described in 40 CFR 71.11(d).

There will be a 30-day public comment period for actions pertaining to a draft permit. Notification will be given for this draft permit by providing notice to the permit applicant, the affected state(s), tribal and local air pollution control agencies, the city and county executives, and the state and federal land managers which have jurisdiction over the area where the source is located, as well as to all persons who have submitted a request to be included on the mailing list.

If you would like to be added to our mailing list to be informed of future Part 71 permit actions or other CAA permits issued in Indian country, please send an email using the link for the Region 8 CAA public comment opportunities provided at https://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8, or send your name and address to the contact listed below:

Part 71 Permitting Lead
U.S. Environmental Protection Agency, Region 8
1595 Wynkoop Street (8P-AR)
Denver, Colorado 80202-1129

Public notice will be provided at https://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8 giving opportunity for public comment on the draft permit and the opportunity to request a public hearing.

B. Opportunity to Comment

Members of the public are given an opportunity to review a copy of the draft permit prepared by the EPA, the application, this Statement of Basis for the draft permit and all supporting materials for the draft permit. Copies of these documents are available at:

Uintah County Clerk's Office
147 East Main St #6
Vernal, UT 84078

and

Ute Indian Tribe Energy and Minerals Department Office
988 South 7500 East, Annex Building
Fort Duchesne, UT 84026
Contact: Minnie Grant, Air Coordinator, at (435) 725-4900 or minnieg@utetribe.com

and

U.S. Environmental Protection Agency, Region 8
1595 Wynkoop Street (8P-AR)
Denver, Colorado 80202-1129
Contact: Eric Wortman, Environmental Scientist, at (617) 918-1624 or wortman.eric@epa.gov

All documents are available for review at the Region 8 office Monday through Friday from 8:00 a.m. to 4:00 p.m. (excluding federal holidays). Electronic copies of the draft permit, statement of basis and supporting permit record may also be viewed at: https://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8.

Any interested person may submit written comments on the draft Part 71 operating permit during the public comment period to the Part 71 Permitting Lead at the address listed in Section A above, or by email using the instructions on the public comment opportunities web site address listed above. All comments will be considered and answered by the EPA in making the final decision on the permit. The EPA keeps a record of the commenters and of the issues raised during the public participation process.

Anyone, including the applicant, who believes any condition of the draft permit is inappropriate should raise all reasonable ascertainable issues and submit all arguments supporting their position by the close of the public comment period. Any supporting materials submitted must be included in full and may not be incorporated by reference, unless the material has already been submitted as part of the administrative record in the same proceeding or consists of state or federal statutes and regulations, EPA documents of general applicability or other generally available reference material.

The final permit will be a public record that can be obtained upon request. A statement of reasons for changes made to the draft permit and responses to comments received will be sent to all persons who comment on the draft permit. The final permit and response to comments document will also be available online at: https://www.epa.gov/caa-permitting/caa-permits-issued-epa-region-8. Anyone may request a copy of the final permit at any time by contacting the Tribal Air Permit Program at (800) 227–8917 or by sending an email to r8airpermitting@epa.gov.

C. Opportunity to Request a Hearing

A person may submit a written request for a public hearing to the Part 71 Permitting Lead, U.S. EPA Region 8, by stating the nature of the issues to be raised at the public hearing. Based on the number of hearing requests received, the EPA will hold a public hearing whenever it finds there is a significant degree of public interest in a draft operating permit. The EPA will provide public notice of the public hearing. If a public hearing is held, any person may submit oral or written statements and data concerning the draft permit.

D. Appeal of Permits

Within 30 days after the issuance of a final permit decision, any person who filed comments on the draft permit or participated in the public hearing may petition to the Environmental Appeals Board (EAB) to review any condition of the permit decision. Any person who failed to file comments or participate in the public hearing may petition for administrative review, only if the changes from the draft to the final permit decision or other new grounds were not reasonably foreseeable during the public comment period. The 30-day period to appeal a permit begins with the EPA's service of the notice of the final permit decision.

The petition to appeal a permit must include a statement of the reasons supporting the review, a demonstration that any issues were raised during the public comment period, a demonstration that it was impracticable to raise the objections within the public comment period, or that the grounds for such objections arose after such a period. When appropriate, the petition may include a showing that the condition in question is based on a finding of fact or conclusion of law which is clearly erroneous; or, an exercise of discretion, or an important policy consideration that the EAB should review.

The EAB will issue an order either granting or denying the petition for review, within a reasonable time following the filing of the petition. Public notice of the grant of review will establish a briefing schedule for the appeal and state that any interested person may file an amicus brief. Notice of denial of review will be sent only to the permit applicant and to the person requesting the review. To the extent review is denied, the conditions of the final permit decision become final agency action.

A motion to reconsider a final order shall be filed within ten days after the service of the final order. Every motion must set forth the matters claimed to have been erroneously decided and the nature of the alleged errors. Motions for reconsideration shall be directed to the Administrator rather than the EAB. A motion for reconsideration shall not stay the effective date of the final order unless it is specifically ordered by the EAB.

E. Petition to Reopen a Permit for Cause

Any interested person may petition the EPA to reopen a permit for cause, and the EPA may commence a permit reopening on its own initiative. The EPA will only revise, revoke and reissue or terminate a permit for the reasons specified in 40 CFR 71.7(f) or 71.6(a)(6)(i). All requests must be in writing and must contain facts or reasons supporting the request. If the EPA decides the request is not justified, it will send the requester a brief written response giving a reason for the decision. Denial of these requests is not subject to public notice, comment, or hearings. Denials can be informally appealed to the EAB by a letter briefly setting forth the relevant facts.

Smith, Claudia

From:	Wortman, Eric
Sent:	Thursday, June 22, 2017 2:06 PM
To:	mwilkins@co.uintah.ut.us
Subject:	Correction - Public Comment Period for Title V Permit on Uintah & Ouray Indian Reservation
Attachments:	Docket Transmittal Letter - Uintah Cty Clerk.pdf

Good afternoon Mr. Wilkins,

Please note that in the attached letter to you dated June 14, 2017, the end date of the public comment period was identified as June 24, 2017 in error. The actual end date of the public comment period is **July 24, 2017**. Please make the draft permit, Statement of Basis, permit application, and additional supporting information that were enclosed with the letter available for public inspection until the end of the public comment period.

Thank you.

Sincerely,

Eric Wortman
Environmental Scientist
U.S. Environmental Protection Agency
1595 Wynkoop Street (8P-AR)
Denver, Colorado 80202
(617) 918-1624

Smith, Claudia

From:	Wortman, Eric
Sent:	Thursday, June 22, 2017 2:14 PM
To:	Wortman, Eric
Subject:	Notice of Public Comment Period – Draft Title V Operating Permit on the Uintah & Ouray Indian Reservation

In accordance with 40 CFR 71.8 and 71.11(d)(2), the U.S. Environmental Protection Agency Region 8 is hereby providing notification to all affected states and tribes of the issuance of the draft title V federal operating permit for the following source located on the Uintah & Ouray Indian Reservation:

XTO Energy Inc. – Little Canyon Unit Compressor Station

Part 71 Permit Contact – Eric Wortman, (617) 918-1624

A copy of the draft permit and Statement of Basis may be obtained by contacting the Part 71 Permit Contact. The permit application and other supporting information pertinent to the permit decision are available for review at the following locations:

U.S. EPA Region 8	Uintah & Ouray Indian Tribe	Uintah County Clerk
Air Program (8P-AR)	Energy and Minerals Department Office	147 E. Main St., #6
1595 Wynkoop St.	988 South 7500 East, Annex Building	Vernal, UT 84078
Denver, CO 80202	Fort Duchesne, UT 84026	

Electronic copies of the draft permit, Statement of Basis, permit application, and additional supporting information may also be viewed online at: http://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8.

In accordance with §71.11(d)(2), EPA Region 8 is providing a 30-day period from June 23, 2017 to July 24, 2017, for public comment on this draft permit. Comments must be received by 5 p.m. on July 24, 2017, to be considered in the issuance of the final permit. If a public hearing is held regarding this permit, you will be sent a copy of the public hearing notice at least 30 days in advance of the hearing date.

Please submit any written recommendations you may have concerning the terms and conditions of this permit to me by email or to the address listed above.

Sincerely,

Eric Wortman

Eric Wortman | Environmental Scientist
U.S. Environmental Protection Agency
Telephone: (617) 918-1624 | Email: wortman.eric@epa.gov

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region8

JUN 12 2017

Ref: 8P-AR

Timothy Herman
Manager of Mid Stream Operations
XTO Energy, Inc.
810 Houston Street
Fort Worth, Texas 76102

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Re: Draft Part 71 Operating Permit for Little Canyon Unit Compressor Station, XTO Energy, Inc., Permit #V-UO-000016-2006.00

Dear Mr. Herman:

The U.S. Environmental Protection Agency Region 8 has completed its review of XTO Energy Inc.'s application for the Little Canyon Unit Compressor Station to obtain initial Clean Air Act Title V operating permits pursuant to the Title V Operating Permit Program at 40 CFR part 71 (Part 71). The EPA received the initial application on September 8, 2009.

Enclosed you will find the draft Part 71 operating permit and the corresponding Statement of Basis. The regulations at 40 CFR 71.11(d) require that an applicant, the public and affected states (as defined in 40 CFR 71.2) have the opportunity to submit written comments on any draft Part 71 operating permit. All written comments submitted within 30 calendar days after the public notice is published will be considered by the agency in making its final permit decision. Enclosed is a copy of the public notice which will be published on the EPA's website located at: https://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8, on June 23, 2017. The public comment period will end at 5:00 p.m. MDT on July 24, 2017.

The conditions contained in the permit will become effective and enforceable by the agency if the permit is issued final. If you are unable to accept any term or condition of the draft permit, please submit your written comments, along with the reason(s) for non-acceptance to:

Part 71 Permitting Lead
U.S. EPA, Region 8
Air Program (8P-AR)
1595 Wynkoop Street
Denver, Colorado 80202

If you have any questions concerning the enclosed draft permits or Statement of Basis, please contact Eric Wortman of my staff at (303) 312-6649.

Sincerely,

Monica Morales

Monica Morales
Director
Air Program

Enclosures (2)

cc: Minnie Grant, Air Coordinator, Ute Indian Tribe
Craig Allison, Environmental Health & Safety Advisor, XTO Energy, Inc.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region8

JUN 1 4 2017

Ref: 8P-AR

Mr. Michael Wilkins
Uintah County Clerk's Office
147 East Main St #6
Vernal, UT 84078

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Dear Mr. Wilkins:

The U.S. Environmental Protection Agency (EPA) Region 8, will be issuing a public notice located at: https://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8 regarding the availability of draft Clean Air Act Title V Permit to Operate (40 CFR part 71) for public inspection and comment for the following sources:

XTO Energy Inc. – Little Canyon Unit Compressor Station

The public comment period for this notice will end on July 24, 2017. Please make the enclosed draft permit, Statement of Basis, and permit application available for public inspection until the end of the public comment period.

Thank you for your assistance in this matter. Should you have any questions regarding our request you may contact me at (617) 918-1624.

Sincerely,

Eric Wortman

Eric Wortman, Environmental Scientist
Air Permitting, Monitoring, and Modeling Unit

Enclosure

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region8

JUN 1 4 2017

Ref: 8P-AR

Ms. Minnie Grant
Air Coordinator
Ute Indian Tribe, Energy & Minerals Department
P.O. Box 70
Ft. Duchesne, Utah 84026

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Re: Transmittal of Draft Title V Permit to Operate on the Uintah & Ouray Indian Reservation

Dear Ms. Grant:

In accordance with 40 CFR 71.8 and 71.11(d)(2), the U.S. Environmental Protection Agency (EPA) Region 8 is hereby providing notification to all affected states and tribes of the issuance of the draft Clean Air Act Title V Permit to Operate for the following source located on Indian country lands within the Uintah & Ouray Indian Reservation:

XTO Energy Inc. – Little Canyon Unit Compressor Station

Region 8 is providing a 30-day period, from June 23, 2017 to July 24, 2017 for comment. Please make the enclosed draft permit, Statement of Basis, permit application, and additional supporting information available for public inspection until the end of the public comment period.

Electronic copies of the draft permits and Statement of Bases may also be viewed online at: http://www.epa.gov/caa-permitting/caa-permit-public-comment-opportunities-region-8.

We have also enclosed copies of a public notice bulletin. Please post this bulletin in locations that you see fit to broadly advertise this public comment period.

In addition to maintaining the docket in your tribal office, please submit any written recommendations you may have concerning the terms and conditions of the draft permits to me at the following address:

Eric Wortman
US EPA Region 8
Air Program, 8P-AR
1595 Wynkoop Street
Denver, CO 80202
(617) 918-1624
wortman.eric@epa.gov

Should EPA not accept any or all of these recommendations, you will be notified in writing and will be provided with the reasons for not accepting them. Comments must be received by 5 p.m. on July 24, 2017, to be considered in the issuance of the final permits for these facilities. If a public hearing is held regarding these permits, you will be sent a copy of the public hearing notice at least 30 days in advance of the hearing date.

Sincerely,

Eric Wortman, Environmental Scientist
Air Permitting, Monitoring, and Modeling Unit

Enclosures

Cc: Bruce Pargeets, Director of Energy & Minerals Department, Ute Indian Tribe

Manzanares, Candice

From:	Allison, Craig <Craig_Allison@xtoenergy.com>
Sent:	Friday, June 02, 2017 3:38 PM
To:	Wortman, Eric
Subject:	RE: Little Canyon Unit Engine PTE minor correction
Attachments:	XTO LCC-4 Cat 3516TALE GERP Spec Sheet-May-2017.pdf

Eric:

Regarding LCC-3 (Cat 3512 TALE – s/n 7NJ00735):

- I think that you are referring to CO and not NOx. The engine is a Cat 3512 TALE. Attached is the corresponding spec sheet. The Cat manufacturer's spec sheet for this engine shows NOx of 2.0 g/hp-hr and the CO should be calculated at 2.25 g/hp-hr. You are correct that the CH2O factor should be 0.28 g/hp-hr therefore the CH2O tpy should be 2.2 tpy based on the max horsepower of 810. Please note that the max nameplate HP for a 3512 TALE is 810 HP and the max HP for a 3516 TALE is 1340 HP. I think that your calc for the CH2) was based on 1340 HP and not 810 HP.

Regarding LCC-4 (Cat 3516 TALE – s/n 4EK03003):

- The NOx calc for this unit should be based on 2.0 g/hp-hr and not 1.5 g/hp-hr. Attached is the updated Cat spec sheet for this unit. I will update the calcs and send them to you next week.

Thanks for pointing out these discrepancies.

Regards,
Craig Allison
EH&S Advisor
Environmental Health & Safety
Office: 817-885-2672 | Cell: 817-201-2379 | Fax: 817-885-1847
XTO ENERGY INC., an ExxonMobil subsidiary
810 Houston Street, Fort Worth, Texas 76102

-----Original Message-----
From: Wortman, Eric [mailto:Wortman.Eric@epa.gov]
Sent: Friday, June 02, 2017 11:32 AM
To: Allison, Craig
Subject: Little Canyon Unit Engine PTE minor correction

Craig,

I was double checking the PTE for the Little Canyon Unit and noticed some minor errors. This is extremely minor but thought I would note it to you since I will change it in the PTE table. We list the PTE in the Statement of Basis but not the actual permit, so it's not enforceable.

The NOx emission factor for LCC-3 should have been 2.25 g/hp-hr but XTO used 2.31 g/hp-hr, which is the emission factor for LCC-4. Also, the CH2O emission factor for LCC-3 should have been 0.28 g/hp-hr and not 0.22 g/hp-hr (this would result in PTE of 3.6 tpy vs. 2.9). For LCC-4, the NOx emission factor should have been 1.5 g/hp-hr and not 2.0 g/hp-hr.

Note that since LCC-3 and LCC-4 were both constructed prior to 12/19/2002, they are existing engines greater than 500 hp and therefore have no requirements under ZZZZ. The PTE is based on uncontrolled emission factors since the controls are voluntary now that the CD has expired. I attached the backup emission calcs as well as the mfr. spec sheets for the two engines from the application.

No need to do anything, but let me know if you disagree. It does not affect any applicability or major source status.

Eric
617-918-1624

G3516

NON-CURRENT

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA

CATERPILLAR®

XTO Little Canyon Unit - LCC-4 Compressor Engine

ENGINE SPEED (rpm):	1400	RATING STRATEGY:	STANDARD
COMPRESSION RATIO:	8	RATING LEVEL:	CONTINUOUS
AFTERCOOLER TYPE:	SCAC	FUEL SYSTEM:	HPG IMPCO
AFTERCOOLER WATER INLET (°F):	90	**SITE CONDITIONS:**	
JACKET WATER OUTLET (°F):	210	FUEL:	Field Gas
ASPIRATION:	TA	FUEL PRESSURE RANGE(psig): (See note 1)	35.0-40.0
COOLING SYSTEM:	JW+OC, AC	FUEL METHANE NUMBER:	62.1
CONTROL SYSTEM:	EIS	FUEL LHV (Btu/scf):	1027
EXHAUST MANIFOLD:	ASWC	ALTITUDE(ft):	5800
COMBUSTION:	LOW EMISSION	MAXIMUM INLET AIR TEMPERATURE(°F):	60
NOx EMISSION LEVEL (g/bhp-hr NOx):	2.0	STANDARD RATED POWER:	1340 bhp@1400rpm
SET POINT TIMING:	29		

			MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE		
RATING	**NOTES**	**LOAD**	**100%**	**100%**	**75%**	**50%**
ENGINE POWER (WITHOUT FAN)	(2)	bhp	1340	1339	1004	670
INLET AIR TEMPERATURE		°F	59	60	60	60
ENGINE DATA						
FUEL CONSUMPTION (LHV)	(3)	Btu/bhp-hr	7651	7651	7840	8286
FUEL CONSUMPTION (HHV)	(3)	Btu/bhp-hr	8454	8455	8662	9156
AIR FLOW (@inlet air temp, 14.7 psia) (WET)	(4)(5)	ft3/min	2713	2714	2987	2028
AIR FLOW (WET)	(4)(5)	lb/hr	12423	12428	13677	9285
FUEL FLOW (60°F, 14.7 psia)		scfm	166	166	128	90
INLET MANIFOLD PRESSURE	(6)	in Hg(abs)	67.1	67.1	50.2	34.3
EXHAUST TEMPERATURE - ENGINE OUTLET	(7)	°F	896	896	889	896
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET)	(8)(5)	ft3/min	7653	7656	8224	5623
EXHAUST GAS MASS FLOW (WET)	(8)(5)	lb/hr	12917	12922	14057	9553
EMISSIONS DATA - ENGINE OUT						
NOx (as NO2)	(9)(10)	g/bhp-hr	2.00	2.00	4.24	4.61
CO	(9)(10)	g/bhp-hr	2.34	2.35	3.95	4.60
THC (mol. wt. of 15.84)	(9)(10)	g/bhp-hr	2.54	2.54	3.73	3.84
NMHC (mol. wt. of 15.84)	(9)(10)	g/bhp-hr	0.66	0.66	0.97	1.00
NMNEHC (VOCs) (mol. wt. of 15.84)	(9)(10)(11)	g/bhp-hr	0.44	0.44	0.65	0.67
HCHO (Formaldehyde)	(9)(10)	g/bhp-hr	0.28	0.28	0.31	0.34
CO2	(9)(10)	g/bhp-hr	531	531	544	575
EXHAUST OXYGEN	(9)(12)	% DRY	8.0	8.0	7.6	6.7
HEAT REJECTION						
HEAT REJ. TO JACKET WATER (JW)	(13)	Btu/min	41446	41384	18357	17583
HEAT REJ. TO ATMOSPHERE	(13)	Btu/min	5313	5311	4426	3543
HEAT REJ. TO LUBE OIL (OC)	(13)	Btu/min	6553	6544	2903	2780
HEAT REJ. TO AFTERCOOLER (AC)	(13)(14)	Btu/min	12844	12844	12084	4954

COOLING SYSTEM SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+OC)	(14)	Btu/min	53455
TOTAL AFTERCOOLER CIRCUIT (AC)	(14)(15)	Btu/min	13487
A cooling system safety factor of 0% has been added to the cooling system sizing criteria.			

CONDITIONS AND DEFINITIONS

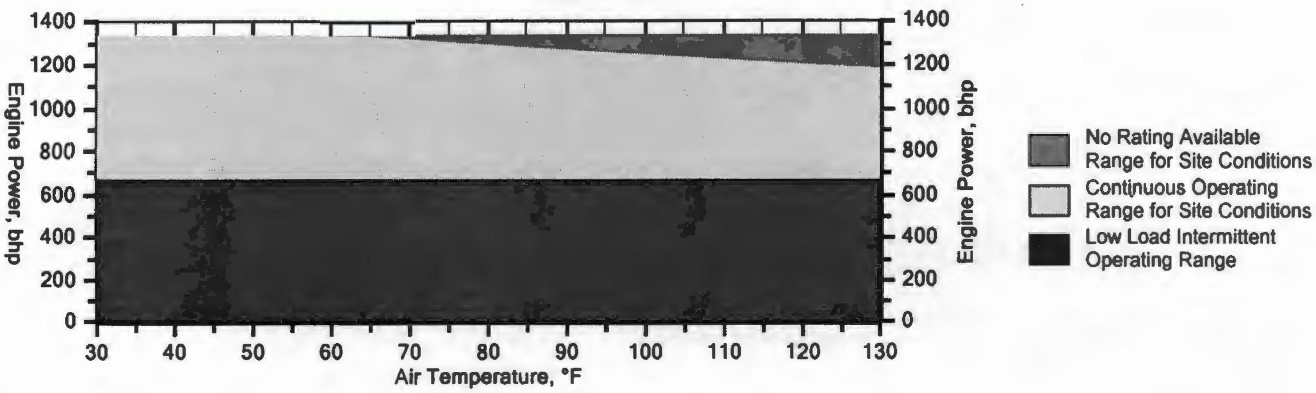
Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature. 100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature. Maximum rating is the maximum capability at the specified aftercooler inlet temperature for the specified fuel at site altitude and reduced inlet air temperature. Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

For notes information consult page three.

PREPARED BY: Craig Allison, XTO Energy Inc
Data generated by Gas Engine Rating Pro Version 6.04.00
Ref. Data Set DM0109-09-001, 4EK, Printed 02Jun2017

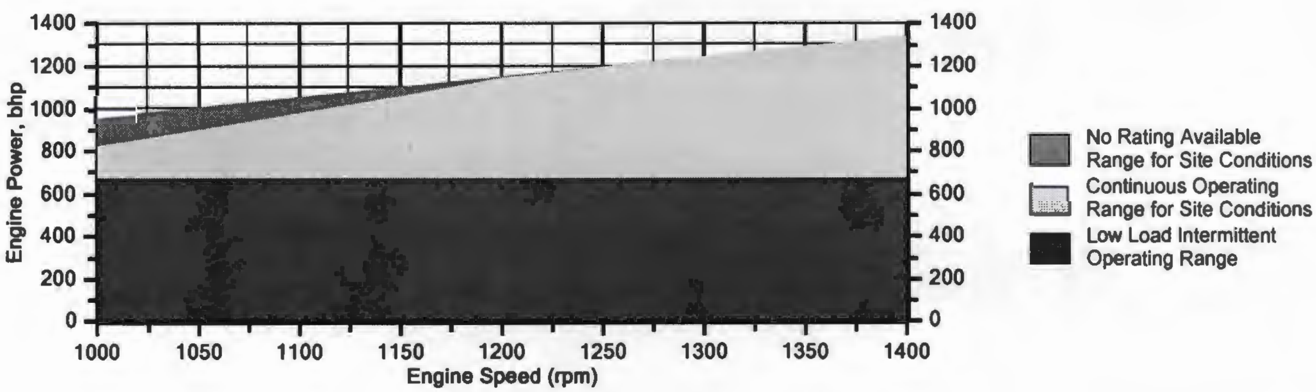
Engine Power vs. Inlet Air Temperature

Data represents temperature sweep at 5800 ft and 1400 rpm



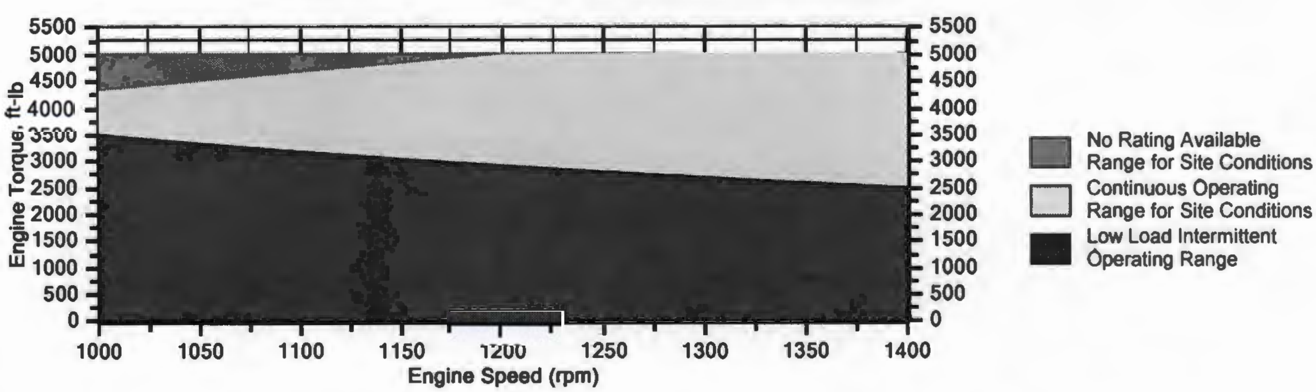
Engine Power vs. Engine Speed

Data represents speed sweep at 5800 ft and 60 °F



Engine Torque vs. Engine Speed

Data represents speed sweep at 5800 ft and 60 °F



Note: At site conditions of 5800 ft and 60°F inlet air temp., constant torque can be maintained down to 1290 rpm. The minimum speed for loading at these conditions is 1000 rpm.

GAS ENGINE SITE SPECIFIC TECHNICAL DATA

XTO Little Canyon Unit - LCC-4 Compressor Engine

NOTES

1. Fuel pressure range specified is to the engine fuel pressure regulator. Additional fuel train components should be considered in pressure and flow calculations.

2. Engine rating is with two engine driven water pumps. Tolerance is ± 3% of full load.

3. Fuel consumption tolerance is ± 3.0% of full load data.

4. Air flow value is on a 'wet' basis. Flow is a nominal value with a tolerance of ± 5 %.

5. Inlet and Exhaust Restrictions must not exceed A&I limits based on full load flow rates from the standard technical data sheet.

6. Inlet manifold pressure is a nominal value with a tolerance of ± 5 %.

7. Exhaust temperature is a nominal value with a tolerance of (+)63°F, (-)54°F.

8. Exhaust flow value is on a "wet" basis. Flow is a nominal value with a tolerance of ± 6 %.

9. Emissions data is at engine exhaust flange prior to any after treatment.

10. Emission values are based on engine operating at steady state conditions, adjusted to the specified NOx level at 100% load. Fuel methane number cannot vary more than ± 3. NOx values are set points and will vary with operating conditions. All other emission values listed are higher than nominal levels to allow for instrumentation, measurement, and engine-to-engine variations. They indicate "Not to Exceed" values. THC, NMHC, and NMNEHC do not include aldehydes. Part load data may require engine adjustment.

11. VOCs - Volatile organic compounds as defined in US EPA 40 CFR 60, subpart JJJJ

12. Exhaust Oxygen level is the result of adjusting the engine to operate at the specified NOx level. Tolerance is ± 0.5.

13. Heat rejection values are nominal. Tolerances, based on treated water, are ± 10% for jacket water circuit, ± 50% for radiation, ± 20% for lube oil circuit, and ± 5% for aftercooler circuit.

14. Aftercooler heat rejection includes an aftercooler heat rejection factor for the site elevation and inlet air temperature specified. Aftercooler heat rejection values at part load are for reference only. Do not use part load data for heat exchanger sizing.

15. Cooling system sizing criteria are maximum circuit heat rejection for the site, with applied tolerances.

Constituent	Abbrev	Mole %	Norm
Water Vapor	H2O	2.5211	2.5211
Methane	CH4	86.6340	86.6340
Ethane	C2H6	4.9767	4.9767
Propane	C3H8	3.5670	3.5670
Isobutane	iso-C4H1O	0.0000	0.0000
Norbutane	nor-C4H1O	1.8211	1.8211
Isopentane	iso-C5H12	0.0000	0.0000
Norpentane	nor-C5H12	0.4802	0.4802
Hexane	C6H14	0.0000	0.0000
Heptane	C7H16	0.0000	0.0000
Nitrogen	N2	0.0000	0.0000
Carbon Dioxide	CO2	0.0000	0.0000
Hydrogen Sulfide	H2S	0.0000	0.0000
Carbon Monoxide	CO	0.0000	0.0000
Hydrogen	H2	0.0000	0.0000
Oxygen	O2	0.0000	0.0000
Helium	HE	0.0000	0.0000
Neopentane	neo-C5H12	0.0000	0.0000
Octane	C8H18	0.0000	0.0000
Nonane	C9H20	0.0000	0.0000
Ethylene	C2H4	0.0000	0.0000
Propylene	C3H6	0.0000	0.0000
TOTAL (Volume %)		100.0000	100.0000

Fuel Makeup:	Field Gas
Unit of Measure:	English

Calculated Fuel Properties

Caterpillar Methane Number:	62.1
Lower Heating Value (Btu/scf):	1027
Higher Heating Value (Btu/scf):	1135
WOBBE Index (Btu/scf):	1274
THC: Free Inert Ratio:	Not Applicable
Total % Inerts (% N2, CO2, He):	0%
RPC (%) (To 905 Btu/scf Fuel):	100%
Compressibility Factor:	0.997
Stoich A/F Ratio (Vol/Vol):	10.68
Stoich A/F Ratio (Mass/Mass):	16.43
Specific Gravity (Relative to Air):	0.650
Fuel Specific Heat Ratio (K):	1.297

CONDITIONS AND DEFINITIONS
Caterpillar Methane Number represents the knock resistance of a gaseous fuel. It should be used with the Caterpillar Fuel Usage Guide for the engine and rating to determine the rating for the fuel specified. A Fuel Usage Guide for each rating is included on page 2 of its standard technical data sheet.

RPC always applies to naturally aspirated (NA) engines, and turbocharged (TA or LE) engines only when they are derated for altitude and ambient site conditions.

Project specific technical data sheets generated by the Caterpillar Gas Engine Rating Pro program take the Caterpillar Methane Number and RPC into account when generating a site rating.

Fuel properties for Btu/scf calculations are at 60F and 14.696 psia.

Caterpillar shall have no liability in law or equity, for damages, consequently or otherwise, arising from use of program and related material or any part thereof.

FUEL LIQUIDS
Field gases, well head gases, and associated gases typically contain liquid water and heavy hydrocarbons entrained in the gas. To prevent detonation and severe damage to the engine, hydrocarbon liquids must not be allowed to enter the engine fuel system. To remove liquids, a liquid separator and coalescing filter are recommended, with an automatic drain and collection tank to prevent contamination of the ground in accordance with local codes and standards.

To avoid water condensation in the engine or fuel lines, limit the relative humidity of water in the fuel to 80% at the minimum fuel operating temperature.

PREPARED BY: Craig Allison, XTO Energy Inc
Data generated by Gas Engine Rating Pro Version 6.04.00
Ref. Data Set DM0109-09-001, 4EK, Printed 02Jun2017

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

April 10, 2017

MEMORANDUM

SUBJECT: Source Determination Analysis for Little Canyon Unit Compressor Station

FROM: Eric Wortman, Permit Engineer, EPA Region 8 Air Program

TO: XTO Energy - Little Canyon Unit Compressor Station Initial Part 71 Permit File

The 8/2/16 revised definition of a major source at 40 CFR 71.2 (81 FR 35622) states that "For onshore activities belonging to Standard Industrial Classification (SIC) Major Group 13: Oil and Gas Extraction, pollutant emitting activities shall be considered adjacent if they are located on the same surface site; or if they are located on surface sites within a quarter mile of one another (measured from the center of the equipment on the surface site) and they share equipment." "Surface site" is given the same meaning as in 40 CFR 63.761, which defines a surface site as any combination of one or more graded pad sites, gravel pad sites, foundations, platforms, or the immediate physical location upon which equipment is physically affixed. "Shared equipment includes, but is not limited to, produced fluids storage tanks, phase separators, natural gas dehydrators or emissions control devices." The preamble explains that shared equipment generally means equipment "used to process or store the oil, natural gas or the byproducts of production." (see 81 FR 35624/2)

In the 3/14/2011 supplemental update to the initial part 71 permit application for the Little Canyon Unit Compressor Station (Little Canyon Unit CS), XTO Energy included emissions from the LCU 2-6GX wellsite. The LCU 2-6GX wellsite is located within a quarter mile of the Little Canyon Unit CS, but is not located on the same surface site. Emissions equipment at the LCU 2-6GX wellsite consists of a small 0.2 MMscfd dehydration unit, a well pumping unit engine, a 300 bbl condensate storage tank, a 400 bbl condensate storage tank, fugitive emissions, truck-loading emissions, and various natural gas-fired process heaters. Gas produced from the LCU 2-6GX wellsite enters a common gathering pipeline that flows into the Little Canyon Unit CS. Emission units at the Little Canyon Unit CS consists of two natural gas-fired reciprocating internal combustion engines, a 25 MMscfd dehydration unit, two 400 bbl condensate storage tanks, fugitive emissions, truck loading emissions, and various natural gas-fired process heaters. Both sites have the same two-digit SIC code, 13, and are under common control.

Based on the definition of "surface site" in 40 CFR 63.761 and the information in the 3/14/2011 supplemental update, the pollutant emitting activities at the LCU 2-6GX wellsite are not on the same gravel pad, or surface site, as the Little Canyon Unit CS, but the two surface sites are within a quarter mile of one another. The Little Canyon Unit CS and the LCU 2-6GX wellsite share the equipment located on the Little Canyon Unit CS surface site. The equipment at the Little Canyon Unit CS is used to process natural gas from the LCU 2-6GX wellsite because the natural gas produced at the wellsite must undergo compression and dehydration processes at the Little Canyon Unit CS in order to meet pipeline specifications prior to entering the discharge pipeline. Since these two surface sites "share equipment" under 40 CFR 71.2, pollutant emitting activities located at the two surface sites are adjacent to each other under the revised definition of a major source. Because these activities also share the same two-digit SIC code and are under common control, they are thus considered part of the same major source as defined in part 71.

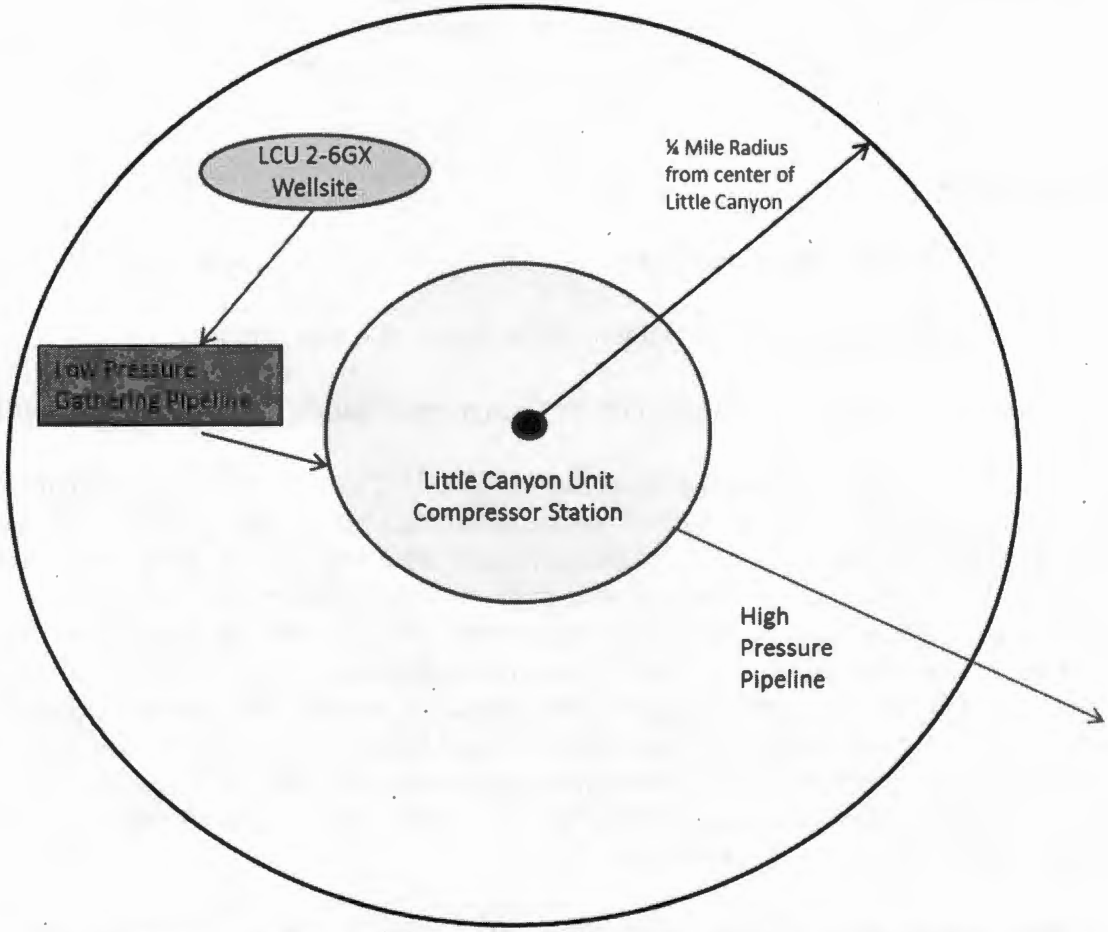


Figure 1. Flow Diagram of XTO Energy Natural Gas Production Operations – Uinta Basin, Utah Little Canyon Unit Compressor Station and LCU 2-6GX Wellsite

Okubo, Noreen

From:	Wortman, Eric
Sent:	Thursday, March 09, 2017 6:40 AM
To:	Okubo, Noreen
Cc:	Smith, Claudia
Subject:	FW: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00
Attachments:	2017 EPA XTO LCU Title V Info Request Response-3-8-2017.pdf

Hi Noreen,

Just a heads up that XTO is sending some information addressed to you for the 3 permit actions I'm working on. He is going to send me electronic copies, so all you need to do is file the info. in the appropriate permit files when it comes in.

Thanks,

Eric

From: Allison, Craig [mailto:Craig_Allison@xtoenergy.com]
Sent: Wednesday, March 08, 2017 5:28 PM
To: Wortman, Eric <Wortman.Eric@epa.gov>
Subject: RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

Eric:

Attached is the XTO response for your request for information for the Little Canyon Compressor Station. The original is being sent to the EPA Region 8 Part 71 Permit Lead as you instructed.

I will be emailing you the responses to the RBU Dehy Site and the Tap-5 Compressor Station information requests tomorrow. I needed a little more time to research some of the data for these sites.

Please let me know if you have any additional questions.

Regards,

Craig Allison
EH&S Advisor
Environmental Health & Safety
Office: 817-885-2672 | Cell: 817-201-2379 | Fax: 817-885-1847
XTO ENERGY INC., an ExxonMobil subsidiary
810 Houston Street, Fort Worth, Texas 76102

From: Wortman, Eric [mailto:Wortman.Eric@epa.gov]
Sent: Tuesday, January 17, 2017 12:48 PM
To: Allison, Craig
Subject: RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

Hi Craig,

Here are the attachments from my initial email below on 11/16/16. I'm also attaching the corrected PTE table that Dustin sent back to me. As we discussed, I still need the commenced construction dates (as defined in ZZZZ) for LCC-3 and LCC-4 to determine applicable requirements for ZZZZ. I will also need the engine manufacture and installation dates for pump engine at the LCU 2-6GX Wellsite for JJJJ/ZZZZ applicability if we ultimately decide to include those emission units in the permit. Eventually I will need a hard copy update to the application (with Form CTAC) stating that LCC-1 and LCC-2 are not located at the facility and the date they were removed (or explanation that never installed for LCC-1).

I think that's it for Little Canyon for now. Thanks.

Eric
617-918-1624

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Sent: Tuesday, January 17, 2017 9:25 AM
To: Wortman, Eric <Wortman.Eric@epa.gov>; Allison, Craig <Craig_Allison@xtoenergy.com>
Subject: RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

Eric,

I am no longer in the air group as I have taken a new position with our Fort Worth Division. Could you please contact Craig Allison with any questions pertaining to the Part 71 permits?

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We purchased these engines when we made the acquisition. Is there someone that we can talk to that might have knowledge of the original set dates? Maybe the manufacturers?

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dustin_simpson@xtoenergy.com

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Sent: Tuesday, January 17, 2017 8:15 AM
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Subject: RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

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dustin_simpson@xtoenergy.com

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Sent: Friday, December 16, 2016 4:49 PM
To: Simpson, Dustin
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Hi Dustin,

The manufacturer dates for engines are only needed to determine applicability to NSPS JJJJ. The definition of commenced construction is different for MACT ZZZZ and is based on the date the engine is initially constructed at the facility (in this case, the first facility it was constructed at since I'm assuming the relocation to Little Canyon does not meet the definition of reconstruction). MACT ZZZZ has different requirements for new and existing engines based off commenced construction date, and I need the initial commenced construction date to determine the applicable requirements of the rule. Give me a call if you want further explanation. Can you send me these dates for LCC-3 and LCC-4?

Thanks,

Eric
303-312-6649

From: Simpson, Dustin [mailto:Dustin_Simpson@xtoenergy.com]
Sent: Wednesday, December 14, 2016 11:23 AM
To: Wortman, Eric <Wortman.Eric@epa.gov>
Subject: RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

Eric,

Please see responses below

Thanks,

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Sent: Friday, December 09, 2016 3:04 PM
To: Simpson, Dustin
Subject: RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

Hi Dustin,

A few follow-up questions for you. Thanks – Eric

- Just to clarify, can you confirm that you only want LCC-3 and LCC-4 included in the permit at this time since LCC-1 and LCC-2 are no longer located at the facility? I will pull them out of the tables. I'll continue processing the permit application but I'll need you to submit an application update under CTAC explaining that LCC-1 and LCC-2 are no longer located at the facility and provide and update emissions unit table with supporting documentation (copy of crane receipt, work order for removal, or other written explanation). You are correct. We could remove the LCC-1 and LCC-2 compressor engines.

- Is the capstone generator at Little Canyon 30 kW or 65 kW? 65kw

- Also, can you give me the commenced construction dates (initial installation at other facility) for engines LCC-3 and LCC-4 for MACT ZZZZ applicability. I am not sure what the initial installation at other facilities matters since the engines applicability is determined by manufacturer date. If you are concerned about remote versus non remote, the LCC-3 was a remote engine prior to being located on site. For major source engines the designation of remote or non-remote does not matter with reference to requirements.

- I'll have to look into the question of the LCU 2-6GX Wellsite a little further regarding shared equipment. The application states that the wellsite feeds into the common gathering pipeline and not directly into Little Canyon Unit. However, this common gathering pipeline is dependent upon Little Canyon Unit to move the gas further down the processing stream and eventually into a sales pipeline (i.e. the gas cannot be diverted to another compressor station if Little Canyon is not operation), correct? This is correct.

From: Simpson, Dustin [mailto:Dustin_Simpson@xtoenergy.com]
Sent: Tuesday, December 06, 2016 3:14 PM
To: Wortman, Eric <Wortman.Eric@epa.gov>
Subject: RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

Eric,

Please see responses below. I will try to get to TAP 5 tomorrow. It might require me talking to the field a little more as I have not done any permitting action with it since I took over the area.

Thanks,

Dustin Simpson

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To: Simpson, Dustin
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Dustin,

As we discussed on the phone, I'm the permit engineer for the pending Part 71 permit application for the Little Canyon Unit CS on the U&O Reservation. I've started reviewing the permit file and have a questions. Please take a look and send me your response by **December 2nd.**

1. I've attached a MS Word file with a draft emissions unit table for the facility. Please take a look and check that everything is accurate. Here are few specific questions I have regarding emission units at the facility.
    a. Please confirm the dehydration unit throughput is 25 MMscfd. Some of the backup spreadsheets provided listed it as 40 MMscfd but I believe it should be 25. It is 25 MMSCFD
    b. Is LCC-1 still at the facility or are there only 3 compressor engines? There are some discrepancies in the application updates over the years as to which unit ID goes with what engine. Please verify the make/model/serial number/installation date for <u>each</u> engine at the facility. I also need the manufacture dates for LCC-1 and LCC-3 (but verify dates for all engines) for JJJJ applicability or you may state they were all manufactured prior to the JJJJ applicability dates (actual dates are preferred).

LCC-1 – Not at the facility and was never set at the facility. Was in the application as a TBD engine originally that never got used.

LCC-2 – CAT G3516TA – Not at the facility any more – just moved it off when we replaced it with the CAT 3512 (LCC-3) below. Start date 7/1/2013, SN 4EK04246, MF Date 10/6/2004

LCC-3 – CAT G3512TA – Construction start date of 10-27-2016, Will run very soon. SN 7NJ00735. MF Date 11/22/2000

LCC-4 – CAT G3516TA - Start date 2/14/2008, SN 4EK03003, MF Date 2/19/2001

2. I've also attached a table of what I believe represents the PTE for the facility based off all the information in the application. Please look at the table and let me know if any is not accurate.
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3. Note that I am NOT including the PTE or equipment for the LCU 2-6GX Wellsite <u>at this time</u>. Based on the information XTO included in the February 2011 application update, I'm wondering if this wellsite should be excluded based on the revised definition of a major source in 71.2. The recent rulemaking can be viewed here: https://yosemite.epa.gov/opei/RuleGate.nsf/byRIN/2060-AS06. Please indicate in your response if the LCU 2-6GX Wellsite has "shared" equipment with the Little Canyon Unit CS and meets the definition of major source in 71.2 and should be included in the permit.

Oil and Gas Extraction, pollutant emitting activities shall be considered adjacent if they are located on the same surface site; or if they are located on surface sites that are located within 1/4 mile of one another (measured from the center of the equipment on the surface site) and they share equipment. Shared equipment includes, but is not limited to, produced fluids storage tanks, phase separators, natural gas dehydrators or emissions control devices. Surface site, as used in the introductory text of this definition, has the same meaning as in 40 CFR 63.761.

Looking at the rule above I would say yes as a conservative guess. The facilities do not share any equipment. Gas processed from the well pad location is sent to the compressor station where the gas is compressed, dehydrated, and sold. The LCU compressor station can run without the LCU 2-6GX well pad running, but the LCU 2-6GX cannot run without the compressor station operating as it would have nowhere to send the gas. How would the EPA interpret this. I would hate to go one way or the other and be incorrect.

Thanks,

Eric

Eric Wortman | Environmental Scientist
U.S. Environmental Protection Agency – Region 8
1595 Wynkoop Street (8P-AR), Denver, Colorado 80202
Telephone: (303) 312-6649 Email: wortman.eric@epa.gov

Manzanares, Candice

From:	Allison, Craig <Craig_Allison@xtoenergy.com>
Sent:	Wednesday, March 08, 2017 3:28 PM
To:	Wortman, Eric
Subject:	RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00
Attachments:	2017 EPA XTO LCU Title V Info Request Response-3-8-2017.pdf

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   Oil and Gas Extraction, pollutant emitting activities shall be considered adjacent if they are located on the same surface site; or if they are located on surface sites that are located within 1/4 mile of one another (measured from the center of the equipment on the surface site) and they share equipment. Shared equipment includes, but is not limited to, produced fluids storage tanks, phase separators, natural gas dehydrators or emissions control devices. Surface site, as used in the introductory text of this definition, has the same meaning as in 40 CFR 63.761.

   Looking at the rule above I would say yes as a conservative guess. The facilities do not share any equipment. Gas processed from the well pad location is sent to the compressor station where the gas is compressed, dehydrated, and sold. The LCU compressor station can run without the

LCU 2-6GX well pad running, but the LCU 2-6GX cannot run without the compressor station operating as it would have nowhere to send the gas. How would the EPA interpret this. I would hate to go one way or the other and be incorrect.

Thanks,

Eric

Eric Wortman | Environmental Scientist
U.S. Environmental Protection Agency – Region 8
1595 Wynkoop Street (8P-AR), Denver, Colorado 80202
Telephone: (303) 312-6649 Email: wortman.eric@epa.gov

XTO Energy Inc.
810 Houston Street
Fort Worth, TX 76102-6298
(817) 870-2800
(817) 870-1671 Fax

March 8, 2017

XTO Energy Inc.
Little Canyon Compressor Station
EPA Title V – Part 71 Permit Application Supplemental Information
Draft Permit #V-UO-000016-2006.00
Uintah County, UT

US Certified Mail No: 7016 2140 0000 8377 2611

Part 71 Permit Lead
U.S. EPA – Region 8
1595 Wynkoop Street, Mail Code 8P-AR
Denver, CO 80202

To Whom It May Concern:

XTO Energy, Inc. (XTO) hereby submits the accompanying information pursuant to the U.S. EPA's request for supplemental information for the XTO Energy Inc. Little Canyon Compressor Station located in Uintah County, Utah. The attached information is certified by the Responsible Official for the XTO Energy Inc. Little Canyon Compressor Station using the completed EPA CTAC form.

Should you have any questions regarding this submittal, please feel free to contact me by phone at 817-885-2672 or by email at craig_allison@xtoenergy.com.

Sincerely,

Craig Allison
EH&S Advisor
XTO Energy Inc

WCA/encl

XTO Uintah Basin Title V Applications – 2016 / 2017 EPA Information Request

3/8/2017

LITTLE CANYON UNIT COMPRESSOR STATION EPA QUESTIONS:

A. Written documentation (submitted under CTAC) that LCC-1 and LCC-2 were permanently shut down and are no longer at the facility.
   a. **For LCC-1 the initial startup date for the last engine (S/N 4EK05034) that was there (as LCC-1) was on 6/21/2012.**
   b. **Engine LCC-1 (S/N 4EK05034) was permanently removed from Little Canyon Compressor Station on or about 7/29/2013 and was sent to Tap-5 Compressor Station as engine T5C-2. Attached is a startup notice for this unit showing that engine s/n 4EK05034 was started up as T5C-2 on 9/13/2013.**
   c. **Engine LCC-2 was operating as s/n 4EK04246 and was started up at the Little Canyon Compressor Station on 4/4/2013 and operated as LCC-2 until it was permanently shut down on 11/2/2016. LCC-2 was permanently removed from the Little Canyon Compressor Station on 12/19/2016. Refer to the attached crane ticket for documentation of the permanent removal of LCC-2 (s/n 4EK04246).**

B. I will need a hard copy update to the application (with Form CTAC) stating that LCC-1 and LCC-2 are not located at the facility and the date they were removed (or explanation that never installed for LCC-1). **Refer to Paragraph A above for the detailed explanation. The attached CTAC form certifies the information contained within this response.**

C. PTE for CO2e for emission units at LCU 2-6X wellsite (see attached spreadsheet). I just need it for the Dehydrator and Pump engine, not necessary for the other IEUs. **Refer to the attached calculations for the emissions backup. I added the CO2e emissions to your spreadsheet in RED.**

D. Engine manufacturer and construction (order) dates for the Arrow C96 Pump engine at LCU 2-6X wellsite. I need this to determine JJJJ / ZZZZ applicability, you may indicate "pre-2002" if it's an older unit and it's difficult to obtain an exact date as long as I can determine applicability to the engine regs (Mfr before 7/1/2008 for JJJJ and constructed prior to 6/12/2006 for existing at area source under ZZZZ). **The Arrow C-96 engine has a serial no. of 210024-C and a manufacture date of 12/13/2003. It was constructed prior to 6/12/2006, so it would be an area source for JJJJ applicability.**

E. Please provide an installation date for the 2 tanks at the LCU 2-6X wellsite or verify they were constructed prior to 8/23/2011 (for OOOO applicability).
   a. **Tank-1: s/n 1674 – constr./mfg. date 4/1/2009.**
   b. **Tank-2: s/n 8J26601-05 (GX1070) constr./mfg. date 1/10/2007.**

F. Verify the manufacture date for LCC-4. Dustin sent me a date of 2/19/2001 but the inspection report dated July 29, 2015 lists 8/30/2000 for the same serial number (4EK03003). Note that Dustin sent me the mfr. date for LCC-3 already.
   a. **The correct manufacture date for LCC-4 (s/n 4EK03003) is 8/30/2000. The attached correspondence with the EPA dated 4/19/2013 shows that the LCC-4 engine manufacture date was corrected from 2/19/2001 to 8/30/2000.**
   b. **The correct manufacture date for Caterpillar G3512TALE engine LCC-3 (s/n 7NJ00735) is 11/22/2000.**

G. A FORM-EUD for the dehy and pump engine at LCU 2-6X wellsite since they are not IEUs (include serial number and install dates if you have them). **See attached. The install date for the Arrow C-96 engine is 4/15/2009 and the dehydrator was onsite since XTO bought the location from Dominion in 2007.**

H. I still need the commenced construction dates (as defined in ZZZZ) for LCC-3 and LCC-4 to determine applicable requirements for ZZZZ. **A query of the attached Caterpillar's engine records database provides ship dates for both engines (LCC-3 and LCC-4), confirming that these engines were ordered and shipped to the customer, as follows:**
   a. **LCC-3 (s/n 7NJ00735) - mfg date 11/22/2000, and customer ship date 12/1/2000.**
   b. **LCC-4 (s/n 4EK03003) – mfg date 8/30/2000, and customer ship date 9/8/2000.**

United States Environmental Protection Agency

CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS (CTAC)

This form must be completed, signed by the "Responsible Official" designated for the facility or emission unit, and sent with each submission of documents (i.e., application forms, updates to applications, reports, or any information required by a part 70 or 71 permit).

A. Responsible Official

Name: (Last) **Hermann** (First) **Timothy** (MI) **L**

Title **XTO Energy Inc. - Manager of MSO Western Division Operations**

Street or P.O. Box **810 Houston St.**

City **Fort Worth** State **TX** ZIP **76102** - _____

Telephone (817) 885-0313 Ext. _______ Facsimile (817) 870 - 8441

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

I certify under penalty of law that this document and all attachments were prepared under my supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Name (signed) Timothy Hermann

Name (typed) **Timothy L. Hermann** Date: 8 / 17 / **2017**

XTO ENERGY

September 16, 2013

Notice of Startup
Tap 5 Compressor Station (T5C-2)
40 CFR 63, Subpart ZZZZ
XTO Energy Inc. – Uintah County, UT

USPS Certified Mail: 7012 3460 0000 8027 3595

Alexis North
EPA Region 8
Mail Code 8ENF-AT
1595 Wynkoop Street
Denver, CO 80202-1129

T5C-2
S/N 4EK05034

Dear Ms. Alexis North:

XTO Energy Inc. (XTO) respectfully submits a notice of startup under 40 CFR 63.9(b)(4), National Emissions Standards for Hazardous Air Pollutants (NESHAPS). This letters serves to notify the EPA that XTO installed and started up a reciprocating internal combustion engine (RICE) at its Tap 5 Compressor Station location in Uintah County, Utah on September 13, 2013. Please refer to the attachment for details on the engine.

Should you have any questions, please feel free to contact me at 817-885-1249 or via e-mail at Rykki_Tepe@xtoenergy.com.

Sincerely,

Rykki Tepe

Rykki Tepe
Environmental Engineer
XTO Energy Inc.

Bc: Damien Jones
Cole Anderson
Wayne Sutt

File Room - Utah\Roosevelt\Agency Correspondence

File Name: W:\EHS\Environmental\Air\Utah\Uintah County\Correspondence\Agency Correspondence\RT201300916 EPA Notice of Startup for T5C-2.doc

XTO ENERGY, INC.
UINTAH COUNTY, UT
NESHAP ZZZZ NOTIFICATION

Location	Permit	County	Lat. / Long.	Make	Family	Model	Unit S.N.	Manufacture Date	Max HP	Catalyst	Fuel
Tap 5 Compressor Station (T5C-2)	Not Issued	Uintah	39.9750760 / -109.6360850	Caterpillar	G3500	G3516TALE	4EK05034	3/21/2006	1340 @ 1400 rpm	Oxidation	Nat gas/fiel

LCC-2 Removal

V: 34909

J&C Enterprises, Inc.

715 East 500 South
P.O.Box 1096
Vernal, UT 84078

Received

JAN 03 2016

Roosevelt MSO

Invoice

Date	Invoice #
12/21/2016	9417

Bill To
XTO Energy-Midstream Operations 133 East 1000 North Roosevelt, UT 84066

0

12/19/16 0

AFE #	P.O. No.	Work Ticket Date	Well Name	Work Ticket #
1603257	Code: 211.249	12/21/2016	703313	1238

Quantity	Description	Rate	Amount
1	Bid For Crane Service to Load Out Compressor	[redacted]	[redacted] a
7	Bucket Truck	[redacted]	[redacted] a

well 703313
AFE 1603257
211.249

Removal of LCC-2
eng S/N 4EK04246

and ownership of the property furnished under the terms of this contract shall remain in the seller until the full purchase price (whether evidenced by notes, or notes or not), is paid in cash, and until such full payment has been made the property must not be removed from its original destination, except upon seller's consent. In case of default in any of the payments provided for, the seller may repossess itself of the above mentioned property wherever founds, and shall not in any action at law, or in equity, on the part of the purchaser of such reclamation of said property, nor for the payment of any money or moneys, which have ld by the purchaser in part payment for said property. The repossessing itself by the seller of the property as above provided does not release the purchaser from ments due, or coming due, and the seller reserves the right to either hold the property, for the benefit of the purchaser to be delivered upon the t of the full purchase price, or to resell it, and hold the purchaser for any difference between the original and the resale price.
r agrees to pay 2% per month (24% annually) on accounts over 30 days and such reasonable costs, expenses and attorney's fees as may be incurred in collecting btedness.

Total	[redacted]

TA
JM

To Pay

[redacted] [redacted]

[redacted]

LCC-2 Removal

J&C Enterprises Inc.

P.O. Box 1096
Vernal, UT 84078
email jandcinc@ubtanet.com
(435)789-8370

WORK TICKET

№ 1238

Permit No. ______

Date 12/19 20 16

Lease No. ______

Well No. 703313

Collect From XTO Midstream

AFE 1603257

Code 211.249

Address ______

HRS.	DESCRIPTION OF EQUIPMENT	RATE	CHARGES
	240 Ton Crane		
	OPerator		
	3 Loads of Counterweight		
	PicKup w/ Tools		
7	Bucket Truck	[redacted]	
	As Bid		[redacted]

Permit	Truck No.	TOTAL TO COLLECT	[redacted]

Remarks: Load out 3516 @ LCU Compressor station

By ______ Driver (Shown name in full)

By ______ (Shown name in full)

12 €

[redacted]

[redacted]

XTO ENERGY

XTO Energy Inc.
810 Houston Street
Fort Worth, TX 76102-6298
(817) 870-2800
(817) 870-1671 Fax

March 1, 2017

Notice of Startup and Initial Notification
Little Canyon Compressor Station
40 CFR 63, Subpart ZZZZ
XTO Energy Inc. – Uintah County, UT

USPS Certified No: 7016 2140 0000 8377 1669

EPA Region 8
Air and Toxics Enforcement
Mail Code 8ENF-AT
1595 Wynkoop Street
Denver, CO 80202-1129

To Whom It May Concern:

XTO Energy Inc. (XTO) respectfully submits a notification of startup pursuant to 40 CFR 63.9(b)(5), National Emissions Standards for Hazardous Air Pollutants (NESHAP). This letter serves to notify the EPA that XTO has installed and started up a reciprocating internal combustion engine (RICE) at the Little Canyon Compressor Station location in Uintah County, Utah. The Start-up of the Caterpillar 3512TALE compressor engine (s/n 7NJ00735) occurred on February 16, 2017. This engine replaced the LCC-2 Caterpillar 3516TALE (s/n 4EK04246) compressor engine which was permanently shut-down on November 2, 2016 and was removed from the LCU Compressor Station on December 19, 2016. Please refer to the attachments for the information pursuant to the initial notification requirement 40 CFR 63.9(b)(2), as well as details on the new engine. Also attached is a signed U.S. EPA CTAC form.

Should you have any questions, please feel free to contact me at 817-885-2672 or via e-mail at craig_allison@xtoenergy.com.

Sincerely,

Craig Allison
EH&S Advisor
XTO Energy Inc.

WCA/encl

Table 1 - XTO Energy Inc. - LCU Compressor Station - Engine Change Notification

Location	Engine Status	Permit	County	Lat. / Long.	Make	Family	Model	Unit S.N.	Manufacture Date	Max HP	Displ.	Catalyst	Fuel
Little Canyon Compressor Station (LCU-3)	Startup Date 2/16/2017	Not Issued	Uintah, Utah	39.8972220 / -109.6059960	Caterpillar	G3500	G3512TALE	7NJ00735	11/22/2000	810 @ 1200 rpm	51.8L	Oxidation	Nat gas/field
Little Canyon Compressor Station (LCU-2)	Shutdown 11/2/2016 / Removal Date 12/19/2016	Not Issued	Uintah, Utah	39.8972220 / -109.6059960	Caterpillar	G3500	G3516TALE	4EK04246	10/6/2004	1340 @ 1400 rpm	64L	Oxidation	Nat gas/field

Little Canyon Unit Compressor Station PTE Table. Revised 3-7-17

Little Canyon PTE	ID	Emissions Units	NO_X*	CO*	VOC*	PM*	SO_2*	CH_2O*	Total HAPs*	CO_2*	CH_4* (as CO_2e)	N_2O* (as CO_2e)	CO_2e*
	LCC-3	Cat. 3512	15.6	18.1	7.8	0.3	0.0	1.7	1.7	3707.3	1.7	2.1	3711.1
	LCC-4	Cat. 3516	25.9	29.9	12.9	0.5	0.0	2.9	2.8	5900.3	2.8	3.3	5906.4
	LCD-1 & LCTO-1	Dehy w/Thermal Oxidizer	2.1	2.9	5.3	0.3	0.0	0.0	3.0	4170.6	8.1	2.3	4181.0
	LCT-1	Tank 1	0.0	0.0	1.8	0.0	0.0	0.0	0.2	0.0	28.0	0.0	28.0
	LCT-2	Tank 2	0.0	0.0	1.8	0.0	0.0	0.0	0.2	0.0	28.0	0.0	28.0
	LCF-1	Fugitives	0.0	0.0	3.9	0.0	0.0	0.0	0.1	0.0	593.2	0.0	593.2
	LCU 2-6X D-1	Dehydration Unit	0.0	0.0	4.0	0.0	0.0	0.0	1.4	0.1	27.5	0.0	27.6
	LCU 2-6X ~~Pump Engine~~	Arrow C96 Pump Engine - 18 hp	2.1	0.9	0.0	0.0	0.0	0.0	0.0	112.7	5.89	0.0	118.6
Insignificant Emission Units	LCG-1	Capstone 65 kW Microturbine Genset	0.1	1.7	0.0	0.0	0.0	0.0	0.0	394.5	0.2	0.2	394.9
	-	Condensate Truck Loading	0.0	0.0	2.0	0.0	0.0	0.0	0.1	0.0	57.2	0.0	57.2
	-	0.550 MMBtu/hr* Glycol Dehydrator Reboiler	0.3	0.2	0.0	0.0	0.0	0.0	0.0	281.8	0.1	0.2	282.1
	-	0.500 MMBtu/hr* Tank Heater #1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	256.2	0.1	0.1	256.4
	-	0.500 MMBtu/hr* Tank Heater #2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	256.2	0.1	0.1	256.4
	-	0.250 MMBtu/hr* natural gas-fired separator heater	0.1	0.1	0.0	0.0	0.0	0.0	0.0	128.1	0.1	0.1	128.2
	-	2 MMBtu/hr* heater for Thermal Oxidizer	1.0	0.8	0.1	0.1	0.0	0.0	0.0	Included in LCD-1 & LCTO-1			
	-	Pipeline Pigging Operations	0.0	0.0	< 0.1	0.0	0.0	0.0	0.0	0.0	4.1	0.0	4.1
	-	Compressor Blowdown Emissions	0.0	0.0	3.0	0.0	0.0	0.0	0.1	0.0	661.3	0.0	661.3
	-	LCU 2-6x Tanks 1 and 2	0.0	0.0	4.0	0.0	0.0	0.0	0.0	-	-	-	-
	-	LCU 2-6X Truck Loading	0.0	0.0	0.1	0.0	0.0	0.0	0.0	-	-	-	-
	-	LCU 2-6X Fugitives	0.0	0.0	1.9	0.0	0.0	0.0	0.1	-	-	-	-
	-	LCU 2-6X Heaters (3)	0.5	0.5	0.0	0.0	0.0	0.0	0.0	-	-	-	-
Facility-Wide PTE (federally enforceable)			**47.9**	**55.3**	**48.6**	**1.2**	**0.0**	**4.6**	**9.7**	**15207.7**	**1418.3**	**8.5**	**16634.4**

Dehy GHG Emissions

Source	Component	GWP	Loading Rate (lb/hr)	Operating Hours	GHG Emissions (lbs/hr)	GHG Emissions (TPY)	GHG Emissions (TPY-CO_{2e})
Flash Tank	CH_4	25	0.194	8760	0.194	0.84972	21.243
Flash Tank	CO_2	1	0.00562	8760	0.00562	0.0246156	0.0246156
Regen Overhead	CH_4	25	0.0567	8760	0.0567	0.248346	6.20865
Regen Overhead	CO_2	1	0.0212	8760	0.0212	0.092856	0.092856

TOTAL	CH_4	1.098
TOTAL	CO_2	0.117
TOTAL	CO_{2e}	27.569

Page: 1

GRI-GLYCalc VERSION 4.0 - EMISSIONS SUMMARY

Case Name: LCU 2-6GX TEG Dehydration System - 2017 PTE
File Name: W:¥EHS¥Environmental¥Air¥Areas of Operation¥Utah¥_MSO¥Little Canyon Unit Compressor Station (LCU)¥Title V¥LCU TV EPA Info Request¥LCU PTE LCU 2-6GX Emissions Dehy.ddf
Date: March 06, 2017

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.0567	1.361	0.2483
Ethane	0.0270	0.649	0.1185
Propane	0.0365	0.875	0.1597
Isobutane	0.0184	0.442	0.0807
n-Butane	0.0308	0.739	0.1349
Isopentane	0.0207	0.496	0.0906
n-Pentane	0.0207	0.496	0.0905
n-Hexane	0.0204	0.489	0.0893
Cyclohexane	0.0430	1.033	0.1885
Other Hexanes	0.0239	0.573	0.1046
Heptanes	0.0487	1.169	0.2134
Methylcyclohexane	0.0757	1.816	0.3315
2,2,4-Trimethylpentane	0.0018	0.043	0.0078
Benzene	0.1654	3.971	0.7247
Toluene	0.2279	5.469	0.9981
Xylenes	0.0690	1.656	0.3022
C8+ Heavies	0.0833	1.999	0.3649
Total Emissions	0.9699	23.278	4.2482
Total Hydrocarbon Emissions	0.9699	23.278	4.2482
Total VOC Emissions	0.8862	21.268	3.8814
Total HAP Emissions	0.4845	11.628	2.1222
Total BTEX Emissions	0.4623	11.096	2.0250

1.0986 tpy CH_4
× 25 gwp

= 27.465 tpy
CO_2e
= 27.5

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1941	4.659	0.8503
Ethane	0.0270	0.648	0.1183
Propane	0.0150	0.361	0.0659
Isobutane	0.0050	0.120	0.0219
n-Butane	0.0063	0.152	0.0277
Isopentane	0.0037	0.088	0.0161
n-Pentane	0.0029	0.070	0.0128
n-Hexane	0.0016	0.038	0.0070
Cyclohexane	0.0009	0.022	0.0039
Other Hexanes	0.0025	0.059	0.0108
Heptanes	0.0019	0.045	0.0082
Methylcyclohexane	0.0012	0.029	0.0053
2,2,4-Trimethylpentane	0.0001	0.003	0.0006
Benzene	0.0004	0.010	0.0018
Toluene	0.0004	0.009	0.0016
Xylenes	<0.0001	0.001	0.0002
C8+ Heavies	0.0003	0.007	0.0013

Total Emissions	0.2634	6.321	1.1536
Total Hydrocarbon Emissions	0.2634	6.321	1.1536
Total VOC Emissions	0.0422	1.013	0.1850
Total HAP Emissions	0.0026	0.061	0.0112
Total BTEX Emissions	0.0008	0.020	0.0036

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.2508	6.020	1.0986
Ethane	0.0541	1.298	0.2368
Propane	0.0515	1.236	0.2256
Isobutane	0.0234	0.562	0.1026
n-Butane	0.0371	0.891	0.1626
Isopentane	0.0244	0.584	0.1067
n-Pentane	0.0236	0.566	0.1033
n-Hexane	0.0220	0.528	0.0963
Cyclohexane	0.0439	1.055	0.1925
Other Hexanes	0.0263	0.632	0.1154
Heptanes	0.0506	1.214	0.2215
Methylcyclohexane	0.0769	1.845	0.3368
2,2,4-Trimethylpentane	0.0019	0.046	0.0084
Benzene	0.1659	3.981	0.7265
Toluene	0.2283	5.478	0.9998
Xylenes	0.0690	1.657	0.3024
C8+ Heavies	0.0836	2.006	0.3661
Total Emissions	1.2333	29.599	5.4017
Total Hydrocarbon Emissions	1.2333	29.599	5.4017
Total VOC Emissions	0.9284	22.281	4.0663
Total HAP Emissions	0.4871	11.690	2.1334
Total BTEX Emissions	0.4632	11.116	2.0288

TEG	9.39e+001	3.76e+002
Water	5.81e+000	2.33e+001
Carbon Dioxide	6.70e-003	2.68e-002
Nitrogen	4.08e-004	1.64e-003
Methane	6.26e-002	2.51e-001
Ethane	1.35e-002	5.41e-002
Propane	1.29e-002	5.15e-002
Isobutane	5.85e-003	2.34e-002
n-Butane	9.27e-003	3.71e-002
Isopentane	6.11e-003	2.45e-002
n-Pentane	5.91e-003	2.37e-002
n-Hexane	5.52e-003	2.21e-002
Cyclohexane	1.13e-002	4.54e-002
Other Hexanes	6.64e-003	2.66e-002
Heptanes	1.27e-002	5.08e-002
Methylcyclohexane	2.00e-002	8.01e-002
2,2,4-Trimethylpentane	4.89e-004	1.96e-003
Benzene	4.36e-002	1.75e-001
Toluene	6.19e-002	2.48e-001
Xylenes	1.98e-002	7.93e-002
C8+ Heavies	2.37e-002	9.50e-002
Total Components	100.00	4.01e+002

FLASH TANK OFF GAS STREAM

Temperature: 120.00 deg. F
Pressure: 49.70 psia
Flow Rate: 5.30e+000 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	4.81e-001	1.21e-003
Carbon Dioxide	9.14e-001	5.62e-003
Nitrogen	3.28e-001	1.28e-003
Methane	8.66e+001	1.94e-001
Ethane	6.43e+000	2.70e-002
Propane	2.44e+000	1.50e-002
Isobutane	6.16e-001	5.00e-003
n-Butane	7.78e-001	6.31e-003
Isopentane	3.64e-001	3.67e-003
n-Pentane	2.89e-001	2.92e-003
n-Hexane	1.32e-001	1.59e-003
Cyclohexane	7.64e-002	8.98e-004
Other Hexanes	2.05e-001	2.47e-003
Heptanes	1.33e-001	1.86e-003
Methylcyclohexane	8.81e-002	1.21e-003
2,2,4-Trimethylpentane	8.64e-003	1.38e-004
Benzene	3.84e-002	4.19e-004
Toluene	2.87e-002	3.69e-004
Xylenes	2.88e-003	4.28e-005
C8+ Heavies	1.22e-002	2.91e-004
Total Components	100.00	2.71e-001

FLASH TANK GLYCOL STREAM

Temperature: 120.00 deg. F
Flow Rate: 7.15e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.39e+001	3.76e+002
Water	5.81e+000	2.33e+001
Carbon Dioxide	5.30e-003	2.12e-002
Nitrogen	8.76e-005	3.51e-004
Methane	1.42e-002	5.67e-002
Ethane	6.76e-003	2.70e-002
Propane	9.11e-003	3.65e-002
Isobutane	4.60e-003	1.84e-002
n-Butane	7.69e-003	3.08e-002
Isopentane	5.20e-003	2.08e-002
n-Pentane	5.19e-003	2.08e-002
n-Hexane	5.12e-003	2.05e-002
Cyclohexane	1.11e-002	4.45e-002
Other Hexanes	6.03e-003	2.41e-002
Heptanes	1.22e-002	4.90e-002
Methylcyclohexane	1.97e-002	7.89e-002
2,2,4-Trimethylpentane	4.55e-004	1.82e-003
Benzene	4.35e-002	1.74e-001
Toluene	6.18e-002	2.47e-001
Xylenes	1.98e-002	7.92e-002
C8+ Heavies	2.37e-002	9.47e-002
Total Components	100.00	4.00e+002

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 3.75e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.85e+001	1.75e+001
Carbon Dioxide	4.88e-002	2.12e-002
Nitrogen	1.27e-003	3.51e-004
Methane	3.58e-001	5.67e-002
Ethane	9.10e-002	2.70e-002
Propane	8.37e-002	3.65e-002
Isobutane	3.21e-002	1.84e-002
n-Butane	5.36e-002	3.08e-002
Isopentane	2.90e-002	2.07e-002
n-Pentane	2.90e-002	2.07e-002
n-Hexane	2.39e-002	2.04e-002
Cyclohexane	5.17e-002	4.30e-002
Other Hexanes	2.80e-002	2.39e-002
Heptanes	4.92e-002	4.87e-002
Methylcyclohexane	7.80e-002	7.57e-002
2,2,4-Trimethylpentane	1.59e-003	1.79e-003
Benzene	2.14e-001	1.65e-001
Toluene	2.50e-001	2.28e-001
Xylenes	6.57e-002	6.90e-002

C8+ Heavies	4.95e-002	8.33e-002
Total Components	100.00	1.85e+001

Internal Combustion Engine Uncontrolled Emission Calculations

Company:	**XTO Energy Inc.**
Facility Name:	**LCU 2-6GX**
Facility Location:	**Utah, Uintah County**
Source Name:	
Serial Number:	**210024-C**
Emission Point:	**Arrow C-96**

Engine Manufacturer	Arrow	
Engine Model	C-96	
Engine Manufacture Date	12/13/03	
Engine Cycle Type/Combustion	4-stroke / rich burn	HP
Manufacturer Horsepower Rating	18	HP
Site Horsepower Rating	18	HP
Altitude	6,000	feet
Ambient Inlet Air Temp	60	degrees F
Fuel Consumption (BSFC)	13000	Btu/(hp-hr)
Heat Rating	0.234	MMBtu/hr
Heating Value	1000	Btu/Scf
Fuel usage annual	2.05	MMScf/yr
Fuel usage per hour	234	Scf/hr
Operating Hours	8760	hrs/yr

Is Engine Applicable to JJJJ?	No
Manufacturer's Spec Sheet?	Yes

Pollutant	Emission Factor Manufacturer's Spec Sheet (g/hp-hr)	Emission Factor Manufacturer's Spec Sheet (lb/MMBtu)	Emission Limit JJJJ (g/hp-hr)	Emission Limit JJJJ (lb/MMBtu)	Emission Factor AP-42 (lb/MMBtu)	Emission Factor Used In Calc (lb/MMBtu)	Emission Factor Reference	Emission Rate (lb/hr)	Emission Rate (TPY)
NOx	11.87	2.013			2.21	2.013	1	0.47	2.06
CO	5.05	0.856			3.72	0.856	1	0.20	0.88
VOC/NMHC	0.142	0.024			0.0296	0.024	1	0.01	0.02
PM_{10}					0.0095	0.0095	2	0.00	0.01
Hazardous Air Pollutants									
Acetaldehyde					0.00279	0.00279	2	0.0007	0.0029
Acrolein					0.00263	0.00263	2	0.0006	0.0027
Benzene					0.00158	0.00158	2	0.0004	0.0016
Formaldehyde					0.0205	0.0205	2	0.0048	0.0210
GHG Emissions							**Total HAPs**	0.0064	0.0282
CO_2					110	110	2	25.7400	112.7412
CH_4					0.23	0.23	2	0.0538	0.2357
							Total GHG	25.7938	112.9769

Emission Factor Reference

1 - Emission Factors provided by Manufacturer

2 - AP-42 Table 3.2-3 for stationary IC sources; July 2000

3 - 40 CFR 60, Subpart JJJJ New Source Performance Standards for Internal Combustion Engines Emission Limits

CALCULATION FORMULAS	
lb/MMBtu =	(g/hp-hr)*(393 hp-hr/MMBtu) / (453.6 g/lb)
lb/hr =	(g/hp-hr)*(manufacturer-rated hp) / (453.6 g/lb)
tpy =	(lb/hr)*(8760 hr/yr) / (2000 lb/ton)
Fuel Usage (MMscf/yr) =	(Scf/btu)*(btu/(hp-hr))*(manufacturer-rated hp)*(24 hr/day)*(365 day/yr)*(MMScf/10^6Scf)
Heat Rating (MMbtu/hr) =	(manufacturer rated horsepower)*(Btu/(hp-hr)) / (453.6 g/lb)

Table 1: AP-42 Emission Factors, July 2000

Engine Cycle Type / Combustion	NOx (lb/MMBtu) 90 - 105% Load	CO (lb/MMBtu) 90 - 105% Load	VOC (lb/MMBtu)	PM10 (lb/MMBtu)	Acetaldehyde (lb/MMBtu)	Acrolein (lb/MMBtu)	Benzene (lb/MMBtu)	Formaldehyde (lb/MMBtu)
2-stroke / lean burn	3.17	0.386	0.12	0.0384	0.00776	0.00778	0.00194	0.0552
4-stroke / lean burn	4.08	0.317	0.118	0.0000771	0.00836	0.00514	0.00044	0.0528
4-stroke / rich burn	2.21	3.72	0.0296	0.0095	0.00279	0.00263	0.00158	0.0205

Engine Cycle Type / Combustion	CO_2 (lb/MMBtu)	CH_4 (lb/MMBtu)
2-stroke / lean burn	110	1.45
4-stroke / lean burn	110	1.25
4-stroke / rich burn	110	0.23

XTO ENERGY

April 9th, 2013

Little Canyon Compressor Station (LCU-4)
Manufacturer Date Correction
40 CFR 63, Subpart ZZZZ
XTO Energy Inc. – Uintah County, UT

USPS Certified No: 7008 1830 0001 0476 5967

Alexis North
EPA Region 8
Mail Code 8ENF-AT
1595 Wynkoop Street
Denver, CO 80202-1129

Dear Ms. Alexis North:

On March 29th 2013, XTO Energy, Inc. (XTO) submitted a Notification of Startup under 40 CFR 63.9, National Emissions Standards for Hazardous Air Pollutants (NESHAPS) for the Little Canyon Compressor Station Compressor #4 (LCU-4). The manufacturer date of the engine submitted in the March 29th, 2013 Notification of Startup was incorrect. XTO requests that the EPA please update their records with the correct manufacturer date. Please see the attachment for the details on the new engine which includes the new manufacturer date.

Should you have any questions, please feel free to contact me at 817-885-1249 or via e-mail at Rykki_Tepe@xtoenergy.com.

Sincerely,

Tiffany Sciacca

Tiffany Sciacca
Administrative Assistant
XTO Energy Inc.

Bc: Roosevelt NGO
William Payne

File Room - Utah\Roosevelt\Agency Correspondence

File Name: W:\EHS\Environmental\Air\Utah\Uintah County\Correspondence\Agency Correspondence\LCU Engine Swing\RT20130410 EPA Notice of Startup for LCU-4 Cat 3516TALE - Correct MFD.doc

corrected mfd

NESHAP ZZZZ NOTIFICATION

Location	Permit	County	Lat. / Long.	Make	Family	Model	Unit S.N.	Manufacture Date	Max HP	Displ.	Catalyst	Fuel
Little Canyon Compressor Station (LCU-4)	Not Issued	Uintah	39.6972220 / -109.6059960	Caterpillar	G3500	G3516TALE	4EK03003	8/30/2000	1340 @ 1400 rpm	64L	Oxidation	Nat gas/field

XTO ENERGY

March 29, 2013

Notice of Startup
Little Canyon Compressor Station
40 CFR 63, Subpart ZZZZ
XTO Energy Inc. – Uintah County, UT

USPS Certified No: 7010 0290 0000 3136 9425

Alexis North
EPA Region 8
Mail Code 8ENF-AT
1595 Wynkoop Street
Denver, CO 80202-1129

Dear Ms. Alexis North:

XTO Energy Inc. (XTO) respectfully submits a notification of startup under 40 CFR 63.9, National Emissions Standards for Hazardous Air Pollutants (NESHAPS). This letters serves to notify the EPA that XTO has installed and started up a reciprocating internal combustion engine (RICE) at the Little Canyon Compressor Station location in Uintah County, Utah. Start-up of the Caterpillar 3516TALE compressor engine occurred on March 28th, 2013. This engine replaced a like-kind Caterpillar 3516TALE compressor engine. Please see the attachment for the details on the new engine.

Should you have any questions, please feel free to contact me at 817-885-1249 or via e-mail at Rykki_Tepe@xtoenergy.com.

Sincerely,

Rykki Tepe

Rykki Tepe
Environmental Engineer
XTO Energy Inc.

Bc: Roosevelt NGO
William Payne

File Room - Utah\Roosevelt\Agency Correspondence

File Name: W:\EHS\Environmental\Air\Utah\Uintah County\Correspondence\Agency Correspondence\LCU Engine Swing\RT20130329 EPA Notice of Startup for LCU-4 Cat 3516TALE.doc

NESHAP ZZZZ NOTIFICATION

Incorrect mfd.

Location	Permit	County	Lat. / Long.	Make	Family	Model	Unit S.N.	Manufacture Date	Max HP	Displ.	Catalyst	Fuel
Little Canyon Compressor Station (LCU-4)	Not Issued	Uintah	39.8972220 / -109.6059960	Caterpillar	G3500	G3516TALE	4EK03003	2/19/2001	1340 @ 1400 rpm	64L	Oxidation	Nat gas/field

United States Environmental Protection Agency

OMB No. 2060-0336,
Approval Expires 05/31/2019

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID _LCU 2-06GX PU__________ Description_Arrow C-96 Engine___________

SIC Code (4-digit) _1311_________ SCC Code__2310021700______

B. Emissions Unit Description

Primary use __Pumping Unit Engine_______ Temporary Source ___Yes _X__No

Manufacturer ___Arrow___________________ Model No. _____C-96____________

Serial Number ___210024-C________________ Installation Date__4_/_15_/_2009__

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) ____Natural-Gas Wellhead Pumping Unit Engine______________

Boiler horsepower rating____18_____________ 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 __0.234____MM BTU/hr Max. Design Heat Input __________MM BTU/hr

C. Fuel Data

Primary fuel type(s)__Natural Gas_______ Standby fuel type(s)____________________

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	0	0	1,000 BTU/scf

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	2.05 mmscf	234 scf	2.05 mmscf

E. Associated Air Pollution Control Equipment

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

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) _____6___.______ Inside stack diameter (ft) _______0.2_____

Stack temp (^{o}F) _1300______._____ Design stack flow rate (ACFM) _139______.____

Actual stack flow rate (ACFM) __139_______.____ Velocity (ft/sec) _____74._______

United States Environmental Protection Agency

OMB No. 2060-0336,
Approval Expires 05/31/2019

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 _LCU 2-06GX PU____________

B. Identification and Quantification of Emissions

For each emissions unit identified above, list each regulated air pollutant or other pollutant for which the source is major, 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. See instructions concerning GHGs. Values should be reported to the nearest tenth (0.1) of a ton for yearly values or tenth (0.1) of a pound for hourly values.

Air Pollutants	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx		0.47	2.1	
CO		0.20	0.88	
VOC		0.01	0.02	
ACETALDEHYDE		0.001	0.003	75070
ACROLEIN		0.001	0.003	107028
FORMALDEHYDE		0.005	0.021	50000

United States Environmental Protection Agency

OMB No. 2060-0336,
Approval Expires 05/31/2019

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR PROCESS SOURCES (EUD-3)

A. General Information

Emissions unit ID _LCU 2-06GX D-1__ Description ____Natural Gas Dehydrator_______

SIC Code (4-digit) __1311________ SCC Code__311000227______

B. Emissions Unit Description

Primary use or equipment type ___Gas Dehydration_______________________________

Manufacturer ____PESCO________________ Model No. ____COMBO PUD___________

Serial No. _______N/A______________________ Installation date ___/___/_2007

Raw materials ___WET NATURAL GAS__________________________________

Finished products ____DRY NATURAL GAS_______________________________

Temporary source: _x__No ___Yes

C. Activity or Production Rates

Activity or Production Rate	Amount/Hour	Amount/Year
Actual Rate	0.01 MMSCF	87.6 MMSCF
Maximum rate	0.083 MMSCF	730 MMSCF

D. Associated Air Pollution Control Equipment

Emissions unit ID ____________ Device Type______________________________

Manufacturer _______________________ Model No___________________________

Serial No. ______________________________ Installation date _____/_____/_________

Control efficiency (%) _________.___ Capture efficiency (%) ________.___

Air pollutant(s) controlled ______________ Efficiency estimation method _______________

E. Ambient Impact Assessment

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) _____8_____._____ Inside stack diameter (ft) ___0.2____._____

Stack temp (F) ____300______._____ Design stack flow rate (ACFM) __________.____

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

INSTRUCTIONS FOR EUD-3
EMISSIONS UNIT DESCRIPTION FOR PROCESS SOURCES

This form is designed to describe emissions units for processes for which forms EUD-1 or EUD-2 are not appropriate. For example, sources such as rock crushers and asphalt batch plants. This form will help you to collect and organize technical information, including operational characteristics, applicable requirements, compliance terms, and emissions for each emissions unit.

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 form that used for the facility as a whole. In addition, complete the Source Classification Code (SCC), if known or available, but this is 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 include information needed to adequately identify the emissions unit and to determine its applicable requirements.

Section C - The amount of raw materials that are processed and/or the number of activities performed are values that are typically multiplied by emissions factors to calculate PTE and actual emissions.

Section D - Identify and describe any associated air pollution control device. Attach copies of correspondence from the vendor documenting these values, if available, or indicate how these values were otherwise determined (e.g., AP-42).

Section E - 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 05/31/2019

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 _LCU 2-06GX D-1____________

B. Identification and Quantification of Emissions

For each emissions unit identified above, list each regulated air pollutant or other pollutant for which the source is major, 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. See instructions concerning GHGs. Values should be reported to the nearest tenth (0.1) of a ton for yearly values or tenth (0.1) 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		0.94	4.1	
BENZENE		0.17	0.73	71432
TOLUENE		0.23	1.0	108883
XYLENE		0.07	0.3	1330207
N-HEXANE		0.022	0.10	110543

Reference Number: 4EK03003 | Serial Number | ◉ English ○ Metric | Retrieve Data | Retrieve Cross Ref. | Advanced Search | Home

Affiliation :
Security Le

Enter Reference number and select Reference description above
(or select Advanced Search on the right).

Factory Spec | Re Rated

Note: Helpful hint, a yellow tab means the data is identical between the containers Factory Spec, Re Rated

Engine Test 0K0815 | Order Inv. w/Eng Breakdown 4EK03003 | Physical Data 4EK03003 | Gasket Kit 1054176 | Par Dyno 0K0815 | Component Data 4EK03003 | Spec 0K(

Performance Data | Emissions Data | Spec Compare | Test Spec | Systems Data

ENGINE TEST [4EK03003]

MARCH 07, 2017

For Help Desk Phone Numbers Click here

Sales Model: 3516

Built Date: 30Aug2000 **Tested Date:** 06Sep2000 **Shipped Date:** 08Sep2000

Tested: B **Plant:** Lafayette **Cell Number:** 510

Test Element	Eng Updates	Test Value	Test Spec Value	Measure
Spec Number		0K0815	0K0815	
Arrangement Number		1054176	1054176	
CORR FL PWR		1,341	1,356	HP
Speed		1,402	1,400	RPM
CORR FL FUEL RATE		164,994.4	163,024.5	BTU/MIN
CSFC		7,380	7,315	BTU/HP-H
Jacket Water Temp		194	192	F
IN SCAC H2O		129	129	F
Compressor Out Pressure		38.58	38.15	PSIA
Inlet Manifold Pressure		34.08	34.08	PSIA
Excess Oxygen		8.3	8.4	%
NOx Level			230	PPM
FL Oil Press		54	56	PSI
High Speed		1,402	1,400	RPM
Diff Fuel Pressure High		0.30	0.22	PSI
Low Idle Speed		1,000	1,000	RPM
Low Idle Oil Pressure		54	55	PSI
Fuel Pressure		52		PSIA
Timing BTDC			33.00	DEG
Advertised Power			1,340	hp
Advertised Speed			1,400	RPM
Adjusted Boost (Gas Blending)				HG
Corrected Fuel Rate - Gas (Gas Blending)				BTU/MIN
Corrected Fuel Rate - Diesel (Gas Blending)				GAL/HR
Full Load Fueling (Gas Blending)				MM3/ST
Gas Substitution Ratio (Gas Blending)				%
Corr Full Load Power (Gas Blending)				HP
Full Load Speed (Gas Blending)				RPM
Exhaust Back Pressure				PSI
TQ CK Exhaust Back Pressure				PSI
Ataac Delta Pressure				PSI

Reference Number: 7NJ00735 | Serial Number | English / Metric | Retrieve Data | Retrieve Cross Ref. | Advanced Search | Home | Affiliation : | Security Le

Enter Reference number and select Reference description above
(or select Advanced Search on the right).

Factory Spec | ReRated

Note: Helpful hint, a yellow tab means the data is identical between the containers Factory Spec, Re Ratec

Engine Test 2T5894 | Order Inv. w/Eng Breakdown 7NJ00735 | Physical Data 7NJ00735 | Gasket Kit 4P8328 | Par Dyno 2T5894 | Component Data 7NJ00735 | Spec 2T

Performance Data | Emissions Data | Spec Compare | Test Spec | Systems Data

ENGINE TEST [7NJ00735]

MARCH 07, 2017

For Help Desk Phone Numbers Click here

Sales Model: 3512
Built Date: 22Nov2000
Tested: B

Tested Date: 27Nov2000
Plant: Lafayette

Shipped Date: 01Dec2000
Cell Number: 509

Test Element	Eng Updates	Test Value	Test Spec Value	Measure
Spec Number		2T5894	2T5894	
Arrangement Number		4P8328	4P8328	
CORR FL PWR		809	810	HP
Speed		1,199	1,200	RPM
CORR FL FUEL RATE		97,192.5	98,525.6	BTU/MIN
CSFC		7,207	7,298	BTU/HP-H
Jacket Water Temp		192	192	F
IN SCAC H2O		127	127	F
Compressor Out Pressure		33.94	34.52	PSIA
Inlet Manifold Pressure		29.73	30.02	PSIA
Excess Oxygen		8.3	8.3	%
NOx Level		40,589	310	PPM
FL Oil Press		61	60	PSI
High Speed		1,250	1,248	RPM
Diff Fuel Pressure High		0.19	0.22	PSI
Low Idle Speed		900	900	RPM
Low Idle Oil Pressure		59	59	PSI
Fuel Pressure		53		PSIA
Timing BTDC			33.00	DEG
Advertised Power			810	hp
Advertised Speed			1,200	RPM
Adjusted Boost (Gas Blending)				HG
Corrected Fuel Rate - Gas (Gas Blending)				BTU/MIN
Corrected Fuel Rate - Diesel (Gas Blending)				GAL/HR
Full Load Fueling (Gas Blending)				MM3/ST
Gas Substitution Ratio (Gas Blending)				%
Corr Full Load Power (Gas Blending)				HP
Full Load Speed (Gas Blending)				RPM
Exhaust Back Pressure				PSI
TQ CK Exhaust Back Pressure				PSI
Ataac Delta Pressure				PSI

Manzanares, Candice

From:	Wortman, Eric
Sent:	Tuesday, February 14, 2017 3:10 PM
To:	'Allison, Craig'
Subject:	Info. Request for Little Canyon Part 71 Permit (Draft Permit #V-UO-000016-2006.00)
Attachments:	PTE table for Little Canyon from XTO 2-14-16.xlsx

Hi Craig,

Here are the remaining items I still need to continue drafting the Part 71 permit for Little Canyon. Please send over by March 3rd and let me know if you have questions. Thanks, Eric

- Written documentation (submitted under CTAC) that LCC-1 and LCC-2 were permanently shut down and are no longer at the facility.
- PTE for CO2e for emission units at LCU 2-6X wellsite (see attached spreadsheet). I just need it for the Dehydrator and Pump engine, not necessary for the other IEUs.
- Engine manufacturer and construction (order) dates for the Arrow C96 Pump engine at LCU 2-6X wellsite. I need this to determine JJJJ / ZZZZ applicability, you may indicate "pre-2002" if it's an older unit and it's difficult to obtain an exact date as long as I can determine applicability to the engine regs (Mfr before 7/1/2008 for JJJJ and constructed prior to 6/12/2006 for existing at area source under ZZZZ).
- Please provide an installation date for the 2 tanks at the LCU 2-6X wellsite or verify they were constructed prior to 8/23/2011 (for OOOO applicability).
- Verify the manufacture date for LCC-4. Dustin sent me a date of 2/19/2001 but the inspection report dated July 29, 2015 lists 8/30/2000 for the same serial number (4EK03003). Note that Dustin sent me the mfr. date for LCC-3 already.
- A FORM-EUD for the dehy and pump engine at LCU 2-6X wellsite since they are not IEUs (include serial number and install dates if you have them).

