Wortman, Eric

From: Wortman, Eric
Sent: Friday, September 22, 2017 9:56 AM
To: 'timothy_hermann@xtoenergy.com'
Cc: 'Allison, Craig'; minnieg@utetribe.com; 'Bruce Pargeets'; Fallon, Gail; Okubo, Noreen
Subject: Final Part 71 Permits for River Bend Dehydration Site and Tap 5 Compressor Station
Attachments: XTO River Bend Dehy FINAL Initial Part 71 Permit V-UO-000026-2011.00.pdf; XTO Tap 5 CS FINAL Initial Part 71 Permit V-UO-000018-2007.00.pdf

Mr. Hermann,

I have attached the final requested permits for XTO Energy, Inc.'s Tap 5 Compressor Station and River Bend Dehydration Site issued pursuant to the Title V Operating Permit Program at 40 CFR Part 71 (Part 71). We will also be posting each of the final Part 71 permits 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), both permits are effective immediately upon issuance, on September 22, 2017. Please review each condition carefully and note any restrictions placed on these sources. Procedures for appealing these permits 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 the corresponding final permit action.

If you have any questions or concerns regarding these final permit actions, please contact me.

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: Friday, September 22, 2017 9:58 AM
To: Wortman, Eric
Subject: Notice of Issuance of Title V Operating Permits on the Uintah and Ouray Indian Reservation

This is to notify you that the EPA has issued two (2) final Clean Air Act (CAA) Title V operating permits for XTO Energy Inc.'s Tap 5 Compressor Station and the River Bend Dehydration Site pursuant to the Title V Operating Permit Program at 40 CFR Part 71 (Part 71). The final Part 71 permits will be available 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 permits are effective immediately upon issuance, on September 22, 2017. Any person who failed to file comments 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 these final permit decisions. Motions to reconsider a final order by the Environmental Appeals Board (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

Public Notice: Request For Comments

Draft Air Quality Permit to Operate for Federal Clean Air Act Title V to Control Air Pollutant Emissions from Multiple Facilities on the Uintah and Ouray Indian Reservation

Public notice issued:
August 18, 2017

Written comments due:

5 p.m., September 18, 2017

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 following facilities owned and operated by XTO Energy, Inc. on Indian country lands within the Uintah and Ouray Indian Reservation: Tap 5 Compressor Station and River Bend Dehydration Site.

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 facilities. The draft operating permit includes all CAA control requirements that apply to the facilities and associated equipment emitting air pollutants.

Where are the facilities located?

Tap 5 Compressor Station:
Uintah and Ouray Indian Reservation
Uintah County, Utah
Latitude: 39.9750760N
Longitude: 109.6360850W

River Bend Dehydration Site:
Uintah and Ouray Indian Reservation
Uintah County, Utah
Latitude: 39.94851N
Longitude: 109.77057W

Permit number:

Tap 5 CS: V-UO-000018-2007.00
River Bend Dehy: V-UO-000026-2011.00

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:

August 18, 2017
Through 5 p.m.,
September 18, 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-

Smith, Claudia

From: Wortman, Eric
Sent: Friday, August 18, 2017 5:12 AM
To: Wortman, Eric
Subject: Notice of Public Comment Period – Draft Title V Operating Permits on the Uintah and 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, tribes, and members of the public of the issuance of the draft title V federal operating permit for the following sources located on Indian country lands within the Uintah and Ouray Indian Reservation:

XTO Energy Inc. – Tap 5 Compressor Station
XTO Energy Inc. – River Bend Dehydration Site

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

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

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

Electronic copies of the draft permits, Statement of Bases, permit applications, 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 August 18, 2017 to September 18, 2017, for public comment on this draft permit. Comments must be received by 5 p.m. on September 18, 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

AUG 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 Permits to Operate (40 CFR part 71) for public inspection and comment for the following sources:

XTO Energy Inc. – Tap 5 Compressor Station
XTO Energy Inc. – River Bend Dehydration Site

The public comment period for this notice will end on September 18, 2017. Please make the enclosed draft permits, Statement of Bases, and permit applications 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

Enclosures

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

AUG 1 4 2017

Ref: 8P-AR

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

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Re: Transmittal of Draft Title V Permits to Operate on the Uintah and 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 sources located on Indian country lands within the Uintah and Ouray Indian Reservation:

XTO Energy Inc. – Tap 5 Compressor Station
XTO Energy Inc. – River Bend Dehydration Site

Region 8 is providing a 30-day period, from August 18, 2017 to September 18, 2017 for comment. Please make the enclosed draft permits, Statement of Bases, permit applications, and additional supporting information for each permit action 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 September 18, 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

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

Enclosures

Cc: Bruce Pargeets, Acting Director of Energy & Minerals Department, Ute Indian Tribe
(without enclosures)

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

AUG 14 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 Permits for XTO Energy, Inc.'s Tap 5 Compressor Station (Permit #V-UO-000018-2007.00) and River Bend Dehydration Site (Permit #V-UO-000026-2011.00)

Dear Mr. Herman:

The U.S. Environmental Protection Agency Region 8 has completed its review of XTO Energy, Inc.'s applications for the Tap 5 Compressor Station and River Bend Dehydration Site 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).

Enclosed you will find the draft Part 71 operating permits and the corresponding Statement of Basis for each permit. 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 August 18, 2017. The public comment period will end at 5:00 p.m. MDT on September 18, 2017.

The conditions contained in the permits will become effective and enforceable by the agency if the permits are issued final. If you are unable to accept any term or condition of the draft permits, 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 the respective Statement of Basis, please contact Eric Wortman of my staff at (617) 918-1624.

Sincerely,

Monica S. Morales
Director, Air Program
Office of Partnerships and Regulatory Assistance

Enclosures (5)

cc: Minnie Grant, Air Coordinator, Ute Indian Tribe
Bruce Pargeets, Acting Director, Energy, Minerals and Air, Ute Indian Tribe (w/out enclosures)
Craig Allison, Environmental Health & Safety Advisor, XTO Energy, Inc.

Air Pollution Control
Federal Clean Air Act (CAA) Title V Permit to Operate
Statement of Basis for Draft Permit No. V-UO-000018-2007.00

XTO Energy, Inc.
Tap 5 Compressor Station
Uintah and Ouray Reservation
Uintah County, Utah

I. Facility Information

A. Location

The Tap 5 Compressor Station (Tap 5), owned and operated by XTO Energy, Inc. (XTO), is located on Indian county lands within the Uintah and Ouray Indian Reservation in northeastern Utah. The exact location is Latitude 39.9750760N, Longitude 109.6360850W. 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
(817) 885-2672
craig_allison@xtoenergy.com

Responsible Official:
Timothy Herman, Manager of Midstream Operations
XTO Energy, Inc.
810 Houston Street
Fort Worth, Texas 76102
(817) 885-2584
timothy_herman@xtoenergy.com

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

C. Description of Operations

Natural gas produced from area wells and from the Little Canyon Unit Compressor Station is sent to Tap 5 through natural gas gathering flowlines. The low-pressure natural gas stream from area wells enters a low-pressure inlet separator in order to reduce water and condensable liquids content in the gas stream

prior to entry into compressor engine and T5C-2 and the triethylene glycol (TEG) natural gas dehydration system. The high-pressure gas stream from the Little Canyon Unit Compressor Station enters a high-pressure separator in order to reduce water and condensable liquids content in the gas stream prior to entry into compressor engine T5BC-2. The liquids produced from the on-site separators are sent to the 300-barrel (bbl) and 400-bbl slop tanks T5T-1 and T5T-2 for storage prior to being hauled off site. The TEG natural gas dehydration system utilized for the low-pressure natural gas stream consists of one (1) 40 million standard cubic feet per day (MMscfd) capacity natural gas TEG dehydration process still vent (T5D-1), with a 0.50 million British thermal units per hour (MMBTU/hr) natural gas-fired process heater and a TEG regenerator. The TEG natural gas dehydration system emissions are controlled by a thermal oxidizer.

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 – see Section D). In addition, the pneumatic control devices are operated by plant air supplied by the on-site electric-driven air compressor.

In addition, the RBU 11-2F wellsite is located on the same surface pad as Tap 5. The RBU 11-2F wellsite does not produce significant natural gas and is considered an oil production well only. The emission units at the RBU 11-2F wellsite include a 13 horsepower (hp) pumping unit engine, two (2) 300-bbl storage tanks, condensate truck loading operations, two (2) 0.5 MMBTU/hr natural gas-fired tank heaters and fugitive emissions.

D. Emission Points

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

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 (HAP) under section 112(b) and below 1,000 lbs/year or the de minimis level established under section 112(g), whichever is lower, for HAP. 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.

Table 1 – Emission Units and Emission Generating Activities

Unit I.D.	Description	Control Equipment
T5C-2	Caterpillar 3516 TALE; 1,340 hp* 4-Stroke Lean-Burn Reciprocating Internal Combustion Engine Natural Gas-Fired Serial No. 4EK05034 Installed: 7/30/2013 Mfg*: 3/21/2006	Oxidation Catalyst
T5BC-2	Caterpillar 3516 LE; 1,340 hp* 4-Stroke Lean-Burn Reciprocating Internal Combustion Engine Natural Gas-Fired Serial No. WPW01800 Installed: 6/28/2013 Mfg*: 11/2/2007	Oxidation Catalyst
T5D-1	40 MMscfd* TEG Dehydration Unit Serial No. 28111 Installed: 5/10/2007	Thermal Oxidizer

Unit I.D.	Description	Control Equipment
T5-ENGBD	Compressor Blowdown Emissions	None
T5F-1	Fugitive Emissions	None
RBUTK-1	300 bbl* Oil Storage Tank Serial #: F1433 Installed: 11/29/2012	None
RBUTK-2	300 bbl* Oil Storage Tank Serial #: 77924 Installed: Pre-2011	None
RBU 11-2F PU	Arrow C-66 Well Site Pumping Unit; 13 hp 4-Stroke Rich-Burn Reciprocating Internal Combustion Engine Natural Gas-Fired Serial No. 65902 Installed: Pre-2008 Mfg*: Pre-2008	None

* Mfg = Manufactured; hp = horsepower; bbl = barrel; MMscfd = million standard cubic feet per day; IEU = insignificant emission unit.

Table 2 – Insignificant Emission Units*

Description
Capstone 65 kW Microturbine Genset (Tap 5)
Condensate Truck Loading (Tap 5)
0.50 MMBtu/hr** TEG Dehydration Unit Reboiler (Tap 5)
400-bbl Condensate Tank #1 (Tap 5)
300-bbl Condensate Tank #2 (Tap 5)
0.25 MMBtu/hr** Tank Heater #1 (Tap 5)
0.25 MMBtu/hr** Tank Heater #2 (Tap 5)
0.25 MMBtu/hr** Natural Gas-Fired Separator Heater (Tap 5)
2.0 MMBtu/hr* Heater for Thermal Oxidizer (Tap 5)
2 Lube Oil Tanks (Tap 5)
Pipeline Pigging Operations (Tap 5)
Engine Break in Period (Tap 5)
0.50 MMBtu/hr** RBU 11-02F Wellsite Tank Heater (RBU 11-2F Wellsite)
0.25 MMBtu/hr** RBU 11-02F Wellsite Tank Heater (RBU 11-2F Wellsite)
RBU 11-02F Wellsite Fugitive Emissions (RBU 11-2F Wellsite)
RBU 11-02F Wellsite Truck Loading (RBU 11-2F 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 standards that may apply under 40 CFR parts 60 or 63.

** MMBtu/hr = million British thermal units per hour.

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."[1]

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)											
	NO_X*	**CO***	**VOC***	**PM***	**SO_2***	**CH_2O***	**Total HAP***	**CO_2***	**CH_4* (as CO_2e)**	**N_2O* (as CO_2e)**	**CO_2e***
T5C-2	25.9	30.3	9.3	0.4	0.0	3.6	4.4	4,939.6	1,403.3	2.1	6,345.0
T5BC-2	25.9	30.3	9.3	0.4	0.0	3.6	4.4	4,939.6	1,403.3	2.1	6,345.0
T5D-1	1.3	1.8	5.6	0.2	0.0	0.0	3.8	1,023.9	0.5	0.5	1,025.0
T5-ENGBD	0.0	0.0	2.6	0.0	0.0	0.0	0.2	0.2	676.7	0.0	676.9
T5F-1	0.0	0.0	3.9	0.0	0.0	0.0	0.3	0.3	610.1	0.0	610.4
RBU 11-2F Tank 1	0.0	0.0	2.5	0.0	0.0	0.0	0.2	0.0	36.0	0.0	36.0
RBU 11-2F Tank 2	0.0	0.0	2.5	0.0	0.0	0.0	0.2	0.0	36.0	0.0	36.0
RBU 11-2F PU	1.9	0.5	0.0	0.0	0.0	0.0	0.0	51.5	2.7	0.0	54.2
IEUs*	3.2	4.7	9.1	0.2	0.0	0.2	0.5	1,330.3	1,176.3	1.9	2,508.4
TOTAL	**58.2**	**67.6**	**44.8**	**1.2**	**0.0**	**7.4**	**14.0**	**12,285.4**	**5,344.9**	**6.6**	**17,636.9**

*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; IEU = insignificant emission unit.

II. Applicable Requirement Review

The following sections discuss 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 (PSD) at 40 CFR part 52 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 PTE, which, as explained previously, 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.

1 The 1995 guidance memo is available at https://www.epa.gov/enforcement/options-limiting-potential-emit-pte-stationary-source-under-section-112-and-title-v

According to the emissions information provided by XTO in their Part 71 application, this facility is currently not a major stationary source with respect to the PSD Permit Program, as the PTE of any pollutant does not exceed the thresholds of criteria pollutants regulated under the PSD Permit Program.

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 belongs 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 RBU 11-2F Wellsite and Tap 5 are located on the same surface site. Therefore, the EPA has determined that RBU 11-2F Wellsite is adjacent to Tap 5 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, Tap 5 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 Tap 5 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 (T5T-1, T5T-2, RBUTK-1 and RBUTK-2) at this facility 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.

The hydrocarbon dewpoint skids owned and operated by XTO were permanently shut down and removed from Tap 5 on October 12, 2010. Therefore, Tap 5 no longer meets the definition of a natural gas processing plant under this subpart. Since Tap 5 is not a natural gas processing plant, 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, this facility 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 T5C-2 and T5BC-2 and July 1, 2008 for the RBU 11-2F PU). 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 Tap 5 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, storage vessel RBU 11-2F Tank #1 commenced construction after August 23, 2011 and prior to September 18, 2015. However, according to XTO, the emissions from the storage vessels are below 6 tpy and do not satisfy the criteria for an affected source under the rule. XTO shall maintain records of each VOC emissions determination made under §60.5365(e) as specified in §60.5420(c)(5)(ii). Based on the information provided by XTO in their Part 71 application, all other potential affected facilities under the rule commenced construction before August 23, 2011. Therefore, this rule does not apply to other equipment.

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 Tap 5 predates the applicability date for this subpart. Therefore, this facility is 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, Tap 5 is 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, there are no storage vessels at Tap 5 or RBU 11-2F wellsite with the potential for flash emissions (as defined in the rule). Uncontrolled emissions from dehydration unit T5D-1 exceed the major source thresholds for HAP. Therefore, dehydration unit T5D-1 is subject to the major source requirements of this subpart.

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 HAP 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. 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 rated peak power output for the Capstone Microturbine at the facility is 0.065 MW.

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.

As defined in §63.6675, emissions from any oil or 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, even when emission points are in a contiguous area or under common control. 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 (T5C-2 and T5BC-2) at Tap 5 are subject to the requirements of subpart ZZZZ for major sources. The Arrow C-66 pumping unit engine at the RBU 11-2F wellsite (RBU 11-2F 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 HAP emitted from new and existing industrial boilers, institutional boilers, commercial boilers, and process heaters that are located at major sources of HAP. For the purposes of this subpart, a major source of HAP is as defined in §63.2, except that for oil and natural gas production facilities, a major source of HAP 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 Tap 5 meet the definition of process heaters in the rule. However, because Tap 5 is subject to the major source requirements of 40 CFR part 63, subpart HH, EPA's "once in, always in" policy[2] 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 Tap 5 with federally enforceable controls was below major source thresholds for HAP 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, Tap 5 does not meet the definition of a major source under the rule and this subpart does not apply. This subpart does not apply to the RBU 11-2F wellsite because it does not meet the definition of a major source under the rule.

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 HAP 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 HAP. 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 Tap 5 or the RBU 11-2F 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. The effective date of this rule is November 21, 1997.

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

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

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

2. CAM Plan Submittal Deadlines

(a) Large pollutant-specific emissions units. 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% 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 T5D-1 is a PSEU with pre-controlled emissions that equal or exceed 100% of HAP thresholds. However, T5 D-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% of major source thresholds, Tap 5 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 1% 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, Tap 5 and RBU 11-2F wellsite do not have regulated substances above the threshold quantities in this rule; and therefore, they 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 delegation of Part 71 or approval to administer their own operating permit program under 40 CFR part 70, so the EPA administers Part 71 within the exterior boundaries of the Uintah and 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(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, 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
Contact: Michael Wilkins, Uintah County Clerk at (435) 781-5361 or mwilkins@co.uintah.ut.us

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.

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.
Tap 5 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 39.9750760N, Longitude 109.6360850W
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 S. Morales
Director, Air Program
Office of Partnerships & Regulatory Assistance

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

XTO Energy, Inc.
Tap 5 Compressor Station

Permit Number: V-UO-000018-2007.00
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-000018-2007.00	Initial Permit	N/A

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I. Facility Information and Emission Unit Identification

A. Facility Information

Parent Company Name:	XTO Energy, Inc.
Plant Operator and Name:	Tap 5 Compressor Station
Plant Location:	Latitude 39.9750760N, Longitude -109.6360850W
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:

Natural gas produced from area wells and from the Little Canyon Unit Compressor Station is sent to the Tap 5 Compressor Station (Tap 5) through natural gas gathering flowlines. The low-pressure natural gas stream from area wells enters a low-pressure inlet separator in order to reduce water and condensable liquids content in the gas stream prior to entry into compressor engine and T5C-2 and the triethylene glycol (TEG) natural gas dehydration system. The high-pressure gas stream from the Little Canyon Unit Compressor Station enters a high-pressure separator in order to reduce water and condensable liquids content in the gas stream prior to entry into compressor engine T5BC-2. The liquids produced from the on-site separators are sent to the 300-barrel (bbl) and 400-bbl slop tanks T5T-1 and T5T-2 for storage prior to being hauled off site. The TEG natural gas dehydration system utilized for the low-pressure natural gas stream consists of one (1)
40 million standard cubic feet per day (MMscfd) capacity natural gas TEG dehydration process still vent (T5D-1), with a 0.50 million British thermal units per hour (MMBTU/hr) natural gas-fired process heater and a TEG regenerator. The TEG natural gas dehydration system emissions are controlled by a thermal oxidizer.

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 – see Table 3). In addition, the pneumatic control devices are operated by plant air supplied by the on-site electric-driven air compressor.

In addition, the RBU 11-2F wellsite is located on the same surface pad as Tap 5. The

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RBU 11-2F wellsite does not produce significant natural gas and is considered an oil production well only. The emission units at the RBU 11-2F wellsite include a 13 horsepower (hp) pumping unit engine, two (2) 300-bbl storage tanks, condensate truck loading operations, and two (2) 0.5 MMBTU/hr natural gas-fired tank heaters and fugitive emissions.

B. Facility Emission Points

Table 2 - Emission Units and Emission Generating Activities

Unit I.D.	Description	Control Equipment
T5C-2	Caterpillar 3516 TALE; 1,340 hp* 4-Stroke Lean-Burn Reciprocating Internal Combustion Engine Natural Gas-Fired Serial No. 4EK05034 Installed: 7/30/2013 Mfg*: 3/21/2006	Oxidation Catalyst
T5BC-2	Caterpillar 3516 LE; 1,340 hp* 4-Stroke Lean-Burn Reciprocating Internal Combustion Engine Natural Gas-Fired Serial No. WPW01800 Installed: 6/28/2013 Mfg*: 11/2/2007	Oxidation Catalyst
T5D-1	40 MMscfd* TEG Dehydration Unit Serial No. 28111 Installed: 5/10/2007	Thermal Oxidizer
T5-ENGBD	Compressor Blowdown Emissions	None
T5F-1	Fugitive Emissions	None
RBUTK-1	300 bbl* Oil Storage Tank Serial #: F1433 Installed: 11/29/2012	None
RBUTK-2	300 bbl* Oil Storage Tank Serial #: 77924 Installed: Pre-2011	None
RBU 11-2F PU	Arrow C-66 Well Site Pumping Unit; 13 hp 4-Stroke Rich-Burn Reciprocating Internal Combustion Engine Natural Gas-Fired Serial No. 65902 Installed: Pre-2008 Mfg*: Pre-2008	None

* Mfg = Manufactured; hp = horsepower; bbl = barrel; MMscfd = million standard cubic feet per day; IEU = insignificant emission unit.

Table 3 – Insignificant Emission Units*

Description
Capstone 65 kW Microturbine Genset (Tap 5)
Condensate Truck Loading (Tap 5)
0.50 MMBtu/hr** TEG Dehydration Unit Reboiler (Tap 5)
400-bbl Condensate Tank #1 (Tap 5)
300-bbl Condensate Tank #2 (Tap 5)
0.25 MMBtu/hr** Tank Heater #1 (Tap 5)
0.25 MMBtu/hr** Tank Heater #2 (Tap 5)
0.25 MMBtu/hr** Natural Gas-Fired Separator Heater (Tap 5)
2.0 MMBtu/hr* Heater for Thermal Oxidizer (Tap 5)
2 Lube Oil Tanks (Tap 5)
Pipeline Pigging Operations (Tap 5)
Engine Break in Period (Tap 5)
0.50 MMBtu/hr** RBU 11-02F Wellsite Tank Heater (RBU 11-2F Wellsite)

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Description
0.25 MMBtu/hr** RBU 11-02F Wellsite Tank Heater (RBU 11-2F Wellsite)
RBU 11-02F Wellsite Fugitive Emissions (RBU 11-2F Wellsite)
RBU 11-02F Wellsite Truck Loading (RBU 11-2F 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 standards that may apply under 40 CFR parts 60 or 63.
** MMBtu/hr = million British thermal units per hour.

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 for affected sources located at a major source of HAP applies to the 40 MMscfd TEG dehydration unit identified as T5D-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 for affected sources located at a major source of HAP.

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, CO 80202–1129

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

   (a) The control requirements for glycol dehydration unit 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 shall operate and maintain any glycol dehydration unit, 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

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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 the glycol dehydration unit 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 dehydration units 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).

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 units:

1. Caterpillar 3516 LE engine identified as T5C-2 in Table 2 of this permit;

2. Caterpillar 3516 LE engine identified as T5BC-2 in Table 2 of this permit; and

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3. Arrow C-66 engine identified as RBU 11-2F 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, CO 80202–1129

C. Emission Limits and Operating Requirements [40 CFR 63.6600, 63.6603, and 63.66005]

1. For engine units T5C-2 and T5BC-2, the permittee shall comply with the emission limitations for affected sources at a major source of HAP in Table 2a and the operating limitations in Table 2b of 40 CFR part 63, subpart ZZZZ as specified in §63.6600(b).

2. For engine unit RBU 11-2F PU, the permittee shall comply with the requirements for affected sources at an area source of HAP in Table 2d and the operating limitations in Table 2b of 40 CFR part 63, subpart ZZZZ as specified in §63.6603(a).

3. For engine units T5C-2, T5BC-2, and RBU 11-2F PU, the permittee shall comply with the emission limitations, operating limitations, and other requirements in 40 CFR part 63, subpart ZZZZ at all times.

4. For engine units T5C-2 and T5BC-2, compliance with the numerical emission limitations for affected sources at a major source of HAP established in 40 CFR part 63, subpart ZZZZ shall be based on the results of testing the average of three (3) 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to 40 CFR part 63, subpart ZZZZ.

5. The Permittee shall 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 at all times. 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 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 source.

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D. Testing and Initial Compliance Requirements [40 CFR 63.6610, 63.6615, 63.6620, 63.6625 and 63.6630]

1. For engine units T5C-2 and T5BC-2, the Permittee shall conduct the initial performance tests or other compliance demonstrations requirements for affected sources at a major source of HAP as specified in §63.6610.

2. For engine units T5C-2 and T5BC-2, the Permittee shall conduct subsequent performance tests as specified in §63.6615.

3. For engine units T5C-2 and T5BC-2, the Permittee shall use the performance tests and other procedures specified for affected sources at a major source of HAP in §63.6620.

4. For engine units T5C-2 and T5BC-2, the Permittee shall meet the monitoring, installation, collection, operation and maintenance requirements for affected sources at a major source of HAP as specified in §63.6625.

5. For engine unit RBU 11-2F PU, the permittee may utilize the option of an oil analysis program in order to extend the specified oil change requirement for affected sources at an area source of HAP in Table 2d of 40 CFR part 63, subpart ZZZZ as specified in 40 CFR 63.6625(j).

6. For engine units T5C-2 and T5BC-2, the Permittee shall demonstrate initial compliance with the emission limitations, operating limitations, and other requirements that apply to affected sources at a major source of HAP as specified in §63.6630.

E. Continuous Compliance Requirements [40 CFR 63.6635 and 63.6640]

1. For engine units T5C-2 and T5BC-2, the Permittee shall monitor and collect data to demonstrate continuous compliance as specified for affected sources at a major source of HAP in §63.6635.

2. For engine units T5C-2, T5BC-2 and RBU 11-2F PU, the Permittee shall demonstrate continuous compliance with the emission limitations, operating limitations and other requirements as specified in §63.6640.

F. Notifications, Reports, and Records [40 CFR 63.6645, 63.6650, 63.6655, 63.6660]

1. For engine units T5C-2 and T5BC-2, the Permittee shall submit notifications as specified for affected sources at a major source of HAP in §63.6645.

2. For engine units T5C-2, T5BC-2 and RBU 11-2F PU, the Permittee shall submit reports as specified in §63.6650.

3. For engine units T5C-2, T5BC-2 and RBU 11-2F PU, the Permittee shall keep records as specified in §63.6655.

4. For engine units T5C-2, T5BC-2 and RBU 11-2F PU, the Permittee shall keep the records in the format and for the duration as specified in §63.6660.

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IV. Facility-Wide Requirements [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. 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 6-month period ending on the last day of December before the report is due. The report due on October 1st shall cover the 6-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:

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(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 shall 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 shall 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 shall 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 shall 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 shall be submitted within 10 working days of the occurrence. All deviations reported under this section shall 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]

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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	**For non-U.S. Postal Service express mail** (FedEx, Airborne, DHL, and UPS)
U.S. Environmental Protection Agency FOIA and Miscellaneous Payments Cincinnati Finance Center P.O. Box 979078 St. Louis, MO 63197-9000	U.S. Bank Government Lockbox 979078 U.S. EPA FOIA & Misc. Payments 1005 Convention Plaza SL-MO-C2-GL St. Louis, MO 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.

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(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 the 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.

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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 shall 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

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practices annually by April 1st, and shall cover the same 12-month period as the two 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 shall 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 shall 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.

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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;

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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 shall comply with both the applicable requirements governing the change and the proposed permit terms and conditions. During this time period, 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 period, 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 shall 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 shall 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 shall 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 shall 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 shall be kept under the conditions of the permit;

3. Have access to and copy, at reasonable times, any records that shall 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

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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 shall 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 shall 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 shall 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 prevention of significant deterioration (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:

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(a) Five (5) 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 six 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.

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

July 27, 2017

XTO Energy Inc.
Tap-5 Compressor Station
EPA Title V – Part 71 Permit V-UO-000018-2007.00
Application Update Information
Uintah County, UT

US Certified Mail No: 7016 2140 0000 8376 9925

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 application update and supplemental information pursuant to the U.S. EPA's request for the XTO Tap-5 Compressor Station located in Uintah County, Utah. The information submitted in this update includes the following items:

- Response to EPA Information Request.
- Updated PTE table.
- Updated Regulatory Applicability table.
- Updated process drawing of the facility.
- Updated GIS form.
- Updated EPA EUD forms.
- New EPA EUD forms for the aggregated sources.
- Updated applicable EMISS forms
- Updated applicable EPA IE forms.
- Updated supporting emissions information.
- Signed EPA CTAC form.

The attached information is certified by the Responsible Official for the XTO Energy Inc. Tap-5 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
Cc: Mr. Eric Wortman, U.S. EPA Region 8 Air Permitting

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: 7 / 26 / **2017**

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

TAP-5 EPA QUESTIONS (7/24/2017):

A. Dustin indicated that engines T5C-2 and T5BC-1 are no longer at the site. Were engines T5C-2 and T5BC-1 permanently shut down or does XTO plan to replace them? Assuming they have been permanently removed, I'll need some documentation for this as an update to the Part 71 application (under CTAC, similar to my request for the removed engines at Little Canyon). Please send me the date that each engine was removed from the site.
   a. T5C-1 – this engine (s/n WPW0028) was originally installed at the Tap-5 Compressor Station in August of 2007 and was permanently removed / shut-down on 10/16/2013.
   b. T5C-2 – this engine (s/n 4EK05034) was originally installed and started up at the Tap-5 Compressor Station on 9/13/2013. The unit is still in-service and operating at the Tap-5 Compressor Station as of the date of this submittal (3/8/2017). Refer to the attached start-up notice for engine T5C-2 from XTO to EPA dated 9/16/2013.
   c. T5BC-1 – this engine (s/n WPW02035) was originally installed and started up on 11/1/2010 and was permanently removed from the Tap-5 Compressor Station on 7/17/2013. Refer to the attached correspondence from XTO to EPA dated 2/7/2014 which describes that the engine was permanently removed on 7/17/2013.
   d. T5BC-2 – this engine (s/n WPW01800) was installed and started up at the Tap-5 Compressor Station on 6/28/2013. The unit is still in-service and operating at the Tap-5 Compressor Station as of the date of this submittal (3/8/2017). Refer to the attached start-up notice for engine T5BC-2 from XTO to EPA dated 7/17/2013.

B. For the arrow C-66 pump engine, the information on install/mfr date is 2008 or "pre-JJJJ by a lot". The cutoff date for new/existing requirements for this engine type under ZZZZ is June 12, 2006. Can you verify it commenced construction prior to June 12, 2006? I assume yes if it's pre-JJJJ since the JJJJ mfr date cutoff is 6/12/06 also. Limited information regarding this engine shows that the engine was installed in 2008 and that the engine was manufactured prior to 2008, but no documents were found showing that the engine was manufactured prior to June 12, 2006. Based on a conversation with Arrow engine manufacturing company and the sequence of the engine serial number, the engine was estimated by Arrow to be much older than 2008, however, they were not able to find a specific manufacture date.

C. 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. Please see updated word document.
   a. Please verify the hp rating for each engine at the site. The application has conflicting hp ratings for the same engine model. The following engines are currently operating at the Tap-5 Compressor Station:
      i. T5C-2 – This engine is a Caterpillar Model 3516TALE serial number 4EK05034 – nameplate horsepower is 1340 HP and the manufacture date is 3/21/2006. The correct spec sheet for this engine is attached.
      ii. T5BC-2 - This engine is a Caterpillar Model 3516TALE serial number WPW01800 – nameplate horsepower is 1340 HP and the manufacture date is 11/2/2007. The correct spec sheet for this engine is attached.
   b. Please provide the installation date and manufacture date for the T5BC-1 and T5BC-2 for ZZZZ and JJJJ applicability. Also verify I have the correct information for T5C-1 and T5C-2. Please note that the T5BC-1 and the T5C-1 engines were both permanently removed from the location and are no longer planned to be operated at this location. These sources can be removed from the permit.
   c. Please provide the engine information (hp, model, serial, install date, mfr date) for the Arrow 66 pumping engine.
      i. Model - Arrow C-66
      ii. Serial No. = C65902
      iii. Maximum HP = 15.8 HP / Site-rated Max HP = 13 HP
      iv. Install Date – est. 2008
      v. Manufacture Date = per Arrow, est. pre-2008
   d. Please provide the emission unit information for the 2 tanks at the RBU11-2 wellsite (size, model, serial if available). Refer to the attached "Source Regulatory Applicability Table".

e. Verify the install date, size, and serial number for T5T-1 and T5T-2. **Refer to the attached "Source Regulatory Applicability Table".**

f. Note that since some of the emission units at the RBU11-2 Wellsite are above 2 tpy, I've broken out the emission units in the table as opposed to bundling them under one unit ID. **Refer to the attached, updated "PTE Table".**

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. Please send the PTE of greenhouse gases for the emission units at the facility (see table). **Refer to the attached, updated "PTE Table", which includes the applicable emissions for the GHG's.**

   b. Please verify the correct PTE for the engines, specifically T5BC-2. I understand that T5BC-1 and T5BC-2 have different PTE than T5C-1 due to the difference in the inlet gas temperature but shouldn't T5BC-1 be the same as T5BC-2? All three of the 3516 engines have different PTE in the application. **Refer to the attached, updated "PTE Table".**

3. Does any of the equipment at the facility meet the applicability criteria for OOOO or OOOOa or was it all installed prior to the applicability date? **The current, potentially affected equipment at the Tap-5 Compressor Station was constructed prior to the applicable dates for either NSPS OOOO or NSPS OOOOa. Refer to the attached "Source Regulatory Applicability Table".**

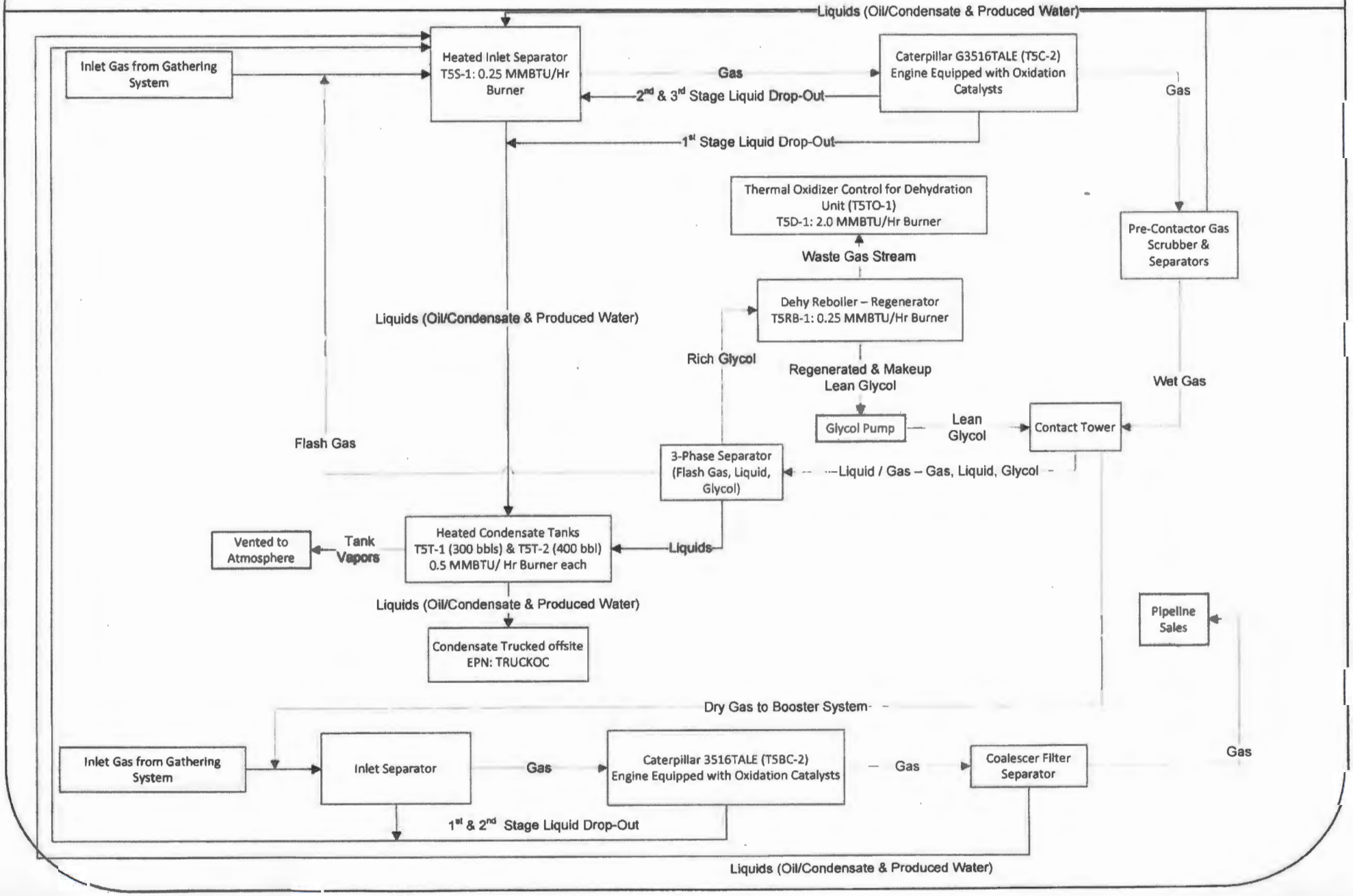
Tap-5 Compressor Station PTE Table.

Tap-5 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*	XTO COMMENTS
Emission Units	~~T5C-1~~	~~Cat. 3516~~	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	REMOVE UNIT - NO LONGER NEEDED ON SITE
	T5C-2	Cat. 3516	25.9	30.3	9.3	0.4	0.0	3.6	4.3	4939.6	1403.3	2.1	6345.0	
	~~T5BC-1~~	~~Cat. 3516~~	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	REMOVE UNIT - NO LONGER NEEDED ON SITE
	T5BC-2	Cat. 3516	25.9	30.3	9.3	0.4	0.0	3.6	4.3	4939.6	1403.3	3.3	6346.1	
	T5-ENGBD	Compressor Blowdown Emissions	0.0	0.0	2.6	0.0	0.0	0.0	0.2	0.2	676.7	0.0	677.0	
	T5D-1 / T5TO-1	Dehy w/Thermal Oxidizer (Controlled PTE)	1.3	1.8	5.6	0.2	0.0	0.0	3.8	1023.9	0.5	0.5	1025.0	
	T5F-1	Tap-5 Fugitives	0.0	0.0	3.9	0.0	0.0	0.0	0.3	0.3	610.1	0.0	610.4	
	RBU 11-2F T-1	RBU 11-2 Tank 1	0.0	0.0	2.5	0.0	0.0	0.0	0.2	0.04	36.0	0.0	36.1	
	RBU 11-2F T-2	RBU 11-2 Tank 2	0.0	0.0	2.5	0.0	0.0	0.0	0.2	0.04	36.0	0.0	36.1	
Insignificant Emission Units	T5G-1	Tap-5 Genset (Capstone)	0.1	1.7	0.0	0.0	0.0	0.0	0.0	80.2	0.0	0.0	80.2	
	T5-TRKLOAD	Tap-5 Condensate Truck Loading	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	T5RB-1	0.50 MMBtu/hr* Glycol Dehydrator Reboiler	0.2	0.2	0.0	0.0	0.0	0.0	0.0	256.0	0.1	0.1	256.2	
	T5TH-1	0.25 MMBtu/hr* Tank Heater #1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	128.0	0.1	0.1	128.1	
	T5TH-2	0.25 MMBtu/hr* Tank Heater #2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	128.0	0.1	0.1	128.1	
	T5S-1	0.25 MMBtu/hr* natural gas-fired separator heater	0.1	0.1	0.0	0.0	0.0	0.0	0.0	128.0	0.1	0.1	128.1	
	T5TOH-1	2 MMBtu/hr* heater for Thermal Oxidizer	1.0	0.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	-	Lube Oil Tanks	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	T5P-1	Pipeline Pigging Operations	0.0	0.0	1.9	0.0	0.0	0.0	0.12	0.2	492.1	0.0	492.2	
	T5-ENG Maint	Engine Startup	1.2	1.4	0.4	0.0	0.0	0.2	0.2	225.6	64.1	0.2	289.8	
	T5T-1	Tank 1	0.0	0.0	1.7	0.0	0.0	0.0	0.2	0.02	4.8	0.0	4.8	
	T5T-2	Tank 2	0.0	0.0	1.7	0.0	0.0	0.0	0.2	0.02	4.8	0.0	4.8	
	RBU 11-2FPU	Arrow C-66 Pumping Engine	1.9	0.5	0.04	0.0	0.0	0.0	0.01	51.5	2.7	0.0	54.2	
	RBU 11-2FLOAD	RBU 11-2 Condensate Loading	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	RBU 11-2FFUG	RBU 11-2 Fugitives	0.0	0.0	1.5	0.0	0.0	0.0	0.1	0.3	610.1	0.0	610.4	
	RBU 11-2FTH-1	RBU 11-2 Tank 1 Heater	0.2	0.2	0.0	0.0	0.0	0.0	0.0	256.0	0.1	0.1	256.2	
	RBU 11-2FTH-2	RBU 11-2 Tank 2 Heater	0.1	0.1	0.0	0.0	0.0	0.0	0.0	128.0	0.1	0.1	128.1	
Facility-Wide PTE (federally enforceable)			**58.2**	**67.6**	**44.8**	**1.2**	**0.0**	**7.4**	**14.0**	**12285.4**	**5344.9**	**6.6**	**17636.9**	

XTO ENERGY INC. - UINTAH COUNTY, UTAH
TAP-5 COMPRESSOR STATION - SOURCE REGULATORY APPLICABILTY TABLE - JULY 2017, v2

Tap-5 PTE	ID	Emissions Units	Equipment Type	Equipment Construction / Manufacture Date	Equipment Install Date	Uncontrolled VOC Emissions rate (TPY)	Potential Applicable Regulation	Regulatory Applicability (Yes / No)	Comments
	T5C-2	Tap-5 Caterpillar 3516TALE Compressor Engine	RICE	3/21/2006	7/30/2013	N/A	MACT ZZZZ	YES	S/N 4EK05034
	T5C-2	Tap-5 Caterpillar 3516 TALE Compressor Engine	RICE	3/21/2006	7/30/2013	N/A	NSPS JJJJ	NO	S/N 4EK05034
	T5C-2	Tap-5 Reciprocating Compressor	Reciprocating Compressor	2009	7/30/2013	N/A	NSPS OOOO	NO	Compressor Unit # 312073
	T5BC-2	Tap-5 Booster Caterpillar 3516 TALE Compressor Engine #2	RICE	11/2/2007	4/26/2013	N/A	MACT ZZZZ	NO	S/N WPW01800
	T5BC-2	Tap-1 Caterpillar 3516 TALE Compressor Engine #2	RICE	11/2/2007	4/26/2013	N/A	NSPS JJJJ	NO	S/N WPW01800
	T5BC-2	Tap-5 Booster Reciprocating Compressor	Reciprocating Compressor	2008	4/26/2013	N/A	NSPS OOOO	NO	Compressor Unit # 804042
	T5D-1 / T5TO-1	Dehy w/Thermal Oxidizer	Natural Gas Dehydrator	Pre-2007	Pre-2007	5.6	MACT HH	YES	Major Source of HAP's; Thermal Oxidizer installed in January of 2009.
	T5T-1	Tank 1	400-bbl condensate Storage Tank	12/1/1992	7/7/2015	1.69	NSPS OOOO	NO	Tank 1512 - Pre-2011 and BELOW 6 TPY VOC
	T5T-2	Tank 2	400-bbl condensate Storage Tank	7/1/2004	8/12/2014	1.69	NSPS OOOO	NO	Tank 1304 - Pre-2011 and BELOW 6 TPY VOC
	Tap-5 Pneumatic Controllers	Tap-5 Pneumatic Controllers	Pneumatic Controllers	Pre-2008	Pre-2008	N/A	NSPS OOOO	NO	Controllers operate On Plant Instrument Air
	RBU 11-2F PU	Arrow C-66 Pumping Engine	RICE	Pre-2008	2008	N/A	NSPS JJJJ	NO	Exact Mftg Date cannot be determined - Arrow states the unit is older than 2008 and Engine is less than 25 HP.
	RBU 11-2F PU	Arrow C-66 Pumping Engine	RICE	Pre-2008	2008	N/A	NSPS ZZZZ	NO	Area Source
	RBU 11-2F	RBU 11-2 Tank 1	300-bbl Storage Tank	10/1/2012	11/29/2012	2.45	NSPS OOOO	NO	Tank F1433 - BELOW 6 TPY VOC
	RBU 11-2F	RBU 11-2 Tank 2	300-bbl Storage Tank	1/1/1998	Pre-2011	2.45	NSPS OOOO	NO	Tank 77924 - Pre-2011 and BELOW 6 TPY VOC
	RBU 11-02F Wellsite	Well Completion	Natural Gas Well	1/1/2005	N/A	NSPS OOOOa	NSPS OOOOa	NO	

XTO Energy, Inc.
Tap 5 Compressor Station
Process Flow Diagram – PFD – rev. June 2017



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 __Tap 5 Compressor Station _____

Mailing address: Street or P.O. Box ____810 Houston Street, Petro-4_____

City ____Fort Worth_____ State ___TX__ ZIP __76102__-_____

Contact person: ____Craig Allison_____ Title ____EHS Advisor_____

Telephone (817) __885__ - __2672_____ Ext. _____

Facsimile (817) ___885__ - __1847_____

B. Facility Location

Temporary source? ___Yes _X_No Plant site location ___39.9750760, -109.6360850_____

_____

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____ - ___2672_____ 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____ - ____2672_____ 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 __X_ Minor Permit Mod(MPM)

___ Group Processing, MPM ___ 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
T5F-1	Fugitive Emissions
T5D-1	40 MMSCFD Glycol Dehydrator (controlled by thermal oxidizer)
T5TO-1	Thermal Oxidizer Emissions
~~T5C-1~~	~~Caterpillar G3516 TALE Compressor Engine Controlled By Oxidation Catalyst~~
T5C-2	Caterpillar G3516 TALE Compressor Engine Controlled By Oxidation Catalyst
~~T5BC-1~~	~~Caterpillar G3516 TALE Compressor Engine Controlled By Oxidation Catalyst~~
T5BC-2	Caterpillar G3516 TALE Compressor Engine Controlled By Oxidation Catalyst
RBU 11-02F Wellsite Sources	Refer to the attached PTE Table for Emissions Associated with the RBU 11-02F Wellsite

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 ___58.2____ tons/yr VOC ___44.8____ tons/yr SO2 ___0.1____ tons/yr

PM-10 __1.2_____ tons/yr CO __67.6____ tons/yr Lead _____0.0___ tons/yr

Total HAP ____14.0____ 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) _V-UO-000018-2007.00_ Permit type _Part 71_ 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 06/30/2015

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 _____T5C-2_____Updated July-2017

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)	
NO_X	25.4	5.91	25.4	
CO	30.3	6.91	30.3	
VOC	9.32	2.13	9.32	
PM 10 & 2.5	0.45	0.1	0.45	
SO_2	0.03	0.01	0.03	
HCHO	3.62	0.83	3.62	

United States Environmental Protection Agency

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

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 _____T5BC-2_____Updated July-2017

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)	
NO_X	25.4	5.91	25.4	
CO	30.3	6.91	30.3	
VOC	9.32	2.13	9.32	
PM 10 & 2.5	0.45	0.1	0.45	
SO_2	0.03	0.01	0.03	
HCHO	3.62	0.83	3.62	

United States Environmental Protection Agency

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

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 ~~T5C-1~~ DELETED SOURCE

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)	
~~NO_x~~	~~19.4~~	~~4.4~~	~~19.4~~	
~~CO~~	~~33.8~~	~~7.7~~	~~33.8~~	
~~VOC~~	~~9.2~~	~~2.1~~	~~9.2~~	
~~PM 10 & 2.5~~	~~0.5~~	~~0.1~~	~~0.5~~	
~~SO_2~~	~~0.0~~	~~0.0~~	~~0.0~~	
~~HCHO~~	~~3.1~~	~~0.7~~	~~3.1~~	

United States Environmental Protection Agency

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

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 _____~~T5BC-1~~_____DELETED SOURCE

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)	
~~NO_x~~	~~25.9~~	~~5.9~~	~~25.9~~	
~~CO~~	~~33.6~~	~~7.7~~	~~33.6~~	
~~VOC~~	~~9.2~~	~~2.1~~	~~9.2~~	
~~PM 10 & 2.5~~	~~0.5~~	~~0.1~~	~~0.5~~	
~~SO_2~~	~~0.0~~	~~0.0~~	~~0.0~~	
~~HCHO~~	~~3.1~~	~~0.7~~	~~3.1~~	

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID __T5C-2__ Description____Caterpillar G3516 TALE Compressor 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. ____3516 TALE_____

Serial Number ___ 4EK05034_____ Installation Date____/__9/13/2013__/_____

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

Other (describe) ____Natural Gas Compression Engine_____

Boiler horsepower rating_____1340_____ Boiler steam flow (lb/hr)_____N/A_____

Type of Fuel-Burning Equipment (coal burning only): N/A

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input __10.3___MM BTU/hr Max. Design Heat Input __10.3__MM BTU/hr

C. Fuel Data

Primary fuel type(s)____Natural Gas_____ Standby fuel type(s)_____N/A_____

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%	1111.4 BTU / SCF

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	81.1 MMSCF/YR	9.3 MSCF/HR	81.1 MMSCF/YR

E. Associated Air Pollution Control Equipment

Emissions unit ID___T5C-2____ Device type___Oxidation Catalyst_____

Air pollutant(s) Controlled___CO & HCHO_____ Manufacturer_____

Model No._____ Serial No.____

Installation date_09_/_13_/_2013___ Control efficiency (%) CO 2.0 g/bhp-hr, HCHO 14ppmvd @ 15% O2

Efficiency estimation method_____Manufacturer Specification_____

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) ___N/A___._____	Inside stack diameter (ft) ___ N/A _____._____
Stack temp(°F) __ N/A _____._____	Design stack flow rate (ACFM) ____ N/A _____.____
Actual stack flow rate (ACFM) ___ N/A _____.____	Velocity (ft/sec) ___N/A ____._____

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID __T5BC-2__ Description____Caterpillar G3516 TALE Compressor 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. ____3516 TALE_____

Serial Number ___WPW01800_____ Installation Date____/__6/28/2013__/_____

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

Other (describe) ____Natural Gas Compression Engine_____

Boiler horsepower rating_____1340_____ Boiler steam flow (lb/hr)_____N/A_____

Type of Fuel-Burning Equipment (coal burning only): N/A

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input __10.3___MM BTU/hr Max. Design Heat Input __10.3__MM BTU/hr

C. Fuel Data

Primary fuel type(s)____Natural Gas_____ Standby fuel type(s)_____N/A_____

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%	1111.4 BTU / SCF

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	81.1 MMSCF/YR	9.3 MSCF/HR	81.1 MMSCF/YR

E. Associated Air Pollution Control Equipment

Emissions unit ID___T5BC-2____ Device type___Oxidation Catalyst_____

Air pollutant(s) Controlled___CO & HCHO_____ Manufacturer_____

Model No._____ Serial No.____

Installation date_06_/_28_/_2013___ Control efficiency (%) CO 2.0 g/bhp-hr, HCHO 14ppmvd @ 15% O2

Efficiency estimation method_____Manufacturer Specification_____

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) ___N/A___._____	Inside stack diameter (ft) ___ N/A _____._____
Stack temp(°F) __ N/A _____._____	Design stack flow rate (ACFM) ____ N/A _____.____
Actual stack flow rate (ACFM) ___ N/A _____.____	Velocity (ft/sec) ___N/A ____._____

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID _T5T-1_____ Description ___400-barrel condensate storage tank

SIC Code (4-digit) __1311_____ SCC Code __31000212_____

B. Emissions Unit Description

Equipment type __Storage Tank_____ Temporary source: ___Yes _X__No

Manufacturer__Benchmark_____ Model No. ___Verical Fixed Roof_____

Serial No. ___1512_____ Installation date__7__/_7__/_2015_

Articles being coated or degreased _____

Application method _____

Overspray (surface coating) (%) _____ Drying method_____

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

C. Associated Air Pollution Control Equipment

Emissions unit ID _____ Device Type____NONE_____

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) ___16_____._____ Inside stack diameter (ft) ___0.25_____._____

Stack temp (F) ____60_____._____ 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	229,950	630	229,950	0.02

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID _T5T-2_____ Description ___400-barrel condensate storage tank

SIC Code (4-digit) __1311_____ SCC Code __31000212_____

B. Emissions Unit Description

Equipment type __Storage Tank_____ Temporary source: ___Yes _X__No

Manufacturer_____ Model No. ___Vertical Fixed Roof_____

Serial No. ___1304_____ Installation date__8__/_12__/_2014_

Articles being coated or degreased _____

Application method _____

Overspray (surface coating) (%) _____ Drying method_____

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

C. Associated Air Pollution Control Equipment

Emissions unit ID _____ Device Type____NONE_____

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) ___21_____._____ Inside stack diameter (ft) ___0.25_____._____

Stack temp (F) ____60_____._____ 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	229,950	630	229,950	0.02

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID _11-02F-T-1_____ Description ___300-barrel condensate storage tank

SIC Code (4-digit) __1311_____ SCC Code __31000212_____

B. Emissions Unit Description

Equipment type __Storage Tank_____ Temporary source: ___Yes _X__No

Manufacturer_____ Model No. ___Vertical Fixed Roof_____

Serial No. ___F1433_____ Installation date__11__/_29__/_2012

Articles being coated or degreased _____

Application method _____

Overspray (surface coating) (%) _____ Drying method_____

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

C. Associated Air Pollution Control Equipment

Emissions unit ID _____ Device Type____NONE_____

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) ___16_____._____ Inside stack diameter (ft) ___0.25_____._____

Stack temp (F) ____60_____._____ 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	153,300	420	153,300	0.03

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID _11-02F-T-2_____ Description ___300-barrel condensate storage tank

SIC Code (4-digit) __1311_____ SCC Code __31000212_____

B. Emissions Unit Description

Equipment type __Storage Tank_____ Temporary source: ___Yes _X__No

Manufacturer_____ Model No. ___Vertical Fixed Roof_____

Serial No. ___77924_____ Installation date__Pre-2011___

Articles being coated or degreased _____

Application method _____

Overspray (surface coating) (%) _____ Drying method_____

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

C. Associated Air Pollution Control Equipment

Emissions unit ID _____ Device Type____NONE_____

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) ___16_____.____ Inside stack diameter (ft) ___0.25_____.____

Stack temp (F) ____60_____.____ 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	153,300	420	153,300	0.03

United States Environmental Protection Agency

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Approval Expires 05/31/2019

Federal Operating Permit Program (40 CFR Part 71)
INSIGNIFICANT EMISSIONS (IE)

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

Number	Description of Activities or Emissions Units	RAP (except HAP)	HAP
	Updated July-2017 - Refer to the attached Station PTE Table	X	X

XTO Energy, Inc.
Tap 5 Compressor Station
Compressor Engine and Generators

Emission Calculations - Uncontrolled Compressor Engine & Generators

Criteria and Regulated Pollutants

								Emission Data - Manufacturer Specifications[1] g/hp-hr				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 (LHV)[1]	Heat Rating MMbtu/hr	Fuel Usage MMscf/yr	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 G3516 TALE Compressor Engine (Uncontrolled)	T5C-2	8760	1340	1111.4	0.007651	10.25	80.81	2.00	2.34	0.72	0.28	0.000588	0.00991	5.91	6.91	2.13	0.83	0.01	0.10	25.88	30.28	9.32	3.62	0.03	0.45
Caterpillar G3516 TALE Compressor Engine (Uncontrolled)	T5BC-2	8760	1340	1111.4	0.007651	10.25	80.81	2.00	2.34	0.72	0.28	0.000588	0.00991	5.91	6.91	2.13	0.83	0.01	0.10	25.88	30.28	9.32	3.62	0.03	0.45
Caterpillar G3516 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint[2]	400	1340	1111.4	0.007651	10.25	3.69	2.00	2.34	0.72	0.28	0.000588	0.00991	5.91	6.91	2.13	0.83	0.01	0.10	1.18	1.38	0.43	0.17	0.00	0.02
Genset Capstone C65NG	T5G-1	8760	87	1111.4	0.000766	0.07	0.53	0.16	2.04	0.03	0.04	0.000588	0.00991	0.03	0.39	0.01	0.01	0.00	0.00	0.13	1.71	0.03	0.03	0.00	0.00

NOTE 1: Fuel Consumption and Emissions Data are based on manufacturer specifications worst-case value

NOTE 2: Engine maintenance assumed 200 hours / engine. Emission Data is represented as worst case emission spec from the engines

Total Emissions Per Pollutant (TPY)	NOx	CO	VOC	HCHO	SO_2	$PM_{10\&2.5}$
	53.07	**63.65**	**19.08**	**7.44**	**0.05**	**0.91**

XTO Energy, Inc.
Tap 5 Compressor Station
Compressor Engine and Generators

Emission Calculations - Uncontrolled 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 (LHV)1	Heat Rating MMbtu/hr	Fuel Usage MMscf/yr	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein
Caterpillar G3516 TALE Compressor Engine (Uncontrolled)	T5C-2	8760	1340	1111.36	0.007651	10.25	80.81	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.005	0.004	0.000	0.002	0.086	0.053	0.020	0.018	0.002	0.008	0.375	0.231
Caterpillar G3516 TALE Compressor Engine (Uncontrolled)	T5BC-2	8760	1340	1111.36	0.007651	10.25	80.81	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.005	0.004	0.000	0.002	0.086	0.053	0.020	0.018	0.002	0.008	0.375	0.231
Caterpillar G3516 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint[3]	400	1340	1111.36	0.007651	10.25	3.69	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.005	0.004	0.000	0.002	0.086	0.053	0.001	0.001	0.000	0.000	0.017	0.011
Genset Capstone C65NG	T5G-1	8760	87	1111.36	0.000766	0.07	0.53	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	0.001	0.000	0.000	0.000	0.000	0.000	0.002	0.002

Total Emissions Per Pollutant (TPY)	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein
	0.04	**0.04**	**0.00**	**0.02**	**0.77**	**0.47**

Compressor Engine Emissions

Company: XTO Energy
Facility Name: TAP 5 Compressor Station
Facility Location: Uintah County, Utah

EMISSION POINTS: Caterpillar G3516LE

Engine Make/Model	Caterpillar G3516LE	
Site Horsepower Rating	1340	hp
Fuel Consumption (BSFC)	7651	Btu/(hp-hr)
Heat Rating	10.252	MMBtu/hr
Hourly Fuel Use	9225	scf / hr
Maximum Annual Fuel Use	80.81	mmscf / yr
Fuel LHV	1111	BTU/scf
Operating Hours	8760	hrs/yr

Pollutant	Emission Factor		Emission Rate (lb/hr)	Emission Rate (tpy)	Emission Factor Reference
NOx	2.0	g/hp-hr	5.91	25.88	[1]
CO	2.34	g/hp-hr	6.91	30.28	[1]
VOC/NMHC	0.72	g/hp-hr	2.13	9.32	[1]

AP-42 Emission Factors

[2] AP-42 Table 3.2-3 for stationary IC sources; July 2000, 4-stroke lean burn

GHG Emissions						
CO2	381.7543	g/hp-hr	1127.7574	4939.5774	[2]	1.10E+02 lb/MMBtu
CH4	4.3381	g/hp-hr	12.8154	56.1316	[2]	1.25E+00 lb/MMBtu

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)

G3516

NON-CURRENT

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA

CATERPILLAR®

Uintah Cat 3516TALE

T5C-2 4EK05034 / T5BC-2 WPW01800

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):	5278
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	1340	1005	670
INLET AIR TEMPERATURE			°F	60	60	60	60
ENGINE DATA							
FUEL CONSUMPTION (LHV)		(3)	Btu/bhp-hr	7651	7651	7838	8286
FUEL CONSUMPTION (HHV)		(3)	Btu/bhp-hr	8454	8454	8661	9155
AIR FLOW (@inlet air temp, 14.7 psia)	(WET)	(4)(5)	ft3/min	2713	2713	2988	2028
AIR FLOW	(WET)	(4)(5)	lb/hr	12423	12423	13684	9284
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	7653	8228	5623
EXHAUST GAS MASS FLOW	(WET)	(8)(5)	lb/hr	12917	12917	14064	9552
EMISSIONS DATA - ENGINE OUT							
NOx (as NO2)		(9)(10)	g/bhp-hr	2.00	2.00	4.25	4.62
CO		(9)(10)	g/bhp-hr	2.34	2.34	3.95	4.60
THC (mol. wt. of 15.84)		(9)(10)	g/bhp-hr	2.54	2.54	3.72	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	41446	18355	17584
HEAT REJ. TO ATMOSPHERE		(13)	Btu/min	5313	5313	4428	3543
HEAT REJ. TO LUBE OIL (OC)		(13)	Btu/min	6553	6553	2902	2780
HEAT REJ. TO AFTERCOOLER (AC)		(13)(14)	Btu/min	12844	12844	12098	4952

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.

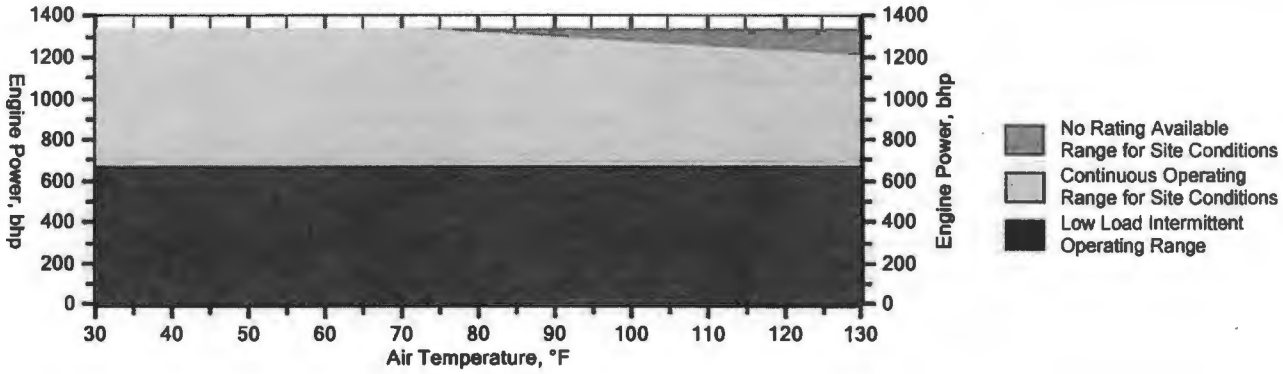
For notes information consult page three.

PREPARED BY: Craig Allison, XTO Energy Inc
Data generated by Gas Engine Rating Pro Version 6.05.00
Ref. Data Set DM0109-09-001, 4EK, Printed 14Jul2017

Uintah Cat 3516TALE

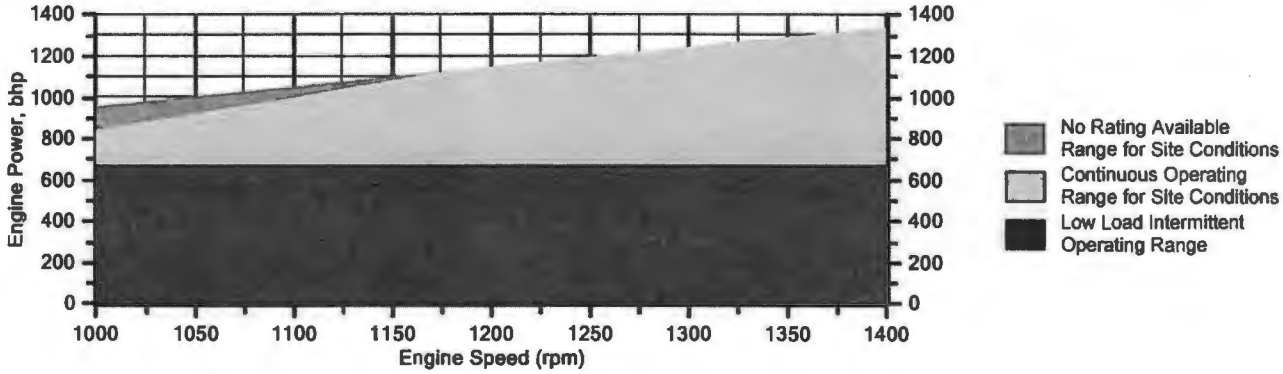
Engine Power vs. Inlet Air Temperature

Data represents temperature sweep at 5278 ft and 1400 rpm



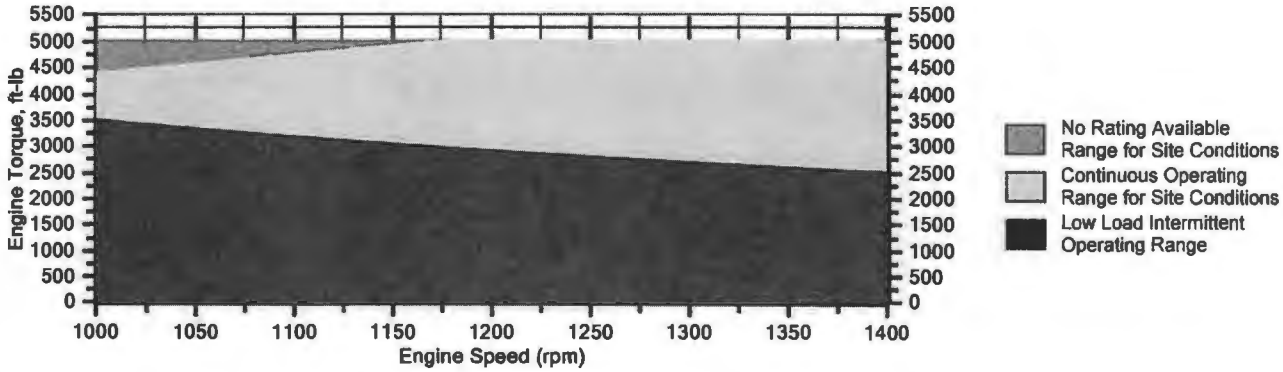
Engine Power vs. Engine Speed

Data represents speed sweep at 5278 ft and 60 °F



Engine Torque vs. Engine Speed

Data represents speed sweep at 5278 ft and 60 °F



Note: At site conditions of 5278 ft and 60°F inlet air temp., constant torque can be maintained down to 1185 rpm. The minimum speed for loading at these conditions is 1000 rpm.

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 6.05.00
Ref. Data Set DM0109-09-001, 4EK, Printed 14Jul2017

XTO Energy, Inc.

Tap 5 Compressor Station

SSM - Compressor Blowdowns

MSS Compressor Blowdown Emission (EPN: ENGINEBD)

Total Quantity	2800	(SCF/Blowdown)
Estimated Number of Blowdowns	500	(Blowdowns/Year)
Duration	1	(Hours/Blowdown)
Flared	No	(Yes/No)
Lower Heating Value	1065.7	(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)	10.569	10.569	10.569	2.642
Total HAPs	0.676	0.676	0.676	0.169
CH4	108.273	108.273	108.273	27.068
CO2	0.972	0.972	0.972	0.243
H_2S	0.000	0.000	0.000	0.000

XTO Energy, Inc.

Tap 5 Compressor Station

SSM Gas Analysis - Compressor Blowdowns

Conversion of Mole Percent to Weight Percent

Component	Mole %	MW	Mole % *MW	Weight %
Carbon Dioxide	0.3039	44.0150	0.1338	0.752%
Nitrogen	0.2369	28.0137	0.0664	0.373%
Hydrogen Sulfide	0.0000	34.0193	0.0000	0.000%
Helium	0.0000	4.0000	0.0000	0.000%
Methane	92.9011	16.0420	14.9032	83.837%
Ethane	4.0518	30.0685	1.2183	6.854%
Propane	1.2475	44.1000	0.5501	3.095%
Iso-Butane	0.2679	58.1200	0.1557	0.876%
N-Butane	0.3230	58.1200	0.1877	1.056%
Iso-Pentane	0.1453	72.1500	0.1048	0.590%
N-Pentane	0.1136	72.1517	0.0820	0.461%
Methylcyclopentane	0.0000	86.0000	0.0000	0.000%
n-Hexane	0.0646	86.1800	0.0557	0.313%
Hexane +	0.0877	86.1600	0.0756	0.425%
2,4-Dimethylpentane	0.0000	114.2400	0.0000	0.000%
Methycyclohexane	0.0532	96.0000	0.0511	0.287%
Benzene	0.0205	78.1100	0.0160	0.090%
Cyclohexane	0.0404	84.5062	0.0341	0.192%
Heptanes	0.1017	100.2000	0.1019	0.573%
Toluene	0.0194	92.1300	0.0179	0.101%
Ethylbenzene	0.0004	106.1700	0.0004	0.002%
Xylenes	0.0029	106.1700	0.0031	0.017%
Octanes+	0.0121	114.2300	0.0138	0.078%
Nonanes+	0.0038	128.2800	0.0049	0.027%
Decanes+	0.0000	223.0200	0.0000	0.000%
Total	100.00	-	-	100.000%

Molecular Weight	17.78	
Specific Gravity	0.6073	
Gross WET BTU	1065.7	
NMHC	2.6731	15.037%
VOCs (NMNEHC)	1.4548	8.184%
HAPs	0.0931	0.52%
H2S Mole Fraction	0.0000	0.000%
Total HC	17.5763	98.874%
THC:VOC Ratio	8.2771	8.277%

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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

Capstone reserves the right to change or modify, without notice, the design, specifications, and/or contents of this document without incurring any obligation either with respect to equipment previously sold or in the process of construction.

Table 2 provides the same output-based information shown in Table 1, but expressed in grams per horsepower hour (g/hp-hr).

Table 2. Emission for Different Capstone Microturbine Models in [g/hp-hr]

Model	Fuel	NOx	CO	VOC (5)
C30 NG	Natural Gas (1)	.22	.60	.08
C30 MBTU	Landfill Gas (2)	.22	7.4	4.2
C30 MBTU	Digester Gas (3)	.22	7.4	4.2
C30 Liquid	Diesel #2 (4)	.90	.14	.08
C65 NG Standard	Natural Gas (1)	.16	2.0	.03
C65 NG Low NOx	Natural Gas (1)	.06	2.0	.03
C65 NG CARB	Natural Gas (1)	.06	.08	.02
CR65 Landfill	Landfill Gas (2)	.17	2.0	.03
CR65 Digester	Digester Gas (3)	.17	2.0	.03
C200 NG	Natural Gas (1)	.15	.09	.03
C200 NG CARB	Natural Gas (1)	.05	.07	.02
CR200 Digester	Digester Gas (3)	.17	2.0	.34

Notes: - same as for Table 1

Emissions may also be reported on a volumetric basis, with the most common unit of measurement being parts per million. This is typically a measurement that is corrected to specific oxygen content in the exhaust and without considering moisture content. The abbreviation for this unit of measurement is "ppmvd" (parts per million by volume, dry) and is corrected to 15% oxygen for electrical generating equipment such as microturbines. The relationship between an output based measurement like pounds per MWh and a volumetric measurement like ppmvd depends on the characteristics of the generating equipment and the density of the criteria pollutant being measured. Table 3 expresses the emissions in ppmvd at 15% oxygen for the Capstone microturbine models shown in Table 1. Note that raw measurements expressed in ppmv will typically be lower than the corrected values shown in Table 3

The emissions stated in Tables 1, 2 and 3 are guaranteed by Capstone for new microturbines during the standard warranty period. They are also the expected emissions for a properly maintained microturbine according to manufacturer's published maintenance schedule for the useful life of the equipment.

Capstone reserves the right to change or modify, without notice, the design, specifications, and/or contents of this document without incurring any obligation either with respect to equipment previously sold or in the process of construction.

XTO Energy, Inc.
Tap 5 Compressor Station
RBU 11-02F Wellsite - Pumping Unit Emissions

Emission Calculations - Pumping Unit (EPN: RBU 11-02F 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*	$PM_{10 \& 2.5}$
RBU 11-02F Wellsite Pumping Unit (Arrow C-66 Pre-July 2008)	PU	8760	13.3	0.008038	14.54	4.03	0.33	0.00991	0.43	0.12	0.01	0.00	1.87	0.52	0.04	0.00

*NOTE: Engine HP derated 3% per 1,000 feet at 5,250 feet above SL from 15.8 HP to 13 HP per mfg.

Total Emissions Per Pollutant (TPY)	NOx	CO	VOC*	$PM_{10 \& 2.5}$
	1.87	0.52	0.04	0.00

					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
RBU 11-02F Wellsite Pumping Unit (Arrow C-66 Pre-July 2008)	PU	8760	13.3	0.008038	1.58E-03	2.79E-03	2.05E-02	2.63E-03	0.000	0.000	0.002	0.00	0.001	0.001	0.010	0.001

Total Emissions Per Pollutant (TPY)	Benzene	Toluene	E-Benzene	Acrolein
	0.001	0.001	0.010	0.001

Total Emissions Per Pollutant (TPY) HAPs	0.013

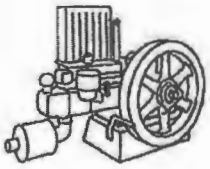
ARROW ENGINE COMPANY
a TRIMAS company

Prior to July 1, 2008 Engines

We are pleased to confirm the observed emissions levels for the Arrow C-46, C-66, C-96 and C-106 spark ignited engines as below:

Model	C-46	C-66	C-96	C-106
NOx	9.26	14.54	11.87	23.32
CO	20.19	4.03	5.05	0.222
CO2	666	621	641	486
THC	0.006	0.332	0.142	0.094
HP	11	15.8	21.4	34

- Units for all values, grams/HP-hr.
- Values represent emissions at 100% loads at maximum RPM. Horsepower numbers reflect 100% load corrected to standard conditions. (29.38 Hg, 85 deg. F)
- All tests based on pipeline quality Natural Gas of 900 BTU/FT3 (LHV).
- Actual readings may vary based on site conditions and fuel composition.



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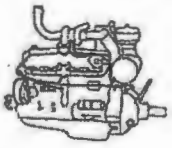

XTO Energy, Inc.

Tap 5 Compressor Station

Fuel Gas Analysis

Conversion of Mole Percent to Weight Percent

Component	Mole %	MW	Mole % *MW	Weight %
Carbon Dioxide	0.3387	44.01	0.149	0.008
Nitrogen	0.2118	28.01	0.059	0.003
Hydrogen Sulfide	0.0000	34.02	0.000	0.000
Helium	0.0000	4.00	0.000	0.000
Methane	91.5660	16.04	14.689	0.814
Ethane	4.8616	30.07	1.462	0.081
Propane	1.6036	44.10	0.707	0.039
Iso-Butane	0.3040	58.11	0.177	0.010
N-Butane	0.4609	58.12	0.268	0.015
Iso-Pentane	0.1983	72.14	0.143	0.008
N-Pentane	0.1569	72.14	0.113	0.006
Methylcyclopentane	0.0000	86.00	0.000	0.000
n-Hexane	0.1567	86.05	0.135	0.007
Hexane +	0.0000	84.05	0.000	0.000
2,4-Dimethylpentane	0.0000	96.00	0.000	0.000
Methycyclohexane	0.0000	96.00	0.000	0.000
Benzene	0.0000	78.37	0.000	0.000
Cyclohexane	0.0000	84.07	0.000	0.000
Heptanes	0.0975	93.22	0.091	0.005
Toluene	0.0000	92.01	0.000	0.000
Ethylbenzene	0.0000	111.47	0.000	0.000
Xylenes	0.0000	99.52	0.000	0.000
Octanes+	0.0373	111.77	0.042	0.002
Nonanes+	0.0067	125.12	0.008	0.000
Decanes+	0.0000	116.11	0.000	0.000
Total	100.00		18.04	1.000

Molecular Weight	18.04	
Relative Density	0.6247	
Gross WET BTU	1111.36	
NMHC	3.1456	17.434%
VOCs (NMNEHC)	1.6837	9.332%
HAPs	0.1348	0.75%
H2S Mole Fraction	0.0000	0.000%
Total HC	17.8346	98.845%
THC:VOC Ratio	9.4407	9.441%

NOTE: FUEL GAS ANALYSIS TAKEN VIA WINTMC - ACTUAL ON 04/05/2013

XTO Energy, Inc.

Tap 5 Compressor Station

Total Thermal Oxidizer Emissions - All Sources Combined

Thermal Oxidizer Emission Summary Table (Emission Unit ID: T5TO-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]	T5TO-1	0.304	1.333	0.418	1.830	1.280	5.607	0.000	0.000	0.038	0.167	0.831	3.793

NOTE 1: Thermal Oxidizer emissions include dehydration still column emissions and pilot gas

XTO Energy, Inc.

Tap 5 Compressor Station

Dehy Still Column - Emission Summary

Dehy Still Column Emissions (Emission Unit ID: T5D-1)

Emission Component	Uncontrolled Still Column		Controlled Still Column	
	lb/hr	TPY	lb/hr	TPY
Propane	0.3756	1.6451	0.0188	0.0823
H_2S	0.0000	0.0000	0.0000	0.0000
Iso-Butane	0.1901	0.8326	0.0095	0.0416
N-Butane	0.3426	1.5006	0.0171	0.0750
Iso-Pentane	0.2252	0.9864	0.0113	0.0493
N-Pentane	0.2406	1.0538	0.0120	0.0527
Methylcyclopentane	0.0000	0.0000	0.0000	0.0000
n-Hexane	0.3382	1.4813	0.0169	0.0741
Hexane +	0.3238	1.4182	0.0162	0.0709
2,2,4-Trimethylpentane	0.0352	0.1542	0.0018	0.0077
Methycyclohexane	1.8777	8.2243	0.0939	0.4112
Benzene	4.5985	20.1414	0.2299	1.0071
Cyclohexane	0.9811	4.2972	0.0491	0.2149
Heptanes	1.3712	6.0059	0.0686	0.3003
Toluene	8.1102	35.5227	0.4055	1.7761
Ethylbenzene	0.3008	1.3175	0.0150	0.0659
Xylenes	3.1558	13.8224	0.1578	0.6911
Octanes+	1.7379	7.6120	0.0869	0.3806

TOTAL EMISSION SUMMARY	**UNCONTROLLED**		**CONTROLLED**	
Emission Component	**lb/hr**	**TPY**	**lb/hr**	**TPY**
NMNEVOC (Includes TOTAL HAPs)	**24.2045**	**106.0157**	**1.2102**	**5.3008**
TOTAL HAPs	**16.5387**	**72.4395**	**0.8252**	**3.7684**

*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.

Tap 5 Compressor Station

Dehy Flash Tank - Emission Summary

Dehy Flash Tank Emissions

Emission Component	Uncontrolled Flash Tank		Controlled Flash Tank	
	lb/hr	TPY	lb/hr	TPY
Propane	0.7241	3.1716	0.0000	0.0000
H_2S	0.0000	0.0000	0.0000	0.0000
Iso-Butane	0.2349	1.0289	0.0000	0.0000
N-Butane	0.3118	1.3657	0.0000	0.0000
Iso-Pentane	0.1730	0.7577	0.0000	0.0000
N-Pentane	0.1466	0.6421	0.0000	0.0000
Methylcyclopentane	0.0000	0.0000	0.0000	0.0000
n-Hexane	0.1099	0.4814	0.0000	0.0000
Hexane +	0.1419	0.6215	0.0000	0.0000
2,2,4-Trimethylpentane	0.0114	0.0499	0.0000	0.0000
Methycyclohexane	0.1270	0.5563	0.0000	0.0000
Benzene	0.0434	0.1901	0.0000	0.0000
Cyclohexane	0.0886	0.3881	0.0000	0.0000
Heptanes	0.2139	0.9369	0.0000	0.0000
Toluene	0.0474	0.2076	0.0000	0.0000
Ethylbenzene	0.0010	0.0044	0.0000	0.0000
Xylenes	0.0067	0.0293	0.0000	0.0000
Octanes+	0.0290	0.1270	0.0000	0.0000

TOTAL EMISSION SUMMARY	UNCONTROLLED		CONTROLLED	
Emission Component	**lb/hr**	**TPY**	**lb/hr**	**TPY**
NMNEVOC (Includes TOTAL HAPs)	**2.4106**	**10.5584**	**0.0000**	**0.0000**
TOTAL HAPs	**0.2084**	**0.9128**	**0.0000**	**0.0000**

*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.

Tap 5 Compressor Station

Thermal Oxidizer - Products of Combustion

Thermal Oxidizer - Products of Combustion Calculations (Emission Unit ID: T5TO-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	5.07	0.0600	0.0824	0.0075	0.304	0.418	0.038	1.333	1.830	0.167

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

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Tap 5 Compressor Station T5D-1 - 2017 Uncontrolled
File Name: W:\EHS\Environmental\Air\Areas of Operation\Utah_MSO\Tap 5\Title V\Nov 2016 EPA Info Requests\Tap-5 Info Request\T5D-1 Dehy Uncontrolled - 2017 PTE.ddf
Date: July 26, 2017

DESCRIPTION:

Description: Throughput - 40 MMSCFD (PTE)
Gas Analysis: 06/13/2016
Kimray 21015 Glycol Pump @ 3.5 GPM
Flash tank = inlet separator; Still Vent =
Thermal Ox

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.5937	14.248	2.6003
Ethane	0.2518	6.043	1.1029
Propane	0.3755	9.012	1.6447
Isobutane	0.1901	4.563	0.8327
n-Butane	0.3426	8.221	1.5004
Isopentane	0.2252	5.404	0.9863
n-Pentane	0.2406	5.775	1.0539
n-Hexane	0.3381	8.115	1.4810
Cyclohexane	0.9810	23.544	4.2967
Other Hexanes	0.3238	7.771	1.4181
Heptanes	1.3710	32.905	6.0051
Methylcyclohexane	1.8774	45.058	8.2230
2,2,4-Trimethylpentane	0.0352	0.844	0.1541
Benzene	4.5979	110.351	20.1390
Toluene	8.1092	194.621	35.5183
Ethylbenzene	0.3008	7.218	1.3173
Xylenes	3.1554	75.731	13.8209
C8+ Heavies	1.7376	41.702	7.6107
Total Emissions	25.0469	601.126	109.7055
Total Hydrocarbon Emissions	25.0469	601.126	109.7055
Total VOC Emissions	24.2014	580.834	106.0022
Total HAP Emissions	16.5367	396.880	72.4305
Total BTEX Emissions	16.1634	387.920	70.7955

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	10.5416	252.998	46.1722
Ethane	1.2747	30.593	5.5832
Propane	0.7241	17.378	3.1714
Isobutane	0.2349	5.638	1.0289
n-Butane	0.3118	7.484	1.3658
Isopentane	0.1730	4.151	0.7575
n-Pentane	0.1466	3.519	0.6422
n-Hexane	0.1099	2.637	0.4812
Cyclohexane	0.0886	2.127	0.3883
Other Hexanes	0.1419	3.406	0.6215
Heptanes	0.2139	5.134	0.9369
Methylcyclohexane	0.1270	3.049	0.5564
2,2,4-Trimethylpentane	0.0114	0.273	0.0499
Benzene	0.0434	1.042	0.1901
Toluene	0.0474	1.139	0.2078
Ethylbenzene	0.0010	0.024	0.0043
Xylenes	0.0067	0.160	0.0292
C8+ Heavies	0.0290	0.696	0.1270
Total Emissions	14.2269	341.445	62.3138
Total Hydrocarbon Emissions	14.2269	341.445	62.3138
Total VOC Emissions	2.4106	57.854	10.5584
Total HAP Emissions	0.2198	5.274	0.9625
Total BTEX Emissions	0.0985	2.364	0.4314

EQUIPMENT REPORTS:

ABSORBER

Calculated Absorber Stages: 1.86
Specified Dry Gas Dew Point: 5.00 lbs. H2O/MMSCF

Temperature: 92.0 deg. F
Pressure: 450.0 psig
Dry Gas Flow Rate: 40.0000 MMSCF/day
Glycol Losses with Dry Gas: 0.1576 lb/hr
Wet Gas Water Content: Saturated
Calculated Wet Gas Water Content: 86.09 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio: 1.60 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	5.80%	94.20%
Carbon Dioxide	99.93%	0.07%
Nitrogen	100.00%	0.00%
Methane	100.00%	0.00%
Ethane	99.98%	0.02%
Propane	99.97%	0.03%
Isobutane	99.95%	0.05%
n-Butane	99.93%	0.07%
Isopentane	99.93%	0.07%
n-Pentane	99.90%	0.10%
n-Hexane	99.83%	0.17%
Cyclohexane	99.30%	0.70%
Other Hexanes	99.87%	0.13%
Heptanes	99.66%	0.34%
Methylcyclohexane	99.14%	0.86%
2,2,4-Trimethylpentane	99.85%	0.15%
Benzene	93.41%	6.59%
Toluene	89.62%	10.38%
Ethylbenzene	83.84%	16.16%
Xylenes	76.63%	23.37%
C8+ Heavies	98.14%	1.86%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 100.0 deg. F
Flash Pressure: 80.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.98%	0.02%
Carbon Dioxide	45.66%	54.34%
Nitrogen	4.95%	95.05%
Methane	5.33%	94.67%
Ethane	16.50%	83.50%
Propane	34.15%	65.85%
Isobutane	44.73%	55.27%

n-Butane	52.35%	47.65%
Isopentane	56.75%	43.25%
n-Pentane	62.30%	37.70%
n-Hexane	75.59%	24.41%
Cyclohexane	91.97%	8.03%
Other Hexanes	69.81%	30.19%
Heptanes	86.57%	13.43%
Methylcyclohexane	93.91%	6.09%
2,2,4-Trimethylpentane	75.87%	24.13%
Benzene	99.11%	0.89%
Toluene	99.46%	0.54%
Ethylbenzene	99.71%	0.29%
Xylenes	99.82%	0.18%
C8+ Heavies	98.55%	1.45%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	18.32%	81.68%
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	0.75%	99.25%
n-Pentane	0.71%	99.29%
n-Hexane	0.62%	99.38%
Cyclohexane	3.42%	96.58%
Other Hexanes	1.31%	98.69%
Heptanes	0.56%	99.44%
Methylcyclohexane	4.20%	95.80%
2,2,4-Trimethylpentane	1.83%	98.17%
Benzene	5.04%	94.96%
Toluene	7.94%	92.06%
Ethylbenzene	10.43%	89.57%
Xylenes	12.95%	87.05%
C8+ Heavies	12.12%	87.88%

STREAM REPORTS:

WET GAS STREAM

Temperature: 92.00 deg. F
Pressure: 464.70 psia
Flow Rate: 1.67e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.81e-001	1.44e+002
Carbon Dioxide	3.03e-001	5.88e+002
Nitrogen	2.36e-001	2.91e+002
Methane	9.27e+001	6.55e+004
Ethane	4.04e+000	5.35e+003
Propane	1.25e+000	2.42e+003
Isobutane	2.67e-001	6.84e+002
n-Butane	3.22e-001	8.25e+002
Isopentane	1.45e-001	4.61e+002
n-Pentane	1.13e-001	3.60e+002
n-Hexane	6.45e-002	2.45e+002
Cyclohexane	4.03e-002	1.49e+002
Other Hexanes	8.75e-002	3.32e+002
Heptanes	1.02e-001	4.48e+002
Methylcyclohexane	5.31e-002	2.29e+002
2,2,4-Trimethylpentane	5.59e-003	2.81e+001
Benzene	2.05e-002	7.03e+001
Toluene	1.94e-002	7.85e+001
Ethylbenzene	3.99e-004	1.87e+000
Xylenes	2.89e-003	1.35e+001
C8+ Heavies	1.26e-002	9.43e+001
Total Components	100.00	7.83e+004

DRY GAS STREAM

Temperature: 92.00 deg. F
Pressure: 464.70 psia
Flow Rate: 1.67e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.05e-002	8.33e+000
Carbon Dioxide	3.04e-001	5.87e+002
Nitrogen	2.37e-001	2.91e+002
Methane	9.29e+001	6.55e+004

Ethane	4.05e+000	5.35e+003
Propane	1.25e+000	2.42e+003
Isobutane	2.68e-001	6.84e+002
n-Butane	3.23e-001	8.24e+002
Isopentane	1.45e-001	4.60e+002
n-Pentane	1.13e-001	3.60e+002
n-Hexane	6.45e-002	2.44e+002
Cyclohexane	4.01e-002	1.48e+002
Other Hexanes	8.76e-002	3.32e+002
Heptanes	1.01e-001	4.46e+002
Methylcyclohexane	5.27e-002	2.27e+002
2,2,4-Trimethylpentane	5.59e-003	2.81e+001
Benzene	1.92e-002	6.57e+001
Toluene	1.74e-002	7.04e+001
Ethylbenzene	3.35e-004	1.56e+000
Xylenes	2.22e-003	1.04e+001
C8+ Heavies	1.24e-002	9.25e+001
Total Components	100.00	7.81e+004

LEAN GLYCOL STREAM

Temperature: 92.00 deg. F
Flow Rate: 3.60e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.84e+001	1.99e+003
Water	1.50e+000	3.04e+001
Carbon Dioxide	2.02e-012	4.09e-011
Nitrogen	6.65e-014	1.35e-012
Methane	4.94e-018	1.00e-016
Ethane	2.00e-008	4.06e-007
Propane	1.61e-009	3.25e-008
Isobutane	5.04e-010	1.02e-008
n-Butane	6.76e-010	1.37e-008
Isopentane	8.46e-005	1.71e-003
n-Pentane	8.50e-005	1.72e-003
n-Hexane	1.04e-004	2.10e-003
Cyclohexane	1.72e-003	3.47e-002
Other Hexanes	2.12e-004	4.29e-003
Heptanes	3.80e-004	7.68e-003
Methylcyclohexane	4.07e-003	8.23e-002
2,2,4-Trimethylpentane	3.24e-005	6.56e-004
Benzene	1.20e-002	2.44e-001
Toluene	3.45e-002	6.99e-001
Ethylbenzene	1.73e-003	3.50e-002

Xylenes	2.32e-002	4.69e-001
C8+ Heavies	1.18e-002	2.40e-001
Total Components	100.00	2.02e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 92.00 deg. F
Pressure: 464.70 psia
Flow Rate: 3.95e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.06e+001	1.99e+003
Water	7.55e+000	1.66e+002
Carbon Dioxide	2.19e-002	4.82e-001
Nitrogen	2.27e-003	4.98e-002
Methane	5.07e-001	1.11e+001
Ethane	6.95e-002	1.53e+000
Propane	5.01e-002	1.10e+000
Isobutane	1.93e-002	4.25e-001
n-Butane	2.98e-002	6.54e-001
Isopentane	1.82e-002	4.00e-001
n-Pentane	1.77e-002	3.89e-001
n-Hexane	2.05e-002	4.50e-001
Cyclohexane	5.03e-002	1.10e+000
Other Hexanes	2.14e-002	4.70e-001
Heptanes	7.25e-002	1.59e+000
Methylcyclohexane	9.50e-002	2.09e+000
2,2,4-Trimethylpentane	2.15e-003	4.72e-002
Benzene	2.22e-001	4.89e+000
Toluene	4.03e-001	8.86e+000
Ethylbenzene	1.53e-002	3.37e-001
Xylenes	1.65e-001	3.63e+000
C8+ Heavies	9.13e-002	2.01e+000
Total Components	100.00	2.20e+003

FLASH TANK OFF GAS STREAM

Temperature: 100.00 deg. F
Pressure: 94.70 psia
Flow Rate: 2.84e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	1.88e-001	2.54e-002
Carbon Dioxide	7.96e-001	2.62e-001
Nitrogen	2.26e-001	4.74e-002
Methane	8.79e+001	1.05e+001
Ethane	5.67e+000	1.27e+000
Propane	2.20e+000	7.24e-001
Isobutane	5.41e-001	2.35e-001
n-Butane	7.18e-001	3.12e-001
Isopentane	3.21e-001	1.73e-001
n-Pentane	2.72e-001	1.47e-001
n-Hexane	1.71e-001	1.10e-001
Cyclohexane	1.41e-001	8.86e-002
Other Hexanes	2.20e-001	1.42e-001
Heptanes	2.85e-001	2.14e-001
Methylcyclohexane	1.73e-001	1.27e-001
2,2,4-Trimethylpentane	1.33e-002	1.14e-002
Benzene	7.43e-002	4.34e-002
Toluene	6.89e-002	4.74e-002
Ethylbenzene	1.24e-003	9.82e-004
Xylenes	8.39e-003	6.66e-003
C8+ Heavies	2.28e-002	2.90e-002
Total Components	100.00	1.46e+001

FLASH TANK GLYCOL STREAM

Temperature: 100.00 deg. F
Flow Rate: 3.91e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.12e+001	1.99e+003
Water	7.60e+000	1.66e+002
Carbon Dioxide	1.01e-002	2.20e-001
Nitrogen	1.13e-004	2.46e-003
Methane	2.72e-002	5.94e-001
Ethane	1.15e-002	2.52e-001
Propane	1.72e-002	3.76e-001
Isobutane	8.71e-003	1.90e-001
n-Butane	1.57e-002	3.43e-001
Isopentane	1.04e-002	2.27e-001
n-Pentane	1.11e-002	2.42e-001
n-Hexane	1.56e-002	3.40e-001
Cyclohexane	4.65e-002	1.02e+000
Other Hexanes	1.50e-002	3.28e-001
Heptanes	6.32e-002	1.38e+000

Methylcyclohexane	8.98e-002	1.96e+000
2,2,4-Trimethylpentane	1.64e-003	3.58e-002
Benzene	2.22e-001	4.84e+000
Toluene	4.04e-001	8.81e+000
Ethylbenzene	1.54e-002	3.36e-001
Xylenes	1.66e-001	3.62e+000
C8+ Heavies	9.06e-002	1.98e+000
Total Components	100.00	2.18e+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: 2.97e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.60e+001	1.35e+002
Carbon Dioxide	6.38e-002	2.20e-001
Nitrogen	1.12e-003	2.46e-003
Methane	4.72e-001	5.94e-001
Ethane	1.07e-001	2.52e-001
Propane	1.09e-001	3.76e-001
Isobutane	4.17e-002	1.90e-001
n-Butane	7.52e-002	3.43e-001
Isopentane	3.98e-002	2.25e-001
n-Pentane	4.26e-002	2.41e-001
n-Hexane	5.01e-002	3.38e-001
Cyclohexane	1.49e-001	9.81e-001
Other Hexanes	4.79e-002	3.24e-001
Heptanes	1.75e-001	1.37e+000
Methylcyclohexane	2.44e-001	1.88e+000
2,2,4-Trimethylpentane	3.93e-003	3.52e-002
Benzene	7.51e-001	4.60e+000
Toluene	1.12e+000	8.11e+000
Ethylbenzene	3.62e-002	3.01e-001
Xylenes	3.79e-001	3.16e+000
C8+ Heavies	1.30e-001	1.74e+000

Total Components	100.00	1.61e+002

XTO Energy, Inc.