Eric Wortman | Environmental Scientist
U.S. Environmental Protection Agency
Telephone: (617) 918-1624 Email: wortman.eric@epa.gov

Little Canyon Unit Compressor Station PTE Table. Revised 2-14-16

Little Canyon PTE	ID	Emissions Units	NO_X*	CO*	VOC*	PM*	SO_2*	CH_2O*	Total HAPs*	CO_2*	CH_4* (as CO_2e)	N_2O* (as CO_2e)	CO_2e*
	LCC-3	Cat. 3512	15.6	18.1	7.8	0.3	0.0	1.7	1.7	3707.3	1.7	2.1	3711.1
	LCC-4	Cat. 3516	25.9	29.9	12.9	0.5	0.0	2.9	2.8	5900.3	2.8	3.3	5906.4
	LCD-1 & LCTO-1	Dehy w/Thermal Oxidizer	2.1	2.9	5.3	0.3	0.0	0.0	3.0	4170.6	8.1	2.3	4181.0
	LCT-1	Tank 1	0.0	0.0	1.8	0.0	0.0	0.0	0.2	0.0	28.0	0.0	28.0
	LCT-2	Tank 2	0.0	0.0	1.8	0.0	0.0	0.0	0.2	0.0	28.0	0.0	28.0
	LCF-1	Fugitives	0.0	0.0	3.9	0.0	0.0	0.0	0.1	0.0	593.2	0.0	593.2
	LCU 2-6X D-1	Dehydration Unit	0.0	0.0	4.0	0.0	0.0	0.0	1.4				
	LCU 2-6X Pump Engine	Arrow C96 Pump Engine - 18 hp	2.1	0.9	0.0	0.0	0.0	0.0	0.0				
Insignificant Emission Units	LCG-1	Capstone 65 kW Microturbine Genset	0.1	1.7	0.0	0.0	0.0	0.0	0.0	394.5	0.2	0.2	394.9
	-	Condensate Truck Loading	0.0	0.0	2.0	0.0	0.0	0.0	0.1	0.0	57.2	0.0	57.2
	-	0.550 MMBtu/hr* Glycol Dehydrator Reboiler	0.3	0.2	0.0	0.0	0.0	0.0	0.0	281.8	0.1	0.2	282.1
	-	0.500 MMBtu/hr* Tank Heater #1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	256.2	0.1	0.1	256.4
	-	0.500 MMBtu/hr* Tank Heater #2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	256.2	0.1	0.1	256.4
	-	0.250 MMBtu/hr* natural gas-fired separator heater	0.1	0.1	0.0	0.0	0.0	0.0	0.0	128.1	0.1	0.1	128.2
	-	2 MMBtu/hr* heater for Thermal Oxidizer	1.0	0.8	0.1	0.1	0.0	0.0	0.0	Included in LCD-1 & LCTO-1			
	-	Pipeline Pigging Operations	0.0	0.0	< 0.1	0.0	0.0	0.0	0.0	0.0	4.1	0.0	4.1
	-	Compressor Blowdown Emissions	0.0	0.0	3.0	0.0	0.0	0.0	0.1	0.0	661.3	0.0	661.3
	-	LCU 2-6x Tanks 1 and 2	0.0	0.0	4.0	0.0	0.0	0.0	0.0	-	-	-	-
	-	LCU 2-6X Truck Loading	0.0	0.0	0.1	0.0	0.0	0.0	0.0	-	-	-	-
	-	LCU 2-6X Fugitives	0.0	0.0	1.9	0.0	0.0	0.0	0.1	-	-	-	-
	-	LCU 2-6X Heaters (3)	0.5	0.5	0.0	0.0	0.0	0.0	0.0	-	-	-	-
Facility-Wide PTE (federally enforceable)			47.9	55.3	48.6	1.2	0.0	4.6	9.7	15094.9	1384.9	8.5	16488.2

Manzanares, Candice

From:	Simpson, Dustin <Dustin_Simpson@xtoenergy.com>
Sent:	Tuesday, January 17, 2017 7:25 AM
To:	Wortman, Eric; Allison, Craig
Subject:	RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

Eric,

I am no longer in the air group as I have taken a new position with our Fort Worth Division. Could you please contact Craig Allison with any questions pertaining to the Part 71 permits?

Craig,

We purchased these engines when we made the acquisition. Is there someone that we can talk to that might have knowledge of the original set dates? Maybe the manufacturers?

Thanks,

Dustin Simpson
XTO ENERGY INC., an ExxonMobil subsidiary
Dustin Simpson| 810 Houston Street PTR4| Fort Worth, TX 76102| ph: 817.885.2845| fax: 817.885.1847|
dustin_simpson@xtoenergy.com

From: Wortman, Eric [mailto:Wortman.Eric@epa.gov]
Sent: Tuesday, January 17, 2017 8:15 AM
To: Simpson, Dustin
Subject: RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

Hi Dustin,

Were you able to find any more information on the commenced construction dates (under ZZZZ) for LCC-3 and LCC-4?

Eric

From: Wortman, Eric
Sent: Wednesday, December 21, 2016 4:47 PM
To: 'Simpson, Dustin' <Dustin_Simpson@xtoenergy.com>
Subject: RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

Hi Dustin,

I will the initial commenced construction dates so that I can accurately determine applicability to MACT ZZZZ. After the holiday's fine, I just don't want to make any assumptions in the permit.

Thanks,

Eric

From: Simpson, Dustin [mailto:Dustin_Simpson@xtoenergy.com]
Sent: Wednesday, December 21, 2016 10:26 AM
To: Wortman, Eric <Wortman.Eric@epa.gov>
Subject: RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

LCC-4 and LCC-3 were purchased via acquisition on 8-1-2007. That is the first time that it was in our ownership and the earliest date that I can find. They were both active at the time of purchase. Let me know if there is more information that you need. I could probably get more but a lot of people are out for the holidays.

Thanks,

Dustin Simpson
XTO ENERGY INC., an ExxonMobil subsidiary
Dustin Simpson | 810 Houston Street PTR4 | Fort Worth, TX 76102 | ph: 817.885.2845 | fax: 817.885.1847 |
dustin_simpson@xtoenergy.com

From: Wortman, Eric [mailto:Wortman.Eric@epa.gov]
Sent: Friday, December 16, 2016 4:49 PM
To: Simpson, Dustin
Subject: RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

Hi Dustin,

The manufacturer dates for engines are only needed to determine applicability to NSPS JJJJ. The definition of commenced construction is different for MACT ZZZZ and is based on the date the engine is initially constructed at the facility (in this case, the first facility it was constructed at since I'm assuming the relocation to Little Canyon does not meet the definition of reconstruction). MACT ZZZZ has different requirements for new and existing engines based off commenced construction date, and I need the initial commenced construction date to determine the applicable requirements of the rule. Give me a call if you want further explanation. Can you send me these dates for LCC-3 and LCC-4?

Thanks,

Eric
303-312-6649

From: Simpson, Dustin [mailto:Dustin_Simpson@xtoenergy.com]
Sent: Wednesday, December 14, 2016 11:23 AM
To: Wortman, Eric <Wortman.Eric@epa.gov>
Subject: RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

Eric,

Please see responses below

Thanks,

Dustin Simpson
XTO ENERGY INC., an ExxonMobil subsidiary
Dustin Simpson| 810 Houston Street PTR4| Fort Worth, TX 76102| ph: 817.885.2845| fax: 817.885.1847| dustin_simpson@xtoenergy.com

From: Wortman, Eric [mailto:Wortman.Eric@epa.gov]
Sent: Friday, December 09, 2016 3:04 PM
To: Simpson, Dustin
Subject: RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

Hi Dustin,

A few follow-up questions for you. Thanks – Eric

- Just to clarify, can you confirm that you only want LCC-3 and LCC-4 included in the permit at this time since LCC-1 and LCC-2 are no longer located at the facility? I will pull them out of the tables. I'll continue processing the permit application but I'll need you to submit an application update under CTAC explaining that LCC-1 and LCC-2 are no longer located at the facility and provide and update emissions unit table with supporting documentation (copy of crane receipt, work order for removal, or other written explanation). You are correct. We could remove the LCC-1 and LCC-2 compressor engines.

- Is the capstone generator at Little Canyon 30 kW or 65 kW? 65kw

- Also, can you give me the commenced construction dates (initial installation at other facility) for engines LCC-3 and LCC-4 for MACT ZZZZ applicability. I am not sure what the initial installation at other facilities matters since the engines applicability is determined by manufacturer date. If you are concerned about remote versus non remote, the LCC-3 was a remote engine prior to being located on site. For major source engines the designation of remote or non-remote does not matter with reference to requirements.

- I'll have to look into the question of the LCU 2-6GX Wellsite a little further regarding shared equipment. The application states that the wellsite feeds into the common gathering pipeline and not directly into Little Canyon Unit. However, this common gathering pipeline is dependent upon Little Canyon Unit to move the gas further down the processing stream and eventually into a sales pipeline (i.e. the gas cannot be diverted to another compressor station if Little Canyon is not operation), correct? This is correct.

From: Simpson, Dustin [mailto:Dustin_Simpson@xtoenergy.com]
Sent: Tuesday, December 06, 2016 3:14 PM
To: Wortman, Eric <Wortman.Eric@epa.gov>
Subject: RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

Eric,

Please see responses below. I will try to get to TAP 5 tomorrow. It might require me talking to the field a little more as I have not done any permitting action with it since I took over the area.

Thanks,

Dustin Simpson
XTO ENERGY INC., an ExxonMobil subsidiary
Dustin Simpson| 810 Houston Street PTR4| Fort Worth, TX 76102| ph: 817.885.2845| fax: 817.885.1847| dustin_simpson@xtoenergy.com

From: Wortman, Eric [mailto:Wortman.Eric@epa.gov]
Sent: Wednesday, November 16, 2016 4:28 PM
To: Simpson, Dustin
Subject: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

Dustin,

As we discussed on the phone, I'm the permit engineer for the pending Part 71 permit application for the Little Canyon Unit CS on the U&O Reservation. I've started reviewing the permit file and have a questions. Please take a look and send me your response by **December 2nd.**

1. I've attached a MS Word file with a draft emissions unit table for the facility. Please take a look and check that everything is accurate. Here are few specific questions I have regarding emission units at the facility.
    a. Please confirm the dehydration unit throughput is 25 MMscfd. Some of the backup spreadsheets provided listed it as 40 MMscfd but I believe it should be 25. It is 25 MMSCFD
    b. Is LCC-1 still at the facility or are there only 3 compressor engines? There are some discrepancies in the application updates over the years as to which unit ID goes with what engine. Please verify the make/model/serial number/installation date for each engine at the

facility. I also need the manufacture dates for LCC-1 and LCC-3 (but verify dates for all engines) for JJJJ applicability or you may state they were all manufactured prior to the JJJJ applicability dates (actual dates are preferred).

LCC-1 – Not at the facility and was never set at the facility. Was in the application as a TBD engine originally that never got used.

LCC-2 – CAT G3516TA – Not at the facility any more – just moved it off when we replaced it with the CAT 3512 (LCC-3) below. Start date 7/1/2013, SN 4EK04246, MF Date 10/6/2004

LCC-3 – CAT G3512TA – Construction start date of 10-27-2016, Will run very soon. SN 7NJ00735. MF Date 11/22/2000

LCC-4 – CAT G3516TA - Start date 2/14/2008, SN 4EK03003, MF Date 2/19/2001

2. I've also attached a table of what I believe represents the PTE for the facility based off all the information in the application. Please look at the table and let me know if any is not accurate.
   a. Some of the emissions tables in the 10/13/16 application update seem to reference equipment at Tap-5 CS, so let me know if anything in the table is not correct. The emissions are correct; the EPN should have LCC instead of T5. I included LCC-2 compressor because I did not know when it was going to be moved off site, but that has already occurred since the application submittal.
   b. Please send the PTE of greenhouse gases for the emission units at the facility (see table). See attached table. I highlighted in red the emissions from the two engines that are no longer on location and removed them from the total emissions.
3. Note that I am NOT including the PTE or equipment for the LCU 2-6GX Wellsite <u>at this time</u>. Based on the information XTO included in the February 2011 application update, I'm wondering if this wellsite should be excluded based on the revised definition of a major source in 71.2. The recent rulemaking can be viewed here: https://yosemite.epa.gov/opei/RuleGate.nsf/byRIN/2060-AS06. Please indicate in your response if the LCU 2-6GX Wellsite has "shared" equipment with the Little Canyon Unit CS and meets the definition of major source in 71.2 and should be included in the permit.

   Oil and Gas Extraction, pollutant emitting activities shall be considered adjacent if they are located on the same surface site; or if they are located on surface sites that are located within 1/4 mile of one another (measured from the center of the equipment on the surface site) and they share equipment. Shared equipment includes, but is not limited to, produced fluids storage tanks, phase separators, natural gas dehydrators or emissions control devices. Surface site, as used in the introductory text of this definition, has the same meaning as in 40 CFR 63.761.

   Looking at the rule above I would say yes as a conservative guess. The facilities do not share any equipment. Gas processed from the well pad location is sent to the compressor station where the gas is compressed, dehydrated, and sold. The LCU compressor station can run without the LCU 2-6GX well pad running, but the LCU 2-6GX cannot run without the compressor station operating as it would have nowhere to send the gas. How would the EPA interpret this. I would hate to go one way or the other and be incorrect.

Thanks,

Eric

Eric Wortman | Environmental Scientist
U.S. Environmental Protection Agency – Region 8
1595 Wynkoop Street (8P-AR), Denver, Colorado 80202
Telephone: (303) 312-6649 Email: wortman.eric@epa.gov

Wortman, Eric

From:	Simpson, Dustin <Dustin_Simpson@xtoenergy.com>
Sent:	Wednesday, December 14, 2016 11:23 AM
To:	Wortman, Eric
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dustin_simpson@xtoenergy.com

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To: Simpson, Dustin
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Oil and Gas Extraction, pollutant emitting activities shall be considered adjacent if they are located on the same surface site; or if they are located on surface sites that are located within 1/4 mile of one another (measured from the center of the equipment on the surface site) and they share equipment. Shared equipment includes, but is not limited to, produced fluids storage tanks, phase separators, natural gas dehydrators or emissions control devices. Surface site, as used in the introductory text of this definition, has the same meaning as in 40 CFR 63.761.

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Little Canyon Unit Compressor Station PTE Table.

Little Canyon PTE	ID	Emissions Units	NO_X*	CO*	VOC*	PM*	SO_2*	CH_2O*	Total HAPs*	CO_2*	CH_4* (as CO_2e)	N_2O* (as CO_2e)	CO_2e*
Emission Units	LCC-1	Cat. 3516	25.9	29.9	12.9	0.5	0.0	2.9	2.8	5900.3	2.8	3.3	5906.4
	LCC-2	Cat. 3516	25.9	29.9	12.9	0.5	0.0	2.9	2.8	5900.3	2.8	3.3	5906.4
	LCC-3	Cat. 3512	15.6	18.1	7.8	0.3	0.0	1.7	1.7	3707.3	1.7	2.1	3711.1
	LCC-4	Cat. 3516	25.9	29.9	12.9	0.5	0.0	2.9	2.8	5900.3	2.8	3.3	5906.4
	LCD-1 & LCTO-1	Dehy w/Thermal Oxidizer	2.1	2.9	5.3	0.3	0.0	0.0	3.0	4170.6	8.1	2.3	4181.0
	LCT-1	Tank 1	0.0	0.0	1.8	0.0	0.0	0.0	0.2	0.0	28.0	0.0	28.0
	LCT-2	Tank 2	0.0	0.0	1.8	0.0	0.0	0.0	0.2	0.0	28.0	0.0	28.0
	LCF-1	Fugitives	0.0	0.0	3.9	0.0	0.0	0.0	0.1	0.0	593.2	0.0	593.2
Insignificant Emission Units	LCG-1	Capstone 30 kW Microturbine Genset	0.1	1.7	0.0	0.0	0.0	0.0	0.0	394.5	0.2	0.2	394.9
	-	Condensate Truck Loading	0.0	0.0	2.0	0.0	0.0	0.0	0.1	0.0	57.2	0.0	57.2
	-	0.550 MMBtu/hr* Glycol Dehydrator Reboiler	0.3	0.2	0.0	0.0	0.0	0.0	0.0	281.8	0.1	0.2	282.1
	-	0.500 MMBtu/hr* Tank Heater #1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	256.2	0.1	0.1	256.4
	-	0.500 MMBtu/hr* Tank Heater #2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	256.2	0.1	0.1	256.4
	-	0.250 MMBtu/hr* natural gas-fired separator heater	0.1	0.1	0.0	0.0	0.0	0.0	0.0	128.1	0.1	0.1	128.2
	-	2 MMBtu/hr* heater for Thermal Oxidizer	1.0	0.8	0.1	0.1	0.0	0.0	0.0	Included in LCD-1 & LCTO-1			
	-	Pipeline Pigging Operations	0.0	0.0	< 0.1	0.0	0.0	0.0	0.0	0.0	4.1	0.0	4.1
	-	Compressor Blowdown Emissions	0.0	0.0	3.0	0.0	0.0	0.0	0.1	0.0	661.3	0.0	661.3
Facility-Wide PTE (federally enforceable)			**45.3**	**53.9**	**38.6**	**1.2**	**0.0**	**4.6**	**8.2**	**15094.9**	**1384.9**	**8.5**	**16488.2**

Wortman, Eric

From: Wortman, Eric
Sent: Friday, November 18, 2016 10:10 AM
To: 'dustin_simpson@xtoenergy.com'
Subject: RE: Part 71 Permit for Little Canyon Unit CS - Draft Permit #V-UO-000016-2006.00

Hi Dustin,

Also looking for confirmation on the rating for the Capstone Generator at the site. Is it 30kW or 65 kW?

Thanks,

Eric

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2. I've also attached a table of what I believe represents the PTE for the facility based off all the information in the application. Please look at the table and let me know if any is not accurate.
    a. Some of the emissions tables in the 10/13/16 application update seem to reference equipment at Tap-5 CS, so let me know if anything in the table is not correct.
    b. Please send the PTE of greenhouse gases for the emission units at the facility (see table)
3. Note that I am NOT including the PTE or equipment for the LCU 2-6GX Wellsite at this time. Based on the information XTO included in the February 2011 application update, I'm wondering if this wellsite should be excluded based on the revised definition of a major source in 71.2. The recent rulemaking can be viewed here: https://yosemite.epa.gov/opei/RuleGate.nsf/byRIN/2060-AS06. Please indicate in your response if the LCU 2-6GX Wellsite has "shared" equipment with the Little Canyon Unit CS and meets the definition of major source in 71.2 and should be included in the permit.

Thanks,

Eric

Eric Wortman | Environmental Scientist
U.S. Environmental Protection Agency – Region 8
1595 Wynkoop Street (8P-AR), Denver, Colorado 80202
Telephone: (303) 312-6649 Email: wortman.eric@epa.gov

Wortman, Eric

From: Smith, Claudia
Sent: Wednesday, October 19, 2016 11:09 AM
To: Simpson, Dustin
Cc: Wortman, Eric; Okubo, Noreen
Subject: RE: Little Canyon Unit

Dustin,

If the change results in an emissions decrease and you already submitted an amendment to the Part 71 application to reflect the change, you should be good to go to make the replacement.

If you have any further questions, please contact Eric Wortman, who is assigned to this permit action. Eric is copied on this email or can be reached at 303-312-6649.

Thanks,

Claudia

From: Simpson, Dustin [mailto:Dustin_Simpson@xtoenergy.com]
Sent: Tuesday, October 18, 2016 2:22 PM
To: Smith, Claudia <Smith.Claudia@epa.gov>
Subject: FW: Little Canyon Unit

Claudia,

XTO Energy Inc. (XTO) is currently operating the Little Canyon Unit Compressor Station in Uintah County on tribal lands. This facility originally operated under the consent decree prior to the expiration. XTO submitted a permit application for a Part 71 permit in 2009 for the facility, but has yet to receive an actual permit. We are looking at removing one of the compressor engines on site and replacing it with a smaller engine that will equate to an overall reduction of emissions at the facility. We recently filed an amendment to the application to account for the change to a smaller engine. XTO would like confirmation that this is the correct action to take prior to starting the smaller engine up at location. If you have any questions with regards to this e-mail, please contact me at dustin_simpson@xtoenergy.com or by phone at 817-885-2845.

Thanks,

Dustin Simpson

XTO ENERGY INC., an ExxonMobil subsidiary
Dustin Simpson| 810 Houston Street PTR4| Fort Worth, TX 76102| ph: 817.885.2845| fax: 817.885.1847|
dustin_simpson@xtoenergy.com

communication is strictly prohibited. If you received this communication in error, please notify us immediately by e-mail or by telephone.

XTO Energy Inc.
810 Houston Street
Fort Worth, TX 76102-6298
(817) 870-2800
(817) 870-1671 Fax

October 5, 2016

Update to LCC-2 and LCC-3 Engines
Little Canyon Unit Compressor Station
Uintah County, UT

Certified Mail Receipt Number: 7009 0820 00002 1746 0655

V0-000016

Air Program – US EPA Region 8
Part 71 – Permitting Monitoring, Modeling Unit
1595 Wynkoop St. (8P-AR)
Denver, CO 80202-1129

To Whom It May Concern:

XTO Energy Inc. is submitting this update to the Title V application for the Little Canyon Unit Compressor Station includes changes to 2 engines located at the Little Canyon Unit Compressor Station.

- LCU Compressor #2 (LCC-2) – Caterpillar 3516LE, S/N: 4EK04246 will be idled in place once (LCC-3) compressor is operational. This engine is still included in the facility calculations since it will still be on location even though it will not be operational.
- LCU Compressor #3 (LCC-3) – Caterpillar 3512 TALE, S/N: JNJ00735 is being added to this location. This is actually a step down from the previously application which included a CAT 3516LE as TBD.

Included in the application update is a CTAC form, an emission unit description for fuel combustion sources (LCC-3), facility process flow diagrams, federal regulations determinations, facility map, up to date emission calculations, and supporting documentation. The LCC-3 unit's calculations are highlighted in yellow.

If you have any further questions about this updated application, please contact me at dustin_simpson@xtoenergy.com or 817-885-2845.

Sincerely,

Dustin Simpson
Environmental Advisor
XTO Energy Inc.

Certified Mail Receipt Number: 7009 0820 00002 1746 0662

Cc: Ms. Alexis North
U.S. EPA Region 8 – Enforcement Division
1595 Wynkoop Street (8P-AR)
Denver, Colorado 80202-1129

United States Environmental Protection Agency

OMB No. 2060-0336,
Approval Expires 05/31/2019

Federal Operating Permit Program (40 CFR Part 71)
CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS (CTAC)

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

A. Responsible Official

Name: (Last) _Hermann____________ (First) _Timothy_____________ (MI) ____

Title __Manager Mid Streams Operations, XTO MSO Western Division_______

Street or P.O. Box ___810 Houston Street______________________________

City __Fort Worth _________________ State __TX___ ZIP _76102__ - _6298___

Telephone (817) 885 - 2584 Ext. ______ Facsimile (____) ____ - ________

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) Timothy Hermann

Name (typed) __Timothy Hermann______________ Date: 10 / 10 / 16

United States Environmental Protection Agency

OMB No. 2060-0336,
Approval Expires 05/31/2019

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID _LCC-2___ Description CAT 3512 TALE Engine_______________.

SIC Code (4-digit) __1311________ SCC Code__311000203______

B. Emissions Unit Description

Primary use _____Natural Gas Compression____ Temporary Source ___Yes _X__No

Manufacturer __Caterpillar_________________ Model No. ___3512 TALE__________

Serial Number _____7NJ00735______________ Installation Date_09_/_20_/_2016__

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) _____Natural Gas Compressor Engine______________________

Boiler horsepower rating_____810 hp______ 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

Actual Heat Input __7.24_____MM BTU/hr Max. Design Heat Input __7.24____MM BTU/hr

C. Fuel Data

Primary fuel type(s)____Natural Gas______ Standby fuel type(s)______________________

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	0	0	1110.9 btu/cf

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	57.057 MMSCF	6.51 MSCF/hr	57.067 MMSCF

E. Associated Air Pollution Control Equipment

Emissions unit ID__LCC-3___ Device type___Oxidation Catalyst____________________

Air pollutant(s) Controlled_VOC,HCHO and CO_ Manufacturer___EmeraChem_______

Model No.EC-OX-PX-RO-2350-0000-3500 Serial No._______N/A________________

Installation date_07/01/2013 Control efficiency (%) 94.1% CO, 71.3% VOC, 86.6% HCHO

Efficiency estimation method_____Manufacturer Specifications______________________

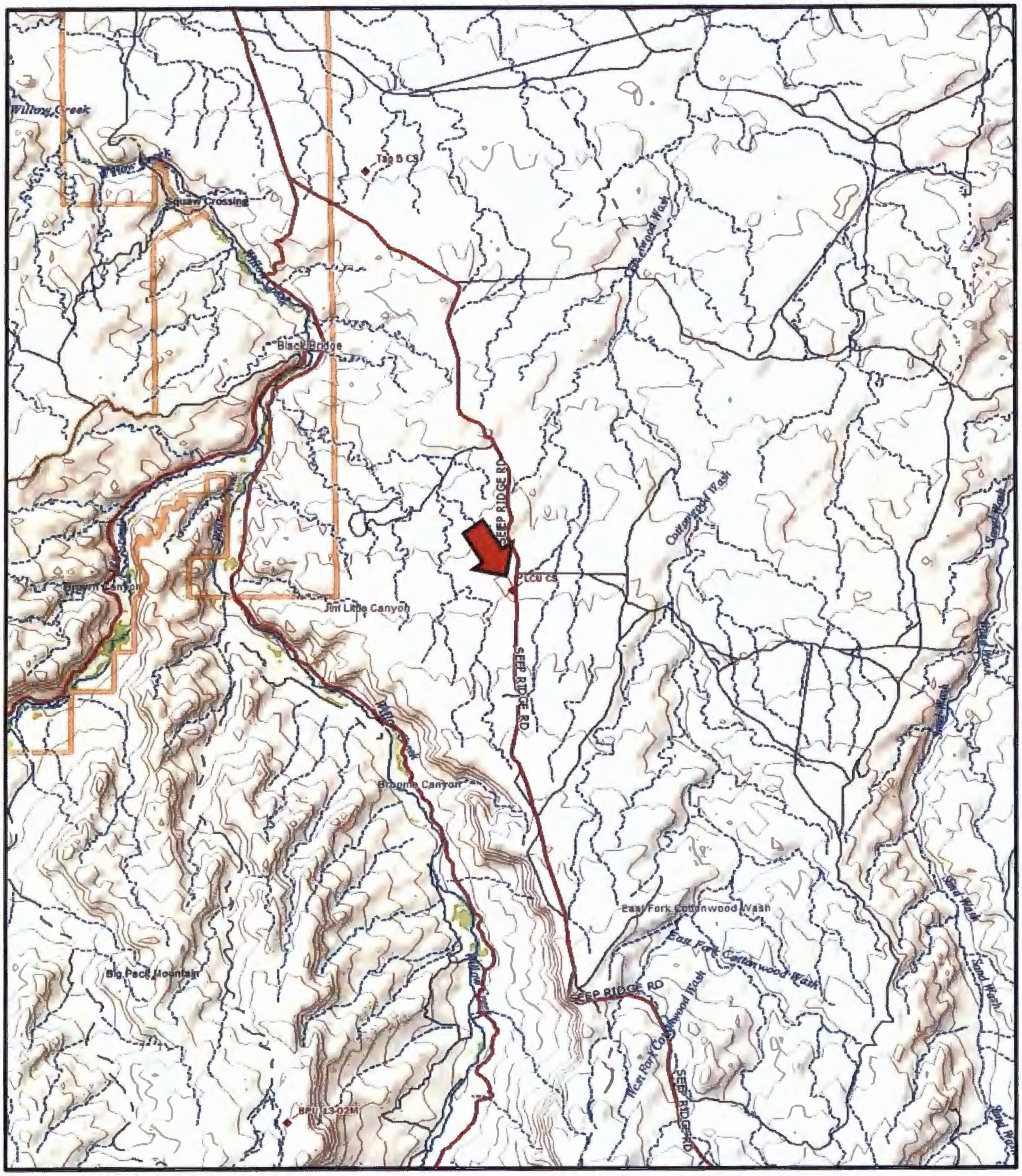
F. Ambient Impact Assessment

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) ____________._______

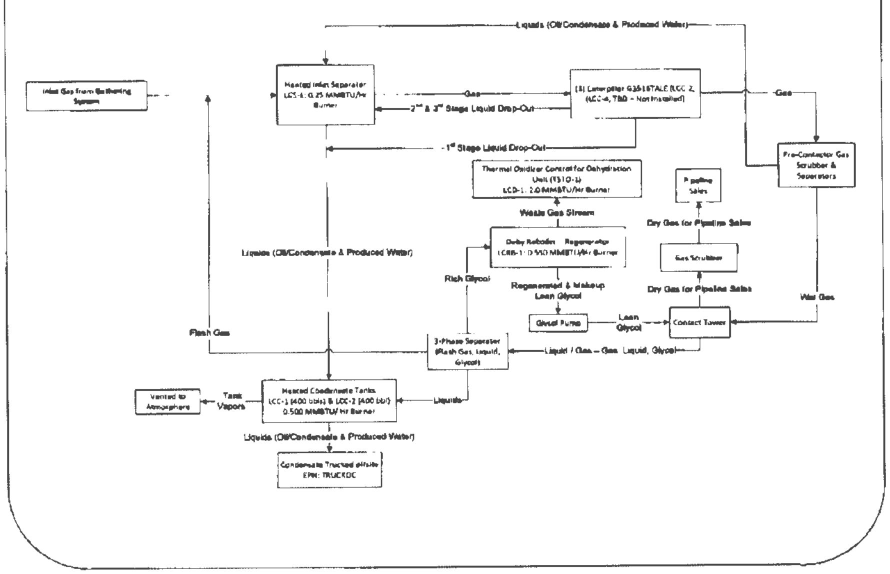


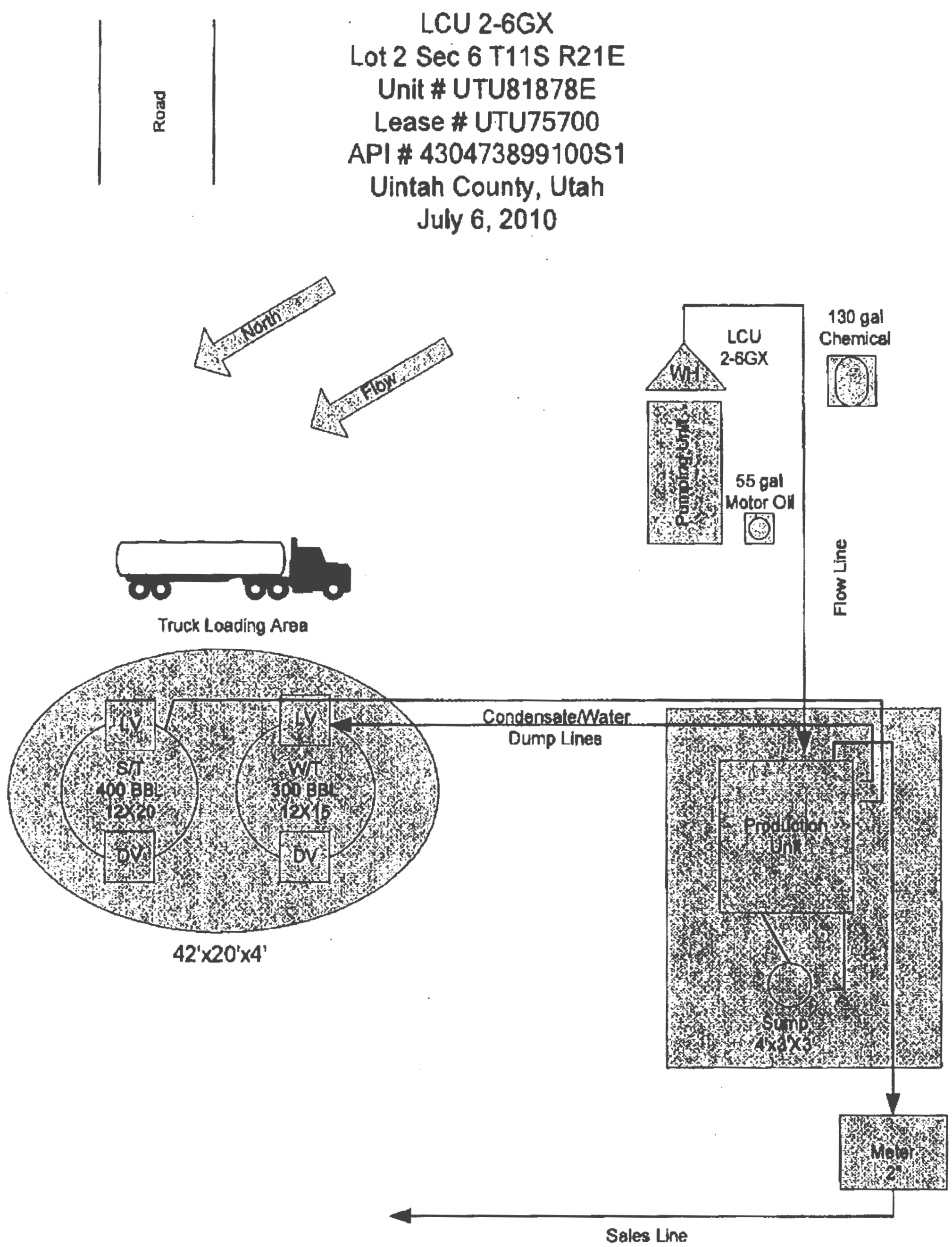
KEY:

PROJECT	14204.1			
PREPARED FOR	XTO Energy, Inc.			
LOCATION	39.8989N, 109.6055W			
SHEET 1 of 1	**DRAWN BY** ET	**REVIEWED BY** TLJ	**DATE** 9/12/13	

GENERAL VICINITY MAP
Little Canyon CS

XTO Energy, Inc.
Little Canyon Unit Compressor Station
Process Flow Diagram - PFD





The site facility plan is located at
XTO Energy Inc.
978 N. Crescent RD.
Roosevelt, Utah 84066
Office hours are 7:00 to 4:00 PM Mon-Fri

General sealing of valves
Production Phase: Oil tank drain valve is sealed closed. Oil tank load valve is sealed closed.
Sales Phase: Oil tank drain valve is sealed closed. Oil tank load valve is sealed closed.
Drain Phase: Oil tank drain valve is open. Oil tank load valve is sealed closed

XTO Energy, Inc.
LCU Compressor Station
Federal Rule Applicability Determinations

Federal Regulations

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP): MACT STANDARDS	
40 CFR 63 Subpart HH	The LCU Compressor Station (TEG dehydration unit uncontrolled) is a major source for HAP emissions because Individual HAPS are more than 10 TPY & Total Combined HAPs are more than 25 TPY. A reduction of 95 percent is required by Subpart HH; therefore this reduced is federally enforceable and reduces the Potential-to-Emit (PTE).
41 CFR 63 Subpart HHH	The LCU Compressor Station is not a natrual gas transmission and storage facility.
40 CFR 63 Subpart EEEE	Per 40 CFR 63.2334(c), Organic liquid distribution operations do not include the activities and equipment, including product loading racks, used to process, store, or transfer organic liquids at oil and natural gas production field facilities.
40 CFR 63 Subpart ZZZZ	The LCU Compressor Station does have Reciprocating Engines, therefore this regulation is applicable. XTO will comply with the required Subpart ZZZZ applicable designations.

NEW SOURCE PREFORMANCE STANDARDS (NSPS)	
40 CFR 60 Subpart Ka/Kb	The storage tanks at the LCU Compressor Station are below the 40,000 gallon applicablity threshold limit.
40 CFR 60 Subpart KKK	The LCU Compressor Station is not subject to VOC leak detection since the product recovered is stabilized condensate.
40 CFR 60 Subpart LLL	The LCU Compressor Station's design capacity is less than 2 LT/D of H2S in the acid gas stream (Expressed as Sulfur), thus only required to comply with 40 CFR Subpart 60.647.
40 CFR 60 Subpart JJJJ	The LCU Compressor Station does not have any Reciprocating Engines constructed, modified, or reconstructed after the applicability dates specified in Subpart JJJJ; therefore this regulation is not applicable.
40 CFR 60 Subpart IIII	Since the LCU Compressor Station does not have any Diesel Engines, this regulation is not applicable.
40 CFR 60 Subpart GG or KKKK	Since the LCU Compressor Station does not have any Turbines greater than 10 MMBTU/HR , these regulations are not applicable.
40 CFR 60 Subpart OOOO	Since the LCU Compressor Station was constructed prior to August 23, 2011, this regulation is not applicable.

COMPLIANCE ASSURANCE MONITORING (CAM) RULE	
40 CFR 64	The CAM Rule requires monitoring for certain emission units at major sources. Though the glycol dehydrator has uncontrolled emissions greater than the HAP major source threshold, the CAM rule does not apply to sources subject to Sections 111 (NSPS) or 112 (NESHAP) of the Clean Air Act (CAA). Therefore, the provisions of the CAM rule do not apply.

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Facility Emission Summary - Potential to Emit (PTE)

Emissions Summary Table - All Sources PTE

Source / Unit Desciption	Emission Point	Emission Unit ID	NOx	CO	Total VOC (Includes Total HAPs)	SO_2	$PM_{10\ \&\ 2.5}$	HAPs
Caterpillar G3512 TALE Compressor Engine (Controlled by Oxidation Catalyst)	LCC-3	LCC-3	15.6	18.1	7.8	0.0	0.3	1.7
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	LCC-2	LCC-2	25.9	29.9	12.9	0.0	0.5	2.8
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	LCC-4	LCC-4	25.9	29.9	12.9	0.0	0.5	2.8
Fugitive Emissions	LCF-1	LCF-1	-	-	3.9	-	-	0.1
40 MMSCFD Glycol Dehydrator (controlled by thermal oxidizer)	LCD-1	LCD-1	-	-	-	-	-	-
Thermal Oxidizer Emissions [1]	LCTO-1	LCTO-1	2.1	2.9	5.3	0.0	0.3	3.0
LCU 2-6GX Wellsite	LCU 2-6GX	LCU 2-6GX	2.9	1.5	20.5	0.0	0.0	6.4
Condensate Storage Tank: 400 bbls	LCT-1	LCT-1	-	-	1.8	-	-	0.2
Condensate Storage Tank: 400 bbls	LCT-2	LCT-2	-	-	1.8	-	-	0.2
Truck Loading: Oil/Condensate	TRUCKOC	TRUCKOC	-	-	2.0	-	-	0.1
Heaters	See Heater Table	LCHTR	1.6	1.4	0.1	0.0	0.1	0.0
Pigging Emissions	LCP-1	LCP-1	-	-	0.0	-	-	0.0
MSS - Compressor Engine Blowdowns	ENGINEBD	ENGINEBD	-	-	3.0	-	-	0.1
Genset Capstone C65NG	LCG-1	LCG-1	0.1	1.7	0.0	0.0	0.0	0.0

	NOx	CO	Total VOC (Includes Total HAPs)	SO_2	$PM_{10\ \&\ 2.5}$	HAPs
TOTAL EMISSIONS (TPY)	**74.2**	**85.3**	**72.2**	**0.1**	**1.8**	**17.6**

Note 1: The potential-to-emit (PTE) is equal to controlled emissions for the TEG dehydration unit since MACT HH is federally-enforceable.

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Facility Emission Summary - Uncontrolled

Emissions Summary Table - All Sources Uncontrolled

Source / Unit Desciption	Emission Point	Emission Unit ID	NOx	CO	Total VOC (Includes Total HAPs)	SO_2	$PM_{10 \& 2.5}$	HAPs
Caterpillar G3512 TALE Compressor Engine (Controlled by Oxidation Catalyst)	LCC-3	LCC-3	15.6	18.1	7.8	0.0	0.3	1.7
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	LCC-2	LCC-2	25.9	29.9	12.9	0.0	0.5	2.8
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	LCC-4	LCC-4	25.9	29.9	12.9	0.0	0.5	2.8
Fugitive Emissions	LCF-1	LCF-1	-	-	3.9	-	-	0.1
40 MMSCFD Glycol Dehydrator (controlled by thermal oxidizer)	T5D-1	T5D-1	-	-	131.4	-	-	61.3
Thermal Oxidizer Emissions	T5TO-1	T5TO-1	2.1	2.9	0.3	0.0	0.3	0.0
RBU 11-02F Wellsite	RBU 11-02F	RBU 11-02F	2.9	1.5	20.5	0.0	0.0	6.4
Condensate Storage Tank: 400 bbls	LCT-1	LCT-1	-	-	1.8	-	-	0.2
Condensate Storage Tank: 400 bbls	LCT-2	LCT-2	-	-	1.8	-	-	0.2
Truck Loading: Oil/Condensate	TRUCKOC	TRUCKOC	-	-	2.0	-	-	0.1
Heaters	See Heater Table	LCHTR	1.6	1.4	0.1	0.0	0.1	0.0
Pigging Emissions	T5P-1	T5P-1	-	-	0.0	-	-	0.0
MSS - Compressor Engine Blowdowns	ENGINEBD	ENGINEBD	-	-	3.0	-	-	0.1
Genset Capstone C65NG	LCG-1	LCG-1	0.1	1.7	0.0	0.0	0.0	0.0

	NOx	CO	Total VOC (Includes Total HAPs)	SO_2	$PM_{10 \& 2.5}$	HAPs
TOTAL EMISSIONS (TPY)	**74.2**	**85.3**	**198.6**	**0.1**	**1.8**	**76.0**

* Uncontrolled emissions are for illustrative purposes only. This facility has federally-enforceable requirements under MACT HH that limit the potential to emit of the TEG dehydration unit; therefore, controlled emissions are equal to the facility's potential to emit.

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Table - Emission Sources (PPH & TPY) - Potential to Emit (PTE)

AIR CONTAMINANT DATA					
EMISSION POINT			COMPONENT OR AIR CONTAMINANT NAME	AIR CONTAMINANT EMISSION RATE	
EMISSION POINT	EMISSION UNIT ID	SOURCE / UNIT DESCRIPTION		LBS/HR	TONS / YR
LCT-1	LCT-1	Condensate Storage Tank: 400 bbls	VOC (Includes HAPs)	0.4	1.8
			HAPs	0.0	0.2
LCT-2	LCT-2	Condensate Storage Tank: 400 bbls	VOC (Includes HAPs)	0.4	1.8
			HAPs	0.0	0.2
TRUCKOC	TRUCKOC	Truck Loading: Oil/Condensate	VOC (Includes HAPs)	33.2	2.0
			HAPs	0.0	0.1
LCF-1	LCF-1	Fugitive Emissions	VOC (Includes HAPs)	1.3	3.9
			HAPs	0.0	0.1
See Heater Table	LCHTR	Reboiler & Heater Emissions Summary	NOx	0.4	1.6
			CO	0.3	1.4
			VOC (Includes HAPs)	0.0	0.1
			$PM_{10 \& 2.5}$	0.0	0.1
			SO_2	0.0	0.0
			HAPs	0.0	0.0
LCD-1	LCD-1	Dehydration Still Column (Emissions shown here are illustrative only as vapors are routed to T5TO-1.)	VOC (Includes HAPs)	8.4	36.7
			HAPs	1.0	4.2

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Table - Emission Sources (PPH & TPY) - Potential to Emit (PTE)

AIR CONTAMINANT DATA					
EMISSION POINT			COMPONENT OR AIR CONTAMINANT NAME	AIR CONTAMINANT EMISSION RATE	
EMISSION POINT	EMISSION UNIT ID	SOURCE / UNIT DESCRIPTION		LBS/HR	TONS / YR
LCTO-1	LCTO-1	Thermal Oxidizer Emissions Summary	NOx	0.5	2.1
			CO	0.7	2.9
			VOC (Includes HAPs)	1.2	5.3
			$PM_{10\ \&\ 2.5}$	0.1	0.3
			SO_2	0.0	0.0
			HAPs	0.7	3.0
LCP-1	LCP-1	Pigging Emissions	VOC (Includes HAPs)	1.3	0.0
			HAPs	0.0	0.0
ENGINEBD	ENGINEBD	Maintenance, Startup, Shutdown (MSS): Engine Blowdowns	VOC (Includes HAPs)	12.1	3.0
			HAPs	0.2	0.1
LCC-3	LCC-3	Caterpillar G3512 TALE Compressor Engine (Controlled by Oxidation Catalyst)	NOx	3.6	15.6
			CO	4.1	18.1
			VOC (Includes HCHO)	1.8	7.8
			$PM_{10\ \&\ 2.5}$	0.1	0.3
			SO_2	0.0	0.0
			HCHO	0.4	1.7

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Table - Emission Sources (PPH & TPY) - Potential to Emit (PTE)

AIR CONTAMINANT DATA					
EMISSION POINT			COMPONENT OR AIR CONTAMINANT NAME	AIR CONTAMINANT EMISSION RATE	
EMISSION POINT	EMISSION UNIT ID	SOURCE / UNIT DESCRIPTION		LBS/HR	TONS / YR
LCC-2	LCC-2	Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	NOx	5.9	25.9
			CO	6.8	29.9
			VOC (Includes HCHO)	3.0	12.9
			$PM_{10\ \&\ 2.5}$	0.1	0.5
			SO_2	0.0	0.0
			HCHO	0.6	2.8
LCC-4	LCC-4	Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	NOx	5.9	25.9
			CO	6.8	29.9
			VOC (Includes HCHO)	3.0	12.9
			$PM_{10\ \&\ 2.5}$	0.1	0.5
			SO_2	0.0	0.0
			HCHO	0.6	2.8
LCG-1	LCG-1	Genset Capstone C65NG	NOx	0.0	0.1
			CO	0.4	1.7
			VOC (Includes HCHO)	0.0	0.0
			$PM_{10\ \&\ 2.5}$	0.0	0.0
			SO_2	0.0	0.0
			HCHO	0.0	0.0

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Table - Emission Sources (PPH & TPY) - Potential to Emit (PTE)

AIR CONTAMINANT DATA					
EMISSION POINT			COMPONENT OR AIR CONTAMINANT NAME	AIR CONTAMINANT EMISSION RATE	
EMISSION POINT	EMISSION UNIT ID	SOURCE / UNIT DESCRIPTION		LBS/HR	TONS / YR
RBU 11-02F	RBU 11-02F	RBU 11-02F Combined Emission Summary	NOx	0.7	2.9
			CO	0.3	1.5
			VOC (Includes HAPs)	37.7	20.5
			$PM_{10 \& 2.5}$	0.0	0.0
			SO_2	0.0	0.0
			HAPs	3.7	6.4

XTO Energy, Inc.
Little Canyon Unit Compressor Station
Compressor Engine and Generators

Emission Calculations - Controlled Compressor Engine & Generators

Criteria and Regulated Pollutants

Source / Unit Description	Emission Unit ID	Yearly Operating Hours	Rated HP	Heating Value Btu/scf	Fuel Consumption MMbtu/hp-hr	Heat Rating MMbtu/hr	Fuel Usage MMscf/yr	Emission Data (See Note - Manufacturer, Consent Decree, BLM, and / or NSPS JJJJ limits) g/hp-hr				AP-42 Factors lb/MMBtu		lb/hr						tpy					
								NOx[1]	CO[1]	VOC[2]	HCHO	SO_2	$PM_{10 \& 2.5}$	NOx	CO	VOC*	HCHO	SO_2	$PM_{10 \& 2.5}$	NOx	CO	VOC*	HCHO	SO_2	$PM_{10 \& 2.5}$
Caterpillar G3512 TALE Compressor Engine (Controlled by Oxidation Catalyst)	LCC-3	8760	810	1110.9	0.008933	7.24	57.06	2.00	2.00	1.00	0.22	0.000588	0.00991	3.57	3.57	1.79	0.39	0.00	0.07	15.64	15.64	7.82	1.72	0.02	0.31
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	LCC-2	8760	1340	1110.9	0.008594	11.52	90.81	2.00	2.00	1.00	0.22	0.000588	0.00991	5.91	5.91	2.95	0.65	0.01	0.11	25.88	25.88	12.94	2.85	0.03	0.50
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	LCC-4	8760	1340	1110.9	0.008594	11.52	90.81	2.00	2.00	1.00	0.22	0.000588	0.00991	5.91	5.91	2.95	0.65	0.01	0.11	25.88	25.88	12.94	2.85	0.03	0.50
Genset Capstone C65NG	LCG-1	8760	87	1110.9	0.0088	0.77	6.04	0.16	2.04	0.03	0.04	0.000588	0.00991	0.03	0.39	0.01	0.01	0.00	0.01	0.13	1.71	0.03	0.03	0.00	0.03

NOTE 1: NO_x limit is based on Consent Decree requirement of 2 g/bhp-hr. CO limit is based on Consent Decree CO requirement of 2.0 g/hp-hr.

NOTE 2: VOC emissions are based on HCHO+Uncontrolled VOC Emission Factor = 0.70 g/hp-hr + 0.3 g/hp-hr = 1.0 g/hp-hr (conservative manufacturer specifications). Additionally, this meets NSPS JJJJ VOC limits as required.

NOTE 3: Engine break-in/ maintenance period assumed to be 200 hours / engine. Emission Data is represented as worst case emission spec from the engines. See Note 2 for VOC and HCHO emissions.

Total Emissions Per Pollutant (TPY)	NOx	CO	VOC	HCHO	SO_2	$PM_{10 \& 2.5}$
	67.53	69.11	33.72	7.45	0.08	1.35

XTO Energy, Inc.
Little Canyon Unit Compressor Station
Compressor Engine and Generators

Emission Calculations - Controlled Compressor Engine & Generators

Criteria and Regulated Pollutants

								AP-42 Factors lb/MMBtu						lb/hr						tpy					
Source / Unit Description	Emission Unit ID	Yearly Operating Hours	Rated HP	Heating Value Btu/scf	Fuel Consumption MMbtu/hp-hr	Heat Rating MMbtu/hr	Fuel Usage MMscf/yr	Benzene	Toluene	B-Benzene	Xylene	Acetaldehyde	Acrolein	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein
Caterpillar G3512 TALE Compressor Engine (Controlled by Oxidation Catalyst)	LCC-3	8760	810	1110.90	0.008933	7.24	57.06	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.003	0.003	0.000	0.001	0.060	0.037	0.014	0.013	0.001	0.006	0.265	0.163
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	LCC-2	8760	1340	1110.90	0.008594	11.52	90.81	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.005	0.005	0.000	0.002	0.096	0.059	0.022	0.021	0.002	0.009	0.422	0.259
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	LCC-4	8760	1340	1110.90	0.008594	11.52	90.81	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.005	0.005	0.000	0.002	0.096	0.059	0.022	0.021	0.002	0.009	0.422	0.259
Genset Capstone C65NG	LCG-1	8760	87	1110.90	0.008800	0.77	6.04	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.000	0.000	0.000	0.000	0.006	0.004	0.001	0.001	0.000	0.001	0.028	0.017

Total Emissions Per Pollutant (TPY)	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein
	0.06	**0.06**	**0.01**	**0.03**	**1.14**	**0.70**

XTO Energy, Inc.
Little Canyon Unit Compressor Station
Compressor Engine and Generators

Emission Calculations - Uncontrolled Compressor Engine & Generators

Criteria and Regulated Pollutants

Source / Unit Description	Emission Unit ID	Yearly Operating Hours	Rated HP	Heating Value Btu/scf	Fuel Consumption MMbtu/hp-hr [1]	Heat Rating MMbtu/hr	Fuel Usage MMscf/yr	Emission Data - Manufacturer Specifications[1] g/hp-hr				AP-42 Factors lb/MMBtu		lb/hr						tpy					
								NO_x	CO	VOC	HCHO	SO_2	$PM_{10\,\&\,2.5}$	NOx	CO	VOC*	HCHO	SO_2	$PM_{10\,\&\,2.5}$	NOx	CO	VOC*	HCHO	SO_2	$PM_{10\,\&\,2.5}$
Caterpillar G3512 TALE Compressor Engine (Controlled by Oxidation Catalyst)	LCC-3	8760	810	1110.9	0.008933	7.23573	57.05733621	2.00	2.31	1.00	0.22	0.000588	0.00991	3.57	4.13	1.79	0.39	0.00	0.07	15.64	18.07	7.82	1.72	0.02	0.31
Caterpillar G3516 TALE Compressor Engine (Uncontrolled)	LCC-2	8760	1340	1110.9	0.008594	11.52	90.81	2.00	2.31	1.00	0.22	0.000588	0.00991	5.91	6.82	2.95	0.65	0.01	0.11	25.88	29.89	12.94	2.85	0.03	0.50
Caterpillar G3516 TALE Compressor Engine (Uncontrolled)	LCC-4	8760	1340	1110.9	0.008594	11.52	90.81	2.00	2.31	1.00	0.22	0.000588	0.00991	5.91	6.82	2.95	0.65	0.01	0.11	25.88	29.89	12.94	2.85	0.03	0.50
Genset Capstone C65NG	LCG-1	8760	87	1110.9	0.0088	0.77	6.04	0.16	2.04	0.03	0.04	0.000588	0.00991	0.03	0.39	0.01	0.01	0.00	0.01	0.13	1.71	0.03	0.03	0.00	0.03

NOTE 1: Fuel Consumption and Emissions Data are based on manufacturer specifications worst-case value.VOC emissions are based on HCHO+Uncontrolled VOC Emission Factor = 0.70 g/hp-hr + 0.3 g/hp-hr = 1.0 g/hp-hr (conservative manufacturer specifications).

Total Emissions Per Pollutant (TPY)	NOx	CO	VOC	HCHO	SO_2	$PM_{10\,\&\,2.5}$
	67.53	**79.56**	**33.72**	**7.45**	**0.08**	**1.35**

Hazardous Pollutants

Source / Unit Description	Emission Unit ID	Yearly Operating Hours	Rated HP	Heating Value Btu/scf	Fuel Consumption MMBtu/hp-hr [1]	Heat Rating MMbtu/hr	Fuel Usage MMscf/yr	AP-42 Factors lb/MMBtu						lb/hr						tpy					
								Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein
Caterpillar G3512 TALE Compressor Engine (Controlled by Oxidation Catalyst)	LCC-3	8760	810	1110.90	0.008933	7.24	57.06	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.003	0.003	0.000	0.001	0.060	0.037	0.014	0.013	0.001	0.006	0.265	0.163
Caterpillar G3516 TALE Compressor Engine (Uncontrolled)	LCC-2	8760	1340	1110.90	0.008594	11.52	90.81	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.005	0.005	0.000	0.002	0.096	0.059	0.022	0.021	0.002	0.009	0.422	0.259
Caterpillar G3516 TALE Compressor Engine (Uncontrolled)	LCC-4	8760	1340	1110.90	0.008594	11.52	90.81	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.005	0.005	0.000	0.002	0.096	0.059	0.022	0.021	0.002	0.009	0.422	0.259
Genset Capstone C65NG	LCG-1	8760	87	1110.90	0.008800	0.77	6.04	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.000	0.000	0.000	0.000	0.006	0.004	0.001	0.001	0.000	0.001	0.028	0.017

NOTE 1: Fuel Consumption and Emissions Data are based on manufacturer specifications worst-case value.VOC emissions are based on HCHO+Uncontrolled VOC Emission Factor = 0.70 g/hp-hr + 0.3 g/hp-hr = 1.0 g/hp-hr (conservative manufacturer specifications).

Total Emissions Per Pollutant (TPY)	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein
	0.06	**0.06**	**0.01**	**0.03**	**1.14**	**0.70**

XTO Energy, Inc.
Little Canyon Unit Compressor Station
Oil/Condensate Storage Tanks

Emissions Calculations - Oil/Condensate Tanks (LCT-1 & LCT-2)

Average BOPD	Number of Oil Tanks	Emissions Controlled (Yes/No)	Control Type (Flare, VRU, etc)
60	2	No	N/A

Total Uncontrolled Emissions - All Tanks Combined			
Uncontrolled VOC Emissions		Uncontrolled HAP Emissions	
0.84	lb/hr	0.09	lb/hr
3.66	tpy	0.38	tpy

Total Uncontrolled Emissions - Emission Rates Per Tank			
Uncontrolled VOC Emissions		Uncontrolled HAP Emissions	
0.42	lb/hr	0.04	lb/hr
1.83	tpy	0.19	tpy

** Emissions estimated using E&P Tank V2.0 and the liquids analysis for the Tap 5 CS.*

[1] A safety factor of 50% was added to total tank emissions.

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Truck Loading Losses - Oil/Condensate

Truck Loading Losses Calculations (EPN: TRUCKOC)

Average BOPD	60

LL= 12.46 * SPM/T * (1-EFF/100)

Saturation Factor (S) =	0.6
True Vapor Pressure of liquid loaded (P) =	6.0
Temperature of bulk liquid loaded in Rankin (T) =	510.0
Molecular Weight (M)[1] =	50.00
Control Efficiency * Collection Efficiency (EFF)=	0
LL (lb Total HC / bbl Throughput) =	0.1847
LL (lb VOC / bbl Throughput) =	**0.1847**
Estimated Throughput (bbls/Year) =	21900
Truck Loading Rate (bbls/hour) =	180
Estimated # of Loads (Approximately 1 hr/Load) =	122

	lb/hr	TPY
Total VOC Emissions	33.25	2.0
Total HAP Emissions	1.11	0.07

NOTE 1: Molecular Weight is AP-42 Table 7.1-2 using Crude Oil RVP 5. For conservative emissions estimates the loading temperature is assumed to 50 °F

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Total Thermal Oxidizer Emissions - All Sources Combined

Thermal Oxidizer Emission Summary Table (Emission Unit ID: LCTO-1)

Source Desciption	EPN	NOx		CO		Total VOC (Includes Total HAPs)		SO_2		$PM_{10\ \&\ 2.5}$		Total HAPs	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Thermal Oxidizer Emissions[1]	LCTO-1	0.49	2.14	0.67	2.94	1.21	5.28	0.000	0.000	0.06	0.27	0.69	3.01

NOTE 1: Thermal Oxidizer emissions include dehydrator still column emissions and pilot gas. Since uncontrolled VOC emissions are major source, the thermal oxidizer is federally-enforceable under 40 CFR 63 Subpart HH Thus, controlled emissions are equal to the potential-to-emit.

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Dehy Still Column - Emission Summary

Dehy Still Column Emissions (Emission Unit ID: LCD-1)

Emission Component	Uncontrolled Still Column		Controlled Still Column	
	lb/hr	TPY	lb/hr	TPY
Propane	1.054	4.618	0.053	0.231
H_2S	0.000	0.000	0.000	0.000
Iso-Butane	0.539	2.361	0.027	0.118
N-Butane	0.983	4.307	0.049	0.215
Iso-Pentane	0.486	2.130	0.024	0.106
N-Pentane	0.484	2.119	0.024	0.106
Methylcyclopentane	0.000	0.000	0.000	0.000
n-Hexane	0.323	1.413	0.016	0.071
Hexane +	0.405	1.776	0.020	0.089
2,2,4-Trimethylpentane	0.018	0.080	0.001	0.004
Methycyclohexane	0.954	4.177	0.048	0.209
Benzene	2.098	9.189	0.105	0.459
Cyclohexane	0.583	2.555	0.029	0.128
Heptanes	0.654	2.864	0.033	0.143
Toluene	4.087	17.901	0.204	0.895
Ethylbenzene	0.000	0.000	0.000	0.000
Xylenes	7.226	31.649	0.361	1.582
Octanes+	2.851	12.489	0.143	0.624

TOTAL EMISSION SUMMARY	UNCONTROLLED		CONTROLLED	
Emission Component	**lb/hr**	**TPY**	**lb/hr**	**TPY**
NMNEVOC (Includes TOTAL HAPs)	**22.75**	**99.63**	**1.14**	**4.98**
TOTAL HAPs	**13.73**	**60.15**	**0.69**	**3.01**

*Uncontrolled Emissions Based off of Gri-GlyCalc Output
*Controlled Emissions Were Calculated by the Following: Uncontrolled Emissions * (1-TO Eff) * (1-Condenser Eff)
*Thermal Oxidizer Reduction = 95%
*Still Column Emissions represented above are included in the Thermal Oxidizer Summary Emissions

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Dehy Flash Tank - Emission Summary

Dehy Flash Tank Emissions (Emission Unit ID: LCD-1)

Emission Component	Uncontrolled Flash Tank		Controlled Flash Tank	
	lb/hr	TPY	lb/hr	TPY
Propane	2.965	12.986	2.965	12.986
H_2S	0.000	0.000	0.000	0.000
Iso-Butane	0.980	4.292	0.980	4.292
N-Butane	1.352	5.922	1.352	5.922
Iso-Pentane	0.573	2.508	0.573	2.508
N-Pentane	0.453	1.982	0.453	1.982
Methylcyclopentane	0.000	0.000	0.000	0.000
n-Hexane	0.163	0.712	0.163	0.712
Hexane +	0.271	1.188	0.271	1.188
2,2,4-Trimethylpentane	0.009	0.039	0.009	0.039
Methycyclohexane	0.090	0.396	0.090	0.396
Benzene	0.036	0.156	0.036	0.156
Cyclohexane	0.072	0.315	0.072	0.315
Heptanes	0.156	0.684	0.156	0.684
Toluene	0.043	0.190	0.043	0.190
Ethylbenzene	0.000	0.000	0.000	0.000
Xylenes	0.030	0.131	0.030	0.131
Octanes+	0.058	0.255	0.058	0.255

TOTAL EMISSION SUMMARY	UNCONTROLLED		CONTROLLED	
Emission Component	**lb/hr**	**TPY**	**lb/hr**	**TPY**
NMNEVOC (Includes TOTAL HAPs)	**7.25**	**31.76**	**7.250**	**31.757**
TOTAL HAPs	**0.27**	**1.19**	**0.272**	**1.189**

*Uncontrolled Emissions Based off of Gri-GlyCalc Output

*Controlled Emissions Were Calculated by the Following: Uncontrolled Emissions * (1- Reduction Eff)

* Closed Loop System - Reduction = 100%

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Thermal Oxidizer - Products of Combustion

Thermal Oxidizer - Products of Combustion Calculations (Emission Unit ID: LCTO-1)

			AP-42 Emissions Factors lb/MMBTU			lb/hr			tpy		
EPN	Operating Hours	MMBTU/Hr[1]	NOx	CO	$PM_{10\ \&\ 2.5}$	NOx	CO	$PM_{10\ \&\ 2.5}$	NOx	CO	$PM_{10\ \&\ 2.5}$
T5TO-1	8760	8.14	0.0600	0.0824	0.0075	0.488	0.671	0.061	2.139	2.937	0.267

NOTE 1: MMBTU / Hr includes dehydration still column and pilot gas BTU / Hr and includes a 50% safety factor.

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Thermal Oxidizer - Pilot Gas

Thermal Oxidizer Pilot Gas Emissions (Emission Unit ID: LCTO-1)

Pilot Fuel	38400	SCF/Day
Pilot Fuel	1600	SCF/Hour (100% Safety Factor)
Duration	8760	Hours/Year
Vented	No	(Yes/No)
Flared	Yes	(Yes/No)
Heating Value	1110.9	BTU/SCF

Component	Total Quantity Vented from the TO (lb/day)	Total Quantity Emitted from the TO (lb/day)	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
Total VOCs	0.000	1.661	0.069	0.303
Total HAPs	0.000	0.034	0.001	0.006
Sulfur Dioxide	0.000	0.000	0.000	0.000
Hydrogen Sulfide	0.000	0.000	0.000	0.000
Propane	0.000	0.853	0.036	0.156
Iso-Butane	0.000	0.229	0.010	0.042
N-Butane	0.000	0.272	0.011	0.050
Iso-Pentane	0.000	0.111	0.005	0.020
N-Pentane	0.000	0.077	0.003	0.014
n-Hexane	0.000	0.023	0.001	0.004
Hexanes	0.000	0.041	0.002	0.007
Benzene	0.000	0.003	0.000	0.001
Cyclohexane	0.000	0.007	0.000	0.001
Heptanes	0.000	0.017	0.001	0.003
Toluene	0.000	0.004	0.000	0.001
Ethylbenzene	0.000	0.000	0.000	0.000
Xylenes	0.000	0.004	0.000	0.001
Octanes	0.000	0.011	0.000	0.002
Nonanes	0.000	0.000	0.000	0.000
Decanes+	0.000	0.000	0.000	0.000

Calculations Based on Ideal Gas Law

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Reboiler & Heater Burner Calculations

Reboiler & Heater Calculations (Emission Unit ID: LCHTR)

Criteria and Regulated Pollutants

					AP-42 Factors lb/MMSCF					lb/hr					tpy				
Source Description	EPN	Fuel Gas (BTU/SCF)	Operating Hours	Burner Rating (MMBTU/Hr)	NOx	CO	VOC	SO_2	$PM_{10\,\&\,2.5}$	NOx	CO	VOC	SO_2	$PM_{10\,\&\,2.5}$	NOx	CO	VOC	SO_2	$PM_{10\,\&\,2.5}$
Condensate Tank Emissions	LCT-1	1110.90	8760	0.250	100	84	5.5	0.6	7.6	0.028	0.024	0.002	0.000	0.002	0.123	0.103	0.007	0.001	0.009
Condensate Tank Emissions	LCT-2	1110.90	8760	0.250	100	84	5.5	0.6	7.6	0.028	0.024	0.002	0.000	0.002	0.123	0.103	0.007	0.001	0.009
Thermal Oxidizer Heater / Burner	LCD-1	1110.90	8760	2.000	100	84	5.5	0.6	7.6	0.225	0.189	0.012	0.001	0.017	0.986	0.826	0.054	0.006	0.075
Separator Heater	LCS-1	1110.90	8760	0.250	100	84	5.5	0.6	7.6	0.028	0.024	0.002	0.000	0.002	0.123	0.103	0.007	0.001	0.009
Dehydrator Reboiler	LCRB-1	1110.90	8760	0.550	100	84	5.5	0.6	7.6	0.062	0.052	0.003	0.000	0.005	0.271	0.228	0.015	0.002	0.021

***Source: AP-42 Table 1.4-1, 1.4-2, & 1.4-3**

***Burners - 80% Efficiency**

Total (tpy)	NOx	CO	VOC	SO_2	$PM_{10\,\&\,2.5}$
	1.63	**1.37**	**0.09**	**0.01**	**0.12**

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Reboiler & Heater Burner Calculations

Reboiler & Heater Calculations (Emission Unit ID: LCHTR)

Hazardous Air Pollutants (HAPs)

					AP-42 Factors lb/MMSCF					lb/hr					tpy				
Source Description	Emission Point Source (EPN)	Fuel Gas (BTU/SCF)	Operating Hours	Burner Rating (MMBTU/Hr)	Benzene	Toluene	N-Hexane	HCHO	Diclorobenz	Benzene	Toluene	N-Hexane	HCHO	Diclorobenz.	Benzene	Toluene	N-Hexane	HCHO	Diclorobenz.
Condensate Tank #1 Heater	T5TH-1	1110.9	8760	0.250	0.0021	0.0034	1.8	0.0750	0.0012	0.000001	0.000001	0.000506	0.000021	0.000000	0.000003	0.000004	0.002218	0.000092	0.000001
Condensate Tank #2 Heater	T5TH-2	1110.9	8760	0.250	0.0021	0.0034	1.8	0.0750	0.0012	0.000001	0.000001	0.000506	0.000021	0.000000	0.000003	0.000004	0.002218	0.000092	0.000001
Thermal Oxidizer Heater / Burner	T5TOH-1	1110.9	8760	2.000	0.0021	0.0034	1.8	0.0750	0.0012	0.000005	0.000008	0.004051	0.000169	0.000003	0.000021	0.000034	0.017742	0.000739	0.000012
Separator Heater	T5SH-1	1110.9	8760	0.250	0.0021	0.0034	1.8	0.0750	0.0012	0.000001	0.000001	0.000506	0.000021	0.000000	0.000003	0.000004	0.002218	0.000092	0.000001
Dehydrator Reboiler	LCRB-1	1110.9	8760	0.550	0.0021	0.0034	1.8	0.0750	0.0012	0.000001	0.000002	0.001114	0.000046	0.000001	0.000006	0.000009	0.004879	0.000203	0.000003

***Source: AP-42 Table 1.4-1, 1.4-2, & 1.4-3**

***Burners - 80% Efficiency**

	Benzene	Toluene	Hexane	HCHO	Diclorobenz
Total Individual HAPS (tpy)	**0.00**	**0.00**	**0.03**	**0.00**	**0.00**

Total Combined HAPS (tpy)	**0.03**

XTO Energy, Inc.
Little Canyon Unit Compressor Station
Fugitive Emissions

Fugitive Emission Calculations (Emission Unit ID: LCF-1)

Component Type	Service	Estimated Components Count	Hours	Factors	Total VOC Weight %	Emissions	
						lb/year	tons/year
Valves	Gas/Vapor	450	8760	0.00992000	9.22%	3606.1056	1.8031
	Light Oil	100	8760	0.00550000	37.41%	1802.5069	0.9013
	Heavy Oil	0	8760	0.00001900	37.41%	0.0000	0.0000
	Water/Light Oil	50	8760	0.00021600	37.41%	35.3947	0.0177
Pumps	Gas/Vapor	6	8760	0.00529000	9.22%	25.6402	0.0128
	Light Oil	3	8760	0.02866000	37.41%	281.7810	0.1409
	Heavy Oil	0	8760	0.00113000	37.41%	0.0000	0.0000
	Water/Light Oil	3	8760	0.00005300	37.41%	0.5211	0.0003
Flanges	Gas/Vapor	1200	8760	0.00086000	9.22%	833.6696	0.4168
	Light Oil	75	8760	0.00024300	37.41%	59.7285	0.0299
	Heavy Oil	0	8760	0.00000086	37.41%	0.0000	0.0000
	Water/Light Oil	50	8760	0.00000620	37.41%	1.0160	0.0005
Open-ended Lines	Gas/Vapor	15	8760	0.00441000	9.22%	53.4373	0.0267
	Light Oil	0	8760	0.00309000	37.41%	0.0000	0.0000
	Heavy Oil	0	8760	0.00030900	37.41%	0.0000	0.0000
	Water/Light Oil	5	8760	0.00055000	37.41%	9.0125	0.0045
Connectors	Gas/Vapor	250	8760	0.00044000	9.22%	88.8601	0.0444
	Light Oil	0	8760	0.00046300	37.41%	0.0000	0.0000
	Heavy Oil	0	8760	0.00001700	37.41%	0.0000	0.0000
	Water/Light Oil	50	8760	0.00024300	37.41%	39.8190	0.0199
Other[1]:	Gas/Vapor	30	8760	0.01940000	9.22%	470.1509	0.2351
	Light Oil	0	8760	0.01650000	37.41%	0.0000	0.0000
	Heavy Oil	0	8760	0.00006800	37.41%	0.0000	0.0000
	Water/Light Oil	5	8760	0.03090000	37.41%	506.3406	0.2532

	lb/hr	lb/year	TPY
Total VOC Emissions[2]	1.34	11720.98	3.91
HAPs[2]	0.03	241.76	0.12

NOTE 1: Compressors, relief valves, process drains, diaphragms, dump arms, hatches, instruments, meters, polished rods, and vents

NOTE 2: A safety factor of 50% is applied to the VOC and HAPs Fugitive Emissions

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Fuel Gas Analysis (Little Cyn. Pre Dehy - 6/15/2012)

Conversion of Mole Percent to Weight Percent

Component	Mole %	MW	Mole % *MW	Weight %
Carbon Dioxide	0.3477	44.01	0.153	0.008
Nitrogen	0.3648	28.01	0.102	0.006
Hydrogen Sulfide	0.0000	34.02	0.000	0.000
Helium	0.0000	4.00	0.000	0.000
Methane	90.7292	16.04	14.555	0.805
Ethane	5.3537	30.07	1.610	0.089
Propane	1.9415	44.10	0.856	0.047
Iso-Butane	0.3949	58.11	0.229	0.013
N-Butane	0.4703	58.12	0.273	0.015
Iso-Pentane	0.1549	72.14	0.112	0.006
N-Pentane	0.1077	72.14	0.078	0.004
Methylcyclopentane	0.0000	86.00	0.000	0.000
n-Hexane	0.0263	86.05	0.023	0.001
Hexane +	0.0486	84.05	0.041	0.002
2,4-Dimethylpentane	0.0000	96.00	0.000	0.000
Methycyclohexane	0.0096	96.00	0.009	0.001
Benzene	0.0039	78.37	0.003	0.000
Cyclohexane	0.0087	84.07	0.007	0.000
Heptanes	0.0185	93.22	0.017	0.001
Toluene	0.0044	92.01	0.004	0.000
Ethylbenzene	0.0000	111.47	0.000	0.000
Xylenes	0.0041	99.52	0.004	0.000
Octanes+	0.0100	111.77	0.011	0.001
Nonanes+	0.0000	125.12	0.000	0.000
Decanes+	0.0000	116.11	0.000	0.000
Total	100.00	-	18.09	1.000

Molecular Weight	18.09	
Relative Density	0.6262	
Gross WET BTU	1110.90	
NMHC	3.2778	18.122%
VOCs (NMNEHC)	1.6680	9.222%
HAPs	0.0338	0.19%
H2S Mole Fraction	0.0000	0.000%
Total HC	17.8326	98.589%
THC:VOC Ratio	9.3537	9.354%

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Liquid Flash Analysis to Estimate Fugitive Oil Emissions

Conversion of Mole Percent to Weight Percent

Component	Mole %	MW	Mole % * MW	Weight %
Carbon Dioxide	1.7490	44.01	0.7698	3.007%
Nitrogen	3.5120	28.01	0.9838	3.843%
Hydrogen Sulfide	0.0000	34.02	0.0000	0.000%
Helium	0.0000	4.00	0.0000	0.000%
Methane	68.2760	16.04	10.9529	42.784%
Ethane	11.0290	30.07	3.3163	12.954%
Propane	5.9630	44.10	2.6297	10.272%
Iso-Butane	1.6260	58.12	0.9450	3.691%
N-Butane	2.3750	58.12	1.3804	5.392%
Iso-Pentane	1.2770	72.15	0.9214	3.599%
N-Pentane	1.3020	72.15	0.9394	3.670%
Methylcyclopentane	0.0000	86.00	0.0000	0.000%
n-Hexane	0.0000	86.18	0.0000	0.000%
Hexanes	1.1100	86.16	0.9564	3.736%
2,2,4-Trimethylpentane	0.0000	114.24	0.0000	0.000%
Methycyclohexane	0.0000	96.00	0.0000	0.000%
Benzene	0.1820	78.11	0.1422	0.555%
Cyclohexane	0.0000	84.51	0.0000	0.000%
Heptanes	0.9260	100.20	0.9279	3.624%
Toluene	0.1850	92.13	0.1704	0.666%
Ethylbenzene	0.0030	106.17	0.0032	0.012%
Xylenes	0.0040	106.17	0.0042	0.017%
Octanes+	0.4420	114.23	0.5049	1.972%
Nonanes+	0.0410	128.28	0.0526	0.205%
Decanes+	0.0000	223.02	0.0000	0.000%
Total	100.00	-	25.60	100.000%

Molecular Weight	25.60	
NMHC	12.8938	50.366%
VOCs (NMNEHC)	9.5776	37.412%
HAPs	0.3200	1.25%
H2S Mole Fraction	0.0000	0.000%
Total HC	23.8467	93.150%
THC:VOC Ratio	40.1632	40.163%

* Analysis taken from Tap 5 analysis dated December 10, 2012

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Pigging Emissions

Pig Launching & Receiving - Emission Calculations (EPN: LCP-1)

Pig Launcher & Reciever Information		
Volume of the Pipeline	88.36	ft^3
Volume of Gas in Pipeline Under Pressure[1]	388.89	Standard ft^3
Pipeline Pressure	50	psig
Pipeline Pressure	64.7	psia
Pipeline / Atmospheric Temperature	80	°F
Pipeline / Atmospheric Temperature	540	°R

Gas Composition Information		
Atmospheric Pressure	14.7	Psia
Universal Gas Constant (R)	10.73	ft^3 psi/°R lb-mol
Molecular Weight	18.09	lb/lb-mole
Compressibility Factor	0.9976	Z
VOC Weight Percent	9.22%	Percent
HAP Weight Percent	0.19%	Percent
Ending Gas Density (ρ_2)[2]	0.0460	lb/ft^3
Starting Gas Density (ρ_1)[3]	0.2025	lb/ft^3
Density (ρ_{TOTAL})[4]	0.1565	lb/ft^3

Emission Calculations		
Density (ρ_{TOTAL})	0.1565	lb/ft^3
Estimated Max Amount of Gas Vented[5]	13.82	lbs/Event
Estimated Number of Pig Launching & Receiving	24	Events/Year
Estimated Total Amount of Gas Released	331.79	lbs/Year
Estimated Total Amount of Gas Released	0.17	Tons/Year

Estimated Total Emissions		
Total VOC Emissions **(Includes Total HAPs)**	30.60	lbs/Year
	1.27	lbs/event[1]
	0.02	Tons/Year
Total HAPs Emissions	0.62	lbs/Year
	0.03	lbs/event[1]
	0.00	Tons/Year

Calculation Methodology		
[1]Ideal Gas Law - Constant Temp: $(V_1 * P_1) / P_2$	[2]$\rho_1=(P_1*MW)/R*T_1*Z$	[3]$\rho_2=(P_2*MW)/R*T_2*Z$
[4]$\rho TOTAL = \rho 1 - \rho 2$	[5]Estimated Max Gas Vented (lb/Event) = $\rho TOTAL * V_1$	

NOTE 1: lb/event rate is based off of total lbs released in an event not instantaneous flow rate

XTO Energy, Inc.

Little Canyon Unit Compressor Station

SSM - Compressor Blowdowns

MSS Compressor Blowdown Emission (EPN: ENGINEBD)

Total Quantity	2800	(SCF/Blowdown)
Estimated Number of Blowdowns	500	(Blowdowns/Year)
Flared	No	(Yes/No)
Lower Heating Value	1110.90	(BTU)

Component	Estimated Quantity Blowndown (lbs)	Total Estimated Quantity Emitted (lbs)	Hourly Emission Rate (lb/blowdown)	Annualized Emission Rate (TPY)
Total VOCs (Includes Total HAPs)	12.118	12.118	12.118	3.030
Total HAPs	0.246	0.246	0.246	0.061
H_2S	0.000	0.000	0.000	0.000

XTO Energy, Inc.

Little Canyon Unit Compressor Station

LCU 2-6GX Wellsite Summary - All Sources Combined

LCU2-6GX Wellsite Emission Summary Table

Source Description	EPN	NOx		CO		Total VOC (Includes Total HAPs)		SO_2		$PM_{10\,\&\,2.5}$		Total HAPs	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
LCU 2-6GX Wellsite Heaters	LCU 2-6GX	0.11	0.49	0.09	0.41	0.01	0.03	0.001	0.003	0.01	0.04	0.002	0.01
LCU 2-6GX Wellsite Fugitive Emissions	LCU 2-6GX	-	-	-	-	0.34	1.48	-	-	-	-	0.01	0.06
LCU 2-6GX Wellsite Condensate Tank Emissions	LCU 2-6GX	-	-	-	-	1.41	6.19	-	-	-	-	0.11	0.47
LCU 2-6GX Wellsite Condensate Truck Loading Emissions	LCU 2-6GX	-	-	-	-	33.25	0.88	-	-	-	-	2.28	0.06
LCU 2-6GX Wellsite TEG Dehydrator Emissions	LCU 2-6GX	-	-	-	-	2.72	11.92	-	-	-	-	1.34	5.85
LCU 2-6GX Wellsite Pumping Unit (Arrow C-96 Pre-July 2008)	LCU 2-6GX	0.56	2.45	0.24	1.04	0.00	0.02	-	-	0.002	0.009	0.006	0.000
Total LCU 2-6GX Emissions for Wellsite	**LCU 2-6GX**	**0.67**	**2.95**	**0.33**	**1.46**	**37.73**	**20.51**	**0.001**	**0.003**	**0.01**	**0.05**	**3.74**	**6.45**

XTO Energy, Inc.

Little Canyon Unit Compressor Station

LCU 2-6GX Dehy Still Column Emissions

Dehy Still Column Emissions (Emission Unit ID: LCU 2-6GX Wellsite)

Emission Component	Uncontrolled Still Column		Controlled Still Column	
	lb/hr	TPY	lb/hr	TPY
Propane	0.106	0.463	NA	NA
H_2S	0.000	0.000	NA	NA
Iso-Butane	0.049	0.213	NA	NA
N-Butane	0.079	0.344	NA	NA
Iso-Pentane	0.050	0.220	NA	NA
N-Pentane	0.050	0.220	NA	NA
Methylcyclopentane	0.000	0.000	NA	NA
n-Hexane	0.047	0.207	NA	NA
Hexane +	0.053	0.231	NA	NA
2,2,4-Trimethylpentane	0.004	0.017	NA	NA
Methycyclohexane	0.152	0.665	NA	NA
Benzene	0.204	0.895	NA	NA
Cyclohexane	0.084	0.368	NA	NA
Heptanes	0.141	0.618	NA	NA
Toluene	0.386	1.691	NA	NA
Ethylbenzene	0.048	0.211	NA	NA
Xylenes	0.650	2.846	NA	NA
Octanes+	0.618	2.706	NA	NA

TOTAL EMISSION SUMMARY	**UNCONTROLLED**		**CONTROLLED**	
Emission Component	**lb/hr**	**TPY**	**lb/hr**	**TPY**
NMNEVOC (Includes TOTAL HAPs)	**2.72**	**11.92**	**NA**	**NA**
TOTAL HAPs	**1.34**	**5.85**	**NA**	**NA**

*Uncontrolled Emissions Based off of Gri-GlyCalc Output

XTO Energy, Inc.

Little Canyon Unit Compressor Station

LCU 2-6GX Wellsite - Reboiler & Heater Burner Calculations

RBU Heaters & Reboiler Emission Calculations (EPN: LCU 2-6GX Wellsite)

Criteria and Regulated Pollutants

				AP-42 Factors lb/MMSCF					lb/hr					tpy				
EPN	Fuel Gas (BTU/SCF)	Operating Hours	Burner Rating (MMBTU/Hr)	NOx	CO	VOC	SO_2	$PM_{10\&2.5}$	NOx	CO	VOC	SO_2	$PM_{10\&2.5}$	NOx	CO	VOC	SO_2	$PM_{10\&2.5}$
LCU 2-6GX Wellsite TK-1	1110.90	8760	0.250	100	84	5.5	0.6	7.6	0.028	0.024	0.002	0.000	0.002	0.123	0.103	0.007	0.001	0.009
LCU 2-6GX Wellsite TK-2	1110.90	8760	0.250	100	84	5.5	0.6	7.6	0.028	0.024	0.002	0.000	0.002	0.123	0.103	0.007	0.001	0.009
LCU 2-6GX Wellsite Dehy Reboiler	1110.90	8760	0.500	100	84	5.5	0.6	7.6	0.056	0.047	0.003	0.000	0.004	0.246	0.207	0.014	0.001	0.019

	NOx	CO	VOC	SO_2	$PM_{10\&2.5}$
Total (tpy)	**0.493**	**0.414**	**0.027**	**0.003**	**0.037**

***Source: AP-42 Table 1.4-1, 1.4-2, & 1.4-3**

***Burners - 80% Efficiency**

XTO Energy, Inc.

Little Canyon Unit Compressor Station

LCU 2-6GX Wellsite - Reboiler & Heater Burner Calculations

RBU Heaters & Reboiler Emission Calculations (EPN: LCU 2-6GX Wellsite)

Hazardous Air Pollutants (HAPs)

				AP-42 Factors lb/MMSCF					lb/hr					tpy				
EPN	Fuel Gas (BTU/SCF)	Operating Hours	Burner Rating (MMBTU/Hr)	Benzene	Toluene	N-Hexane	HCHO	Diclorobenz.	Benzene	Toluene	N-Hexane	HCHO	Diclorobenz	Benzene	Toluene	N-Hexane	HCHO	Diclorobenz
LCU 2-6GX Wellsite TK-1	1110.9	8760	0.250	0.0021	0.0034	1.8	0.0750	0.0012	0.000001	0.000001	0.000506	0.000021	0.000000	0.000003	0.000004	0.002218	0.000092	0.000001
LCU 2-6GX Wellsite TK-2	1110.9	8760	0.250	0.0021	0.0034	1.8	0.0750	0.0012	0.000001	0.000001	0.000506	0.000021	0.000000	0.000003	0.000004	0.002218	0.000092	0.000001
LCU 2-6GX Wellsite Dehy Reboiler	1110.9	8760	0.500	0.0021	0.0034	1.8	0.0750	0.0012	0.000001	0.000002	0.001013	0.000042	0.000001	0.000005	0.000008	0.004436	0.000185	0.000003

***Source: AP-42 Table 1.4-1, 1.4-2, & 1.4-3**

***Burners - 80% Efficiency**

	Benzene	Toluene	Hexane	HCHO	Diclorobenz
Total Individual HAPS (tpy)	**0.000010**	**0.000017**	**0.008871**	**0.000370**	**0.000006**

Total Combined HAPS (tpy)	**0.00927**

XTO Energy, Inc.
Little Canyon Unit Compressor Station
LCU 2-6GX Wellsite - Fugitive Emissions

Fugitive Emission Calculations (EPN: LCU2-6GX Wellsite)

Component Type	Service	Estimated Components Count	Hours	Factors	Total VOC Weight %	Emissions	
						lb/year	tons/year
Valves	Gas/Vapor	75	8760	0.00992000	9.22%	601.0176	0.3005
	Light Oil	10	8760	0.00550000	40.38%	194.5275	0.0973
	Heavy Oil	0	8760	0.00001900	40.38%	0.0000	0.0000
	Water/Light Oil	3	8760	0.00021600	40.38%	2.2919	0.0011
Pumps	Gas/Vapor	3	8760	0.00529000	9.22%	12.8201	0.0064
	Light Oil	1	8760	0.02866000	40.38%	101.3665	0.0507
	Heavy Oil	0	8760	0.00113000	40.38%	0.0000	0.0000
	Water/Light Oil	0	8760	0.00005300	40.38%	0.0000	0.0000
Flanges	Gas/Vapor	150	8760	0.00086000	9.22%	104.2087	0.0521
	Light Oil	15	8760	0.00024300	40.38%	12.8919	0.0064
	Heavy Oil	0	8760	0.00000086	40.38%	0.0000	0.0000
	Water/Light Oil	10	8760	0.00000620	40.38%	0.2193	0.0001
Open-ended Lines	Gas/Vapor	0	8760	0.00441000	9.22%	0.0000	0.0000
	Light Oil	0	8760	0.00309000	40.38%	0.0000	0.0000
	Heavy Oil	0	8760	0.00030900	40.38%	0.0000	0.0000
	Water/Light Oil	0	8760	0.00055000	40.38%	0.0000	0.0000
Connectors	Gas/Vapor	10	8760	0.00044000	9.22%	3.5544	0.0018
	Light Oil	10	8760	0.00046300	40.38%	16.3757	0.0082
	Heavy Oil	0	8760	0.00001700	40.38%	0.0000	0.0000
	Water/Light Oil	10	8760	0.00024300	40.38%	8.5946	0.0043
Other:	Gas/Vapor	5	8760	0.01940000	9.22%	78.3585	0.0392
	Light Oil	5	8760	0.01650000	40.38%	291.7912	0.1459
	Heavy Oil	0	8760	0.00006800	40.38%	0.0000	0.0000
	Water/Light Oil	5	8760	0.03090000	40.38%	546.4453	0.2732

	lb/hr	lb/year	TPY
Total VOC Emissions	0.338	2961.695	1.481
HAPs	0.014	122.123	0.061

NOTE 1: Compressors, relief valves, process drains, diaphragms, dump arms, hatches, instruments, meters, polished rods, and vents
NOTE 2: A safety factor of 50% is applied to the VOC and HAPs Fugitive Emissions

XTO Energy, Inc.
Little Canyon Unit Compressor Station
LCU 2-6GX Wellsite - Tanks - Flashing, Working, & Breathing

Tank Emissions (EPN: LCU 2-6GX Wellsite)

Average BOPD	Number of Condensate Tanks	Emissions Controlled (Yes/No)	Control Type (Flare, VRU, etc)
26	2	No	N/A

Total Emissions - All Tanks Combined[1]			
VOC Emissions		HAP Emissions	
1.41	lb/hr	0.11	lb/hr
6.19	tpy	0.47	tpy

* *Emissions estimated using E&P Tank V2.0 and the liquids analysis for the RBU 18-10E well.*

[1] *A safety factor of 50% was added to total tank emissions.*

XTO Energy, Inc.

Little Canyon Unit Compressor Station

LCU 2-6GX Wellsite - Truck Loading Losses - Condensate

Truck Loading Losses Calculations (EPN: LCU 2-6GX Wellsite)

Average BOPD	**26**

LL= 12.46 * SPM/T * (1-EFF/100)

Saturation Factor (S) =	0.6
True Vapor Pressure of liquid loaded (P) =	6.0
Temperature of bulk liquid loaded in Rankin (T) =	510
Molecular Weight (M)[1] =	50.00
Control Efficiency * Collection Efficiency (EFF)=	0
LL (lb Total HC / bbl Throughput) =	0.1847
LL (lb VOC / bbl Throughput) =	0.1847
Estimated Throughput (bbls/Year) =	9490
Truck Loading Rate (bbls/hour) =	180
Estimated # of Loads (Approximately 1 hr/Load) =	53

	lb/hr	TPY
Total VOC Emissions	33.25	0.88
Total HAP Emissions	2.28	0.06

NOTE 1: Molecular Weight is AP-42 Table 7.1-2 using Crude Oil RVP 5. For conservative emissions estimates the loading temperature is assumed to 50 °F

XTO Energy, Inc.
Little Canyon Unit Compressor Station
LCU 2-6GX Wellsite - Pumping Unit Emissions

Emission Calculations - Pumping Unit (EPN: LCU 2-6GX Wellsite)

					Manufacturer's Data g/hp-hr			AP-42 Factors lb/MMBtu	lb/hr				tpy			
Unit Description	EPN	Yearly Operating Hours	Rated HP	MMbtu/hp-hr (HHV)	NOx	CO	VOC*	$PM_{10 \& 2.5}$	NOx	CO	VOC*	$PM_{10 \& 2.5}$	NOx	CO	VOC*	$PM_{10 \& 2.5}$
LCU 2-6GX Wellsite Pumping Unit (Arrow C-96 Pre-July 2008)	PU	8760	21.4	0.0095	11.87	5.05	0.09	0.00991	0.56	0.24	0.00	0.00	2.45	1.04	0.02	0.01

* The guaranteed emission rate provided by the manufacturer and used in these calculations is for total hydrocarbons.

Total Emissions Per Pollutant (TPY)	NOx	CO	VOC*	$PM_{10 \& 2.5}$
	2.45	**1.04**	**0.02**	**0.01**

					AP-42 Factors lb/MMBtu				lb/hr				tpy			
Unit Description	EPN	Yearly Operating Hours	Rated HP	MMbtu/hp-hr (HHV)	Benzene	Acetaldehyde	HCHO	Acrolein	Benzene	Acetaldehyde	HCHO	Acrolein	Benzene	Acetaldehyde	HCHO	Acrolein
LCU 2-6GX Wellsite Pumping Unit (Arrow C-96 Pre-July 2008)	PU	8760	21.4	0.0095	1.58E-03	2.79E-03	2.05E-02	2.63E-03	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00

Total Emissions Per Pollutant (TPY)	Benzene	Toluene	E-Benzene	Acrolein
	0.00	**0.00**	**0.02**	**0.00**

Total Emissions Per Pollutant (TPY) HAPs	0.024

XTO Energy, Inc.

Little Canyon Unit Compressor Station

Liquid Flash Analysis to Estimate Fugitive Oil Emissions

Conversion of Mole Percent to Weight Percent

Component	Mole %	MW	Mole % * MW	Weight %
Carbon Dioxide	0.4200	44.01	0.1849	0.688%
Nitrogen	0.0000	28.01	0.0000	0.000%
Hydrogen Sulfide	0.0000	34.02	0.0000	0.000%
Helium	0.0000	4.00	0.0000	0.000%
Methane	59.5270	16.04	9.5493	35.558%
Ethane	20.8800	30.07	6.2783	23.378%
Propane	9.8260	44.10	4.3333	16.136%
Iso-Butane	2.3010	58.12	1.3373	4.980%
N-Butane	2.8290	58.12	1.6442	6.122%
Iso-Pentane	1.1180	72.15	0.8066	3.004%
N-Pentane	0.9100	72.15	0.6566	2.445%
Methylcyclopentane	0.0000	86.00	0.0000	0.000%
n-Hexane	0.0000	86.18	0.0000	0.000%
Hexanes	0.5340	86.16	0.4601	1.713%
2,2,4-Trimethylpentane	0.0000	114.24	0.0000	0.000%
Methycyclohexane	0.0000	96.00	0.0000	0.000%
Benzene	0.4800	78.11	0.3749	1.396%
Cyclohexane	0.0000	84.51	0.0000	0.000%
Heptanes	0.3750	100.20	0.3758	1.399%
Toluene	0.2630	92.13	0.2423	0.902%
Ethylbenzene	0.0110	106.17	0.0117	0.043%
Xylenes	0.1080	106.17	0.1147	0.427%
Octanes+	0.3430	114.23	0.3918	1.459%
Nonanes+	0.0730	128.28	0.0936	0.349%
Decanes+	0.0000	223.02	0.0000	0.000%
Total	100.00	-	26.86	100.000%

Molecular Weight	26.86	
NMHC	17.1212	63.753%
VOCs (NMNEHC)	10.8429	40.375%
HAPs	0.7436	2.77%
H2S Mole Fraction	0.0000	0.000%
Total HC	26.6705	99.312%
THC:VOC Ratio	40.6550	40.655%

* Analysis taken from RBU 18-10 E analysis dated December 10, 2012

G3512

NON-CURRENT

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA

CATERPILLAR®

ENGINE SPEED (rpm):	1200	RATING STRATEGY:	STANDARD
COMPRESSION RATIO:	8	RATING LEVEL:	CONTINUOUS
AFTERCOOLER TYPE:	SCAC	FUEL SYSTEM:	HPG IMPCO
AFTERCOOLER WATER INLET (°F):	130	**SITE CONDITIONS:**	
JACKET WATER OUTLET (°F):	210	FUEL:	Field Gas
ASPIRATION:	TA	FUEL PRESSURE RANGE(psig): (See note 1)	35.0-40.0
COOLING SYSTEM:	JW+OC, AC	FUEL METHANE NUMBER:	62.1
CONTROL SYSTEM:	EIS	FUEL LHV (Btu/scf):	1027
EXHAUST MANIFOLD:	ASWC	ALTITUDE(ft):	500
COMBUSTION:	LOW EMISSION	MAXIMUM INLET AIR TEMPERATURE(°F):	77
NOx EMISSION LEVEL (g/bhp-hr NOx):	2.0	STANDARD RATED POWER:	810 bhp@1200rpm
SET POINT TIMING:	27		

			MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE		
RATING	**NOTES**	**LOAD**	**100%**	**100%**	**75%**	**50%**
ENGINE POWER (WITHOUT FAN)	(2)	bhp	810	810	607	405
INLET AIR TEMPERATURE		°F	77	77	77	77
ENGINE DATA						
FUEL CONSUMPTION (LHV)	(3)	Btu/bhp-hr	7545	7545	7742	8085
FUEL CONSUMPTION (HHV)	(3)	Btu/bhp-hr	8337	8337	8554	8933
AIR FLOW (@inlet air temp, 14.7 psia) (WET)	(4)(5)	ft3/min	1679	1679	1218	832
AIR FLOW (WET)	(4)(5)	lb/hr	7446	7446	5399	3690
FUEL FLOW (60°F, 14.7 psia)		scfm	99	99	76	53
INLET MANIFOLD PRESSURE	(6)	in Hg(abs)	60.2	60.2	45.4	32.0
EXHAUST TEMPERATURE - ENGINE OUTLET	(7)	°F	842	842	827	818
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET)	(8)(5)	ft3/min	4406	4406	3171	2154
EXHAUST GAS MASS FLOW (WET)	(8)(5)	lb/hr	7740	7740	5625	3848
EMISSIONS DATA - ENGINE OUT						
NOx (as NO2)	(9)(10)	g/bhp-hr	2.00	2.00	3.30	3.30
CO	(9)(10)	g/bhp-hr	2.25	2.25	2.53	2.67
THC (mol. wt. of 15.84)	(9)(10)	g/bhp-hr	2.71	2.71	2.45	2.80
NMHC (mol. wt. of 15.84)	(9)(10)	g/bhp-hr	0.70	0.70	0.63	0.73
NMNEHC (VOCs) (mol. wt. of 15.84)	(9)(10)(11)	g/bhp-hr	0.47	0.47	0.43	0.49
HCHO (Formaldehyde)	(9)(10)	g/bhp-hr	0.28	0.28	0.31	0.34
CO2	(9)(10)	g/bhp-hr	523	523	537	561
EXHAUST OXYGEN	(9)(12)	% DRY	7.9	7.9	7.1	6.8
HEAT REJECTION						
HEAT REJ. TO JACKET WATER (JW)	(13)	Btu/min	27455	27455	23482	18006
HEAT REJ. TO ATMOSPHERE	(13)	Btu/min	3643	3643	3036	2429
HEAT REJ. TO LUBE OIL (OC)	(13)	Btu/min	4341	4341	3713	2847
HEAT REJ. TO AFTERCOOLER (AC)	(13)(14)	Btu/min	4512	4512	2742	758

COOLING SYSTEM SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+OC)	(14)	Btu/min	35410
TOTAL AFTERCOOLER CIRCUIT (AC)	(14)(15)	Btu/min	4738
A cooling system safety factor of 0% has been added to the cooling system sizing criteria.			