Tap 5 Compressor Station

Extended Gas Analysis

Tap-5 Pre-Dehy Gas Sample - Sample date: 6/13/2016

Conversion of Mole Percent to Weight Percent

Component	Mole %	MW	Mole % *MW	Weight %
Carbon Dioxide	0.3039	44.01	0.1338	0.752%
Nitrogen	0.2369	28.01	0.0664	0.373%
Hydrogen Sulfide	0.0000	34.02	0.0000	0.000%
Helium	0.0000	4.00	0.0000	0.000%
Methane	92.9011	16.04	14.9032	83.837%
Ethane	4.0518	30.07	1.2183	6.854%
Propane	1.2475	44.10	0.5501	3.095%
Iso-Butane	0.2679	58.12	0.1557	0.876%
N-Butane	0.3230	58.12	0.1877	1.056%
Iso-Pentane	0.1453	72.15	0.1048	0.590%
N-Pentane	0.1136	72.15	0.0820	0.461%
Methylcyclopentane	0.0000	86.00	0.0000	0.000%
n-Hexane	0.0646	86.18	0.0557	0.313%
Hexanes	0.0877	86.16	0.0756	0.425%
2,4-Dimethylpentane	0.0000	114.24	0.0000	0.000%
Methycyclohexane	0.0532	96.00	0.0511	0.287%
Benzene	0.0205	78.11	0.0160	0.090%
Cyclohexane	0.0404	84.51	0.0341	0.192%
Heptanes	0.1017	100.20	0.1019	0.573%
Toluene	0.0194	92.13	0.0179	0.101%
Ethylbenzene	0.0004	106.17	0.0004	0.002%
Xylenes	0.0029	106.17	0.0031	0.017%
Octanes	0.0121	114.23	0.0138	0.078%
Nonanes	0.0038	128.28	0.0049	0.027%
Decanes+	0.0000	223.02	0.0000	0.000%
Total	100.00	-	17.7765	100.000%

Molecular Weight	17.78	
Specific Gravity	0.6073	
Lower Heating Value	1065.7	
NMHC	2.6731	15.037%
VOCs (NMNEHC)	1.4548	8.184%
HAPs	0.0931	0.52%
H2S Mole Fraction	0.0000	0.000%
Total HC	17.5763	98.874%
THC:VOC Ratio	8.2771	8.277%

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

Description:	Tap 5 Pre Dehy	Company:	XTO
Field:	Roosevelt	Data File:	001799.D
Meter Number:		G.C. Method:	GAS EXTENDED.M
Analysis Date/Time:	6/15/2016, 13:42:05	GPA Method	GPA 2286
Date Sampled:	6/13/2016	Sampled By:	BC
Sample Temperature:	92	Analyst Initials:	JFL
Sample Pressure:	450		

Component	Mol%	Wt%	LV%
Methane	92.9011	83.8419	88.9473
Ethane	4.0518	6.8539	6.1375
Propane	1.2475	3.0946	1.9429
Isobutane	0.2679	0.8761	0.4954
n-Butane	0.3230	1.0561	0.5755
Neopentane	0.0047	0.0189	0.0101
Isopentane	0.1406	0.5706	0.2908
n-Pentane	0.1136	0.4610	0.2325
2,2-Dimethylbutane	0.0069	0.0334	0.0163
2,3-Dimethylbutane	0.0098	0.0474	0.0226
2-Methylpentane	0.0431	0.2091	0.1012
3-Methylpentane	0.0279	0.1352	0.0643
n-Hexane	0.0646	0.3131	0.1501
Heptanes	0.2408	1.2621	0.5310
Octanes	0.0121	0.0778	0.0343
Nonanes	0.0038	0.0233	0.0087
Decanes plus	0.0000	0.0000	0.0000
Nitrogen	0.2369	0.3732	0.1468
Carbon Dioxide	0.3039	0.7523	0.2927
Oxygen	ND	ND	ND
Hydrogen Sulfide	ND	ND	ND
Total	100.0000	100.0000	100.0000

Calculated Global Properties		**Units**
Gross BTU/Real CF	1096.3	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	1078.5	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9975	
Specific Gravity	0.6156	air=1
Avg Molecular Weight	17.776	gm/mole
Propane GPM	0.341893	gal/MCF
Butane GPM	0.189012	gal/MCF
Gasoline GPM	0.249830	gal/MCF
26# Gasoline GPM	0.351680	gal/MCF
Total GPM	1.946877	gal/MCF
Base Mol%	101.308	%v/v

H2S detection limit 100 ppm (+/-)

Component	Mol%	Wt%	LV%
Benzene	0.0205	0.0900	0.0324
Toluene	0.0194	0.1004	0.0366
Ethylbenzene	0.0004	0.0025	0.0009
M&P Xylene	0.0027	0.0159	0.0058
O-Xylene	0.0002	0.0014	0.0005
2,2,4-Trimethylpentane	0.0056	0.0357	0.0158
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0404	0.1912	0.0777
Methylcyclohexane	0.0532	0.2938	0.1208
Description:	Tap 5 Pre Dehy		

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	0.3039	0.7523	0.2927
Hydrogen Sulfide	ND	ND	ND
Nitrogen	0.2369	0.3732	0.1468
Methane	92.9011	83.8419	88.9473
Ethane	4.0518	6.8539	6.1375
Propane	1.2475	3.0946	1.9429
Isobutane	0.2679	0.8761	0.4954
n-Butane	0.3230	1.0561	0.5755
Isopentane	0.1453	0.5895	0.3009
n-Pentane	0.1136	0.4610	0.2325
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0646	0.3131	0.1501
Cyclohexane	0.0404	0.1912	0.0777
Other Hexanes	0.0877	0.4251	0.2044
Heptanes	0.1017	0.5510	0.2477
Methylcyclohexane	0.0532	0.2938	0.1208
2,2,4 Trimethylpentane	0.0056	0.0357	0.0158
Benzene	0.0205	0.0900	0.0324
Toluene	0.0194	0.1004	0.0366
Ethylbenzene	0.0004	0.0025	0.0009
Xylenes	0.0029	0.0173	0.0063
C8+ Heavies	0.0126	0.0813	0.0358
Subtotal	100.0000	100.0000	100.0000
Oxygen	ND	ND	ND
Total	100.0000	100.0000	100.0000

XTO Energy, Inc.
Tap 5 Compressor Station
Fugitive Emissions

Fugitive Emission Calculations (Emission Unit ID: T5F-1)

Component Type	Service	Estimated Components Count	Hours	Factors	Total VOC Weight %	Emissions	
						lb/year	tons/year
Valves	Gas/Vapor	450	8760	0.00992000	8.18%	3200.2947	1.6001
	Light Oil	100	8760	0.00550000	45.29%	2182.1880	1.0911
	Heavy Oil	0	8760	0.00001900	45.29%	0.0000	0.0000
	Water/Light Oil	50	8760	0.00021600	45.29%	42.8502	0.0214
Pumps	Gas/Vapor	6	8760	0.00529000	8.18%	22.7548	0.0114
	Light Oil	3	8760	0.02866000	45.29%	341.1355	0.1706
	Heavy Oil	0	8760	0.00113000	45.29%	0.0000	0.0000
	Water/Light Oil	3	8760	0.00005300	45.29%	0.6309	0.0003
Flanges	Gas/Vapor	1200	8760	0.00086000	8.18%	739.8531	0.3699
	Light Oil	75	8760	0.00024300	45.29%	72.3098	0.0362
	Heavy Oil	0	8760	0.00000086	45.29%	0.0000	0.0000
	Water/Light Oil	50	8760	0.00000620	45.29%	1.2300	0.0006
Open-ended Lines	Gas/Vapor	15	8760	0.00441000	8.18%	47.4237	0.0237
	Light Oil	0	8760	0.00309000	45.29%	0.0000	0.0000
	Heavy Oil	0	8760	0.00030900	45.29%	0.0000	0.0000
	Water/Light Oil	5	8760	0.00055000	45.29%	10.9109	0.0055
Connectors	Gas/Vapor	250	8760	0.00044000	8.18%	78.8603	0.0394
	Light Oil	0	8760	0.00046300	45.29%	0.0000	0.0000
	Heavy Oil	0	8760	0.00001700	45.29%	0.0000	0.0000
	Water/Light Oil	50	8760	0.00024300	45.29%	48.2065	0.0241
Other[1]:	Gas/Vapor	30	8760	0.01940000	8.18%	417.2427	0.2086
	Light Oil	0	8760	0.01650000	45.29%	0.0000	0.0000
	Heavy Oil	0	8760	0.00006800	45.29%	0.0000	0.0000
	Water/Light Oil	5	8760	0.00090000	45.29%	612.9964	0.3065

	lb/hr	lb/year	TPY
Total VOC Emissions[2]	1.3	11728.3	3.9
HAPs[2]	0.1	542.0	0.3

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.
Tap 5 Compressor Station
Methane Fugitive Emissions

Fugitive Emission Calculations (Emission Unit ID: T5F-1)

Component Type	Service	Estimated Components Count	Hours	Factors	Total CH4 Weight %	Emissions	
						lb/year	tons/year
Valves	Gas/Vapor	450	8760	0.00992000	83.84%	32784.0639	16.3920
	Light Oil	100	8760	0.00550000	36.15%	1741.8140	0.8709
	Heavy Oil	0	8760	0.00001900	36.15%	0.0000	0.0000
	Water/Light Oil	50	8760	0.00021600	36.15%	34.2029	0.0171
Pumps	Gas/Vapor	6	8760	0.00529000	83.84%	233.1017	0.1166
	Light Oil	3	8760	0.02866000	36.15%	272.2930	0.1361
	Heavy Oil	0	8760	0.00113000	36.15%	0.0000	0.0000
	Water/Light Oil	3	8760	0.00005300	36.15%	0.5035	0.0003
Flanges	Gas/Vapor	1200	8760	0.00086000	83.84%	7579.1115	3.7896
	Light Oil	75	8760	0.00024300	36.15%	57.7174	0.0289
	Heavy Oil	0	8760	0.00000086	36.15%	0.0000	0.0000
	Water/Light Oil	50	8760	0.00000620	36.15%	0.9817	0.0005
Open-ended Lines	Gas/Vapor	15	8760	0.00441000	83.84%	485.8122	0.2429
	Light Oil	0	8760	0.00309000	36.15%	0.0000	0.0000
	Heavy Oil	0	8760	0.00030900	36.15%	0.0000	0.0000
	Water/Light Oil	5	8760	0.00055000	36.15%	8.7091	0.0044
Connectors	Gas/Vapor	250	8760	0.00044000	83.84%	807.8510	0.4039
	Light Oil	0	8760	0.00046300	36.15%	0.0000	0.0000
	Heavy Oil	0	8760	0.00001700	36.15%	0.0000	0.0000
	Water/Light Oil	50	8760	0.00024300	36.15%	38.4783	0.0192
Other[1]:	Gas/Vapor	30	8760	0.01940000	83.84%	4274.2664	2.1371
	Light Oil	0	8760	0.01650000	36.15%	0.0000	0.0000
	Heavy Oil	0	8760	0.00006800	36.15%	0.0000	0.0000
	Water/Light Oil	5	8760	0.03090000	36.15%	489.2914	0.2446

	lb/hr	lb/year	TPY
Total VOC Emissions[2]	8.4	73212.3	24.4
HAPs[2]	0.5	4474.1	2.2

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.
Tap 5 Compressor Station
CO2 Fugitive Emissions

Fugitive Emission Calculations (Emission Unit ID: T5F-1)

Component Type	Service	Estimated Components Count	Hours	Factors	Total CH4 Weight %	Emissions	
						lb/year	tons/year
Valves	Gas/Vapor	450	8760	0.00992000	0.75%	294.2482	0.1471
	Light Oil	100	8760	0.00550000	2.88%	138.7610	0.0694
	Heavy Oil	0	8760	0.00001900	2.88%	0.0000	0.0000
	Water/Light Oil	50	8760	0.00021600	2.88%	2.7248	0.0014
Pumps	Gas/Vapor	6	8760	0.00529000	0.75%	2.0922	0.0010
	Light Oil	3	8760	0.02866000	2.88%	21.6921	0.0108
	Heavy Oil	0	8760	0.00113000	2.88%	0.0000	0.0000
	Water/Light Oil	3	8760	0.00005300	2.88%	0.0401	0.0000
Flanges	Gas/Vapor	1200	8760	0.00086000	0.75%	68.0251	0.0340
	Light Oil	75	8760	0.00024300	2.88%	4.5980	0.0023
	Heavy Oil	0	8760	0.00000086	2.88%	0.0000	0.0000
	Water/Light Oil	50	8760	0.00000620	2.88%	0.0782	0.0000
Open-ended Lines	Gas/Vapor	15	8760	0.00441000	0.75%	4.3603	0.0022
	Light Oil	0	8760	0.00309000	2.88%	0.0000	0.0000
	Heavy Oil	0	8760	0.00030900	2.88%	0.0000	0.0000
	Water/Light Oil	5	8760	0.00055000	2.88%	0.6938	0.0003
Connectors	Gas/Vapor	250	8760	0.00044000	0.75%	7.2507	0.0036
	Light Oil	0	8760	0.00046300	2.88%	0.0000	0.0000
	Heavy Oil	0	8760	0.00001700	2.88%	0.0000	0.0000
	Water/Light Oil	50	8760	0.00024300	2.88%	3.0654	0.0015
Other[1]:	Gas/Vapor	30	8760	0.01940000	0.75%	38.3630	0.0192
	Light Oil	0	8760	0.01650000	2.88%	0.0000	0.0000
	Heavy Oil	0	8760	0.00006800	2.88%	0.0000	0.0000
	Water/Light Oil	5	8760	0.03090000	2.88%	38.9792	0.0195

Total CO2 Emissions[2]	lb/hr	lb/year	TPY
	0.1	937.5	0.3

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.
RBU 11-02F Wellsite
Oil/Condensate Storage Tanks

Tank Flash Emissions Calculations - Oil/Condensate Tanks (T-1 & T-2)

Average BOPD (per tank)	Number of Oil Tanks	Emissions Controlled (Yes/No)	Control Type (Flare, VRU, etc)
10	2	No	N/A

Total Uncontrolled VOC Emissions - All Tanks Combined			
Uncontrolled VOC Emissions		Uncontrolled HAP Emissions	
0.668	lb/hr	0.09	lb/hr
2.926	tpy	0.400	tpy

Total Uncontrolled Emissions - Emission Rates Per Tank			
Uncontrolled VOC Emissions		Uncontrolled HAP Emissions	
0.334	lb/hr	0.05	lb/hr
1.463	tpy	0.200	tpy

Total Uncontrolled Emissions - Emission Rates Per Tank (lb/hr)			
Benzene	Toluene	Ethylbenzene/Xylene	n-Hexane
0.011	0.011	0.011	0.011

Total Uncontrolled Emissions - Emission Rates Per Tank (TPY)			
Benzene	Toluene	Ethylbenzene/Xylene	n-Hexane
0.05	0.05	0.05	0.05

**Tank Emissions are based off of E&P Tanks RVP.*

XTO Energy, Inc.
Tap 5 Compressor Station
RBU 11-02F Wellsite - Tanks - Working & Breathing

Emissions Calcs - 300-bbl Tanks W&B Losses (EPN: RBU 11-02F Wellsite)

Average BOPD (Both tanks combined)	Number of Condensate Tanks	Emissions Controlled (Yes/No)	Control Type (Flare, VRU, etc)
20	2	No	N/A

Total Controlled Emissions - All Tanks Combined[1]		
Controlled VOC Emissions		Controlled HAP Emissions
0.453	lb/hr	
1.982	tpy	

Total Controlled Emissions - Emission Rates Per Tank[1]		
Controlled VOC Emissions		Controlled HAP Emissions
0.226	lb/hr	
0.991	tpy	

** Working and Breathing Emissions are based off of TANKS 4.0*

**Note 1: Site has two (2) 300-barrel storage tanks.*

```
*****************************************************************************************
*     Project Setup Information                                                         *
*****************************************************************************************
Project File               : W:\EHS\Environmental\Air\Areas of Operation\Utah\_MSO\Tap 5\Title V\Nov 2016 EPA Info Reque
Flowsheet Selection        : Oil Tank with Separator
Calculation Method         : RVP Distillation
Control Efficiency         :  0.00%
Known Separator Stream     : Low Pressure Oil
Entering Air Composition   : No
Component Group            : C10+

Filed Name                 : RBU 11-02F Condensate 300 bbl Tank PTE
Well Name                  : RBU 11-02F 2017 PTE - 20 bpd (Condensate & PW)
Well ID                    : 2017 PTE
Date                       : 2017.07.24


*****************************************************************************************
*     Data Input                                                                        *
*****************************************************************************************

Separator Pressure (psia)          : 190.00
Separator Temperature (F)          : 60.0
C10+ SG                            : 0.79
C10+ MW(lb/lbmol)                  : 140.67

-- Low Pressure Oil ----------------------------------------------------------------
No.   Component            Mole%    Wt%
1     H2S                   0.0000   0.0000
2     O2                    0.0000   0.0000
3     CO2                   0.0130   0.0051
4     N2                    0.0000   0.0000
5     C1                    1.1910   0.1719
6     C2                    1.0710   0.2898
7     C3                    1.5480   0.6142
8     i-C4                  0.8540   0.4466
9     n-C4                  1.4980   0.7833
10    i-C5                  1.5370   0.9978
11    n-C5                  1.6350   1.0614
12    C6                    1.1490   0.8907
13    C7                    7.9510   7.1681
14    C8                   23.5920  24.2472
15    C9                   16.1210  18.6066
16    C10+                 21.0870  26.6898
17    Benzene               2.7160   1.9088
18    Toluene               5.5540   4.6039
19    E-Benzene             0.7440   0.7107
20    Xylenes               9.4610   9.0377
21    n-C6                  2.2780   1.7664
22    224Trimethylp         0.0000   0.0000

-- Sales Oil -----------------------------------------------------------------------
Production Rate (bbl/day)      : 20.00
Days of Annual Operation       : 365
API Gravity                    : 55.91
Reid Vapor Pressure (psia)     : 6.20
Ambient Pressure (psia)        : 12.10
Ambient Temperature (F)        : 60.0


*****************************************************************************************
*     Calculation Results                                                               *
*****************************************************************************************

-- Emission Summary ----------------------------------------------------------------
                    Uncontrolled
```

	ton
Total HAPs	0.2630
Total HC	5.7230
VOCs, C2+	4.2820
VOCs, C3+	2.9260
CO2	0.0360
CH4	1.4410

Uncontrolled Recovery Information:

Vapor(mscfd):	0.3883
HC Vapor(mscfd):	0.3866
CO2(mscfd):	0.0000
CH4(mscfd):	0.1900
GOR(SCF/STB):	19.4170

-- Emission Composition ----------

NoComponent	Uncontrolled ton
1 H2S	0.0000
2 O2	0.0000
3 CO2	0.0360
4 N2	0.0000
5 C1	1.4410
6 C2	1.3560
7 C3	1.1220
8 i-C4	0.3690
9 n-C4	0.4470
10 i-C5	0.2270
11 n-C5	0.1810
12 C6	0.0470
13 Benzene	0.0780
14 Toluene	0.0550
15 E-Benzene	0.0030
16 Xylenes	0.0330
17 n-C6	0.0940
18 224Trimethylp	0.0000
19 Pseudo Comp1	0.2110
20 Pseudo Comp2	0.0390
21 Pseudo Comp3	0.0160
22 Pseudo Comp4	0.0030
23 Pseudo Comp5	0.0000
24 Total	5.7580

-- Stream Data ----------

NoComponent	MW lb/lbmol	LP Oil mole %	Flash Oil mole %	Sales Oil mole %	Flash Gas mole %	W&S Gas mole %	Total Emission mole %
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	0.0052	0.0029	0.4494	0.3757	0.4358
4 N2	28.01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5 C1	16.04	1.1910	0.2349	0.0680	54.6220	18.9671	48.0579
6 C2	30.07	1.0710	0.6787	0.5261	22.9955	29.0491	24.1100
7 C3	44.10	1.5480	1.3655	1.2649	11.7465	21.8690	13.6101
8 i-C4	58.12	0.8540	0.8196	0.7946	2.7755	6.1620	3.3990
9 n-C4	58.12	1.4980	1.4665	1.4374	3.2591	7.8934	4.1123
10 i-C5	72.15	1.5370	1.5420	1.5342	1.2579	3.5742	1.6843
11 n-C5	72.15	1.6350	1.6468	1.6426	0.9767	2.9541	1.3407
12 C6	84.00	1.1490	1.1660	1.1693	0.2004	0.7371	0.2992
13 Benzene	78.11	2.7160	2.7583	2.7680	0.3538	1.3457	0.5364
14 Toluene	92.14	5.5540	5.6500	5.6784	0.1913	0.8959	0.3210
15 E-Benzene	106.17	0.7440	0.7572	0.7613	0.0081	0.0453	0.0150
16 Xylenes	106.17	9.4610	9.6287	9.6817	0.0879	0.5071	0.1651
17 n-C6	86.18	2.2780	2.3118	2.3185	0.3898	1.4418	0.5835
18 224Trimethylp	114.24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19 Pseudo Comp1	104.23	31.5430	32.0971	32.2667	0.5743	3.3423	1.0839
20 Pseudo Comp2	121.00	16.1210	16.4080	16.4996	0.0812	0.5793	0.1729
21 Pseudo Comp3	134.00	13.8495	14.0968	14.1767	0.0266	0.2216	0.0625

22 Pseudo Comp4	147.00	4.7534	4.8384	4.8660	0.0036	0.0345	0.0092
23 Pseudo Comp5	168.55	2.4841	2.5285	2.5430	0.0004	0.0048	0.0012

	LP Oil	Flash Oil	Sales Oil	Flash Gas	W&S Gas	Total Emission
MW (lb/lbmol):	107.98	109.41	109.81	27.97	43.33	30.80
Stream Mole Ratio:	1.0000	0.9824	0.9768	0.0176	0.0040	0.0215
Stream Weight Ratio:	107.98	107.48	107.27	0.49	0.17	0.66
Total Emission (ton):				4.268	1.492	5.759
Heating Value (BTU/scf):				1637.52	2453.65	1787.77
Gas Gravity (Gas/Air):				0.97	1.50	1.06
Bubble Pt. @100F (psia):	50.80	16.67	10.10			
RVP @100F (psia):	14.51	7.77	6.17			
Spec. Gravity @100F:	0.74	0.74	0.74			

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

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

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

Identification

User Identification:	RBU 11-02F
City:	Vernal
State:	Utah
Company:	XTO Energy
Type of Tank:	Vertical Fixed Roof Tank
Description:	RBU 11-02F 300-bbl condensate storage tank - 10 bbl/day throughput

Tank Dimensions

Shell Height (ft):		15.00
Diameter (ft):		12.00
Liquid Height (ft) :		10.00
Avg. Liquid Height (ft):		8.00
Volume (gallons):		8,460.30
Turnovers:		18.12
Net Throughput(gal/yr):		153,300.00
Is Tank Heated (y/n):	Y	

Paint Characteristics

Shell Color/Shade:	Gray/Medium
Shell Condition	Poor
Roof Color/Shade:	Gray/Medium
Roof Condition:	Poor

Roof Characteristics

Type:	Cone	
Height (ft)		1.00
Slope (ft/ft) (Cone Roof)		0.17

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

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

RBU 11-02F - Vertical Fixed Roof Tank
Vernal, 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 6)	All	60 00	60 00	65 00	60 00	2 9346	2 9346	4 8184	69 0000			92 00	Option 4: RVP=6, ASTM Slope=3

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

RBU 11-02F - Vertical Fixed Roof Tank
Vernal, Utah

Annual Emission Calcaulations	
Standing Losses (lb):	1,243 3521
Vapor Space Volume (cu ft):	829 3805
Vapor Density (lb/cu ft):	0 0363
Vapor Space Expansion Factor:	0 2421
Vented Vapor Saturation Factor:	0 4672
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 0363
Vapor Molecular Weight (lb/lb-mole):	69 0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2 9346
Daily Avg Liquid Surface Temp (deg R):	519 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):	519 6700
Tank Paint Solar Absorptance (Shell):	0 7400
Tank Paint Solar Absorptance (Roof):	0 7400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,452 1184
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0 2421
Daily Vapor Temperature Range (deg R):	25 0000
Daily Vapor Pressure Range (psia):	1 8839
Breather Vent Press Setting Range(psia):	0 0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2 9346
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2 9346
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	4 8184
Daily Avg Liquid Surface Temp (deg R):	519 6700
Daily Min Liquid Surface Temp (deg R):	519 6700
Daily Max Liquid Surface Temp (deg R):	544 6700
Daily Ambient Temp Range (deg R):	23 3583
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0 4672
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	2 9346
Vapor Space Outage (ft):	7 3333
Working Losses (lb):	739 0725
Vapor Molecular Weight (lb/lb-mole):	69 0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2 9346
Annual Net Throughput (gal/yr):	153,300 0000
Annual Turnovers:	18 1199
Turnover Factor:	1 0000
Maximum Liquid Volume (gal):	8,460 2962
Maximum Liquid Height (ft):	10 0000
Tank Diameter (ft):	12 0000
Working Loss Product Factor:	1 0000
Total Losses (lb):	1,982 4246

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

Emissions Report for: Annual

RBU 11-02F - Vertical Fixed Roof Tank
Vernal, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 6)	739.07	1,243.35	1,982.42

XTO Energy, Inc.
Tap 5 Compressor Station
Oil/Condensate Storage Tanks

Tank Flash Emissions Calculations - Oil/Condensate Tanks (T5T-1 & T5T-2)

Average BOPD (per tank)	Number of Oil Tanks	Emissions Controlled (Yes/No)	Control Type (Flare, VRU, etc)
15	2	No	N/A

Total Uncontrolled Emissions - All Tanks Combined			
Uncontrolled VOC Emissions		Uncontrolled HAP Emissions	
0.190	lb/hr	0.09	lb/hr
0.832	tpy	0.400	tpy

Total Uncontrolled Emissions - Emission Rates Per Tank			
Uncontrolled VOC Emissions		Uncontrolled HAP Emissions	
0.095	lb/hr	0.05	lb/hr
0.416	tpy	0.200	tpy

Total Uncontrolled Emissions - Emission Rates Per Tank (lb/hr)			
Benzene	Toluene	Ethylbenzene/Xylene	n-Hexane
0.011	0.011	0.011	0.011

Total Uncontrolled Emissions - Emission Rates Per Tank (TPY)			
Benzene	Toluene	Ethylbenzene/Xylene	n-Hexane
0.05	0.05	0.05	0.05

**Tank Emissions are based off of E&P Tanks RVP.*

XTO Energy, Inc.
Tap 5 Compressor Station
Oil/Condensate Storage Tanks

W&B Emissions Calculations - Oil/Condensate Tanks (T5T-1 & T5T-2)

Average BOPD (per tank)	Number of Oil Tanks	Emissions Controlled (Yes/No)	Control Type (Flare, VRU, etc)
15	2	No	N/A

Total Uncontrolled Emissions - All Tanks Combined	
Uncontrolled VOC Emissions	
0.582	lb/hr
2.547	tpy

Total Uncontrolled Emissions - Emission Rates Per Tank	
Uncontrolled VOC Emissions	
0.291	lb/hr
1.274	tpy

**Tank Emissions are based off of EPA Tanks 4.09*

```
*****************************************************************************************
*     Project Setup Information                                                         *
*****************************************************************************************
Project File                : W:\EHS\Environmental\Air\Areas of Operation\Utah\_MSO\Tap 5\Title V\Nov 2016 EPA Info Reque
Flowsheet Selection         : Oil Tank with Separator
Calculation Method          : RVP Distillation
Control Efficiency          :  0.00%
Known Separator Stream      : Low Pressure Oil
Entering Air Composition    : No
Component Group             : C10+

Filed Name                  : Tap 5 Compressor Station - PTE Calculations
Well Name                   : 15 BOPD TANK water plus condensate
Well ID                     : Sample Date = 1/8/2013
Date                        : 2017.07.20


*****************************************************************************************
*     Data Input                                                                        *
*****************************************************************************************

Separator Pressure (psia)          : 39.70
Separator Temperature (F)          : 60.0
C10+ SG                            : 0.84
C10+ MW(lb/lbmol)                  : 259.07

-- Low Pressure Oil ----------------------------------------------------------------
No.   Component            Mole%    Wt%
1     H2S                   0.0000   0.0000
2     O2                    0.0000   0.0000
3     CO2                   0.0300   0.0119
4     N2                    0.0080   0.0020
5     C1                    0.4210   0.0606
6     C2                    0.4100   0.1107
7     C3                    0.8690   0.3441
8     i-C4                  0.6140   0.3204
9     n-C4                  1.3360   0.6973
10    i-C5                  1.9410   1.2575
11    n-C5                  2.6170   1.6955
12    C6                    2.8470   2.2027
13    C7                   26.2750  23.6414
14    C8                   37.6150  38.5837
15    C9                   11.4550  13.1952
16    C10+                  4.7110  10.9594
17    Benzene               1.4480   1.0156
18    Toluene               0.6890   0.5700
19    E-Benzene             0.2220   0.2116
20    Xylenes               0.5360   0.5110
21    n-C6                  5.9560   4.6092
22    224Trimethylp         0.0000   0.0000

-- Sales Oil -----------------------------------------------------------------------
Production Rate (bbl/day)      : 15.00
Days of Annual Operation       : 365
API Gravity                    : 58.80
Reid Vapor Pressure (psia)     : 5.60
Ambient Pressure (psia)        : 12.10
Ambient Temperature (F)        : 60.0


*****************************************************************************************
*     Calculation Results                                                               *
*****************************************************************************************

-- Emission Summary ----------------------------------------------------------------
                     Uncontrolled
```

	ton
Total HAPs	0.0380
Total HC	0.9390
VOCs, C2+	0.5590
VOCs, C3+	0.4160
CO2	0.0380
CH4	0.3800

Uncontrolled Recovery Information:

Vapor(mscfd):	0.0760
HC Vapor(mscfd):	0.0732
CO2(mscfd):	0.0000
CH4(mscfd):	0.0500
GOR(SCF/STB):	5.0667

-- Emission Composition ----------

No	Component	Uncontrolled ton
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.0380
4	N2	0.0140
5	C1	0.3800
6	C2	0.1430
7	C3	0.1180
8	i-C4	0.0430
9	n-C4	0.0620
10	i-C5	0.0420
11	n-C5	0.0410
12	C6	0.0150
13	Benzene	0.0050
14	Toluene	0.0010
15	E-Benzene	0.0000
16	Xylenes	0.0000
17	n-C6	0.0320
18	224Trimethylp	0.0000
19	Pseudo Comp1	0.0330
20	Pseudo Comp2	0.0210
21	Pseudo Comp3	0.0020
22	Pseudo Comp4	0.0000
23	Pseudo Comp5	0.0000
24	Total	0.9900

-- Stream Data ----------

No	Component	MW lb/lbmol	LP Oil mole %	Flash Oil mole %	Sales Oil mole %	Flash Gas mole %	W&S Gas mole %	Total Emission mole %
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	0.0252	0.0167	2.1927	2.4142	2.3296
4	N2	28.01	0.0080	0.0025	0.0000	2.4907	0.7145	1.3927
5	C1	16.04	0.4210	0.2815	0.0500	63.8969	65.1533	64.6734
6	C2	30.07	0.4100	0.3828	0.3376	12.7960	13.0459	12.9505
7	C3	44.10	0.8690	0.8549	0.8319	7.2770	7.3097	7.2972
8	i-C4	58.12	0.6140	0.6109	0.6058	2.0272	2.0356	2.0324
9	n-C4	58.12	1.3360	1.3325	1.3268	2.9201	2.9284	2.9252
10	i-C5	72.15	1.9410	1.9418	1.9431	1.5786	1.5837	1.5818
11	n-C5	72.15	2.6170	2.6193	2.6231	1.5508	1.5551	1.5535
12	C6	84.00	2.8470	2.8522	2.8606	0.4887	0.4903	0.4897
13	Benzene	78.11	1.4480	1.4508	1.4553	0.1906	0.1897	0.1900
14	Toluene	92.14	0.6890	0.6905	0.6928	0.0239	0.0238	0.0239
15	E-Benzene	106.17	0.2220	0.2225	0.2233	0.0024	0.0024	0.0024
16	Xylenes	106.17	0.5360	0.5372	0.5391	0.0050	0.0050	0.0050
17	n-C6	86.18	5.9560	5.9669	5.9846	1.0050	1.0081	1.0070
18	224Trimethylp	114.24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	Pseudo Comp1	96.00	26.2750	26.3307	26.4213	0.9437	0.9435	0.9436
20	Pseudo Comp2	107.00	37.6150	37.6964	37.8291	0.5524	0.5406	0.5451
21	Pseudo Comp3	121.00	11.4550	11.4800	11.5208	0.0574	0.0553	0.0561

22 Pseudo Comp4	134.00	0.4775	0.4785	0.4802	0.0009	0.0009	0.0009
23 Pseudo Comp5	273.10	4.2335	4.2428	4.2580	0.0000	0.0000	0.0000

	LP Oil	Flash Oil	Sales Oil	Flash Gas	W&S Gas	Total Emission
MW (lb/lbmol):	106.64	106.82	107.10	27.13	27.02	27.06
Stream Mole Ratio:	1.0000	0.9978	0.9943	0.0022	0.0035	0.0057
Stream Weight Ratio:	106.64	106.58	106.49	0.06	0.10	0.16
Total Emission (ton):				0.379	0.611	0.990
Heating Value (BTU/scf):				1504.21	1522.37	1515.43
Gas Gravity (Gas/Air):				0.94	0.93	0.93
Bubble Pt. @100F (psia):	21.57	16.26	8.21			
RVP @100F (psia):	7.81	7.03	5.55			
Spec. Gravity @100F:	0.72	0.72	0.72			

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

Identification		
User Identification:	Tap-5 400 bbl	
City:	Vernal	
State:	Utah	
Company:	XTO Energy	
Type of Tank:	Vertical Fixed Roof Tank	
Description:	Tap-5 2017 PTE 400-bbl condensate Tank 15 bpd	
Tank Dimensions		
Shell Height (ft):		20.00
Diameter (ft):		12.00
Liquid Height (ft) :		18.00
Avg. Liquid Height (ft):		10 00
Volume (gallons):		15,228.53
Turnovers:		15.10
Net Throughput(gal/yr):		229,950.00
Is Tank Heated (y/n):	Y	
Paint Characteristics		
Shell Color/Shade:	Gray/Medium	
Shell Condition	Poor	
Roof Color/Shade:	Gray/Medium	
Roof Condition:	Poor	
Roof Characteristics		
Type:	Cone	
Height (ft)		1.00
Slope (ft/ft) (Cone Roof)		0.17
Breather Vent Settings		
Vacuum Settings (psig):		0.00
Pressure Settings (psig)		0.00

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

Tap-5 400 bbl - Vertical Fixed Roof Tank
Vernal, 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 6)	All	60.00	60.00	85.00	60.00	2.9346	2.9346	4.8184	68.0000			92.00	Option 4: RVP=6, ASTM Slope=3

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

Tap-5 400 bbl - Vertical Fixed Roof Tank
Vernal, Utah

Annual Emission Calculations	
Standing Losses (lb):	**1,438.4465**
Vapor Space Volume (cu ft):	**1,168.6725**
Vapor Density (lb/cu ft):	**0.0363**
Vapor Space Expansion Factor:	**0.2421**
Vented Vapor Saturation Factor:	**0.3836**
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,168.6725
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	10.3333
Tank Shell Height (ft):	20.0000
Average Liquid Height (ft):	10.0000
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):	0.0363
Vapor Molecular Weight (lb/lb-mole):	69.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.9346
Daily Avg. Liquid Surface Temp. (deg. R):	519.6700
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):	519.6700
Tank Paint Solar Absorptance (Shell):	0.7400
Tank Paint Solar Absorptance (Roof):	0.7400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,452.1184
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.2421
Daily Vapor Temperature Range (deg. R):	25.0000
Daily Vapor Pressure Range (psia):	1.8839
Breather Vent Press. Setting Range(psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.9346
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.9346
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	4.8184
Daily Avg. Liquid Surface Temp. (deg R):	519.6700
Daily Min. Liquid Surface Temp. (deg R):	519.6700
Daily Max. Liquid Surface Temp. (deg R):	544.6700
Daily Ambient Temp. Range (deg. R):	23.3563
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.3836
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	2.9346
Vapor Space Outage (ft):	10.3333
Working Losses (lb):	1,108.6088
Vapor Molecular Weight (lb/lb-mole):	69.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.9346
Annual Net Throughput (gal/yr.):	229,950.0000
Annual Turnovers:	15.0999
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	15,228.5332
Maximum Liquid Height (ft):	18.0000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	2,547.0553

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

Emissions Report for: Annual

Tap-5 400 bbl - Vertical Fixed Roof Tank
Vernal, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 6)	1,108.61	1,438.45	2,547.06

Certificate of Analysis

Number: 3040-12120198-001A

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Station Name:	Tap 5 CDP	Sampled By:	J.Petree
Station Location:	Unitah County	Sample Of:	Natural Gas Spot
Cylinder No:	Tedlar Bag	Sample Date:	12/10/2012
Analyzed:	12/31/2012 12:04:15 by BD	Sample Conditions:	
		Method:	GPA 2286

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.65 psia
Nitrogen	4.6936	3.7783	
Carbon Dioxide	0.7634	0.9654	
Methane	45.5475	20.9975	
Ethane	10.2163	8.8275	2.725
Propane	12.5196	15.8640	3.440
Iso-Butane	5.8574	9.7830	1.912
n-Butane	9.0262	15.0756	2.838
Iso-Pentane	4.8179	9.9888	1.757
n-Pentane	3.6946	7.6599	1.336
i-Hexanes	1.5731	3.8104	0.619
n-Hexane	0.6143	1.5209	0.249
Benzene	0.0777	0.1745	0.021
Cyclohexane	0.1636	0.3958	0.055
i-Heptanes	0.3320	0.8568	0.127
n-Heptane	0.0304	0.0874	0.014
Toluene	0.0037	0.0097	0.001
i-Octanes	0.0653	0.1935	0.027
n-Octane	0.0017	0.0055	0.001
Ethylbenzene	0.000	0.000	0.000
Xylenes	0.000	0.000	0.000
i-Nonanes	0.0017	0.0055	0.001
n-Nonane	0.000	0.000	0.000
Decane Plus	0.000	0.000	0.000
	100.000	100.000	15.123

GPM TOTAL C2+ 15.123

Physical Properties	Total	C10+
Calculated Molecular Weight	34.80	0.00
GPA 2172-09 Calculation:		
Calculated Gross BTU per ft³ @ 14.65 psia & 60°F		
Real Gas Dry BTU	1929.6	0.000
Water Sat. Gas Base BTU	1896.0	0.000
Relative Density Real Gas	1.2137	0.0000
Compressibility Factor	0.9896	

Certificate of Analysis

Number: 3040-12120198-001A

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Station Name:	Tap 5 CDP	Sampled By:	J.Petree
Station Location:	Unitah County	Sample Of:	Natural Gas Spot
Cylinder No:	Tedlar Bag	Sample Date:	12/10/2012
Analyzed:	12/31/2012 12:04:15 by BD	Sample Conditions:	
		Method:	GPA 2286

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.65 psia
Nitrogen	4.694	3.779	
Carbon Dioxide	0.763	0.965	
Methane	45.548	20.997	
Ethane	10.216	8.828	2.745
Propane	12.520	15.865	3.466
Iso-butane	5.857	9.783	1.926
n-Butane	9.026	15.076	2.859
Iso-pentane	4.818	9.989	1.770
n-Pentane	3.695	7.661	1.346
Hexanes Plus	2.863	7.057	1.133
	100.000	100.000	15.245

GPM TOTAL C2+	15.245
GPM TOTAL C3+	12.500
GPM TOTAL iC5+	4.249

Physical Properties	**Total**
Relative Density Real Gas	1.2136
Calculated Molecular Weight	34.80
Compressibility Factor	0.9896

GPA 2172-09 Calculation:

Calculated Gross BTU per ft³ @ 14.65 psia & 60°F

Real Gas Dry BTU	1929.5468
Water Sat. Gas Base BTU	1895.9727

Comments: H2O Mol% : 1.750 ; Wt% : 0.914

Certificate of Analysis

Number: 3040-12120198-001A

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Station Name:	Tap 5 CDP	Sampled By:	J.Petree	
Station Location:	Unitah County	Sample Of:	Natural Gas	Spot
Cylinder No:	Tedlar Bag	Sample Date:	12/10/2012	
Analyzed:	12/31/2012 12:04:15 by BD	Sample Conditions:		
		Method:	GPA 2286	

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.65 psia
Nitrogen	4.694	3.779	
Carbon Dioxide	0.763	0.965	
Methane	45.548	20.997	
Ethane	10.216	8.827	2.745
Propane	12.520	15.865	3.466
Iso-Butane	5.857	9.783	1.926
n-Butane	9.026	15.076	2.859
Iso-Pentane	4.818	9.989	1.770
n-Pentane	3.695	7.661	1.346
Hexane	2.187	5.331	0.856
Heptanes Plus	0.676	1.727	0.277
	100.000	100.000	15.245

GPM TOTAL C2+	15.245
GPM TOTAL C3+	12.500
GPM TOTAL iC5+	4.249

Physical Properties	**Total**
Relative Density Real Gas	1.2137
Calculated Molecular Weight	34.80
Compressibility Factor	0.9896
GPA 2172-09 Calculation:	
Calculated Gross BTU per ft³ @ 14.65 psia & 60°F	
Real Gas Dry BTU	1929.5703
Water Sat. Gas Base BTU	1895.9958

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
Well: Tap 5 CDP
Field: Unitah County
Sample of: Condensate ;Spot
Conditions: 40 F @ 25 psig
Sampled by: J.Petree
Sample date: 12/10/2012
Sample Point: Separator
Remarks:

For: Rykki Tepe

810 Houston Street
Fort Worth, Texas 76102

Report Date: 5/8/2013

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
Attn: Rykki Tepe
810 Houston Street
Fort Worth, TX 76102

Report Date: 05/08/13

PO / Ref. No.:

Company: XTO Energy
Producer: XTO Energy
Well : Tap 5 CDP
API #:
Sample Point: Heater Treater
Unitah County

Sample Of: Oil
Sample Date/Time: 12/10/2012
Sample Psig & Temp: 25 psig @ 40 °F
Sampled By: J.P.
Cylinder # : 01190

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 Fort Worth, TX 76102	**PO / Ref. No.:**	

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

XTO Energy, Inc.

Tap 5 Compressor Station

Truck Loading Losses - Oil/Condensate

Truck Loading Losses Calculations (EPN: TRUCKLOAD)

Average BOPD	**30**

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

Saturation Factor (S) =	0.6
True Vapor Pressure of liquid loaded (P) =	5.6
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) =	0.1724
LL (lb VOC / bbl Throughput) =	**0.1724**
Estimated Throughput (bbls/Year) =	10950
Truck Loading Rate (bbls/hour) =	180
Estimated # of Loads (Approximately 1 hr/Load) =	61

Total VOC Emissions	lb/hr	TPY
	31.03	0.94

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.

Tap 5 Compressor Station

Reboiler & Heater Burner Calculations

Reboiler & Heater Calculations (Emission Unit ID: T5HTR)

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	T5T-1	1111.35999	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	T5T-2	1111.35999	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	T5D-1	1111.35999	8760	2.000	100	84	5.5	0.6	7.6	0.225	0.189	0.012	0.001	0.017	0.985	0.828	0.054	0.006	0.075
Separator Heater	T5S-1	1111.35999	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	T5RB-1	1111.35999	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

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

***Burners - 80% Efficiency**

Total (tpy)	NOx	CO	VOC	SO_2	$PM_{10\&2.5}$
	1.601	**1.345**	**0.088**	**0.010**	**0.122**

XTO Energy, Inc.

Tap 5 Compressor Station

Reboiler & Heater Burner Calculations

Reboiler & Heater Calculations (Emission Unit ID: T5HTR)

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	1111.35999	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	0.002217	0.000092	0.000001
Condensate Tank #2 Heater	T5TH-2	1111.35999	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	0.002217	0.000092	0.000001
Thermal Oxidizer Heater / Burner	T5TOH-1	1111.35999	8760	2.000	0.0021	0.0034	1.8	0.0750	0.0012	0.000005	0.000008	0.004049	0.000169	0.000003	0.000021	0.000033	0.017735	0.000739	0.000012
Separator Heater	T5SH-1	1111.35999	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	0.002217	0.000092	0.000001
Dehydrator Reboiler	T5RB-1	1111.35999	8760	0.500	0.0021	0.0034	1.8	0.0750	0.0012	0.000001	0.000002	0.001012	0.000042	0.000001	0.000005	0.000008	0.004434	0.000185	0.000003

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

***Burners - 80% Efficiency**

Total Individual HAPS (tpy)	Benzene	Toluene	Hexane	HCHO	Diclorobenz
	0.000034	0.000054	0.028819	0.001201	0.000019

Total Combined HAPS (tpy)	0.03013

POTENTIAL GHG EMISSIONS BASED ON 8760 HOURS FOR HEATERS, GENERATORS, ENGINES AND FLARES/THERMAL OXIDIZERS

Company: XTO Energy Inc.
Facility Name: Tap-5 Compressor Station
Facility Location: Uintah County, Utah

GHG Mandatory Reporting Regulations, Combustion Sources (Subpart C, 40 CFR Part 98)

Summary		
Engines CO_2e =	0.0	tons/yr
Heaters/Boilers CO_2e =	2049.9	tons/yr
Total CO_2e =	2049.9	tons/yr
Reporting required ?	No	

CO_2e = CO_2 equivalents

Note: Reporting Threshold = 25,000 tons/yr CO_2e

Boilers/Heaters			Rating				Species			Species			
							CO_2	CH_4	N_2O	CO_2 CO_2e	CH_4 CO_2e	N_2O CO_2e	CO_2e Total
Source	Model	Fuel	(hp)	(MMbtu/hr)	Hours		metric tons			metric tons			
Tap-5 Dehy Reboiler Heater	-	Natural Gas	-	0.500	8760		255.99	0.00	0.00	255.99	0.12	0.13	256.24
Tap-5 Dehy Thermal Oxidizer	-	Natural Gas	-	2.000	8760		1023.95	0.02	0.00	1023.95	0.48	0.52	1024.95
Tap-5 Dehy Tank Heater #1	-	Natural Gas	-	0.250	8760		127.99	0.00	0.00	127.99	0.06	0.07	128.12
Tap-5 Dehy Tank Heater #2	-	Natural Gas	-	0.250	8760		127.99	0.00	0.00	127.99	0.06	0.07	128.12
Tap-5 Separator Heater	-	Natural Gas	-	0.250	8760		127.99	0.00	0.00	127.99	0.06	0.07	128.12
RBU 11-02F Tank Heater	-	Natural Gas	-	0.250	8760		127.99	0.00	0.00	127.99	0.06	0.07	128.12
RBU 11-02F Tank Heater	-	Natural Gas	-	0.500	8760		255.99	0.00	0.00	255.99	0.12	0.13	256.24
			Total	4.000		Totals	2047.89	0.04	0.00	2047.89	0.97	1.04	

Engines GHG Emissions Total= 2047.94 tons

CO2e Total= 2049.9 metric tons

Natural Gas			
Emission Factor (CO_2) =	53.02	kg CO_2/MMBtu	From 40 CFR Part 98, Subpart C, Table C-1
Emission Factor (CH_4) =	0.00100	kg CO_2/MMBtu	From 40 CFR Part 98, Subpart C, Table C-2
Emission Factor (N_2O) =	0.0001	kg CO_2/MMBtu	From 40 CFR Part 98, Subpart C, Table C-2
HHV (Natural Gas) =	1106	Btu/scf	

1 kg =
1 metric ton = 1000 kg = 2,200 lbs

	Global Warming Potentials	
CO_2 =	1	From 40 CFR Part 98, Subpart A, Table A-1
CH_4 =	25	From 40 CFR Part 98, Subpart A, Table A-1
N_2O =	298	From 40 CFR Part 98, Subpart A, Table A-1

[1] CO_2e Emissions (metric tons) = 0.001 (metric ton/kg) XFuel (scf/yr) X HHV (MMBtu/scf) X Emission Factor (natural Gas) (kg CO_2/MMBtu) X Global Warming Potentials
Operational Factors from Newfield operational data

Engines Total (CO_2e) = CO_2 emissions + CH_4 (CO_2e) + N_2O (CO2e)
Heaters Total (CO_2e) = CO_2 emissions + CH_4 (CO_2e) + N_2O (CO2e)

XTO Energy, Inc.

Tap 5 Compressor Station

Pigging Emissions

Pig Launching & Receiving - Emission Calculations

Pig Launcher & Reciever Information		
Volume of the Pipeline	12723.45	ft^3
Volume of Gas in Pipeline Under Pressure[1]	56000.49	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	17.78	lb/lb-mole
Compressibility Factor	0.9976	Z
VOC Weight Percent	8.18%	Percent
HAP Weight Percent	0.52%	Percent
Ending Gas Density (ρ_2)[2]	0.0452	lb/ft^3
Starting Gas Density (ρ_1)[3]	0.1990	lb/ft^3
Density (ρ_{TOTAL})[4]	0.1538	lb/ft^3

Emission Calculations		
Density (ρ_{TOTAL})	0.1538	lb/ft^3
Estimated Max Amount of Gas Vented[5]	1956.46	lbs/Event
Estimated Number of Pig Launching & Receiving	24	Events/Year
Estimated Total Amount of Gas Released	46954.99	lbs/Year
Estimated Total Amount of Gas Released	23.48	Tons/Year

Estimated Total Emissions		
Total VOC Emissions (Includes Total HAPs)	3842.76	lbs/Year
	160.12	lbs/event[1]
	1.92	Tons/Year
Total HAPs Emissions	245.81	lbs/Year
	10.24	lbs/event[1]
	0.12	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.

Tap 5 Compressor Station

Pigging GHG Emissions

Pig Launching & Receiving - Emission Calculations

Pig Launcher & Reciever Information		
Volume of the Pipeline	12723.45	ft^3
Volume of Gas in Pipeline Under Pressure[1]	56000.49	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	17.78	lb/lb-mole
Compressibility Factor	0.9976	Z
CH4 Weight Percent	83.84%	Percent
CO2 Weight Percent	0.75%	Percent
Ending Gas Density (ρ_2)[2]	0.0452	lb/ft^3
Starting Gas Density (ρ_1)[3]	0.1990	lb/ft^3
Density (ρ_{TOTAL})[4]	0.1538	lb/ft^3

Emission Calculations		
Density (ρ_{TOTAL})	0.1538	lb/ft^3
Estimated Max Amount of Gas Vented[5]	1956.46	lbs/Event
Estimated Number of Pig Launching & Receiving	24	Events/Year
Estimated Total Amount of Gas Released	46954.99	lbs/Year
Estimated Total Amount of Gas Released	23.48	Tons/Year

Estimated Total Emissions		
Total CH4 Emissions (Includes Total HAPs)	39365.54	lbs/Year
	1640.23	lbs/event[1]
	19.68	Tons/Year
Total CO2 Emissions	353.32	lbs/Year
	14.72	lbs/event[1]
	0.18	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.

Tap 5 Compressor Station

RBU 11-02F Wellsite - Truck Loading Losses - Condensate

Truck Loading Losses Calculations (EPN: RBU 11-02F Wellsite)

Average BOPD	**20**

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) =	530
Molecular Weight (M)[1] =	50.00
Control Efficiency * Collection Efficiency (EFF)=	0
LL (lb Total HC / bbl Throughput) =	0.1777
LL (lb VOC / bbl Throughput) =	**0.1777**
Estimated Throughput (bbls/Year) =	7300
Truck Loading Rate (bbls/hour) =	180
Estimated # of Loads (Approximately 1 hr/Load) =	41

	lb/hr	TPY
Total VOC Emissions	31.99	0.65

[1]Molecular Weight is AP-42 Table 7.1-2 using Crude Oil RVP 5.

XTO Energy, Inc.
Tap 5 Compressor Station
RBU 11-02F Wellsite - Fugitive Emissions

Fugitive Emission Calculations (EPN: RBU 11-02F Wellsite)

Component Type	Service	Estimated Components Count	Hours	Factors	Total VOC Weight %	Emissions	
						lb/year	tons/year
Valves	Gas/Vapor	75	8760	0.00992000	8.18%	533.3825	0.2667
	Light Oil	10	8760	0.00550000	45.29%	218.2188	0.1091
	Heavy Oil	0	8760	0.00001900	45.29%	0.0000	0.0000
	Water/Light Oil	3	8760	0.00021600	45.29%	2.5710	0.0013
Pumps	Gas/Vapor	3	8760	0.00529000	8.18%	11.3774	0.0057
	Light Oil	1	8760	0.02866000	45.29%	113.7118	0.0569
	Heavy Oil	0	8760	0.00113000	45.29%	0.0000	0.0000
	Water/Light Oil	0	8760	0.00005300	45.29%	0.0000	0.0000
Flanges	Gas/Vapor	150	8760	0.00086000	8.18%	92.4816	0.0462
	Light Oil	15	8760	0.00024300	45.29%	14.4620	0.0072
	Heavy Oil	0	8760	0.00000086	45.29%	0.0000	0.0000
	Water/Light Oil	10	8760	0.00000620	45.29%	0.2460	0.0001
Open-ended Lines	Gas/Vapor	0	8760	0.00441000	8.18%	0.0000	0.0000
	Light Oil	0	8760	0.00309000	45.29%	0.0000	0.0000
	Heavy Oil	0	8760	0.00030900	45.29%	0.0000	0.0000
	Water/Light Oil	0	8760	0.00055000	45.29%	0.0000	0.0000
Connectors	Gas/Vapor	10	8760	0.00044000	8.18%	3.1544	0.0016
	Light Oil	10	8760	0.00046300	45.29%	18.3701	0.0092
	Heavy Oil	0	8760	0.00001700	45.29%	0.0000	0.0000
	Water/Light Oil	10	8760	0.00024300	45.29%	9.6413	0.0048
Other:	Gas/Vapor	5	8760	0.01940000	8.18%	69.5405	0.0348
	Light Oil	5	8760	0.01650000	45.29%	327.3282	0.1637
	Heavy Oil	0	8760	0.00006800	45.29%	0.0000	0.0000
	Water/Light Oil	5	8760	0.03090000	45.29%	612.9964	0.3065

	lb/hr	lb/year	TPY
Total VOC Emissions	0.347	3041.223	1.521
HAPs	0.021	184.412	0.092

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

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 Tap 5 Compressor Station

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

TO: XTO Energy – Tap 5 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.

In the 3/14/2011 supplemental update to the initial part 71 permit application for the Tap 5 Compressor Station (Tap 5 CS), XTO Energy included emissions from the RBU 11-2F wellsite. The RBU 11-2F wellsite is located on the same gravel pad within the property boundaries of the Tap 5 CS and thus is the part of the same surface site as the Tap 5 CS. Emissions equipment at the RBU 11-2F wellsite consist of a pumping unit engine, two 300 bbl storage tanks, fugitive emissions, truck loading emissions, and natural gas-fired heaters. The RBU 11-2F wellsite is predominately an oil production wellsite. Emission units at the Tap 5 CS consists of two natural gas-fired reciprocating internal combustion engines, a 40 MMscfd dehydration unit, a 300 bbl and a 400 bbl condensate storage tank, fugitive emissions, truck loading emissions, and various natural gas-fired process heaters. Both the RBU 11-2F wellsite and the Tap 5 CS have the same two-digit SIC code, 13, and are under common control.

Based on the information in the supplemental update, the emitting activities on the RBU 11-2F wellsite and the Tap 5 CS are located on the same "surface site" as defined in 40 CFR 63.761. As a result, under the revised definition of a major source, the pollutant emitting activities at the RBU 11-2F wellsite are adjacent to the Tap 5 CS. 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.

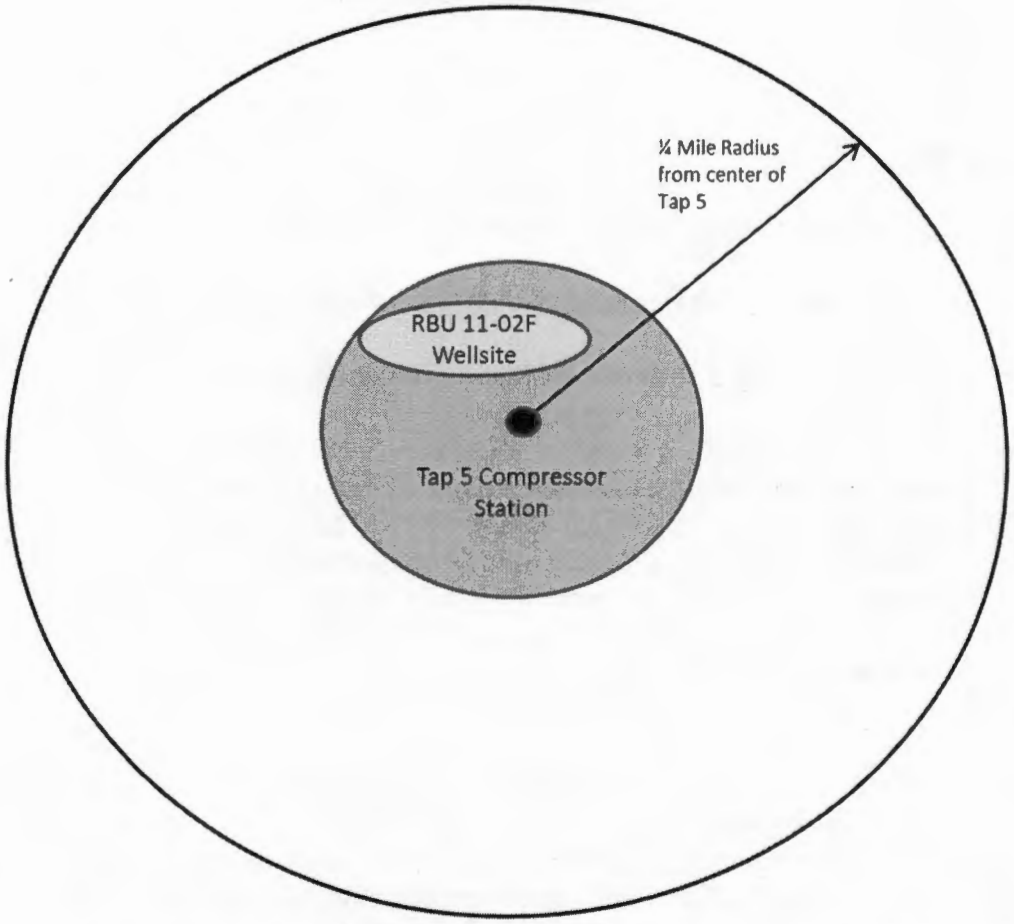

Figure 1. Flow Diagram of XTO Energy Natural Gas Production Operations – Uinta Basin, Utah
Tap 5 Compressor Station and RBU 11-2F Wellsite

Manzanares, Candice

From: Simpson, Dustin <Dustin_Simpson@xtoenergy.com>
Sent: Wednesday, December 7, 2016 2:46 PM
To: Wortman, Eric
Subject: RE: Part 71 Permit for Tap 5 CS - Draft Permit #V-UO-000018-2007.00
Attachments: Supporting Documentation.pdf; T5D-1 Dehy Uncontrolled - PTE.pdf; Pre- Tap 5 Emission Units table_draft-ds.docx; Copy of PRE- PTE table for Tap-5- DRAFT.xlsx

Eric,

Please see responses below. Let me know if you have any questions.

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

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From: Wortman, Eric [mailto:Wortman.Eric@epa.gov]
Sent: Monday, December 05, 2016 3:33 PM
To: Simpson, Dustin
Subject: Part 71 Permit for Tap 5 CS - Draft Permit #V-UO-000018-2007.00

Dustin,

I'm working on the Part 71 permit for the Tap 5 CS on the U&O Reservation and have a questions. Please take a look and send me your response by **December 23rd.**

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. Please see updated word document.
    a. Please verify the hp rating for each engine at the site. The application has conflicting hp ratings for the same engine model.
    b. Please provide the installation date and manufacture date for the T5BC-1 and T5BC-2 for ZZZZ and JJJJ applicability. Also verify I have the correct information for T5C-1 and T5C-2.
    c. Please provide the engine information (hp, model, serial, install date, mfr date) for the Arrow 66 pumping engine.
    d. Please provide the emission unit information for the 2 tanks at the RBU11-2 wellsite (size, model, serial if available).
    e. Verify the install date, size, and serial number for T5T-1 and T5T-2.

f. Note that since some of the emission units at the RBU11-2 Wellsite are above 2 tpy, I've broken out the emission units in the table as opposed to bundling them under one unit ID.

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. Please send the PTE of greenhouse gases for the emission units at the facility (see table)
   b. Please verify the correct PTE for the engines, specifically T5BC-2. I understand that T5BC-1 and T5BC-2 have different PTE than T5C-1 due to the difference in the inlet gas temperature but shouldn't T5BC-1 be the same as T5BC-2? All three of the 3516 engines have different PTE in the application.
3. Does any of the equipment at the facility meet the applicability criteria for OOOO or OOOOa or was it all installed prior to the applicability date? Some of the tanks are subject to NSPS OOOO but all of them are below 6 tpy uncontrolled.

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.
Tap 5 Compressor Station
Compressor Engine and Generators

Emission Calculations - Uncontrolled Compressor Engine & Generators

Criteria and Regulated Pollutants

								Emission Data - Manufacturer Specifications[1] g/hp-hr				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 (LHV)[1]	Heat Rating MMBtu/hr	Fuel Usage MMscf/yr	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 G3516 TALE Compressor Engine (Uncontrolled)	TSC-1	8766	1340	1111.4	0.008518	11.41	89.97	1.50	2.61	0.71	0.21	0.000564	0.00991	4.43	7.71	2.10	0.71	0.01	0.11	19.41	33.77	9.19	3.11	0.02	0.50
Caterpillar G3516 TALE Compressor Engine (Uncontrolled)	TSBC-2	8766	1340	1111.4	0.008436	11.30	89.10	1.50	2.75	0.89	0.24	0.000588	0.00991	4.43	8.12	2.63	1.00	0.01	0.11	19.41	35.58	11.52	4.40	0.03	0.48
Caterpillar G3516 TALE Compressor Engine Engine Break In Period (Uncontrolled)	ENG Maint[2]	400	1340	1111.4	0.00900	12.06	4.34	2.00	2.75	0.89	0.24	0.000588	0.00991	5.91	8.12	2.63	1.00	0.01	0.12	1.18	1.62	0.53	0.20	0.00	0.02
Gomet Capstone C65NG	TSC-1	8766	87	1111.4	0.000766	0.07	0.53	0.16	2.04	0.78	0.04	0.000588	0.00991	0.05	0.39	0.07	0.01	0.00	0.00	0.13	1.71	0.33	0.03	0.00	0.00

NOTE 1: Fuel Consumption and Emissions Data are based on manufacturer specifications worst-case value

NOTE 2: Engine maintenance assumed 200 hours / engine. Emission Data is represented as worst case emissions spec over the engines

Total Emissions Per Pollutant (Tpy)	NOx	CO	VOC	HCHO	SO_2	$PM_{10\&2.5}$
	48.13	**72.49**	**21.25**	**7.74**	**0.06**	**1.01**

XTO Energy, Inc.
Tap 5 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 (LHV)1	Heat Rating MMbtu/hr	Fuel Usage MMscf/yr	AP-42 Factors lb/MMBtu Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein	lb/hr Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein	tpy Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein
Caterpillar G3516 TALE Compressor Engine (Uncontrolled)	TSC-1	8760	1,340	1111.36	0.006538	11.41	89.97	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	0.035	0.069	0.022	0.020	0.002	0.009	0.416	0.337
Caterpillar G3516 TALE Compressor Engine (Uncontrolled)	TSBC-2	8760	1,340	1111.36	0.006436	11.30	89.10	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	0.035	0.058	0.022	0.020	0.002	0.009	0.414	0.254
Caterpillar G3516 TALE Compressor Engine: Engine Break in Period (Uncontrolled)	ESIC Maxer[2]	400	1340	1111.36	0.009000	12.06	4.54	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	0.131	0.062	0.001	0.001	0.000	0.000	0.025	0.012
Gemat Capstone C60NG	TSG-1	8760	87	1111.36	0.009766	0.85	0.53	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	0.031	0.000	0.000	0.000	0.000	0.000	0.002	0.002

Total Emissions Per Pollutant (TPY)	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein
	0.04	0.04	0.00	0.02	0.85	0.53

G3516 LE

GAS COMPRESSION APPLICATION

XTO ENERGY

GAS ENGINE SITE SPECIFIC TECHNICAL DATA

Uinta Cat 3516LE – THP 5 Compressor #1 (TEG-1)

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

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

	NOTES	UNITS				
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	2882	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
EMISSION 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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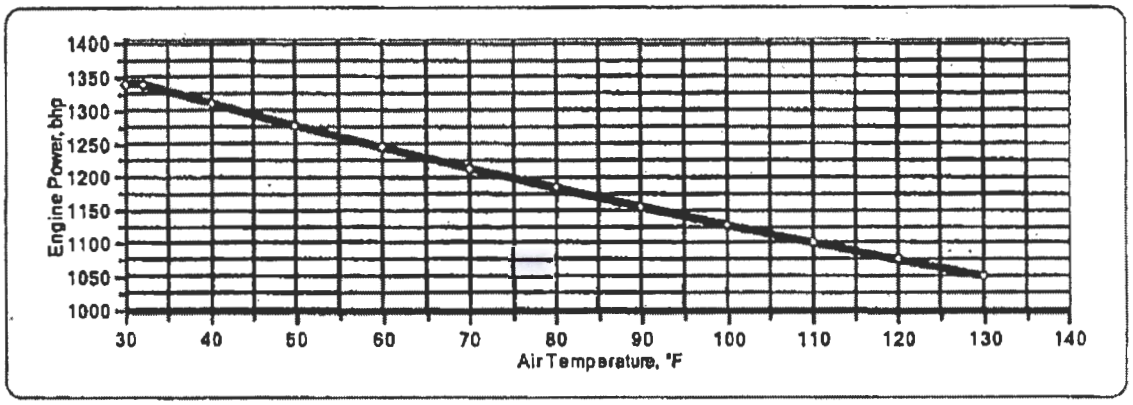
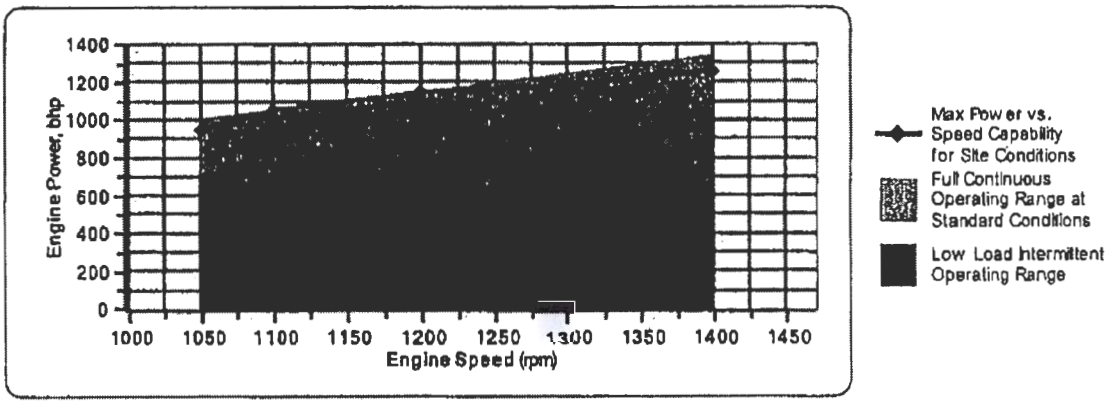
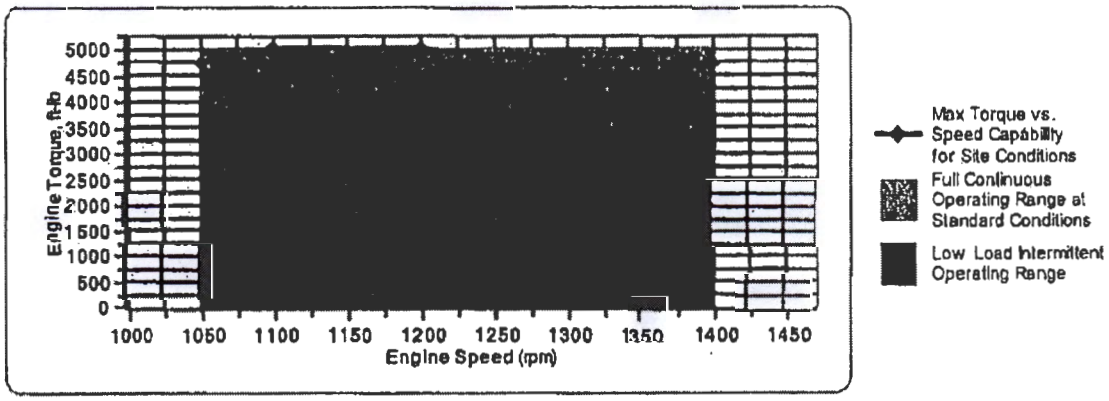
Engine Power vs. Inlet Air Temperature



Engine Power vs. Engine Speed



Engine Torque vs. Engine Speed



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 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

G3516

NON-CURRENT

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA

CATERPILLAR®

Tap 5 Booster Compressor 2 (T5BC-2)

ENGINE SPEED (rpm):	1400	RATING STRATEGY:	STANDARD
COMPRESSION RATIO:	8:1	FUEL SYSTEM:	HPG IMPCO WITH AIR FUEL RATIO CONTROL
AFTERCOOLER TYPE:	SCAC		
AFTERCOOLER WATER INLET (°F):	130	**SITE CONDITIONS:**	
JACKET WATER OUTLET (°F):	210	FUEL:	Field Gas
ASPIRATION:	TA	FUEL PRESSURE RANGE(psig):	35.0-40.0
COOLING SYSTEM:	JW+OC, AC	FUEL METHANE NUMBER:	62.2
CONTROL SYSTEM:	ADEM3	FUEL LHV (Btu/scf):	1027
EXHAUST MANIFOLD:	ASWC	ALTITUDE(ft):	4900
COMBUSTION:	Low Emission	MAXIMUM INLET AIR TEMPERATURE(°F):	60
NOx EMISSION LEVEL (g/bhp-hr NOx):	1.5	STANDARD RATED POWER:	1340 bhp@1400rpm
SET POINT TIMING:	27		

			MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE		
RATING	**NOTES**	**LOAD**	**100%**	**100%**	**75%**	**52%**
ENGINE POWER (WITHOUT FAN)	(1)	bhp	1340	1292	969	670
INLET AIR TEMPERATURE		°F	47	60	60	60
ENGINE DATA						
FUEL CONSUMPTION (LHV)	(2)	Btu/bhp-hr	7682	7719	8001	8438
FUEL CONSUMPTION (HHV)	(2)	Btu/bhp-hr	8489	8530	8841	9321
AIR FLOW (@inlet air temp, 14.7 psia) (WET)	(3)(4)	ft3/min	2739	2720	2090	1376
AIR FLOW (WET)	(3)(4)	lb/hr	12873	12457	9589	6303
FUEL FLOW (60°F, 14.7 psia)		scfm	167	162	126	92
INLET MANIFOLD PRESSURE	(5)	in Hg(abs)	69.2	67.1	52.8	38.7
EXHAUST TEMPERATURE - ENGINE OUTLET	(6)	°F	897	885	882	884
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET)	(7)(4)	ft3/min	7926	7659	5832	3872
EXHAUST GAS MASS FLOW (WET)	(7)(4)	lb/hr	13368	12937	9942	6575
EMISSIONS DATA - ENGINE OUT						
NOx (as NO2)	(8)(9)	g/bhp-hr	1.50	1.50	1.50	1.50
CO	(8)(9)	g/bhp-hr	2.64	2.68	2.75	2.66
THC (mol. wt. of 15.84)	(8)(9)	g/bhp-hr	2.66	2.72	3.00	3.15
NMHC (mol. wt. of 15.84)	(8)(9)	g/bhp-hr	0.70	0.71	0.78	0.82
NMNEHC (VOCs) (mol. wt. of 15.84)	(8)(9)(10)	g/bhp-hr	0.47	0.47	0.52	0.55
HCHO (Formaldehyde)	(8)(9)	g/bhp-hr	0.28	0.28	0.31	0.34
CO2	(8)(9)	g/bhp-hr	532	534	555	584
EXHAUST OXYGEN	(8)(11)	% DRY	8.0	8.0	7.7	7.5
HEAT REJECTION						
HEAT REJ. TO JACKET WATER (JW)	(12)	Btu/min	42076	41301	34994	30337
HEAT REJ. TO ATMOSPHERE	(12)	Btu/min	5313	5187	4334	3643
HEAT REJ. TO LUBE OIL (OC)	(12)	Btu/min	6275	6159	5219	4524
HEAT REJ. TO AFTERCOOLER (AC)	(12)(13)	Btu/min	10381	10381	6402	2440
COOLING SYSTEM SIZING CRITERIA						
TOTAL JACKET WATER CIRCUIT (JW+OC)	(13)	Btu/min	53814			
TOTAL AFTERCOOLER CIRCUIT (AC)	(13)(14)	Btu/min	10900			

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. 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.

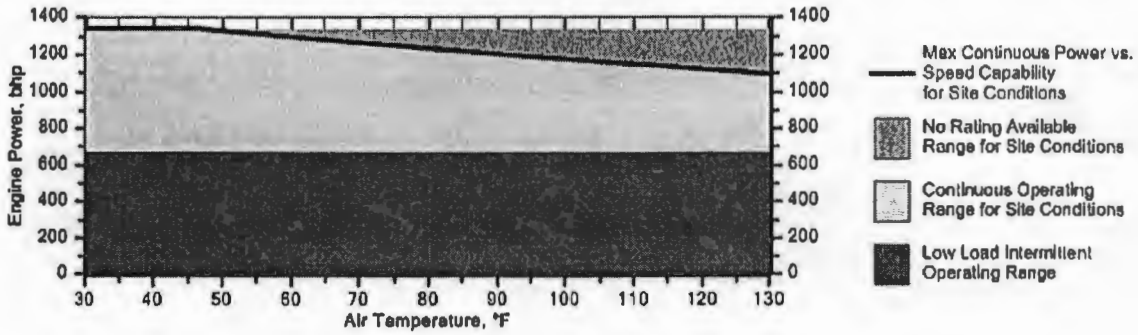
For notes information consult page three.

PREPARED BY: Rykki Tepe, XTO Energy
Data generated by Gas Engine Rating Pro Version 4.04.00
Ref. Data Set DM8542-04-001, WPW00001-WPW01057, Printed 29Apr2013

Tap 5 Booster Compressor 2 (T5BC-2)

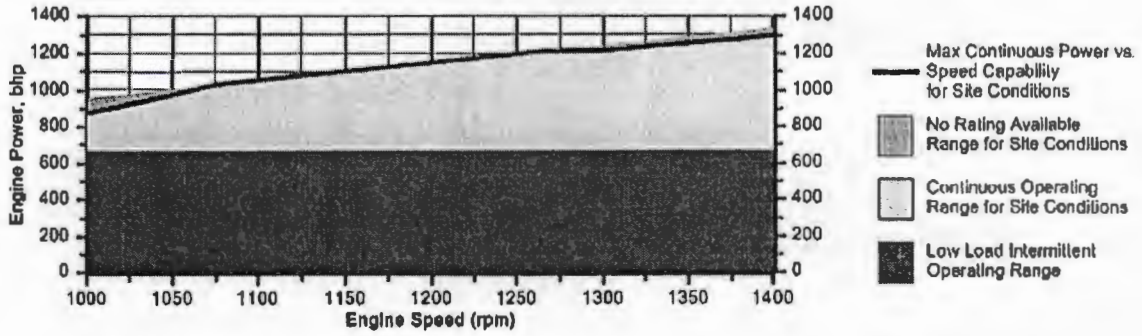
Engine Power vs. Inlet Air Temperature

Data represents temperature sweep at 4900 ft and 1400 rpm



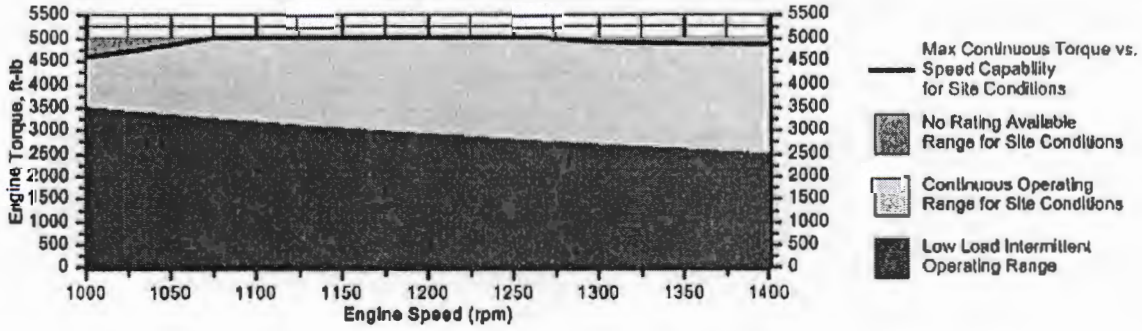
Engine Power vs. Engine Speed

Data represents speed sweep at 4900 ft and 60 °F



Engine Torque vs. Engine Speed

Data represents speed sweep at 4900 ft and 60 °F



Note: At site conditions of 4900 ft and 60°F inlet air temp., constant torque can be maintained down to 1050 rpm. The minimum speed for loading at these conditions is 1000 rpm.

G3516
NON-CURRENT

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA

CATERPILLAR®

Tap 5 Booster Compressor 2 (T5BC-2)

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. Air flow value is on a 'wet' basis. 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 temperature is a nominal value with a tolerance of (+)83°F, (-)54°F.

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

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

9. 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 tolerances are ± +111 %, -96 % of specified value. 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.

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

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

12. 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.

13. 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.

14. 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:	62.2
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
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.

XTO Energy, Inc.

Tap 5 Compressor Station

Dehy Still Column - Emission Summary

Dehy Still Column Emissions (Emission Unit ID: T5D-1)

Emission Component	Uncontrolled Still Column		Controlled Still Column	
	lb/hr	TPY	lb/hr	TPY
Propane	0.5668	2.4826	0.0283	0.1241
H_2S	0.0000	0.0000	0.0000	0.0000
Iso-Butane	0.2490	1.0906	0.0125	0.0545
N-Butane	0.3839	1.6815	0.0192	0.0841
Iso-Pentane	0.1947	0.8528	0.0097	0.0426
N-Pentane	0.1816	0.7954	0.0091	0.0398
Methylcyclopentane	0.0000	0.0000	0.0000	0.0000
n-Hexane	0.1318	0.5773	0.0066	0.0289
Hexane +	0.1689	0.7398	0.0084	0.0370
2,2,4-Trimethylpentane	0.0111	0.0486	0.0006	0.0024
Methycyclohexane	0.5363	2.3490	0.0268	0.1174
Benzene	1.1603	5.0821	0.0580	0.2541
Cyclohexane	0.2436	1.0670	0.0122	0.0533
Heptanes	0.3949	1.7297	0.0197	0.0865
Toluene	3.2436	14.2070	0.1622	0.7103
Ethylbenzene	0.0000	0.0000	0.0000	0.0000
Xylenes	5.9408	26.0207	0.2970	1.3010
Octanes+	1.9368	8.4832	0.0968	0.4242

TOTAL EMISSION SUMMARY	**UNCONTROLLED**		**CONTROLLED**	
Emission Component	**lb/hr**	**TPY**	**lb/hr**	**TPY**
NMNEVOC (Includes TOTAL HAPs)	**15.3441**	**67.2072**	**0.7672**	**3.3604**
TOTAL HAPs	**10.4876**	**45.9357**	**0.5238**	**2.3430**

*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.

Tap 5 Compressor Station

Thermal Oxidizer - Products of Combustion

Thermal Oxidizer - Products of Combustion Calculations (Emission Unit ID: T5TO-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	4.77	0.0600	0.0824	0.0075	0.286	0.393	0.036	1.255	1.723	0.157

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

XTO Energy, Inc.

Tap 5 Compressor Station

RBU 11-02F Wellsite - Reboiler & Heater Burner Calculations

RBU Heaters & Reboiler Emission Calculations (EPN: RBU 11-02F 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	$PM_{10\&25}$	NOx	CO	VOC	SO_2	$PM_{10\&25}$	NOx	CO	VOC	SO_2	$PM_{10\&25}$
RBU 11-02F Wellsite TK-1	1111.35989	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
RBU 11-02F Wellsite TK-2	1111.35989	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

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

***Burners - 80% Efficiency**

Total (tpy)	NOx	CO	VOC	SO_2	$PM_{10\&25}$
	0.369	**0.310**	**0.020**	**0.002**	**0.028**

XTO Energy, Inc.