CONDITIONS AND DEFINITIONS

Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature. 100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature. Maximum rating is the maximum capability at the specified aftercooler inlet temperature for the specified fuel at site altitude and reduced inlet air temperature. Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

For notes information consult page three.

PREPARED BY:
Data generated by Gas Engine Rating Pro Version 6.03.00
Ref. Data Set DM0150-11-001, 7NJ, Printed 04Oct2016

EmeraChem IC Engine Catalyst Quote

Quote Reference Number: 2014-2-26-RJM-3512LE-1200rpm-810HP

Customer & Project Information

Date:	2/26/2014
Customer Name:	RJ Mann
Project Name:	Caterpillar
Application Engineer:	Steve Hess

Engine Operating Data

Engine Make	Caterpillar	
Engine Model	3512LE	
Fuel Type	NG	
Engine Horsepower	810	bhp
Engine Speed	1,200	rpm
Operating Hours	8760	hr/year
Combustion Cycle - 2 vs 4 cycle	4	
Lean Burn / Rich Burn	lean	

Engine Exhaust Flow Rate

Engine Exhaust Temperature	801	F
Catalyst Operating Temperature	751	F
Exhaust Gas Flow Rate	190,095	scfh
Exhaust Gas Flow Rate	7,683	acfm
Exhaust Gas Flow Rate	14,445	lb/hr
Exhaust Gas Oxygen Concentration	8.2%	
Exhaust Gas Water Concentration	11.0%	

Engine Uncontrolled Emissions

	NOx	CO	NMNEHC	CH2O
g/bhp-hr		1.6	0.47	
g/hr		1,296	381	
lb/hr		2.86	0.84	
tons/year		12.51	3.68	
MW		28.00	44.00	
scfh		39	7	
mg/Nm3		241	71	
ppmv (wet; actual O2)		203	38	
ppmv (dry; actual O2)		229	43	
ppmv (dry; 15% O2)		66	12	

Emissions Requirement

	NOx	CO	NMNEHC	CH2O
g/bhp-hr		1.6	0.47	
g/hr		1,296	381	
lb/hr		2.86	0.84	
tons/year		12.51	3.68	
MW		28.00	44.00	
scfh		39	7	
mg/Nm3		241	71	
ppmv (wet; actual O2)		203	38	
ppmv (dry; actual O2)		229	43	
ppmv (dry; 15% O2)		66	12	

Catalyst DRE Requirement

NOx	CO	NMNEHC	CH2O
	0.0	0.0	

Catalyst Outlet For Chosen Module(s)

	NOx	CO	NMNEHC	CH2O	GHSV
resulting g/BHP-hr		0.09	0.14		
DRE		94.1	71.3	86.6	216,388

Catalyst Information

Catalyst Part Number:	EC-OX-PX-RO-2350-0000-3500	
Catalyst Type:	CO Oxidation	
Warranty (years)	3	
Catalyst Formulation	Performax	
New Install or Replacement	Replacement	
Catalyst Shape	Round	
Number of Catalyst Elements	1	
Modificaitons:	Without Bonnet	
CPSI	300	
Depth	3.5	inches
Diameter	23.500	inches
		inches
Catalyst Volume	0.88	ft^3 (total)
Space Velocity	216,388	1/hr
Maximum Pressure Drop	12.0	in. H_2O
Design Pressure Drop	4.9	in. H2O

Housing and Silencer Information

Housing Supplier:	Other
Housing Part Number	
Silencer Grade	
Silencer Attenuation	
Inlet Flange Size	
Outlet Flange Size	
Material	
Trunion	
Housing Design Pressure Drop	0.0
Silencer Design Pressure Drop	0.0
Total Pressure Drop	4.9

Comments:

G3516 LE

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA

Uinta Cat 3516LE – TNP 5 Compressor #1 (T5C-1)

CATERPILLAR®

ENGINE SPEED (rpm):	1400
COMPRESSION RATIO:	8:1
AFTERCOOLER WATER INLET (°F):	130
JACKET WATER OUTLET (°F):	210
COOLING SYSTEM:	JW+OC , AC
IGNITION SYSTEM:	ADEM3
EXHAUST MANIFOLD:	ASWC
COMBUSTION:	Low Emission
NOx EMISSION LEVEL (g/bhp-hr NOx):	1.5
SET POINT TIMING:	27.4

FUEL SYSTEM:	HPG IMPCO WITH AIR FUEL RATIO CONTROL
SITE CONDITIONS:	
FUEL:	Field Gas
FUEL PRESSURE RANGE(psig):	35.0-40.0
FUEL METHANE NUMBER:	62.2
FUEL LHV (Btu/scf):	1027
ALTITUDE(ft):	5800
MAXIMUM INLET AIR TEMPERATURE(°F):	55
NAMEPLATE RATING:	1340 bhp@1400rpm

ENGINE POWER	(1)	bhp	1340	1260	945	670
INLET AIR TEMPERATURE		°F	32	55	55	55

FUEL CONSUMPTION (LHV)	(2)	Btu/bhp-hr	7722	7778	8055	8518
FUEL CONSUMPTION (HHV)	(2)	Btu/bhp-hr	8532	8594	8901	9412
AIR FLOW	(3)(4)	lb/hr	12692	11944	9030	6604
AIR FLOW WET (77°F, 14.7 psia)	(3)(4)	scfm	2862	2694	2036	1489
INLET MANIFOLD PRESSURE	(5)	in Hg(abs)	70.0	66.5	52.3	39.3
EXHAUST STACK TEMPERATURE	(6)	°F	907	907	908	911
EXHAUST GAS FLOW (@ stack temp, 14.5 psia)	(7)(4)	ft3/min	7882	7419	5620	4126
EXHAUST GAS MASS FLOW	(7)(4)	lb/hr	13190	12415	9396	6879

NOx (as NO2)	(8)	g/bhp-hr	1.50	1.50	1.50	1.50
CO	(8)	g/bhp-hr	2.31	2.34	2.45	2.61
THC (mol. wt. of 15.84)	(8)	g/bhp-hr	2.43	2.45	2.56	2.72
NMHC (mol. wt. of 15.84)	(8)	g/bhp-hr	0.63	0.64	0.66	0.71
NMNEHC (VOCs) (mol. wt. of 15.84)	(8)(9)	g/bhp-hr	0.42	0.43	0.45	0.47
HCHO (Formaldehyde)	(8)	g/bhp-hr	0.22	0.22	0.23	0.24
CO2	(8)	g/bhp-hr	509	511	522	545
EXHAUST OXYGEN	(10)	% DRY	7.9	7.8	7.7	7.6

HEAT REJ. TO JACKET WATER (JW)	(11)	Btu/min	43666	42171	35699	29897
HEAT REJ. TO ATMOSPHERE	(11)	Btu/min	5313	5102	4269	3543
HEAT REJ. TO LUBE OIL (OC)	(11)	Btu/min	6512	6289	5324	4459
HEAT REJ. TO AFTERCOOLER (AC)	(11)(12)	Btu/min	9473	9473	5270	2111

TOTAL JACKET WATER CIRCUIT (JW+OC)	(12)	Btu/min	55848
TOTAL AFTERCOOLER CIRCUIT (AC)	(12)(13)	Btu/min	9946
A cooling system safety factor of 0% has been added to the heat exchanger sizing criteria.			

CONDITIONS AND DEFINITIONS

Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature.
100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature.
Max. rating is the maximum capability for the specified fuel at site altitude and reduced inlet air temperature.
Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

For notes information consult page three.

PREPARED BY: craig allison, XTO
Data generated by Gas Engine Rating Pro Version 3.02.00
Ref. Data Set DM8618-00-001, Printed 03Apr2009

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: LCU TEG Dehydration System
File Name: C:\Users\ETullos\Desktop\Work\142 - XTO\LCU Syn Minor_Dehy and Tank Models\LCU LCD-1 PTE.ddf
Date: September 18, 2013

DESCRIPTION:

Description: 25 mmmscfd
Gas Analysis - 06/15/2012
45015 Kimray Glycol Pump
Glycol Still to TOx

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 79.00 deg. F
Pressure: 475.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	0.3477
Nitrogen	0.3648
Methane	90.7292
Ethane	5.3537
Propane	1.9415
Isobutane	0.3949
n-Butane	0.4703
Isopentane	0.1549
n-Pentane	0.1077
n-Hexane	0.0263
Cyclohexane	0.0087
Other Hexanes	0.0486
Heptanes	0.0185
Methylcyclohexane	0.0096
2,2,4-Trimethylpentane	0.0012
Benzene	0.0039
Toluene	0.0044
Xylenes	0.0041
C8+ Heavies	0.0100

DRY GAS:

Flow Rate: 25.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 7.5 gpm

PUMP:

Glycol Pump Type: Gas Injection
Gas Injection Pump Volume Ratio: 0.032 acfm gas/gpm glycol

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 120.0 deg. F
Pressure: 70.0 psig

REGENERATOR OVERHEADS CONTROL DEVICE:

Control Device: Combustion Device
Destruction Efficiency: 95.0 %
Excess Oxygen: 5.0 %
Ambient Air Temperature: 55.0 deg. F

GRI-GLYCalc VERSION 4.0 - EMISSIONS SUMMARY

Case Name: LCU TEG Dehydration System
File Name: C:\Users\ETullos\Desktop\Work\142 - XTO\LCU Syn Minor_Dehy and Tank Models\LCU LCD-1 PTE.ddf
Date: September 18, 2013

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.0558	1.339	0.2444
Ethane	0.0351	0.842	0.1536
Propane	0.0527	1.265	0.2309
Isobutane	0.0270	0.647	0.1181
n-Butane	0.0492	1.180	0.2153
Isopentane	0.0243	0.583	0.1065
n-Pentane	0.0242	0.581	0.1060
n-Hexane	0.0161	0.387	0.0707
Cyclohexane	0.0292	0.700	0.1278
Other Hexanes	0.0203	0.487	0.0888
Heptanes	0.0327	0.785	0.1432
Methylcyclohexane	0.0477	1.144	0.2089
2,2,4-Trimethylpentane	0.0009	0.022	0.0040
Benzene	0.1049	2.518	0.4595
Toluene	0.2044	4.905	0.8951
Xylenes	0.3613	8.671	1.5825
C8+ Heavies	0.1426	3.422	0.6245
Total Emissions	1.2282	29.477	5.3796
Total Hydrocarbon Emissions	1.2282	29.477	5.3796
Total VOC Emissions	1.1374	27.296	4.9816
Total HAP Emissions	0.6876	16.503	3.0117
Total BTEX Emissions	0.6706	16.093	2.9370

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	1.1158	26.779	4.8872
Ethane	0.7015	16.836	3.0726
Propane	1.0543	25.304	4.6180
Isobutane	0.5391	12.939	2.3614
n-Butane	0.9833	23.599	4.3069
Isopentane	0.4862	11.669	2.1297
n-Pentane	0.4838	11.612	2.1191
n-Hexane	0.3227	7.745	1.4135
Cyclohexane	0.5835	14.003	2.5556
Other Hexanes	0.4055	9.731	1.7759
Heptanes	0.6539	15.693	2.8639
Methylcyclohexane	0.9537	22.888	4.1771
2,2,4-Trimethylpentane	0.0183	0.439	0.0802
Benzene	2.0981	50.355	9.1897
Toluene	4.0872	98.093	17.9019
Xylenes	7.2258	173.420	31.6492
C8+ Heavies	2.8516	68.437	12.4898
Total Emissions	24.5643	589.543	107.5916

Total Hydrocarbon Emissions	24.5643	589.543	107.5916
Total VOC Emissions	22.7470	545.928	99.6319
Total HAP Emissions	13.7522	330.052	60.2345
Total BTEX Emissions	13.4112	321.868	58.7409

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	24.5463	589.110	107.5127
Ethane	4.2115	101.077	18.4465
Propane	2.9650	71.160	12.9867
Isobutane	0.9800	23.519	4.2923
n-Butane	1.3521	32.451	5.9223
Isopentane	0.5726	13.742	2.5078
n-Pentane	0.4526	10.862	1.9823
n-Hexane	0.1626	3.903	0.7123
Cyclohexane	0.0720	1.728	0.3153
Other Hexanes	0.2713	6.512	1.1885
Heptanes	0.1562	3.749	0.6841
Methylcyclohexane	0.0904	2.169	0.3958
2,2,4-Trimethylpentane	0.0088	0.211	0.0386
Benzene	0.0357	0.857	0.1564
Toluene	0.0433	1.040	0.1899
Xylenes	0.0299	0.719	0.1312
C8+ Heavies	0.0582	1.397	0.2550
Total Emissions	36.0086	864.206	157.7176
Total Hydrocarbon Emissions	36.0086	864.206	157.7176
Total VOC Emissions	7.2508	174.019	31.7585
Total HAP Emissions	0.2804	6.730	1.2282
Total BTEX Emissions	0.1090	2.616	0.4774

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.0558	1.339	0.2444
Ethane	0.0351	0.842	0.1536
Propane	0.0527	1.265	0.2309
Isobutane	0.0270	0.647	0.1181
n-Butane	0.0492	1.180	0.2153
Isopentane	0.0243	0.583	0.1065
n-Pentane	0.0242	0.581	0.1060
n-Hexane	0.0161	0.387	0.0707
Cyclohexane	0.0292	0.700	0.1278
Other Hexanes	0.0203	0.487	0.0888
Heptanes	0.0327	0.785	0.1432
Methylcyclohexane	0.0477	1.144	0.2089
2,2,4-Trimethylpentane	0.0009	0.022	0.0040
Benzene	0.1049	2.518	0.4595
Toluene	0.2044	4.905	0.8951

Xylenes	0.3613	8.671	1.5825
C8+ Heavies	0.1426	3.422	0.6245
Total Emissions	1.2282	29.477	5.3796
Total Hydrocarbon Emissions	1.2282	29.477	5.3796
Total VOC Emissions	1.1374	27.296	4.9816
Total HAP Emissions	0.6876	16.503	3.0117
Total BTEX Emissions	0.6706	16.093	2.9370

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: LCU TEG Dehydration System
File Name: C:\Users\ETullos\Desktop\Work\142 - XTO\LCU Syn Minor_Dehy and Tank Models\LCU LCD-1 PTE.ddf
Date: September 18, 2013

DESCRIPTION:

Description: 25 mmmscfd
Gas Analysis - 06/15/2012
45015 Kimray Glycol Pump
Glycol Still to TOx

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.0558	1.339	0.2444
Ethane	0.0351	0.842	0.1536
Propane	0.0527	1.265	0.2309
Isobutane	0.0270	0.647	0.1181
n-Butane	0.0492	1.180	0.2153
Isopentane	0.0243	0.583	0.1065
n-Pentane	0.0242	0.581	0.1060
n-Hexane	0.0161	0.387	0.0707
Cyclohexane	0.0292	0.700	0.1278
Other Hexanes	0.0203	0.487	0.0888
Heptanes	0.0327	0.785	0.1432
Methylcyclohexane	0.0477	1.144	0.2089
2,2,4-Trimethylpentane	0.0009	0.022	0.0040
Benzene	0.1049	2.518	0.4595
Toluene	0.2044	4.905	0.8951
Xylenes	0.3613	8.671	1.5825
C8+ Heavies	0.1426	3.422	0.6245
Total Emissions	1.2282	29.477	5.3796
Total Hydrocarbon Emissions	1.2282	29.477	5.3796
Total VOC Emissions	1.1374	27.296	4.9816
Total HAP Emissions	0.6876	16.503	3.0117
Total BTEX Emissions	0.6706	16.093	2.9370

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	1.1158	26.779	4.8872
Ethane	0.7015	16.836	3.0726
Propane	1.0543	25.304	4.6180
Isobutane	0.5391	12.939	2.3614
n-Butane	0.9833	23.599	4.3069
Isopentane	0.4862	11.669	2.1297
n-Pentane	0.4838	11.612	2.1191
n-Hexane	0.3227	7.745	1.4135

Cyclohexane	0.5835	14.003	2.5556
Other Hexanes	0.4055	9.731	1.7759
Heptanes	0.6539	15.693	2.8639
Methylcyclohexane	0.9537	22.888	4.1771
2,2,4-Trimethylpentane	0.0183	0.439	0.0802
Benzene	2.0981	50.355	9.1897
Toluene	4.0872	98.093	17.9019
Xylenes	7.2258	173.420	31.6492
C8+ Heavies	2.8516	68.437	12.4898
Total Emissions	24.5643	589.543	107.5916
Total Hydrocarbon Emissions	24.5643	589.543	107.5916
Total VOC Emissions	22.7470	545.928	99.6319
Total HAP Emissions	13.7522	330.052	60.2345
Total BTEX Emissions	13.4112	321.868	58.7409

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	24.5463	589.110	107.5127
Ethane	4.2115	101.077	18.4465
Propane	2.9650	71.160	12.9867
Isobutane	0.9800	23.519	4.2923
n-Butane	1.3521	32.451	5.9223
Isopentane	0.5726	13.742	2.5078
n-Pentane	0.4526	10.862	1.9823
n-Hexane	0.1626	3.903	0.7123
Cyclohexane	0.0720	1.728	0.3153
Other Hexanes	0.2713	6.512	1.1885
Heptanes	0.1562	3.749	0.6841
Methylcyclohexane	0.0904	2.169	0.3958
2,2,4-Trimethylpentane	0.0088	0.211	0.0386
Benzene	0.0357	0.857	0.1564
Toluene	0.0433	1.040	0.1899
Xylenes	0.0299	0.719	0.1312
C8+ Heavies	0.0582	1.397	0.2550
Total Emissions	36.0086	864.206	157.7176
Total Hydrocarbon Emissions	36.0086	864.206	157.7176
Total VOC Emissions	7.2508	174.019	31.7585
Total HAP Emissions	0.2804	6.730	1.2282
Total BTEX Emissions	0.1090	2.616	0.4774

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.0558	1.339	0.2444
Ethane	0.0351	0.842	0.1536
Propane	0.0527	1.265	0.2309

Isobutane	0.0270	0.647	0.1181
n-Butane	0.0492	1.180	0.2153
Isopentane	0.0243	0.583	0.1065
n-Pentane	0.0242	0.581	0.1060
n-Hexane	0.0161	0.387	0.0707
Cyclohexane	0.0292	0.700	0.1278
Other Hexanes	0.0203	0.487	0.0888
Heptanes	0.0327	0.785	0.1432
Methylcyclohexane	0.0477	1.144	0.2089
2,2,4-Trimethylpentane	0.0009	0.022	0.0040
Benzene	0.1049	2.518	0.4595
Toluene	0.2044	4.905	0.8951
Xylenes	0.3613	8.671	1.5825
C8+ Heavies	0.1426	3.422	0.6245
Total Emissions	1.2282	29.477	5.3796
Total Hydrocarbon Emissions	1.2282	29.477	5.3796
Total VOC Emissions	1.1374	27.296	4.9816
Total HAP Emissions	0.6876	16.503	3.0117
Total BTEX Emissions	0.6706	16.093	2.9370

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	112.3998	0.2444	99.78
Ethane	21.5191	0.1536	99.29
Propane	17.6047	0.2309	98.69
Isobutane	6.6537	0.1181	98.23
n-Butane	10.2292	0.2153	97.89
Isopentane	4.6375	0.1065	97.70
n-Pentane	4.1015	0.1060	97.42
n-Hexane	2.1257	0.0707	96.68
Cyclohexane	2.8709	0.1278	95.55
Other Hexanes	2.9644	0.0888	97.00
Heptanes	3.5481	0.1432	95.96
Methylcyclohexane	4.5729	0.2089	95.43
2,2,4-Trimethylpentane	0.1188	0.0040	96.62
Benzene	9.3461	0.4595	95.08
Toluene	18.0918	0.8951	95.05
Xylenes	31.7804	1.5825	95.02
C8+ Heavies	12.7448	0.6245	95.10
Total Emissions	265.3092	5.3796	97.97
Total Hydrocarbon Emissions	265.3092	5.3796	97.97
Total VOC Emissions	131.3903	4.9816	96.21
Total HAP Emissions	61.4628	3.0117	95.10
Total BTEX Emissions	59.2183	2.9370	95.04

EQUIPMENT REPORTS:

COMBUSTION DEVICE

Ambient Temperature:	55.00 deg. F
Excess Oxygen:	5.00 %
Combustion Efficiency:	95.00 %
Supplemental Fuel Requirement:	1.15e-001 MM BTU/hr

Component	Emitted	Destroyed
Methane	5.00%	95.00%
Ethane	5.00%	95.00%
Propane	5.00%	95.00%
Isobutane	5.00%	95.00%
n-Butane	5.00%	95.00%
Isopentane	5.00%	95.00%
n-Pentane	5.00%	95.00%
n-Hexane	5.00%	95.00%
Cyclohexane	5.00%	95.00%
Other Hexanes	5.00%	95.00%
Heptanes	5.00%	95.00%
Methylcyclohexane	5.00%	95.00%
2,2,4-Trimethylpentane	5.00%	95.00%
Benzene	5.00%	95.00%
Toluene	5.00%	95.00%
Xylenes	5.00%	95.00%
C8+ Heavies	5.00%	95.00%

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25
Calculated Dry Gas Dew Point:	2.32 lbs. H2O/MMSCF
Temperature:	79.0 deg. F
Pressure:	475.0 psig
Dry Gas Flow Rate:	25.0000 MMSCF/day
Glycol Losses with Dry Gas:	0.0527 lb/hr
Wet Gas Water Content:	Saturated
Calculated Wet Gas Water Content:	54.90 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	8.21 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	4.22%	95.78%
Carbon Dioxide	99.72%	0.28%
Nitrogen	99.98%	0.02%
Methane	99.98%	0.02%
Ethane	99.94%	0.06%
Propane	99.88%	0.12%
Isobutane	99.81%	0.19%
n-Butane	99.74%	0.26%
Isopentane	99.70%	0.30%
n-Pentane	99.61%	0.39%
n-Hexane	99.27%	0.73%
Cyclohexane	96.79%	3.21%
Other Hexanes	99.46%	0.54%

Heptanes	98.46%	1.54%
Methylcyclohexane	96.01%	3.99%
2,2,4-Trimethylpentane	99.33%	0.67%
Benzene	74.54%	25.46%
Toluene	62.95%	37.05%
Xylenes	39.35%	60.65%
C8+ Heavies	93.83%	6.17%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 120.0 deg. F
Flash Pressure: 70.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.96%	0.04%
Carbon Dioxide	36.12%	63.88%
Nitrogen	4.26%	95.74%
Methane	4.35%	95.65%
Ethane	14.28%	85.72%
Propane	26.23%	73.77%
Isobutane	35.49%	64.51%
n-Butane	42.10%	57.90%
Isopentane	46.16%	53.84%
n-Pentane	51.88%	48.12%
n-Hexane	66.65%	33.35%
Cyclohexane	89.36%	10.64%
Other Hexanes	60.28%	39.72%
Heptanes	80.81%	19.19%
Methylcyclohexane	91.69%	8.31%
2,2,4-Trimethylpentane	67.97%	32.03%
Benzene	98.41%	1.59%
Toluene	99.03%	0.97%
Xylenes	99.64%	0.36%
C8+ Heavies	98.24%	1.76%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	53.58%	46.42%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.94%	99.06%
n-Pentane	0.86%	99.14%
n-Hexane	0.70%	99.30%
Cyclohexane	3.53%	96.47%
Other Hexanes	1.53%	98.47%

Heptanes	0.60%	99.40%
Methylcyclohexane	4.31%	95.69%
2,2,4-Trimethylpentane	2.06%	97.94%
Benzene	5.07%	94.93%
Toluene	7.97%	92.03%
Xylenes	12.94%	87.06%
C8+ Heavies	12.15%	87.85%

STREAM REPORTS:

WET GAS STREAM

Temperature: 79.00 deg. F
Pressure: 489.70 psia
Flow Rate: 1.04e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.16e-001	5.73e+001
Carbon Dioxide	3.47e-001	4.20e+002
Nitrogen	3.64e-001	2.81e+002
Methane	9.06e+001	4.00e+004
Ethane	5.35e+000	4.42e+003
Propane	1.94e+000	2.35e+003
Isobutane	3.94e-001	6.30e+002
n-Butane	4.70e-001	7.51e+002
Isopentane	1.55e-001	3.07e+002
n-Pentane	1.08e-001	2.13e+002
n-Hexane	2.63e-002	6.22e+001
Cyclohexane	8.69e-003	2.01e+001
Other Hexanes	4.85e-002	1.15e+002
Heptanes	1.85e-002	5.09e+001
Methylcyclohexane	9.59e-003	2.59e+001
2,2,4-Trimethylpentane	1.20e-003	3.76e+000
Benzene	3.90e-003	8.37e+000
Toluene	4.39e-003	1.11e+001
Xylenes	4.10e-003	1.20e+001
C8+ Heavies	9.99e-003	4.68e+001
Total Components	100.00	4.98e+004

DRY GAS STREAM

Temperature: 79.00 deg. F
Pressure: 489.70 psia
Flow Rate: 1.04e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	4.88e-003	2.41e+000
Carbon Dioxide	3.47e-001	4.19e+002
Nitrogen	3.65e-001	2.81e+002
Methane	9.07e+001	4.00e+004
Ethane	5.35e+000	4.42e+003
Propane	1.94e+000	2.35e+003

Isobutane	3.94e-001	6.29e+002
n-Butane	4.69e-001	7.49e+002
Isopentane	1.54e-001	3.06e+002
n-Pentane	1.07e-001	2.13e+002
n-Hexane	2.61e-002	6.18e+001
Cyclohexane	8.42e-003	1.95e+001
Other Hexanes	4.84e-002	1.14e+002
Heptanes	1.82e-002	5.01e+001
Methylcyclohexane	9.22e-003	2.49e+001
2,2,4-Trimethylpentane	1.19e-003	3.74e+000
Benzene	2.91e-003	6.24e+000
Toluene	2.77e-003	7.01e+000
Xylenes	1.61e-003	4.70e+000
C8+ Heavies	9.39e-003	4.39e+001
Total Components	100.00	4.97e+004

LEAN GLYCOL STREAM

Temperature: 79.00 deg. F
Flow Rate: 7.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	4.15e+003
Water	1.50e+000	6.33e+001
Carbon Dioxide	2.74e-012	1.16e-010
Nitrogen	1.19e-013	5.03e-012
Methane	5.40e-018	2.28e-016
Ethane	3.16e-008	1.33e-006
Propane	2.81e-009	1.18e-007
Isobutane	8.68e-010	3.66e-008
n-Butane	1.16e-009	4.91e-008
Isopentane	1.09e-004	4.59e-003
n-Pentane	9.95e-005	4.20e-003
n-Hexane	5.43e-005	2.29e-003
Cyclohexane	5.06e-004	2.14e-002
Other Hexanes	1.49e-004	6.29e-003
Heptanes	9.36e-005	3.95e-003
Methylcyclohexane	1.02e-003	4.30e-002
2,2,4-Trimethylpentane	9.14e-006	3.86e-004
Benzene	2.66e-003	1.12e-001
Toluene	8.39e-003	3.54e-001
Xylenes	2.55e-002	1.07e+000
C8+ Heavies	9.35e-003	3.94e-001
Total Components	100.00	4.22e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 79.00 deg. F
Pressure: 489.70 psia
Flow Rate: 7.74e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.58e+001	4.15e+003

Water	2.73e+000	1.18e+002
Carbon Dioxide	3.13e-002	1.36e+000
Nitrogen	4.22e-003	1.83e-001
Methane	5.92e-001	2.57e+001
Ethane	1.13e-001	4.91e+000
Propane	9.27e-002	4.02e+000
Isobutane	3.50e-002	1.52e+000
n-Butane	5.39e-002	2.34e+000
Isopentane	2.45e-002	1.06e+000
n-Pentane	2.17e-002	9.41e-001
n-Hexane	1.12e-002	4.88e-001
Cyclohexane	1.56e-002	6.77e-001
Other Hexanes	1.58e-002	6.83e-001
Heptanes	1.88e-002	8.14e-001
Methylcyclohexane	2.51e-002	1.09e+000
2,2,4-Trimethylpentane	6.34e-004	2.75e-002
Benzene	5.18e-002	2.25e+000
Toluene	1.03e-001	4.48e+000
Xylenes	1.92e-001	8.33e+000
C8+ Heavies	7.62e-002	3.30e+000
Total Components	100.00	4.34e+003

FLASH TANK OFF GAS STREAM

Temperature: 120.00 deg. F
Pressure: 84.70 psia
Flow Rate: 6.94e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.31e-001	4.31e-002
Carbon Dioxide	1.08e+000	8.66e-001
Nitrogen	3.42e-001	1.75e-001
Methane	8.36e+001	2.45e+001
Ethane	7.65e+000	4.21e+000
Propane	3.67e+000	2.96e+000
Isobutane	9.21e-001	9.80e-001
n-Butane	1.27e+000	1.35e+000
Isopentane	4.34e-001	5.73e-001
n-Pentane	3.43e-001	4.53e-001
n-Hexane	1.03e-001	1.63e-001
Cyclohexane	4.67e-002	7.20e-002
Other Hexanes	1.72e-001	2.71e-001
Heptanes	8.52e-002	1.56e-001
Methylcyclohexane	5.03e-002	9.04e-002
2,2,4-Trimethylpentane	4.21e-003	8.81e-003
Benzene	2.50e-002	3.57e-002
Toluene	2.57e-002	4.33e-002
Xylenes	1.54e-002	2.99e-002
C8+ Heavies	1.87e-002	5.82e-002
Total Components	100.00	3.71e+001

FLASH TANK GLYCOL STREAM

Temperature: 120.00 deg. F
Flow Rate: 7.66e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.66e+001	4.15e+003
Water	2.75e+000	1.18e+002
Carbon Dioxide	1.14e-002	4.90e-001
Nitrogen	1.81e-004	7.78e-003
Methane	2.60e-002	1.12e+000
Ethane	1.63e-002	7.02e-001
Propane	2.45e-002	1.05e+000
Isobutane	1.25e-002	5.39e-001
n-Butane	2.29e-002	9.83e-001
Isopentane	1.14e-002	4.91e-001
n-Pentane	1.14e-002	4.88e-001
n-Hexane	7.56e-003	3.25e-001
Cyclohexane	1.41e-002	6.05e-001
Other Hexanes	9.58e-003	4.12e-001
Heptanes	1.53e-002	6.58e-001
Methylcyclohexane	2.32e-002	9.97e-001
2,2,4-Trimethylpentane	4.35e-004	1.87e-002
Benzene	5.14e-002	2.21e+000
Toluene	1.03e-001	4.44e+000
Xylenes	1.93e-001	8.30e+000
C8+ Heavies	7.55e-002	3.25e+000
Total Components	100.00	4.30e+003

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 1.29e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.95e+001	5.48e+001
Carbon Dioxide	3.27e-001	4.90e-001
Nitrogen	8.17e-003	7.78e-003
Methane	2.05e+000	1.12e+000
Ethane	6.86e-001	7.02e-001
Propane	7.03e-001	1.05e+000
Isobutane	2.73e-001	5.39e-001
n-Butane	4.98e-001	9.83e-001
Isopentane	1.98e-001	4.86e-001
n-Pentane	1.97e-001	4.84e-001
n-Hexane	1.10e-001	3.23e-001
Cyclohexane	2.04e-001	5.83e-001
Other Hexanes	1.38e-001	4.05e-001
Heptanes	1.92e-001	6.54e-001
Methylcyclohexane	2.86e-001	9.54e-001

2,2,4-Trimethylpentane	4.71e-003	1.83e-002
Benzene	7.90e-001	2.10e+000
Toluene	1.30e+000	4.09e+000
Xylenes	2.00e+000	7.23e+000
C8+ Heavies	4.92e-001	2.85e+000
Total Components	100.00	7.99e+001

COMBUSTION DEVICE OFF GAS STREAM

Temperature: 1000.00 deg. F
Pressure: 14.70 psia
Flow Rate: 6.53e+000 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Methane	2.02e+001	5.58e-002
Ethane	6.78e+000	3.51e-002
Propane	6.95e+000	5.27e-002
Isobutane	2.69e+000	2.70e-002
n-Butane	4.91e+000	4.92e-002
Isopentane	1.96e+000	2.43e-002
n-Pentane	1.95e+000	2.42e-002
n-Hexane	1.09e+000	1.61e-002
Cyclohexane	2.01e+000	2.92e-002
Other Hexanes	1.37e+000	2.03e-002
Heptanes	1.90e+000	3.27e-002
Methylcyclohexane	2.82e+000	4.77e-002
2,2,4-Trimethylpentane	4.66e-002	9.15e-004
Benzene	7.80e+000	1.05e-001
Toluene	1.29e+001	2.04e-001
Xylenes	1.98e+001	3.61e-001
C8+ Heavies	4.86e+000	1.43e-001
Total Components	100.00	1.23e+000

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A		Description:	Little Cyn. Pre Dehy
Analysis Date/Time:	6/15/2012	1:58 PM	Field:	Little Cyn.
Analyst Initials:	ABK		ML#:	XTO /Summit Gas
Instrument ID:	Instrument 1		GC Method:	Quesbtex
Data File:	QPC65.D			
Date Sampled:	6/12/2012			

Component	Mol%	Wt%	LV%
Methane	90.7292	80.4456	86.0180
Ethane	5.3537	8.8973	8.0302
Propane	1.9415	4.7317	2.9941
Isobutane	0.3949	1.2684	0.7229
n-Butane	0.4703	1.5106	0.8298
Neopentane	0.0055	0.0220	0.0118
Isopentane	0.1494	0.5958	0.3061
n-Pentane	0.1077	0.4293	0.2182
2,2-Dimethylbutane	0.0042	0.0201	0.0099
2,3-Dimethylbutane	0.0083	0.0397	0.0191
2-Methylpentane	0.0238	0.1134	0.0553
3-Methylpentane	0.0123	0.0584	0.0280
n-Hexane	0.0263	0.1252	0.0605
Heptanes	0.0463	0.2410	0.1021
Octanes	0.0063	0.0409	0.0181
Nonanes	0.0068	0.0428	0.0172
Decanes plus	0.0010	0.0075	0.0033
Nitrogen	0.3648	0.5647	0.2238
Carbon Dioxide	0.3477	0.8456	0.3316
Oxygen	0.0000	0.0000	0.0000
Hydrogen Sulfide	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties		Units
Gross BTU/Real CF	1110.9	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	1092.8	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9974	
Specific Gravity	0.6262	air=1
Avg Molecular Weight	18.095	gm/mole
Propane GPM	0.532093	gal/MCF
Butane GPM	0.276785	gal/MCF
Gasoline GPM	0.145455	gal/MCF
26# Gasoline GPM	0.294298	gal/MCF
Total GPM	2.487160	gal/MCF
Base Mol%	99.805	%v/v
Sample Temperature:	79	°F
Sample Pressure:	475	psig
H2SLength of Stain Tube	N/A	ppm

Component	Mol%	Wt%	LV%
Benzene	0.0039	0.0168	0.0061
Toluene	0.0044	0.0222	0.0082
Ethylbenzene	0.0000	0.0000	0.0000
M&P Xylene	0.0041	0.0240	0.0088
O-Xylene	0.0000	0.0000	0.0000
2,2,4-Trimethylpentane	0.0012	0.0075	0.0033
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0087	0.0403	0.0165
Methylcyclohexane	0.0096	0.0523	0.0217
Description:	Little Cyn. Pre Dehy		

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	0.3477	0.8456	0.3316
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	0.3648	0.5647	0.2238
Methane	90.7292	80.4456	86.0180
Ethane	5.3537	8.8973	8.0302
Propane	1.9415	4.7317	2.9941
Isobutane	0.3949	1.2684	0.7229
n-Butane	0.4703	1.5106	0.8298
Isopentane	0.1549	0.6178	0.3179
n-Pentane	0.1077	0.4293	0.2182
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0263	0.1252	0.0605
Cyclohexane	0.0087	0.0403	0.0165
Other Hexanes	0.0486	0.2316	0.1123
Heptanes	0.0185	0.1019	0.0463
Methylcyclohexane	0.0096	0.0523	0.0217
2,2,4 Trimethylpentane	0.0012	0.0075	0.0033
Benzene	0.0039	0.0168	0.0061
Toluene	0.0044	0.0222	0.0082
Ethylbenzene	0.0000	0.0000	0.0000
Xylenes	0.0041	0.0240	0.0088
C8+ Heavies	0.0100	0.0672	0.0298
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

```
******************************************************************************************
*     Project Setup Information                                                          *
******************************************************************************************
Project File               : C:\Users\ETullos\Desktop\Work\142 - XTO\LCU Syn Minor\_Dehy and Tank Models\Little C
Flowsheet Selection        : Oil Tank with Separator
Calculation Method         : RVP Distillation
Control Efficiency         : 100.0%
Known Separator Stream     : Low Pressure Oil
Entering Air Composition   : No

Filed Name                 : XTO Energy, Inc. - Little Canyon Compressor Station PTE
Well Name                  : 60 BOPD (30 BOPD/Tank)
Date                       : 2013.07.22

******************************************************************************************
*     Data Input                                                                         *
******************************************************************************************

Separator Pressure         : 25.00[psig]
Separator Temperature      : 40.00[F]
Ambient Pressure           : 11.83[psia]
Ambient Temperature        : 70.00[F]
C10+ SG                    : 0.8366
C10+ MW                    : 259.067

-- Low Pressure Oil ----------------------------------------------------------------------
   No.     Component           mol %
   1       H2S                 0.0000
   2       O2                  0.0000
   3       CO2                 0.0300
   4       N2                  0.0080
   5       C1                  0.4200
   6       C2                  0.4090
   7       C3                  0.8670
   8       i-C4                0.6120
   9       n-C4                1.3330
   10      i-C5                1.9360
   11      n-C5                2.6100
   12      C6                  2.7410
   13      C7                 23.3530
   14      C8                 36.5150
   15      C9                 11.0330
   16      C10+                4.6020
   17      Benzene             1.3940
   18      Toluene             5.4950
   19      E-Benzene           0.2670
   20      Xylenes             0.5140
   21      n-C6                5.7340
   22      224Trimethylp       0.1270

-- Sales Oil -----------------------------------------------------------------------------
Production Rate            : 60[bbl/day]
Days of Annual Operation   : 365 [days/year]
API Gravity                : 58.8
Reid Vapor Pressure        : 5.60[psia]

******************************************************************************************
*     Calculation Results                                                                *
******************************************************************************************

-- Emission Summary ----------------------------------------------------------------------
Item                 Uncontrolled   Uncontrolled
                     [ton/yr]       [lb/hr]
Total HAPs           0.250          0.057
```

Total HC	4.587	1.047
VOCs, C2+	3.094	0.706
VOCs, C3+	2.441	0.557

Uncontrolled Recovery Info.

Vapor	327.9700 x1E-3	[MSCFD]
HC Vapor	316.9000 x1E-3	[MSCFD]
GOR	5.47	[SCF/bbl]

-- Emission Composition --

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
1	H2S	0.000	0.000
2	O2	0.000	0.000
3	CO2	0.146	0.033
4	N2	0.056	0.013
5	C1	1.492	0.341
6	C2	0.653	0.149
7	C3	0.584	0.133
8	i-C4	0.212	0.048
9	n-C4	0.322	0.074
10	i-C5	0.225	0.051
11	n-C5	0.222	0.051
12	C6	0.100	0.023
13	C7	0.325	0.074
14	C8	0.182	0.042
15	C9	0.022	0.005
16	C10+	0.000	0.000
17	Benzene	0.034	0.008
18	Toluene	0.043	0.010
19	E-Benzene	0.001	0.000
20	Xylenes	0.001	0.000
21	n-C6	0.167	0.038
22	224Trimethylp	0.002	0.000
	Total	4.789	1.093

-- Stream Data --

No.	Component	MW	LP Oil mol %	Flash Oil mol %	Sale Oil mol %	Flash Gas mol %	W&S Gas mol %	Total Emissions mol %
1	H2S	34.80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	O2	32.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	CO2	44.01	0.0300	0.0249	0.0170	2.0001	2.1659	2.0976
4	N2	28.01	0.0080	0.0027	0.0000	2.0713	0.7196	1.2762
5	C1	16.04	0.4200	0.2701	0.0514	58.3784	59.2733	58.9048
6	C2	30.07	0.4090	0.3749	0.3249	13.6037	13.8617	13.7555
7	C3	44.10	0.8670	0.8476	0.8196	8.3707	8.3887	8.3813
8	i-C4	58.12	0.6120	0.6076	0.6013	2.3133	2.3147	2.3141
9	n-C4	58.12	1.3330	1.3274	1.3193	3.5033	3.5054	3.5046
10	i-C5	72.15	1.9360	1.9359	1.9358	1.9705	1.9711	1.9709
11	n-C5	72.15	2.6100	2.6117	2.6141	1.9512	1.9520	1.9516
12	C6	86.16	2.7410	2.7461	2.7535	0.7525	0.7529	0.7527
13	C7	100.20	23.3530	23.4079	23.4868	2.1205	2.1214	2.1210
14	C8	114.23	36.5150	36.6067	36.7386	1.0403	1.0408	1.0406
15	C9	128.28	11.0330	11.0612	11.1018	0.1080	0.1146	0.1119
16	C10+	259.07	4.6020	4.6139	4.6310	0.0000	0.0000	0.0000
17	Benzene	78.11	1.3940	1.3969	1.4011	0.2715	0.2719	0.2718
18	Toluene	92.13	5.4950	5.5084	5.5278	0.2977	0.2982	0.2980
19	E-Benzene	106.17	0.2670	0.2677	0.2687	0.0047	0.0047	0.0047
20	Xylenes	106.17	0.5140	0.5153	0.5172	0.0079	0.0079	0.0079
21	n-C6	86.18	5.7340	5.7457	5.7624	1.2253	1.2259	1.2256
22	224Trimethylp	114.24	0.1270	0.1273	0.1277	0.0092	0.0092	0.0092
	MW		108.04	108.24	108.53	30.36	30.30	30.32
	Stream Mole Ratio		1.0000	0.9974	0.9937	0.0026	0.0037	0.0063
	Heating Value	[BTU/SCF]				1687.54	1702.39	1696.27
	Gas Gravity	[Gas/Air]				1.05	1.05	1.05
	Bubble Pt. @ 100F	[psia]	20.12	15.05	8.14			
	RVP @ 100F	[psia]	7.94	6.87	5.59			

Spec. Gravity @ 100F	0.675	0.675	0.676

SPL, Inc.
2440 Chambers Street
Suite A
Venus, TX 76084
817-539-2168 (O)
817-539-2170 (F)

Certificate of Analysis : 12120198-002A

Company:	Unitah County	**For:**	Rykki Tepe
Well:	Tap 5 CDP		
Field:	Unitah County		810 Houston Street
Sample of:	Condensate ;Spot		Fort Worth, Texas 76102
Conditions:	40 F @ 25 psig		
Sampled by:	J.Petree	**Report Date:**	5/8/2013
Sample date:	12/10/2012		
Sample Point:	Separator		
Remarks:			

Analysis: (*GPA 2103M*)	**Mol. %**	**MW**	**Wt. %**	**Sp. Gravity**	**L.V. %**
Nitrogen	0.008	28.013	0.002	0.8094	0.002
Methane	0.420	16.043	0.063	0.3000	0.155
Carbon Dioxide	0.030	44.010	0.012	0.8180	0.011
Ethane	0.409	30.070	0.115	0.3562	0.238
Propane	0.867	44.097	0.357	0.5070	0.520
Iso-butane	0.612	58.123	0.332	0.5629	0.436
N-butane	1.333	58.123	0.724	0.5840	0.915
Iso-pentane	1.936	72.150	1.304	0.6244	1.543
N-pentane	2.610	72.150	1.759	0.6311	2.059
i-Hexanes	2.741	86.177	2.224	0.6795	2.479
n-Hexane	5.734	86.059	4.587	0.6640	5.104
2,2,4 trimethylpentane	0.127	114.231	0.135	0.6967	0.143
Benzene	1.394	78.114	1.017	0.8846	0.848
Heptanes	23.353	94.829	20.876	0.7244	21.475
Toluene	5.495	92.141	4.729	0.8719	4.002
Octanes	36.515	106.289	36.973	0.7548	36.813
E-benzene	0.267	106.167	0.265	0.8718	0.224
M-,O-,P-xylene	0.514	106.167	0.510	0.8731	0.432
Nonanes	11.033	123.784	12.882	0.7516	12.769
Decanes Plus	4.602	259.067	11.134	0.8366	9.832
	100.000		100.000		100.000

Calculated Values	**Total Sample**	**Decanes Plus**
Specific Gravity at 60 °F	0.7388	0.8366
Api Gravity at 60 °F	60.026	37.629
Molecular Weight	107.078	259.067
Pounds per Gallon (in Vacuum)	6.160	6.975
Pounds per Gallon (in Air)	6.153	6.968
Cu. Ft. Vapor per Gallon @ 14.65 psia	21.762	10.250

Southern Petroleum Laboratories, Inc.

CERTIFICATE OF ANALYSIS
2012120198-001A

Customer:	XTO Energy	**Report Date:**	05/08/13
Attn:	Rykki Tepe		
	810 Houston Street	**PO / Ref. No.:**	
	Fort Worth, TX 76102		

Company:	XTO Energy	**Sample Of:**	Oil
Producer:	XTO Energy	**Sample Date/Time:**	12/10/2012
Well :	Tap 5 CDP	**Sample Psig & Temp:**	25 psig @ 40 °F
API #:		**Sampled By:**	J.P.
Sample Point:	Heater Treater	**Cylinder # :**	01190
	Unitah County		
Comments:	Staged Flash from 39.7 psi @ 40 to 0 psi @ 60°F		

Analytical Data

Parameters	Results	Units	Method	Lab Tech.	Date Analyzed
Shrinkage Factor	0.9997		Shrink-EOS	DDO	05/08/13
Flash Factor	0.7011	Cu.Ft./STBbl.	Shrink-EOS	DDO	05/08/13
	0.4787	Cu.Ft. Methane/STBbl.			
	0.0123	Cu.Ft. CO2/STBbl.			

Hydrocarbon Laboratory Manager

CERTIFICATE OF ANALYSIS
2012120198-001A

Customer:	XTO Energy	**Report Date:**	05/08/13
Attn:	Rykki Tepe		
	810 Houston Street	**PO / Ref. No.:**	
	Fort Worth, TX 76102		

Company:	XTO Energy	**Sample Of:**	Oil
Field:	XTO Energy	**Sample Date/Time:**	12/10/12
Well:	Tap 5 CDP	**Sample Psig & Temp:**	25 psig @ 40 °F
API #:		**Sampled By:**	J.P.
Sample Point:	Heater Treater	**Cylinder # :**	01190
Comments:	EOS Flash Gas Composition		
	Staged Flash from 39.7 psi @ 40 to 0 psi @ 60°F		

	MOL %	WEIGHT %	GPM's @ 14.73
NITROGEN	3.512	3.852	
CO2	1.749	3.015	
METHANE	68.276	42.889	
ETHANE	11.029	12.986	4.146
PROPANE	5.963	10.296	2.176
I-BUTANE	1.626	3.700	0.499
N-BUTANE	2.375	5.404	0.757
I-PENTANE	1.277	3.607	0.350
N-PENTANE	1.302	3.677	0.361
HEXANES	1.110	3.677	0.271
BENZENE	0.182	0.558	0.066
HEPTANES	0.926	3.504	0.202
TOLUENE	0.185	0.666	0.055
OCTANES	0.442	1.940	0.087
E-BENZENE	0.003	0.012	0.001
m,o,&p-XYLENE	0.004	0.017	0.001
NONANES	0.041	0.203	0.007
DECANES PLUS	0.000	0.000	0.000
TOTALS	100.000	100.000	8.979

CALCULATED VALUES

REAL DRY BTU AT 14.73 PSIA, 60 DEG.F	1425.8	
REAL WET BTU AT 14.73 PSIA, 60 DEG.F	1400.9	
RELATIVE DENSITY	0.8884	
COMPRESSIBILITY FACTOR	0.99459	
	C2+	C5+
GPM's @ 14.73 psia, 60 Deg.F	8.979	1.401

CERTIFICATE OF ANALYSIS
2012120198-001A

Customer:	XTO Energy	**Report Date:**	05/08/13
Attn:	Rykki Tepe		
	810 Houston Street	**PO / Ref. No.:**	
	Fort Worth, TX 76102		

Company:	XTO Energy	**Sample Of:**	Oil
Field:	XTO Energy	**Sample Date/Time:**	12/10/12
Well:	Tap 5 CDP	**Sample Psig & Temp:**	25 psig @ 40 °F
API #:		**Sampled By:**	J.P.
Sample Point:	Heater Treater	**Cylinder # :**	01190
Comments:	EOS Liquid Residue Composition Staged Flash from 39.7 psi @ 40 to 0 psi @ 60°F		

	MOL %	WEIGHT %	L V %
NITROGEN	0.005	0.001	0.003
CO2	0.029	0.012	0.010
METHANE	0.366	0.054	0.129
ETHANE	0.401	0.111	0.223
PROPANE	0.863	0.350	0.497
I-BUTANE	0.611	0.327	0.401
N-BUTANE	1.332	0.712	0.907
I-PENTANE	1.937	1.284	1.470
N-PENTANE	2.611	1.732	1.967
HEXANES	8.481	6.594	7.106
BENZENE	1.395	1.002	0.813
HEPTANES	23.498	20.880	21.694
TOLUENE	5.499	4.658	3.821
OCTANES	36.544	37.686	38.245
E-BENZENE	0.267	0.261	0.214
m,o,&p-XYLENE	0.514	0.502	0.407
NONANES	11.042	12.866	12.758
DECANES PLUS	4.606	10.969	9.335
TOTALS	100.000	100.000	100.000

CALCULATED VALUES	TOTAL	C10+
Molecular Weight	108.774	218.083
BTU / Lb.	19,931	13,442
BTU / Gal.	119,159	99,588
Cu. Ft. / Gal. At 14.73 Psia, 60°F	20.810	12.862
Lbs. / Gal. (Absolute Density)	5.979	7.409
Lbs. / Gal. (Weight in Air)	5.971	7.399
Specific Gravity at 60°F (Water = 1)	0.7171	0.8886
API Gravity at 60°F	65.8	27.7

Certificate of Analysis

Number: 3040-12120198-003A

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Rykki Tepe
810 Houston Street
Fort Worth, Texas 76102

Jan. 08, 2013

Station Name: Tap 5 CDP
Station Location: Unitah County
Sample Point: Separator
Cylinder No: Tin Can

Sampled By: J.Petree
Sample Of: Condensate Spot
Sample Date: 12/10/2012
Sample Conditions: 40 °F

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Reid Vapor Pressure @ 100°F	ASTM D-323	5.6	psia		TF	01/04/2013
API Gravity @ 60° F		58.8	° API		TF	01/04/2013
API Specific Gravity @ 60° F		0.7436	° API		TF	01/04/2013

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: LCU 2-6GX TEG Dehydrator
File Name: C:\Users\ETullos\Desktop\Work\142 - XTO\LCU Syn Minor_Dehy and Tank Models\LCU 2-6GX Dehy PTE.ddf
Date: September 12, 2013

DESCRIPTION:

Description: 1.5 mmscfd
Kimray 4015 pump - 0.667 gph
LCU 5-12H gas analysis

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 60.00 deg. F
Pressure: 75.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	0.6896
Nitrogen	0.4261
Methane	88.9238
Ethane	6.1972
Propane	2.1341
Isobutane	0.4426
n-Butane	0.5157
Isopentane	0.2060
n-Pentane	0.1547
n-Hexane	0.0565
Cyclohexane	0.0251
Other Hexanes	0.0884
Heptanes	0.0581
Methylcyclohexane	0.0263
2,2,4-Trimethylpentane	0.0030
Benzene	0.0074
Toluene	0.0072
Ethylbenzene	0.0005
Xylenes	0.0056
C8+ Heavies	0.0321

DRY GAS:

Flow Rate: 1.5 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 0.7 gpm

PUMP:

Glycol Pump Type: Gas Injection
Gas Injection Pump Volume Ratio: 0.030 acfm gas/gpm glycol

GRI-GLYCalc VERSION 4.0 - EMISSIONS SUMMARY

Case Name: LCU 2-6GX TEG Dehydrator
File Name: C:\Users\ETullos\Desktop\Work\142 - XTO\LCU Syn Minor_Dehy and Tank Models\LCU 2-6GX Dehy PTE.ddf
Date: September 12, 2013

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3873	9.294	1.6962
Ethane	0.1045	2.508	0.4577
Propane	0.1058	2.539	0.4634
Isobutane	0.0487	1.170	0.2134
n-Butane	0.0785	1.885	0.3440
Isopentane	0.0503	1.207	0.2203
n-Pentane	0.0502	1.204	0.2197
n-Hexane	0.0473	1.136	0.2072
Cyclohexane	0.0841	2.018	0.3683
Other Hexanes	0.0527	1.264	0.2307
Heptanes	0.1411	3.386	0.6180
Methylcyclohexane	0.1518	3.644	0.6651
2,2,4-Trimethylpentane	0.0038	0.090	0.0165
Benzene	0.2044	4.906	0.8954
Toluene	0.3861	9.266	1.6911
Ethylbenzene	0.0481	1.154	0.2106
Xylenes	0.6498	15.596	2.8462
C8+ Heavies	0.6179	14.829	2.7063
Total Emissions	3.2124	77.097	14.0702
Total Hydrocarbon Emissions	3.2124	77.097	14.0702
Total VOC Emissions	2.7206	65.295	11.9163
Total HAP Emissions	1.3395	32.148	5.8670
Total BTEX Emissions	1.2884	30.922	5.6433

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: LCU 2-6GX TEG Dehydrator
File Name: C:\Users\ETullos\Desktop\Work\142 - XTO\LCU Syn Minor_Dehy and Tank Models\LCU 2-6GX Dehy PTE.ddf
Date: September 12, 2013

DESCRIPTION:

Description: 1.5 mmscfd
Kimray 4015 pump - 0.667 gph
LCU 5-12H gas analysis

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3873	9.294	1.6962
Ethane	0.1045	2.508	0.4577
Propane	0.1058	2.539	0.4634
Isobutane	0.0487	1.170	0.2134
n-Butane	0.0785	1.885	0.3440
Isopentane	0.0503	1.207	0.2203
n-Pentane	0.0502	1.204	0.2197
n-Hexane	0.0473	1.136	0.2072
Cyclohexane	0.0841	2.018	0.3683
Other Hexanes	0.0527	1.264	0.2307
Heptanes	0.1411	3.386	0.6180
Methylcyclohexane	0.1518	3.644	0.6651
2,2,4-Trimethylpentane	0.0038	0.090	0.0165
Benzene	0.2044	4.906	0.8954
Toluene	0.3861	9.266	1.6911
Ethylbenzene	0.0481	1.154	0.2106
Xylenes	0.6498	15.596	2.8462
C8+ Heavies	0.6179	14.829	2.7063
Total Emissions	3.2124	77.097	14.0702
Total Hydrocarbon Emissions	3.2124	77.097	14.0702
Total VOC Emissions	2.7206	65.295	11.9163
Total HAP Emissions	1.3395	32.148	5.8670
Total BTEX Emissions	1.2884	30.922	5.6433

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25
Calculated Dry Gas Dew Point:	6.97 lbs. H2O/MMSCF
Temperature:	60.0 deg. F
Pressure:	75.0 psig
Dry Gas Flow Rate:	1.5000 MMSCF/day
Glycol Losses with Dry Gas:	0.0012 lb/hr
Wet Gas Water Content:	Saturated
Calculated Wet Gas Water Content:	139.42 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	4.83 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	4.98%	95.02%
Carbon Dioxide	99.90%	0.10%
Nitrogen	100.00%	0.00%
Methane	100.00%	0.00%
Ethane	99.98%	0.02%
Propane	99.94%	0.06%
Isobutane	99.90%	0.10%
n-Butane	99.85%	0.15%
Isopentane	99.81%	0.19%
n-Pentane	99.74%	0.26%
n-Hexane	99.42%	0.58%
Cyclohexane	97.60%	2.40%
Other Hexanes	99.59%	0.41%
Heptanes	98.54%	1.46%
Methylcyclohexane	96.44%	3.56%
2,2,4-Trimethylpentane	99.35%	0.65%
Benzene	78.55%	21.45%
Toluene	64.69%	35.31%
Ethylbenzene	45.02%	54.98%
Xylenes	33.67%	66.33%
C8+ Heavies	93.15%	6.85%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	40.39%	59.61%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.47%	99.53%
n-Pentane	0.48%	99.52%
n-Hexane	0.49%	99.51%
Cyclohexane	3.18%	96.82%
Other Hexanes	0.97%	99.03%
Heptanes	0.50%	99.50%
Methylcyclohexane	3.99%	96.01%
2,2,4-Trimethylpentane	1.47%	98.53%

Benzene	5.00%	95.00%
Toluene	7.90%	92.10%
Ethylbenzene	10.40%	89.60%
Xylenes	12.90%	87.10%
C8+ Heavies	12.00%	88.00%

STREAM REPORTS:

WET GAS STREAM

Temperature: 60.00 deg. F
Pressure: 89.70 psia
Flow Rate: 6.27e+004 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.94e-001	8.74e+000
Carbon Dioxide	6.88e-001	5.00e+001
Nitrogen	4.25e-001	1.97e+001
Methane	8.87e+001	2.35e+003
Ethane	6.18e+000	3.07e+002
Propane	2.13e+000	1.55e+002
Isobutane	4.41e-001	4.24e+001
n-Butane	5.14e-001	4.94e+001
Isopentane	2.05e-001	2.45e+001
n-Pentane	1.54e-001	1.84e+001
n-Hexane	5.63e-002	8.02e+000
Cyclohexane	2.50e-002	3.48e+000
Other Hexanes	8.81e-002	1.26e+001
Heptanes	5.79e-002	9.59e+000
Methylcyclohexane	2.62e-002	4.25e+000
2,2,4-Trimethylpentane	2.99e-003	5.65e-001
Benzene	7.38e-003	9.52e-001
Toluene	7.18e-003	1.09e+000
Ethylbenzene	4.99e-004	8.75e-002
Xylenes	5.58e-003	9.80e-001
C8+ Heavies	3.20e-002	9.01e+000
Total Components	100.00	3.08e+003

DRY GAS STREAM

Temperature: 60.00 deg. F
Pressure: 89.70 psia
Flow Rate: 6.25e+004 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.47e-002	4.36e-001
Carbon Dioxide	6.89e-001	5.00e+001
Nitrogen	4.26e-001	1.97e+001
Methane	8.89e+001	2.35e+003
Ethane	6.20e+000	3.07e+002
Propane	2.13e+000	1.55e+002

Isobutane	4.42e-001	4.23e+001
n-Butane	5.15e-001	4.93e+001
Isopentane	2.06e-001	2.44e+001
n-Pentane	1.54e-001	1.83e+001
n-Hexane	5.62e-002	7.98e+000
Cyclohexane	2.45e-002	3.40e+000
Other Hexanes	8.80e-002	1.25e+001
Heptanes	5.73e-002	9.45e+000
Methylcyclohexane	2.54e-002	4.10e+000
2,2,4-Trimethylpentane	2.98e-003	5.61e-001
Benzene	5.81e-003	7.48e-001
Toluene	4.66e-003	7.07e-001
Ethylbenzene	2.25e-004	3.94e-002
Xylenes	1.89e-003	3.30e-001
C8+ Heavies	2.99e-002	8.39e+000
Total Components	100.00	3.06e+003

LEAN GLYCOL STREAM

Temperature: 60.00 deg. F
Flow Rate: 6.66e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.84e+001	3.69e+002
Water	1.50e+000	5.63e+000
Carbon Dioxide	1.32e-012	4.97e-012
Nitrogen	2.45e-014	9.19e-014
Methane	1.02e-018	3.81e-018
Ethane	8.64e-009	3.24e-008
Propane	9.52e-010	3.57e-009
Isobutane	3.50e-010	1.31e-009
n-Butane	4.81e-010	1.81e-009
Isopentane	6.35e-005	2.38e-004
n-Pentane	6.43e-005	2.41e-004
n-Hexane	6.21e-005	2.33e-004
Cyclohexane	7.37e-004	2.77e-003
Other Hexanes	1.38e-004	5.17e-004
Heptanes	1.87e-004	7.03e-004
Methylcyclohexane	1.68e-003	6.31e-003
2,2,4-Trimethylpentane	1.50e-005	5.63e-005
Benzene	2.87e-003	1.08e-002
Toluene	8.83e-003	3.31e-002
Ethylbenzene	1.49e-003	5.58e-003
Xylenes	2.57e-002	9.62e-002
C8+ Heavies	2.25e-002	8.43e-002
Total Components	100.00	3.75e+002

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 60.00 deg. F
Pressure: 89.70 psia
Flow Rate: 6.90e-001 gpm
NOTE: Stream has more than one phase.

Component	Conc.	Loading

	(wt%)	(lb/hr)
TEG	9.55e+001	3.69e+002
Water	3.61e+000	1.39e+001
Carbon Dioxide	1.44e-002	5.55e-002
Nitrogen	8.33e-004	3.22e-003
Methane	1.00e-001	3.87e-001
Ethane	2.70e-002	1.04e-001
Propane	2.74e-002	1.06e-001
Isobutane	1.26e-002	4.87e-002
n-Butane	2.03e-002	7.85e-002
Isopentane	1.31e-002	5.05e-002
n-Pentane	1.30e-002	5.04e-002
n-Hexane	1.23e-002	4.75e-002
Cyclohexane	2.25e-002	8.68e-002
Other Hexanes	1.38e-002	5.32e-002
Heptanes	3.67e-002	1.42e-001
Methylcyclohexane	4.09e-002	1.58e-001
2,2,4-Trimethylpentane	9.88e-004	3.82e-003
Benzene	5.57e-002	2.15e-001
Toluene	1.08e-001	4.19e-001
Ethylbenzene	1.39e-002	5.37e-002
Xylenes	1.93e-001	7.46e-001
C8+ Heavies	1.82e-001	7.02e-001
Total Components	100.00	3.87e+002

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 1.97e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.90e+001	8.31e+000
Carbon Dioxide	2.43e-001	5.55e-002
Nitrogen	2.22e-002	3.22e-003
Methane	4.66e+000	3.87e-001
Ethane	6.70e-001	1.04e-001
Propane	4.63e-001	1.06e-001
Isobutane	1.62e-001	4.87e-002
n-Butane	2.61e-001	7.85e-002
Isopentane	1.34e-001	5.03e-002
n-Pentane	1.34e-001	5.02e-002
n-Hexane	1.06e-001	4.73e-002
Cyclohexane	1.93e-001	8.41e-002
Other Hexanes	1.18e-001	5.27e-002
Heptanes	2.72e-001	1.41e-001
Methylcyclohexane	2.98e-001	1.52e-001
2,2,4-Trimethylpentane	6.35e-003	3.76e-003
Benzene	5.05e-001	2.04e-001
Toluene	8.08e-001	3.86e-001
Ethylbenzene	8.74e-002	4.81e-002
Xylenes	1.18e+000	6.50e-001
C8+ Heavies	7.00e-001	6.18e-001
Total Components	100.00	1.16e+001

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A		Description:	LCU 5-12H
Analysis Date/Time:	2/3/2009	3:43 PM	Field:	LCU
Analyst Initials:	AST		ML#:	XTO/RS0572RF
Instrument ID:	Instrument 1		GC Method:	Quesbtex
Data File:	QPC81.D			
Date Sampled:	1/28/2009			

Component	Mol%	Wt%	LV%
Methane	88.9238	76.7043	83.4814
Ethane	6.1972	10.0195	9.2044
Propane	2.1341	5.0599	3.2590
Isobutane	0.4426	1.3832	0.8024
n-Butane	0.5157	1.6116	0.9011
Neopentane	0.0065	0.0251	0.0138
Isopentane	0.1995	0.7738	0.4046
n-Pentane	0.1547	0.6001	0.3105
2,2-Dimethylbutane	0.0070	0.0324	0.0162
2,3-Dimethylbutane	0.0143	0.0661	0.0324
2-Methylpentane	0.0433	0.2006	0.0996
3-Methylpentane	0.0238	0.1104	0.0539
n-Hexane	0.0565	0.2616	0.1286
Heptanes	0.1271	0.6322	0.2741
Octanes	0.0190	0.1173	0.0526
Nonanes	0.0156	0.1007	0.0429
Decanes plus	0.0036	0.0276	0.0123
Nitrogen	0.4261	0.6418	0.2589
Carbon Dioxide	0.6896	1.6318	0.6513
Oxygen	0.0000	0.0000	0.0000
Hydrogen Sulfide	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties		Units
Gross BTU/Real CF	1128.7	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	1110.0	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9973	
Specific Gravity	0.6435	air=1
Avg Molecular Weight	18.599	gm/mole
Propane GPM	0.586726	gal/MCF
Butane GPM	0.306682	gal/MCF
Gasoline GPM	0.241561	gal/MCF
26# Gasoline GPM	0.405649	gal/MCF
Total GPM	1.136836	gal/MCF
Base Mol%	99.739	%v/v
Sample Temperature:	28	°F
Sample Pressure:	309	psig

Reviewed By: ______________________

Component	Mol%	Wt%	LV%
Benzene	0.0074	0.0309	0.0114
Toluene	0.0072	0.0354	0.0133
Ethylbenzene	0.0005	0.0031	0.0012
M&P Xylene	0.0046	0.0261	0.0098
O-Xylene	0.0010	0.0058	0.0022
2,2,4-Trimethylpentane	0.0030	0.0181	0.0082
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0251	0.1138	0.0474
Methylcyclohexane	0.0263	0.1390	0.0587
Description:	LCU 5-12H		

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	0.6896	1.6318	0.6513
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	0.4261	0.6418	0.2589
Methane	88.9238	76.7043	83.4814
Ethane	6.1972	10.0195	9.2044
Propane	2.1341	5.0599	3.2590
Isobutane	0.4426	1.3832	0.8024
n-Butane	0.5157	1.6116	0.9011
Isopentane	0.2060	0.7989	0.4184
n-Pentane	0.1547	0.6001	0.3105
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0565	0.2616	0.1286
Cyclohexane	0.0251	0.1138	0.0474
Other Hexanes	0.0884	0.4095	0.2021
Heptanes	0.0581	0.2950	0.1351
Methylcyclohexane	0.0263	0.1390	0.0587
2,2,4 Trimethylpentane	0.0030	0.0181	0.0082
Benzene	0.0074	0.0309	0.0114
Toluene	0.0072	0.0354	0.0133
Ethylbenzene	0.0005	0.0031	0.0012
Xylenes	0.0056	0.0319	0.0120
C8+ Heavies	0.0321	0.2106	0.0946
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

```
******************************************************************************************
*     Project Setup Information                                                          *
******************************************************************************************
Project File                : C:\Users\ETullos\Desktop\Work\142 - XTO\LCU Syn Minor\_Dehy and Tank Models\LCU 2-6G
Flowsheet Selection         : Oil Tank with Separator
Calculation Method          : RVP Distillation
Control Efficiency          : 100.0%
Known Separator Stream      : Low Pressure Oil
Entering Air Composition    : No

Filed Name                  : LCU 2-6GX Tanks
Well Name                   : Use RBU 18-10E Analysis
Date                        : 2013.08.30

******************************************************************************************
*     Data Input                                                                         *
******************************************************************************************

Separator Pressure          : 190.00[psig]
Separator Temperature       : 60.00[F]
Ambient Pressure            : 11.83[psia]
Ambient Temperature         : 70.00[F]
C10+ SG                     : 0.7868
C10+ MW                     : 140.674

-- Low Pressure Oil ----------------------------------------------------------------------
   No.    Component              mol %
   1      H2S                    0.0000
   2      O2                     0.0000
   3      CO2                    0.0130
   4      N2                     0.0000
   5      C1                     1.1910
   6      C2                     1.0710
   7      C3                     1.5480
   8      i-C4                   0.8540
   9      n-C4                   1.4980
   10     i-C5                   1.5370
   11     n-C5                   1.6350
   12     C6                     1.1490
   13     C7                     7.9510
   14     C8                    23.5920
   15     C9                    16.1210
   16     C10+                  21.0870
   17     Benzene                2.7160
   18     Toluene                5.5540
   19     E-Benzene              0.7440
   20     Xylenes                9.4610
   21     n-C6                   2.2780
   22     224Trimethylp          0.0000

-- Sales Oil -----------------------------------------------------------------------------
Production Rate             : 26[bbl/day]
Days of Annual Operation    : 365 [days/year]
API Gravity                 : 55.9
Reid Vapor Pressure         : 6.20[psia]

******************************************************************************************
*     Calculation Results                                                                *
******************************************************************************************

-- Emission Summary ----------------------------------------------------------------------
Item                  Uncontrolled    Uncontrolled
                      [ton/yr]        [lb/hr]
Total HAPs            0.310           0.071
```

Total HC	7.974	1.821
VOCs, C2+	5.970	1.363
VOCs, C3+	4.124	0.942

Uncontrolled Recovery Info.

Vapor	538.8300 x1E-3	[MSCFD]
HC Vapor	536.6800 x1E-3	[MSCFD]
GOR	20.72	[SCF/bbl]

-- Emission Composition --

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
1	H2S	0.000	0.000
2	O2	0.000	0.000
3	CO2	0.046	0.011
4	N2	0.000	0.000
5	C1	2.004	0.458
6	C2	1.846	0.421
7	C3	1.607	0.367
8	i-C4	0.501	0.114
9	n-C4	0.617	0.141
10	i-C5	0.313	0.071
11	n-C5	0.244	0.056
12	C6	0.069	0.016
13	C7	0.184	0.042
14	C8	0.196	0.045
15	C9	0.051	0.012
16	C10+	0.026	0.006
17	Benzene	0.099	0.023
18	Toluene	0.066	0.015
19	E-Benzene	0.003	0.001
20	Xylenes	0.037	0.008
21	n-C6	0.109	0.025
22	224Trimethylp	0.000	0.000
	Total	8.018	1.831

-- Stream Data --

No.	Component	MW	LP Oil mol %	Flash Oil mol %	Sale Oil mol %	Flash Gas mol %	W&S Gas mol %	Total Emissions mol %
1	H2S	34.80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	O2	32.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	CO2	44.01	0.0130	0.0048	0.0039	0.3993	0.4035	0.3997
4	N2	28.01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	C1	16.04	1.1910	0.1996	0.0808	48.1509	48.0894	48.1445
6	C2	30.07	1.0710	0.5943	0.5370	23.6499	23.7012	23.6553
7	C3	44.10	1.5480	1.2841	1.2524	14.0480	14.0467	14.0479
8	i-C4	58.12	0.8540	0.8019	0.7956	3.3218	3.3204	3.3217
9	n-C4	58.12	1.4980	1.4432	1.4366	4.0946	4.0937	4.0945
10	i-C5	72.15	1.5370	1.5342	1.5338	1.6718	1.6711	1.6717
11	n-C5	72.15	1.6350	1.6420	1.6429	1.3015	1.3012	1.3014
12	C6	86.16	1.1490	1.1665	1.1686	0.3181	0.3180	0.3181
13	C7	100.20	7.9510	8.1034	8.1217	0.7305	0.7302	0.7304
14	C8	114.23	23.5920	24.0757	24.1337	0.6819	0.6816	0.6819
15	C9	128.28	16.1210	16.4580	16.4984	0.1602	0.1703	0.1612
16	C10+	140.67	21.0870	21.5307	21.5840	0.0703	0.0703	0.0703
17	Benzene	78.11	2.7160	2.7630	2.7687	0.4885	0.4891	0.4885
18	Toluene	92.13	5.5540	5.6654	5.6788	0.2773	0.2776	0.2773
19	E-Benzene	106.17	0.7440	0.7595	0.7613	0.0121	0.0121	0.0121
20	Xylenes	106.17	9.4610	9.6579	9.6815	0.1340	0.1342	0.1340
21	n-C6	86.18	2.2780	2.3158	2.3203	0.4894	0.4893	0.4894
22	224Trimethylp	114.24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	MW		109.32	110.98	111.17	30.91	30.92	30.91
	Stream Mole Ratio		1.0000	0.9793	0.9769	0.0207	0.0024	0.0231
	Heating Value	[BTU/SCF]				1791.78	1792.60	1791.86
	Gas Gravity	[Gas/Air]				1.07	1.07	1.07
	Bubble Pt. @ 100F	[psia]	50.65	15.27	11.06			
	RVP @ 100F	[psia]	14.60	7.41	6.64			

Spec. Gravity @ 100F	0.715	0.718	0.718

Certificate of Analysis

Number: 3040-12120196-004A

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Rykki Tepe
810 Houston Street
Fort Worth, Texas 76102

Jan. 09, 2013

Station Name: RBU 18-10E
Station Number: RS0686RF
Station Location: Unitah County
Sample Point: Separator

Sampled By: J.Petree
Sample Of: Condensate Spot
Sample Date: 12/10/2012
Sample Conditions: 60 °F
Cylinder No: Tin Can

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Reid Vapor Pressure @ 100°F	ASTM D-323	6.2	psia		TF	01/02/2013
API Gravity @ 60° F		55.91	° API		TF	01/02/2013
API Specific Gravity @ 60° F		0.7551	° API		TF	01/02/2013

SPL, Inc.
2440 Chambers Street
Suite A
Venus, TX 76084
817-539-2168 (O)
817-539-2170 (F)

Certificate of Analysis : 12120196-003A

Company:	Unitah County	**For:**	Rykki Tepe
Well:	RBU 18-10E		
Field:	Unitah County		810 Houston Street
Sample of:	Condensate ;Spot		Fort Worth, Texas 76102
Conditions:	60 F @ 190 psig		
Sampled by:	J.Petree	**Report Date:**	1/9/2013
Sample date:	12/10/2012		
Sample Point:	Separator		
Remarks:			

Analysis: (*GPA 2103M*)	Mol. %	MW	Wt. %	Sp. Gravity	L.V. %
Nitrogen	0.000	28.013	0.000	0.8094	0.000
Methane	1.191	16.043	0.175	0.3000	0.443
Carbon Dioxide	0.013	44.010	0.005	0.8180	0.005
Ethane	1.071	30.070	0.295	0.3562	0.628
Propane	1.548	44.097	0.625	0.5070	0.935
Iso-butane	0.854	58.123	0.455	0.5629	0.613
N-butane	1.498	58.123	0.798	0.5840	1.036
Iso-pentane	1.537	72.150	1.016	0.6244	1.234
N-pentane	1.635	72.150	1.081	0.6311	1.299
i-Hexanes	1.149	86.177	0.913	0.6795	1.042
n-Hexane	2.278	86.013	1.787	0.6640	2.044
2,2,4 trimethylpentane	0.000	114.231	0.000	0.6967	0.000
Benzene	2.716	78.114	1.943	0.8846	1.661
Heptanes	7.951	91.795	7.026	0.7419	7.511
Toluene	5.554	92.141	4.688	0.8719	4.066
Octanes	23.592	106.667	23.789	0.7693	24.016
E-benzene	0.744	106.167	0.723	0.8718	0.627
M-,O-,P-xylene	9.461	106.167	9.201	0.8731	8.001
Nonanes	16.121	117.072	18.308	0.7855	18.637
Decanes Plus	21.087	140.674	27.172	0.7868	26.202
	100.000		100.000		100.000

Calculated Values	**Total Sample**	**Decanes Plus**
Specific Gravity at 60 °F	0.7586	0.7868
Api Gravity at 60 °F	55.020	48.354
Molecular Weight	109.170	140.674
Pounds per Gallon (in Vacuum)	6.325	6.559
Pounds per Gallon (in Air)	6.318	6.552
Cu. Ft. Vapor per Gallon @ 14.65 psia	21.917	17.750

Southern Petroleum Laboratories, Inc.

CERTIFICATE OF ANALYSIS
2012120196-003A

Customer:	XTO Energy	**Report Date:**	01/23/13
Attn:	Rykki Tepe		
	810 Houston Street	**PO / Ref. No.:**	
	Fort Worth, TX 76102		

Company:	Unitah County	**Sample Of:**	Oil
Producer:	XTO Energy	**Sample Date/Time:**	12/10/2012
Well :	RBU 18-10E	**Sample Psig & Temp:**	190 psig @ 60 °F
API #:		**Sampled By:**	J.P.
Sample Point:	Heater Treater	**Cylinder # :**	1393

Comments: Staged Flash from 204.7 psi @ 60°F to 0 psi @ 60°F

Analytical Data

Parameters	Results	Units	Method	Lab Tech.	Date Analyzed
Shrinkage Factor	0.9937		Shrink-EOS	DDO	01/23/13
Flash Factor	12.253	Cu.Ft./STBbl.	Shrink-EOS	DDO	01/23/13
	7.2937	Cu.Ft. Methane/STBbl.			
	0.0515	Cu.Ft. CO2/STBbl.			

Hydrocarbon Laboratory Manager

CERTIFICATE OF ANALYSIS
2012120196-003A

Customer:	XTO Energy	**Report Date:**	01/23/13
Attn:	Rykki Tepe		
	810 Houston Street	**PO / Ref. No.:**	
	Fort Worth, TX 76102		

Company:	Unitah County	**Sample Of:**	Oil
Field:	XTO Energy	**Sample Date/Time:**	12/10/12
Well:	RBU 18-10E	**Sample Psig & Temp:**	190 psig @ 60 °F
API #:		**Sampled By:**	J.P.
Sample Point:	Heater Treater	**Cylinder # :**	1393
Comments:	EOS Flash Gas Composition		
	Staged Flash from 204.7 psi @ 60°F to 0 psi @ 60°F		

	MOL %	WEIGHT %	GPM's @ 14.73
NITROGEN	0.000	0.000	
CO2	0.420	0.690	
METHANE	59.527	35.597	
ETHANE	20.880	23.403	7.849
PROPANE	9.826	16.152	3.586
I-BUTANE	2.301	4.985	0.707
N-BUTANE	2.829	6.129	0.902
I-PENTANE	1.118	3.007	0.307
N-PENTANE	0.910	2.446	0.252
HEXANES	0.534	1.684	0.130
BENZENE	0.480	1.397	0.172
HEPTANES	0.375	1.353	0.082
TOLUENE	0.263	0.904	0.079
OCTANES	0.343	1.436	0.067
E-BENZENE	0.011	0.045	0.003
m,o,&p-XYLENE	0.108	0.428	0.028
NONANES	0.073	0.345	0.013
DECANES PLUS	0.000	0.001	0.000
TOTALS	100.000	100.000	14.177

CALCULATED VALUES

REAL DRY BTU AT 14.73 PSIA, 60 DEG.F	1585.2	
REAL WET BTU AT 14.73 PSIA, 60 DEG.F	1557.6	
RELATIVE DENSITY	0.9331	
COMPRESSIBILITY FACTOR	0.99350	
	C2+	**C5+**
GPM's @ 14.73 psia, 60 Deg.F	14.177	1.134

CERTIFICATE OF ANALYSIS
2012120196-003A

Customer:	XTO Energy	**Report Date:**	01/23/13
Attn:	Rykki Tepe		
	810 Houston Street	**PO / Ref. No.:**	
	Fort Worth, TX 76102		

Company:	Unitah County	**Sample Of:**	Oil
Field:	XTO Energy	**Sample Date/Time:**	12/10/12
Well:	RBU 18-10E	**Sample Psig & Temp:**	190 psig @ 60 °F
API #:		**Sampled By:**	J.P.
Sample Point:	Heater Treater	**Cylinder # :**	1393
Comments:	EOS Liquid Residue Composition Staged Flash from 204.7 psi @ 60°F to 0 psi @ 60°F		

	MOL %	WEIGHT %	L V %
NITROGEN	0.000	0.000	0.000
CO2	0.007	0.003	0.003
METHANE	0.389	0.056	0.139
ETHANE	0.799	0.216	0.452
PROPANE	1.434	0.569	0.840
I-BUTANE	0.834	0.436	0.556
N-BUTANE	1.480	0.773	1.024
I-PENTANE	1.543	1.001	1.191
N-PENTANE	1.645	1.067	1.260
HEXANES	3.467	2.636	2.954
BENZENE	2.747	1.929	1.629
HEPTANES	8.055	7.000	7.562
TOLUENE	5.627	4.661	3.975
OCTANES	23.912	24.117	25.446
E-BENZENE	0.754	0.720	0.614
m,o,&p-XYLENE	9.590	9.154	7.713
NONANES	16.342	18.623	19.200
DECANES PLUS	21.377	27.038	25.444
TOTALS	100.000	100.000	100.000

CALCULATED VALUES	TOTAL	C10+
Molecular Weight	111.219	135.623
BTU / Lb.	20,600	21,615
BTU / Gal.	128,050	144,729
Cu. Ft. / Gal. At 14.73 Psia, 60°F	21.160	18.692
Lbs. / Gal. (Absolute Density)	6.216	6.696
Lbs. / Gal. (Weight in Air)	6.208	6.687
Specific Gravity at 60°F (Water = 1)	0.7456	0.8031
API Gravity at 60°F	58.3	44.7

XTO ENERGY

April 7, 2014

Alternate Designated Representative
EPA Region 8 Operations
40 CFR Part 71, 40 CFR Part 63

RECEIVED
APR 14 2014
8P - AR

Via USPS Certified Mail: 7013 2630 0001 2576 9242

Mr. Eric Wortman
Office of Partnership & Regulatory Assistance EPA Region 8 (AP-AR)
1595 Wynkoop Street
Denver, CO 80202-1129

To Whom It May Concern:

XTO Energy, Inc. (XTO) respectfully submits an Alternative Designated Responsible Official for 40 CFR 71 and 40 CFR 63. XTO confirms that the individuals listed in the table below meet the definition of Responsible Official stated in 40 CFR 63.2 and 40 CFR 71.2.

Designated Responsible Official	**Alternate Designated Responsible Official**
Mr. Kenneth S. Rose	Timothy Hermann
Sr. Vice President of Midstream Operations	Manager of Midstream Operations
810 Houston Street	810 Houston Street
Fort Worth, TX 76102	Fort Worth, TX 76102
817-885-1623 - Office	817-885-2584 - Office
RO Designation began 01/01/2012	**Alt. RO Designation begins 04/07/2014**

As stated in 40 CFR 63.2 and 40 CFR 71.2, Responsible Official is considered the following for a corporation such as XTO:

(1) For a corporation: A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities and either:

(i) The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars);
(ii) The delegation of authority to such representative is approved in advance by the Administrator.

Should you have any questions, please feel free to contact me at 817-885-1249 or via e-mail at Rykki_Tepe@xtoenergy.com.

Sincerely,
Rykki Tepe
Rykki Tepe
Environmental Engineer
XTO Energy Inc.

Ms. Alexis North (Via USPS Certified Mail: 7013 2630 0001 2576 9259)
Enforcement and Compliance
EPA Region 8 (AP-AR)
1595 Wynkoop Street
Denver, CO 80202-1129

Bc:
File Room: CO\Rio Blanco County\Agency Correspondance\2012

Wortman, Eric

From: Patefield, Scott
Sent: Thursday, March 20, 2014 9:38 AM
To: Wortman, Eric
Subject: FW: Uintah County, UT - Leak Detection and Monitoring

fyi

From: Patefield, Scott
Sent: Thursday, January 24, 2013 2:05 PM
To: Tepe, Rykki
Subject: Re: Uintah County, UT - Leak Detection and Monitoring

Hi Rykki,

As we discussed on the telephone, if a source is no longer considered an onshore natural gas processing plant, the LDAR requirements of 40CFR60, subpart KKK would no longer apply. The consent decree identifies the Kings Canyon, TAP-4 and TAP-5 Facilities as onshore natural gas processing facilities. If the equipment rendering any of these facilities as a natural gas processing plant is removed (in this case, the dew point skids) and there are no other processes at any given facility that would subject them to the natural gas processing plant requirements, then they would no longer be subject to the NSPS, subpart KKK.

The requirements of MACT HH, MACT ZZZZ and the Consent Decree are independent of a facility's applicability to NSPS KKK, so the requirements of each would still apply even if the facility is no longer subject to the requirements of NSPS KKK.

I hope this helps, please feel free to contact me if you have any further questions or comments.

Thanks,

Scott Patefield, Environmental Scientist
Office of Enforcement, Compliance & Environmental Justice
EPA Region 8
1595 Wynkoop Street (8ENF-AT)
Denver, CO 80202-1129
Phone: (303) 312-6248
Email: patefield.scott@epa.gov

From: "Tepe, Rykki" <Rykki_Tepe@xtoenergy.com>
To: Scott Patefield/R8/USEPA/US@EPA,
Date: 01/22/2013 01:43 PM
Subject: Uintah County, UT - Leak Detection and Monitoring

Hi Scott: As mentioned in the phone call, I am trying to determine whether we can eliminate our Leak Detection Monitoring for our Uintah County Facilities. In an Oct.31, 2011 Semi-Annual LDAR Report it was noted in the cover letter that because we were no longer considered a gas processing plant we would no longer be submitting LDAR Reports. We have continued to perform the leak detection surveys, and would like to eliminate them if not required. However, before eliminating I would like to ensure we are meeting EPA's expectations and that you agree with us. My areas that I have been reviewing in which we previously had applicable leak detection standards are MACT HH, NSPS ZZZZ, and our Consent Decree. We currently perform leak detection at any compressor station in Uintah County, UT where we have a dehydration unit – which includes Riverbend Dehy, Wild Horse Bench, Tap 5, River bend 11-18F, and Riverbend

9-17E, and LCU – Compressor Stations. Could you possibly offer me guidance on how we should move forward, and ensure we're still in compliance?

Feel free to call me if you have questions. Thanks!

Rykki R. Tepe
Environmental Engineer
XTO Energy, Inc.
810 Houston Street, Fort Worth TX, 76102
Office: 817-885-1249
Cell: 817-253-2986
Fax:817-885-1847
Email: Rykki_Tepe@xtoenergy.com

XTO ENERGY

RECEIVED
JUL 22 2013
8P-AR

July 19, 2013 Via USPS Certified Mail: 7008 1830 0001 0477 2835

U.S. EPA, Region 8 – Air Program
1595 Wynkoop Street (8P-AR)
Denver, Colorado 80202

RE: Change of Ownership – Title V Permits
Previous Owner/Operator: Summit Gas Gathering, LLC
New Owner/Operator: XTO Energy, Inc.
Federal Tax ID 75-2347769

To Whom It May Concern:

Summit Gas Gathering, LLC has been dissolved and starting July 1, 2013, XTO Energy, Inc. assumed the role of owner/operator for Summit Gas Gathering, LLC. Kings Canyon Compressor Station was previously a Title V facility, and is currently registered as a True Minor NSR Registration (8/26/2010). Tap 4 Compressor Station was shut in and decommissioned (2/17/2012).

The following lists the active Title V facilities that require the change in owner/operator to XTO Energy, Inc.

- Little Canyon Unit Compressor Station
- River Bend Dehydration Site & Accompanying Well sites
- Tap 5 Compressor Station

If you have any questions or need any additional information to process these registration changes, please feel free to contact me at 817.885.1249 or by email at rykki_tepe@xtoenergy.com.

Sincerely,

Rykki Tepe

Rykki Tepe
Environmental Engineer
XTO Energy, Inc.

Cc: Mr. Eric Wortman (Via USPS Certified Mail: 7008 1830 0001 0477 2859)
Office of Partnerships & Regulatory Assistance
1595 Wynkoop Street (8P-AR)
Denver, Colorado 80202

Ms. Alexis North (Via USPS Certified Mail: 7008 1830 0001 0477 2842)
US EPA Region 8, Enforcement & Compliance
1595 Wynkoop Street
Denver, Colorado 80202

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

GENERAL INFORMATION AND SUMMARY (GIS)

A. Mailing Address and Contact Information

Facility name __Little Canyon Unit Compressor Station ________________

Mailing address: Street or P.O. Box ____810 Houston Street, Petro-4__________________________

City ____Fort Worth_______________ State ___TX__ ZIP __76102__-________

Contact person: ____Rykki Tepe_________________ Title ____Environmental Engineer___________

Telephone (817) __885__ - __1249_____ Ext. ________

Facsimile (817) ___885__ - __2986_____

B. Facility Location

Temporary source? ___Yes _X_No Plant site location ___39.896944, -109.605556_____________

____

City ____Roosevelt_________ State_UT__ County___Uintah____ EPA Region_8__

Is the facility located within:

Indian lands? _X – Indian Airshed___YES ___ NO OCS waters? ___YES _X_ NO

Non-attainment area? ___ YES _X_NO If yes, for what air pollutants? ___N/A___

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

C. Owner

Name ____XTO Energy, Inc.___________ Street/P.O. Box ____810 Houston Street, Petro-4_______

City ______Fort Worth_____________________ State__TX__ ZIP___76102_ - ________

Telephone (_817_) __885____ - ___1249_______ Ext_________

D. Operator

Name __XTO Energy, Inc.________ Street/P.O. Box _810 Houston Street, Petro-4____________

City _____Fort Worth__________________________ State __TX__ ZIP _76102___ - _______

Telephone (__817___) __885____ - ____1249______ Ext_________

E. Application Type

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

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

___ Group Processing, MPM _X__ Administrative Amendment

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

For permit renewal, what is the expiration date of current permit? _____/__N/A__/_____

F. Applicable Requirement Summary

Mark all types of applicable requirements that apply.

___ SIP	___ FIP/TIP	___ PSD	___Non-attainment NSR
___ Minor source NSR	___ Section 111	___ Phase I acid rain	___Phase II acid rain
___ Stratospheric ozone	___ OCS regulations	_X_ 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.

None

H. Process Description

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

Process	Products	SIC
Natural Gas Production	Natural Gas	1311

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
	No Changes Administrative Amendment – Owner/Operator Change

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.

No Changes Administrative Amendment - Owner/Operator Change

NOx ______ tons/yr VOC _______ tons/yr SO2 ___tons/yr

PM-10 _______ tons/yr CO ______ tons/yr Lead ________ tons/yr

Total HAP ____tons/yr

Single HAP emitted in the greatest amount _____________ PTE ____ tons/yr

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

K. Existing Federally-Enforceable Permits

Permit number(s) __None – Pending Permit ___ Permit type _______ Permitting authority _________

Permit number(s) _ _ Permit type _Consent Decree_ Permitting authority__EPA__

L. Emission Unit(s) Covered by General Permits

Emission unit(s) subject to general permit ____

Check one: ___ Application made ___ Coverage granted

General permit identifier ______________________________ Expiration Date ____/____/____

M. Cross-referenced Information

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

INSTRUCTIONS FOLLOW

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS (CTAC)

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

A. Responsible Official

Name: (Last) ____Rose______________ (First) _____Kenneth_____ (MI) S__

Title ____SR VP Midstream Operations

Street or P.O. Box ___810 Houston Street_______________________

City _____Fort Worth__________ State TX__ ZIP 76102_____ - 6298__

Telephone (__817) __885 - __1623___ Ext. _______ Facsimile (_817) _885_ - _2683______

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) ____________KSRose____________

Name (typed) _____Kenneth S. Rose______ Date: __7_/_18_/_2013__

Summit Gas Gathering, LLC
810 Houston Street
Ft. Worth, TX 76102-6298
(817) 870-2800 (off)

RECEIVED
JUN 18 2012
8P - AR

June 12, 2012

Update to LCC-1 and LCC-3 Engines
Little Canyon Unit Compressor Station
Permit # V-OU-0016-06.00
Uintah County, UT

Via FedEx Standard Overnight Mail: 7936 6773 5419

Mr. Eric Wortman
Air Program – US EPA Region 8
Part 71 – Permitting Monitoring, Modeling Unit
1595 Wynkoop St. (8P-AR)
Denver, CO 80202-1129

Dear Mr. Wortman:

Summit Gas Gathering, LLC (SGG) respectfully submits the attached update to the Title V Permit Application to include changes to 2 existing engines located at the Little Canyon Unit Compressor Station.

- LCU Compressor #1 (LCC-1) – Caterpillar 3516LE, S/N: 4EK04570 will be replaced on June 18, 2012 with a like-kind replacement engine, Caterpillar 3516LE, S/N: 4EK05034. SGG has updated the Title V Permit Application to include the new serial number and catalyst information of the engine. No other updates were made to the application.
- LCU Compressor #3 (LCC-3) – Caterpillar 3516LE, S/N: 4EK04875 was removed on January 24, 2012. SGG has updated the application to include "TBD" (to be determined) in certain portions of the application. This will provide flexibility to add an engine to this site at a later date. SGG will notify the EPA, Region 8 accordingly when this occurs.

No other updates were made to the Title V Permit Application. Should you have any questions, please feel free to contact me at 817-885-2845 or via e-mail at Clare_Hoang@xtoenergy.com.

Sincerely,

Clare Hoang
Environmental Engineer
XTO Energy Inc.

Via FedEx Standard Overnight Mail: 7984 9827 8192

Cc: Ms. Alexis North
U.S. EPA Region 8 – Enforcement Division
1595 Wynkoop Street (8P-AR)
Denver, Colorado 80202-1129

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 __LCC-1__________ Description__Caterpillar 3516 LE engine___________

SIC Code (4-digit) __1311________ SCC Code_311000203_______

B. Emissions Unit Description

Primary use ___Natural Gas Compression_____________ Temporary Source ___Yes _x__No

Manufacturer __Caterpillar__________________ Model No. __3516LE____________________

Serial Number __4EK05034________________ Installation Date__05/18/2012___

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) __Natural gas compressor engine___________________________

Boiler horsepower rating____1260hp________ 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 __9.8____MM BTU/hr Max. Design Heat Input ___9.8_____MM BTU/hr

C. Fuel Data

Primary fuel type(s)___Natural Gas_____ Standby fuel type(s)__-----____________________

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	0	0	1004 Btu/scf

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	85.5 MMscf	9.8 Mscf	85.5 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID___LCC-1____ Device type___Oxidation Catalyst_______________________

Air pollutant(s) Controlled_ HCHO and CO__ Manufacturer__Miratech_______________

Model No.__IQ 26 12 L1 Serial No.__ 1Q 1468_________

Installation date__10_/_01_/_2005_ Control efficiency (%) _<=14 ppmvd @ 15%O2 for CH2O_

Efficiency estimation method____Manufacturer Specifications___________________

F. Ambient Impact Assessment

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($^{\circ}$F) ____________.______ Design stack flow rate (ACFM) ____________._____

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

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 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 __LCC-2_________ Description___Caterpillar 3516LE engine___________

SIC Code (4-digit) _1311_________ SCC Code_311000203______

B. Emissions Unit Description

Primary use __Natural Gas Compression______________ Temporary Source ___Yes _X__No

Manufacturer __Caterpillar______________________ Model No. ___3516LE__________

Serial Number __4EK02344____________ Installation Date_TBD__

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) ___Natural Gas Compressor Engine____________________________

Boiler horsepower rating__1260 hp___________ 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 __9.8____MM BTU/hr Max. Design Heat Input __9.8_____MM BTU/hr

C. Fuel Data

Primary fuel type(s)___Natural Gas__________ Standby fuel type(s)___NA_______________

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	0	0	1004 Btu/scf

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	85.5 MMscf	9.8 Mscf	85.5 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID__LCC-2_____ Device type___Oxidation Catalyst______________________

Air pollutant(s) Controlled_ HCHO and CO Manufacturer___EMIT__________________

Model No.___EA 3050-1200-D__ Serial No. 2007-7-1202 / 089-010___________

Installation date___03/__29_/_2010 _ Control efficiency (%)_<=14 ppmvd @ 15%O2 for CH2O_

Efficiency estimation method___Manufacturer Specifications_______________________

F. Ambient Impact Assessment

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) ______________.________

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 __LCC-3_________ Description___Caterpillar 3516LE engine___________

SIC Code (4-digit) _1311_________ SCC Code_311000203______

B. Emissions Unit Description

Primary use __Natural Gas Compression______________ Temporary Source ___Yes _X__No

Manufacturer __Caterpillar______________________ Model No. ___3516LE__________

Serial Number __TBD____________ Installation Date_TBD__

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) ___Natural Gas Compressor Engine____________________________

Boiler horsepower rating__1260 hp___________ 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 __9.8____MM BTU/hr Max. Design Heat Input __9.8_____MM BTU/hr

C. Fuel Data

Primary fuel type(s)___Natural Gas__________ Standby fuel type(s)___NA_______________

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	0	0	1004 Btu/scf

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	85.5 MMscf	9.8 Mscf	85.5 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID__LCC-3_____ Device type___Oxidation Catalyst______________________

Air pollutant(s) Controlled_ HCHO and CO Manufacturer___TBD___________

Model No.___TBD___ Serial No. __TBD__________________

Installation date___/___/__ Control efficiency (%)_<=14 ppmvd @ 15%O2 for CH2O_

Efficiency estimation method___Manufacturer Specifications_______________________

F. Ambient Impact Assessment

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

Stack height (ft) ___________.______ Inside stack diameter (ft) __________.______

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

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

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 04/30/2012

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID ___LCC-4________ Description_____ Caterpillar 3516LE engine ___________

SIC Code (4-digit) ___1311_______ SCC Code___311000203_____

B. Emissions Unit Description

Primary use ______ Natural Gas Compression _________ Temporary Source ___Yes _X__No

Manufacturer _____Caterpillar________________ Model No. ______3516LE___________

Serial Number _____4EK02067__________________ Installation Date__8__/_12__/__2010__

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) ______Natural gas Compressor Engine______________________

Boiler horsepower rating_____1260 HP_________ 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 ____9.8___MM BTU/hr Max. Design Heat Input ___9.8____MM BTU/hr

C. Fuel Data

Primary fuel type(s)__________________ Standby fuel type(s)____________________

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	0	0	1004 Btu/scf

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
Natural Gas	85.5 MMscf	9.8 Mscf	85.5 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID___LCC-4_________ Device type________Oxidation catalyst___________

Air pollutant(s) Controlled___HCHO and CO_____ Manufacturer_______EMIT______________

Model No.___EA-3050-1200-D____________ Serial No.____2007-Z-1220 / 089-009______

Installation date_3_/_29_/_2010__ Control efficiency (%) _<= 14 ppmvd@15%O2 for CH2O __
Efficiency estimation method____Manufacturer's Specifications____________________

G. Ambient Impact Assessment

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) _____________.________

Summit Gas Gathering, LLC
810 Houston Street
Ft. Worth, TX 76102-6298
(817) 870-2800 (off)

February 17, 2012

Responsible Official Notification of Change
40 CFR Part 71 and 40 CFR Part 63
Uintah County, UT

RECEIVED
FEB 2_ 2012
8P - AR

Via FedEx 2Day: 7932 4251 8563

Mr. Eric Wortman
U.S. EPA Region 8
Office of Partnerships & Regulatory Assistance
1595 Wynkoop
Denver, CO 80202

Dear Mr. Wortman:

Due to recent internal reorganization, Summit Gas Gathering, LLC (SGG), respectfully submits a Responsible Official Notification of Change for all sources in Uintah County, UT subject to 40 CFR 71 and 40 CFR 63. These sources include, but are not limited to, the following:

- Kings Canyon Unit Compressor Station – 40 CFR 71 Permit # V-OU-0019-07.00
- TAP-4 Compressor Station - 40 CFR 71 Permit # V-OU-0017-07.00
- TAP-5 Compressor Station - 40 CFR 71 Permit # V-OU-0018-07.00
- Little Canyon Unit Compressor Station – 40 CFR 71 Permit # Pending Issuance
- River Bend Dehydrator Site & Accompanying Wellsites – 40 CFR 71 Permit # Pending Issuance

SGG confirms that the individuals listed in the table below meet the definition of Responsible Official stated in 40 CFR 63.2 and 40 CFR 71.2.

Current Designated Responsible Official	**New Designated Responsible Official**
Mr. Nick Dungey	Mr. Kenneth S. Rose
Chairman of the Board and President	Vice President of Natural Gas Operations
810 Houston Street	810 Houston Street
Fort Worth, TX 76102	Fort Worth, TX 76102
817-885-2440 - Office	817-870-2800 - Office
RO Designation ends March 16, 2012	**RO Designation begins March 17, 2012**

As stated in 40 CFR 63.2 and 40 CFR 71.2, Responsible Official is considered the following for a corporation such as SGG:

(1) *For a corporation: A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities and either:*

(i) The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or

Summit Gas Gathering, LLC
810 Houston Street
Ft. Worth, TX 76102-6298
(817) 870-2800 (off)

(ii) The delegation of authority to such representative is approved in advance by the Administrator.

Attached is the completed CTAC form signed by the current designated Responsible Official for the operations of the Title V, 40 CFR Part 71 and 40 CFR Part 63 facilities referenced in this request.

Should you have any questions, please feel free to contact me at 817-885-2845 or via e-mail at Clare_Hoang@xtoenergy.com.

Sincerely,

Clare Hoang
Environmental Engineer
XTO Energy Inc.

Cc: Via FedEx 2 Day Mail: 7932 4252 2875
Mr. Josh Rickard
Office of Enforcement and Compliance
1595 Wynkoop Street
Denver, Colorado 80202

United States Environmental Protection Agency

Federal Operating Permit Program (40 CFR Part 71)

CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS (CTAC)

This form must be completed, signed by the "Responsible Official" designated for the facility or emission unit, and sent with each submission of documents (i.e., application forms, updates to applications, reports, or any information required by a part 71 permit). This certification is also being used to certify documents and reports submitted as part of the Consent Decree for U.S. Civil Action No. 2:09-CV-00331-SA.

A. Responsible Official

Name: (Last) Dungey (First) Nick (MI) J

Title Senior Vice President of Natural Gas Operations - XTO Energy

Street or P.O. Box 810 Houston St.

City Fort Worth State TX ZIP 76102 -

Telephone (817) 885-2440 Ext. Facsimile (817) 870 - 8441

B. Certification of Truth, Accuracy and Completeness (to be signed by the responsible official and includes the certification language as stated in Paragraph 52 of the E.P.A. Consent Decree)

I certify under penalty of law that this document and all attachments were prepared under my supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Name (signed) Nick J. Dungey

Name (typed) Nick Dungey Date: 2/16/2012

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

July 28, 2011

MEMORANDUM

SUBJECT: Summit Gas Gathering (XTO Energy) Uinta Basin Operations

FROM: Eric Wortman, Permit Engineer, EPA Region 8 Air Program

TO: Initial Title V Permit Files for the Tap-4 Compressor Station; Tap-5 Compressor Station, Little Canyon Unit Compressor Station, and Riverbend Dehydration Site.

On May 25, 2011, the EPA requested additional information from Summit Gas Gathering to perform a source determination analysis on oil and natural gas production facilities located in the Uintah Basin. Summit Gas Gathering submitted additional information on July 28, 2011. At this time, a single source determination has not been made by the Agency and therefore these documents are not included in this permit docket regarding this permit action. Please refer to FRED ID# 89164 "Summit Gas Gathering (XTO Energy), Multiple U&O Facilities – Source Determination Analysis" to review these submittals and other correspondence regarding the pending analysis.

XTO ENERGY

RECEIVED
MAR 14 2011
8P - AR

March 10, 2011

Mr. Eric Wortman
Air Program - US EPA Region 8
Part 71 - Permitting, Monitoring and Modeling Unit
1595 Wynkoop St. (8P-AR)
Denver, CO 80202-1129

Sent Via Fedex
Tracking No. 0201 7945 1865 2127

RE: XTO Energy
Tap-4 Compressor Station - Uintah County, Utah – Part 71 Permit # V-OU-0017-07.00
Tap-5 Compressor Station - Uintah County, Utah – Part 71 Permit # V-OU-0018-07.00
Little Canyon Unit Compressor Station – Uintah County, Utah – Part 71 Permit Pending
Part 71 Permit Application Modifications

Dear Mr. Wortman:

Summit Gas Gathering, LLC, hereby submits the accompanying information related to Title V - Part 71 Permit Applications for the following facilities:

- Tap-4 Compressor Station located in Uintah County, Utah – Application Update
- Tap-5 Compressor Station located in Uintah County, Utah – Application Update
- Little Canyon Unit Compressor Station located in Uintah County, Utah – Application Update

The operational changes applicable to the Tap-5 and Little Canyon Stations are detailed in separate application update packages attached to this letter. The changes reflect updates to the equipment that was originally represented in the applications. In addition, as discussed, the Tap-4 Compressor Station is currently scheduled to be permanently shut down from June of 2011 through July of 2011. No exact date for the Tap-4 shutdown can currently be set due to the varying construction project planning schedules. However, with regard to the current permit application, only minor equipment changes were made to this location. The minor equipment changes to the Tap-4 permit application are detailed in the accompanying attachment. Please let me know how you want to proceed with the Tap-4 application.

If you should have any questions or require additional information, please feel free to contact me via e-mail at craig_allison@xtoenergy.com or at (817) 885-2672.

Sincerely,
Summit Gas Gathering, LLC / XTO Energy

Craig Allison
EH&S Advisor

Encl: Tap-5 and Little Canyon Unit – Updated Part 71 Applications
Tap-4 – Part 71 Minor Application Revisions
Certification of Truth, Accuracy, and Completeness (CTAC)

Cc: Mr. Josh Rickard, U.S. EPA - Region 8 Enforcement Division (w/o attachments)
Damien Jones, XTO – SGG Roosevelt NGO Office

United States Environmental Protection Agency

Federal Operating Permit Program (40 CFR Part 71)

CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS (CTAC)

This form must be completed, signed by the "Responsible Official" designated for the facility or emission unit, and sent with each submission of documents (i.e., application forms, updates to applications, reports, or any information required by a part 71 permit). This certification is also being used to certify documents and reports submitted as part of the Consent Decree for U.S. Civil Action No. 2:09-CV-00331-SA.

A. Responsible Official

Name: (Last) **Dungey** (First) **Nick** (MI) **J**

Title **Senior Vice President of Natural Gas Operations - XTO Energy**

Street or P.O. Box **810 Houston St.**

City **Fort Worth** State **TX** ZIP **76102** - ____

Telephone (817) 885-2440 Ext. ____ Facsimile (817) 870 - 8441

B. Certification of Truth, Accuracy and Completeness (to be signed by the responsible official and includes the certification language as stated in Paragraph 52 of the E.P.A. Consent Decree)

I certify under penalty of law that this document and all attachments were prepared under my supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Name (signed) Nick J. Dungey

Name (typed) **Nick Dungey** Date: 3 / 7 / **2011**

Little Canyon Unit Compressor Station – Application Update Information – February 2011

The following updates are being made to the last Part 71 Application:

- Add one (1) additional Caterpillar 3516LE engine to the station on August 12, 2010. This engine is represented as Unit # LCC-4 and has a serial number of 4EK02067. A total of four natural-gas fired combustion engines are located at the LCU Compressor Station.
- The original engine unit # LCC-2 (serial # 4EK04571) was removed from the site on November 19, 2010. This replacement engine (serial # 4EK02344) is being removed from the Tap-4 Compressor Station in June of 2011and will be relocated to the Little Canyon Compressor Station as Unit # LCC-2.
- Add pipeline and compressor blowdown venting and compressor starter emissions to the insignificant emission source list.
- Potentially include the emissions from the LCU 2-6GX wellsite, which is located approximately 1,000 feet from the LCU Compressor Station. The gas from the LCU 2-6GX well flows into the gathering system that ultimately flows into the LCU Compressor Station, however, the well is not located on the same location or pad location as the LCU Compressor Station. The potential emissions from this wellsite are attached to this information update.
- Change to official owner / operator name to XTO Energy from Summit Gas Gathering, LLC.
- As a result of the changes stated in this application update, no regulatory applicability changes are applicable to the original submittal.

SGG Little Canyon Unit (LCU) Compressor Station
Process Description – Update February 2011

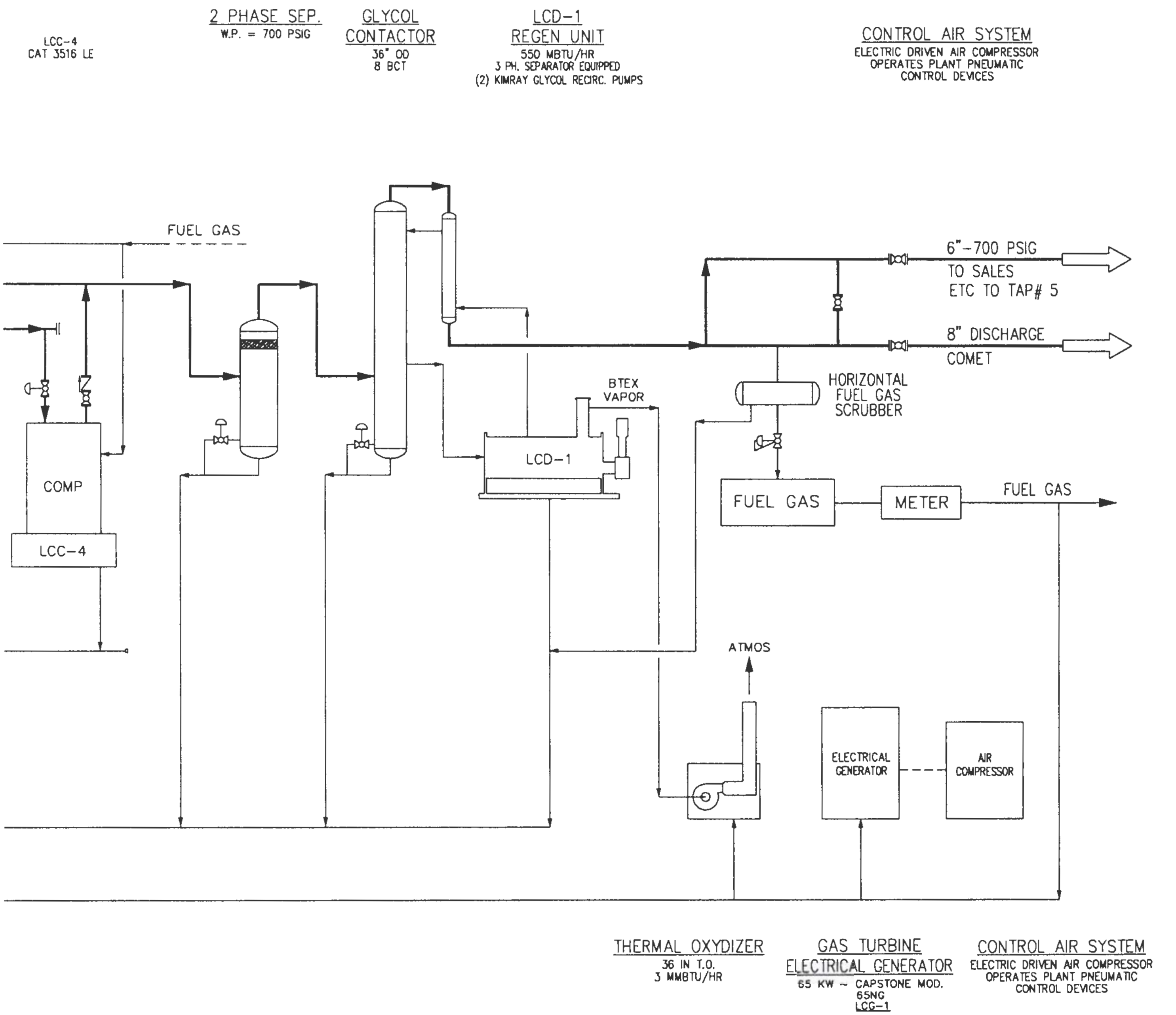
The LCU Facility is a natural gas compressor station consisting of the following equipment:

- One (1) inlet two-phase gas scrubber (separator) operating at an approximate line pressure of 50 psig and a 0.25 mmBTU/hr natural gas-fired heater.
- Four (4) Caterpillar G3516TALE compressor engines (LCC-1, LCC-2, LCC-3, and LCC-4).
- One (1) compressor discharge two-phase gas scrubber (separator) operating at an approximate line pressure of 700 psig.
- One (1) 30 kW Capstone natural-gas fired microturbine driven generator (LCG-1).
- Two (2) 400-barrel slop-tanks (LCT-1 and LCT-2) each with a 0.5 mmBTU/hr tank heater,
- One (1) natural gas dehydrator with (LCD-1):
    - A maximum natural gas process flow of 25 mmscfd natural gas, and
    - One (1) 0.55 mmBTU/hr TEG reboiler heater
    - One BTEX emissions control system consisting of a Thermal Oxidizer with a 3.0 mmBTU/hr burner.

The basic process flow at the facility is as follows:

Natural gas produced from area wells is sent to the compressor station through gathering flowlines. Once the gas enters the station, it flows through a separator (scrubber) in order to reduce water and condensable liquids content in the gas stream prior to entry into the compressors. The liquids produced from the on-site scrubbers are then sent to the 400-barrel on-site slop tanks (LCT-1 and LCT-2) for storage prior to being hauled offsite. Following the inlet scrubber, the gas is compressed with three (3) natural gas internal combustion engine driven compressors (LCC-1, LCC-2, LCC-3, and LCC-4) up to a higher pressure (approx 700 psig). The higher pressure gas then passes through a discharge scrubber (separator) prior to entry into TEG natural gas dehydrator water removal system. The TEG natural gas dehydrator water removal system consists of one (1) 25 mmscfd natural gas TEG dehydrator (LCD-1) with one (1) 0.55 mmBTU/hr TEG process heater with regenerator emissions controlled by a Thermal Oxidizer. The natural gas dehydrator utilizes a BTEX emissions control system that captures vapors from the still vent and sends the vapors to a Thermal Oxidizer for destruction. Following dehydration the natural gas stream leaves the station via a metered sales pipeline. The station has on-site electrical power supplied by one (1) Capstone natural-gas fired microturbine-driven generator (LCG-1). In addition, the pneumatic control devices are operated by plant air supplied by the on-site electric-driven air compressor.

In addition, the LCU 2-6GX natural gas wellsite is located approximately 1,000 feet from the LCU Compressor Station. This wellsite is not on the same site pad as the LCU Compressor Station. In addition, the gas produced from the LCU 2-6GX wellsite flows into the common, Little Canyon Unit area gas gathering system and does not flow directly into the LCU Compressor Station. The LCU 2-6GX wellsite consists of one (1) natural gas well producing a maximum of 0.2 mmscfd of natural gas and a maximum of 26 barrels of condensate / water liquids per day, one (1) natural-gas dehydrator that is designed to handle less than 1 mmscfd of gas throughput, one (1) 300-barrel atmospheric storage tank, one (1) 400-barrel atmospheric storage tank, two (2) 250 mbtu/hr gas-fired process heaters, one (1) 500 mbtu/hr process heater, a produced liquids truck loading pipeline, and one (1) well pumping unit engine consisting of an 18-horsepower natural gas fired Arrow C-96 pump engine.



RAWINGS

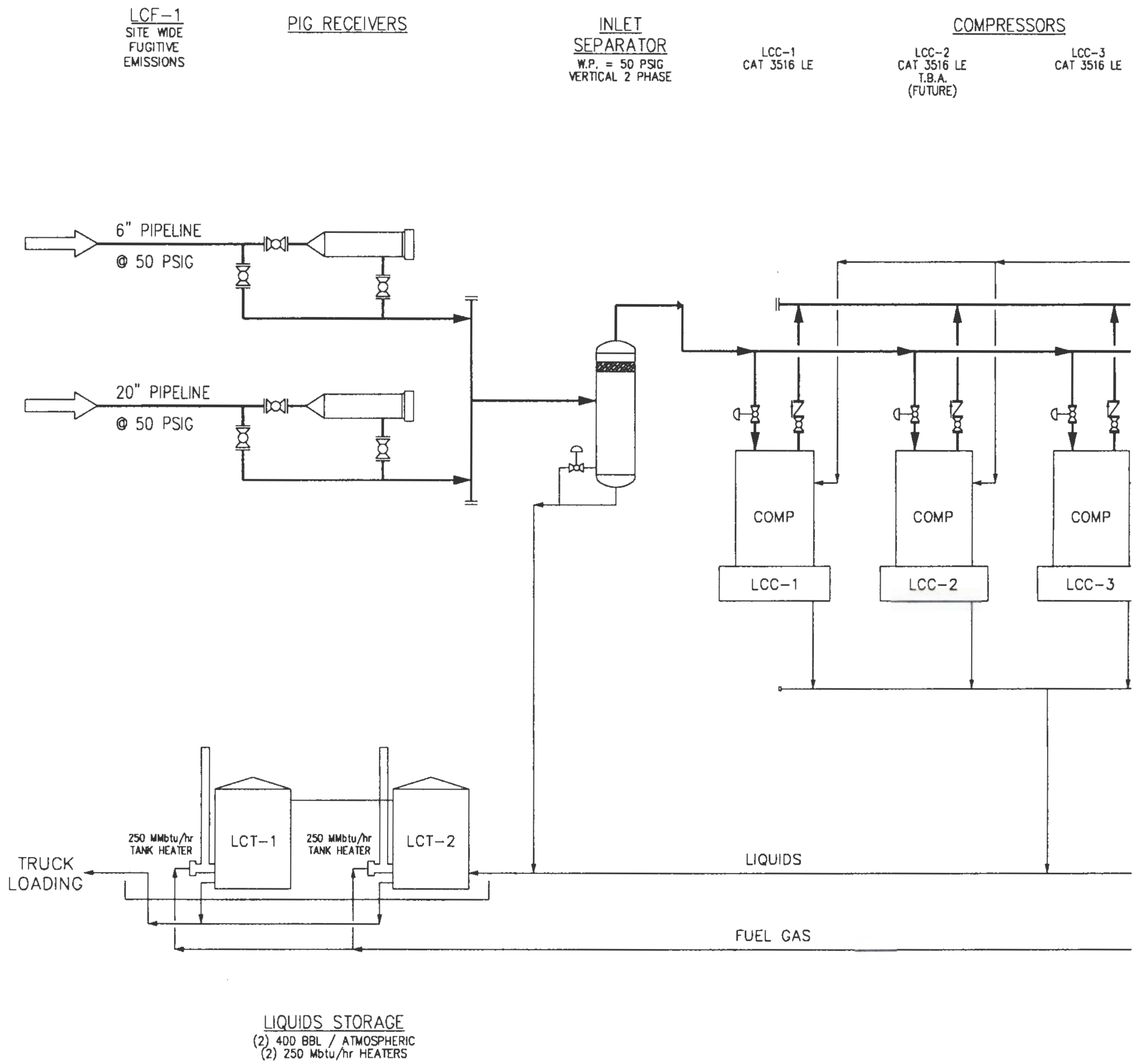
DRAWING NO.	TITLE

NOTICE

THIS DRAWING HAS NOT BEEN PUBLISHED AND IS THE SOLE PROPERTY OF XTO ENERGY, INC. AND IS LENT TO THE BORROWER FOR HIS CONFIDENTIAL USE ONLY. IN CONSIDERATION OF THE LOAN OF THIS DRAWING, THE BORROWER PROMISES AND AGREES TO RETURN IT UPON REQUEST AND AGREES THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF DIRECTLY OR INDIRECTLY, NOR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SPECIFICALLY FURNISHED.

SUMMIT GAS GATHERING

APPROVED:	DATE	TITLE: AIR PERMIT PROCESS FLOW DIAGRAM LCU COMPRESSOR SITE FACILITY #711310 ROOSEVELT, UTAH		
CHECKED:				
DESIGNED:				
DRAWN: J DAVIS	01/10	JOB No:	SCALE	DWG. NO.: D-200-100	REV. 4



GENERAL NOTES

NOTE:

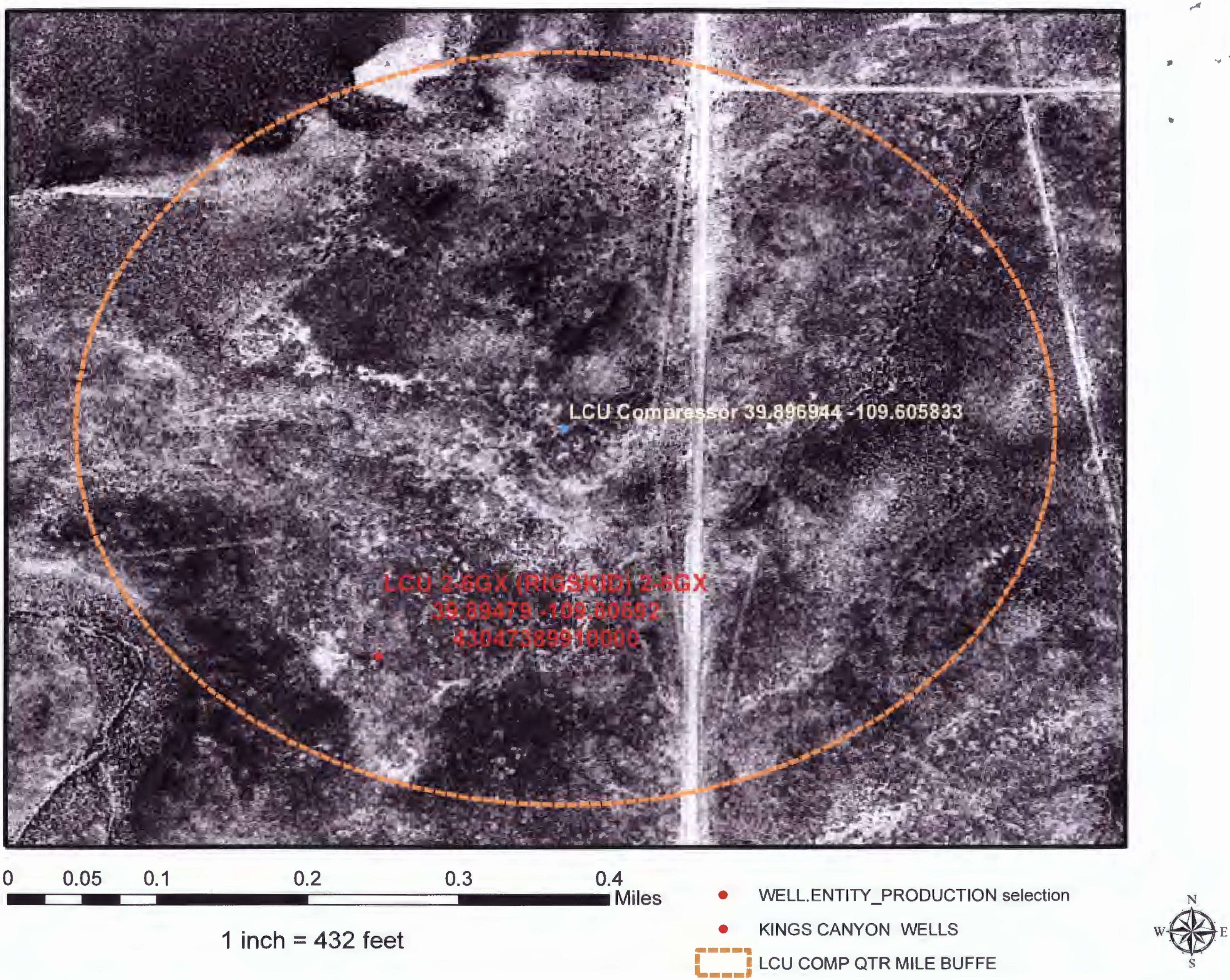
WORKING PRESSURES (W.P.) OF EQUIPMENT AND LINE PRESSURES ARE APPROXIMATE AND SUBJECT TO OPERATIONAL VARIATIONS

REVISIONS

MK.	DESCRIPTION	DATE	CK	APPR
1	GENERAL	2/10		
2	CORRECTED HEAT DUTY	3/10		
3	AS-BUILT	12/02		
4	GENERAL	12-16-10		

REFEREN

DRAWING NO.	TITLE


LCU Compressor 39.896944 -109.605833
LCU 2-6GX (RIGSKID) 2-6GX
39.89479 -109.60692
43047389910000
0
0.05
0.1
0.2
0.3
0.4
Miles
1 inch = 432 feet
WELL.ENTITY_PRODUCTION selection
KINGS CANYON WELLS
LCU COMP QTR MILE BUFFE
N
W
E
S

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 _____Little Canyon Unit Compressor Station________

Mailing address: Street or P.O. Box ____810 Houston St.________________________________

City ___Ft. Worth___________________________ State __TX___ ZIP __76102______-________

Contact person: ___Craig Allison_________________ Title __EH&S Advisor_______________________

Telephone (_817__) __885___ - __2672_____ Ext. _________

Facsimile (__817_) __885___ - __2683______

B. Facility Location

Temporary source? ___Yes _X__No Plant site location _Lat. 39°53'49"N, Long. 109°36'20"W

City ___Roosevelt______________ State__UT_ County_Uintah_________ EPA Region__8__

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 _XTO Energy________ Street/P.O. Box __810 Houston St. _________

City ___Ft. Worth______________________________ State_TX___ ZIP_76102___ - ________

Telephone (__817) _885__ - _2672_____ Ext_________

D. Operator

Name ___XTO Energy______ Street/P.O. Box ___810 Houston St.____________

City _____Ft. Worth___________________________ State __TX__ ZIP __76102_______ - _______

Telephone (_817_) _885__ - __2672____ Ext_________

H. Process Description

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

Process	Products	SIC
Natural Gas Production	Natural Gas	1311

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
LCC-1	Caterpillar Model 3516LE compressor engine 1260 site-rated horsepower
LCC-2	Caterpillar Model 3516LE compressor engine 1260 site-rated horsepower
LCC-3	Caterpillar Model 3516LE compressor engine 1260 site-rated horsepower
LCC-4	Caterpillar Model 3516LE compressor engine 1260 site-rated horsepower
LCD-1	25 MMscfd Glycol dehydrator controlled by a thermal oxidizer
LCF-1	Fugitive Emissions
LCG-1	Capstone 30 kW Microturbine Genset
LCT-1	One (1) 400-bbl slop tank #1
LCT-2	One (1) 400-bbl slop tank #2

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 ___73.8____ tons/yr VOC ___153.2_____ tons/yr SO2 ___0.1_____ tons/yr

PM-10 __0.1_______ tons/yr CO __114.2______ tons/yr Lead ___0.0_____ tons/yr

Total HAP ___43.8_____ tons/yr

Single HAP emitted in the greatest amount ____Xylene _____________ PTE _12.9____ tons/yr

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

K. Existing Federally-Enforceable Permits

Permit number(s) _________________ Permit type _____________ Permitting authority __________

Permit number(s) _________________ Permit type _____________ Permitting authority __________

L. Emission Unit(s) Covered by General Permits

Emission unit(s) subject to general permit ____

Check one: ___ Application made ___ Coverage granted

General permit identifier ______________________________ Expiration Date ____/____/____

M. Cross-referenced Information

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

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 __LCC-2_________ Description___Caterpillar 3516LE engine___________

SIC Code (4-digit) _1311_________ SCC Code_311000203______

B. Emissions Unit Description

Primary use __Natural Gas Compression______________ Temporary Source ___Yes _X__No

Manufacturer __Caterpillar_____________________ Model No. ___3516LE__________

Serial Number __4EK02344_____________ Installation Date_TBD__

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) ___Natural Gas Compressor Engine____________________________

Boiler horsepower rating__1260 hp___________ 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 __9.8____MM BTU/hr Max. Design Heat Input __9.8_____MM BTU/hr

C. Fuel Data

Primary fuel type(s)___Natural Gas__________ Standby fuel type(s)____NA_______________

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	0	0	1004 Btu/scf

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	85.5 MMscf	9.8 Mscf	85.5 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID__LCC-2_____ Device type___Oxidation Catalyst______________________

Air pollutant(s) Controlled_ HCHO and CO Manufacturer___EMIT__________________

Model No.___EA 3050-1200-D__ Serial No. 2007-7-1202 / 089-010__________

Installation date___03/__29_/_2010_ Control efficiency (%)_<=14 ppmvd @ 15%O2 for CH2O_

Efficiency estimation method___Manufacturer Specifications_______________________

8

F. Ambient Impact Assessment

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) ________.____

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 __LCC-3_________ Description___Caterpillar 3516LE engine___________

SIC Code (4-digit) _1311_________ SCC Code_311000203______

B. Emissions Unit Description

Primary use __Natural Gas Compression______________ Temporary Source ___Yes _X__No

Manufacturer __Caterpillar_____________________ Model No. ___3516LE__________

Serial Number __4EK04875____________ Installation Date_5/23/2008__

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) ___Natural Gas Compressor Engine____________________________

Boiler horsepower rating__1260 hp___________ 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 __9.8____MM BTU/hr Max. Design Heat Input __9.8_____MM BTU/hr

9(b)

C. Fuel Data

Primary fuel type(s)___Natural Gas__________ Standby fuel type(s)___NA_____ _____ _____

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	0	0	1004 Btu/scf

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	85.5 MMscf	9.8 Mscf	85.5 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID__LCC-3_____ Device type___Oxidation Catalyst______________________

Air pollutant(s) Controlled_ HCHO and CO Manufacturer___GT Exhaust___________

Model No.___201V0-3-0-4112-1-30449___ Serial No. 95199-A ____________________

Installation date___09/__01_/_2008_ Control efficiency (%)_<=14 ppmvd @ 15%O2 for CH2O_

Efficiency estimation method___Manufacturer Specifications_______________________

F. Ambient Impact Assessment

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) ________.____

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United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 04/30/2012

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID ___LCC-4________ Description_____ Caterpillar 3516LE engine ___________

SIC Code (4-digit) ____1311_______ SCC Code___311000203_____

B. Emissions Unit Description

Primary use ______ Natural Gas Compression _________ Temporary Source ___Yes _X__No

Manufacturer _____Caterpillar________________ Model No. _______3516LE___________

Serial Number _____4EK02067_________________ Installation Date__8__/_12__/__2010__

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) ______Natural gas Compressor Engine______________________

Boiler horsepower rating_____1260 HP_________ 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 _____9.8___MM BTU/hr Max. Design Heat Input ___9.8____MM BTU/hr

C. Fuel Data

Primary fuel type(s)____________________ Standby fuel type(s)____________________

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	0	0	1004 Btu/scf

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	85.5 MMscf	9.8 Mscf	85.5 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID___LCC-4_________ Device type________Oxidation catalyst___________

Air pollutant(s) Controlled___HCHO and CO_____ Manufacturer_______EMIT______________

Model No.___EA-3050-1200-D____________ Serial No.____2007-Z-1220 / 089-009______

Installation date_3_/_29_/_2010__ Control efficiency (%) _<= 14 ppmvd@15%O2 for CH2O __

Efficiency estimation method____Manufacturer's Specifications______________________

G. Ambient Impact Assessment

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) __________.______

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 __LCG-1_________ Description_Capstone 30 kW Microturbine___

SIC Code (4-digit) __1311________ SCC Code_311000203_______

B. Emissions Unit Description

Primary use ___Power Generation_____________ Temporary Source ___Yes _x__No

Manufacturer __Capstone_______________ Model No. __C30NG____________________

Serial Number __Unknown________________ Installation Date__2/18/2010___

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) __Natural Gas fueled Microturbine___________________________

Boiler horsepower rating____30 kW________ 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 __0.4____MM BTU/hr Max. Design Heat Input __0.4______MM BTU/hr

C. **Fuel Data**

Primary fuel type(s)___Natural Gas_____ Standby fuel type(s)__-----___________________

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	0	0	1004 Btu/scf

D. **Fuel Usage Rates**

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	3.44 MMscf	0.4 Mscf	3.44 MMscf

E. **Associated Air Pollution Control Equipment**

Emissions unit ID___ None____ Device type___ ______________________

Air pollutant(s) Controlled_ __ Manufacturer________________

Model No.__ Serial No.__

Installation date______ Control efficiency (%) __

Efficiency estimation method____ __________________

F. Ambient Impact Assessment

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) ___________.______

United States Environmental Protection Agency

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

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	Truck loading (Condensate)	X	X
1	550 MBtu/hr Glycol Dehydrator Reboiler	X	X
1	500 MBtu/hr heater for slop tank #1	X	X
1	250 MBtu/hr heater for separator	X	X
1	500 MBtu/hr heater for slop tank #2	X	X
1	2,000 MBtu/hr heater for Thermal Oxidizer	X	X
1	Capstone Microturbine Genset (LCG-1)	X	X
1	Pipeline Pigging Emissions	X	X
1	Compressor Blowdown Emissions	X	X
1	Engine Startup Emissions	X	X

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United States Environmental Protection Agency

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

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
LCC-1	18.23	5.23	0.03	0.0	28.4	0.0	3.3
LCC-2	18.23	5.23	0.03	0.0	28.4	0.0	3.3
LCC-3	18.23	5.23	0.03	0.0	28.4	0.0	3.3
LCC-4	18.23	5.23	0.03	0.0	28.4	0.0	3.3
LCD-1	0.24	109.1	0.0	0.0	0.2	0.0	28.6
LCF-1	0.0	4.0	0.0	0.0	0.0	0.0	0.2
LCG-1	0.1	0.03	0.0	0.0	0.2	0.0	0.0
LCT-1	0.22	9.4	0.0	0.0	0.2	0.0	0.9
LCT-2	0.22	9.4	0.0	0.0	0.2	0.0	0.9
FACILITY TOTALS	73.8	153.2	0.1	0.0	114.2	0.0	43.8

United States Environmental Protection Agency

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

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 __LCC-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: Actual Annual Emissions (tons/yr)	Emission Rates: Potential to Emit: Hourly (lb/hr)	Emission Rates: Potential to Emit: Annual (tons/yr)	CAS No.
NOx		4.2	18.2	
CO		6.5	28.4	
VOC		1.2	5.2	
Acetaldehyde		0.1	0.4	75070
Acrolein		0.1	0.2	107028
Formaldehyde		0.6	2.7	50000

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United States Environmental Protection Agency

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

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 __LCC-4___________

B. Identification and Quantification of Emissions

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

Air Pollutants	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx		4.2	18.2	
CO		6.5	28.4	
VOC		1.2	5.2	
Acetaldehyde		0.1	0.4	75070
Acrolein		0.1	0.2	107028
Formaldehyde		0.6	2.7	50000

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XTO Uinta - Little Canyon Unit - Uncontrolled PTE Emissions Summary

March 2011

EMISSIONS TOTALS

Equipment Name	EQ ID #	NOx		CO		VOC		PM/PM10		SO2		Total HAPs	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Compressor Engine #1	LCC-1	4.16	18.23	6.49	28.44	1.19	5.23	0.001	0.003	0.01	0.025	0.75	3.30
Compressor Engine #2	LCC-2	4.16	18.23	6.49	28.44	1.19	5.23	0.001	0.003	0.01	0.025	0.75	3.30
Compressor Engine #3	LCC-3	4.16	18.23	6.49	28.44	1.19	5.23	0.001	0.003	0.01	0.025	0.75	3.30
Compressor Engine #4	LCC-3	4.16	18.23	6.49	28.44	1.19	5.23	0.001	0.003	0.01	0.025	0.75	3.30
TEG Dehy #1 Reboiler Heater	LCU Dehy	0.055	0.241	0.046	0.202	0.003	0.013	0.004	0.018	0.000	0.001	0.001	0.005
TEG Dehydrator #1 Regenerator	LCD-1					24.912	109.121					6.536	28.627
Equipment Leaks	LCF-1					0.902	3.952					0.037	0.161
Tank Heaters		0.100	0.438	0.084	0.368	0.006	0.024	0.008	0.033	0.001	0.003	0.002	0.008
Fuel Cleanup Heater		0.025	0.110	0.021	0.092	0.001	0.006	0.002	0.008	0.000	0.001	0.0005	0.002
Slop Tanks (Two - 400 bbl each)						4.296	18.826					0.398	1.746
Condensate Truck Loading						0.066	0.288						
Generator #1 - Capstone C30NG Microturbine	LCG-1	0.000	0.084	0.000	0.223	0.000	0.029	0.000	0.000			0.000	0.000
Totals		**16.832**	**73.808**	**26.128**	**114.665**	**34.960**	**153.168**	**0.017**	**0.073**	**0.024**	**0.103**	**9.986**	**43.743**

:ation - Uncontrolled HAP Emissions Summary

nent Description	EQUIP ID	Run hours / yr	EMISSIONS TOTALS									
			CH20 tpy	Benzene tpy	Toluene tpy	Ethylbenzene tpy	Xylene tpy	Hexane tpy	2,2,4 TMP tpy	Acetaldehyde tpy	Acrolein tpy	TOTAL HAPs tpy
CAT 3516	LCC-1	8760	2.67	0.02	0.017	0.017	0.008			0.35	0.21	3.30
CAT 3516	LCC-2	8760	2.67	0.02	0.017	0.017	0.008			0.35	0.21	3.30
CAT 3516	LCC-3	8760	2.67	0.02	0.017	0.017	0.008			0.35	0.21	3.30
CAT 3516	LCC-4	8760	2.67	0.02	0.017	0.017	0.008			0.35	0.21	3.30
:ombustion - 1.5 mmbtu/hr burner	LCU Dehy	8760						0.004				0.005
Column and Flash Tank - 25 ımscfd max	LCD-1	8760		11.252	0.632	0.909	12.731	2.941	0.162			28.63
ɔnditioning Unit Heater		8760						0.002				0.002
wide Fugitives	LCF-1	8760		0.018	0.015		0.006	0.122				0.16
aters - 2 X .5 MMBTU each		8760						0.008				0.01
bl Atm storage tanks	80689; 80690	8760		0.194	0.454	0.010	0.102	0.852	0.134			1.75
Aicroturbine - 30KWe	LCG-1	8760		0.000	0.000	0.000	0.000			0.000	0.000	0.000
			10.697	11.538	1.169	0.987	12.870	3.929	0.296	1.397	0.859	43.742

XTO Little Canyon Unit Compress

March - 2011

Equipment Name	
Compressor Engine #1	
Compressor Engine #2	
Compressor Engine #3	
Compressor Engine #4	
TEG Dehy #1 Reboiler Heater	TEG Re
TEG Dehydrator #1 Regenerator	TEG Rebo
Fuel Cleanup Heater	Fue
Equipment Leaks	
Tank Heaters	Storage
Slop Tanks	2
Generator #1	Ca
Total HAP Emiss	

XTO Little Canyon Compressor Station - Uncontrolled Engine Emissions

NOx Calculations

ID #	Emission Points	Engine	Manufacturer's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method
LCC-1	Comp Eng 1	Caterpillar 3516	1.50	1260	4.163	4.38	18.234	Manufacturer's Data
LCC-2	Comp Eng 2	Caterpillar 3516	1.50	1260	4.163	4.38	18.234	Manufacturer's Data
LCC-3	Comp Eng 3	Caterpillar 3516	1.50	1260	4.163	4.38	18.234	Manufacturer's Data
LCC-4	Comp Eng 4	Caterpillar 3516	1.50	1260	4.163	4.38	18.234	Manufacturer's Data
				Total	**16.652**	lb/hr		
					72.936	tpy		

CO Calculations

ID #	Emission Points	Engine	Manufacturer's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	2.34	1260	6.494	4.38	28.445	Mfg's Data	0	28.44	6.49
LCC-2	Comp Eng 2	Caterpillar 3516	2.34	1260	6.494	4.38	28.445	Mfg's Data	0	28.44	6.49
LCC-3	Comp Eng 3	Caterpillar 3516	2.34	1260	6.494	4.38	28.445	Mfg's Data	0	28.44	6.49
LCC-4	Comp Eng 4	Caterpillar 3516	2.34	1260	6.494	4.38	28.445	Mfg's Data	0	28.44	6.49
				Total	**25.977**	lb/hr					
				Controlled	**113.78**	tpy					

VOC Calculations

NMNEHC

ID #	Emission Points	Engine	Mfg's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.43	1260	1.19	4.38	5.227	Mfg's Data	0	5.23	1.19
LCC-2	Comp Eng 2	Caterpillar 3516	0.43	1260	1.19	4.38	5.227	Mfg's Data	0	5.23	1.19
LCC-3	Comp Eng 3	Caterpillar 3516	0.43	1260	1.19	4.38	5.227	Mfg's Data	0	5.23	1.19
LCC-4	Comp Eng 4	Caterpillar 3516	0.43	1260	1.19	4.38	5.227	Mfg's Data	0	5.23	1.19
						Total	**4.77**	lb/hr			
						Controlled	**20.91**	tpy			

XTO Little Canyon Compressor Station - Uncontrolled Engine Emissions

PM Calculations **PM = PM10**

ID #	Emission Points	Engine	AP-42 PM Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	PM Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method
LCC-1	Comp Eng 1	Caterpillar 3516	0.0000771	0.007571	5.83724E-07	100.0%	0.00027	1260	0.00074	4.38	0.003	AP-42
LCC-2	Comp Eng 2	Caterpillar 3516	0.0000771	0.007571	5.83724E-07	100.0%	0.00027	1260	0.00074	4.38	0.003	AP-42
LCC-3	Comp Eng 3	Caterpillar 3516	0.0000771	0.007571	5.83724E-07	100.0%	0.00027	1340	0.00078	4.38	0.003	AP-42
LCC-4	Comp Eng 4	Caterpillar 3516	0.0000771	0.007571	5.83724E-07	100.0%	0.00027	1340	0.00078	4.38	0.003	AP-42
								Total	**0.003**	lb/hr		
								Controlled	**0.013**	tpy		

Formaldehyde Calculations

ID #	Emission Points	Engine	Mfg's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.22	1260	0.611	4.38	2.674	Mfg's Data	0	2.67	0.61
LCC-2	Comp Eng 2	Caterpillar 3516	0.22	1260	0.611	4.38	2.674	Mfg's Data	0	2.67	0.61
LCC-3	Comp Eng 3	Caterpillar 3516	0.22	1260	0.611	4.38	2.674	Mfg's Data	0	2.67	0.61
LCC-4	Comp Eng 4	Caterpillar 3516	0.22	1260	0.611	4.38	2.674	Mfg's Data	0	2.67	0.61
								Total	**2.44**	lb/hr	
								Controlled	**10.70**	tpy	

XTO Little Canyon Compressor Station - Uncontrolled Engine Emissions

Benzene Calculations

ID #	Emission Points	Engine	Benzene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Benzene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.00044	0.007571	3.33124E-06	100.0%	0.002	1260	0.0042	4.38	0.018	AP-42	0	0.018	0.0042
LCC-2	Comp Eng 2	Caterpillar 3516	0.00044	0.007571	3.33124E-06	100.0%	0.002	1260	0.0042	4.38	0.018	AP-42	0	0.018	0.0042
LCC-3	Comp Eng 3	Caterpillar 3516	0.00044	0.007571	3.33124E-06	100.0%	0.002	1260	0.0042	4.38	0.018	AP-42	0	0.018	0.0042
LCC-4	Comp Eng 4	Caterpillar 3516	0.00044	0.007571	3.33124E-06	100.0%	0.002	1260	0.0042	4.38	0.018	AP-42	0	0.018	0.0042
								Total	**0.017**	lb/hr					
								Controlled	**0.074**	tpy					

Toluene Calculations

ID #	Emission Points	Engine	Toluene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Toluene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.000408	0.007571	3.08897E-06	100.0%	0.0014	1260	0.004	4.38	0.017	AP-42	0	0.017	0.0039
LCC-2	Comp Eng 2	Caterpillar 3516	0.000408	0.007571	3.08897E-06	100.0%	0.0014	1260	0.004	4.38	0.017	AP-42	0	0.017	0.0039
LCC-3	Comp Eng 3	Caterpillar 3516	0.000408	0.007571	3.08897E-06	100.0%	0.0014	1260	0.004	4.38	0.017	AP-42	0	0.017	0.0039
LCC-4	Comp Eng 4	Caterpillar 3516	0.000408	0.007571	3.08897E-06	100.0%	0.0014	1260	0.004	4.38	0.017	AP-42	0	0.017	0.0039
								Total	**0.016**	lb/hr					
								Controlled	**0.068**	tpy					

Ethylbenzene Calculations

ID #	Emission Points	Engine	Ethylbenzene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Ethylbenzene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.0000397	0.007571	3.00569E-07	100.0%	0.0001	1260	0.0004	4.38	0.002	AP-42	0	0.0017	0.0004
LCC-2	Comp Eng 2	Caterpillar 3516	0.0000397	0.007571	3.00569E-07	100.0%	0.0001	1260	0.0004	4.38	0.002	AP-42	0	0.0017	0.0004
LCC-3	Comp Eng 3	Caterpillar 3516	0.0000397	0.007571	3.00569E-07	100.0%	0.0001	1260	0.0004	4.38	0.002	AP-42	0	0.0017	0.0004
LCC-4	Comp Eng 4	Caterpillar 3516	0.0000397	0.007571	3.00569E-07	100.0%	0.0001	1260	0.0004	4.38	0.002	AP-42	0	0.0017	0.0004
								Total	**0.002**	lb/hr					
								Controlled	**0.007**	tpy					

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XTO Little Canyon Compressor Station - Uncontrolled Engine Emissions

Xylene Calculations

ID #	Emission Points	Engine	Xylene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Xylene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.000184	0.007571	1.39306E-06	100.0%	0.0006	1260	0.002	4.38	0.008	AP-42	0	0.008	0.0018
LCC-2	Comp Eng 2	Caterpillar 3516	0.000184	0.007571	1.39306E-06	100.0%	0.0006	1260	0.002	4.38	0.008	AP-42	0	0.008	0.0018
LCC-3	Comp Eng 3	Caterpillar 3516	0.000184	0.007571	1.39306E-06	100.0%	0.0006	1260	0.002	4.38	0.008	AP-42	0	0.008	0.0018
LCC-4	Comp Eng 4	Caterpillar 3516	0.000184	0.007571	1.39306E-06	100.0%	0.0006	1260	0.002	4.38	0.008	AP-42	0	0.008	0.0018
								Total	**0.007**	lb/hr					
								Controlled	**0.031**	tpy					

SO2 Calculations

ID #	Emission Points	Engine	SO2 AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	SO2 Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method
LCC-1	Comp Eng 1	Caterpillar 3516	0.000588	0.007571	4.45175E-06	100.0%	0.0020	1260	0.006	4.38	0.025	AP-42
LCC-2	Comp Eng 2	Caterpillar 3516	0.000588	0.007571	4.45175E-06	100.0%	0.0020	1260	0.006	4.38	0.025	AP-42
LCC-3	Comp Eng 3	Caterpillar 3516	0.000588	0.007571	4.45175E-06	100.0%	0.0020	1260	0.006	4.38	0.025	AP-42
LCC-4	Comp Eng 4	Caterpillar 3516	0.000588	0.007571	4.45175E-06	100.0%	0.0020	1260	0.006	4.38	0.025	AP-42
								Total	**0.022**	lb/hr		
									0.098	tpy		

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XTO Little Canyon Compressor Station - Uncontrolled Engine Emissions

Acetaldehyde Calculations

ID #	Emission Points	Engine	Acetaldehyde AP 42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Acetaldehyde Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.00836	0.007571	6.32936E-05	100.0%	0.0287	1260	0.080	4.38	0.349	AP-42	0	0.349	0.0797
LCC-2	Comp Eng 2	Caterpillar 3516	0.00836	0.007571	6.32936E-05	100.0%	0.0287	1260	0.080	4.38	0.349	AP-42	0	0.349	0.0797
LCC-3	Comp Eng 3	Caterpillar 3516	0.00836	0.007571	6.32936E-05	100.0%	0.0287	1260	0.080	4.38	0.349	AP-42	0	0.349	0.0797
LCC-4	Comp Eng 4	Caterpillar 3516	0.00836	0.007571	6.32936E-05	100.0%	0.0287	1260	0.080	4.38	0.349	AP-42	0	0.349	0.0797
								Total	**0.319**	lb/hr					
								Controlled	**1.397**	tpy					

Acrolein Calculations

ID #	Emission Points	Engine	Acrolein AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Acrolein Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.00514	0.007571	3.89149E-05	100.0%	0.0177	1260	0.049	4.38	0.215	AP-42	0	0.215	0.0490
LCC-2	Comp Eng 2	Caterpillar 3516	0.00514	0.007571	3.89149E-05	100.0%	0.0177	1260	0.049	4.38	0.215	AP-42	0	0.215	0.0490
LCC-3	Comp Eng 3	Caterpillar 3516	0.00514	0.007571	3.89149E-05	100.0%	0.0177	1260	0.049	4.38	0.215	AP-42	0	0.215	0.0490
LCC-4	Comp Eng 4	Caterpillar 3516	0.00514	0.007571	3.89149E-05	100.0%	0.0177	1260	0.049	4.38	0.215	AP-42	0	0.215	0.0490
								Total	**0.196**	lb/hr					
								Controlled	**0.859**	tpy					

AP-42 Factors taken from Table 3.2-1, 3.2-2 and Table 3.2-3 Uncontrolled Emission Factors for 4-stroke Lean Burn Engines

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XTO Little Canyon Compressor Station - Controlled Engine Emissions

	Manufacturer's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method
516	1.50	1260	4.163	4.38	18.234	Manufacturer's Data
516	1.50	1260	4.163	4.38	18.234	Manufacturer's Data
516	1.50	1260	4.163	4.38	18.234	Manufacturer's Data
516	1.50	1260	4.163	4.38	18.234	Manufacturer's Data
		Total	**16.652**	lb/hr		
			72.936	tpy		

	Manufacturer's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
516	2.34	1260	6.494	4.38	28.445	Mfg's Data	79	5.97	1.36
516	2.34	1260	6.494	4.38	28.445	Mfg's Data	79	5.97	1.36
516	2.34	1260	6.494	4.38	28.445	Mfg's Data	79	5.97	1.36
516	2.34	1260	6.494	4.38	28.445	Mfg's Data	79	5.97	1.36
		Total	**5.455**	lb/hr					
		Controlled	**23.89**	tpy					

	Mfg's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
516	0.43	1260	1.19	4.38	5.227	Mfg's Data	22	4.08	0.93
516	0.43	1260	1.19	4.38	5.227	Mfg's Data	22	4.08	0.93
516	0.43	1260	1.19	4.38	5.227	Mfg's Data	22	4.08	0.93
516	0.43	1260	1.19	4.38	5.227	Mfg's Data	22	4.08	0.93
				Total	**3.72**	lb/hr			
				Controlled	**16.31**	tpy			

NOx Calculations

ID #	Emission Points
LCC-1	Comp Eng 1
LCC-2	Comp Eng 2
LCC-3	Comp Eng 3
LCC-4	Comp Eng 3

CO Calculations

ID #	Emission Points
LCC-1	Comp Eng 1
LCC-2	Comp Eng 2
LCC-3	Comp Eng 3
LCC-4	Comp Eng 3

VOC Calculations

ID #	Emission Points
LCC-1	Comp Eng 1
LCC-2	Comp Eng 2
LCC-3	Comp Eng 3
LCC-4	Comp Eng 3

XTO Little Canyon Compressor Station - Controlled Engine Emissions

0

	AP-42 PM Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	PM Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method
3516	0.0000771	0.007571	5.83724E-07	100.0%	0.00027	1260	0.00074	4.38	0.003	AP-42
3516	0.0000771	0.007571	5.83724E-07	100.0%	0.00027	1260	0.00074	4.38	0.003	AP-42
3516	0.0000771	0.007571	5.83724E-07	100.0%	0.00027	1260	0.00074	4.38	0.003	AP-42
3516	0.0000771	0.007571	5.83724E-07	100.0%	0.00027	1260	0.00074	4.38	0.003	AP-42
						Total	**0.003**	lb/hr		
						Controlled	**0.013**	tpy		

	Mfg's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
3516	0.23	1260	0.638	4.38	2.796	Mfg's Data	76	0.67	0.15
3516	0.23	1260	0.638	4.38	2.796	Mfg's Data	76	0.67	0.15
3516	0.23	1260	0.638	4.38	2.796	Mfg's Data	76	0.67	0.15
3516	0.23	1260	0.638	4.38	2.796	Mfg's Data	76	0.67	0.15
						Total	**0.61**	lb/hr	
						Controlled	**2.68**	tpy	

PM Calculations		PM = I
ID #	Emission Points	Er
LCC-1	Comp Eng 1	Caterp
LCC-2	Comp Eng 2	Caterp
LCC-3	Comp Eng 3	Caterp
LCC-4	Comp Eng 3	Caterp

Formaldehyde Calculations		
ID #	Emission Points	E
LCC-1	Comp Eng 1	Caten
LCC-2	Comp Eng 2	Caten
LCC-3	Comp Eng 3	Caten
LCC-4	Comp Eng 3	Caten

XTO Little Canyon Compressor Station - Controlled Engine Emissions

	Benzene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Benzene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
516	0.00044	0.007571	3.33124E-06	100.0%	0.002	1260	0.0042	4.38	0.018	AP-42	22	0.014	0.0033
516	0.00044	0.007571	3.33124E-06	100.0%	0.002	1260	0.0042	4.38	0.018	AP-42	22	0.014	0.0033
516	0.00044	0.007571	3.33124E-06	100.0%	0.002	1260	0.0042	4.38	0.018	AP-42	22	0.014	0.0033
516	0.00044	0.007571	3.33124E-06	100.0%	0.002	1260	0.0042	4.38	0.018	AP-42	22	0.014	0.0033
						Total	**0.013**	lb/hr					
						Controlled	**0.057**	tpy					

	Toluene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Toluene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
516	0.000408	0.007571	3.08897E-06	100.0%	0.0014	1260	0.004	4.38	0.017	AP-42	22	0.013	0.0030
516	0.000408	0.007571	3.08897E-06	100.0%	0.0014	1260	0.004	4.38	0.017	AP-42	22	0.013	0.0030
516	0.000408	0.007571	3.08897E-06	100.0%	0.0014	1260	0.004	4.38	0.017	AP-42	22	0.013	0.0030
516	0.000408	0.007571	3.08897E-06	100.0%	0.0014	1260	0.004	4.38	0.017	AP-42	22	0.013	0.0030
						Total	**0.012**	lb/hr					
						Controlled	**0.053**	tpy					

	Ethylbenzene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Ethylbenzene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
516	0.0000397	0.007571	3.00569E-07	100.0%	0.0001	1260	0.000	4.38	0.002	AP-42	22	0.0013	0.0003
516	0.0000397	0.007571	3.00569E-07	100.0%	0.0001	1260	0.000	4.38	0.002	AP-42	22	0.0013	0.0003
516	0.0000397	0.007571	3.00569E-07	100.0%	0.0001	1260	0.000	4.38	0.002	AP-42	22	0.0013	0.0003
516	0.0000397	0.007571	3.00569E-07	100.0%	0.0001	1260	0.000	4.38	0.002	AP-42	22	0.0013	0.0003
						Total	**0.001**	lb/hr					
						Controlled	**0.005**	tpy					

Benzene Calculations

ID #	Emission Points
LCC-1	Comp Eng 1
LCC-2	Comp Eng 2
LCC-3	Comp Eng 3
LCC-4	Comp Eng 3

Toluene Calculations

ID #	Emission Points
LCC-1	Comp Eng 1
LCC-2	Comp Eng 2
LCC-3	Comp Eng 3
LCC-4	Comp Eng 3

Ethylbenzene Calculatio

ID #	Emission Points
LCC-1	Comp Eng 1
LCC-2	Comp Eng 2
LCC-3	Comp Eng 3
LCC-4	Comp Eng 3

XTO Little Canyon Compressor Station - Controlled Engine Emissions

	Xylene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Xylene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
516	0.000184	0.007571	1.39306E-06	100.0%	0.0006	1260	0.002	4.38	0.008	AP-42	22	0.006	0.0014
516	0.000184	0.007571	1.39306E-06	100.0%	0.0006	1260	0.002	4.38	0.008	AP-42	22	0.006	0.0014
516	0.000184	0.007571	1.39306E-06	100.0%	0.0006	1260	0.002	4.38	0.008	AP-42	22	0.006	0.0014
516	0.000184	0.007571	1.39306E-06	100.0%	0.0006	1260	0.002	4.38	0.008	AP-42	22	0.006	0.0014
						Total	**0.005**	lb/hr					
						Controlled	**0.024**	tpy					

	SO2 AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	SO2 Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method
516	0.000588	0.007571	4.45175E-06	100.0%	0.0020	1260	0.006	4.38	0.025	AP-42
516	0.000588	0.007571	4.45175E-06	100.0%	0.0020	1260	0.006	4.38	0.025	AP-42
516	0.000588	0.007571	4.45175E-06	100.0%	0.0020	1260	0.006	4.38	0.025	AP-42
516	0.000588	0.007571	4.45175E-06	100.0%	0.0020	1260	0.006	4.38	0.025	AP-42
						Total	**0.022**	lb/hr		
							0.098	tpy		

Xylene Calculations

ID #	Emission Point
LCC-1	Comp Eng 1
LCC-2	Comp Eng 2
LCC-3	Comp Eng 3
LCC-4	Comp Eng 3

SO2 Calculations

ID #	Emission Point
LCC-1	Comp Eng 1
LCC-2	Comp Eng 2
LCC-3	Comp Eng 3
LCC-4	Comp Eng 3

XTO Little Canyon Compressor Station - Controlled Engine Emissions

	Acetaldehyde AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Acetaldehyde Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
3516	0.00836	0.007571	6.32936E-05	100.0%	0.0287	1260	0.080	4.38	0.349	AP-42	22	0.272	0.0622
3516	0.00836	0.007571	6.32936E-05	100.0%	0.0287	1260	0.080	4.38	0.349	AP-42	22	0.272	0.0622
3516	0.00836	0.007571	6.32936E-05	100.0%	0.0287	1260	0.080	4.38	0.349	AP-42	22	0.272	0.0622
3516	0.00836	0.007571	6.32936E-05	100.0%	0.0287	1260	0.080	4.38	0.349	AP-42	22	0.272	0.0622
						Total	**0.249**	lb/hr					
						Controlled	**1.090**	tpy					

	Acrolein AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Acrolein Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
3516	0.00514	0.007571	3.89149E-05	100.0%	0.0177	1260	0.049	4.38	0.215	AP-42	22	0.168	0.0382
3516	0.00514	0.007571	3.89149E-05	100.0%	0.0177	1260	0.049	4.38	0.215	AP-42	22	0.168	0.0382
3516	0.00514	0.007571	3.89149E-05	100.0%	0.0177	1260	0.049	4.38	0.215	AP-42	22	0.168	0.0382
3516	0.00514	0.007571	3.89149E-05	100.0%	0.0177	1260	0.049	4.38	0.215	AP-42	22	0.168	0.0382
						Total	**0.153**	lb/hr					
						Controlled	**0.670**	tpy					

nd Table 3.2-3 Uncontrolled Emission Factors for 4-stroke Lean Burn Engines

Acetaldehyde Calculatio

ID #	Emission Point
LCC-1	Comp Eng 1
LCC-2	Comp Eng 2
LCC-3	Comp Eng 3
LCC-4	Comp Eng 3

Acrolein Calculations

ID #	Emission Points
LCC-1	Comp Eng 1
LCC-2	Comp Eng 2
LCC-3	Comp Eng 3
LCC-4	Comp Eng 3

AP-42 Factors taken from Tabl

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G3516 LE

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA
Uinta Cat 3516LE

CATERPILLAR®

ENGINE SPEED (rpm):	1400
COMPRESSION RATIO:	8:1
AFTERCOOLER WATER INLET (°F):	130
JACKET WATER OUTLET (°F):	210
COOLING SYSTEM:	JW+OC , AC
IGNITION SYSTEM:	ADEM3
EXHAUST MANIFOLD:	ASWC
COMBUSTION:	Low Emission
NOx EMISSION LEVEL (g/bhp-hr NOx):	1.5
SET POINT TIMING:	27.4

FUEL SYSTEM:	HPG IMPCO WITH AIR FUEL RATIO CONTROL
SITE CONDITIONS:	
FUEL:	Field Gas
FUEL PRESSURE RANGE(psig):	35.0-40.0
FUEL METHANE NUMBER:	62.2
FUEL LHV (Btu/scf):	1027
ALTITUDE(ft):	5800
MAXIMUM INLET AIR TEMPERATURE(°F):	55
NAMEPLATE RATING:	1340 bhp@1400rpm

			MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE		
RATING	NOTES	LOAD	100%	100%	75%	53%
ENGINE POWER	(1)	bhp	1340	1260	945	670
INLET AIR TEMPERATURE		°F	32	55	55	55
ENGINE DATA						
FUEL CONSUMPTION (LHV)	(2)	Btu/bhp-hr	7722	7778	8055	8518
FUEL CONSUMPTION (HHV)	(2)	Btu/bhp-hr	8532	8594	8901	9412
AIR FLOW	(3)(4)	lb/hr	12692	11944	9030	6604
AIR FLOW WET (77°F, 14.7 psia)	(3)(4)	scfm	2862	2694	2036	1489
INLET MANIFOLD PRESSURE	(5)	in Hg(abs)	70.0	66.5	52.3	39.3
EXHAUST STACK TEMPERATURE	(6)	°F	907	907	908	911
EXHAUST GAS FLOW (@ stack temp, 14.5 psia)	(7)(4)	ft3/min	7882	7419	5620	4126
EXHAUST GAS MASS FLOW	(7)(4)	lb/hr	13190	12415	9396	6879
EMISSIONS DATA						
NOx (as NO2)	(8)	g/bhp-hr	1.50	1.50	1.50	1.50
CO	(8)	g/bhp-hr	2.31	2.34	2.45	2.61
THC (mol. wt. of 15.84)	(8)	g/bhp-hr	2.43	2.45	2.56	2.72
NMHC (mol. wt. of 15.84)	(8)	g/bhp-hr	0.63	0.64	0.66	0.71
NMNEHC (VOCs) (mol. wt. of 15.84)	(8)(9)	g/bhp-hr	0.42	0.43	0.45	0.47
HCHO (Formaldehyde)	(8)	g/bhp-hr	0.22	0.22	0.23	0.24
CO2	(8)	g/bhp-hr	509	511	522	545
EXHAUST OXYGEN	(10)	% DRY	7.9	7.8	7.7	7.6
HEAT REJECTION						
HEAT REJ. TO JACKET WATER (JW)	(11)	Btu/min	43666	42171	35699	29897
HEAT REJ. TO ATMOSPHERE	(11)	Btu/min	5313	5102	4269	3543
HEAT REJ. TO LUBE OIL (OC)	(11)	Btu/min	6512	6289	5324	4459
HEAT REJ. TO AFTERCOOLER (AC)	(11)(12)	Btu/min	9473	9473	5270	2111

HEAT EXCHANGER SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+OC)	(12)	Btu/min	55848
TOTAL AFTERCOOLER CIRCUIT (AC)	(12)(13)	Btu/min	9946
A cooling system safety factor of 0% has been added to the heat exchanger sizing criteria.			

CONDITIONS AND DEFINITIONS

Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature.
100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature.
Max. rating is the maximum capability for the specified fuel at site altitude and reduced inlet air temperature.
Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

For notes information consult page three.

PREPARED BY: craig allison, XTO
Data generated by Gas Engine Rating Pro Version 3.02.00
Ref. Data Set DM8618-00-001, Printed 03Apr2009

LCC-2 / LCC-4

EMIT Technologies, Inc
6820 Corporation Parkway Suite A
Fort Worth, TX 76126
307.673.0883 Office
307.673.0886 Fax
bosborn@emittechnologies.com

PREPARED FOR:
Mr. Craig Allison
XTO

Sent via email

QUOTE: 04080904B
Expires: May 8, 2009

A. INFORMATION PROVIDED BY CATERPILLAR

Engine:	G3516 LE
DIM Sheet:	DM5155
Compression Ratio:	8.0:1
RPM:	1400
Horsepower:	1340
Fuel:	Natural Gas
Piping size:	12"
Annual Operating Hours:	8760
Exhaust Flow:	7685 CFM
Exhaust Temperature:	855 °F
Allowable Engine Backpressure:	27" WC

Emission Data

NO_x:	1.50	g/bhp-hr
CO:	1.90	g/bhp-hr
THC:	3.10	g/bhp-hr
NMHC:	0.46	g/bhp-hr
HCHO:	N/A	g/bhp-hr
Oxygen:	8.30	%

B. POST CATALYST EMISSIONS TO BE ACHIEVED BY EMISSION CONTROL EQUIPMENT

NO_x:	Unaffected by Oxidation Catalyst
CO:	>93% reduction
VOC:	>76% reduction

C. CONTROL EQUIPMENT

CATALYTIC CONVERTER/SILENCER UNIT

Model	**EA-3050Z-1212F-D1XEE**
Catalyst Type	Oxidation, Precious group metals
Manufacturer	EMIT Technologies, Inc.
Element Size	30.5" x 3.5"
Catalyst Elements	1
Housing Type	Dual Bed
Catalyst Installation	Accessible Housing
Construction	10 ga Steel
Sample Ports	6 (0.5" NPT)
Inlet Connections	12" flat face flange
Outlet Connections	12" flat face flange
Configuration	Assume End In / End Out

LCC-3

5/25/2005

CATALYTIC SILENCER SIZING PROGRAM

GT EXHAUST SYSTEMS, INC.
4121 NW 37 Street
Lincoln, NE 68524
402-323-7272 Fax 402-323-7270

CUSTOMER: EXTERRAN
PROJECT: XTO
DATE: 2/9/2009 QUOTATION I.D.:
DESCRIPTION: CAT 3516TALE, 1400RPM, 1340HP, 854TEMP
SELECT OXIDATION CATALYST SIZE
PRESSURE DROP CALCULATED WITH A 12 INCH OUTLET

PERFORMANCE DATA INPUT AND CALCULATIONS

INPUT DATA			CALCULATED	
FLOW: ACFM			ACFM	7404.36
or SCFM 70/14.7			SCFM 70/14.7	2988.54
or NCuM/Min32/14.7			NCuM/Min32/14.7	
or LB/MIN			LB/MIN	221.68
or LB/HR	13301		LB/HR	13301.00
S.G.			S.G.	0.99102
or M.W.	28.7	* SEE	M.W.	28.700
TGAS°F	854	NOTE	TGAS°R	1314
PGAS PSIG			PGAS PSIA	14.700
PATM PSIA	14.7		OUTLET, SQ.FT.	0.785
OUTLET SIZE, IN	12		OUTLET VEL, FT/MIN	9427.5
FUEL, (GAS,or DIESEL)	GAS		VEL HEAD, IN H_2O	2.21
BODY STYLE (201 OR 501)	201		SCFH 32/14.7	166344 (FOR CAT CONV SPACE VEL CALC)
MAX. BODY CAPACITYor R **	3			
3-WAY OR OXIDATION	OXIDATION			
SERIES (2100,4100,5100 - 8100)	4100			
NUMBER OF ELEMENTS = ***	2			

* NOTE: 27.5 MW TYP FOR RICH BURN EXHAUST GAS; 28.7 MW TYP. FOR LEAN BURN GAS OR DIESEL
** MAX. BODY CAPACITY - For modular enter number of elements and half elements as 1, 2, 4, 6, etc.
For the small round (6",8",10",12",14",or 16") ENTER R IN C-30 AND THE DIAMETER SELECTED IN C-31.
*** NUMBER ELEMENTS For modular enter the number of full and half elements as 1, 1.5, 2, 2.5, 3, 3.5, ... up to entered Max. Body Capacity.
For small round (6",8",10",12",14",or 16") ENTER "1" AND ENTER THE DIAMETER OF IN C-31

GT CATALYTIC CONVERTER MODEL NUMBER: 201 VO - 3 - 200 - 4112
CALCULATED PRESSURE DROP = 6.71 INCHES H2O, CALCULATED SPACE VELOCITY = 123318
WITH LEAN BURN GAS ENGINE, MIN. OXIDATION RATES ARE: 95 % CO & HCHO, AND 80 % NMNEHC

VOC WILL BE STATED AS NMNEHC FOR THIS APPLICATION

	NOX	CO	HCHO	NMHC Note 1	NMNEHC Note 1
BASED ON STATED EXH. FLOW & TEMPERATURE AND THE FOLLOWING EMISSIONS OUT OF ENGINE:	1.500	1.890	0.250	0.460	0.310
WE WARRANT EMISSIONS OUT OF CONVERTER NOT EXCEED:	1.500	0.397	0.055	0.230	0.077
UNITS:	gm/bhp-hr	gm/bhp-hr	gm/bhp-hr	gm/bhp-hr	gm/bhp-hr

Note 1: NMHC, NMNEHC & LESS THAN 50% Saturated.
Note 2: Oxidation Catalyst on Diesel or Lean Gas Cannot Reduce NOx

PERFORMANCE WARRANTY CONTINGENT UPON CONVERTER INSTALLATION ON A PROPERLY MAINTAINED ENGINE
EXCESSIVE OIL CONSUMPTION AND/OR FUEL CONSUMPTION MAY MASK OR POISON THE CATALYST AND REDUCE DESTRUCTION
ENGINE LUBE OIL MUST BE OF A TYPE RECOMMENDED FOR CATALYTIC CONVERTER SERVICE.
ELEMENT(S) WILL REQUIRE PERIODIC CLEANING. FREQUENCY WILL DEPEND ON LEVEL OF CONTAMINANTS IN THE EXHAUST GAS
CERTAIN CONTAMINANTS SUCH AS HEAVY METAL IN FUEL AND LUBE OIL WILL POSION THE CATALYST AND VOID THE WARANTY

Station:	LCU - Pipeline Blowdown Emissions events				
Quantity Released in Std. cubic ft (SCF)		8905	*only enter cf, do not enter mcf or mmcf*		
Total Duration in hrs		60	(Sixty individual one-hour events for the year)		
Flare		no	(Yes/No)		
Vented		yes	(Yes/No)		

Component	Estimated Quantity Vented (lbs)	Estimated Quantity Emitted from Flared (lbs)	Total Estimated Quantity Emitted (lbs)	Emissions (lb/hr)	Emissions (tons/yr)
Carbon Monoxide		0.000	0.000	0.000	
Nitric Oxide		0.000	0.000	0.000	
Nitric Dioxide		0.000	0.000	0.000	
VOCs	39.453	0.000	39.453	0.658	0.020
Sulfur Dioxide	0.000	0.000	0.000	0.000	0.000
Carbon Dioxide	3.375	0.000	3.375	0.056	0.002
Nitrogen	2.896	0.000	2.896	0.048	0.001
Hydrogen Sulfide	0.000	0.000	0.000	0.000	0.000
Helium	0.000	0.000	0.000	0.000	0.000
Methane	336.647	0.000	336.647	5.611	0.168
Ethane	34.385	0.000	34.385	0.573	0.017
Propane	18.861	0.000	18.861	0.314	0.009
Iso-Butane	4.960	0.000	4.960	0.083	0.002
N-Butane	6.147	0.000	6.147	0.102	0.003
Iso-Pentane	2.770	0.000	2.770	0.046	0.001
N-Pentane	2.071	0.000	2.071	0.035	0.001
Methylcyclopentane	0.000	0.000	0.000	0.000	0.000
n-Hexane	0.862	0.000	0.862	0.014	0.000
Hexane +	1.389	0.000	1.389	0.023	0.001
2,4-Dimethylpentane	0.000	0.000	0.000	0.000	0.000
Methycyclohexane	0.479	0.000	0.479	0.008	0.000
Benzene	0.128	0.000	0.128	0.002	0.000
Cyclohexane	0.377	0.000	0.377	0.006	0.000
n-Heptane	0.804	0.000	0.804	0.013	0.000
Toluene	0.128	0.000	0.128	0.002	0.000
Ethylbenzene	0.007	0.000	0.007	0.000	0.000
Xylenes	0.071	0.000	0.071	0.001	0.000
Octanes+	0.392	0.000	0.392	0.007	0.000
Nonanes+	0.003	0.000	0.003	0.000	0.000
Decanes+	0.003	0.000	0.003	0.000	0.000

PIG RECEIVER EMISSIONS

YEAR: 2010
Company: XTO Energy
Facility Name: LCU Compressor Station
Facility Location: Uinta County, Utah   **Based on max 20" Pipeline scenario**

GAS COMPONENT (Wet Gas)	MOLECULAR WEIGHT (lb/lb-mole)	Weight Fraction	COMPONENT FLOW RATE (Mscf)	COMPONENT FLOW RATE (lb/yr)	COMPONENT FLOW RATE (tons/yr)	
Methane	16.043	0.773	6.883	290.972	0.145	
Ethane	30.07	0.092	0.821	65.088	0.033	
Propane	44.097	0.044	0.395	45.898	0.023	VOC
i-Butane	58.123	0.013	0.114	17.397	0.009	
n-Butane	58.123	0.014	0.128	19.678	0.010	
i-Pentane	72.15	0.008	0.070	13.341	0.007	
n-Pentane	72.15	0.006	0.051	9.716	0.005	
Hexanes	86.177	0.011	0.100	22.717	0.011	
Heptanes	100.204	0.005	0.049	12.815	0.006	
Octanes	114.231	0.001	0.007	2.174	0.001	
Nonanes	128.258	0.000	0.000	0.000	0.000	
Decanes +	142.285	0.000	0.000	0.000	0.000	
Benzene	78.12	0.001	0.010	1.996	0.001	
Toluene	92.13	0.002	0.016	3.922	0.002	
Ethylbenzene	106.16	0.000	0.001	0.224	0.000	
Xylenes	106.16	0.010	0.087	24.313	0.012	
n-Hexane	86.177	0.003	0.029	6.602	0.003	
Helium	4.003	0.000	0.000	0.000	0.000	
Nitrogen	28.013	0.006	0.050	3.696	0.002	
Carbon Dioxide	44.01	0.014	0.129	14.942	0.007	
Oxygen	32	0.000	0.000	0.000	0.000	
Hydrogen Sulfide	34.08	0.000	0.000	0.000	0.000	
VOC SUBTOTAL		**0.119**	**1.057**	**180.792**	**0.090**	
HAP SUBTOTAL		**0.016**	**0.143**	**37.057**	**0.019**	
TOTAL		**1.004**	**8.940**	**555.490**	**0.278**	

PIG SPECIFICATIONS	Receiver #1	Receiver #2	units
Pig Section Circumference (feet) :	5.236	-	feet
Pig Section Diameter (inches) :	20.000	-	inches
Pig Section Diameter (feet) :	1.667	-	feet
Pig Section Length (feet) :	10.0	-	feet
Pig Section Receiver Volume :	21.817	-	actual ft^3
Average Pipeline Pressure :	100	-	lb/ft^2
Pig Volume corrected for Std Conditions(14.7 psia) :	148.412	-	scf/event
Number of activities :	60	-	per year
Number of receivers :	1	-	
Total events :	60	-	per year
Total Annual Release Volume (per section) :	8904.741	0.000	scf/yr
Total Volume :	8.905	Mscf/year	

Pipeline Pressure provided by client
Wet Gas composition used for calculations
Emissions (tpy) = Volume released (Mscf/yr) x Weight Fraction x 1000 (scf/Mscf) x 1/379.45 (lb-mol/scf) x MW (lb/mol) / 2000 (lb/ton)

Little Canyon Compressor Station

Blowdown Calculations for four Compressor / engine packages

Number of Blowdown Events Per Month =	40	events/month
Total Blowdown Volume per Event* =	1778	scf/event
Total Annual Volume of Gas Released due to Blowdown Events =	853.44	Mscf/yr
	853,440.00	scf./yr

* Volume taken from calc sheet attached here.

Gas Starter Emissions Calculations
For four compressor / engine packages.

Number of Blowdown Events Per Month =	40	events/month
Total Blowdown Volume per Event* =	1560	scf/event
Total Annual Volume of Gas Released due to Blowdown Events =	748.80	Mscf/yr
	748,800.00	scf/yr

* Volume taken from calc sheet attached here at 90 psig and 1.56 mscf per event for the T121B/T121D Performance Curve Chart.

Total Estimated Startup / Shutdown emissions:	1602.24	Mscf/yr
	1,602,240.00	scf/yr

Station:	LCU - Compressor Blowdown Emissions events				
Quantity Released in Std. cubic ft (SCF)		853440	*only enter cf, do not enter mcf or mmcf*		
Total Duration in hrs		240	(40 individual half-hour events occuring each month for 12 months = 240)		
Flare		no	(Yes/No)		
Vented		yes	(Yes/No)		

Component	Estimated Quantity Vented (lbs)	Estimated Quantity Emitted from Flared (lbs)	Total Estimated Quantity Emitted (lbs)	Emissions (lb/hr)	Emissions (tons/yr)
Carbon Monoxide		0.000	0.000	0.000	
Nitric Oxide		0.000	0.000	0.000	
Nitric Dioxide		0.000	0.000	0.000	
VOCs	3781.067	0.000	3781.067	15.754	1.891
Sulfur Dioxide	0.000	0.000	0.000	0.000	0.000
Carbon Dioxide	323.480	0.000	323.480	1.348	0.162
Nitrogen	277.589	0.000	277.589	1.157	0.139
Hydrogen Sulfide	0.000	0.000	0.000	0.000	0.000
Helium	0.000	0.000	0.000	0.000	0.000
Methane	32263.712	0.000	32263.712	134.432	16.132
Ethane	3295.364	0.000	3295.364	13.731	1.648
Propane	1807.591	0.000	1807.591	7.532	0.904
Iso-Butane	475.339	0.000	475.339	1.981	0.238
N-Butane	589.133	0.000	589.133	2.455	0.295
Iso-Pentane	265.463	0.000	265.463	1.106	0.133
N-Pentane	198.499	0.000	198.499	0.827	0.099
Methylcyclopentane	0.000	0.000	0.000	0.000	0.000
n-Hexane	82.650	0.000	82.650	0.344	0.041
Hexane +	133.117	0.000	133.117	0.555	0.067
2,4-Dimethylpentane	0.000	0.000	0.000	0.000	0.000
Methycyclohexane	45.918	0.000	45.918	0.191	0.023
Benzene	12.263	0.000	12.263	0.051	0.006
Cyclohexane	36.086	0.000	36.086	0.150	0.018
n-Heptane	77.061	0.000	77.061	0.321	0.039
Toluene	12.224	0.000	12.224	0.051	0.006
Ethylbenzene	0.704	0.000	0.704	0.003	0.000
Xylenes	6.807	0.000	6.807	0.028	0.003
Octanes+	37.614	0.000	37.614	0.157	0.019
Nonanes+	0.283	0.000	0.283	0.001	0.000
Decanes+	0.314	0.000	0.314	0.001	0.000

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Station:	LCU - Engine Starter Emissions events				
Quantity Released in Std. cubic ft (SCF)		748800	*only enter cf, do not enter mcf or mmcf*		
Total Duration in hrs		240	(40 individual half-hour events occuring each month for 12 months = 240)		
Flare		no	(Yes/No)		
Vented		yes	(Yes/No)		

Component	Estimated Quantity Vented (lbs)	Estimated Quantity Emitted from Flared (lbs)	Total Estimated Quantity Emitted (lbs)	Emissions (lb/hr)	Emissions (tons/yr)
Carbon Monoxide		0.000	0.000	0.000	
Nitric Oxide		0.000	0.000	0.000	
Nitric Dioxide		0.000	0.000	0.000	
VOCs	3317.471	0.000	3317.471	13.823	1.659
Sulfur Dioxide	0.000	0.000	0.000	0.000	0.000
Carbon Dioxide	283.818	0.000	283.818	1.183	0.142
Nitrogen	243.554	0.000	243.554	1.015	0.122
Hydrogen Sulfide	0.000	0.000	0.000	0.000	0.000
Helium	0.000	0.000	0.000	0.000	0.000
Methane	28307.869	0.000	28307.869	117.949	14.154
Ethane	2891.320	0.000	2891.320	12.047	1.446
Propane	1585.963	0.000	1585.963	6.608	0.793
Iso-Butane	417.058	0.000	417.058	1.738	0.209
N-Butane	516.900	0.000	516.900	2.154	0.258
Iso-Pentane	232.914	0.000	232.914	0.970	0.116
N-Pentane	174.161	0.000	174.161	0.726	0.087
Methylcyclopentane	0.000	0.000	0.000	0.000	0.000
n-Hexane	72.517	0.000	72.517	0.302	0.036
Hexane +	116.795	0.000	116.795	0.487	0.058
2,4-Dimethylpentane	0.000	0.000	0.000	0.000	0.000
Methycyclohexane	40.288	0.000	40.288	0.168	0.020
Benzene	10.760	0.000	10.760	0.045	0.005
Cyclohexane	31.661	0.000	31.661	0.132	0.016
n-Heptane	67.613	0.000	67.613	0.282	0.034
Toluene	10.725	0.000	10.725	0.045	0.005
Ethylbenzene	0.618	0.000	0.618	0.003	0.000
Xylenes	5.972	0.000	5.972	0.025	0.003
Octanes+	33.002	0.000	33.002	0.138	0.017
Nonanes+	0.249	0.000	0.249	0.001	0.000
Decanes+	0.276	0.000	0.276	0.001	0.000

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Gas Analysis
Conversion of Mole Percent to Weight Percent

Specific Gravity	0	Molecular Weight	18.0370	
Gross BTU	0	NMHC	3.1956	17.7171%
		VOCs (NMNEHC)	1.7075	9.467%
		HAPs	0.0518	

Component	Mole %	MW	Mole % * MW	Weight %
Carbon Dioxide	0.3320	44	0.1461	0.810%
Nitrogen	0.4477	28	0.1254	0.695%
Hydrogen Sulfide	0.0000	34	0.0000	0.000%
Helium	0.0000	4	0.0000	0.000%
Methane	91.0621	16	14.5699	80.778%
Ethane	4.9605	30	1.4882	8.251%
Propane	1.8552	44	0.8163	4.526%
Iso-Butane	0.3701	58	0.2147	1.190%
N-Butane	0.4587	58	0.2660	1.475%
Iso-Pentane	0.1665	72	0.1199	0.665%
N-Pentane	0.1245	72	0.0896	0.497%
Methylcyclopentane	0.0000	86	0.0000	0.000%
n-Hexane	0.0434	86	0.0373	0.207%
Hexane +	0.0699	86	0.0601	0.333%
2,4-Dimethylpentane	0.0000	100	0.0000	0.000%
Methycyclohexane	0.0216	96	0.0207	0.115%
Benzene	0.0071	78	0.0055	0.031%
Cyclohexane	0.0194	84	0.0163	0.090%
n-Heptane	0.0348	100	0.0348	0.193%
Toluene	0.0060	92	0.0055	0.031%
Ethylbenzene	0.0003	106	0.0003	0.002%
Xylenes	0.0029	106	0.0031	0.017%
Octanes+	0.0149	114	0.0170	0.094%
Nonanes+	0.0001	128	0.0001	0.001%
Decanes+	0.0001	142	0.0001	0.001%
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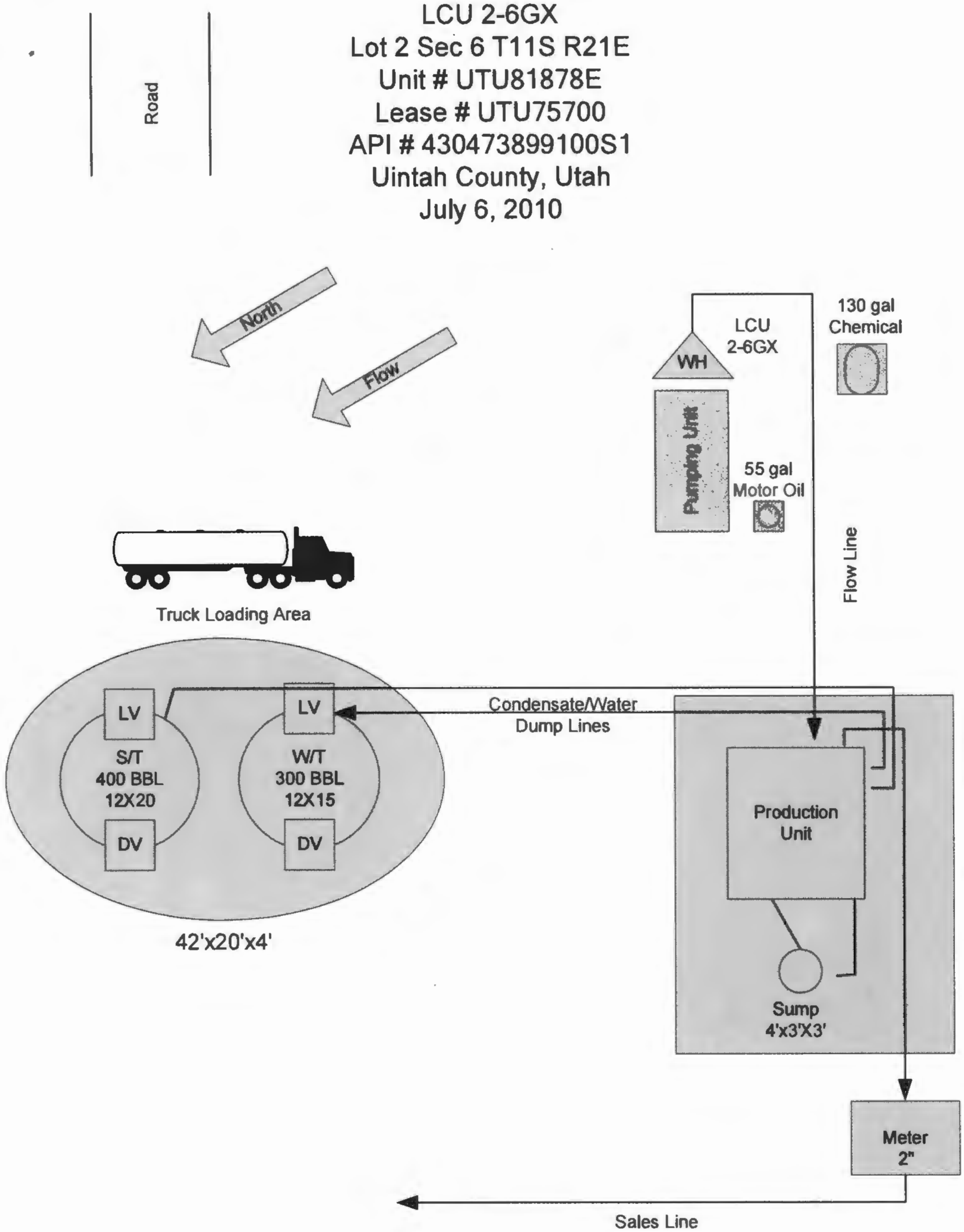
Total	99.9978			

3/7/2011

LCU 2-6GX
Lot 2 Sec 6 T11S R21E
Unit # UTU81878E
Lease # UTU75700
API # 430473899100S1
Uintah County, Utah
July 6, 2010



The site facility plan is located at
XTO Energy Inc.
978 N. Crescent RD.
Roosevelt, Utah 84066
Office hours are 7:00 to 4:00 PM Mon-Fri

General sealing of valves
Production Phase: Oil tank drain valve is sealed closed. Oil tank load valve is sealed closed.
Sales Phase: Oil tank drain valve is sealed closed. Oil tank load valve is sealed closed.
Drain Phase: Oil tank drain valve is open. Oil tank load valve is sealed closed

LCU 2-6GX WELLSITE UNCONTROLLED POTENTIAL TO EMIT SUMMARY

Company: Summit Gas Gathering
Facility Name: LCU 2-6GX Wellsite
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		PM_{10}		HAPs*	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Wellsite Condensate Truck Loading	-	-	-	-	0.02	0.08	-	-	-	-
Wellsite heaters	0.12	0.53	0.10	0.45	0.01	0.05	0.01	0.04	0.00	0.0004
0.20 MMscfd dehydrator - LCU 2-6GX D-1	-	-	-	-	0.90	3.95	-	-	0.31	1.36
Fugitive Emissions - LCU 2-6GX F-1	-	-	-	-	0.44	1.93	-	-	0.02	0.07
Wellsite Pumping Unit Engine - LCU 2-6GX	0.47	2.06	0.20	0.88	0.01	0.02				0.02
Total Storage Tank Emissions	-	-	-	-	0.92	4.05	-	-	0.00	0.00
Totals	**0.59**	**2.60**	**0.30**	**1.33**	**2.30**	**10.09**	**0.01**	**0.04**	**0.33**	**1.45**

*Dehy HAP emissions include n-Hexane and 2,2,4 - Trimethylpentane (TMP)

Source	Benzene		Toluene		Ethylbenzene		Xylene		N-Hexane	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Wellsite Condensate Truck Loading	-	-	-	-	-	-	-	-	-	-
Wellsite heaters	-	-	-	-	-	-	-	-	-	-
0.20 MMscfd dehydrator - LCU 2-6GX D-1	0.06	0.28	0.10	0.43	0.01	0.04	0.12	0.51	0.02	0.09
Fugitive Emissions - LCU 2-6GX F-1	0.00	0.001	0.00	0.002	0.00	0.0001	0.00	0.001	0.00	0.01
Total Storage Tank Emissions	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.002
Totals	**0.06**	**0.28**	**0.10**	**0.43**	**0.01**	**0.04**	**0.12**	**0.51**	**0.02**	**0.10**

Source	2,2,4 TMP		Formaldehyde	
	lb/hr	ton/yr	lb/hr	ton/yr
Wellsite Condensate Truck Loading	-	-	-	-
Wellsite heaters	-	-	0.00	0.0004
0.20 MMscfd dehydrator - LCU 2-6GX D-1	0.00	0.01	-	-
Fugitive Emissions - LCU 2-6GX F-1	0.00	0.00	-	-
Wellsite Pumping Unit Engine - LCU 2-6GX	-	-	0.00	0.02
Total Storage Tank Emissions	0.00	0.00	-	-
Totals	**0.00**	**0.01**	**0.00**	**0.02**

POTENTIAL UNCONTROLLED EMISSIONS

Company: Summit Gas Gathering
Facility Name: LCU 2-6GX Wellsite
Facility Location: Uintah County, Utah

Unit: TEG Dehydrator at LCU 2-6GX wellsite
Rating: 0.2 MMscf/day total; 4015 Pump at maximum glycol pump rate

Unit Description	Gas Flow Rate (MMscf/day)	VOCs (tons/yr)	Benzene (tons/yr)	Toluene (tons/yr)	Ethylbenzene (tons/yr)	Xylenes (tons/yr)	N-Hexane (tons/yr)	224-TMP (tons/yr)	Total HAPs (tons/yr)	Total BTEX (tons/yr)
Dehy w/4015 pump	0.20	3.9509	0.2789	0.4320	0.0424	0.5080	0.0915	0.0074	1.3602	1.2613
TOTAL		**3.951**	**0.279**	**0.432**	**0.042**	**0.508**	**0.092**	**0.007**	**1.360**	**1.261**