Tap 5 Compressor Station

RBU 11-02F Wellsite - Reboiler & Heater Burner Calculations

RBU Heaters & Reboiler Emission Calculations (EPN: RBU 11-02F 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	Dicloroben z	Benzene	Toluene	N-Hexane	HCHO	Dicloroben z	Benzene	Toluene	N-Hexane	HCHO	Dicloroben z
RBU 11-02F Wellsite TK-1	1111.35999	8760	0.500	0.0021	0.0034	1.8	0.0750	0.0012	0.000001	0.000002	0.001012	0.000042	0.000001	0.000005	0.000008	0.004434	0.000185	0.000003
RBU 11-02F Wellsite TK-2	1111.35999	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	0.002217	0.000092	0.000001

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

***Burners - 80% Efficiency**

Total Individual HAPS (tpy)	Benzene	Toluene	Hexane	HCHO	Dicloroben z
	0.000008	**0.000013**	**0.006651**	**0.000277**	**0.000004**

Total Combined HAPS (tpy)	**0.00695**

XTO Energy, Inc.
Tap 5 Compressor Station
RBU 11-02F Wellsite - Pumping Unit Emissions

Emission Calculations - Pumping Unit (EPN: RBU 11-02F 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*	$PM_{10\&2.5}$
RBU 11-02F Wellsite Pumping Unit (Arrow C-66 Pre-July 2008)	PU	8760	13	0.008038	14.54	4.03	0.33	0.00991	0.42	0.12	0.01	0.00	1.83	0.51	0.04	0.00

Total Emissions Per Pollutant (TPY)	NOx	CO	VOC*	$PM_{10\&2.5}$
	1.83	0.51	0.04	0.00

					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
RBU 11-02F Wellsite Pumping Unit (Arrow C-66 Pre-July 2008)	PU	8760	13	0.008038	4.40E-04	2.79E-03	2.05E-02	2.63E-03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00

Total Emissions Per Pollutant (TPY)	Benzene	Toluene	E-Benzene	Acrolein
	0.00	0.00	0.01	0.00

Total Emissions Per Pollutant (TPY) HAPs	0.012

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Tap 5 Compressor Station T5D-1 - Uncontrolled
File Name: W:\EHS\Environmental\Air\Areas of Operation\Utah\ MSO\Tap 5\Title V\2013-April Modification\Supporting Documentation for Calcs\T5D-1 Dehy Uncontrolled - April 2013 Revision.ddf
Date: December 07, 2016

DESCRIPTION:

Description: Max Throughput - 40 MMSCFD
Gas Analysis: 06/15/2012
Kimray 21015 Glycol Pump @ 3.5 GPM
Overhead Gas is controlled via thermal oxidizer.
Flash Gas is closed loop system

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.0273	0.655	0.1195
Ethane	0.0217	0.520	0.0949
Propane	0.0283	0.680	0.1241
Isobutane	0.0124	0.299	0.0545
n-Butane	0.0192	0.461	0.0841
Isopentane	0.0097	0.234	0.0426
n-Pentane	0.0091	0.218	0.0398
n-Hexane	0.0066	0.158	0.0289
Cyclohexane	0.0122	0.292	0.0534
Other Hexanes	0.0084	0.203	0.0370
Heptanes	0.0197	0.474	0.0865
Methylcyclohexane	0.0268	0.644	0.1175
2,2,4-Trimethylpentane	0.0006	0.013	0.0024
Benzene	0.0580	1.392	0.2541
Toluene	0.1622	3.892	0.7103
Xylenes	0.2970	7.129	1.3010
C8+ Heavies	0.0968	2.324	0.4241
Total Emissions	0.8161	19.588	3.5747
Total Hydrocarbon Emissions	0.8161	19.588	3.5747
Total VOC Emissions	0.7672	18.413	3.3604
Total HAP Emissions	0.5244	12.585	2.2968
Total BTEX Emissions	0.5172	12.414	2.2655

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.5455	13.092	2.3892
Ethane	0.4334	10.400	1.8981
Propane	0.5668	13.602	2.4824
Isobutane	0.2490	5.976	1.0906
n-Butane	0.3839	9.214	1.6815

Isopentane	0.1947	4.672	0.8527
n-Pentane	0.1816	4.360	0.7956
n-Hexane	0.1318	3.164	0.5775
Cyclohexane	0.2436	5.847	1.0671
Other Hexanes	0.1689	4.054	0.7398
Heptanes	0.3949	9.478	1.7297
Methylcyclohexane	0.5363	12.871	2.3490
2,2,4-Trimethylpentane	0.0111	0.267	0.0488
Benzene	1.1603	27.846	5.0819
Toluene	3.2436	77.845	14.2068
Xylenes	5.9408	142.579	26.0207
C8+ Heavies	1.9368	46.482	8.4830
Total Emissions	16.3229	391.750	71.4944
Total Hydrocarbon Emissions	16.3229	391.750	71.4944
Total VOC Emissions	15.3441	368.258	67.2071
Total HAP Emissions	10.4876	251.702	45.9356
Total BTEX Emissions	10.3446	248.271	45.3094

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	2.0716	49.719	9.0737
Ethane	0.4572	10.972	2.0024
Propane	0.2363	5.670	1.0348
Isobutane	0.0658	1.580	0.2884
n-Butane	0.0750	1.800	0.3285
Isopentane	0.0320	0.768	0.1402
n-Pentane	0.0234	0.562	0.1026
n-Hexane	0.0090	0.216	0.0394
Cyclohexane	0.0045	0.107	0.0196
Other Hexanes	0.0156	0.373	0.0681
Heptanes	0.0127	0.306	0.0558
Methylcyclohexane	0.0073	0.176	0.0321
2,2,4-Trimethylpentane	0.0007	0.018	0.0033
Benzene	0.0023	0.055	0.0101
Toluene	0.0040	0.095	0.0174
Xylenes	0.0026	0.063	0.0115
C8+ Heavies	0.0065	0.156	0.0284
Total Emissions	3.0266	72.638	13.2564
Total Hydrocarbon Emissions	3.0266	72.638	13.2564
Total VOC Emissions	0.4978	11.947	2.1803
Total HAP Emissions	0.0186	0.448	0.0817
Total BTEX Emissions	0.0089	0.214	0.0390

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	2.0989	50.373	9.1931
Ethane	0.4788	11.492	2.0973
Propane	0.2646	6.350	1.1590
Isobutane	0.0783	1.879	0.3429
n-Butane	0.0942	2.261	0.4126
Isopentane	0.0417	1.002	0.1828
n-Pentane	0.0325	0.780	0.1423

n-Hexane	0.0156	0.374	0.0683
Cyclohexane	0.0167	0.400	0.0729
Other Hexanes	0.0240	0.576	0.1051
Heptanes	0.0325	0.780	0.1423
Methylcyclohexane	0.0342	0.820	0.1496
2,2,4-Trimethylpentane	0.0013	0.031	0.0057
Benzene	0.0603	1.448	0.2642
Toluene	0.1661	3.987	0.7277
Xylenes	0.2997	7.192	1.3126
C8+ Heavies	0.1033	2.480	0.4526
Total Emissions	3.8427	92.225	16.8311
Total Hydrocarbon Emissions	3.8427	92.225	16.8311
Total VOC Emissions	1.2650	30.360	5.5407
Total HAP Emissions	0.5430	13.033	2.3785
Total BTEX Emissions	0.5261	12.627	2.3045

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	11.4629	9.1931	19.80
Ethane	3.9005	2.0973	46.23
Propane	3.5172	1.1590	67.05
Isobutane	1.3790	0.3429	75.13
n-Butane	2.0100	0.4126	79.47
Isopentane	0.9929	0.1828	81.59
n-Pentane	0.8982	0.1423	84.15
n-Hexane	0.6169	0.0683	88.93
Cyclohexane	1.0867	0.0729	93.29
Other Hexanes	0.8079	0.1051	86.99
Heptanes	1.7855	0.1423	92.03
Methylcyclohexane	2.3812	0.1496	93.72
2,2,4-Trimethylpentane	0.0521	0.0057	89.02
Benzene	5.0920	0.2642	94.81
Toluene	14.2241	0.7277	94.88
Xylenes	26.0322	1.3126	94.96
C8+ Heavies	8.5114	0.4526	94.68
Total Emissions	84.7508	16.8311	80.14
Total Hydrocarbon Emissions	84.7508	16.8311	80.14
Total VOC Emissions	69.3874	5.5407	92.01
Total HAP Emissions	46.0173	2.3785	94.83
Total BTEX Emissions	45.3484	2.3045	94.92

EQUIPMENT REPORTS:

COMBUSTION DEVICE

Ambient Temperature: 55.00 deg. F
Excess Oxygen: 0.00 %

Combustion Efficiency: 95.00 %
Supplemental Fuel Requirement: 9.77e-002 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

Calculated Absorber Stages: 1.38
Specified Dry Gas Dew Point: 5.00 lbs. H2O/MMSCF
Temperature: 80.0 deg. F
Pressure: 400.0 psig
Dry Gas Flow Rate: 40.0000 MMSCF/day
Glycol Losses with Dry Gas: 0.0773 lb/hr
Wet Gas Water Content: Saturated
Calculated Wet Gas Water Content: 65.37 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio: 2.09 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	7.64%	92.36%
Carbon Dioxide	99.93%	0.07%
Nitrogen	100.00%	0.00%
Methane	100.00%	0.00%
Ethane	99.98%	0.02%
Propane	99.97%	0.03%
Isobutane	99.95%	0.05%
n-Butane	99.93%	0.07%
Isopentane	99.92%	0.08%
n-Pentane	99.90%	0.10%
n-Hexane	99.80%	0.20%
Cyclohexane	99.18%	0.82%
Other Hexanes	99.86%	0.14%
Heptanes	99.59%	0.41%
Methylcyclohexane	98.96%	1.04%
2,2,4-Trimethylpentane	99.82%	0.18%
Benzene	92.12%	7.88%
Toluene	87.26%	12.74%
Xylenes	71.67%	28.33%
C8+ Heavies	98.09%	1.91%

FLASH TANK

Flash Control: Vented to atmosphere
Flash Temperature: 100.0 deg. F
Flash Pressure: 80.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	100.00%	0.00%
Carbon Dioxide	79.64%	20.36%
Nitrogen	19.78%	80.22%
Methane	20.84%	79.16%
Ethane	48.66%	51.34%
Propane	70.58%	29.42%
Isobutane	79.09%	20.91%
n-Butane	83.65%	16.35%
Isopentane	85.95%	14.05%
n-Pentane	88.64%	11.36%
n-Hexane	93.64%	6.36%
Cyclohexane	98.26%	1.74%
Other Hexanes	91.65%	8.35%
Heptanes	96.89%	3.11%
Methylcyclohexane	98.70%	1.30%
2,2,4-Trimethylpentane	93.80%	6.20%
Benzene	99.81%	0.19%
Toluene	99.89%	0.11%
Xylenes	99.96%	0.04%
C8+ Heavies	99.71%	0.29%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	22.67%	77.33%
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	0.58%	99.42%
n-Pentane	0.56%	99.44%
n-Hexane	0.53%	99.47%
Cyclohexane	3.26%	96.74%
Other Hexanes	1.09%	98.91%
Heptanes	0.52%	99.48%
Methylcyclohexane	4.05%	95.95%
2,2,4-Trimethylpentane	1.60%	98.40%
Benzene	5.01%	94.99%
Toluene	7.91%	92.09%
Xylenes	12.93%	87.07%
C8+ Heavies	12.05%	87.95%

STREAM REPORTS:

WET GAS STREAM

Temperature: 80.00 deg. F
Pressure: 414.70 psia
Flow Rate: 1.67e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.38e-001	1.09e+002
Carbon Dioxide	3.28e-001	6.35e+002
Nitrogen	2.70e-001	3.32e+002
Methane	9.27e+001	6.54e+004
Ethane	4.45e+000	5.89e+003
Propane	1.29e+000	2.50e+003
Isobutane	2.43e-001	6.21e+002
n-Butane	2.59e-001	6.62e+002
Isopentane	9.02e-002	2.86e+002
n-Pentane	6.22e-002	1.97e+002
n-Hexane	1.90e-002	7.19e+001
Cyclohexane	8.19e-003	3.03e+001
Other Hexanes	3.38e-002	1.28e+002
Heptanes	2.24e-002	9.86e+001
Methylcyclohexane	1.21e-002	5.22e+001
2,2,4-Trimethylpentane	1.30e-003	6.52e+000
Benzene	4.29e-003	1.48e+001
Toluene	6.29e-003	2.55e+001
Xylenes	4.49e-003	2.10e+001
C8+ Heavies	1.36e-002	1.02e+002
Total Components	100.00	7.72e+004

DRY GAS STREAM

Temperature: 80.00 deg. F
Pressure: 414.70 psia
Flow Rate: 1.67e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.05e-002	8.33e+000
Carbon Dioxide	3.28e-001	6.35e+002
Nitrogen	2.70e-001	3.32e+002
Methane	9.29e+001	6.54e+004
Ethane	4.46e+000	5.89e+003
Propane	1.29e+000	2.50e+003
Isobutane	2.43e-001	6.21e+002
n-Butane	2.59e-001	6.62e+002
Isopentane	9.02e-002	2.86e+002
n-Pentane	6.22e-002	1.97e+002
n-Hexane	1.90e-002	7.18e+001
Cyclohexane	8.13e-003	3.01e+001
Other Hexanes	3.38e-002	1.28e+002
Heptanes	2.23e-002	9.82e+001
Methylcyclohexane	1.20e-002	5.16e+001

2,2,4-Trimethylpentane	1.30e-003	6.51e+000
Benzene	3.96e-003	1.36e+001
Toluene	5.50e-003	2.23e+001
Xylenes	3.23e-003	1.50e+001
C8+ Heavies	1.33e-002	9.98e+001
Total Components	100.00	7.71e+004

LEAN GLYCOL STREAM

Temperature: 80.00 deg. F
Flow Rate: 3.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.84e+001	1.94e+003
Water	1.50e+000	2.95e+001
Carbon Dioxide	2.18e-012	4.29e-011
Nitrogen	6.84e-014	1.35e-012
Methane	4.47e-018	8.79e-017
Ethane	2.13e-008	4.20e-007
Propane	1.66e-009	3.27e-008
Isobutane	4.80e-010	9.44e-009
n-Butane	5.78e-010	1.14e-008
Isopentane	5.78e-005	1.14e-003
n-Pentane	5.23e-005	1.03e-003
n-Hexane	3.59e-005	7.08e-004
Cyclohexane	4.16e-004	8.20e-003
Other Hexanes	9.46e-005	1.86e-003
Heptanes	1.04e-004	2.05e-003
Methylcyclohexane	1.15e-003	2.26e-002
2,2,4-Trimethylpentane	9.19e-006	1.81e-004
Benzene	3.11e-003	6.12e-002
Toluene	1.42e-002	2.79e-001
Xylenes	4.48e-002	8.82e-001
C8+ Heavies	1.35e-002	2.65e-001
Total Components	100.00	1.97e+003

RICH GLYCOL STREAM

Temperature: 80.00 deg. F
Pressure: 414.70 psia
Flow Rate: 3.74e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.27e+001	1.94e+003
Water	6.24e+000	1.30e+002
Carbon Dioxide	2.06e-002	4.30e-001
Nitrogen	6.47e-004	1.35e-002
Methane	1.25e-001	2.62e+000
Ethane	4.26e-002	8.91e-001
Propane	3.85e-002	8.03e-001
Isobutane	1.51e-002	3.15e-001
n-Butane	2.20e-002	4.59e-001
Isopentane	1.09e-002	2.28e-001

n-Pentane	9.87e-003	2.06e-001
n-Hexane	6.78e-003	1.42e-001
Cyclohexane	1.23e-002	2.56e-001
Other Hexanes	8.92e-003	1.86e-001
Heptanes	1.96e-002	4.10e-001
Methylcyclohexane	2.71e-002	5.66e-001
2,2,4-Trimethylpentane	5.78e-004	1.21e-002
Benzene	5.86e-002	1.22e+000
Toluene	1.69e-001	3.53e+000
Xylenes	3.27e-001	6.83e+000
C8+ Heavies	1.06e-001	2.21e+000
Total Components	100.00	2.09e+003

FLASH TANK OFF GAS STREAM

Temperature: 100.00 deg. F
Pressure: 94.70 psia
Flow Rate: 5.93e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.52e-001	4.28e-003
Carbon Dioxide	1.27e+000	8.75e-002
Nitrogen	2.48e-001	1.08e-002
Methane	8.27e+001	2.07e+000
Ethane	9.73e+000	4.57e-001
Propane	3.43e+000	2.36e-001
Isobutane	7.25e-001	6.58e-002
n-Butane	8.26e-001	7.50e-002
Isopentane	2.84e-001	3.20e-002
n-Pentane	2.08e-001	2.34e-002
n-Hexane	6.68e-002	9.00e-003
Cyclohexane	3.40e-002	4.47e-003
Other Hexanes	1.16e-001	1.56e-002
Heptanes	8.14e-002	1.27e-002
Methylcyclohexane	4.79e-002	7.34e-003
2,2,4-Trimethylpentane	4.19e-003	7.48e-004
Benzene	1.89e-002	2.31e-003
Toluene	2.75e-002	3.96e-003
Xylenes	1.59e-002	2.63e-003
C8+ Heavies	2.44e-002	6.49e-003
Total Components	100.00	3.13e+000

FLASH TANK GLYCOL STREAM

Temperature: 100.00 deg. F
Flow Rate: 3.73e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.29e+001	1.94e+003
Water	6.25e+000	1.30e+002
Carbon Dioxide	1.64e-002	3.42e-001
Nitrogen	1.28e-004	2.67e-003
Methane	2.62e-002	5.45e-001
Ethane	2.08e-002	4.33e-001

Propane	2.72e-002	5.67e-001
Isobutane	1.19e-002	2.49e-001
n-Butane	1.84e-002	3.84e-001
Isopentane	9.39e-003	1.96e-001
n-Pentane	8.76e-003	1.83e-001
n-Hexane	6.36e-003	1.33e-001
Cyclohexane	1.21e-002	2.52e-001
Other Hexanes	8.19e-003	1.71e-001
Heptanes	1.90e-002	3.97e-001
Methylcyclohexane	2.68e-002	5.59e-001
2,2,4-Trimethylpentane	5.43e-004	1.13e-002
Benzene	5.86e-002	1.22e+000
Toluene	1.69e-001	3.52e+000
Xylenes	3.27e-001	6.82e+000
C8+ Heavies	1.06e-001	2.20e+000
Total Components	100.00	2.09e+003

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 2.21e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.62e+001	1.01e+002
Carbon Dioxide	1.34e-001	3.42e-001
Nitrogen	1.64e-003	2.67e-003
Methane	5.85e-001	5.45e-001
Ethane	2.48e-001	4.33e-001
Propane	2.21e-001	5.67e-001
Isobutane	7.37e-002	2.49e-001
n-Butane	1.14e-001	3.84e-001
Isopentane	4.64e-002	1.95e-001
n-Pentane	4.33e-002	1.82e-001
n-Hexane	2.63e-002	1.32e-001
Cyclohexane	4.98e-002	2.44e-001
Other Hexanes	3.37e-002	1.69e-001
Heptanes	6.78e-002	3.95e-001
Methylcyclohexane	9.39e-002	5.36e-001
2,2,4-Trimethylpentane	1.68e-003	1.11e-002
Benzene	2.55e-001	1.16e+000
Toluene	6.05e-001	3.24e+000
Xylenes	9.62e-001	5.94e+000
C8+ Heavies	1.96e-001	1.94e+000
Total Components	100.00	1.17e+002

COMBUSTION DEVICE OFF GAS STREAM

Temperature: 1000.00 deg. F
Pressure: 14.70 psia
Flow Rate: 4.00e+000 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Methane	1.61e+001	2.73e-002

Ethane	6.84e+000	2.17e-002
Propane	6.10e+000	2.83e-002
Isobutane	2.03e+000	1.24e-002
n-Butane	3.14e+000	1.92e-002
Isopentane	1.28e+000	9.73e-003
n-Pentane	1.20e+000	9.08e-003
n-Hexane	7.26e-001	6.59e-003
Cyclohexane	1.37e+000	1.22e-002
Other Hexanes	9.30e-001	8.45e-003
Heptanes	1.87e+000	1.97e-002
Methylcyclohexane	2.59e+000	2.68e-002
2,2,4-Trimethylpentane	4.63e-002	5.57e-004
Benzene	7.05e+000	5.80e-002
Toluene	1.67e+001	1.62e-001
Xylenes	2.66e+001	2.97e-001
C8+ Heavies	5.40e+000	9.68e-002
Total Components	100.00	8.16e-001

Unit I.D.	Description	Control Equipment
T5C-1	Caterpillar 3516 LE; 1,340 hp* 4-Stroke Lean-Burn Reciprocating Internal Combustion Engines Natural Gas-Fired Serial No. **4EK05034** Installed: **7/30/2013** Mfg*: **3/21/2006**	Oxidation Catalyst
T5C-2	Caterpillar 3512 TALE; 860 hp* 4-Stroke Lean-Burn Reciprocating Internal Combustion Engines Natural Gas-Fired Serial No. 7NJ00718 Installed: 7/31/2008 Mfg*: 10/26/2000 **No Longer at Site**	Oxidation Catalyst
T5BC-1	Caterpillar 3516 LE; 1,340 hp* 4-Stroke Lean-Burn Reciprocating Internal Combustion Engines Natural Gas-Fired Serial No. WPW020351 Installed: 11/1/2010 Mfg*: **No Longer at Site**	Oxidation Catalyst
T5BC-2	Caterpillar 3516 LE; 1,340 hp* 4-Stroke Lean-Burn Reciprocating Internal Combustion Engines Natural Gas-Fired Serial No. WPW01800 Installed: **5/28/2008 (Start)** Mfg*: **11/2/2007**	Oxidation Catalyst
T5D-1	40 MMscfd* Triethylene Glycol Dehydration Unit Serial No. **28111** Installed: 5/10/2007	Thermal Oxidizer
T5T-1	400 bbl* Condensate Storage Tank Serial #: **5104** Installed: **8/12/2014**	None
T5T-2	**400** bbl* Condensate Storage Tank Serial #: **A212** Installed: **7/7/2015**	None
T5F-1	Fugitive Emissions	None
PU	Arrow C-66 Well Site Pumping Unit; **13** hp 4-Stroke **Rich**-Burn Reciprocating Internal Combustion Engines Natural Gas-Fired Serial No. **65902** Installed: **2008** Mfg*: **Pre JJJJ by a lot**	None
RBUTK-1	RBU 11-02F Well Site **300** bbl* Storage Tank 1 – **Oil .500 MMBtu** burner Serial #: **96127** Installed: **Pre OOOO - 2011**	None
RBUTK-2	RBU 11-02F Well Site **300** bbl* Storage Tank 1 – **Oil 0.250 MMBtu** Serial #: **2774** Installed: **11/29/2012**	None
RBUH-1	0.50 MMBtu/hr RBU 11-02F Well Site Tank Heater	None (IEU)
RBUH-2	**0.25** MMBtu/hr RBU 11-02F Well Site Tank Heater	None (IEU)
RBUF	RBU 11-02F Well Site Fugitive Emissions	None (IEU)
RBUTRUCKOC	RBU 11-02F Well Site Truck Loading	None (IEU)
T5G-1	Capstone 65 kW Microturbine Genset	None (IEU)

Unit I.D.	Description	Control Equipment
TRUCKOC	Condensate Truck Loading	None (IEU)
T5RB-1	0.50 MMBtu/hr* Glycol Dehydrator Reboiler	None (IEU)
T5TH-1	0.25 MMBtu/hr* Tank Heater #1	None (IEU)
T5TH-2	0.25 MMBtu/hr* Tank Heater #2	None (IEU)
T5S-1	0.25 MMBtu/hr* natural gas-fired separator heater	None (IEU)
T5TOH-1	2 MMBtu/hr* heater for Thermal Oxidizer	None (IEU)
-	2 Lube Oil Tanks	None (IEU)
T5P-1	Pipeline Pigging Operations	None (IEU)
ENGINEBD	Compressor Blowdown Emissions	None (IEU)
ENG Maint	Engine Break in Period	None (IEU)

Tap-5 Compressor Station PTE Table.

Tap-5 PTE	ID	Emissions Units	NO_X*	CO*	VOC*	PM*
Emission Units	T5C-1	Cat. 3516	19.4	33.8	9.2	0.5
	T5C-2	Cat. 3512	16.6	21.3	5.8	0.3
	T5BC-1	Cat. 3516	25.9	33.6	9.2	0.5
	T5BC-2	Cat. 3516	**19.4**	**35.6**	**11.5**	**0.5**
	T5D-1 / T5TO-1	Dehy w/Thermal Oxidizer	**1.3**	**1.7**	**67.2**	**0.2**
	T5T-1	Tank 1	0.0	0.0	0.2	0.0
	T5T-2	Tank 2	0.0	0.0	0.2	0.0
	RBU 11-2F	Arrow C-66 Pumping Engine	**1.8**	**0.5**	**0.0**	**0.0**
	RBU 11-2F	RBU 11-2 Condensate Loading	0.0	0.0	0.9	0.0
	RBU 11-2F	RBU 11-2 Tank 1	0.0	0.0	2.6	0.0
	RBU 11-2F	RBU 11-2 Tank 2	0.0	0.0	2.6	0.0
	RBU 11-2F	RBU 11-2 Tank 1 Heater	0.2	0.2	0.0	0.0
	RBU 11-2F	RBU 11-2 Tank 2 Heater	**0.1**	**0.1**	**0.0**	**0.0**
	RBU 11-2F	RBU 11-2 Fugitives	0.0	0.0	1.4	0.0
	T5F-1	Fugitives	0.0	0.0	3.4	0.0
Insignificant Emission Units	T5G-1		0.1	1.7	0.0	0.0
	TRUCKOC	Condensate Truck Loading	0.0	0.0	1.3	0.0
	T5RB-1	0.50 MMBtu/hr* Glycol Dehydrator Reboiler	0.2	0.2	0.0	0.0
	T5TH-1	0.25 MMBtu/hr* Tank Heater #1	0.1	0.1	0.0	0.0
	T5TH-2	0.25 MMBtu/hr* Tank Heater #2	**0.1**	**0.1**	0.0	0.0
	T5S-1	0.25 MMBtu/hr* natural gas-fired separator heater	**0.1**	**0.1**	0.0	0.0
	T5TOH-1	2 MMBtu/hr* heater for Thermal Oxidizer	1.0	0.8	0.1	0.1
	-	Lube Oil Tanks	0.0	0.0	0.0	0.0
	T5P-1	Pipeline Pigging Operations	0.0	0.0	1.4	0.0
	ENGINEBD	Compressor Blowdown Emissions	0.0	0.0	2.0	0.0
	ENG Maint	Engine Startup	**1.2**	**1.6**	**0.5**	**0.0**
Facility-Wide PTE (federally enforceable)			**43.9**	**74.9**	**104.1**	**1.3**

SO_2*	CH_2O*	Total HAPs*	CO_2*	CH_4* (as CO_2e)	N_2O* (as CO_2e)	CO_2e*
0.0	3.1	**3.8**	5848.1	2.8	3.3	5854.1
0.0	2.2	2.2	3765.8	1.8	2.1	3769.7
0.0	3.1	3.1	5846.0	2.8	3.3	5852.0
0.0	**4.4**	**5.1**	5791.8	2.7	3.3	5797.8
0.0	**0.0**	**45.9**	2446.0	1.2	1.4	2448.5
0.0	0.0	0.0	0.0	5.8	0.0	5.8
0.0	0.0	0.0	0.0	5.8	0.0	5.8
0.0	**0.0**	**0.0**	53.5	0.0	0.0	53.6
0.0	0.0	0.0	0.0	20.0	0.0	20.0
0.0	0.0	0.0	0.0	57.5	0.0	57.5
0.0	0.0	0.0	0.0	57.5	0.0	57.5
0.0	0.0	0.0	256.2	0.1	0.1	256.4
0.0	**0.0**	**0.0**	128.1	0.1	0.1	128.2
0.0	0.0	0.1	0.0	106.5	0.0	106.5
0.0	0.0	0.1	0.0	631.4	0.0	631.4
0.0	0.0	0.0	34.1	0.0	0.0	34.2
0.0	0.0	0.0	0.0	37.0	0.0	37.0
0.0	0.0	0.0	256.2	0.1	0.1	256.4
0.0	0.0	0.0	128.1	0.1	0.1	128.2
0.0	0.0	0.0	128.1	0.1	0.1	128.2
0.0	0.0	0.0	128.1	0.1	0.1	128.2
0.0	0.0	0.0	Represented at T5D-1/T5TO-1			
0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	477.2	0.0	477.2
0.0	0.0	0.1	0.0	681.8	0.0	681.8
0.0	**0.2**	**0.2**	282.1	0.1	0.2	282.4
0.0	**7.5**	**55.2**	**15198.3**	**2087.5**	**8.5**	**17294.4**

Wortman, Eric

From: Patefield, Scott
Sent: Thursday, March 20, 2014 9:37 AM
To: Wortman, Eric
Subject: FW: Summit Gas Gathering, LLC - Leak Detection and Monitoring - MACT HH and NSPS KKK Status

fyi

From: Patefield, Scott
Sent: Friday, February 08, 2013 3:03 PM
To: Tepe, Rykki
Cc: Armstrong, Christopher; OConnor, Mike
Subject: Re: Summit Gas Gathering, LLC - Leak Detection and Monitoring - MACT HH and NSPS KKK Status

Rykki,

Since this source will no longer be a natural gas processing plant, the provisions of MACT HH that would apply would be those in sections 63.765 (pertaining to glycol dehydrators) and 63.766 (pertaining to storage vessels). The provisions in section 63.769 (equipment leaks) only apply to equipment located at natural gas processing plants. Therefore, since the source is changing its status to a compressor station section 63.769 would no longer apply.

Likewise, NSPS KKK LDAR requirements would no longer apply either, since the facilities would not be considered "Onshore Natural Gas Processing Plants".

Let me know 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,
Cc: "OConnor, Mike" <Mike_OConnor@xtoenergy.com>, "Armstrong, Christopher" <Christopher_Armstrong@xtoenergy.com>, "Tepe, Rykki" <Rykki_Tepe@xtoenergy.com>
Date: 02/07/2013 12:00 PM
Subject: Summit Gas Gathering, LLC - Leak Detection and Monitoring - MACT HH and NSPS KKK Status

Hi Scott:

Per our conversation yesterday (02/06/2013), I wanted to recap our conversation and get your concurrence on the Summit Gas Gathering, LLC (SGG)'s applicability to the NSPS for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants under 40 CFR Part 60, subpart KKK (NSPS KKK) and 40 CFR 63.769 the Equipment Leak Standards from NESHAP From Oil and Natural Gas Production Facilities under 40 CRF 63, Subpart HH (MACT HH). The

following hydrocarbon dewpoint skids owned and operated by SGG were permanently shut down and removed from service at the below listed dates, and notification was provided to EPA Region 8 regarding the removal of this equipment on April 26, 2011 and October 31, 2011 (see attached documents):

- TAP-4 Compressor Station – May 25, 2011
- TAP-5 Compressor Station – October 12, 2010
- Kings Canyon Compressor Station – March 18, 2010

Based on SGG's review of the Consent Decree, NSPS KKK and MACT HH (40 CFR 63.769), we believe we are no longer required to employ the equipment leak standards and LDAR Programs associated with the above noted regulations due to not meeting the definition of a natural gas processing plant. The equipment designating the above facilities as a natural gas processing plant have been removed (i.e. dew point skids) and there are no other processes at SGG Uintah County Compressor Stations facilities that would subject them to the natural gas processing plant requirements.

- The Consent Decree states that SGG is required to comply with the MACT HH major source standards for the dehydration units. Additionally, the Consent Decree states the hydrocarbon dewpoint skids at Kings Canyon, TAP-4, and TAP-5 are subject to NSPS KKK. SGG will continue to comply with the applicable sections of MACT HH (not applicable specifically to 40 CFR 63.769), and is no longer meets the NSPS KKK applicability to do the removal of the dewpoint skids. Additionally, the "once in always in" major source status would not apply to the 40 CFR63.769 due to not meeting the applicability of the section, and "once in always in" does not apply to NSPS KKK.
- NSPS KKK is applicable to *natural gas processing plants* which by definition 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. Due to the removal of the hydrocarbon skid, SGG's facilities in Uintah County no longer extract natural gas liquids (NGL) therefore do not meet the definition of a natural gas processing plant.
- MACT HH (40 CFR 63.769) states the applicability to the equipment leak standards in MACT HH: (a) " *This section applies to equipment subject to this subpart and specified in paragraphs (a)(1) and (2) of this section that is located at a* ***natural gas processing plant*** *and operates in VHAP service equal to or greater than 300 hours per calendar year."* Because we no longer meet the definition of a natural gas processing plant, SGG does not believe we meet the applicability for the equipment leak standards in 40 CFR 63.769.

Before removing equipment leak standards and processes associated with 40 CFR 63.769 and LDAR in NSPS KKK, we would like to receive your concurrence via email, that we are no longer applicable to these leak requirements and can remove our monitoring requirements associated with them. Your response is appreciated. 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
[attachment "Scanned CH042611 Semi-annual KKK Report.pdf" deleted by Scott Patefield/R8/USEPA/US] [attachment "CH103111 Semi-annual KKK Report Scanned.pdf" deleted by Scott Patefield/R8/USEPA/US]

April 7, 2014

Alternate Designated Representative
EPA Region 8 Operations
40 CFR Part 71, 40 CFR Part 63

RECEIVED
APR 14 2014
8P - AS

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

July 29, 2013

Tap 5 Compressor Station
Title V Application Revision
Uintah County, UT

Via USPS Certified Mail: 7012 3460 0000 8027 2697

Mr. Eric Wortman
EPA Region 8
1595 Wynkoop Street (8P-AR)
Denver, Colorado 80202

Dear Mr. Eric Wortman:

XTO Energy Inc. (XTO) respectfully submits an update to the previously submitted revision to the Title V Application for the Tap 5 Compressor Station in Uintah County, UT. Please find attached an update to the Emission Unit Description for Fuel Combustion Sources (EUD-1) for the Emission Unit T5BC-2. The update includes installation dates and Section E – Associated Air Pollution Control Equipment.

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.

cc: Alexis North (Via USPS Certified Mail: 7012 3460 0000 8027 2734)
EPA Region 8
Mail Code 8ENF-AT
1595 Wynkoop Street
Denver, CO 80202-1129

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID __T5BC-2__ Description____Caterpillar G3516 TALE Compressor 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. ____3516 TALE_____

Serial Number ___ WPW0180_____ Installation Date____/__TBD__/_____

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

Other (describe) ____Natural Gas Compression Engine_____

Boiler horsepower rating_____1340_____ Boiler steam flow (lb/hr)_____N/A_____

Type of Fuel-Burning Equipment (coal burning only): N/A

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input __10.3___MM BTU/hr Max. Design Heat Input __10.3__MM BTU/hr

C. Fuel Data

Primary fuel type(s)____Natural Gas_____ Standby fuel type(s)_____N/A_____

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%	1111.4 BTU / SCF

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	81.1 MMSCF/YR	9.3 MSCF/HR	81.1 MMSCF/YR

E. Associated Air Pollution Control Equipment

Emissions unit ID___T5BC-2____ Device type___Oxidation Catalyst_____

Air pollutant(s) Controlled___CO & HCHO_____ Manufacturer____Emera Chem_____

Model No.____ EC-OX-PX-SQ-1544-2475-3500_____ Serial No.__ RJM-935A-01 __

Installation date_06_/_28_/_2013___ Control efficiency (%) CO 2.0 g/bhp-hr, HCHO 14ppmvd @ 15% O2

Efficiency estimation method_____Manufacturer Specification_____

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) ___N/A___._____	Inside stack diameter (ft) ___ N/A _____._____
Stack temp(°F) __ N/A _____._____	Design stack flow rate (ACFM) ____ N/A _____.____
Actual stack flow rate (ACFM) ___ N/A _____.____	Velocity (ft/sec) ___N/A ____._____

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

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

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

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

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

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

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

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

Wortman, Eric

From: Tepe, Rykki <Rykki_Tepe@xtoenergy.com>
Sent: Wednesday, June 26, 2013 3:53 PM
To: Wortman, Eric; North, Alexis
Subject: RE: Question on Title V Applications

Great Thanks! We'll plan on submitting the revised application immediately following the moves. This will eliminate multiple revisions which sometimes get confusing. If there's any issues please let me know. Thanks for your help.

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

From: Wortman, Eric [mailto:Wortman.Eric@epa.gov]
Sent: Wednesday, June 26, 2013 3:49 PM
To: Tepe, Rykki; North, Alexis
Subject: RE: Question on Title V Applications

That's correct Rykki. Per 71.5(b), you are required to promptly submit supplementary facts or corrected information upon becoming aware of incorrect information in your application. I would suggest submitting the revised application immediately after the installation of the new engine. If the removal of the old engine will possibly be delayed, you can always state in the cover letter of the updated application what the anticipated removal date is for that engine and follow up with another letter or email to confirm removal at that date.

Eric

Eric Wortman
EPA Region 8 Air Program
(303) 312-6649

From: Tepe, Rykki [mailto:Rykki_Tepe@xtoenergy.com]
Sent: Wednesday, June 26, 2013 2:04 PM
To: Wortman, Eric; North, Alexis
Subject: Question on Title V Applications

Hi Eric / Alex: We're fixing to do some more engine swings at the XTO Energy, Inc. Tap 5 Compressor Stations in Uintah County. These are Title V sites, which applications have not been issued yet. We're going to be doing several moves to move in and out engines over the next month to move out more rental compressors and replace with company owned compressors, and I wanted to touch base with you on the permitting. Is it acceptable (and in compliance) for XTO Energy to wait until we're done with our engine swings to submit a revised application? We eventually will be removing a Caterpillar 3512, and installing a Caterpillar 3516 in its place however logistically to get to that point we may have more horsepower than currently permitted on site if the move schedules don't correspond as hoped. I believe it was discussed last time that submitting Title V changes after the fact was okay, but I wanted to double check before we did anything.

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 __Tap 5 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 ___39.9750760, -109.6360850_____

_____

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) _2:09-CV-00331-SA_ 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__

April 30, 2013

Tap 5 Compressor Station
Title V Application Revision
Uintah County, UT

RECEIVED
MAY 06 2013
8P-AR

Via USPS Certified Mail: 7008 1830 0001 0476 5127

Mr. Eric Wortman
EPA Region 8
1595 Wynkoop Street (8P-AR)
Denver, Colorado 80202

Dear Mr. Eric Wortman:

XTO Energy Inc. (XTO) respectfully submits a revision to the Title V Application for the Tap 5 Compressor Station in Uintah County, UT. This revision includes the addition of one (1) Caterpillar 3516 TALE Compressor Engine, and updates to existing equipment calculations.

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.

cc: Alexis North (Via USPS Certified Mail: 7008 1830 0001 0476 5134)
EPA Region 8
Mail Code 8ENF-AT
1595 Wynkoop Street
Denver, CO 80202-1129

XTO ENERGY, INC.
TAP 5 COMPRESSOR STATION
TITLE V PERMIT REVISION

PREPARED BY:
RYKKI TEPE
ENVIRONMENTAL ENGINEER
XTO ENERGY, INC

APRIL 2013

Tap 5 Compressor Station

Title V Permit Revision

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Attachment # 1
Project Description

XTO ENERGY, INC
TAP 5 COMPRESSOR STATION
PROJECT DESCRIPTION
APPLICATION UPDATE INFORMATION – APRIL 2013

The following updates are being made to the February 2011 Part 71 Application:

- Add one (1) additionally Caterpillar G3516 TALE to the Tap 5 Compressor Station. The engine is represented as T5BC-2. The serial number of the new compressor engine is WPW01800. A total of four (4) natural gas fired engines will be located at the Tap 5 Compressor Station.
- Add Thermal Oxidizer Emissions which is represented by T5TO-1. This accounts for the products of combustion associated with the destruction of the still column emission, the 5% non-destructed VOCs, and the thermal oxidizer pilot gas.
- Provide updated calculations and emissions estimates based on recent gas and liquid analysis.
- Revise calculations for the Existing Caterpillar Engines (T5C-1, T5C-2, T5BC-1).
- Significant and Insignificant Emission List: Revised the insignificant emissions list based on the updated calculations. Additionally, provided calculations for pigging emissions, engine blow downs, and engine break-in periods.

This application update includes:

- Facility Emissions Summary – Potential to Emit (PTE): PTE emissions are based on no controls on the dehydration unit and compressor engines. The PTE is provided for the significant and insignificant emissions, and a summary of all emissions.
- Facility Emissions Summary – Controlled: A Facility Emission Summary is provided for the controlled emissions. The dehydration unit still column emissions are controlled by a thermal oxidizer, the dehydration unit flash gas emissions are recycled, and the compressor engines are controlled with oxidation catalysts.
- Calculation representations for the Tap 5 Compressor Station, and the associated wellsite RBU 11-02F.
- EPA Forms 5900-79 (GIS) , 5900-80 (EUD-1), 5900-83 (IE), 5900-84 (EMISS), 5900-85 (PTE)
- Process descriptions and flow diagrams, manufacturer data, and recent gas and liquid analysis.

XTO Energy, Inc.

Tap 5 Compressor Station

Facility Emission Summary - Potential to Emit (PTE)

Emissions Summary Table - All Sources PTE (Signficant and Insignficant)

Source / Unit Desciption	Emission Point	Emission Unit ID	NOx	CO	Total VOC (Includes Total HAPs)	SO_2	$PM_{10 \& 2.5}$	HAPs
Fugitive Emissions	T5F-1	T5F-1	-	-	3.4	-	-	0.1
40 MMSCFD Glycol Dehydrator (controlled by thermal oxidizer)	T5D-1	T5D-1	-	-	52.4	-	-	34.3
Thermal Oxidzier Emissions	T5TO-1	T5TO-1	1.8	2.4	2.7	0.0	0.2	1.7
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5C-1	T5C-1	19.4	33.8	9.2	0.0	0.5	3.1
Caterpillar G3512 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5C-2	T5C-2	16.6	21.3	5.8	0.0	0.3	2.2
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5BC-1	T5BC-1	25.9	33.6	9.2	0.0	0.5	3.1
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5BC-2	T5BC-2	19.4	35.6	11.5	0.0	0.4	4.4
RBU 11-02F Wellsite	RBU 11-02F	RBU 11-02F	3.3	1.2	7.6	0.0	0.0	0.1
Condensate Storage Tank: 400 bbls	T5T-1	T5T-1	-	-	0.2	-	-	0.0
Condensate Storage Tank: 400 bbls	T5T-2	T5T-2	-	-	0.2	-	-	0.0
Truck Loading: Oil/Condensate	TRUCKOC	TRUCKOC	-	-	1.3	-	-	0.0
Heaters	See Heater Table	T5HTR	1.6	1.3	0.1	0.0	0.1	0.0
Pigging Emissions	T5P-1	T5P-1	-	-	1.4	-	-	0.0
Caterpillar G3516 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint[3]	ENG Maint[3]	1.8	2.4	0.8	0.0	0.0	0.3
Caterpillar G3512 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint[3]	ENG Maint[3]	0.4	0.5	0.1	0.0	0.0	0.1
MSS - Compressor Engine Blowdowns	ENGINEBD	ENGINEBD	-	-	2.0	-	-	0.1
Genset Capstone C65NG	T5G-1	T5G-1	0.1	1.7	0.0	0.0	0.0	0.0

TOTAL EMISSIONS (TPY)	NOx	CO	Total VOC (Includes Total HAPs)	SO_2	$PM_{10 \& 2.5}$	HAPs
	90.2	133.8	107.9	0.1	2.2	49.7

XTO Energy, Inc.

Tap 5 Compressor Station

Facility Emission Summary - Potential to Emit (PTE)

Emissions Summary Table - Significant Emission (> 2 TPY)

Source / Unit Desciption	Emission Point	Emission Unit ID	NOx	CO	Total VOC (Includes Total HAPs)	SO_2	$PM_{10 \& 2.5}$	HAPs
Fugitive Emissions	T5F-1	T5F-1	-	-	3.37	-	-	0.13
40 MMSCFD Glycol Dehydratcr (controlled by thermal oxidizer)	T5D-1	T5D-1	-	-	52.44	-	-	34.30
Thermal Oxidzier Emissions	T5TO-1	T5TO-1	1.8	2.4	2.66	0.00	0.22	1.73
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5C-1	T5C-1	19.4	33.8	9.19	0.03	0.50	3.11
Caterpillar G3512 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5C-2	T5C-2	16.6	21.3	5.81	0.02	0.32	2.24
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5BC-1	T5BC-1	25.9	33.6	9.19	0.03	0.50	3.11
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5BC-2	T5BC-2	19.4	35.6	11.52	0.03	0.45	4.40
RBU 11-02F Wellsite	RBU 11-02F	RBU 11-02F	3.3	1.2	7.56	0.00	0.04	0.09

TOTAL EMISSIONS (TPY)	NOx	CO	Total VOC (Includes Total HAPs)	SO_2	$PM_{10 \& 2.5}$	HAPs
	86.4	**127.9**	**101.73**	**0.11**	**2.02**	**49.10**

XTO Energy, Inc.

Tap 5 Compressor Station

Facility Emission Summary - Potential to Emit (PTE)

Emissions Summary Table - Insignificant Emission (< 2 TPY)

Source / Unit Desciption	Emission Point	Emission Unit ID	NOx	CO	Total VOC (Includes Total HAPs)	SO_2	$PM_{10 \& 2.5}$	HAPs
Condensate Storage Tank: 400 bbls	T5T-1	T5T-1	-	-	0.18	-	-	0.02
Condensate Storage Tank: 400 bbls	T5T-2	T5T-2	-	-	0.18	-	-	0.02
Truck Loading: Oil/Condensate	TRUCKOC	TRUCKOC	-	-	1.35	-	-	0.03
Heaters	See Heater Table	T5HTR	1.6	1.3	0.09	0.01	0.12	0.03
Pigging Emissions	T5P-1	T5P-1	-	-	1.44	-	-	0.04
Caterpillar G3516 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint[3]	ENG Maint[3]	1.8	2.4	0.79	0.00	0.04	0.30
Caterpillar G3512 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint[3]	ENG Maint[3]	0.4	0.5	0.13	0.00	0.01	0.05
SSM - Compressor Engine Blowdowns	ENGINEBD	ENGINEBD	-	-	1.98	-	-	0.06
Genset Capstone C65NG	T5G-1	T5G-1	0.1	1.7	0.03	0.00	0.00	0.03

TOTAL EMISSIONS (TPY)	NOx	CO	Total VOC (Includes Total HAPs)	SO_2	$PM_{10 \& 2.5}$	HAPs
	3.9	6.0	6.16	0.01	0.17	0.57

XTO Energy, Inc.

Tap 5 Compressor Station

Facility Emission Summary - Controlled

Emissions Summary Table - All Sources Controlled (Catalyst & Thermal Oxidizer) - Signficant and Insignificant

Source / Unit Desciption	Emission Point	Emission Unit ID	NOx	CO	Total VOC (Includes Total HAPs)	SO_2	$PM_{10 \& 2.5}$	HAPs
Fugitive Emissions	T5F-1	T5F-1	-	-	3.4	-	-	0.1
Thermal Oxidzier Emissions	T5TO-1	T5TO-1	1.8	2.4	2.7	0.0	0.2	1.7
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5C-1	T5C-1	19.4	25.9	12.9	0.0	0.5	3.9
Caterpillar G3512 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5C-2	T5C-2	12.5	16.6	8.3	0.0	0.3	2.5
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5BC-1	T5BC-1	19.4	25.9	12.9	0.0	0.4	3.9
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5BC-2	T5BC-2	19.4	25.9	12.9	0.0	0.4	3.9
RBU 11-02F Wellsite	RBU 11-02F	RBU 11-02F	3.3	1.2	7.6	0.0	0.0	0.1
Condensate Storage Tank: 400 bbls	T5T-1	T5T-1	-	-	0.2	-	-	0.0
Condensate Storage Tank: 400 bbls	T5T-2	T5T-2	-	-	0.2	-	-	0.0
Truck Loading: Oil/Condensate	TRUCKOC	TRUCKOC	-	-	1.3	-	-	0.0
Heaters	See Heater Table	T5HTR	1.6	1.3	0.1	0.0	0.1	0.0
Pigging Emissions	T5P-1	T5P-1	-	-	1.4	-	-	0.0
Caterpillar G3516 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint	ENG Maint	1.3	1.8	0.9	0.0	0.0	0.3
Caterpillar G3512 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint	ENG Maint	0.3	0.4	0.2	0.0	0.0	0.1
MSS - Compressor Engine Blowdowns	ENGINEBD	ENGINEBD	-	-	2.0	-	-	0.1
Genset Capstone C65NG	T5G-1	T5G-1	0.1	1.7	0.0	0.0	0.0	0.0

TOTAL EMISSIONS (TPY)	NOx	CO	Total VOC (Includes Total HAPs)	SO_2	$PM_{10 \& 2.5}$	HAPs
	79.1	**103.1**	**67.0**	**0.1**	**2.1**	**16.6**

Attachment # 3
Emissions Table - lb/hr and tpy

XTO Energy, Inc.

Tap 5 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
T5T-1	T5T-1	Condensate Storage Tank: 300 bbls	VOC (Includes HAPs)	0.0	0.2
			HAPs	0.0	0.0
T5T-2	T5T-2	Condensate Storage Tank: 400 bbls	VOC (Includes HAPs)	0.0	0.2
			HAPs	0.0	0.0
TRUCKOC	TRUCKOC	Truck Loading: Oil/Condensate	VOC (Includes HAPs)	22.2	1.3
			HAPs		0.0
T5F-1	T5F-1	Fugitive Emissions	VOC (Includes HAPs)	1.2	3.4
			HAPs	0.0	0.1
See Heater Table	T5HTR	Reboiler & Heater Emissions Summary	NOx	0.4	1.6
			CO	0.3	1.3
			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
T5D-1	T5D-1	Dehydration Still Column	VOC (Includes HAPs)	12.0	52.4
			HAPs	7.8	34.3

XTO Energy, Inc.

Tap 5 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
T5TO-1	T5TO-1	Thermal Oxidizer Emissions Summary	NOx	0.4	1.8
			CO	0.5	2.4
			VOC (Includes HAPs)	0.6	2.7
			$PM_{10 \& 2.5}$	0.1	0.2
			SO_2	0.0	0.0
			HAPs	0.4	1.7
T5P-1	T5P-1	Pigging Emissions	VOC (Includes HAPs)	120.3	1.4
			HAPs	3.3	0.0
ENGINEBD	ENGINEBD	Maintenance, Startup, Shutdown (MSS): Engine Blowdowns	VOC (Includes HAPs)	7.9	2.0
			HAPs	0.2	0.1
T5C-1	T5C-1	Caterpillar G3516 TALE Compressor Engine (Uncontrolled)	NOx	4.4	19.4
			CO	7.7	33.8
			VOC (Includes HCHO)	2.1	9.2
			$PM_{10 \& 2.5}$	0.1	0.5
			SO_2	0.0	0.0
			HCHO	0.7	3.1

XTO Energy, Inc.

Tap 5 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
T5C-2	T5C-2	Caterpillar G3512 TALE Compressor Engine (Controlled by Oxidation Catalyst)	NOx	3.8	16.6
			CO	4.9	21.3
			VOC (Includes HCHO)	1.3	5.8
			$PM_{10 \& 2.5}$	0.1	0.3
			SO_2	0.0	0.0
			HCHO	0.5	2.2
T5BC-1	T5BC-1	Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	NOx	5.9	25.9
			CO	7.7	33.6
			VOC (Includes HCHO)	2.1	9.2
			$PM_{10 \& 2.5}$	0.1	0.5
			SO_2	0.0	0.0
			HCHO	0.7	3.1
T5BC-2	T5BC-2	Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	NOx	4.4	19.4
			CO	8.1	35.6
			VOC (Includes HCHO)	2.6	11.5
			$PM_{10 \& 2.5}$	0.1	0.4
			SO_2	0.0	0.0
			HCHO	1.0	4.4

XTO Energy, Inc.

Tap 5 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
ENG Maint	ENG Maint	Caterpillar G3516 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	NOx	5.9	1.8
			CO	8.1	2.4
			VOC (Includes HCHO)	2.6	0.8
			$PM_{10 \& 2.5}$	0.1	0.0
			SO_2	0.0	0.0
			HCHO	1.0	0.3
ENG Maint	ENG Maint	Caterpillar G3512 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	NOx	3.8	0.4
			CO	4.9	0.5
			VOC (Includes HCHO)	1.3	0.1
			$PM_{10 \& 2.5}$	0.1	0.0
			SO_2	0.0	0.0
			HCHO	0.5	0.1
T5G-1	T5G-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.

Tap 5 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	0.8	3.3
			CO	0.3	1.2
			VOC (Includes HAPs)	22.9	7.6
			$PM_{10 \& 2.5}$	0.0	0.0
			SO_2	0.0	0.0
			HAPs	0.0	0.1

Attachment # 4

EPA Form 5900-79: General Information & Summary (GIS)

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 __Tap 5 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 ___39.9750760, -109.6360850_____

_____

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 __X_ Minor Permit Mod(MPM)

___ Group Processing, MPM ___ 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
T5F-1	Fugitive Emissions
T5D-1	40 MMSCFD Glycol Dehydrator (controlled by thermal oxidizer)
T5TO-1	Thermal Oxidizer Emissions
T5C-1	Caterpillar G3516 TALE Compressor Engine Controlled By Oxidation Catalyst
T5C-2	Caterpillar G3516 TALE Compressor Engine Controlled By Oxidation Catalyst
T5BC-1	Caterpillar G3516 TALE Compressor Engine Controlled By Oxidation Catalyst
T5BC-2	Caterpillar G3516 TALE Compressor Engine Controlled By Oxidation Catalyst
RBU 11-02F Wellsite	Emissions Associated with the RBU 11-02F Wellsite

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 ___90.2____ tons/yr VOC ___107.9____ tons/yr SO2 ___0.1____ tons/yr

PM-10 __2.2_____ tons/yr CO __133.8____ tons/yr Lead _____0.0___ tons/yr

Total HAP ____49.7____ tons/yr

Single HAP emitted in the greatest amount _____Xylene_____ PTE __16.7__ 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) _2:09-CV-00331-SA_ 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

INSTRUCTIONS FOR GIS, GENERAL INFORMATION AND SUMMARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

END

Attachment # 5

EPA Form 5900-80: Emission Unit Description (EUD-1)

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID ___T5TO-1____ Description___Thermal Oxidizer Emissions_____

SIC Code (4-digit) ____1311_____ SCC Code___31000209_____

B. Emissions Unit Description

Primary use _____Natural Gas Combustion_____ Temporary Source ___Yes _X__No

Manufacturer _____Envirotherm_____ Model No. _____30 inch model_____

Serial Number _____28111_____ Installation Date_01_/_05_/_2009_

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

Other (describe) _____

Boiler horsepower rating_____N/A_____ Boiler steam flow (lb/hr)_____

Type of Fuel-Burning Equipment (coal burning only): N/A

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input _equipped with variable speed drive_MM BTU/hr
Max. Design Heat Input__equipped with variable speed drive _____MM BTU/hr

C. Fuel Data

Primary fuel type(s)____Natural Gas_____ Standby fuel type(s)_____N/A_____

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%	1065.7 BTU/SCF

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	14 SCF/YR	1600 SCF/HR	14 SCF/YR

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_____

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

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

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

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

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

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

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

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

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID __T5BC-2__ Description____Caterpillar G3516 TALE Compressor 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. ____3516 TALE_____

Serial Number ___ WPW0180_____ Installation Date____/__TBD__/_____

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

Other (describe) ____Natural Gas Compression Engine_____

Boiler horsepower rating_____1340_____ Boiler steam flow (lb/hr)_____N/A_____

Type of Fuel-Burning Equipment (coal burning only): N/A

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input __10.3___MM BTU/hr Max. Design Heat Input __10.3__MM BTU/hr

C. Fuel Data

Primary fuel type(s)____Natural Gas_____ Standby fuel type(s)_____N/A_____

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%	1111.4 BTU / SCF

D. Fuel Usage Rates

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	81.1 MMSCF/YR	9.3 MSCF/HR	81.1 MMSCF/YR

E. Associated Air Pollution Control Equipment

Emissions unit ID___T5BC-2____ Device type___Oxidation Catalyst_____

Air pollutant(s) Controlled___CO & HCHO_____ Manufacturer_____TBD – Not Installed____

Model No.____ TBD – Not Installed _____ Serial No.___ TBD – Not Installed _____

Installation date__/__/____ Control efficiency (%) CO 2.0 g/bhp-hr, HCHO 14ppmvd @ 15% O2

Efficiency estimation method_____Manufacturer Specification_____

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) ___N/A___._____	Inside stack diameter (ft) ___ N/A _____._____
Stack temp(°F) __ N/A _____._____	Design stack flow rate (ACFM) ____ N/A _____.____
Actual stack flow rate (ACFM) ___ N/A _____.____	Velocity (ft/sec) ___N/A ____._____

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

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

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

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

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

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

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

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

Attachment # 6
EPA Form 5900-83: Insignficant Emissions (IE)

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

INSIGNIFICANT EMISSIONS (IE)

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

Number	Description of Activities or Emissions Units	RAP,except HAP	HAP
2	400 BBL Condensate Storage Tanks (T5T-1 & T5T-2)	X	X
1	Truck Loading of Oil / Condensate (TRUCKOC)	X	X
1	0.5 MMBTU/HR Dehydrator Reboiler (T5RB-1)	X	X
2	0.25 MMBTU/HR Condensate Tank Heaters (T5TH-1 & T5TH-2)	X	X
1	2.0 MMBTU/HR Thermal Oxidizer Heater (T5TOH-1)	X	X
1	0.25 MMBTU/HR Separator Heater (T5SH-1)	X	X
2	Lube Oil Tanks	X	X
1	Pigging Emissions (T5P-1)	X	X
1	Caterpillar G3516 TALE Compressor Engine Combine: Engine Break In Period (Uncontrolled) (ENG Maint)	X	X
1	Caterpillar G3512 TALE Compressor Engine Combine: Engine Break In Period (Uncontrolled) (ENG Maint)	X	X
1	SSM - Compressor Engine Blowdowns (ENGINEBD)	X	X
1	Genset Capstone C65NG (T5G-1)	X	X

INSTRUCTIONS FOR IE
INSIGNIFICANT ACTIVITIES

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

Generally identify the source of emissions.

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

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

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

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

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

Attachment # 7

EPA Form 5900-84:Emission Calculations (EMISS)

United States Environmental Protection Agency

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

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 _____T5F-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	3.4	1.2	3.4	
HAP	0.1	0.0	0.1	

United States Environmental Protection Agency

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

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 _____T5D-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	52.4	12.0	52.4	
HAP	34.3	7.8	34.3	

United States Environmental Protection Agency

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

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 _____T5TO-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)	
NO_X	1.8	0.4	1.8	
CO	2.4	0.5	2.4	
VOC	2.7	0.6	2.7	
PM 10 & 2.5	0.2	0.1	0.2	
SO_2	0.0	0.0	0.0	
HAP	1.7	0.4	1.7	

United States Environmental Protection Agency

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

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 _____T5C-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)	
NO_X	19.4	4.4	19.4	
CO	33.8	7.7	33.8	
VOC	9.2	2.1	9.2	
PM 10 & 2.5	0.5	0.1	0.5	
SO_2	0.0	0.0	0.0	
HCHO	3.1	0.7	3.1	

United States Environmental Protection Agency

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

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 _____T5C-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)	
NO_X	16.6	3.8	16.6	
CO	21.3	4.9	21.3	
VOC	5.8	1.3	5.8	
PM 10 & 2.5	0.3	0.1	0.3	
SO_2	0.0	0.0	0.0	
HCHO	2.2	0.5	2.2	

United States Environmental Protection Agency

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

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 _____T5BC-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)	
NO_X	25.9	5.9	25.9	
CO	33.6	7.7	33.6	
VOC	9.2	2.1	9.2	
PM 10 & 2.5	0.5	0.1	0.5	
SO_2	0.0	0.0	0.0	
HCHO	3.1	0.7	3.1	

United States Environmental Protection Agency

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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 _____T5BC-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)	
NO_X	19.4	4.4	19.4	
CO	35.6	8.1	35.6	
VOC	11.5	2.6	11.5	
PM 10 & 2.5	0.4	0.1	0.4	
SO_2	0.0	0.0	0.0	
HCHO	4.4	1.0	4.4	

United States Environmental Protection Agency

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

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 ____RBU 11-02F_____

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)	
NO_X	3.3	0.8	3.3	
CO	1.2	0.3	1.2	
VOC	7.6	22.9	7.6	
PM 10 & 2.5	0.0	0.0	0.0	
SO_2	0.0	0.0	0.0	
HAP	0.1	0.0	0.1	

Attachment # 8
EPA Form 5900-85: Potential To Emit (PTE)

United States Environmental Protection Agency

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

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)						
	NO_X	CO	VOC	SO_2	PM10	HAP	Lead
T5F-1	-	-	3.4	-	-	0.1	-
T5D-1	-	-	52.4	-	-	34.3	-
T5TO-1	1.8	2.4	2.7	0.0	0.2	1.7	-
T5C-1	19.4	33.8	9.2	0.0	0.5	3.1	-
T5C-2	16.6	21.3	5.8	0.0	0.3	2.2	-
T5BC-1	25.9	33.6	9.2	0.0	0.5	3.1	-
T5BC-2	19.4	35.6	11.5	0.0	0.4	4.4	-
RBU 11-02F	3.3	1.2	7.6	0.0	0.0	0.1	-
T5T-1	-	-	0.2	-	-	0.0	-
T5T-2	-	-	0.2	-	-	0.0	-
TRUCKOC	-	-	1.3	-	-	0.0	-
T5HTR	1.6	1.3	0.1	0.0	0.1	0.0	-
T5P-1	-	-	1.4	-	-	0.0	-
ENG Maint (Cat 3516)	1.8	2.4	0.8	0.0	0.0	0.3	-
ENG Maint (Cat 3512)	0.4	0.5	0.1	0.0	0.0	0.1	-
ENGINEBD	-	-	2.0	-	-	0.1	-
T5G-1	0.1	1.7	0.0	0.0	0.0	0.0	-
FACILTY TOTALS	**90.2**	**133.8**	**107.9**	**0.1**	**2.2**	**49.7**	**-**

INSTRUCTIONS FOR PTE
POTENTIAL TO EMIT

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

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

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

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

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

END

Attachment # 9
Process Description & Flow Diagram

XTO Energy, Inc.
Tap-5 Compressor Station
Process Description

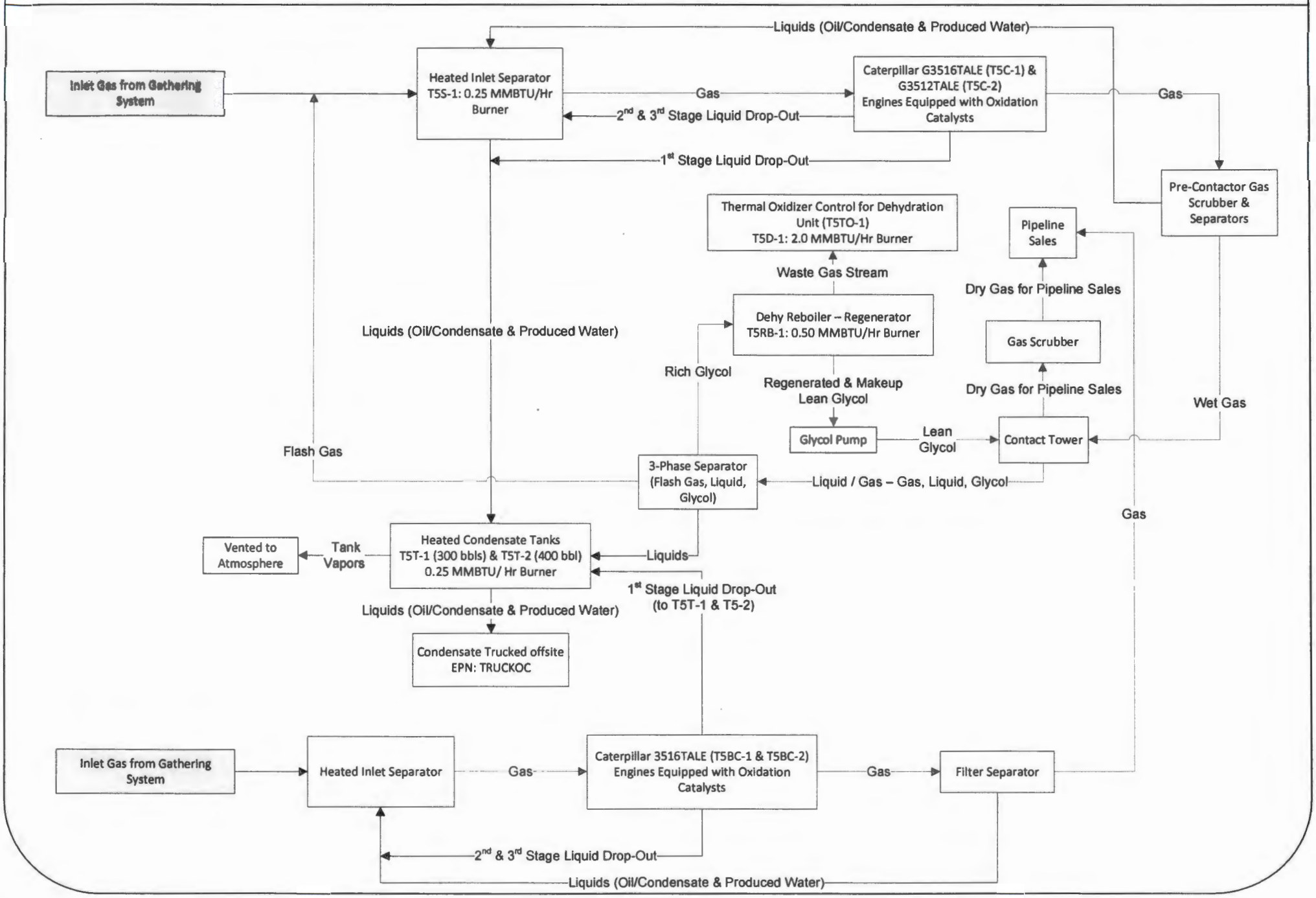
The Tap 5 Compressor Station is a natural gas compressor station consisting of the following equipment:

- One (1) inlet high pressure two-phase gas scrubber (separator)
- One (1) inlet low pressure gas scrubber (separator) and a 0.25 MMBTU/HR natural gas-fired heater (T5S-1)
- Three (3) Caterpillar G3516TALE compressor engine (T5C-1)
- One (1) Caterpillar G3512TALE compressor engine (T5C-2)
- One (1) Genset Capstone C65NG natural-gas fired engine driven generator (T5G-1)
- One (1) 300-barrel slop-tank (T5T-1) with a 0.25 mmBTU/hr tank heater
- One (1) 400-barrel slop-tank (T5T-2) with a 0.25 mmBTU/hr tank heater
- One (1) natural gas dehydrator with (T5D-1):
    - A maximum natural gas process flow of 40 MMSCFD natural gas, and
    - One (1) 0.50 MMBTU/HRr TEG reboiler heater (T5RB-1)
    - One Thermal Oxidizer (T5TO-1) with a 2.0 MMBTU/HR burner (T5D-1).

The basic process flow at the facility is as follows:

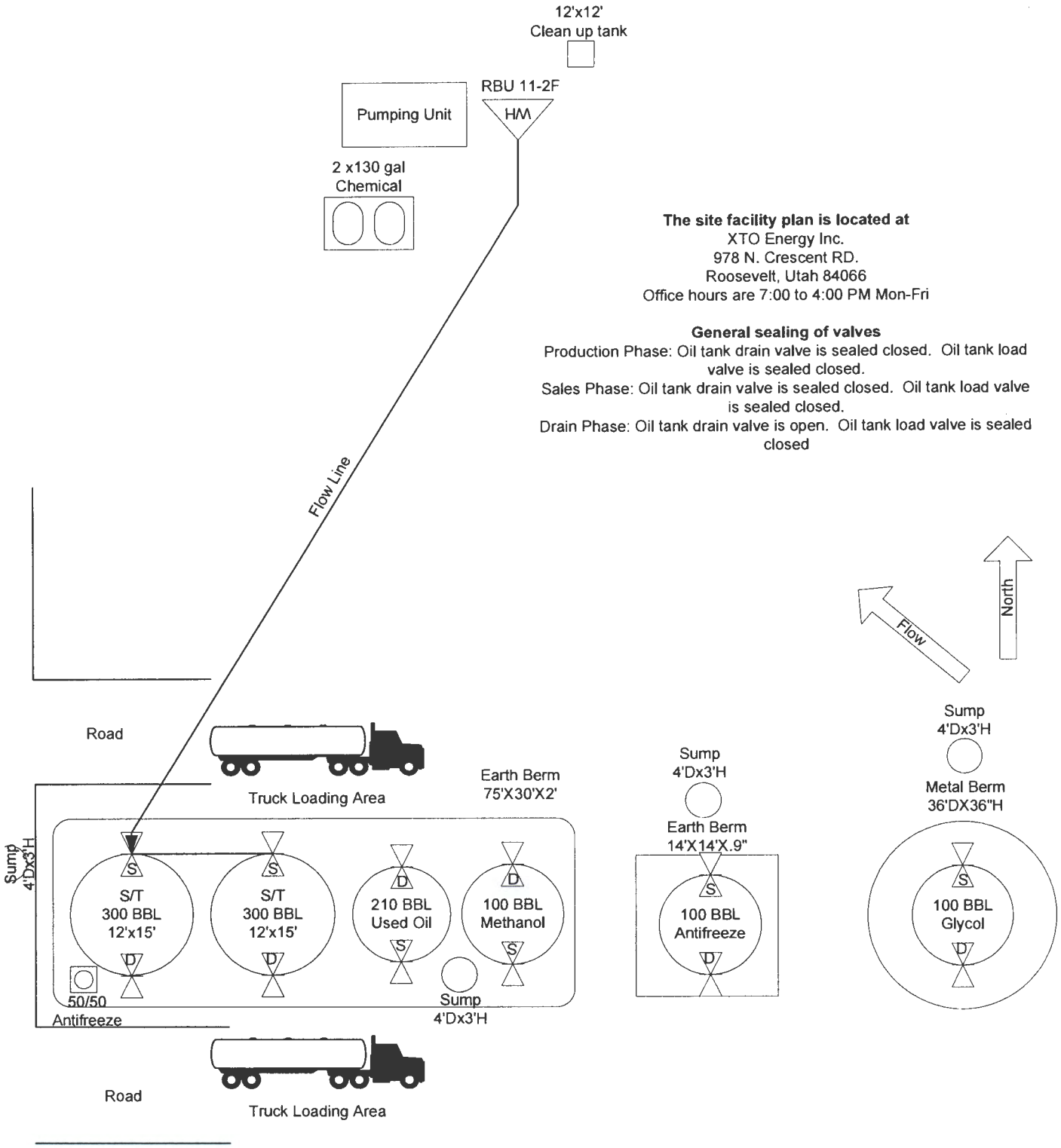
Natural gas produced from area wells and from the Little Canyon Compressor Station is sent to the Tap 5 Compressor Station through natural-gas gathering flowlines. The low pressure natural gas stream enters a low pressure inlet separator (scrubber) in order to reduce water and condensable liquids content in the gas stream prior to entry into the compressors (T5C-1 and T5C-2) and the dehydrator system. The high pressure natural gas stream enters a high pressure inlet separator (scrubber) in order to reduce water and condensable liquids content in the gas stream prior to entry into the compressor (T5BC-1 and T5BC-2). The liquids produced from the on-site separators are sent to the 300-barrel and 400-barrel on-site slop tanks (T5T-1 and T5T-2) for storage prior to being hauled offsite. The TEG natural gas dehydrator water removal system utilized for the low pressure natural gas stream consists of one (1) 40 MMSCFD natural gas TEG dehydrator with one (1) 0.50 MMBTU/HR TEG process heater (T5RB-1) with regenerator emissions controlled by a Thermal Oxidizer (T5TO-1). The station has on-site electrical power supplied by one (1) Genset Capstone C65NG natural-gas fired engine driven generator (T5G-1). In addition, the pneumatic control devices are operated by plant air supplied by the on-site electric-driven air compressor.

XTO Energy, Inc.
Tap 5 Compressor Station
Process Flow Diagram - PFD



RBU 11-2F
NE/SW Sec 2 T10S R20E
Unit # 891016035A
Lease # ML-10716
API # 4304730760
Uintah County, Utah
July 25, 2012

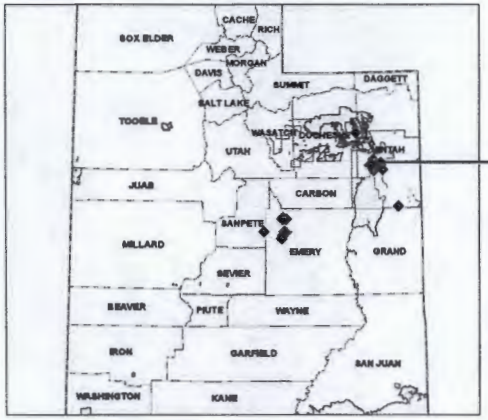
Tap #5
Compressor Area



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

SUMMIT COMP - ROOSEVELT TAP 5 (COMP. 1)



0 25 50 100 150 200 Miles

1:2,298,233

Utah compressors 2013

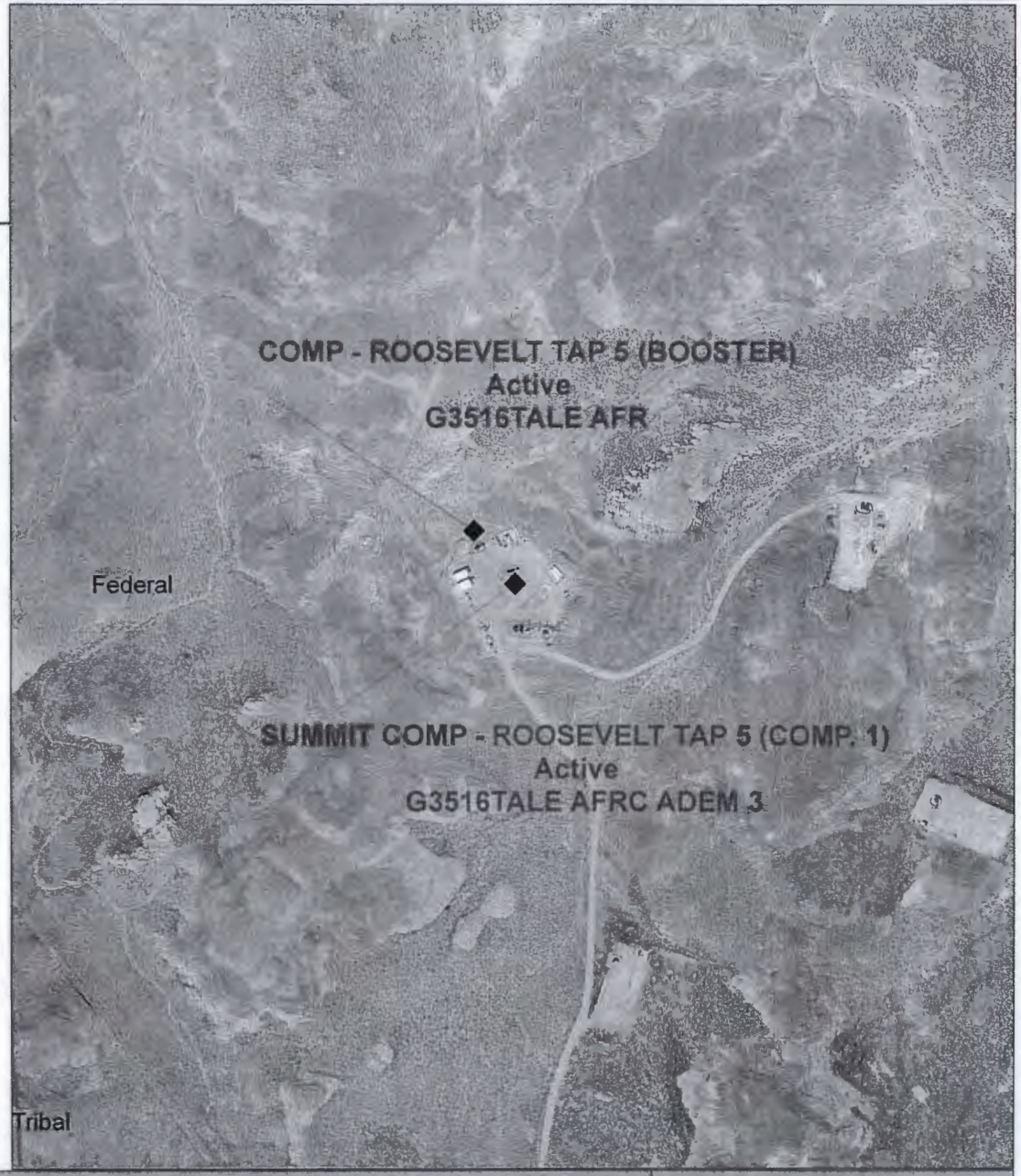
Indian Airshed

Land Ownership and Administration

STATE OF UTAH LEGEND

- Bureau of Land Management
- Bureau of Reclamation
- Bankhead-Jones Land Use Lands
- National Recreation Area
- National Parks, Monuments & Historic Sites
- National Forest
- National Wilderness Area
- National Wildlife Refuge
- Other Federal
- Military Reservations and Corps of Engineers
- Private
- State Trust Lands
- State Sovereign Land
- State Parks and Recreation
- State Wildlife Reserve/Management Area
- Other State
- Tribal Lands

Coordinate System: NAD 1983 StatePlane Utah Central FIPS 4302 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
False Easting: 1,640,416.6667
False Northing: 6,561,666.6667
Central Meridian: -111.5000
Standard Parallel 1: 39.0167
Standard Parallel 2: 40.6500
Latitude Of Origin: 38.3333
Units: Foot US



Date: 1/31/2013

N

1:1,690

0 0.05 0.1 0.2 0.3 0.4 Miles

Path: W:\EHS\ArcView GIS\AHCRAIGNEA_Roosevelt_Uintah\Uintah Indian Maps 2013\Utah_Compressors_wb.2013.mxd

DANIEL_STILSON@XTOENERGY.COM

Attachment # 10
Emission Calculations

XTO Energy, Inc.
Tap 5 Compressor Station
Fugitive Emissions

Fugitive Emission Calculations (Emission Unit ID: T5F-1)

Component Type	Service	Estimated Components Count	Hours	Factors	Total VOC Weight %	Emissions	
						lb/year	tons/year
Valves	Gas/Vapor	450	8760	0.00992000	6.23%	2434.4548	1.2172
	Light Oil	100	8760	0.00550000	45.29%	2182.1880	1.0911
	Heavy Oil	0	8760	0.00001900	45.29%	0.0000	0.0000
	Water/Light Oil	50	8760	0.00021600	45.29%	42.8502	0.0214
Pumps	Gas/Vapor	6	8760	0.00529000	6.23%	17.3095	0.0087
	Light Oil	3	8760	0.02866000	45.29%	341.1355	0.1706
	Heavy Oil	0	8760	0.00113000	45.29%	0.0000	0.0000
	Water/Light Oil	3	8760	0.00005300	45.29%	0.6309	0.0003
Flanges	Gas/Vapor	1200	8760	0.00086000	6.23%	562.8041	0.2814
	Light Oil	75	8760	0.00024300	45.29%	72.3098	0.0362
	Heavy Oil	0	8760	0.00000086	45.29%	0.0000	0.0000
	Water/Light Oil	50	8760	0.00000620	45.29%	1.2300	0.0006
Open-ended Lines	Gas/Vapor	15	8760	0.00441000	6.23%	36.0751	0.0180
	Light Oil	0	8760	0.00309000	45.29%	0.0000	0.0000
	Heavy Oil	0	8760	0.00030900	45.29%	0.0000	0.0000
	Water/Light Oil	5	8760	0.00055000	45.29%	10.9109	0.0055
Connectors	Gas/Vapor	250	8760	0.00044000	6.23%	59.9888	0.0300
	Light Oil	0	8760	0.00046300	45.29%	0.0000	0.0000
	Heavy Oil	0	8760	0.00001700	45.29%	0.0000	0.0000
	Water/Light Oil	50	8760	0.00024300	45.29%	48.2065	0.0241
Other[1]:	Gas/Vapor	30	8760	0.01940000	6.23%	317.3953	0.1587
	Light Oil	0	8760	0.01650000	45.29%	0.0000	0.0000
	Heavy Oil	0	8760	0.00006800	45.29%	0.0000	0.0000
	Water/Light Oil	5	8760	0.03090000	45.29%	612.9964	0.3065

	lb/hr	lb/year	TPY
Total VOC Emissions[2]	1.2	10110.7	3.4
HAPs[2]	0.0	255.3	0.1

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.

Tap 5 Compressor Station

Extended Gas Analysis

Conversion of Mole Percent to Weight Percent

Component	Mole %	MW	Mole % *MW	Weight %
Carbon Dioxide	0.3285	44.01	0.1446	0.824%
Nitrogen	0.2699	28.01	0.0756	0.431%
Hydrogen Sulfide	0.0000	34.02	0.0000	0.000%
Helium	0.0000	4.00	0.0000	0.000%
Methane	92.8716	16.04	14.8985	84.879%
Ethane	4.4607	30.07	1.3413	7.641%
Propane	1.2885	44.10	0.5682	3.237%
Iso-Butane	0.2433	58.12	0.1414	0.806%
N-Butane	0.2594	58.12	0.1508	0.859%
Iso-Pentane	0.0903	72.15	0.0652	0.371%
N-Pentane	0.0623	72.15	0.0450	0.256%
Methylcyclopentane	0.0000	86.00	0.0000	0.000%
n-Hexane	0.0190	86.18	0.0164	0.093%
Hexanes	0.0338	86.16	0.0291	0.166%
2,4-Dimethylpentane	0.0000	114.24	0.0000	0.000%
Methycyclohexane	0.0121	96.00	0.0116	0.066%
Benzene	0.0043	78.11	0.0034	0.019%
Cyclohexane	0.0082	84.51	0.0069	0.039%
Heptanes	0.0224	100.20	0.0224	0.128%
Toluene	0.0063	92.13	0.0058	0.033%
Ethylbenzene	0.0000	106.17	0.0000	0.000%
Xylenes	0.0045	106.17	0.0048	0.027%
Octanes	0.0100	114.23	0.0114	0.065%
Nonanes	0.0081	128.28	0.0104	0.059%
Decanes+	0.0000	223.02	0.0000	0.000%
Total	100.00	-	17.5527	100.000%

Molecular Weight	17.55	
Specific Gravity	0.6073	
Lower Heating Value	1065.7	
NMHC	2.4340	13.867%
VOCs (NMNEHC)	1.0927	6.225%
HAPs	0.0303	0.17%
H2S Mole Fraction	0.0000	0.000%
Total HC	17.3325	98.746%
THC:VOC Ratio	6.3046	6.305%

XTO Energy, Inc.

Tap 5 Compressor Station

Dehy Still Column - Emission Summary

Dehy Still Column Emissions (Emission Unit ID: T5D-1)

Emission Component	Uncontrolled Still Column		Controlled Still Column	
	lb/hr	TPY	lb/hr	TPY
Propane	0.5294	2.3188	0.0265	0.1159
H_2S	0.0000	0.0000	0.0000	0.0000
Iso-Butane	0.2250	0.9855	0.0113	0.0493
N-Butane	0.3558	1.5584	0.0178	0.0779
Iso-Pentane	0.1559	0.6828	0.0078	0.0341
N-Pentane	0.1516	0.6640	0.0076	0.0332
Methylcyclopentane	0.0000	0.0000	0.0000	0.0000
n-Hexane	0.1012	0.4433	0.0051	0.0222
Hexane +	0.1303	0.5707	0.0065	0.0285
2,2,4-Trimethylpentane	0.0064	0.0280	0.0003	0.0014
Methycyclohexane	0.3975	1.7411	0.0199	0.0871
Benzene	1.1090	4.8574	0.0555	0.2429
Cyclohexane	0.2212	0.9689	0.0111	0.0484
Heptanes	0.2662	1.1660	0.0133	0.0583
Toluene	2.7740	12.1501	0.1387	0.6075
Ethylbenzene	0.0000	0.0000	0.0000	0.0000
Xylenes	3.8095	16.6856	0.1905	0.8343
Octanes+	0.5093	2.2307	0.0255	0.1115

TOTAL EMISSION SUMMARY	**UNCONTROLLED**		**CONTROLLED**	
Emission Component	**lb/hr**	**TPY**	**lb/hr**	**TPY**
NMNEVOC (Includes TOTAL HAPs)	**10.7423**	**47.0513**	**0.5371**	**2.3526**
TOTAL HAPs	**7.7937**	**34.1364**	**0.3897**	**1.7068**

*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.

Tap 5 Compressor Station

Dehy Flash Tank - Emission Summary

Dehy Flash Tank Emissions

Emission Component	Uncontrolled Flash Tank		Controlled Flash Tank	
	lb/hr	TPY	lb/hr	TPY
Propane	0.6261	2.7423	0.0000	0.0000
H_2S	0.0000	0.0000	0.0000	0.0000
Iso-Butane	0.1654	0.7245	0.0000	0.0000
N-Butane	0.1932	0.8462	0.0000	0.0000
Iso-Pentane	0.0704	0.3084	0.0000	0.0000
N-Pentane	0.0535	0.2343	0.0000	0.0000
Methylcyclopentane	0.0000	0.0000	0.0000	0.0000
n-Hexane	0.0185	0.0810	0.0000	0.0000
Hexane +	0.0321	0.1406	0.0000	0.0000
2,2,4-Trimethylpentane	0.0011	0.0048	0.0000	0.0000
Methycyclohexane	0.0135	0.0591	0.0000	0.0000
Benzene	0.0060	0.0263	0.0000	0.0000
Cyclohexane	0.0101	0.0442	0.0000	0.0000
Heptanes	0.0222	0.0972	0.0000	0.0000
Toluene	0.0090	0.0394	0.0000	0.0000
Ethylbenzene	0.0000	0.0000	0.0000	0.0000
Xylenes	0.0045	0.0197	0.0000	0.0000
Octanes+	0.0041	0.0180	0.0000	0.0000

TOTAL EMISSION SUMMARY	**UNCONTROLLED**		**CONTROLLED**	
Emission Component	**lb/hr**	**TPY**	**lb/hr**	**TPY**
NMNEVOC (Includes TOTAL HAPs)	**1.2297**	**5.3861**	**0.0000**	**0.0000**
TOTAL HAPs	**0.0380**	**0.1664**	**0.0000**	**0.0000**

*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%

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Tap 5 Compressor Station T5D-1 - Uncontrolled
File Name: W:\EHS\Environmental\Air\Utah\Uintah County\Permits and Applications\Applications\Title V Permit Apps\Tap 5 and Tap 5 Booster\2013-April Modification\T5D-1 Dehy Uncontrolled - April 2013 Revision.ddf
Date: April 03, 2013

DESCRIPTION:

Description: Max Throughput - 40 MMSCFD
Gas Analysis: 06/15/2012
Kimray 21015 Glycol Pump @ 3.5 GPM
Overhead Gas is controlled via thermal oxidizer.
Flash Gas is closed loop system

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.5639	13.533	2.4698
Ethane	0.4789	11.495	2.0978
Propane	0.5294	12.705	2.3188
Isobutane	0.2250	5.401	0.9856
n-Butane	0.3558	8.538	1.5582
Isopentane	0.1559	3.741	0.6828
n-Pentane	0.1516	3.638	0.6638
n-Hexane	0.1012	2.428	0.4431
Cyclohexane	0.2212	5.310	0.9691
Other Hexanes	0.1303	3.127	0.5706
Heptanes	0.2662	6.389	1.1660
Methylcyclohexane	0.3975	9.541	1.7412
2,2,4-Trimethylpentane	0.0064	0.155	0.0282
Benzene	1.1090	26.615	4.8573
Toluene	2.7740	66.575	12.1500
Xylenes	3.8095	91.427	16.6854
C8+ Heavies	0.5093	12.224	2.2310
Total Emissions	11.7851	282.842	51.6187
Total Hydrocarbon Emissions	11.7851	282.842	51.6187
Total VOC Emissions	10.7423	257.814	47.0511
Total HAP Emissions	7.8000	187.200	34.1640
Total BTEX Emissions	7.6924	184.617	33.6927

Attachment # 2
Facility Emission Summary Table

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	5.9390	142.536	26.0129
Ethane	1.3226	31.742	5.7929
Propane	0.6261	15.026	2.7422
Isobutane	0.1654	3.970	0.7245
n-Butane	0.1932	4.638	0.8464
Isopentane	0.0704	1.689	0.3083
n-Pentane	0.0535	1.284	0.2343
n-Hexane	0.0185	0.443	0.0809
Cyclohexane	0.0101	0.243	0.0444
Other Hexanes	0.0321	0.771	0.1408
Heptanes	0.0222	0.533	0.0972
Methylcyclohexane	0.0135	0.324	0.0591
2,2,4-Trimethylpentane	0.0011	0.027	0.0049
Benzene	0.0060	0.144	0.0263
Toluene	0.0090	0.216	0.0394
Xylenes	0.0045	0.108	0.0197
C8+ Heavies	0.0041	0.098	0.0180
Total Emissions	8.4914	203.792	37.1921
Total Hydrocarbon Emissions	8.4914	203.792	37.1921
Total VOC Emissions	1.2298	29.514	5.3863
Total HAP Emissions	0.0391	0.938	0.1712
Total BTEX Emissions	0.0195	0.468	0.0854

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	6.5029	156.069	28.4827
Ethane	1.8015	43.237	7.8907
Propane	1.1555	27.731	5.0610
Isobutane	0.3904	9.370	1.7101
n-Butane	0.5490	13.176	2.4046
Isopentane	0.2263	5.430	0.9911
n-Pentane	0.2051	4.921	0.8981
n-Hexane	0.1196	2.871	0.5240
Cyclohexane	0.2314	5.553	1.0135
Other Hexanes	0.1624	3.898	0.7113
Heptanes	0.2884	6.922	1.2632
Methylcyclohexane	0.4110	9.865	1.8003
2,2,4-Trimethylpentane	0.0076	0.182	0.0332
Benzene	1.1150	26.759	4.8836
Toluene	2.7830	66.791	12.1894

Xylenes	3.8140	91.535	16.7052
C8+ Heavies	0.5135	12.323	2.2489
Total Emissions	20.2764	486.634	88.8108
Total Hydrocarbon Emissions	20.2764	486.634	88.8108
Total VOC Emissions	11.9720	287.328	52.4374
Total HAP Emissions	7.8391	188.138	34.3352
Total BTEX Emissions	7.7119	185.086	33.7781

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	28.4827	28.4827	0.00
Ethane	7.8907	7.8907	0.00
Propane	5.0610	5.0610	0.00
Isobutane	1.7101	1.7101	0.00
n-Butane	2.4046	2.4046	0.00
Isopentane	0.9911	0.9911	0.00
n-Pentane	0.8981	0.8981	0.00
n-Hexane	0.5240	0.5240	0.00
Cyclohexane	1.0135	1.0135	0.00
Other Hexanes	0.7113	0.7113	0.00
Heptanes	1.2632	1.2632	0.00
Methylcyclohexane	1.8003	1.8003	0.00
2,2,4-Trimethylpentane	0.0332	0.0332	0.00
Benzene	4.8836	4.8836	0.00
Toluene	12.1894	12.1894	0.00
Xylenes	16.7052	16.7052	0.00
C8+ Heavies	2.2489	2.2489	0.00
Total Emissions	88.8108	88.8108	0.00
Total Hydrocarbon Emissions	88.8108	88.8108	0.00
Total VOC Emissions	52.4374	52.4374	0.00
Total HAP Emissions	34.3352	34.3352	0.00
Total BTEX Emissions	33.7781	33.7781	0.00

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25
Calculated Dry Gas Dew Point: 1.71 lbs. H2O/MMSCF

Temperature: 80.0 deg. F
Pressure: 1070.0 psig
Dry Gas Flow Rate: 40.0000 MMSCF/day
Glycol Losses with Dry Gas: 0.3243 lb/hr
Wet Gas Water Content: Saturated
Calculated Wet Gas Water Content: 30.66 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio: 4.35 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	5.57%	94.43%
Carbon Dioxide	99.85%	0.15%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.97%	0.03%
Propane	99.95%	0.05%
Isobutane	99.94%	0.06%
n-Butane	99.92%	0.08%
Isopentane	99.92%	0.08%
n-Pentane	99.90%	0.10%
n-Hexane	99.83%	0.17%
Cyclohexane	99.24%	0.76%
Other Hexanes	99.87%	0.13%
Heptanes	99.71%	0.29%
Methylcyclohexane	99.21%	0.79%
2,2,4-Trimethylpentane	99.88%	0.12%
Benzene	92.44%	7.56%
Toluene	89.09%	10.91%
Xylenes	81.82%	18.18%
C8+ Heavies	99.50%	0.50%

FLASH TANK

Flash Control: Vented to atmosphere
Flash Temperature: 100.0 deg. F
Flash Pressure: 80.0 psig

Component	Left in Glycol	Removed in Flash Gas

Water	99.99%	0.01%
Carbon Dioxide	58.18%	41.82%
Nitrogen	8.41%	91.59%
Methane	8.67%	91.33%
Ethane	26.59%	73.41%
Propane	45.82%	54.18%
Isobutane	57.64%	42.36%
n-Butane	64.80%	35.20%
Isopentane	69.05%	30.95%
n-Pentane	74.04%	25.96%
n-Hexane	84.64%	15.36%
Cyclohexane	95.76%	4.24%
Other Hexanes	80.41%	19.59%
Heptanes	92.34%	7.66%
Methylcyclohexane	96.85%	3.15%
2,2,4-Trimethylpentane	85.43%	14.57%
Benzene	99.49%	0.51%
Toluene	99.70%	0.30%
Xylenes	99.90%	0.10%
C8+ Heavies	99.30%	0.70%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	37.96%	62.04%
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	0.72%	99.28%
n-Pentane	0.68%	99.32%
n-Hexane	0.59%	99.41%
Cyclohexane	3.34%	96.66%
Other Hexanes	1.24%	98.76%
Heptanes	0.54%	99.46%
Methylcyclohexane	4.13%	95.87%
2,2,4-Trimethylpentane	1.76%	98.24%
Benzene	5.03%	94.97%
Toluene	7.93%	92.07%
Xylenes	12.94%	87.06%
C8+ Heavies	12.11%	87.89%

STREAM REPORTS:

WET GAS STREAM

Temperature: 80.00 deg. F
Pressure: 1084.70 psia
Flow Rate: 1.67e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	6.46e-002	5.11e+001
Carbon Dioxide	3.28e-001	6.35e+002
Nitrogen	2.70e-001	3.32e+002
Methane	9.28e+001	6.54e+004
Ethane	4.46e+000	5.89e+003
Propane	1.29e+000	2.50e+003
Isobutane	2.43e-001	6.21e+002
n-Butane	2.59e-001	6.62e+002
Isopentane	9.02e-002	2.86e+002
n-Pentane	6.23e-002	1.97e+002
n-Hexane	1.90e-002	7.19e+001
Cyclohexane	8.19e-003	3.03e+001
Other Hexanes	3.38e-002	1.28e+002
Heptanes	2.24e-002	9.86e+001
Methylcyclohexane	1.21e-002	5.22e+001
2,2,4-Trimethylpentane	1.30e-003	6.52e+000
Benzene	4.30e-003	1.48e+001
Toluene	6.30e-003	2.55e+001
Xylenes	4.50e-003	2.10e+001
C8+ Heavies	1.36e-002	1.02e+002
Total Components	100.00	7.72e+004

DRY GAS STREAM

Temperature: 80.00 deg. F
Pressure: 1084.70 psia
Flow Rate: 1.67e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	3.60e-003	2.85e+000
Carbon Dioxide	3.28e-001	6.34e+002

Nitrogen	2.70e-001	3.32e+002
Methane	9.29e+001	6.54e+004
Ethane	4.46e+000	5.89e+003
Propane	1.29e+000	2.50e+003
Isobutane	2.43e-001	6.21e+002
n-Butane	2.59e-001	6.62e+002
Isopentane	9.02e-002	2.86e+002
n-Pentane	6.22e-002	1.97e+002
n-Hexane	1.90e-002	7.18e+001
Cyclohexane	8.14e-003	3.01e+001
Other Hexanes	3.38e-002	1.28e+002
Heptanes	2.23e-002	9.83e+001
Methylcyclohexane	1.20e-002	5.18e+001
2,2,4-Trimethylpentane	1.30e-003	6.52e+000
Benzene	3.98e-003	1.36e+001
Toluene	5.61e-003	2.27e+001
Xylenes	3.68e-003	1.72e+001
C8+ Heavies	1.35e-002	1.01e+002
Total Components	100.00	7.71e+004

LEAN GLYCOL STREAM

Temperature: 80.00 deg. F
Flow Rate: 3.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.94e+003
Water	1.50e+000	2.95e+001
Carbon Dioxide	4.79e-012	9.44e-011
Nitrogen	1.96e-013	3.86e-012
Methane	1.11e-017	2.18e-016
Ethane	4.32e-008	8.50e-007
Propane	2.39e-009	4.70e-008
Isobutane	5.95e-010	1.17e-008
n-Butane	6.91e-010	1.36e-008
Isopentane	5.77e-005	1.14e-003
n-Pentane	5.23e-005	1.03e-003
n-Hexane	3.05e-005	6.01e-004
Cyclohexane	3.88e-004	7.65e-003
Other Hexanes	8.33e-005	1.64e-003
Heptanes	7.36e-005	1.45e-003
Methylcyclohexane	8.70e-004	1.71e-002
2,2,4-Trimethylpentane	5.85e-006	1.15e-004
Benzene	2.98e-003	5.87e-002
Toluene	1.21e-002	2.39e-001
Xylenes	2.88e-002	5.66e-001

C8+ Heavies	3.56e-003	7.02e-002
Total Components	100.00	1.97e+003

RICH GLYCOL STREAM

Temperature: 80.00 deg. F
Pressure: 1084.70 psia
Flow Rate: 3.64e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.51e+001	1.94e+003
Water	3.82e+000	7.78e+001
Carbon Dioxide	4.63e-002	9.44e-001
Nitrogen	1.89e-003	3.86e-002
Methane	3.19e-001	6.50e+000
Ethane	8.84e-002	1.80e+000
Propane	5.67e-002	1.16e+000
Isobutane	1.92e-002	3.90e-001
n-Butane	2.69e-002	5.49e-001
Isopentane	1.12e-002	2.27e-001
n-Pentane	1.01e-002	2.06e-001
n-Hexane	5.90e-003	1.20e-001
Cyclohexane	1.17e-002	2.39e-001
Other Hexanes	8.05e-003	1.64e-001
Heptanes	1.42e-002	2.90e-001
Methylcyclohexane	2.10e-002	4.28e-001
2,2,4-Trimethylpentane	3.77e-004	7.68e-003
Benzene	5.76e-002	1.17e+000
Toluene	1.48e-001	3.02e+000
Xylenes	2.15e-001	4.38e+000
C8+ Heavies	2.86e-002	5.84e-001
Total Components	100.00	2.04e+003

FLASH TANK OFF GAS STREAM

Temperature: 100.00 deg. F
Pressure: 94.70 psia
Flow Rate: 1.70e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.03e-002	7.29e-003

Carbon Dioxide	2.00e+000	3.95e-001
Nitrogen	2.82e-001	3.54e-002
Methane	8.26e+001	5.94e+000
Ethane	9.81e+000	1.32e+000
Propane	3.17e+000	6.26e-001
Isobutane	6.35e-001	1.65e-001
n-Butane	7.42e-001	1.93e-001
Isopentane	2.18e-001	7.04e-002
n-Pentane	1.65e-001	5.35e-002
n-Hexane	4.78e-002	1.85e-002
Cyclohexane	2.69e-002	1.01e-002
Other Hexanes	8.32e-002	3.21e-002
Heptanes	4.94e-002	2.22e-002
Methylcyclohexane	3.07e-002	1.35e-002
2,2,4-Trimethylpentane	2.19e-003	1.12e-003
Benzene	1.71e-002	6.00e-003
Toluene	2.18e-002	9.00e-003
Xylenes	9.47e-003	4.51e-003
C8+ Heavies	5.37e-003	4.10e-003
Total Components	100.00	8.93e+000

FLASH TANK GLYCOL STREAM

Temperature: 100.00 deg. F
Flow Rate: 3.62e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.55e+001	1.94e+003
Water	3.84e+000	7.78e+001
Carbon Dioxide	2.71e-002	5.49e-001
Nitrogen	1.60e-004	3.24e-003
Methane	2.78e-002	5.64e-001
Ethane	2.36e-002	4.79e-001
Propane	2.61e-002	5.29e-001
Isobutane	1.11e-002	2.25e-001
n-Butane	1.75e-002	3.56e-001
Isopentane	7.74e-003	1.57e-001
n-Pentane	7.52e-003	1.53e-001
n-Hexane	5.01e-003	1.02e-001
Cyclohexane	1.13e-002	2.29e-001
Other Hexanes	6.50e-003	1.32e-001
Heptanes	1.32e-002	2.68e-001
Methylcyclohexane	2.04e-002	4.15e-001
2,2,4-Trimethylpentane	3.23e-004	6.56e-003
Benzene	5.75e-002	1.17e+000
Toluene	1.48e-001	3.01e+000

Xylenes	2.16e-001	4.38e+000
C8+ Heavies	2.86e-002	5.80e-001
Total Components	100.00	2.03e+003

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 1.09e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.35e+001	4.83e+001
Carbon Dioxide	4.35e-001	5.49e-001
Nitrogen	4.04e-003	3.24e-003
Methane	1.23e+000	5.64e-001
Ethane	5.56e-001	4.79e-001
Propane	4.19e-001	5.29e-001
Isobutane	1.35e-001	2.25e-001
n-Butane	2.14e-001	3.56e-001
Isopentane	7.54e-002	1.56e-001
n-Pentane	7.33e-002	1.52e-001
n-Hexane	4.09e-002	1.01e-001
Cyclohexane	9.17e-002	2.21e-001
Other Hexanes	5.27e-002	1.30e-001
Heptanes	9.27e-002	2.66e-001
Methylcyclohexane	1.41e-001	3.98e-001
2,2,4-Trimethylpentane	1.97e-003	6.45e-003
Benzene	4.95e-001	1.11e+000
Toluene	1.05e+000	2.77e+000
Xylenes	1.25e+000	3.81e+000
C8+ Heavies	1.04e-001	5.09e-001
Total Components	100.00	6.06e+001

XTO Energy, Inc.