GRI-GLYCalc VERSION 4.0 - EMISSIONS SUMMARY

Case Name: XTO Roosevelt - Uinta LCU 2-6GX Wellhead Dehy Calcs
File Name: Y:\Utah\Title V Air\LCU Title V App\EPA Info Response Feb 2011\Uinta LCU 2-6GX wellhead dehy.ddf
Date: March 10, 2011

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1623	3.895	0.7108
Ethane	0.0449	1.079	0.1968
Propane	0.0453	1.087	0.1983
Isobutane	0.0211	0.506	0.0924
n-Butane	0.0341	0.817	0.1492
Isopentane	0.0220	0.527	0.0963
n-Pentane	0.0220	0.527	0.0962
n-Hexane	0.0209	0.502	0.0915
Cyclohexane	0.0369	0.887	0.1618
Other Hexanes	0.0233	0.558	0.1019
Heptanes	0.0626	1.502	0.2742
Methylcyclohexane	0.0658	1.580	0.2884
2,2,4-Trimethylpentane	0.0017	0.041	0.0074
Benzene	0.0637	1.528	0.2789
Toluene	0.0986	2.367	0.4320
Ethylbenzene	0.0097	0.232	0.0424
Xylenes	0.1160	2.784	0.5080
C8+ Heavies	0.2585	6.203	1.1320
Total Emissions	1.1093	26.622	4.8585
Total Hydrocarbon Emissions	1.1093	26.622	4.8585
Total VOC Emissions	0.9020	21.649	3.9509
Total HAP Emissions	0.3106	7.453	1.3602
Total BTEX Emissions	0.2880	6.911	1.2613

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: XTO Roosevelt - Uinta LCU 2-6GX Wellhead Dehy Calcs
File Name: Y:\Utah\Title V Air\LCU Title V App\EPA Info Response Feb 2011\Uinta LCU 2-6GX wellhead dehy.ddf
Date: March 10, 2011

DESCRIPTION:

Description: Uinta LCU 2-6GX 0.2 mmscf wellhead dehy
Case - Operating 8760 hrs / yr
Kimray 4015 - 20 spm
Use LCU 5-12H Gas Analysis

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 60.00 deg. F
Pressure: 60.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	0.6896
Nitrogen	0.4261
Methane	88.9238
Ethane	6.1972
Propane	2.1341
Isobutane	0.4426
n-Butane	0.5157
Isopentane	0.2060
n-Pentane	0.1547
n-Hexane	0.0565
Cyclohexane	0.0251
Other Hexanes	0.0884
Heptanes	0.0581
Methylcyclohexane	0.0263
2,2,4-Trimethylpentane	0.0030
Benzene	0.0074
Toluene	0.0072
Ethylbenzene	0.0005
Xylenes	0.0056
C8+ Heavies	0.0321

DRY GAS:

Flow Rate: 0.2 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 0.3 gpm

PUMP:

Glycol Pump Type: Gas Injection
Gas Injection Pump Volume Ratio: 0.030 acfm gas/gpm glycol

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: XTO Roosevelt - Uinta LCU 2-6GX Wellhead Dehy Calcs
File Name: Y:\Utah\Title V Air\LCU Title V App\EPA Info Response Feb 2011\Uinta LCU 2-6GX wellhead dehy.ddf
Date: March 10, 2011

DESCRIPTION:

Description: Uinta LCU 2-6GX 0.2 mmscf wellhead dehy
Case - Operating 8760 hrs / yr
Kimray 4015 - 20 spm
Use LCU 5-12H Gas Analysis

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1623	3.895	0.7108
Ethane	0.0449	1.079	0.1968
Propane	0.0453	1.087	0.1983
Isobutane	0.0211	0.506	0.0924
n-Butane	0.0341	0.817	0.1492
Isopentane	0.0220	0.527	0.0963
n-Pentane	0.0220	0.527	0.0962
n-Hexane	0.0209	0.502	0.0915
Cyclohexane	0.0369	0.887	0.1618
Other Hexanes	0.0233	0.558	0.1019
Heptanes	0.0626	1.502	0.2742
Methylcyclohexane	0.0658	1.580	0.2884
2,2,4-Trimethylpentane	0.0017	0.041	0.0074
Benzene	0.0637	1.528	0.2789
Toluene	0.0986	2.367	0.4320
Ethylbenzene	0.0097	0.232	0.0424
Xylenes	0.1160	2.784	0.5080
C8+ Heavies	0.2585	6.203	1.1320
Total Emissions	1.1093	26.622	4.8585
Total Hydrocarbon Emissions	1.1093	26.622	4.8585
Total VOC Emissions	0.9020	21.649	3.9509
Total HAP Emissions	0.3106	7.453	1.3602
Total BTEX Emissions	0.2880	6.911	1.2613

EQUIPMENT REPORTS:

5-0

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25
Calculated Dry Gas Dew Point:	5.76 lbs. H2O/MMSCF
Temperature:	60.0 deg. F
Pressure:	60.0 psig
Dry Gas Flow Rate:	0.2000 MMSCF/day
Glycol Losses with Dry Gas:	0.0002 lb/hr
Wet Gas Water Content:	Saturated
Calculated Wet Gas Water Content:	166.60 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	15.21 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.44%	96.56%
Carbon Dioxide	99.68%	0.32%
Nitrogen	99.98%	0.02%
Methane	99.98%	0.02%
Ethane	99.93%	0.07%
Propane	99.82%	0.18%
Isobutane	99.66%	0.34%
n-Butane	99.52%	0.48%
Isopentane	99.36%	0.64%
n-Pentane	99.14%	0.86%
n-Hexane	98.08%	1.92%
Cyclohexane	92.08%	7.92%
Other Hexanes	98.65%	1.35%
Heptanes	95.14%	4.86%
Methylcyclohexane	88.44%	11.56%
2,2,4-Trimethylpentane	97.79%	2.21%
Benzene	49.91%	50.09%
Toluene	32.38%	67.62%
Ethylbenzene	17.02%	82.98%
Xylenes	11.27%	88.73%
C8+ Heavies	78.52%	21.48%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	68.06%	31.94%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%

Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.47%	99.53%
n-Pentane	0.48%	99.52%
n-Hexane	0.49%	99.51%
Cyclohexane	3.19%	96.81%
Other Hexanes	0.97%	99.03%
Heptanes	0.50%	99.50%
Methylcyclohexane	3.99%	96.01%
2,2,4-Trimethylpentane	1.48%	98.52%
Benzene	5.00%	95.00%
Toluene	7.90%	92.10%
Ethylbenzene	10.40%	89.60%
Xylenes	12.90%	87.10%
C8+ Heavies	12.00%	88.00%

STREAM REPORTS:

WET GAS STREAM

Temperature: 60.00 deg. F
Pressure: 74.70 psia
Flow Rate: 8.37e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	3.51e-001	1.39e+000
Carbon Dioxide	6.87e-001	6.67e+000
Nitrogen	4.25e-001	2.62e+000
Methane	8.86e+001	3.13e+002
Ethane	6.18e+000	4.10e+001
Propane	2.13e+000	2.07e+001
Isobutane	4.41e-001	5.65e+000
n-Butane	5.14e-001	6.59e+000
Isopentane	2.05e-001	3.27e+000
n-Pentane	1.54e-001	2.45e+000
n-Hexane	5.63e-002	1.07e+000
Cyclohexane	2.50e-002	4.64e-001
Other Hexanes	8.81e-002	1.67e+000
Heptanes	5.79e-002	1.28e+000
Methylcyclohexane	2.62e-002	5.68e-001
2,2,4-Trimethylpentane	2.99e-003	7.53e-002
Benzene	7.37e-003	1.27e-001
Toluene	7.17e-003	1.46e-001
Ethylbenzene	4.98e-004	1.17e-002
Xylenes	5.58e-003	1.31e-001
C8+ Heavies	3.20e-002	1.20e+000
Total Components	100.00	4.10e+002

DRY GAS STREAM

Temperature: 60.00 deg. F
Pressure: 74.70 psia
Flow Rate: 8.33e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.21e-002	4.80e-002
Carbon Dioxide	6.88e-001	6.65e+000
Nitrogen	4.26e-001	2.62e+000
Methane	8.90e+001	3.13e+002
Ethane	6.20e+000	4.09e+001
Propane	2.13e+000	2.06e+001
Isobutane	4.41e-001	5.63e+000
n-Butane	5.13e-001	6.56e+000
Isopentane	2.05e-001	3.25e+000
n-Pentane	1.53e-001	2.43e+000
n-Hexane	5.54e-002	1.05e+000
Cyclohexane	2.31e-002	4.27e-001
Other Hexanes	8.72e-002	1.65e+000
Heptanes	5.53e-002	1.22e+000
Methylcyclohexane	2.33e-002	5.02e-001
2,2,4-Trimethylpentane	2.94e-003	7.36e-002
Benzene	3.70e-003	6.34e-002
Toluene	2.33e-003	4.72e-002
Ethylbenzene	8.51e-005	1.98e-003
Xylenes	6.31e-004	1.47e-002
C8+ Heavies	2.52e-002	9.44e-001
Total Components	100.00	4.08e+002

LEAN GLYCOL STREAM

Temperature: 60.00 deg. F
Flow Rate: 3.40e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.88e+002
Water	1.50e+000	2.87e+000
Carbon Dioxide	1.11e-012	2.13e-012
Nitrogen	2.08e-014	3.99e-014
Methane	8.55e-019	1.64e-018
Ethane	7.43e-009	1.42e-008
Propane	8.04e-010	1.54e-009
Isobutane	2.99e-010	5.71e-010
n-Butane	4.11e-010	7.85e-010
Isopentane	5.46e-005	1.04e-004
n-Pentane	5.54e-005	1.06e-004
n-Hexane	5.39e-005	1.03e-004

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Cyclohexane	6.35e-004	1.22e-003
Other Hexanes	1.20e-004	2.29e-004
Heptanes	1.63e-004	3.12e-004
Methylcyclohexane	1.43e-003	2.73e-003
2,2,4-Trimethylpentane	1.32e-005	2.53e-005
Benzene	1.75e-003	3.35e-003
Toluene	4.42e-003	8.46e-003
Ethylbenzene	5.87e-004	1.12e-003
Xylenes	8.98e-003	1.72e-002
C8+ Heavies	1.84e-002	3.52e-002
Total Components	100.00	1.91e+002

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 60.00 deg. F
Pressure: 74.70 psia
Flow Rate: 3.45e-001 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.72e+001	1.88e+002
Water	2.18e+000	4.22e+000
Carbon Dioxide	1.22e-002	2.37e-002
Nitrogen	6.97e-004	1.35e-003
Methane	8.38e-002	1.62e-001
Ethane	2.32e-002	4.49e-002
Propane	2.34e-002	4.53e-002
Isobutane	1.09e-002	2.11e-002
n-Butane	1.76e-002	3.41e-002
Isopentane	1.14e-002	2.21e-002
n-Pentane	1.14e-002	2.21e-002
n-Hexane	1.08e-002	2.10e-002
Cyclohexane	1.97e-002	3.82e-002
Other Hexanes	1.21e-002	2.35e-002
Heptanes	3.25e-002	6.29e-002
Methylcyclohexane	3.54e-002	6.86e-002
2,2,4-Trimethylpentane	8.84e-004	1.71e-003
Benzene	3.46e-002	6.70e-002
Toluene	5.53e-002	1.07e-001
Ethylbenzene	5.58e-003	1.08e-002
Xylenes	6.87e-002	1.33e-001
C8+ Heavies	1.52e-001	2.94e-001
Total Components	100.00	1.94e+002

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 3.66e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.76e+001	1.35e+000
Carbon Dioxide	5.59e-001	2.37e-002
Nitrogen	5.00e-002	1.35e-003
Methane	1.05e+001	1.62e-001
Ethane	1.55e+000	4.49e-002
Propane	1.07e+000	4.53e-002
Isobutane	3.77e-001	2.11e-002
n-Butane	6.08e-001	3.41e-002
Isopentane	3.16e-001	2.20e-002
n-Pentane	3.16e-001	2.20e-002
n-Hexane	2.52e-001	2.09e-002
Cyclohexane	4.55e-001	3.69e-002
Other Hexanes	2.80e-001	2.33e-002
Heptanes	6.48e-001	6.26e-002
Methylcyclohexane	6.96e-001	6.58e-002
2,2,4-Trimethylpentane	1.53e-002	1.69e-003
Benzene	8.46e-001	6.37e-002
Toluene	1.11e+000	9.86e-002
Ethylbenzene	9.46e-002	9.69e-003
Xylenes	1.13e+000	1.16e-001
C8+ Heavies	1.57e+000	2.58e-001
Total Components	100.00	2.48e+000

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901
(307) 352-7292

LIMS ID:	N/A		Description:	LCU 5-12H
Analysis Date/Time:	2/3/2009	3:43 PM	Field:	LCU
Analyst Initials:	AST		ML#:	XTO/RS0572RF
Instrument ID:	Instrument 1		GC Method:	Quesbtex
Data File:	QPC81.D			
Date Sampled:	1/28/2009			

Component	Mol%	Wt%	LV%
Methane	88.9238	76.7043	83.4814
Ethane	6.1972	10.0195	9.2044
Propane	2.1341	5.0599	3.2590
Isobutane	0.4426	1.3832	0.8024
n-Butane	0.5157	1.6116	0.9011
Neopentane	0.0065	0.0251	0.0138
Isopentane	0.1995	0.7738	0.4046
n-Pentane	0.1547	0.6001	0.3105
2,2-Dimethylbutane	0.0070	0.0324	0.0162
2,3-Dimethylbutane	0.0143	0.0661	0.0324
2-Methylpentane	0.0433	0.2006	0.0996
3-Methylpentane	0.0238	0.1104	0.0539
n-Hexane	0.0565	0.2616	0.1286
Heptanes	0.1271	0.6322	0.2741
Octanes	0.0190	0.1173	0.0526
Nonanes	0.0156	0.1007	0.0429
Decanes plus	0.0036	0.0276	0.0123
Nitrogen	0.4261	0.6418	0.2589
Carbon Dioxide	0.6896	1.6318	0.6513
Oxygen	0.0000	0.0000	0.0000
Hydrogen Sulfide	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties		Units
Gross BTU/Real CF	1128.7	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	1110.0	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9973	
Specific Gravity	0.6435	air=1
Avg Molecular Weight	18.599	gm/mole
Propane GPM	0.586726	gal/MCF
Butane GPM	0.306682	gal/MCF
Gasoline GPM	0.241561	gal/MCF
26# Gasoline GPM	0.405649	gal/MCF
Total GPM	1.136836	gal/MCF
Base Mol%	99.739	%v/v
Sample Temperature:	28	°F
Sample Pressure:	309	psig

Reviewed By: ______________________

Component	Mol%	Wt%	LV%
Benzene	0.0074	0.0309	0.0114
Toluene	0.0072	0.0354	0.0133
Ethylbenzene	0.0005	0.0031	0.0012
M&P Xylene	0.0046	0.0261	0.0098
O-Xylene	0.0010	0.0058	0.0022
2,2,4-Trimethylpentane	0.0030	0.0181	0.0082
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0251	0.1138	0.0474
Methylcyclohexane	0.0263	0.1390	0.0587
Description:	LCU 5-12H		

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	0.6896	1.6318	0.6513
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	0.4261	0.6418	0.2589
Methane	88.9238	76.7043	83.4814
Ethane	6.1972	10.0195	9.2044
Propane	2.1341	5.0599	3.2590
Isobutane	0.4426	1.3832	0.8024
n-Butane	0.5157	1.6116	0.9011
Isopentane	0.2060	0.7989	0.4184
n-Pentane	0.1547	0.6001	0.3105
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0565	0.2616	0.1286
Cyclohexane	0.0251	0.1138	0.0474
Other Hexanes	0.0884	0.4095	0.2021
Heptanes	0.0581	0.2950	0.1351
Methylcyclohexane	0.0263	0.1390	0.0587
2,2,4 Trimethylpentane	0.0030	0.0181	0.0082
Benzene	0.0074	0.0309	0.0114
Toluene	0.0072	0.0354	0.0133
Ethylbenzene	0.0005	0.0031	0.0012
Xylenes	0.0056	0.0319	0.0120
C8+ Heavies	0.0321	0.2106	0.0946
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

STOCK TANK WORKING AND BREATHING EMISSIONS

Company: XTO Energy
Facility Name: LCU 2-6GX
Facility Location: Uintah County, Utah

TANK DESCRIPTION	FLASH LOSSES (lbs/yr)	WORKING LOSSES (lbs/yr)	BREATHING LOSSES (lbs/yr)	VOC LOSSES (lbs/yr)	TOTAL LOSSES (tons/yr)
300-bbl storage tank LCU 2-6GX	133.00	1062.00	2919.16	4114.16	2.057
400-bbl storage tank LCU 2-6GX	133.00	1062.00	2786.62	3981.62	1.991
TOTAL	**266.00**	**2124.00**	**5705.78**	**8095.78**	**4.05**

EPA TANKS 4.09D used to calculate emissions; please see attached documentation.
Max 13 bopd production rate per tank which includes produced water and oil.

WELLSITE FLASH TANK EMISSIONS

Company: **Summit Gas Gathering**
Facility Name: **LCU 2-6GX**
Facility Location: **Uintah County, Utah**

GAS COMPONENT	MOLECULAR WEIGHT (lb/lb-mole)	MOLE PERCENT	RELATIVE MOLE WEIGHT (lb/lb-mole)	WEIGHT PERCENT	COMPONENT FLOW RATE (Mscf/day)	COMPONENT FLOW RATE (lb/hr)	COMPONENT FLOW RATE (tons/yr)
Methane	16.043	80.988	12.99290484	66.20039834	0.0890868	0.156923276	0.687323947
Ethane	30.07	4.3231	1.29995617	6.623431583	0.00475541	0.015700367	0.068767609
Propane	44.097	2.2277	0.982348869	5.00518454	0.00245047	0.011864429	0.051966201
i-Butane	58.123	0.5979	0.347517417	1.770642648	0.00065769	0.004197181	0.018383652
n-Butane	58.123	0.8373	0.486663879	2.479610452	0.00092103	0.005877738	0.025744492
i-Pentane	72.15	0.2836	0.2046174	1.042550034	0.00031196	0.00247129	0.010824249
n-Pentane	72.15	0.2394	0.1727271	0.880065156	0.00026334	0.002086131	0.009137254
Hexanes	86.177	0.0883	0.076094291	0.38770948	0.00009713	0.000919037	0.004025384
Heptanes	100.204	0.0056	0.005611424	0.028590874	0.00000616	6.77726E-05	0.000296844
Octanes	114.231	0.0522	0.059628582	0.30381473	0.00005742	0.000720171	0.003154349
Nonanes	128.258	0.045	0.0577161	0.294070407	0.0000495	0.000697073	0.003053178
Decanes +	142.285	0.0391	0.055633435	0.28345898	0.00004301	0.000671919	0.002943006
Benzene	78.12	0.0054	0.00421848	0.021493658	0.00000594	5.09492E-05	0.000223157
Toluene	92.13	0.0074	0.00681762	0.034736586	0.00000814	8.23406E-05	0.000360652
Ethylbenzene	106.16	0.0026	0.00276016	0.014063344	0.00000286	3.33361E-05	0.000146012
Xylenes	106.16	0.007	0.0074312	0.037862849	0.0000077	8.97512E-05	0.00039311
n-Hexane	86.177	0.035	0.03016195	0.153678729	0.0000385	0.000364284	0.001595565
Helium	4.003	0	0	0	0	0	0
Nitrogen	28.013	9.4886	2.658041518	13.54303825	0.01043746	0.032102797	0.140610249
Carbon Dioxide	44.01	0.3994	0.17577594	0.895599359	0.00043934	0.002122954	0.009298537
Oxygen	32	0	0	0	0	0	0
Hydrogen Sulfide	34.08	0	0	0	0	0	0
VOC SUBTOTAL		**4.4735**	**2.499947907**	**12.73753247**	**0.00492085**	**0.030193403**	**0.132247106**
HAP SUBTOTAL		**0.0574**	**0.05138941**	**0.261835167**	**0.00006314**	**0.000620661**	**0.002718497**
TOTAL		99.6726	19.62662638	100	0.10963986	0.237042797	1.038247449

Gas Vented: **0.11 Mscf/day** **26 barrels of Oil/Produced Water per day** 1
Days of Operation: **365 days/year** **3.9659 Gas to Oil Ratio in Cubic Feet Gas to Barrel of Oil/Water**
Calculated emissions are combined for two tanks based on the combined total throughput.
See attached flash gas analysis for nearby well LCU 5-12H, including gas to oil ratio, API Gravity and Reid Vapor Pressure

CAPROCK LABORATORIES, INC.

3312 BANKHEAD HIGHWAY
MIDLAND, TEXAS 79701
(432)689-7252, CAPROCKLAB.COM

COMPANY: Hybon
SAMPLE ID.: As Noted

JOB NUMBER: 1010042
DATE RECEIVED: October 04, 2010
DATE REPORTED: October 20, 2010
REPORTED TO: BUTCH GIDNEY

SUMMARY OF SINGLE STAGE SEPARATOR FLASH ANALYSIS

SAMPLE IDENTIFICATION	River Bend Dehy	Little Canyon 6-12H	Little Canyon 5-12H	Little Canyon 4-12H	Little Canyon Comp Station
SAMPLE TYPE	PRESSURIZED H2O	PRESSURIZED H2O	PRESSURIZED H2O	PRESSURIZED H2O	GLYCOL
LAB NUMBER	10100042HYB07	10100042HYB08	10100042HYB09	10100042HYB10	10100042HYB11
GRAVITY, API HYDROMETER					
GRAVITY, SPECIFIC 60/60F	1.0467	1.0224	1.0274	1.0574	1.1535
LIVE CRUDE OIL					
GAS:OIL RATIO, CU FT GAS/BBL OIL	2744.056*	3.5438*	3.9659*	1.6286*	58.4303*

* Gas:Water Ratio, Cu Ft Gas/Bbl Water

Methods: API GRAVITY - ASTM D287
GAS OIL RATIO - SINGLE STAGE FLASH
Sample: CONDENSATE/PRODUCED WATER

Analyst: James L. Pritchard
James L. Pritchard, Lab Manager

CAPROCK LABORATORIES, INC.
3312 BANKHEAD HIGHWAY
MIDLAND, TEXAS 79701
(432)689-7252, CAPROCKLAB.COM

COMPANY:	HYBON	JOB #:	1010042
SAMPLE ID:	FLASH GAS	SAMPLE #:	1010042HYB09EA
SAMPLE TYPE:	SPOT	DATE ON:	20101004
STATION:	LITTLE CANYON 5-12H	TIME ON:	
SAMPLE PRESS.,psig:		SAMPLED BY:	CLIENT
GAS TEMP. F:		CYLINDER #:	N/A
ANALYSIS DATE:	20101012		
ANALYSIS COMMENTS:			

COMPOSITIONAL ANALYSIS OF NATURAL GAS

COMPONENT	MOLE %	WEIGHT %
HYDROGEN SULFIDE	0.0000	0.0000
NITROGEN	9.4886	13.2433
OXYGEN	0.0000	0.0000
METHANE	80.9880	64.7314
CARBON DIOXIDE	0.3994	0.8758
ETHANE	4.3231	6.4766
PROPANE	2.2277	4.8943
ISO-BUTANE	0.5979	1.7314
N-BUTANE	0.8373	2.4247
ISO-PENTANE	0.2836	1.0195
N-PENTANE (C-5)	0.2394	0.8606
2,2 DIMETHYL BUTANE	0.0014	0.0060
CYCLOPENTANE	0.0175	0.0611
2-METHYLPENTANE	0.0239	0.1026
3-METHYLPENTANE	0.0198	0.0850
N-HEXANE (C-6)	0.0350	0.1503
METHYLCYCLOPENTANES	0.0549	0.2302
BENZENE	0.0054	0.0210
CYCLOHEXANE	0.0420	0.1761
2-METHYLHEXANE	0.0047	0.0235
3-METHYLHEXANE	0.0076	0.0379
DIMETHYLCYCLOPENTANES	0.0315	0.1541
HEPTANES	0.0056	0.0280
N-HEPTANE (C-7)	0.0147	0.0734
METHYLCYCLOHEXANE	0.0340	0.1629
TOLUENE	0.0074	0.0340
2,2,4 TRIMETHYLPENTANE	0.0005	0.0028
OCTANES	0.0522	0.2971
N-OCTANE (C-8)	0.0148	0.0842
ETHYL BENZENE	0.0026	0.0138
P-M-XYLENE	0.0050	0.0264
O-XYLENE	0.0020	0.0106
NONANES	0.0450	0.2876
N-NONANE (C-9)	0.0077	0.0492
DECANES	0.0391	0.2772
N-DECANE (C-10)	0.0069	0.0489
UNDECANES	0.0288	0.2243
N-UNDECANE (C-11)	0.0064	0.0498
DODECANE PLUS	0.0986	1.0244
TOTAL	100.0000	100.0000

CALCULATED PARAMETERS

TOTAL ANALYSIS SUMMARY

AVE MOLE WT	20.0708
SP GRAV, 60F/60	0.3656
API GRAVITY	255.6
REL DENS, AIR=1	0.6930
VAPOR PRESS PSIA	4089.15

C6+ SUMMARY

AVE MOLE WT	122.1327
SP GRAV, 60F/60	0.7411
API GRAVITY	59.4
LBS/GAL	5.930
REL DENS, AIR=1	4.2168
VAPOR PRESS PSIA	2.11

BTEX SUMMARY

WT % BENZENE	0.0210
WT % TOLUENE	0.0340
WT % E BENZENE	0.0138
WT % XYLENES	0.0370

ANALYST: James L. Pritchard
JAMES L. PRITCHARD,
LAB MANAGER

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

Identification

User Identification:	LCU 2-6GX Condensate / Water Tank
City:	Salt Lake City
State:	Utah
Company:	XTO SGG
Type of Tank:	Vertical Fixed Roof Tank
Description:	LCU 2-6GX 300 bbl Condensate / Water Tank 2011 PTE Emissions Estimate - combined produced oil and water - 13 bpd

Tank Dimensions

Shell Height (ft):		15.00
Diameter (ft):		12.00
Liquid Height (ft) :		12.00
Avg. Liquid Height (ft):		8.00
Volume (gallons):		10,152.36
Turnovers:		19.63
Net Throughput(gal/yr):		199,290.00
Is Tank Heated (y/n):	Y	

Paint Characteristics

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

Roof Characteristics

Type:	Cone	
Height (ft)		1.00
Slope (ft/ft) (Cone Roof)		0.17

Breather Vent Settings

Vacuum Settings (psig):	-0.33
Pressure Settings (psig)	0.75

Meterological Data used in Emissions Calculations: Salt Lake City, Utah (Avg Atmospheric Pressure = 12.64 psia)

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

LCU 2-6GX Condensate / Water Tank - Vertical Fixed Roof Tank
Salt Lake City, Utah

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
Crude oil (RVP 5)	All	100.00	70.00	120.00	100.00	5.9684	3.4893	8.2767	50.0000			207.00	Option 4: RVP=5

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

LCU 2-6GX Condensate / Water Tank - Vertical Fixed Roof Tank
Salt Lake City, Utah

Annual Emission Calcaulations	
Standing Losses (lb):	2,919.1557
Vapor Space Volume (cu ft):	829.3805
Vapor Density (lb/cu ft):	0.0497
Vapor Space Expansion Factor:	0.6443
Vented Vapor Saturation Factor:	0.3012
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	829.3805
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	7.3333
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	0.3333
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.3333
Roof Height (ft):	1.0000
Roof Slope (ft/ft):	0.1700
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0497
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.9684
Daily Avg. Liquid Surface Temp. (deg. R):	559.6700
Daily Average Ambient Temp. (deg. F):	51.9625
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	559.6700
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,452.1184
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.6443
Daily Vapor Temperature Range (deg. R):	50.0000
Daily Vapor Pressure Range (psia):	4.7874
Breather Vent Press. Setting Range(psia):	1.0830
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.9684
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	3.4893
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	8.2767
Daily Avg. Liquid Surface Temp. (deg R):	559.6700
Daily Min. Liquid Surface Temp. (deg R):	529.6700
Daily Max. Liquid Surface Temp. (deg R):	579.6700
Daily Ambient Temp. Range (deg. R):	23.3583
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.3012
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	5.9684
Vapor Space Outage (ft):	7.3333
Working Losses (lb):	1,061.9982
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.9684

Annual Net Throughput (gal/yr.):	199,290.0000
Annual Turnovers:	19.6299
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	10,152.3555
Maximum Liquid Height (ft):	12.0000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	0.7500
Total Losses (lb):	3,981.1539

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

Emissions Report for: Annual

LCU 2-6GX Condensate / Water Tank - Vertical Fixed Roof Tank
Salt Lake City, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	1,062.00	2,919.16	3,981.15

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

Identification

User Identification:	LCU 2-6GX 400 bbl Condensate / Water Tank
City:	Salt Lake City
State:	Utah
Company:	XTO SGG
Type of Tank:	Vertical Fixed Roof Tank
Description:	LCU 2-6GX 400 bbl Condensate / Water Tank 2011 PTE Emissions Estimate - combined produced oil and water - 13 bpd

Tank Dimensions

Shell Height (ft):		20.00
Diameter (ft):		12.00
Liquid Height (ft) :		17.00
Avg. Liquid Height (ft):		14.00
Volume (gallons):		14,382.50
Turnovers:		13.86
Net Throughput(gal/yr):		199,290.00
Is Tank Heated (y/n):	Y	

Paint Characteristics

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

Roof Characteristics

Type:	Cone	
Height (ft)		1.00
Slope (ft/ft) (Cone Roof)		0.17

Breather Vent Settings

Vacuum Settings (psig):	-0.33
Pressure Settings (psig)	0.75

Meterological Data used in Emissions Calculations: Salt Lake City, Utah (Avg Atmospheric Pressure = 12.64 psia)

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

LCU 2-6GX 400 bbl Condensate / Water Tank - Vertical Fixed Roof Tank
Salt Lake City, Utah

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
Crude oil (RVP 5)	All	100.00	70.00	120.00	110.00	5.9684	3.4893	8.2767	50.0000			207.00	Option 4: RVP=5

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

LCU 2-6GX 400 bbl Condensate / Water Tank - Vertical Fixed Roof Tank
Salt Lake City, Utah

Annual Emission Calcaulations	
Standing Losses (lb):	2,786.6164
Vapor Space Volume (cu ft):	716.2831
Vapor Density (lb/cu ft):	0.0497
Vapor Space Expansion Factor:	0.6443
Vented Vapor Saturation Factor:	0.3330
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	716.2831
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	6.3333
Tank Shell Height (ft):	20.0000
Average Liquid Height (ft):	14.0000
Roof Outage (ft):	0.3333
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.3333
Roof Height (ft):	1.0000
Roof Slope (ft/ft):	0.1700
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0497
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.9684
Daily Avg. Liquid Surface Temp. (deg. R):	559.6700
Daily Average Ambient Temp. (deg. F):	51.9625
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	569.6700
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,452.1184
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.6443
Daily Vapor Temperature Range (deg. R):	50.0000
Daily Vapor Pressure Range (psia):	4.7874
Breather Vent Press. Setting Range(psia):	1.0830
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.9684
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	3.4893
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	8.2767
Daily Avg. Liquid Surface Temp. (deg R):	559.6700
Daily Min. Liquid Surface Temp. (deg R):	529.6700
Daily Max. Liquid Surface Temp. (deg R):	579.6700
Daily Ambient Temp. Range (deg. R):	23.3583
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.3330
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	5.9684
Vapor Space Outage (ft):	6.3333
Working Losses (lb):	1,061.9982
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.9684

Annual Net Throughput (gal/yr.):	199,290.0000
Annual Turnovers:	13.8564
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	14,382.5036
Maximum Liquid Height (ft):	17.0000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	0.7500
Total Losses (lb):	3,848.6145

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

Emissions Report for: Annual

LCU 2-6GX 400 bbl Condensate / Water Tank - Vertical Fixed Roof Tank
Salt Lake City, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	1,062.00	2,786.62	3,848.61

LCU 2-6GX WELLSITE NATURAL GAS FUELED HEATER EMISSIONS

Company: Summit Gas Gathering
Facility Name: LCU 2-6GX Wellsite
Facility Location: Uintah County, Utah

SOURCE DESCRIPTION	HEATER SIZE (MBtu/hr)	HEATER EFFICIENCY	FUEL HEAT VALUE (Btu/scf)	HOURS OF OPERATION (hrs/year)	FUEL USAGE (MMscf/yr)	NOx		CO	
						EF AP-42[1] lb/MMscf	EMISSIONS (tons/yr)	EF AP-42[1] lb/MMscf	EMISSIONS (tons/yr)
LCU 2-6GX 400 bbl Tank #1 Heater	500	0.8	1106	8760	4.950	100.0	0.27	84.0	0.23
LCU 2-6GX 300 bbl Tank #2 Heater	250	0.8	1106	8760	2.475	100.0	0.13	84.0	0.11
LCU 2-6GX Dehy Reboiler Heater	250	0.8	1106	8760	2.475	100.0	0.13	84.0	0.11
				TOTALS	9.900		0.530		0.450

SOURCE DESCRIPTION	TOC		VOC	PM 10		Formaldehyde	
	EF AP-42[2] lb/MMscf	EMISSIONS (tons/yr)	EMISSIONS (tons/yr)	EF AP-42[2] lb/MMscf	EMISSIONS (tons/yr)	EF AP-42[3] lb/MMscf	EMISSIONS (tons/yr)
LCU 2-6GX 400 bbl Tank #1 Heater	11.0	0.03	0.03	7.6	0.02	7.50E-02	0.0002
LCU 2-6GX 300 bbl Tank #2 Heater	11.0	0.01	0.01	7.6	0.01	7.50E-02	0.0001
LCU 2-6GX Dehy Reboiler Heater	11.0	0.01	0.01	7.6	0.01	7.50E-02	0.0001
	TOTALS	0.05	0.05		0.04		0.00

Criteria emissions rounded to the nearest 1/100 of a ton, VOC/HAP rounded to 1/1000 of a ton.

EF AP-42[1] = emission factor from AP-42 Table 1.4-1, Small Boilers <100 MMbtu/hr (EPA 7/98), Standard = 1,020 Btu/scf
EF AP-42[2] = emission factor from AP-42 Table 1.4-2 (EPA 7/98)
EF AP-42[3] = emission factor from AP-42 Table 1.4-2 (EPA 7/98)

$$\text{Fuel Consumption (MMscf/yr)} = \frac{\text{Heater Size (MBtu/hr)} * 1{,}000 \text{ (Btu/MBtu)} * \text{Hours of Operation (hrs/yr)}}{\text{Fuel Heat Value (Btu/scf)} * 1{,}000{,}000 \text{ (scf/MMscf)} * \text{Heater Efficiency}}$$

NOx/CO/TOC Emissions (tons/yr) = AP-42 EF (lbs/MMscf) * Fuel Consumption (MMscf/yr) * (Fuel Heat Value/ Standard Fuel Heat Value) / 2,000 (lbs/ton)

-Standard Fuel Heat Value, Natural Gas (AP-42, 7/98, p1.4-5) = 1,020 Btu/scf

VOC emissions assumed equal to TOC emissions

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WELLSITE UNCONTROLLED CONDENSATE TRUCK LOADING EMISSIONS

Company: Summit Gas Gathering
Facility Name: LCU 2-6GX
Facility Location: Uintah County, Utah

AP - 42, Chapter 5.2

$$L_L = 12.46 \times S \times P \times M / T$$
$$\text{Emissions} = L_L * \text{Throughput}$$

TABLE 1. Emission factors are calculated utilizing AP-42 equations and data from EPA TANKS 4.09 L_L is converted to tpy VOC emissions per barrel of production per day: L_L (lbs

L_L = Loading Loss Emission Factor (lbs VOC/1000 gal Loaded)

- S = Saturation Factor (0.6 For Submerged Loading - Dedicated Service)
- P = True Vapor Pressure of the Loaded Liquid (psi)
- M = Vapor Molecular Weight of the Loaded Liquid (lbs/lbmol)
- T = Temperature of Loaded Liquid (°R)

						<---- L_L ---->				Production	VOC
Location	Factor	S	TVP (psi)	M	T (°R)	lb/1000 gal	lb/gal	lb/bbl	tpy VOC/bpd	bpd	tpy
Truck Loading	12.46	0.6	1.25	22.59	511.68	0.4126	0.0004	0.0173	3.16E-03	26.00	0.0822

Compressor Engine Emissions - Uncontrolled

Company: XTO
Facility Name: LCU 2-6GX
Facility Location: Uintah County, Utah

EMISSION POINTS: Arrow C-96 (Pre-Jul 2008)

Engine Make/Model	Arrow C-96 (Pre-Jul 2008)		
Site Horsepower Rating	18	hp derated from 21.4	Arrow engine derate + 3% for every 1,000' above 1,500'
Altitude	6,000	feet	Derate factor = 13.5%
Ambient Inlet Air Temp	55	degrees F	
Fuel Consumption (BSFC)	9500	Btu/(hp-hr)	
Heat Rating	0.171	MMBtu/hr	
Heating Value	1000	Btu/Scf	
Fuel usage annual	1.50	MMScf/yr	
Fuel usage per hour	171	Scf/hr	
Operating Hours	8760	hrs/yr	

Pollutant	Emission Factor		Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (tpy)	Emission Factor Reference	AP-42 Emission Factors	
NOx	11.87	g/hp-hr	0.47	4,126	2.06	[1]		
CO	5.05	g/hp-hr	0.20	1,755	0.88	[1]		
VOC/NMHC	0.14	g/hp-hr	0.01	49	0.02	[1]		
PM_{10}	0.041	g/hp-hr	0.0016	14	0.0071	[2]	9.50E-03	lb/MMBtu
Hazardous Air Pollutants								
Acetaldehyde	0.0120	g/hp-hr	0.0005	4.18	0.0021	[2]	2.79E-03	lb/MMBtu
Acrolein	0.0113	g/hp-hr	0.0004	3.94	0.0020	[2]	2.63E-03	lb/MMBtu
Benzene	0.0068	g/hp-hr	0.0003	2.37	0.0012	[2]	1.58E-03	lb/MMBtu
Formaldehyde	0.0883	g/hp-hr	0.004	31	0.02	[2]	2.05E-02	lb/MMBtu
	Total HAPS		0.0047	41	0.02			

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-3 for stationary IC sources; July 2000, 4-stroke rich burn

CALCULATION FORMULAS	
g/(hp-hr) =	(lb/MMBtu)*(MMBtu/hr)*(453.6 g/lb) / (site-rated hp)
lb/hr =	(g/hp-hr)*(site-rated hp) / (453.6 g/lb)
tpy =	(lb/hr)*(8760 hr/yr) / (2000 lb/ton)
Fuel Usage (MMscf/yr) =	(Scf/btu)*(btu/{hp-hr})*(site-rated hp)*(24 hr/day)*(365 day/yr)*(MMScf/10^6Scf)
Heat Rating (MMbtu/hr) =	(site rated horsepower)*(Btu/(hp-hr)) / (453.6 g/lb)

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EACH WELLSITE FUGITIVE EMISSIONS

Company: Summit Gas Gathering
Facility Name: LCU 2-6GX
Facility Location: Uintah County, Utah

		Estimated Components Count	Hours of Operation	Factors* lb/hr/component	%NMNEVOC Weight	Emissions lb/year	Emissions tons/year
Valves							
	Gas/Vapor	75	8760	0.00992000	11.00%	716.91840	0.35846
	Light Oil	10	8760	0.00550000	100.00%	481.80000	0.24090
	Heavy Oil		8760	0.00001900	100.00%	0.00000	0.00000
	Water/Light Oil	3	8760	0.00021600	100.00%	5.67648	0.00284
Pumps							
	Gas/Vapor	3	8760	0.00529000	11.00%	15.29233	0.00765
	Light Oil	1	8760	0.02866000	100.00%	251.06160	0.12553
	Heavy Oil		8760	0.00113000	100.00%	0.00000	0.00000
	Water/Light Oil		8760	0.00005300	100.00%	0.00000	0.00000
Flanges							
	Gas/Vapor	150	8760	0.00086000	11.00%	124.30440	0.06215
	Light Oil	15	8760	0.00024300	100.00%	31.93020	0.01597
	Heavy Oil		8760	0.00000086	100.00%	0.00000	0.00000
	Water/Light Oil	10	8760	0.00000620	100.00%	0.54312	0.00027
Open-ended Lines							
	Gas/Vapor		8760	0.00441000	11.00%	0.00000	0.00000
	Light Oil		8760	0.00309000	100.00%	0.00000	0.00000
	Heavy Oil		8760	0.00030900	100.00%	0.00000	0.00000
	Water/Light Oil		8760	0.00055000	100.00%	0.00000	0.00000
Connectors							
	Gas/Vapor	10	8760	0.00044000	11.00%	4.23984	0.00212
	Light Oil	10	8760	0.00046300	100.00%	40.55880	0.02028
	Heavy Oil		8760	0.00001700	100.00%	0.00000	0.00000
	Water/Light Oil	10	8760	0.00024300	100.00%	21.28680	0.01064
Other: Compressors, relief valves, process drains, diaphragms, dump arms, hatches, instruments, meters, polished rods, and vents							
	Gas/Vapor	5	8760	0.01940000	11.00%	93.46920	0.04673
	Light Oil	5	8760	0.01650000	100.00%	722.70000	0.36135
	Heavy Oil		8760	0.00006800	100.00%	0.00000	0.00000
	Water/Light Oil	5	8760	0.03090000	100.00%	1353.42000	0.67671

***NOTE** - *emission factors based on Table 2-4 of U.S. EPA's 1995 Protocol for Equipment Leak Emission Estimates.*

Total in tons/year	1.93
Total in Lb/hr	0.44

Fugitive HAP Emissions Totals - Gas/Vapor

	wt% in gas	Total VOC wt %	Total Gas Fugitive VOC tpy	Total tpy for HAP	Total lb/hr for HAP
Benzene	0.0309%	11.00%	0.48	0.001	0.000
Toluene	0.0354%	11.00%	0.48	0.002	0.000
Xylene	0.0319%	11.00%	0.48	0.001	0.000
n-Hexane	0.2616%	11.00%	0.48	0.011	0.003
E-benzene	0.0031%	11.00%	0.48	0.000	0.000
			TOTAL Fugitive HAP's	0.016	0.004

Re: CBI information for permit dockets
Craig_Allison
to:
Eric Wortman
04/05/2010 02:38 PM
Cc:
Aaron_Tucker
Show Details

Eric:

Regarding the process drawings for the LCU, KCU, Tap-4, and Tap-5 permit applications, this information is not considered by XTO to be Confidential Business Information.

Please note that the privacy statements made on the drawings are blanket, standard language directed to XTO contractors, but do not apply to the information submitted to the EPA in this case.

Let me know if you need anything else.

Thanks,
Craig Allison
EH&S Advisor
XTO Energy
810 Houston Street
Fort Worth, TX 76102
817-885-2672 Office
817-201-2379 Cell
817-885-2683 Fax

Wortman.Eric@epamail.epa.gov

03/29/2010 01:40 PM

To craig_allison@xtoenergy.com
cc
Subject CBI information for permit dockets

Good afternoon Craig,

I noticed the following text was included at the bottom of the 4 process flow diagrams you sent me for the Uintah facilities:

"This drawing has not been published and is the sole property of XTO Energy, Inc. and is lent to the borrower for his confidential use only. In consideration of the load of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly, nor used for any purpose other than that for which it is specifically furnished."

EPA's files are available for public for review through the FOIA process. Please clarify if the 4 process flow diagrams need to be filed separately as "Confidential Business Information" or CBI.

Thank you,

Eric

Eric Wortman
Environmental Scientist
Air Permitting, Monitoring and Modeling Unit
Office of Partnerships & Regulatory Assistance
EPA Region 8
1595 Wynkoop Street (8P-AR)
Denver, CO 80202-1129

Phone: (303) 312-6649
Fax: (303) 312-6064
wortman.eric@epa.gov

Summit Gas Gathering, LLC
810 Houston Street
Ft. Worth, TX 76102-6298
(817) 870-2800 (office)

March 25, 2010

RECEIVED
MAR 3
8P - AR

Mr. Eric Wortman
Air Program - US EPA Region 8
Part 71 - Permitting, Monitoring and Modeling Unit
1595 Wynkoop St. (8P-AR)
Denver, CO 80202-1129

Certified Mail
Return Receipt No. 7009 0080 0000 4062 6532

RE: Summit Gas Gathering, LLC
Tap-4 Compressor Station - Uintah County, Utah – Part 71 Permit # V-OU-0017-07.00
Tap-5 Compressor Station - Uintah County, Utah – Part 71 Permit # V-OU-0018-07.00
Kings Canyon Unit Compressor Station – Uintah County, Utah – Part 71 Permit # V-OU-0019-07.00
Little Canyon Unit Compressor Station – Uintah County, Utah – Part 71 Permit Pending
Part 71 Permit Application Modifications – Supplemental Information

Dear Mr. Wortman:

Per your request, Summit Gas Gathering, LLC, hereby submits the accompanying supplemental information related to Title V - Part 71 Permit Applications for the following facilities:

- Tap-4 Compressor Station located in Uintah County, Utah – Application Update
- Tap-5 Compressor Station located in Uintah County, Utah – Application Update
- Kings Canyon Unit Compressor Station located in Uintah County, Utah – Application Update
- Little Canyon Unit Compressor Station located in Uintah County, Utah – Initial Application Update

The attached summary of items that were requested by e-mail from EPA Region 8 provides details of Summit Gas Gathering's response to each item requested. In addition, please find the attached, signed CTAC form covering the items submitted with this response letter.

If you should have any questions or require additional information, please feel free to contact me via e-mail at craig_allison@xtoenergy.com or at (817) 885-2672.

Sincerely,
XTO Energy

Craig Allison
EH&S Advisor

Encl:

Cc: Damien Jones, XTO – SGG Roosevelt NGO Office

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)

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) **Dungey** (First) **Nick** (MI) J

Title **Chairman of the Board and President – Summit Gas Gathering, LLC**

Street or P.O. Box **810 Houston St.**

City **Fort Worth** State **TX** ZIP **76102** - ____

Telephone (817) 885-2440 Ext. ____ Facsimile (817) 870 - 8441

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) Nick J. Dungey

Name (typed) **Nick Dungey** Date: 3 / 24 / **2010**

EPA Form 5900-02

Supplemental Items Requested via E-mail by EPA Region 8 for the Summit Gas Gathering Tap-4, Tap-5, Kings Canyon, and Little Canyon Part 71 Applications

- Add T4G-1 (Tap-4 Generator #1) to the insignificant emissions list - see attached info.

- Revise Kings Canyon condensate storage tank (KCT-1) size from 300 barrels to 400 barrels and add the Barton 1-26 Well condensate production tank - see attached info.

- Revise Tap-5 condensate storage tank (T5T-1) from 300 barrels to 400 barrels - see attached info:

- Provide a description and timeline for the Tap-4 generator engine changeout to Capstone Microturbine:

T4G-1 (the Cat 3412LE generator engine) was experiencing mechanical problems and was permanently shut down on October 15, 2009 and permanently replaced by a Capstone microturbine on February 18, 2010.

- Provide an update of emissions for the Capstone microturbine at LCU to remove Particulate Matter (this was an error in the original application) - see attached.

- Attached are updated process flow drawings for all sites (please disregard your previous versions - Rev 1's and use the attached drawings - these are Rev2:

LCU_PDF_Rev_2.pdf TAP #4_PFD_Rev_2.pdf TAP #5_PFD_Rev_2.pdf

- Update the Thermal Oxidizer VOC destruction efficiency to greater than or equal to 95% for all sites - see attached.

- Need CAM rule applicability determination from EPA Region 8 for all sites - EPA to send via e-mail.

- Provide a list of engines and order dates - sent via e-mail on 3/18/10

- Provide driving directions to each location - sent via e-mail on 3/18/10

- Provide safety and site visitation requirements for each site - sent via e-mail on 3/18/10

- Provide a signed CTAC form to cover equipment and emissions mods - see attached.

- Re-calculate the 2009 LCU emissions using engine site-rated horsepower instead of nameplate and take credit into account in 2010 Title V EI and fee submittal - to be submitted 1st week in April with 2009 fees.

- Describe the Kings Canyon Barton 1-26 wellsite dehy removal (date and reason for equipment removal):

The dehydrator serving the Barton 1-26 well was removed from service on January 5, 2009. The reason that the dehydrator was removed from service is because the gas was routed from the well to the Kings Canyon dehydrators. The Barton 1-26 well sits in the middle of the Kings Canyon compressor Station, so the proximity made it feasible to eliminate the Barton 1-26 dehydrator and utilize the Kings Canyon dehydrators.

- Description of removal of Hydrocarbon dewpoint skid for the Kings Canyon sites:

The hydrocarbon dewpoint skid at the Kings Canyon Facility was permanently shut down in January 17, 2010 with the official HCDP equipment isolation from service occurring on March 5, 2010 and on March 18, 2010. The permanent shutdown of the HCDP process was due to the elimination of requirement to control the hydrocarbon dewpoint of the sales gas being dischsrged from the facility. The revised regulatory applicability summary is attached stating that 40 CFR 60, Subpart KKK is no longer applicable to the location because the site is no longer considered a gas processing plant. In addition, a separate applicability summary is attached for Tap-4 and Tap-5 (no changes were made to the applicability for these locations).

KCU Title V Reg applicability summary March_2010.pdf

LITTLE CANYON UNIT (LCU)
SUPPLEMENTAL INFORMATION

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 PROCESS SOURCES (EUD-3)

A. General Information

Emissions unit ID __LCD-1_________ Description ___25 MMscfd Glycol Dehydrator_____

SIC Code (4-digit) _1311_________ SCC Code________

B. Emissions Unit Description

Primary use or equipment type __Gas Dehydration________________________________

Manufacturer ___Natco______________________ Model No. ___61440005________

Serial No. _____TBD_____________________ Installation date _12__/_09__/_2005_

Raw materials ___Wet Natural Gas ____

Finished products __Dry Natural Gas ____

Temporary source: _X__No ___Yes

C. Activity or Production Rates

Activity or Production Rate	Amount/Hour	Amount/Year
Actual Rate	500 Mscf	4,417 MMscf
Maximum rate	1.04 MMscf	9,125 MMscf

D. Associated Air Pollution Control Equipment

Emissions unit ID __LCD-1_____ Device Type____Thermal Oxidizer____________________

Manufacturer _Industrial Refractory Services__ Model No__36 inch TO with TJ0200HV burner

Serial No. __TBD_____________________ Installation date Late winter/early spring 2009

Control efficiency (%) __>95_______.___ Capture efficiency (%) ________.___

Air pollutant(s) controlled VOCs & HAPs__ Efficiency estimation method __Manu. Specs. _____

United States Environmental Protection Agency

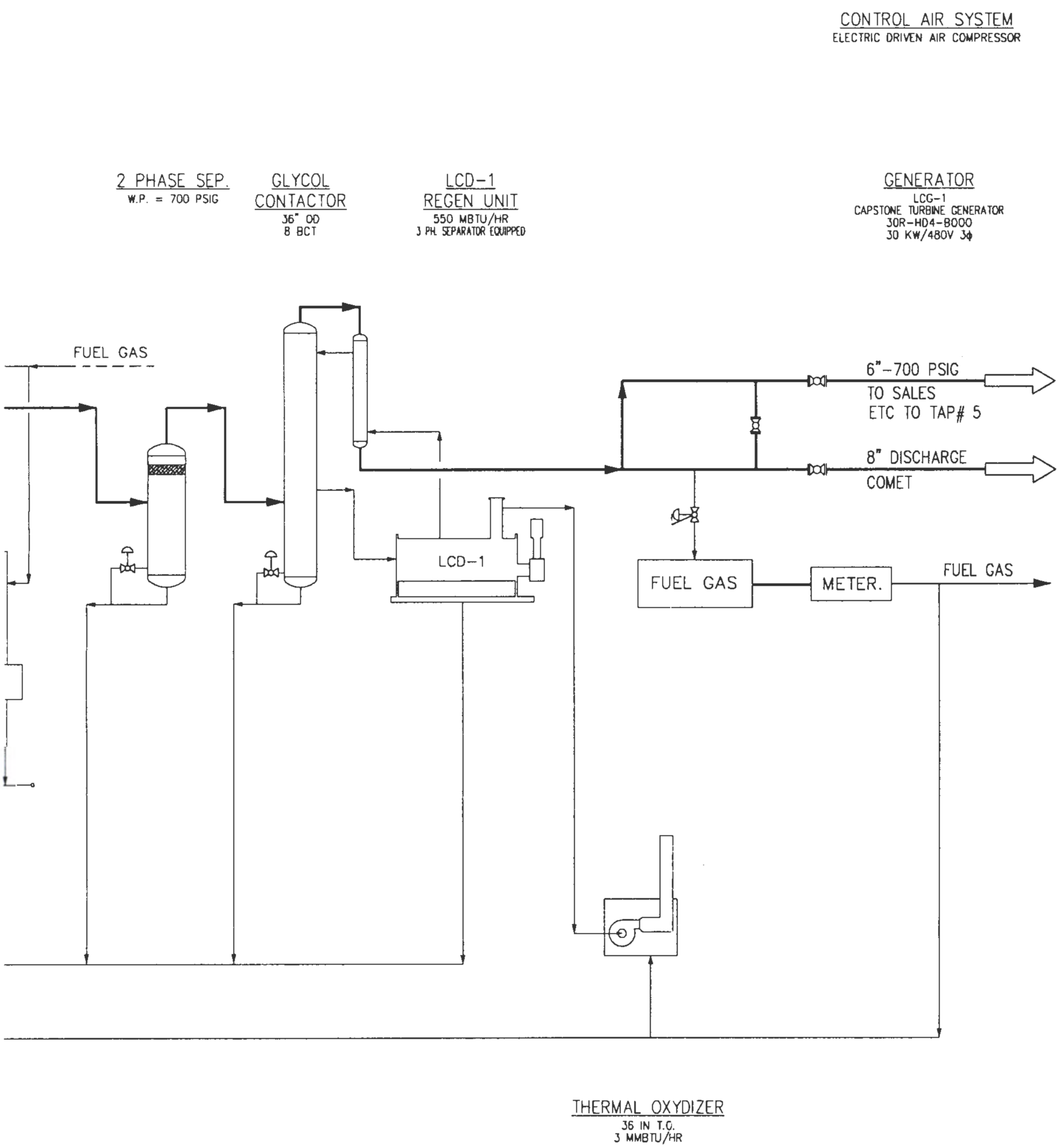
OMB No. 2060-0336, Approval Expires 09/30/2010

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
LCC-1	18.23	5.23	0.0	0.0	28.4	0.0	3.3
LCC-2	18.23	5.23	0.0	0.0	28.4	0.0	3.3
LCC-3	18.23	5.23	0.0	0.0	28.4	0.0	3.3
LCD-1	0.0	109.1	0.0	0.0	0.0	0.0	28.6
LCF-1	0.0	4.0	0.0	0.0	0.0	0.0	0.2
LCG-1	0.1	0.03	0.0	0.0	0.2	0.0	0.0
LCT-1	0.0	9.4	0.0	0.0	0.0	0.0	0.9
LCT-2	0.0	9.4	0.0	0.0	0.0	0.0	0.9
FACILITY TOTALS	55.6	148.3	0.0	0.0	86.2	0.0	40.5



WINGS

ING NO.	TITLE

NOTICE

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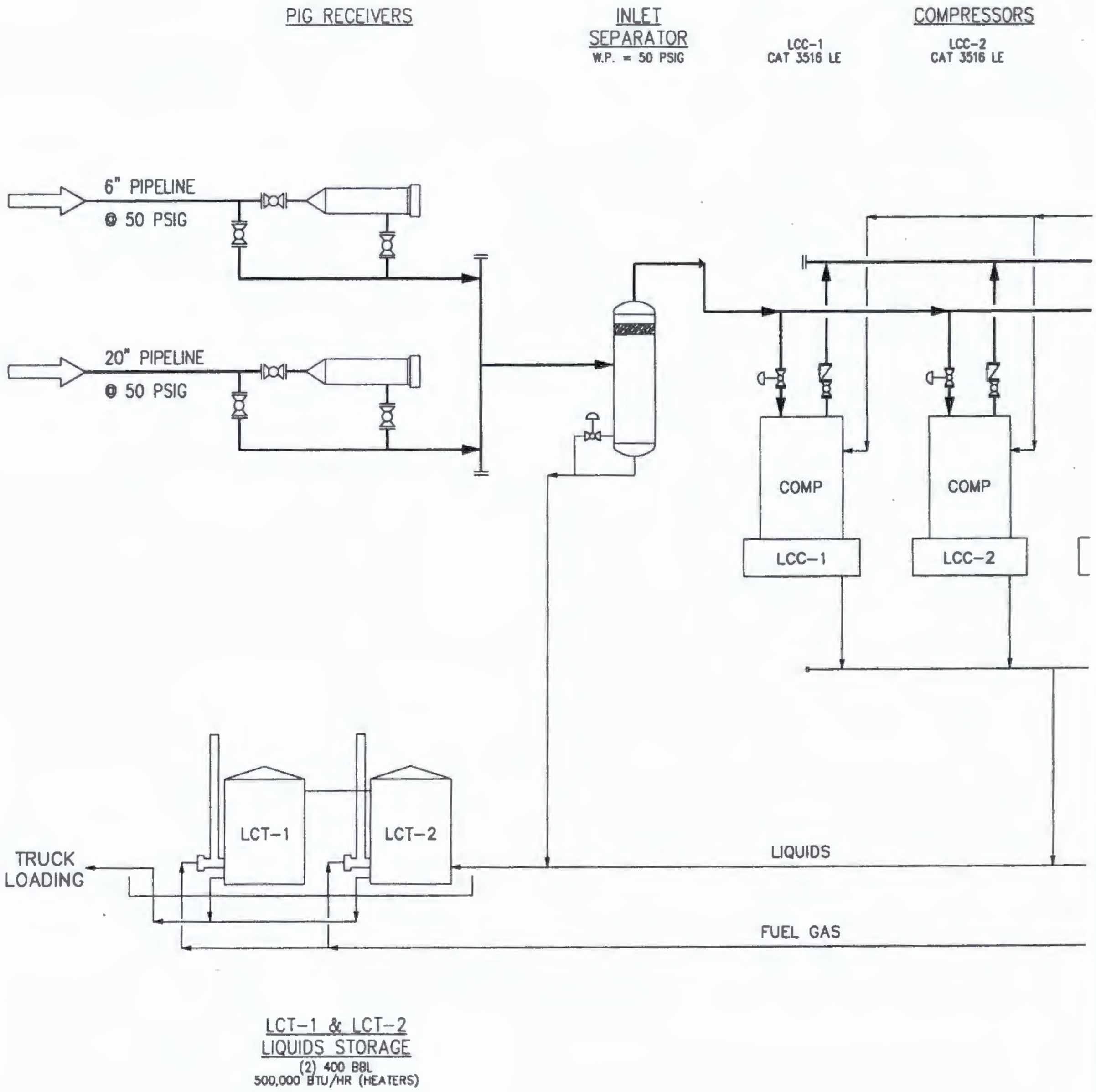
SUMMIT GAS GATHERING

APPROVED:	DATE	TITLE:
CHECKED:		**PROCESS FLOW DIAGRAM**
DESIGNED:		**LCU COMPRESSOR SITE**
DRAWN: J DAVIS	01/10	**FACILITY #711310**
		ROOSEVELT, UTAH

JOB No:	SCALE	DWG NO.:	REV.
		D-200-100	2



GENERAL NOTES

NOTE:

WORKING PRESSURES (W.P.) OF EQUIPMENT AND LINE PRESSURES ARE APPROXIMATE AND SUBJECT TO OPERATIONAL VARIATIONS

REVISIONS

MK.	DESCRIPTION	DATE	CK	APPR
1	GENERAL	2/10		
2	CORRECTED HEAT DUTY	3/10		

REFEREN

DRAWING NO.	TITLE

Summit Gas Gathering TV Permit Info Request - Little Canyon
Craig_Allison
to:
Eric Wortman
01/22/2010 07:18 PM
Show Details

Eric:

Related to SGG Little Canyon Unit See attached-

Regards,
Craig Allison
EH&S Advisor
XTO Energy
810 Houston Street
Fort Worth, TX 76102
817-885-2672 Office
817-201-2379 Cell
817-885-2683 Fax

Summit Gas Gathering TV Permit Info Request - General Info
Craig_Allison
to:
Eric Wortman
01/22/2010 07:19 PM
Show Details

Eric:

In response to your questions, (except for the regulatory applicability) the following attached information is applicable to all four (4) SGG Part 71 applications:

- Dehy Information:
- Thermal Oxidizer (Dehy BTEX emissions control information):
- Driving Directions:
- Federal Regulatory Applicability for Tap-4, Tap-5, and Kings Canyon:
- Pipeline Pigging Procedures
- EPA tanks 4.09 Lube Oil tank calculations

Regards,
Craig Allison
EH&S Advisor
XTO Energy
810 Houston Street
Fort Worth, TX 76102
817-885-2672 Office
817-201-2379 Cell
817-885-2683 Fax

Re: P71 Permit Applications Request for Add'l Information - SGG LCU, KCU, Tap-4, Tap-5

Eric Wortman to: Craig_Allison 01/06/2010 09:16 AM

Craig,

Thank you for the update. Submitting the process flow diagrams by Feb. 26th is okay.

Eric

Eric Wortman
Environmental Scientist
Air Permitting, Monitoring and Modeling Unit
Office of Partnerships & Regulatory Assistance
EPA Region 8
1595 Wynkoop Street (8P-AR)
Denver, CO 80202-1129

Phone: (303) 312-6649
Fax: (303) 312-6064
wortman.eric@epa.gov

Craig_Allison Eric: XTO is working on the response to your inf... 01/05/2010 02:12:41 PM

From: Craig_Allison@xtoenergy.com
To: Eric Wortman/R8/USEPA/US@EPA
Cc: Aaron_Tucker@xtoenergy.com
Date: 01/05/2010 02:12 PM
Subject: Re: P71 Permit Applications Request for Add'l Information - SGG LCU, KCU, Tap-4, Tap-5

Eric:

XTO is working on the response to your info request. We should have most of the info to you by January 22, 2010, however, the Process Flow Diagrams are being done by a contractor and will take some additional time. XTO is requesting an extension through February 26, 2010 to complete the PFD's and associated process descriptions that correlate to the PFD's.

Except for the process flow info, I will forward you remainder of the information by January 22, 2010.

Regards,
Craig Allison
EH&S Advisor
XTO Energy
810 Houston Street
Fort Worth, TX 76102
817-885-2672 Office
817-201-2379 Cell
817-885-2683 Fax

Craig Allison/FTW/CTOC

11/19/2009 10:14 AM

To Wortman.Eric@epamail.epa.gov

cc

Subject Re: P71 Permit Applications Request for Add'l Information - SGG LCU, KCU, Tap-4, Tap-5

Link

Eric:

I received your request and will be working on the response. I will let you know if I have any questions.

Regards,

Craig Allison
EH&S Advisor
XTO Energy
810 Houston Street
Fort Worth, TX 76102
817-885-2672 Office
817-201-2379 Cell
817-885-2683 Fax

Wortman.Eric@epamail.epa.gov

11/18/2009 08:28 AM

To Craig_Allison@xtoenergy.com

cc

Subject P71 Permit Applications Request for Add'l Information - SGG LCU, KCU, Tap-4, Tap-5

Dear Craig,

EPA has reviewed your applications for Title V Operating Permits for the following four facilities located on the Uintah & Ouray Indian Reservation in Uintah County, Utah: Little Canyon Unit Compressor Station, Kings Canyon Unit Compressor Station, Tap-4 Compressor Station, and Tap-5 Compressor Station. As we discussed in our conversation on 11/6, EPA is requesting additional information in order to further evaluate the applications as specified in 40 CFR 71.5(a)(2).

At this time, EPA is requesting additional information be provided from SGG for each of the 4 facilities by January 22, 2010. Please refer to the attached documents for the requested information for each facility.

Please feel free to contact myself at the number below or Kathy Paser at 303-312-6526 if you have any questions.

Thank you.

Sincerely,

Eric Wortman

(See attached file: Summit Gas Gathering - Kings Canyon CS Additional Info. Request V-OU-0019-07.00.pdf)(See attached file: Summit Gas Gathering - Little Canyon CS Additional Info. Request V-OU-0016-06.00.pdf)(See attached file: Summit Gas Gathering - TAP-4 CS Additional Info. Request V-OU-0017-07.00.pdf)(See attached file: Summit Gas Gathering - Tap-5 CS Additional Info. Request V-OU-0018-07.00.pdf)

Eric Wortman
Environmental Scientist
Air Permitting, Monitoring and Modeling Unit
Office of Partnerships & Regulatory Assistance
EPA Region 8
1595 Wynkoop Street (8P-AR)
Denver, CO 80202-1129

Phone: (303) 312-6649
Fax: (303) 312-6064
wortman.eric@epa.gov[attachment "Summit Gas Gathering - Kings Canyon CS Additional Info. Request V-OU-0019 -07.00.pdf" deleted by Craig Allison/FTW/CTOC] [attachment "Summit Gas Gathering - Little Canyon CS Additional Info. Request V-OU-0016 -06.00.pdf" deleted by Craig Allison/FTW/CTOC] [attachment "Summit Gas Gathering - TAP-4 CS Additional Info. Request V-OU-0017-07.00 .pdf" deleted by Craig Allison/FTW/CTOC] [attachment "Summit Gas Gathering - Tap-5 CS Additional Info. Request V-OU-0018-07.00 .pdf" deleted by Craig Allison/FTW/CTOC]

P71 Permit Applications Request for Add'l Information - SGG LCU, KCU, Tap-4, Tap-5

Eric Wortman to: Craig_Allison 11/18/2009 07:27 AM

Dear Craig,

EPA has reviewed your applications for Title V Operating Permits for the following four facilities located on the Uintah & Ouray Indian Reservation in Uintah County, Utah: Little Canyon Unit Compressor Station, Kings Canyon Unit Compressor Station, Tap-4 Compressor Station, and Tap-5 Compressor Station. As we discussed in our conversation on 11/6, EPA is requesting additional information in order to further evaluate the applications as specified in 40 CFR 71.5(a)(2).

At this time, EPA is requesting additional information be provided from SGG for each of the 4 facilities by January 22, 2010. Please refer to the attached documents for the requested information for each facility.

Please feel free to contact myself at the number below or Kathy Paser at 303-312-6526 if you have any questions.

Thank you.

Sincerely,

Eric Wortman

Summit Gas Gathering - Kings Canyon CS Additional Info. Request V-OU-0019-07.00.pdf

Summit Gas Gathering - Little Canyon CS Additional Info. Request V-OU-0016-06.00.pdf

Summit Gas Gathering - TAP-4 CS Additional Info. Request V-OU-0017-07.00.pdf

Summit Gas Gathering - Tap-5 CS Additional Info. Request V-OU-0018-07.00.pdf

Eric Wortman
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wortman.eric@epa.gov

Summit Gas Gathering
Little Canyon Unit Compressor Station
Additional Information Request
Permit # V-OU-0016-06.00

Please note that 40 CFR 71.5(c) specifies the standard required information for an operating permit application, which includes calculations on which the required emissions information for all regulated pollutants is based, as well as other information related to the emissions of air pollutants sufficient to verify which requirements are applicable to the source.

EPA is seeking the following additional information to assist our permit engineers in understanding your operations, evaluating the compliance status of the operations at this facility, and developing a comprehensive permit.

1. Please provide a process flow diagram. Include the following information on or with the diagram:

   a) Identify all emission units (including insignificant units and non-emitting) using emission unit I.D.s from the application.

   b) List the operational characteristics of each emission unit (i.e., pressures, temperatures, gas compositions, etc.); and.

   c) Identify raw material and product streams within the plant site.

2. Please provide a description of operations for the facility.

3. Please recalculate and submit emissions for the following storage tank emission units: **1**) LCT-1 and **2**) LCT-2:

   a) EPA is requesting emissions estimates/calculations for working, standing, and breathing losses, using EPA Tanks 4.0. SGG used E&P Tank V2 for the initial application, which is acceptable software for calculating flashing emissions only. EPA Tanks 4.0 is a free online calculation model which is quick to use and can be found at: http://www.epa.gov/ttn/chief/efpac/efsoftware.html. Please include documentation of the input criteria and output data from the model run.

4. Please provide a detailed description of the function and primary purpose of each of the process heaters identified in the application.

5. Provide the current manufacturer's design specification for the glycol dehydrators. Include in the specifications the maximum glycol recirculation pump rate and maximum gas throughput;

6. Provide the current manufacturer's design specifications for the control equipment for dehydrator LCD-1. Include in the specifications the manufacturer's benzene, toluene, ethyl benzene, and xylene (BTEX) removal efficiency estimations.

7. Please identify and describe in detail any pigging or other gas pipeline clean-out operations conducted at the site. Include in the description the location of the

operations, schedules for the last twelve months, process flow diagrams, equipment lists at each operation (i.e., pour-back lines, vessels, separators, heater-treaters, tanks, etc…) and throughput for each pigging or pipeline clean-out operation.

6. Please provide driving directions to the facility.

7. Please provide your review of all applicable and potentially applicable requirements as they may or may not apply to your facility now. For requirements that do not apply, state why. Requirements that apply or potentially apply to this facility include, but may not be limited to:

40 CFR 52 - Prevention of Significant Deterioration
40 CFR 60 – Standards of Performance for New Stationary Sources
Subpart Db – Industrial, Commercial, Institutional Steam Generating Units
Subpart Dc – Small Industrial, Commercial, Institutional Steam Generating Units
Subpart K - Petroleum Liquid Storage Vessels
Subpart Ka - Petroleum Liquid Storage Vessels
Subpart Kb – VOC (including petroleum liquid) Storage Vessels
Subpart KKK - Equipment Leaks from Onshore Natural Gas Processing Facilities
Subpart LLL - SO_2 Emissions from Onshore Natural Gas Processing Facilities
Subpart IIII- Stationary Compression Ignition Internal Combustion Engines
Subpart JJJJ- Stationary Spark Ignition Internal Combustion Engines
40 CFR 61 – National Emission Standards for Hazardous Air Pollutants
Subpart V – Equipment Leaks (Fugitive Emission Sources)
40 CFR 63 – National Emission Standards for Hazardous Air Pollutants
Subpart HH – Oil and Natural Gas Production
Subpart HHH – Oil and Natural Gas Storage and Distribution
Subpart IIII- Stationary Compression Ignition Internal Combustion Engines
Subpart JJJJ- Stationary Spark Ignition Internal Combustion Engines
Subpart ZZZZ – Reciprocating Internal Combustion Engines (RICE)
Subpart EEEE – Organic Liquids Distribution (non-gasoline)
40 CFR 64 – Compliance Assurance Monitoring (CAM)
40 CFR 68 – Chemical Accident Prevention
40 CFR 82 – Stratospheric Ozone and Climate Protection

Please be advised that if we determine that additional information is necessary to evaluate the application or to take final action on the application, we may request such information in writing and set a reasonable deadline for a response. [See 40 CFR 71.5(a)(2)]

XTO Uinta Dehydrators

Station Name (Title V sites highlighted yellow)	Source #	**Contactor Size (in.)	*Flash Sep.	Regen Rating (Mbtu/hr)	Emission Controls	Still VentControl Device Efficiency	24 IN or 30 IN Thermal Oxidizer	Kimray Glycol Pump	Pump Capacity (gal/hr)	Pump Capacity (gal/min)	Max Volume @ 850 psig (MMcfd)
Tap 4	**T4D-1**	20	Yes	375	TO	99%	24 IN TO	4015	40	0.67	7.4
	T4D-2	36	Yes	500	TO	99%	24 IN TO	4015	40	0.67	26
Tap 5	**T5D-1**	42	Yes	500	TO	99%	30 IN TO	21015	210	3.5	40
Kings Canyon	**KCD-2**	30	Yes	230	TO	99%	24 IN TO	4015	40	0.67	18
	KCD-1	24	Yes	250	TO	99%	24 IN TO	9015	90	1.5	10.75
Little Canyon	**LCD-1**	36	Yes	550	TO	99%	36 IN TO	45015	450	7.5	25

Title V Part 71 Air Permit Application – Little Canyon Unit
Review of Federal Regulatory Requirements

40 CFR 52.21: PSD applicability- § 52.21 Prevention of significant deterioration of air quality.

(b) *Definitions.* For the purposes of this section: (1)(i) *Major stationary source* means:

(*b*) Notwithstanding the stationary source size specified in paragraph (b)(1)(i) of this section, any stationary source which emits, or has the potential to emit, 250 tons per year or more of a regulated NSR pollutant; or

Does not apply because, based on the PTE calculations for this source, the emissions are less than 250 tpy.

Subpart Db - § 60.40b Applicability and delegation of authority.

(a) The affected facility to which this subpart applies is each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)).

Does not apply because there are no heaters greater than 100 MMBtu/hr at this site.

Subpart Dc - § 60.40c Applicability and delegation of authority.

(a) Except as provided in paragraphs (d), (e), (f), and (g) of this section, the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr).

Does not apply because there are no heaters greater than or equal to 10 MMBtu/hr at this site.

Subpart K - § 60.110 Applicability and designation of affected facility.

(b) This subpart does not apply to storage vessels for petroleum or condensate stored, processed, and/or treated at a drilling and production facility prior to custody transfer.

Does not apply because the onsite tanks store condensate prior to custody transfer.

Subpart Ka - § 60.110a Applicability and designation of affected facility.

(b) Each petroleum liquid storage vessel with a capacity of less than 1,589,873 liters (420,000 gallons) used for petroleum or condensate stored, processed, or treated prior to custody transfer is not an affected facility and, therefore, is exempt from the requirements of this subpart.

Does not apply because the onsite tanks store condensate prior to custody transfer and have capacities less than 420,000 gallons.

Subpart Kb - § 60.110b Applicability and designation of affected facility.

(d) This subpart does not apply to the following:

(4) Vessels with a design capacity less than or equal to 1,589.874 m^3 used for petroleum or condensate stored, processed, or treated prior to custody transfer.

Does not apply because the onsite tanks store condensate prior to custody transfer and have capacities less than 420,000 gallons.

Subpart KKK—Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants. –

§ 60.630 Applicability and designation of affected facility.

(e) A compressor station, dehydration unit, sweetening unit, underground storage tank, field gas gathering system, or liquefied natural gas unit is covered by this subpart if it is located at an onshore natural gas processing plant. If the unit is not located at the plant site, then it is exempt from the provisions of this subpart.

§ 60.631 Definitions.

Natural gas processing plant (gas plant) means any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both.

This regulation does not apply to this site because the facility is not a natural gas processing plant.

Subpart LLL—Standards of Performance for Onshore Natural Gas Processing: SO_2 Emissions

§ 60.640 Applicability and designation of affected facilities.

(a) The provisions of this subpart are applicable to the following affected facilities that process natural gas: each sweetening unit, and each sweetening unit followed by a sulfur recovery unit.

§ 60.641 Definitions.

Sweetening unit means a process device that separates the H_2S and CO_2contents from the sour natural gas stream.

Does not apply because this facility does not have any natural gas sweetening units.

Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

§ 60.4200 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (3) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

Does not apply because this facility does not have any stationary compression ignition (CI) internal combustion engines (ICE).

Subpart JJJJ—Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

§ 60.4230 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (5) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

(4) Owners and operators of stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE are manufactured:

(i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

NONE.

(ii) on or after January 1, 2008, for lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP;

NONE.

(iii) on or after July 1, 2008, for engines with a maximum engine power less than 500 HP; or

NONE.

(iv) on or after January 1, 2009, for emergency engines with a maximum engine power greater than 19 KW (25 HP).

NONE.

Does not apply because this facility does not have any engines that meet the manufacture dates applicable to 40 CFR 60.4230.

40 CFR 61 – National Emission Standards for Hazardous Air Pollutants Applicability.

§ 61.01 Lists of pollutants and applicability of part 61.

(a) The following list presents the substances that, pursuant to section 112 of the Act, have been designated as hazardous air pollutants. The Federal Register citations and dates refer to the publication in which the listing decision was originally published.

Benzene (42 FR 29332; June 8, 1977)

Does not apply because, based on the station inlet extended gas analysis and the GlyCalc regenerator overhead stream composition for Benzene, the facility does not operate in VHAP service for Benzene.

Subpart V—National Emission Standard for Equipment Leaks (Fugitive Emission Sources)

§ 61.240 Applicability and designation of sources.

(a) The provisions of this subpart apply to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and control devices or systems required by this subpart.

In VHAP service means that a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight a volatile hazardous air pollutant (VHAP) as determined according to the provisions of §61.245(d). The provisions of §61.245(d) also specify how to determine that a piece of equipment is not in VHAP service.

Does not apply because, based on the station inlet extended gas analysis and the GlyCalc regenerator overhead stream composition for Benzene, the facility does not operate in VHAP service for Benzene.

Subpart HH—National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities

§ 63.760 Applicability and designation of affected source.

(a) This subpart applies to the owners and operators of the emission points, specified in paragraph (b) of this section that are located at oil and natural gas production facilities that meet the specified criteria in paragraphs (a)(1) and either (a)(2) or (a)(3) of this section.

(1) Facilities that are major or area sources of hazardous air pollutants (HAP) as defined in §63.761.

YES.

(2) Facilities that process, upgrade, or store hydrocarbon liquids prior to the point of custody transfer.

YES.

(3) Facilities that process, upgrade, or store natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category or is delivered to a final end user.

YES.

(b) The affected sources for major sources are listed in paragraph (b)(1) of this section and for area sources in paragraph (b)(2) of this section.

(1) For major sources, the affected source shall comprise each emission point located at a facility that meets the criteria specified in paragraph (a) of this section and listed in paragraphs (b)(1)(i) through (b)(1)(iv) of this section.

(i) Each glycol dehydration unit;

This requirement is applicable.

(ii) Each storage vessel with the potential for flash emissions;

Storage vessel with the potential for flash emissions means any storage vessel that contains a hydrocarbon liquid with a stock tank GOR equal to or greater than 0.31 cubic meters per liter and an API gravity equal to or greater than 40 degrees and an actual annual average hydrocarbon liquid throughput equal to or greater than 79,500 liters per day. Flash emissions occur when dissolved hydrocarbons in the fluid evolve from solution when the fluid pressure is reduced.

Does not apply because the onsite storage vessels do not have an annual average hydrocarbon liquid throughput equal to or greater than 79,500 liters (500 barrels) per day.

(iii) The group of all ancillary equipment, except compressors, intended to operate in volatile hazardous air pollutant service (as defined in §63.761), which are located at natural gas processing plants; and

Does not apply because, based on the station inlet extended gas analysis and the GlyCalc regenerator overhead stream composition for Benzene, the facility does not operate in VHAP service for Benzene.

(iv) Compressors intended to operate in volatile hazardous air pollutant service (as defined in §63.761), which are located at natural gas processing plants.

Does not apply because based on the station inlet extended gas analysis and the GlyCalc regenerator overhead stream composition for Benzene, the facility does not operate in VHAP service for Benzene.

Subpart HHH—National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities

§ 63.1270 Applicability and designation of affected source.

(a) This subpart applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company), and that are major sources of hazardous air pollutants (HAP) emissions as defined in §63.1271.

Natural gas transmission means the pipelines used for the long distance transport of natural gas (excluding processing). Specific equipment used in natural gas transmission includes the land, mains, valves, meters, boosters, regulators, storage vessels, dehydrators, compressors, and their driving units and appurtenances, and equipment used for transporting gas from a production plant, delivery point of purchased gas, gathering system, storage area, or other wholesale source of gas to one or more distribution area(s).

Facility means any grouping of equipment where natural gas is processed, compressed, or stored prior to entering a pipeline to a local distribution company or (if there is no local distribution company) to a final end user. Examples of a facility for this source category are: an underground natural gas storage operation; or a natural gas compressor station that receives natural gas via pipeline, from an underground natural gas storage operation, or from a natural gas processing plant.

This facility is not a natural gas transmission and storage facility and does not supply gas to a local distribution company or to a final end user.

Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

§ 63.6580 What is the purpose of subpart ZZZZ?

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

YES – the facility is designated as a major source site based on stipulations in the applicable Federal Consent Decree.

§ 63.6585 Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

This requirement is applicable because stationary RICE's are operated at the facility.

Subpart EEEE—National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)

§ 63.2330 What is the purpose of this subpart?

This subpart establishes national emission limitations, operating limits, and work practice standards for organic hazardous air pollutants (HAP) emitted from organic liquids distribution (OLD) (non-gasoline) operations at major sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations, operating limits, and work practice standards.

§ 63.2334 Am I subject to this subpart?

(a) Except as provided for in paragraphs (b) and (c) of this section, you are subject to this subpart if you own or operate an OLD operation that is located at, or is part of, a major source of HAP emissions. An OLD operation may occupy an entire plant site or be collocated with other industrial (*e.g.,* manufacturing) operations at the same plant site.

(c) Organic liquid distribution operations do not include the activities and equipment, including product loading racks, used to process, store, or transfer organic liquids at facilities listed in paragraph (c) (1) and (2) of this section.

(1) Oil and natural gas production field facilities, as the term "facility" is defined in §63.761 of subpart HH.

This regulation is not applicable because the facility meets the exemption requirements as stated in 40 CFR 63.2334 (c) (1).

40 CFR 64: Compliance Assurance Monitoring (CAM) applicability –

§ 64.2 Applicability.

(a) *General applicability.* Except for backup utility units that are exempt under paragraph (b)(2) of this section, the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies **all** of the following criteria:

(1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;

YES.

(2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and

YES.

(3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source. For purposes of this paragraph, "potential pre-control device emissions" shall have the same meaning as "potential to emit," as defined in §64.1, except that emission reductions achieved by the applicable control device shall not be taken into account.

YES.

(b) *Exemptions* —(1) *Exempt emission limitations or standards.* The requirements of this part shall not apply to any of the following emission limitations or standards:

(vi) Emission limitations or standards for which a part 70 or 71 permit specifies a continuous compliance determination method, as defined in §64.1. The exemption provided in this paragraph (b)(1)(vi) shall not apply if the applicable compliance method includes an assumed control device emission reduction factor that could be affected by the actual operation and maintenance of the control device (such as a surface coating line controlled by an incinerator for which continuous compliance is determined by calculating emissions on the basis of coating records and an assumed control device efficiency factor based on an initial performance test; in this example, this part would apply to the control device and capture system, but not to the remaining elements of the coating line, such as raw material usage).

Continuous compliance determination method means a method, specified by the applicable standard or an applicable permit condition, which:

(1) Is used to determine compliance with an emission limitation or standard on a continuous basis, consistent with the averaging period established for the emission limitation or standard; and

(2) Provides data either in units of the standard or correlated directly with the compliance limit.

This regulation is not applicable because the emission sources at this facility are subject to continuous parametric monitoring under both 40 CFR 63, Subpart HH which is applicable to control devices for the natural gas dehydrators and under 40 CFR 63, Subpart ZZZZ for RICE's. The CPMS systems serve the function of continuous compliance determination method as stated in 40 CFR 64.2 (b)(1)(vi).

40 CFR 68 - CHEMICAL ACCIDENT PREVENTION PROVISIONS Applicability - § 68.10 Applicability.

(a) An owner or operator of a stationary source that has more than a threshold quantity of a regulated substance in a process, as determined under §68.115, shall comply with the requirements of this part ..

This regulation is not applicable because an applicability determination was completed by U.S. EPA Region 8 on January 14, 2009 stating that, based on the criteria stated in the determination, the facility is exempt from 40 CFR 68 requirements. Refer to a copy of the attached U.S. EPA Region 8 letter dated January 14, 2009 for your reference.

40 CFR 82 – Stratospheric Ozone and Climate Protection Applicability

This regulation is not applicable because the facility does not maintain Class I and II controlled substance systems as defined by 40 CFR 82.

40 CFR 98 – Mandatory Greenhouse Gas Reporting

§ 98.1 Purpose and scope.

(a) This part establishes mandatory greenhouse gas (GHG) reporting requirements for owners and operators of certain facilities that directly emit GHG as well as for certain fossil fuel suppliers and industrial GHG suppliers. For suppliers, the GHGs reported are the quantity that would be emitted from combustion or use of the products supplied.

98.2 Who must report?

(a) The GHG reporting requirements and related monitoring, recordkeeping, and reporting requirements of this part apply to the owners and operators of any facility that is located in the United States and that meets the requirements of either paragraph (a)(1), (a)(2), or (a)(3) of this section; and any supplier that meets the requirements of paragraph (a)(4) of this section:

(3) *A facility that in any calendar year starting in 2010 meets all three of the conditions listed in this paragraph (a)(3)* . For these facilities, the annual GHG report must cover emissions from stationary fuel combustion sources only.

(i) The facility does not meet the requirements of either paragraph (a)(1) or (a)(2) of this section.

Facility does not meet either (a)(1) or (a)(2).

(ii) The aggregate maximum rated heat input capacity of the stationary fuel combustion units at the facility is 30 mmBtu/hr or greater.

Aggregate stationary fuel combustion sources are less than 30 mmBtu/hr.

(iii) The facility emits 25,000 metric tons CO_2e or more per year in combined emissions from all stationary fuel combustion sources.

Combined sources at the facility do not emit 25,000 metric tons of $CO2e$ or more per year.

INDUSTRIAL
REFRACTORY SERVICES INC™

2300 South Main Street
Fort Worth, Texas 76110
(817)924-9991
www.irsvc.com

June 9, 2009

Damien Jones

LCD-1

XTO Energy
Roosevelt Field Office
133 East 1000 North
Roosevelt, Utah 84066

Commissioning Certificate

This certificate confirms the successful Commissioning and Operation for the Thermal Oxidizer at the location listed below.

Location:	Roosevelt Field, Utah
Site:	Little Canyon
Serial Number:	28187
Commissioning Date:	04/02/09
Operating Range:	1400 – 1800 °F
Heating Set Point:	1450 °F
Cooling Set Point:	1500 °F
DRE %:	≥99.0%

Mike Riddell
V.P. Sales Thermal Oxidizer Division

AIR
POLLUTION
TESTING, INC.
DENVER, SALT LAKE CITY

Source Emissions Testing Report for Industrial Refractory Services, Inc.

Thermal Oxidizer Emissions Testing
Roosevelt Gas Field
Uintah County, Utah

Report prepared for:
Mr. Mike Riddell
Industrial Refractory Services, Inc.
2300 S Main Street
Fort Worth, TX 76110

Report prepared by:

Peter Knell
Technical Writer

Test Date:
April 30, 2009

APT Project: IRS9169

DENVER OFFICE
5530 Marshall Street
Arvada, CO 80002
(303) 420-5949
FAX (303) 420-5920
(800) 268-6213

A
P
T

Table of Contents

1. Introduction

Air Pollution Testing (APT) was contracted by Industrial Refractory Services, Inc. to conduct a series of source emissions tests at the Roosevelt Gas Field facility located near Vernal, Uintah County, Utah.

The purpose of the testing program was to determine the concentrations and mass emission rates of nitrogen oxides (NO_X), carbon monoxide (CO) and volatile organic compounds (VOC) from the exhaust stack of one (1) thermal oxidizer (TO) in service at the site. The TO unit is used to control the effluent emissions of various facility processes. Concurrent stack gas velocity and volumetric flow, oxygen (O_2), carbon dioxide (CO_2) and moisture (H_2O) measurements were conducted to determine pollutant mass emission rates. The exhaust VOC data was compared with inlet VOC data, taken from GRI Gly-Calc software, to determine the system VOC destruction removal efficiency.

The testing program is demonstrating the emissions characteristics of the TO exhaust gas for comparison with manufacturer estimated emissions factors.

Personnel involved in the test program are provided in Table 1.1 below. Unit identification and information as well as applicable emissions limits are provided in Table 1.2.

Industrial Refractory Services, Inc. : Roosevelt Gas Field **Emissions Testing Program Contact Personnel**		
Name, Title	*Company, Address*	*Phone, FAX*
Mr Mike Riddell	Industrial Refractory Services, Inc. 2300 S Main Street Fort Worth, TX 76110	817-924-9991, 817-924-9533
Mr. Norm Erikson, Environmental Scientist	Utah Division of Air Quality 1950 West North Temple Salt Lake City, Utah 84114	801-536-4063, 801-536-4099
Mr. Chris Keefe, Operations Director	Air Pollution Testing, Inc. 5530 Marshall Street Arvada, Colorado 80002	303-420-5949 ext. 24, 303-420-5920 fax

Table 1.1: Emissions Testing Program Contact Personnel

Industrial Refractory Services, Inc. : Roosevelt Gas Field Source Identification Summary	
Unit Description	*Emission Parameters*
(1) Thermal Oxidizer	VOC DRE 95%

Table 1.2: Testing Program Summary

2. Methods

APT tested in accordance with the following United States Environmental Protection Agency (EPA) source emissions test methods, referenced in *40 CFR Part 60, Appendix A* and *40 CFR Part 63, Appendix A*.

Method 1 – Sample and Velocity Traverses for Stationary Sources

Method 2 – Determination of Stack Gas Velocity and Volumetric Flow Rate

Method 3A – Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)

Method 4 – Determination of Moisture Content in Stack Gases

Method 7E – Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)

Method 10 – Determination of Carbon Monoxide Emissions from Stationary Sources (Instrumental Analyzer Procedure)

Method 18 – Measurement of Gaseous Organic Compound Emissions by Gas Chromatography

Method 25A – Determination of Total Gaseous Organic Concentration using a Flame Ionization Analyzer

3. Test Program Summary

APT provided all necessary equipment and labor for the determination of the emission parameters detailed in Table 3.1. On-site gas analyzers housed in a mobile analytical trailer were used to determine exhaust emission concentrations of O_2, NO_X, CO and NMEOC. Concurrent with each gas sampling run, an integrated sample of exhaust stack gas was collected in a clean, leak-free Tedlar bag for subsequent off-site analysis via gas-chromatography to determine the stack gas methane and ethane content. This data was used to correct total VOC data to non-methane / ethane organic compounds (NMEOC).

Triplicate 60-minute sampling runs were conducted. Pollutant concentration data was combined with concurrently collected stack gas volumetric flow rate data to calculate the mass emission rates. The TO unit was running at no less than 90% of permitted capacity for the duration of the test program. Equipment operating parameters, such as fuel use, were recorded each sampling run to document the system operating conditions during the testing.

Industrial Refractory Services, Inc. : Roosevelt Gas Field **Sampling and Analytical Methods Summary**			
Gas Parameter	*Sampling Method*	*Analytical Method*	*Laboratory*
gas flow	Method 1, 2	draft gauge, thermocouple, pitot tube	APT, on-site
O_2, CO_2	Method 3A	paramagnetic and non-dispersive infrared analyzer - Servomex Series 1400	
H_2O	Method 4	gravimetric	
NO_X	Method 7E	chemiluminescent analyzer -TECO Model 42 CHL	
CO	Method 10	gas filter correlation, infrared analyzer -TECO Model 48	
TVOC	Method 25A	flame ionization detector	
NMEOC	Method 18	gas-chromatography	APT, off-site

Table 3.1: Sampling and Analytical Methods

4. Test Method Details

4.1. Stack Gas Moisture

Stack gas moisture (H_2O) content was measured in accordance with EPA Method 4.

Each sampling period consisted of a sample of gas for moisture determination being extracted from the stack at a constant flow rate of no more than 0.75 cubic feet per minute (cfm). The gas sample passed through a stainless steel probe, through a series of four (4) chilled glass impingers, and through a calibrated dry gas meter. See *Appendix 5 – Schematics* for a diagram of the EPA Method 4 sampling train.

Prior to sampling, the first two impingers were each seeded with 100 milliliters of water. The third impinger was empty. The fourth impinger was seeded with 250 grams of dried silica gel. Following sampling, the moisture gain in the impingers was measured gravimetrically to determine the moisture content of the gas.

4.2. Diluent (O_2 and CO_2), Nitrogen Oxides and Carbon Monoxide

O_2, CO_2, NO_X and CO emission concentrations were measured in accordance with EPA Methods 3A (O_2 and CO_2), 7E (NO_X) and 10 (CO). Each sampling period consisted of extracting a gas sample from the stack at a constant flow rate of approximately four liters per minute (lpm). The sample passed through a refrigeration-type gas conditioner to remove moisture and into the sampling port of a Thermo Environmental Instruments (TECO) Model 42CHL chemiluminescent NO_X analyzer, a TECO Model 48H gas filter correlation infrared CO analyzer, and a Servomex Series 1400 paramagnetic O_2 / non-dispersive infrared CO_2 analyzer. The gas concentrations were displayed on the analyzer front panels in units of either parts per million, dry volume basis (ppmvd – NO_X and CO) or percent, dry volume basis (%vd – O_2 and CO_2) and logged to a computerized data acquisition system (CDAS). Please see *Appendix 5 – Schematics* for a diagram of the EPA Methods 3A, 7E and 10 sampling train.

Before and after each sampling period, the analyzers were challenged with calibration gases to calibrate the instruments, to verify linearity of response, and to quantify zero and span drift for the previous sampling period. The calibration gases were prepared and certified in accordance with EPA Protocol 1. To ensure no system bias, the analyzer calibrations were conducted by introducing all gases to the analyzers at the sampling probe tip at stack pressure. Following sampling, the CDAS data were averaged in one-minute increments, corrected for instrumental drift, and reported as average O_2, CO_2, NO_X and CO emission concentrations for each sampling period in units of %vd or ppmvd.

4.3. TVOC / NMEOC

TVOC concentrations were measured in accordance with EPA Method 25A. Three, one-hour test runs were conducted at the TO exhaust. A flame ionization detector (FID) was used to determine TVOC levels. The FID was housed in a mobile analytical trailer to provide a temperature-controlled environment for stable, accurate response.

Each sampling period consisted of extracting a gas sample from the stack at a constant flow rate of approximately four liters per minute using a heated Teflon line. The gas was directed into the sampling port of a TECO Model 51C flame ionization analyzer. TVOC concentrations were displayed on the analyzer front panel in units of parts per million, wet volume basis as propane (ppmvw as C_3H_8) and logged to a CDAS (see *Appendix 4 – Schematics*). Concurrent with each sampling run, an integrated stack gas sample was collected in a clean leak-free Tedlar bag for subsequent methane/ethane analysis.

Before and after each sampling period, the analyzer was challenged with EPA Protocol 1 calibration gases to calibrate the instrument, to verify linearity of response, and to quantify zero and span drift for the previous sampling period. To ensure no system bias, the analyzer calibrations were conducted by introducing all gases to the analyzer at the sampling probe tip at stack pressure. Following sampling, the CDAS data were averaged in one-minute increments, corrected for instrumental drift, and reported as average emission concentrations for each sampling period. Stack gas moisture data were used to determine TVOC emissions in parts per million, dry volume basis as propane (ppmvd as C_3H_8).

The stack gas samples collected in Tedlar bags were shipped with chain of custody documentation to the APT laboratory for methane analysis using gas chromatography. Methane levels were subtracted from the TVOC data to determine emissions in NMEOC.