Tap 5 Compressor Station

Total Thermal Oxidizer Emissions - All Sources Combined

Thermal Oxidizer Emission Summary Table (Emission Unit ID: T5TO-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]	T5TO-1	0.400	1.754	0.550	2.409	0.607	2.659	0.000	0.000	0.050	0.219	0.395	1.731

NOTE 1: Thermal Oxidizer emissions include dehydration still column emissions and pilot gas

XTO Energy, Inc.

Tap 5 Compressor Station

Thermal Oxidizer - Products of Combustion

Thermal Oxidizer - Products of Combustion Calculations (Emission Unit ID: T5TO-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	6.67	0.0600	0.0824	0.0075	0.400	0.550	0.050	1.754	2.409	0.219

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

XTO Energy, Inc.

Tap 5 Compressor Station

Thermal Oxidizer - Pilot Gas

Thermal Oxidizer Pilot Gas Emissions (Emission Unit ID: T5TO-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	1111.4	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	1.677	0.070	0.306
Total HAPs	0.000	0.134	0.006	0.025
Sulfur Dioxide	0.000	0.000	0.000	0.000
Hydrogen Sulfide	0.000	0.000	0.000	0.000
Propane	0.000	0.704	0.029	0.129
Iso-Butane	0.000	0.176	0.007	0.032
N-Butane	0.000	0.267	0.011	0.049
Iso-Pentane	0.000	0.142	0.006	0.026
N-Pentane	0.000	0.113	0.005	0.021
n-Hexane	0.000	0.134	0.006	0.025
Hexanes	0.000	0.000	0.000	0.000
Benzene	0.000	0.000	0.000	0.000
Cyclohexane	0.000	0.000	0.000	0.000
Heptanes	0.000	0.091	0.004	0.017
Toluene	0.000	0.000	0.000	0.000
Ethylbenzene	0.000	0.000	0.000	0.000
Xylenes	0.000	0.000	0.000	0.000
Octanes	0.000	0.042	0.002	0.008
Nonanes	0.000	0.008	0.000	0.002
Decanes+	0.000	0.000	0.000	0.000

Calculations Based on Ideal Gas Law

XTO Energy, Inc.
Tap 5 Compressor Station
Compressor Engine and Generators

Emission Calculations - Uncontrolled Compressor Engine & Generators

Criteria and Regulated Pollutants

								Emission Data - Manufacturer Specifications[1] g/hp-hr				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 (LHV)[1]	Heat Rating MMbtu/hr	Fuel Usage MMscf/yr	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 G3516 TALE Compressor Engine (Uncontrolled)	TSC-1	8760	1340	1111.4	0.008518	11.41	89.97	1.50	2.61	0.71	0.24	0.000588	0.00991	4.43	7.71	2.10	0.71	0.01	0.11	19.41	33.77	9.19	3.11	0.03	0.50
Caterpillar G3512 TALE Compressor Engine (Uncontrolled)	TSC-2	8760	860	1111.4	0.008552	7.35	57.97	2.00	2.56	0.70	0.27	0.000588	0.00991	3.79	4.85	1.33	0.51	0.00	0.07	16.61	21.26	5.81	2.24	0.02	0.32
Caterpillar G3512 TALE Compressor Engine (Uncontrolled)	TSBC-1	8760	1340	1111.4	0.008527	11.43	90.06	2.00	2.60	0.71	0.24	0.000588	0.00991	5.91	7.68	2.10	0.71	0.01	0.11	25.88	33.64	9.19	3.11	0.03	0.50
Caterpillar G3516 TALE Compressor Engine (Uncontrolled)	TSBC-2	8760	1340	1111.4	0.007682	10.29	81.14	1.50	2.75	0.89	0.34	0.000588	0.00991	4.43	8.12	2.63	1.00	0.01	0.10	19.41	35.58	11.52	4.40	0.03	0.45
Caterpillar G3516 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint[2]	600	1340	1111.4	0.00900	12.06	6.51	2.00	2.75	0.89	0.34	0.000588	0.00991	5.91	8.12	2.63	1.00	0.01	0.12	1.77	2.44	0.79	0.30	0.00	0.04
Caterpillar G3512 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint[2]	200	860	1111.4	0.007766	6.68	1.20	2.00	2.56	0.70	0.27	0.000588	0.00991	3.79	4.85	1.33	0.51	0.00	0.07	0.38	0.49	0.13	0.05	0.00	0.01
Genset Capstone C65NG	TSG-1	8760	87	1111.4	0.000766	0.07	0.53	0.16	2.04	0.03	0.04	0.000588	0.00991	0.03	0.39	0.01	0.01	0.00	0.00	0.13	1.71	0.03	0.03	0.00	0.00

NOTE 1: Fuel Consumption and Emissions Data are based on manufacturer specifications worst-case value

NOTE 2: Engine maintenance assumed 200 hours / engine. Emission Data is represented as worst case emission spec from the engines

Total Emissions Per Pollutant (TPY)	NOx	CO	VOC	HCHO	SO_2	$PM_{10\ \&\ 2.5}$
	83.59	**128.59**	**36.65**	**13.24**	**0.11**	**1.80**

XTO Energy, Inc.
Tap 5 Compressor Station
Compressor Engine and Generators

Emission Calculations - Uncontrolled 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 (LHV)1	Heat Rating MMbtu/hr	Fuel Usage MMscf/yr	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein
Caterpillar G3516 TALE Compressor Engine (Uncontrolled)	TSC-1	8760	1340	1111.36	0.008518	11.41	89.97	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	0.095	0.059	0.022	0.020	0.002	0.009	0.418	0.257
Caterpillar G3512 TALE Compressor Engine (Uncontrolled)	TSC-2	8760	860	1111.36	0.008552	7.35	57.97	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	0.061	0.038	0.014	0.013	0.001	0.006	0.269	0.166
Caterpillar G3512 TALE Compressor Engine (Uncontrolled)	T5BC-1	8760	1340	1111.36	0.008527	11.43	90.06	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	0.020	0.002	0.009	0.418	0.257
Caterpillar G3516 TALE Compressor Engine (Uncontrolled)	T5BC-2	8760	1340	1111.36	0.007682	10.29	81.14	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.005	0.004	0.000	0.002	0.086	0.053	0.020	0.018	0.002	0.008	0.377	0.232
Caterpillar G3516 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint[1]	600	1340	1111.36	0.009000	12.06	6.51	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	0.101	0.062	0.002	0.001	0.000	0.001	0.030	0.019
Caterpillar G3512 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint[3]	200	860	1111.36	0.007766	6.68	1.20	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	0.056	0.034	0.000	0.000	0.000	0.000	0.006	0.003
Genset Capstone C65NG	TSG-1	8760	87	1111.36	0.000766	0.07	0.53	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	0.001	0.000	0.000	0.000	0.000	0.000	0.002	0.002

Total Emissions Per Pollutant (TPY)	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein
	0.08	0.07	0.01	0.03	1.52	0.94

XTO Energy, Inc.
Tap 5 Compressor Station
Compressor Engine and Generators

Emission Calculations - Controlled Compressor Engine & Generators

Criteria and Regulated Pollutants

								Emission Data (See Note - Manufacturer, Consent Decree, BLM, and / or NSPS JJJJ limits) g/hp-hr				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 (LHV)	Heat Rating MMbtu/hr	Fuel Usage MMscf/yr	NO_x[1]	CO[1]	VOC[2]	HCHO[2]	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 G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5C-1	8760	1340	1111.4	0.007778	10.42	82.15	1.50	2.00	1.00	0.30	0.000588	0.00991	4.43	5.91	2.95	0.89	0.01	0.10	19.41	25.88	12.94	3.88	0.03	0.45
Caterpillar G3512 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5C-2	8760	860	1111.4	0.007766	6.68	52.64	1.50	2.00	1.00	0.30	0.000588	0.00991	2.84	3.79	1.90	0.57	0.00	0.07	12.46	16.61	8.30	2.49	0.02	0.29
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5BC-1	8760	1340	1111.4	0.007730	10.36	81.65	1.50	2.00	1.00	0.30	0.000588	0.00991	4.43	5.91	2.95	0.89	0.01	0.10	19.41	25.88	12.94	3.88	0.03	0.45
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5BC-2	8760	1340	1111.4	0.007682	10.29	81.14	1.50	2.00	1.00	0.30	0.000588	0.00991	4.43	5.91	2.95	0.89	0.01	0.10	19.41	25.88	12.94	3.88	0.03	0.45
Caterpillar G3516 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint[3]	600	1340	1111.4	0.007778	10.42	5.63	1.50	2.00	1.00	0.30	0.000588	0.00991	4.43	5.91	2.95	0.89	0.01	0.10	1.33	1.77	0.89	0.27	0.00	0.03
Caterpillar G3512 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint[3]	200	860	1111.4	0.007766	6.68	1.20	1.50	2.00	1.00	0.30	0.000588	0.00991	2.84	3.79	1.90	0.57	0.00	0.07	0.28	0.38	0.19	0.06	0.00	0.01
Genset Capstone C65NG	T5G-1	8760	87	1111.4	0.000766	0.07	0.53	0.16	2.04	0.03	0.04	0.000588	0.00991	0.03	0.39	0.01	0.01	0.00	0.00	0.13	1.71	0.03	0.03	0.00	0.00

NOTE 1: NO_x limits is based on Consent Decree and BLM NO_x requirements of 1.5 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 maintenance assumes 200 hrs per engine.

Total Emissions Per Pollutant (TPY)	NOx	CO	VOC	HCHO	SO_2	$PM_{10 \& 2.5}$
	72.43	98.11	68.22	14.49	0.10	1.68

XTO Energy, Inc.
Tap 5 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 (LHV)	Heat Rating MMbtu/hr	Fuel Usage MMscf/yr	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5C-1	8760	1340	1111.36	0.007778	10.42	82.15	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.005	0.004	0.000	0.002	0.087	0.054	0.020	0.019	0.002	0.008	0.382	0.235
Caterpillar G3512 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5C-2	8760	860	1111.36	0.007766	6.68	52.64	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	0.056	0.034	0.013	0.012	0.001	0.005	0.245	0.150
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5BC-1	8760	1340	1111.36	0.007730	10.36	81.65	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.005	0.004	0.000	0.002	0.087	0.053	0.020	0.019	0.002	0.008	0.379	0.233
Caterpillar G3516 TALE Compressor Engine (Controlled by Oxidation Catalyst)	T5BC-2	8760	1340	1111.36	0.007682	10.29	81.14	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.005	0.004	0.000	0.002	0.086	0.053	0.020	0.018	0.002	0.008	0.377	0.232
Caterpillar G3516 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint[1]	600	1340	1111.36	0.007778	10.42	5.63	4.40E-04	4.08E-04	3.97E-05	1.84E-04	8.36E-03	5.14E-03	0.005	0.004	0.000	0.002	0.087	0.054	0.001	0.001	0.000	0.001	0.026	0.016
Caterpillar G3512 TALE Compressor Engine: Engine Break In Period (Uncontrolled)	ENG Maint[1]	200	860	1111.36	0.007766	6.68	1.20	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	0.056	0.034	0.000	0.000	0.000	0.000	0.006	0.003
Genset Capstone C65NG	T5G-1	8760	87	1111.36	0.000766	0.07	0.53	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	0.001	0.000	0.000	0.000	0.000	0.000	0.002	0.002

	Benzene	Toluene	E-Benzene	Xylene	Acetaldehyde	Acrolein
Total Emissions Per Pollutant (TPY)	0.07	0.07	0.01	0.03	1.42	0.87

XTO Energy, Inc.

Tap 5 Compressor Station

Fuel Gas Analysis

Conversion of Mole Percent to Weight Percent

Component	Mole %	MW	Mole % *MW	Weight %
Carbon Dioxide	0.3387	44.01	0.149	0.008
Nitrogen	0.2118	28.01	0.059	0.003
Hydrogen Sulfide	0.0000	34.02	0.000	0.000
Helium	0.0000	4.00	0.000	0.000
Methane	91.5660	16.04	14.689	0.814
Ethane	4.8616	30.07	1.462	0.081
Propane	1.6036	44.10	0.707	0.039
Iso-Butane	0.3040	58.11	0.177	0.010
N-Butane	0.4609	58.12	0.268	0.015
Iso-Pentane	0.1983	72.14	0.143	0.008
N-Pentane	0.1569	72.14	0.113	0.006
Methylcyclopentane	0.0000	86.00	0.000	0.000
n-Hexane	0.1567	86.05	0.135	0.007
Hexane +	0.0000	84.05	0.000	0.000
2,4-Dimethylpentane	0.0000	96.00	0.000	0.000
Methycyclohexane	0.0000	96.00	0.000	0.000
Benzene	0.0000	78.37	0.000	0.000
Cyclohexane	0.0000	84.07	0.000	0.000
Heptanes	0.0975	93.22	0.091	0.005
Toluene	0.0000	92.01	0.000	0.000
Ethylbenzene	0.0000	111.47	0.000	0.000
Xylenes	0.0000	99.52	0.000	0.000
Octanes+	0.0373	111.77	0.042	0.002
Nonanes+	0.0067	125.12	0.008	0.000
Decanes+	0.0000	116.11	0.000	0.000
Total	100.00	-	18.04	1.000

Molecular Weight	18.04	
Relative Density	0.6247	
Gross WET BTU	1111.36	
NMHC	3.1456	17.434%
VOCs (NMNEHC)	1.6837	9.332%
HAPs	0.1348	0.75%
H2S Mole Fraction	0.0000	0.000%
Total HC	17.8346	98.845%
THC:VOC Ratio	9.4407	9.441%

NOTE: FUEL GAS ANALYSIS TAKEN VIA WINTMC - ACTUAL ON 04/05/2013

XTO Energy, Inc.
Tap 5 Compressor Station
Oil/Condensate Storage Tanks

Emissions Calculations - Oil/Condensate Tanks (T5T-1 & T5T-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	
0.080	lb/hr	0.007	lb/hr
0.351	tpy	0.030	tpy

Total Uncontrolled Emissions - Emission Rates Per Tank			
Uncontrolled VOC Emissions		Uncontrolled HAP Emissions	
0.040	lb/hr	0.004	lb/hr
0.176	tpy	0.015	tpy

**Tank Emissions are based off of E&P Tanks AP-42 & Low Pressure Oil Methods*

```
*****************************************************************************************
*     Project Setup Information                                                         *
*****************************************************************************************
Project File               : W:\EHS\Environmental\Air\Utah\Uintah County\Permits and Applications\Applications\Ti
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                 : Tap 5 Compressor Station - PTE Calculations
Well Name                  : 60 BOPD (30 BOPD / TANK)
Well ID                    : Sample Date = 1/8/2013
Date                       : 2013.04.04


*****************************************************************************************
*     Data Input                                                                        *
*****************************************************************************************

Separator Pressure         : 25.00[psig]
Separator Temperature      : 40.00[F]
Ambient Pressure           : 14.70[psia]
Ambient Temperature        : 70.00[F]
C10+ SG                    : 0.8363
C10+ MW                    : 255.681

-- Low Pressure Oil ----------------------------------------------------------------------
   No.    Component              mol %
   1      H2S                    0.0000
   2      O2                     0.0000
   3      CO2                    0.0300
   4      N2                     0.0080
   5      C1                     0.4210
   6      C2                     0.4100
   7      C3                     0.8690
   8      i-C4                   0.6140
   9      n-C4                   1.3360
   10     i-C5                   1.9410
   11     n-C5                   2.6170
   12     C6                     2.8470
   13     C7                    26.2750
   14     C8                    37.6150
   15     C9                    11.4550
   16     C10+                   4.7110
   17     Benzene                1.4480
   18     Toluene                0.6890
   19     E-Benzene              0.2220
   20     Xylenes                0.5360
   21     n-C6                   5.9560
   22     224Trimethylp          0.0000

-- Sales Oil -----------------------------------------------------------------------------
Production Rate            : 60[bbl/day]
Days of Annual Operation   : 365 [days/year]
API Gravity                : 60.72
Reid Vapor Pressure        : 7.00[psia]


*****************************************************************************************
*     Calculation Results                                                               *
*****************************************************************************************

-- Emission Summary ----------------------------------------------------------------------
Item                 Uncontrolled   Uncontrolled
                     [ton/yr]       [lb/hr]
```

Total HAPs	0.030	0.007
Total HC	0.731	0.167
VOCs, C2+	0.448	0.102
VOCs, C3+	0.351	0.080

Uncontrolled Recovery Info.

Vapor	57.5800 x1E-3	[MSCFD]
HC Vapor	54.6100 x1E-3	[MSCFD]
GOR	0.96	[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	0.023	0.005
4	N2	0.026	0.006
5	C1	0.283	0.065
6	C2	0.097	0.022
7	C3	0.084	0.019
8	i-C4	0.030	0.007
9	n-C4	0.046	0.011
10	i-C5	0.032	0.007
11	n-C5	0.032	0.007
12	C6	0.015	0.003
13	C7	0.052	0.012
14	C8	0.027	0.006
15	C9	0.003	0.001
16	C10+	0.000	0.000
17	Benzene	0.005	0.001
18	Toluene	0.001	0.000
19	E-Benzene	0.000	0.000
20	Xylenes	0.000	0.000
21	n-C6	0.025	0.006
22	224Trimethylp	0.000	0.000
	Total	0.781	0.178

-- 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	0.0286	0.0280	1.8474	1.8472	1.8473
4	N2	28.01	0.0080	0.0055	0.0044	3.3133	3.3153	3.3139
5	C1	16.04	0.4210	0.3723	0.3529	63.6246	63.6216	63.6237
6	C2	30.07	0.4100	0.4014	0.3979	11.6293	11.6265	11.6285
7	C3	44.10	0.8690	0.8644	0.8626	6.8308	6.8296	6.8305
8	i-C4	58.12	0.6140	0.6130	0.6126	1.8819	1.8814	1.8817
9	n-C4	58.12	1.3360	1.3348	1.3344	2.8494	2.8492	2.8493
10	i-C5	72.15	1.9410	1.9413	1.9414	1.5988	1.5986	1.5988
11	n-C5	72.15	2.6170	2.6178	2.6181	1.5861	1.5861	1.5861
12	C6	86.16	2.8470	2.8487	2.8494	0.6338	0.6338	0.6338
13	C7	100.20	26.2750	26.2938	26.3012	1.9364	1.9364	1.9364
14	C8	114.23	37.6150	37.6433	37.6546	0.8706	0.8706	0.8706
15	C9	128.28	11.4550	11.4638	11.4672	0.0912	0.0967	0.0927
16	C10+	255.68	4.7110	4.7146	4.7161	0.0000	0.0000	0.0000
17	Benzene	78.11	1.4480	1.4489	1.4493	0.2326	0.2328	0.2326
18	Toluene	92.13	0.6890	0.6895	0.6897	0.0308	0.0309	0.0308
19	E-Benzene	106.17	0.2220	0.2222	0.2222	0.0033	0.0033	0.0033
20	Xylenes	106.17	0.5360	0.5364	0.5366	0.0068	0.0068	0.0068
21	n-C6	86.18	5.9560	5.9598	5.9613	1.0330	1.0331	1.0331
22	224Trimethylp	114.24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	MW		108.50	108.56	108.58	28.11	28.11	28.11
	Stream Mole Ratio		1.0000	0.9992	0.9989	0.0008	0.0003	0.0011
	Heating Value	[BTU/SCF]				1552.37	1552.62	1552.44
	Gas Gravity	[Gas/Air]				0.97	0.97	0.97
	Bubble Pt. @ 100F	[psia]	19.90	18.23	17.57			

RBU 11-02F Wellsite Emissions Summary and Calculations

XTO Energy, Inc.

Tap 5 Compressor Station

RBU 11-02F Wellsite Summary - All Sources Combined

RBU 11-02F 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
RBU 11-02F Wellsite Condensate Tank Heaters	RBUH-1 & RBUH-2	0.112	0.493	0.094	0.414	0.006	0.027	0.001	0.003	0.009	0.037	0.002	0.009
RBU 11-02F Wellsite Fugitive Emissions	RBUF-1	-	-	-	-	0.318	1.393	-	-	-	-	0.016	0.069
RBU 11-02F Wellsite Condensate Tank Emissions	RBUTK-1 & RBUTK-2	-	-	-	-	1.190	5.213	-	-	-	-	0.002	0.008
RBU 11-02 Wellsite Condensate Truckloading Emissions	RBUTRUCKOC	-	-	-	-	21.328	0.865	-	-	-	-	-	-
RBU 11-02F Wellsite Pumping Unit (Arrow C-66 Pre-July 2008)	PU	0.641	2.808	0.178	0.778	0.015	0.064	-	-	0.002	0.007	0.003	0.000
Total RBU 11-02 Emissions for Wellsite	**RBU 11-02F Wellsite**	**0.754**	**3.301**	**0.272**	**1.192**	**22.857**	**7.562**	**0.001**	**0.003**	**0.010**	**0.044**	**0.023**	**0.087**

XTO Energy, Inc.

Tap 5 Compressor Station

RBU 11-02F Wellsite - Reboiler & Heater Burner Calculations

RBU Heaters & Reboiler Emission Calculations (EPN: RBU 11-02F 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	$PM_{10\&25}$	NOx	CO	VOC	SO_2	$PM_{10\&25}$	NOx	CO	VOC	SO_2	$PM_{10\&25}$
RBU 11-02F Wellsite TK-1	1111.35999	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
RBU 11-02F Wellsite TK-2	1111.35999	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

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

***Burners - 80% Efficiency**

Total (tpy)	NOx	CO	VOC	SO_2	$PM_{10\&25}$
	0.493	**0.414**	**0.027**	**0.003**	**0.037**

XTO Energy, Inc.

Tap 5 Compressor Station

RBU 11-02F Wellsite - Reboiler & Heater Burner Calculations

RBU Heaters & Reboiler Emission Calculations (EPN: RBU 11-02F 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.
RBU 11-02F Wellsite TK-1	1111.35999	8760	0.500	0.0021	0.0034	1.8	0.0750	0.0012	0.000001	0.000002	0.001012	0.000042	0.000001	0.000005	0.000008	0.004434	0.000185	0.000003
RBU 11-02F Wellsite TK-2	1111.35999	8760	0.500	0.0021	0.0034	1.8	0.0750	0.0012	0.000001	0.000002	0.001012	0.000042	0.000001	0.000005	0.000008	0.004434	0.000185	0.000003

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

***Burners - 80% Efficiency**

Total Individual HAPS (tpy)	Benzene	Toluene	Hexane	HCHO	Diclorobenz.
	0.000010	0.000017	0.008868	0.000369	0.000006

Total Combined HAPS (tpy)	0.00927

XTO Energy, Inc.
Tap 5 Compressor Station
RBU 11-02F Wellsite - Fugitive Emissions

Fugitive Emission Calculations (EPN: RBU 11-02F Wellsite)

Component Type	Service	Estimated Components Count	Hours	Factors	Total VOC Weight %	Emissions	
						lb/year	tons/year
Valves	Gas/Vapor	75	8760	0.00992000	6.23%	405.7425	0.2029
	Light Oil	10	8760	0.00550000	45.29%	218.2188	0.1091
	Heavy Oil	0	8760	0.00001900	45.29%	0.0000	0.0000
	Water/Light Oil	3	8760	0.00021600	45.29%	2.5710	0.0013
Pumps	Gas/Vapor	3	8760	0.00529000	6.23%	8.6547	0.0043
	Light Oil	1	8760	0.02866000	45.29%	113.7118	0.0569
	Heavy Oil	0	8760	0.00113000	45.29%	0.0000	0.0000
	Water/Light Oil	0	8760	0.00005300	45.29%	0.0000	0.0000
Flanges	Gas/Vapor	150	8760	0.00086000	6.23%	70.3505	0.0352
	Light Oil	15	8760	0.00024300	45.29%	14.4620	0.0072
	Heavy Oil	0	8760	0.00000086	45.29%	0.0000	0.0000
	Water/Light Oil	10	8760	0.00000620	45.29%	0.2460	0.0001
Open-ended Lines	Gas/Vapor	0	8760	0.00441000	6.23%	0.0000	0.0000
	Light Oil	0	8760	0.00309000	45.29%	0.0000	0.0000
	Heavy Oil	0	8760	0.00030900	45.29%	0.0000	0.0000
	Water/Light Oil	0	8760	0.00055000	45.29%	0.0000	0.0000
Connectors	Gas/Vapor	10	8760	0.00044000	6.23%	2.3996	0.0012
	Light Oil	10	8760	0.00046300	45.29%	18.3701	0.0092
	Heavy Oil	0	8760	0.00001700	45.29%	0.0000	0.0000
	Water/Light Oil	10	8760	0.00024300	45.29%	9.6413	0.0048
Other:	Gas/Vapor	5	8760	0.01940000	6.23%	52.8992	0.0264
	Light Oil	5	8760	0.01650000	45.29%	327.3282	0.1637
	Heavy Oil	0	8760	0.00006800	45.29%	0.0000	0.0000
	Water/Light Oil	5	8760	0.03090000	45.29%	612.9964	0.3065

Total VOC Emissions	lb/hr	lb/year	TPY
	0.318	2786.388	1.393
HAPs	0.016	138.765	0.069

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.
Tap 5 Compressor Station
RBU 11-02F Wellsite - Tanks - Working & Breathing

Emissions Calcs - Tanks W&B Losses (EPN: RBU 11-02F Wellsite)

Average BOPD	Number of Condensate Tanks	Emissions Controlled (Yes/No)	Control Type (Flare, VRU, etc)
40	2	No	N/A

Total Controlled Emissions - All Tanks Combined[1]			
Controlled VOC Emissions		Controlled HAP Emissions	
0.041	lb/hr	0.002	lb/hr
0.180	tpy	0.008	tpy

Total Controlled Emissions - Emission Rates Per Tank[1]			
Controlled VOC Emissions		Controlled HAP Emissions	
0.021	lb/hr	0.0009	lb/hr
0.090	tpy	0.0040	tpy

** Working and Breathing Emissions are based off of TANKS 4.0*

**Note 1: Includes 100% Safety Factor on W&B Emissions*

XTO Energy, Inc.

Tap 5 Compressor Station

RBU 11-02F Wellsite - Flash Emissions - Oil / Condensate Tanks

Daily Production	40	BOPD	
Gas-to-Oil Ratio	24.506	SCF / Barrel (GOR)	(Actual Analysis + 100% Safety Factor)
Quanitiy Released	980.24	(BOPD * GOR)	
Duration	24	Hours/Day	Flare Emission Factors
Flared	No	(Yes/No)	NOx: 0.138
Vented	Yes	(Yes/No)	CO: 0.2755
BTU	1557.6		

Component	Estimated Quantity Vented (lb/day)	Total Estimated Quantity Emitted (lb/day)	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
Carbon Monoxide	0.000	0.000	0.000	0.000
NOx	0.000	0.000	0.000	0.000
VOCs	27.578	27.578	1.149	5.033
Sulfur Dioxide	0.000	0.000	0.000	0.000
Carbon Dioxide	0.470	0.470	0.020	0.086
Nitrogen	0.000	0.000	0.000	0.000
Hydrogen Sulfide	0.000	0.000	0.000	0.000
Helium	0.000	0.000	0.000	0.000
Methane	24.285	24.285	1.012	4.432
Ethane	15.969	15.969	0.665	2.914
Propane	11.021	11.021	0.459	2.011
Iso-Butane	3.401	3.401	0.142	0.621
N-Butane	4.182	4.182	0.174	0.763
Iso-Pentane	2.052	2.052	0.085	0.374
N-Pentane	1.670	1.670	0.070	0.305
Methlyclycopentane	0.000	0.000	0.000	0.000
n-Hexane	1.170	1.170	0.049	0.214
Hexane +	0.000	0.000	0.000	0.000
2,4-Dimethylpentane	0.000	0.000	0.000	0.000
Methycyclohexane	0.000	0.000	0.000	0.000
Benzene	0.954	0.954	0.040	0.174
Cyclohexane	0.000	0.000	0.000	0.000
n-Heptane	0.956	0.956	0.040	0.174
Toluene	0.616	0.616	0.026	0.112
Ethylbenzene	0.030	0.030	0.001	0.005
Xylenes	0.292	0.292	0.012	0.053
Octanes+	0.997	0.997	0.042	0.182
Nonanes+	0.238	0.238	0.010	0.043
Decanes+	0.000	0.000	0.000	0.000
PM	0.000	0.000	0.000	0.000

Calculations Based on API Methodology

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

Identification		
User Identification:	RBU 11-02F Wellsite PTE	
City:	Salt Lake City	
State:	Utah	
Company:	XTO Energy, Inc.	
Type of Tank:	Vertical Fixed Roof Tank	
Description:	PTE Based on 20 BOPD	
Tank Dimensions		
Shell Height (ft):		20.00
Diameter (ft):		12.00
Liquid Height (ft) :		18.00
Avg. Liquid Height (ft):		10.00
Volume (gallons):		15,228.53
Turnovers:		20.13
Net Throughput(gal/yr):		306,600.00
Is Tank Heated (y/n):	Y	
Paint Characteristics		
Shell Color/Shade:	Gray/Medium	
Shell Condition:	Good	
Roof Color/Shade:	Gray/Medium	
Roof Condition:	Good	
Roof Characteristics		
Type:	Cone	
Height (ft)		1.00
Slope (ft/ft) (Cone Roof)		0.17
Breather Vent Settings		
Vacuum Settings (psig):		0.00
Pressure Settings (psig)		0.00

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

RBU 11-02F Wellsite PTE - 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 6)	All	0.00	0.00	0.00	0.00	0.7163	0.7163	0.7163	69.0000			92.00	Option 4: RVP=6, ASTM Slope=3

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

RBU 11-02F Wellsite PTE - Vertical Fixed Roof Tank
Salt Lake City, Utah

Annual Emission Calcaulations

Standing Losses (lb)	0 0000
Vapor Space Volume (cu ft)	1,168 6725
Vapor Density (lb/cu ft)	0 0100
Vapor Space Expansion Factor:	0 0000
Vented Vapor Saturation Factor	0 7182
Tank Vapor Space Volume	
Vapor Space Volume (cu ft)	1,168 6725
Tank Diameter (ft)	12 0000
Vapor Space Outage (ft)	10 3333
Tank Shell Height (ft)	20 0000
Average Liquid Height (ft)	10 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 0100
Vapor Molecular Weight (lb/lb-mole)	69 0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	0 7163
Daily Avg Liquid Surface Temp (deg R)	459 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)	459 6700
Tank Paint Solar Absorptance (Shell)	0 6800
Tank Paint Solar Absorptance (Roof)	0 6800
Daily Total Solar Insulation Factor (Btu/sqft day)	1,452 1184
Vapor Space Expansion Factor	
Vapor Space Expansion Factor	0 0000
Daily Vapor Temperature Range (deg R)	0 0000
Daily Vapor Pressure Range (psia)	0 0000
Breather Vent Press Setting Range(psia)	0 0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	0 7163
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia)	0 7163
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia)	0 7163
Daily Avg Liquid Surface Temp (deg R)	459 6700
Daily Min Liquid Surface Temp (deg R)	459 6700
Daily Max Liquid Surface Temp (deg R)	459 6700
Daily Ambient Temp. Range (deg R)	23 3583
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor	0 7182
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	0 7163
Vapor Space Outage (ft)	10 3333
Working Losses (lb)	360 8069
Vapor Molecular Weight (lb/lb-mole)	69 0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	0 7163
Annual Net Throughput (gal/yr)	306,600 0000
Annual Turnovers	20 1333
Turnover Factor	1 0000
Maximum Liquid Volume (gal)	15,228 5332
Maximum Liquid Height (ft)	18 0000
Tank Diameter (ft)	12 0000
Working Loss Product Factor	1 0000
Total Losses (lb)	360 8069

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

Emissions Report for: Annual

RBU 11-02F Wellsite PTE - Vertical Fixed Roof Tank
Salt Lake City, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 6)	360.81	0.00	360.81

XTO Energy, Inc.

Tap 5 Compressor Station

RBU 11-02F Wellsite - Truck Loading Losses - Condensate

Truck Loading Losses Calculations (EPN: RBU 11-02F Wellsite)

Average BOPD	**40**

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

Saturation Factor (S) =	0.6
True Vapor Pressure of liquid loaded (P) =	4.0
Temperature of bulk liquid loaded in Rankin (T) =	530
Molecular Weight (M)[1] =	50.00
Control Efficiency * Collection Efficiency (EFF)=	0
LL (lb Total HC / bbl Throughput) =	0.1185
LL (lb VOC / bbl Throughput) =	**0.1185**
Estimated Throughput (bbls/Year) =	14600
Truck Loading Rate (bbls/hour) =	180
Estimated # of Loads (Approximately 1 hr/Load) =	81

Total VOC Emissions	lb/hr	TPY
	21.33	0.86

[1]Molecular Weight is AP-42 Table 7.1-2 using Crude Oil RVP 5.

XTO Energy, Inc.
Tap 5 Compressor Station
RBU 11-02F Wellsite - Pumping Unit Emissions

Emission Calculations - Pumping Unit (EPN: RBU 11-02F Wellsite)

					Manufacturer's Data g/hp-hr			AP-42 Factors lb/MMBtu	lb/hr				tpy			
Unit Description	EPN	Yearly Operatig Hours	Rated HP	MMbtu/hp-hr (HHV)	NOx	CO	VOC*	$PM_{10 \& 2.5}$	NOx	CO	VOC*	$PM_{10 \& 2.5}$	NOx	CO	VOC*	$PM_{10 \& 2.5}$
RBU 11-02F Wellsite Pumping Unit (Arrow C-66 Pre-July 2008)	PU	8760	20	0.008038	14.54	4.03	0.33	0.00991	0.64	0.18	0.01	0.00	2.81	0.78	0.06	0.01

Total Emissions Per Pollutant (TPY)	NOx	CO	VOC*	$PM_{10 \& 2.5}$
	2.81	0.78	0.06	0.01

					AP-42 Factors lb/MMBtu				lb/hr				tpy			
Unit Description	EPN	Yearly Operatig Hours	Rated HP	MMbtu/hp-hr (HHV)	Benzene	Acetaldehyde	HCHO	Acrolein	Benzene	Acetaldehyde	HCHO	Acrolein	Benzene	Acetaldehyde	HCHO	Acrolein
RBU 11-02F Wellsite Pumping Unit (Arrow C-66 Pre-July 2008)	PU	8760	13	0.008038	4.40E-04	2.79E-03	2.05E-02	2.63E-03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00

Total Emissions Per Pollutant (TPY)	Benzene	Toluene	E-Benzene	Acrolein
	0.00	0.00	0.01	0.00

Total Emissions Per Pollutant (TPY) HAPs	0.012

XTO Energy, Inc.

Tap 5 Compressor Station

RBU 11-02F Wellsite - E&P Tanks Total Emission Stream Gas Analysis

Tank Vapors - Conversion of Mole Percent to Weight Percent

Component	Mole %	MW	Mole % *MW	Weight %
Carbon Dioxide	0.4200	44.01	0.1848	0.688%
Nitrogen	0.0000	28.01	0.0000	0.000%
Hydrogen Sulfide	0.0000	34	0.0000	0.000%
Helium	0.0000	4	0.0000	0.000%
Methane	59.5270	16.04	9.5481	35.555%
Ethane	20.8800	30.07	6.2786	23.380%
Propane	9.8260	44.1	4.3333	16.136%
Iso-Butane	2.3010	58.12	1.3373	4.980%
N-Butane	2.8290	58.12	1.6442	6.123%
Iso-Pentane	1.1180	72.15	0.8066	3.004%
N-Pentane	0.9100	72.15	0.6566	2.445%
Methylcyclopentane	0.0000	86	0.0000	0.000%
n-Hexane	0.5340	86.16	0.4601	1.713%
Hexane +	0.0000	86.18	0.0000	0.000%
2,2,4-Trimethylpentane	0.0000	114.24	0.0000	0.000%
Methycyclohexane	0.0000	96	0.0000	0.000%
Benzene	0.4800	78.11	0.3749	1.396%
Cyclohexane	0.0000	84	0.0000	0.000%
Heptanes	0.3750	100.2	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	188.1	0.0000	0.000%
Total	99.9980	-	-	100.000%

Molecular Weight	26.8545	
Spec. Gravity	0.9331	
Real WET BTU	1557.6	
NMHC	17.1215	63.757%
VOCs (NMNEHC)	10.8429	40.376%
HAPs	1.2037	4.48%
H2S Mole Fraction	0.0000	0.000%
Total HC	26.6696	99.312%
THC:VOC Ratio	40.6563	40.656%

** Based on a representative sample.*

Attachment # 11
Engine Manufacturer Data

G3516 LE

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA

Uinta Cat 3516LE – TAP 5 Compressor #1 (T5C-1)

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	[illegible]	[illegible]	[illegible]	[illegible]
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

[illegible]			
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.			

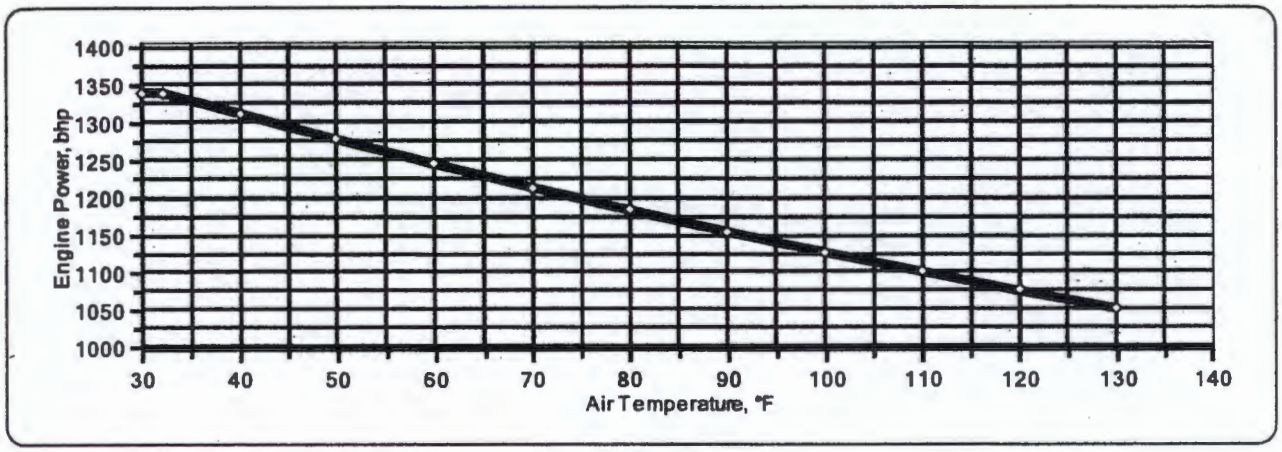
CONDITIONS AND DEFINITIONS

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.

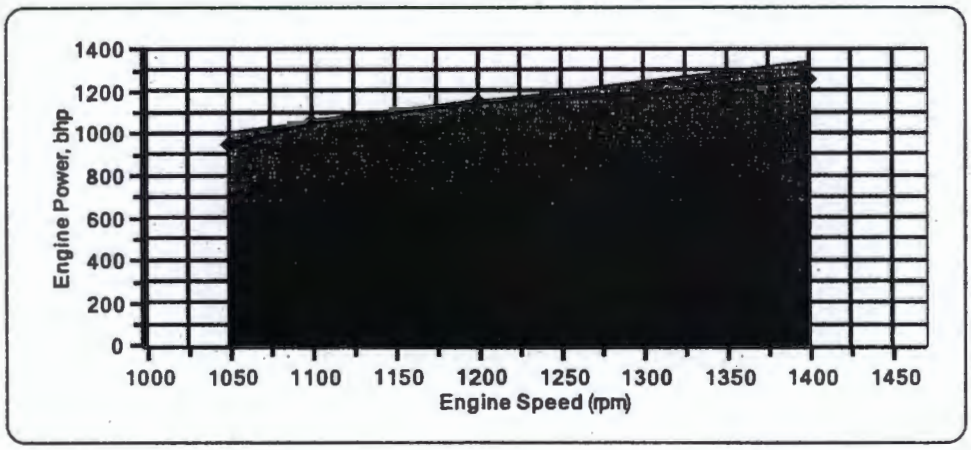
For notes information consult page three.

PREPARED BY: craig allison, XTO
Data generated by Gas Engine Rating Pro Version 3.02.00
Ref. Data Set DM8618-00-001, Printed 03Apr2009

Engine Power vs. Inlet Air Temperature

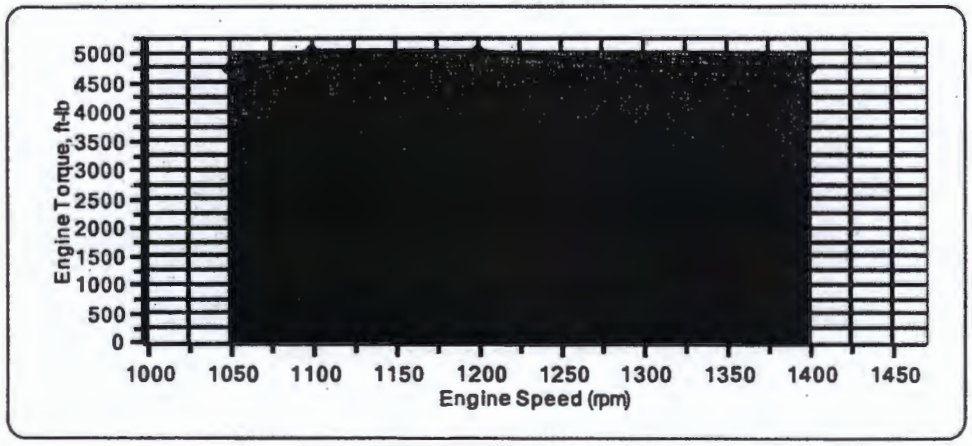


Engine Power vs. Engine Speed



- Max Power vs. Speed Capability for Site Conditions
- Full Continuous Operating Range at Standard Conditions
- Low Load Intermittent Operating Range

Engine Torque vs. Engine Speed



- Max Torque vs. Speed Capability for Site Conditions
- Full Continuous Operating Range at Standard Conditions
- Low Load Intermittent Operating Range

PREPARED BY: craig allison, XTO
Data generated by Gas Engine Rating Pro Version 3.02.00
Ref. Data Set DM8618-00-001, Printed 03Apr2009

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.

XTO Energy, Inc.

Tap 5 Compressor Station

SSM Gas Analysis - Compressor Blowdowns

Conversion of Mole Percent to Weight Percent

Component	Mole %	MW	Mole % *MW	Weight %
Carbon Dioxide	0.3285	44.0150	0.1446	0.824%
Nitrogen	0.2699	28.0137	0.0756	0.431%
Hydrogen Sulfide	0.0000	34.0193	0.0000	0.000%
Helium	0.0000	4.0000	0.0000	0.000%
Methane	92.8716	16.0420	14.8985	84.879%
Ethane	4.4607	30.0685	1.3413	7.641%
Propane	1.2885	44.1000	0.5682	3.237%
Iso-Butane	0.2433	58.1200	0.1414	0.806%
N-Butane	0.2594	58.1200	0.1508	0.859%
Iso-Pentane	0.0903	72.1500	0.0652	0.371%
N-Pentane	0.0623	72.1517	0.0450	0.256%
Methylcyclopentane	0.0000	86.0000	0.0000	0.000%
n-Hexane	0.0190	86.1800	0.0164	0.093%
Hexane +	0.0338	86.1600	0.0291	0.166%
2,4-Dimethylpentane	0.0000	114.2400	0.0000	0.000%
Methycyclohexane	0.0121	96.0000	0.0116	0.066%
Benzene	0.0043	78.1100	0.0034	0.019%
Cyclohexane	0.0082	84.5062	0.0069	0.039%
Heptanes	0.0224	100.2000	0.0224	0.128%
Toluene	0.0063	92.1300	0.0058	0.033%
Ethylbenzene	0.0000	106.1700	0.0000	0.000%
Xylenes	0.0045	106.1700	0.0048	0.027%
Octanes+	0.0100	114.2300	0.0114	0.065%
Nonanes+	0.0081	128.2800	0.0104	0.059%
Decanes+	0.0000	223.0200	0.0000	0.000%
Total	100.00	-	-	100.000%

Molecular Weight	17.55	
Specific Gravity	0.6073	
Gross WET BTU	1065.7	
NMHC	2.4340	13.867%
VOCs (NMNEHC)	1.0927	6.225%
HAPs	0.0303	0.17%
H2S Mole Fraction	0.0000	0.000%
Total HC	17.3325	98.746%
THC:VOC Ratio	6.3046	6.305%

RVP @ 100F	[psia]	7.90	7.44	7.33
Spec. Gravity @ 100F		0.669	0.669	0.669

XTO Energy, Inc.

Tap 5 Compressor Station

Liquid Flash Analysis

Conversion of Mole Percent to Weight Percent

Component	Mole %	MW	Mole % * MW	Weight %
Carbon Dioxide	1.7490	44.01	0.7698	3.003%
Nitrogen	3.6260	28.01	1.0158	3.963%
Hydrogen Sulfide	0.0000	34.02	0.0000	0.000%
Helium	0.0000	4.00	0.0000	0.000%
Methane	68.1710	16.04	10.9360	42.665%
Ethane	11.0030	30.07	3.3084	12.907%
Propane	5.9560	44.10	2.6266	10.247%
Iso-Butane	1.6240	58.12	0.9439	3.682%
N-Butane	2.3770	58.12	1.3815	5.390%
Iso-Pentane	1.2780	72.15	0.9221	3.597%
N-Pentane	1.3070	72.15	0.9430	3.679%
Methylcyclopentane	0.0000	86.00	0.0000	0.000%
n-Hexane	0.0000	86.18	0.0000	0.000%
Hexanes	1.1510	86.16	0.9917	3.869%
2,2,4-Trimethylpentane	0.0000	114.24	0.0000	0.000%
Methycyclohexane	0.0000	96.00	0.0000	0.000%
Benzene	0.1930	78.11	0.1508	0.588%
Cyclohexane	0.0000	84.51	0.0000	0.000%
Heptanes	1.0370	100.20	1.0391	4.054%
Toluene	0.0240	92.13	0.0221	0.086%
Ethylbenzene	0.0020	106.17	0.0021	0.008%
Xylenes	0.0040	106.17	0.0042	0.017%
Octanes+	0.4550	114.23	0.5197	2.028%
Nonanes+	0.0430	128.28	0.0552	0.215%
Decanes+	0.0000	223.02	0.0000	0.000%
Total	100.00	-	25.63	100.000%

Molecular Weight	25.63	
NMHC	12.9104	50.368%
VOCs (NMNEHC)	9.6020	37.461%
HAPs	0.1792	0.70%
H2S Mole Fraction	0.0000	0.000%
Total HC	23.8464	93.034%
THC:VOC Ratio	40.2659	40.266%

XTO Energy, Inc.

Tap 5 Compressor Station

E&P Tanks Output - Condensate Tank Vapors

Conversion of Mole Percent to Weight Percent

Component	Mole %	MW	Mole % *MW	Weight %
Carbon Dioxide	1.8473	44.01	0.8130	2.880%
Nitrogen	3.3139	28.01	0.9282	3.288%
Hydrogen Sulfide	0.0000	34.80	0.0000	0.000%
Helium	0.0000	4.00	0.0000	0.000%
Methane	63.6237	16.04	10.2052	36.152%
Ethane	11.6285	30.07	3.4967	12.387%
Propane	6.8305	44.10	3.0123	10.671%
Iso-Butane	1.8817	58.12	1.0936	3.874%
N-Butane	2.8493	58.12	1.6560	5.866%
Iso-Pentane	1.5988	72.15	1.1535	4.086%
N-Pentane	1.5861	72.15	1.1444	4.054%
Methylcyclopentane	0.0000	86.00	0.0000	0.000%
n-Hexane	1.0331	86.18	0.8903	3.154%
Hexane +	0.6338	86.16	0.5461	1.935%
2,2,4-Trimethylpentane	0.0000	114.24	0.0000	0.000%
Methycyclohexane	0.0000	96.00	0.0000	0.000%
Benzene	0.0000	78.11	0.0000	0.000%
Cyclohexane	0.2326	84.00	0.1954	0.692%
Heptanes	1.9374	100.20	1.9413	6.877%
Toluene	0.0308	92.13	0.0284	0.101%
Ethylbenzene	0.0033	106.17	0.0035	0.012%
Xylenes	0.0068	106.17	0.0072	0.026%
Octanes+	0.8706	114.23	0.9945	3.523%
Nonanes+	0.0927	128.28	0.1189	0.421%
Decanes+	0.0000	285.18	0.0000	0.000%
Total	100.001	-	28.2285	100.000%

Molecular Weight	28.23	
Specific Gravity	0.762	
Gross WET BTU	1272.28	
NMHC	16.2821	57.679%
VOCs (NMNEHC)	12.7854	45.292%
HAPs	0.9294	3.29%
H2S Mole Fraction	0.0000	0.000%
Total HC	26.4873	93.832%
THC:VOC Ratio	48.2698	48.270%

XTO Energy, Inc.

Tap 5 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) =	4.0
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) =	0.1231
LL (lb VOC / bbl Throughput) =	**0.1231**
Estimated Throughput (bbls/Year) =	21900
Truck Loading Rate (bbls/hour) =	180
Estimated # of Loads (Approximately 1 hr/Load) =	122

Total VOC Emissions	lb/hr	TPY
	22.16	1.35

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.

Tap 5 Compressor Station

Reboiler & Heater Burner Calculations

Reboiler & Heater Calculations (Emission Unit ID: T5HTR)

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	$PM_{10\&25}$	NOx	CO	VOC	SO_2	$PM_{10\&25}$	NOx	CO	VOC	SO_2	$PM_{10\&25}$
Condensate Tank Emissions	T5T-1	1111.35999	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	T5T-2	1111.35999	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	T5D-1	1111.35999	8760	2.000	100	84	5.5	0.6	7.6	0.225	0.189	0.012	0.001	0.017	0.985	0.828	0.054	0.006	0.075
Separator Heater	T5S-1	1111.35999	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	T5RB-1	1111.35999	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

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

***Burners - 80% Efficiency**

Total (tpy)	NOx	CO	VOC	SO_2	$PM_{10\&25}$
	1.601	**1.345**	**0.088**	**0.010**	**0.122**

XTO Energy, Inc.

Tap 5 Compressor Station

Reboiler & Heater Burner Calculations

Reboiler & Heater Calculations (Emission Unit ID: T5HTR)

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	1111.35999	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	0.002217	0.000092	0.000001
Condensate Tank #2 Heater	T5TH-2	1111.35999	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	0.002217	0.000092	0.000001
Thermal Oxidizer Heater / Burner	T5TOH-1	1111.35999	8760	2.000	0.0021	0.0034	1.8	0.0750	0.0012	0.000005	0.000008	0.004049	0.000169	0.000003	0.000021	0.000033	0.017735	0.000739	0.000012
Separator Heater	T5SH-1	1111.35999	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	0.002217	0.000092	0.000001
Dehydrator Reboiler	T5RB-1	1111.35999	8760	0.500	0.0021	0.0034	1.8	0.0750	0.0012	0.000001	0.000002	0.001012	0.000042	0.000001	0.000005	0.000008	0.004434	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)	**0.000034**	**0.000054**	**0.028819**	**0.001201**	**0.000011**

Total Combined HAPS (tpy)	**0.03013**

XTO Energy, Inc.

Tap 5 Compressor Station

Pigging Emissions

Pig Launching & Receiving - Emission Calculations

Pig Launcher & Reciever Information		
Volume of the Pipeline	12723.45	ft^3
Volume of Gas in Pipeline Under Pressure[1]	56000.49	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	17.55	lb/lb-mole
Compressibility Factor	0.9976	Z
VOC Weight Percent	6.23%	Percent
HAP Weight Percent	0.17%	Percent
Ending Gas Density (ρ_2)[2]	0.0446	lb/ft^3
Starting Gas Density (ρ_1)[3]	0.1965	lb/ft^3
Density (ρ_{TOTAL})[4]	0.1518	lb/ft^3

Emission Calculations		
Density (ρ_{TOTAL})	0.1518	lb/ft^3
Estimated Max Amount of Gas Vented[5]	1931.83	lbs/Event
Estimated Number of Pig Launching & Receiving	24	Events/Year
Estimated Total Amount of Gas Released	46363.89	lbs/Year
Estimated Total Amount of Gas Released	23.18	Tons/Year

Estimated Total Emissions		
Total VOC Emissions (Includes Total HAPs)	2886.38	lbs/Year
	120.27	lbs/event[1]
	1.44	Tons/Year
Total HAPs Emissions	80.07	lbs/Year
	3.34	lbs/event[1]
	0.04	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.
Tap 5 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	1065.7	(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)	7.939	7.939	7.939	1.985
Total HAPs	0.220	0.220	0.220	0.055
H_2S	0.000	0.000	0.000	0.000

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

G3512 LE

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA
Uintah County Cat 3512LE 1200 rpm

CATERPILLAR®

ENGINE SPEED (rpm):	1200	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:	Gas Analysis
COOLING SYSTEM:	JW+OC, AC	FUEL PRESSURE RANGE(psig):	35.0-40.0
IGNITION SYSTEM:	ADEM3	FUEL METHANE NUMBER:	62.7
EXHAUST MANIFOLD:	ASWC	FUEL LHV (Btu/scf):	1004
COMBUSTION:	Low Emission	ALTITUDE(ft):	5800
NOx EMISSION LEVEL (g/bhp-hr NOx):	2.0	MAXIMUM INLET AIR TEMPERATURE(°F):	55
SET POINT TIMING:	27.5	NAMEPLATE RATING:	860 bhp@1200rpm

RATING	NOTES	LOAD	[illegible]	[illegible]	[illegible]	[illegible]
ENGINE POWER	(1)	bhp	860	826	619	430
INLET AIR TEMPERATURE		°F	46	55	55	55

ENGINE DATA						
FUEL CONSUMPTION (LHV)	(2)	Btu/bhp-hr	7721	7766	8072	8552
FUEL CONSUMPTION (HHV)	(2)	Btu/bhp-hr	8543	8593	8931	9462
AIR FLOW	(3)(4)	lb/hr	8237	7924	6027	4310
AIR FLOW WET (77°F, 14.7 psia)	(3)(4)	scfm	1858	1787	1359	972
INLET MANIFOLD PRESSURE	(5)	in Hg(abs)	66.1	63.9	50.4	37.5
EXHAUST STACK TEMPERATURE	(6)	°F	856	854	846	842
EXHAUST GAS FLOW (@ stack temp, 14.5 psia)	(7)(4)	ft3/min	4922	4731	3582	2557
EXHAUST GAS MASS FLOW	(7)(4)	lb/hr	8565	8241	6274	4492

EMISSIONS DATA						
NOx (as NO2)	(8)	g/bhp-hr	2.00	2.00	2.00	2.00
CO	(8)	g/bhp-hr	2.44	2.45	2.49	2.56
THC (mol. wt. of 15.84)	(8)	g/bhp-hr	2.70	2.72	2.92	3.22
NMHC (mol. wt. of 15.84)	(8)	g/bhp-hr	0.63	0.64	0.68	0.75
NMNEHC (VOCs) (mol. wt. of 15.84)	(8)(9)	g/bhp-hr	0.36	0.36	0.39	0.43
HCHO (Formaldehyde)	(8)	g/bhp-hr	0.24	0.24	0.25	0.27
CO2	(8)	g/bhp-hr	512	514	525	549
EXHAUST OXYGEN	(10)	% DRY	8.3	8.3	8.2	7.9

HEAT REJECTION						
HEAT REJ. TO JACKET WATER (JW)	(11)	Btu/min	28799	28326	24479	20240
HEAT REJ. TO ATMOSPHERE	(11)	Btu/min	3643	3547	2964	2429
HEAT REJ. TO LUBE OIL (OC)	(11)	Btu/min	4295	4224	3651	3019
HEAT REJ. TO AFTERCOOLER (AC)	(11)(12)	Btu/min	6706	6706	3570	1302

HEAT EXCHANGER SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+OC)	(12)	Btu/min	36832
TOTAL AFTERCOOLER CIRCUIT (AC)	(12)(13)	Btu/min	7042
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 3.03.00
Ref. Data Set DM8619-01-001, Printed 20Aug2009

›nstituent	Abbrev	Mole %	Norm
ater Vapor	H20	0.0000	0.0000
›thane	CH4	87.2731	87.3407
›ane	C2H6	5.7403	5.7447
opane	C3H8	2.4248	2.4267
›butane	iso-C4H10	0.4875	0.4879
›tane	nor-C4H10	0.6023	0.6028
›ntane	iso-C5H12	0.2070	0.2072
›rpentane	nor-C5H12	0.1622	0.1623
›xane	C6H14	0.1193	0.1194
›ptane	C7H16	0.0961	0.0962
trogen	N2	1.5674	1.5686
›rbon Dioxide	CO2	1.2207	1.2216
›drogen Sulfide	H2S	0.0000	0.0000
›rbon Monoxide	CO	0.0000	0.0000
›drogen	H2	0.0000	0.0000
›ygen	O2	0.0000	0.0000
›lium	HE	0.0000	0.0000
›opentane	neo-C5H12	0.0000	0.0000
›tane	C8H18	0.0219	0.0219
›nane	C9H20	0.0000	0.0000
hylene	C2H4	0.0000	0.0000
›opylene	C3H6	0.0000	0.0000
›TAL (Volume %)		99.9226	100.0000

Fuel Makeup:	Gas Analysis
Unit of Measure:	English
Calculated Fuel Properties	
Caterpillar Methane Number:	62.7
Lower Heating Value (Btu/scf):	1004
Higher Heating Value (Btu/scf):	1111
WOBBE Index (Btu/scf):	1242
THC: Free Inert Ratio:	34.84
RPC (%) (To 905 Btu/scf Fuel):	100%
Compressibility Factor:	0.997
Stoich A/F Ratio (Vol/Vol):	10.45
Stoich A/F Ratio (Mass/Mass):	16.01
Specific Gravity (Relative to Air):	0.653
Specific Heat Constant (K):	1.300

›NDITIONS AND DEFINITIONS

›terpillar 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 ›cified. A Fuel Usage Guide for each rating is included on page 2 of its standard technical data sheet.

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

›ject 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.

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

›terpillar 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.

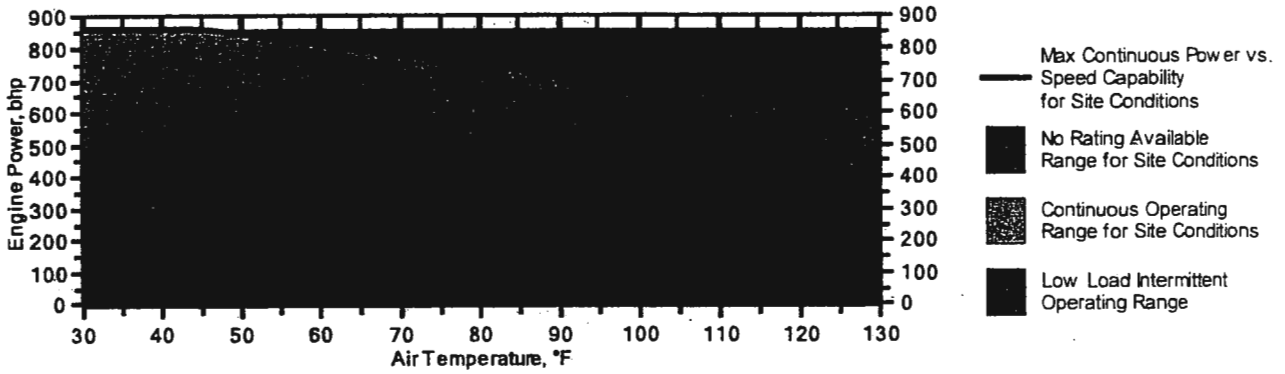
›EL LIQUIDS

›ld 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 ›st 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 ›l in accordance with local codes and standards.

›id 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.

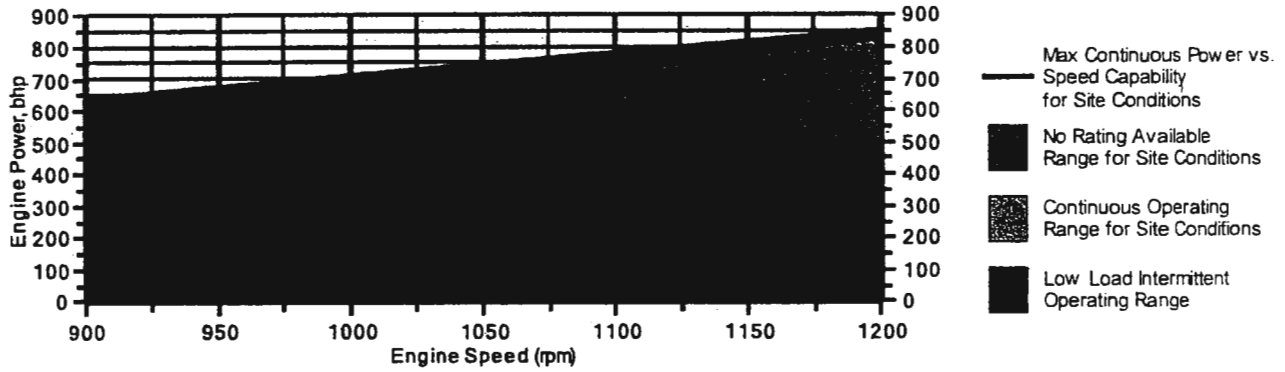
Engine Power vs. Inlet Air Temperature

Data represents temperature sweep at 5800 ft and 1200 rpm



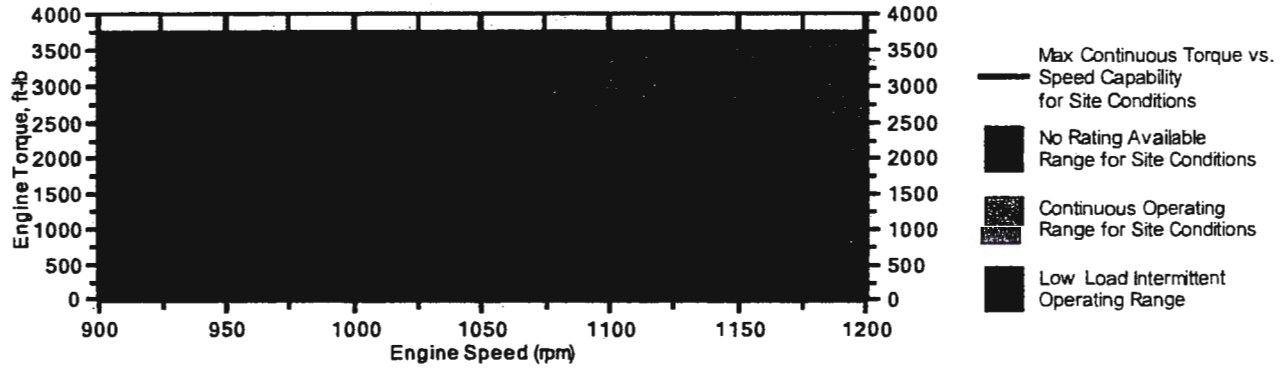
Engine Power vs. Engine Speed

Data represents speed sweep at 5800 ft and 55 °F



Engine Torque vs. Engine Speed

Data represents speed sweep at 5800 ft and 55 °F



Note: At site conditions of 5800 ft and 55°F inlet air temp., constant torque can be maintained down to 1200 rpm. The minimum speed for loading at these conditions is 935 rpm.

PREPARED BY: craig allison, XTO
Data generated by Gas Engine Rating Pro Version 3.03.00
Ref. Data Set DM8619-01-001, Printed 20Aug2009

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. 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.

Constituent	Abbrev	Mole %	Norm
Water Vapor	H2O	0.0000	0.0000
Methane	CH4	87.2731	87.3407
Ethane	C2H6	5.7403	5.7447
Propane	C3H8	2.4248	2.4267
Isobutane	iso-C4H1O	0.4875	0.4879
Norbutane	nor-C4H1O	0.6023	0.6028
Isopentane	iso-C5H12	0.2070	0.2070
Norpentane	nor-C5H12	0.1622	0.1623
Hexane	C6H14	0.1193	0.1194
Heptane	C7H16	0.0961	0.0962
Nitrogen	N2	1.5674	1.5686
Carbon Dioxide	CO2	1.2207	1.2216
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	0.0219	0.0219
Nonane	C9H20	0.0000	0.0000
Ethylene	C2H4	0.0000	0.0000
Propylene	C3H6	0.0000	0.0000
TOTAL (Volume %)		99.9226	100.0000

Fuel Makeup:	Gas Analysis
Unit of Measure:	English

Calculated Fuel Properties

Caterpillar Methane Number:	62.7
Lower Heating Value (Btu/scf):	1004
Higher Heating Value (Btu/scf):	1111
WOBBE Index (Btu/scf):	1242
THC: Free Inert Ratio:	34.84
RPC (%) (To 905 Btu/scf Fuel):	100%
Compressibility Factor:	0.997
Stoich A/F Ratio (Vol/Vol):	10.45
Stoich A/F Ratio (Mass/Mass):	16.01
Specific Gravity (Relative to Air):	0.653
Specific Heat Constant (K):	1.300

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.

T5BC-1

G3516 LE

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA
COMPRESSOR SYSTEMS, INC
#919 Waynes Crossing Booster Compressor (TAP 5 BOOSTER #1 - T5BC-1)

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):	5280
NOx EMISSION LEVEL (g/bhp-hr NOx):	2.0	MAXIMUM INLET AIR TEMPERATURE(°F):	100
SET POINT TIMING:	27.4	NAMEPLATE RATING:	1340 bhp@1400rpm

RATING	NOTES	UNIT	MAXIMUM RATING	SITE RATING @ MAXIMUM INLET AIR TEMP		
			100%	100%	64%	50%
ENGINE POWER	(1)	bhp	1340	1152	864	670
INLET AIR TEMPERATURE		°F	40	100	100	100
ENGINE DATA						
FUEL CONSUMPTION (LHV)	(2)	Btu/bhp-hr	7730	7860	8198	8527
FUEL CONSUMPTION (HHV)	(2)	Btu/bhp-hr	8541	8685	9058	9422
AIR FLOW	(3)(4)	lb/hr	12679	10936	8317	6597
AIR FLOW WET (77°F, 14.7 psia)	(3)(4)	scfm	2860	2466	1876	1488
INLET MANIFOLD PRESSURE	(5)	in Hg(abs)	70.1	61.8	48.6	39.4
EXHAUST STACK TEMPERATURE	(6)	°F	907	907	908	910
EXHAUST GAS FLOW (@ stack temp, 14.5 psia)	(7)(4)	ft3/min	7873	6795	5182	4121
EXHAUST GAS MASS FLOW	(7)(4)	lb/hr	13178	11372	8658	6872
EMISSIONS DATA						
NOx (as NO2)	(8)	g/bhp-hr	2.00	2.00	2.00	2.00
CO	(8)	g/bhp-hr	2.30	2.36	2.48	2.60
THC (mol. wt. of 15.84)	(8)	g/bhp-hr	2.41	2.48	2.60	2.70
NMHC (mol. wt. of 15.84)	(8)	g/bhp-hr	0.63	0.64	0.67	0.70
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	514	527	545
EXHAUST OXYGEN	(10)	% DRY	7.9	7.8	7.7	7.6
HEAT REJECTION						
HEAT REJ. TO JACKET WATER (JW)	(11)	Btu/min	43821	40026	34552	29988
HEAT REJ. TO ATMOSPHERE	(11)	Btu/min	5313	4818	4057	3543
HEAT REJ. TO LUBE OIL (OC)	(11)	Btu/min	6535	5969	5153	4472
HEAT REJ. TO AFTERCOOLER (AC)	(11)(12)	Btu/min	12713	12713	5656	2857
HEAT EXCHANGER SIZING CRITERIA						
TOTAL JACKET WATER CIRCUIT (JW+OC)	(12)	Btu/min	56045			
TOTAL AFTERCOOLER CIRCUIT (AC)	(12)(13)	Btu/min	13348			
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: JASON PRANN, Compressor Systems, Inc.
Data generated by Gas Engine Rating Pro Version 3.03.01
Ref. Data Set DM8618-01-001, Printed 09Feb2010

T5BC-1

DCL International Inc.

Mailing address: P.O. Box 90, Concord, Ontario, Canada, L4K 1B2
Toll free: 1-800-872-1968 *Phone:* 905-660-6450 *Fax:* 905-660-6435 *E-mail:* info@dcl-inc.com

To	Bill Stirman	**Phone**	
	ISC	**Fax**	
Date	March 3, 2011	**Email**	

RE: EMISSIONS GUARANTEE FOR CSI

Bill,

We hereby guarantee that our QUICK-LID™ Model DC65-14 catalytic converter described below:

Catalyst model	DC65
Catalyst coating	Oxidation (Q)
Outside Diameter of catalyst substrate	30.75"
No. of catalyst substrates	1
Cell Density	300 cpsi

and sized for the following engine:

Engine model	CAT G3516 TALE
Power	1340 hp @ 1400 rpm
Fuel	Pipeline Quality Natural Gas
Exhaust Flow	13,305 lbs/hr
Exhaust Temperature	854 F

will perform as follows:

Emissions	**After Catalyst**
Carbon Monoxide (CO)	93 % reduction
Formaldehyde (CH_2O)	90% reduction
Volatile Organic Compounds (VOCs)	45% reduction

for a period of 1 year or 8000 hours, whichever comes first, subject to all terms and conditions contained in the attached warranty document being respected and met.

Best regards,
DCL International, Inc.

Tawnya VanGroningen

Tawnya VanGroningen
Account Manager
North American Industrial Catalyst Division

Quote#13-1448

G3516

NON-CURRENT

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA

CATERPILLAR®

Tap 5 Booster Compressor 2 (T5BC-2)

ENGINE SPEED (rpm):	1400	RATING STRATEGY:	STANDARD
COMPRESSION RATIO:	8:1	FUEL SYSTEM:	HPG IMPCO WITH AIR FUEL RATIO CONTROL
AFTERCOOLER TYPE:	SCAC		
AFTERCOOLER WATER INLET (°F):	130	**SITE CONDITIONS:**	
JACKET WATER OUTLET (°F):	210	FUEL:	Field Gas
ASPIRATION:	TA	FUEL PRESSURE RANGE(psig):	35.0-40.0
COOLING SYSTEM:	JW+OC, AC	FUEL METHANE NUMBER:	62.2
CONTROL SYSTEM:	ADEM3	FUEL LHV (Btu/scf):	1027
EXHAUST MANIFOLD:	ASWC	ALTITUDE(ft):	4900
COMBUSTION:	Low Emission	MAXIMUM INLET AIR TEMPERATURE(°F):	60
NOx EMISSION LEVEL (g/bhp-hr NOx):	1.5	STANDARD RATED POWER:	1340 bhp@1400rpm
SET POINT TIMING:	27		

				MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE		
RATING		**NOTES**	**LOAD**	**100%**	**100%**	**75%**	**52%**
ENGINE POWER	(WITHOUT FAN)	(1)	bhp	1340	1292	969	670
INLET AIR TEMPERATURE			°F	47	60	60	60
ENGINE DATA							
FUEL CONSUMPTION (LHV)		(2)	Btu/bhp-hr	7682	7719	8001	8436
FUEL CONSUMPTION (HHV)		(2)	Btu/bhp-hr	8489	8530	8841	9321
AIR FLOW (@inlet air temp, 14.7 psia)	(WET)	(3)(4)	ft3/min	2739	2720	2090	1376
AIR FLOW	(WET)	(3)(4)	lb/hr	12873	12457	9569	6303
FUEL FLOW (60°F, 14.7 psia)			scfm	167	162	126	92
INLET MANIFOLD PRESSURE		(5)	in Hg(abs)	69.2	67.1	52.8	38.7
EXHAUST TEMPERATURE - ENGINE OUTLET		(6)	°F	897	895	882	884
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia)	(WET)	(7)(4)	ft3/min	7926	7659	5832	3872
EXHAUST GAS MASS FLOW	(WET)	(7)(4)	lb/hr	13368	12937	9942	6575
EMISSIONS DATA - ENGINE OUT							
NOx (as NO2)		(8)(9)	g/bhp-hr	1.50	1.50	1.50	1.50
CO		(8)(9)	g/bhp-hr	2.64	2.66	2.75	2.66
THC (mol. wt. of 15.84)		(8)(9)	g/bhp-hr	2.68	2.72	3.00	3.15
NMHC (mol. wt. of 15.84)		(8)(9)	g/bhp-hr	0.70	0.71	0.78	0.82
NMNEHC (VOCs) (mol. wt. of 15.84)		(8)(9)(10)	g/bhp-hr	0.47	0.47	0.52	0.55
HCHO (Formaldehyde)		(8)(9)	g/bhp-hr	0.28	0.28	0.31	0.34
CO2		(8)(9)	g/bhp-hr	532	534	555	584
EXHAUST OXYGEN		(8)(11)	% DRY	8.0	8.0	7.7	7.5
HEAT REJECTION							
HEAT REJ. TO JACKET WATER (JW)		(12)	Btu/min	42076	41301	34004	30337
HEAT REJ. TO ATMOSPHERE		(12)	Btu/min	5313	5187	4334	3543
HEAT REJ. TO LUBE OIL (OC)		(12)	Btu/min	6275	6159	5219	4524
HEAT REJ. TO AFTERCOOLER (AC)		(12)(13)	Btu/min	10381	10381	6402	2440
COOLING SYSTEM SIZING CRITERIA							
TOTAL JACKET WATER CIRCUIT (JW+OC)		(13)	Btu/min	53814			
TOTAL AFTERCOOLER CIRCUIT (AC)		(13)(14)	Btu/min	10900			
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. 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.

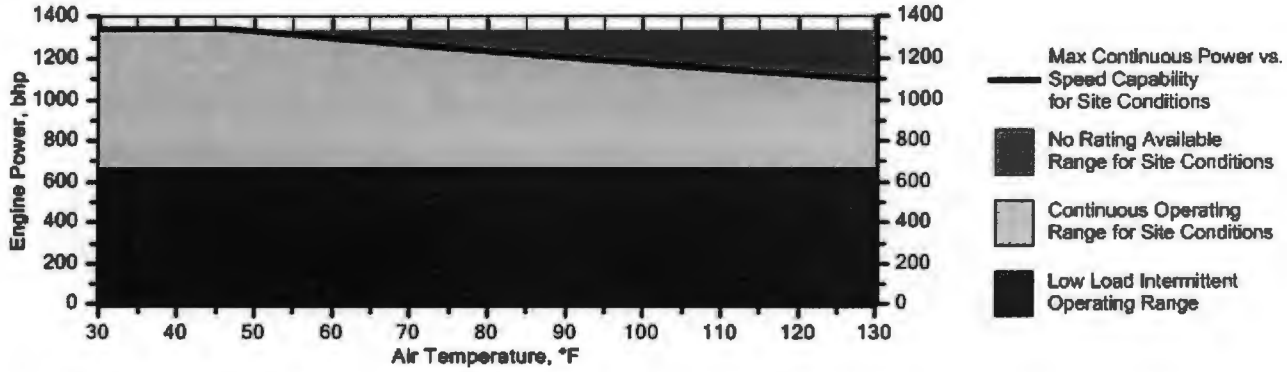
For notes information consult page three.

PREPARED BY: Rykki Tepe, XTO Energy
Data generated by Gas Engine Rating Pro Version 4.04.00
Ref. Data Set DM8542-04-001, WPW00001-WPW01057, Printed 29Apr2013

Tap 5 Booster Compressor 2 (T5BC-2)

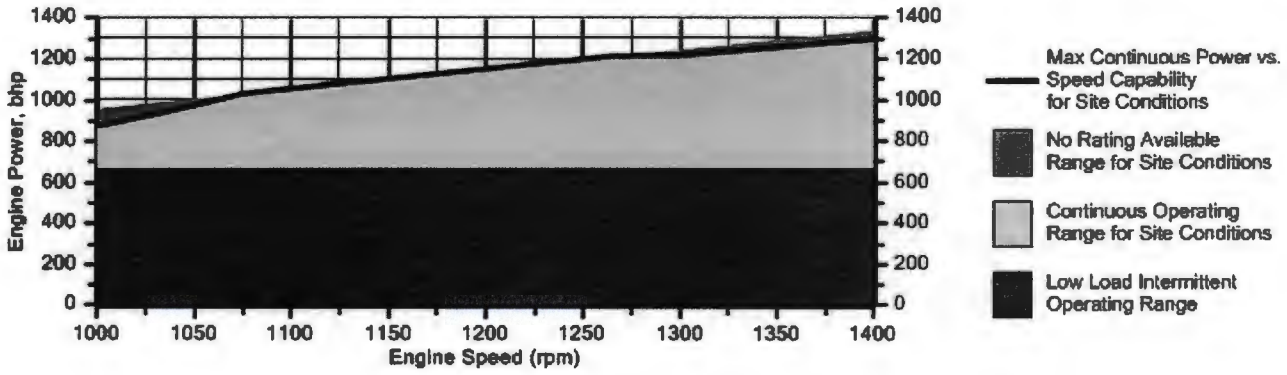
Engine Power vs. Inlet Air Temperature

Data represents temperature sweep at 4900 ft and 1400 rpm



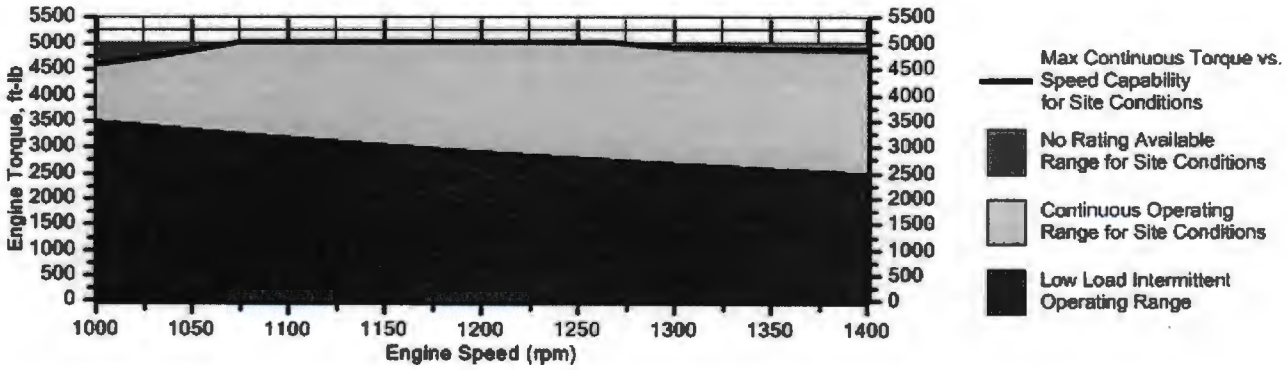
Engine Power vs. Engine Speed

Data represents speed sweep at 4900 ft and 60 °F



Engine Torque vs. Engine Speed

Data represents speed sweep at 4900 ft and 60 °F



Note: At site conditions of 4900 ft and 60°F inlet air temp., constant torque can be maintained down to 1050 rpm. The minimum speed for loading at these conditions is 1000 rpm.

GAS ENGINE SITE SPECIFIC TECHNICAL DATA

CATERPILLAR®

Tap 5 Booster Compressor 2 (T5BC-2)

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. Air flow value is on a 'wet' basis. 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 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. Emissions data is at engine exhaust flange prior to any after treatment.

9. 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 tolerances are ± +111 %, -96 % of specified value. 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.

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

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

12. 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.

13. 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.

14. 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:	62.2
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
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.

Attachment # 12
Gas Analyses & Pressurized Liquid Sample

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A		Description:	Tap #5 Pre Dehy
Analysis Date/Time:	6/15/2012	12:18 PM	Field:	Utah
Analyst Initials:	PRP		ML#:	Summit Gas Gathering
Instrument ID:	Instrument 1		GC Method:	Quesbtex
Data File:	QPC63.D			
Date Sampled:	6/12/2012			

Component	Mol%	Wt%	LV%
Methane	92.8716	84.8994	89.1980
Ethane	4.4607	7.6432	6.7780
Propane	1.2885	3.2376	2.0130
Isobutane	0.2433	0.8057	0.4512
n-Butane	0.2594	0.8592	0.4637
Neopentane	0.0051	0.0208	0.0110
Isopentane	0.0852	0.3503	0.1768
n-Pentane	0.0623	0.2560	0.1279
2,2-Dimethylbutane	0.0038	0.0187	0.0090
2,3-Dimethylbutane	0.0055	0.0269	0.0127
2-Methylpentane	0.0159	0.0779	0.0373
3-Methylpentane	0.0086	0.0421	0.0198
n-Hexane	0.0190	0.0934	0.0443
Heptanes	0.0546	0.2956	0.1225
Octanes	0.0100	0.0653	0.0284
Nonanes	0.0081	0.0533	0.0213
Decanes plus	0.0000	0.0000	0.0000
Nitrogen	0.2699	0.4308	0.1677
Carbon Dioxide	0.3285	0.8238	0.3174
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	1083.3	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	1065.7	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9976	
Specific Gravity	0.6073	air=1
Avg Molecular Weight	17.549	gm/mole
Propane GPM	0.353130	gal/MCF
Butane GPM	0.160984	gal/MCF
Gasoline GPM	0.099995	gal/MCF
26# Gasoline GPM	0.182407	gal/MCF
Total GPM	1.896356	gal/MCF
Base Mol%	99.585	%v/v

Sample Temperature:	80	°F
Sample Pressure:	1070	psig
H2SLength of Stain Tube	N/A	ppm

Component	Mol%	Wt%	LV%
Benzene	0.0043	0.0191	0.0068
Toluene	0.0063	0.0332	0.0120
Ethylbenzene	0.0000	0.0000	0.0000
M&P Xylene	0.0045	0.0271	0.0098
O-Xylene	0.0000	0.0000	0.0000
2,2,4-Trimethylpentane	0.0013	0.0083	0.0036
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0082	0.0395	0.0159
Methylcyclohexane	0.0121	0.0679	0.0277
Description:	Tap #5 Pre Dehy		

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	0.3285	0.8238	0.3174
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	0.2699	0.4308	0.1677
Methane	92.8716	84.8994	89.1980
Ethane	4.4607	7.6432	6.7780
Propane	1.2885	3.2376	2.0130
Isobutane	0.2433	0.8057	0.4512
n-Butane	0.2594	0.8592	0.4637
Isopentane	0.0903	0.3711	0.1878
n-Pentane	0.0623	0.2560	0.1279
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0190	0.0934	0.0443
Cyclohexane	0.0082	0.0395	0.0159
Other Hexanes	0.0338	0.1656	0.0788
Heptanes	0.0224	0.1276	0.0565
Methylcyclohexane	0.0121	0.0679	0.0277
2,2,4 Trimethylpentane	0.0013	0.0083	0.0036
Benzene	0.0043	0.0191	0.0068
Toluene	0.0063	0.0332	0.0120
Ethylbenzene	0.0000	0.0000	0.0000
Xylenes	0.0045	0.0271	0.0098
C8+ Heavies	0.0136	0.0915	0.0399
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

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

CERTIFICATE OF ANALYSIS
2012120198-001A

Customer:	XTO Energy	**Report Date:**	01/08/13
Attn:	Rykki Tepe 810 Houston Street Fort Worth, TX 76102	**PO / Ref. No.:**	

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 Unitah County	**Cylinder # :**	01180

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	01/08/13
Flash Factor	0.6057	Cu.Ft./STBbl.	Shrink-EOS	DDO	01/08/13
	0.4129	Cu.Ft. Methane/STBbl.			
	0.0106	Cu.Ft. CO2/STBbl.			

Hydrocarbon Laboratory Manager

CERTIFICATE OF ANALYSIS
2012120198-001A

Customer:	XTO Energy	**Report Date:**	01/08/13
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 # :**	01180
Comments:	EOS Flash Gas Composition		
	Staged Flash from 39.7 psi @ 40 to 0 psi @ 60°F		

	MOL %	WEIGHT %	GPM's @ 14.73
NITROGEN	3.626	3.973	
CO2	1.749	3.011	
METHANE	68.171	42.774	
ETHANE	11.003	12.940	4.136
PROPANE	5.956	10.272	2.173
I-BUTANE	1.624	3.692	0.499
N-BUTANE	2.377	5.404	0.758
I-PENTANE	1.278	3.607	0.351
N-PENTANE	1.307	3.689	0.363
HEXANES	1.151	3.808	0.281
BENZENE	0.193	0.590	0.069
HEPTANES	1.037	3.920	0.226
TOLUENE	0.024	0.085	0.007
OCTANES	0.455	1.997	0.089
E-BENZENE	0.002	0.010	0.001
m,o,&p-XYLENE	0.004	0.018	0.001
NONANES	0.043	0.211	0.008
DECANES PLUS	0.000	0.000	0.000
TOTALS	100.000	100.000	8.961

CALCULATED VALUES

REAL DRY BTU AT 14.73 PSIA, 60 DEG.F	1426.6	
REAL WET BTU AT 14.73 PSIA, 60 DEG.F	1401.7	
RELATIVE DENSITY	0.8896	
COMPRESSIBILITY FACTOR	0.99459	
	C2+	C5+
GPM's @ 14.73 psia, 60 Deg.F	8.961	1.396

CERTIFICATE OF ANALYSIS
2012120198-001A

Customer:	XTO Energy	**Report Date:**	01/08/13
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 # :**	01180
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	0.374	0.055	0.130
ETHANE	0.403	0.111	0.221
PROPANE	0.865	0.349	0.492
I-BUTANE	0.613	0.326	0.397
N-BUTANE	1.335	0.710	0.897
I-PENTANE	1.941	1.282	1.456
N-PENTANE	2.618	1.729	1.947
HEXANES	8.808	6.819	7.287
BENZENE	1.449	1.036	0.834
HEPTANES	26.293	23.264	23.968
TOLUENE	0.689	0.582	0.473
OCTANES	37.641	38.652	38.896
E-BENZENE	0.222	0.216	0.176
m,o,&p-XYLENE	0.536	0.521	0.419
NONANES	11.463	13.300	13.078
DECANES PLUS	4.714	11.034	9.315
TOTALS	100.000	100.000	100.000

CALCULATED VALUES	TOTAL	C10+
Molecular Weight	109.239	212.816
BTU / Lb.	20,061	13,775
BTU / Gal.	118,935	102,339
Cu. Ft. / Gal. At 14.73 Psia, 60°F	20.548	13.217
Lbs. / Gal. (Absolute Density)	5.929	7.429
Lbs. / Gal. (Weight in Air)	5.921	7.420
Specific Gravity at 60°F (Water = 1)	0.7111	0.8911
API Gravity at 60°F	67.5	27.3

Representative Sample for
RBU 11-02F Wellsite

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:**	3/7/2013
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	1.254	16.043	0.180	0.3000	0.443
Carbon Dioxide	0.014	44.010	0.006	0.8180	0.005
Ethane	1.127	30.070	0.303	0.3562	0.628
Propane	1.629	44.097	0.643	0.5070	0.935
Iso-butane	0.899	58.123	0.468	0.5629	0.613
N-butane	1.576	58.123	0.820	0.5840	1.036
Iso-pentane	1.617	72.150	1.045	0.6244	1.234
N-pentane	1.720	72.150	1.111	0.6311	1.299
i-Hexanes	0.993	86.177	0.771	0.6795	0.857
n-Hexane	1.964	86.011	1.507	0.6640	1.674
2,2,4 trimethylpentane	0.048	114.231	0.049	0.6967	0.052
Benzene	1.056	78.114	0.739	0.8846	0.615
Heptanes	10.757	95.105	9.313	0.7223	9.648
Toluene	0.648	92.141	0.535	0.8719	0.452
Octanes	30.314	112.114	30.551	0.7366	30.673
E-benzene	0.497	106.167	0.472	0.8718	0.400
M-,O-,P-xylene	1.603	106.167	1.524	0.8731	1.290
Nonanes	22.738	124.027	25.590	0.7533	25.318
Decanes Plus	19.546	139.252	24.373	0.7875	22.828
	---		---		---
	100.000		100.000		100.000

Calculated Values	**Total Sample**	**Decanes Plus**
Specific Gravity at 60 °F	0.7376	0.7875
Api Gravity at 60 °F	60.351	48.181
Molecular Weight	111.671	139.252
Pounds per Gallon (in Vacuum)	6.149	6.566
Pounds per Gallon (in Air)	6.143	6.559
Cu. Ft. Vapor per Gallon @ 14.65 psia	20.831	17.949

Southern Petroleum Laboratories, Inc.

CERTIFICATE OF ANALYSIS
2012120196-003A

Customer: XTO Energy
Attn: Rykki Tepe
810 Houston Street
Fort Worth, TX 76102

Report Date: 03/07/13

PO / Ref. No.:

Company: Unitah County
Producer: XTO Energy
Well : RBU 18-10E
API #:
Sample Point: Heater Treater

Sample Of: Oil
Sample Date/Time: 12/10/2012
Sample Psig & Temp: 190 psig @ 60 °F
Sampled By: J.P.
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	0.9936		Shrink-EOS	DDO	03/07/13
Flash Factor	12.496	Cu.Ft./STBbl.	Shrink-EOS	DDO	03/07/13
	7.3792	Cu.Ft. Methane/STBbl.			
	0.0546	Cu.Ft. CO2/STBbl.			

Hydrocarbon Laboratory Manager

CERTIFICATE OF ANALYSIS
2012120196-003A

Customer:	XTO Energy	**Report Date:**	03/07/13
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	0.437	0.717	
METHANE	59.052	35.299	
ETHANE	21.200	23.752	7.969
PROPANE	10.096	16.589	3.684
I-BUTANE	2.371	5.134	0.728
N-BUTANE	2.947	6.382	0.939
I-PENTANE	1.165	3.133	0.320
N-PENTANE	0.951	2.557	0.264
HEXANES	0.459	1.447	0.112
BENZENE	0.205	0.598	0.074
HEPTANES	0.511	1.839	0.111
TOLUENE	0.034	0.117	0.010
OCTANES	0.439	1.835	0.086
E-BENZENE	0.008	0.033	0.002
m,o,&p-XYLENE	0.021	0.083	0.005
NONANES	0.102	0.483	0.018
DECANES PLUS	0.000	0.001	0.000
TOTALS	100.000	100.000	14.324

CALCULATED VALUES

REAL DRY BTU AT 14.73 PSIA, 60 DEG.F	1589.2	
REAL WET BTU AT 14.73 PSIA, 60 DEG.F	1561.5	
RELATIVE DENSITY	0.9336	
COMPRESSIBILITY FACTOR	0.99354	
	C2+	C5+
GPM's @ 14.73 psia, 60 Deg.F	14.324	1.003

CERTIFICATE OF ANALYSIS
2012120196-003A

Customer:	XTO Energy	**Report Date:**	03/07/13
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	0.008	0.003	0.003
METHANE	0.404	0.057	0.138
ETHANE	0.832	0.221	0.449
PROPANE	1.504	0.586	0.840
I-BUTANE	0.877	0.450	0.558
N-BUTANE	1.556	0.798	1.027
I-PENTANE	1.624	1.034	1.196
N-PENTANE	1.731	1.103	1.265
HEXANES	2.994	2.235	2.433
BENZENE	1.069	0.737	0.604
HEPTANES	10.956	9.348	9.811
TOLUENE	0.657	0.534	0.443
OCTANES	30.753	30.453	31.218
E-BENZENE	0.504	0.473	0.391
m,o,&p-XYLENE	1.626	1.524	1.248
NONANES	23.071	25.813	25.856
DECANES PLUS	19.833	24.630	22.518
TOTALS	100.000	100.000	100.000

CALCULATED VALUES	TOTAL	C10+
Molecular Weight	113.279	133.527
BTU / Lb.	20,948	21,955
BTU / Gal.	126,510	146,569
Cu. Ft. / Gal. At 14.73 Psia, 60°F	20.185	18.929
Lbs. / Gal. (Absolute Density)	6.039	6.676
Lbs. / Gal. (Weight in Air)	6.032	6.668
Specific Gravity at 60°F (Water = 1)	0.7244	0.8007
API Gravity at 60°F	63.8	45.2

Certificate of Analysis

Number: 3040-12120196-001A

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Station Name:	RBU 18-10E	Sampled By:	J.Petree
Station Number:	RS0686RF	Sample Of:	Natural Gas Spot
Station Location:	Unitah County	Sample Date:	12/10/2012
Sample Point:	Separator	Sample Conditions:	190 psig, @ 90 °F
Analyzed:	12/28/2012 17:53:26 by BD	Method:	GPA 2286
		Cylinder No:	003072

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.65 psia
Nitrogen	0.3560	0.5370	
Carbon Dioxide	0.2840	0.6730	
Methane	89.3661	77.1927	
Ethane	6.2849	10.1753	1.677
Propane	1.9810	4.7034	0.544
Iso-Butane	0.4160	1.3019	0.136
n-Butane	0.4560	1.4271	0.143
Iso-Pentane	0.1850	0.7187	0.067
n-Pentane	0.1400	0.5439	0.051
i-Hexanes	0.0975	0.4426	0.040
n-Hexane	0.0606	0.2805	0.026
Benzene	0.0223	0.0935	0.006
Cyclohexane	0.0355	0.1600	0.012
i-Heptanes	0.0781	0.3977	0.034
n-Heptane	0.0302	0.1624	0.014
Toluene	0.0271	0.1341	0.009
i-Octanes	0.0981	0.5489	0.044
n-Octane	0.0144	0.0885	0.008
Ethylbenzene	0.0015	0.0089	0.001
Xylenes	0.0165	0.0939	0.007
i-Nonanes	0.0373	0.2325	0.018
n-Nonane	0.0050	0.0343	0.003
Decane Plus	0.0069	0.0492	0.004
	100.000	100.000	2.844

GPM TOTAL C2+ 2.844

Physical Properties	Total	C10+
Calculated Molecular Weight	18.57	133.78
GPA 2172-09 Calculation:		
Calculated Gross BTU per ft³ @ 14.65 psia & 60°F		
Real Gas Dry BTU	1131.7	3401.7
Water Sat. Gas Base BTU	1112.0	3342.5
Relative Density Real Gas	0.6428	2.3250
Compressibility Factor	0.9972	

Certificate of Analysis

Number: 3040-12120196-001A

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Station Name:	RBU 18-10E	Sampled By:	J.Petree
Station Number:	RS0686RF	Sample Of:	Natural Gas Spot
Station Location:	Unitah County	Sample Date:	12/10/2012
Sample Point:	Separator	Sample Conditions:	190 psig, @ 90 °F
Analyzed:	12/28/2012 17:53:26 by BD	Method:	GPA 2286
		Cylinder No:	003072

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.65 psia
Nitrogen	0.356	0.537	
Carbon Dioxide	0.284	0.673	
Methane	89.366	77.179	
Ethane	6.285	10.174	1.676
Propane	1.981	4.703	0.544
Iso-butane	0.416	1.302	0.136
n-Butane	0.456	1.427	0.143
Iso-pentane	0.185	0.719	0.067
n-Pentane	0.140	0.544	0.051
Hexanes Plus	0.531	2.742	0.220
	100.000	100.000	2.837

GPM TOTAL C2+	2.837
GPM TOTAL C3+	1.161
GPM TOTAL iC5+	0.338

Physical Properties	**Total**
Relative Density Real Gas	0.6429
Calculated Molecular Weight	18.58
Compressibility Factor	0.9972

GPA 2172-09 Calculation:

Calculated Gross BTU per ft³ @ 14.65 psia & 60°F

Real Gas Dry BTU	1131.8545
Water Sat. Gas Base BTU	1112.1602

Comments: H2O Mol% : 1.750 ; Wt% : 1.698

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

Attachment # 13
CTAC Form

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). 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) **Rose** (First) **Kenneth** (MI) **S**

Title **Vice President of XTO Energy, Inc.**

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

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

Telephone **(817) 885-1623** 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) KSRose

Name (typed) **Kenneth S. Rose** Date: 4 / 3 / 13

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**

Tap-5 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 November 1, 2010. This engine is represented as Unit # T5BC-1 and has a serial number of WPW02035. A total of three (3) natural-gas fired combustion engines are located at the Tap-5 Compressor Station.
- Potentially include the emissions from the RBU 11-2F wellsite, which is located on the same padsite as the Tap-5 Compressor Station. The RBU 11-2F well does not produce any significant natural gas and is considered an oil production well only. The potential emissions from the equipment located at the RBU 11-2F wellsite are included as a part of the Tap-5 Compressor Station application.
- Add pipeline and compressor blowdown venting and compressor starter emissions to the insignificant emission source list.
- Remove the Waukesha H24GSID natural-gas driven generator (old T5G-1) and replace it with a 65 kWe Capstone Microturbine driven generator (new T5G-1). The Waukesha H24GSID (old T5G-1) was permanently shutdown on October 29, 2010. The capstone microturbine generator that replaced the Waukesha gas-fired engine was started up during the week of November 1, 2010.
- Remove the Hydrocarbon Chiller (Dewpoint) Plant from the application. The dewpoint skid formerly operated onsite to remove Y-Grade NGL's from the natural gas sales stream in order to meet the pipeline specification required under contract with XTO. In addition, the pressurized bullet tanks that collected the pressurized Y-grade NGL's were also removed from the site. The dewpoint skid (Y-grade NGL recovery equipment) was permanently removed from the Tap-5 Compressor Station on October 19, 2010.
- As a result of the removal of the hydrocarbon dewpoint skid from the Tap-5 Compressor Station, NSPS, Subpart KKK no longer applies, as follows:

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 **no longer applies to this site** because the facility permanently removed the dew-point process that produced Y-grade NGL.

76 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 _____ Tap 5 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 _39.97424841° 109.63658094° WGS84___

_____

City ___Roosevelt_____ State__UT_ County_Uintah_____ EPA Region__8__

Is the facility located within:

Indian lands? ___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 ___Summit Gas Gathering, LLC_____ 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
T5C-1	Caterpillar Model 3516TALE compressor engine 1260 site-rated horsepower
T5C-2	Caterpillar Model 3512TALE compressor engine 826 site-rated horsepower
T5BC-1	Caterpillar Model 3516TALE compressor engine 1152 site-rated horsepower
T5D-1	40 MMscfd Glycol dehydrator controlled by a thermal oxidizer
T5F-1	Fugitive Emissions
T5G-1	65 kWe Capstone Microturbine Genset
T5T-1	One (1) 400-bbl storage tank
T5T-2	One (1) 300-bbl storage tank
RBU 11-2F	RBU 11-2F Wellsite Emissions

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 ___60.5____ tons/yr VOC ___154.0_____ tons/yr SO2 ___0.0_____ tons/yr

PM-10 __0.0_____ tons/yr CO __78.2_____ tons/yr Lead ___0.0_____ tons/yr

Total HAP ___39.3_____ tons/yr

Single HAP emitted in the greatest amount ____Toluene _____ PTE _11.1____ 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 __T5BC-1_____ Description__Caterpillar 3516 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. __3516TALE_____

Serial Number __WPW020351_____ Installation Date__11__/__01/_2010___

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

Other (describe) __Natural gas compressor engine_____

Boiler horsepower rating___1152 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 __9.0____MM BTU/hr Max. Design Heat Input ___9.0_____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	78.18 MMscf	9.0 Mscf	78.18 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID___T5BC-1____ Device type___Oxidation Catalyst_____

Air pollutant(s) Controlled_ HCHO_____ Manufacturer__DCL_____

Model No.___Model DC65-14 Serial No.__ 1856558_____

Installation date__11_/_04_/_2010_ Control efficiency (%) __<= 14 ppmvd@15%O2 for CH2O_

Efficiency estimation method____Manufacturer Specifications_____

6

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 __T5G-1_____ Description __Capstone Microturbine Genset____

SIC Code (4-digit) __1311_____ SCC Code_311000203_____

B. Emissions Unit Description

Primary use ___Generator_____ Temporary Source ___Yes _x__No

Manufacturer __Capstone_____ Model No. __C65NG STD_____

Serial Number __N/A _____ Installation Date_11/1/2010_____

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

Other (describe) __Natural Gas Fueled Microturbine_____

Boiler horsepower rating___65kW_____ 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 ___0.8____MM BTU/hr Max. Design Heat Input __0.8_____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	7.35 MMscf	0.84 Mscf	7.357 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID___T5G-1____ Device type___N/A_____

Air pollutant(s) Controlled_____ _____

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)

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
T5C-1	18.3	5.23	0.0	0.0	28.5	0.0	3.3
T5C-2	16.0	2.9	0.0	0.0	19.54	0.0	2.32
T5BC-1	22.30	4.7	0.0	0.0	26.25	0.0	3.02
T5D-1	0.0	74.8	0.0	0.0	0.0	0.0	26.7
T5F-1	0.0	6.94	0.0	0.0	0.0	0.0	0.2
T5G-1	0.13	0.03	0.0	0.0	1.71	0.0	0.0
T5T-1	0.0	26.21	0.0	0.0	0.0	0.0	1.79
T5T-2	0.0	26.33	0.0	0.0	0.0	0.0	1.79
RBU 11-2F	2.37	5.93	0.0	0.0	0.97	0.0	0.22
FACILITY TOTALS	60.5	154.0	0.0	0.0	78.2	0.0	39.3

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 __T5BC-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		5.1	22.2	
CO		5.99	26.25	
VOC		1.07	4.67	
Acetaldehyde		0.1	0.33	75070
Acrolein		0.1	0.2	107028
Formaldehyde		0.6	2.45	50000

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.

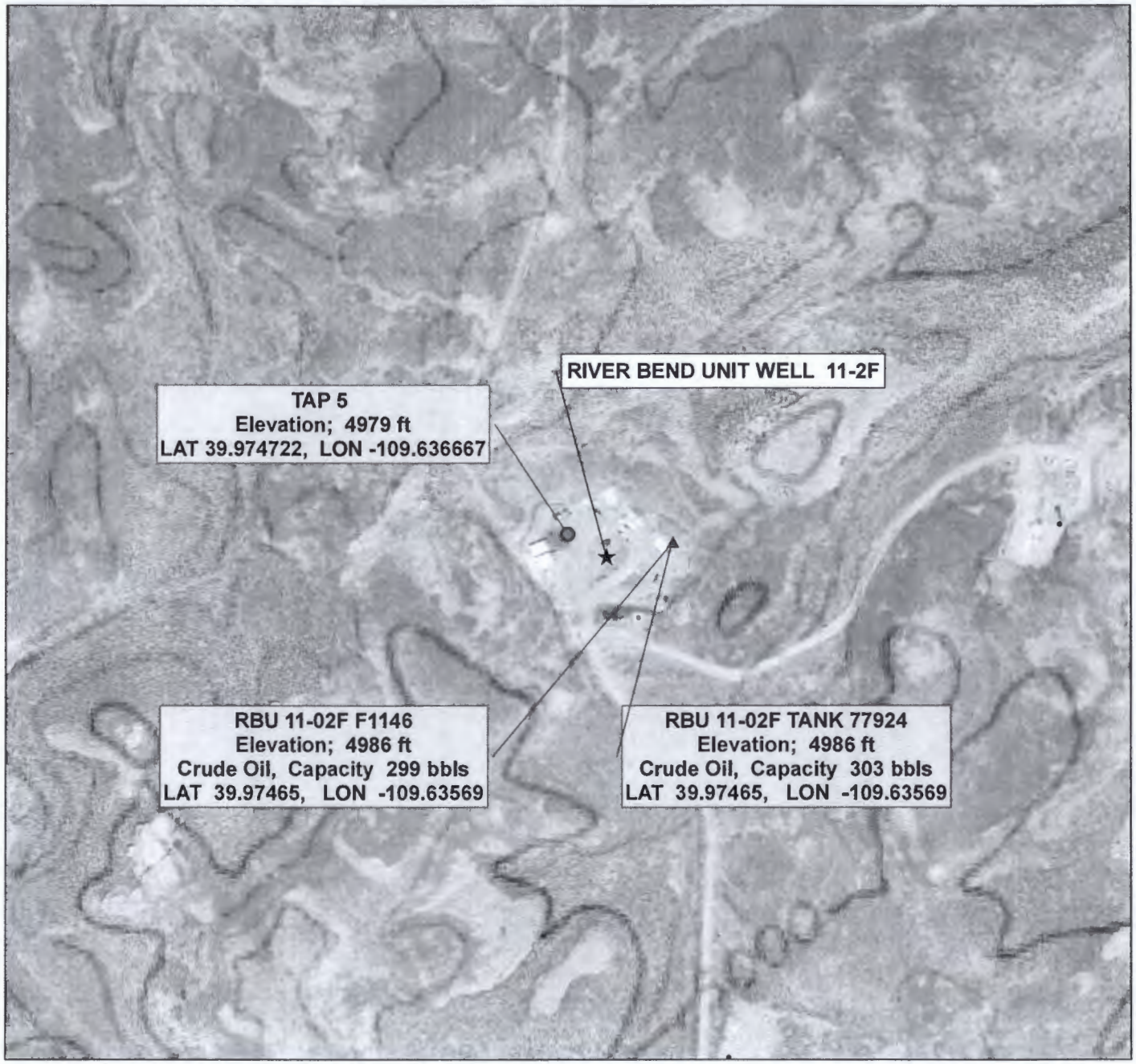
A. Emissions Unit ID __T5G-1_____

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		0.03	0.13	
CO		0.39	1.71	
VOC		0.01	0.03	
Acetaldehyde		0.0	0.0	75070
Acrolein		0.0	0.0	107028
Formaldehyde		0.0	0.0	50000

ROOSEVELT CDP, TAP 5



0 0.05 0.1 0.2 0.3 0.4 Miles

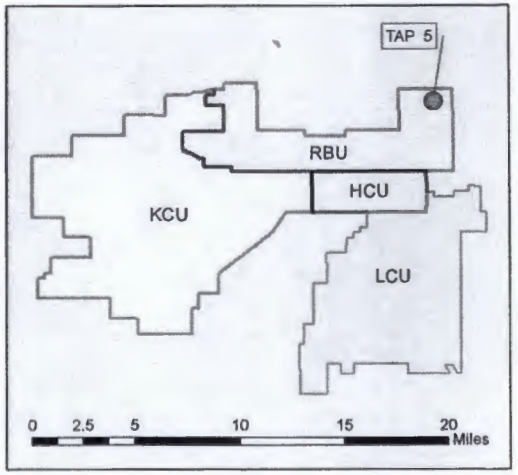
XTO ENERGY

★ WELL
● TAP 5
▲ TANKS WITHIN BUFFER

1 SEP, 2010
NAD1983

DANIEL STILSON
DANIEL_STILSON@XTOENERGY.COM

EQPT	NAME	ELEV	CONTENTS
COMP	TAP 5	4979	N/A
TANK(S)	RBU 11-02F F1146	4986	Crude Oil
	RBU 11-02F TANK 77924	4986	Crude Oil



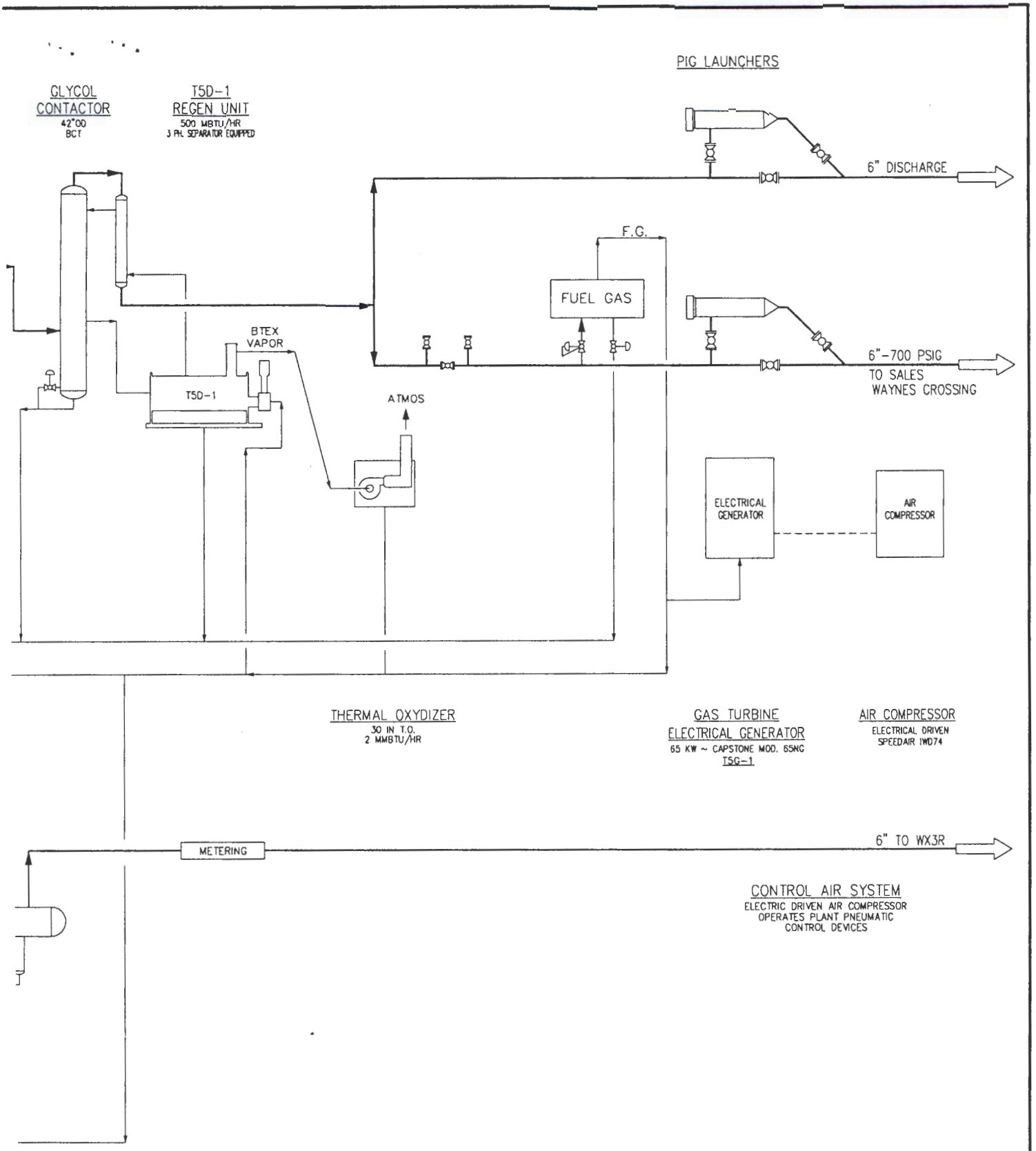
SGG Tap-5 Compressor Station
Process Description – February 2011

The Tap-5 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 700 psig.
- One (1) inlet gas scrubber (separator) operating at an approximate line pressure of 50 psig and a 0.15 mmBTU/hr natural gas-fired heater.
- One (1) Caterpillar G3516TALE compressor engine (T5C-1)
- One (1) Caterpillar G3512TALE compressor engine (T5C-2)
- One (1) Caterpillar G3516TALE compressor engine (T5CB-1)
- One (1) 65kWe Capstone Microturbine driven generator (T5G-1)
- One (1) 300-barrel slop-tank (T5T-1) with a 0.25 mmBTU/hr tank heater
- One (1) 400-barrel slop-tank (T5T-2) with a 0.25 mmBTU/hr tank heater
- One (1) natural gas dehydrator with (T5D-1):
    - A maximum natural gas process flow of 40 mmscfd natural gas, and
    - One (1) 0.50 mmBTU/hr TEG reboiler heater
    - One BTEX emissions control system consisting of a Thermal Oxidizer with a 2.0 mmBTU/hr burner.

The basic process flow at the facility is as follows:

Natural gas produced from area wells and from the Little Canyon Compressor Station is sent to the Tap-5 compressor station through natural-gas gathering flowlines. Once the gas enters the station, it flows through either one of two separators (scrubbers) (depending on which inlet gas source it originates from) in order to reduce water and condensable liquids content in the gas stream prior to entry into the compressors and the dehydrator system. The liquids produced from the on-site scrubbers is then sent to the 300-barrel and 400-barrel on-site slop tanks (T5T-1 and T5T-2) for storage prior to being hauled offsite. Following the lower pressure (50 psig) inlet scrubber, the gas is compressed with two (2) natural gas internal combustion engine driven compressors (T5C-1, and T5C-2) up to a higher pressure (approx. 700 psig). In addition, an additional (third) natural gas internal combustion engine driven compressor is located onsite and handles a separate higher pressure (700 psig) inlet gas stream (this gas stream is discharged directly offsite, and does not pas through the onsite dehydrator). Following the onsite compression (T5C-1 and T5C-2), the higher pressure gas that is discharged from the compressors then passes through a 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) 40 mmscfd natural gas TEG dehydrator (T5D-1) with one (1) 0.50 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 compression and dehydration, the natural gas exits the station via a metered sales pipeline. The station has on-site electrical power supplied by one (1) 65 kWe Capstone natural-gas fired microturbine driven generator (T5G-1). In addition, the pneumatic control devices are operated by plant air supplied by the on-site electric-driven air compressor.



WINGS

ING NO.	TITLE

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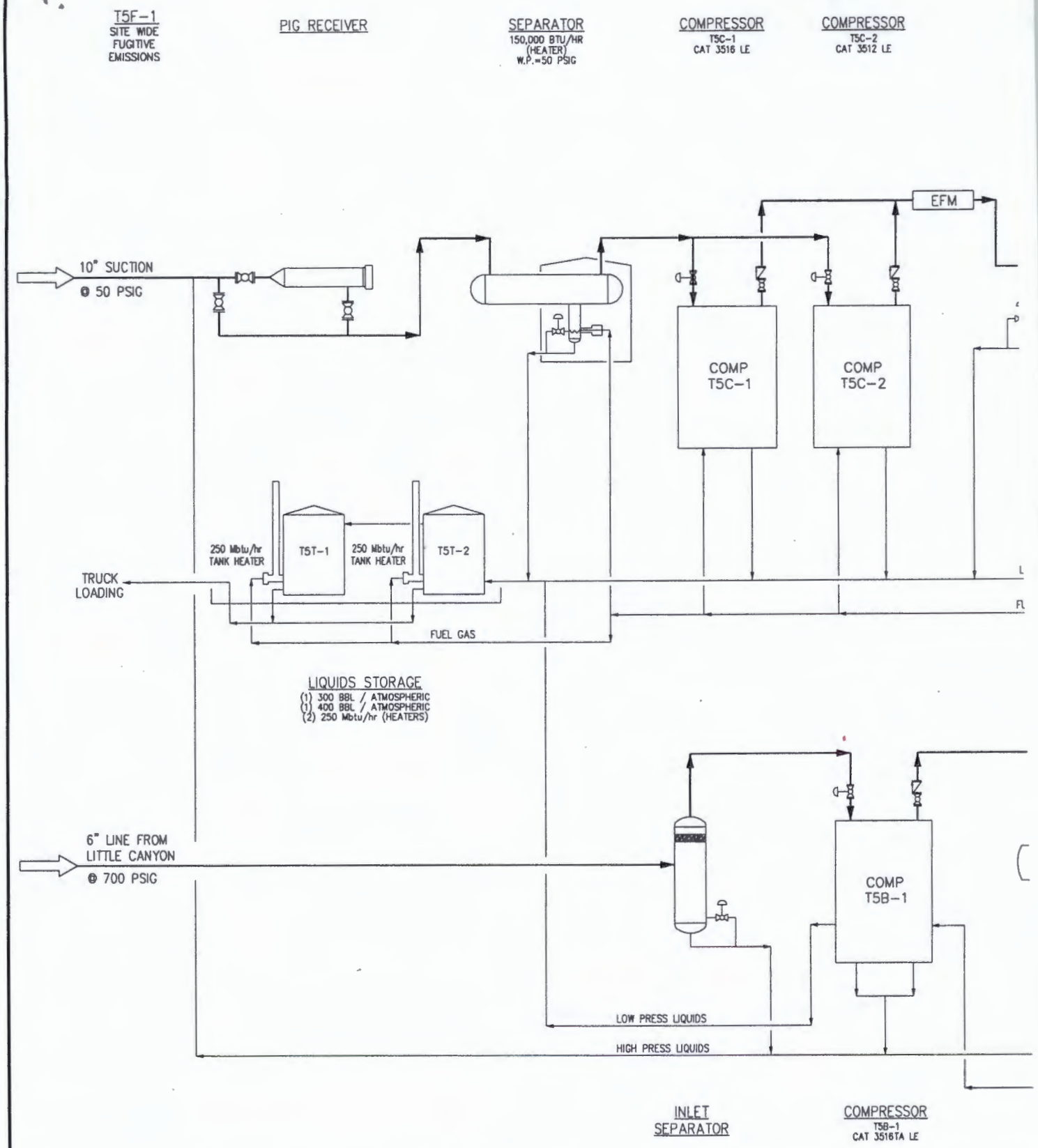
SUMMIT GAS GATHERING

APPROVED:	DATE	TITLE: AIR PERMIT PROCESS FLOW DIAGRAM TAP #5 FACILITY & TAP #5 BOOSTER ROOSEVELT, UTAH
CHECKED:		
DESIGNED:		
DRAWN: J DAVIS	01/10	JOB No: / SCALE / DWG. NO.: D-200-100 / REV. 3



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 DUTIES	3/10		
3	GENERAL	12/10		

REFEREN

DRAWING NO.	TITLE

2010 POTENTIAL TO EMIT SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE - T5C-1	4.17	18.25	6.50	28.47	1.19	5.23	0.61	2.68	0.75	3.30	0.01	0.05
Caterpillar 3512TALE - T5C-2	3.64	15.95	4.46	19.54	0.66	2.87	0.44	1.91	0.53	2.32	0.01	0.03
Caterpillar 3516TALE - T5BC-1	5.08	22.25	5.99	26.25	1.07	4.67	0.56	2.45	0.69	3.02	0.06	0.25
TEG Dehydrator - T5D-1	-	-	-	-	17.08	74.80	-	-	6.10	26.71	5.68	24.88
Condensate Tank Emissions - T5T-1	-	-	-	-	5.98	26.21	-	-	0.41	1.79	0.09	0.39
Condensate Tank Emissions - T5T-2	-	-	-	-	6.01	26.33	-	-	0.41	1.79	0.09	0.39
Capstone Model C65NG Standard MicroTurbine - T5G-1	0.03	0.13	0.39	1.71	0.01	0.03	-	-	-	-	-	-
Separator Heater	0.03	0.12	0.02	0.10	0.00	0.00	0.00	0.00	-	-	-	-
Dehy Reboiler	0.05	0.23	0.04	0.19	0.00	0.00	0.00	0.00	-	-	-	-
Thermal Oxidizer Heater - T5D-1	0.21	0.92	0.18	0.78	0.00	0.01	0.00	0.00	-	-	-	-
Fugitive Emissions - T5F-1	-	-	-	-	1.58	6.94	-	-	0.05	0.21	0.01	0.05
Tank Heaters Emissions (Condensate)	0.05	0.23	0.04	0.19	0.00	0.00	0.00	0.00	-	-	-	-
Truck Loading (Condensate and NGLs)	-	-	-	-	0.23	1.00	-	-	-	-	-	-
RBU 11-2F Wellsite Emissions	0.54	2.37	0.22	0.97	1.36	5.93	-	-	0.05	0.22	-	-
Totals	**13.80**	**60.5**	**17.85**	**78.2**	**35.17**	**154.0**	**1.61**	**7.0**	**8.98**	**39.3**	**5.95**	**26.0**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator - T5D-1	1.72	7.52	2.45	10.72	0.10	0.46	1.41	6.18
Caterpillar 3516TALE - T5C-1	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3512TALE - T5C-2	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01
Caterpillar 3516TALE - T5BC-1	0.00	0.02	0.00	0.01	0.00	0.002	0.00	0.01
Condensate Tank Emissions - T5T-1	0.05	0.20	0.00	0.02	0.001	0.003	0.01	0.03
Condensate Tank Emissions - T5T-2	0.05	0.20	0.04	0.16	0.001	0.003	0.01	0.03
Totals	**1.82**	**8.0**	**2.49**	**10.9**	**0.11**	**0.5**	**1.43**	**6.3**

UPDATED: 3/2011

Compressor Engine Emissions

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

EMISSION POINTS: Caterpillar 3516TALE - T5BC-1

Engine Make/Model	Caterpillar 3516TALE - T5BC-1	
Site Horsepower Rating	1152	hp
Fuel Consumption (LHV)	7778	Btu/(hp-hr)
Heat Rating	8.960	MMBtu/hr
Heating Value	1004	Btu/Scf
Fuel usage	78.18	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	2.00	g/hp-hr	5.08	22.2	[3]	
CO	2.36	g/hp-hr	5.99	26.25	[3]	
VOC/NMHC	0.42	g/hp-hr	1.07	4.67	[1]	
SOx	0.0000	g/hp-hr	0.00	0.0	[2]	0.00E+00 lb/MMBtu
PM10	0.0003	g/hp-hr	0.00	0.0	[2]	7.71E-05 lb/MMBtu
Hazardous Air Pollutants						
Acetaldehyde	0.0295	g/hp-hr	0.0749	0.3281	[2]	8.36E-03 lb/MMBtu
Acrolein	0.0181	g/hp-hr	0.0461	0.2017	[2]	5.14E-03 lb/MMBtu
Benzene	0.0016	g/hp-hr	0.0039	0.0173	[2]	4.40E-04 lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0004	0.0016	[2]	3.97E-05 lb/MMBtu
Formaldehyde	0.2200	g/hp-hr	0.5587	2.4472	[1]	6.24E-02 lb/MMBtu
Toluene	0.0014	g/hp-hr	0.0037	0.0160	[2]	4.08E-04 lb/MMBtu
Xylene	0.0006	g/hp-hr	0.0016	0.0072	[2]	1.84E-04 lb/MMBtu
		Total HAPS	0.69	3.02		

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean 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)

T5BC-1

G3516 LE

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA
COMPRESSOR SYSTEMS, INC
#919 Waynes Crossing Booster Compressor

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):	5280
NOx EMISSION LEVEL (g/bhp-hr NOx):	2.0	MAXIMUM INLET AIR TEMPERATURE(°F):	100
SET POINT TIMING:	27.4	NAMEPLATE RATING:	1340 bhp@1400rpm

			MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE		
RATING	**NOTES**	**LOAD**	**100%**	**100%**	**75%**	**58%**
ENGINE POWER	(1)	bhp	1340	1152	864	670
INLET AIR TEMPERATURE		°F	40	100	100	100
ENGINE DATA						
FUEL CONSUMPTION (LHV)	(2)	Btu/bhp-hr	7730	7860	8198	8527
FUEL CONSUMPTION (HHV)	(2)	Btu/bhp-hr	8541	8685	9058	9422
AIR FLOW	(3)(4)	lb/hr	12679	10936	8317	6597
AIR FLOW WET (77°F, 14.7 psia)	(3)(4)	scfm	2860	2466	1876	1488
INLET MANIFOLD PRESSURE	(5)	in Hg(abs)	70.1	61.8	48.6	39.4
EXHAUST STACK TEMPERATURE	(6)	°F	907	907	908	910
EXHAUST GAS FLOW (@ stack temp, 14.5 psia)	(7)(4)	ft3/min	7873	6795	5182	4121
EXHAUST GAS MASS FLOW	(7)(4)	lb/hr	13178	11372	8658	6872
EMISSIONS DATA						
NOx (as NO2)	(8)	g/bhp-hr	2.00	2.00	2.00	2.00
CO	(8)	g/bhp-hr	2.30	2.36	2.48	2.60
THC (mol. wt. of 15.84)	(8)	g/bhp-hr	2.41	2.48	2.60	2.70
NMHC (mol. wt. of 15.84)	(8)	g/bhp-hr	0.63	0.64	0.67	0.70
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	514	527	545
EXHAUST OXYGEN	(10)	% DRY	7.9	7.8	7.7	7.6
HEAT REJECTION						
HEAT REJ. TO JACKET WATER (JW)	(11)	Btu/min	43821	40026	34552	29988
HEAT REJ. TO ATMOSPHERE	(11)	Btu/min	5313	4818	4057	3543
HEAT REJ. TO LUBE OIL (OC)	(11)	Btu/min	6535	5969	5153	4472
HEAT REJ. TO AFTERCOOLER (AC)	(11)(12)	Btu/min	12713	12713	5656	2857

HEAT EXCHANGER SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+OC)	(12)	Btu/min	56045
TOTAL AFTERCOOLER CIRCUIT (AC)	(12)(13)	Btu/min	13348
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: JASON PRANN, Compressor Systems, Inc.
Data generated by Gas Engine Rating Pro Version 3.03.01
Ref. Data Set DM8618-01-001, Printed 09Feb2010

T5BC-1

DCL International Inc.

Mailing address: P.O. Box 90, Concord, Ontario, Canada, L4K 1B2
Toll free: 1-800-872-1968 *Phone:* 905-660-6450 *Fax:* 905-660-6435 *E-mail:* info@dcl-inc.com

To	Bill Stirman	**Phone**	
	ISC	**Fax**	
Date	March 3, 2011	**Email**	

RE: EMISSIONS GUARANTEE FOR CSI

Bill,

We hereby guarantee that our QUICK-LID™ Model DC65-14 catalytic converter described below:

Catalyst model	DC65
Catalyst coating	Oxidation (Q)
Outside Diameter of catalyst substrate	30.75"
No. of catalyst substrates	1
Cell Density	300 cpsi

and sized for the following engine:

Engine model	CAT G3516 TALE
Power	1340 hp @ 1400 rpm
Fuel	Pipeline Quality Natural Gas
Exhaust Flow	13,305 lbs/hr
Exhaust Temperature	854 F

will perform as follows:

Emissions	**After Catalyst**
Carbon Monoxide (CO)	93 % reduction
Formaldehyde (CH_2O)	90% reduction
Volatile Organic Compounds (VOCs)	45% reduction

for a period of 1 year or 8000 hours, whichever comes first, subject to all terms and conditions contained in the attached warranty document being respected and met.

Best regards,
DCL International, Inc.

Tawnya VanGroningen

Tawnya VanGroningen
Account Manager
North American Industrial Catalyst Division

Quote#13-1448

Generator Micro-Turbine Emissions

FACILITY: TAP-5

EMISSION POINTS: Capstone Model C65NG Standard MicroTurbine - T5G-1

Engine Make/Model	Capstone Model C65NG STD MicroTurbine	
Site kWe Rating	65	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	0.46	lb/MWhe	0.03	0.13	[1]
CO	6.00	lb/MWhe	0.39	1.71	[1]
VOC/NMHC	0.10	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)

C65 & C65-ICHP
MicroTurbine Performance Datasheet

Unless otherwise noted, values are full power nominal at ISO conditions of 59°F (15°C) at sea level.

Electrical Performance		
	Grid Connect	**Stand Alone**
Net Power Output	65 kW	65 kW
Net Electrical Efficiency	29% LHV	29% LHV
Net kVA Output	65 kVA	83 kVA max at 480V
Voltage	380 to 480 VAC	380 to 480 VAC
Voltage Output Connection	3 phase	3 phase
Frequency	50 or 60 Hz	10–60 Hz (programmable)
Current	100A max. steady state	125A max. steady state*
Electrical Output Type	Inverter	Inverter
THD standard	IEEE 519 for Current	IEEE 519 for Voltage
Fuel Input Requirements		
Natural Gas	875 to 1,275 BTU/scf [HHV]	
Fuel Inlet Pressure	75 psig**	
Fuel Flow at Full Power	765,000 BTU/hr [LHV]; 842,000 BTU/hr [HHV]	
Net Heat Rate	11,800 BTU/kWh [LHV]	
Generator Heat Rate	11,000 BTU/kWh [LHV]	
Exhaust Output		
NOx Emissions	<5ppmV @ 15% O_2	
Exhaust Temperature	588°F (309°C)	
Exhaust Mass Flow Rate	1.08 lbm/s (0.49 kg/s)	
Exhaust Energy Output	561,000 BTU/hr	
C65-ICHP Thermal Output*		
Copper Core Integrated Heat Recovery Module	Hot Water Output	380,000 BTU/hr (112kW)
	Total System Efficiency	80%
Stainless Steel Core Integrated Heat Recovery Module	Hot Water Output	265,000 BTU/hr (78kW)
	Total System Efficiency	64%
Dimensions & Weights		
	C65	**C65-ICHP**
Width x Depth x Height	30 x 77 x 83 inches	30 x 77 x 94 inches
Weight: Grid Connect Model	1,671 lbs (758 kg)	2,200 lbs (1,000 kg)
Dual Mode Model	2,471 lbs (1,121 kg)	3,000 lbs (1,364 kg)
Certifications		
Built in accordance with UL 2200 and UL1741 (listing pending), and meets statewide utility interconnection requirements of California Rule 21 and the New York State Public Utility Commission		
Models are available with optional CE Marking. Certification to California Air Resources Board Emissions requirements is in process.		

* With linear load.

** Optional external fuel gas boosters are available for inlet gas pressures from 0.2 to 15.0 psig.

*** Values are for 40 gpm (2.5 l/s) water flow rate: copper core version with 140°F (60°C) inlet water; stainless steel version (primarily for chlorinated water) with 85°F (30°C) inlet water.

Specifications are not warrantied and are subject to change without notice. Warrantied specifications are documented separately.

330200-001 Rev A December, 2005

XTO Tap-5 Compressor Station - Microturbine Fuel Use Calcs

Engine Make/Model	Capstone 65 kW Microturbine	
Site Power Output Rating	65	kilowatts
Heat Rating	0.8	MMBtu/hr
Heating Value (LHV)	1004	Btu/Scf
Fuel Usage	7.35	MMScf/yr
Operating Hours	8760	hrs/yr

Tap-5 Compressor Station

Blowdown Calculations for four Compressor / engine packages

Number of Blowdown Events Per Month =	20	events/month
Total Blowdown Volume per Event* =	1778	scf/event
Total Annual Volume of Gas Released due to Blowdown Event	426.72	Mscf/yr
	426,720.00	scf./yr

* Volume taken from calc sheet attached here.

Gas Starter Emissions Calculations
For four compressor / engine packages.

Number of Blowdown Events Per Month =	20	events/month
Total Blowdown Volume per Event* =	1560	scf/event
Total Annual Volume of Gas Released due to Blowdown Event	374.40	Mscf/yr
	374,400.00	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:	801.12	Mscf/yr
	801,120.00	scf/yr

Station:	Tap-5 - Compressor Blowdown Emissions events	
Quantity Released in Std. cubic ft (SCF)	426720	*only enter cf, do not enter mcf or mmcf*
Total Duration in hrs	120	(20 individual half-hour events occuring each month for 12 months = 120)
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	1320.829	0.000	1320.829	11.007	0.660
Sulfur Dioxide	0.000	0.000	0.000	0.000	0.000
Carbon Dioxide	129.879	0.000	129.879	1.082	0.065
Nitrogen	64.638	0.000	64.638	0.539	0.032
Hydrogen Sulfide	0.000	0.000	0.000	0.000	0.000
Helium	0.000	0.000	0.000	0.000	0.000
Methane	16540.847	0.000	16540.847	137.840	8.270
Ethane	1320.139	0.000	1320.139	11.001	0.660
Propane	593.761	0.000	593.761	4.948	0.297
Iso-Butane	160.608	0.000	160.608	1.338	0.080
N-Butane	187.644	0.000	187.644	1.564	0.094
Iso-Pentane	95.104	0.000	95.104	0.793	0.048
N-Pentane	69.435	0.000	69.435	0.579	0.035
Methylcyclopentane	0.000	0.000	0.000	0.000	0.000
n-Hexane	33.898	0.000	33.898	0.282	0.017
Hexane +	53.704	0.000	53.704	0.448	0.027
2,4-Dimethylpentane	0.000	0.000	0.000	0.000	0.000
Methycyclohexane	23.172	0.000	23.172	0.193	0.012
Benzene	8.118	0.000	8.118	0.068	0.004
Cyclohexane	16.927	0.000	16.927	0.141	0.008
n-Heptane	43.292	0.000	43.292	0.361	0.022
Toluene	8.455	0.000	8.455	0.070	0.004
Ethylbenzene	0.352	0.000	0.352	0.003	0.000
Xylenes	4.225	0.000	4.225	0.035	0.002
Octanes+	21.836	0.000	21.836	0.182	0.011
Nonanes+	0.142	0.000	0.142	0.001	0.000
Decanes+	0.157	0.000	0.157	0.001	0.000

Station:	Tap-5 - Engine Starter Emissions events	
Quantity Released in Std. cubic ft (SCF)	374400	*only enter cf, do not enter mcf or mmcf*
Total Duration in hrs	120	(20 individual half-hour events occuring each month for 12 months = 120)
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	1158.883	0.000	1158.883	9.657	0.579
Sulfur Dioxide	0.000	0.000	0.000	0.000	0.000
Carbon Dioxide	113.955	0.000	113.955	0.950	0.057
Nitrogen	56.713	0.000	56.713	0.473	0.028
Hydrogen Sulfide	0.000	0.000	0.000	0.000	0.000
Helium	0.000	0.000	0.000	0.000	0.000
Methane	14512.779	0.000	14512.779	120.940	7.256
Ethane	1158.277	0.000	1158.277	9.652	0.579
Propane	520.960	0.000	520.960	4.341	0.260
Iso-Butane	140.916	0.000	140.916	1.174	0.070
N-Butane	164.637	0.000	164.637	1.372	0.082
Iso-Pentane	83.443	0.000	83.443	0.695	0.042
N-Pentane	60.921	0.000	60.921	0.508	0.030
Methylcyclopentane	0.000	0.000	0.000	0.000	0.000
n-Hexane	29.742	0.000	29.742	0.248	0.015
Hexane +	47.119	0.000	47.119	0.393	0.024
2,4-Dimethylpentane	0.000	0.000	0.000	0.000	0.000
Methycyclohexane	20.330	0.000	20.330	0.169	0.010
Benzene	7.123	0.000	7.123	0.059	0.004
Cyclohexane	14.851	0.000	14.851	0.124	0.007
n-Heptane	37.984	0.000	37.984	0.317	0.019
Toluene	7.418	0.000	7.418	0.062	0.004
Ethylbenzene	0.309	0.000	0.309	0.003	0.000
Xylenes	3.707	0.000	3.707	0.031	0.002
Octanes+	19.159	0.000	19.159	0.160	0.010
Nonanes+	0.124	0.000	0.124	0.001	0.000
Decanes+	0.138	0.000	0.138	0.001	0.000

Gas Analysis
Conversion of Mole Percent to Weight Percent

Specific Gravity	0	Molecular Weight	17.5003	
Gross BTU	0	NMHC	2.3853	13.6299%
		VOCs (NMNEHC)	1.1929	6.817%
		HAPs	0.0497	

Component	Mole %	MW	Mole % * MW	Weight %
Carbon Dioxide	0.2666	44	0.1173	0.670%
Nitrogen	0.2085	28	0.0584	0.334%
Hydrogen Sulfide	0.0000	34	0.0000	0.000%
Helium	0.0000	4	0.0000	0.000%
Methane	93.3708	16	14.9393	85.366%
Ethane	3.9744	30	1.1923	6.813%
Propane	1.2188	44	0.5363	3.064%
Iso-Butane	0.2501	58	0.1451	0.829%
N-Butane	0.2922	58	0.1695	0.968%
Iso-Pentane	0.1193	72	0.0859	0.491%
N-Pentane	0.0871	72	0.0627	0.358%
Methylcyclopentane	0.0000	86	0.0000	0.000%
n-Hexane	0.0356	86	0.0306	0.175%
Hexane +	0.0564	86	0.0485	0.277%
2,4-Dimethylpentane	0.0000	100	0.0000	0.000%
Methycyclohexane	0.0218	96	0.0209	0.120%
Benzene	0.0094	78	0.0073	0.042%
Cyclohexane	0.0182	84	0.0153	0.087%
n-Heptane	0.0391	100	0.0391	0.223%
Toluene	0.0083	92	0.0076	0.044%
Ethylbenzene	0.0003	106	0.0003	0.002%
Xylenes	0.0036	106	0.0038	0.022%
Octanes+	0.0173	114	0.0197	0.113%
Nonanes+	0.0001	128	0.0001	0.001%
Decanes+	0.0001	142	0.0001	0.001%
---	-	-	---	---
Total	99.9980			

PIG RECEIVER EMISSIONS

YEAR: 2010
Company: XTO Energy
Facility Name: Tap-5 Compressor Station
Facility Location: Uinta County, Utah **Based on max 10" Pipeline scenario**

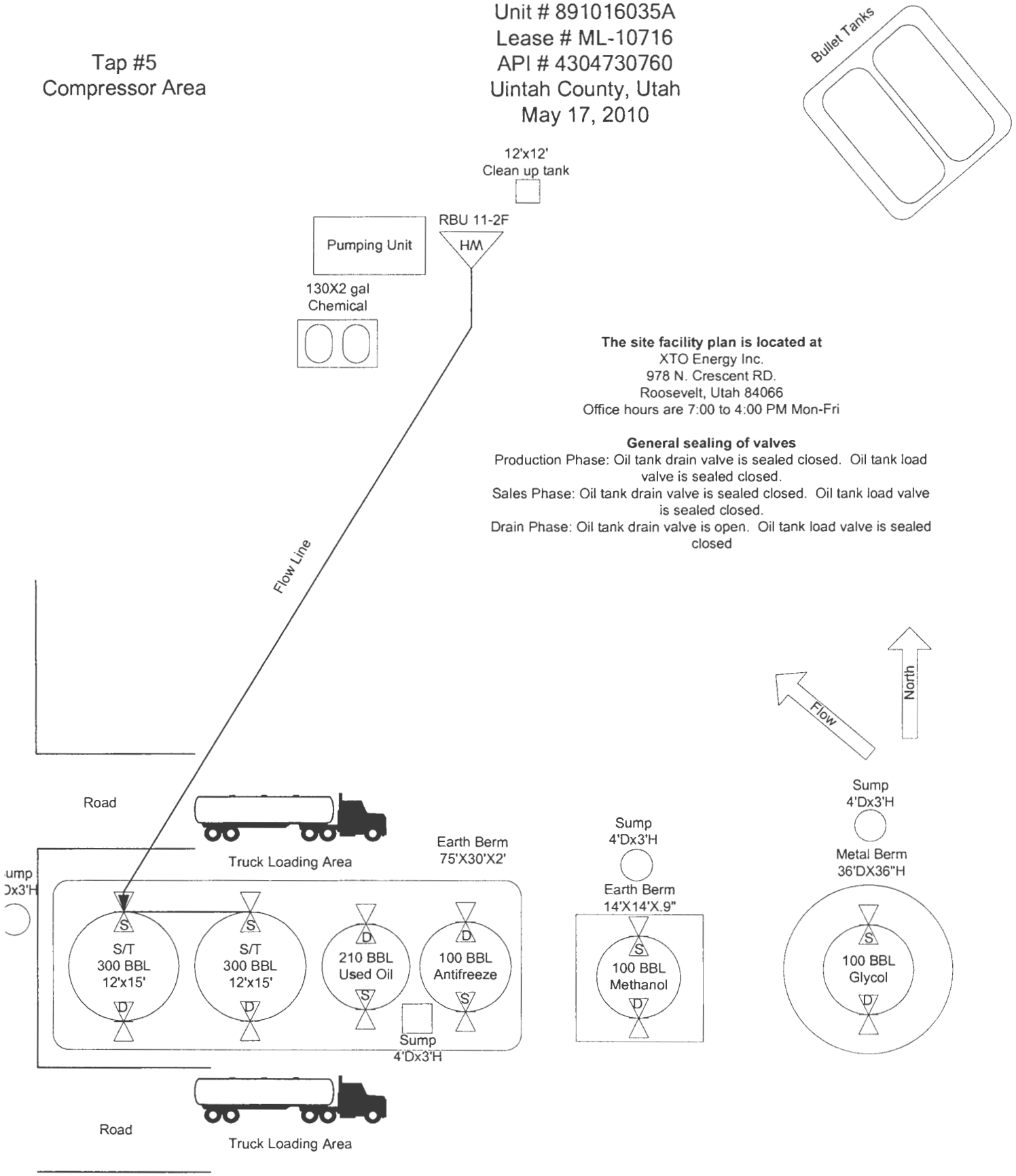
GAS COMPONENT (Wet Gas)	MOLECULAR WEIGHT (lb/lb-mole)	Weight Fraction	COMPONENT FLOW RATE (Mscf)	COMPONENT FLOW RATE (lb/yr)	COMPONENT FLOW RATE (tons/yr)	
Methane	16.043	0.773	0.344	14.549	0.007	
Ethane	30.07	0.092	0.041	3.254	0.002	
Propane	44.097	0.044	0.020	2.295	0.001	VOC
i-Butane	58.123	0.013	0.006	0.870	0.000	
n-Butane	58.123	0.014	0.006	0.984	0.000	
i-Pentane	72.15	0.008	0.004	0.667	0.000	
n-Pentane	72.15	0.006	0.003	0.486	0.000	
Hexanes	86.177	0.011	0.005	1.136	0.001	
Heptanes	100.204	0.005	0.002	0.641	0.000	
Octanes	114.231	0.001	0.000	0.109	0.000	
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	0.000	0.100	0.000	
Toluene	92.13	0.002	0.001	0.196	0.000	
Ethylbenzene	106.16	0.000	0.000	0.011	0.000	
Xylenes	106.16	0.010	0.004	1.216	0.001	
n-Hexane	86.177	0.003	0.001	0.330	0.000	
Helium	4.003	0.000	0.000	0.000	0.000	
Nitrogen	28.013	0.006	0.003	0.185	0.000	
Carbon Dioxide	44.01	0.014	0.006	0.747	0.000	
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**	**0.053**	**9.040**	**0.005**	
HAP SUBTOTAL		**0.016**	**0.007**	**1.853**	**0.001**	
TOTAL		**1.004**	**0.447**	**27.775**	**0.014**	

PIG SPECIFICATIONS	Receiver #1	Receiver #2	units
Pig Section Circumference (feet) :	2.618	-	feet
Pig Section Diameter (inches) :	10.000	-	inches
Pig Section Diameter (feet) :	0.833	-	feet
Pig Section Length (feet) :	10.0	-	feet
Pig Section Receiver Volume :	5.454	-	actual ft^3
Average Pipeline Pressure :	100	-	lb/ft^2
Pig Volume corrected for Std Conditions(14.7 psia) :	37.103	-	scf/event
Number of activities :	60	-	per year
Number of receivers :	1	-	
Total events :	12	-	per year
Total Annual Release Volume (per section) :	445.237	0.000	scf/yr
Total Volume :	0.445	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)

RBU 11-2F
NE/SW Sec 2 T10S R20E
Unit # 891016035A
Lease # ML-10716
API # 4304730760
Uintah County, Utah
May 17, 2010

Tap #5
Compressor Area



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

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RBU 11-2F WELLSITE UNCONTROLLED POTENTIAL TO EMIT SUMMARY

Company: Summit Gas Gathering
Facility Name: RBU 11-2F 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	-	-	-	-	0.01	0.06	-	-	-	-
Wellsite heaters	0.12	0.54	0.11	0.46	0.01	0.06	0.01	0.04	0.00	0.0004
Fugitive Emissions - RBU 11-2F	-	-	-	-	0.44	1.93	-	-	0.00	0.02
Wellsite Pumping Unit Engine - Arrow C-66	0.42	1.83	0.12	0.51	0.01	0.04			0.05	0.20
Total Storage Tank Emissions	-	-	-	-	0.88	3.84	-	-	0.00	0.00
Totals	**0.54**	**2.37**	**0.22**	**0.97**	**1.36**	**5.93**	**0.01**	**0.04**	**0.05**	**0.22**

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WELLSITE UNCONTROLLED CONDENSATE TRUCK LOADING EMISSIONS

Company: **Summit Gas Gathering**
Facility Name: **RBU 11-2F**
Facility Location: **Uintah County, Utah**

AP - 42, Chapter 5.2

$$L_L = 12.46 \times S \times P \times M / T$$

Emissions = L_L * 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

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)

Location	Factors	S	P (psi)	M	T (°R)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	VOC
Truck Loading	12.46	0.6	1.25	22.59	511.68	0.4126	0.0004	0.0173	3.16E-03	20.00	0.0632

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RBU 11-2F WELLSITE NATURAL GAS FUELED HEATER EMISSIONS

Company: Summit Gas Gathering
Facility Name: RBU 11-2F 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)
RBU 11-2F 300 bbl Tank #1 Heater	500	0.8	1106	8760	4.950	100.0	0.27	84.0	0.23
RBU 11-2F 300 bbl Tank #1 Heater	500	0.8	1106	8760	4.950	100.0	0.27	84.0	0.23
				TOTALS	**9.900**		**0.540**		**0.460**

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)
RBU 11-2F 300 bbl Tank #1 Heater	11.0	0.03	0.03	7.6	0.02	7.50E-02	0.0002
RBU 11-2F 300 bbl Tank #1 Heater	11.0	0.03	0.03	7.6	0.02	7.50E-02	0.0002
TOTALS		**0.06**	**0.06**		**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

EACH WELLSITE FUGITIVE EMISSIONS

Company: Summit Gas Gathering
Facility Name: RBU 11-2F
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**

Wellhead Engine Emissions - Uncontrolled

Company: XTO
Facility Name: RBU 11-2F
Facility Location: Uintah County, Utah

EMISSION POINTS: Arrow C-66 (Pre-Jul 2008)

Engine Make/Model	Arrow C-66 (Pre-Jul 2008)	
Site Horsepower Rating	13	hp derated from 15
Altitude	5,500	feet
Ambient Inlet Air Temp	77	degrees F
Fuel Consumption (BSFC)	8038	Btu/(hp-hr)
Heat Rating	0.104	MMBtu/hr
Heating Value	920	Btu/Scf
Fuel usage annual	0.99	MMScf/yr
Fuel usage per hour	114	Scf/hr
Operating Hours	8760	hrs/yr

Pollutant	Emission Factor		Emission Rate (lb/hr)	(lb/yr)	(tpy)	Emission Factor Reference	AP-42 Emission Factors	
NOx	14.54	g/hp-hr	0.42	3,650	1.83	[1]		
CO	4.03	g/hp-hr	0.12	1,012	0.51	[1]		
VOC/NMHC	0.33	g/hp-hr	0.01	83	0.04	[1]		
PM_{10}	0.035	g/hp-hr	0.0010	9	0.0043	[2]	9.50E-03	lb/MMBtu
Hazardous Air Pollutants								
Acetaldehyde	0.0102	g/hp-hr	0.0003	2.55	0.0013	[2]	2.79E-03	lb/MMBtu
Acrolein	0.0096	g/hp-hr	0.0003	2.41	0.0012	[2]	2.63E-03	lb/MMBtu
Benzene	0.0058	g/hp-hr	0.0002	1.45	0.0007	[2]	1.58E-03	lb/MMBtu
Formaldehyde	1.5554	g/hp-hr	0.04	391	0.20	[2]	2.05E-02	lb/MMBtu
		Total HAPS	0.0453	397	0.20			

[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)

STOCK TANK WORKING AND BREATHING EMISSIONS

Company: XTO Energy
Facility Name: RBU 11-2F
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 RBU 11-2F	102.31	816.92	2919.16	3838.39	1.919
300-bbl storage tank RBU 11-2F	102.31	816.92	2919.16	3838.39	1.919
TOTAL	**204.62**	**1633.84**	**5838.32**	**7676.78**	**3.84**

EPA TANKS 4.09D used to calculate emissions; please see attached documentation.
Max 10 bopd production rate per tank which includes produced water and oil.
*NOTE: Flash losses estimated based on 10 bopd per tank production rate.
Tanks are 55 deg API Gravity oil production - no natural gas production from this well.

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

Identification

User Identification:	RBU 11-2F 300 bbl Oil Tank #2
City:	Salt Lake City
State:	Utah
Company:	XTO SGG
Type of Tank:	Vertical Fixed Roof Tank
Description:	RBU 11-2F 300 bbl Oil / Water Tank #2 2011 PTE Emissions Estimate - combined produced oil and water - 10 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:		15.10
Net Throughput(gal/yr):		153,300.00
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

Meteorological 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

RBU 11-2F 300 bbl Oil Tank #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
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

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

RBU 11-2F 300 bbl Oil Tank #2 - 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):	816.9217
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.9684

TANKS 4.0 Report

Annual Net Throughput (gal/yr.):	153,300.0000
Annual Turnovers:	15.0999
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):	3,736.0774

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

Emissions Report for: Annual

RBU 11-2F 300 bbl Oil Tank #2 - Vertical Fixed Roof Tank
Salt Lake City, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	816.92	2,919.16	3,736.08

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

Identification

User Identification:	RBU 11-2F 300 bbl Oil Tank #1
City:	Salt Lake City
State:	Utah
Company:	XTO SGG
Type of Tank:	Vertical Fixed Roof Tank
Description:	RBU 11-2F 300 bbl Oil / Water Tank #1 2011 PTE Emissions Estimate - combined produced oil and water - 10 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:		15.10
Net Throughput(gal/yr):		153,300.00
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

RBU 11-2F 300 bbl Oil Tank #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
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

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

RBU 11-2F 300 bbl Oil Tank #1 - 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):	816.9217
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.9684

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

Emissions Report for: Annual

RBU 11-2F 300 bbl Oil Tank #1 - Vertical Fixed Roof Tank
Salt Lake City, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	816.92	2,919.16	3,736.08

54

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

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**

- 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

RECEIVED
MAR 3
8P - AR

TAP-5 SUPPLEMENTAL INFORMATION

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
T5C-1	Caterpillar Model 3516TALE compressor engine 1260 site-rated horsepower
T5C-2	Caterpillar Model 3512TALE compressor engine 826 site-rated horsepower
T5D-1	40 MMscfd Glycol dehydrator controlled by a thermal oxidizer
T5F-1	Fugitive Emissions
T5G-1	Waukesha Model H24GSID generator engine 530 horsepower
T5T-1	One (1) 400-bbl storage tank
T5T-2	One (1) 300-bbl storage tank

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 ___116.6____ tons/yr VOC ___144.2_____ tons/yr SO2 ___0.0_____ tons/yr

PM-10 __0.0_____ tons/yr CO __89.4_____ tons/yr Lead ___0.0_____ tons/yr

Total HAP ___36.7_____ tons/yr

Single HAP emitted in the greatest amount ____Toluene _____ PTE _11.1____ 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 PROCESS SOURCES (EUD-3)

A. General Information

Emissions unit ID __T5D-1_____ Description ___40 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. ___TBD_____

Serial No. _____TBD_____ Installation date _05__/_10__/_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	1.67 MMscf	14,600 MMscf
Maximum rate	1.67 MMscf	14,600 MMscf

D. Associated Air Pollution Control Equipment

Emissions unit ID __T5D-1_____ Device Type____Thermal Oxidizer_____

Manufacturer _Industrial Refractory Services__ Model No__30 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)

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

A. General Information

Emissions unit ID __T5T-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. __1304_____

Serial No. ____5104_____ Installation date__02/_02_/_2010___

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) _____._____

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
T5C-1	18.3	5.23	0.0	0.0	28.5	0.0	3.3
T5C-2	16.0	2.9	0.0	0.0	19.54	0.0	2.32
T5D-1	0.0	74.8	0.0	0.0	0.0	0.0	26.7
T5F-1	0.0	5.9	0.0	0.0	0.0	0.0	0.2
T5G-1	81.88	1.28	0.0	0.0	40.94	0.0	0.65
T5T-1	0.0	26.21	0.0	0.0	0.0	0.0	1.79
T5T-2	0.0	26.33	0.0	0.0	0.0	0.0	1.79
FACILITY TOTALS	116.6	144.2	0.0	0.0	89.4	0.0	36.7

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 __T5T-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		5.98	26.21	
Benzene		0.05	0.2	71432
Toluene		0.04	0.2	108883
n-Hexane		0.3	1.315	110543
2,2,4 - Trimethylpentane		0.03	0.1	540841

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 __T5T-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		6.01	26.33	
Benzene		0.05	0.2	71432
Toluene		0.04	0.2	108883
n-Hexane		0.3	1.315	110543
2,2,4 - Trimethylpentane		0.03	0.1	540841

2010 POTENTIAL TO EMIT SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE - T5C-1	4.17	18.25	6.50	28.47	1.19	5.23	0.61	2.68	0.75	3.30	0.01	0.05
Caterpillar 3512TALE - T5C-2	3.64	15.95	4.46	19.54	0.66	2.87	0.44	1.91	0.53	2.32	0.01	0.03
TEG Dehydrator - T5D-1	-	-	-	-	17.08	74.80	-	-	6.10	26.71	5.68	24.88
Condensate Tank Emissions - T5T-1	-	-	-	-	5.98	26.21	-	-	0.41	1.79	0.09	0.39
Condensate Tank Emissions - T5T-2	-	-	-	-	6.01	26.33	-	-	0.41	1.79	0.09	0.39
Genset Waukesha H24GSID - T5G-1	18.69	81.88	9.35	40.94	0.29	1.28	0.12	0.51	0.15	0.65	0.01	0.04
Separator Heater	0.03	0.12	0.02	0.10	0.00	0.00	0.00	0.00	-	-	-	-
Dehy Reboiler	0.05	0.23	0.04	0.19	0.00	0.00	0.00	0.00	-	-	-	-
Fugitive Emissions - T5F-1	-	-	-	-	1.35	5.91	-	-	0.04	0.17	0.01	0.04
Tank Heaters Emissions (Condensate)	0.05	0.23	0.04	0.19	0.00	0.00	0.00	0.00	-	-	-	-
Truck Loading (Condensate and NGLs)	-	-	-	-	0.35	1.53	-	-	-	-	-	-
Totals	**26.64**	**116.7**	**20.42**	**89.4**	**32.92**	**144.2**	**1.16**	**5.1**	**8.38**	**36.7**	**5.90**	**25.8**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator - T5D-1	1.72	7.52	2.45	10.72	0.10	0.46	1.41	6.18
Caterpillar 3516TALE - T5C-1	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3512TALE - T5C-2	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01
Condensate Tank Emissions - T5T-1	0.05	0.20	0.04	0.16	0.001	0.003	0.01	0.03
Condensate Tank Emissions - T5T-2	0.05	0.20	0.04	0.16	0.001	0.003	0.01	0.03
Genset Waukesha H24GSID - T5G-1	0.01	0.03	0.00	0.01	0.00	0.00	0.00	0.00
Totals	**1.82**	**8.0**	**2.53**	**11.1**	**0.11**	**0.5**	**1.43**	**6.3**

UPDATED: 3/23/2010

2010 POTENTIAL TO EMIT SUMMARY - Significant Emission Units

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE - T5C-1	4.17	18.25	6.50	28.47	1.19	5.23	0.61	2.68	0.75	3.30	0.01	0.05
Caterpillar 3512TALE - T5C-2	3.64	15.95	4.46	19.54	0.66	2.87	0.44	1.91	0.53	2.32	0.01	0.03
TEG Dehydrator - T5D-1	-	-	-	-	17.08	74.80	-	-	6.10	26.71	5.68	24.88
Condensate Tank Emissions - T5T-1	-	-	-	-	5.98	26.21	-	-	0.41	1.79	0.09	0.39
Condensate Tank Emissions - T5T-2	-	-	-	-	6.01	26.33	-	-	0.41	1.79	0.09	0.39
Genset Waukesha H24GSID - T5G-1	18.69	81.88	9.35	40.94	0.29	1.28	0.12	0.51	0.15	0.65	0.01	0.04
Fugitive Emissions - T5F-1	-	-	-	-	1.35	5.91	-	-	0.04	0.17	0.01	0.04
Totals	**26.50**	**116.1**	**20.31**	**89.0**	**32.57**	**142.6**	**1.16**	**5.1**	**8.38**	**36.7**	**5.90**	**25.8**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator - T5D-1	1.72	7.52	2.45	10.72	0.10	0.46	1.41	6.18
Caterpillar 3516TALE - T5C-1	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3512TALE - T5C-2	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01
Condensate Tank Emissions - T5T-1	0.05	0.20	0.04	0.16	0.001	0.003	0.01	0.03
Condensate Tank Emissions - T5T-2	0.05	0.20	0.04	0.16	0.001	0.003	0.01	0.03
Genset Waukesha H24GSID - T5G-1	0.01	0.03	0.00	0.01	0.00	0.00	0.00	0.00
Totals	**1.82**	**8.0**	**2.53**	**11.1**	**0.11**	**0.5**	**1.43**	**6.3**

UPDATED: 3/23/2010

Stock Tank Working, Breathing and Flashing Emissions

Company: **XTO Energy**
Location: **Tap 5**
Tank No.: **T5T-1**
Uintah County, Utah

Uncontrolled Emissions

TANK DESCRIPTION	TOTAL VOC LOSSES (tons/yr)	Benzene (tons/yr)	Toluene (tons/yr)	Ethylbenzene (tons/yr)	Xylenes (tons/yr)	N-Hexane (tons/yr)	224-TMP (tons/yr)	TOTAL HAP LOSSES (tons/yr)
Total Flash Emissions (400 bbl Cond. Tank)	22.110	0.199	0.161	0.003	0.030	1.315	0.086	1.790
Working and Breathing Losses (Tanks 4.09)	4.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	**26.210**	**0.199**	**0.161**	**0.003**	**0.030**	**1.315**	**0.086**	**1.790**

NOTES:
Condensate production estimated at 8 barrels of condensate per day.

Flash emissions Calculated Using E&P Tanks

Working and Breathing emissions calculated

Stock Tank Working, Breathing and Flashing Emissions

Company: **XTO Energy**
Location: **Tap 5**
Tank No.: **T5T-2**
Uintah County, Utah

Uncontrolled Emissions

TANK DESCRIPTION	TOTAL VOC LOSSES (tons/yr)	Benzene (tons/yr)	Toluene (tons/yr)	Ethylbenzene (tons/yr)	Xylenes (tons/yr)	N-Hexane (tons/yr)	224-TMP (tons/yr)	TOTAL HAP LOSSES (tons/yr)
Total Flash Emissions (300 bbl Cond. Tank)	22.110	0.199	0.161	0.003	0.030	1.315	0.086	1.790
Working and Breathing Losses (Tanks 4.09)	4.220	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	**26.330**	**0.199**	**0.161**	**0.003**	**0.030**	**1.315**	**0.086**	**1.790**

NOTES:
Condensate production estimated at 8 barrels of condensate per day.

Flash emissions Calculated Using E&P Tanks

Working and Breathing emissions calculated
using EPA Tanks 4.09

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

Identification

User Identification:	Tap 5 T5T-1 condensate tank 400 bbl
City:	Salt Lake City
State:	Utah
Company:	XTO SGG
Type of Tank:	Vertical Fixed Roof Tank
Description:	Tap 5 400 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:		8.53
Net Throughput(gal/yr):		122,640.00
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

Tap 5 T5T-1 condensate tank 400 bbl - 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)

Tap 5 T5T-1 condensate tank 400 bbl - 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):	1,474.3412
Vapor Molecular Weight (lb/lb-mole):	68.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.4252

Annual Net Throughput (gal/yr.):	122,640.0000
Annual Turnovers:	8.5270
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):	8,167.6996

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

Emissions Report for: Annual

Tap 5 T5T-1 condensate tank 400 bbl - Vertical Fixed Roof Tank
Salt Lake City, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 7)	1,474.34	6,693.36	8,167.70

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

Identification

User Identification:	T5T-2
City:	Salt Lake City
State:	Utah
Company:	XTO SGG
Type of Tank:	Vertical Fixed Roof Tank
Description:	Tap-5 Wellsite 300 bbl Condensate Tank

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:		12.08
Net Throughput(gal/yr):		122,640.00
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

T5T-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)

T5T-2 - Vertical Fixed Roof Tank
Salt Lake City, Utah

Annual Emission Calcaulations

Standing Losses (lb):	6,965.3269
Vapor Space Volume (cu ft):	829.3805
Vapor Density (lb/cu ft):	0.0841
Vapor Space Expansion Factor:	1.0635
Vented Vapor Saturation Factor:	0.2573
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):	0.0841
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:	0.2573
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.4252
Vapor Space Outage (ft):	7.3333
Working Losses (lb):	1,474.3412
Vapor Molecular Weight (lb/lb-mole):	68.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.4252

Annual Net Throughput (gal/yr.):	122,640.0000
Annual Turnovers:	12.0800
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:	1.0000

Total Losses (lb):	8,439.6680

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

Emissions Report for: Annual

T5T-2 - Vertical Fixed Roof Tank
Salt Lake City, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 7)	1,474.34	6,965.33	8,439.67

```
*****************************************************************************************
*     Project Setup Information                                                         *
*****************************************************************************************
Project File               : Y:\Utah\Title V Air\EP Tank calcs\PTE T5T1 Tap 5 Tank Emissions March_2010.ep
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                  : Tap 5
Well ID                    : Actual emissions - sample analysis dated 7/9/08
Permit Number              : Compressor condensate
Date                       : 2009.04.06


*****************************************************************************************
*     Data Input                                                                        *
*****************************************************************************************

Separator Pressure         : 50.00[psig]
Separator Temperature      : 80.00[F]
Ambient Pressure           : 12.64[psia]
Ambient Temperature        : 51.96[F]
C10+ SG                    : 0.7388
C10+ MW                    : 149.45

-- Low Pressure Oil ----------------------------------------------------------------------
```

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.0250
4	N2	0.0000
5	C1	1.4893
6	C2	1.0525
7	C3	2.8410
8	i-C4	2.4746
9	n-C4	5.4562
10	i-C5	6.1235
11	n-C5	6.9867
12	C6	9.0722
13	C7	35.2476
14	C8	8.7164
15	C9	3.2339
16	C10+	1.1145
17	Benzene	1.4377
18	Toluene	3.5610
19	E-Benzene	0.2008
20	Xylenes	1.9890
21	n-C6	7.8251
22	224Trimethylp	1.1530

```
-- Sales Oil -----------------------------------------------------------------------------
Production Rate            : 8[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	0.900	0.205
Total HC	24.584	5.613
VOCs, C2+	23.519	5.370
VOCs, C3+	22.108	5.047

Uncontrolled Recovery Info.

Vapor	1.0200	[MSCFD]
HC Vapor	1.0100	[MSCFD]
GOR	127.50	[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	0.049	0.011
4	N2	0.000	0.000
5	C1	1.065	0.243
6	C2	1.411	0.322
7	C3	5.404	1.234
8	i-C4	3.847	0.878
9	n-C4	5.447	1.244
10	i-C5	2.222	0.507
11	n-C5	1.780	0.406
12	C6	0.959	0.219
13	C7	1.405	0.321
14	C8	0.125	0.029
15	C9	0.019	0.004
16	C10+	0.003	0.001
17	Benzene	0.100	0.023
18	Toluene	0.081	0.018
19	E-Benzene	0.002	0.000
20	Xylenes	0.015	0.003
21	n-C6	0.657	0.150
22	224Trimethylp	0.043	0.010
	Total	24.634	5.624

-- 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	0.0250	0.0089	0.0000	0.5436	0.1081	0.2275
4	N2	28.01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	C1	16.04	1.4893	0.2310	0.0000	41.9772	2.8105	13.5555
6	C2	30.07	1.0525	0.5929	0.0003	15.8421	7.2092	9.5776
7	C3	44.10	2.8410	2.4296	0.1041	16.0792	28.3933	25.0150
8	i-C4	58.12	2.4746	2.3741	1.1123	5.7076	16.4619	13.5115
9	n-C4	58.12	5.4562	5.3562	3.7683	8.6729	23.0854	19.1315
10	i-C5	72.15	6.1235	6.1994	6.1035	3.6810	7.2706	6.2858
11	n-C5	72.15	6.9867	7.1103	7.2273	3.0097	5.8034	5.0370
12	C6	86.16	9.0722	9.3102	9.9042	1.4137	2.6789	2.3318
13	C7	100.20	35.2476	36.2904	39.2332	1.6926	3.4341	2.9563
14	C8	114.23	8.7164	8.9835	9.7638	0.1217	0.2717	0.2306
15	C9	128.28	3.2339	3.3340	3.6292	0.0144	0.0376	0.0312
16	C10+	149.45	1.1145	1.1491	1.2516	0.0015	0.0043	0.0035
17	Benzene	78.11	1.4377	1.4775	1.5830	0.1554	0.3002	0.2605
18	Toluene	92.13	3.5610	3.6686	3.9785	0.0988	0.2088	0.1786
19	E-Benzene	106.17	0.2008	0.2070	0.2252	0.0017	0.0039	0.0033
20	Xylenes	106.17	1.9890	2.0504	2.2310	0.0144	0.0340	0.0286
21	n-C6	86.18	7.8251	8.0394	8.5987	0.9283	1.7949	1.5571
22	224Trimethylp	114.24	1.1530	1.1875	1.2858	0.0441	0.0892	0.0769
	MW		87.80	89.41	92.43	36.08	55.66	50.29
	Stream Mole Ratio		1.0000	0.9699	0.8901	0.0301	0.0797	0.1099
	Heating Value	[BTU/SCF]				2066.23	3119.04	2830.22
	Gas Gravity	[Gas/Air]				1.25	1.92	1.74

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Bubble Pt. @ 100F	[psia]	61.43	22.37	7.22
RVP @ 100F	[psia]	24.12	14.89	6.99
Spec. Gravity @ 100F		0.657	0.660	0.665

```
*****************************************************************************************
*     Project Setup Information                                                         *
*****************************************************************************************
Project File               : Y:\Utah\Title V Air\EP Tank calcs\PTE T5T2 Tap 5 Tank Emissions March_2010.ep
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                  : Tap 5
Well ID                    : Actual emissions - sample analysis dated 7/9/08
Permit Number              : Compressor condensate
Date                       : 2009.04.06


*****************************************************************************************
*     Data Input                                                                        *
*****************************************************************************************

Separator Pressure         : 50.00[psig]
Separator Temperature      : 80.00[F]
Ambient Pressure           : 12.64[psia]
Ambient Temperature        : 51.96[F]
C10+ SG                    : 0.7388
C10+ MW                    : 149.45

-- Low Pressure Oil ----------------------------------------------------------------------
   No.    Component              mol %
   1      H2S                    0.0000
   2      O2                     0.0000
   3      CO2                    0.0250
   4      N2                     0.0000
   5      C1                     1.4893
   6      C2                     1.0525
   7      C3                     2.8410
   8      i-C4                   2.4746
   9      n-C4                   5.4562
   10     i-C5                   6.1235
   11     n-C5                   6.9867
   12     C6                     9.0722
   13     C7                    35.2476
   14     C8                     8.7164
   15     C9                     3.2339
   16     C10+                   1.1145
   17     Benzene                1.4377
   18     Toluene                3.5610
   19     E-Benzene              0.2008
   20     Xylenes                1.9890
   21     n-C6                   7.8251
   22     224Trimethylp          1.1530