5. Test Results Summary

The results of the testing program are summarized in Table 5.1. Any emission parameters not found in the table may be found in *Appendix 1*. The following terms are used in the table:

- Temp. (°F) – stack gas temperature, degrees Fahrenheit
- %vd – diluent concentration, dry volume percent
- %vw – stack gas moisture content, wet volume percent
- ppmvd – parts per million, dry volume basis
- lb/hr – pollutant mass emission rate, pounds per hour
- tpy – pollutant mass emission rate, tons per year
- C_3H_8 – propane
- DRE – destruction removal efficiency

Industrial Refractory Services, Inc. : Roosevelt Gas Field Thermal Oxidizer Test Results Summary (4/30/09)					
	1	2	3	Average	*Permit Limits*
Start Time	11:10	12:28	13:43		
Stop Time	12:10	13:28	14:43		
Gas Throughput (MMcf)	6.7	6.7	6.7	**6.7**	
Stack Temp. (°F)	1,481	1,437	1,434	**1,451**	
Moisture Content (%vw)	9.7	8.4	8.2	**8.7**	
O_2 (%vd)	14.3	14.5	12.7	**13.8**	
CO_2 (%vd)	3.4	3.3	4.5	**3.7**	
NO_X (ppmvd)	32.6	27.6	37.8	**32.6**	
CO (ppmvd)	1.4	0.6	0.4	**0.8**	
TVOC (ppmvw as C_3H_8)	0.5	0.4	0.2	**0.3**	
Emissions Data					
VOC (ppmvd as C_3H_8)	0.058*	0.058*	0.058*	**0.058***	
VOC (tpy)	0.001	0.001	0.001	**0.001**	
VOC (lb/hr) inlet	2.8271	2.8271	2.8271	**2.8271**	
VOC (lb/hr) outlet	0.0001	0.0001	0.0001	**0.0001**	
VOC (%DRE)	99.996	99.995	99.996	**99.995**	*≥95*

* VOC values were slightly negative so the detection limit of 0.058 (2% of the span gas value) was substituted.

Table 5.1: Test Results Summary, TO

6. Conclusions

The testing conducted at the Roosevelt Gas Field facility on April 30, 2009 demonstrates the emission characteristics of the TO exhaust gas for comparison with manufacturer estimated emissions factors.

Summit Gas Gathering
Little Canyon Unit Compressor Station – Permit # V-OU-0016-06.00
Response to EPA Additional Information Request

1. Please provide a process flow diagram. Include the following information on or with the diagram:

   a) Identify all emission units (including insignificant units and non-emitting) using emission unit I.D.s from the application.

   b) List the operational characteristics of each emission unit (i.e., pressures, temperatures, gas compositions, etc.); and

   c) Identify raw material and product streams within the plant site.

2. Please provide a description of operations for the facility.

Regarding Items # 1 and 2 - As discussed with EPA, the current process description will be forthcoming with the site process flow drawings on or before February 26, 2010.

3. Please recalculate and submit emissions for the following storage tank emission units: 1) LCT-1 and 2) LCT-2:

   a) EPA is requesting emissions estimates/calculations for working, standing, and breathing losses, using EPA Tanks 4.0. SGG used E&P Tank V2 for the initial application, which is acceptable software for calculating flashing emissions only. EPA Tanks 4.0 is a free online calculation model which is quick to use and can be found at: http://www.epa.gov/ttn/chief/efpac/efsoftware.html. Please include documentation of the input criteria and output data from the model run.

Refer to the attached EPA Tanks 4.09d emission calculations for Tank LCT-1 and LCT-2.

4. Please provide a detailed description of the function and primary purpose of each of the process heaters identified in the application.

   - **550 MBtu/hr Glycol Dehydrator reboiler heater – used for heating the wet glycol stream to remove ("boil off") water from the glycol.**
   - **500 MBtu/hr heater for slop tanks 1 and 2 – used to maintain the condensate at a specific temperature to prevent freezing during cold temperatures and to prevent paraffin buildup within the tank**
   - **250 MBtu/hr heater for separator - used to maintain the separated liquids at a specific temperature to prevent freezing during cold temperatures and to prevent paraffin buildup**

5. Provide the current manufacturer's design specification for the glycol dehydrators. Include in the specifications the maximum glycol recirculation pump rate and maximum gas throughput.

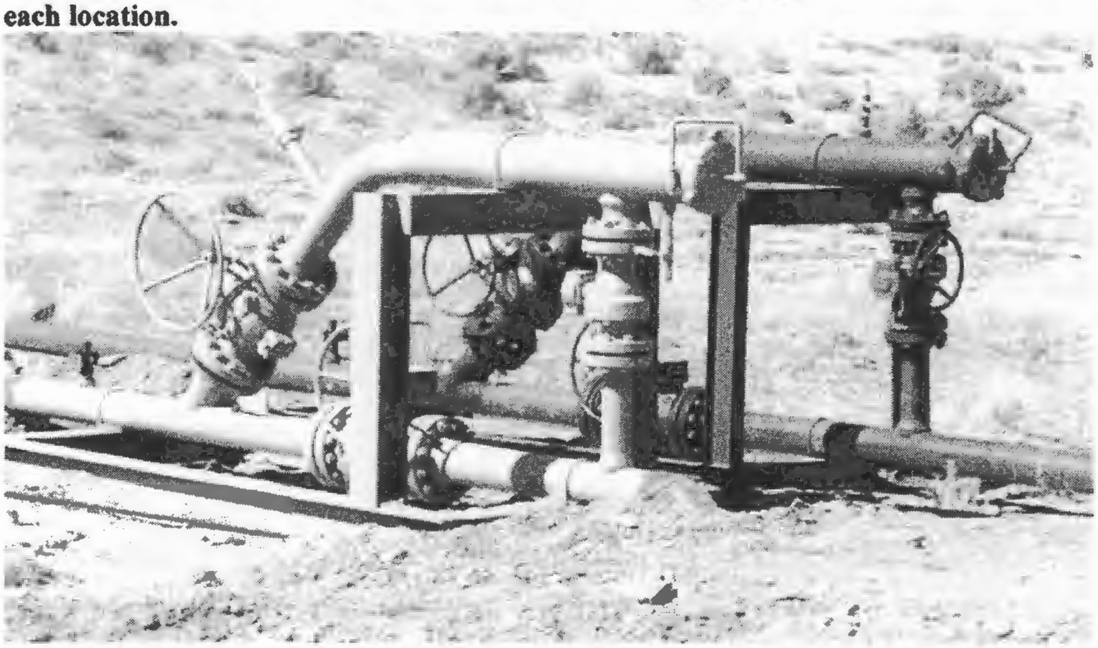
See attached dehydrator info sheet.

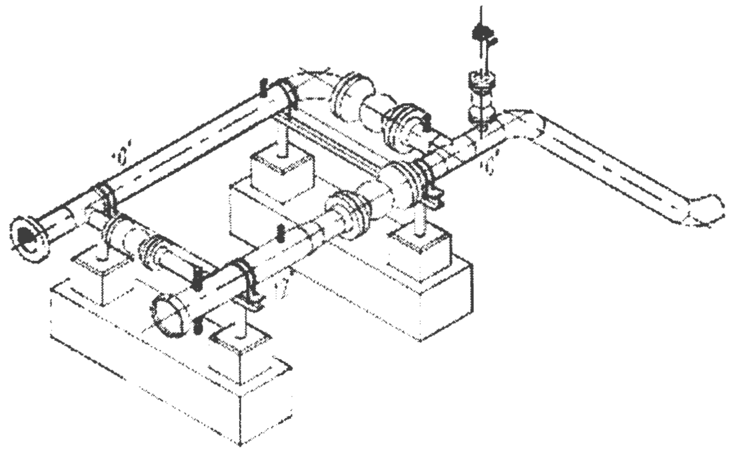
6. Provide the current manufacturer's design specifications for the control equipment for dehydrator LCD-1. Include in the specifications the manufacturer's benzene, toluene, ethyl benzene, and xylene (BTEX) removal efficiency estimations.

See attached Thermal Oxidizer information.

7. Please identify and describe in detail any pigging or other gas pipeline clean-out operations conducted at the site. Include in the description the location of the operations, schedules for the last twelve months, process flow diagrams, equipment lists at each operation (i.e., pour-back lines, vessels, separators, heater-treaters, tanks, etc…) and throughput for each pigging or pipeline clean-out operation.

The following diagrams represent two styles of pigging systems are present at the Title V facilities. The quantity of gas contained within each system is dependent on pipeline size. The attached pigging procedure provides basic dimensions of the pigging system for each location. Also attached is a copy of the pigging schedule for 2009 for the Title V sites. Refer to the attached basic pigging procedure utilized for each location.





6. Please provide driving directions to the facility.

The facility is in a remote area in Utah. The driving directions are to the entrance to the oil and gas field and the site GPS coordinates must be used in order to locate the facility. Please see the attached information for driving directions to the entrance to the oil and gas field. The coordinates of this facility are Latitude 39.53.49 N; Longitude 109.36.21 W.

7. Please provide your review of all applicable and potentially applicable requirements as they may or may not apply to your facility now. For requirements that do not apply, state why. Requirements that apply or potentially apply to this facility include, but may not be limited to:

Please refer to the attached regulatory applicability review.

Summit Gas Gathering
Office 133E. 1200N.
XTO Energy
Production
Vernal
Duchene
Roosevelt
Roosevelt
Golf Course
2000W
121
121
W 200 N
E 200 N
121
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S Main St

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HWY. 40 HWY. 88 JCT.
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Gusher
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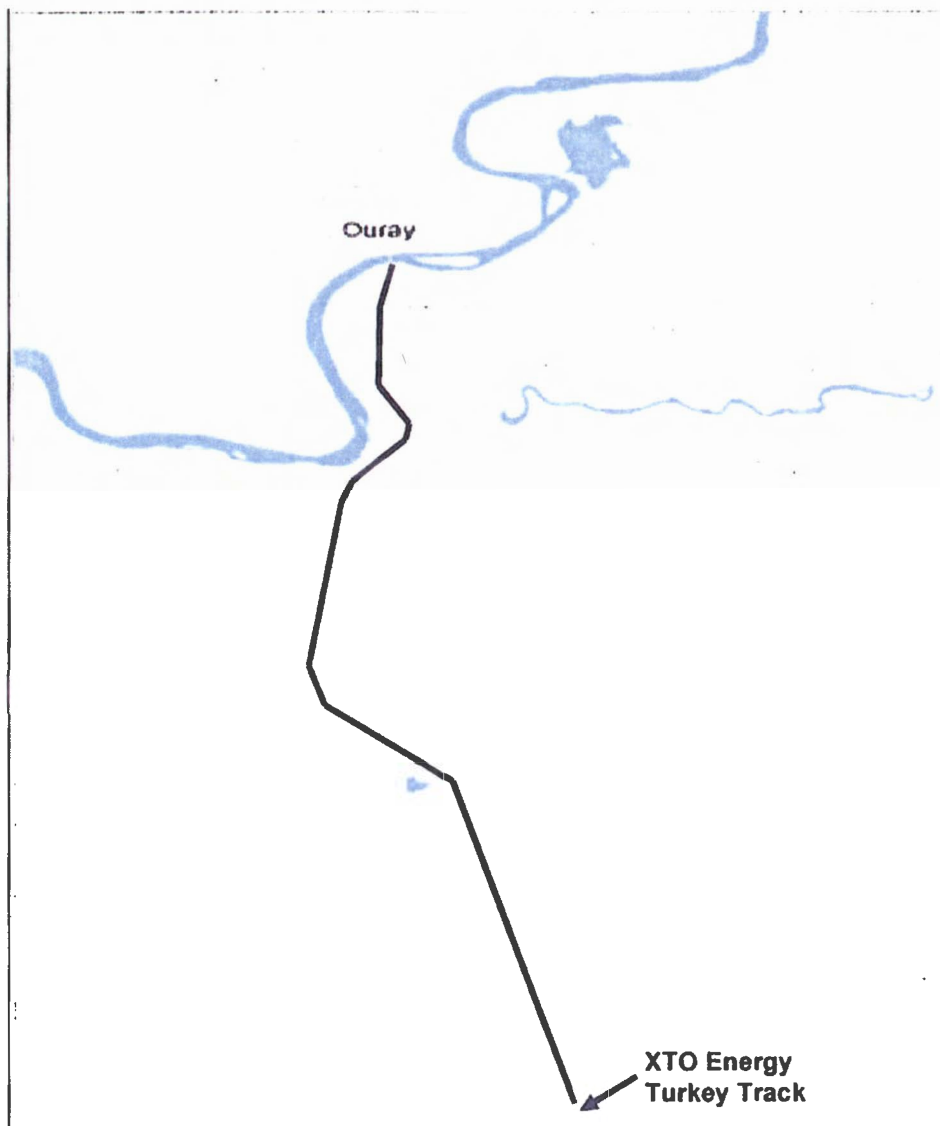
Fort Duchesne
Randlett
Pelican Lake
Leota
Ouray
XTO Energy
Turkey Track


Ouray
XTO Energy
Turkey Track

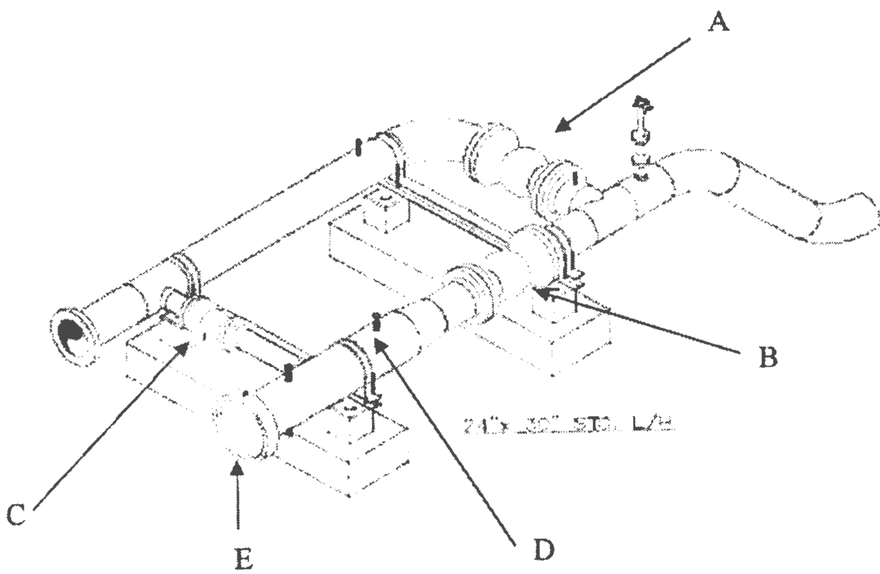
SGG ROOSEVELT – PIPELINE PIGGING PROCEDURES

PIG LAUNCHING

1. Close valves on launch tubes (B&C) and depressurize tube with a blowdown valve (D).
   a. Gas within the pig launcher is emitted to the environment.
2. Open the pig barrel lid (E) and insert pig into launcher. Close lid (E).
   a. Pig barrel is at atmospheric pressure.
3. Open equalizer valve (C) to pressure pig on the back side.
   a. Gas is contained in the gathering system.
4. Close bypass valve (A) and open main valve (B) to allow pig to travel down the pipeline.
   a. Gas is contained within the gathering system.
5. Once pigging is complete close equalizer valve (C) and main valve (B). Open bypass valve (A) to continue flowing gas within the gathering system.
   a. Gas is contained within the gathering system.

PIG RECEIVING

1. Open pig receiver main valve (B) to allow pig to enter pig receiver tube.
2. Open equalizer valve (C) to allow gas and fluid through the pig receiver.
3. Close main throughput valve (A) to divert pig into receiver.
   a. Gas and fluid collected during the pigging operation flows through the receiver and is carried to the existing station scrubber.
   b. Gas flows through the scrubber and remains within the gathering system.
   c. Fluids collected during the pigging operation flow from the scrubber to the existing onsite storage tank.
4. Once the pig has been recovered, open the main throughput valve (A), close equalizer valve (C), and close main valve (B).
   a. Gas is contained within the gathering system.
5. Blow down the pig receiver using the blowdown valve (D).
   a. Gas within the pig receiver is emitted to the environment.
6. Open the pig barrel lid (E) and extract pig.
   a. Pig barrel is at atmospheric pressure.
   b. Excess fluids left in the pig receiver barrel are recovered in a portable catch basin.


A
B
C
D
E

SGG Uinta Basin - Pipeline Pigging Operations Associated with EPA Part 71 Title V locations
2009 Pipeline Pigging Event Log

Facility	Pipeline Section	Date of Pigging Event	Pipeline Pressure (psig) during Event*	Pig Section Receiver Diameter (inches)	Pig Section Receiver Length (Feet)	Pig Section Launcher Diameter (inches)	Pig Section Launcher Length (Feet)
TAP-4	Tap-4 to Tap-5 10" Common Suction Line	May 23, 2009	50	12.0	13.0	10.0	11.5
		November 10, 2009	45				
TAP-5	Tap-4 to Tap-5 10" Common Suction Line	May 23, 2009	50	12.0	13.0	8.0	9.0
		November 10, 2009	100				
LCU	LCU 20" from HF-110 to LCU Compressor Station	May 15, 2009	130	22.0	16.0	22.0	16.0
		June 25, 2009	170				
		July 21, 2009	90				
		August 13, 2009	200				
		September 15, 2009	150				
		October 15, 2009	40				
		November 4, 2009	50				
		December 16, 2009	130				
LCU	Love Unit 6" from 12-20G to LCU Compressor Station	July 21, 2009	90	8.0	8.0	8.0	8.0
		October 15, 2009	40				
Kings Canyon	Near HCU 13-30 6" Line to KCU Compressor Station	August 11, 2009	50	8.0	5.5	8.0	5.5

*NOTE: Pressures based on daily system operating pressure during the the day of the event.

XTO Energy / Summit Gas Gathering

Uinta County, Utah Engine Order Dates (Engines >= 500 hp) - Title V Facilities

Source #	Facility / Unit Name	Equipment Description / model	XTO Field verified Serial No.	Engine Mfg Date	Initial Startup Date	Engine Order Date	Rental / XTO Owned	Comments
KCC-1	Kings Canyon #1	CAT 3512TALE	7NJ00735	11/22/2000	5/13/2008	Pre - 8/1/2007	XTO	Unit acquired from Dominion. Acq. Effective 8/1/07.
KCC-2	Kings Canyon #2	CAT 3516LE	4EK03634	9/19/2001	5/28/2004	9/22/2003	Exterran	
T4C-1	TAP-4 #1	CAT 3516LE	4EK02344	11/12/1998	8/14/2008	Pre - 8/1/2007	XTO	Unit acquired from Dominion. Acq. Effective 8/1/07.
T5C-1	TAP-5 #1	CAT 3516LE	WPW00281	6/28/2006	8/1/2007	4/17/2006	Exterran	
T5C-2	TAP-5 #2	CAT 3512LE	7NJ00718	10/26/2000	7/31/2008	Pre - 8/1/2007	XTO	Unit acquired from Dominion. Acq. Effective 8/1/07.
T5G-1	TAP-5 GENSET	WAUK H24GSID	C-94454/1	2/28/2003	9/11/2009	12/18/2002	Stewart & Stevenson	
LCC-1	LCU #1	CAT 3516LE	4EK04570	4/13/2005	10/13/2005	6/7/2005	Exterran	
LCC-2	LCU #2	CAT 3516LE	4EK04571	4/13/2005	7/9/2006	6/15/2005	Exterran	
LCC-3	LCU #3	CAT 3516LE	4EK04875	1/23/2006	5/23/2008	1/17/2006	Exterran	

TITLE V EQUIPMENT

SGG Little Canyon Unit (LCU) Compressor Station
Process Description

The LCU Facility is a natural gas compressor station consisting of the following equipment:

- One (1) inlet two-phase gas scrubber (separator) operating at an approximate line pressure of 50 psig and a 0.25 mmBTU/hr natural gas-fired heater.
- Three (3) Caterpillar G3516TALE compressor engines (LCC-1, LCC-2, and LCC-3)
- One (1) 30 KW Capstone natural-gas fired microturbine driven generator (LCG-1)
- Two (2) 400-barrel slop-tanks (LCT-1 and LCT-2) each with a 0.5 mmBTU/hr tank heater,
- One (1) natural gas dehydrator with (LCD-1):
  - A maximum natural gas process flow of 25 mmscfd natural gas, and
  - One (1) 0.55 mmBTU/hr TEG reboiler heater
  - One BTEX emissions control system consisting of a Thermal Oxidizer with a 3.0 mmBTU/hr burner.

The basic process flow at the facility is as follows:

Natural gas produced from area wells is sent to the compressor station through gathering flowlines. Once the gas enters the station, it flows through a separator (scrubber) in order to reduce water and condensable liquids content in the gas stream prior to entry into the compressors. The slop water produced from the on-site scrubbers is then sent to the 400-barrel on-site slop tanks (LCT-1 and LCT-2) for storage prior to being hauled offsite. Following the inlet scrubber, the gas is compressed with three (3) natural gas internal combustion engine driven compressors (LCC-1, LCC-2, and LCC-3) up to a higher pressure (approx 700 psig). The higher pressure gas then passes through a ~~discharge~~ 2phase ~~scrubber (~~separator~~)~~ prior to entry into TEG natural gas dehydrator water removal system. The TEG natural gas dehydrator water removal system consists of one (1) 25 mmscfd natural gas TEG dehydrator (LCD-1) with one (1) 0.55 mmBTU/hr TEG process heater with regenerator emissions controlled by a Thermal Oxidizer. The natural gas dehydrator utilizes a BTEX emissions control system that captures vapors from the still vent and sends the vapors to a Thermal Oxidizer for destruction. Following dehydration the natural gas stream leaves the station via a metered sales pipeline. The station has on-site electrical power supplied by one (1) Capstone natural-gas fired microturbine-driven generator (LCG-1). In addition, the pneumatic control devices are operated by plant air supplied by the on-site electric-driven air compressor.

XTO Energy / Summit Gas Gathering – Uinta Basin, Utah
Basic Site Visitation Requirements

Visitors to any site that is owned or operated by XTO or Summit Gas Gathering in the Uinta Basin, Utah area need to contact 435-722-4521 to check in with XTO / SGG's field operations personnel prior to attending the site. All visitors to an XTO or SGG facility are expected to adhere to all XTO Energy / Summit Gas Gathering safety and environmental policies.

Summit Gas Gathering requires persons entering the site to wear a hard hat, safety glasses, safety toe footwear, hearing protection, and utilize a personal H2S monitor. Summit Gas Gathering also requires a permit (issued by authorized SGG employees) prior to the performance of any hot work at the sites. No cameras or flash equipment are allowed inside any compressor building.

In addition to the safety and environmental policies, a Tribal access permit is required to access or cross tribal land. Access to XTO / Summit Gas Gathering sites or properties in the Uinta Basin in Utah will require accessing tribal land. The names and vehicle description (Make, Model, Year Color and license plate number) must be on the tribal access permit. A Tribal access permit may be obtained by contacting the Ute Tribal Office (435)725-4950.

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

Identification		
User Identification:	LCT-1	
City:	Salt Lake City	
State:	Utah	
Company:	XTO SGG	
Type of Tank:	Vertical Fixed Roof Tank	
Description:	Little Canyon 400 bbl Condensate Tank #1	
Tank Dimensions		
Shell Height (ft):		20.00
Diameter (ft):		12.00
Liquid Height (ft) :		17.00
Avg. Liquid Height (ft):		14.00
Volume (gallons):		14,382.50
Turnovers:		6.40
Net Throughput(gal/yr):		99,645.00
Is Tank Heated (y/n):	Y	
Paint Characteristics		
Shell Color/Shade:	Gray/Light	
Shell Condition	Good	
Roof Color/Shade:	Gray/Light	
Roof Condition:	Good	
Roof Characteristics		
Type:	Cone	
Height (ft)		1.00
Slope (ft/ft) (Cone Roof)		0.17
Breather Vent Settings		
Vacuum Settings (psig):		-0.33
Pressure Settings (psig)		0.75

Meterological Data used in Emissions Calculations: Salt Lake City, Utah (Avg Atmospheric Pressure = 12.64 psia)

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

LCT-1 - Vertical Fixed Roof Tank
Salt Lake City, Utah

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
Gasoline (RVP 7)	All	100.00	70.00	120.00	100.00	7.4252	4.2555	10.4226	68.0000			92.00	Option 4: RVP=7, ASTM Slope=3

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

LCT-1 - Vertical Fixed Roof Tank
Salt Lake City, Utah

Annual Emission Calcaulations	
Standing Losses (lb):	6,693.3585
Vapor Space Volume (cu ft):	716.2831
Vapor Density (lb/cu ft):	0.0841
Vapor Space Expansion Factor:	1.0635
Vented Vapor Saturation Factor:	0.2863
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	716.2831
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	6.3333
Tank Shell Height (ft):	20.0000
Average Liquid Height (ft):	14.0000
Roof Outage (ft):	0.3333
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.3333
Roof Height (ft):	1.0000
Roof Slope (ft/ft):	0.1700
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0841
Vapor Molecular Weight (lb/lb-mole):	68.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.4252
Daily Avg. Liquid Surface Temp. (deg. R):	559.6700
Daily Average Ambient Temp. (deg. F):	51.9825
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	559.6700
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,452.1184
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	1.0635
Daily Vapor Temperature Range (deg. R):	50.0000
Daily Vapor Pressure Range (psia):	6.1671
Breather Vent Press. Setting Range(psia):	1.0630
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.4252
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.2555
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	10.4226
Daily Avg. Liquid Surface Temp. (deg R):	559.6700
Daily Min. Liquid Surface Temp. (deg R):	529.6700
Daily Max. Liquid Surface Temp. (deg R):	579.6700
Daily Ambient Temp. Range (deg. R):	23.3583
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.2863
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	7.4252
Vapor Space Outage (ft):	6.3333
Working Losses (lb):	1,197.9022
Vapor Molecular Weight (lb/lb-mole):	68.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.4252

Annual Net Throughput (gal/yr.):	99,645.0000
Annual Turnovers:	6.4000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	14,382.5038
Maximum Liquid Height (ft):	17.0000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	1.0000

Total Losses (lb):	7,891.2606

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

Emissions Report for: Annual

LCT-1 - Vertical Fixed Roof Tank
Salt Lake City, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 7)	1,197.90	6,693.36	7,891.26

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

Identification	
User Identification.	LCT-2
City:	Salt Lake City
State:	Utah
Company:	XTO SGG
Type of Tank:	Vertical Fixed Roof Tank
Description:	Little Canyon 400 bbl Condensate Tank #2
Tank Dimensions	
Shell Height (ft):	20.00
Diameter (ft):	12.00
Liquid Height (ft) :	17.00
Avg. Liquid Height (ft):	14.00
Volume (gallons):	14,382 50
Turnovers:	7 00
Net Throughput(gal/yr):	99,645.00
Is Tank Heated (y/n):	Y
Paint Characteristics	
Shell Color/Shade:	Gray/Light
Shell Condition	Good
Roof Color/Shade:	Gray/Light
Roof Condition:	Good
Roof Characteristics	
Type:	Cone
Height (ft)	1.00
Slope (ft/ft) (Cone Roof)	0.17
Breather Vent Settings	
Vacuum Settings (psig):	-0.33
Pressure Settings (psig)	0.75

Meterological Data used in Emissions Calculations: Salt Lake City, Utah (Avg Atmospheric Pressure = 12 64 psia)

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

LCT-2 - Vertical Fixed Roof Tank
Salt Lake City, Utah

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
Gasoline (RVP 7)	All	100.00	70.00	120.00	100.00	7.4252	4.2555	10.4226	68.0000			92.00	Option 4: RVP=7, ASTM Slope=3

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

LCT-2 - Vertical Fixed Roof Tank
Salt Lake City, Utah

Annual Emission Calcaulations	
Standing Losses (lb):	6,693.3585
Vapor Space Volume (cu ft):	716.2831
Vapor Density (lb/cu ft):	0.0841
Vapor Space Expansion Factor:	1.0635
Vented Vapor Saturation Factor:	0.2863
Tank Vapor Space Volume	
Vapor Space Volume (cu ft):	716.2831
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	6.3333
Tank Shell Height (ft):	20.0000
Average Liquid Height (ft):	14.0000
Roof Outage (ft):	0.3333
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.3333
Roof Height (ft):	1.0000
Roof Slope (ft/ft):	0.1700
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0841
Vapor Molecular Weight (lb/lb-mole):	68.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.4252
Daily Avg. Liquid Surface Temp. (deg. R):	559.6700
Daily Average Ambient Temp. (deg. F):	51.9625
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	559.6700
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,452.1184
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	1.0635
Daily Vapor Temperature Range (deg. R):	50.0000
Daily Vapor Pressure Range (psia):	6.1671
Breather Vent Press. Setting Range(psia):	1.0830
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.4252
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.2555
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	10.4226
Daily Avg. Liquid Surface Temp. (deg R):	559.6700
Daily Min. Liquid Surface Temp. (deg R):	529.6700
Daily Max. Liquid Surface Temp. (deg R):	579.6700
Daily Ambient Temp. Range (deg. R):	23.3583
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.2863
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	7.4252
Vapor Space Outage (ft):	6.3333
Working Losses (lb):	1,197.9022
Vapor Molecular Weight (lb/lb-mole):	68.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.4252

Annual Net Throughput (gal/yr.)	99,645.0000
Annual Turnovers:	7.0000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	14,382.5036
Maximum Liquid Height (ft):	17.0000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	7,891.2606

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

Emissions Report for: Annual

LCT-2 - Vertical Fixed Roof Tank
Salt Lake City, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 7)	1,197.90	6,693.36	7,891.26

XTO Energy

Table I - Uinta County, Utah Engine Info

2/22/2010

Source #	Facility / Unit Name	Equipment Description / model	Serial No.	Engine Mfg Date	Initial Startup Date
KCC-1	Kings Canyon #1	CAT 3512TALE	7NJ00735	11/22/2000	5/13/2008
KCC-2	Kings Canyon #2	CAT 3516LE	4EK03634	9/19/2001	5/28/2004
KCG-1	Kings Canyon GENSET	CAT 3406TA	CTS00498	10/19/2005	12/23/2005
T4C-1	TAP-4 #1	CAT 3516LE	4EK02344	11/12/1998	8/14/2008
T4G-1	TAP-4 GENSET*	CAT 3412LE	CTP02707	2/26/2007	10/3/2007
T4G-1	TAP-4 GENSET	Capstone Microturbine		N/A	2/18/2010
T5C-1	TAP-5 #1	CAT 3516LE	WPW00281	6/28/2006	8/1/2007
T5C-2	TAP-5 #2	CAT 3512LE	7NJ00718	10/26/2000	7/31/2008
T5G-1	*TAP-5 GENSET*	*WAUK H24GSID*	C-94454/1	2/28/2003	EST - 9/1/2009
LCC-1	LCU #1	CAT 3516LE	4EK04570	4/13/2005	10/13/2005
LCC-2	LCU #2	CAT 3516LE	4EK04571	4/13/2005	7/9/2006
LCC-3	LCU #3	CAT 3516LE	4EK04875	1/23/2006	5/23/2008

***NOTE: PERMANENTLY SHUTDOWN ON 10/15/09; REPLACED BY MICROTURBINE**

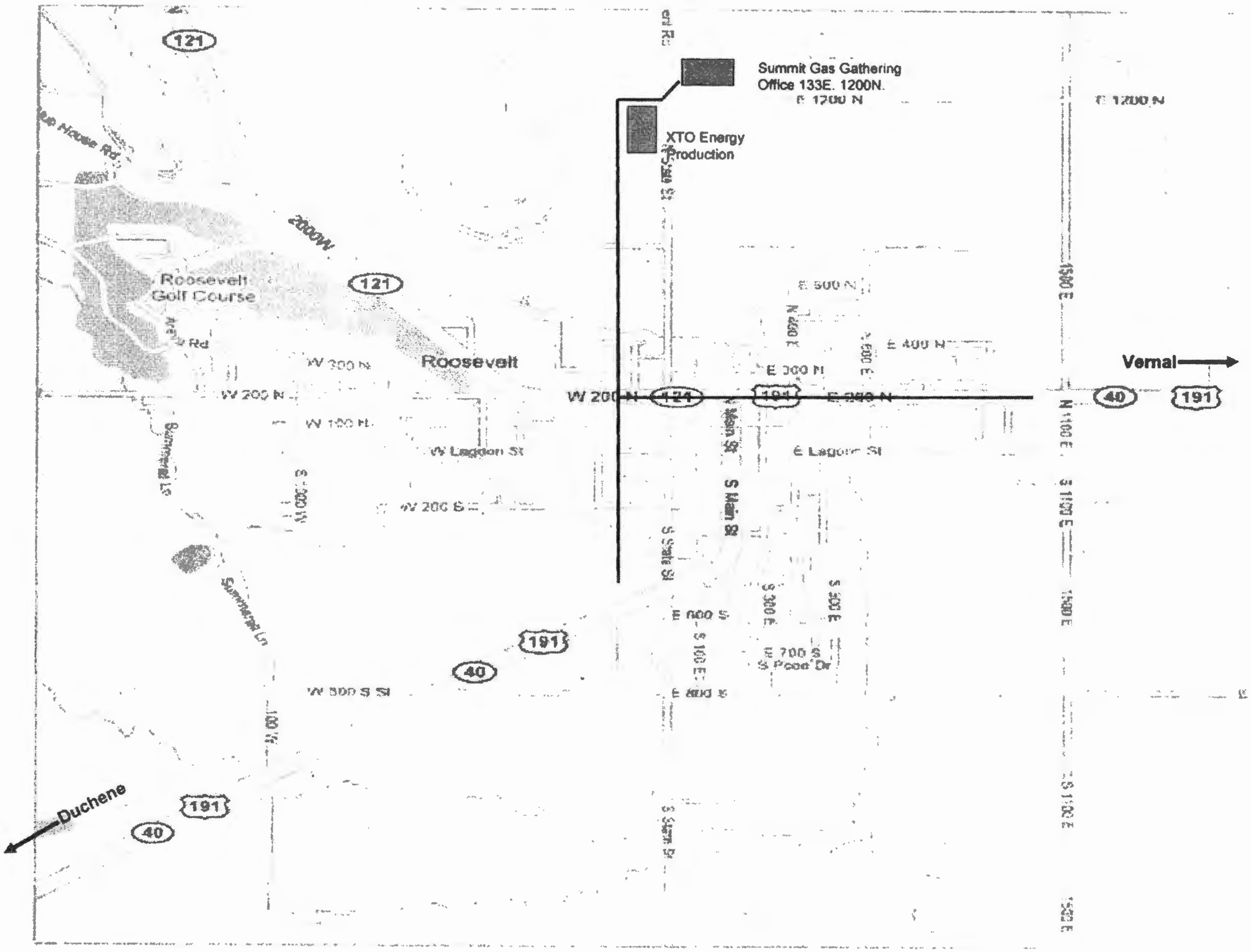
TITLE V EQUIPMENT

Re: P71 Permit Applications Request for Add'l Information - SGG LCU, KCU, Tap-4, Tap-5
Craig_Allison
to:
Eric Wortman
02/22/2010 12:14 PM
Show Details

Eric - Please see the attached JJJJ engine manufacture dates per your request.

In addition, I will be sending you a revised regulatory applicability determination for the CAM regulations. The CAM rule DOES apply to the sites and the determination that I sent you stated that it does not.

Thanks,
Craig Allison
EH&S Advisor
XTO Energy
810 Houston Street
Fort Worth, TX 76102
817-885-2672 Office
817-201-2379 Cell
817-885-2683 Fax



Summit Gas Gathering
Office 133E. 1200N.
E 1200 N
E 1200 N
XTO Energy
Production
121
2000W
121
Roosevelt
Golf Course
Roosevelt
W 300 N
W 200 N
W 100 N
W Lagoon St
W 200 S
W 200 N
191
E 500 N
E 400 N
E 300 N
E Lagoon St
S Main St
S State St
E 600 S
E 700 S
S Pond Dr
191
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W 500 S St
Vernal
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1500 E
Duchene
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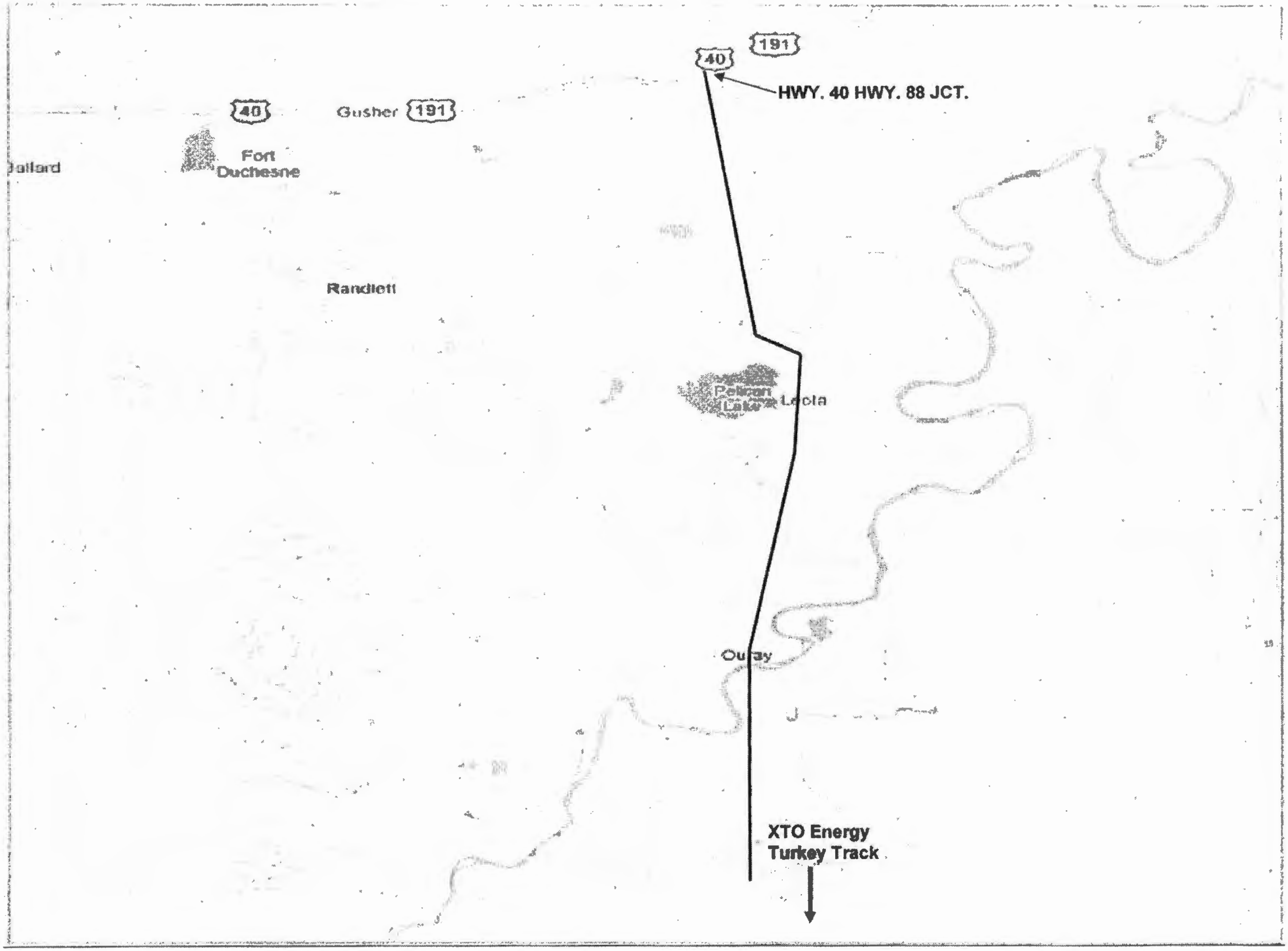
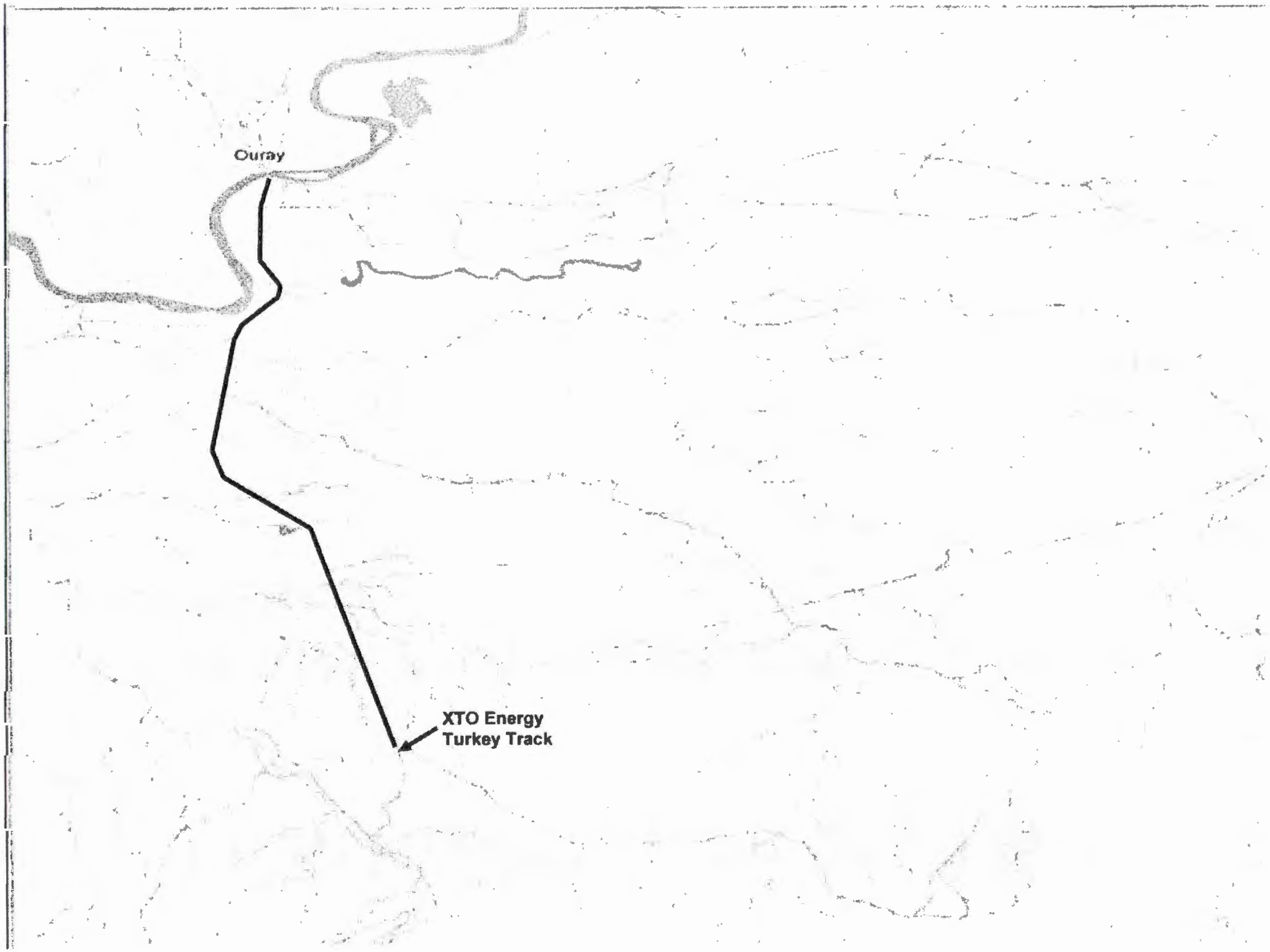

40
191
HWY. 40 HWY. 88 JCT.
40
Gusher
191
Fort Duchesne
Randlett
Pelican Lake
Leota
Ouray
XTO Energy
Turkey Track

From Hwy 88 to Turkey Track

- Going south on hwy 88 drive 25 miles to turkey track.


Ouray
XTO Energy
Turkey Track

Directions to Tap 4 CDP

- From the turkey track turn right and travel 2.7 miles on county road 5120 . Turn right and cross the Black Bridge. Go .5 miles and turn right, go up the dug-way for 2.9 miles to the Blue Cattle Guard. Turn right and travel 1.7 miles, turn right into Tap 4 CDP.

Directions to Tap 5 CDP

- From the turkey track continue going south for.9 miles.
- Turn left and go .5 miles to Tap 5.

Directions to Tap LCU CDP

- From the turkey track continue going south 6.2 miles.
- Veer right off of main road and go .2 miles to LCU.

Directions to Kings Canyon CDP

- From the turkey track turn right and travel 2.7 miles on county road 5120 . Turn right and cross the Black Bridge. Go .5 miles and turn right, go up the dug-way for 2.9 miles to the Blue Cattle Guard. Continue on 2.9 miles to the End of Fence sign. Turn right and travel 1.7 miles to Kings Canyon CDP on left.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop
DENVER, CO 80202-1142
Phone 800-227-8917
http://www.epa.gov/region08

Ref: (8P-AR)

RECORD OF COMMUNICATION

SUBJECT: Summit Gas Gathering – Little Canyon Unit Compressor Station Application

DATE: December 14, 2009

COMMUNICATION:

Telephone conversation between Eric Wortman (EPA Region 8) and Craig Allison (EH&S Advisor for XTO Energy)

Craig Allison returned my call (Eric Wortman) to discuss questions on PTE emission calculations for the Little Canyon Unit Compressor Station. The application uses the site-rated horsepower for engines LCC-1, LCC-2, and LCG-1 of 1260 hp for PTE calculations. However, the actual emission calculations for the 2008 fee year use the nameplate hp of 1340, thus actual emissions of NO_x are slightly higher than PTE emissions. Craig indicated that he can resubmit the PTE calculations using the nameplate hp (1340) if requested. I told him it was not necessary at this time and just wanted clarification on the PTE.

Craig also indicated that he may need additional time to complete the request for additional information due by January 22, 2009 due to cold weather field conditions and holiday season. I indicated that we could be flexible and he could send over portions of the completed information.

United States Environmental Protection Agency
Region VIII, Office of Air and Radiation

Federal Operating Permit Application Completeness Checklist

To be completed by review engineer within 60 days of receipt of the application. Criteria derived from 40 CFR Part 71 and the Part 71 application forms. To be deemed complete, an application must provide all information required pursuant to 40 CFR 71.5(c).

Source Name: Summit Gas Gathering, LLC ~~XTO Energy~~ Little Canyon Unit Compressor Station
Date Application Received: Initial 12/11/06, revised 9/8/2009

[ ] **Complete**

[✓] **Complete but needs additional information for drafting a permit** (see comments below)

Reviewer's Name Eric Wortman **Date Application Complete:** 10/28/2009

Check if complete

[✓] **Source Identification** [40 CFR 71.5(c)(1) & Application Form GIS parts A, B, C, & D]
- ✓ Facility's official name (not a colloquial name) provided
- ✓ Facility's complete mailing address provided
- ✓ Facility's location provided
- ✓ Owner information provided
- ✓ Operator information provided

Comments:
As of June 1st 2009, XTO Energy transferred owner/operator status to Summit Gas Gathering, LLC (SGG)

[ ] **Application Information** [Application Form GIS part E]
- ✓ Information on the type of permit being requested complete and understandable
- ✓ Date operations commenced provided (for initial permits)
- NA Expiration date of existing permit (for permit renewal) provided
- NA Description of proposed change (for modifications) provided. Are dates for the addition of units or the modification provided where needed?

Comments:
- New EI ordered by consent decree showed PTE exceeded major source limits.
- No history/~~date operations commenced~~ EW 4/4/05

[ ] **Summary Source Information** [40 CFR 71.5(c)(2) & Application Form GIS parts F, G, H, I J, K, L, & M]
- ✓ Applicable requirement summary complete NESHAP
- – Process description provided
- ✓ Emission unit identification and description provided
- ✓ Facility emissions summary provided
- NA ✓ Existing federally enforceable permits listed
- NA ✓ Emission units covered by general permits listed
- NA ✓ Cross-referenced information (e.g. – Do you have access to the information?)

Comments:
- no process description of facility provided

[ ] **Emission Unit Descriptions for Combustion Sources** [40 CFR 71.5(c)(2) - (7) & Application Form EUD-1 parts A-F]

- General information (ID, description, SIC and SCC Codes, Control device IDs) for each unit provided. Does the unit ID coincide with Form GIS? The SIC code may be different than that listed in section G of Form GIS. The SCC code is not mandatory, but is useful because it identifies a specific process, the pollutants from that process, and related emissions factors.
- Unit description in its <u>entirety</u> completed (including installation dates)
- Fuel data provided
- Fuel usage rates provided
- Control equipment descriptions provided (Does it include an ID for the control equipment?)
- NA Ambient impact assessment provided (for temporary sources only)
- Additional attachments, if needed, to provide information to the permitting authority that is not specified on the form provided

Comments:

~~- No SSC, SCC codes for tanks~~ EW
~~- No SCC code for dehydrator~~ EW
~~- Control ID same as unit ID~~

[ ] **Emission Unit Description of VOC Emitting Sources** [40 CFR 71.5(c)(2) - (7) & Application Form EUD-2 parts A - E]

- – General information (ID, description, SIC and SCC Codes, Control device IDs) for each unit provided. Does the unit ID coincide with Form GIS? The SIC code may be different than that listed in section G of Form GIS. The SCC code is not mandatory, but is useful because it identifies a specific process, the pollutants from that process, and related emissions factors.
- Unit descriptions in its <u>entirety</u> provided (Including dates of installation)
- NA Control equipment descriptions provided (Does in include an ID for the control equipment?)
- NA Ambient impact assessment provided (for temporary sources only)
- – Identification of VOC and HAP emitting substances complete
- Additional attachments, if needed, to provide information to the permitting authority that is not specified on the form provided

Comments:

- No SIC or SCC Codes
- no controls
- No usage (actual) or VOC content for condensate
- Tanks 2.0 used

[ ] **Emission Unit Description for Process Sources** [40 CFR 71.5(c)(2) - (7) & Application Form EUD-3 parts A - F] This form should provide technical information, including operational characteristics, applicable requirements, compliance terms, and emissions for each emissions unit. There should be one form for each unit.

- General information (ID, description, SIC and SCC Codes, Control device IDs) for each unit provided. Does the unit ID coincide with Form GIS? The SIC code may be different than that listed in section G of Form GIS. The SCC code is not mandatory, but is useful because it identifies a specific process, the pollutants from that process, and related emissions factors.
- Unit description in its <u>entirety</u> provided (including dates of installation)
- Activity or production rates provided
- – Control equipment descriptions provided (Does in include an ID for the control equipment?)
- NA Ambient impact assessment provided (for temporary sources only)
- Additional attachments, if needed, to provide information to the permitting authority that is not specified on the form provided

Comments:

- NO SCC Code for dehydrator
- Control ID same as unit ID
- Glycalc calculations provided

[✓] **Insignificant Emission Activities or Units** [40 CFR 71.5(c)(11) & Application Form IE]

✓ – Listing of insignificant activities and emissions levels exempted because of size or production rate pursuant to 71.5(c)(11)(ii) provided

✓ – Information provided sufficient to show that the exemption applies

NA – Information concerning equipment, activities, or emissions units that are exempted from an otherwise applicable requirements provided (e.g, emissions units grandfathered from requirements of a NSPS)

Comments:

[✓] **Emission Calculations for Each Unit** [40 CFR 71.5(c)(2) - (7) & Application Form EMISS parts A & B]

✓ – Emission unit identification provided (does the unit ID coincide with Form GIS?)

– Actual emission rates for each pollutant provided

✓ – Potential emission rates for each pollutant provided

✓ – CAS Number for each pollutant provided

✓ – Example calculations illustrating the methodology used (formulas used, emission factors used, assumptions made, source of formulas or assumptions) provided

Comments:

- no actual emission rates provided
- heaters use AP-42
- Tanks 2.0 used
- Glycalc used
- Mfgr. Info. for engines

[✓] **Potential to Emit Summary** [40 CFR 71.5(c)(3) & Application Form PTE]

✓ – Are all emission units identified? (does the unit ID coincide with Form GIS?)

✓ – If the source is a major source for pollutants not listed is an attachment stipulating major source status or the calculations for that air pollutant provided?

This form is used to calculate the total PTE for each air pollutant at the facility for purposes of determining major source applicability. See the application instructions and definitions for major source at 40 CFR 71.2 to further determine completeness and accuracy of this section.

Comments:

[✓] **Fee Calculations** [40 CFR 71.5(c)(3), 71.9, & Application Form FEE parts A - F]

✓ – General information completed

✓ – Source information completed

✓ – Certification of truth, accuracy and completeness signed and dated — no seperate one, only 1 w/ application

✓ – Annual non-HAP emissions report provided

✓ – Annual HAP emission report for fee calculation purposes provided

✓ – attached example calculations used to determine emission values provided

Comments:

2009 rate used

[✓] **Fee Filing** [Application Form FF parts A - C]

✓ – Facility's official or legal name provided
✓ – Complete mailing address & telephone numbers of all contact persons provided
✓ – Total amount of fee remitted in US dollars provided
✓ – Photocopy of the fee payment check or other confirmation of actual fees paid provided

Comments:

[ ] **Fee Submittal Confirmed**

– Has a confirmation been received by 8P-AR that fees and the fee filing form were deposited in the Region 8 Lockbox? Confirmation will come from Finance.

Comments

-Sent email to Michelle

[✓] **Compliance Status** [40 CFR 71.5(c)(8) & Application Form I-Comp parts A, B, & C]

✓ Has each individual applicable requirement been identified and described in detail
✓ Has a citation for each applicable requirement been provided
– Has each emission unit subject to the applicable requirement been identified. Do the emission unit IDs correspond to the IDs defined on Form GIS
✓ Has the compliance status for each applicable requirement been identified
? - Have the methods for determining compliance with each applicable requirement been provided
✓ Indication of compliance status with respect to each applicable requirements provided
✓ Indication that the source will comply with all applicable requirements that take effect during the permit term
NA Indication that the source will meet all future requirements

Comments:

Unit ID for dehydrator listed as D-1, not LCO-1

[✓] **Compliance Plans and Schedules** [40 CFR 71.5(c)(8) & Application Form I-Comp parts D&E]

NA – For any applicable requirement for which the facility will not be compliance at time of issuance, is there a description of how the source will achieve compliance
NA – If needed, is there a compliance schedule containing a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance?
NA Is the date of final compliance in the schedule?

Comments:

[✓] **Compliance Certification** [Application Form I-Comp parts F, G, & H]

✓ Is there a schedule for submitting progress reports (where necessary)
✓ Schedule for submittal of certification provided
✓ – Statement of compliance with enhanced monitoring and compliance certification requirements provided

Comments:

[✓] **Certification of Truth, Accuracy, & Completeness** [40 CFR 71.5(d) & Form CTAC parts A & B]

✓ Responsible official information complete

✓ Signature by responsible official provided

Comments:

[NA] **Confidential Information** [40 CFR 71.5(a)(3) & 40 CFR Part 2, subpart B]

NA Confidentiality claim substantiated pursuant to 40 CFR Part 2 (This is not required for determining the application complete. However, it is necessary to determine that the claim is valid. ORC can help with this.)

Note to Application Reviewer:

In general, applications should be found complete if they contain enough information for you to begin to process the application. A determination of completeness is important for sources because the submittal of a timely and complete application shields the source from enforcement action for operating without a permit. Completeness in general means that all questions in the application have been addressed and are truthful and accurate.

Sources, however, are also required to submit enough information for you to be able to draft a comprehensive, enforceable permit. The level of detail required in the application to meet this requirement is usually much higher than that required for purposes of the completeness determination. If while processing an application that has been determined complete you find that additional information is needed, you may request such information in writing.

Please note in the space provided any additional information required. Note also the date of the request made to the source and the deadline for submittal provided to the source.

Comments:

Summit Gas Gathering, LLC
810 Houston Street
Ft. Worth, TX 76102-6298
(817) 870-2800 (office)

August 31, 2009

RECEIVED
SEP 08 2009
8P - AR

COPY

Ms. Claudia Young Smith
Air Program - US EPA Region 8
Part 71 - Permitting, Monitoring and Modeling Unit
1595 Wynkoop St. (8P-AR)
Denver, CO 80202-1129

Certified Mail
Return Receipt No. 7008 2810 0000 4380 0845

RE: Summit Gas Gathering, LLC
Tap-4 Compressor Station - Uintah County, Utah – Part 71 Permit # V-OU-0017-07.00
Tap-5 Compressor Station - Uintah County, Utah – Part 71 Permit # V-OU-0018-07.00
Kings Canyon Unit Compressor Station – Uintah County, Utah – Part 71 Permit # V-OU-0019-07.00
Little Canyon Unit Compressor Station – Uintah County, Utah – Part 71 Permit Pending
Part 71 Permit Application Modifications

Dear Ms. Smith:

Summit Gas Gathering, LLC, hereby submits the accompanying information related to Title V - Part 71 Permit Applications for the following facilities:

- Tap-4 Compressor Station located in Uintah County, Utah – Application Update
- Tap-5 Compressor Station located in Uintah County, Utah – Application Update
- Kings Canyon Unit Compressor Station located in Uintah County, Utah – Application Update
- Little Canyon Unit Compressor Station located in Uintah County, Utah – Initial Application

The original applications for the Tap-4, Tap-5, and Kings Canyon Unit Compressor Stations were submitted by Dominion Exploration & Production Inc. in April of 2007. Following an acquisition of the referenced facilities and their associated assets, the permit applications were updated in November of 2007 to reflect XTO Energy Inc. as the new owner and operator of the facilities.

As of June 1, 2009, XTO Energy created a wholly owned subsidiary called Summit Gas Gathering, LLC (SGG) and transferred the referenced facilities and the associated physical assets to SGG. The attached, updated Part 71 Permit Applications reflect SGG as the new owner and operator, and updates the operating information for the Tap-4, Tap-5, and Kings Canyon Unit Compressor Stations. Refer to the attached copies of notifications related to the transfer of owner and operator from XTO Energy to SGG.

In addition, an Initial Part 71 permit application is being submitted for the SGG Little Canyon Unit Compressor Station (LCU). During an emissions inventory conducted as required by the XTO Energy Inc. federal Consent Decree (Civil Action No. 2:09-CV-00331-SA), SGG discovered that the estimated uncontrolled "Potential-to-emit" (PTE) emissions for the LCU facility exceeded the major source thresholds for both VOC and HAP emissions. XTO explained

this to Josh Rickard and Jim Eppers of the U.S. EPA Region 8 office in late 2008, prior to the Consent Decree being lodged, and EPA's response was to require XTO to conduct an EI for all Uinta Basin sites and establish those which are now Title V and those that are currently not Title V. Little Canyon was the only additional site that became Title V. The Uinta Basin EI's were submitted to the EPA and DOJ in mid-June of 2009 as a part of the Consent Decree requirements.

The operational changes applicable to the Little Canyon Station since the transfer in ownership from XTO to Dominion include one (1) added engine. In addition, XTO used a gas analysis from a warmer time of year than Dominion used for their emissions estimate. The nature and composition of the gas also plays a part in calculating the HAP and VOC emissions, specifically for the natural gas dehydrator. Based on the PTE calculations made by Dominion, the Little Canyon location was near major source thresholds when Dominion operated it and XTO confirmed that it could be over major source limits at certain times through the recently submitted Emission Inventory. Therefore, XTO is permitting the location as Title V based on currently calculated PTE values.

Based on the estimated PTE, SGG hereby submits the attached Initial Part 71 permit application, as required by both federal regulations and the applicable U.S. Consent Decree. Also attached are the copies of the proof of payment for the LCU Part 71 Title V Permit Fees for 2008. Please refer to the attached documentation related to the emissions inventory calculation and associated reporting of the LCU major source status as required by the federal Consent Decree.

If you should have any questions or require additional information, please feel free to contact me via e-mail at craig_allison@xtoenergy.com or at (817) 885-2672.

Sincerely,
XTO Energy

Craig Allison

Craig Allison
EH&S Advisor

Encl: Tap-4, Tap-5, and Kings Canyon Unit – Updated Part 71 Applications
Little Canyon Unit - Part 71 Initial Permit Application
Certification of Truth, Accuracy, and Completeness (CTAC)
Little Canyon Unit - Proof of Fee Payment (Form FF with a photocopy of the fee payment)
Little Canyon Unit - -Fee Calculation Worksheets (Form FEE and Supporting Data)
XTO - SGG Transfer of Ownership Documentation
XTO – Uinta Basin EI Reporting Documentation

Cc: Mr. Josh Rickard, U.S. EPA - Region 8 Enforcement Division (w/o attachments)
Damien Jones, XTO – SGG Roosevelt NGO Office

Summit Gas Gathering, LLC
Uintah County, Utah
Indian Country Lands in the State of Utah

Part 71 Permit Application Modifications and Submittals for the following:

- **Tap-4 Compressor Station located in Uintah County, Utah – Application Update**
- **Tap-5 Compressor Station located in Uintah County, Utah – Application Update**
- **Kings Canyon Unit Compressor Station located in Uintah County, Utah – Application Update**
- **Little Canyon Unit Compressor Station located in Uintah County, Utah – Initial Application**

810 Houston St.
Ft. Worth, TX 76102

August 7, 2009

XTO Energy -
Uinta Basin Facilities Emissions Inventories

The following Consent Decree requirements are applicable to the submittal of Emissions Inventories (Facility Potential-to-Emit Evaluations):

- WHEREAS, XTO will prepare and submit by no later than 60 days after the lodging of this Consent Decree revised emission inventories to determine whether the Uinta Basin Facilities, other than Kings Canyon, TAP-4, and TAP-5, are major sources prior to and after the application of controls for purposes of NESHAP's, Title V, and New Source Review;

- VIII. TITLE V OPERATING PERMITS, 45. (b) By no later than 60 days after the lodging of this Consent Decree, XTO shall submit to EPA an estimate of potential emissions for the Uinta Basin facilities, other than Kings Canyon, TAP-4, and TAP-5, calculated both without controls and with the application of controls required by this Consent Decree. Should any Uinta Basin facilities, other than Kings Canyon, TAP-4, or TAP-5, be major sources before the application of controls required by this Consent Decree, XTO shall submit complete Title V Permit applications for any such source within 180 days after the lodging of this Consent Decree. The United States agrees that these facilities shall operate in accordance with the terms of this Consent Decree until such time as EPA has issued the Title V permits for those facilities and this Consent Degree is terminated in whole or in part.

The following XTO locations are applicable to this requirement:

- Little Canyon Compressor Station
- Tap-1 Compressor Station
- Tap-2 Compressor Station
- Tap-3 Compressor Station
- RBU 9-17E Compressor Station
- RBU 11-18F Compressor Station
- Hill Creek Compressor Station
- West Willow Creek Compressor Station

XTO hereby submits the attached "estimates of potential emissions" for the applicable XTO facilities. The results of the attached emissions estimates demonstrate that only the Little Canyon Compressor Station was identified to be a major source of emissions based on the "potential-to-emit" for the following pollutants:

1. Uncontrolled VOC emissions greater than 100 tpy
2. Uncontrolled Benzene and Xylene emissions greater than 10 tpy each
3. Uncontrolled Site-wide aggregate HAP emissions greater than 25 tpy

XTO Energy -
Uinta Basin Facilities Emissions Inventories (continued)

Requirements in 40 CFR Part 71.3 (Applicability of Federal Operating Permits) and the criteria given in the definition of "Major Source" in 40 CFR Part 71.2 establish the major source thresholds for air emissions that are applicable to XTO's Uinta Basin Facilities covered under the Consent Decree.

These criteria established in 40 CFR 71.2 are as follows:

A major source under section 112 of the Act, which is defined as:

For pollutants other than radionuclides, any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit, in the aggregate, 10 tpy or more of any hazardous air pollutant which has been listed pursuant to section 112(b) of the Act, 25 tpy or more of any combination of such hazardous air pollutants, or such lesser quantity as the Administrator may establish by rule.

A major stationary source of air pollutants or any group of stationary sources as defined in section 302 of the Act, that directly emits, or has the potential to emit, 100 tpy or more of any air pollutant (including any major source of fugitive emissions of any such pollutant, as determined by rule by the Administrator).

Each emission inventory evaluated the respective site for the maximum potential-to-emit (uncontrolled) criteria air pollutants, including NOx, Carbon Monoxide (CO), Volatile Organic Compounds (VOC's), as well as individual and aggregate hazardous air pollutant (HAP's) uncontrolled emissions. Emission calculation methodologies utilized approved AP-42 emission calculation methods, including U.S. EPA approved emission calculation programs such as GRI GlyCALC 4.0, AmineCALC, and E&P Tanks 2.0. The attached table gives an estimate of controlled emissions at each facility taking into account the 93% reduction in CO required by Subpart ZZZZ applicable to lean-burn RICE's and the 95% reduction in individual HAP's and VOC's resulting from Subpart HH glycol dehydrator controls.

As stated previously in this report, the XTO Little Canyon Compressor Station was evaluated to be a major source of both VOC's and HAP emissions based upon uncontrolled emissions and maximum production rates for the site. As a result, XTO will submit the appropriate Part 71 permit application within 180-days following the lodging date of the Consent Decree (October 14, 2009). No other XTO facilities evaluated as a part of this report were found to be emitting in excess of U.S. federal major source thresholds.

Summit Gas Gathering, LLC
810 Houston Street
Ft. Worth, TX 76102-6298
(817) 870-2800 (off)

July 17, 2009

Ms. Callie A. Videtich
Director, Air and Radiation Program
U.S. Environmental Protection Agency
Region 8 – Mail Code 8P-AR
1595 Wynkoop Street
Denver, CO 80202-1129

COPY
XTO FW office

Certified Mail 7008 2810 0000 4380 0685

Re: Designation of Responsible Official
Summit Gas Gathering, LLC – Uinta Basin, Utah Facilities
Kings Canyon Unit Compressor Station – Part 71 Permit # V-OU-0019-07.00
Tap- 4 Compressor Station - Part 71 Permit # V-OU-0017-07.00
Tap- 5 Compressor Station - Part 71 Permit # V-OU-00XX-07.00
Little Canyon Unit Compressor Station – Part 71 Permit # Pending

Ms. Videtich:

Summit Gas Gathering, LLC (SGG), operating as a Delaware limited liability company, formally submits this notification to the U.S. Environmental Protection Agency. The following company employee will perform the duties of "Responsible Official" for the above referenced facilities:

- Primary Responsible Official - Mr. Nick Dungey
  Chairman of the Board and President
  810 Houston Street
  Fort Worth, Texas 76102
  817-885-2440 Office
  817-885-2683 fax
  nick_dungey@xtoenergy.com

SGG certifies that this individual meets the following credentials:

(1) For a corporation: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

(i) the facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or

(ii) the delegation of authority to such representative is approved in advance by the permitting authority.

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)

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) **Dungey** (First) **Nick** (MI) **J**

Title **Chairman of the Board and President – Summit Gas Gathering, LLC**

Street or P.O. Box **810 Houston St.**

City **Fort Worth** State **TX** ZIP **76102** - ____

Telephone (817) 885-2440 Ext. ____ Facsimile (817) 870 - 8441

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) Nick J. Dungey

Name (typed) **Nick Dungey** Date: 7 / 16 / **2009**

In addition, pursuant to 40 CFR 71.5(d), any application form, report, or compliance certification submitted pursuant to these regulations shall contain certification by a responsible official of truth, accuracy, and completeness (CTAC form).. Attached is the completed CTAC form signed by the senior-most company official responsible for operations of the Title V, 40 CFR Part 71 facilities referenced in this request.

Please contact the undersigned at 817-885-2672 or at craig_allison@xtoenergy.com if you need any additional information.

Sincerely,

Craig Allison

Craig Allison
EH&S Advisor

cc: Ms. Claudia Young Smith, EPA Region 8 - Certified Mail 7008 2810 0000 4380 0821
Mr. Josh Rickard, EPA Region 8 - Certified Mail 7008 2810 0000 4380 0838
Mr. Nick Dungey, Summit Gas Gathering, LLC

Little Canyon

EPA 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 _____Little Canyon Unit Compressor Station________

Mailing address: Street or P.O. Box ____810 Houston St.______________________________

City ___Ft. Worth____________________________ State __TX___ ZIP __76102______-________

Contact person: ___Craig Allison________________ Title __EH&S Advisor____________________

Telephone (_817__) __885___ - __2672_____ Ext. _________

Facsimile (__817_) __885___ - __2683______

B. Facility Location

Temporary source? ___Yes _X__No Plant site location _Lat. 39°53'49"N, Long. 109°36'20"W

City ___Roosevelt______________ State__UT_ County_Uintah_________ EPA Region__8__

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 _Summit Gas Gathering, LLC________ Street/P.O. Box __810 Houston St. __ ___ __

City ___Ft. Worth______________________________ State_TX___ ZIP_76102___ - ________

Telephone (__817) _885__ - _2672_____ Ext_________

D. Operator

Name ___Summit Gas Gathering, LLC______ Street/P.O. Box ___810 Houston St.____________

City _____Ft. Worth___________________________ State __TX__ ZIP __76102_______ - _______

Telephone (_817_) _885__ - __2672____ Ext_________

E. Application Type

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

_X_Initial Permit ___ Renewal ___ Significant Mod ___ Minor Permit Mod(MPM)

___ Group Processing, MPM ___ Administrative Amendment

For initial permits, when did operations commence? ___04_/_04__ /2005__

For permit renewal, what is the expiration date of current permit? _____/____/_____

F. Applicable Requirement Summary

Mark all types of applicable requirements that apply.

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

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

___ Stratospheric ozone ___ OCS regulations _X__ 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.

None

H. Process Description

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

Process	Products	SIC
Natural Gas Production	Natural Gas	1311

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
LCC-1	Caterpillar Model 3516LE compressor engine 1260 site-rated horsepower
LCC-2	Caterpillar Model 3516LE compressor engine 1260 site-rated horsepower
LCC-3	Caterpillar Model 3516LE compressor engine 1260 site-rated horsepower
LCD-1	25 MMscfd Glycol dehydrator controlled by a thermal oxidizer
LCF-1	Fugitive Emissions
LCG-1	Capstone 30 kW Microturbine Genset
LCT-1	One (1) 400-bbl slop tank #1
LCT-2	One (1) 400-bbl slop tank #2

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 ___55.6____ tons/yr VOC ___148.3_____ tons/yr SO2 ___0.1_____ tons/yr

PM-10 __0.1_______ tons/yr CO __86.2______ tons/yr Lead ___0.0_____ tons/yr

Total HAP ___40.5_____ tons/yr

Single HAP emitted in the greatest amount ____Xylene _____________ PTE _12.9____ tons/yr

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

K. Existing Federally-Enforceable Permits

Permit number(s) _________________ Permit type _____________ Permitting authority __________

Permit number(s) _________________ Permit type _____________ Permitting authority _________

L. Emission Unit(s) Covered by General Permits

Emission unit(s) subject to general permit ____

Check one: ___ Application made ___ Coverage granted

General permit identifier ______________________________ Expiration Date ____/____/____

M. Cross-referenced Information

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

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 __LCC-1_________ Description__Caterpillar 3516 LE engine___________

SIC Code (4-digit) __1311________ SCC Code_311000203_______

B. Emissions Unit Description

Primary use ___Natural Gas Compression_____________ Temporary Source ___Yes _x__No

Manufacturer __Caterpillar__________________ Model No. __3516LE____________________

Serial Number __4EK04570________________ Installation Date__10/13/2005___

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) __Natural gas compressor engine____________________________

Boiler horsepower rating____1260hp________ 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 __9.8____MM BTU/hr Max. Design Heat Input ___9.8_____MM BTU/hr

C. Fuel Data

Primary fuel type(s)___Natural Gas_____ Standby fuel type(s)__-----_____________________

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	0	0	1004 Btu/scf

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	85.5 MMscf	9.8 Mscf	85.5 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID___LCC-1____ Device type___Oxidation Catalyst____________________

Air pollutant(s) Controlled_ HCHO and CO__ Manufacturer__Miratech______________

Model No.__IQ 26 12 L1 Serial No.__ 1Q 1468_________

Installation date__10_/_01_/_2005_ Control efficiency (%) _<=14 ppmvd @ 15%O2 for CH2O_

Efficiency estimation method____Manufacturer Specifications_______________

F. Ambient Impact Assessment

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) _____________.________

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 __LCC-2________ Description___Caterpillar 3516LE engine___________

SIC Code (4-digit) _1311_________ SCC Code_311000203______

B. Emissions Unit Description

Primary use __Natural Gas Compression______________ Temporary Source ___Yes _X__No

Manufacturer __Caterpillar______________________ Model No. ___3516LE__________

Serial Number __4EK04571____________ Installation Date_7/9/2006__

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) ___Natural Gas Compressor Engine____________________________

Boiler horsepower rating__1260 hp___________ 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 __9.8____MM BTU/hr Max. Design Heat Input __9.8_____MM BTU/hr

C. Fuel Data

Primary fuel type(s)___Natural Gas__________ Standby fuel type(s)___NA_______________

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	0	0	1004 Btu/scf

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	85.5 MMscf	9.8 Mscf	85.5 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID__LCC-2_____ Device type___Oxidation Catalyst______________________

Air pollutant(s) Controlled_ HCHO and CO Manufacturer___Miratech__________________

Model No.___RCS 3626-12 L1___ Serial No. RCS-1460 ____________________

Installation date___09/__01_/_2005_ Control efficiency (%)_<=14 ppmvd @ 15%O2 for CH2O_

Efficiency estimation method___Manufacturer Specifications_______________________

F. Ambient Impact Assessment

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) ________.____

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 __LCC-3________ Description___Caterpillar 3516LE engine___________

SIC Code (4-digit) _1311_________ SCC Code_311000203______

B. Emissions Unit Description

Primary use __Natural Gas Compression______________ Temporary Source ___Yes _X__No

Manufacturer __Caterpillar_____________________ Model No. ___3516LE__________

Serial Number __4EK04875____________ Installation Date_5/23/2008__

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) ___Natural Gas Compressor Engine____________________________

Boiler horsepower rating__1260 hp___________ 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 __9.8____MM BTU/hr Max. Design Heat Input __9.8_____MM BTU/hr

C. Fuel Data

Primary fuel type(s)___Natural Gas_________ Standby fuel type(s)___NA_____________

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	0	0	1004 Btu/scf

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	85.5 MMscf	9.8 Mscf	85.5 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID__LCC-3_____ Device type___Oxidation Catalyst____________________

Air pollutant(s) Controlled_ HCHO and CO Manufacturer___GT Exhaust___________

Model No.___201V0-3-0-4112-1-30449___ Serial No. 95199 __________________

Installation date___09/__01_/_2008_ Control efficiency (%)_<=14 ppmvd @ 15%O2 for CH2O_

Efficiency estimation method___Manufacturer Specifications_____________________

F. Ambient Impact Assessment

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) _____________.________

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Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR PROCESS SOURCES (EUD-3)

A. General Information

Emissions unit ID __LCD-1_________ Description ___25 MMscfd Glycol Dehydrator_____

SIC Code (4-digit) _1311_________ SCC Code________

B. Emissions Unit Description

Primary use or equipment type __Gas Dehydration________________________________

Manufacturer ___Natco______________________ Model No. ___61440005________

Serial No. _____TBD_____________________ Installation date _12__/_09__/_2005_

Raw materials ___Wet Natural Gas ____

Finished products __Dry Natural Gas ____

Temporary source: _X__No ___Yes

C. Activity or Production Rates

Activity or Production Rate	Amount/Hour	Amount/Year
Actual Rate	500 Mscf	4,417 MMscf
Maximum rate	1.04 MMscf	9,125 MMscf

D. Associated Air Pollution Control Equipment

Emissions unit ID __LCD-1_____ Device Type____Thermal Oxidizer____________________

Manufacturer _Industrial Refractory Services__ Model No__36 inch TO with TJ0200HV burner

Serial No. __TBD____________________ Installation date Late winter/early spring 2009

Control efficiency (%) __99_______.___ Capture efficiency (%) ________.___

Air pollutant(s) controlled VOCs & HAPs__ Efficiency estimation method __Manu. Specs. _____

E. Ambient Impact Assessment

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) ____________._____

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

A. General Information

Emissions unit ID __LCG-1_________ Description_Capstone 30 kW Microturbine___

SIC Code (4-digit) __1311________ SCC Code_311000203_______

B. Emissions Unit Description

Primary use ___Power Generation______________ Temporary Source ___Yes _x__No

Manufacturer __Capstone________________ Model No. __C30NG_____________________

Serial Number __Unknown_________________ Installation Date__8/15/09___

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) __Natural Gas fueled Microturbine______________________________

Boiler horsepower rating____30 kW________ 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 __0.4____MM BTU/hr Max. Design Heat Input __0.4______MM BTU/hr

C. Fuel Data

Primary fuel type(s)___Natural Gas_____ Standby fuel type(s)__-----____________________

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	0	0	1004 Btu/scf

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	3.44 MMscf	0.4 Mscf	3.44 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID___ None____ Device type___ _______________________

Air pollutant(s) Controlled_ __ Manufacturer_________________

Model No.__ Serial No.__

Installation date______ Control efficiency (%) __

Efficiency estimation method____ ___________________

F. Ambient Impact Assessment

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) ________.____

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

A. General Information

Emissions unit ID __LCT-1___ Description ____400-bbl condensate storage tank _____

SIC Code (4-digit) __________ SCC Code ________

B. Emissions Unit Description

Equipment type ____Storage Tank_______________ Temporary source: ___Yes _X__No

Manufacturer___NATCO___________________ Model No. __80690___________

Serial No. __8801801-3____________ Installation date_ Unknown; after 9/15/05____

Articles being coated or degreased _____NA_____________________________________

Application method ______NA____

Overspray (surface coating) (%) __NA____ Drying method______NA_______________

No. of dryers __NA______ Tank capacity ____400-bbl_________

C. Associated Air Pollution Control Equipment

Emissions unit ID __NA_______ Device Type_____NA__________________________

Manufacturer _________________________ Model No_____________________________

Serial No. ______________________________ Installation date ___/___/________

Control efficiency (%) _________.___ Capture efficiency (%) ________.___

Air pollutant(s) controlled______________ Efficiency estimation method _______________

D. Ambient Impact Assessment

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)
Condensate		Condensate		273	99,645	

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

A. General Information

Emissions unit ID __LCT-2___ Description ____400-bbl condensate storage tank _____

SIC Code (4-digit) ___________ SCC Code ________

B. Emissions Unit Description

Equipment type ____Storage Tank_______________ Temporary source: ___Yes _X__No

Manufacturer___NATCO____________________ Model No. __#80689_____

Serial No. _____8J01801-4___________ Installation date Unknown; after 9/15/05____

Articles being coated or degreased _____NA_____________________________________

Application method ______NA____

Overspray (surface coating) (%) __NA____ Drying method______NA________________

No. of dryers __NA______ Tank capacity ____400-bbl_________

C. Associated Air Pollution Control Equipment

Emissions unit ID __NA_______ Device Type_____NA_____________________________

Manufacturer _________________________ Model No_____________________________

Serial No. _______________________________ Installation date ____/____/_________

Control efficiency (%) _________.___ Capture efficiency (%) ________.___

Air pollutant(s) controlled_______________ Efficiency estimation method _______________

D. Ambient Impact Assessment

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)
Condensate		Condensate		273	99,645	

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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	Truck loading (Condensate)	X	X
1	550 MBtu/hr Glycol Dehydrator Reboiler	X	X
1	500 MBtu/hr heater for slop tank #1	X	X
1	250 MBtu/hr heater for separator	X	X
1	500 MBtu/hr heater for slop tank #2	X	X

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POTENTIAL TO EMIT (PTE)

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

Emissions Unit ID	Regulated Air Pollutants and Pollutants for which the Source is Major (tons/yr)						
	NOx	VOC	SO2	PM10	CO	Lead	HAP
LCC-1	18.23	5.23	0.0	0.0	28.4	0.0	3.3
LCC-2	18.23	5.23	0.0	0.0	28.4	0.0	3.3
LCC-3	18.23	5.23	0.0	0.0	28.4	0.0	3.3
LCD-1	0.0	109.1	0.0	0.0	0.0	0.0	28.6
LCF-1	0.0	4.0	0.0	0.0	0.0	0.0	0.2
LCG-1	0.1	0.03	0.0	0.1	0.2	0.0	0.0
LCT-1	0.0	9.4	0.0	0.0	0.0	0.0	0.9
LCT-2	0.0	9.4	0.0	0.0	0.0	0.0	0.9
FACILITY TOTALS	55.6	148.3	0.1	0.1	86.2	0.0	40.5

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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 __LCC-1___________

B. Identification and Quantification of Emissions

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

Air Pollutants	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx		4.2	18.2	
CO		6.5	28.4	
VOC		1.2	5.2	
Acetaldehyde		0.1	0.4	75070
Acrolein		0.1	0.2	107028
Formaldehyde		0.6	2.7	50000

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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 __LCC-2__________

B. Identification and Quantification of Emissions

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

Air Pollutants	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx		4.2	18.2	
CO		6.5	28.4	
VOC		1.2	5.2	
Acetaldehyde		0.1	0.4	75070
Acrolein		0.1	0.2	107028
Formaldehyde		0.6	2.7	50000

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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 __LCC-3___________

B. Identification and Quantification of Emissions

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

Air Pollutants	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx		4.2	18.2	
CO		6.5	28.4	
VOC		1.2	5.2	
Acetaldehyde		0.1	0.4	75070
Acrolein		0.1	0.2	107028
Formaldehyde		0.6	2.7	50000

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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 __LCD-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		24.9	109.1	
Benzene		2.6	11.3	71432
Ethylbenzene		0.2	0.9	100414
Toluene		0.1	0.6	108883
Xylene		2.9	12.7	1330207
n-Hexane		0.7	2.9	110543

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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 __LCF-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		0.9	4.0	
n-Hexane		0.0	0.1	110543

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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 __LCG-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.

	Emission Rates			
	Actual Annual Emissions (tons/yr)	Potential to Emit		
Air Pollutants		Hourly (lb/hr)	Annual (tons/yr)	CAS No.
NOx		0.02	0.1	
CO		0.05	0.2	
VOC		0.01	0.03	

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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 __LCT-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		2.1	9.4	
Benzene		0.0	0.1	71432
Toluene		0.1	0.2	108883
Xylene		0.0	0.1	1330207
n-Hexane		0.1	0.4	110543

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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 __LCT-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		2.1	9.4	
Benzene		0.0	0.1	71432
Toluene		0.1	0.2	108883
Xylene		0.0	0.1	1330207
n-Hexane		0.1	0.4	110543

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CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS (CTAC)

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

A. Responsible Official

Name: (Last) Dungey (First) Nick (MI) J

Title Chairman of the Board and President – Summit Gas Gathering, LLC

Street or P.O. Box 810 Houston St.

City Fort Worth State TX ZIP 76102 - ____

Telephone (817) 885-2440 Ext. ____ Facsimile (817) 870 - 8441

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) Nick J. Dungey

Name (typed) Nick Dungey Date: 8 / 7 / 2009

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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): LCC-1, LCC-2, LCC-3

Applicable Requirement (Describe and Cite)

MACT Subpart ZZZZ - RICE

Compliance Methods for the Above (Description and Citation):

Three (3) Caterpillar 3516LE engines will be subject to the RICE MACT (40 CFR 63 Subpart ZZZZ) standard requiring a reduction of formaldehyde emissions of ≤ 14.0 ppmvd @ 15% O2 and a catalyst inlet temperature between 450 degrees Fahrenheit and 1350 degrees Fahrenheit. The compliance deadline for new 4-stroke lean burn engines is upon 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): D-1

Applicable Requirement (Description and Citation):

MACT Subpart HH – Dehydration controls

Compliance Methods for the Above (Description and Citation):

Oil and Gas MACT (40 CFR 63 Subpart HH) – The glycol dehydration unit has uncontrolled PTE for HAPs above the 10/25 TPY threshold. HAP emissions from emission unit D-1 will be reduced by ≥ 95%.

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

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

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____Annually____________ Beginning_6 months after permit issuance_

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

yon Unit - Uncontrolled PTE Emissions Summary

	EQ ID #	NOx		CO		VOC		PM/PM10		SO2		Total HAPs	
		EMISSIONS TOTALS											
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
	LCC-1	4.16	18.23	6.49	28.44	1.19	5.23	0.001	0.003	0.01	0.025	0.75	3.30
	LCC-2	4.16	18.23	6.49	28.44	1.19	5.23	0.001	0.003	0.01	0.025	0.75	3.30
	LCC-3	4.16	18.23	6.49	28.44	1.19	5.23	0.001	0.003	0.01	0.025	0.75	3.30
	LCU Dehy	0.055	0.241	0.046	0.202	0.003	0.013	0.004	0.018	0.000	0.001	0.001	0.005
	LCD-1					24.912	109.121					6.536	28.627
	LCF-1					0.902	3.952					0.037	0.161
		0.100	0.438	0.084	0.368	0.006	0.024	0.008	0.033	0.001	0.003	0.002	0.008
		0.025	0.110	0.021	0.092	0.001	0.006	0.002	0.008	0.000	0.001	0.0005	0.002
	80689; 80690					4.296	18.826					0.398	1.746
						0.153	0.669						
urbine	LCG-1	0.02	0.1	0.05	0.2	0.01	0.03						
		12.688	**55.574**	**19.685**	**86.220**	**33.860**	**148.322**	**0.016**	**0.070**	**0.018**	**0.080**	**9.234**	**40.448**

XTO Uinta - Littl
Equipment Na
Compressor Engi
Compressor Engi
Compressor Engi
TEG Dehy #1 Reboil
TEG Dehydrator #1 R
Equipment Lea
Tank Heater
Fuel Cleanup He
Slop Tanks
Condensate Truck
Generator #1 - Capstone C3
Totals

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n - Uncontrolled HAP PTE Emissions Summary

escription	EQUIP ID	Run hours / yr	CH20 tpy	Benzene tpy	Toluene tpy	Ethylbenzene tpy	Xylene tpy	Hexane tpy	2,2,4 TMP tpy	Acetaldehyde tpy	Acrolein tpy	TOTAL HAPs tpy
			EMISSIONS TOTALS									
516	LCC-1	8760	2.67	0.02	0.018	0.002	0.008			0.36	0.22	3.30
516	LCC-2	8760	2.67	0.02	0.018	0.002	0.008			0.36	0.22	3.30
516	LCC-3	8760	2.67	0.02	0.018	0.002	0.008			0.36	0.22	3.30
stion - 1.5 mmbtu/hr er	LCU Dehy	8760						0.004				0.005
n and Flash Tank - 25 max	LCD-1	8760		11.252	0.632	0.909	12.731	2.941	0.162			28.63
ning Unit Heater		8760						0.002				0.002
ugitives	LCF-1	8760		0.018	0.015		0.006	0.122				0.16
2 X .5 MMBTU each		8760						0.008				0.01
storage tanks	80689; 80690	8760		0.194	0.454	0.010	0.102	0.852	0.134			1.75
G MicroTurbine	LCG-1	8760										
			8.023	**11.521**	**1.154**	**0.924**	**12.862**	**3.929**	**0.296**	**1.077**	**0.662**	**40.448**

XTO Little Canyon Unit Compresso

Equipment Name	E
Compressor Engine #1	
Compressor Engine #2	
Compressor Engine #3	
TEG Dehy #1 Reboiler Heater	TEG Reb
TEG Dehydrator #1 Regenerator	TEG Reboil
Fuel Cleanup Heater	Fuel C
Equipment Leaks	
Tank Heaters	Storage Ta
Slop Tanks	2 X
Generator #1	Caps
Total Emissions	

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XTO Little Canyon Compressor Station - Uncontrolled PTE Engine Emissions

NOx Calculations

ID #	Emission Points	Engine	Manufacturer's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method
LCC-1	Comp Eng 1	Caterpillar 3516	1.50	1260	4.163	4.38	18.234	Manufacturer's Data
LCC-2	Comp Eng 2	Caterpillar 3516	1.50	1260	4.163	4.38	18.234	Manufacturer's Data
LCC-3	Comp Eng 3	Caterpillar 3516	1.50	1260	4.163	4.38	18.234	Manufacturer's Data
				Total	**12.489**	lb/hr		
					54.702	tpy		

CO Calculations

ID #	Emission Points	Engine	Manufacturer's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	2.34	1260	6.494	4.38	28.445	Mfg's Data	0	28.44	6.49
LCC-2	Comp Eng 2	Caterpillar 3516	2.34	1260	6.494	4.38	28.445	Mfg's Data	0	28.44	6.49
LCC-3	Comp Eng 3	Caterpillar 3516	2.34	1260	6.494	4.38	28.445	Mfg's Data	0	28.44	6.49
				Total	**19.483**	lb/hr					
				Controlled	**85.33**	tpy					

VOC Calculations

NMNEHC

ID #	Emission Points	Engine	Mfg's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.43	1260	1.19	4.38	5.227	Mfg's Data	0	5.23	1.19
LCC-2	Comp Eng 2	Caterpillar 3516	0.43	1260	1.19	4.38	5.227	Mfg's Data	0	5.23	1.19
LCC-3	Comp Eng 3	Caterpillar 3516	0.43	1260	1.19	4.38	5.227	Mfg's Data	0	5.23	1.19
						Total	**3.58**	lb/hr			
						Controlled	**15.68**	tpy			

XTO Little Canyon Compressor Station - Uncontrolled PTE Engine Emissions

PM Calculations **PM = PM10**

ID #	Emission Points	Engine	AP-42 PM Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	PM Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method
LCC-1	Comp Eng 1	Caterpillar 3516	0.0000771	0.007778	5.99684E-07	100.0%	0.00027	1260	0.00076	4.38	0.003	AP-42
LCC-2	Comp Eng 2	Caterpillar 3516	0.0000771	0.007778	5.99684E-07	100.0%	0.00027	1260	0.00076	4.38	0.003	AP-42
LCC-3	Comp Eng 3	Caterpillar 3516	0.0000771	0.007778	5.99684E-07	100.0%	0.00027	1260	0.00076	4.38	0.003	AP-42
								Total	**0.002**	lb/hr		
								Controlled	**0.010**	tpy		

Formaldehyde Calculations

ID #	Emission Points	Engine	Mfg's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.22	1260	0.611	4.38	2.674	Mfg's Data	0	2.67	0.61
LCC-2	Comp Eng 2	Caterpillar 3516	0.22	1260	0.611	4.38	2.674	Mfg's Data	0	2.67	0.61
LCC-3	Comp Eng 3	Caterpillar 3516	0.22	1260	0.611	4.38	2.674	Mfg's Data	0	2.67	0.61
								Total	**1.83**	lb/hr	
								Controlled	**8.02**	tpy	

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XTO Little Canyon Compressor Station - Uncontrolled PTE Engine Emissions

Benzene Calculations

ID #	Emission Points	Engine	Benzene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Benzene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.00044	0.007778	3.42232E-06	100.0%	0.002	1260	0.0043	4.38	0.019	AP-42	0	0.019	0.0043
LCC-2	Comp Eng 2	Caterpillar 3516	0.00044	0.007778	3.42232E-06	100.0%	0.002	1260	0.0043	4.38	0.019	AP-42	0	0.019	0.0043
LCC-3	Comp Eng 3	Caterpillar 3516	0.00044	0.007778	3.42232E-06	100.0%	0.002	1260	0.0043	4.38	0.019	AP-42	0	0.019	0.0043
								Total	**0.013**	lb/hr					
								Controlled	**0.057**	tpy					

Toluene Calculations

ID #	Emission Points	Engine	Toluene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Toluene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.000408	0.007778	3.17342E-06	100.0%	0.0014	1260	0.004	4.38	0.018	AP-42	0	0.018	0.0040
LCC-2	Comp Eng 2	Caterpillar 3516	0.000408	0.007778	3.17342E-06	100.0%	0.0014	1260	0.004	4.38	0.018	AP-42	0	0.018	0.0040
LCC-3	Comp Eng 3	Caterpillar 3516	0.000408	0.007778	3.17342E-06	100.0%	0.0014	1260	0.004	4.38	0.018	AP-42	0	0.018	0.0040
								Total	**0.012**	lb/hr					
								Controlled	**0.053**	tpy					

Ethylbenzene Calculations

ID #	Emission Points	Engine	Ethylbenzene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Ethylbenzene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.0000397	0.007778	3.08787E-07	100.0%	0.0001	1260	0.000	4.38	0.002	AP-42	0	0.0017	0.0004
LCC-2	Comp Eng 2	Caterpillar 3516	0.0000397	0.007778	3.08787E-07	100.0%	0.0001	1260	0.000	4.38	0.002	AP-42	0	0.0017	0.0004
LCC-3	Comp Eng 3	Caterpillar 3516	0.0000397	0.007778	3.08787E-07	100.0%	0.0001	1260	0.000	4.38	0.002	AP-42	0	0.0017	0.0004
								Total	**0.001**	lb/hr					
								Controlled	**0.005**	tpy					

XTO Little Canyon Compressor Station - Uncontrolled PTE Engine Emissions

Xylene Calculations

ID #	Emission Points	Engine	Xylene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Xylene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.000184	0.007778	1.43115E-06	100.0%	0.0006	1260	0.002	4.38	0.008	AP-42	0	0.008	0.0018
LCC-2	Comp Eng 2	Caterpillar 3516	0.000184	0.007778	1.43115E-06	100.0%	0.0006	1260	0.002	4.38	0.008	AP-42	0	0.008	0.0018
LCC-3	Comp Eng 3	Caterpillar 3516	0.000184	0.007778	1.43115E-06	100.0%	0.0006	1260	0.002	4.38	0.008	AP-42	0	0.008	0.0018
								Total	**0.005**	lb/hr					
								Controlled	**0.024**	tpy					

SO2 Calculations

ID #	Emission Points	Engine	SO2 AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	SO2 Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method
LCC-1	Comp Eng 1	Caterpillar 3516	0.000588	0.007778	4.57346E-06	100.0%	0.0021	1260	0.006	4.38	0.025	AP-42
LCC-2	Comp Eng 2	Caterpillar 3516	0.000588	0.007778	4.57346E-06	100.0%	0.0021	1260	0.006	4.38	0.025	AP-42
LCC-3	Comp Eng 3	Caterpillar 3516	0.000588	0.007778	4.57346E-06	100.0%	0.0021	1260	0.006	4.38	0.025	AP-42
								Total	**0.017**	lb/hr		
									0.076	tpy		

XTO Little Canyon Compressor Station - Uncontrolled PTE Engine Emissions

Acetaldehyde Calculations

ID #	Emission Points	Engine	Acetaldehyde AP 42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Acetaldehyde Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.00836	0.007778	6.50241E-05	100.0%	0.0295	1260	0.082	4.38	0.359	AP-42	0	0.359	0.0819
LCC-2	Comp Eng 2	Caterpillar 3516	0.00836	0.007778	6.50241E-05	100.0%	0.0295	1260	0.082	4.38	0.359	AP-42	0	0.359	0.0819
LCC-3	Comp Eng 3	Caterpillar 3516	0.00836	0.007778	6.50241E-05	100.0%	0.0295	1260	0.082	4.38	0.359	AP-42	0	0.359	0.0819
								Total	**0.246**	lb/hr					
								Controlled	**1.077**	tpy					

Acrolein Calculations

ID #	Emission Points	Engine	Acrolein AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Acrolein Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.00514	0.007778	3.99789E-05	100.0%	0.0182	1260	0.050	4.38	0.221	AP-42	0	0.221	0.0504
LCC-2	Comp Eng 2	Caterpillar 3516	0.00514	0.007778	3.99789E-05	100.0%	0.0182	1260	0.050	4.38	0.221	AP-42	0	0.221	0.0504
LCC-3	Comp Eng 3	Caterpillar 3516	0.00514	0.007778	3.99789E-05	100.0%	0.0182	1260	0.050	4.38	0.221	AP-42	0	0.221	0.0504
								Total	**0.151**	lb/hr					
								Controlled	**0.662**	tpy					

AP-42 Factors taken from Table 3.2-1, 3.2-2 and Table 3.2-3 Uncontrolled Emission Factors for 4-stroke Lean Burn Engines

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XTO Little Canyon Compressor Station - Engine Fuel Use Calcs

Engine Make/Model	Caterpillar 3516 LE	
Site Horsepower Rating	1260	hp
Fuel Consumption (BSFC)	7778	Btu/(hp-hr)
Heat Rating	9.8	MMBtu/hr
Heating Value (LHV)	1004	Btu/Scf
Fuel Usage	85.51	MMScf/yr
Operating Hours	8760	hrs/yr

Generator Micro-Turbine Emissions

EMISSION POINTS: | **Capstone Model C30NG MicroTurbine**

Engine Make/Model	Capstone Model C30NG MicroTurbine	
Site kWe Rating	30	kWe
Heating Value	1000	Btu/Scf
Operating Hours	8760	hrs/yr

Pollutant	**Emission Factor**		**Emission Rate (lb/hr)**	**Emission Rate (tpy)**	**Emission Factor Reference**
NOx	0.64	lb/MWhe	0.02	0.1	[1]
CO	1.70	lb/MWhe	0.05	0.2	[1]
VOC/NMHC	0.22	lb/MWhe	0.01	0.03	[1]

[1] Capstone Mfg. Emission Factors

CALCULATION FORMULAS
lb/hr = (lb/10^6 Watts-hr)*(site Watt rating 10^3 Watts)
tons/yr= (lb/hr)*(8760 hrs/yr)* (1 ton/2000lb)

Dimensions & Weight

Width x Depth x Height	762 x 1524 x 1956 mm (30 x 60 x 77 in)
Weight – Grid Connect Model	405 kg (891 lbs)
Weight – Dual Mode Model	578 kg (1,271 lbs)

Minimum Clearance Requirements

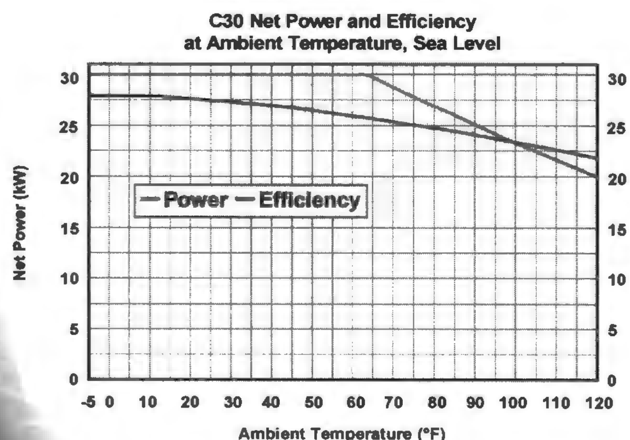
Vertical Clearance	610 mm (24 in)
Horizontal Clearance	
Left and Right	762 mm (30 in)
Front	940 mm (37 in)
Rear	915 mm (36 in)

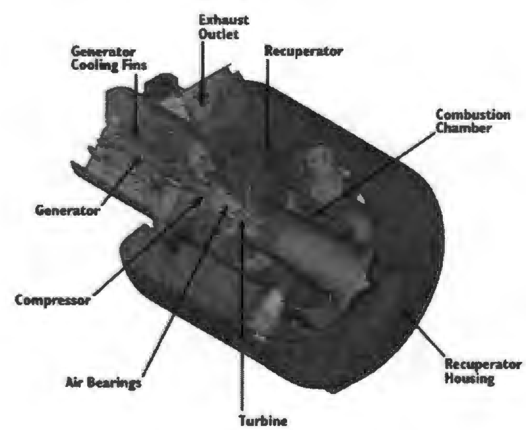
Sound Levels

Acoustic Emissions at Full Load Power	
Nominal at 10 m (33 ft)	65 dBA

Certifications

- Certified to UL 2200 for stand alone natural gas operation (UL files AU2687, E209370)
- Meets statewide utility interconnection requirements for California Rule 21 and the New York State Public Service Commission
- Materials Equipment Acceptance (MEA) approval for New York City
- Models available with optional equipment for CE Marking





(1) Some utilities may require additional equipment for grid interconnectivity
(2) Nominal full power [redacted]formance at ISO conditions: 59˚F, 14.696 psia, 60% RH
(3) With linear load
(4) Exhaust emissions with [redacted]thane fuel
Specifications are not w[redacted]and are subject to change without notice.

21211 Nordhoff Street • [redacted]tsworth • CA • 91311 • 877.716.2929 • 818.407.3770 • www.capstoneturbine.com

C30 MicroTurbine
Natural Gas

Capstone

Robust power system achieves ultra-low emissions and reliable electricity from natural gas.

- Low NOx and CO_2 emissions – better than tough global standards
- One moving part: Minimal maintenance and downtime
- Patented air bearing: No lubricating oil or coolant
- 5 and 9 year Factory Protection Plans available
- Remote monitoring and diagnostic capabilities
- Integrated utility synchronization and protection[1]
- Small, modular design allows for easy, low-cost installation
- Reliable: 16,000,000+ run hours and counting

C30 MicroTurbine

Electrical Performance [2]	High Pressure	Onboard Gas Compressor Option
Electrical Power Output	30 kW	28 kW
Voltage	400 to 480 VAC	400 to 480 VAC
Electrical Service	3-Phase, 4 wire	3-Phase, 4 wire
Frequency	50/60 Hz, grid connect operation	50/60 Hz, grid connect operation
	10/60 Hz, stand alone operation	10/60 Hz, stand alone operation
Maximum Output Current	46A, grid connect operation	46A, grid connect operation
	54A, stand alone operation [3]	54A, stand alone operation [3]
Electrical Efficiency LHV	26%	25%

Fuel/Engine Characteristics [2]	High Pressure	Onboard Gas Compressor Option
Natural Gas HHV	825 to 1,275 BTU/scf	825 to 1,275 BTU/scf
Inlet Pressure – HHV dependent	3.8–4.1 barg (55–60 psig)	0.01–1.0 barg (0.2–15 psig)
Fuel Flow LHV	415 MJ/hr (394,000 BTU/hr)	403 MJ/hr (382,000 BTU/hr)
Generator Heat Rate LHV	12.9 MJ/kWh (12,200 BTU/kWh)	12.9 MJ/kWh (12,200 BTU/kWh)

Exhaust Characteristics [2]	High Pressure	Onboard Gas Compressor Option
NOx Emissions @ 15% O_2	< 9 ppmvd	< 9 ppmvd
NOx/Electrical Output [4]	0.193 g/bhp-hr (< 0.57 lb/MWh)	< 0.60 lb/MWh (0.203 g/bhp-hr)
Exhaust Gas Flow	0.31 kg/s (0.69 lb/sec)	0.31 kg/s (0.69 lb/sec)
Exhaust Gas Temperature	275°C (530°F)	275°C (530°F)

Power when and where you need it. Clean and simple.

XTO Little Canyon Compressor Station - Microturbine Fuel Use Calcs

Engine Make/Model	Capstone 30 kW Microturbine	
Site Power Output Rating	30	kilowatts
Heat Rating	0.4	MMBtu/hr
Heating Value (LHV)	1004	Btu/Scf
Fuel Usage	3.44	MMScf/yr
Operating Hours	8760	hrs/yr

Capstone

Capstone Turbine Corporation • 21211 Nordhoff Street • Chatsworth • CA 91311 • USA
Phone: (818) 734-5300 • Fax: (818) 734-5320 • Web: www.microturbine.com

Technical Reference

Capstone MicroTurbine™ Systems Emissions

Summary

Capstone MicroTurbine™ systems are inherently clean and can meet some of the strictest emissions standards in the world. This technical reference is to provide customers with information that may be requested by local air permitting organizations or to compare air quality impacts of different technologies for a specific project. The preferred units of measure are "output based"; meaning that the quantity of a particular exhaust emission is reported relative to the useable output of the microturbine – typically in pounds per megawatt hour for electrical generating equipment. This technical reference also provides the volumetric measurement in parts per million, which is still used by many people. A conversion between several common units is also provided.

Maximum Exhaust Emissions at ISO Conditions

Table 1 below summarizes the exhaust emissions at full power and ISO conditions for different Capstone microturbine models. Note that the fuel can have a significant impact on certain emissions. For example landfill and digester gas can be made up of a wide variety of fuel elements and impurities, and typically contains some percentage of carbon dioxide (CO_2). This CO_2 dilutes the fuel, makes complete combustion more difficult, and results in higher carbon monoxide emissions (CO) than for pipeline-quality natural gas.

Table 1. Emission for Different Capstone Microturbine Models in [lb/MWhe]

Model	Fuel	NOx	CO	VOC (5)
C30 NG	Natural Gas (1)	.64	1.7	.22
C30 MBTU	Landfill Gas (2)	.64	22	12.4
C30 MBTU	Digester Gas (3)	.64	22	12.4
C30 Liquid	Diesel #2 (4)	2.6	.41	.23
C65 NG Standard	Natural Gas (1)	.46	6.0	.10
C65 NG Low NOx	Natural Gas (1)	.17	6.0	.10
C65 NG CARB	Natural Gas (1)	.17	.24	.05
CR65 Landfill	Landfill Gas (2)	.50	6.0	.10
CR65 Digester	Digester Gas (3)	.50	6.0	.10
C200 NG	Natural Gas (1)	.43	.26	.10
C200 NG CARB	Natural Gas (1)	.14	.20	.04
CR200 Digester	Digester Gas (3)	.50	6.0	.10

Notes:

(1) Emissions for standard natural gas at 1,000 BTU/scf (HHV)
(2) Emissions for surrogate gas containing 42% natural gas, 39% CO2, and 19% Nitrogen
(3) Emissions for surrogate gas containing 63% natural gas and 37% CO2
(4) Emissions for Diesel #2 according to ASTM D975-07b
(5) Expressed as Hexane

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Company: **XTO Energy**
Facility Name: **Little Canyon Compressor Station**
Facility Location: **Uintah County, Utah**

Unit: Glycol TEG Dehydrator Still Vent
Maximum Daily Throughput 25 MMscfd

Uncontrolled Potential to Emit

Unit Description	Gas Flow Rate (MMscf/day)	VOCs (tons/yr)	Benzene (tons/yr)	Toluene (tons/yr)	Ethylbenzene (tons/yr)	Xylenes (tons/yr)	N-Hexane (tons/yr)	224-TMP (tons/yr)	Total HAPs (tons/yr)	Total BTEX (tons/yr)
TEG Dehy	25.0	61.6796	10.9128	0.6202	0.8989	12.6357	1.5307	0.086	26.6844	25.0676
Flash Tank		47.4412	0.3390	0.0120	0.0098	0.0955	1.4104	0.0758	1.9425	0.4563
TOTAL		**109.1208**	**11.2518**	**0.6322**	**0.9087**	**12.7312**	**2.9411**	**0.1618**	**28.6269**	**25.5239**

XTO Little Canyon Compressor Station
Estimated Fugitives

		Estimated Components Count	Hours	Factors* lb/hr/component	%NMNEVOC	Emissions lb/year	Emissions tons/year
Valves							
	Gas/Vapor	300	8760	0.00992000	1.56%	406.68826	0.20334
	Light Oil	100	8760	0.00550000	100.00%	4818.00000	2.40900
	Heavy Oil		8760	0.00001900	100.00%	0.00000	0.00000
	Water/Light Oil	50	8760	0.00021600	100.00%	94.60800	0.04730
Pumps							
	Gas/Vapor	6	8760	0.00529000	1.56%	4.33746	0.00217
	Light Oil	3	8760	0.02866000	100.00%	753.18480	0.37659
	Heavy Oil		8760	0.00113000	100.00%	0.00000	0.00000
	Water/Light Oil	3	8760	0.00005300	100.00%	1.39284	0.00070
Flanges							
	Gas/Vapor	650	8760	0.00086000	1.56%	76.39070	0.03820
	Light Oil	75	8760	0.00024300	100.00%	159.65100	0.07983
	Heavy Oil		8760	0.00000086	100.00%	0.00000	0.00000
	Water/Light Oil	50	8760	0.00000620	100.00%	2.71560	0.00136
Open-ended Lines							
	Gas/Vapor	15	8760	0.00441000	1.56%	9.03979	0.00452
	Light Oil		8760	0.00309000	100.00%	0.00000	0.00000
	Heavy Oil		8760	0.00030900	100.00%	0.00000	0.00000
	Water/Light Oil	5	8760	0.00055000	100.00%	24.09000	0.01205
Connectors							
	Gas/Vapor	250	8760	0.00044000	1.56%	15.03216	0.00752
	Light Oil		8760	0.00046300	100.00%	0.00000	0.00000
	Heavy Oil		8760	0.00001700	100.00%	0.00000	0.00000
	Water/Light Oil	50	8760	0.00024300	100.00%	106.43400	0.05322
Other: Compressors, relief valves, process drains, diaphragms, dump arms, hatches, instruments, meters, polished rods, and vents							
	Gas/Vapor	30	8760	0.01940000	1.56%	79.533792	0.039766896
	Light Oil		8760	0.01650000	100.00%	0	0
	Heavy Oil		8760	0.00006800	100.00%	0	0
	Water/Light Oil	5	8760	0.03090000	100.00%	1353.42	0.67671

**NOTE - emission factors based on Table 2-4 of U.S. EPA's 1995 Protocol for Equipment Leak Emission Estimates.*

Total in tons/year	**3.95**
Total in Lb/hr	**0.90**

Fugitive HAP Emissions Totals

	wt% in gas	Total VOC wt %	Total Fugitive VOC tpy	Total tpy for HAP	Total lb/hr for HAP
Benzene	0.0072	1.560	3.95	**0.018**	**0.004**
Toluene	0.0059	1.560	3.95	**0.015**	**0.003**
Xylene	0.0022	1.560	3.95	**0.006**	**0.0013**
n-Hexane	0.0482	1.560	3.95	**0.122**	**0.028**
			TOTAL Fugitive HAP's	**0.161**	**0.037**

Dehy Reboiler Heater - Little Canyon Unit

Fuel Gas	**1000**	**BTU/scf**								
	8760	**hrs/yr**								
Max Heat Input Rating	**0.55**	**MMBTU/hr**								
	NOx		CO		VOC		PM/PM10		SO2	
Small Boilers Emissions Factor*										
(lbs/MMscf)	100		84		5.5		7.6		0.6	
Estimated Emissions	**NOx**		**CO**		**VOC**		**PM/PM10**		**SO2**	
lb/hr	0.055		0.046		0.003		0.004		0.000	
tpy	0.241		0.202		0.013		0.018		0.001	
HAP Emissions Factors*										
(lbs/MMscf)		Benzene		Toluene		Hexane		Formald.		Diclorobenz.
		0.0021		0.0034		1.8		0.075		0.0012
Estimated HAP Emissions		Benzene		Toluene		Hexane		Formald.		Diclorobenz.
lb/hr		0.0000012		0.0000019		0.0009900		0.0000413		0.0000007
tpy		0.0000051		0.0000082		0.0043362		0.0001807		0.0000029
Total										
lb/hr		**0.001035**								
tpy		**0.004533**								

* Source: AP-42 Table 1.4-1, 1.4-2, & 1.4-3

Fuel Cleanup Heater - Little Canyon Unit											
	Fuel Gas	**1000**	**BTU/scf**								
		8760	**hrs/yr**								
Max Heat Input Rating		**0.25**	**MMBTU/hr**								
		NOx		CO		VOC		PM/PM10		SO2	
Small Boilers Emissions Factor*											
	(lbs/MMscf)	100		84		5.5		7.6		0.6	
Estimated Emissions		**NOx**		**CO**		**VOC**		**PM/PM10**		**SO2**	
	lb/hr	0.025		0.021		0.001		0.002		0.000	
	tpy	0.110		0.092		0.006		0.008		0.001	
HAP Emissions Factors*											
	(lbs/MMscf)		Benzene		Toluene		Hexane		Formald.		Diclorobenz.
			0.0021		0.0034		1.8		0.075		0.0012
Estimated HAP Emissions			Benzene		Toluene		Hexane		Formald.		Diclorobenz.
	lb/hr		0.0000005		0.0000009		0.0004500		0.0000188		0.0000003
	tpy		0.0000023		0.0000037		0.0019710		0.0000821		0.0000013
	Total										
	lb/hr		**0.000470**								
	tpy		**0.002060**								

* Source: AP-42 Table 1.4-1, 1.4-2, & 1.4-3

XTO Little Canyon Unit

Storage Tank Heaters ***Two (2) tank Heaters X 0.5 MMBTU / hr each***

Fuel Gas	**1000**	**BTU/scf**	
	8760	**hrs/yr**	
Max Heat Input Rating	**0.5**	**MMBTU/hr**	**each heater**

	NOx		CO		VOC		PM/PM10		SO2
Small Boilers Emissions Factor*									
(lbs/MMscf)	100		84		5.5		7.6		0.6
Estimated Emissions	**NOx**		**CO**		**VOC**		**PM/PM10**		**SO2**
lb/hr	0.050		0.042		0.003		0.004		0.000
lb/hr Multiplied by Two (2)	**0.100**		**0.084**		**0.006**		**0.008**		**0.001**
tpy	0.219		0.184		0.012		0.017		0.001
TPY Multiplied by Two (2)	**0.438**		**0.368**		**0.0241**		**0.033288**		**0.0026**

HAP Emissions Factors*										
(lbs/MMscf)		**Benzene**		**Toluene**		**Hexane**		**Formald.**		**Diclorobenz.**
		0.0021		0.0034		1.8		0.075		0.0012

Estimated HAP Emissions		**Benzene**		**Toluene**		**Hexane**		**Formald.**		**Diclorobenz.**
lb/hr		0.0000011		0.0000017		0.0009000		0.0000375		0.0000006
lb/hr Multiplied by Two (2)		**0.0000021**		**0.0000034**		**0.0018000**		**0.0000750**		**0.0000012**
tpy		0.0000046		0.0000074		0.0039420		0.0001643		0.0000026
TPY Multiplied by Two (2)		**0.0000092**		**0.0000149**		**0.0078840**		**0.0003285**		**0.0000053**

Total (two tank htrs)	
lb/hr	**0.0018817**
tpy	**0.0082418**

* Source: AP-42 Table 1.4-1, 1.4-2, & 1.4-3

Storage Tank Emissions - Little Canyon Unit				
Emissions for Each 400 bbl Storage Tank				
	Uncontrolled (tpy)		**Uncontrolled (lb/hr)**	
C3	2.341		0.534	
i-butane	1.005		0.229	
n-Butane	1.221		0.279	
I-Pentane	0.553		0.126	
n-Pentane	0.389		0.089	
Hexanes	0.412		0.094	
Heptanes (C7+)	2.305		0.526	
Octanes (C8+)	0.275		0.063	
C9	0.038		0.009	
C10+	0.001		0	
Benzene	0.097		0.022	
Toluene	0.227		0.052	
Ethyl-Benzene	0.005		0.001	
Xylenes	0.051		0.012	
n_Hexane	0.426		0.097	
2,2,4- Trimethylpentane	0.067		0.015	
TOTAL NMNEHC*	**9.413**	**tpy**	**2.148**	**lb/hr**
TOTAL HAP's*	**0.873**	**tpy**	**0.199**	**lb/hr**
TOTAL NMNEHC**	**18.826**	**tpy**	**4.296**	**lb/hr**
TOTAL HAP's**	**1.746**	**tpy**	**0.398**	**lb/hr**
NOTE - for each tank				
*****NOTE - for all tanks***				
Based on maximum daily throughput of 6.5 barrels per day per tank				

VOC EMISSIONS FROM CONDENSATE TRUCK LOADING OPERATIONS

Company: **XTO Energy**
Location: **Little Canyon Unit (LCU)**
Uintah County, Utah

Tank Description	Oil Sales (bbls/day)	Oil Sales (1,000 bbls/yr)	Saturation Factor (S)	True Vapor Pressure (P) (psia)	Vapor Mole Wt. (M)	Oil Temperature (T) (Degrees R)	Loading Losses (lbs/1,000 gal)	VOC Loading Emissions (tons/yr)
Slop Tanks	13	4.745	0.6	7.4	68	560	6.7177	0.6694
TOTAL	13	4.745					6.7177	**0.6694**

Vapor molecular weight and true vapor pressure are based on information in AP-42 Section 7, Table 7.1-2.

$$\text{Loading Losses (lbs/1,000 gal)} = \frac{12.46 * S * P * M}{T}$$

(AP-42 Section 5.2, Equation 1)

$$\text{Loading Emissions (tons/year)} = \frac{\text{Loading Losses (lbs/1,000 gal)} * \text{Oil Sales (1,000 bbls/yr)} * \text{(42 gal/bbl)}}{\text{2,000 lbs/ton}}$$

Degrees R = Degrees F + 460

****
* Project Setup Information *
****

Project File : J:\XTO energy - 390\LCU T5\Tank Emissions - PTE.ept
Flowsheet Selection : Oil Tank with Separator
Calculation Method : RVP Distillation
Control Efficiency : 100.0%
Known Separator Stream : Low Pressure Oil
Entering Air Composition : No

Filed Name : XTO Energy
Well Name : Little Canyon Compressor Station
Well ID : PTE
Date : 2009.06.08

****
* Data Input *
****

Separator Pressure : 55.00[psig]
Separator Temperature : 80.00[F]
Ambient Pressure : 12.64[psia]
Ambient Temperature : 51.96[F]
C10+ SG : 0.7614
C10+ MW : 190.98

-- Low Pressure Oil ---

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	1.1239
4	N2	0.0840
5	C1	27.7359
6	C2	2.7955
7	C3	1.5835
8	i-C4	0.7170
9	n-C4	1.0561
10	i-C5	0.7564
11	n-C5	0.6978
12	C6	1.7341
13	C7	26.6087
14	C8	9.6271
15	C9	3.8073
16	C10+	9.3447
17	Benzene	0.6206
18	Toluene	4.7280
19	E-Benzene	0.3285
20	Xylenes	3.5581
21	n-C6	2.2710
22	224Trimethylp	0.8218

-- Sales Oil --

Production Rate : 6.5[bbl/day]
Days of Annual Operation : 365 [days/year]
API Gravity : 55.0
Reid Vapor Pressure : 7.00[psia]

****
* Calculation Results *
****

-- Emission Summary ---

Item	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]

54

Total HAPs	0.870	0.199
Total HC	31.562	7.206
VOCs, C2+	12.771	2.916
VOCs, C3+	9.414	2.149

Uncontrolled Recovery Info.

Vapor	3.0700	[MSCFD]
HC Vapor	2.9700	[MSCFD]
GOR	472.31	[SCF/bbl]

-- Emission Composition --

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
1	H2S	0.000	0.000
2	O2	0.000	0.000
3	CO2	2.045	0.467
4	N2	0.100	0.023
5	C1	18.790	4.290
6	C2	3.357	0.766
7	C3	2.341	0.534
8	i-C4	1.005	0.229
9	n-C4	1.221	0.279
10	i-C5	0.553	0.126
11	n-C5	0.389	0.089
12	C6	0.412	0.094
13	C7	2.305	0.526
14	C8	0.275	0.063
15	C9	0.038	0.009
16	C10+	0.001	0.000
17	Benzene	0.097	0.022
18	Toluene	0.227	0.052
19	E-Benzene	0.005	0.001
20	Xylenes	0.051	0.012
21	n-C6	0.426	0.097
22	224Trimethylp	0.067	0.015
	Total	33.705	7.695

-- Stream Data --

No.	Component	MW	LP Oil mol %	Flash Oil mol %	Sale Oil mol %	Flash Gas mol %	W&S Gas mol %	Total Emissions mol %
1	H2S	34.80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	O2	32.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	CO2	44.01	1.1239	0.0530	0.0530	3.1420	0.0000	3.1420
4	N2	28.01	0.0840	0.0003	0.0003	0.2417	0.0000	0.2417
5	C1	16.04	27.7359	0.4204	0.4204	79.2127	0.0000	79.2127
6	C2	30.07	2.7955	0.2719	0.2719	7.5513	0.0000	7.5513
7	C3	44.10	1.5835	0.5182	0.5182	3.5911	0.0000	3.5911
8	i-C4	58.12	0.7170	0.4772	0.4772	1.1690	0.0000	1.1690
9	n-C4	58.12	1.0561	0.8626	0.8626	1.4207	0.0000	1.4207
10	i-C5	72.15	0.7564	0.8827	0.8827	0.5183	0.0000	0.5183
11	n-C5	72.15	0.6978	0.8745	0.8745	0.3649	0.0000	0.3649
12	C6	86.16	1.7341	2.4781	2.4781	0.3320	0.0000	0.3320
13	C7	100.20	26.6087	39.8754	39.8754	1.6072	0.0000	1.6072
14	C8	114.23	9.6271	14.6466	14.6466	0.1678	0.0000	0.1678
15	C9	128.28	3.8073	5.8165	5.8165	0.0208	0.0000	0.0208
16	C10+	190.98	9.3447	14.3031	14.3031	0.0004	0.0000	0.0004
17	Benzene	78.11	0.6206	0.9052	0.9052	0.0843	0.0000	0.0843
18	Toluene	92.13	4.7280	7.1485	7.1485	0.1665	0.0000	0.1665
19	E-Benzene	106.17	0.3285	0.5010	0.5010	0.0035	0.0000	0.0035
20	Xylenes	106.17	3.5581	5.4291	5.4291	0.0322	0.0000	0.0322
21	n-C6	86.18	2.2710	3.2987	3.2987	0.3342	0.0000	0.3342
22	224Trimethylp	114.24	0.8218	1.2369	1.2369	0.0395	0.0000	0.0395
	MW		80.93	111.78	111.78	22.80	0.00	22.80
	Stream Mole Ratio		1.0000	0.6533	0.6533	0.3467	0.0000	0.3467
	Heating Value	[BTU/SCF]				1287.20	0.00	1287.20
	Gas Gravity	[Gas/Air]				0.79	0.00	0.79
	Bubble Pt. @ 100F	[psia]	1015.36	18.12	18.12			

55

RVP @ 100F	[psia]	188.94	6.44	6.44
Spec. Gravity @ 100F		0.633	0.681	0.681

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: XTO - Little Canyon CS TEG Dehydrator
File Name: J:\XTO energy - 390\EI\LCU Actuals\LCU PTE.ddf
Date: June 08, 2009

DESCRIPTION:

Description: PTE Emissions
25 MMscfd, 12/17/08 Gas Analysis
with thermal oxidizer
45015 Kimray Glycol Pump, Optimal rate

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.0091	0.217	0.0397
Ethane	0.0051	0.123	0.0224
Propane	0.0079	0.189	0.0344
Isobutane	0.0039	0.095	0.0173
n-Butane	0.0078	0.188	0.0342
Isopentane	0.0040	0.096	0.0176
n-Pentane	0.0045	0.108	0.0196
n-Hexane	0.0035	0.084	0.0153
Cyclohexane	0.0099	0.237	0.0433
Other Hexanes	0.0040	0.097	0.0177
Heptanes	0.0093	0.223	0.0406
Methylcyclohexane	0.0133	0.319	0.0582
2,2,4-Trimethylpentane	0.0002	0.005	0.0009
Benzene	0.0249	0.598	0.1091
Toluene	0.0014	0.034	0.0062
Ethylbenzene	0.0021	0.049	0.0090
Xylenes	0.0288	0.692	0.1264
C8+ Heavies	0.0153	0.367	0.0669
Total Emissions	0.1550	3.720	0.6789
Total Hydrocarbon Emissions	0.1550	3.720	0.6789
Total VOC Emissions	0.1408	3.380	0.6168
Total HAP Emissions	0.0609	1.462	0.2668
Total BTEX Emissions	0.0572	1.374	0.2507

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.9061	21.747	3.9688
Ethane	0.5112	12.269	2.2391
Propane	0.7863	18.871	3.4439
Isobutane	0.3948	9.474	1.7291
n-Butane	0.7819	18.765	3.4245
Isopentane	0.4013	9.632	1.7579
n-Pentane	0.4480	10.752	1.9622
n-Hexane	0.3495	8.387	1.5307

Cyclohexane	0.9892	23.741	4.3328
Other Hexanes	0.4039	9.695	1.7693
Heptanes	0.9273	22.255	4.0615
Methylcyclohexane	1.3287	31.890	5.8199
2,2,4-Trimethylpentane	0.0196	0.471	0.0860
Benzene	2.4915	59.796	10.9128
Toluene	0.1416	3.398	0.6202
Ethylbenzene	0.2052	4.926	0.8989
Xylenes	2.8849	69.237	12.6357
C8+ Heavies	1.5283	36.680	6.6941
Total Emissions	15.4994	371.986	67.8875
Total Hydrocarbon Emissions	15.4994	371.986	67.8875
Total VOC Emissions	14.0821	337.970	61.6796
Total HAP Emissions	6.0923	146.216	26.6844
Total BTEX Emissions	5.7232	137.357	25.0676

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	36.4219	874.127	159.5281
Ethane	5.5868	134.083	24.4702
Propane	4.0589	97.414	17.7780
Isobutane	1.3146	31.551	5.7581
n-Butane	1.9689	47.254	8.6238
Isopentane	0.8706	20.893	3.8131
n-Pentane	0.7675	18.421	3.3618
n-Hexane	0.3220	7.728	1.4104
Cyclohexane	0.2223	5.334	0.9735
Other Hexanes	0.4959	11.902	2.1721
Heptanes	0.4035	9.684	1.7674
Methylcyclohexane	0.2290	5.496	1.0029
2,2,4-Trimethylpentane	0.0173	0.415	0.0758
Benzene	0.0774	1.858	0.3390
Toluene	0.0027	0.066	0.0120
Ethylbenzene	0.0022	0.054	0.0098
Xylenes	0.0218	0.523	0.0955
C8+ Heavies	0.0566	1.360	0.2481
Total Emissions	52.8401	1268.162	231.4395
Total Hydrocarbon Emissions	52.8401	1268.162	231.4395
Total VOC Emissions	10.8313	259.952	47.4412
Total HAP Emissions	0.4435	10.644	1.9425
Total BTEX Emissions	0.1042	2.500	0.4563

EQUIPMENT REPORTS:

COMBUSTION DEVICE

Ambient Temperature: 55.00 deg. F
Excess Oxygen: 5.00 %
Combustion Efficiency: 99.00 %
Supplemental Fuel Requirement: 7.74e-002 MM BTU/hr

Component	Emitted	Destroyed
Methane	1.00%	99.00%
Ethane	1.00%	99.00%
Propane	1.00%	99.00%
Isobutane	1.00%	99.00%
n-Butane	1.00%	99.00%
Isopentane	1.00%	99.00%
n-Pentane	1.00%	99.00%
n-Hexane	1.00%	99.00%
Cyclohexane	1.00%	99.00%
Other Hexanes	1.00%	99.00%
Heptanes	1.00%	99.00%
Methylcyclohexane	1.00%	99.00%
2,2,4-Trimethylpentane	1.00%	99.00%
Benzene	1.00%	99.00%
Toluene	1.00%	99.00%
Ethylbenzene	1.00%	99.00%
Xylenes	1.00%	99.00%
C8+ Heavies	1.00%	99.00%

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25
Calculated Dry Gas Dew Point:	1.52 lbs. H2O/MMSCF
Temperature:	81.0 deg. F
Pressure:	840.0 psig
Dry Gas Flow Rate:	25.0000 MMSCF/day
Glycol Losses with Dry Gas:	0.1321 lb/hr
Wet Gas Water Content:	Saturated
Calculated Wet Gas Water Content:	37.54 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	9.67 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	4.03%	95.97%
Carbon Dioxide	99.66%	0.34%
Nitrogen	99.97%	0.03%
Methane	99.98%	0.02%
Ethane	99.92%	0.08%
Propane	99.88%	0.12%
Isobutane	99.83%	0.17%
n-Butane	99.77%	0.23%
Isopentane	99.77%	0.23%
n-Pentane	99.69%	0.31%
n-Hexane	99.48%	0.52%
Cyclohexane	97.63%	2.37%
Other Hexanes	99.61%	0.39%
Heptanes	99.03%	0.97%
Methylcyclohexane	97.40%	2.60%
2,2,4-Trimethylpentane	99.60%	0.40%
Benzene	79.77%	20.23%
Toluene	71.55%	28.45%
Ethylbenzene	64.49%	35.51%
Xylenes	54.75%	45.25%

C8+ Heavies	97.68%	2.32%

FLASH TANK

Flash Control: Vented to atmosphere
Flash Temperature: 120.0 deg. F
Flash Pressure: 70.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.93%	0.07%
Carbon Dioxide	23.63%	76.37%
Nitrogen	2.37%	97.63%
Methane	2.43%	97.57%
Ethane	8.38%	91.62%
Propane	16.23%	83.77%
Isobutane	23.09%	76.91%
n-Butane	28.42%	71.58%
Isopentane	31.82%	68.18%
n-Pentane	37.11%	62.89%
n-Hexane	52.26%	47.74%
Cyclohexane	82.22%	17.78%
Other Hexanes	45.36%	54.64%
Heptanes	69.82%	30.18%
Methylcyclohexane	85.87%	14.13%
2,2,4-Trimethylpentane	53.77%	46.23%
Benzene	97.14%	2.86%
Toluene	98.25%	1.75%
Ethylbenzene	99.03%	0.97%
Xylenes	99.35%	0.65%
C8+ Heavies	96.84%	3.16%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	57.64%	42.36%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	1.21%	98.79%
n-Pentane	1.10%	98.90%
n-Hexane	0.84%	99.16%
Cyclohexane	3.78%	96.22%
Other Hexanes	1.87%	98.13%
Heptanes	0.67%	99.33%
Methylcyclohexane	4.54%	95.46%
2,2,4-Trimethylpentane	2.38%	97.62%
Benzene	5.13%	94.87%

Toluene	8.02%	91.98%
Ethylbenzene	10.49%	89.51%
Xylenes	12.98%	87.02%
C8+ Heavies	12.08%	87.92%

STREAM REPORTS:

WET GAS STREAM

Temperature: 81.00 deg. F
Pressure: 854.70 psia
Flow Rate: 1.04e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.91e-002	3.92e+001
Carbon Dioxide	3.59e-001	4.34e+002
Nitrogen	6.39e-001	4.92e+002
Methane	9.02e+001	3.98e+004
Ethane	5.04e+000	4.16e+003
Propane	2.07e+000	2.51e+003
Isobutane	4.37e-001	6.97e+002
n-Butane	5.68e-001	9.08e+002
Isopentane	2.10e-001	4.17e+002
n-Pentane	1.62e-001	3.21e+002
n-Hexane	4.82e-002	1.14e+002
Cyclohexane	2.15e-002	4.97e+001
Other Hexanes	8.22e-002	1.95e+002
Heptanes	4.64e-002	1.28e+002
Methylcyclohexane	2.16e-002	5.82e+001
2,2,4-Trimethylpentane	2.50e-003	7.84e+000
Benzene	5.90e-003	1.27e+001
Toluene	2.00e-004	5.06e-001
Ethylbenzene	2.00e-004	5.83e-001
Xylenes	2.20e-003	6.41e+000
C8+ Heavies	1.42e-002	6.64e+001
Total Components	100.00	5.04e+004

DRY GAS STREAM

Temperature: 81.00 deg. F
Pressure: 854.70 psia
Flow Rate: 1.04e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	3.19e-003	1.58e+000
Carbon Dioxide	3.58e-001	4.33e+002
Nitrogen	6.39e-001	4.92e+002
Methane	9.03e+001	3.98e+004
Ethane	5.04e+000	4.16e+003
Propane	2.07e+000	2.50e+003
Isobutane	4.36e-001	6.96e+002
n-Butane	5.68e-001	9.06e+002

Isopentane	2.10e-001	4.16e+002
n-Pentane	1.61e-001	3.20e+002
n-Hexane	4.80e-002	1.13e+002
Cyclohexane	2.10e-002	4.85e+001
Other Hexanes	8.20e-002	1.94e+002
Heptanes	4.60e-002	1.26e+002
Methylcyclohexane	2.10e-002	5.67e+001
2,2,4-Trimethylpentane	2.49e-003	7.81e+000
Benzene	4.71e-003	1.01e+001
Toluene	1.43e-004	3.62e-001
Ethylbenzene	1.29e-004	3.76e-001
Xylenes	1.21e-003	3.51e+000
C8+ Heavies	1.39e-002	6.49e+001
Total Components	100.00	5.03e+004

LEAN GLYCOL STREAM

Temperature: 81.00 deg. F
Flow Rate: 6.05e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	3.35e+003
Water	1.50e+000	5.11e+001
Carbon Dioxide	4.40e-012	1.50e-010
Nitrogen	3.75e-013	1.28e-011
Methane	9.03e-018	3.07e-016
Ethane	4.36e-008	1.49e-006
Propane	3.67e-009	1.25e-007
Isobutane	1.07e-009	3.65e-008
n-Butane	1.53e-009	5.23e-008
Isopentane	1.44e-004	4.91e-003
n-Pentane	1.46e-004	4.97e-003
n-Hexane	8.72e-005	2.97e-003
Cyclohexane	1.14e-003	3.89e-002
Other Hexanes	2.26e-004	7.69e-003
Heptanes	1.83e-004	6.23e-003
Methylcyclohexane	1.86e-003	6.32e-002
2,2,4-Trimethylpentane	1.40e-005	4.78e-004
Benzene	3.96e-003	1.35e-001
Toluene	3.63e-004	1.24e-002
Ethylbenzene	7.06e-004	2.40e-002
Xylenes	1.26e-002	4.30e-001
C8+ Heavies	6.17e-003	2.10e-001
Total Components	100.00	3.40e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 81.00 deg. F
Pressure: 854.70 psia
Flow Rate: 6.28e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.54e+001	3.35e+003

Water	2.52e+000	8.87e+001
Carbon Dioxide	5.14e-002	1.81e+000
Nitrogen	1.36e-002	4.76e-001
Methane	1.06e+000	3.73e+001
Ethane	1.74e-001	6.10e+000
Propane	1.38e-001	4.85e+000
Isobutane	4.87e-002	1.71e+000
n-Butane	7.83e-002	2.75e+000
Isopentane	3.63e-002	1.28e+000
n-Pentane	3.47e-002	1.22e+000
n-Hexane	1.92e-002	6.74e-001
Cyclohexane	3.56e-002	1.25e+000
Other Hexanes	2.58e-002	9.08e-001
Heptanes	3.81e-002	1.34e+000
Methylcyclohexane	4.61e-002	1.62e+000
2,2,4-Trimethylpentane	1.06e-003	3.74e-002
Benzene	7.70e-002	2.70e+000
Toluene	4.46e-003	1.57e-001
Ethylbenzene	6.59e-003	2.32e-001
Xylenes	9.50e-002	3.34e+000
C8+ Heavies	5.11e-002	1.79e+000
Total Components	100.00	3.51e+003

FLASH TANK OFF GAS STREAM

Temperature: 120.00 deg. F
Pressure: 84.70 psia
Flow Rate: 1.02e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.21e-001	5.89e-002
Carbon Dioxide	1.16e+000	1.38e+000
Nitrogen	6.15e-001	4.65e-001
Methane	8.41e+001	3.64e+001
Ethane	6.88e+000	5.59e+000
Propane	3.41e+000	4.06e+000
Isobutane	8.38e-001	1.31e+000
n-Butane	1.26e+000	1.97e+000
Isopentane	4.47e-001	8.71e-001
n-Pentane	3.94e-001	7.68e-001
n-Hexane	1.38e-001	3.22e-001
Cyclohexane	9.78e-002	2.22e-001
Other Hexanes	2.13e-001	4.96e-001
Heptanes	1.49e-001	4.04e-001
Methylcyclohexane	8.64e-002	2.29e-001
2,2,4-Trimethylpentane	5.61e-003	1.73e-002
Benzene	3.67e-002	7.74e-002
Toluene	1.10e-003	2.74e-003
Ethylbenzene	7.82e-004	2.24e-003
Xylenes	7.61e-003	2.18e-002
C8+ Heavies	1.23e-002	5.66e-002
Total Components	100.00	5.47e+001

FLASH TANK GLYCOL STREAM

Temperature: 120.00 deg. F
Flow Rate: 6.16e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.69e+001	3.35e+003
Water	2.56e+000	8.86e+001
Carbon Dioxide	1.23e-002	4.27e-001
Nitrogen	3.27e-004	1.13e-002
Methane	2.62e-002	9.06e-001
Ethane	1.48e-002	5.11e-001
Propane	2.27e-002	7.86e-001
Isobutane	1.14e-002	3.95e-001
n-Butane	2.26e-002	7.82e-001
Isopentane	1.17e-002	4.06e-001
n-Pentane	1.31e-002	4.53e-001
n-Hexane	1.02e-002	3.52e-001
Cyclohexane	2.97e-002	1.03e+000
Other Hexanes	1.19e-002	4.12e-001
Heptanes	2.70e-002	9.34e-001
Methylcyclohexane	4.03e-002	1.39e+000
2,2,4-Trimethylpentane	5.82e-004	2.01e-002
Benzene	7.59e-002	2.63e+000
Toluene	4.45e-003	1.54e-001
Ethylbenzene	6.63e-003	2.29e-001
Xylenes	9.59e-002	3.32e+000
C8+ Heavies	5.03e-002	1.74e+000
Total Components	100.00	3.46e+003

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 8.85e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.94e+001	3.75e+001
Carbon Dioxide	4.16e-001	4.27e-001
Nitrogen	1.73e-002	1.13e-002
Methane	2.42e+000	9.06e-001
Ethane	7.29e-001	5.11e-001
Propane	7.64e-001	7.86e-001
Isobutane	2.91e-001	3.95e-001
n-Butane	5.77e-001	7.82e-001
Isopentane	2.38e-001	4.01e-001
n-Pentane	2.66e-001	4.48e-001
n-Hexane	1.74e-001	3.49e-001
Cyclohexane	5.04e-001	9.89e-001
Other Hexanes	2.01e-001	4.04e-001
Heptanes	3.97e-001	9.27e-001
Methylcyclohexane	5.80e-001	1.33e+000
2,2,4-Trimethylpentane	7.37e-003	1.96e-002
Benzene	1.37e+000	2.49e+000
Toluene	6.59e-002	1.42e-001
Ethylbenzene	8.29e-002	2.05e-001
Xylenes	1.16e+000	2.88e+000
C8+ Heavies	3.85e-001	1.53e+000

Total Components	100.00	5.35e+001

COMBUSTION DEVICE OFF GAS STREAM

Temperature: 1000.00 deg. F
Pressure: 14.70 psia
Flow Rate: 9.04e-001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Methane	2.37e+001	9.06e-003
Ethane	7.13e+000	5.11e-003
Propane	7.48e+000	7.86e-003
Isobutane	2.85e+000	3.95e-003
n-Butane	5.65e+000	7.82e-003
Isopentane	2.33e+000	4.01e-003
n-Pentane	2.61e+000	4.48e-003
n-Hexane	1.70e+000	3.49e-003
Cyclohexane	4.93e+000	9.89e-003
Other Hexanes	1.97e+000	4.04e-003
Heptanes	3.88e+000	9.27e-003
Methylcyclohexane	5.68e+000	1.33e-002
2,2,4-Trimethylpentane	7.21e-002	1.96e-004
Benzene	1.34e+001	2.49e-002
Toluene	6.45e-001	1.42e-003
Ethylbenzene	8.11e-001	2.05e-003
Xylenes	1.14e+001	2.88e-002
C8+ Heavies	3.77e+000	1.53e-002
Total Components	100.00	1.55e-001

G3516 LE

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA
Uinta Cat 3516LE

CATERPILLAR®

ENGINE SPEED (rpm):	1400	FUEL SYSTEM:	HPG IMPCO WITH AIR FUEL RATIO CONTROL
COMPRESSION RATIO:	8:1		
AFTERCOOLER WATER INLET (°F):	130	**SITE CONDITIONS:**	
JACKET WATER OUTLET (°F):	210	FUEL:	Field Gas
COOLING SYSTEM:	JW+OC , AC	FUEL PRESSURE RANGE(psig):	35.0-40.0
IGNITION SYSTEM:	ADEM3	FUEL METHANE NUMBER:	62.2
EXHAUST MANIFOLD:	ASWC	FUEL LHV (Btu/scf):	1027
COMBUSTION:	Low Emission	ALTITUDE(ft):	5800
NOx EMISSION LEVEL (g/bhp-hr NOx):	1.5	MAXIMUM INLET AIR TEMPERATURE(°F):	55
SET POINT TIMING:	27.4	NAMEPLATE RATING:	1340 bhp@1400rpm

RATING	NOTES	LOAD	MAXIMUM RATING 100%	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE 100%	75%	53%
ENGINE POWER	(1)	bhp	1340	1260	945	670
INLET AIR TEMPERATURE		°F	32	55	55	55
ENGINE DATA						
FUEL CONSUMPTION (LHV)	(2)	Btu/bhp-hr	7722	7778	8055	8518
FUEL CONSUMPTION (HHV)	(2)	Btu/bhp-hr	8532	8594	8901	9412
AIR FLOW	(3)(4)	lb/hr	12692	11944	9030	6604
AIR FLOW WET (77°F, 14.7 psia)	(3)(4)	scfm	2862	2694	2036	1489
INLET MANIFOLD PRESSURE	(5)	in Hg(abs)	70.0	66.5	52.3	39.3
EXHAUST STACK TEMPERATURE	(6)	°F	907	907	908	911
EXHAUST GAS FLOW (@ stack temp, 14.5 psia)	(7)(4)	ft3/min	7882	7419	5620	4126
EXHAUST GAS MASS FLOW	(7)(4)	lb/hr	13190	12415	9396	6879
EMISSIONS DATA						
NOx (as NO2)	(8)	g/bhp-hr	1.50	1.50	1.50	1.50
CO	(8)	g/bhp-hr	2.31	2.34	2.45	2.61
THC (mol. wt. of 15.84)	(8)	g/bhp-hr	2.43	2.45	2.56	2.72
NMHC (mol. wt. of 15.84)	(8)	g/bhp-hr	0.63	0.64	0.66	0.71
NMNEHC (VOCs) (mol. wt. of 15.84)	(8)(9)	g/bhp-hr	0.42	0.43	0.45	0.47
HCHO (Formaldehyde)	(8)	g/bhp-hr	0.22	0.22	0.23	0.24
CO2	(8)	g/bhp-hr	509	511	522	545
EXHAUST OXYGEN	(10)	% DRY	7.9	7.8	7.7	7.6
HEAT REJECTION						
HEAT REJ. TO JACKET WATER (JW)	(11)	Btu/min	43666	42171	35699	29897
HEAT REJ. TO ATMOSPHERE	(11)	Btu/min	5313	5102	4269	3543
HEAT REJ. TO LUBE OIL (OC)	(11)	Btu/min	6512	6289	5324	4459
HEAT REJ. TO AFTERCOOLER (AC)	(11)(12)	Btu/min	9473	9473	5270	2111

HEAT EXCHANGER SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+OC)	(12)	Btu/min	55848
TOTAL AFTERCOOLER CIRCUIT (AC)	(12)(13)	Btu/min	9946
A cooling system safety factor of 0% has been added to the heat exchanger sizing criteria.			

CONDITIONS AND DEFINITIONS

Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature.
100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature.
Max. rating is the maximum capability for the specified fuel at site altitude and reduced inlet air temperature.
Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

For notes information consult page three.

PREPARED BY: craig allison, XTO
Data generated by Gas Engine Rating Pro Version 3.02.00
Ref. Data Set DM8618-00-001, Printed 03Apr2009

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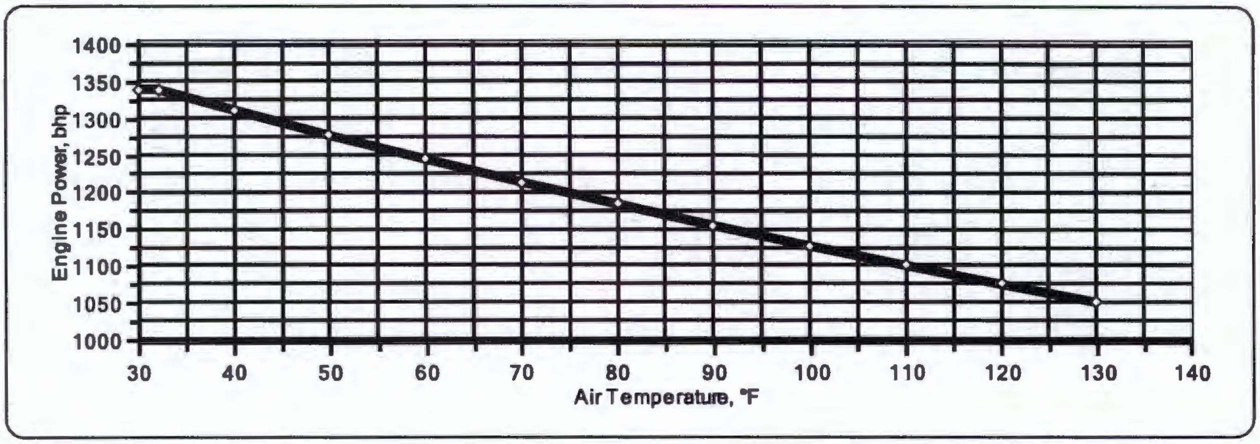
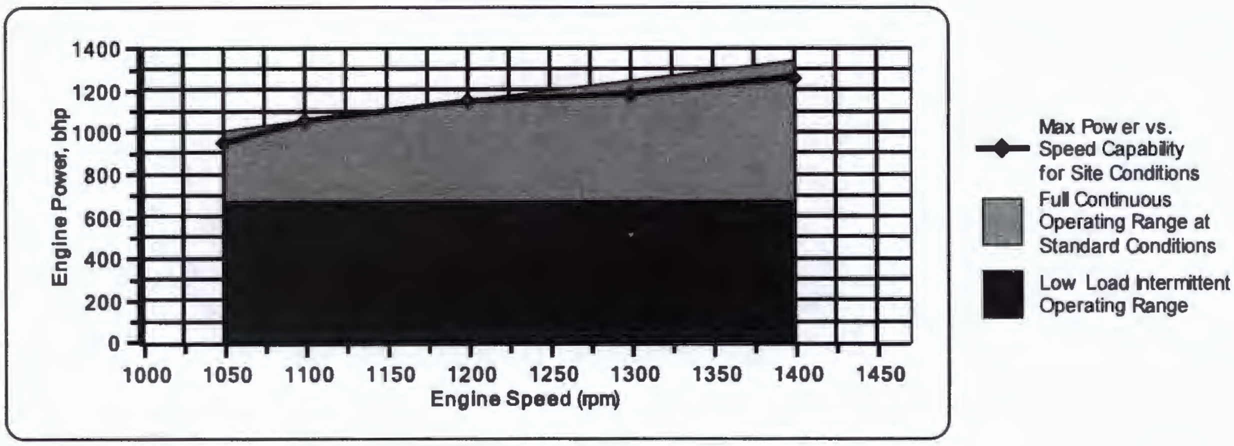
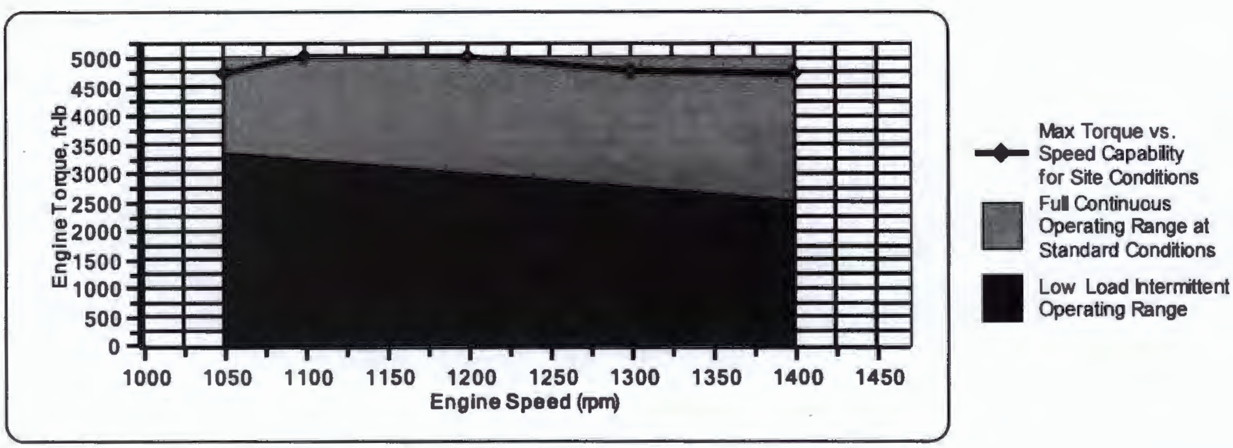
Engine Power vs. Inlet Air Temperature



Engine Power vs. Engine Speed



Engine Torque vs. Engine Speed



GAS ENGINE SITE SPECIFIC TECHNICAL DATA
Uinta Cat 3516LE

CATERPILLAR®

NOTES
1. Engine rating is with two engine driven water pumps. Tolerance is ± 3% of full load.

2. Fuel consumption tolerance is ± 3.0% of full load data.

3. Undried air. Flow is a nominal value with a tolerance of ± 5 %.

4. Inlet and Exhaust Restrictions must not exceed A&I limits based on full load flow rates from the standard technical data sheet.

5. Inlet manifold pressure is a nominal value with a tolerance of ± 5 %.

6. Exhaust stack temperature is a nominal value with a tolerance of (+)63°F, (-)54°F.

7. Exhaust flow value is on a "wet" basis. Flow is a nominal value with a tolerance of ± 6 %.

8. Emission levels are at engine exhaust flange prior to any after treatment. Values are based on engine operating at steady state conditions, adjusted to the specified NOx level at 100% load. Fuel methane number cannot vary more than ± 3. Engine should be setup to the nominal published NOx level to ensure emissions remain compliant with a 2.0 g/bhp-hr "not to exceed" NOx limit. All other emission values listed are higher than nominal levels to allow for instrumentation, measurement, and engine-to-engine variations. They indicate "not to exceed" values. THC, NMHC, and NMNEHC do not include aldehydes. An oxidation catalyst may be required to meet Federal, State or local CO or HC requirements.

9. VOCs - Volatile organic compounds as defined in US EPA 40 CFR 60, subpart JJJJ

10. Exhaust Oxygen level is the result of adjusting the engine to operate at the specified NOx level. Tolerance is ± 0.5.

11. Heat rejection values are nominal. Tolerances, based on treated water, are ± 10% for jacket water circuit, ± 50% for radiation, ± 20% for lube oil circuit, and ± 5% for aftercooler circuit.

12. Aftercooler heat rejection includes an aftercooler heat rejection factor for the site elevation and inlet air temperature specified. Aftercooler heat rejection values at part load are for reference only. Do not use part load data for heat exchanger sizing.

13. Heat exchanger sizing criteria are maximum circuit heat rejection for the site, with applied tolerances.

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G3516 LE

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA
Uinta Cat 3516LE

CATERPILLAR®

Constituent	Abbrev	Mole %	Norm
Water Vapor	H2O	2.5211	2.5211
Methane	CH4	86.6340	86.6340
Ethane	C2H6	4.9767	4.9767
Propane	C3H8	3.5670	3.5670
Isobutane	iso-C4H1O	0.0000	0.0000
Norbutane	nor-C4H1O	1.8211	1.8211
Isopentane	iso-C5H12	0.0000	0.0000
Norpentane	nor-C5H12	0.4802	0.4802
Hexane	C6H14	0.0000	0.0000
Heptane	C7H16	0.0000	0.0000
Nitrogen	N2	0.0000	0.0000
Carbon Dioxide	CO2	0.0000	0.0000
Hydrogen Sulfide	H2S	0.0000	0.0000
Carbon Monoxide	CO	0.0000	0.0000
Hydrogen	H2	0.0000	0.0000
Oxygen	O2	0.0000	0.0000
Helium	HE	0.0000	0.0000
Neopentane	neo-C5H12	0.0000	0.0000
Octane	C8H18	0.0000	0.0000
Nonane	C9H20	0.0000	0.0000
Ethylene	C2H4	0.0000	0.0000
Propylene	C3H6	0.0000	0.0000
TOTAL (Volume %)		100.0000	100.0000

Fuel Makeup:	Field Gas
Unit of Measure:	English
Calculated Fuel Properties	
Caterpillar Methane Number:	62.2
Lower Heating Value (Btu/scf):	1027
Higher Heating Value (Btu/scf):	1135
WOBBE Index (Btu/scf):	1274
THC: Free Inert Ratio:	Not Applicable
RPC (%) (To 905 Btu/scf Fuel):	100%
Compressibility Factor:	0.997
Stoich A/F Ratio (Vol/Vol):	10.68
Stoich A/F Ratio (Mass/Mass):	16.43
Specific Gravity (Relative to Air):	0.650
Specific Heat Constant (K):	1.297

CONDITIONS AND DEFINITIONS

Caterpillar Methane Number represents the knock resistance of a gaseous fuel. It should be used with the Caterpillar Fuel Usage Guide for the engine and rating to determine the rating for the fuel specified. A Fuel Usage Guide for each rating is included on page 2 of its standard technical data sheet.

RPC always applies to naturally aspirated (NA) engines, and turbocharged (TA or LE) engines only when they are derated for altitude and ambient site conditions.

Project specific technical data sheets generated by the Caterpillar Gas Engine Rating Pro program take the Caterpillar Methane Number and RPC into account when generating a site rating.

Fuel properties for Btu/scf calculations are at 60F and 14.696 psia.

Caterpillar shall have no liability in law or equity, for damages, consequently or otherwise, arising from use of program and related material or any part thereof.

FUEL LIQUIDS

Field gases, well head gases, and associated gases typically contain liquid water and heavy hydrocarbons entrained in the gas. To prevent detonation and severe damage to the engine, hydrocarbon liquids must not be allowed to enter the engine fuel system. To remove liquids, a liquid separator and coalescing filter are recommended, with an automatic drain and collection tank to prevent contamination of the ground in accordance with local codes and standards.

To avoid water condensation in the engine or fuel lines, limit the relative humidity of water in the fuel to 80% at the minimum fuel operating temperature.

PREPARED BY: craig allison, XTO
Data generated by Gas Engine Rating Pro Version 3.02.00
Ref. Data Set DM8618-00-001, Printed 03Apr2009

LCC-1

MIRATECH EMISSIONS SOLUTIONS

CONFIDENTIAL

MIRATECH Emissions Control Equipment Specification Summary

Proposal Number: TJ-08-2952

Engine Data

# of Engines:	1
Engine Operation:	Gas Compression
Engine Make:	Caterpillar
Engine Model:	G 3516 LE
Power Output:	1,340 bhp
Fuel:	Natural Gas
Design Exhaust Temp:	854 F
Design Exhaust Flow Rate:	13,305 lb/hr
Lubrication Oil:	0.6 wt% sulfated ash or less

Catalytic Converter System Data

Catalytic Converter Model:	IQ-26-12-L1
Inlet / Outlet Pipe Size:	12 inches
Overall Length:	43 inches
Diameter:	26 inches
Weight (including catalyst):	350 lbs
Converter Pressure Loss:	4.3 Inches of WC
und Attenuation:	N/A
Catalyst Section Internals:	Carbon Steel
Shell / Body Constructions:	Carbon Steel
Inlet / Outlet Connection:	Standard 125# ANSI Bolt Pattern Flanges - FF
Instrumentation Ports:	2 inlet/2 outlet (1/2" NPT)
Oxygen Sensor Ports:	1 inlet/1 outlet (18mm)

Operation Temperature Limits 750 - 1,250 degrees F (inlet); 1,350 degrees F (outlet)

Emission Requirements

Exhaust Gases	Engine Outputs (g/ bhp-hr)	Reduction (%)	Converter Outputs (g/ bhp-hr)	Area Limits
CO	1.89	90%	0.19	90 % Reduction
CH_2O	0.25	76%	0.06	0.06 g/bhp-hr
Oxygen	8.3%			

MIRATECH warrants the performance of the converter, as stated above, per the MIRATECH General Terms and Conditions of Sale.

LCC-2

MIRATECH EMISSIONS SOLUTIONS

CONFIDENTIAL

MIRATECH Emissions Control Equipment Specification Summary

Proposal Number: TJ-08-2951 Rev(1)

Engine Data

# of Engines:	1
Engine Operation:	Gas Compression
Engine Make:	Caterpillar
Engine Model:	G 3516 LE
Power Output:	1,340 bhp
Fuel:	Natural Gas
Design Exhaust Temp:	854 F
Design Exhaust Flow Rate:	13,305 lb/hr
Lubrication Oil:	0.6 wt% sulfated ash or less

Catalytic Converter System Data

Catalytic Converter Model:	RCS-3626-12-L1
Inlet / Outlet Pipe Size:	12 inches
Overall Length:	106 inches
Diameter:	36/26 inches
Weight (including catalyst):	840 lbs
Converter Pressure Loss:	4.8 Inches of WC
Sound Attenuation:	25-30 dba
Catalyst Section Internals:	Carbon Steel
Shell / Body Constructions:	Carbon Steel
Inlet / Outlet Connection:	Standard 125# ANSI Bolt Pattern Flanges - FF
Instrumentation Ports:	1 inlet/1 outlet/2 catalyst (1/2" NPT)
Oxygen Sensor Ports:	1 inlet/1 outlet (18mm)

Operation Temperature Limits 750 - 1,250 degrees F (inlet); 1,350 degrees F (outlet)

Emission Requirements

Exhaust Gases	Engine Outputs (g/ bhp-hr)	Reduction (%)	Converter Outputs (g/ bhp-hr)	Area Limits
CO	1.89	90%	0.19	90 % Reduction
CH_2O	0.25	76%	0.06	0.06 g/bhp-hr
Oxygen	8.3%			

MIRATECH warrants the performance of the converter, as stated above, per the MIRATECH General Terms and Conditions of Sale.

LCC-3

5/25/2005

CATALYTIC SILENCER SIZING PROGRAM

GT EXHAUST SYSTEMS, INC.
4121 NW 37 Street
Lincoln, NE 68524
402-323-7272 Fax 402-323-7270

CUSTOMER: EXTERRAN
PROJECT: XTO
DATE: 2/9/2009 QUOTATION I.D.:
DESCRIPTION: CAT 3516TALE, 1400RPM, 1340HP, 854TEMP
SELECT OXIDATION CATALYST SIZE
PRESSURE DROP CALCULATED WITH A 12 INCH OUTLET

PERFORMANCE DATA INPUT AND CALCULATIONS

INPUT DATA			CALCULATED	
FLOW: ACFM			ACFM	7404.36
or SCFM 70/14.7			SCFM 70/14.7	2986.64
or NCuM/Min32/14.7			NCuM/Min32/14.7	
or LB/MIN			LB/MIN	221.68
or LB/HR	13301		LB/HR	13301.00
S.G.			S.G.	0.99102
or M.W.	28.7	* SEE	M.W.	28.700
TGAS°F	854	NOTE	TGAS°R	1314
PGAS PSIG			PGAS PSIA	14.700
PATM PSIA	14.7		OUTLET, SQ.FT.	0.786
OUTLET SIZE, IN	12		OUTLET VEL, FT/MIN	9427.5
FUEL, (GAS,or DIESEL)	GAS		VEL HEAD, IN H_2O	2.21
BODY STYLE (201 OR 501)	201		SCFH 32/14.7	166344 (FOR CAT CONV SPACE VEL CALC)
MAX. BODY CAPACITYor R **	3			
3-WAY OR OXIDATION	OXIDATION			
SERIES (2100,4100,5100 - 8100)	4100			
NUMBER OF ELEMENTS = ***	2			

* NOTE: 27.5 MW TYP FOR RICH BURN EXHAUST GAS; 28.7 MW TYP. FOR LEAN BURN GAS OR DIESEL

** MAX. BODY CAPACITY - For modular enter number of elements and half elements as 1, 2, 4, 6, etc.
For the small round (6",8",10",12",14",or 16") ENTER R IN C-30 AND THE DIAMETER SELECTED IN C-31.

*** NUMBER ELEMENTS For modular enter the number of full and half elements as 1, 1.5, 2, 2.5, 3, 3.5, ... up to entered Max. Body Capacity.
For small round (6",8",10",12",14",or 16") ENTER "1" AND ENTER THE DIAMETER OF IN C-31

GT CATALYTIC CONVERTER MODEL NUMBER: 201 VO - 3 - 200 - 4112

CALCULATED PRESSURE DROP = 6.71 INCHES H2O, CALCULATED SPACE VELOCITY = 123318

WITH LEAN BURN GAS ENGINE, MIN. OXIDATION RATES ARE: 95 % CO & HCHO, AND 80 % NMNEHC

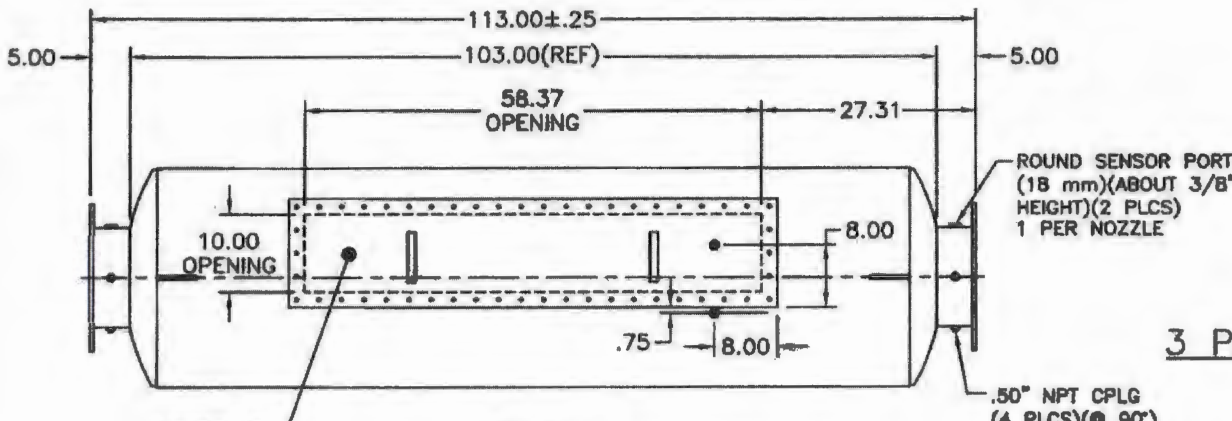
VOC WILL BE STATED AS NMNEHC FOR THIS APPLICATION

BASED ON STATED EXH. FLOW & TEMPERATURE	NOX	CO	HCHO	NMHC Note 1	NMNEHC Note 1
AND THE FOLLOWING EMISSIONS OUT OF ENGINE:	1.500	1.890	0.250	0.460	0.310
WE WARRANT EMISSIONS OUT OF CONVERTER NOT EXCEED:	1.500	0.397	0.055	0.230	0.077
UNITS:	gm/bhp-hr	gm/bhp-hr	gm/bhp-hr	gm/bhp-hr	gm/bhp-hr

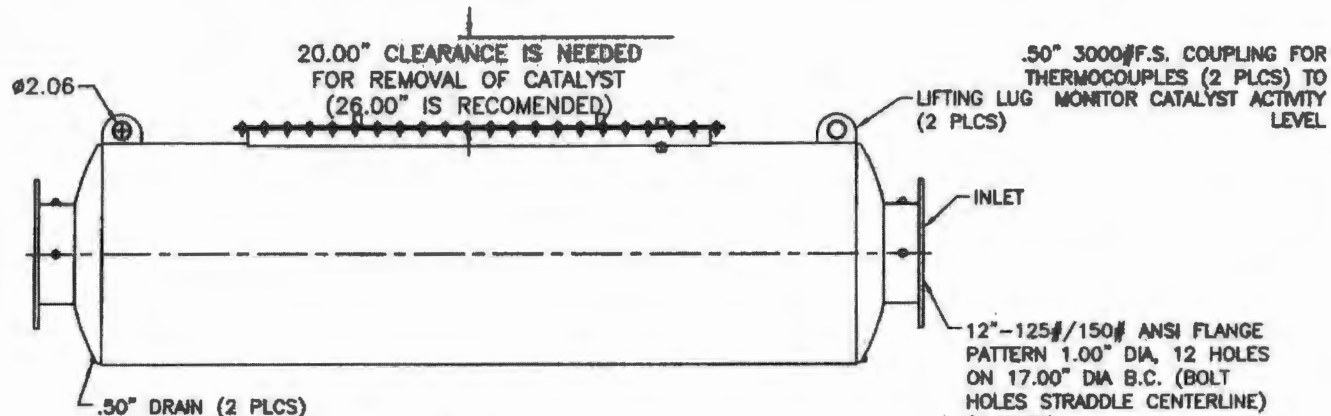
Note 1: NMHC, NMNEHC & LESS THAN 50% Saturated.
Note 2: Oxidation Catalyst on Diesel or Lean Gas Cannot Reduce NOx

PERFORMANCE WARRANTY CONTINGENT UPON CONVERTER INSTALLATION ON A PROPERLY MAINTAINED ENGINE
EXCESSIVE OIL CONSUMPTION AND/OR FUEL CONSUMPTION MAY MASK OR POISON THE CATALYST AND REDUCE DESTRUCTION
ENGINE LUBE OIL MUST BE OF A TYPE RECOMMENDED FOR CATALYTIC CONVERTER SERVICE.
ELEMENT(S) WILL REQUIRE PERIODIC CLEANING. FREQUENCY WILL DEPEND ON LEVEL OF CONTAMINANTS IN THE EXHAUST GAS
CERTAIN CONTAMINANTS SUCH AS HEAVY METAL IN FUEL AND LUBE OIL WILL POSION THE CATALYST AND VOID THE WARANTY

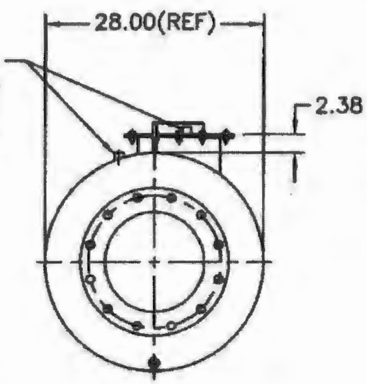
3 PANEL CONVERTER/SILENCER



TOP VIEW

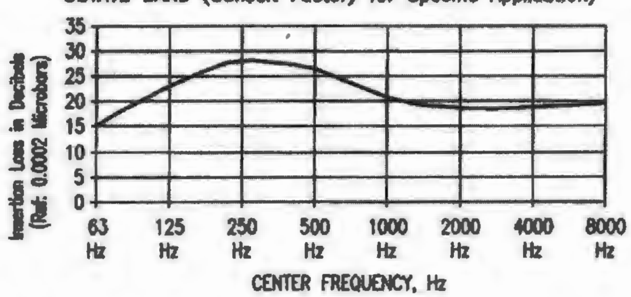


SIDE VIEW



INLET END VIEW

Nominal Attenuation Curve for 201VO-2-4108 TO 201VO-2-4112
OCTAVE BAND (Consult Factory for Specific Application)



FINISH: HIGH HEAT BLACK
APPROX. WT. 900 LBS
NOTE: ALL DIMENSIONS ARE IN INCHES.

TOLERANCES (EXCEPT AS NOTED)	REVISIONS				GT EXHAUST SYSTEMS, INC		
	NO.	DESCRIPTION	DATE	BY			
DECIMAL: .12"	A	UPDATED ACCESS LID HEIGHT	09/15/05	AMH	201VO-3-___-4112-1-30449: 12" CONVERTER		
FRACTIONAL: 1/8"					DRAWN BY: AMH	SCALE: NONE	MATERIAL: HRS
					APP'D BY:	DATE: 07/18/05	DWG. NO.
ANGULAR: 2°					CUSTOMER:		3044[illegible]

INDUSTRIAL REFRACTORY SERVICES INC.
2300 South Main Street
Fort Worth, Texas 76110
(817)924-9991
mriddell@irsvc.com

March 3, 2009

Aaron Tucker

XTO Energy
Natural Gas Operations
810 Houston Street
Fort Worth, TX 76102

Dear Aaron Tucker:

The Thermal Oxidizers you recently purchased are compliant with the latest environmental regulations.

Industrial Refractory Services Inc. guarantees a 99% V.O.C. destruction efficiency on all Thermal Oxidizers unless otherwise stated.

I have attached copies of the Emissions Data that is provided by Eclipse Combustion, the manufacture of the process burner that is used on the Thermal Oxidizers. The 36" T.O.'s use the TJ0200HV burner.

If you have questions please contact me.

Sincerely,

Mike Riddell
Enclosure

ECLIPSE™
Innovative Thermal Solutions

EMISSIONS DATA REQUEST (Please submit completed report to the Eclipse Engineering Help Desk)

Customer: Industrial refractory Services
Site location (required for guarantee validity): Roosevelt, UT.
Application: Thermal Oxidizer
Burner model: TJ0200HV

Fuel: Natural Gas
Process temperature: 1450°F

Combustion air temperature entering burner: Ambient
If recirculating oven, process stream temperature ahead of burner: N/A
Burner firing arrangement: Horizontal
Applicable firing rate: 2 Mmbtu/hr

[X] NO_x [X] CO [ ] Other-specify ____

What are the requested guarantee values? (required for guarantee validity)

Permit conditions under which the equipment will operate

How should emissions be stated?

[X] ppm (parts per million) corrected to 3% O2 [ ] lb/million Btu
[ ] lb/hour [ ] Other-specify ____

This is a request for...

[X] Estimate
[ ] Guarantee of performance

Requested by: Mike Riddell
Office: I R S Inc.
Date: 8/19/2008

EMISSIONS DATA (To be filled out by Eclipse Home Office)

NO_x: 50 PPM @ 3% O2

CO: <50 PPM @ 3% O2

Other: Multiplier For Medium Velocity Tube 1.2 X NOX

Based on the information submitted above, these emissions are.

[X] Estimated
[ ] Guaranteed *

By: Dave Pool
Date: 81/19/08

* For guarantees, see attached "Eclipse Combustion Emissions Guarantee" for terms.

Eclipse, Inc. 1665 Elmwood Rd. Rockford, IL 61103 USA
Tel: 815-877-3031 Fax: 815-877-3336
www.eclipsenet.com

ECLIPSE
Innovative Thermal Solutions

EMISSIONS DATA REQUEST (Please submit completed report to the Eclipse Engineering Help Desk)

Customer: Industrial refractory Services
Site location (required for guarantee validity): Roosevelt, UT.
Application: Thermal Oxidizer
Burner model: TJ0200HV

Fuel: Natural Gas
Process temperature: 1450°F

Combustion air temperature entering burner: Ambient
If recirculating oven, process stream temperature ahead of burner: N/A
Burner firing arrangement: Horizontal
Applicable firing rate: 2 Mmbtu/hr

[X] NO_x [X] CO [ ] Other-specify

What are the requested guarantee values? (required for guarantee validity)

Permit conditions under which the equipment will operate

How should emissions be stated?

[X] ppm (parts per million) corrected to 3% O2
[ ] lb/million Btu
[ ] lb/hour
[ ] Other-specify

This is a request for...

[X] Estimate
[ ] Guarantee of performance

Requested by. Mike Riddell
Office: I R S Inc.
Date: 8/19/2008

EMISSIONS DATA (To be filled out by Eclipse Home Office)

NO_x: 80 PPM @ 3% O2

CO. <50 PPM @ 3% O2

Other: Multiplier For Medium Velocity Tube 1.2 X NOX

Based on the information submitted above, these emissions are.

[X] Estimated
[ ] Guaranteed *

By. Dave Pool
Date 81/19/08

* For guarantees, see attached "Eclipse Combustion Emissions Guarantee" for terms.

Eclipse, Inc. 1665 Elmwood Rd. Rockford, IL 61103 USA
Tel: 815-877-3031 Fax: 815-877-3336
www.eclipsenet.com

76

LCU TV Fees

Summit Gas Gathering, LLC
810 Houston Street
Ft. Worth, TX 76102-6298
(817) 870-2800 (office)

July 16, 2009

COPY

U.S. Environmental Protection Agency
FOIA and Miscellaneous Payments
Cincinnati Finance Center
P.O. Box 979078
St. Louis, MO 63197-9000

RE: Summit Gas Gathering, LLC - 2008 Part 71 Permit Fee Payments
Little Canyon Unit Compressor Station

To Whom It May Concern:

XTO Energy, hereby submits the attached payment for Title V – Part 71 Permit fees for 2008 for the Summit Gas Gathering, LLC (SGG) Little Canyon Unit Compressor Station located in Uintah County, Utah. Also attached is the associated U.S. EPA fee Filing Form (FF).

If you should have any questions or require additional information, please feel free to contact me at (817) 885-2672.

Sincerely,

Craig Allison
EH&S Advisor

USPS Certified Mail – No. 7008 2810 0000 4380 0852

Encl: Check # 6757295 – Little Canyon Unit
EPA Form FF - Fee Filing Forms

Cc: Damien Jones, SGG – Roosevelt NGO Office
Ms. Claudia Smith, U.S. EPA Region 8

001346840

XTO ENERGY INC. FORT WORTH, TEXAS 76102-6298 817-885-2195 0000126

DESCRIPTION	INVOICE DATE	INVOICE NUMBER	INVOICE AMOUNT
RMIT FEES XTO LITTLE CANYON	7/13/09	REQ 090713CA	8054.50

VENDOR NUMBER		VENDOR NAME		CHECK NO.		CHECK TOTAL	
	8006078		U.S. ENVIRONMENTAL PROTECT		6757295		8054.50

REMITTANCE ADVICE PLEASE DETACH STUB BEFORE DEPOSITING CHECK

THIS DOCUMENT FEATURES VISIBLE AND INVISIBLE FIBERS, A VOID BACKGROUND, MICROPRINTING AND A TRUE WATERMARK.

XTO ENERGY INC.
810 Houston St. - Fort Worth, Texas 76102-6298

JPMorgan Chase, N.A.
Columbus, OH
56-1544/441

CHECK DATE	CHECK NO.
7/16/09	6757295

AMOUNT
$8,054.50

PAY EIGHT THOUSAND FIFTY-FOUR DOLLARS AND FIFTY CENTS

VOID AFTER 90 DAYS
VENDOR

TO THE
ORDER OF

U.S. ENVIRONMENTAL PROTECTION
AGENCY, FOIA AND MISC. PMNTS-
CINCINNATI FINANCE CENTER
PO BOX 979078
SAINT LOUIS, MO 63197

AUTHORIZED SIGNATURE

AUTHORIZED SIGNATURE

RUB RED IMAGE
FADES WITH HEAT

SECURITY FEATURES INCLUDED. DETAILS ON BACK.

⑈6757295⑈ ⑆044115443⑆ 741397558⑈

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

FEE FILING FORM (FF)

Complete this form each time you prepare form **FEE** and send this form to the appropriate lockbox bank address, along with full payment. This form required at time of initial fee payment, and thereafter, when paying annual fees.

Source or Facility Name____Summit Gas Gathering – Little Canyon Unit Compressor Station____

Mailing Address:

Street/P.O. Box _____810 Houston St.__________ City_____Ft. Worth_______________

State __TX__ ZIP __76102___ - __6298

Contact Person:____Craig Allison________________ Title_____EH&S Advisor___

Telephone (_817) _885_ - _2672_____ Ext. __________

Total Fee Payment Remitted: $ ____8,054.50

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

FEE FILING FORM (FF)

Complete this form each time you prepare form **FEE** and send this form to the appropriate lockbox bank address, along with full payment. This form required at time of initial fee payment, and thereafter, when paying annual fees.

Source or Facility Name____Summit Gas Gathering – Little Canyon Unit Compressor Station____

Mailing Address:

Street/P.O. Box _____810 Houston St.__________ City_____Ft. Worth_______________

State __TX__ ZIP __76102___ - __6298

Contact Person:____Craig Allison_______________ Title_____EH&S Advisor___

Telephone (_817) _885_ - _2672_____ Ext. __________

Total Fee Payment Remitted: $ ____8,054.50

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

FEE CALCULATION WORKSHEET (FEE)

Use this form initially, or thereafter on an annual basis, to calculate part 71 fees.

A. General Information

Type of fee (Check one): _X__Initial ___Annual

Deadline for submitting fee calculation worksheet ____/____/_______

For initial fees, emissions are based on (Check one):

_X_ Actual emissions for the preceding year

___ Estimates of actual emissions for the preceding year

___ Estimates of actual emissions for current year. Date commenced operations ____/____/______

B. Source Information: Complete this section only if you are not applying for a permit at this time.

Source or facility name ____Summit Gas Gathering – Little Canyon Unit Compressor Station____

Mailing address: Street or P.O. Box ___810 Houston St.________________________________

City____Ft. Worth___________________________ State__TX__ ZIP__76102___ - 6298__

Contact person_____Craig Allison_______ Title____EH&S Advisor___

Telephone (_817_) _885_ - ___2672__ Ext________ Part 71 permit no. ___Not Assigned_____

C. Certification of Truth, Accuracy and Completeness: Only needed if not submitting a separate form CTAC.

I certify under penalty of law, based on information and belief formed after reasonable inquiry, the statements and information contained in this submittal (form and attachments) are true, accurate and complete.

Name (signed) ____

Name (typed) ___Nick J. Dungey____________________ Date:____/____/_______

D. Annual Emissions Report for Fee Calculation Purposes – Non-HAP

You may use this to report actual emissions (tons per year) of regulated pollutants (for fee calculation) on a calendar-year basis for both initial and annual fee calculation purposes. Section E is designed to report HAP emissions. Quantify all actual emissions, including fugitives, but do not include insignificant emissions and certain regulated air pollutants that are not counted for fee purposes, such as CO (see instructions). You may round to the nearest tenth of a ton on this form. Sum the emissions in each column and enter a subtotal at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000 for that column.

This data is for __2008______ (year)

Emission Unit ID	NOx	VOC	SO2	PM10	Lead	Other
LCC-1	18.7	4.2	0.0	0.0	0.0	0.0
LCC-2	19.4	4.3	0.0	0.0	0.0	0.0
LCC-3	11.5	0.8	0.0	0.0	0.0	0.0
LCD-1	0.0	103.6	0.0	0.0	0.0	0.0
LCF-1	0.0	4.0	0.0	0.0	0.0	0.0
LCG-1	3.2	0.0	0.0	0.1	0.0	0.0
LCT-1	0.0	4.5	0.0	0.0	0.0	0.0
LCT-2	0.0	3.6	0.0	0.0	0.0	0.0
SUBTOTALS	52.8	125.0	0.0	0.1	0.0	0.0

E. Annual Emissions Report for Fee Calculation Purposes -- HAP

HAP Identification. Identify individual HAP emitted at the facility, identify the CAS number, and assign a unique identifier for use in the second table in this section. When assigning identifier codes, use "HAP1" for the first, "HAP2" for the second, and so on.

Name of HAP	CAS No	Identifier
Benzene	71432	HAP 1
Ethylbenzene	100414	HAP 2
Formaldehyde	50000	HAP 3
Toluene	108883	HAP 4
Xylene	1330207	HAP 5
Acetaldehyde	75070	HAP 6
Acrolein	107028	HAP 7
N-hexane	110543	HAP 8

HAP Emissions. Report the actual emissions of individual HAP identified above. Use the identifiers assigned in the table above. Include all emissions, including fugitives, and do not include insignificant emissions. You may round to the nearest tenth of a ton. Sum the emissions in each column and enter a subtotal at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000.

This data is for ___2008___ (year)

Emissions Unit ID	Actual Emissions (Tons/Year)							
	HAP_1_	HAP_2_	HAP_3_	HAP_4_	HAP_5_	HAP_6_	HAP_7	HAP_8_
LCC-1	0.0	0.0	0.7	0.0	0.0	0.3	0.2	0.0
LCC-2	0.0	0.0	0.7	0.0	0.0	0.3	0.2	0.0
LCC-3	0.0	0.0	0.4	0.0	0.0	0.2	0.1	0.0
LCD-1	9.7	0.7	0.0	0.5	8.9	0.0	0.0	3.0
LCF-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
LCT-1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2
LCT-2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2
SUBTOTALS	9.7	0.7	1.8	0.7	8.9	0.8	0.5	3.5

F. Fee Calculation Worksheet

This section is used to calculate the total fee owed for both initial and annual fee purposes. Reconciliation is only for limited cases when you pay the annual emissions for the first time; if it does not apply to you, complete line 1-5 and then lines 21 – 26 only.

1. Sum the emissions from section D of this form (non-HAP) and enter the total (tons).	177.9
2. Sum the emissions from section E of this form (HAP) and enter the total (tons).	26.6
3. Sum lines 1 and 2.	204.5
4. Enter the emissions that were counted twice. If none, enter "0."	26.6
5. Subtract line 4 from line 3, round to the nearest ton, and enter the result here.	178
RECONCILIATION OF ESTIMATED EMISSIONS AGAINST ACTUAL EMISSIONS (WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE CURRENT YEAR) Only complete lines 6-10 if you are paying the first annual fee, when the initial fee was based on estimated emissions for the year you paid initial fees (this is not common). Otherwise skip to line 11 or to line 21.	
6. Enter the total estimated emissions previously reported on line 5 of the initial fee form (emissions for the year the initial fee were paid).	
7. If line 5 is greater than line 6, subtract line 6 from line 5, and enter the result. Otherwise enter "0."	
8. If line 6 is greater than line 5, subtract line 5 from line 6, and enter the result. Otherwise enter "0."	
9. If line 7 is greater than 0, multiply line 7 by last year's fee rate ($/ton) and enter the result here. This is the underpayment. Go to line 21.	
10. If line 8 is greater than 0, multiply line 8 by last year's fee rate ($/ton) and enter the result here. This is the overpayment. Go to line 21.	
RECONCILIATION OF ESTIMATED EMISSIONS AGAINST ACTUAL EMISSIONS (WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE PRECEDING YEAR) Only complete lines 11 - 20 if you are paying the first annual fee, when initial fees were based on estimates of actual emissions for the year preceding initial fee payment (this is not common). Also report actual emissions for the year preceding initial fee payment by also completing sections D and E for that calendar year. Otherwise skip on to line 21.	
11. Sum the emissions from section D (non-HAP) for the calendar year preceding initial fee payment and enter the result here.	
12. Sum the emissions from section E (HAP) for the calendar year preceding initial fee payment and enter the result here.	
13. Add lines 11 and 12 and enter the total here. These are actual emissions for the calendar year preceding initial fee payment.	
14. Enter double counted emission from line 13 here. If none, enter "0."	
15. Subtract line 14 from line 13, round to the nearest ton, and enter the result here.	
16. Enter the total estimated emissions previously reported on line 5 of the initial fee form. These are estimated emissions for the calendar year preceding initial fee payment.	
17. If line 15 is greater than line 16, subtract line 16 from line 15, and enter the result here. Otherwise enter "0."	