-- Sales Oil -----------------------------------------------------------------------------
Production Rate            : 8[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
```


76

	[ton/yr]	[lb/hr]
Total HAPs	0.900	0.205
Total HC	24.584	5.613
VOCs, C2+	23.519	5.370
VOCs, C3+	22.108	5.047

Uncontrolled Recovery Info.

Vapor	1.0200	[MSCFD]
HC Vapor	1.0100	[MSCFD]
GOR	127.50	[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	0.049	0.011
4	N2	0.000	0.000
5	C1	1.065	0.243
6	C2	1.411	0.322
7	C3	5.404	1.234
8	i-C4	3.847	0.878
9	n-C4	5.447	1.244
10	i-C5	2.222	0.507
11	n-C5	1.780	0.406
12	C6	0.959	0.219
13	C7	1.405	0.321
14	C8	0.125	0.029
15	C9	0.019	0.004
16	C10+	0.003	0.001
17	Benzene	0.100	0.023
18	Toluene	0.081	0.018
19	E-Benzene	0.002	0.000
20	Xylenes	0.015	0.003
21	n-C6	0.657	0.150
22	224Trimethylp	0.043	0.010
	Total	24.634	5.624

-- 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	0.0250	0.0089	0.0000	0.5436	0.1081	0.2275
4	N2	28.01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	C1	16.04	1.4893	0.2310	0.0000	41.9772	2.8105	13.5555
6	C2	30.07	1.0525	0.5929	0.0003	15.8421	7.2092	9.5776
7	C3	44.10	2.8410	2.4296	0.1041	16.0792	28.3933	25.0150
8	i-C4	58.12	2.4746	2.3741	1.1123	5.7076	16.4619	13.5115
9	n-C4	58.12	5.4562	5.3562	3.7683	8.6729	23.0854	19.1315
10	i-C5	72.15	6.1235	6.1994	6.1035	3.6810	7.2706	6.2858
11	n-C5	72.15	6.9867	7.1103	7.2273	3.0097	5.8034	5.0370
12	C6	86.16	9.0722	9.3102	9.9042	1.4137	2.6789	2.3318
13	C7	100.20	35.2476	36.2904	39.2332	1.6926	3.4341	2.9563
14	C8	114.23	8.7164	8.9835	9.7638	0.1217	0.2717	0.2306
15	C9	128.28	3.2339	3.3340	3.6292	0.0144	0.0376	0.0312
16	C10+	149.45	1.1145	1.1491	1.2516	0.0015	0.0043	0.0035
17	Benzene	78.11	1.4377	1.4775	1.5830	0.1554	0.3002	0.2605
18	Toluene	92.13	3.5610	3.6686	3.9785	0.0988	0.2088	0.1786
19	E-Benzene	106.17	0.2008	0.2070	0.2252	0.0017	0.0039	0.0033
20	Xylenes	106.17	1.9890	2.0504	2.2310	0.0144	0.0340	0.0286
21	n-C6	86.18	7.8251	8.0394	8.5987	0.9283	1.7949	1.5571
22	224Trimethylp	114.24	1.1530	1.1875	1.2858	0.0441	0.0892	0.0769
	MW		87.80	89.41	92.43	36.08	55.66	50.29
	Stream Mole Ratio		1.0000	0.9699	0.8901	0.0301	0.0797	0.1099
	Heating Value	[BTU/SCF]				2066.23	3119.04	2830.22
	Gas Gravity	[Gas/Air]				1.25	1.92	1.74

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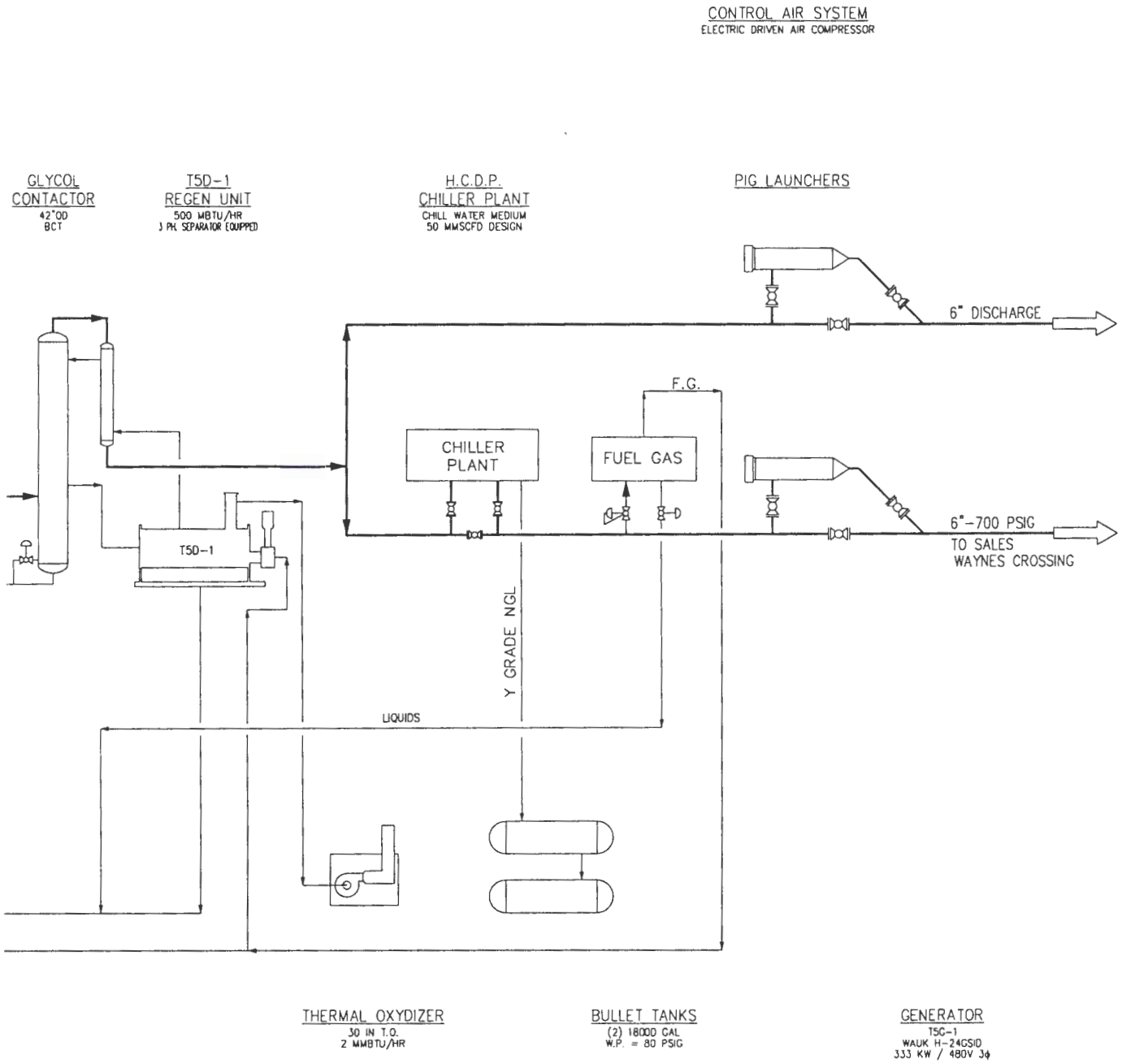
Bubble Pt. @ 100F	[psia]	61.43	22.37	7.22
RVP @ 100F	[psia]	24.12	14.89	6.99
Spec. Gravity @ 100F		0.657	0.660	0.665



INGS

G NO.	TITLE

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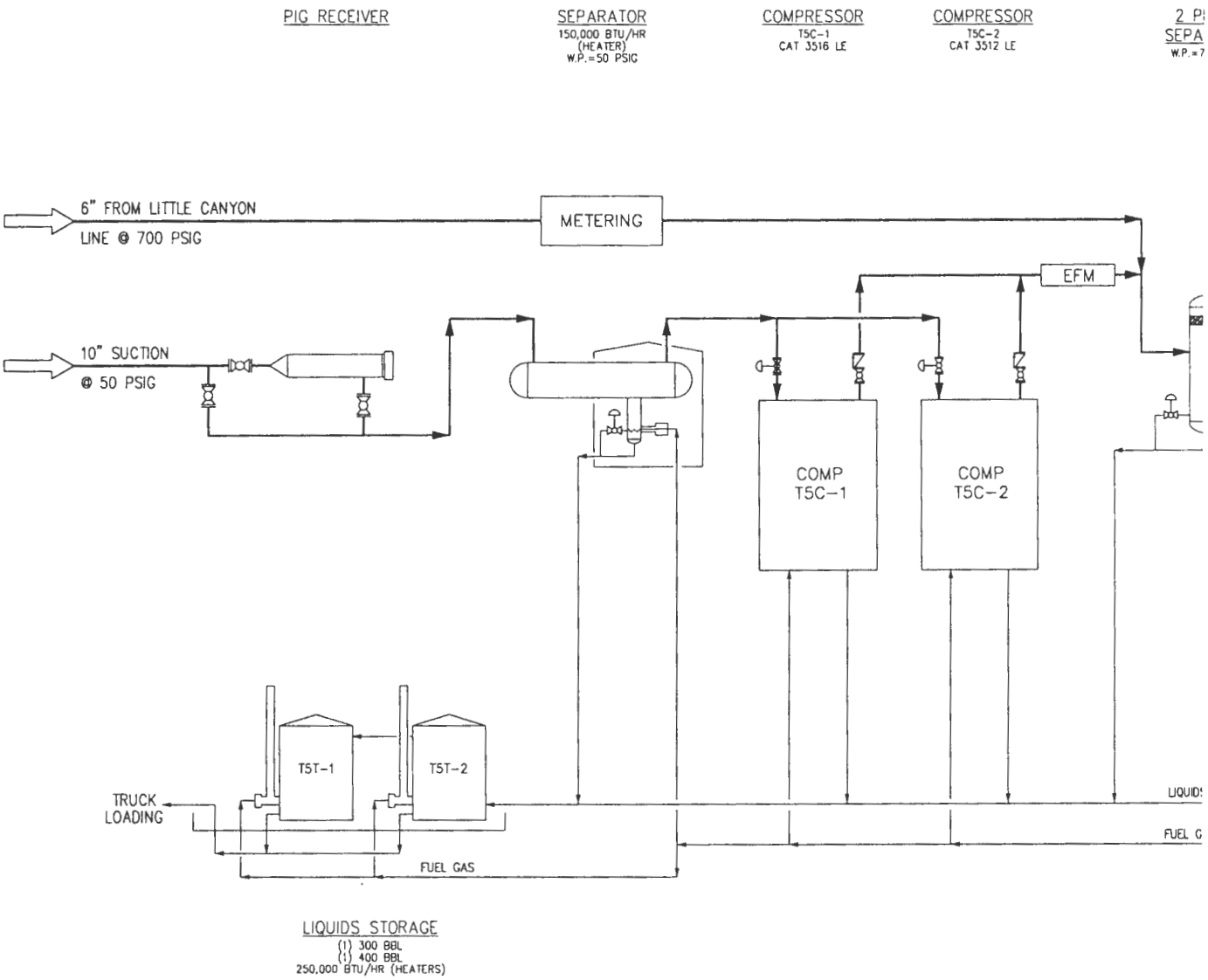
SUMMIT GAS GATHERING

APPROVED:	DATE	TITLE: PROCESS FLOW DIAGRAM TAP #5 - FACILITY #711305 ROOSEVELT, UTAH			
CHECKED:					
DESIGNED:					
DRAWN: J DAVIS	01/10	JOB No:	SCALE	DWG. NO.: D-200-100	REV. 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 DUTIES	3/10		

REFERENCI

DRAWING NO.	TITLE

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**

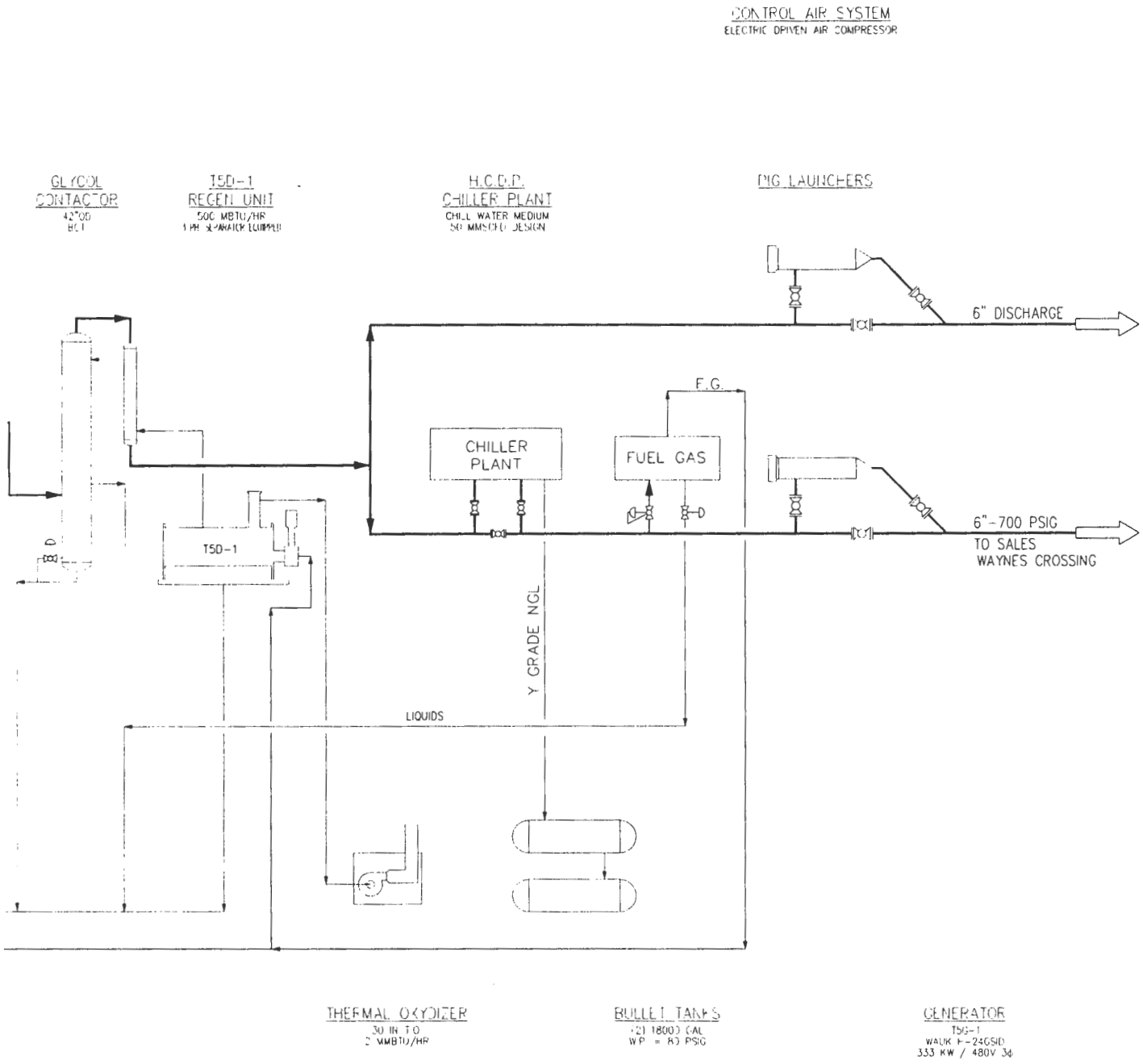
TITLE V EQUIPMENT

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



AWINGS

AWING NO.	TITLE

NOTICE

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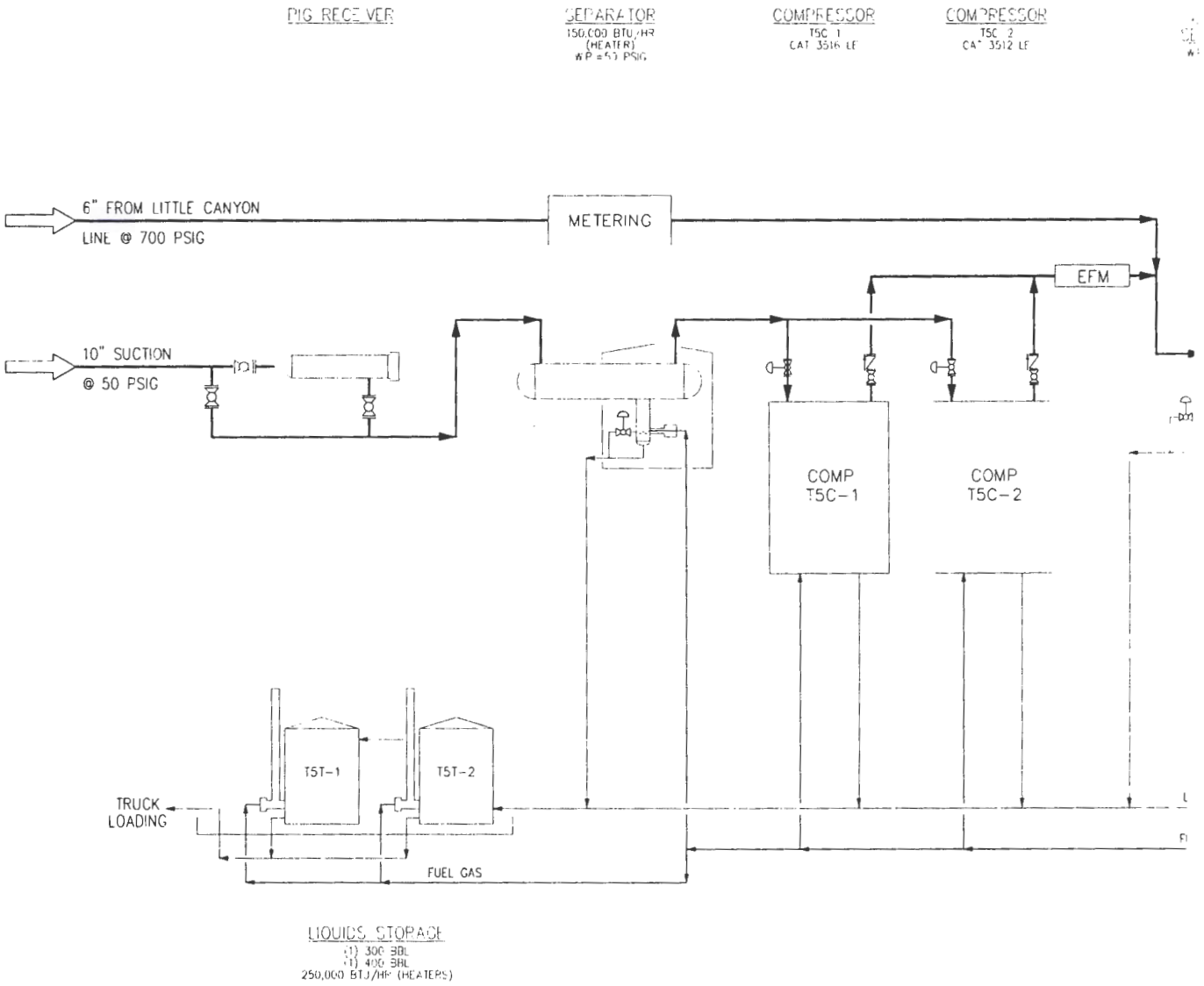
SUMMIT GAS GATHERING

APPROVED:	DATE	TITLE: PROCESS FLOW DIAGRAM TAP #5 - FACILITY #711305 ROOSEVELT, UTAH			
CHECKED:					
DESIGNED:					
DRAWN: J DAVIS	01/10	JOB No:	SCALE	DWG. NO.: D-200-100	REV. 2



GENERAL NOTES

NOTE:

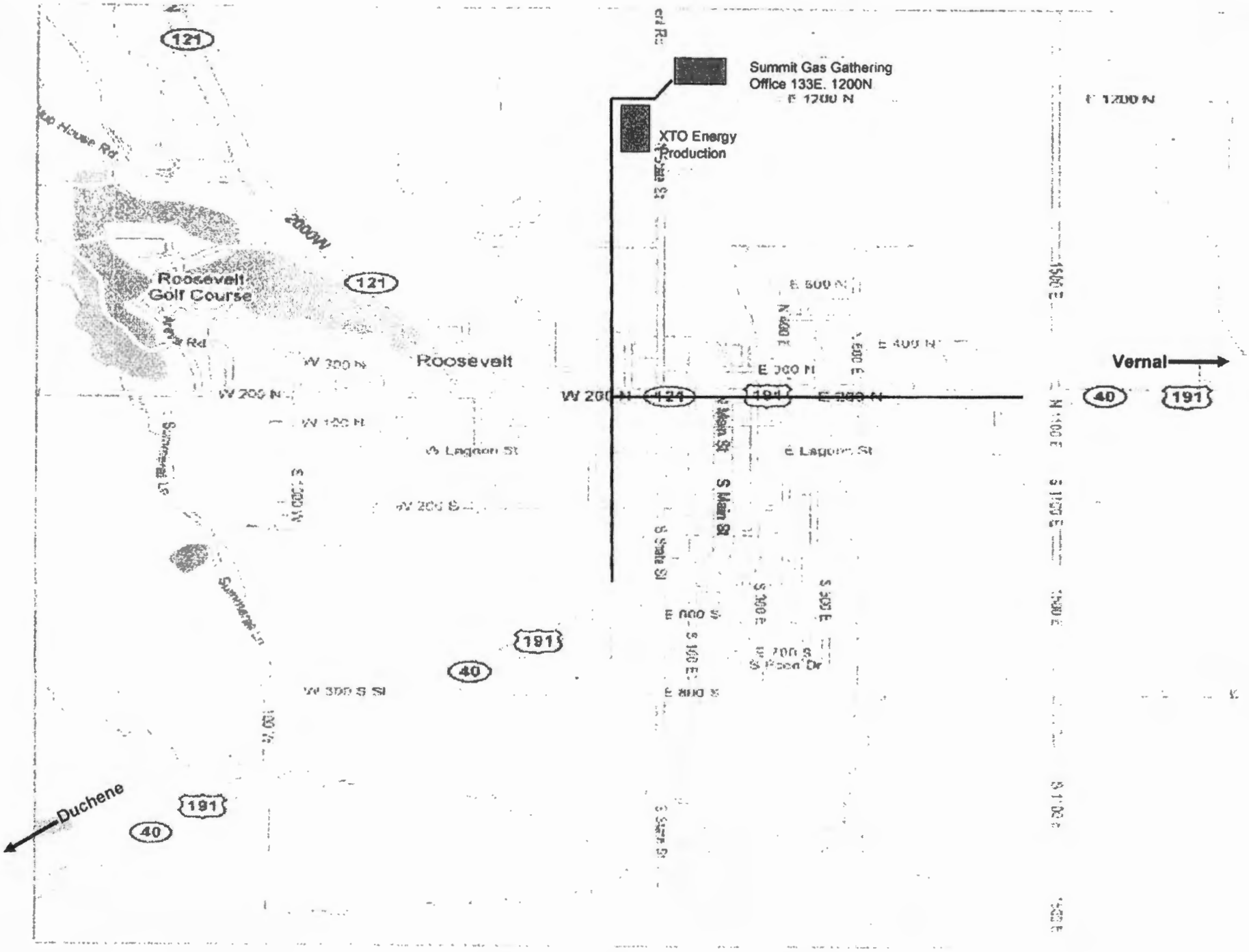
WORKING PRESSURES (W.P.) OF EQUIPMENT AND LINE PRESSURES ARE APPROXIMATE AND SUBJECT TO OPERATIONAL VARIATIONS

REVISIONS

MK.	DESCRIPTION	DATE	CK	APPR
1	GENERAL	2/10		
2	CORRECTED HEAT DUTIES	3/10		

REFERE

DRAWING NO.	TITLE


Summit Gas Gathering
Office 133E. 1200N
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Golf Course
Roosevelt
Vernal
Duchene
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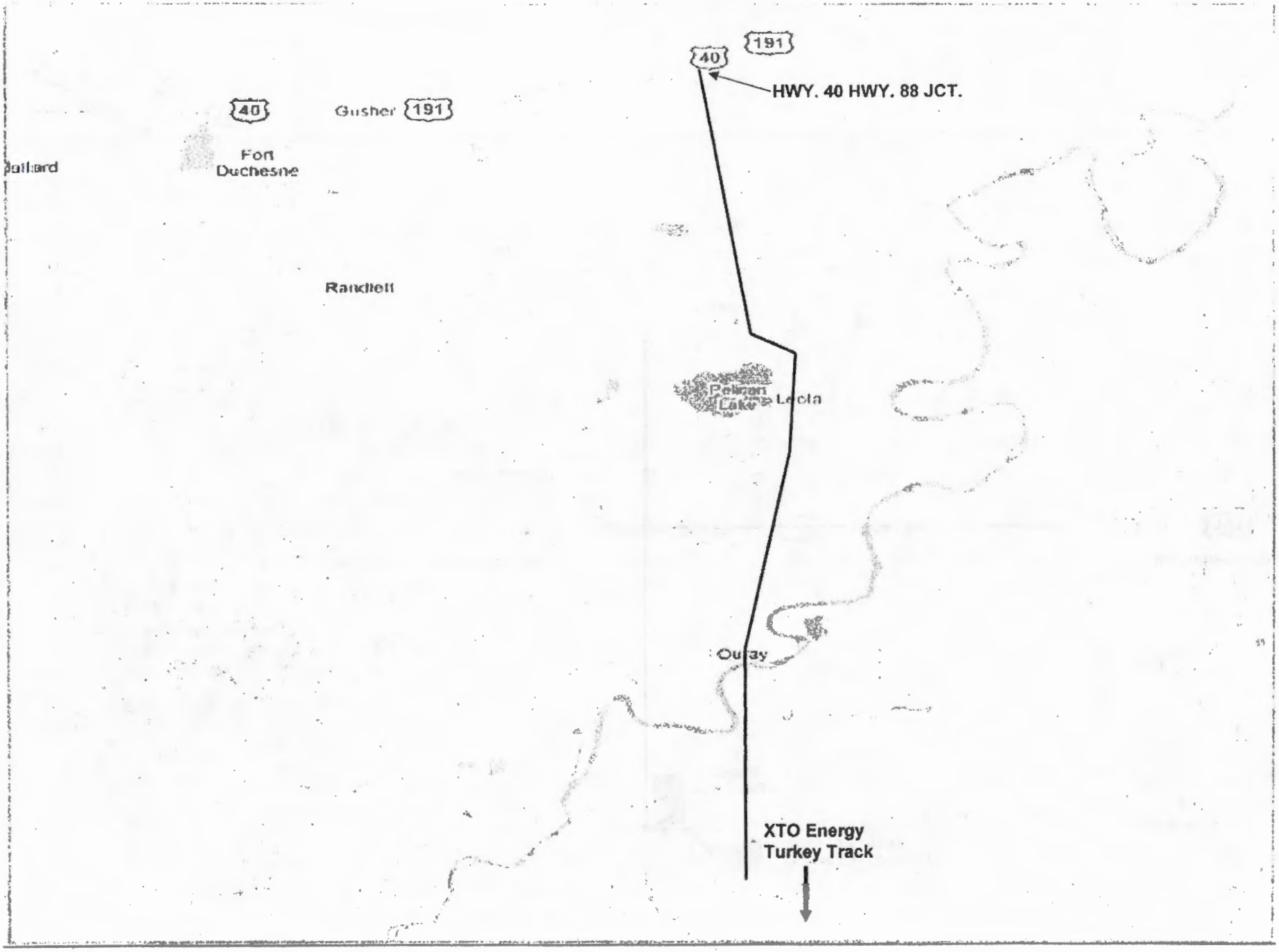
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HWY. 40 HWY. 88 JCT.
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Gusher
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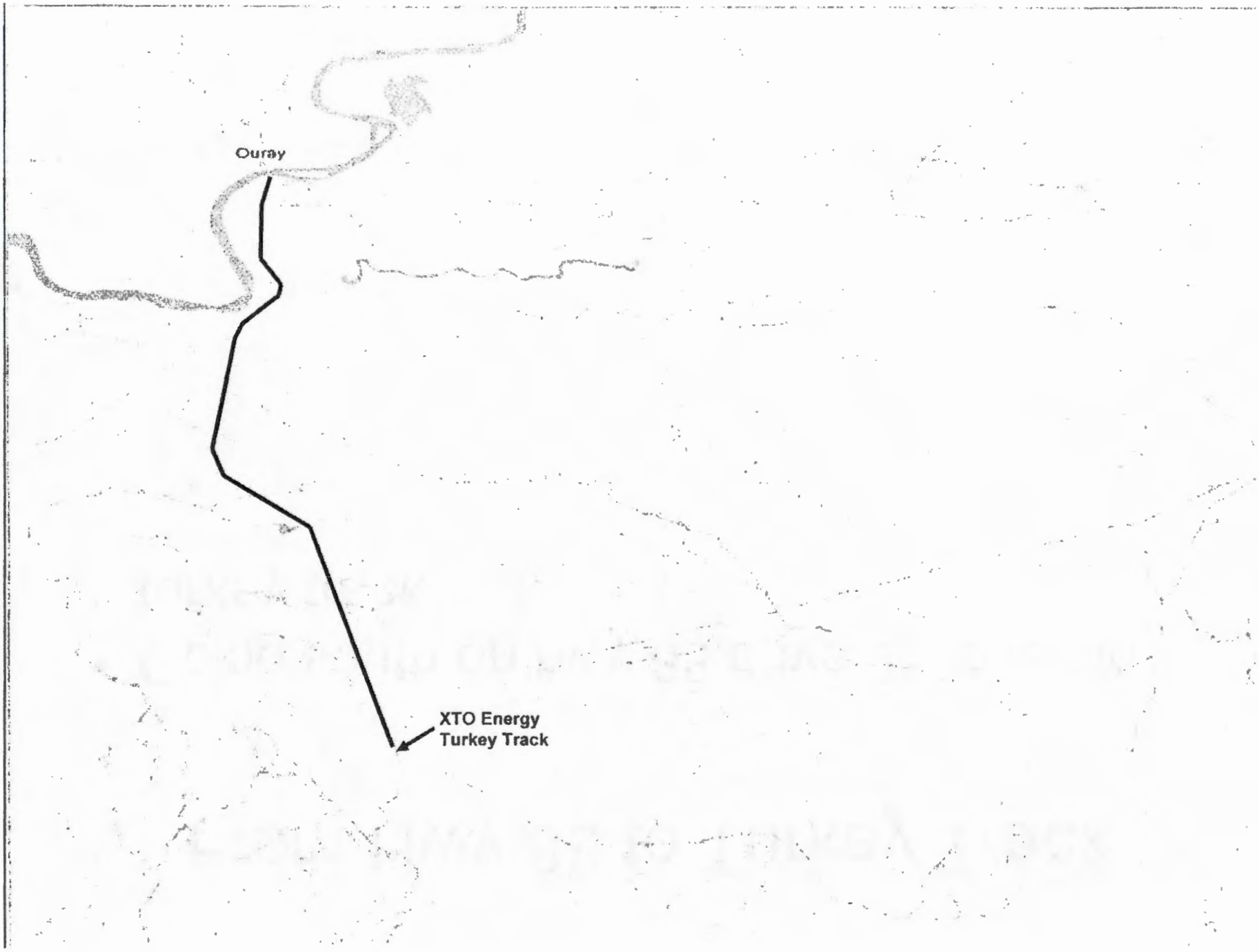
Fort
Duchesne
Randlett
Pelican
Lake
Leota
Ouray
XTO Energy
Turkey Track

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.

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.

SGG Tap-5 Compressor Station
Process Description

The Tap-5 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 700 psig.
- One (1) inlet gas scrubber (separator) operating at an approximate line pressure of 50 psig and a 0.15 mmBTU/hr natural gas-fired heater.
- One (1) Caterpillar G3516TALE compressor engine (T5C-1)
- One (1) Caterpillar G3512TALE compressor engine (T5C-2)
- One (1) Natural Gas Chiller Hydrocarbon Dewpoint Control (HCDP) Unit
- Two (2) 18,000 gallon pressurized bullet tanks
- One (1) Waukesha H24GSID natural-gas fired engine driven generator (T5G-1)
- One (1) 300-barrel slop-tank (T5T-1) with a 0.25 mmBTU/hr tank heater
- One (1) 400-barrel slop-tank (T5T-2) with a 0.25 mmBTU/hr tank heater
- One (1) natural gas dehydrator with (T5D-1):
    - A maximum natural gas process flow of 40 mmscfd natural gas, and
    - One (1) 0.50 mmBTU/hr TEG reboiler heater
    - One BTEX emissions control system consisting of a Thermal Oxidizer with a 2.0 mmBTU/hr burner.

The basic process flow at the facility is as follows:

Natural gas produced from area wells and from the Little Canyon Compressor Station is sent to the Tap-5 compressor station through natural-gas gathering flowlines. Once the gas enters the station, it flows through either one of two separators (scrubbers) (depending on which inlet gas source it originates from) in order to reduce water and condensable liquids content in the gas stream prior to entry into the compressors and the dehydrator system. The liquids produced from the on-site scrubbers is then sent to the 300-barrel and 400-barrel on-site slop tanks (T5T-1 and T5T-2) for storage prior to being hauled offsite. Following the lower pressure (50 psig) inlet scrubber, the gas is compressed with two (2) natural gas internal combustion engine driven compressors (T5C-1, and T5C-2) up to a higher pressure (approx. 700 psig). The higher pressure gas then passes through a 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) 40 mmscfd natural gas TEG dehydrator (T5D-1) with one (1) 0.50 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 flows through a hydrocarbon dew-point (HCDP) control plant whereby the gas is cooled in order to remove heavier liquid hydrocarbons from the gas stream prior to entering the sale pipeline. This HCDP process produces Y-grade NGL's that are pumped from the HCDP process unit into either of two (2) 18,000 gallon pressurized bullet tanks. The pressurized bullet tanks operate at approximately 80 psig of pressure. The Y-grade NGL's are then hauled off in a pressurized tank truck for sale. Following the HCDP process, the natural gas exits the station via a metered sales pipeline. The station has on-site electrical power supplied by one (1) Waukesha H24GSID natural-gas fired engine driven generator (T5G-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 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

Summit Gas Gathering TV Permit Info Request - Tap-5
Craig_Allison
to:
Eric Wortman
01/22/2010 07:18 PM
Show Details

Eric:

Related to SGG Tap-5 Station 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

Construction History - June 2001

ANNUAL POTENTIAL TO EMIT (PTE) EMISSION SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	4.02	17.63	5.10	22.33	0.24	1.06	0.80	3.53	0.99	4.34	0.05	0.22
Totals	**4.02**	**17.6**	**5.10**	**22.3**	**0.24**	**1.1**	**0.80**	**3.5**	**0.99**	**4.3**	**0.05**	**0.2**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	0.04	0.19	0.00	0.02	0.00	0.00	0.00	0.01
Totals	**0.04**	**0.2**	**0.00**	**0.0**	**0.00**	**0.0**	**0.00**	**0.0**

Buys Associates, Inc
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

Construction History - March 2004

ANNUAL POTENTIAL TO EMIT (PTE) EMISSION SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	4.02	17.63	5.10	22.33	0.24	1.06	0.80	3.53	0.99	4.34	0.05	0.22
Caterpillar 3412CLE	2.44	10.68	2.32	10.15	0.20	0.85	0.37	1.60	0.45	1.97	0.02	0.10
Totals	**6.46**	**28.3**	**7.41**	**32.5**	**0.44**	**1.9**	**1.17**	**5.1**	**1.44**	**6.3**	**0.07**	**0.3**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	0.04	0.19	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3412CLE	0.02	0.09	0.00	0.01	0.00	0.00	0.00	0.00
Totals	**0.06**	**0.3**	**0.01**	**0.0**	**0.00**	**0.0**	**0.00**	**0.0**

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

Construction History - April 2005

ANNUAL POTENTIAL TO EMIT (PTE) EMISSION SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	4.02	17.63	5.10	22.33	0.24	1.06	0.80	3.53	0.99	4.34	0.05	0.22
Caterpillar 3412CLE	2.44	10.68	2.32	10.15	0.20	0.85	0.37	1.60	0.45	1.97	0.02	0.10
TEG Dehydrator #1	-	-	-	-	15.85	69.42	-	-	7.57	33.18	7.26	31.79
Condensate Tank Emissions	-	-	-	-	2.62	11.45	-	-	-	-	-	-
TEG Dehy Glycol Reboiler Heater #1	0.03	0.11	0.02	0.09	0.00	0.01	0.00	0.00	-	-	-	-
Separator	0.02	0.08	0.02	0.07	0.00	0.01	0.00	0.00	-	-	-	-
Oil Tank Emissions	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Tank Heaters Emissions (Oil, Condensate)	0.09	0.40	0.08	0.34	0.01	0.04	0.00	0.00	-	-	-	-
Truck Loading (Oil and Condensate)	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Pump Jack engine (Propane fueled)	0.00	0.01	0.00	0.00	0.00	0.00	-	-	-	-	-	-
Totals	**6.60**	**28.9**	**7.53**	**33.0**	**18.91**	**82.8**	**1.17**	**5.1**	**9.02**	**39.5**	**7.33**	**32.1**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator #1	2.44	10.68	3.54	15.52	0.09	0.41	1.18	5.18
Caterpillar 3516TALE	0.04	0.19	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3412CLE	0.02	0.09	0.00	0.01	0.00	0.00	0.00	0.00
Totals	**2.50**	**11.0**	**3.55**	**15.5**	**0.09**	**0.4**	**1.19**	**5.2**

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

Construction History - June 2005

ANNUAL POTENTIAL TO EMIT (PTE) EMISSION SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	4.02	17.63	5.10	22.33	0.24	1.06	0.80	3.53	0.99	4.34	0.05	0.22
Caterpillar 3412CLE	2.44	10.68	2.32	10.15	0.20	0.85	0.37	1.60	0.45	1.97	0.02	0.10
Caterpillar 3512TALE	3.11	13.63	4.36	19.08	0.71	3.09	0.52	2.27	0.66	2.90	0.04	0.17
TEG Dehydrator #1	-	-	-	-	15.85	69.42	-	-	7.57	33.18	7.26	31.79
Condensate Tank Emissions	-	-	-	-	2.62	11.45	-	-	-	-	-	-
TEG Dehy Glycol Reboiler Heater #1	0.03	0.11	0.02	0.09	0.00	0.01	0.00	0.00	-	-	-	-
Separator	0.02	0.08	0.02	0.07	0.00	0.01	0.00	0.00	-	-	-	-
Oil Tank Emissions	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Tank Heaters Emissions (Oil, Condensate)	0.09	0.40	0.08	0.34	0.01	0.04	0.00	0.00	-	-	-	-
Truck Loading (Oil and Condensate)	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Pump Jack engine (Propane fueled)	0.00	0.01	0.00	0.00	0.00	0.00	-	-	-	-	-	-
Totals	**9.71**	**42.5**	**11.88**	**52.1**	**19.62**	**85.9**	**1.69**	**7.4**	**9.68**	**42.4**	**7.37**	**32.3**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator #1	2.44	10.68	3.54	15.52	0.09	0.41	1.18	5.18
Caterpillar 3516TALE	0.04	0.19	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3412CLE	0.02	0.09	0.00	0.01	0.00	0.00	0.00	0.00
Caterpillar 3512TALE	0.03	0.15	0.00	0.01	0.00	0.00	0.00	0.01
Totals	**2.54**	**11.1**	**3.55**	**15.6**	**0.09**	**0.4**	**1.19**	**5.2**

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

Construction History - May 2007

ANNUAL POTENTIAL TO EMIT (PTE) EMISSION SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	4.02	17.63	5.10	22.33	0.24	1.06	0.80	3.53	0.99	4.34	0.05	0.22
Caterpillar 3412CLE	2.44	10.68	2.32	10.15	0.20	0.85	0.37	1.60	0.45	1.97	0.02	0.10
Caterpillar 3512TALE	3.11	13.63	4.36	19.08	0.71	3.09	0.52	2.27	0.66	2.90	0.04	0.17
TEG Dehydrator #2	-	-	-	-	36.67	160.63	-	-	18.16	79.52	17.45	76.44
Condensate Tank Emissions	-	-	-	-	2.62	11.45	-	-	-	-	-	-
TEG Dehy Glycol Reboiler Heater #2	0.03	0.11	0.02	0.09	0.00	0.01	0.00	0.00	-	-	-	-
Separator	0.02	0.08	0.02	0.07	0.00	0.01	0.00	0.00	-	-	-	-
Oil Tank Emissions	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Tank Heaters Emissions (Oil, Condensate)	0.09	0.40	0.08	0.34	0.01	0.04	0.00	0.00	-	-	-	-
Truck Loading (Oil and Condensate)	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Pump Jack engine (Propane fueled)	0.00	0.01	0.00	0.00	0.00	0.00	-	-	-	-	-	-
Totals	**9.71**	**42.5**	**11.89**	**52.1**	**40.44**	**177.1**	**1.69**	**7.4**	**20.26**	**88.7**	**17.56**	**76.9**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator #2	5.70	24.97	8.49	37.17	0.23	1.01	3.04	13.30
Caterpillar 3516TALE	0.04	0.19	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3412CLE	0.02	0.09	0.00	0.01	0.00	0.00	0.00	0.00
Caterpillar 3512TALE	0.03	0.15	0.00	0.01	0.00	0.00	0.00	0.01
Totals	**5.80**	**25.4**	**8.50**	**37.2**	**0.23**	**1.0**	**3.04**	**13.3**

Buys Associates, Inc.
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Construction History - October 2007

ANNUAL POTENTIAL TO EMIT (PTE) EMISSION SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
New Caterpillar 3516TALE	4.43	19.41	5.61	24.58	0.27	1.16	0.89	3.88	1.09	4.78	0.06	0.24
Caterpillar 3412CLE	2.44	10.68	2.32	10.15	0.20	0.85	0.37	1.60	0.45	1.97	0.02	0.10
Caterpillar 3512TALE	3.11	13.63	4.36	19.08	0.71	3.09	0.52	2.27	0.66	2.90	0.04	0.17
TEG Dehydrator #2	-	-	-	-	36.67	160.63	-	-	18.16	79.52	17.45	76.44
Condensate Tank Emissions	-	-	-	-	2.62	11.45	-	-	-	-	-	-
Genset 3412 TA	25.61	112.18	1.81	7.94	0.33	1.43	0.33	1.43	0.41	1.78	0.02	0.09
TEG Dehy Glycol Reboiler Heater #2	0.03	0.11	0.02	0.09	0.00	0.01	0.00	0.00	-	-	-	-
Separator	0.02	0.08	0.02	0.07	0.00	0.01	0.00	0.00	-	-	-	-
Oil Tank Emissions	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Tank Heaters Emissions (Oil, Condensate)	0.09	0.40	0.08	0.34	0.01	0.04	0.00	0.00	-	-	-	-
Truck Loading (Oil and Condensate)	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Pump Jack engine (Propane fueled)	0.00	0.01	0.00	0.00	0.00	0.00	-	-	-	-	-	-
Totals	**35.73**	**156.5**	**14.21**	**62.3**	**40.79**	**178.7**	**2.10**	**9.2**	**20.77**	**91.0**	**17.59**	**77.0**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator #2	5.70	24.97	8.49	37.17	0.23	1.01	3.04	13.30
New Caterpillar 3516TALE	0.04	0.21	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3412CLE	0.02	0.09	0.00	0.01	0.00	0.00	0.00	0.00
Caterpillar 3512TALE	0.03	0.15	0.00	0.01	0.00	0.00	0.00	0.01
Genset 3412 TA	0.02	0.08	0.00	0.01	0.00	0.00	0.00	0.00
Totals	**5.82**	**25.5**	**8.50**	**37.2**	**0.23**	**1.0**	**3.04**	**13.3**

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2009 POTENTIAL TO EMIT SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE - T5C-1	4.17	18.25	6.50	28.47	1.19	5.23	0.61	2.68	0.75	3.30	0.01	0.05
Caterpillar 3512TALE - T5C-2	3.64	15.95	4.46	19.54	0.66	2.87	0.44	1.91	0.53	2.32	0.01	0.03
TEG Dehydrator - T5D-1	-	-	-	-	17.08	74.80	-	-	6.10	26.71	5.68	24.88
Condensate Tank Emissions - T5T-1 & T5T-2	-	-	-	-	10.09	44.22	-	-	0.41	1.79	0.09	0.39
Genset Waukesha H24GSID - T5G-1	18.69	81.88	9.35	40.94	0.29	1.28	0.12	0.51	0.15	0.65	0.01	0.04
Separator Heater	0.02	0.07	0.01	0.06	0.00	0.00	0.00	0.00	-	-	-	-
Dehy Reboiler	0.05	0.23	0.04	0.19	0.00	0.00	0.00	0.00	-	-	-	-
Fugitive Emissions - T5F-1	-	-	-	-	1.35	5.91	-	-	0.04	0.17	0.01	0.04
Tank Heaters Emissions (Condensate)	0.05	0.23	0.04	0.19	0.00	0.00	0.00	0.00	-	-	-	-
Truck Loading (Condensate and NGLs)	-	-	-	-	0.35	1.53	-	-	-	-	-	-
Totals	**26.62**	**116.6**	**20.41**	**89.4**	**31.02**	**135.8**	**1.16**	**5.1**	**7.97**	**34.9**	**5.81**	**25.4**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator - T5D-1	1.72	7.52	2.45	10.72	0.10	0.46	1.41	6.18
Caterpillar 3516TALE - T5C-1	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3512TALE - T5C-2	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01
Condensate Tank Emissions - T5T-1 & T5T-2	0.05	0.20	0.04	0.16	0.00	0.00	0.01	0.03
Genset Waukesha H24GSID - T5G-1	0.01	0.03	0.00	0.01	0.00	0.00	0.00	0.00
Totals	**1.78**	**7.8**	**2.49**	**10.9**	**0.11**	**0.5**	**1.42**	**6.2**

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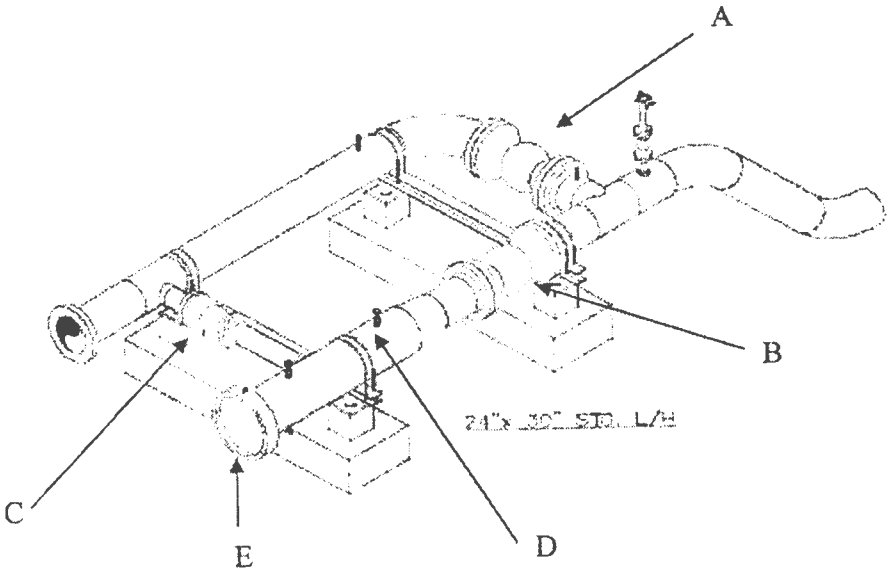
SGG ROOSEVELT – PIPELINE PIGGING PROCEDURES

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.

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

Identification

User Identification:	Uinta 500 gal lube oil tank
City:	Salt Lake City
State:	Utah
Company:	XTO SGG
Type of Tank:	Horizontal Tank
Description:	Uinta 500 gallon lube oil tank - Pegasus 805 Oil

Tank Dimensions

Shell Length (ft):		6.17
Diameter (ft):		3.78
Volume (gallons):		520.00
Turnovers:		15.00
Net Throughput(gal/yr):		7,800.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	Aluminum/Diffuse
Shell Condition	Good

Breather Vent Settings

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

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

Uinta 500 gal lube oil tank - Horizontal 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
Distillate fuel oil no. 2	All	60.30	50.00	70.60	54.56	0.0066	0.0045	0.0092	130.0000			188.00	Option 1: VP60 = .0065 VP70 = .009

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

Emissions Report for: Annual

Uinta 500 gal lube oil tank - Horizontal Tank
Salt Lake City, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	0.16	0.18	0.34

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

Uinta 500 gal lube oil tank - Horizontal Tank
Salt Lake City, Utah

Annual Emission Calcaulations

Standing Losses (lb):	0.1845
Vapor Space Volume (cu ft):	44.1021
Vapor Density (lb/cu ft):	0.0002
Vapor Space Expansion Factor:	0.0749
Vented Vapor Saturation Factor:	0.9993
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	44.1021
Tank Diameter (ft):	3.7800
Effective Diameter (ft):	5.4507
Vapor Space Outage (ft):	1.8900
Tank Shell Length (ft):	6.1700
Vapor Density	
Vapor Density (lb/cu ft):	0.0002
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0066
Daily Avg. Liquid Surface Temp. (deg. R):	519.9715
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):	514.2325
Tank Paint Solar Absorptance (Shell):	0.6000
Daily Total Solar Insulation Factor (Btu/sqft day):	1,452.1184
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0749
Daily Vapor Temperature Range (deg. R):	41.2136
Daily Vapor Pressure Range (psia):	0.0047
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0066
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0045
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0092
Daily Avg. Liquid Surface Temp. (deg R):	519.9715
Daily Min. Liquid Surface Temp. (deg R):	509.6681
Daily Max. Liquid Surface Temp. (deg R):	530.2749
Daily Ambient Temp. Range (deg. R):	23.3583
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9993
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.0066
Vapor Space Outage (ft):	1.8900
Working Losses (lb):	0.1587
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0066
Annual Net Throughput (gal/yr.):	7,800.0000
Annual Turnovers:	15.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	3.7800
Working Loss Product Factor:	1.0000
Total Losses (lb):	0.3433

Title V Part 71 Air Permit Application – Tap-4, Tap-5, and Kings Canyon Stations
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 applies to this site because the facility utilizes a dew-point process to produce Y-grade NGL and has the design capacity to process in excess of 10 mmscfd.

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.

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

Identification

User Identification:	T5T-1
City:	Salt Lake City
State:	Utah
Company:	XTO SGG
Type of Tank:	Vertical Fixed Roof Tank
Description:	Tap-5 300 bbl Condensate Tank #1

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:		12.08
Net Throughput(gal/yr):		122,640.00
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

T5T-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)

T5T-1 - Vertical Fixed Roof Tank
Salt Lake City, Utah

Annual Emission Calculations

Standing Losses (lb):	6,965.3269
Vapor Space Volume (cu ft):	829.3805
Vapor Density (lb/cu ft):	0.0841
Vapor Space Expansion Factor:	1.0635
Vented Vapor Saturation Factor:	0.2573
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):	0.0841
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):	1.0630
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:	0.2573
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.4252
Vapor Space Outage (ft):	7.3333
Working Losses (lb):	1,474.3412
Vapor Molecular Weight (lb/lb-mole):	68.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.4252

Annual Net Throughput (gal/yr.):	122,640.0000
Annual Turnovers:	12.0800
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:	1.0000

Total Losses (lb):	8,439.6680

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

Emissions Report for: Annual

T5T-1 - Vertical Fixed Roof Tank
Salt Lake City, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 7)	1,474.34	6,965.33	8,439.67

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

Identification

User Identification:	T5T-2
City:	Salt Lake City
State:	Utah
Company:	XTO SGG
Type of Tank:	Vertical Fixed Roof Tank
Description:	Tap-5 Wellsite 300 bbl Condensate Tank

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:		12.08
Net Throughput(gal/yr):		122,640.00
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

Meteroogical Data used in Emissions Calculations: Sat Lake City, Utah (Avg Atmospheric Pressure = 12.64 psia)

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

T5T-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)

T5T-2 - Vertical Fixed Roof Tank
Salt Lake City, Utah

Annual Emission Calcaulations

Standing Losses (lb):	6,965.3269
Vapor Space Volume (cu ft):	829.3805
Vapor Density (lb/cu ft):	0.0841
Vapor Space Expansion Factor:	1.0635
Vented Vapor Saturation Factor:	0.2573
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):	0.0841
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:	0.2573
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.4252
Vapor Space Outage (ft):	7.3333
Working Losses (lb):	1,474.3412
Vapor Molecular Weight (lb/lb-mole):	68.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.4252

Annual Net Throughput (gal/yr.):	122,640.0000
Annual Turnovers:	12.0800
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:	1.0000

Total Losses (lb)	8,439.6680

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

Emissions Report for: Annual

T5T-2 - Vertical Fixed Roof Tank
Salt Lake City, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 7)	1,474.34	6,965.33	8,439.67

Summit Gas Gathering
Tap-5 Compressor Station – Permit # V-OU-0018-07.00
Response to EPA Additional Information Request

1. Please recalculate and submit emissions for storage tank emission unit T5T-1 and T5T-2. In addition, EPA is requesting that emissions estimates/calculations for working, standing, and breathing losses, using EPA Tanks 4.0, be provided for each of the insignificant emission units lube oil tanks and 18,000-gal pressurized storage tanks in order to sufficiently support SGG's claim that emissions from these units truly are insignificant per §71.5(c)(11)(iii)(A) and/or (B).

   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 T5T-1, T5T-2, and for a typical 500 gallon lube oil tank. The emissions calculations for the 500 gallon lube oil tanks demonstrate that these tanks are insignificant emission sources.

In addition, the pressurized 18,000 gallon storage tanks are operated at a pressure above 75 psig, therefore the tank does not produce working or breathing emissions. Please refer to the attached documentation from AP-42 explaining the operation of the pressurized storage tanks.

" 1.1.6 Pressure Tanks –

Two classes of pressure tanks are in general use: low pressure (2.5 to 15 psig) and high pressure (higher than 15 psig). Pressure tanks generally are used for storing organic liquids and gases with high vapor pressures and are found in many sizes and shapes, depending on the operating pressure of the tank. Pressure tanks are equipped with a pressure vacuum vent that is set to prevent venting loss from boiling and breathing loss from daily temperature or barometric pressure changes. High-pressure storage tanks can be operated so that virtually no evaporative or working losses occur. In low-pressure tanks, working losses can occur with atmospheric venting of the tank during filling operations. No appropriate correlations are available to estimate vapor losses from pressure tanks.

2. Provide model and serial numbers for Glycol Dehydrator T5D-1.

T5D-1 is a Hanover Natural Gas dehydrator s/n 3557.

3. Provide installation date for Storage Tank T5T-2.

Approximate install / startup dates are as follows:
T5T-2 – July, 2009

4. 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 39.58.29 N; Longitude 109.38.12 W.

5. EPA received an initial application for an operating permit for Tap-5 Compressor Station from Dominion Exploration and Production Company Inc. on April 13, 2007. EPA requested additional information for that application on June 8, 2007. Subsequently, EPA received the requested information from XTO Energy Inc. on November 7, 2007. Due to possible changes in operations or equipment at the facility since the transfer of ownership and lodging of the Consent Decree, EPA is requesting that SGG evaluate it's response from 2007 and update/resubmit the following information.

a. Provide a current description of operations at the facility;

As discussed with EPA, the current process description will be forthcoming with the site process flow drawings on or before February 26, 2010.

b. Provided updated construction and permitting history of the facility, including the PTE at each stage of construction;

Please see attached. Each table gives PTE emissions for each stage of construction / operation.

c. 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.

d. Provide the current manufacturer's design specifications for the control equipment for dehydrator T5D-1. Include in the specifications the manufacturer's benzene, toluene, ethyl benzene, and xylene (BTEX) removal efficiency estimations.

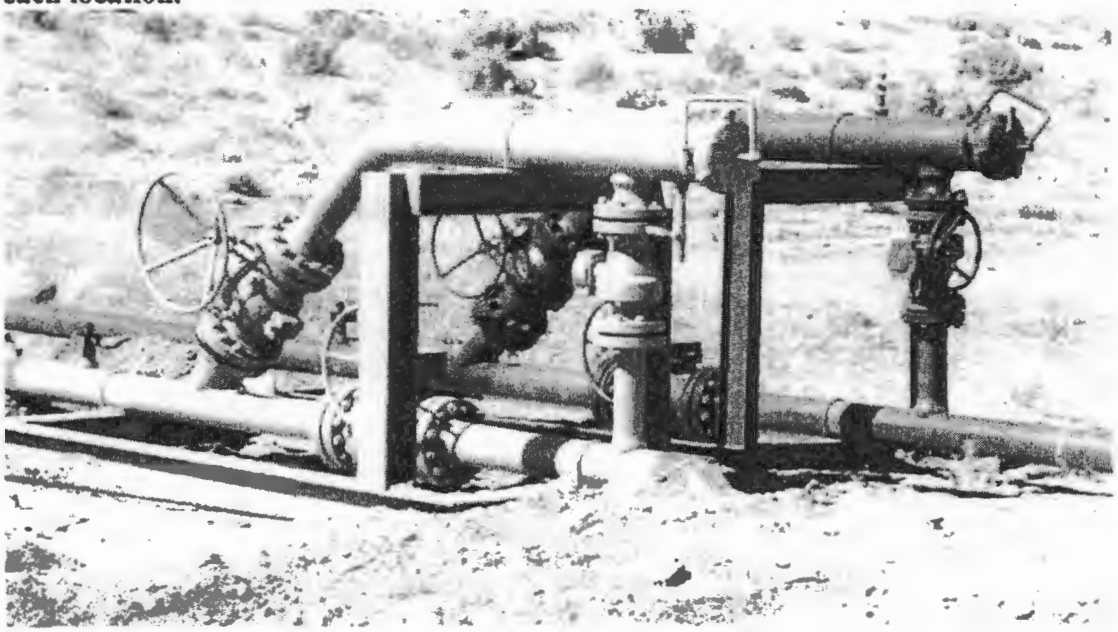
See attached Thermal Oxidizer information.

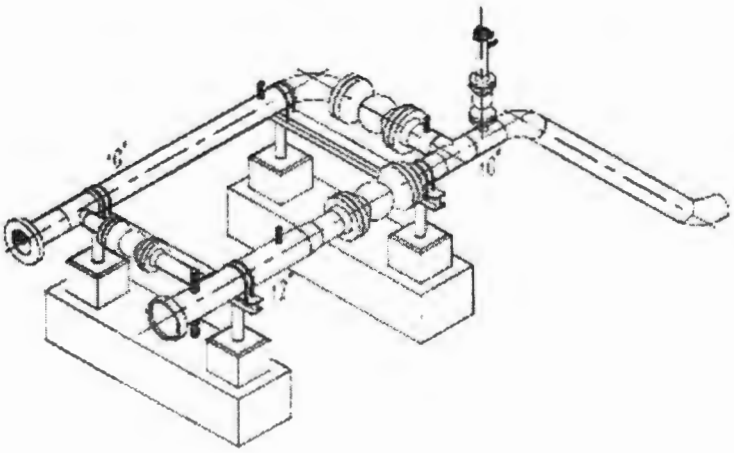
e. Please provide <u>your</u> review of all applicable and potentially applicable requirements as they may or may not apply to your facility <u>now</u>. For requirements that do not apply, state why. Requirements that apply or potentially apply to this facility include, but may not be limited to:

Please refer attached regulatory applicability review.

f. Please identify and describe in detail any pigging or other gas pipeline clean-out operations conducted at the site, if any. 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.





g. Please provide a current process flow diagram. Include the following information on or with the diagram:

1. Identify all emission units (including insignificant units and non-emitting) using emission unit I.D.s from the application.

2. List the operational characteristics of each emission unit (i.e., pressures, temperatures, gas compositions, etc.); and.

3. Identify raw material and product streams within the plant site.

As acknowledged in EPA's January 6, 2010 e-mail, the deadline for completion of this item has been extended to February 26, 2010.

INDUSTRIAL
REFRACTORY SERVICES INC™

2300 South Main Street
Fort Worth, Texas 76110
(817)924-9991
www.irsvc.com

June 9, 2009

T5D-1

Damien Jones

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:	Tap 5
Serial Number:	28111
Commissioning Date:	01/05/09
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

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

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Appendices

Testing Parameters and Sample Calculations ..... Appendix 1
Field Data ..... Appendix 2
Laboratory Data ..... Appendix 3
Calibration Data ..... Appendix 4
Schematics ..... Appendix 5

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.

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

Cobb

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

Ref: 8ENF-AT

JAN 14 2009

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Robert E. Holden
One Shell Square
701 Poydras Street, Suite 5000
New Orleans, LA 70139

Re: Determination of Applicability of 40 CFR Part 68 to the Dew-point Skids located at XTO Energy, Inc.'s Unita Basin Compressor Stations

Dear Mr. Holden:

The Environmental Protection Agency (EPA) has reviewed correspondence submitted by Liskow & Lewis, Corp on behalf of XTO Energy, Inc. (XTO) dated October 1, 2008. The letter requested an applicability determination under the Chemical Accident Prevention regulations found at 40 CFR Part 68 (Part 68) for the hydrocarbon dew-point skids operated by XTO. This equipment is located at the Kings Canyon, TAP-4, TAP-5, and RBU 9-17E Compressor Stations near Vernal, Utah. The letter requested a determination as to whether or not the hydrocarbon dew-point skids listed above are considered "natural gas processing plants" under Part 68 and if the resulting separated hydrocarbon liquids are considered "naturally occurring hydrocarbon mixtures", thereby exempting the skids from the Risk Management Plan reporting requirements of Part 68.

For the purposes of this applicability determination, it is useful to list several definitions found at Part 68.3 that pertain to the issue:

> ***Condensate*** *means hydrocarbon liquid separated from natural gas that condenses due to changes in temperature, pressure, or both, and remains liquid at standard conditions.*
>
> ***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, classified as North American Industrial Classification System (NAICS) code 211112 (previously Standard Industrial Classification (SIC) code 1321).*

The regulations at Part 68.115(b)(2)(iii) exempt "naturally occurring hydrocarbon mixtures" from threshold determinations. Specifically, the regulations state:

> *Prior to entry into a natural gas processing plant or a petroleum refining process unit, 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 any combination of the following: condensate, crude oil, field gas, and produced water, each as defined in §68.3 of this part.*

Our understanding is that the hydrocarbon dew-point skids used by XTO at this location are used to meet pipeline gas specification standards by lowering the temperature of the inlet gas to form condensate. The gas is then transferred by pipeline with the condensate being collected and stored in pressurized storage tanks until shipped off-site.

If the hydrocarbon dew-point skids referenced above are only engaged in separating natural gas condensate (as defined in Part 68.3), they would not be considered "natural gas processing plant[s]" as these plants are defined in 40 CFR. Furthermore, if the dew-point skids are located prior to entry into a natural gas processing plant, then the exemption at 68.115(b)(2)(iii) for naturally occurring hydrocarbon mixtures would apply and the equipment would not be covered under Part 68.

If you have any questions about this response to your request, please contact David Cobb at 303-312-6592.

Sincerely,

Cynthia J. Reynolds

Cynthia J. Reynolds, Director
Technical Enforcement Program
Office of Enforcement, Compliance and
Environmental Justice

cc: James Belke, OEM, OSWER

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

To Wortman.Eric@epamail.epa.gov

cc

11/19/2009 10:14 AM

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

To Craig_Allison@xtoenergy.com

cc

11/18/2009 08:28 AM

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)
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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
Environmental Scientist
Air Permitting, Monitoring and Modeling Unit
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EPA Region 8
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Denver, CO 80202-1129

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Summit Gas Gathering
Tap-5 Compressor Station
Additional Information Request
Permit # V-OU-0018-07.00

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 recalculate and submit emissions for storage tank emission unit T5T-1 and T5T-2. In addition, EPA is requesting that emissions estimates/calculations for working, standing, and breathing losses, using EPA Tanks 4.0, be provided for each of the insignificant emission units lube oil tanks and 18,000-gal pressurized storage tanks in order to sufficiently support SGG's claim that emissions from these units truly are insignificant per §71.5(c)(11)(ii)(A) and/or (B).

    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.

2. Provide model and serial numbers for Glycol Dehydrator T5D-1.

3. Provide installation date for Storage Tank T5T-2.

4. Provide driving directions to the facility.

5. EPA received an initial application for an operating permit for Tap-5 Compressor Station from Dominion Exploration and Production Company Inc. on April 13, 2007. EPA requested additional information for that application on June 8, 2007. Subsequently, EPA received the requested information from XTO Energy Inc. on November 7, 2007. Due to possible changes in operations or equipment at the facility since the transfer of ownership and lodging of the Consent Decree, EPA is requesting that SGG evaluate it's response from 2007 and update/resubmit the following information.

    a. Provide a current description of operations at the facility;

b. Provide updated construction and permitting history of the facility, including the PTE at each stage of construction;

c. Provide the manufacturer's design specification for the glycol dehydrator. Include in the specifications, the maximum glycol recirculation pump rate and maximum gas throughput;

d. Provide the current manufacturer's design specifications for the control equipment for dehydrator T5D-1. Include in the specifications the manufacturer's benzene, toluene, ethyl benzene, and xylene (BTEX) removal efficiency estimations.

e. Please provide <u>your</u> review of all applicable and potentially applicable requirements as they may or may not apply to your facility <u>now</u>. 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

f. 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 clean0out operation.

g. Please provide a process flow diagram. Include the following information on or with the diagram:

1. Identify all emission units (including insignificant units and non-emitting) using emission unit I.D.s from the application.

2. List the operational characteristics of each emission unit (i.e., pressures, temperatures, gas compositions, etc.); and.

3. Identify raw material and product streams within the plant site.

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)]

Printed on Recycled Paper

EPA I-COMP Forms for Summit Gas

Craig_Allison to: Eric Wortman 11/02/2009 02:41 PM
Cc: Damien_Jones, Wayne_Sutt, Timothy_Hermann

From: Craig_Allison@xtoenergy.com
To: Eric Wortman/R8/USEPA/US@EPA
Cc: Damien_Jones@xtoenergy.com, Wayne_Sutt@xtoenergy.com, Timothy_Hermann@xtoenergy.com

History: This message has been forwarded.

Eric:

Regarding the Summit Gas Gathering Title V Applications for Uintah County, Utah - see attached I-COMP forms. Originals were mailed today. Let me know if you need anything else.

(See attached file: SGG Uinta Title V_T4_T5_KC_EPA I COMP Form_11_09.pdf)

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, LLC
810 Houston Street
Ft. Worth, TX 76102-6298
(817) 870-2800 (office)

November 2, 2009

RECEIVED
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. 7008 2810 0000 4380 1897

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
Part 71 Permit Application – EPA Form 5900-86 (I-COMP)

Dear Mr. Wortman:

Per your request, Summit Gas Gathering, LLC, submits the attached EPA Form 5900-86 (I-COMP) 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

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. Dominion also submitted a completed I-COMP form for each location along with their original applications.

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

WCA/encl

Cc: Mr. 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) _____

Name (typed) **Nick Dungey** Date: 11 / 2 / 2009

United States Environmental Protection Agency

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

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):T5C-1, T5C-2, T5G-1

Applicable Requirement (Describe and Cite)
MACT Subpart ZZZZ - RICE

Compliance Methods for the Above (Description and Citation):
One (1) Caterpillar 3516LE compressor engine, one (1) Caterpillar 3512LE compressor engine, and one (1) Waukesha H24GSID generator engine will be subject to the RICE MACT (40 CFR 63, Subpart ZZZZ) standard requiring a reduction of formaldehyde emissions to ≤ 14.0 ppmvd @ 15% O2 and a catalyst inlet temperature between 450 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): T5D-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 T5D-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

Summit Gas Gathering, LLC
810 Houston Street
Ft. Worth, TX 76102-6298
(817) 870-2800 (office)

RECEIVED
SEP 03 2009
8P - AR

August 31, 2009

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
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

COPY
XTO FW office

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

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

TAP-5

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 _____ Tap 5 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 _39.97424841° 109.63658094° WGS84___

_____

City ___Roosevelt_____ State__UT_ County_Uintah_____ EPA Region__8__

Is the facility located within:

Indian lands? ___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.

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

___ Group Processing, MPM ___ Administrative Amendment

For initial permits, when did operations commence? ___05_/_01__ /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
T5C-1	Caterpillar Model 3516TALE compressor engine 1260 site-rated horsepower
T5C-2	Caterpillar Model 3512TALE compressor engine 826 site-rated horsepower
T5D-1	40 MMscfd Glycol dehydrator controlled by a thermal oxidizer
T5F-1	Fugitive Emissions
T5G-1	Waukesha Model H24GSID generator engine 530 horsepower
T5T-1	One (1) 300-bbl storage tank
T5T-2	One (1) 300-bbl storage tank

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 ___116.6____ tons/yr VOC ___135.8_____ tons/yr SO2 ___0.0_____ tons/yr

PM-10 __0.0_____ tons/yr CO __89.4_____ tons/yr Lead ___0.0_____ tons/yr

Total HAP ___34.9_____ tons/yr

Single HAP emitted in the greatest amount ____Toluene _____ PTE _10.9____ 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 __T5C-1_____ Description__Caterpillar 3516 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. __3516TALE_____

Serial Number __WPW00281_____ Installation Date__08__/__01/_2007___

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)__-----_____

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	85.51 MMscf	9.8 Mscf	85.51 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID___T5C-1____ Device type___Oxidation Catalyst_____

Air pollutant(s) Controlled_ HCHO_____ Manufacturer__Miratech_____

Model No.___Model RCS-3626-12-L1 Serial No.__ RCS-1482_____

Installation date__07_/_01_/_2007_ 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 __T5C-2_____ Description___Caterpillar 3512TALE 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. ___3512TALE_____

Serial Number __7NJ00718_____ Installation Date_07_/_31_/_2008__

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

Other (describe) ___Natural Gas Compressor Engine_____

Boiler horsepower rating__826_____ 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 __6.415____MM BTU/hr Max. Design Heat Input __6.415_____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	55.97 MMscf	6.4 Mscf	55.97 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID__T5C-2_____ Device type___Oxidation Catalyst_____

Air pollutant(s) Controlled_ HCHO_____ Manufacturer___Miratech_____

Model No.___ZHS-30X31-12 HSG___ Serial No. ZHS-1041 _____

Installation date___07/__07_/_2008__ Control efficiency (%) _<=14ppmvd @ 15%O2 for 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) _____._____

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 __T5D-1_____ Description ___40 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. ___TBD_____

Serial No. _____TBD_____ Installation date _05__/_10__/_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	1.67 MMscf	14,600 MMscf
Maximum rate	1.67 MMscf	14,600 MMscf

D. Associated Air Pollution Control Equipment

Emissions unit ID __T5D-1_____ Device Type____Thermal Oxidizer_____

Manufacturer _Industrial Refractory Services__ Model No__30 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) _____._____

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 __T5G-1_____ Description __Waukesha H24GSID generator engine____

SIC Code (4-digit) __1311_____ SCC Code_311000203_____

B. Emissions Unit Description

Primary use ___Generator_____ Temporary Source ___Yes _x__No

Manufacturer __Waukesha_____ Model No. __H24GSID_____

Serial Number __C-94454/1 _____ Installation Date_9_/01/_2009_____

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

Other (describe) __Generator engine_____

Boiler horsepower rating___530_____ 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 ___3.98____MM BTU/hr Max. Design Heat Input __3.98_____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	34.7 MMscf	4.0 Mscf	34.7 MMscf

E. Associated Air Pollution Control Equipment

Emissions unit ID___T5G-1____ Device type___NSCR Catalyst_____

Air pollutant(s) Controlled_ HCHO, CO_____ Manufacturer__Miratech_____

Model No.__IQ-20-10-C1_ Serial No.__TBD _____

Installation date__09_/_01__/_2009____ Control efficiency (%) __76% of 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) _____._____

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID __T5T-1___ Description ____300-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. __80099_____

Serial No. ____8E02501-01_____ Installation date__04/_12_/_2005___

Articles being coated or degreased _____NA_____

Application method _____NA_____

Overspray (surface coating) (%) __NA____ Drying method_____NA_____

No. of dryers __NA_____ Tank capacity ____300-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		336	122,640	

United States Environmental Protection Agency

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

Federal Operating Permit Program (40 CFR Part 71)

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

A. General Information

Emissions unit ID __T5T-2___ Description ____300-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. __#1238_____

Serial No. ____1051_____ Installation date____/____/_TBD____

Articles being coated or degreased _____NA_____

Application method _____NA_____

Overspray (surface coating) (%) __NA____ Drying method_____NA_____

No. of dryers __NA_____ Tank capacity ____300-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		336	122,640	

United States Environmental Protection Agency

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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 and NGLs)	X	X
1	500 MBtu/hr Glycol Dehydrator Reboiler	X	X
1	250 MBtu/hr heater for condensate tank #1	X	X
1	150 MBtu/hr heater for separator	X	X
1	250 MBtu/hr heater for condensate tank #2	X	X
2	Lube oil tanks	X	X
2	18,000 gallon pressurized storage tanks (NGLs)	X	X

United States Environmental Protection Agency

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Federal Operating Permit Program (40 CFR Part 71)

POTENTIAL TO EMIT (PTE)

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

Emissions Unit ID	Regulated Air Pollutants and Pollutants for which the Source is Major (tons/yr)						
	NOx	VOC	SO2	PM10	CO	Lead	HAP
T5C-1	18.3	5.23	0.0	0.0	28.5	0.0	3.3
T5C-2	16.0	2.9	0.0	0.0	19.54	0.0	2.32
T5D-1	0.0	74.8	0.0	0.0	0.0	0.0	26.7
T5F-1	0.0	5.9	0.0	0.0	0.0	0.0	0.2
T5G-1	81.88	1.28	0.0	0.0	40.94	0.0	0.65
T5T-1	0.0	22.1	0.0	0.0	0.0	0.0	0.9
T5T-2	0.0	22.1	0.0	0.0	0.0	0.0	0.9
FACILITY TOTALS	116.6	135.8	0.0	0.0	89.4	0.0	34.9

United States Environmental Protection Agency

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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 __T5C-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	18.3	
CO		6.5	28.5	
VOC		1.2	5.3	
Acetaldehyde		0.1	0.4	75070
Acrolein		0.1	0.2	107028
Formaldehyde		0.6	2.7	50000

United States Environmental Protection Agency

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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 __T5C-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		3.64	16.0	
CO		4.5	19.5	
VOC		0.7	2.87	
Acetaldehyde		0.1	0.24	75070
Acrolein		0.0	0.1	107028
Formaldehyde		0.4	1.9	50000

United States Environmental Protection Agency

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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 __T5D-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		17.1	74.8	
Benzene		1.7	7.5	71432
Ethylbenzene		0.1	0.5	100414
Toluene		2.5	10.7	108883
Xylene		1.4	6.2	1330207

United States Environmental Protection Agency

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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 __T5F-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		1.4	5.9	

United States Environmental Protection Agency

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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 __T5G-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		18.7	81.9	
CO		9.4	40.94	
VOC		0.3	1.3	
Acetaldehyde		0.0	0.1	75070
Acrolein		0.0	0.1	107028
Formaldehyde		0.12	0.51	50000

United States Environmental Protection Agency

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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 __T5T-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		5.0	22.1	
Benzene		0.0	0.1	71432
Toluene		0.0	0.1	108883

United States Environmental Protection Agency

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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 __T5T-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		5.0	22.1	
Benzene		0.0	0.1	71432
Toluene		0.0	0.1	108883

United States Environmental Protection Agency

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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: 8 / 7 / **2009**

2009 POTENTIAL TO EMIT SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE - T5C-1	4.17	18.25	6.50	28.47	1.19	5.23	0.61	2.68	0.75	3.30	0.01	0.05
Caterpillar 3512TALE - T5C-2	3.64	15.95	4.46	19.54	0.66	2.87	0.44	1.91	0.53	2.32	0.01	0.03
TEG Dehydrator - T5D-1	-	-	-	-	17.08	74.80	-	-	6.10	26.71	5.68	24.88
Condensate Tank Emissions - T5T-1 & T5T-2	-	-	-	-	10.09	44.22	-	-	0.41	1.79	0.09	0.39
Genset Waukesha H24GSID - T5G-1	18.69	81.88	9.35	40.94	0.29	1.28	0.12	0.51	0.15	0.65	0.01	0.04
Separator Heater	0.02	0.07	0.01	0.06	0.00	0.00	0.00	0.00	-	-	-	-
Dehy Reboiler	0.05	0.23	0.04	0.19	0.00	0.00	0.00	0.00	-	-	-	-
Fugitive Emissions - T5F-1	-	-	-	-	1.35	5.91	-	-	0.04	0.17	0.01	0.04
Tank Heaters Emissions (Condensate)	0.05	0.23	0.04	0.19	0.00	0.00	0.00	0.00	-	-	-	-
Truck Loading (Condensate and NGLs)	-	-	-	-	0.35	1.53	-	-	-	-	-	-
Totals	**26.62**	**116.6**	**20.41**	**89.4**	**31.02**	**135.8**	**1.16**	**5.1**	**7.97**	**34.9**	**5.81**	**25.4**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator - T5D-1	1.72	7.52	2.45	10.72	0.10	0.46	1.41	6.18
Caterpillar 3516TALE - T5C-1	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3512TALE - T5C-2	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01
Condensate Tank Emissions - T5T-1 & T5T-2	0.05	0.20	0.04	0.16	0.00	0.00	0.01	0.03
Genset Waukesha H24GSID - T5G-1	0.01	0.03	0.00	0.01	0.00	0.00	0.00	0.00
Totals	**1.78**	**7.8**	**2.49**	**10.9**	**0.11**	**0.5**	**1.42**	**6.2**

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

2009 POTENTIAL TO EMIT SUMMARY - Significant Emission Units

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE - T5C-1	4.17	18.25	6.50	28.47	1.19	5.23	0.61	2.68	0.75	3.30	0.01	0.05
Caterpillar 3512TALE - T5C-2	3.64	15.95	4.46	19.54	0.66	2.87	0.44	1.91	0.53	2.32	0.01	0.03
TEG Dehydrator - T5D-1	-	-	-	-	17.08	74.80	-	-	6.10	26.71	5.68	24.88
Condensate Tank Emissions - T5T-1 and T5T-2	-	-	-	-	10.09	44.22	-	-	0.41	1.79	0.09	0.39
Genset Waukesha H24GSID - T5G-1	18.69	81.88	9.35	40.94	0.29	1.28	0.12	0.51	0.15	0.65	0.01	0.04
Fugitive Emissions - T5F-1	-	-	-	-	1.35	5.91	-	-	0.04	0.17	0.01	0.04
Totals	**26.50**	**116.1**	**20.31**	**89.0**	**30.66**	**134.3**	**1.16**	**5.1**	**7.97**	**34.9**	**5.81**	**25.4**

*Ergine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator - T5D-1	1.72	7.52	2.45	10.72	0.10	0.46	1.41	6.18
Caterpillar 3516TALE - T5C-1	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3512TALE - T5C-2	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01
Condensate Tank Emissions - T5T-1 and T5T-2	0.05	0.20	0.04	0.16	0.00	0.00	0.01	0.03
Genset Waukesha H24GSID - T5G-1	0.01	0.03	0.00	0.01	0.00	0.00	0.00	0.00
Totals	**1.78**	**7.8**	**2.49**	**10.9**	**0.11**	**0.5**	**1.42**	**6.2**

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

Compressor Engine Emissions

Company: **XTO Energy**
Facility Name: **Tap 5**
Facility Location: **Uintah County, Utah**

EMISSION POINTS: Caterpillar 3512TALE - T5C-2

Engine Make/Model	Caterpillar 3512TALE - T5C-2	
Site Horsepower Rating	826	hp
Fuel Consumption (BSFC)	7766	Btu/(hp-hr)
Heat Rating	6.415	MMBtu/hr
Heating Value (LHV)	1004	Btu/Scf
Fuel usage	55.97	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	2.00	g/hp-hr	3.64	16.0	[1]		
CO	2.45	g/hp-hr	4.46	19.54	[1]		
VOC/NMNEHC	0.36	g/hp-hr	0.66	2.87	[1]		
SOx	0.000	g/hp-hr	0.00	0.0	[2]	0.00E+00	lb/MMBtu
PM10	0.000	g/hp-hr	0.00	0.0	[2]	7.71E-05	lb/MMBtu
Hazardous Air Pollutants							
Acetaldehyde	0.0294	g/hp-hr	0.0536	0.2349	[2]	8.36E-03	lb/MMBtu
Acrolein	0.0181	g/hp-hr	0.0330	0.1444	[2]	5.14E-03	lb/MMBtu
Benzene	0.0015	g/hp-hr	0.0028	0.0124	[2]	4.40E-04	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0003	0.0011	[2]	3.97E-05	lb/MMBtu
Formaldehyde	0.2400	g/hp-hr	0.4370	1.9142	[1]	6.81E-02	lb/MMBtu
Toluene	0.0014	g/hp-hr	0.0026	0.0115	[2]	4.08E-04	lb/MMBtu
Xylene	0.0006	g/hp-hr	0.0012	0.0052	[2]	1.84E-04	lb/MMBtu
		Total HAPS	0.5300	2.32			

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean 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)

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

GENERATOR EMISSIONS

Company: XTO Energy
Facility Name: Tap 5
Location: Uintah County, Utah

Individual Engine Emissions - Uncontrolled PTE

ENGINE DESCRIPTION	SITE RATED HP (hp)	Annual Hours (hrs/yr)	SOURCE OF EMISSION FACTORS	NOx E.F. [1] (g/hp-hr)	NOx Emissions (lb/hr)	NOx Emissions (tons/yr)	CO E.F. [1] (g/hp-hr)	CO Emissions (lb/hr)	CO Emissions (tons/yr)	VOC E.F. (g/hp-hr)	VOC Emissions (lb/hr)	VOC Emissions (tons/yr)	Formaldehyde E.F. (g/hp-hr)	Formaldehyde Emissions (lb/hr)	Formaldehyde Emissions (tons/yr)
Genset Waukesha H24GSID - T5G-1	530	8760	Mfg	16.00	18.695	81.88	8.00	9.347	40.94	0.25	0.292	1.28	0.10	0.117	0.51
			Maximum:		18.695	81.884	Totals	9.347	40.942	Totals	0.292	1.279	Totals	0.117	0.512

Engine Make/Model	Genset Waukesha H24GSID - T5G-1	
Site Horsepower Rating	530	hp
Fuel Consumption (BSFC)	7503	Btu/(hp-hr)
Heat Rating	3.977	MMBtu/hr
Heating Value	1004	Btu/Scf
Fuel usage	34.70	MMScf/yr
Operating Hours	8760	hrs/yr

Emissions (lbs/hr) = Emission Factor (g/hp-hr) * Site Rated Horsepower (hp) / 453.6 (g/lb)
Emissions (tons/yr) = Emissions (lbs/hr) * Hours of Operation (hrs/yr) / 2,000 (lbs/ton)

	HAP Emissions (lb/hr)	HAP Emissions (tons/yr)
Total	0.147	0.652

Hazardous Air Pollutants			Emission Rate (lb/hr)	Emission Rate (tpy)			
Acetaldehyde	0.0095	g/hp-hr	0.0111	0.0486	[2]	2.79E-03	lb/MMBtu
Acrolein	0.0090	g/hp-hr	0.0105	0.0458	[2]	2.63E-03	lb/MMBtu
Benzene	0.0054	g/hp-hr	0.0063	0.0275	[2]	1.58E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0001	0.0004	[2]	2.48E-05	lb/MMBtu
Toluene	0.0019	g/hp-hr	0.0022	0.0097	[2]	5.58E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0008	0.0034	[2]	1.95E-04	lb/MMBtu
		Total HAPS	0.03	0.14			

[1] Emissions factors based on manufacturer specifications
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke rich burn

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2009 POTENTIAL TO EMIT SUMMARY - Insignificant Emission Units

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Dehy Reboiler	0.05	0.23	0.04	0.19	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Separator Heater	0.02	0.07	0.01	0.06	0.00	0.00	0.00	0.00	-	-	-	-
Tank #1 Heater Emissions	0.03	0.12	0.02	0.10	0.00	0.00	0.00	0.00	-	-	-	-
Tank #2 Heater Emissions	0.03	0.12	0.02	0.10	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Truck Loading (Condensate and NGLs)	-	-	-	-	0.35	1.53	-	-	-	-	-	-
Totals	**0.12**	**0.5**	**0.10**	**0.4**	**0.35**	**1.5**	**0.00**	**0.0**	**0.00**	**0.0**	**0.00**	**0.0**

*Engine HAP emissions include Formaldehyde

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NATURAL GAS FUELED HEATER EMISSIONS

Company: **XTO Energy**
Facility Name: **Tap 5**
Location: **Uintah County, Utah**

Fuel Gas VOC Weight Fraction = 0.11917552

SOURCE DESCRIPTION	HEATER SIZE (MMBtu/hr)	FUEL HEAT VALUE (Btu/scf)	HOURS OF OPERATION (hrs/year)	NOx		CO		TOC		VOC	PM 10	
				E.F. (AP-42)	EMISSIONS (tons/yr)	E.F. (AP-42)	EMISSIONS (tons/yr)	E.F. (AP-42)	EMISSIONS (tons/yr)	EMISSIONS (tons/yr)	E.F. (AP-42)	EMISSIONS (tons/yr)
Heater for Cond. Tank #1	0.25	1097.30	8760	107.6	0.1155	90.4	0.0970	11.9	0.0128	0.0015	8.2	0.0088
Heater for Cond. Tank #2	0.25	1097.30	8760	107.6	0.1155	90.4	0.0970	11.9	0.0128	0.0015	8.2	0.0088
Separator Heater	0.15	1097.30	8760	107.6	0.0693	90.4	0.0582	11.9	0.0077	0.0009	8.2	0.0053
Dehy Reboiler	0.50	1097.30	8760	107.6	0.2310	90.4	0.1941	11.9	0.0256	0.0030	8.2	0.0176
TOTAL	1.15				**0.531**		**0.446**		**0.059**	**0.007**		**0.040**

NOx/CO/TOC Emissions (tons/yr) = $\frac{\text{Corrected Emission Factor (lbs/MMscf) * Heater size (MMBtu/hr) * Hours of Operation (hrs/yr)}}{\text{2,000 (lbs/ton) * 1,020 (Btu/scf - Standard Fuel Heating Value)}}$

VOC Emissions (tons/yr) = TOC Emissions (tons/yr) * VOC wt. fraction

Emission Factors from AP-42 Tables 1.4-1 and 1.4-2 (7/98); based on 1020 Btu/scf; corrected accordingly

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Stock Tank Working, Breathing and Flashing Emissions

Company: **XTO Energy**
Location: **Tap 5** **T5T-1 and T5T-2**
Uintah County, Utah

Uncontrolled Emissions

TANK DESCRIPTION	TOTAL VOC LOSSES (tons/yr)	Benzene (tons/yr)	Toluene (tons/yr)	Ethylbenzene (tons/yr)	Xylenes (tons/yr)	N-Hexane (tons/yr)	224-TMP (tons/yr)	TOTAL HAP LOSSES (tons/yr)
Total Emissions (Condensate Tanks)	44.216	0.199	0.161	0.003	0.030	1.315	0.086	1.790
TOTAL	**44.216**	**0.199**	**0.161**	**0.003**	**0.030**	**1.315**	**0.086**	**1.790**

Calculated Using E&P Tanks 16 barrels of condensate per day; Split between 2 tanks

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VOC EMISSIONS FROM CONDENSATE TRUCK LOADING OPERATIONS

Company: **XTO Energy**
Location: **Tap 5**
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)
Cond. Tank - T5T-1	16	5.84	0.6	7.4	66	540	6.7616	0.8292
TOTAL	16	5.84					6.7616	0.8292

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

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VOC EMISSIONS FROM NGL TRUCK LOADING OPERATIONS
(FUGITIVE EMISSIONS)

Company: **XTO Energy**
Facility Name: **Tap 5**
Facility Location: **Uintah County, Utah**

Number of Truck loads/year 227 (Per client information)

Truck Loading Connection Configuration

	Load Line		
Load Line Connection Diameter =	0.25	ft	(Assumed typical value)
Load Line Length between Valves =	3.0	ft	(Assumed typical value)
Connection Volume =	0.147	ft^3	
Annual Connection Volume Vented =	33	ft^3	
NGL Density =	5.6	lbs/gal	(Assumed typical value)
NGL Density =	41.9	lbs/ft^3	
Annual Wt. NGL Vented =	1,397.2	lbs/year	
NGL VOC Content =	100.0%	by weight	
VOC Emissions =	0.70	tons/year VOC	

Example Calculations

Connection volume = Pi * $(Diameter)^2/4$ * Length

Annual Volume Vented (ft^3/year) = Connection Volume (ft^3) * Number Truck Loads per year (1/year)

Density ($lbs/ft^{3)}$ = Density (lbs/gal) * 7.48 gal/ft^3

Vented NGL Weight (lbs) = Volume Vented (ft^3) * NGL Density (lbs/ft^3)

VOC Emissions (tons/year) = Annual NGL Vented (lbs/year) * NGL VOC wt. % / 100 / 2000 (lbs/ton)

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POWER RATINGS: H24GSID VGF SERIES GAS ENGINES

Model	I.C. Water Inlet Temp. °F (°C) (Tcra)	C.R.	Bore & Stroke in. (mm)	Displ. cu. in. (litres)	Brake Horsepower (kWb Output) 1400 rpm I	1400 rpm C	1500 rpm I	1500 rpm C	1600 rpm I	1600 rpm C	1800 rpm I	1800 rpm C

Rating Standard: All models; Ratings are based on ISO 3046/1-1995 with mechanical efficiency of 90% and auxiliary water temperature Tcra (clause 10.1) as specified limited ±10° F (±5° C). Ratings are also valid for SAE J1349, BS5514, DIN6271 and AP17B-11C standard atmospheric conditions.

Intermittent Power Rating: The highest load and speed which can be applied in variable speed mechanical system application only. Operation at this rating is limited to a maximum of 3500 hours per year.

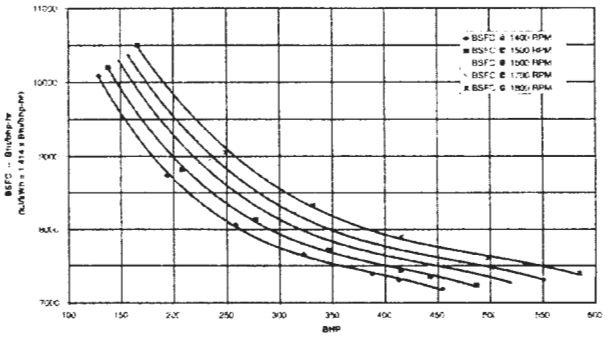
ISO Standard Power/Continuous Power Rating: The highest load and speed which can be applied 24 hours a day, seven days a week, 365 days per year except for normal maintenance, it is permissible to operate the engine at up to 10% overload, or maximum load indicated by the intermittent rating, whichever is lower, for two hours in each 24 hour period.

Standby Power Rating: This rating applies to those systems used as a secondary source of electrical power. This rating is the output the system will produce continuously (no overload), 24 hours per day for the duration of the prime power source outage.

All natural gas engine ratings are based on a fuel of 900 Btu/ft^3 (35.3 MJ/nm^3) SLHV, with a 91 WKI®. For conditions or fuels other than standard, consult the Dresser Waukesha Application Engineering Department.

Consult your local Waukesha Distributor for system application assistance. The manufacturer reserves the right to change or modify without notice, the design or equipment specifications as herein set forth without incurring any obligation either with respect to equipment previously sold or in the process of construction except where otherwise specifically guaranteed by the manufacturer.

FUEL CONSUMPTION
130°F (54°C) INTERCOOLER WATER TEMPERATURE
180°F (82°C) JW TEMPERATURE



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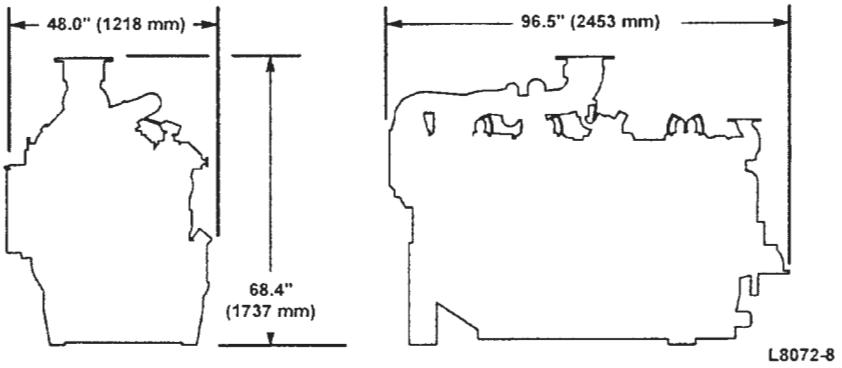

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DRESSER Waukesha

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SPECIFICATIONS 1

MODEL — H24GSI/GSID

BASIC MODEL SPECIFICATIONS

Type	4-cycle, overhead valve
Aspiration	Turbocharged-Intercooled
Number of cylinders	In-Line 8
Bore x Stroke	5.98 x 6.5 in. (152 x 165 mm)
Displacement	1462 in^3 (24.0 liters)
Compression ratio	8.6:1
Speed range – continuous and intermittent duty	1400 - 1800 rpm
Piston speed – @ 1800 rpm	1950 ft/min (9.91 m/sec)
Low idle	650 – 750 rpm
Flywheel housing	SAE No. 0 (Same as SAE No. 0 Except Metric Taps)
Firing Order	1-4-2-6-8-5-7-3

BEARINGS – MAIN

Number	9
Diameter x width	5.32 x 1.81 in. (135 x 46 mm)
Total main bearing projected effective area	86.7 in^2 (559.1 cm^2)

BEARINGS – CRANKPIN

Diameter x width	4.53 x 1.81 in. (115 x 46 mm)
Total crankpin projected effective area	65.6 in^2 (423.2 cm^2)

COOLING SYSTEM

Jacket capacity, engine only	20 gallons (75 liters)
Maximum inlet head, Jacket water pump – H_2O	28 ft. (8.5 m)
Normal operating temperature range with 7 psi pressure cap	174 – 195° F (79 – 91° C)
*Jacket water inlet, nominal pipe size flange	3.0 inches ANSI 125 lb. (76.2 mm)
*Jacket water outlet, nominal pipe size flange	3.0 inches ANSI 125 lb. (76.2 mm)
Auxiliary water capacity, engine only	6 gallons (23 liters)
Maximum inlet head, auxiliary water pump – H_2O	50 ft. (15.2 m)

EXHAUST SYSTEM

Maximum permissible back pressure – H_2O	15 in. (381 mm)
Exhaust outlet, nominal pipe size flange	8.0 inches ANSI 125 lb. (203.2 mm)

FUEL SYSTEM

**GSI Natural gas pressure to regulator – min. to max.	25 – 50 psi (172 – 345 kPa)
**GSID Natural gas pressure to regulator – min. to max.	8 in. of W.C. – 5 psi (2 – 34 kPa)
GSI Natural gas inlet pipe size	1.5 – 2 in. NPT (38.1 – 50.8 mm)
GSID Natural gas inlet pipe size	2 in. NPT (50.8 mm)

GOVERNOR

Regulation SG Governor	2 – 7% (Approx.)

INDUCTION SYSTEM

Maximum permissible restriction – H_2O	15 in. (381 mm)

LUBRICATION SYSTEM

Maximum permissible restriction – Lube oil sump capacity, including filter and cooler	28 gallons (106 liters)
***High Capacity, including filter and cooler	56 gallons (212 liters)
Normal lube oil pressure	67 – 83 psi (462 – 572 kPa)
Maximum safe tilt angle	See S3549-J

STARTING SYSTEM

Electric Starting – DC voltage	24
Air (high) Pressure starting – max.	120 psi (827 kPa)
Optional air (low) pressure starting – max.	60 psi (414 kPa)
Number of teeth on ring gear	150

MISCELLANEOUS

Heaviest engine part, cylinder block assembly	1530 lb. (694 kg)
Heaviest engine part, top overhaul, cylinder head assembly	80 lb. (36 kg)
Recommended minimum spacing between engines	36 in. (914 mm)
Recommended minimum overhead clearance	6 ft. (2 m)
Weight, dry approximate – lb (kg)	7500 lb. (3400 kg)

NOTES:

* When no jacket water pump is provided see current Installation Drawing.
** Consult price book for options which affect this specification.
*** Engines shipped after April 15, 2003 are equipped with standard high capacity oil pan.

HEAT REJECTION 3

HEAT REJECTION AND OPERATING DATA – MODEL H24GSI/GSID
8.7:1 COMPRESSION RATIO – 23° BTDC
130° F INTERCOOLER WATER TEMPERATURE – 180° F JACKET WATER TEMPERATURE

	BMEP (PSI)	ENGINE SPEED — RPM				
		1400	1500	1600	1700	1800
HORSEPOWER (BHP)	176	455	490	520	555	585
	160	415	445	475	505	530
	150	388	415	443	471	498
	125	323	346	369	392	415
	100	258	277	295	314	332
	75	194	208	222	235	249
	50	129	138	148	157	166
BRAKE SPEC FUEL CONSUMPTION (BTU/BHP-HR)	176	7173	7221	7272	7311	7380
	160	7288	7339	7392	7432	7503
	150	7372	7425	7480	7521	7593
	125	7641	7701	7762	7806	7882
	100	8046	8115	8184	8233	8316
	75	8720	8805	8888	8944	9039
	50	10067	10184	10296	10368	10484
FUEL CONSUMPTION (BTU/HR X 1000)	176	3265	3520	3780	4040	4315
	160	3015	3250	3495	3730	3990
	150	2860	3085	3315	3540	3785
	125	2470	2665	2865	3060	3275
	100	2080	2245	2415	2585	2765
	75	1690	1830	1970	2105	2255
	50	1301	1410	1520	1625	1740
HEAT TO JACKET WATER (BTU/HR X 1000)	176	994	1070	1143	1212	1280
	160	931	1003	1072	1136	1202
	150	892	961	1027	1089	1152
	125	793	856	916	971	1029
	100	695	751	804	854	906
	75	597	646	693	736	783
	50	498	541	581	618	659
HEAT TO LUBE OIL (BTU/HR X 1000)	176	156	173	192	210	228
	160	150	167	186	203	221
	150	147	164	182	199	217
	125	138	155	172	189	206
	100	129	146	163	179	195
	75	121	136	153	169	185
	50	112	127	144	158	174
HEAT TO INTERCOOLER (BTU/HR X 1000)	176	60	68	78.5	88.5	99.5
	160	49.5	56.5	66	75	85
	150	43.5	50	58.5	67	76
	125	29	34.5	41	47.5	55.5
	100	16.5	20.5	25.5	30	36
	75	5.5	8	11	13.5	18
	50	-3.5	-2.5	-2	-1.5	1.5

ENVIRONMENTAL 9

VGF EMISSION LEVELS

MODEL	CARBURETOR SETTING	GRAMS/BHP-HR				% OBSERVED DRY		MASS AFR (2)	VOLUME AFR (2)	EXCESS AIR RATIO
		NO_x (1)	CO	NMHC(4)	THC	CO	O_2			
G	Lowest Manifold (Best Power)	12.0	28.0	0.30	2.0	1.1	0.30	15.5:1	9.3:1	0.97
	Equal NOx & CO	15.0	15.0	0.30	2.0	0.70	0.30	15.8:1	9.5:1	0.98
	Catalytic Conv. Input (3-way[3])	16.0	10.0	0.30	2.0	0.38	0.30	15.95:1	9.6:1	0.99
	Standard (Best Economy)	28.0	0.8	0.25	1.3	0.20	2.4	18.0:1	10.8:1	1.12
→ GSID	Catalytic Conv. Input (3-way[3])	16.0	8.0	0.25	1.5	0.35	0.18	15.95:1	9.6:1	0.99
GL, GLD 11:1 CR	Standard (High Speed Turbo Only)	2.6	1.75	0.75	5.0	0.04	7.8	24.5:1	14.7:1	1.53
	T.A. Luft Emissions	1.25	1.65	0.45	3.5	0.03	8.2	25.4:1	15.2:1	1.59
GLD/2 + (200 BMEP) 11:1 CR	Standard (High Speed Turbo Only)	1.25	2.1	0.65	4.2	0.04	9.0	26.2	15.7:1	1.65
GL 8.7:1 CR	Standard (High Speed Turbo Only)	2.0	1.7	0.45	3.0	0.04	7.8	24.5:1	14.7:1	1.53
GL 11:1 CR	Code 1105 (High Altitude Low NOx)	1.0++	1.45	0.35	3.90	.033	8.0	24.8	14.9:1	1.54

\+ For VGF GLD/2 models, the above table indicates emission levels that are for engines running on Dutch natural gas of 790 BTU/ft^3 (31.45 MJ/m^3 [25, V(0; 101.325)]) SLHV, Waukesha Knock Index® of 99 or higher, 81% methane content by volume, and at ISO Standard conditions.

++ NOx emissions level applies at continuous BHP (160 BMEP) at 25 grains/lb. absolute humidity.

NOTE: The above table indicates emission levels that are valid for new engines for the duration of the standard warranty period or are attainable by an engine in good operating condition running on commercial quality natural gas of 900 BTU/ft^3 (35.38 MJ/m^3 [25, V(0; 101.325)]) SLHV, Waukesha Knock Index® of 91 or higher, 93% methane content by volume, and at ISO standard conditions. Emissions are based on standard engine timing at 91 WKI® with an absolute humidity of 42 grains/lb. Refer to engine specific WKI® Power & Timing curves for standard timing. Unless otherwise noted, these emission levels can be achieved across the continuous duty speed range and from 75% to 110% of the ISO Standard Power (continuous duty) rating. ***Contact the local Waukesha representative or Waukesha's Application Engineering Department for emission values which can be obtained on a case-by-case basis for specific ratings, fuels, and site conditions.***

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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
ound 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.

MIRATECH EMISSIONS SOLUTIONS

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Proposal: GCI-08-2088

Engine Data

# of Engines:	1
Engine Operation:	Gas Compression
Engine Make:	Caterpillar
Engine Model:	G3512 LE
Power Output:	945 bhp
Fuel:	Natural Gas
Design Exhaust Temp:	847 F
Design Exhaust Flow Rate:	5,431 acfm
Lubrication Oil:	0.6 wt% sulfated ash or less

Catalytic Converter System Data

Catalytic Converter Model:	ZHS-30x31-12-H1.5
Inlet Pipe Size:	12 inches
Outlet Pipe Size:	12 inches
Overall Length:	128 inches
Diameter:	30 inches
Weight (including catalyst):	1055 lbs
Converter Pressure Loss:	6.0 Inches of WC
Sound Attenuation:	27 - 35 dBA
Catalyst Section Internals:	Carbon Steel
Shell / Body Constructions:	Carbon Steel
Inlet / Outlet Connection:	Standard 150# ANSI Bolt Pattern Flanges - FF
Instrumentation Ports:	2 inlet / 2 outlet (1/2" NPT)
Oxygen Sensor Ports:	N/A
Operation Temperature Limits:	750 - 1,250 degrees F (inlet); 1,350 degrees F (outlet)

Emission Requirements

Exhaust Gases	Engine Outputs (g/ bhp-hr)	Reduction (%)	Warranted Converter Outputs (g/ bhp-hr)	Area Limits
CO	1.70	95.0%	0.09	Unknown
NMNEHC	0.08	50.0%	0.40	Unknown
CH2O	0.30	80.0%	0.06	Unknown
Oxygen	7.70%			

MIRATECH warrants the performance of the converter, as stated above, per the MIRATECH General Terms and Conditions of Sale.

MIRATECH CORPORATION

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Engine Data

# of Engines:	1
Engine Operation:	Power Generation
Engine Make:	Waukesha
Engine Model:	H-24GSID
Power Output:	530 bhp
Fuel:	Natural Gas
Design Exhaust Temp:	1,114 F
Design Exhaust Flow Rate:	2,272 acfm
Lubrication Oil:	0.6 wt% sulfated ash or less

Catalytic Converter System Data

Catalytic Converter Model:	IQ-20-10-C1
Inlet / Outlet Pipe Size:	10 inches
Overall Length:	37 inches
Diameter:	20 inches
Weight (including catalyst):	245 lbs
Converter Pressure Loss:	2 inches of WC
Sound 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:	1 inlet / 1 outlet / 2 catalyst (1/2" NPT)
Oxygen Sensor Ports:	1 inlet/1 outlet (18 mm)
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
NOx	16.00	95.7%	0.70	0.7 g/bhp-hr
CO	8.00	87.5%	1.00	1.0 g/bhp-hr
NMHC	0.25	0.0%	0.25	0.5 g/bhp-hr
CH2O	0.10	76.0%	0.02	76%
Oxygen	0.18%			

MIRATECH warrants the performance of the converter, as stated above, per the MIRATECH General Terms and Conditions of Sale.

8/20/2009

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: XTO - Tap 5 - Dehy 1
File Name: C:\Data\Clients\XTO\Tap 5\Dehy 1 - 40MMscfd - TAP 5 - PTE.ddf
Date: April 10, 2009

DESCRIPTION:

Description: 40 MMscfd PTE
Shown uncontrolled Emissions
Dehy Inlet Gas Analysis Dated 5/14/08
Kimray 21015 glycol pump
Flash Tank present

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.4655	11.172	2.0389
Ethane	0.2809	6.741	1.2302
Propane	0.5148	12.354	2.2547
Isobutane	0.2334	5.602	1.0224
n-Butane	0.4330	10.392	1.8965
Isopentane	0.2014	4.835	0.8823
n-Pentane	0.2228	5.347	0.9757
n-Hexane	0.2025	4.860	0.8869
Cyclohexane	0.5866	14.080	2.5695
Other Hexanes	0.2088	5.011	0.9145
Heptanes	0.5381	12.916	2.3571
Methylcyclohexane	0.9165	21.996	4.0142
2,2,4-Trimethylpentane	0.0135	0.325	0.0593
Benzene	1.6662	39.988	7.2979
Toluene	2.4021	57.651	10.5213
Ethylbenzene	0.1038	2.491	0.4547
Xylenes	1.4010	33.625	6.1365
C8+ Heavies	1.2650	30.361	5.5408
Total Emissions	11.6561	279.745	51.0536
Total Hydrocarbon Emissions	11.6561	279.745	51.0536
Total VOC Emissions	10.9097	261.833	47.7845
Total HAP Emissions	5.7892	138.940	25.3566
Total BTEX Emissions	5.5732	133.756	24.4104

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	17.9050	429.721	78.4241
Ethane	3.2057	76.937	14.0409
Propane	2.4279	58.270	10.6344
Isobutane	0.7324	17.577	3.2078
n-Butane	1.0269	24.646	4.4978
Isopentane	0.4193	10.063	1.8366
n-Pentane	0.3695	8.868	1.6185
n-Hexane	0.1871	4.490	0.8194

Cyclohexane	0.1467	3.520	0.6425
Other Hexanes	0.2566	6.160	1.1241
Heptanes	0.2472	5.932	1.0826
Methylcyclohexane	0.1774	4.257	0.7768
2,2,4-Trimethylpentane	0.0126	0.303	0.0554
Benzene	0.0500	1.201	0.2191
Toluene	0.0466	1.118	0.2040
Ethylbenzene	0.0012	0.028	0.0051
Xylenes	0.0105	0.253	0.0461
C8+ Heavies	0.0559	1.341	0.2448
Total Emissions	27.2785	654.685	119.4799
Total Hydrocarbon Emissions	27.2785	654.685	119.4799
Total VOC Emissions	6.1678	148.027	27.0149
Total HAP Emissions	0.3080	7.392	1.3491
Total BTEX Emissions	0.1083	2.599	0.4743

EQUIPMENT REPORTS:

ABSORBER

Calculated Absorber Stages:	1.40	
Specified Dry Gas Dew Point:	5.00	lbs. H2O/MMSCF
Temperature:	98.0	deg. F
Pressure:	800.0	psig
Dry Gas Flow Rate:	40.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.4196	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	65.28	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	2.12	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	7.65%	92.35%
Carbon Dioxide	99.90%	0.10%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.98%	0.02%
Propane	99.96%	0.04%
Isobutane	99.94%	0.06%
n-Butane	99.93%	0.07%
Isopentane	99.93%	0.07%
n-Pentane	99.91%	0.09%
n-Hexane	99.85%	0.15%
Cyclohexane	99.35%	0.65%
Other Hexanes	99.89%	0.11%
Heptanes	99.73%	0.27%
Methylcyclohexane	99.29%	0.71%
2,2,4-Trimethylpentane	99.88%	0.12%
Benzene	94.07%	5.93%
Toluene	91.50%	8.50%
Ethylbenzene	88.77%	11.23%
Xylenes	84.09%	15.91%
C8+ Heavies	99.05%	0.95%

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	99.94%	0.06%
Carbon Dioxide	25.02%	74.98%
Nitrogen	2.38%	97.62%
Methane	2.53%	97.47%
Ethane	8.06%	91.94%
Propane	17.49%	82.51%
Isobutane	24.17%	75.83%
n-Butane	29.66%	70.34%
Isopentane	32.71%	67.29%
n-Pentane	37.86%	62.14%
n-Hexane	52.19%	47.81%
Cyclohexane	80.62%	19.38%
Other Hexanes	45.32%	54.68%
Heptanes	68.67%	31.33%
Methylcyclohexane	84.42%	15.58%
2,2,4-Trimethylpentane	52.34%	47.66%
Benzene	97.23%	2.77%
Toluene	98.25%	1.75%
Ethylbenzene	99.00%	1.00%
Xylenes	99.35%	0.65%
C8+ Heavies	96.27%	3.73%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	22.96%	77.04%
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	1.17%	98.83%
n-Pentane	1.07%	98.93%
n-Hexane	0.83%	99.17%
Cyclohexane	3.84%	96.16%
Other Hexanes	1.85%	98.15%
Heptanes	0.67%	99.33%
Methylcyclohexane	4.60%	95.40%
2,2,4-Trimethylpentane	2.41%	97.59%
Benzene	5.12%	94.88%
Toluene	8.03%	91.97%
Ethylbenzene	10.50%	89.50%
Xylenes	13.01%	86.99%

C8+ Heavies	12.24%	87.76%

STREAM REPORTS:

WET GAS STREAM

Temperature: 98.00 deg. F
Pressure: 814.70 psia
Flow Rate: 1.67e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.38e-001	1.09e+002
Carbon Dioxide	1.22e+000	2.36e+003
Nitrogen	1.57e+000	1.93e+003
Methane	8.72e+001	6.15e+004
Ethane	5.73e+000	7.58e+003
Propane	2.42e+000	4.70e+003
Isobutane	4.87e-001	1.24e+003
n-Butane	6.01e-001	1.54e+003
Isopentane	2.07e-001	6.56e+002
n-Pentane	1.62e-001	5.14e+002
n-Hexane	5.97e-002	2.26e+002
Cyclohexane	2.96e-002	1.09e+002
Other Hexanes	8.96e-002	3.40e+002
Heptanes	6.12e-002	2.70e+002
Methylcyclohexane	3.48e-002	1.50e+002
2,2,4-Trimethylpentane	3.79e-003	1.91e+001
Benzene	8.39e-003	2.88e+001
Toluene	7.09e-003	2.87e+001
Ethylbenzene	2.00e-004	9.33e-001
Xylenes	1.90e-003	8.86e+000
C8+ Heavies	1.81e-002	1.35e+002
Total Components	100.00	8.34e+004

DRY GAS STREAM

Temperature: 98.00 deg. F
Pressure: 814.70 psia
Flow Rate: 1.67e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.05e-002	8.33e+000
Carbon Dioxide	1.22e+000	2.36e+003
Nitrogen	1.57e+000	1.93e+003
Methane	8.73e+001	6.15e+004
Ethane	5.74e+000	7.58e+003
Propane	2.42e+000	4.70e+003
Isobutane	4.87e-001	1.24e+003
n-Butane	6.02e-001	1.54e+003
Isopentane	2.07e-001	6.56e+002
n-Pentane	1.62e-001	5.14e+002
n-Hexane	5.97e-002	2.26e+002

Cyclohexane	2.94e-002	1.09e+002
Other Hexanes	8.96e-002	3.39e+002
Heptanes	6.11e-002	2.69e+002
Methylcyclohexane	3.46e-002	1.49e+002
2,2,4-Trimethylpentane	3.80e-003	1.90e+001
Benzene	7.90e-003	2.71e+001
Toluene	6.50e-003	2.63e+001
Ethylbenzene	1.78e-004	8.28e-001
Xylenes	1.60e-003	7.45e+000
C8+ Heavies	1.79e-002	1.34e+002
Total Components	100.00	8.33e+004

LEAN GLYCOL STREAM

Temperature: 98.00 deg. F
Flow Rate: 3.55e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.97e+003
Water	1.50e+000	3.00e+001
Carbon Dioxide	1.24e-011	2.47e-010
Nitrogen	8.00e-013	1.60e-011
Methane	7.86e-018	1.57e-016
Ethane	4.25e-008	8.48e-007
Propane	3.86e-009	7.72e-008
Isobutane	1.03e-009	2.07e-008
n-Butane	1.39e-009	2.77e-008
Isopentane	1.19e-004	2.38e-003
n-Pentane	1.20e-004	2.40e-003
n-Hexane	8.53e-005	1.70e-003
Cyclohexane	1.17e-003	2.34e-002
Other Hexanes	1.97e-004	3.94e-003
Heptanes	1.82e-004	3.64e-003
Methylcyclohexane	2.21e-003	4.42e-002
2,2,4-Trimethylpentane	1.67e-005	3.34e-004
Benzene	4.51e-003	9.00e-002
Toluene	1.05e-002	2.10e-001
Ethylbenzene	6.10e-004	1.22e-002
Xylenes	1.05e-002	2.09e-001
C8+ Heavies	8.83e-003	1.76e-001
Total Components	100.00	2.00e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 98.00 deg. F
Pressure: 814.70 psia
Flow Rate: 3.84e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.19e+001	1.97e+003
Water	6.11e+000	1.31e+002
Carbon Dioxide	1.40e-001	3.00e+000
Nitrogen	2.75e-002	5.89e-001
Methane	8.59e-001	1.84e+001

Ethane	1.63e-001	3.49e+000
Propane	1.38e-001	2.94e+000
Isobutane	4.51e-002	9.66e-001
n-Butane	6.82e-002	1.46e+000
Isopentane	2.91e-002	6.23e-001
n-Pentane	2.78e-002	5.95e-001
n-Hexane	1.83e-002	3.91e-001
Cyclohexane	3.54e-002	7.57e-001
Other Hexanes	2.19e-002	4.69e-001
Heptanes	3.69e-002	7.89e-001
Methylcyclohexane	5.32e-002	1.14e+000
2,2,4-Trimethylpentane	1.24e-003	2.65e-002
Benzene	8.44e-002	1.81e+000
Toluene	1.24e-001	2.66e+000
Ethylbenzene	5.48e-003	1.17e-001
Xylenes	7.58e-002	1.62e+000
C8+ Heavies	7.00e-002	1.50e+000
Total Components	100.00	2.14e+003

FLASH TANK OFF GAS STREAM

Temperature: 120.00 deg. F
Pressure: 84.70 psia
Flow Rate: 5.34e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	3.06e-001	7.77e-002
Carbon Dioxide	3.63e+000	2.25e+000
Nitrogen	1.46e+000	5.75e-001
Methane	7.93e+001	1.79e+001
Ethane	7.57e+000	3.21e+000
Propane	3.91e+000	2.43e+000
Isobutane	8.95e-001	7.32e-001
n-Butane	1.25e+000	1.03e+000
Isopentane	4.13e-001	4.19e-001
n-Pentane	3.64e-001	3.70e-001
n-Hexane	1.54e-001	1.87e-001
Cyclohexane	1.24e-001	1.47e-001
Other Hexanes	2.12e-001	2.57e-001
Heptanes	1.75e-001	2.47e-001
Methylcyclohexane	1.28e-001	1.77e-001
2,2,4-Trimethylpentane	7.86e-003	1.26e-002
Benzene	4.55e-002	5.00e-002
Toluene	3.59e-002	4.66e-002
Ethylbenzene	7.83e-004	1.17e-003
Xylenes	7.04e-003	1.05e-002
C8+ Heavies	2.33e-002	5.59e-002
Total Components	100.00	3.02e+001

FLASH TANK GLYCOL STREAM

Temperature: 120.00 deg. F
Flow Rate: 3.77e+000 gpm

Component	Conc.	Loading

	(wt%)	(lb/hr)
TEG	9.32e+001	1.97e+003
Water	6.19e+000	1.31e+002
Carbon Dioxide	3.56e-002	7.51e-001
Nitrogen	6.64e-004	1.40e-002
Methane	2.21e-002	4.65e-001
Ethane	1.33e-002	2.81e-001
Propane	2.44e-002	5.15e-001
Isobutane	1.11e-002	2.33e-001
n-Butane	2.05e-002	4.33e-001
Isopentane	9.66e-003	2.04e-001
n-Pentane	1.07e-002	2.25e-001
n-Hexane	9.68e-003	2.04e-001
Cyclohexane	2.89e-002	6.10e-001
Other Hexanes	1.01e-002	2.13e-001
Heptanes	2.57e-002	5.42e-001
Methylcyclohexane	4.55e-002	9.61e-001
2,2,4-Trimethylpentane	6.58e-004	1.39e-002
Benzene	8.33e-002	1.76e+000
Toluene	1.24e-001	2.61e+000
Ethylbenzene	5.50e-003	1.16e-001
Xylenes	7.64e-002	1.61e+000
C8+ Heavies	6.83e-002	1.44e+000
Total Components	100.00	2.11e+003

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 2.19e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.69e+001	1.01e+002
Carbon Dioxide	2.96e-001	7.51e-001
Nitrogen	8.67e-003	1.40e-002
Methane	5.03e-001	4.65e-001
Ethane	1.62e-001	2.81e-001
Propane	2.02e-001	5.15e-001
Isobutane	6.97e-002	2.33e-001
n-Butane	1.29e-001	4.33e-001
Isopentane	4.84e-002	2.01e-001
n-Pentane	5.36e-002	2.23e-001
n-Hexane	4.08e-002	2.02e-001
Cyclohexane	1.21e-001	5.87e-001
Other Hexanes	4.20e-002	2.09e-001
Heptanes	9.31e-002	5.38e-001
Methylcyclohexane	1.62e-001	9.16e-001
2,2,4-Trimethylpentane	2.06e-003	1.35e-002
Benzene	3.70e-001	1.67e+000
Toluene	4.52e-001	2.40e+000
Ethylbenzene	1.70e-002	1.04e-001
Xylenes	2.29e-001	1.40e+000
C8+ Heavies	1.29e-001	1.27e+000
Total Components	100.00	1.13e+002