18. If line 16 is greater than line 15, subtract line 15 from line 16, and enter the result here. Otherwise enter "0."	
19. If line 17 is greater than 0, multiply line 17 by last year's fee rate ($/ton) and enter the result here. This is the underpayment.	
20. If line 18 is greater than 0, multiply line 18 by last year's fee rate ($/ton) and enter the result on this line. This is the overpayment.	
FEE CALCULATION	
21. Multiply line 5 (tons) by the current fee rate ($45.25/ton) and enter the result here.	$8,054.50
22. Enter any underpayment from line 9 or 19 here. Otherwise enter "0."	0
23. Enter any overpayment from line 10 or 20 here. Otherwise enter "0."	0
24. If line 22 is greater than "0," add it to line 21 and enter the result here. If line 23 is greater than "0," subtract this from line 21 and enter the result here. Otherwise enter the amount on line 21 here. This is the fee adjusted for reconciliation.	$8,054.50
25. If your account was credited for fee assessment error since the last time you paid fees, enter the amount of the credit here. Otherwise enter "0."	0
26. Subtract line 25 from line 24 and enter the result here. Stop here. This is the total fee amount that you must remit to EPA.	$8,054.50

XTO Uinta - Little Canyon Unit - 2008 Actual Emissions Summary

Equipment Name	EQ ID #	NOx		CO		VOC		PM/PM10		SO2		Total HAPs	
		EMISSIONS TOTALS											
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Compressor Engine #1	LCC-1	4.43	18.72	0.69	2.92	0.99	4.19	0.001	0.003	0.01	0.025	0.27	1.18
Compressor Engine #2	LCC-2	4.43	19.39	0.69	3.03	0.99	4.34	0.001	0.003	0.01	0.026	0.28	1.22
Compressor Engine #3	LCC-3	4.43	11.47	1.45	3.76	0.32	0.82	0.001	0.002	0.01	0.015	0.16	0.69
TEG Dehy #1 Reboiler Heater	LCU Dehy	0.055	0.241	0.046	0.202	0.003	0.013	0.004	0.018	0.000	0.001	0.001	0.005
TEG Dehydrator #1 Regenerator	LCD-1					23.649	103.589					5.220	22.863
Equipment Leaks	LCF-1					0.902	3.952					0.037	0.161
Tank Heaters		0.100	0.438	0.084	0.368	0.006	0.024	0.008	0.033	0.001	0.003	0.002	0.008
Fuel Cleanup Heater		0.025	0.110	0.021	0.092	0.001	0.006	0.002	0.008	0.000	0.001	0.0005	0.002
Slop Tanks						1.849	8.112					0.170	0.751
Condensate Truck Loading						0.066	0.288						
Generator #1	LCG-1	0.728	3.190	1.226	5.370	0.010	0.043	0.033	0.143			0.010	0.040
Totals		**14.190**	**53.554**	**4.209**	**15.734**	**28.783**	**125.370**	**0.049**	**0.212**	**0.019**	**0.072**	**6.143**	**26.910**

XTO Little Canyon Unit Compressor Station - 2008 Actual Controlled HAP Emissions Summary													
				EMISSIONS TOTALS									
Equipment Name	Equipment Description	EQUIP ID	Run hours / yr	CH20 tpy	Benzene tpy	Toluene tpy	Ethylbenzene tpy	Xylene tpy	Hexane tpy	2,2,4 TMP tpy	Acetaldehyde tpy	Acrolein tpy	TOTAL HAPs tpy
Compressor Engine #1	CAT 3516	LCC-1	8760	0.69	0.01	0.014	0.001	0.006			0.28	0.17	1.18
Compressor Engine #2	CAT 3516	LCC-2	8760	0.71	0.02	0.014	0.001	0.006			0.29	0.18	1.22
Compressor Engine #3	CAT 3516	LCC-3	8760	0.39	0.01	0.008	0.001	0.004			0.17	0.11	0.69
TEG Dehy #1 Reboiler Heater	TEG Reboiler Combustion - 1.5 mmbtu/hr burner	LCU Dehy	8760						0.004				0.005
TEG Dehydrator #1 Regenerator	TEG Reboiler Still Column and Flash Tank - 25 mmscfd max	LCD-1	8760		9.650	0.506	0.687	8.897	2.959	0.163			22.86
Fuel Cleanup Heater	Fuel Gas Conditioning Unit Heater		8760						0.002				0.002
Equipment Leaks	Sitewide Fugitives	LCF-1	8760		0.018	0.015		0.006	0.122				0.16
Tank Heaters	Storage Tank Heaters - 2 X .5 MMBTU each		8760						0.008				0.01
Slop Tanks	2 X 400 bbl Atm storage tanks	80689; 80690	8760		0.083	0.195	0.005	0.043	0.367	0.058			0.75
Generator #1	Ford 2.5 L 40 hp Generator engine	LCG-1	8760	0.030	0.002	0.001	0.000	0.000			0.004	0.004	0.040
Total HAP Emissions				1.789	9.790	0.752	0.695	8.963	3.463	0.221	0.741	0.455	[illegible]

Company: **XTO Energy**
Facility Name: **Little Canyon Compressor Station**
Facility Location: **Uintah County, Utah**

Unit: Glycol TEG Dehydrator Still Vent
Actual average daily throughput for 2008 12.146 MMscfd

Uncontrolled 2008 Actual Emissions

Unit Description	Gas Flow Rate (MMscf/day)	VOCs (tons/yr)	Benzene (tons/yr)	Toluene (tons/yr)	Ethylbenzene (tons/yr)	Xylenes (tons/yr)	N-Hexane (tons/yr)	224-TMP (tons/yr)	Total HAPs (tons/yr)	Total BTEX (tons/yr)
TEG Dehy	12.1	56.3816	9.3636	0.4969	0.6798	8.8312	1.5553	0.088	21.0148	19.3715
Flash Tank		47.2069	0.2865	0.0094	0.0072	0.0655	1.4041	0.0753	1.8481	0.3686
TOTAL		**103.5885**	**9.6501**	**0.5063**	**0.6870**	**8.8967**	**2.9594**	**0.1633**	**22.8629**	**19.7401**

XTO Little Canyon Compressor Station - 2008 Uncontrolled Actual Engine Emissions

NOx Calculations

ID #	Emission Points	Engine	Manufacturer's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method
LCC-1	Comp Eng 1	Caterpillar 3516	1.50	1340	4.427	4.2275	18.716	Manufacturer's Data
LCC-2	Comp Eng 2	Caterpillar 3516	1.50	1340	4.427	4.38	19.392	Manufacturer's Data
LCC-3	Comp Eng 3	Caterpillar 3516	1.50	1340	4.427	2.59	11.467	Manufacturer's Data
				Total	**13.282**	lb/hr		
					49.575	tpy		

CO Calculations

ID #	Emission Points	Engine	Manufacturer's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	2.34	1340	6.907	4.2275	29.198	Mfg's Data	0	29.20	6.91
LCC-2	Comp Eng 2	Caterpillar 3516	2.34	1340	6.907	4.38	30.251	Mfg's Data	0	30.25	6.91
LCC-3	Comp Eng 3	Caterpillar 3516	2.34	1340	6.907	2.59	17.888	Mfg's Data	0	17.89	6.91
				Total	**20.720**	lb/hr					
				Controlled	**77.34**	tpy					

VOC Calculations

NMNEHC

ID #	Emission Points	Engine	Mfg's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.43	1340	1.27	4.2275	5.365	Mfg's Data	0	5.37	1.27
LCC-2	Comp Eng 2	Caterpillar 3516	0.43	1340	1.27	4.38	5.559	Mfg's Data	0	5.56	1.27
LCC-3	Comp Eng 3	Caterpillar 3516	0.43	1340	1.27	2.59	3.287	Mfg's Data	0	3.29	1.27
						Total	**3.81**	lb/hr			
						Controlled	**14.21**	tpy			

XTO Little Canyon Compressor Station - 2008 Uncontrolled Actual Engine Emissions

PM Calculations **PM = PM10**

ID #	Emission Points	Engine	AP-42 PM Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	PM Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method
LCC-1	Comp Eng 1	Caterpillar 3516	0.0000771	0.007571	5.83724E-07	100.0%	0.00027	1340	0.00078	4.2275	0.003	AP-42
LCC-2	Comp Eng 2	Caterpillar 3516	0.0000771	0.007571	5.83724E-07	100.0%	0.00027	1340	0.00078	4.38	0.003	AP-42
LCC-3	Comp Eng 3	Caterpillar 3516	0.0000771	0.007571	5.83724E-07	100.0%	0.00027	1340	0.00078	2.59	0.002	AP-42
								Total	**0.002**	lb/hr		
								Controlled	**0.009**	tpy		

Formaldehyde Calculations

ID #	Emission Points	Engine	Mfg's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.22	1340	0.649	4.2275	2.745	Mfg's Data	0	2.75	0.65
LCC-2	Comp Eng 2	Caterpillar 3516	0.22	1340	0.649	4.38	2.844	Mfg's Data	0	2.84	0.65
LCC-3	Comp Eng 3	Caterpillar 3516	0.22	1340	0.649	2.59	1.682	Mfg's Data	0	1.68	0.65
								Total	**1.95**	lb/hr	
								Controlled	**7.27**	tpy	

XTO Little Canyon Compressor Station - 2008 Uncontrolled Actual Engine Emissions

Benzene Calculations

ID #	Emission Points	Engine	Benzene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Benzene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.00044	0.007571	3.33124E-06	100.0%	0.002	1340	0.0045	4.2275	0.019	AP-42	0	0.019	0.0045
LCC-2	Comp Eng 2	Caterpillar 3516	0.00044	0.007571	3.33124E-06	100.0%	0.002	1340	0.0045	4.38	0.020	AP-42	0	0.020	0.0045
LCC-3	Comp Eng 3	Caterpillar 3516	0.00044	0.007571	3.33124E-06	100.0%	0.002	1340	0.0045	2.59	0.012	AP-42	0	0.012	0.0045
								Total	**0.013**	lb/hr					
								Controlled	**0.050**	tpy					

Toluene Calculations

ID #	Emission Points	Engine	Toluene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Toluene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.000408	0.007571	3.08897E-06	100.0%	0.0014	1340	0.004	4.2275	0.017	AP-42	0	0.017	0.0041
LCC-2	Comp Eng 2	Caterpillar 3516	0.000408	0.007571	3.08897E-06	100.0%	0.0014	1340	0.004	4.38	0.018	AP-42	0	0.018	0.0041
LCC-3	Comp Eng 3	Caterpillar 3516	0.000408	0.007571	3.08897E-06	100.0%	0.0014	1340	0.004	2.59	0.011	AP-42	0	0.011	0.0041
								Total	**0.012**	lb/hr					
								Controlled	**0.046**	tpy					

Ethylbenzene Calculations

ID #	Emission Points	Engine	Ethylbenzene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Ethylbenzene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.0000397	0.007571	3.00569E-07	100.0%	0.0001	1340	0.000	4.2275	0.002	AP-42	0	0.0017	0.0004
LCC-2	Comp Eng 2	Caterpillar 3516	0.0000397	0.007571	3.00569E-07	100.0%	0.0001	1340	0.000	4.38	0.002	AP-42	0	0.0018	0.0004
LCC-3	Comp Eng 3	Caterpillar 3516	0.0000397	0.007571	3.00569E-07	100.0%	0.0001	1340	0.000	2.59	0.001	AP-42	0	0.0010	0.0004
								Total	**0.001**	lb/hr					
								Controlled	**0.005**	tpy					

XTO Little Canyon Compressor Station - 2008 Uncontrolled Actual Engine Emissions

Xylene Calculations

ID #	Emission Points	Engine	Xylene AP-42 Factor	Fuel Consumption			Xylene Emissions	Horsepower	Emissions	Conversion to tpy	Emissions	Method	Catalyst Efficiency	Controlled Emissions	Controlled Emissions
			(lb/MMBTU)	(MMBTU/bhp-hr)	(lb/bhp-hr)	%	g/bhp-hr	(hp)	(lb/hr)		(tpy)		%	(tpy)	(lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.000184	0.007571	1.39306E-06	100.0%	0.0006	1340	0.002	4.2275	0.008	AP-42	0	0.008	0.0019
LCC-2	Comp Eng 2	Caterpillar 3516	0.000184	0.007571	1.39306E-06	100.0%	0.0006	1340	0.002	4.38	0.008	AP-42	0	0.008	0.0019
LCC-3	Comp Eng 3	Caterpillar 3516	0.000184	0.007571	1.39306E-06	100.0%	0.0006	1340	0.002	2.59	0.005	AP-42	0	0.005	0.0019
								Total	**0.006**	lb/hr					
								Controlled	**0.021**	tpy					

SO2 Calculations

ID #	Emission Points	Engine	SO2 AP-42 Factor	Fuel Consumption			SO2 Emissions	Horsepower	Emissions	Conversion to tpy	Emissions	Method
			(lb/MMBTU)	(MMBTU/bhp-hr)	(lb/bhp-hr)	%	g/bhp-hr	(hp)	(lb/hr)		(tpy)	
LCC-1	Comp Eng 1	Caterpillar 3516	0.000588	0.007571	4.45175E-06	100.0%	0.0020	1340	0.006	4.2275	0.025	AP-42
LCC-2	Comp Eng 2	Caterpillar 3516	0.000588	0.007571	4.45175E-06	100.0%	0.0020	1340	0.006	4.38	0.026	AP-42
LCC-3	Comp Eng 3	Caterpillar 3516	0.000588	0.007571	4.45175E-06	100.0%	0.0020	1340	0.006	2.59	0.015	AP-42
								Total	**0.018**	lb/hr		
									0.067	tpy		

XTO Little Canyon Compressor Station - 2008 Uncontrolled Actual Engine Emissions

Acetaldehyde Calculations

ID #	Emission Points	Engine	Acetaldehyde AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Acetaldehyde Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.00836	0.007571	6.32936E-05	100.0%	0.0287	1340	0.085	4.2275	0.359	AP-42	0	0.359	0.0848
LCC-2	Comp Eng 2	Caterpillar 3516	0.00836	0.007571	6.32936E-05	100.0%	0.0287	1340	0.085	4.38	0.371	AP-42	0	0.371	0.0848
LCC-3	Comp Eng 3	Caterpillar 3516	0.00836	0.007571	6.32936E-05	100.0%	0.0287	1340	0.085	2.59	0.220	AP-42	0	0.220	0.0848
								Total	**0.254**	lb/hr					
								Controlled	**0.950**	tpy					

Acrolein Calculations

ID #	Emission Points	Engine	Acrolein AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Acrolein Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.00514	0.007571	3.89149E-05	100.0%	0.0177	1340	0.052	4.2275	0.220	AP-42	0	0.220	0.0521
LCC-2	Comp Eng 2	Caterpillar 3516	0.00514	0.007571	3.89149E-05	100.0%	0.0177	1340	0.052	4.38	0.228	AP-42	0	0.228	0.0521
LCC-3	Comp Eng 3	Caterpillar 3516	0.00514	0.007571	3.89149E-05	100.0%	0.0177	1340	0.052	2.59	0.135	AP-42	0	0.135	0.0521
								Total	**0.156**	lb/hr					
								Controlled	**0.584**	tpy					

AP-42 Factors taken from Table 3.2-1, 3.2-2 and Table 3.2-3 Uncontrolled Emission Factors for 4-stroke Lean Burn Engines

XTO Little Canyon Compressor Station - 2008 Controlled Actual Engine Emissions

NOx Calculations

ID #	Emission Points	Engine	Manufacturer's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method
LCC-1	Comp Eng 1	Caterpillar 3516	1.50	1340	4.427	4.2275	18.716	Manufacturer's Data
LCC-2	Comp Eng 2	Caterpillar 3516	1.50	1340	4.427	4.38	19.392	Manufacturer's Data
LCC-3	Comp Eng 3	Caterpillar 3516	1.50	1340	4.427	2.59	11.467	Manufacturer's Data
				Total	**13.282**	lb/hr		
					49.575	tpy		

CO Calculations

ID #	Emission Points	Engine	Manufacturer's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	2.34	1340	6.907	4.2275	29.198	Mfg's Data	90	2.92	0.69
LCC-2	Comp Eng 2	Caterpillar 3516	2.34	1340	6.907	4.38	30.251	Mfg's Data	90	3.03	0.69
LCC-3	Comp Eng 3	Caterpillar 3516	2.34	1340	6.907	2.59	17.888	Mfg's Data	79	3.76	1.45
				Total	**2.832**	lb/hr					
				Controlled	**9.70**	tpy					

VOC Calculations NMNEHC

ID #	Emission Points	Engine	Mfg's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.43	1340	1.27	4.2275	5.365	Mfg's Data	22	4.19	0.99
LCC-2	Comp Eng 2	Caterpillar 3516	0.43	1340	1.27	4.38	5.559	Mfg's Data	22	4.34	0.99
LCC-3	Comp Eng 3	Caterpillar 3516	0.43	1340	1.27	2.59	3.287	Mfg's Data	75	0.82	0.32
						Total	**2.30**	lb/hr			
						Controlled	**9.34**	tpy			

XTO Little Canyon Compressor Station - 2008 Controlled Actual Engine Emissions

PM Calculations — **PM = PM10**

ID #	Emission Points	Engine	AP-42 PM Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	PM Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method
LCC-1	Comp Eng 1	Caterpillar 3516	0.0000771	0.007571	5.83724E-07	100.0%	0.00027	1340	0.00078	4.2275	0.003	AP-42
LCC-2	Comp Eng 2	Caterpillar 3516	0.0000771	0.007571	5.83724E-07	100.0%	0.00027	1340	0.00078	4.38	0.003	AP-42
LCC-3	Comp Eng 3	Caterpillar 3518	0.0000771	0.007571	5.83724E-07	100.0%	0.00027	1340	0.00078	2.59	0.002	AP-42
								Total	**0.002**	lb/hr		
								Controlled	**0.009**	tpy		

Formaldehyde Calculations

ID #	Emission Points	Engine	Mfg's Data g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Uncontrolled Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.23	1340	0.679	4.2275	2.870	Mfg's Data	76	0.69	0.16
LCC-2	Comp Eng 2	Caterpillar 3516	0.23	1340	0.679	4.38	2.973	Mfg's Data	76	0.71	0.16
LCC-3	Comp Eng 3	Caterpillar 3516	0.23	1340	0.679	2.59	1.758	Mfg's Data	78	0.39	0.15
								Total	**0.48**	lb/hr	
								Controlled	**1.79**	tpy	

XTO Little Canyon Compressor Station - 2008 Controlled Actual Engine Emissions

Benzene Calculations

ID #	Emission Points	Engine	Benzene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Benzene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.00044	0.007571	3.33124E-06	100.0%	0.002	1340	0.0045	4.2275	0.019	AP-42	22	0.015	0.0035
LCC-2	Comp Eng 2	Caterpillar 3516	0.00044	0.007571	3.33124E-06	100.0%	0.002	1340	0.0045	4.38	0.020	AP-42	22	0.015	0.0035
LCC-3	Comp Eng 3	Caterpillar 3516	0.00044	0.007571	3.33124E-06	100.0%	0.002	1340	0.0045	2.59	0.012	AP-42	22	0.009	0.0035
								Total	**0.010**	lb/hr					
								Controlled	**0.039**	tpy					

Toluene Calculations

ID #	Emission Points	Engine	Toluene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Toluene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.000408	0.007571	3.08897E-06	100.0%	0.0014	1340	0.004	4.2275	0.017	AP-42	22	0.014	0.0032
LCC-2	Comp Eng 2	Caterpillar 3516	0.000408	0.007571	3.08897E-06	100.0%	0.0014	1340	0.004	4.38	0.018	AP-42	22	0.014	0.0032
LCC-3	Comp Eng 3	Caterpillar 3516	0.000408	0.007571	3.08897E-06	100.0%	0.0014	1340	0.004	2.59	0.011	AP-42	22	0.008	0.0032
								Total	**0.010**	lb/hr					
								Controlled	**0.036**	tpy					

Ethylbenzene Calculations

ID #	Emission Points	Engine	Ethylbenzene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Ethylbenzene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.0000397	0.007571	3.00569E-07	100.0%	0.0001	1340	0.000	4.2275	0.002	AP-42	22	0.0013	0.0003
LCC-2	Comp Eng 2	Caterpillar 3516	0.0000397	0.007571	3.00569E-07	100.0%	0.0001	1340	0.000	4.38	0.002	AP-42	22	0.0014	0.0003
LCC-3	Comp Eng 3	Caterpillar 3516	0.0000397	0.007571	3.00569E-07	100.0%	0.0001	1340	0.000	2.59	0.001	AP-42	22	0.0008	0.0003
								Total	**0.001**	lb/hr					
								Controlled	**0.004**	tpy					

XTO Little Canyon Compressor Station - 2008 Controlled Actual Engine Emissions

Xylene Calculations

ID #	Emission Points	Engine	Xylene AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	Xylene Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method	Catalyst Efficiency %	Controlled Emissions (tpy)	Controlled Emissions (lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.000184	0.007571	1.39306E-06	100.0%	0.0006	1340	0.002	4.2275	0.008	AP-42	22	0.006	0.0015
LCC-2	Comp Eng 2	Caterpillar 3516	0.000184	0.007571	1.39306E-06	100.0%	0.0006	1340	0.002	4.38	0.008	AP-42	22	0.006	0.0015
LCC-3	Comp Eng 3	Caterpillar 3516	0.000184	0.007571	1.39306E-06	100.0%	0.0006	1340	0.002	2.59	0.005	AP-42	22	0.004	0.0015
								Total	**0.004**	lb/hr					
								Controlled	**0.016**	tpy					

SO2 Calculations

ID #	Emission Points	Engine	SO2 AP-42 Factor (lb/MMBTU)	Fuel Consumption (MMBTU/bhp-hr)	(lb/bhp-hr)	%	SO2 Emissions g/bhp-hr	Horsepower (hp)	Emissions (lb/hr)	Conversion to tpy	Emissions (tpy)	Method
LCC-1	Comp Eng 1	Caterpillar 3516	0.000588	0.007571	4.45175E-06	100.0%	0.0020	1340	0.006	4.2275	0.025	AP-42
LCC-2	Comp Eng 2	Caterpillar 3516	0.000588	0.007571	4.45175E-06	100.0%	0.0020	1340	0.006	4.38	0.026	AP-42
LCC-3	Comp Eng 3	Caterpillar 3516	0.000588	0.007571	4.45175E-06	100.0%	0.0020	1340	0.006	2.59	0.015	AP-42
								Total	**0.018**	lb/hr		
									0.067	tpy		

XTO Little Canyon Compressor Station - 2008 Controlled Actual Engine Emissions

Acetaldehyde Calculations

ID #	Emission Points	Engine	Acetaldehyde AP-42 Factor	Fuel Consumption			Acetaldehyde Emissions	Horsepower	Emissions	Conversion to tpy	Emissions	Method	Catalyst Efficiency	Controlled Emissions	Controlled Emissions
			(lb/MMBTU)	(MMBTU/bhp-hr)	(lb/bhp-hr)	%	g/bhp-hr	(hp)	(lb/hr)		(tpy)		%	(tpy)	(lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.00836	0.007571	6.32936E-05	100.0%	0.0287	1340	0.085	4.2275	0.359	AP-42	22	0.280	0.0662
LCC-2	Comp Eng 2	Caterpillar 3516	0.00836	0.007571	6.32936E-05	100.0%	0.0287	1340	0.085	4.38	0.371	AP-42	22	0.290	0.0662
LCC-3	Comp Eng 3	Caterpillar 3516	0.00636	0.007571	6.32936E-05	100.0%	0.0287	1340	0.085	2.59	0.220	AP-42	22	0.171	0.0662
								Total	**0.198**	lb/hr					
								Controlled	**0.741**	tpy					

Acrolein Calculations

ID #	Emission Points	Engine	Acrolein AP-42 Factor	Fuel Consumption			Acrolein Emissions	Horsepower	Emissions	Conversion to tpy	Emissions	Method	Catalyst Efficiency	Controlled Emissions	Controlled Emissions
			(lb/MMBTU)	(MMBTU/bhp-hr)	(lb/bhp-hr)	%	g/bhp-hr	(hp)	(lb/hr)		(tpy)		%	(tpy)	(lb/hr)
LCC-1	Comp Eng 1	Caterpillar 3516	0.00514	0.007571	3.89149E-05	100.0%	0.0177	1340	0.052	4.2275	0.220	AP-42	22	0.172	0.0407
LCC-2	Comp Eng 2	Caterpillar 3516	0.00514	0.007571	3.89149E-05	100.0%	0.0177	1340	0.052	4.38	0.228	AP-42	22	0.178	0.0407
LCC-3	Comp Eng 3	Caterpillar 3516	0.00514	0.007571	3.89149E-05	100.0%	0.0177	1340	0.052	2.59	0.135	AP-42	22	0.105	0.0407
								Total	**0.122**	lb/hr					
								Controlled	**0.455**	tpy					

AP-42 Factors taken from Table 3.2-1, 3.2-2 and Table 3.2-3 Uncontrolled Emission Factors for 4-stroke Lean Burn Engines

Generator Engine Emissions

EMISSION POINTS: Ford 2.5L 40 hp engine

Engine Make/Model	Ford 2.5L 40 hp engine	
Site Horsepower Rating	40	hp
Fuel Consumption (BSFC)	8240	Btu/(hp-hr)
Heat Rating	0.330	MMBtu/hr
Heating Value	979	Btu/Scf
Fuel usage	2.95	MMScf/yr
Operating Hours	8760	hrs/yr

Pollutant	**Emission Factor**		**Emission Rate (lb/hr)**	**Emission Rate (tpy)**	**Emission Factor Reference**	***AP-42 Emission Factors***	
NOx	8.26	g/hp-hr	0.73	3.2	[1]	2.21E+00	lb/MMBtu
CO	13.90	g/hp-hr	1.23	5.4	[1]	3.72E+00	lb/MMBtu
VOC/NMHC	0.11	g/hp-hr	0.01	0.04	[1]	2.96E-02	lb/MMBtu
PM10	0.370	g/hp-hr	0.03	0.1	[1]	9.91E-02	lb/MMBtu
Hazardous Air Pollutants							
Acetaldehyde	0.0104	g/hp-hr	0.0009	0.0040	[1]	2.79E-03	lb/MMBtu
Acrolein	0.0098	g/hp-hr	0.0009	0.0038	[1]	2.63E-03	lb/MMBtu
Benzene	0.0059	g/hp-hr	0.0005	0.0023	[1]	1.58E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0000	0.0000	[1]	2.48E-05	lb/MMBtu
Formaldehyde	0.0766	g/hp-hr	0.0068	0.0296	[1]	2.05E-02	lb/MMBtu
Toluene	0.0021	g/hp-hr	0.0002	0.0008	[1]	5.58E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0001	0.0003	[1]	1.95E-04	lb/MMBtu
		Total HAPS	0.01	0.04			

[1] AP-42 Table 3.2-3 for stationary IC sources; July 2000, 4-stroke rich burn

CALCULATION FORMULAS	
g/(hp-hr) =	(lb/MMBtu)*(MMBtu/hr)*(453.6 g/lb) / (site-rated hp)
lb/hr =	(g/hp-hr)*(site-rated hp) / (453.6 g/lb)
tpy =	(lb/hr)*(8760 hr/yr) / (2000 lb/ton)
Fuel Usage (MMscf/yr) =	(Scf/btu)*(btu/{hp-hr})*(site-rated hp)*(24 hr/day)*(365 day/yr)*(MMScf/10^6Scf)
Heat Rating (MMbtu/hr) =	(site rated horsepower)*(Btu/(hp-hr)) / (453.6 g/lb)

XTO Little Canyon Compressor Station
Estimated Fugitives

		Estimated Components Count	Hours	Factors* lb/hr/component	%NMNEVOC	Emissions lb/year	Emissions tons/year
Valves							
	Gas/Vapor	300	8760	0.00992000	1.56%	406.68826	0.20334
	Light Oil	100	8760	0.00550000	100.00%	4818.00000	2.40900
	Heavy Oil		8760	0.00001900	100.00%	0.00000	0.00000
	Water/Light Oil	50	8760	0.00021600	100.00%	94.60800	0.04730
Pumps							
	Gas/Vapor	6	8760	0.00529000	1.56%	4.33746	0.00217
	Light Oil	3	8760	0.02866000	100.00%	753.18480	0.37659
	Heavy Oil		8760	0.00113000	100.00%	0.00000	0.00000
	Water/Light Oil	3	8760	0.00005300	100.00%	1.39284	0.00070
Flanges							
	Gas/Vapor	650	8760	0.00086000	1.56%	76.39070	0.03820
	Light Oil	75	8760	0.00024300	100.00%	159.65100	0.07983
	Heavy Oil		8760	0.00000086	100.00%	0.00000	0.00000
	Water/Light Oil	50	8760	0.00000620	100.00%	2.71560	0.00136
Open-ended Lines							
	Gas/Vapor	15	8760	0.00441000	1.56%	9.03979	0.00452
	Light Oil		8760	0.00309000	100.00%	0.00000	0.00000
	Heavy Oil		8760	0.00030900	100.00%	0.00000	0.00000
	Water/Light Oil	5	8760	0.00055000	100.00%	24.09000	0.01205
Connectors							
	Gas/Vapor	250	8760	0.00044000	1.56%	15.03216	0.00752
	Light Oil		8760	0.00046300	100.00%	0.00000	0.00000
	Heavy Oil		8760	0.00001700	100.00%	0.00000	0.00000
	Water/Light Oil	50	8760	0.00024300	100.00%	106.43400	0.05322
Other: Compressors, relief valves, process drains, diaphragms, dump arms, hatches, instruments, meters, polished rods, and vents							
	Gas/Vapor	30	8760	0.01940000	1.56%	79.533792	0.039766896
	Light Oil		8760	0.01650000	100.00%	0	0
	Heavy Oil		8760	0.00006800	100.00%	0	0
	Water/Light Oil	5	8760	0.03090000	100.00%	1353.42	0.67671

**NOTE - emission factors based on Table 2-4 of U.S. EPA's 1995 Protocol for Equipment Leak Emission Estimates.*

Total in tons/year	**3.95**
Total in Lb/hr	**0.90**

Fugitive HAP Emissions Totals

	wt% in gas	Total VOC wt %	Total Fugitive VOC tpy	Total tpy for HAP	Total lb/hr for HAP
Benzene	0.0072	1.560	3.95	**0.018**	**0.004**
Toluene	0.0059	1.560	3.95	**0.015**	**0.003**
Xylene	0.0022	1.560	3.95	**0.006**	**0.0013**
n-Hexane	0.0482	1.560	3.95	**0.122**	**0.028**
			TOTAL Fugitive HAP's	**0.161**	**0.037**

Dehy Reboiler Heater - Little Canyon Unit

Fuel Gas	**1000**	**BTU/scf**								
	8760	**hrs/yr**								
Max Heat Input Rating	**0.55**	**MMBTU/hr**								
	NOx		CO		VOC		PM/PM10		SO2	
Small Boilers Emissions Factor*										
(lbs/MMscf)	100		84		5.5		7.6		0.6	
Estimated Emissions	**NOx**		**CO**		**VOC**		**PM/PM10**		**SO2**	
lb/hr	0.055		0.046		0.003		0.004		0.000	
tpy	0.241		0.202		0.013		0.018		0.001	
HAP Emissions Factors*										
(lbs/MMscf)		Benzene		Toluene		Hexane		Formald.		Diclorobenz.
		0.0021		0.0034		1.8		0.075		0.0012
Estimated HAP Emissions		Benzene		Toluene		Hexane		Formald.		Diclorobenz.
lb/hr		0.0000012		0.0000019		0.0009900		0.0000413		0.0000007
tpy		0.0000051		0.0000082		0.0043362		0.0001807		0.0000029
Total										
lb/hr		**0.001035**								
tpy		**0.004533**								

* Source: AP-42 Table 1.4-1, 1.4-2, & 1.4-3

XTO Little Canyon Unit

Storage Tank Heaters

Two (2) tank Heaters X 0.5 MMBTU / hr each

Fuel Gas	**1000**	**BTU/scf**	
	8760	**hrs/yr**	
Max Heat Input Rating	**0.5**	**MMBTU/hr**	**each heater**

	NOx		**CO**		**VOC**		**PM/PM10**		**SO2**
Small Boilers Emissions Factor*									
(lbs/MMscf)	100		84		5.5		7.6		0.6
Estimated Emissions	**NOx**		**CO**		**VOC**		**PM/PM10**		**SO2**
lb/hr	0.050		0.042		0.003		0.004		0.000
lb/hr Multiplied by Two (2)	**0.100**		**0.084**		**0.006**		**0.008**		**0.001**
tpy	0.219		0.184		0.012		0.017		0.001
TPY Multiplied by Two (2)	**0.438**		**0.368**		**0.0241**		**0.033288**		**0.0026**

HAP Emissions Factors*										
(lbs/MMscf)		**Benzene**		**Toluene**		**Hexane**		**Formald.**		**Diclorobenz.**
		0.0021		0.0034		1.8		0.075		0.0012

Estimated HAP Emissions		**Benzene**		**Toluene**		**Hexane**		**Formald.**		**Diclorobenz.**
lb/hr		0.0000011		0.0000017		0.0009000		0.0000375		0.0000006
lb/hr Multiplied by Two (2)		**0.0000021**		**0.0000034**		**0.0018000**		**0.0000750**		**0.0000012**
tpy		0.0000046		0.0000074		0.0039420		0.0001643		0.0000026
TPY Multiplied by Two (2)		**0.0000092**		**0.0000149**		**0.0078840**		**0.0003285**		**0.0000053**

Total (two tank htrs)	
lb/hr	**0.0018817**
tpy	**0.0082418**

* Source: AP-42 Table 1.4-1, 1.4-2, & 1.4-3

Fuel Cleanup Heater - Little Canyon Unit

Fuel Gas	**1000**	**BTU/scf**
	8760	**hrs/yr**
Max Heat Input Rating	**0.25**	**MMBTU/hr**

	NOx		CO		VOC		PM/PM10		SO2
Small Boilers Emissions Factor* (lbs/MMscf)	100		84		5.5		7.6		0.6

Estimated Emissions	**NOx**		**CO**		**VOC**		**PM/PM10**		**SO2**
lb/hr	0.025		0.021		0.001		0.002		0.000
tpy	0.110		0.092		0.006		0.008		0.001

HAP Emissions Factors* (lbs/MMscf)	Benzene	Toluene	Hexane	Formald.	Diclorobenz.
	0.0021	0.0034	1.8	0.075	0.0012

Estimated HAP Emissions	Benzene	Toluene	Hexane	Formald.	Diclorobenz.
lb/hr	0.0000005	0.0000009	0.0004500	0.0000188	0.0000003
tpy	0.0000023	0.0000037	0.0019710	0.0000821	0.0000013

Total	
lb/hr	**0.000470**
tpy	**0.002060**

* Source: AP-42 Table 1.4-1, 1.4-2, & 1.4-3

Storage Tank Emissions - Little Canyon Unit

Emissions for Storage Tank #1

	Uncontrolled (tpy)		Uncontrolled (lb/hr)	
C3	1.117		0.255	
i-butane	0.479		0.109	
n-Butane	0.582		0.133	
I-Pentane	0.264		0.06	
n-Pentane	0.186		0.042	
Hexanes	0.197		0.045	
Heptanes (C7+)	1.099		0.251	
Octanes (C8+)	0.131		0.03	
C9	0.018		0.004	
C10+	0.001		0	
Benzene	0.046		0.011	
Toluene	0.108		0.025	
Ethyl-Benzene	0.003		0.001	
Xylenes	0.024		0.005	
n_Hexane	0.203		0.046	
2,2,4- Trimethylpentane	0.032		0.007	
TOTAL NMNEHC	4.49	tpy	1.024	lb/hr
TOTAL HAPs	0.416	tpy	0.095	lb/hr
Based on actual average daily throughput of 3.1 barrels per day				

Storage Tank Emissions - Little Canyon Unit				
Emissions for Storage Tank #2				
	Uncontrolled (tpy)		Uncontrolled (lb/hr)	
C3	0.901		0.206	
i-butane	0.386		0.088	
n-Butane	0.470		0.107	
I-Pentane	0.213		0.049	
n-Pentane	0.150		0.034	
Hexanes	0.159		0.036	
Heptanes (C7+)	0.887		0.203	
Octanes (C8+)	0.106		0.024	
C9	0.015		0.003	
C10+	0.000		0.000	
Benzene	0.037		0.008	
Toluene	0.087		0.020	
Ethyl-Benzene	0.002		0.000	
Xylenes	0.019		0.004	
n_Hexane	0.164		0.037	
2,2,4- Trimethylpentane	0.026		0.006	
TOTAL NMNEHC	3.622	tpy	0.825	lb/hr
TOTAL HAPs	0.335	tpy	0.075	lb/hr
Based on actual average daily throughput of 2.5 barrels per day				

VOC EMISSIONS FROM CONDENSATE TRUCK LOADING OPERATIONS

Company: **XTO Energy**
Location: **Little Canyon Unit (LCU)**
Uintah County, Utah

Tank Description	Oil Sales (bbls/day)	Oil Sales (1,000 bbls/yr)	Saturation Factor (S)	True Vapor Pressure (P) (psia)	Vapor Mole Wt. (M)	Oil Temperature (T) (Degrees R)	Loading Losses (lbs/1,000 gal)	VOC Loading Emissions (tons/yr)
Slop Tanks	5.6	2.044	0.6	7.4	68	560	6.7177	0.2884
TOTAL	5.6	2.044					6.7177	**0.2884**

Vapor molecular weight and true vapor pressure are based on information in AP-42 Section 7, Table 7.1-2.

Loading Losses (lbs/1,000 gal) = $\frac{12.46*S*P*M}{T}$ (AP-42 Section 5.2, Equation 1)

Loading Emissions (tons/year) = $\frac{\text{Loading Losses (lbs/1,000 gal)} * \text{Oil Sales (1,000 bbls/yr)} * \text{(42 gal/bbl)}}{\text{2,000 lbs/ton}}$

Degrees R = Degrees F + 460

2008 Gas Throughput - Little Canyon Unit				
Time Period - Jan 1 - Dec 31, 2008				
4.4	BCF/yr			
4,400,000,000.00	scf/yr			
12,054,794.52	12-month avg (scf/day)			
12.1	**2008 daily avg (mmscfd)**			

TOTAL FACILITY EMISSION FEES

Company: **XTO Energy**
Facility Name: **Little Canyon Unit**
Facility Location: **Uintah County, Utah**

Part 71 Emissions Fee Rate (per ton)	2008 Chargeable Emissions	Total Emissions Fee
$45.25	178	$8,054.50
TOTAL		**$8,054.50**

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: XTO - Little Canyon CS TEG Dehydrator
File Name: Y:\Utah\Little Canyon\2009 EI\Buys\LCU 12.14mmscfd actual 2008.ddf
Date: July 13, 2009

DESCRIPTION:

Description: Actual Emissions
12.14 MMscfd, 12/17/08 Gas Analysis
with thermal oxidizer
45015 Kimray Glycol Pump, Optimal rate

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.0092	0.220	0.0402
Ethane	0.0053	0.126	0.0231
Propane	0.0079	0.190	0.0346
Isobutane	0.0040	0.096	0.0175
n-Butane	0.0079	0.189	0.0346
Isopentane	0.0041	0.098	0.0178
n-Pentane	0.0045	0.109	0.0199
n-Hexane	0.0036	0.085	0.0156
Cyclohexane	0.0100	0.240	0.0438
Other Hexanes	0.0041	0.099	0.0180
Heptanes	0.0094	0.226	0.0413
Methylcyclohexane	0.0134	0.322	0.0587
2,2,4-Trimethylpentane	0.0002	0.005	0.0009
Benzene	0.0214	0.513	0.0936
Toluene	0.0011	0.027	0.0050
Ethylbenzene	0.0016	0.037	0.0068
Xylenes	0.0202	0.484	0.0883
C8+ Heavies	0.0154	0.370	0.0675
Total Emissions	0.1432	3.436	0.6270
Total Hydrocarbon Emissions	0.1432	3.436	0.6270
Total VOC Emissions	0.1287	3.089	0.5638
Total HAP Emissions	0.0480	1.151	0.2101
Total BTEX Emissions	0.0442	1.061	0.1937

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.9172	22.013	4.0173
Ethane	0.5271	12.650	2.3086

Propane	0.7902	18.964	3.4610
Isobutane	0.3988	9.572	1.7468
n-Butane	0.7895	18.948	3.4581
Isopentane	0.4067	9.761	1.7815
n-Pentane	0.4540	10.895	1.9883
n-Hexane	0.3551	8.521	1.5552
Cyclohexane	1.0002	24.005	4.3810
Other Hexanes	0.4110	9.864	1.8003
Heptanes	0.9431	22.635	4.1309
Methylcyclohexane	1.3403	32.168	5.8707
2,2,4-Trimethylpentane	0.0201	0.482	0.0880
Benzene	2.1374	51.298	9.3618
Toluene	0.1134	2.722	0.4968
Ethylbenzene	0.1552	3.724	0.6796
Xylenes	2.0156	48.375	8.8284
C8+ Heavies	1.5402	36.966	6.7462
Total Emissions	14.3151	343.562	62.7001
Total Hydrocarbon Emissions	14.3151	343.562	62.7001
Total VOC Emissions	12.8709	308.902	56.3746
Total HAP Emissions	4.7968	115.123	21.0099
Total BTEX Emissions	4.4216	106.119	19.3666

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	36.3166	871.598	159.0667
Ethane	5.5947	134.272	24.5046
Propane	4.0530	97.272	17.7521
Isobutane	1.3136	31.525	5.7534
n-Butane	1.9668	47.202	8.6144
Isopentane	0.8695	20.869	3.8086
n-Pentane	0.7662	18.390	3.3561
n-Hexane	0.3206	7.693	1.4040
Cyclohexane	0.2163	5.192	0.9475
Other Hexanes	0.4944	11.865	2.1654
Heptanes	0.3989	9.573	1.7471
Methylcyclohexane	0.2221	5.330	0.9728
2,2,4-Trimethylpentane	0.0172	0.413	0.0753
Benzene	0.0654	1.570	0.2864
Toluene	0.0021	0.052	0.0094
Ethylbenzene	0.0017	0.040	0.0072
Xylenes	0.0149	0.359	0.0655
C8+ Heavies	0.0545	1.309	0.2388
Total Emissions	52.6884	1264.523	230.7754
Total Hydrocarbon Emissions	52.6884	1264.523	230.7754
Total VOC Emissions	10.7772	258.653	47.2041
Total HAP Emissions	0.4219	10.126	1.8479
Total BTEX Emissions	0.0841	2.019	0.3686

EQUIPMENT REPORTS:

COMBUSTION DEVICE

Ambient Temperature:	55.00 deg. F
Excess Oxygen:	5.00 %
Combustion Efficiency:	99.00 %
Supplemental Fuel Requirement:	6.57e-002 MM BTU/hr

Component	Emitted	Destroyed
Methane	1.00%	99.00%
Ethane	1.00%	99.00%
Propane	1.00%	99.00%
Isobutane	1.00%	99.00%
n-Butane	1.00%	99.00%
Isopentane	1.00%	99.00%
n-Pentane	1.00%	99.00%
n-Hexane	1.00%	99.00%
Cyclohexane	1.00%	99.00%
Other Hexanes	1.00%	99.00%
Heptanes	1.00%	99.00%
Methylcyclohexane	1.00%	99.00%
2,2,4-Trimethylpentane	1.00%	99.00%
Benzene	1.00%	99.00%
Toluene	1.00%	99.00%
Ethylbenzene	1.00%	99.00%
Xylenes	1.00%	99.00%
C8+ Heavies	1.00%	99.00%

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25
Calculated Dry Gas Dew Point:	1.31 lbs. H2O/MMSCF
Temperature:	81.0 deg. F
Pressure:	840.0 psig
Dry Gas Flow Rate:	12.1400 MMSCF/day
Glycol Losses with Dry Gas:	0.0641 lb/hr
Wet Gas Water Content:	Saturated
Calculated Wet Gas Water Content:	37.54 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	19.80 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.50%	96.50%
Carbon Dioxide	99.29%	0.71%

Nitrogen	99.95%	0.05%
Methane	99.95%	0.05%
Ethane	99.84%	0.16%
Propane	99.75%	0.25%
Isobutane	99.64%	0.36%
n-Butane	99.52%	0.48%
Isopentane	99.51%	0.49%
n-Pentane	99.36%	0.64%
n-Hexane	98.93%	1.07%
Cyclohexane	95.11%	4.89%
Other Hexanes	99.19%	0.81%
Heptanes	97.98%	2.02%
Methylcyclohexane	94.62%	5.38%
2,2,4-Trimethylpentane	99.17%	0.83%
Benzene	64.32%	35.68%
Toluene	53.14%	46.86%
Ethylbenzene	44.79%	55.21%
Xylenes	34.98%	65.02%
C8+ Heavies	95.20%	4.80%

FLASH TANK

Flash Control: Vented to atmosphere
Flash Temperature: 120.0 deg. F
Flash Pressure: 70.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.93%	0.07%
Carbon Dioxide	23.82%	76.18%
Nitrogen	2.42%	97.58%
Methane	2.46%	97.54%
Ethane	8.61%	91.39%
Propane	16.32%	83.68%
Isobutane	23.29%	76.71%
n-Butane	28.64%	71.36%
Isopentane	32.13%	67.87%
n-Pentane	37.46%	62.54%
n-Hexane	52.76%	47.24%
Cyclohexane	82.77%	17.23%
Other Hexanes	45.86%	54.14%
Heptanes	70.42%	29.58%
Methylcyclohexane	86.34%	13.66%
2,2,4-Trimethylpentane	54.48%	45.52%
Benzene	97.18%	2.82%
Toluene	98.29%	1.71%
Ethylbenzene	99.06%	0.94%
Xylenes	99.36%	0.64%
C8+ Heavies	96.98%	3.02%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	73.58%	26.42%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	1.20%	98.80%
n-Pentane	1.09%	98.91%
n-Hexane	0.84%	99.16%
Cyclohexane	3.76%	96.24%
Other Hexanes	1.85%	98.15%
Heptanes	0.66%	99.34%
Methylcyclohexane	4.52%	95.48%
2,2,4-Trimethylpentane	2.35%	97.65%
Benzene	5.13%	94.87%
Toluene	8.02%	91.98%
Ethylbenzene	10.48%	89.52%
Xylenes	12.96%	87.04%
C8+ Heavies	12.06%	87.94%

STREAM REPORTS:

WET GAS STREAM

Temperature: 81.00 deg. F
Pressure: 854.70 psia
Flow Rate: 5.07e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.91e-002	1.90e+001
Carbon Dioxide	3.59e-001	2.11e+002
Nitrogen	6.39e-001	2.39e+002
Methane	9.02e+001	1.93e+004
Ethane	5.04e+000	2.02e+003
Propane	2.07e+000	1.22e+003
Isobutane	4.37e-001	3.39e+002
n-Butane	5.68e-001	4.41e+002
Isopentane	2.10e-001	2.02e+002
n-Pentane	1.62e-001	1.56e+002
n-Hexane	4.82e-002	5.54e+001

Cyclohexane	2.15e-002	2.41e+001
Other Hexanes	8.22e-002	9.46e+001
Heptanes	4.64e-002	6.20e+001
Methylcyclohexane	2.16e-002	2.83e+001
2,2,4-Trimethylpentane	2.50e-003	3.81e+000
Benzene	5.90e-003	6.15e+000
Toluene	2.00e-004	2.46e-001
Ethylbenzene	2.00e-004	2.83e-001
Xylenes	2.20e-003	3.12e+000
C8+ Heavies	1.42e-002	3.23e+001
Total Components	100.00	2.45e+004

DRY GAS STREAM

Temperature: 81.00 deg. F
Pressure: 854.70 psia
Flow Rate: 5.06e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.77e-003	6.65e-001
Carbon Dioxide	3.57e-001	2.10e+002
Nitrogen	6.39e-001	2.39e+002
Methane	9.03e+001	1.93e+004
Ethane	5.03e+000	2.02e+003
Propane	2.07e+000	1.21e+003
Isobutane	4.36e-001	3.38e+002
n-Butane	5.67e-001	4.39e+002
Isopentane	2.09e-001	2.01e+002
n-Pentane	1.61e-001	1.55e+002
n-Hexane	4.77e-002	5.48e+001
Cyclohexane	2.05e-002	2.30e+001
Other Hexanes	8.17e-002	9.39e+001
Heptanes	4.55e-002	6.08e+001
Methylcyclohexane	2.05e-002	2.68e+001
2,2,4-Trimethylpentane	2.48e-003	3.78e+000
Benzene	3.80e-003	3.95e+000
Toluene	1.06e-004	1.31e-001
Ethylbenzene	8.96e-005	1.27e-001
Xylenes	7.70e-004	1.09e+000
C8+ Heavies	1.35e-002	3.07e+001
Total Components	100.00	2.44e+004

LEAN GLYCOL STREAM

Temperature: 81.00 deg. F
Flow Rate: 6.05e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.85e+001	3.35e+003
Water	1.50e+000	5.11e+001
Carbon Dioxide	4.41e-012	1.50e-010
Nitrogen	3.79e-013	1.29e-011
Methane	9.11e-018	3.10e-016
Ethane	4.42e-008	1.51e-006
Propane	3.68e-009	1.25e-007
Isobutane	1.08e-009	3.66e-008
n-Butane	1.54e-009	5.25e-008
Isopentane	1.45e-004	4.94e-003
n-Pentane	1.47e-004	5.00e-003
n-Hexane	8.78e-005	2.99e-003
Cyclohexane	1.15e-003	3.91e-002
Other Hexanes	2.28e-004	7.76e-003
Heptanes	1.85e-004	6.29e-003
Methylcyclohexane	1.86e-003	6.34e-002
2,2,4-Trimethylpentane	1.42e-005	4.84e-004
Benzene	3.39e-003	1.15e-001
Toluene	2.90e-004	9.88e-003
Ethylbenzene	5.33e-004	1.82e-002
Xylenes	8.81e-003	3.00e-001
C8+ Heavies	6.21e-003	2.11e-001
Total Components	100.00	3.40e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 81.00 deg. F
Pressure: 854.70 psia
Flow Rate: 6.24e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.60e+001	3.35e+003
Water	1.99e+000	6.95e+001
Carbon Dioxide	5.18e-002	1.81e+000
Nitrogen	1.36e-002	4.76e-001
Methane	1.07e+000	3.72e+001
Ethane	1.75e-001	6.12e+000
Propane	1.39e-001	4.84e+000
Isobutane	4.90e-002	1.71e+000
n-Butane	7.89e-002	2.76e+000
Isopentane	3.67e-002	1.28e+000
n-Pentane	3.51e-002	1.23e+000
n-Hexane	1.94e-002	6.79e-001
Cyclohexane	3.60e-002	1.26e+000
Other Hexanes	2.61e-002	9.13e-001
Heptanes	3.86e-002	1.35e+000
Methylcyclohexane	4.66e-002	1.63e+000
2,2,4-Trimethylpentane	1.08e-003	3.78e-002
Benzene	6.64e-002	2.32e+000
Toluene	3.59e-003	1.25e-001
Ethylbenzene	5.01e-003	1.75e-001

Component	Conc.	Loading
Xylenes	6.67e-002	2.33e+000
C8+ Heavies	5.17e-002	1.81e+000
Total Components	100.00	3.49e+003

FLASH TANK OFF GAS STREAM

Temperature: 120.00 deg. F
Pressure: 84.70 psia
Flow Rate: 1.02e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.46e-002	4.59e-002
Carbon Dioxide	1.16e+000	1.38e+000
Nitrogen	6.16e-001	4.64e-001
Methane	8.41e+001	3.63e+001
Ethane	6.91e+000	5.59e+000
Propane	3.41e+000	4.05e+000
Isobutane	8.40e-001	1.31e+000
n-Butane	1.26e+000	1.97e+000
Isopentane	4.48e-001	8.70e-001
n-Pentane	3.95e-001	7.66e-001
n-Hexane	1.38e-001	3.21e-001
Cyclohexane	9.55e-002	2.16e-001
Other Hexanes	2.13e-001	4.94e-001
Heptanes	1.48e-001	3.99e-001
Methylcyclohexane	8.40e-002	2.22e-001
2,2,4-Trimethylpentane	5.59e-003	1.72e-002
Benzene	3.11e-002	6.54e-002
Toluene	8.66e-004	2.15e-003
Ethylbenzene	5.78e-004	1.65e-003
Xylenes	5.23e-003	1.49e-002
C8+ Heavies	1.19e-002	5.45e-002
Total Components	100.00	5.46e+001

FLASH TANK GLYCOL STREAM

Temperature: 120.00 deg. F
Flow Rate: 6.12e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.75e+001	3.35e+003
Water	2.02e+000	6.94e+001
Carbon Dioxide	1.25e-002	4.31e-001
Nitrogen	3.35e-004	1.15e-002
Methane	2.67e-002	9.17e-001
Ethane	1.53e-002	5.27e-001
Propane	2.30e-002	7.90e-001
Isobutane	1.16e-002	3.99e-001

n-Butane	2.30e-002	7.90e-001
Isopentane	1.20e-002	4.12e-001
n-Pentane	1.33e-002	4.59e-001
n-Hexane	1.04e-002	3.58e-001
Cyclohexane	3.02e-002	1.04e+000
Other Hexanes	1.22e-002	4.19e-001
Heptanes	2.76e-002	9.49e-001
Methylcyclohexane	4.08e-002	1.40e+000
2,2,4-Trimethylpentane	5.99e-004	2.06e-002
Benzene	6.55e-002	2.25e+000
Toluene	3.59e-003	1.23e-001
Ethylbenzene	5.04e-003	1.73e-001
Xylenes	6.74e-002	2.32e+000
C8+ Heavies	5.09e-002	1.75e+000
Total Components	100.00	3.44e+003

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 4.76e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.11e+001	1.83e+001
Carbon Dioxide	7.80e-001	4.31e-001
Nitrogen	3.28e-002	1.15e-002
Methane	4.55e+000	9.17e-001
Ethane	1.40e+000	5.27e-001
Propane	1.43e+000	7.90e-001
Isobutane	5.47e-001	3.99e-001
n-Butane	1.08e+000	7.90e-001
Isopentane	4.49e-001	4.07e-001
n-Pentane	5.01e-001	4.54e-001
n-Hexane	3.28e-001	3.55e-001
Cyclohexane	9.47e-001	1.00e+000
Other Hexanes	3.80e-001	4.11e-001
Heptanes	7.50e-001	9.43e-001
Methylcyclohexane	1.09e+000	1.34e+000
2,2,4-Trimethylpentane	1.40e-002	2.01e-002
Benzene	2.18e+000	2.14e+000
Toluene	9.81e-002	1.13e-001
Ethylbenzene	1.16e-001	1.55e-001
Xylenes	1.51e+000	2.02e+000
C8+ Heavies	7.20e-001	1.54e+000
Total Components	100.00	3.31e+001

COMBUSTION DEVICE OFF GAS STREAM

Temperature: 1000.00 deg. F

Pressure: 14.70 psia
Flow Rate: 8.62e-001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Methane	2.52e+001	9.17e-003
Ethane	7.72e+000	5.27e-003
Propane	7.89e+000	7.90e-003
Isobutane	3.02e+000	3.99e-003
n-Butane	5.98e+000	7.90e-003
Isopentane	2.48e+000	4.07e-003
n-Pentane	2.77e+000	4.54e-003
n-Hexane	1.81e+000	3.55e-003
Cyclohexane	5.23e+000	1.00e-002
Other Hexanes	2.10e+000	4.11e-003
Heptanes	4.14e+000	9.43e-003
Methylcyclohexane	6.01e+000	1.34e-002
2,2,4-Trimethylpentane	7.75e-002	2.01e-004
Benzene	1.20e+001	2.14e-002
Toluene	5.42e-001	1.13e-003
Ethylbenzene	6.44e-001	1.55e-003
Xylenes	8.36e+000	2.02e-002
C8+ Heavies	3.98e+000	1.54e-002
Total Components	100.00	1.43e-001

```
******************************************************************************************
*     Project Setup Information                                                          *
******************************************************************************************
Project File                 : J:\XTO energy - 390\LCU T5\Tank Emissions - PTE.ept
Flowsheet Selection          : Oil Tank with Separator
Calculation Method           : RVP Distillation
Control Efficiency           : 100.0%
Known Separator Stream       : Low Pressure Oil
Entering Air Composition     : No

Filed Name                   : XTO Energy
Well Name                    : Little Canyon Compressor Station
Well ID                      : PTE
Date                         : 2009.06.08

******************************************************************************************
*     Data Input                                                                         *
******************************************************************************************

Separator Pressure           : 55.00[psig]
Separator Temperature        : 80.00[F]
Ambient Pressure             : 12.64[psia]
Ambient Temperature          : 51.96[F]
C10+ SG                      : 0.7614
C10+ MW                      : 190.98

-- Low Pressure Oil ----------------------------------------------------------------------
   No.    Component              mol %
   1      H2S                    0.0000
   2      O2                     0.0000
   3      CO2                    1.1239
   4      N2                     0.0840
   5      C1                    27.7359
   6      C2                     2.7955
   7      C3                     1.5835
   8      i-C4                   0.7170
   9      n-C4                   1.0561
   10     i-C5                   0.7564
   11     n-C5                   0.6978
   12     C6                     1.7341
   13     C7                    26.6087
   14     C8                     9.6271
   15     C9                     3.8073
   16     C10+                   9.3447
   17     Benzene                0.6206
   18     Toluene                4.7280
   19     E-Benzene              0.3285
   20     Xylenes                3.5581
   21     n-C6                   2.2710
   22     224Trimethylp          0.8218

-- Sales Oil -----------------------------------------------------------------------------
Production Rate              : 6.5[bbl/day]
Days of Annual Operation     : 365 [days/year]
API Gravity                  : 55.0
Reid Vapor Pressure          : 7.00[psia]

******************************************************************************************
*     Calculation Results                                                                *
******************************************************************************************

-- Emission Summary ----------------------------------------------------------------------
Item                   Uncontrolled   Uncontrolled
                       [ton/yr]       [lb/hr]
```

Total HAPs	0.870	0.199
Total HC	31.562	7.206
VOCs, C2+	12.771	2.916
VOCs, C3+	9.414	2.149

Uncontrolled Recovery Info.

Vapor	3.0700	[MSCFD]
HC Vapor	2.9700	[MSCFD]
GOR	472.31	[SCF/bbl]

-- Emission Composition --

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
1	H2S	0.000	0.000
2	O2	0.000	0.000
3	CO2	2.045	0.467
4	N2	0.100	0.023
5	C1	18.790	4.290
6	C2	3.357	0.766
7	C3	2.341	0.534
8	i-C4	1.005	0.229
9	n-C4	1.221	0.279
10	i-C5	0.553	0.126
11	n-C5	0.389	0.089
12	C6	0.412	0.094
13	C7	2.305	0.526
14	C8	0.275	0.063
15	C9	0.038	0.009
16	C10+	0.001	0.000
17	Benzene	0.097	0.022
18	Toluene	0.227	0.052
19	E-Benzene	0.005	0.001
20	Xylenes	0.051	0.012
21	n-C6	0.426	0.097
22	224Trimethylp	0.067	0.015
	Total	33.705	7.695

-- Stream Data --

No.	Component	MW	LP Oil mol %	Flash Oil mol %	Sale Oil mol %	Flash Gas mol %	W&S Gas mol %	Total Emissions mol %
1	H2S	34.80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	O2	32.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	CO2	44.01	1.1239	0.0530	0.0530	3.1420	0.0000	3.1420
4	N2	28.01	0.0840	0.0003	0.0003	0.2417	0.0000	0.2417
5	C1	16.04	27.7359	0.4204	0.4204	79.2127	0.0000	79.2127
6	C2	30.07	2.7955	0.2719	0.2719	7.5513	0.0000	7.5513
7	C3	44.10	1.5835	0.5182	0.5182	3.5911	0.0000	3.5911
8	i-C4	58.12	0.7170	0.4772	0.4772	1.1690	0.0000	1.1690
9	n-C4	58.12	1.0561	0.8626	0.8626	1.4207	0.0000	1.4207
10	i-C5	72.15	0.7564	0.8827	0.8827	0.5183	0.0000	0.5183
11	n-C5	72.15	0.6978	0.8745	0.8745	0.3649	0.0000	0.3649
12	C6	86.16	1.7341	2.4781	2.4781	0.3320	0.0000	0.3320
13	C7	100.20	26.6087	39.8754	39.8754	1.6072	0.0000	1.6072
14	C8	114.23	9.6271	14.6466	14.6466	0.1678	0.0000	0.1678
15	C9	128.28	3.8073	5.8165	5.8165	0.0208	0.0000	0.0208
16	C10+	190.98	9.3447	14.3031	14.3031	0.0004	0.0000	0.0004
17	Benzene	78.11	0.6206	0.9052	0.9052	0.0843	0.0000	0.0843
18	Toluene	92.13	4.7280	7.1485	7.1485	0.1665	0.0000	0.1665
19	E-Benzene	106.17	0.3285	0.5010	0.5010	0.0035	0.0000	0.0035
20	Xylenes	106.17	3.5581	5.4291	5.4291	0.0322	0.0000	0.0322
21	n-C6	86.18	2.2710	3.2987	3.2987	0.3342	0.0000	0.3342
22	224Trimethylp	114.24	0.8218	1.2369	1.2369	0.0395	0.0000	0.0395
	MW		80.93	111.78	111.78	22.80	0.00	22.80
	Stream Mole Ratio		1.0000	0.6533	0.6533	0.3467	0.0000	0.3467
	Heating Value	[BTU/SCF]				1287.20	0.00	1287.20
	Gas Gravity	[Gas/Air]				0.79	0.00	0.79
	Bubble Pt. @ 100F	[psia]	1015.36	18.12	18.12			

RVP @ 100F	[psia]	188.94	6.44	6.44
Spec. Gravity @ 100F		0.633	0.681	0.681

MIRATECH EMISSIONS SOLUTIONS

CONFIDENTIAL

MIRATECH Emissions Control Equipment Specification Summary

Proposal Number: TJ-08-2951 Rev(1)

Engine Data

# of Engines:	1
Engine Operation:	Gas Compression
Engine Make:	Caterpillar
Engine Model:	G 3516 LE
Power Output:	1,340 bhp
Fuel:	Natural Gas
Design Exhaust Temp:	854 F
Design Exhaust Flow Rate:	13,305 lb/hr
Lubrication Oil:	0.6 wt% sulfated ash or less

Catalytic Converter System Data

Catalytic Converter Model:	RCS-3626-12-L1
Inlet / Outlet Pipe Size:	12 inches
Overall Length:	106 inches
Diameter:	36/26 inches
Weight (including catalyst):	840 lbs
Converter Pressure Loss:	4.8 Inches of WC
Sound Attenuation:	25-30 dba
Catalyst Section Internals:	Carbon Steel
Shell / Body Constructions:	Carbon Steel
Inlet / Outlet Connection:	Standard 125# ANSI Bolt Pattern Flanges - FF
Instrumentation Ports:	1 inlet/1 outlet/2 catalyst (1/2" NPT)
Oxygen Sensor Ports:	1 inlet/1 outlet (18mm)

Operation Temperature Limits 750 - 1,250 degrees F (inlet); 1,350 degrees F (outlet)

Emission Requirements

Exhaust Gases	Engine Outputs (g/ bhp-hr)	Reduction (%)	Converter Outputs (g/ bhp-hr)	Area Limits
CO	1.89	90%	0.19	90 % Reduction
CH_2O	0.25	76%	0.06	0.06 g/bhp-hr
Oxygen	8.3%			

MIRATECH warrants the performance of the converter, as stated above, per the MIRATECH General Terms and Conditions of Sale.

9/25/2005

CATALYTIC SILENCER SIZING PROGRAM

GT EXHAUST SYSTEMS, INC.
4121 NW 37 Street
Lincoln, NE 68524
402-323-7272 Fax 402-323-7270

CUSTOMER: EXTERRAN
PROJECT: XTO
DATE: 2/9/2009 QUOTATION I.D.:
DESCRIPTION: CAT 3516TALE, 1400RPM, 1340HP, 854TEMP
SELECT OXIDATION CATALYST SIZE
PRESSURE DROP CALCULATED WITH A 12 INCH OUTLET

PERFORMANCE DATA INPUT AND CALCULATIONS

INPUT DATA			CALCULATED	
FLOW: ACFM			ACFM	7404.36
or SCFM 70/14.7			SCFM 70/14.7	2968.54
or NCuM/Min32/14.7			NCuM/Min32/14.7	
or LB/MIN			LB/MIN	221.68
or LB/HR	13301		LB/HR	13301.00
S.G.			S.G.	0.99102
or M.W.	28.7	* SEE	M.W.	28.700
TGAS°F	854	NOTE	TGAS°R	1314
PGAS PSIG			PGAS PSIA	14.700
PATM PSIA	14.7		OUTLET, SQ.FT.	0.785
OUTLET SIZE, IN	12		OUTLET VEL, FT/MIN	9427.5
FUEL, (GAS,or DIESEL)	GAS		VEL HEAD, IN H_2O	2.21
BODY STYLE (201 OR 501)	201		SCFH 32/14.7	166344 (FOR CAT CONV SPACE VEL CALC)
MAX. BODY CAPACITY or R **	3			
3-WAY OR OXIDATION	OXIDATION			
SERIES (2100,4100,5100 - 8100)	4100			
NUMBER OF ELEMENTS = ***	2			

* NOTE: 27.5 MW TYP FOR RICH BURN EXHAUST GAS; 28.7 MW TYP. FOR LEAN BURN GAS OR DIESEL
** MAX. BODY CAPACITY - For modular enter number of elements and half elements as 1, 2, 4, 6, etc.
For the small round (6",8",10",12",14",or 16") ENTER R IN C-30 AND THE DIAMETER SELECTED IN C-31.
*** NUMBER ELEMENTS For modular enter the number of full and half elements as 1, 1.5, 2, 2.5, 3, 3.5, ... up to entered Max. Body Capacity.
For small round (6",8",10",12",14",or 16") ENTER "1" AND ENTER THE DIAMETER OF IN C-31

GT CATALYTIC CONVERTER MODEL NUMBER: 201 V O - 3 - 200 - 4112
CALCULATED PRESSURE DROP = 6.71 INCHES H2O, CALCULATED SPACE VELOCITY = 123318
WITH LEAN BURN GAS ENGINE, MIN. OXIDATION RATES ARE: 95 % CO & HCHO, AND 80 % NMNEHC

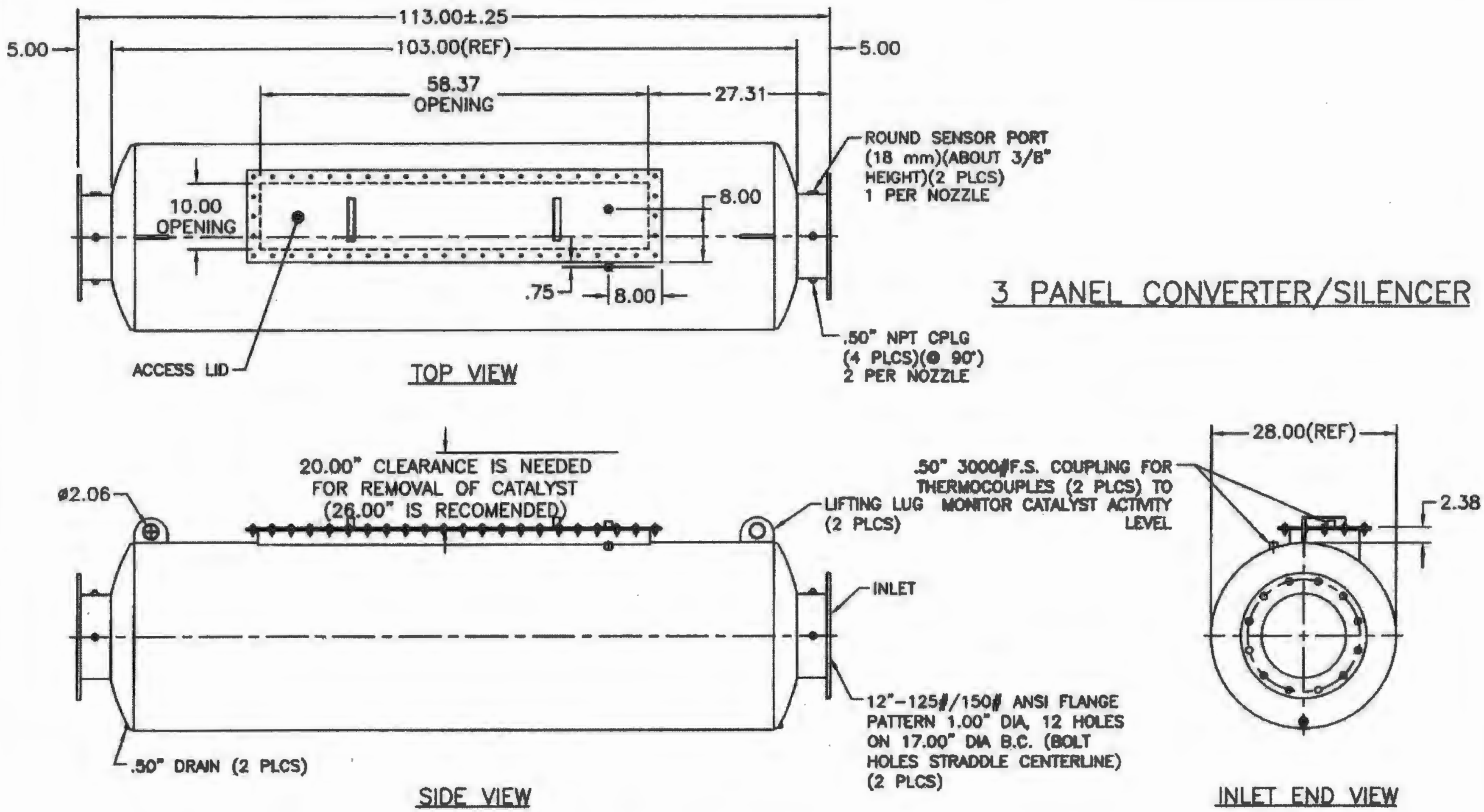
VOC WILL BE STATED AS NMNEHC FOR THIS APPLICATION

BASED ON STATED EXH. FLOW & TEMPERATURE	NOX	CO	HCHO	NMHC Note 1	NMNEHC Note 1
AND THE FOLLOWING EMISSIONS OUT OF ENGINE:	1.500	1.890	0.250	0.460	0.310
WE WARRANT EMISSIONS OUT OF CONVERTER NOT EXCEED:	1.500	0.397	0.055	0.230	0.077
UNITS:	gm/bhp-hr	gm/bhp-hr	gm/bhp-hr	gm/bhp-hr	gm/bhp-hr

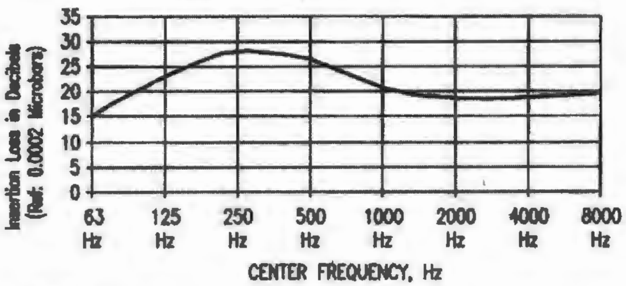
Note 1: NMHC, NMNEHC & LESS THAN 50% Saturated.
Note 2: Oxidation Catalyst on Diesel or Lean Gas Cannot Reduce NOx

PERFORMANCE WARRANTY CONTINGENT UPON CONVERTER INSTALLATION ON A PROPERLY MAINTAINED ENGINE
EXCESSIVE OIL CONSUMPTION AND/OR FUEL CONSUMPTION MAY MASK OR POISON THE CATALYST AND REDUCE DESTRUCTION
ENGINE LUBE OIL MUST BE OF A TYPE RECOMMENDED FOR CATALYTIC CONVERTER SERVICE.
ELEMENT(S) WILL REQUIRE PERIODIC CLEANING. FREQUENCY WILL DEPEND ON LEVEL OF CONTAMINANTS IN THE EXHAUST GAS
CERTAIN CONTAMINANTS SUCH AS HEAVY METAL IN FUEL AND LUBE OIL WILL POSION THE CATALYST AND VOID THE WARANTY

3 PANEL CONVERTER/SILENCER



Nominal Attenuation Curve for 201VO-2-4108 TO 201VO-2-4112 OCTAVE BAND (Consult Factory for Specific Application)



FINISH: HIGH HEAT BLACK
APPROX. WT. 900 LBS
NOTE: ALL DIMENSIONS ARE IN INCHES.

TOLERANCES (EXCEPT AS NOTED)	REVISIONS NO.	DESCRIPTION	DATE	BY
DECIMAL: .12"	A	UPDATED ACCESS LID HEIGHT	09/15/05	AMH
FRACTIONAL: 1/8"				
ANGULAR: 2°				

GT EXHAUST SYSTEMS, INC

201VO-3-___-4112-1-30449: 12" CONVERTER

DRAWN BY: AMH	SCALE: NONE	MATERIAL: HRS
APP'D BY:	DATE: 07/18/05	DWG. NO. 3044?
CUSTOMER:		

INDUSTRIAL REFRACTORY SERVICES INC.
2300 South Main Street
Fort Worth, Texas 76110
(817)924-9991
mriddell@irsvc.com

March 3, 2009

Aaron Tucker

XTO Energy
Natural Gas Operations
810 Houston Street
Fort Worth, TX 76102

Dear Aaron Tucker:

The Thermal Oxidizers you recently purchased are compliant with the latest environmental regulations.

Industrial Refractory Services Inc. guarantees a 99% V.O.C. destruction efficiency on all Thermal Oxidizers unless otherwise stated.

I have attached copies of the Emissions Data that is provided by Eclipse Combustion, the manufacture of the process burner that is used on the Thermal Oxidizers. The 36" T.O.'s use the TJ0200HV burner.

If you have questions please contact me.

Sincerely,

Mike Riddell
Enclosure

ECLIPSE
Innovative Thermal Solutions

EMISSIONS DATA REQUEST (Please submit completed report to the Eclipse Engineering Help Desk)

Customer: Industrial refractory Services
Site location (required for guarantee validity): Roosevelt, UT.
Application: Thermal Oxidizer
Burner model: TJ0200HV

Fuel: Natural Gas
Process temperature: 1450°F

Combustion air temperature entering burner: Ambient
If recirculating oven, process stream temperature ahead of burner: N/A
Burner firing arrangement: Horizontal
Applicable firing rate: 2 Mmbtu/hr

[X] NO_x [X] CO [ ] Other-specify ______

What are the requested guarantee values? (required for guarantee validity)

______

Permit conditions under which the equipment will operate

______

How should emissions be stated?

[X] ppm (parts per million) corrected to 3% O2
[ ] lb/million Btu
[ ] lb/hour
[ ] Other-specify ______

This is a request for...

[X] Estimate
[ ] Guarantee of performance

Requested by: Mike Riddell
Office: I R S Inc.
Date: 8/19/2008

EMISSIONS DATA (To be filled out by Eclipse Home Office)

NO_x: 50 PPM @ 3% O2

CO: <50 PPM @ 3% O2

Other: Multiplier For Medium Velocity Tube 1.2 X NOX

Based on the information submitted above, these emissions are.

[X] Estimated
[ ] Guaranteed *

By: Dave Pool
Date: 81/19/08

* For guarantees, see attached "Eclipse Combustion Emissions Guarantee" for terms.

Eclipse, Inc. 1665 Elmwood Rd. Rockford, IL 61103 USA
Tel: 815-877-3031 Fax: 815-877-3336
www.eclipsenet.com

ECLIPSE
Innovative Thermal Solutions

EMISSIONS DATA REQUEST (Please submit completed report to the Eclipse Engineering Help Desk)

Customer: Industrial refractory Services
Site location (required for guarantee validity): Roosevelt, UT.
Application: Thermal Oxidizer
Burner model: TJ0200HV

Fuel: Natural Gas
Process temperature: 1450 °F

Combustion air temperature entering burner: Ambient
If recirculating oven, process stream temperature ahead of burner: N/A
Burner firing arrangement: Horizontal
Applicable firing rate: 2 Mmbtu/hr

[X] NO_x [X] CO [ ] Other-specify

What are the requested guarantee values? (required for guarantee validity)

Permit conditions under which the equipment will operate

How should emissions be stated?

[X] ppm (parts per million) corrected to 3% O2
[ ] lb/hour
[ ] lb/million Btu
[ ] Other-specify

This is a request for...

[X] Estimate
[ ] Guarantee of performance

Requested by: Mike Riddell
Office: I R S Inc.
Date: 8/19/2008

EMISSIONS DATA (To be filled out by Eclipse Home Office)

NO_x: 50 PPM @ 3% O2

CO: <50 PPM @ 3% O2

Other: Multiplier For Medium Velocity Tube 1.2 X NOX

Based on the information submitted above, these emissions are.

[X] Estimated
[ ] Guaranteed *

By: Dave Pool
Date: 81/19/08

* For guarantees, see attached "Eclipse Combustion Emissions Guarantee" for terms.

Eclipse, Inc. 1665 Elmwood Rd. Rockford, IL 61103 USA
Tel: 815-877-3031 Fax: 815-877-3336
www.eclipsenet.com

G3516 LE

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA
Uinta Cat 3516LE

CATERPILLAR®

ENGINE SPEED (rpm):	1400
COMPRESSION RATIO:	8:1
AFTERCOOLER WATER INLET (°F):	130
JACKET WATER OUTLET (°F):	210
COOLING SYSTEM:	JW+OC , AC
IGNITION SYSTEM:	ADEM3
EXHAUST MANIFOLD:	ASWC
COMBUSTION:	Low Emission
NOx EMISSION LEVEL (g/bhp-hr NOx):	1.5
SET POINT TIMING:	27.4

FUEL SYSTEM:	HPG IMPCO WITH AIR FUEL RATIO CONTROL

SITE CONDITIONS:

FUEL:	Field Gas
FUEL PRESSURE RANGE(psig):	35.0-40.0
FUEL METHANE NUMBER:	62.2
FUEL LHV (Btu/scf):	1027
ALTITUDE(ft):	5800
MAXIMUM INLET AIR TEMPERATURE(°F):	55
NAMEPLATE RATING:	1340 bhp@1400rpm

			MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE		
RATING	NOTES	LOAD	100%	100%	75%	50%
ENGINE POWER	(1)	bhp	1340	1260	945	670
INLET AIR TEMPERATURE		°F	32	55	55	55
ENGINE DATA						
FUEL CONSUMPTION (LHV)	(2)	Btu/bhp-hr	7722	7778	8055	8518
FUEL CONSUMPTION (HHV)	(2)	Btu/bhp-hr	8532	8594	8901	9412
AIR FLOW	(3)(4)	lb/hr	12692	11944	9030	6604
AIR FLOW WET (77°F, 14.7 psia)	(3)(4)	scfm	2862	2694	2036	1489
INLET MANIFOLD PRESSURE	(5)	in Hg(abs)	70.0	66.5	52.3	39.3
EXHAUST STACK TEMPERATURE	(6)	°F	907	907	908	911
EXHAUST GAS FLOW (@ stack temp, 14.5 psia)	(7)(4)	ft3/min	7882	7419	5620	4126
EXHAUST GAS MASS FLOW	(7)(4)	lb/hr	13190	12415	9396	6879
EMISSIONS DATA						
NOx (as NO2)	(8)	g/bhp-hr	1.50	1.50	1.50	1.50
CO	(8)	g/bhp-hr	2.31	2.34	2.45	2.61
THC (mol. wt. of 15.84)	(8)	g/bhp-hr	2.43	2.45	2.56	2.72
NMHC (mol. wt. of 15.84)	(8)	g/bhp-hr	0.63	0.64	0.66	0.71
NMNEHC (VOCs) (mol. wt. of 15.84)	(8)(9)	g/bhp-hr	0.42	0.43	0.45	0.47
HCHO (Formaldehyde)	(8)	g/bhp-hr	0.22	0.22	0.23	0.24
CO2	(8)	g/bhp-hr	509	511	522	545
EXHAUST OXYGEN	(10)	% DRY	7.9	7.8	7.7	7.6
HEAT REJECTION						
HEAT REJ. TO JACKET WATER (JW)	(11)	Btu/min	43666	42171	35699	29897
HEAT REJ. TO ATMOSPHERE	(11)	Btu/min	5313	5102	4269	3543
HEAT REJ. TO LUBE OIL (OC)	(11)	Btu/min	6512	6289	5324	4459
HEAT REJ. TO AFTERCOOLER (AC)	(11)(12)	Btu/min	9473	9473	5270	2111

HEAT EXCHANGER SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+OC)	(12)	Btu/min	55848
TOTAL AFTERCOOLER CIRCUIT (AC)	(12)(13)	Btu/min	9946
A cooling system safety factor of 0% has been added to the heat exchanger sizing criteria.			

CONDITIONS AND DEFINITIONS

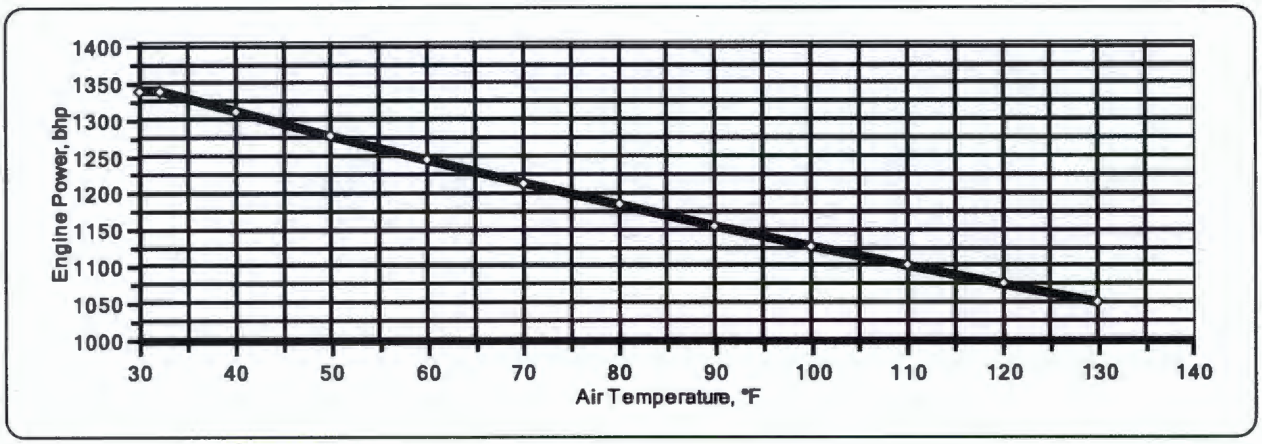
Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature.
100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature.
Max. rating is the maximum capability for the specified fuel at site altitude and reduced inlet air temperature.
Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

For notes information consult page three.

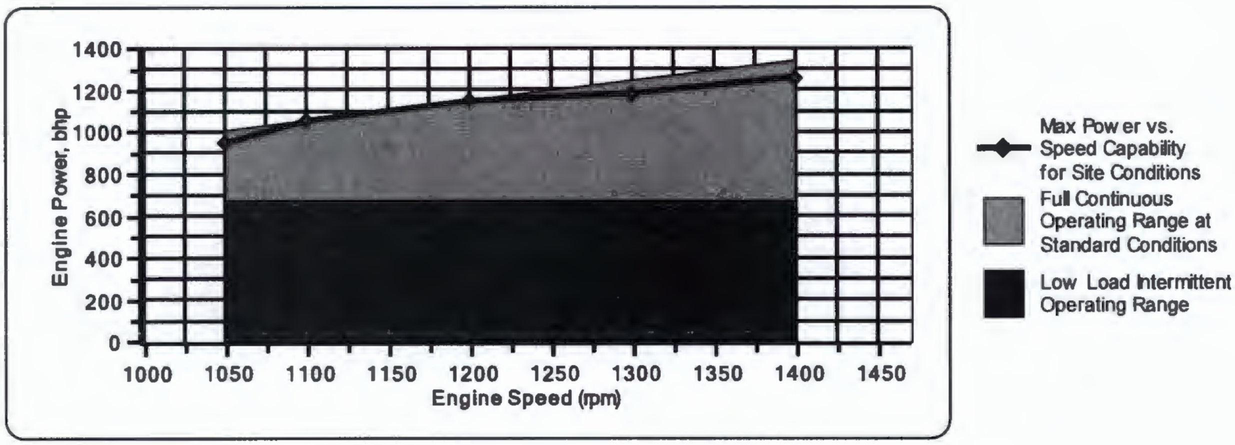
PREPARED BY: craig allison, XTO
Data generated by Gas Engine Rating Pro Version 3.02.00
Ref. Data Set DM8618-00-001, Printed 03Apr2009

GAS ENGINE SITE SPECIFIC TECHNICAL DATA
Uinta Cat 3516LE

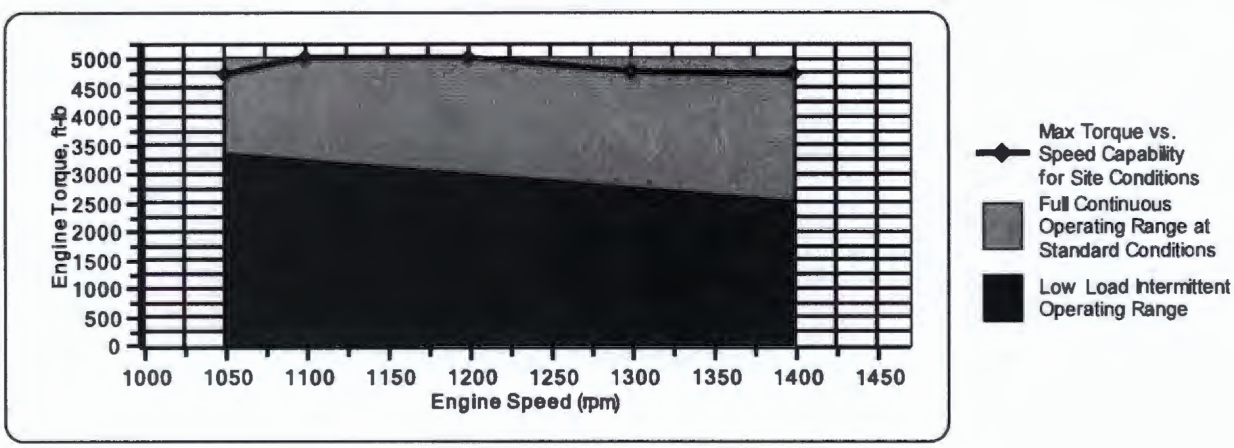
Engine Power vs. Inlet Air Temperature



Engine Power vs. Engine Speed



Engine Torque vs. Engine Speed



NOTES

1. Engine rating is with two engine driven water pumps. Tolerance is ± 3% of full load.

2. Fuel consumption tolerance is ± 3.0% of full load data.

3. Undried air. Flow is a nominal value with a tolerance of ± 5 %.

4. Inlet and Exhaust Restrictions must not exceed A&I limits based on full load flow rates from the standard technical data sheet.

5. Inlet manifold pressure is a nominal value with a tolerance of ± 5 %.

6. Exhaust stack temperature is a nominal value with a tolerance of (+)63°F, (-)54°F.

7. Exhaust flow value is on a "wet" basis. Flow is a nominal value with a tolerance of ± 6 %.

8. Emission levels are at engine exhaust flange prior to any after treatment. Values are based on engine operating at steady state conditions, adjusted to the specified NOx level at 100% load. Fuel methane number cannot vary more than ± 3. Engine should be setup to the nominal published NOx level to ensure emissions remain compliant with a 2.0 g/bhp-hr "not to exceed" NOx limit. All other emission values listed are higher than nominal levels to allow for instrumentation, measurement, and engine-to-engine variations. They indicate "not to exceed" values. THC, NMHC, and NMNEHC do not include aldehydes. An oxidation catalyst may be required to meet Federal, State or local CO or HC requirements.

9. VOCs - Volatile organic compounds as defined in US EPA 40 CFR 60, subpart JJJJ

10. Exhaust Oxygen level is the result of adjusting the engine to operate at the specified NOx level. Tolerance is ± 0.5.

11. Heat rejection values are nominal. Tolerances, based on treated water, are ± 10% for jacket water circuit, ± 50% for radiation, ± 20% for lube oil circuit, and ± 5% for aftercooler circuit.

12. Aftercooler heat rejection includes an aftercooler heat rejection factor for the site elevation and inlet air temperature specified. Aftercooler heat rejection values at part load are for reference only. Do not use part load data for heat exchanger sizing.

13. Heat exchanger sizing criteria are maximum circuit heat rejection for the site, with applied tolerances.

G3516 LE

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA
Uinta Cat 3516LE

CATERPILLAR®

Constituent	Abbrev	Mole %	Norm
Water Vapor	H2O	2.5211	2.5211
Methane	CH4	86.6340	86.6340
Ethane	C2H6	4.9767	4.9767
Propane	C3H8	3.5670	3.5670
Isobutane	iso-C4H1O	0.0000	0.0000
Norbutane	nor-C4H1O	1.8211	1.8211
Isopentane	iso-C5H12	0.0000	0.0000
Norpentane	nor-C5H12	0.4802	0.4802
Hexane	C6H14	0.0000	0.0000
Heptane	C7H16	0.0000	0.0000
Nitrogen	N2	0.0000	0.0000
Carbon Dioxide	CO2	0.0000	0.0000
Hydrogen Sulfide	H2S	0.0000	0.0000
Carbon Monoxide	CO	0.0000	0.0000
Hydrogen	H2	0.0000	0.0000
Oxygen	O2	0.0000	0.0000
Helium	HE	0.0000	0.0000
Neopentane	neo-C5H12	0.0000	0.0000
Octane	C8H18	0.0000	0.0000
Nonane	C9H20	0.0000	0.0000
Ethylene	C2H4	0.0000	0.0000
Propylene	C3H6	0.0000	0.0000
TOTAL (Volume %)		100.0000	100.0000

Fuel Makeup:	Field Gas
Unit of Measure:	English
Calculated Fuel Properties	
Caterpillar Methane Number:	62.2
Lower Heating Value (Btu/scf):	1027
Higher Heating Value (Btu/scf):	1135
WOBBE Index (Btu/scf):	1274
THC: Free Inert Ratio:	Not Applicable
RPC (%) (To 905 Btu/scf Fuel):	100%
Compressibility Factor:	0.997
Stoich A/F Ratio (Vol/Vol):	10.68
Stoich A/F Ratio (Mass/Mass):	16.43
Specific Gravity (Relative to Air):	0.650
Specific Heat Constant (K):	1.297

CONDITIONS AND DEFINITIONS

Caterpillar Methane Number represents the knock resistance of a gaseous fuel. It should be used with the Caterpillar Fuel Usage Guide for the engine and rating to determine the rating for the fuel specified. A Fuel Usage Guide for each rating is included on page 2 of its standard technical data sheet.

RPC always applies to naturally aspirated (NA) engines, and turbocharged (TA or LE) engines only when they are derated for altitude and ambient site conditions.

Project specific technical data sheets generated by the Caterpillar Gas Engine Rating Pro program take the Caterpillar Methane Number and RPC into account whan generating a site rating.

Fuel properties for Btu/scf calculations are at 60F and 14.696 psia.

Caterpillar shall have no liability in law or equity, for damages, consequently or otherwise, arising from use of program and related material or any part thereof.

FUEL LIQUIDS

Field gases, well head gases, and associated gases typically contain liquid water and heavy hydrocarbons entrained in the gas. To prevent detonation and severe damage to the engine, hydrocarbon liquids must not be allowed to enter the engine fuel system. To remove liquids, a liquid separator and coalescing filter are recommended, with an automatic drain and collection tank to prevent contamination of the ground in accordance with local codes and standards.

To avoid water condensation in the engine or fuel lines, limit the relative humidity of water in the fuel to 80% at the minimum fuel operating temperature.

PREPARED BY: craig allison, XTO
Data generated by Gas Engine Rating Pro Version 3.02.00
Ref. Data Set DM8618-00-001, Printed 03Apr2009

XTO ENERGY

RECEIVED
JUL 21 2009
8P - AR

COPY

Claudia Smith - EPA Reg 8

July 17, 2009

Assistant Regional Administrator
Office of Enforcement, Compliance, and Environmental Justice
U.S. Environmental Protection Agency, Region 8
1595 Wynkoop
Denver, CO 80202-1129

Certified Mail
Return receipt No. 7008 2810 0000 4380 0050

RE: XTO Energy – Consent Decree
Uintah Basin on Indian Country Lands in the State of Utah
DOJ No. 90-5-2-1-08656
Civil Action No. 2:09-CV-00331-SA
- **Notice of Owner and Operator change for Uinta Basin Facilities**

To Whom It May Concern:

XTO Energy (XTO) hereby submits this notification of owner and operator change related to the Consent Decree lodged for Civil Action No. 2:09-CV-00331-SA for the Uintah Basin on Indian Country Lands in the State of Utah. XTO Energy Inc. formed a wholly owned subsidiary under the name of Summit Gas Gathering, LLC (SGG) on April 27, 2009. As a part of the creation of SGG, XTO transferred the assets and business control of the assets to SGG as of June 1, 2009. With regard to the legal liability of XTO Energy Inc. under the referenced civil action and associated consent decree, XTO Energy Inc. still functions as the owner of SGG and retains the position of Co-defendant in conjunction with Dominion Exploration & Production, Inc. for Civil Action No. 2:09-CV-00331-SA. The following documents are attached to this letter as a part of this notification:

- A Certification of Truth, Accuracy, and Completeness (CTAC) signed by the Responsible Official.
- Statements from XTO Energy and SGG regarding Federal Tax ID and entity status of the newly formed subsidiary.

If you should have any questions or require additional information, please feel free to contact me at (817) 885-2672.

Sincerely,
XTO Energy

Craig Allison

Craig Allison
EH&S Advisor

WCA/Encl

Cc: See Distribution List on the attached page.

XTO Energy, Inc. -
U.S. Consent Decree Report Distribution List

As per Paragraph 93 of the U.S. Consent Decree, unless otherwise specified herein, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be made in writing and mailed or hand delivered addressed as follows:

CC via U.S. Certified Mail No. 7008 2810 0000 4380 0814 :
Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, D.C. 20044-7611
Re: DOJ No. 90-5-2-1-08656

CC via U.S. Certified Mail No. 7008 2810 0000 4380 0777 :
Director, Air Enforcement Division
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
Ariel Rios Building [2242A]
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Original copy via U.S. Certified Mail No. 7008 2810 0000 4380 0050 :
Assistant Regional Administrator
Office of Enforcement, Compliance, and Environmental Justice
U.S. Environmental Protection Agency, Region 8
1595 Wynkoop Street
Denver, CO 80202-1129

CC via U.S. Certified Mail No. 7008 2810 0000 4380 0791 :
Mr. Josh Rickard
Office of Enforcement, Compliance, and Environmental Justice
U.S. Environmental Protection Agency, Region 8
1595 Wynkoop Street
Denver, CO 80202-1129

CC via U.S. Certified Mail No. 7008 2810 0000 4380 0807 :
Ms. Claudia Young Smith
Air Program - US EPA Region 8
Part 71 - Permitting, Monitoring and Modeling Unit
1595 Wynkoop St. (8P-AR)
Denver, CO 80202-1129

CC via U.S. Certified Mail No. 7008 2810 0000 4380 0784 (w/o attachments) :
Rodney J. Biggs
Vice President – Operations
Dominion Exploration & Production, Inc.
One Dominion Drive
Jane Lew, West Virginia 26378

Via E-mail:
Nina Hutton
Vice President – EH&S
XTO Energy Inc.
810 Houston Street
Fort Worth, TX 76102-6298

United States Environmental Protection Agency

Federal Operating Permit Program (40 CFR Part 71)

CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS (CTAC)

This form must be completed, signed by the "Responsible Official" designated for the facility or emission unit, and sent with each submission of documents (i.e., application forms, updates to applications, reports, or any information required by a part 71 permit). This certification is also being used to certify documents and reports submitted as part of the Consent Decree for U.S. Civil Action No. 2:09-CV-00331-SA.

A. Responsible Official

Name: (Last) **Dungey** (First) **Nick** (MI) **J**

Title **Senior Vice President of Natural Gas Operations - XTO Energy**

Street or P.O. Box **810 Houston St.**

City **Fort Worth** State **TX** ZIP **76102** - ____

Telephone (817) 885-2440 Ext. ______ Facsimile (817) 870 - 8441

B. Certification of Truth, Accuracy and Completeness (to be signed by the responsible official and includes the certification language as stated in Paragraph 52 of the E.P.A. Consent Decree)

I certify under penalty of law that this document and all attachments were prepared under my supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Name (signed) Nick J. Dungey

Name (typed) **Nick Dungey** Date: 7 / 16 / **2009**

Summit Gas Gathering, LLC
810 Houston St.
Fort Worth, TX 76102

To Whom It May Concern:

Summit Gas Gathering, LLC, a wholly owned subsidiary of XTO Energy Inc., is a Delaware limited liability company that was formed on April 27, 2009 by XTO Energy Inc. Summit's tax identification number is 26-4775626. This letter attests that payment for materials and services requested by and for Summit Gas Gathering, LLC are fully guaranteed by XTO Energy Inc.

Sincerely,

Nick Dungey
President, Summit Gas Gathering, LLC
Senior Vice President – Natural Gas Operations, XTO Energy Inc.

Summit Gas Gathering, LLC
810 Houston St.
Fort Worth, TX 76102

To Whom It May Concern:

Summit Gas Gathering, LLC, a wholly owned subsidiary of XTO Energy Inc., is a Delaware limited liability company that was formed on April 27, 2009 by XTO Energy Inc. Its tax identification number is 26-4775626.

Very truly yours,

Frank G. McDonald
Assistant Secretary of XTO Energy Inc.

Summit Gas Gathering, LLC
810 Houston Street
Ft. Worth, TX 76102-6298
(817) 870-2800 (off)

July 17, 2009

RECEIVED
JUL 21 2009
8P - AR

Ms. Callie A. Videtich
Director, Air and Radiation Program
U.S. Environmental Protection Agency
Region 8 – Mail Code 8P-AR
1595 Wynkoop Street
Denver, CO 80202-1129

Certified Mail 7008 2810 0000 4380 0685

Re: Designation of Responsible Official
Summit Gas Gathering, LLC – Uinta Basin, Utah Facilities
Kings Canyon Unit Compressor Station – Part 71 Permit # V-OU-0019-07.00
Tap- 4 Compressor Station - Part 71 Permit # V-OU-0017-07.00
Tap- 5 Compressor Station - Part 71 Permit # V-OU-00XX-07.00
Little Canyon Unit Compressor Station – Part 71 Permit # Pending

Ms. Videtich:

Summit Gas Gathering, LLC (SGG), operating as a Delaware limited liability company, formally submits this notification to the U.S. Environmental Protection Agency. The following company employee will perform the duties of "Responsible Official" for the above referenced facilities:

- Primary Responsible Official - Mr. Nick Dungey
  Chairman of the Board and President
  810 Houston Street
  Fort Worth, Texas 76102
  817-885-2440 Office
  817-885-2683 fax
  nick_dungey@xtoenergy.com

SGG certifies that this individual meets the following credentials:

(1) For a corporation: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

(i) the facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or

(ii) the delegation of authority to such representative is approved in advance by the permitting authority.

In addition, pursuant to 40 CFR 71.5(d), any application form, report, or compliance certification submitted pursuant to these regulations shall contain certification by a responsible official of truth, accuracy, and completeness (CTAC form). Attached is the completed CTAC form signed by the senior-most company official responsible for operations of the Title V, 40 CFR Part 71 facilities referenced in this request.

Please contact the undersigned at 817-885-2672 or at craig_allison@xtoenergy.com if you need any additional information.

Sincerely,

Craig Allison
EH&S Advisor

cc: Ms. Claudia Young Smith, EPA Region 8 - Certified Mail 7008 2810 0000 4380 0821
Mr. Josh Rickard, EPA Region 8 - Certified Mail 7008 2810 0000 4380 0838
Mr. Nick Dungey, Summit Gas Gathering, LLC

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)

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) **Dungey** (First) **Nick** (MI) **J**

Title **Chairman of the Board and President – Summit Gas Gathering, LLC**

Street or P.O. Box **810 Houston St.**

City **Fort Worth** State **TX** ZIP **76102** - _____

Telephone (817) 885-2440 Ext. _______ Facsimile (817) 870 - 8441

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) Nick J. Dungey

Name (typed) **Nick Dungey** Date: 7 / 16 / **2009**

Craig_Allison@xtoenergy.com
07/28/2009 10:02 AM

To Claudia Smith/R8/USEPA/US@EPA
cc Nina_Hutton@xtoenergy.com
bcc
Subject Re: Little Canyon Unit Compressor Station

History: This message has been replied to.

Claudia:

I will include the a description of the operational changes related to the Little Canyon Station. The major difference is an added engine, and we (XTO) used a gas analysis from a warmer time of year than Dominion used for their emissions estimate. The nature and composition of the gas also plays a part in calculating the HAP and VOC emissions, specifically for the dehy. From what I could tell, the Little Canyon location was on the border of being a major source when Dominion operated it and we (XTO) confirmed that it could be over major source limits at certain times through our recent EI. This is why XTO is permitting the location as Title V based on PTE.

XTO explained this to Josh Rickard and Jim Eppers in late 2008, prior to the CD being lodged, and EPA's response was to require XTO to conduct an EI for all sites and establish those which are now Title V and those that are currently not Title V. Little Canyon was the only additional site that became Title V. The Uinta Basin EI's were submitted to the EPA and DOJ in mid-June of 2009 as a part of the Consent Decree requirements.

I will put this in the cover letter with the info I am sending you which will go out next week. Let me know if you have any questions.

Regards,
Craig Allison
EH&S Advisor
XTO Energy
810 Houston Street
Fort Worth, TX 76102
817-885-2672 Office
817-201-2379 Cell
817-885-2683 Fax

Smith.Claudia@epamail.epa.gov
07/28/2009 10:04 AM

To Craig_Allison@xtoenergy.com
cc
Subject Re: Little Canyon Unit Compressor Station

Craig,

Our understanding of the LCU facility history is that Dominion did actually submit a T5 application in 2006, but then EPA enforcement folks determined the facility was a minor source, which is why our tracking system did not list the facility as having an application submitted. Did something change at the facility between then and now to make this source major? If so, is that explained in the application you will be sending?

Claudia Young Smith
Environmental Scientist
Air Permitting, Monitoring and Modeling Unit
Office of Partnerships & Regulatory Assistance
EPA Region 8
1595 Wynkoop Street (8P-AR)
Denver, CO 80202-1129

Phone: (303) 312-6520
Fax: (303) 312-6064
Smith.Claudia@epa.gov

Craig_Allison@xtoenergy.com		To
07/21/2009 03:48 PM	Claudia Smith/R8/USEPA/US@EPA	
		cc
		Subject
	Re: Little Canyon Unit Compressor Station	

Claudia:

As we discussed, the LCU TV application and fee backup documentation, along with updates to the three TV apps that you already have, will be coming to you within the next week.

Regards,
Craig Allison
EH&S Advisor
XTO Energy
810 Houston Street
Fort Worth, TX 76102
817-885-2672 Office
817-201-2379 Cell
817-885-2683 Fax

Smith.Claudia@epamail.epa.gov

07/21/2009 04:26 PM

To
Craig_Allison@xtoenergy.com

cc

Subject
Little Canyon Unit Compressor Station

Craig,

I received a Designation of Responsible Official, for four XTO Energy facilities. We have received part 71 applications for three of the facilities mentioned. The letter indicates that for the fourth facility, Little Canyon Unit Compressor Station, "Part 71 Permit # Pending." We have no part 71 application on record for this facility. Should we be expecting to receive an application in the near future?

Thank you,

Claudia Young Smith
Environmental Scientist
Air Permitting, Monitoring and Modeling Unit
Office of Partnerships & Regulatory Assistance
EPA Region 8
1595 Wynkoop Street (8P-AR)
Denver, CO 80202-1129

Phone: (303) 312-6520
Fax: (303) 312-6064
Smith.Claudia@epa.gov