```
*****************************************************************************************
*     Project Setup Information                                                         *
*****************************************************************************************
Project File                : C:\Data\Clients\XTO\Tap 5\Modification Application - April 2009\PTE Tank Emissions.e
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                   : Tap 5
Well ID                     : Actual emissions - sample analysis dated 7/9/08
Permit Number               : Compressor condensate
Date                        : 2009.04.06


*****************************************************************************************
*     Data Input                                                                        *
*****************************************************************************************

Separator Pressure          : 50.00[psig]
Separator Temperature       : 80.00[F]
Ambient Pressure            : 12.64[psia]
Ambient Temperature         : 51.96[F]
C10+ SG                     : 0.7388
C10+ MW                     : 149.45

-- Low Pressure Oil ----------------------------------------------------------------------
```

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.0250
4	N2	0.0000
5	C1	1.4893
6	C2	1.0525
7	C3	2.8410
8	i-C4	2.4746
9	n-C4	5.4562
10	i-C5	6.1235
11	n-C5	6.9867
12	C6	9.0722
13	C7	35.2476
14	C8	8.7164
15	C9	3.2339
16	C10+	1.1145
17	Benzene	1.4377
18	Toluene	3.5610
19	E-Benzene	0.2008
20	Xylenes	1.9890
21	n-C6	7.8251
22	224Trimethylp	1.1530

```
-- Sales Oil -----------------------------------------------------------------------------
Production Rate             : 16[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	1.790	0.409
Total HC	49.169	11.226
VOCs, C2+	47.038	10.739
VOCs, C3+	44.216	10.095

Uncontrolled Recovery Info.

Vapor	2.0300	[MSCFD]
HC Vapor	2.0300	[MSCFD]
GOR	126.87	[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	0.098	0.022
4	N2	0.000	0.000
5	C1	2.131	0.487
6	C2	2.822	0.644
7	C3	10.807	2.467
8	i-C4	7.694	1.757
9	n-C4	10.895	2.487
10	i-C5	4.443	1.014
11	n-C5	3.561	0.813
12	C6	1.919	0.438
13	C7	2.809	0.641
14	C8	0.251	0.057
15	C9	0.038	0.009
16	C10+	0.005	0.001
17	Benzene	0.199	0.045
18	Toluene	0.161	0.037
19	E-Benzene	0.003	0.001
20	Xylenes	0.030	0.007
21	n-C6	1.315	0.300
22	224Trimethylp	0.086	0.020
	Total	49.267	11.248

-- 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	0.0250	0.0089	0.0000	0.5436	0.1081	0.2275
4	N2	28.01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	C1	16.04	1.4893	0.2310	0.0000	41.9772	2.8105	13.5555
6	C2	30.07	1.0525	0.5929	0.0003	15.8421	7.2092	9.5776
7	C3	44.10	2.8410	2.4296	0.1041	16.0792	28.3933	25.0150
8	i-C4	58.12	2.4746	2.3741	1.1123	5.7076	16.4619	13.5115
9	n-C4	58.12	5.4562	5.3562	3.7683	8.6729	23.0854	19.1315
10	i-C5	72.15	6.1235	6.1994	6.1035	3.6810	7.2706	6.2858
11	n-C5	72.15	6.9867	7.1103	7.2273	3.0097	5.8034	5.0370
12	C6	86.16	9.0722	9.3102	9.9042	1.4137	2.6789	2.3318
13	C7	100.20	35.2476	36.2904	39.2332	1.6926	3.4341	2.9563
14	C8	114.23	8.7164	8.9835	9.7638	0.1217	0.2717	0.2306
15	C9	128.28	3.2339	3.3340	3.6292	0.0144	0.0376	0.0312
16	C10+	149.45	1.1145	1.1491	1.2516	0.0015	0.0043	0.0035
17	Benzene	78.11	1.4377	1.4775	1.5830	0.1554	0.3002	0.2605
18	Toluene	92.13	3.5610	3.6686	3.9785	0.0988	0.2088	0.1786
19	E-Benzene	106.17	0.2008	0.2070	0.2252	0.0017	0.0039	0.0033
20	Xylenes	106.17	1.9890	2.0504	2.2310	0.0144	0.0340	0.0286
21	n-C6	86.18	7.8251	8.0394	8.5987	0.9283	1.7949	1.5571
22	224Trimethylp	114.24	1.1530	1.1875	1.2858	0.0441	0.0892	0.0769
	MW		87.80	89.41	92.43	36.08	55.66	50.29
	Stream Mole Ratio		1.0000	0.9699	0.8901	0.0301	0.0797	0.1099
	Heating Value	[BTU/SCF]				2066.23	3119.04	2830.22
	Gas Gravity	[Gas/Air]				1.25	1.92	1.74

Bubble Pt. @ 100F	[psia]	61.43	22.37	7.22
RVP @ 100F	[psia]	24.12	14.89	6.99
Spec. Gravity @ 100F		0.657	0.660	0.665

INDUSTRIAL REFRACTORY SERVICES INC.
2300 South Main Street
Fort Worth, Texas 76110
(817)924-9991
mriddell@irsvc.com

August 19, 2008

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 24" T.O.'s use the TJ0100HV burner and the 30" T.O.'s use the TJ0200HV Burner.

If you have questions please contact me.

Sincerely,

Mike Riddell
Enclosure

ECLIPSE

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

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A		Description:	Canyon Gas Check
Analysis Date/Time:	5/14/2008	1:30 PM	Field:	Little Canyon
Analyst Initials:	AST		ML#:	XTO/2303339
Instrument ID:	Instrument 1		GC Method:	Quesbtex
Data File:	QPC92.D			
Date Sampled:	5/9/2008			

Component	Mol%	Wt%	LV%
Methane	87.2731	73.8484	82.2134
Ethane	5.7403	9.1043	8.5551
Propane	2.4248	5.6398	3.7156
Isobutane	0.4875	1.4945	0.8868
n-Butane	0.6023	1.8463	1.0559
Neopentane	0.0064	0.0243	0.0136
Isopentane	0.2006	0.7635	0.4084
n-Pentane	0.1622	0.6172	0.3266
2,2-Dimethylbutane	0.0060	0.0275	0.0140
2,3-Dimethylbutane	0.0152	0.0690	0.0346
2-Methylpentane	0.0438	0.1989	0.1010
3-Methylpentane	0.0247	0.1121	0.0559
n-Hexane	0.0598	0.2717	0.1367
Heptanes	0.1450	0.7113	0.3150
Octanes	0.0145	0.0863	0.0395
Nonanes	0.0053	0.0327	0.0142
Decanes plus	0.0004	0.0027	0.0012
Nitrogen	1.5674	2.3159	0.9556
Carbon Dioxide	1.2207	2.8336	1.1569
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	1115.5	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	1097.3	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9973	
Specific Gravity	0.6562	air=1
Avg Molecular Weight	18.960	gm/mole
Propane GPM	0.666648	gal/MCF
Butane GPM	0.348578	gal/MCF

Component	Mol%	Wt%	LV%
Benzene	0.0084	0.0346	0.0131
Toluene	0.0071	0.0345	0.0132
Ethylbenzene	0.0002	0.0010	0.0004
M&P Xylene	0.0017	0.0094	0.0036
O-Xylene	0.0002	0.0011	0.0004
2,2,4-Trimethylpentane	0.0038	0.0229	0.0106
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0296	0.1316	0.0561
Methylcyclohexane	0.0348	0.1803	0.0778
Description:	Canyon Gas Check		

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	1.2207	2.8336	1.1569
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	1.5674	2.3159	0.9556
Methane	87.2731	73.8484	82.2134
Ethane	5.7403	9.1043	8.5551
Propane	2.4248	5.6398	3.7156
Isobutane	0.4875	1.4945	0.8868
n-Butane	0.6023	1.8463	1.0559
Isopentane	0.2070	0.7878	0.4220
n-Pentane	0.1622	0.6172	0.3266
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0598	0.2717	0.1367
Cyclohexane	0.0296	0.1316	0.0561
Other Hexanes	0.0897	0.4075	0.2055
Heptanes	0.0613	0.3074	0.1442
Methylcyclohexane	0.0348	0.1803	0.0778
2,2,4 Trimethylpentane	0.0038	0.0229	0.0106
Benzene	0.0084	0.0346	0.0131
Toluene	0.0071	0.0345	0.0132
Ethylbenzene	0.0002	0.0010	0.0004
Xylenes	0.0019	0.0105	0.0040
C8+ Heavies	0.0181	0.1102	0.0505
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A	Description:	Tap 5 Inlet Separator
Analysis Date/Time:	7/9/2008	Field:	Riverbend
Analyst Initials:	AST	ML#:	XTO
Sample Temperature:	60	GC Method:	Quesliq1.M
Sample Pressure:	50	Data File:	QPC48.D
Date Sampled:	7/7/2008	Instrument ID:	1

Component	Mol%	Wt%	LV%
Methane	1.4893	0.2708	0.6268
Ethane	1.0525	0.3587	0.7008
Propane	2.8410	1.4198	1.9450
Isobutane	2.4746	1.6300	2.0113
n-Butane	5.4562	3.5940	4.2740
Neopentane	0.0636	0.0520	0.0605
Isopentane	6.0599	4.9549	5.5111
n-Pentane	6.9867	5.7127	6.2871
2,2-Dimethylbutane	0.4581	0.4474	0.4751
2,3-Dimethylbutane	1.4506	1.4167	1.4766
2-Methylpentane	4.5302	4.4243	4.6706
3-Methylpentane	2.6333	2.5718	2.6694
n-Hexane	7.8251	7.6421	7.9927
Heptanes	36.6853	39.7989	37.5321
Octanes	13.4304	16.4829	15.3675
Nonanes	5.4237	7.3353	6.6268
Decanes plus	1.1145	1.8748	1.7624
Nitrogen	0.0000	0.0000	0.0000
Carbon Dioxide	0.0250	0.0125	0.0106
Total	100.0000	100.0000	100.0000

Global Properties		**Units**
Avg Molecular Weight	88.2406	gm/mole
Pseudocritical Pressure	479.66	psia
Pseudocritical Temperatu	462.89	degF
Specific Gravity	0.69453	gm/ml
Liquid Density	5.7903	lb/gal
Liquid Density	243.19	lb/bbl
Specific Gravity	2.9944	air=1
SCF/bbl	1050.02	SCF/bbl

Component	Mol%	Wt%	LV%
Benzene	1.4377	1.2727	0.9993
Toluene	3.561	3.718	2.9616
Ethylbenzene	0.2008	0.2416	0.1924
M&P Xylene	1.7293	2.0807	1.6632
O-Xylene	0.2597	0.3124	0.2453
2,2,4-Trimethylpentane	1.1530	1.4926	1.4393

Data File: Tap 5 Inlet Separator Page #2

Component	Mol%	Wt%	LV%
H2S			
O2			
CO2	0.0250	0.0125	0.0106
N2	0.0000	0.0000	0.0000
C1	1.4893	0.2708	0.6268
C2	1.0525	0.3587	0.7008
C3	2.8410	1.4198	1.9450
IC4	2.4746	1.6300	2.0113
NC4	5.4562	3.5940	4.2740
IC5	6.1235	5.0069	5.5716
NC5	6.9867	5.7127	6.2871
Hexanes	9.0722	8.8602	9.2917
Heptanes	35.2476	38.5262	36.5328
Octanes	8.7164	11.2723	10.9666
Nonanes	3.2339	4.7006	4.5259
Benzene	1.4377	1.2727	0.9993
Toluene	3.561	3.718	2.9616
E-Benzene	0.2008	0.2416	0.1924
Xylene	1.9890	2.3931	1.9085
n-C6	7.8251	7.6421	7.9927
2,2,4-Trimethylpentane	1.1530	1.4926	1.4393
C10 Mole %	1.1145	1.8748	1.7624
Molecular Wt.	149.4494		
Specific Gravity	0.7388		
Total	100.0000	100.000	100.000

ACTUAL EMISSIONS

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Unit: TEG Dehydrator - T5D-1
Rating: 40MMcf/day Maximum Throughput

Uncontrolled 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 Dehydrator - T5D-1	40.00	47.7845	7.2979	10.5123	0.4547	6.1365	0.8869	0.0593	25.3566	24.4104
w/ 21015 pump										
Flash Tank		27.0149	0.2191	0.2040	0.0051	0.0461	0.8194	0.0554	1.3491	0.4743
TOTAL		**74.7994**	**7.5170**	**10.7163**	**0.4598**	**6.1826**	**1.7063**	**0.1147**	**26.7057**	**24.8847**

Controlled 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 Dehydrator - T5D-1	40.00	0.4778	0.0730	0.1051	0.0045	0.0614	0.0089	0.0006	0.2536	0.2441
w/ 21015 pump										
Flash Tank		27.0149	0.2191	0.204	0.0051	0.0461	0.8194	0.0554	1.3491	0.4743
TOTAL		**27.4927**	**0.2921**	**0.3091**	**0.0096**	**0.1075**	**0.8283**	**0.0560**	**1.6027**	**0.7184**

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

FUGITIVE EMISSIONS

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

		Estimated Components Count	Hours	Factors* lb/hr/component	%NMNEVOC	Emissions lb/year	Emissions tons/year
Valves							
	Gas/Vapor	300	8760	0.00992000	11.92%	3106.87720	1.55344
	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	11.92%	33.13585	0.01657
	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	11.92%	583.58345	0.29179
	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	11.92%	69.05912	0.03453
	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	11.92%	114.83753	0.05742
	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	11.92%	607.5949369	0.303797468
	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	**5.91**
Total in Lb/hr	**1.35**

Fugitive HAP Emissions Totals

	wt% in gas	Total VOC wt %	Total Fugitive VOC tpy	Total tpy for HAP	Total lb/hr for HAP
Benzene	0.0346%	11.92%	5.91	**0.017**	**0.004**
Toluene	0.0345%	11.92%	5.91	**0.017**	**0.004**
Xylene	0.0106%	11.92%	5.91	**0.005**	**0.0012**
n-Hexane	0.2718%	11.92%	5.91	**0.135**	**0.031**
E-benzene	0.0008%	11.92%	5.91	**0.000**	**0.0001**
			TOTAL Fugitive HAP's	**0.175**	**0.040**

NATURAL GAS COMPOSITION

Company: **XTO Energy**
Facility Name: **Tap 5**
Location: **Uintah County, Utah**

Fuel Type: **Natural Gas**
Heat Value (wet): **1091.820757 Btu/scf**

C1-C2 Wt. Fraction: **0.829341438**
VOC Wt. Fraction: **0.11917552**
Non-HC Wt. Fraction: **0.051483042**
Total: **1.00**

COMPONENT	MOLE PERCENT	COMPONENT MOLE WEIGHT (lb/lb-mole)	NET MOLE WEIGHT (lb/lb-mole)	WEIGHT FRACTION	GROSS HEATING VALUE (BTU/scf)	NET DRY HEATING VALUE (BTU/scf)	LOWER HEATING VALUE (BTU/scf)	NET LOW HEATING VALUE (BTU/scf)
Methane	87.2731	16.043	14.001223	0.738319445	1010	881.45831	910	794.16521
Ethane	5.7403	30.07	1.7261082	0.091021993	1769.8	101.591829	1618	92.878054
Propane	2.4248	44.097	1.0692641	0.056384962	2516.2	61.0128176	2316	56.158368
i-Butane	0.4875	58.123	0.2833496	0.014941733	3252.1	15.8539875	3005	14.649375
n-Butane	0.6023	58.123	0.3500748	0.018460319	3262.4	19.6494352	3013	18.147299
i-Pentane	0.2070	72.15	0.1493505	0.007875624	4000.9	8.281863	3698	7.65486
n-Pentane	0.1622	72.15	0.1170273	0.006171142	4008.8	6.5022736	3708	6.014376
Hexanes+	0.1193	86.177	0.1028092	0.005421384	4756.2	5.6741466	4404	5.253972
Heptanes	0.0961	100.204	0.096296	0.005077931	5502.5	5.2879025	5100	4.9011
Octanes	0.0219	114.231	0.0250166	0.001319187	6249.1	1.3685529		0
Nonanes	0.0000	128.258	0	0	6996.4	0		0
Decanes	0.0000	142.285	0	0	7743.2	0		0
Benzene	0.0084	78.12	0.0065621	0.000346035	3715.5	0.312102		0
Toluene	0.0071	92.13	0.0065412	0.000344935	4444.6	0.3155666		0
Ethylbenzene	0.0002	106.16	0.0001592	8.39712E-06	5191.5	0.00778725		0
Xylenes	0.0019	106.16	0.002017	0.000106364	5183.5	0.0984865		0
n-Hexane	0.0598	86.177	0.0515338	0.002717508	4756.2	2.8442076		0
Helium	0.0000	4.003	0	0	0	0	0	0
Nitrogen	1.5674	28.013	0.4390758	0.02315356	0	0	0	0
Carbon Dioxide	1.2207	44.01	0.5372301	0.028329482	0	0	0	0
Oxygen	0.0000	32	0	0	0	0	0	0
Hydrogen Sulfide	0.0000	34.08	0	0	637.1	0	588	0
TOTAL	**100.0000**		**18.963639**	**1**		**1110.25927**		**999.84261**

Relative Mole Weight (lb/lb-mole) = [Mole Percent * Molecular weight (lb/bl-mole)] / 100

Weight Fraction = Net Mole Weight / Total Mole Weight

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

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

			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.			

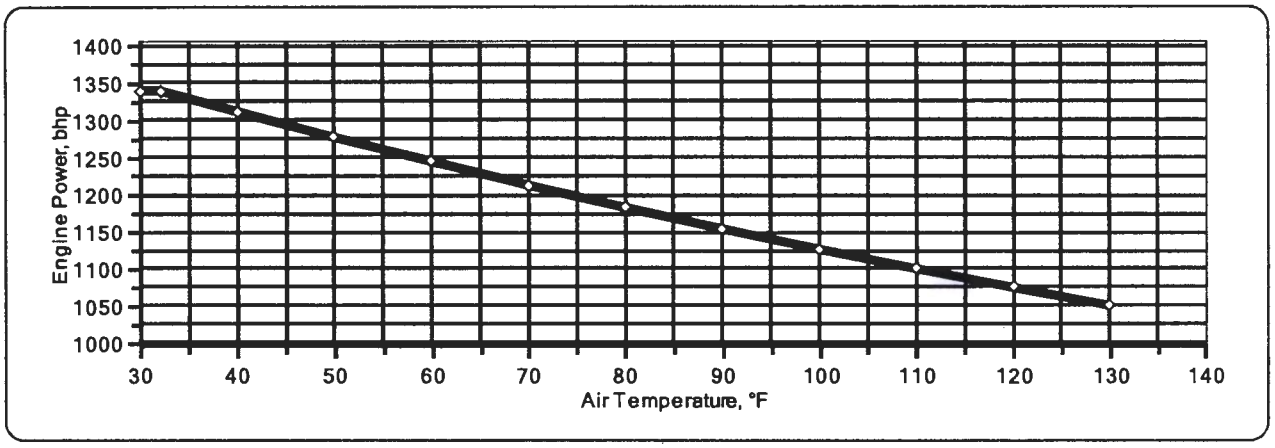
CONDITIONS AND DEFINITIONS

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.

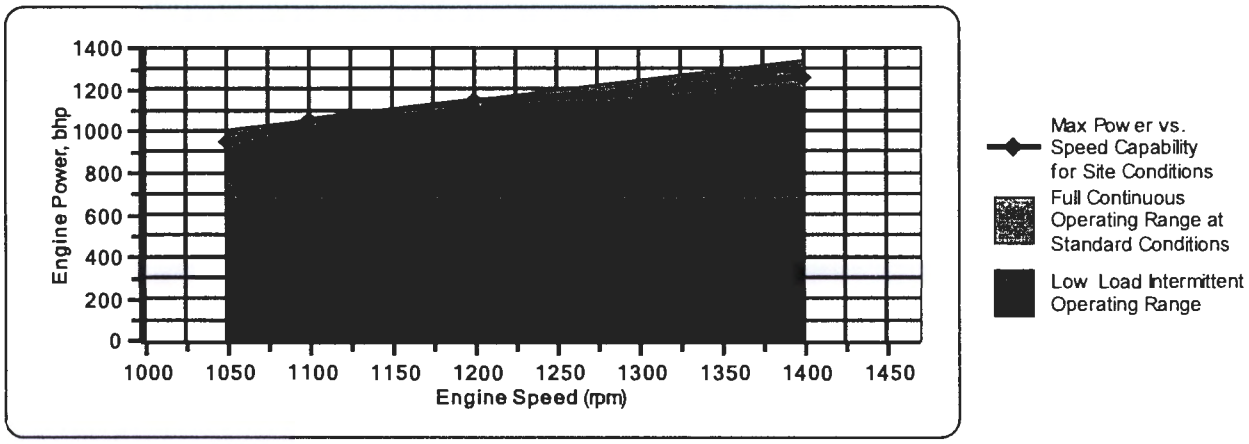
For notes information consult page three.

PREPARED BY: craig allison, XTO
Data generated by Gas Engine Rating Pro Version 3.02.00
Ref. Data Set DM8618-00-001, Printed 03Apr2009

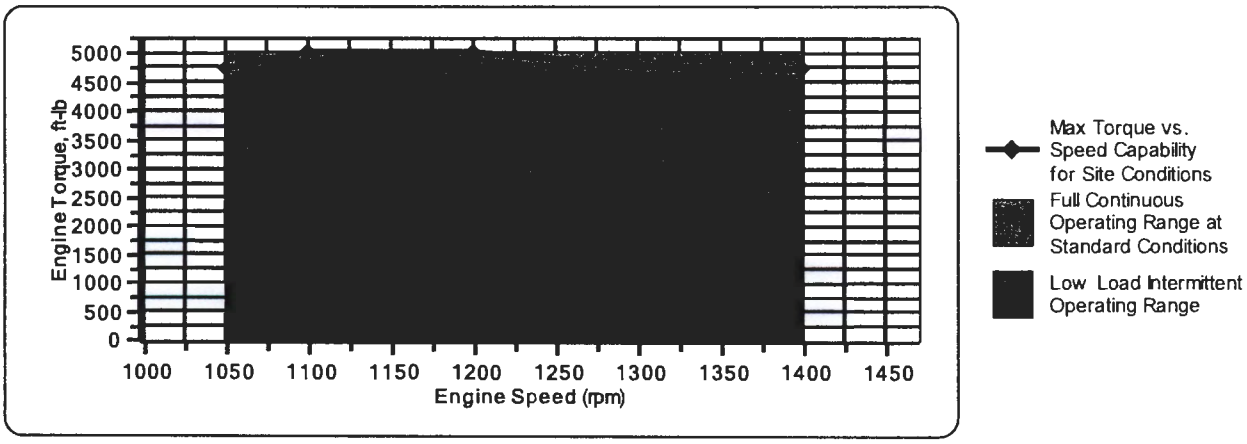
Engine Power vs. Inlet Air Temperature



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 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

G3512 LE

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA
Uintah County Cat 3512LE 1200 rpm

CATERPILLAR®

ENGINE SPEED (rpm):	1200
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):	2.0
SET POINT TIMING:	27.5

FUEL SYSTEM:	HPG IMPCO WITH AIR FUEL RATIO CONTROL
SITE CONDITIONS:	
FUEL:	Gas Analysis
FUEL PRESSURE RANGE(psig):	35.0-40.0
FUEL METHANE NUMBER:	62.7
FUEL LHV (Btu/scf):	1004
ALTITUDE(ft):	5800
MAXIMUM INLET AIR TEMPERATURE(°F):	55
NAMEPLATE RATING:	860 bhp@1200rpm

			MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE		
RATING	**NOTES**	**LOAD**	**100%**	**100%**	**75%**	**52%**
ENGINE POWER	(1)	bhp	860	826	619	430
INLET AIR TEMPERATURE		°F	46	55	55	55
ENGINE DATA						
FUEL CONSUMPTION (LHV)	(2)	Btu/bhp-hr	7721	7766	8072	8552
FUEL CONSUMPTION (HHV)	(2)	Btu/bhp-hr	8543	8593	8931	9462
AIR FLOW	(3)(4)	lb/hr	8237	7924	6027	4310
AIR FLOW WET (77°F, 14.7 psia)	(3)(4)	scfm	1858	1787	1359	972
INLET MANIFOLD PRESSURE	(5)	in Hg(abs)	66.1	63.9	50.4	37.5
EXHAUST STACK TEMPERATURE	(6)	°F	856	854	846	842
EXHAUST GAS FLOW (@ stack temp, 14.5 psia)	(7)(4)	ft3/min	4922	4731	3582	2557
EXHAUST GAS MASS FLOW	(7)(4)	lb/hr	8565	8241	6274	4492
EMISSIONS DATA						
NOx (as NO2)	(8)	g/bhp-hr	2.00	2.00	2.00	2.00
CO	(8)	g/bhp-hr	2.44	2.45	2.49	2.56
THC (mol. wt. of 15.84)	(8)	g/bhp-hr	2.70	2.72	2.92	3.22
NMHC (mol. wt. of 15.84)	(8)	g/bhp-hr	0.63	0.64	0.68	0.75
NMNEHC (VOCs) (mol. wt. of 15.84)	(8)(9)	g/bhp-hr	0.36	0.36	0.39	0.43
HCHO (Formaldehyde)	(8)	g/bhp-hr	0.24	0.24	0.25	0.27
CO2	(8)	g/bhp-hr	512	514	525	549
EXHAUST OXYGEN	(10)	% DRY	8.3	8.3	8.2	7.9
HEAT REJECTION						
HEAT REJ. TO JACKET WATER (JW)	(11)	Btu/min	28799	28326	24479	20240
HEAT REJ. TO ATMOSPHERE	(11)	Btu/min	3643	3547	2964	2429
HEAT REJ. TO LUBE OIL (OC)	(11)	Btu/min	4295	4224	3651	3019
HEAT REJ. TO AFTERCOOLER (AC)	(11)(12)	Btu/min	6706	6706	3570	1302

HEAT EXCHANGER SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+OC)	(12)	Btu/min	36832
TOTAL AFTERCOOLER CIRCUIT (AC)	(12)(13)	Btu/min	7042
A cooling system safety factor of 0% has been added to the heat exchanger sizing criteria.			

CONDITIONS AND DEFINITIONS

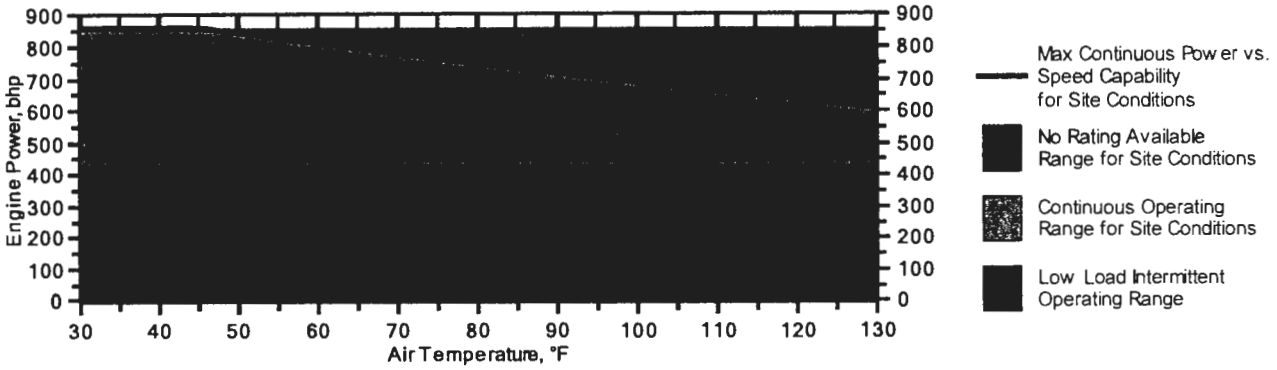
Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature.
100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature.
Max. rating 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 3.03.00
Ref. Data Set DM8619-01-001, Printed 20Aug2009

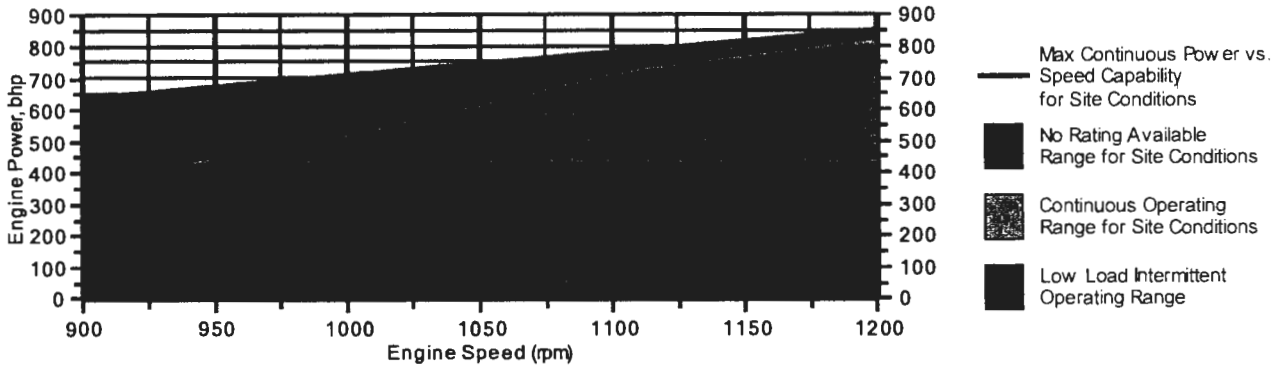
Engine Power vs. Inlet Air Temperature

Data represents temperature sweep at 5800 ft and 1200 rpm



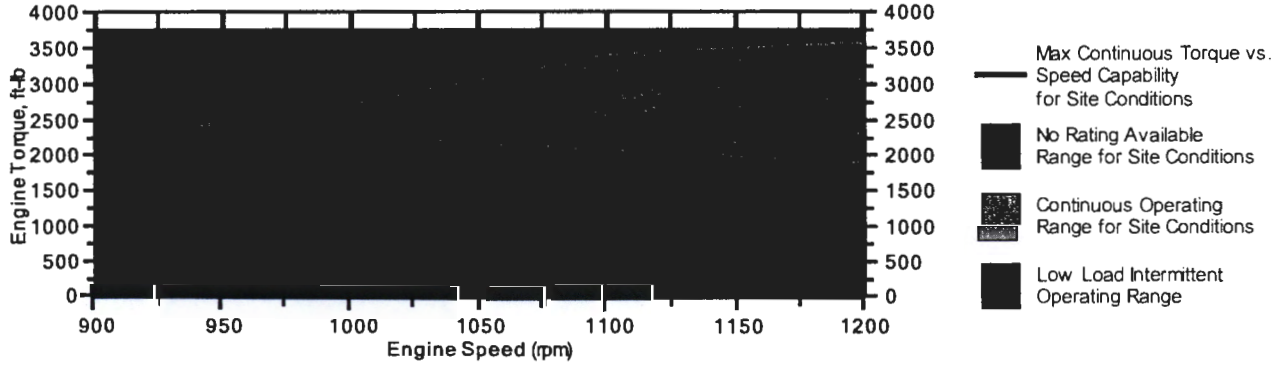
Engine Power vs. Engine Speed

Data represents speed sweep at 5800 ft and 55 °F



Engine Torque vs. Engine Speed

Data represents speed sweep at 5800 ft and 55 °F



Note: At site conditions of 5800 ft and 55°F inlet air temp., constant torque can be maintained down to 1200 rpm. The minimum speed for loading at these conditions is 935 rpm.

PREPARED BY: craig allison, XTO
Data generated by Gas Engine Rating Pro Version 3.03.00
Ref. Data Set DM8619-01-001, Printed 20Aug2009

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. 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.

Constituent	Abbrev	Mole %	Norm
Water Vapor	H20	0.0000	0.0000
Methane	CH4	87.2731	87.3407
Ethane	C2H6	5.7403	5.7447
Propane	C3H8	2.4248	2.4267
Isobutane	iso-C4H10	0.4875	0.4879
utane	nor-C4H10	0.6023	0.6028
Isopentane	iso-C5H12	0.2070	0.2072
Norpentane	nor-C5H12	0.1622	0.1623
Hexane	C6H14	0.1193	0.1194
Heptane	C7H16	0.0961	0.0962
Nitrogen	N2	1.5674	1.5686
Carbon Dioxide	CO2	1.2207	1.2216
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	0.0219	0.0219
Nonane	C9H20	0.0000	0.0000
Ethylene	C2H4	0.0000	0.0000
Propylene	C3H6	0.0000	0.0000
TOTAL (Volume %)		99.9226	100.0000

Fuel Makeup:	Gas Analysis
Unit of Measure:	English
Calculated Fuel Properties	
Caterpillar Methane Number:	62.7
Lower Heating Value (Btu/scf):	1004
Higher Heating Value (Btu/scf):	1111
WOBBE Index (Btu/scf):	1242
THC: Free Inert Ratio:	34.84
RPC (%) (To 905 Btu/scf Fuel):	100%
Compressibility Factor:	0.997
Stoich A/F Ratio (Vol/Vol):	10.45
Stoich A/F Ratio (Mass/Mass):	16.01
Specific Gravity (Relative to Air):	0.653
Specific Heat Constant (K):	1.300

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 fuel 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.

Constituent	Abbrev	Mole %	Norm
Water Vapor	H2O	0.0000	0.0000
Methane	CH4	87.2731	87.3407
Ethane	C2H6	5.7403	5.7447
Propane	C3H8	2.4248	2.4267
Isobutane	iso-C4H1O	0.4875	0.4879
Norbutane	nor-C4H1O	0.6023	0.6028
Isopentane	iso-C5H12	0.2070	0.2070
Norpentane	nor-C5H12	0.1622	0.1623
Hexane	C6H14	0.1193	0.1194
Heptane	C7H16	0.0961	0.0962
Nitrogen	N2	1.5674	1.5686
Carbon Dioxide	CO2	1.2207	1.2216
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	0.0219	0.0219
Nonane	C9H20	0.0000	0.0000
Ethylene	C2H4	0.0000	0.0000
Propylene	C3H6	0.0000	0.0000
TOTAL (Volume %)		99.9226	100.0000

Fuel Makeup:	Gas Analysis
Unit of Measure:	English

Calculated Fuel Properties

Caterpillar Methane Number:	62.7
Lower Heating Value (Btu/scf):	1004
Higher Heating Value (Btu/scf):	1111
WOBBE Index (Btu/scf):	1242
THC: Free Inert Ratio:	34.84
RPC (%) (To 905 Btu/scf Fuel):	100%
Compressibility Factor:	0.997
Stoich A/F Ratio (Vol/Vol):	10.45
Stoich A/F Ratio (Mass/Mass):	16.01
Specific Gravity (Relative to Air):	0.653
Specific Heat Constant (K):	1.300

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.

DRESSER Waukesha

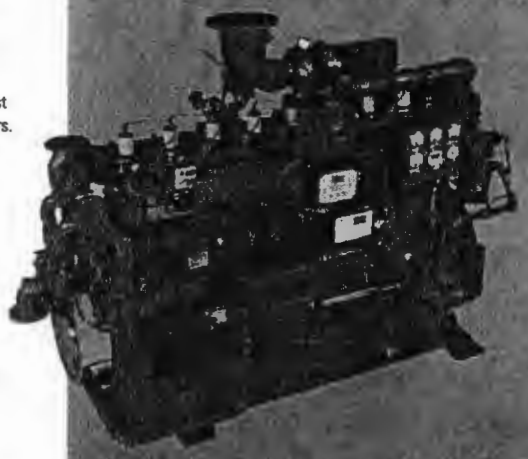
H24GSID

STANDARD EQUIPMENT

AIR CLEANER – Two Stage, dry panel type with rain shield and service indicator. Engine mounted.
BARRING DEVICE – Manual.
BREATHER – Crankcase, closed type (mounted).
CARBURETOR – Single natural gas Impco 600 for low fuel pressure.
CONNECTING RODS – Drop forged alloy steel, angle split, serrated joint, oil jet piston pin lubrication.
COOLING SYSTEM – Jacket water: gear driven pump, thermostatically controlled, full flow bypass type with nominal 180° F (82° C) outlet temperature. Auxiliary water: gear driven pump supplies water to intercooler and oil cooler circuit.
CRANKCASE – Alloy cast iron, fully ribbed, integral with cylinder frame.
CRANKSHAFT – Drop forged alloy steel, dynamically balanced and fully counterweighted. Viscous vibration dampener.
CYLINDERS – Removable wet type liners of centrifugally cast alloy iron.
CYLINDER HEADS – Eight interchangeable, valve–in–head type, with two hard faced intake and two hard faced exhaust valves per cylinder. Replaceable intake and exhaust valve seats. Mechanical valve lifters with pivoted roller followers.
EXHAUST SYSTEM – Water cooled exhaust manifold, Outlet flange for ANSI 8" 125# flange.
FLYWHEEL – With 150 tooth ring gear (for Delco electric and air/gas starters). Flywheel machined to accept SAE 620D, 18" (457 mm) diameter clutch.
FLYWHEEL HOUSING – SAE #0 nodular iron housing. Provision for two magnetic pickups and vertical mounting pads.
GOVERNOR – Woodward SG hydraulic with manual speed control.
IGNITION – Waukesha Custom Engine Control electronic ignition system with coils, cables and spark plugs. Non–shielded. 24V DC power required. Includes emergency stop/service engine protection switch for local override of remote controls.
INTERCOOLER – Air–to–water.
LIFTING EYES – For engine only.
LUBRICATION SYSTEM – Gear type pump, full flow spin–on filters and industrial base type oil pan, 56 gallon (212 litres) capacity, including filters. Engine mounted plate type oil cooler.
MOUNTING – Base type oil pan.
PAINT – Oilfield orange.
PISTONS – Aluminum alloy, three ring, with deep central combustion bowl. Oil jet cooled with full floating piston pin. 8.6:1 compression ratio.
TURBOCHARGER – Exhaust driven, dry type with wastegate. For 1350 – 1800 rpm applications.

VGF™ Series Gas Engine

415 - 585 BHP (310 - 438 kWb)



Engine shown with options.

Model H24GSID

Turbocharged and Intercooled, Draw-Thru Carburetion, Eight Cylinder, Four-Cycle Gas Fueled Engine

SPECIFICATIONS

Cylinders
In-line 8

Piston Displacement
1462 cu. in. (24 L)

Bore & Stroke
6.88" x 6.5"
(152 x 165 mm)

Compression Ratio
8.6:1

Jacket Water System Capacity
20 gal. (77 L)

Lube Oil Capacity
56 gal. (212 L)

Low Fuel Pressure System
[illegible] WC - 5 psig
(According to regulator used)
0.02 - 0.34 [illegible]

Starting System
150 psi max.
air/gas or
24V DC electric

Dry Weight
[illegible]

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

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) _____

Name (typed) **Nick Dungey** Date: 7 / 16 / 2009

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
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.

XTO ENERGY

November 5, 2007

RECEIVED
NOV 07 2007
8P - AR

U.S. Environmental Protection Agency
Region 8
Air and Radiation Program
1595 Wynkoop Street
Denver, CO 80202

Att. Ms. Kathleen Paser

Re: Initial Part 71 Operating Permit, V-OU-00XX-07.00
Application Completeness Review and Request for Additional Information
TAP 5 Compressor Station
Change of Operator

Dear Ms. Paser:

We just received an e-mail copy of your letter dated June 8, 2007, stating that EPA had finished its completeness determination on the Title V application submitted by Dominion Exploration and Production, Inc. on April 13, 2007, and granted an application shield for the TAP 5 Compressor Station. The letter went on to ask for additional information to be submitted by August 31, 2007.

Dominion Exploration and Production, Inc. sold its Uintah Basin properties to XTO Energy Inc. with Closing on the transaction occurring on July 31, 2007. (See attached pages of the Purchase and Sale Agreement.) XTO Energy Inc. took over operations and assumed responsibility for compliance on August 1, 2007. Please change your records to reflect XTO Energy Inc. as the new operator of the Kings Canyon Compressor Station. The air permit engineer for this facility is Doug Agee; he can be contacted at (817) 885-2285 or by e-mail at Doug_Agee@xtoenergy.com.

Buys & Associates, our environmental consultant, requested a 60-day extension of time to submit the information. EPA has extended the due date to November 14, 2007.

Yours truly,

Doug Agee

Doug Agee, PE
Environmental Engineer

CERTIFIED MAIL 7004 1350 0004 6067 9079

EPA is seeking the following information to assist their permit engineers in understanding XTO's Tap 5 operations, evaluating the compliance status of the operations at this facility, and developing a comprehensive permit.

1. Provide a description of the operations at the station;

Tap 5 processes natural gas from several wellsites in the vicinity. Two compressor engines compress the gas to enable the glycol dehydration unit to reduce the water content of the saturated gas to 7.0 pounds per MMscf. Natural gasoline liquids are sent to a 300-bbl tank for later removal by truck. One generator is used to provide power to the hydrocarbon dewpoint skid found onsite.

2. Provide the construction and permitting history of the station, including the PTE at each stage of construction;

Please see attached.

3. Provide the installation date for units D-1 and T-1;

All installation dates are as follows:

Emission Unit ID	Emission Unit Description	Installation Date
C-2	Caterpillar 3412CLE	3/24/2004
C-4	Caterpillar 3516TALE compressor	TBD
C-3	Caterpillar 3512TALE compressor	6/5/2005
D-1	11.4 MMscfd Glycol Dehydration Unit	4/12/2005
D-2	40 MMscfd Glycol Dehydration Unit	5/10/2007
G-1	Caterpillar 3412TA generator	10/3/2007
T-1	300-bbl condensate storage tank	4/12/2005

4. Provide the serial numbers for units T-1;

All serial numbers are as follows:

Serial Numbers			
Emission Unit ID	Emission Unit Description	Serial Numbers	Manufacturer
C-2	Caterpillar 3412CLE	6ZM00373	Caterpillar
C-4	Caterpillar 3516TALE compressor	WPW00281	Caterpillar
C-3	Caterpillar 3512TALE compressor	7NJ01021	Caterpillar
G-1	Caterpillar 3412TA generator	CRF02117	Caterpillar
T-1	300-bbl condensate storage tank	8E02501-01	Natco

5. Provide the most recent inlet gas samples;

Please see attached.

6. Provide your analysis/discussion on applicability or non-applicability of all the standards relevant to oil and gas operations or any other emission units at the facility.

Please see attached.

7. Provide the manufacturer's engine design information and site-rated specifications for each engine identified in the application. Identify on the manufacturers literature (tables) the specific operating parameters of each engine. In addition, provide supporting manufacturer's data for the emission factors used in calculating the uncontrolled emissions.

Please see attached.

8. Provide manufacturer's specifications for the catalysts to be used on each engine and the control efficiencies identified by the manufacturer for nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOCs), and formaldehyde (C_2HO).

Please see attached.

9. Provide the manufacturer's design specifications for the glycol dehydrators. Include in the specifications, the maximum glycol recirculation pump rate, and maximum gas throughput.

Currently unavailable. Have requested the information from the manufacturers; awaiting new correspondence since mid-September.

10. Provide the manufacturer's design specifications for the control equipment for each dehydrator. Include in the specifications, the manufacturer's VOC and benzene, toluene, ethyl benzene, and xylene (BTEX) removal efficiency estimations referred to on Form EUD-2 for each dehydrator.

Currently unavailable. Have requested the information from the manufacturers; awaiting new correspondence since mid-September.

11. 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 pigging operations are performed at the southwest corner of the plant prior to compression and dehydration. There is no set schedule for operations (on an as-needed basis). The attached process flow diagram shows where the pigging operations are found. There is only a pig receiver at the plant. There are no pig launchers.

Construction History - June 2001

ANNUAL POTENTIAL TO EMIT (PTE) EMISSION SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	4.02	17.63	5.10	22.33	0.24	1.06	0.80	3.53	0.99	4.34	0.05	0.22
Totals	**4.02**	**17.6**	**5.10**	**22.3**	**0.24**	**1.1**	**0.80**	**3.5**	**0.99**	**4.3**	**0.05**	**0.2**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	0.04	0.19	0.00	0.02	0.00	0.00	0.00	0.01
Totals	**0.04**	**0.2**	**0.00**	**0.0**	**0.00**	**0.0**	**0.00**	**0.0**

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

Construction History - March 2004

ANNUAL POTENTIAL TO EMIT (PTE) EMISSION SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	4.02	17.63	5.10	22.33	0.24	1.06	0.80	3.53	0.99	4.34	0.05	0.22
Caterpillar 3412CLE	2.44	10.68	2.32	10.15	0.20	0.85	0.37	1.60	0.45	1.97	0.02	0.10
Totals	**6.46**	**28.3**	**7.41**	**32.5**	**0.44**	**1.9**	**1.17**	**5.1**	**1.44**	**6.3**	**0.07**	**0.3**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	0.04	0.19	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3412CLE	0.02	0.09	0.00	0.01	0.00	0.00	0.00	0.00
Totals	**0.06**	**0.3**	**0.01**	**0.0**	**0.00**	**0.0**	**0.00**	**0.0**

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

Construction History - April 2005

ANNUAL POTENTIAL TO EMIT (PTE) EMISSION SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	4.02	17.63	5.10	22.33	0.24	1.06	0.80	3.53	0.99	4.34	0.05	0.22
Caterpillar 3412CLE	2.44	10.68	2.32	10.15	0.20	0.85	0.37	1.60	0.45	1.97	0.02	0.10
TEG Dehydrator #1	-	-	-	-	15.85	69.42	-	-	7.57	33.18	7.26	31.79
Condensate Tank Emissions	-	-	-	-	2.62	11.45	-	-	-	-	-	-
TEG Dehy Glycol Reboiler Heater #1	0.03	0.11	0.02	0.09	0.00	0.01	0.00	0.00	-	-	-	-
Separator	0.02	0.08	0.02	0.07	0.00	0.01	0.00	0.00	-	-	-	-
Oil Tank Emissions	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Tank Heaters Emissions (Oil, Condensate)	0.09	0.40	0.08	0.34	0.01	0.04	0.00	0.00	-	-	-	-
Truck Loading (Oil and Condensate)	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Pump Jack engine (Propane fueled)	0.00	0.01	0.00	0.00	0.00	0.00	-	-	-	-	-	-
Totals	**6.60**	**28.9**	**7.53**	**33.0**	**18.91**	**82.8**	**1.17**	**5.1**	**9.02**	**39.5**	**7.33**	**32.1**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator #1	2.44	10.68	3.54	15.52	0.09	0.41	1.18	5.18
Caterpillar 3516TALE	0.04	0.19	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3412CLE	0.02	0.09	0.00	0.01	0.00	0.00	0.00	0.00
Totals	**2.50**	**11.0**	**3.55**	**15.5**	**0.09**	**0.4**	**1.19**	**5.2**

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

Construction History - June 2005

ANNUAL POTENTIAL TO EMIT (PTE) EMISSION SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	4.02	17.63	5.10	22.33	0.24	1.06	0.80	3.53	0.99	4.34	0.05	0.22
Caterpillar 3412CLE	2.44	10.68	2.32	10.15	0.20	0.85	0.37	1.60	0.45	1.97	0.02	0.10
Caterpillar 3512TALE	3.11	13.63	4.36	19.08	0.71	3.09	0.52	2.27	0.66	2.90	0.04	0.17
TEG Dehydrator #1	-	-	-	-	15.85	69.42	-	-	7.57	33.18	7.26	31.79
Condensate Tank Emissions	-	-	-	-	2.62	11.45	-	-	-	-	-	-
TEG Dehy Glycol Reboiler Heater #1	0.03	0.11	0.02	0.09	0.00	0.01	0.00	0.00	-	-	-	-
Separator	0.02	0.08	0.02	0.07	0.00	0.01	0.00	0.00	-	-	-	-
Oil Tank Emissions	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Tank Heaters Emissions (Oil, Condensate)	0.09	0.40	0.08	0.34	0.01	0.04	0.00	0.00	-	-	-	-
Truck Loading (Oil and Condensate)	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Pump Jack engine (Propane fueled)	0.00	0.01	0.00	0.00	0.00	0.00	-	-	-	-	-	-
Totals	**9.71**	**42.5**	**11.88**	**52.1**	**19.62**	**85.9**	**1.69**	**7.4**	**9.68**	**42.4**	**7.37**	**32.3**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator #1	2.44	10.68	3.54	15.52	0.09	0.41	1.18	5.18
Caterpillar 3516TALE	0.04	0.19	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3412CLE	0.02	0.09	0.00	0.01	0.00	0.00	0.00	0.00
Caterpillar 3512TALE	0.03	0.15	0.00	0.01	0.00	0.00	0.00	0.01
Totals	**2.54**	**11.1**	**3.55**	**15.6**	**0.09**	**0.4**	**1.19**	**5.2**

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

Construction History - May 2007

ANNUAL POTENTIAL TO EMIT (PTE) EMISSION SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	4.02	17.63	5.10	22.33	0.24	1.06	0.80	3.53	0.99	4.34	0.05	0.22
Caterpillar 3412CLE	2.44	10.68	2.32	10.15	0.20	0.85	0.37	1.60	0.45	1.97	0.02	0.10
Caterpillar 3512TALE	3.11	13.63	4.36	19.08	0.71	3.09	0.52	2.27	0.66	2.90	0.04	0.17
TEG Dehydrator #2	-	-	-	-	36.67	160.63	-	-	18.16	79.52	17.45	76.44
Condensate Tank Emissions	-	-	-	-	2.62	11.45	-	-	-	-	-	-
TEG Dehy Glycol Reboiler Heater #2	0.03	0.11	0.02	0.09	0.00	0.01	0.00	0.00	-	-	-	-
Separator	0.02	0.08	0.02	0.07	0.00	0.01	0.00	0.00	-	-	-	-
Oil Tank Emissions	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Tank Heaters Emissions (Oil, Condensate)	0.09	0.40	0.08	0.34	0.01	0.04	0.00	0.00	-	-	-	-
Truck Loading (Oil and Condensate)	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Pump Jack engine (Propane fueled)	0.00	0.01	0.00	0.00	0.00	0.00	-	-	-	-	-	-
Totals	**9.71**	**42.5**	**11.89**	**52.1**	**40.44**	**177.1**	**1.69**	**7.4**	**20.26**	**88.7**	**17.56**	**76.9**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator #2	5.70	24.97	8.49	37.17	0.23	1.01	3.04	13.30
Caterpillar 3516TALE	0.04	0.19	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3412CLE	0.02	0.09	0.00	0.01	0.00	0.00	0.00	0.00
Caterpillar 3512TALE	0.03	0.15	0.00	0.01	0.00	0.00	0.00	0.01
Totals	**5.80**	**25.4**	**8.50**	**37.2**	**0.23**	**1.0**	**3.04**	**13.3**

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

Construction History - October 2007

ANNUAL POTENTIAL TO EMIT (PTE) EMISSION SUMMARY

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
New Caterpillar 3516TALE	4.43	19.41	5.61	24.58	0.27	1.16	0.89	3.88	1.09	4.78	0.06	0.24
Caterpillar 3412CLE	2.44	10.68	2.32	10.15	0.20	0.85	0.37	1.60	0.45	1.97	0.02	0.10
Caterpillar 3512TALE	3.11	13.63	4.36	19.08	0.71	3.09	0.52	2.27	0.66	2.90	0.04	0.17
TEG Dehydrator #2	-	-	-	-	36.67	160.63	-	-	18.16	79.52	17.45	76.44
Condensate Tank Emissions	-	-	-	-	2.62	11.45	-	-	-	-	-	-
Genset 3412 TA	25.61	112.18	1.81	7.94	0.33	1.43	0.33	1.43	0.41	1.78	0.02	0.09
TEG Dehy Glycol Reboiler Heater #2	0.03	0.11	0.02	0.09	0.00	0.01	0.00	0.00	-	-	-	-
Separator	0.02	0.08	0.02	0.07	0.00	0.01	0.00	0.00	-	-	-	-
Oil Tank Emissions	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Tank Heaters Emissions (Oil, Condensate)	0.09	0.40	0.08	0.34	0.01	0.04	0.00	0.00	-	-	-	-
Truck Loading (Oil and Condensate)	-	-	-	-	0.00	0.00	-	-	-	-	-	-
Pump Jack engine (Propane fuelled)	0.00	0.01	0.00	0.00	0.00	0.00	-	-	-	-	-	-
Totals	**35.73**	**156.5**	**14.21**	**62.3**	**40.79**	**178.7**	**2.10**	**9.2**	**20.77**	**91.0**	**17.59**	**77.0**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator #2	5.70	24.97	8.49	37.17	0.23	1.01	3.04	13.30
New Caterpillar 3516TALE	0.04	0.21	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3412CLE	0.02	0.09	0.00	0.01	0.00	0.00	0.00	0.00
Caterpillar 3512TALE	0.03	0.15	0.00	0.01	0.00	0.00	0.00	0.01
Genset 3412 TA	0.02	0.08	0.00	0.01	0.00	0.00	0.00	0.00
Totals	**5.82**	**25.5**	**8.50**	**37.2**	**0.23**	**1.0**	**3.04**	**13.3**

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NATURAL GAS FUELED HEATER EMISSIONS

Company: XTO Energy
Facility Name: Tap 5
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)
Heater for Oil Tank	500	0.8	1095	8760	5.002	100.0	0.27	84.0	0.23
Heater for Condensate tank	250	0.8	1075	8760	2.547	100.0	0.13	84.0	0.11
				TOTALS	**7.549**		**0.400**		**0.340**

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)
Heater for Oil Tank	11.0	0.03	0.03	7.6	0.02	7.50E-02	0.0002
Heater for Condensate tank	11.0	0.01	0.01	7.6	0.01	7.50E-02	0.0001
TOTALS		**0.040**	**0.040**		**0.030**		**0.000**

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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Compressor Engine Emissions

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

EMISSION POINTS: Caterpillar 3516TALE

Engine Make/Model	Caterpillar 3516TALE	
Site Horsepower Rating	1217	hp
Fuel Consumption (BSFC)	8240	Btu/(hp-hr)
Heat Rating	10.028	MMBtu/hr
Heating Value	1094.5	Btu/Scf
Fuel usage	80.26	MMScf/yr
Operating Hours	8760	hrs/yr

Pollutant	Emission Factor		Emission Rate (lb/hr)	Emission Rate (tpy)	Emission Factor Reference		
NOx	1.5	g/hp-hr	4.02	17.6	[1]	pre-cat	
CO	1.90	g/hp-hr	5.10	22.33	[1]	pre-cat	
VOC/NMHC	0.09	g/hp-hr	0.24	1.06	[1]	pre-cat	
						AP-42 Emission Factors	
SOx	0.002	g/hp-hr	0.01	0.0	[2]	5.88E-04	lb/MMBtu
PM10	0.000	g/hp-hr	0.00	0.0	[2]	7.71E-05	lb/MMBtu
Hazardous Air Pollutants							
Acetaldehyde	0.0312	g/hp-hr	0.0838	0.3672	[2]	8.36E-03	lb/MMBtu
Acrolein	0.0192	g/hp-hr	0.0515	0.2258	[2]	5.14E-03	lb/MMBtu
Benzene	0.0164	g/hp-hr	0.0441	0.1933	[2]	4.40E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0004	0.0017	[2]	3.97E-05	lb/MMBtu
Formaldehyde	0.3000	g/hp-hr	0.8049	3.5254	[2]	8.03E-02	lb/MMBtu
Toluene	0.0015	g/hp-hr	0.0041	0.0179	[2]	4.08E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0018	0.0081	[2]	1.84E-04	lb/MMBtu
		Total HAPS	0.99	4.34			

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean 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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Compressor Engine Emissions

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

EMISSION POINTS: Caterpillar 3412CLE

Engine Make/Model	Caterpillar 3412CLE	
Site Horsepower Rating	553	hp
Fuel Consumption (BSFC)	8240	Btu/(hp-hr)
Heat Rating	4.557	MMBtu/hr
Heating Value	1094.5	Btu/Scf
Fuel usage	36.47	MMScf/yr
Operating Hours	8760	hrs/yr

Pollutant	Emission Factor		Emission Rate (lb/hr)	Emission Rate (tpy)	Emission Factor Reference		
NOx	2.0	g/hp-hr	2.44	10.7	[1]	pre-cat	
CO	1.90	g/hp-hr	2.32	10.15	[1]	pre-cat	
VOC/NMHC	0.16	g/hp-hr	0.20	0.85	[1]	pre-cat	
						AP-42 Emission Factors	
SOx	0.002	g/hp-hr	0.00	0.0	[2]	5.88E-04	lb/MMBtu
PM10	0.000	g/hp-hr	0.00	0.0	[2]	7.71E-05	lb/MMBtu
Hazardous Air Pollutants							
Acetaldehyde	0.0312	g/hp-hr	0.0381	0.1669	[2]	8.36E-03	lb/MMBtu
Acrolein	0.0192	g/hp-hr	0.0234	0.1026	[2]	5.14E-03	lb/MMBtu
Benzene	0.0164	g/hp-hr	0.0200	0.0878	[2]	4.40E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0002	0.0008	[2]	3.97E-05	lb/MMBtu
Formaldehyde	0.3000	g/hp-hr	0.3657	1.6019	[2]	8.03E-02	lb/MMBtu
Toluene	0.0015	g/hp-hr	0.0019	0.0081	[2]	4.08E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0008	0.0037	[2]	1.84E-04	lb/MMBtu
		Total HAPS	0.45	1.97			

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean 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)

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Compressor Engine Emissions

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

EMISSION POINTS: Caterpillar 3512TALE

Engine Make/Model	Caterpillar 3512TALE	
Site Horsepower Rating	941	hp
Fuel Consumption (BSFC)	8240	Btu/(hp-hr)
Heat Rating	7.754	MMBtu/hr
Heating Value	1094.5	Btu/Scf
Fuel usage	62.06	MMScf/yr
Operating Hours	8760	hrs/yr

Pollutant	Emission Factor		Emission Rate (lb/hr)	Emission Rate (tpy)	Emission Factor Reference		
NOx	1.5	g/hp-hr	3.11	13.6	[1]	pre-cat	
CO	2.10	g/hp-hr	4.36	19.08	[1]	pre-cat	
VOC/NMHC	0.34	g/hp-hr	0.71	3.09	[1]	pre-cat	
						AP-42 Emission Factors	
SOx	0.002	g/hp-hr	0.00	0.0	[2]	5.88E-04	lb/MMBtu
PM10	0.000	g/hp-hr	0.00	0.0	[2]	7.71E-05	lb/MMBtu
Hazardous Air Pollutants							
Acetaldehyde	0.0312	g/hp-hr	0.0648	0.2839	[2]	8.36E-03	lb/MMBtu
Acrolein	0.0192	g/hp-hr	0.0399	0.1746	[2]	5.14E-03	lb/MMBtu
Benzene	0.0164	g/hp-hr	0.0341	0.1494	[2]	4.40E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0003	0.0013	[2]	3.97E-05	lb/MMBtu
Formaldehyde	0.2500	g/hp-hr	0.5186	2.2716	[2]	6.69E-02	lb/MMBtu
Toluene	0.0015	g/hp-hr	0.0032	0.0139	[2]	4.08E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0014	0.0062	[2]	1.84E-04	lb/MMBtu
		Total HAPS	0.66	2.90			

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean 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)

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Compressor Engine Emissions

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

EMISSION POINTS: **New Caterpillar 3516TALE**

Engine Make/Model	New Caterpillar 3516TALE	
Site Horsepower Rating	1340	hp
Fuel Consumption (BSFC)	8240	Btu/(hp-hr)
Heat Rating	11.042	MMBtu/hr
Heating Value	1094.5	Btu/Scf
Fuel usage	88.37	MMScf/yr
Operating Hours	8760	hrs/yr

Pollutant	Emission Factor		Emission Rate (lb/hr)	Emission Rate (tpy)	Emission Factor Reference		
NOx	1.5	g/hp-hr	4.43	19.4	[1]	pre-cat	
CO	1.90	g/hp-hr	5.61	24.58	[1]	pre-cat	
VOC/NMHC	0.09	g/hp-hr	0.27	1.16	[1]	pre-cat	
						AP-42 Emission Factors	
SOx	0.002	g/hp-hr	0.01	0.0	[2]	5.88E-04	lb/MMBtu
PM10	0.000	g/hp-hr	0.00	0.0	[2]	7.71E-05	lb/MMBtu
Hazardous Air Pollutants							
Acetaldehyde	0.0312	g/hp-hr	0.0923	0.4043	[2]	8.36E-03	lb/MMBtu
Acrolein	0.0192	g/hp-hr	0.0568	0.2486	[2]	5.14E-03	lb/MMBtu
Benzene	0.0164	g/hp-hr	0.0486	0.2128	[2]	4.40E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0004	0.0019	[2]	3.97E-05	lb/MMBtu
Formaldehyde	0.3000	g/hp-hr	0.8862	3.8817	[2]	8.03E-02	lb/MMBtu
Toluene	0.0015	g/hp-hr	0.0045	0.0197	[2]	4.08E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0020	0.0089	[2]	1.84E-04	lb/MMBtu
		Total HAPS	1.09	4.78			

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean 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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Tap 5 Facility Emissions

POTENTIAL UNCONTROLLED EMISSIONS

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Unit: TEG Dehydrator #1
Rating: 11.4 MMscf/day total

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 Dehydrator #1	11.40	69.4190	10.6845	15.5160	0.4091	5.1844	1.3714	0.0109	33.1764	31.7941
TOTAL		**69.4190**	**10.6845**	**15.5160**	**0.4091**	**5.1844**	**1.3714**	**0.0109**	**33.1764**	**31.7941**

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NATURAL GAS FUELED HEATER EMISSIONS

Company: XTO Energy
Facility Name: Tap 5
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)
TEG Dehy Glycol Reboiler Heater #1	200	0.8	1075	8760	2.037	100.0	0.11	84.0	0.09
				TOTALS	**2.037**		**0.11**		**0.09**

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)
TEG Dehy Glycol Reboiler Heater #1	11.0	0.01	0.01	7.6	0.01	7.50E-02	0.0001
TOTALS		**0.01**	**0.01**		**0.01**		**0.0001**

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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NATURAL GAS FUELED HEATER EMISSIONS

Company: XTO Energy
Facility Name: Tap 5
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)
Separator	150	0.8	1095	8760	1.501	100.0	0.08	84.0	0.07
				TOTALS	**1.501**		**0.08**		**0.07**

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)
Separator	11.0	0.01	0.01	7.6	0.01	7.50E-02	0.0001
	TOTALS	**0.01**	**0.01**		**0.01**		**0.0001**

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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Stock Tank Storage, Working and Flashing

Company: **XTO Energy**
Location: **Tap 5**
Uintah County, Utah

TANK DESCRIPTION	Uncontrolled TOTAL LOSSES (tons/yr)
Total Emissions (Condensate Tank)	11.454
TOTAL	**11.45**

Calculated Using E&P Tanks

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VOC EMISSIONS FROM CONDENSATE TRUCK LOADING OPERATIONS

Company: **XTO Energy**
Location: **Tap 5**
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)
Tank 1	5	1.825	0.6	8.6396	67.46	514	8.4771	0.3249
TOTAL	5	1.825					8.4771	0.3249

$$\text{Loading Losses (lbs/1,000 gal)} = \frac{12.46*S*P*M}{T}$$ (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

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VOC EMISSIONS FROM OIL TRUCK LOADING OPERATIONS

Company: **XTO Energy**
Location: **Tap 5**
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)
Tank 2	10	3.65	0.6	3.4307	50	514	2.4949	0.1912
TOTAL	10	3.65					2.4949	0.1912

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

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Tap 5 Facility Emissions

Company: **XTO Energy**
Location: **Tap 5**
Uintah County, Utah

Propane Usage (gal/yr) = 1,000

Pollutant	Propane Emission Factor ($lb/10^3 gal$)	lbs/hr	tons/yr
Particulate Matter (PM)	0.60	0.000068	0.000300
SO2	0.10	0.000011	0.000050
NOx	19.00	0.002169	0.009500
CO	3.20	0.000365	0.001600
TOC	0.50	0.000057	0.000250
CH4	0.20	0.000023	0.000100

1. Propane emission factors were obtained from AP-42 Tables 1.5-1 (07/98).

Sulfur content = 1 gr/100 ft^3

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Tap 5 Facility Emissions

POTENTIAL UNCONTROLLED EMISSIONS

Company: XTO Energy
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Unit: TEG Dehydrator #2
Rating: 40 MMscf/day total

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 Dehydrator #2	40.00	160.6264	24.9681	37.1699	1.0057	13.2952	3.0610	0.0242	79.5240	76.4389
w/ 45015 pump										
TOTAL		**160.6264**	**24.9681**	**37.1699**	**1.0057**	**13.2952**	**3.0610**	**0.0242**	**79.5240**	**76.4389**

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NATURAL GAS FUELED HEATER EMISSIONS

Company: XTO Energy
Facility Name: Tap 5
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)
TEG Dehy Glycol Reboiler Heater #2	750	0.8	1075	8760	7.640	100.0	0.40	84.0	0.34
				TOTALS	**7.640**		**0.40**		**0.34**

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)
TEG Dehy Glycol Reboiler Heater #2	11.0	0.04	0.04	7.6	0.03	7.50E-02	0.0003
TOTALS		**0.04**	**0.04**		**0.03**		**0.0003**

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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ENGINE EMISSIONS

Company: XTO Energy
Facility Name: Tap 5
Location: Uintah County, Utah

Individual Engine Emissions

ENGINE DESCRIPTION	SITE RATED HP (hp)	Annual Hours (hrs/yr)	SOURCE OF EMISSION FACTORS	NOx E.F. (g/hp-hr)	NOx Emissions (lb/hr)	NOx Emissions (tons/yr)	CO E.F. (g/hp-hr)	CO Emissions (lb/hr)	CO Emissions (tons/yr)	VOC E.F. (g/hp-hr)	VOC Emissions (lb/hr)	VOC Emissions (tons/yr)	Formaldehyde E.F. (g/hp-hr)	Formaldehyde Emissions (lb/hr)	Formaldehyde Emissions (tons/yr)
Genset 3412 TA	548	8760	Mfg	21.20	25.612	112.18	1.50	1.812	7.94	0.27	0.326	1.43	0.27	0.326	1.43
			Maximum:		25.612	112.181	Totals	1.812	7.937	Totals	0.326	1.429	Totals	0.326	1.429

Engine Make/Model	Genset 3412 TA	
Site Horsepower Rating	548	hp
Fuel Consumption (BSFC	7863	Btu/(hp-hr)
Heat Rating	4.309	MMBtu/hr
Heating Value	1076	Btu/Scf
Fuel usage	35.08	MMScf/yr
Operating Hours	8760	hrs/yr

	HAP Emissions (lb/hr)	HAP Emissions (tons/yr)
Total	0.326	1.779

Emissions (lbs/hr) = Emission Factor (g/hp-hr) * Site Rated Horsepower (hp) / 453.6 (g/lb)
Emissions (tons/yr) = Emissions (lbs/hr) * Hours of Operation (hrs/yr) / 2,000 (lbs/ton)

Hazardous Air Pollutants			Emission Rate (lb/hr)	Emission Rate (tpy)			
Acetaldehyde	0.0298	g/hp-hr	0.0360	0.1578	[2]	8.36E-03	lb/MMBtu
Acrolein	0.0183	g/hp-hr	0.0221	0.0970	[2]	5.14E-03	lb/MMBtu
Benzene	0.0157	g/hp-hr	0.0190	0.0830	[2]	4.40E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0002	0.0007	[2]	3.97E-05	lb/MMBtu
Toluene	0.0015	g/hp-hr	0.0018	0.0077	[2]	4.08E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0008	0.0035	[2]	1.84E-04	lb/MMBtu
		Total HAPS	0.08	0.35			

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean burn

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QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

LIMS ID:	N/A		Description:	River Bend Unit Tap 5
Analysis Date/Time:	10/18/2006	10:58 AM	Field:	River Bend Unit
Analyst Initials:	AST		ML#:	Dominion
Instrument ID:	Instrument 1		GC Method:	Quesbtex
Data File:	QPC94.D			
Date Sampled:	10/16/2006			

Component	Mol%	Wt%	LV%
Methane	92.7394	84.0339	88.7662
Ethane	4.3979	7.4693	6.6597
Propane	1.3058	3.2522	2.0330
Isobutane	0.2790	0.9160	0.5157
n-Butane	0.3096	1.0162	0.5514
Neopentane	0.0050	0.0204	0.0109
Isopentane	0.1311	0.5342	0.2711
n-Pentane	0.0998	0.4069	0.2043
2,2-Dimethylbutane	0.0062	0.0303	0.0147
2,3-Dimethylbutane	0.0116	0.0562	0.0267
2-Methylpentane	0.0326	0.1587	0.0764
3-Methylpentane	0.0192	0.0934	0.0442
n-Hexane	0.0440	0.2140	0.1021
Heptanes	0.1390	0.7259	0.3023
Octanes	0.0133	0.0844	0.0368
Nonanes	0.0044	0.0294	0.0118
Decanes plus	0.0002	0.0015	0.0006
Nitrogen	0.2114	0.3344	0.1309
Carbon Dioxide	0.2505	0.6227	0.2412
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	1094.5	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	1076.7	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9975	
Specific Gravity	0.6129	air=1
Avg Molecular Weight	17.705	gm/mole
Propane GPM	0.359003	gal/MCF
Butane GPM	0.188453	gal/MCF

Component	Mol%	Wt%	LV%
Benzene	0.0124	0.0546	0.0196
Toluene	0.0110	0.0571	0.0208
Ethylbenzene	0.0002	0.0012	0.0004
M&P Xylene	0.0018	0.0110	0.0040
O-Xylene	0.0002	0.0012	0.0004
2,2,4-Trimethylpentane	0.0032	0.0209	0.0092
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0270	0.1286	0.0520
Methylcyclohexane	0.0324	0.1794	0.0735
Description:	River Bend Unit Tap 5		

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	0.2505	0.6227	0.2412
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	0.2114	0.3344	0.1309
Methane	92.7394	84.0339	88.7662
Ethane	4.3979	7.4693	6.6597
Propane	1.3058	3.2522	2.0330
Isobutane	0.2790	0.9160	0.5157
n-Butane	0.3096	1.0162	0.5514
Isopentane	0.1361	0.5546	0.2820
n-Pentane	0.0998	0.4069	0.2043
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0440	0.2140	0.1021
Cyclohexane	0.0270	0.1286	0.0520
Other Hexanes	0.0696	0.3386	0.1620
Heptanes	0.0530	0.2853	0.1272
Methylcyclohexane	0.0324	0.1794	0.0735
2,2,4 Trimethylpentane	0.0032	0.0209	0.0092
Benzene	0.0124	0.0546	0.0196
Toluene	0.0110	0.0571	0.0208
Ethylbenzene	0.0002	0.0012	0.0004
Xylenes	0.0020	0.0122	0.0044
C8+ Heavies	0.0157	0.1019	0.0444
Subtotal	100.0000	100.0000	100.0000
Oxygen	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

APPLICABLE REQUIREMENTS

New Source Performance Standards (NSPS, 40 CFR 60 and Title 129, Chapter 18)

Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Devices for which construction, reconstruction or modification occurred after July 23, 1984:: NSPS Subpart Kb applies to all storage vessel larger than or equal to 75 cubic meters installed after the aforementioned date. However, there is an exemption under Section 60.110b(d)(4) that "vessels with a design capacity less than or equal to 1589.874 cubic meters used for petroleum or condensate stored, processed or treated prior to custody transfer" do not apply. Therefore, the subpart is not applicable to this facility.

Subpart KKK – Standards of Performance for Equipment Leaks of VOCs from Onshore Natural Gas Processing Plants: NSPS Subpart KKK applies to all compressors and glycol dehydration units located at onshore natural gas processing plants. This facility is subject to this subpart because it is an onshore natural gas processing plant.

Subpart LLL – Standards of Performance for Onshore Natural Gas Processing Plants (SO_2 Emissions): NSPS Subpart LLL applies to all sweetening units and sweetening units with sulfur recovery units located at onshore natural gas processing plants. This facility is not subject to this subpart because is does not have a sweetening or sulfur recovery unit.

Maximum Achievable Control Technology (MACT) regulations (40 CFR 63)

Subpart HH – National Emission Standards for Hazardous Air Pollutants for Oil and Natural Gas Production: This subpart applies to oil and natural gas process facilities which produce hazardous air pollutants located at a plant site that are a major source ($\geq$10 tons per year of individual HAP or $\geq$25 tons per year of combined HAPs). This plant processes natural gas by reducing water content in the saturated natural gas prior to shipping to sales through gas lines. This facility is subject to this subpart because the facility has greater than 10 tons per year of individual HAPs and greater than 25 tons per year of combined HAPs.

Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT): This subpart applies to all reciprocating engines larger than 500 horsepower that are located at a major source ($\geq$10 tons per year of individual HAP or $\geq$25 tons per year of combined HAPs). This facility is subject to this subpart because it emits greater than 10 tons per year of individual HAPs and greater than 25 tons per year of combined HAPs.

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Sheridan, WY 82801
307-673-0883
307-673-0886 fax
cdosborn@emittechnologies.com

PREPARED FOR:
Mr. Brad Mitchell
Compressor Systems, Inc.

Sent via email

QUOTE: 01150702
Expires: February 13, 2007

A. INFORMATION PROVIDED BY CATERPILLAR

Engine:	G3516 Gas Industrial Engine LE
DIM Sheet:	DM5155-00
Compression Ratio:	8.0:1
Load:	100%
RPM:	1400
Horsepower:	1340
Fuel:	Natural Gas
Piping size:	14"
Annual Operating Hours:	8760
Exhaust Flow:	7685 CFM
Exhaust Temperature:	855 °F

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
Oxygen:	8.30	%

B. POST CATALYST EMISSIONS TO BE ACHIEVED BY EMISSION CONTROL EQUIPMENT
SINGLE ELEMENT PERFORMANCE

NO_x:	Unaffected by Oxidation Catalyst	
CO:	>93% reduction	g/bhp-hr
VOC:	>76% reduction	g/bhp-hr

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PREPARED FOR:
Mr. Brad Mitchell
Compressor Systems, Inc.

Sent via email

QUOTE: 01150701
Expires: February 13, 2007

A. INFORMATION PROVIDED BY CATERPILLAR

Engine:	G3512 Gas Industrial Engine LE
DIM Sheet:	DM0150-03
Compression Ratio:	8.0:1
Load:	100%
RPM:	1200
Horsepower.	810
Fuel:	Natural Gas
Piping size:	12"
Annual Operating Hours:	8760
Exhaust Flow:	4260 CFM
Exhaust Temperature:	801 °F

Emission Data

NO_x:	2.00	g/bhp-hr
CO:	1.60	g/bhp-hr
THC:	3.10	g/bhp-hr
NMHC:	0.47	g/bhp-hr
Oxygen:	8.20	%

B. POST CATALYST EMISSIONS TO BE ACHIEVED BY EMISSION CONTROL EQUIPMENT
SINGLE ELEMENT PERFORMANCE

NO_x:	Unaffected by Oxidation Catalyst	
CO:	>93% reduction	g/bhp-hr
Formaldehyde:	>76% reduction	g/bhp-hr

G3412 TA

GAS ENGINE TECHNICAL DATA

CATERPILLAR®

ENGINE SPEED:	1800	FUEL:	NAT GAS
COMPRESSION RATIO:	8.5:1	FUEL SYSTEM:	LPG IMPCO
AFTERCOOLER (°F):	130	MIN. FUEL PRESS. (psig):	1.5
JACKET WATER (°F):	210	MIN. METHANE NUMBER:	80
COOLING SYSTEM:	COMBINED	MAX. RATED ALTITUDE (ft):	2500
IGNITION SYSTEM:	CDIS	AT AMBIENT TEMP (°F):	77
EXHAUST MANIFOLD:	WET	NOx EMISSION LEVEL:	STD
COMBUSTION:	STD		

RATING AND EFFICIENCY	NOTES	LOAD	100%	75%	50%
LHV OF FUEL		btu/scf	920	920	920
ENGINE POWER		bhp	566	425	283
ENGINE EFFICIENCY	(1)	%	34.7	32.3	28.8
THERMAL EFFICIENCY	(5)	%	49.7	52.7	57.1
TOTAL EFFICIENCY	(6)	%	84.4	85.1	85.9

ENGINE DATA					
FUEL CONSUMPTION	(1)	btu/bhp-hr	7331	7869	8846
AIR FLOW	(WET)	lb/hr	4037	3027	2050
AIR FLOW	(WET)	scfm	881	660	447
COMPRESSOR OUT PRESS.		in. Hg (abs)	66.1	63.2	47.9
COMPRESSOR OUT TEMP.		°F	277	262	212
INLET MAN. PRESS.		in. Hg (abs)	63	48.4	33.5
INLET MAN. TEMP.	(10)	°F	149	145	140
TIMING	(11)	°BTDC	32	32	32
EXHAUST STACK TEMP.		°F	801	793	820
EXHAUST FLOW (@STACK TEMP)	(WET)	cfm	2338	1755	1224
EXHAUST FLOW	(WET)	lb/hr	4244	3194	2175

EMISSIONS					
NOx (as NO2)	(9)	g/bhp-hr	21.2	20.1	21.2
CO	(9)	g/bhp-hr	1.5	1.5	1.4
THC	(9)	g/bhp-hr	1.8	1.9	2.7
NMHC	(9)	g/bhp-hr	0.27	0.29	0.41
EXHAUST O2 (DRY)		%	4.0	4.0	4.0
LAMBDA			1.25	1.16	1.05

HEAT BALANCE DATA					
LHV INPUT	(1)	btu/min	69155	55672	41722
HEAT REJ. TO JACKET	(2) (7)	btu/min	25666	22886	19107
HEAT REJ. TO A/C	(3) (8)	btu/min	2359	1622	690
HEAT REJ. TO ATMOSPHERE	(4)	btu/min	2766	2227	1669
HEAT REJ. TO EXH.(LHV to 77°F)	(2)	btu/min	13768	10310	7360
HEAT REJ. TO EXH.(LHV to 350°F)	(2)	btu/min	8685	6464	4717

CONDITIONS AND DEFINITIONS

ENGINE RATING OBTAINED AND PRESENTED IN ACCORDANCE WITH ISO 3046/1 (STD. REF. CONDITIONS OF 25°C, 100 KPA). NO OVERLOAD PERMITTED AT RATING SHOWN. CONSULT ALTITUDE CURVES FOR APPLICATIONS ABOVE MAXIMUM RATED ALTITUDE AND/OR TEMPERATURE.

1) FUEL CONSUMPTION TOLERANCE ACCORDING TO ISO 3046/1. TOLERANCE IS +5% OF FULL LOAD DATA.
2) HEAT REJECTION TO JACKET AND EXHAUST TOLERANCE IS ±8% OF FULL LOAD DATA.
3) HEAT REJECTION TO A/C TOLERANCE IS ±8% OF FULL LOAD DATA.
4) HEAT REJECTION TO ATMOSPHERE TOLERANCE IS ±25% OF FULL LOAD DATA.
5) THERMAL EFFICIENCY: JACKET WATER +EXH. HEAT TO 350°F
6) TOTAL EFFICIENCY: ENGINE EFF. + THERMAL EFF. TOLERANCE IS +/- 10% OF FULL LOAD DATA
7) TOTAL JW HEAT: JACKET HEAT + OIL COOLER HEAT (HEAT RATE BASED ON TREATED WATER)
8) TOTAL A/C HEAT: A/C HEAT x A/C HEAT REJ. FACTOR (HEAT RATE BASED ON TREATED WATER)
9) EMISSION DATA SHOWN ARE NOT TO EXCEED VALUES. PUBLISHED PART LOAD DATA MAY REQUIRE ENGINE ADJUSTMENT.
10) MEASURED BETWEEN AFTERCOOLER OUTLET AND PLENUM ENTRY.
11) TIMING INDICATED IS FOR USE WITH A MINIMUM FUEL METHANE NUMBER SPECIFIED. CONSULT THE APPROPRIATE FUEL USAGE GUIDE FOR TIMING AT OTHER METHANE NUMBERS.

G3412 TA

GAS ENGINE TECHNICAL DATA

CATERPILLAR®

FUEL USAGE GUIDE

DERATE FACTOR/ENGINE TIMING vs METHANE NUMBER

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0.90/18	0.90/20	0.90/22	0.90/24	0.90/26	0.90/26	1.0/26	1.0/27	1.0/29	1.0/30	1.0/32

ALTITUDE DERATION FACTORS

AMBIENT (°F)	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63
120	1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
110	1.00	1.00	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
100	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67
90	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.79	0.76	0.74	0.71	0.68
80	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69
70	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71
60	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
50	1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73

ALTITUDE (FEET ABOVE SEA LEVEL)

AFTERCOOLER HEAT REJECTION FACTORS

AMBIENT (°F)	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130	1.45	1.53	1.62	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66
120	1.35	1.43	1.51	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55
110	1.24	1.32	1.40	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44
100	1.13	1.21	1.29	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
90	1.03	1.10	1.18	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
80	1.00	1.00	1.07	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

ALTITUDE (FEET ABOVE SEA LEVEL)

FUEL USAGE GUIDE:

This table shows the derate factor required for a given fuel and what engine timing to use. Note that deration occurs as the methane number decreases. Methane number is a scale to measure ignition and burning characteristics of various fuels. Representative values are shown below.

Methane	100
Ethane	44
Propane	34
n-Butane	10
Hydrogen	0

Most dry pipeline natural gas has a methane number of 67 or above. The gas quality should be analyzed to determine the percentage of each constituent and then determine the methane number. Consult the dealer or factory for assistance.

ALTITUDE DERATION FACTORS:

This table shows the deration required for various ambient temperatures and altitudes. Use this information to help determine actual engine power for your site.

ACTUAL ENGINE RATING:

It is important to note that the Altitude/Temperature deration and the Fuel Usage Guide deration are not cumulative, i.e., they are not to be added together. The same is true for the Low Energy Fuel deration (reference the Caterpillar Methane Number Program) and the Fuel Usage Guide deration. However, the Altitude/Temperature deration and Low Energy Fuel deration are cumulative; and they must be added together in the method shown below. To determine the actual power available, take the lowest rating between 1) and 2).

1) (Altitude/Temperature Deration) + (Low Energy Fuel Deration)
2) Fuel Usage Guide Deration

Note: For NA's always add the Low Energy Fuel deration to the Altitude/Temperature deration. For TA engines only add the Low Energy Fuel deration to the Altitude/Temperature deration whenever the Altitude/Temperature deration is less than 1.0 (100%). This will give the actual rating for the engine at the conditions specified.

AFTERCOOLER HEAT REJECTION FACTORS:

Aftercooler heat rejection is given for standard conditions of 77°F and 500 ft altitude. To maintain a constant inlet air manifold temperature, as the ambient air temperature goes up, so must the heat rejection. As altitude increases, the turbocharger must work harder to overcome the lower atmospheric pressure. This increases the amount of heat that must be removed from the inlet air by the aftercooler. Use the aftercooler heat rejection factor to adjust for ambient and altitude conditions. Multiply this factor by the standard aftercooler heat rejection. Failure to properly account for these factors could result in detonation and cause the engine to shut down or fail.

B

Emissions Control Equipment Specification Summary
Ref: Q092706-1KWREV0

APPLICATION

# of Engines:	1
Engine Operation:	*Gas Compression*
Fuel:	*Natural Gas*
Lubrication Oil:	*0.6 wt% sulfated ash or less*

Engine Data:

Engine:	*Caterpillar G 3516 LE AFR*
Power Output:	*1340 bhp @ 1400 rpm*
Design Exhaust Temp:	*855 F*
Design Exhaust Flow Rate:	*182336 scfh*

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:	*840 lbs*
Converter Pressure Loss:	*5.70 Inches of WC (Housing + Catalyst: Flange to Flange)*
Sound Attenuation	*25-30 dBA*
Catalyst Section Internals:	*304 SS*
Shell / Body Construction:*	*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 (18 mm)*
Temperature Limits:	*750 - 1,250 degrees F (inlet); 1350 degrees F (outlet)*

EMISSION REQUIREMENTS

Exhaust Gases	Engine Outputs (gm/bhp-hr)	Reduction (%)	Converter Output (gm/bhp-hr)	Area Limits (gm/bhp-hr)
NO_X	1.50	0%	1.50	
CO	1.90	93%	0.15	93 % Reduction
NMNEHC	0.09	0%	0.09	
CH_2O	0.30	75%	0.08	75 % Reduction
PM_{10}	0.00	0%	0.00	
Oxygen	8.3%	--	--	--

MIRATECH warrants the catalyst per our General Terms and Conditions of Sale. If the engine is maintained and operated in the accordance with the manufacturer's recommended guidelines for maintenance and operations, and is capable of achieving the emissions stated above.
*** Carbon steel housings are suitable for being used in applications where the housing is uninsulated or insulated if the engine exhaust temperature does not exceed 900 deg F. If your application requires insulation with an engine exhaust temperature exceeding 900 deg F, a stainless steel housing is required. Using insulated carbon steel housings in applications where the exhaust temperature exceeds 900 deg F voids any MIRATECH product warranty.**

By: Gulf Coast Ignition 27-Sep-06

C

MIRATECH Emissions Control Equipment Specification Summary

Ref: Proposal Number:

Engine Data

# of Engines:	1
Engine Operation:	Gas Compression
Engine Make:	Caterpillar
Engine Model:	G 3412C LE HCR
Power Output:	637 bhp
Fuel:	Natural Gas
Design Exhaust Temp:	700 F
Design Exhaust Flow Rate:	81120 scfh
Lubrication Oil:	0.6 wt% sulfated ash or less

Catalytic Converter System Data

Catalytic Converter Model:	RCS-3022-10-L1
Inlet / Outlet Pipe Size:	10 inches
Overall Length:	96 inches
Diameter:	30/22 inches
Weight (including catalyst):	649 lbs
Converter Pressure Loss:	4.5 Inches of WC
Sound Attenuation:	25-30 dBA
Catalyst Section Internals:	304 SS
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 (18 mm)
Operation Temperature Limits:	750 - 1,250 degrees F (inlet); 1350 degrees F (outlet)

Emission Requirements

Exhaust Gases	Engine Outputs (g/ bhp-hr)	Reduction (%)	Converter Outputs (g/ bhp-hr)	Area Limits
NOx	2.00	0%	2.00	
CO	1.90	93%	0.13	93 % Reduction
NMNEHC	0.16	0%	0.16	
CH2O	0.30	75%	0.08	75 % Reduction
PM10	0.00	0%	0.00	
Oxygen	8.5%			

MIRATECH warrants the performance of the converter, as stated above, per the MIRATECH General Terms and Conditions of Sale.

By: MIRATECH Catalyzer Date: 11/30/06

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G3512 LE

GAS ENGINE TECHNICAL DATA

CATERPILLAR®

E

ENGINE SPEED (rpm):	1400	FUEL:	Nat Gas
COMPRESSION RATIO:	8:1	FUEL SYSTEM:	HPG IMPCO with Air Fuel Ratio Control
AFTERCOOLER WATER INLET (°F):	130		
JACKET WATER OUTLET (°F):	210	FUEL PRESSURE RANGE (psig):	35.0-40.0
COOLING SYSTEM:	JW+OC , AC	RATED METHANE NUMBER:	80
IGNITION SYSTEM:	EIS	FUEL LHV (Btu/scf):	905
EXHAUST MANIFOLD:	ASWC	ALTITUDE CAPABILITY (ft):	4300
COMBUSTION:	Low Emission	AIR TO TURBO TEMP. (°F):	77
NOx EMISSION LEVEL (g/bhp-hr NOx):	1.5	APPLICATION:	Gas Compression

RATING		NOTES	% LOAD	100%	75%	50%
ENGINE POWER	(WITHOUT FAN)	(1)	bhp	1005	754	503
ENGINE EFFICIENCY	(ISO 3046/1)	(2)	**%**	**35.1**	**34.4**	**31.9**
ENGINE EFFICIENCY	(NOMINAL)	(2)	%	34.4	33.7	31.3

ENGINE DATA						
FUEL CONSUMPTION	(ISO3046/1)	(3)	**Btu/bhp-hr**	**7253**	**7406**	**7973**
FUEL CONSUMPTION	(NOMINAL)	(3)	Btu/bhp-hr	7394	7550	8128
AIR FLOW (77°F, 14.7 psia)	(WET)	(4)	scfm	2161	1637	1135
AIR FLOW	(WET)	(4)	lb/hr	9582	7260	5034
COMPRESSOR OUT PRESSURE			in Hg(abs)	78.9	67.8	51.6
COMPRESSOR OUT TEMPERATURE			°F	341	291	212
AFTERCOOLER AIR OUT TEMPERATURE			°F	138	129	129
INLET MAN. PRESSURE		(5)	in Hg(abs)	70.0	53.7	37.7
INLET MAN. TEMPERATURE	(MEASURED IN PLENUM)	(6)	°F	141	135	131
TIMING		(7)	°BTDC	33.0	33.0	33.0
EXHAUST STACK TEMPERATURE		(8)	°F	820	820	821
EXHAUST GAS FLOW (@stack temp, 14.5 psia)	(WET)	(9)	ft3/min	5573	4223	2937
EXHAUST GAS MASS FLOW	(WET)	(9)	lb/hr	9957	7548	5240

EMISSIONS DATA					
NOx (as NO2)	(10)	g/bhp-hr	1.50	1.50	1.50
CO	(11)	g/bhp-hr	2.10	2.10	2.10
THC (molecular wt. of 15.84)	(11)	g/bhp-hr	3.40	3.80	3.70
NMHC (molecular wt. of 15.84)	(11)	g/bhp-hr	0.51	0.57	0.55
NMNEHC (molecular wt. of 15.84)	(11)	g/bhp-hr	0.34	0.38	0.37
HCHO (Formaldehyde)	(11)	g/bhp-hr	0.25	0.27	0.30
CO2	(11)	g/bhp-hr	480	490	527
EXHAUST OXYGEN	(12)	% DRY	8.3	8.3	7.8
LAMBDA	(12)		1.61	1.60	1.54

ENERGY BALANCE DATA					
LHV INPUT	(13)	Btu/min	123852	94849	68073
HEAT REJECTION TO JACKET WATER	(14)	Btu/min	29708	24317	20644
HEAT REJECTION TO ATMOSPHERE	(15)	Btu/min	4250	3542	2834
HEAT REJECTION TO LUBE OIL	(16)	Btu/min	4697	3845	3264
HEAT REJECTION TO EXHAUST (LHV TO 77°F)	(17)	Btu/min	33840	25602	17506
HEAT REJECTION TO EXHAUST (LHV TO 350°F)	(17)	Btu/min	20937	15857	11059
HEAT REJECTION TO AFTERCOOLER	(18)	Btu/min	7905	4743	1678
PUMP POWER	(19)	Btu/min	838	838	838

CONDITIONS AND DEFINITIONS

Engine rating obtained and presented in accordance with ISO 3046/1. (Standard reference conditions of 77°F, 29.6 in Hg barometric pressure, 500 ft. altitude.) No overload permitted at rating shown. Consult altitude curves for applications above maximum rated altitude and/or temperature.

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. Tolerances specified are dependent upon fuel quality. Fuel methane number cannot vary more than ± 3.

For notes information consult page three.

FUEL USAGE GUIDE

CAT METHANE NUMBER	25	30	35	40	45	50	55	60	65	70	75	80	100
IGNITION TIMING	-	19	21	22	23	24	26	27	28	30	31	33	33
DERATION FACTOR	0.00	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

ALTITUDE DERATION FACTORS

AIR TO TURBO °F	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130	1.00	1.00	0.99	0.96	0.92	0.89	0.85	0.82	0.79	0.76	0.73	0.70	0.67
120	1.00	1.00	1.00	0.97	0.94	0.90	0.87	0.83	0.80	0.77	0.74	0.71	0.68
110	1.00	1.00	1.00	0.99	0.95	0.92	0.88	0.85	0.81	0.78	0.75	0.72	0.69
100	1.00	1.00	1.00	1.00	0.97	0.93	0.90	0.86	0.83	0.80	0.76	0.73	0.70
90	1.00	1.00	1.00	1.00	0.99	0.95	0.91	0.88	0.84	0.81	0.78	0.75	0.72
80	1.00	1.00	1.00	1.00	1.00	0.97	0.93	0.89	0.86	0.83	0.79	0.76	0.73
70	1.00	1.00	1.00	1.00	1.00	0.99	0.95	0.91	0.88	0.84	0.81	0.77	0.74
60	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.93	0.89	0.86	0.82	0.79	0.76
50	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.95	0.91	0.87	0.84	0.81	0.77

ALTITUDE (FEET ABOVE SEA LEVEL)

AFTERCOOLER HEAT REJECTION FACTORS

AIR TO TURBO °F	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130	1.35	1.41	1.47	1.54	1.60	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62
120	1.28	1.34	1.40	1.46	1.52	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54
110	1.21	1.27	1.33	1.39	1.45	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47
100	1.14	1.19	1.25	1.31	1.37	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39
90	1.07	1.12	1.18	1.24	1.30	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
80	1.00	1.05	1.11	1.16	1.22	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
70	1.00	1.00	1.03	1.09	1.14	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
60	1.00	1.00	1.00	1.01	1.07	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
50	1.00	1.00	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01

ALTITUDE (FEET ABOVE SEA LEVEL)

MINIMUM SPEED CAPABILITY AT MAX SITE TORQUE (RPM)

AIR TO TURBO °F	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130	1060	1120	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
120	1040	1090	1180	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
110	1020	1070	1130	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
100	1000	1050	1090	1180	1200	1200	1200	1200	1200	1200	1200	1200	1200
90	1000	1020	1070	1140	1200	1200	1200	1200	1200	1200	1200	1200	1200
80	1000	1000	1050	1100	1190	1200	1200	1200	1200	1200	1200	1200	1200
70	1000	1000	1020	1070	1140	1200	1200	1200	1200	1200	1200	1200	1200
60	1000	1000	1000	1050	1100	1190	1200	1200	1200	1200	1200	1200	1200
50	1000	1000	1000	1020	1070	1140	1200	1200	1200	1200	1200	1200	1200

ALTITUDE (FEET ABOVE SEA LEVEL)

FUEL USAGE GUIDE:
This table shows the derate factor required for a given fuel. Note that deration occurs as the methane number decreases. Methane number is a scale to measure detonation characteristics of various fuels. The methane number of a fuel is determined by using the Caterpillar Methane Number Calculation program.

ALTITUDE DERATION FACTORS:
This table shows the deration required for various air inlet temperatures and altitudes. Use this information along with the fuel usage guide chart to help determine actual engine power for your site.

ACTUAL ENGINE RATING:
To determine the actual rating of the engine at site conditions, one must consider separately, limitations due to fuel characteristics and air system limitations. The Fuel Usage Guide deration establishes fuel limitations. The Altitude/Temperature deration factors and RPC (reference the Caterpillar Methane Program) establish air system limitations. RPC comes into play when the Altitude/Temperature deration is less than 1.0 (100%). Under this condition, add the two factors together. When the site conditions do not require an Altitude/Temperature derate (factor is 1.0), it is assumed the turbocharger has sufficient capability to overcome the low fuel relative power, and RPC is ignored. To determine the actual power available, take the lowest rating between 1) and 2).
1) Fuel Usage Guide Deration
2) 1-((1-Altitude/Temperature Deration) + (1-RPC))

AFTERCOOLER HEAT REJECTION FACTORS:
Aftercooler heat rejection is given for standard conditions of 77°F and 500 ft. altitude. To maintain a constant air inlet manifold temperature, as the air to turbo temperature goes up, so must the heat rejection. As altitude increases, the turbocharger must work harder to overcome the lower atmospheric pressure. This increases the amount of heat that must be removed from the inlet air by the aftercooler. Use the aftercooler heat rejection factor to adjust for air to turbo and altitude conditions. Multiply this factor by the standard aftercooler heat rejection. Failure to properly account for these factors could result in detonation and cause the engine to shutdown or fail.

MINIMUM SPEED CAPABILITY AT MAX SITE TORQUE:
This table shows the minimum allowable engine operating speed for various air inlet temperatures and altitudes.

NOTES:
1. Engine rating is with two engine driven water pumps. Tolerance is ± 3% of full load.
2. ISO 3046/1 engine efficiency tolerance is (+)0, (-)5% of full load % efficiency value. Nominal engine efficiency tolerance is ± 3.0% of full load % efficiency value.
3. ISO 3046/1 fuel consumption tolerance is (+)5, (-)0% of full load data. Nominal fuel consumption tolerance is ± 3.0% of full load data.
4. Undried air. Flow is a nominal value with a tolerance of ± 5 %.
5. Inlet manifold pressure is a nominal value with a tolerance of ± 5 %.
6. Inlet manifold temperature is a nominal value with a tolerance of ± 9°F.
7. Timing indicated is for use with the minimum fuel methane number specified. Consult the appropriate fuel usage guide for timing at other methane numbers.
8. Exhaust stack temperature is a nominal value with a tolerance of (+)63°F, (-)54°F.
9. Exhaust flow value is on a "wet" basis. Flow is a nominal value with a tolerance of ± 6 %.
10. NOx tolerances are +111%, -96% of specified value.
11. CO, CO2, THC, NMHC, NMNEHC, and HCHO values are "not to exceed" levels.
12. Exhaust Oxygen tolerance is ± 0.5; Lambda tolerance is ± 0.05. Lambda and Exhaust Oxygen level are the result of adjusting the engine to operate at the specified NOx level.
13. LHV rate tolerance is ± 3.0%.
14. Heat rejection to jacket water value displayed includes heat to jacket water alone. Value is based on treated water. Tolerance is ± 10 % of full load data. Total heat to jacket water circuit = Jacket Heat + Lube Oil Heat
15. Heat rejection to atmosphere based on treated water. Tolerance is ± 50% of full load data.
16. Lube oil heat rate based on treated water. Tolerance is ± 20% of full load data.
17. Exhaust heat rate based on treated water. Tolerance is ± 10% of full load data.
18. A/C Heat (based on treated water) = A/C Heat x A/C Heat Rej. Factor. Tolerance is ± 5 % of full load data.
19. Pump power includes engine driven jacket water and aftercooler water pumps. Engine brake power includes effects of pump power.

XTO ENERGY

September 6, 2007

Ms. Callie A. Videtich
Director, Air and Radiation Program
U.S. Environmental Protection Agency
Region 8
1595 Wynkoop Street
Denver, CO 80202

Re: Initial Part 71 Operating Permit, V-OU-0018-07.00
Application Completeness Review and Request for Additional Information
TAP-5 Compressor Station
Change of Operator

Dear Ms. Videtich:

We just received an e-mail copy of your letter dated June 8, 2007, stating that EPA had finished its completeness determination on the Title V application submitted by Dominion Exploration and Production, Inc. on April 13, 2007, and granted an application shield for the TAP-5 Compressor Station. The letter went on to ask for additional information to be submitted by August 31, 2007.

Dominion Exploration and Production, Inc. sold its Uintah Basin properties to XTO Energy Inc. with Closing on the transaction occurring on July 31, 2007. (See attached pages of the Purchase and Sale Agreement.) XTO Energy Inc. took over operations and assumed responsibility for compliance on August 1, 2007. Please change your records to reflect XTO Energy Inc. as the new operator of the TAP-5 Compressor Station. The air permit engineer for this facility is Doug Agee; he can be contacted at (817) 885-2285 or by e-mail at Doug_Agee@xtoenergy.com.

XTO Energy has not yet received any of Dominion's environmental files for the Uintah Basin and had not received EPA's request for additional information until today, so our environmental consultant, Buys & Associates, requested a 60-day extension of time to submit the information.

Yours truly,

Nina Hutton

Nina Hutton
Vice President, EH&S

cc: Kathleen Praser, EPA Region 8
Tray Taylor, Dominion Exploration and Production, Inc.

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

Ref: 8P-AR

JUN - 8 2007

Mr. James Abercrombie
Senior Vice President – Western Business Unit
Dominion Exploration and Production, Inc.
14000 Quail Springs Parkway, Suite 600
Oklahoma City, OK 73134

Re: Application Completeness Review
Initial Part 71 Operating Permit, V-OU-0018-07.00
Dominion Exploration and Production, Inc.
TAP-5 Compressor Station

Dear Mr. Abercrombie:

The U.S. Environmental Protection Agency (EPA) has completed its review of Dominion Exploration and Production, Inc's (Dominion's) application for a new Part 71 Title V Permit to Operate for the TAP-5 Compressor Station located on the Uintah and Ouray Indian Reservation in Utah. The application was received by EPA on April 13, 2007.

Today EPA is sending Dominion this letter to document EPA's completeness determination, remind Dominion of its continuing obligation to correct any misinformation and provide updated information to EPA, and its continuing obligation to comply with all applicable EPA permitting and regulatory requirements. EPA is also requesting some additional information.

Completeness Determination: Pursuant to 40 CFR 71.5, we have determined that the information submitted is administratively complete and sufficient to evaluate the TAP-5 Compressor Station and its application. In addition, we have verified that your fee payment was properly received and credited. Therefore, this application is deemed complete as of April 13, 2007.

Application Shield: Since your permit application for the TAP-5 Compressor Station has been found complete, you are covered by a permit application shield, which allows you to continue operating the facility even though your part 71 operating permit has not been issued. This permit shield is in effect from the date of completeness until the final permit is issued, provided you submit any requested information by the specified deadlines. (See 40 CFR 71.5(a)(2) and 71.7(b).)

Please be aware that the permit application shield does not mean we have already approved the requested permit, nor does it mean that we have determined whether Prevention of Significant Deterioration (PSD), National Emission Standards for Hazardous Air Pollutants (NESHAP), or New Source Performance Standard (NSPS) compliance concerns have been adequately addressed. The permit application shield only means the Company may operate the equipment even though the part 71 operating permit has not been issued.

Duty to Provide Additional Information: Please be advised that this application completeness determination does not constitute a thorough evaluation of the merits of the application. If we determine that additional information is necessary to evaluate the application or to take final action on it, we may request such information in writing and set a reasonable deadline for a response. (See 40 CFR 71.5(a)(2).)

At this time we are asking for additional information and are asking that Dominion provide the information by August 31, 2007. Please see the Enclosure for the requested information.

Duty to Correct/Update Application: If you find that you have omitted any relevant facts, or submitted incorrect information, you must promptly file corrections to your application with our office. In addition, if regulations become applicable before the draft operating permit for this facility is made available for public comment, you must provide additional information to us addressing the new applicable requirements. (See 40 CFR 71.5(b).)

Please remember this completeness determination does not affect your obligation to obtain pre-construction permits for any activity which may be subject to 40 CFR 52.21 PSD permitting requirements nor any obligation you may have for complying with National Emission Standards for Hazardous Air Pollutants (NESHAP) at 40 CFR part 63, or New Source Performance Standards (NSPS) at 40 CFR part 60. Where Federal NESHAP and NSPS regulations do apply to the TAP-4 Facility, Dominion has an ongoing obligation to comply with such standards regardless of Title V permit issuance. Furthermore, future changes at the facility, whether considered major or minor for construction permitting purposes, may necessitate updating your part 71 operating permit application.

This permit action has been assigned to Ms. Kathleen Paser and has been given permit number V-OU-0018-07.00. If you have any questions, please contact her at 303-312-6526. We look forward to working with your company in preparing the initial Part 71 Permit to Operate.

Sincerely,

Callie A. Videtich, Director
Air and Radiation Program

Enclosures

cc: Tray Taylor, Dominion Exploration and Production, Inc.
Elaine Willie, Ute Indian Tribe

Enclosure

This document constitutes the review and completeness determination of Dominion's Part 71 Permit to Operate application for the TAP-5 Compressor Station.

EPA is seeking the following information to assists our permit engineers in understanding your operations, evaluating the compliance status of the operations at this facility, and developing a comprehensive permit.

1. Provide a description of the operations at the station;

2. Provide the construction and permitting history of the station, including the PTE at each stage of construction;

3. Provide a latitude and longitude location for the station site;

4. Provide the installation date for units D-1 and T-1;

5. Provide the serial numbers for units D-1 and T-1;

6. Provide the most recent inlet gas samples;

7. Provide your analysis/discussion on applicability or non-applicability of all the standards relevant to oil and gas operations or any other emission units at the facility.

8. Provide the manufacturer's engine design information and site-rated specifications for each engine identified in the application. Identify on the manufacturers literature (tables) the specific operating parameters of each engine. In addition, provide supporting manufacturer's data for the emission factors used in calculating the uncontrolled emissions.

9. Provide manufacturer's specifications for the catalysts to be used on each engine and the control efficiencies identified by the manufacturer for nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOCs), and formaldehyde (C_2HO).

10. Provide the manufacturer's design specifications for the glycol dehydrator. Include in the specifications, the maximum glycol recirculation pump rate, and maximum gas throughput.

11. Provide the manufacturer's design specifications for the control equipment for the dehydrator. Include in the specifications, the manufacturer's VOC and benzene, toluene, ethyl benzene, and xylene (BTEX) removal efficiency estimations referred to on Form EUD-2 for the dehydrator.

12. 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;

13. Provide a legible process flow diagram. Include the following information on or with the diagram:

a. Identify all emission units (including insignificant units). Use emission unit I.D.s from the application; and

b. Identify raw material and product streams.

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)).

T5 PERMIT # V-UU-0019-07.00
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PERMIT APPLICATION FORMS

Dominion Exploration & Production Inc.
TAP-5 Compressor Station
Uintah County, UTAH

40 CFR PART 71
FEDERAL OPERATING PERMITS PROGRAM

US EPA
JANUARY, 2001

OMB Control No. 2060-0336

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

APPLICATION FORM GIS - GENERAL INFORMATION AND SUMMARY

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

A. Mailing Address and Contact Information

Facility name _____Dominion Exploration & Production Inc. - Tap 5_____

Mailing address: Street or P.O. Box __16945 Northchase Drive, Suite 1750_____

City ___Houston_____ State ____TX_ ZIP _77060_____ - _____

Contact person: ___Tray Taylor_____ Title _____Director - EHS and Regulatory

Telephone (_281__) __873___ - __3615_____ Ext. _____ Facsimile (_281___) _873____ - _1618_____

B. Facility Location

Temporary source? ___ Yes _X No Plant site location __39.97424841° 109.63658094° __WGS84_____

City ___Roosevelt_____ State __UT___ County __Uintah____ EPA Region __8 _

Is the facility located within:

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

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

Within 50 miles of affected State? __X YES ___ NO If yes, What State(s)? Colorado_____

C. Owner

Name ____Dominion Exploration & Production, Inc.____ Street/ P.O. Box 14000 Quail Spring Pkwy, Suite 600____

City _____Oklahoma City_____ State __OK___ ZIP _73134_____ - _____

Telephone (__405__) __749___ - __5263_____ Ext. _____

D. Operator

Name ___Dominion Exploration & Production, Inc._____ Street/ P.O. Box _14000 Quail Spring Pkwy, Suite 600

City _____Oklahoma City_____ State __OK___ ZIP __73134_____ - _____

Telephone (__405__) ___749__ - __5263_____ Ext. _____

E. Application Type

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

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

___ Group Processing, MPM ___ Administrative Amend.

For initial permits, when did operations commence? ____04/_12__ /2005_

For permit renewals, what is the expiration date of the existing permit? _____ /_____ /_____

F. Applicable Requirement Summary

Instructions: Mark all applicable requirements that apply.

___ SIP ___ FIP/TIP ___ PSD ___ Nonattainment 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 reqt., section 183(f) ___ Section 129 Standards/Reqts.

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

Has a risk management plan been registered? ___ YES _X_ NO Regulatory agency _____

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

G. Source-Wide PTE Restrictions and Generic Applicable Requirements

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

NA

H. Process Description

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

Process	Products	SIC
Natural Gas Production	Natural Gas	1311

I. Emission Unit Identification

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

Emissions Unit ID	Description of Unit
C-1	Caterpillar Model 3516TALE compressor engine 1217 Site-rated HP
C-2	Caterpillar Model 3412CLE compressor engine 553 Site-rated HP
C-3	Caterpillar Model 3512TALE compressor engine 941 Site-rated HP
D-1	11.4 MMscfd Glycol Dehydrator
T-1	One (1) 300-bbl condensate tank

J. Facility Emissions Summary

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

NOx ___41.9____ tons/yr VOC ___87.7____ tons/yr SO2 __0.0_____ tons/yr

PM-10 __0.0_____ tons/yr CO ___49.7____ tons/yr Lead __0.0_____ tons/yr

Total HAP ___42.8____ tons/yr

Which single HAP emitted in the greatest amount? _____Toluene_____ PTE? ___15.6 tons/yr

Total emissions of regulated pollutants (for fee calculation) from section F, line 5 of form **FEE?** _____76* tons/yr

*Based on 2006 data

K. Existing Federally Enforceable Permits:

Permit number(s) _____NA_____ Permit type _____NA_____ Permitting authority __NA_____

Permit number(s) _____NA_____ Permit type _____NA_____ Permitting authority __NA_____

L. Emission Unit(s) Covered by General Permits

Emission unit(s) subject to general permit _____NA_____

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)

Emission Unit: C-1
OMB Control No. 2060-0336

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

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

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

A. General Information

Emissions unit ID ___C-1_____ Description ____Caterpillar 3516TALE Site rated 1217 hp

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. ____3516TALE_____

Serial Number __4EK03157_____ Installation date __06_/_14__/_2001__

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

_X_ Other (describe) __Natural Gas Compressor Engine_____

Boiler horsepower rating __1217_____ Boiler steam flow (lb/hr) _____

Type of Fuel-Burning Equipment (coal burning only):

___ Hand fired ___ Spreader stoker ___ Underfeed stoker ___ Overfeed stoker

___ Traveling grate ___ Shaking grate ___ Pulverized, wet bed ___ Pulverized, dry bed

Actual (average) Heat Input ___10.42__ MM BTU/hr Maximum design heat input __10.42__ MM BTU/hr

C. Fuel Data

Primary fuel type(s) ___Natural Gas_____ Standby fuel type(s) _____NA_____

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

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (per cf, gal., or lb.)
Natural Gas	0	0	1075

Emission Unit: C-1

D. Fuel Usage Rates

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

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	77.57 MMscf*	9.16 Mscf	80.26 MMscf

*Based on 2006 data

E. Associated Air Pollution Control Equipment

Emissions unit ID ___C-1_____ Device type __Catalytic Converter System_____

Air pollutant(s) Controlled ___CO_____ Manufacturer ____Miratech_____

Model No. _____RCS-3626-12-L1___ Serial No. _____TBD_____

Installation date _____/_TBD____/____ Control efficiency (%) __93____.____

Efficiency estimation method _____Manufacturer Specifications_____

F. Ambient Impact Assessment

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

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

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

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

Emission Unit: C-2
OMB Control No. 2060-0336

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

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

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

A. General Information

Emissions unit ID ___C-2_____ Description ____Caterpillar 3412CLE Site rated 553 hp

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. ____3412CLE_____

Serial Number ____6ZM00373_____ Installation date _03__/_24__/_2004__

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

_X_ Other (describe) __Natural Gas Compressor Engine_____

Boiler horsepower rating __553_____ Boiler steam flow (lb/hr) _____

Type of Fuel-Burning Equipment (coal burning only):

___ Hand fired ___ Spreader stoker ___ Underfeed stoker ___ Overfeed stoker

___ Traveling grate ___ Shaking grate ___ Pulverized, wet bed ___ Pulverized, dry bed

Actual (average) Heat Input ___5.25 MM BTU/hr Maximum design heat input __5.25__ MM BTU/hr

C. Fuel Data

Primary fuel type(s) ___Natural Gas_____ Standby fuel type(s) _____NA_____

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

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (per cf, gal., or lb.)
Natural Gas	0	0	1075

D. Fuel Usage Rates Emission Unit: C-2

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

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	21.62 MMscf*	4.16 Mscf	36.47 MMscf

* Based on 2006 data

E. Associated Air Pollution Control Equipment

Emissions unit ID ___C-2_____ Device type __Catalytic Converter System_____

Air pollutant(s) Controlled ___CO_____ Manufacturer __Miratech_____

Model No. _____RCS-3022-10-L1__ Serial No. _____TBD_____

Installation date _____/_TBD____/____ Control efficiency (%) __93____.____

Efficiency estimation method _____Manufacturer Specifications_____

F. Ambient Impact Assessment

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

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

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

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

Emission Unit: C-3
OMB Control No. 2060-0336

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

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

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

A. General Information

Emissions unit ID ___C-3_____ Description ____Caterpillar 3512TALE Site rated 941 hp

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. ____3512TALE_____

Serial Number ____7NJ01021_____ Installation date _06__/_08__/_2005__

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

_X_ Other (describe) __Natural Gas Compressor Engine_____

Boiler horsepower rating __941_____ Boiler steam flow (lb/hr) _____

Type of Fuel-Burning Equipment (coal burning only):

___ Hand fired ___ Spreader stoker ___ Underfeed stoker ___ Overfeed stoker

___ Traveling grate ___ Shaking grate ___ Pulverized, wet bed ___ Pulverized, dry bed

Actual (average) Heat Input ___8.28 MM BTU/hr Maximum design heat input __8.28__ MM BTU/hr

C. Fuel Data

Primary fuel type(s) ___Natural Gas_____ Standby fuel type(s) _____NA_____

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

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (per cf, gal., or lb.)
Natural Gas	0	0	1075

D. Fuel Usage Rates Emission Unit: C-3

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

Fuel Type	Annual Actual Usage	Maximum Usage	
		Hourly	Annual
Natural Gas	61.15 MMscf*	7.08 Mscf	62.06 MMscf

* Based on 2006 data

E. Associated Air Pollution Control Equipment

Emissions unit ID ___C-3_____ Device type __Catalytic Converter System_____

Air pollutant(s) Controlled ___CO_____ Manufacturer __Miratech_____

Model No. _____IQ-26-12-L1__ Serial No. _____TBD_____

Installation date _____/_TBD____/____ Control efficiency (%) __93____.____

Efficiency estimation method _____Manufacturer Specifications_____

F. Ambient Impact Assessment

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

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

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

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

Emission Unit: D-1
OMB Control No. 2060-0336

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

APPLICATION FORM EUD-3 - EMISSION UNIT DESCRIPTION FOR PROCESS SOURCES

INSTRUCTIONS: Complete this form for each significant emission unit that is not primarily a VOC emitting unit or a fuel combustion unit.

A. General Information

Emissions unit ID ____D-1_____ Description ____11.4 MMscfd Glycol Dehydrator_

SIC Code (4-digit) __1311_____ SCC Code _____

B. Emissions Unit Description

Primary use or equipment type __Gas Dehydration_____ Temporary source: ___ Yes _X_ No

Manufacturer _____TBD_____ Model No. ___ TBD_____

Serial No. _____ Installation date _____/_____/_____

Raw materials _____Natural Gas_____

Finished products _____Natural Gas_____

C. Activity or Production Rates

Instructions: Enter actual and maximum activity rates for the materials that are processed or the number of activities performed. Actual rates are the rates that will be used to calculate actual emissions for fee purposes. Maximum rates are the rates used to calculate potential to emit for applicability purposes.

Activity or Production Rate	Amount/Hour	Amount/Year
Actual Rate	140.5 Mscf*	1230.4 MMscf*
Maximum rate	475 Mscf	4161 MMscf

*Based on 2006 data

D. Associated Air Pollution Control Equipment

Emissions unit ID __D-1_____ Device Type __Condenser and Process Heater_____

Manufacturer _____TBD_____ Model No. _____TBD_____

Serial No. _____ Installation date _____/_TBD_/_____

Control efficiency (%) _____95.___ Capture efficiency (%) __NA____.___

Air pollutant(s) controlled _VOC & BTEX__ Efficiency estimation method __Manufacturer Specifications

E. Ambient Impact Assessment Emission Unit: D-1

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

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

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

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

Emission Unit: T-1
OMB Control No. 2060-0336

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

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

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

A. General Information

Emissions unit ID __T-1_____ Description __1 300-bbl condensate tank_____

SIC Code (4-digit) _____ SCC Code _____

B. Emissions Unit Description

Equipment type __1 300-bbl condensate storage tank____ Temporary source: ___ Yes _X_ No

Manufacturer _____ Model No. _____

Serial No. _____ Installation date ____/____/____

Articles being coated or degreased _____NA_____

Application method _____NA_____

Overspray (surface coating) (%) __NA_____ Drying method _____NA_____

No. of dryers __NA____ Tank capacity ___300 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

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

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

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

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

E. VOC-containing Substance Data Emission Unit: T-1

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

VOC-Containing Substance (Chemical or Brand Name)	CAS No. (if available)	Substance Type (e.g., coating, solvent, ink, etc.)	Actual Usage (gal/yr)	Maximum Usage		VOC Content (lb/gal)
				gal/day	gal/year	
Condensate			3582.6 (Based on 2006 data)	210	76650	

OMB Control No. 2060-0336

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

FORM I-COMP - INITIAL COMPLIANCE PLAN & COMPLIANCE CERTIFICATION

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

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

Three Caterpillar engines will be subject to the RICE MACT (40CFR Part 63 Subpart ZZZZ) standard requiring reduction of carbon monoxide emissions by 93% 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 start-up.	Unit ID(s): **C-1, C-2, C-3**	Compliance status at time of application : ___ In Compliance _X_ Not In Compliance

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

_____

_____

_____

_____

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

1. If in compliance at this time, I will continue to comply. ____ Yes _____ No	**2.** If not in compliance at this time, I will be in compliance by expected date of permit issuance. _X_ Yes __ No Expected Date __10_/_01__/_2008	**3.** For future-effective requirements. I will meet this requirement on a timely basis. ____ Yes _____ No

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

Oil and Gas MACT (40 CFR Part 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%.	Unit ID(s): **D-1**	Compliance status at time of application : ___ In Compliance _X__ Not In Compliance

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

_____

_____

_____

_____

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

1. If in compliance at this time, I will continue to comply. ____ Yes _____ No	**2.** If not in compliance at this time, I will be in compliance by expected date of permit issuance. _X_ Yes _ __ No Expected Date _10__/_01__/_2008	**3.** For future-effective requirements. I will meet this requirement on a timely basis. ____ Yes _____ No

D. ADDITIONAL INFORMATION FOR COMPLIANCE PLAN STATEMENT #2

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

1. **Applicable Requirement.**

Unit(s) ____C-1, C-2, C-3_____ Applicable Requirement ___40CFR Part 63 Subpart ZZZZ_____

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

Emissions from Units C-1, C-2 and C-3 will be controlled through the use of a catalytic converter such that applicable standards in 40CFR Part 63 Subpart ZZZZ are satisfied

3. **Applicable Requirement.**

Unit(s) ____D-1 _____ Applicable Requirement ___40 CFR Part 63 Subpart HH_____

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

Emissions from Unit D-1 will be controlled through the use of a control device such as a condenser and/or flare such that applicable standards in 40 CFR Part 63 Subpart HH are satisfied

E. SCHEDULE OF COMPLIANCE

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

1. **Applicable Requirement**.

Unit(s) _____ Applicable Requirement _____

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

_____

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

_____

_____

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

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

Remedial Measure or Action	Date to be Achieved

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

F. SCHEDULE FOR SUBMISSION OF PROGRESS REPORTS

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

Contents of Progress Report (describe)

_____

Report Starting date ____/____/___ Submittal Frequency _____

Contents of Progress Report (describe)

_____

Report Starting date ____/____/___ Submittal Frequency _____

G. SCHEDULE FOR SUBMISSION OF COMPLIANCE CERTIFICATIONS

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

Frequency of submittal ____Annual_____ Beginning _04_/_01_/__2009

H. COMPLIANCE STATUS FOR ENHANCED MONITORING AND COMPLIANCE CERTIFICATION REQUIREMENTS

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

Enhanced Monitoring Requirements: ____ In Compliance __X_ Not In Compliance

Compliance Certification Requirements: ____ In Compliance __X_ Not In Compliance

OMB Control No. 2060-0336

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

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

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

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

Name: (Last) ___Abercrombie_____ (First) ____James_____ (Middle) __D._____

Title _____Senior Vice President - Western Business Unit_____

Street or Post Office Box _____14000 Quail Springs Pkwy, Suite 600_____

City ____Oklahoma City_____ State __OK___ ZIP _73134_____ - _____

Telephone (__405_) __749__ - __1300___ Ext. _____ Facsimile (__405__) _749___ - __9385___

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

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

Name (signed) James D Abercrombie

Name (printed or typed) _____James D. Abercrombie_____ Date: 4 / 10 / 07

OMB Control No. 2060-0336

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

APPLICATION FORM IE - INSIGNIFICANT EMISSIONS

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

Number	Description of Activities or Emission Units	RAP, except HAP	HAP
1	Fugitive Emissions	X	X
1	Truck Loading Emissions (Both oil and condensate)	X	X
1	500 MBTU/hr Glycol Dehydrator Reboiler Heater	X	X
1	250 MBTU/hr Heater for 300-bbl condensate tank	X	X
1	150 MBTU/hr separator	X	X
1	Propane-fired pumpjack	X	X
1	300-bbl oil tank	X	X

OMB Control No. 2060-0336

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

FORM EMISS - EMISSIONS CALCULATIONS

INSTRUCTIONS: Use this form to 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 __C-1 - 2005_____

B. Identification and Quantification of Emissions

Instructions: First, list each air pollutant that is either regulated at the unit or present in major amounts. Second, list any other regulated pollutant (for fee calculation) emitted at the unit that have not already been listed. Each HAP added to the list in this step may be simply listed as "HAP". Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each listed air pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives, including those that do not count towards applicability, when calculating actual emissions. At a minimum, round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values. Attach examples of calculations that illustrates the methodology used.

Air Pollutants (including regulated air pollutants and pollutants for which the source is major)	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx	14.5	4.0	17.6	
CO	18.4	5.1	22.3	
VOC	0.9	0.2	1.1	
PM-10	0.0	0.0	0.0	
SO2	0.0	0.0	0.0	
Acetaldehyde	0.3	0.1	0.4	75070
Acrolein	0.2	0.1	0.2	107028
Benzene	0.2	0.0	0.2	71432
Ethylbenzene	0.0	0.0	0.0	100414
Formaldehyde	2.9	0.8	3.5	50000
Toluene	0.0	0.0	0.0	108883
Xylene	0.0	0.0	0.0	1330207

OMB Control No. 2060-0336

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

FORM EMISS - EMISSIONS CALCULATIONS

INSTRUCTIONS: Use this form to 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 __C-2__ - 2005_____

B. Identification and Quantification of Emissions

Instructions: First, list each air pollutant that is either regulated at the unit or present in major amounts. Second, list any other regulated pollutant (for fee calculation) emitted at the unit that have not already been listed. Each HAP added to the list in this step may be simply listed as "HAP". Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each listed air pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives, including those that do not count towards applicability, when calculating actual emissions. At a minimum, round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values. Attach examples of calculations that illustrates the methodology used.

Air Pollutants (including regulated air pollutants and pollutants for which the source is major)	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx	10.2	2.4	10.7	
CO	9.7	2.3	10.2	
VOC	0.8	0.2	0.9	
PM-10	0.0	0.0	0.0	
SO2	0.0	0.0	0.0	
Acetaldehyde	0.2	0.0	0.2	75070
Acrolein	0.1	0.0	0.1	107028
Benzene	0.1	0.0	0.1	71432
Ethylbenzene	0.0	0.0	0.0	100414
Formaldehyde	1.5	0.4	1.6	50000
Toluene	0.0	0.0	0.0	108883
Xylene	0.0	0.0	0.0	1330207

OMB Control No. 2060-0336

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

FORM EMISS - EMISSIONS CALCULATIONS

INSTRUCTIONS: Use this form to 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 __C-3_- 2005_____

B. Identification and Quantification of Emissions

Instructions: First, list each air pollutant that is either regulated at the unit or present in major amounts. Second, list any other regulated pollutant (for fee calculation) emitted at the unit that have not already been listed. Each HAP added to the list in this step may be simply listed as "HAP". Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each listed air pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives, including those that do not count towards applicability, when calculating actual emissions. At a minimum, round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values. Attach examples of calculations that illustrates the methodology used.

Air Pollutants (including regulated air pollutants and pollutants for which the source is major)	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx	4.3	3.1	13.6	
CO	5.5	3.9	17.3	
VOC	0.9	0.6	2.8	
PM-10	0.0	0.0	0.0	
SO2	0.0	0.0	0.0	
Acetaldehyde	0.1	0.1	0.3	75070
Acrolein	0.1	0.0	0.2	107028
Benzene	0.0	0.0	0.1	71432
Ethylbenzene	0.0	0.0	0.0	100414
Formaldehyde	0.9	0.6	2.7	50000
Toluene	0.0	0.0	0.0	108883
Xylene	0.0	0.0	0.0	1330207

OMB Control No. 2060-0336

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

FORM EMISS - EMISSIONS CALCULATIONS

INSTRUCTIONS: Use this form to 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 1 of form **GIS**. If form **FEE** does not need to be submitted with the application, do not calculate actual emissions.

A. Emissions Unit ID __D-1__- 2005_____

B. Identification and Quantification of Emissions

Instructions: First, list each air pollutant that is either regulated at the unit or present in major amounts. Second, list any other regulated pollutant (for fee calculation) emitted at the unit that have not already been listed. Each HAP added to the list in this step may be simply listed as "HAP". Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each listed air pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives, including those that do not count towards applicability, when calculating actual emissions. At a minimum, round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values. Attach examples of calculations that illustrates the methodology used.

Air Pollutants (including regulated air pollutants and pollutants for which the source is major)	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx	0.0	0.0	0.0	
CO	0.0	0.0	0.0	
VOC	13.1	15.9	69.4	
PM-10	0.0	0.0	0.0	
SOx	0.0	0.0	0.0	
Benzene	1.8	2.4	10.7	71432
Ethylbenzene	0.1	0.1	0.4	100414
Toluene	2.4	3.5	15.5	108883
Xylene	0.6	1.2	5.2	1330207

OMB Control No. 2060-0336

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

FORM EMISS - EMISSIONS CALCULATIONS

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

A. Emissions Unit ID __T-1__ - 2005_____

B. Identification and Quantification of Emissions

Instructions: First, list each air pollutant that is either regulated at the unit or present in major amounts. Second, list any other regulated pollutant (for fee calculation) emitted at the unit that have not already been listed. Each HAP added to the list in this step may be simply listed as "HAP". Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each listed air pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives, including those that do not count towards applicability, when calculating actual emissions. At a minimum, round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values. Attach examples of calculations that illustrates the methodology used.

Air Pollutants (including regulated air pollutants and pollutants for which the source is major)	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx	0.0	0.0	0.0	
CO	0.0	0.0	0.0	
VOC	4.1	3.1	13.5	
PM-10	0.0	0.0	0.0	
SOx	0.0	0.0	0.0	
Acetaldehyde	0.0	0.0	0.0	75070
Acrolein	0.0	0.0	0.0	107028
Benzene	0.0	0.0	0.0	71432
Ethylbenzene	0.0	0.0	0.0	100414
Formaldehyde	0.0	0.0	0.0	50000
Toluene	0.0	0.0	0.0	108883
Xylene	0.0	0.0	0.0	1330207

OMB Control No. 2060-0336

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

FORM PTE - POTENTIAL TO EMIT SUMMARY

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

Emissions Unit ID	Regulated Air Pollutants and Pollutants for which the Source is Major						
	NOx (tons/yr)	VOC (tons/yr)	SO2 (tons/yr)	PM10 (tons/yr)	CO (tons/yr)	Lead (tons/yr)	HAP (tons/yr)
C-1	17.6	1.1	0.0	0.0	22.3	0.0	4.3
C-2	10.7	0.9	0.0	0.0	10.2	0.0	2.0
C-3	13.6	2.8	0.0	0.0	17.3	0.0	3.4
D-1	0.0	69.4	0.0	0.0	0.0	0.0	33.2
T-1	0.0	13.5	0.0	0.0	0.0	0.0	0.0
TOTALS	41.9	87.7	0.0	0.0	49.8	0.0	42.8

OMB Control No. 2060-0336

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

FORM FEE - FEE CALCULATION WORKSHEET

INSTRUCTIONS: Use this form to initially or thereafter on a annual basis report actual emissions and calculate fees, consistent with § 71.9.

A. General Information

Instructions: All sources must complete this section.

Type of fee calculation worksheet (Check one):

__X Initial ___ Annual

Deadline for submitting fee calculation worksheet _____/_____/_____

For initial fee calculation worksheets, emissions are based on (Check one):

_ _ Actual emissions for the preceding year

_X_ Estimates of actual emissions for the preceding year - 2005

___ Estimates of actual emissions for the current year

If you checked the last box, provide the date the facility commenced operations _____/_____/_____

B. Source Information

Instructions: Complete this section only if you are not applying for a permit at this time.

Source or facility name _____

Mailing address: Street or P.O. Box _____

City _____ State _____ ZIP _____ - _____

Contact person _____ Title _____

Telephone (_____) _____ - _____ Ext. _____ Part 71 permit no. _____

C. Certification of Truth, Accuracy and Completeness

Instructions: This form must be signed by the responsible official.

I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this fee calculation worksheet (and attachments) are true, accurate and complete.

Name (signed) James D Abercrombie

Name (typed) James D. Abercrombie Date: 4 / 10 / 07

D. Annual Emissions Report for Fee Calculation Purposes -- Non-HAP

Instructions: Report calendar-year actual emissions of regulated pollutants (for fee calculation) except for HAP, and use for both initial and annual fee calculation purposes. Section E is used to report actual emissions of HAP. Quantify all actual emissions, including fugitives, but do not include insignificant emissions. 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 a subtotal is greater than 4,000 tons, enter 4,000. Submit attachments showing calculations.

This data is for __2005_____ (year).

Emissions Unit ID	Actual Emissions (Tons/Year)					
	NOx	VOC	SO2	PM10	Lead	Other
C-1	14.5	0.9	0.0	0.0	0.0	0.0
C-2	10.2	0.8	0.0	0.0	0.0	0.0
C-3	4.3	0.9	0.0	0.0	0.0	0.0
D-1	0.0	13.1	0.0	0.0	0.0	0.0
T-1	0.0	4.1	0.0	0.0	0.0	0.0

E. Annual Emissions Report for Fee Calculation Purposes -- HAP

Instructions: Use the first table below to identify each HAP meeting the definition of regulated pollutant (for fee calculation) 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, please use "HAP1" for the first, "HAP2" for the second, and so on.

Name of HAP	CAS No.	Identifier
Acetaldehyde	75070	HAP __1__
Acrolein	107028	HAP __2__
Benzene	71432	HAP __3__
Ethylbenzene	100414	HAP __4__
Formaldehyde	50000	HAP __5__
Toluene	108883	HAP __6__
Xylene	1330207	HAP __7__

Instructions: Now report the actual emissions of each individual HAP identified above. Use the identifiers assigned in the table above to identify each HAP. Include all emissions, including fugitives, but do not include insignificant emissions. Report emissions values to the nearest tenth of a ton. Sum the emissions in each column and show a subtotal at the bottom of the page. If a subtotal is greater than 4,000 tons, enter 4,000. Submit attachments showing calculations.

This data is for __2005____ (year)

Emissions Unit ID	Actual Emissions (Tons/Year)							
	HAP__1_	HAP__2_	HAP__3_	HAP__4_	HAP_5__	HAP__6_	HAP__7_	HAP___
C-1	0.3	0.2	0.2	0.0	2.9	0.0	0.0	
C-2	0.2	0.1	0.1	0.0	1.5	0.0	0.0	
C-3	0.1	0.1	0.0	0.0	0.9	0.0	0.0	
D-1	0.0	0.0	1.8	0.1	0.0	2.4	0.6	
T-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
SUBTOTALS	_0.6____	__0.4___	___2.1__	_0.1____	__5.3___	__2.4	__0.6___	_____

F. Fee Calculation Worksheet

Instructions: This section is used to calculate the total fee owed for initial application or annual fee payment purposes. Unless otherwise instructed to proceed to a different line, always proceed to the next line. If you do not need to reconcile estimated against actual emissions, complete the part for emissions calculation (lines 1 - 5) and then proceed to the part for fee calculation (lines 21 - 26). A final permit or permit revision will not be issued until all fees, interest, and penalties assessed against a source are paid. In addition, the initial application for a source will not be found complete unless the source pays all fees owed.

EMISSIONS CALCULATION

1.	Sum the subtotals from section D of this form and enter the result on this line.	48.8
2.	Sum the subtotals from section E of this form and enter the result on this line.	11.5
3.	Total lines 1 and 2 and enter the result on this line.	60.3
4.	Sources are not required to pay fees twice for the same emissions [see § 71.9(c)(5)(ii)]. Enter the amount of emissions that were counted twice. Attach supplementary information identifying the emissions units where double counting has occurred and explain why double counting has occurred. If there has been no double counting enter "0."	11.5
5.	Subtract the amount on line 4 from the amount on line 3, round to the nearest ton, and enter the result on this line.	49

RECONCILIATION OF ESTIMATED EMISSIONS AGAINST ACTUAL EMISSIONS (WHEN INITIAL ESTIMATES WERE BASED ON THE CURRENT CALENDAR YEAR)

Only complete lines 6 - 10 if you are now preparing the first annual fee worksheet and the initial fee worksheet included estimated emissions for the current calendar year. See §§ 71.9(e)(2) and 71.9(h)(3). Otherwise skip this part of the form and proceed to the next part of the form (starting at line 11) or to the fee calculation part of the form (starting at line 21).

6.	Enter the total estimated emissions previously reported on line 5 of the initial fee calculation worksheet. These are estimated emissions for the year that the initial fee worksheet was submitted.	_____
7.	If the amount on line 5 of this form is greater than the amount on line 6, subtract line 6 from line 5, and enter the result on this line. Otherwise enter "0."	_____
8.	If the amount on line 6 is greater than the amount on line 5, subtract line 5 from line 6, and enter the result on this line. Otherwise enter "0."	_____
9.	Multiply the amount on line 7 by (last year's $/ton amount[1]), and enter the result on this line. This is the amount of underpayment. Go to line 21.	$_____.____
10.	Multiply the amount on line 8 by (last year's $/ton amount), and enter the result on this line. This is the amount of overpayment. Go to line 21.	$_____.____

[1] $/ton amounts to be determined at the time of program implementation, see § 71.9(c)(1) - (3).

RECONCILIATION OF ESTIMATED EMISSIONS AGAINST ACTUAL EMISSIONS (WHEN INITIAL ESTIMATES WERE BASED ON THE PRECEDING CALENDAR YEAR)

Only complete lines 11 - 20 if you are now preparing the first annual fee worksheet and the initial fee worksheet included estimated emissions for the preceding calendar year. See §§ 71.9(f)(2) and 71.9(h)(3). If you must complete this part of the form, you must also submit annual emission reports (sections D and E) for the year preceding initial worksheet submittal. Otherwise skip this part of the form and proceed to the fee calculation part of the form (lines 21 through 26).

11.	Sum the subtotals from section D for the calendar year preceding initial fee worksheet submittal and enter the result on this line.	_____.___
12.	Sum the subtotals from section E for the calendar year preceding initial fee worksheet submittal and enter the result on this line.	_____.___
13.	Total lines 11 and 12 and enter the result on this line. This is the total actual emissions for the calendar year preceding initial fee worksheet submittal.	_____.___

RECONCILIATION OF ESTIMATED EMISSIONS AGAINST ACTUAL EMISSIONS (WHEN INITIAL ESTIMATES WERE BASED ON THE PRECEDING CALENDAR YEAR) --- CONTINUED —

14.	Sources are not required to pay fees twice for the same emissions [see § 71.9(c)(5)(ii)]. Enter the amount of emissions (actual emissions for the year preceding initial worksheet submittal) that were counted twice. Attach supplementary information identifying the emissions units where double counting has occurred and explain why double counting has occurred. If there has been no double counting enter "0."	_____.___
15.	Subtract the amount on line 14 from the amount on line 13, round to the nearest ton, and enter the result on this line.	_____
16.	Enter the total estimated emissions previously reported on line 5 of the initial fee calculation worksheet. These are estimated emissions for the calendar year preceding initial fee worksheet submittal.	_____
17.	If the amount on line 15 is greater than the amount on line 16, subtract line 16 from line 15, and enter the result on this line. Otherwise enter "0."	_____
18.	If the amount on line 16 is greater than the amount on line 15, subtract line 15 from line 16, and enter the result on this line. Otherwise enter "0."	_____
19.	Multiply the amount on line 17 by (last year's $/ton amount[1]) and enter the result on this line. This is the amount of underpayment.	$_____._____
20.	Multiply the amount on line 18 by (last year's $/ton amount) and enter the result on this line. This is the amount of overpayment.	$_____._____

FEE CALCULATION

21.	Multiply the amount on line 5 on this form by (this year's $/ton amount) and enter the result on this line.	$_____2001__._16___
22.	If you have reconciled estimated against actual emissions, enter the underpayment from line 9 or 19 on this line. Otherwise enter "0."	$_____0___._00___
23.	If you have reconciled estimated against actual emissions, enter the overpayment from line 10 or 20 on this line. Otherwise enter "0."	$_____0___._00___
24.	If the amount on line 22 is greater than "0," add this amount to the amount on line 21 and enter the result on this line. If the amount on line 23 is greater than "0," subtract this amount from the amount on line 21 and enter the result on this line. Otherwise enter the amount on line 21 on this line. This is the fee adjusted for reconciliation.	$_____2001_._16__
25.	If your account was credited for fee assessment error [see § 71.9(j)] since the last time you submitted a fee calculation worksheet, enter the amount of the credit on this line. Otherwise enter "0."	$_____0__._00___
26.	Subtract the amount on line 25 from the amount on line 24 and enter the result on this line. Stop here. This is the total fee amount that you must remit to EPA.	$_____2001_._16___

PENALTIES AND INTEREST

Payment received later tban the due date shall be assessed interest and, in certain cases, penalty charges. If payment is late, do not calculate penalties and interest at this time. The permitting authority will assess these and mail you an invoice.

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

APPLICATION FORM FF - FEE FILING

Instructions: Complete this form once for the part 71 source (facility) and send it to the appropriate lockbox bank address, along with full payment. This form required at time of initial, and thereafter, annual fee payment.

A. Source or Facility Name ___Dominion Exploration & Production, Inc. - Tap 5_____

B. Mailing Address and Contact Person:

Street or P.O. Box _____16945 Northchase Drive, Suite 1750_____

City _____Houston_____ State __TX__ ZIP __77060_____ - _____

Contact Person: _____Tray Taylor_____ Title _ Director - EHS and Regulatory_____

Telephone (__281____) _873____ - __3615_____ Ext. _____

C. Total Fee Payment Remitted: $ _____2001_._16*__

*Based on 2005 calendar year

OMB Control No. 2060-0336

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

FORM EMISS - EMISSIONS CALCULATIONS

INSTRUCTIONS: Use this form to 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 __C-1 - 2006_____

B. Identification and Quantification of Emissions

Instructions: First, list each air pollutant that is either regulated at the unit or present in major amounts. Second, list any other regulated pollutant (for fee calculation) emitted at the unit that have not already been listed. Each HAP added to the list in this step may be simply listed as "HAP". Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each listed air pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives, including those that do not count towards applicability, when calculating actual emissions. At a minimum, round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values. Attach examples of calculations that illustrates the methodology used.

Air Pollutants (including regulated air pollutants and pollutants for which the source is major)	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx	17.0	4.0	17.6	
CO	21.6	5.1	22.3	
VOC	1.0	0.2	1.1	
PM-10	0.0	0.0	0.0	
SO2	0.0	0.0	0.0	
Acetaldehyde	0.4	0.1	0.4	75070
Acrolein	0.2	0.1	0.2	107028
Benzene	0.2	0.0	0.2	71432
Ethylbenzene	0.0	0.0	0.0	100414
Formaldehyde	3.4	0.8	3.5	50000
Toluene	0.0	0.0	0.0	108883
Xylene	0.0	0.0	0.0	1330207

OMB Control No. 2060-0336

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

FORM EMISS - EMISSIONS CALCULATIONS

INSTRUCTIONS: Use this form to 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 __C-2__ - 2006_____

B. Identification and Quantification of Emissions

Instructions: First, list each air pollutant that is either regulated at the unit or present in major amounts. Second, list any other regulated pollutant (for fee calculation) emitted at the unit that have not already been listed. Each HAP added to the list in this step may be simply listed as "HAP". Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each listed air pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives, including those that do not count towards applicability, when calculating actual emissions. At a minimum, round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values. Attach examples of calculations that illustrates the methodology used.

Air Pollutants (including regulated air pollutants and pollutants for which the source is major)	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx	6.3	2.4	10.7	
CO	6.0	2.3	10.2	
VOC	0.5	0.2	0.9	
PM-10	0.0	0.0	0.0	
SO2	0.0	0.0	0.0	
Acetaldehyde	0.1	0.0	0.2	75070
Acrolein	0.1	0.0	0.1	107028
Benzene	0.1	0.0	0.1	71432
Ethylbenzene	0.0	0.0	0.0	100414
Formaldehyde	0.9	0.4	1.6	50000
Toluene	0.0	0.0	0.0	108883
Xylene	0.0	0.0	0.0	1330207

OMB Control No. 2060-0336

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

FORM EMISS - EMISSIONS CALCULATIONS

INSTRUCTIONS: Use this form to 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 __C-3_- 2006_____

B. Identification and Quantification of Emissions

Instructions: First, list each air pollutant that is either regulated at the unit or present in major amounts. Second, list any other regulated pollutant (for fee calculation) emitted at the unit that have not already been listed. Each HAP added to the list in this step may be simply listed as "HAP". Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each listed air pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives, including those that do not count towards applicability, when calculating actual emissions. At a minimum, round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values. Attach examples of calculations that illustrates the methodology used.

Air Pollutants (including regulated air pollutants and pollutants for which the source is major)	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx	13.4	3.1	13.6	
CO	17.0	3.9	17.3	
VOC	2.8	0.6	2.8	
PM-10	0.0	0.0	0.0	
SO2	0.0	0.0	0.0	
Acetaldehyde	0.3	0.1	0.3	75070
Acrolein	0.2	0.0	0.2	107028
Benzene	0.1	0.0	0.1	71432
Ethylbenzene	0.0	0.0	0.0	100414
Formaldehyde	2.7	0.6	2.7	50000
Toluene	0.0	0.0	0.0	108883
Xylene	0.0	0.0	0.0	1330207

OMB Control No. 2060-0336

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

FORM EMISS - EMISSIONS CALCULATIONS

INSTRUCTIONS: Use this form to 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 1 of form **GIS**. If form **FEE** does not need to be submitted with the application, do not calculate actual emissions.

A. Emissions Unit ID __D-1__- 2006_____

B. Identification and Quantification of Emissions

Instructions: First, list each air pollutant that is either regulated at the unit or present in major amounts. Second, list any other regulated pollutant (for fee calculation) emitted at the unit that have not already been listed. Each HAP added to the list in this step may be simply listed as "HAP". Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each listed air pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives, including those that do not count towards applicability, when calculating actual emissions. At a minimum, round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values. Attach examples of calculations that illustrates the methodology used.

Air Pollutants (including regulated air pollutants and pollutants for which the source is major)	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx	0.0	0.0	0.0	
CO	0.0	0.0	0.0	
VOC	33.1	15.9	69.4	
PM-10	0.0	0.0	0.0	
SOx	0.0	0.0	0.0	
Benzene	4.4	2.4	10.7	71432
Ethylbenzene	0.1	0.1	0.4	100414
Toluene	5.7	3.5	15.5	108883
Xylene	1.5	1.2	5.2	1330207

OMB Control No. 2060-0336

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

FORM EMISS - EMISSIONS CALCULATIONS

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

A. Emissions Unit ID __T-1__- 2006_____

B. Identification and Quantification of Emissions

Instructions: First, list each air pollutant that is either regulated at the unit or present in major amounts. Second, list any other regulated pollutant (for fee calculation) emitted at the unit that have not already been listed. Each HAP added to the list in this step may be simply listed as "HAP". Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each listed air pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives, including those that do not count towards applicability, when calculating actual emissions. At a minimum, round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values. Attach examples of calculations that illustrates the methodology used.

Air Pollutants (including regulated air pollutants and pollutants for which the source is major)	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
NOx	0.0	0.0	0.0	
CO	0.0	0.0	0.0	
VOC	2.2	3.1	13.5	
PM-10	0.0	0.0	0.0	
SOx	0.0	0.0	0.0	
Acetaldehyde	0.0	0.0	0.0	75070
Acrolein	0.0	0.0	0.0	107028
Benzene	0.0	0.0	0.0	71432
Ethylbenzene	0.0	0.0	0.0	100414
Formaldehyde	0.0	0.0	0.0	50000
Toluene	0.0	0.0	0.0	108883
Xylene	0.0	0.0	0.0	1330207

OMB Control No. 2060-0336

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

FORM PTE - POTENTIAL TO EMIT SUMMARY

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

Emissions Unit ID	Regulated Air Pollutants and Pollutants for which the Source is Major						
	NOx (tons/yr)	VOC (tons/yr)	SO2 (tons/yr)	PM10 (tons/yr)	CO (tons/yr)	Lead (tons/yr)	HAP (tons/yr)
C-1	17.6	1.1	0.0	0.0	22.3	0.0	4.3
C-2	10.7	0.9	0.0	0.0	10.2	0.0	2.0
C-3	13.6	2.8	0.0	0.0	17.3	0.0	3.4
D-1	0.0	69.4	0.0	0.0	0.0	0.0	33.2
T-1	0.0	13.5	0.0	0.0	0.0	0.0	0.0
TOTALS	41.9	87.7	0.0	0.0	49.8	0.0	42.8

OMB Control No. 2060-0336

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

FORM FEE - FEE CALCULATION WORKSHEET

INSTRUCTIONS: Use this form to initially or thereafter on a annual basis report actual emissions and calculate fees, consistent with § 71.9.

A. General Information

Instructions: All sources must complete this section.

Type of fee calculation worksheet (Check one):

__X Initial ___ Annual

Deadline for submitting fee calculation worksheet _____/_____/_____

For initial fee calculation worksheets, emissions are based on (Check one):

_ _ Actual emissions for the preceding year

_X_ Estimates of actual emissions for the preceding year - 2006

___ Estimates of actual emissions for the current year

If you checked the last box, provide the date the facility commenced operations _____/_____/_____

B. Source Information

Instructions: Complete this section only if you are not applying for a permit at this time.

Source or facility name _____

Mailing address: Street or P.O. Box _____

City _____ State _____ ZIP _____ - _____

Contact person _____ Title _____

Telephone (_____) _____ - _____ Ext. _____ Part 71 permit no. _____

C. Certification of Truth, Accuracy and Completeness

Instructions: This form must be signed by the responsible official.

I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this fee calculation worksheet (and attachments) are true, accurate and complete.

Name (signed) James D. Abercrombie

Name (typed) James D. Abercrombie Date: 4 / 10 / 07

D. Annual Emissions Report for Fee Calculation Purposes -- Non-HAP

Instructions: Report calendar-year actual emissions of regulated pollutants (for fee calculation) except for HAP, and use for both initial and annual fee calculation purposes. Section E is used to report actual emissions of HAP. Quantify all actual emissions, including fugitives, but do not include insignificant emissions. 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 a subtotal is greater than 4,000 tons, enter 4,000. Submit attachments showing calculations.

This data is for __2006_____ (year).

Emissions Unit ID	Actual Emissions (Tons/Year)					
	NOx	VOC	SO2	PM10	Lead	Other
C-1	17.0	1.0	0.0	0.0	0.0	0.0
C-2	6.3	0.5	0.0	0.0	0.0	0.0
C-3	13.4	2.8	0.0	0.0	0.0	0.0
D-1	0.0	33.1	0.0	0.0	0.0	0.0
T-1	0.0	2.2	0.0	0.0	0.0	0.0
SUBTOTALS	__36.7_____	__39.6_____	___0.0_____	___0.0_____	____0.0____	____0.0____

E. Annual Emissions Report for Fee Calculation Purposes -- HAP

Instructions: Use the first table below to identify each HAP meeting the definition of regulated pollutant (for fee calculation) 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, please use "HAP1" for the first, "HAP2" for the second, and so on.

Name of HAP	CAS No.	Identifier
Acetaldehyde	75070	HAP __1__
Acrolein	107028	HAP __2__
Benzene	71432	HAP __3__
Ethylbenzene	100414	HAP __4__
Formaldehyde	50000	HAP __5__
Toluene	108883	HAP __6__
Xylene	1330207	HAP __7__

Instructions: Now report the actual emissions of each individual HAP identified above. Use the identifiers assigned in the table above to identify each HAP. Include all emissions, including fugitives, but do not include insignificant emissions. Report emissions values to the nearest tenth of a ton. Sum the emissions in each column and show a subtotal at the bottom of the page. If a subtotal is greater than 4,000 tons, enter 4,000. Submit attachments showing calculations.

This data is for __2006____ (year)

Emissions Unit ID	Actual Emissions (Tons/Year)							
	HAP__1_	HAP__2_	HAP__3_	HAP__4_	HAP_5__	HAP__6_	HAP__7_	HAP___
C-1	0.4	0.2	0.2	0.0	3.4	0.0	0.0	
C-2	0.1	0.1	0.1	0.0	0.9	0.0	0.0	
C-3	0.3	0.2	0.1	0.0	2.7	0.0	0.0	
D-1	0.0	0.0	4.4	0.1	0.0	5.7	1.5	
T-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
SUBTOTALS	_0.8____	__0.5___	___4.8__	_0.1____	__7.0___	__5.7	__1.5___	____

F. Fee Calculation Worksheet

Instructions: This section is used to calculate the total fee owed for initial application or annual fee payment purposes. Unless otherwise instructed to proceed to a different line, always proceed to the next line. If you do not need to reconcile estimated against actual emissions, complete the part for emissions calculation (lines 1 - 5) and then proceed to the part for fee calculation (lines 21 - 26). A final permit or permit revision will not be issued until all fees, interest, and penalties assessed against a source are paid. In addition, the initial application for a source will not be found complete unless the source pays all fees owed.

EMISSIONS CALCULATION

1.	Sum the subtotals from section D of this form and enter the result on this line.	76.3
2.	Sum the subtotals from section E of this form and enter the result on this line.	20.4
3.	Total lines 1 and 2 and enter the result on this line.	96.7
4.	Sources are not required to pay fees twice for the same emissions [see § 71.9(c)(5)(ii)]. Enter the amount of emissions that were counted twice. Attach supplementary information identifying the emissions units where double counting has occurred and explain why double counting has occurred. If there has been no double counting enter "0."	20.4
5.	Subtract the amount on line 4 from the amount on line 3, round to the nearest ton, and enter the result on this line.	76

RECONCILIATION OF ESTIMATED EMISSIONS AGAINST ACTUAL EMISSIONS (WHEN INITIAL ESTIMATES WERE BASED ON THE CURRENT CALENDAR YEAR)

Only complete lines 6 - 10 if you are now preparing the first annual fee worksheet and the initial fee worksheet included estimated emissions for the current calendar year. See §§ 71.9(e)(2) and 71.9(h)(3). Otherwise skip this part of the form and proceed to the next part of the form (starting at line 11) or to the fee calculation part of the form (starting at line 21).

6.	Enter the total estimated emissions previously reported on line 5 of the initial fee calculation worksheet. These are estimated emissions for the year that the initial fee worksheet was submitted.	_____
7.	If the amount on line 5 of this form is greater than the amount on line 6, subtract line 6 from line 5, and enter the result on this line. Otherwise enter "0."	_____
8.	If the amount on line 6 is greater than the amount on line 5, subtract line 5 from line 6, and enter the result on this line. Otherwise enter "0."	_____
9.	Multiply the amount on line 7 by (last year's $/ton amount[1]), and enter the result on this line. This is the amount of underpayment. Go to line 21.	$_____.____
10.	Multiply the amount on line 8 by (last year's $/ton amount), and enter the result on this line. This is the amount of overpayment. Go to line 21.	$_____.____

[1] $/ton amounts to be determined at the time of program implementation, see § 71.9(c)(1) - (3).

RECONCILIATION OF ESTIMATED EMISSIONS AGAINST ACTUAL EMISSIONS (WHEN INITIAL ESTIMATES WERE BASED ON THE PRECEDING CALENDAR YEAR)

Only complete lines 11 - 20 if you are now preparing the first annual fee worksheet and the initial fee worksheet included estimated emissions for the preceding calendar year. See §§ 71.9(f)(2) and 71.9(h)(3). If you must complete this part of the form, you must also submit annual emission reports (sections D and E) for the year preceding initial worksheet submittal. Otherwise skip this part of the form and proceed to the fee calculation part of the form (lines 21 through 26).

11.	Sum the subtotals from section D for the calendar year preceding initial fee worksheet submittal and enter the result on this line.	_____.___
12.	Sum the subtotals from section E for the calendar year preceding initial fee worksheet submittal and enter the result on this line.	_____.___
13.	Total lines 11 and 12 and enter the result on this line. This is the total actual emissions for the calendar year preceding initial fee worksheet submittal.	_____.___

RECONCILIATION OF ESTIMATED EMISSIONS AGAINST ACTUAL EMISSIONS (WHEN INITIAL ESTIMATES WERE BASED ON THE PRECEDING CALENDAR YEAR) --- CONTINUED ---

14.	Sources are not required to pay fees twice for the same emissions [see § 71.9(c)(5)(ii)]. Enter the amount of emissions (actual emissions for the year preceding initial worksheet submittal) that were counted twice. Attach supplementary information identifying the emissions units where double counting has occurred and explain why double counting has occurred. If there has been no double counting enter "0."	_____.__
15.	Subtract the amount on line 14 from the amount on line 13, round to the nearest ton, and enter the result on this line.	_____
16.	Enter the total estimated emissions previously reported on line 5 of the initial fee calculation worksheet. These are estimated emissions for the calendar year preceding initial fee worksheet submittal.	_____
17.	If the amount on line 15 is greater than the amount on line 16, subtract line 16 from line 15, and enter the result on this line. Otherwise enter "0."	_____
18.	If the amount on line 16 is greater than the amount on line 15, subtract line 15 from line 16, and enter the result on this line. Otherwise enter "0."	_____
19.	Multiply the amount on line 17 by (last year's $/ton amount[1]) and enter the result on this line. This is the amount of underpayment.	$_____._____
20.	Multiply the amount on line 18 by (last year's $/ton amount) and enter the result on this line. This is the amount of overpayment.	$_____._____

FEE CALCULATION

21.	Multiply the amount on line 5 on this form by (this year's $/ton amount) and enter the result on this line.	$_____3103__._84__
22.	If you have reconciled estimated against actual emissions, enter the underpayment from line 9 or 19 on this line. Otherwise enter "0."	$_____0__._00__
23.	If you have reconciled estimated against actual emissions, enter the overpayment from line 10 or 20 on this line. Otherwise enter "0."	$_____0__._00__
24.	If the amount on line 22 is greater than "0," add this amount to the amount on line 21 and enter the result on this line. If the amount on line 23 is greater than "0," subtract this amount from the amount on line 21 and enter the result on this line. Otherwise enter the amount on line 21 on this line. This is the fee adjusted for reconciliation.	$_____3103_._84__
25.	If your account was credited for fee assessment error [see § 71.9(j)] since the last time you submitted a fee calculation worksheet, enter the amount of the credit on this line. Otherwise enter "0."	$_____0__._00__
26.	Subtract the amount on line 25 from the amount on line 24 and enter the result on this line. Stop here. This is the total fee amount that you must remit to EPA.	$_____3103_._84__

PENALTIES AND INTEREST

Payment received later than the due date shall be assessed interest and, in certain cases, penalty charges. If payment is late, do not calculate penalties and interest at this time. The permitting authority will assess these and mail you an invoice.

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

APPLICATION FORM FF - FEE FILING

Instructions: Complete this form once for the part 71 source (facility) and send it to the appropriate lockbox bank address, along with full payment. This form required at time of initial, and thereafter, annual fee payment.

A. Source or Facility Name ___Dominion Exploration & Production, Inc. - Tap 5_____

B. Mailing Address and Contact Person:

Street or P.O. Box _____16945 Northchase Drive, Suite 1750_____

City _____Houston_____ State __TX__ ZIP __77060_____ - _____

Contact Person: _____Tray Taylor_____ Title _ Director - EHS and Regulatory_____

Telephone (__281____) _873____ - __3615_____ Ext. _____

C. Total Fee Payment Remitted: $ _____3103. 84*____

*Based on 2006 calendar year

ATTACHMENT B

ANNUAL POTENTIAL TO EMIT (PTE) EMISSION SUMMARY - SIGNIFICANT E.U.

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	4.02	17.63	5.10	22.33	0.24	1.06	0.80	3.53	0.99	4.34	0.05	0.22
Caterpillar 3412CLE	2.44	10.68	2.32	10.15	0.20	0.85	0.37	1.60	0.45	1.97	0.02	0.10
Caterpillar 3512TALE	3.11	13.63	3.94	17.26	0.64	2.82	0.62	2.73	0.77	3.36	0.04	0.17
TEG Dehydrator #1	-	-	-	-	15.85	69.42	-	-	7.57	33.18	7.26	31.79
Condensate Tank Emissions	-	-	-	-	0.48	2.09	-	-	-	-	-	-
Tank Flashing Emissions (Cond.)	-	-	-	-	2.62	11.45	-	-	-	-	-	-
Totals	**9.57**	**41.9**	**11.36**	**49.7**	**20.02**	**87.7**	**1.79**	**7.9**	**9.78**	**42.8**	**7.37**	**32.3**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator #1	2.44	10.68	3.54	15.52	0.09	0.41	1.18	5.18
Caterpillar 3516TALE	0.04	0.19	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3412CLE	0.02	0.09	0.00	0.01	0.00	0.00	0.00	0.00
Caterpillar 3512TALE	0.03	0.15	0.00	0.01	0.00	0.00	0.00	0.01
Totals	**2.54**	**11.1**	**3.55**	**15.6**	**0.09**	**0.4**	**1.19**	**5.2**

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

ATTACHMENT B

ANNUAL POTENTIAL TO EMIT (PTE) EMISSION SUMMARY - INSIGNIFICANT E.U.

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehy Glycol Reboiler Heater #1	0.03	0.11	0.02	0.09	0.00	0.01	-	-	-	-	-	-
Separator	0.02	0.08	0.02	0.07	0.00	0.01	-	-	-	-	-	-
Oil Tank Emissions	-	-	-	-	0.13	0.55	-	-	-	-	-	-
Tank Heaters Emissions (Oil, Condensate)	0.09	0.40	0.08	0.34	0.01	0.04	-	-	-	-	-	-
Truck Loading (Oil and Condensate)	-	-	-	-	0.12	0.52	-	-	-	-	-	-
Pump Jack engine (Propane fueled)	0.00	0.01	0.00	0.00	0.00	0.00	-	-	-	-	-	-
Totals	**0.14**	**0.6**	**0.11**	**0.5**	**0.26**	**1.1**	**0.00**	**0.0**	**0.00**	**0.0**	**0.00**	**0.0**

*Engine HAP emissions include Formaldehyde

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

NATURAL GAS FUELED HEATER EMISSIONS

Company: Dominion Exploration
Facility Name: Tap 5
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)
Heater for oil Tank	500	0.8	1095	8760	5.002	100.0	0.27	84.0	0.23
Heater for Condensate tank	250	0.8	1075	8760	2.547	100.0	0.13	84.0	0.11
				TOTALS	7.549		0.400		0.340

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)
Heater for oil Tank	11.0	0.03	0.03	7.6	0.02	7.50E-02	0.0002
Heater for Condensate tank	11.0	0.01	0.01	7.6	0.01	7.50E-02	0.0001
TOTALS		0.040	0.040		0.030		0.000

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

Buys Associates, Inc.
300 East Mineral Ave., Ste 10
Littleton CO 80122
ph. 303-781-8211

Compressor Engine Emissions

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

EMISSION POINTS: Caterpillar 3516TALE

Engine Make/Model	Caterpillar 3516TALE	
Site Horsepower Rating	1217	hp
Fuel Consumption (BSFC)	8240	Btu/(hp-hr)
Heat Rating	10.028	MMBtu/hr
Heating Value	1094.5	Btu/Scf
Fuel usage	80.26	MMScf/yr
Operating Hours	8760	hrs/yr

Pollutant	Emission Factor		Emission Rate (lb/hr)	Emission Rate (tpy)	Emission Factor Reference		
NOx	1.5	g/hp-hr	4.02	17.6	[1]	pre-cat	
CO	1.90	g/hp-hr	5.10	22.33	[1]	pre-cat	
VOC/NMHC	0.09	g/hp-hr	0.24	1.06	[1]	pre-cat	
						AP-42 Emission Factors	
SOx	0.002	g/hp-hr	0.01	0.0	[2]	5.88E-04	lb/MMBtu
PM10	0.000	g/hp-hr	0.00	0.0	[2]	7.71E-05	lb/MMBtu
Hazardous Air Pollutants							
Acetaldehyde	0.0312	g/hp-hr	0.0838	0.3672	[2]	8.36E-03	lb/MMBtu
Acrolein	0.0192	g/hp-hr	0.0515	0.2258	[2]	5.14E-03	lb/MMBtu
Benzene	0.0164	g/hp-hr	0.0441	0.1933	[2]	4.40E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0004	0.0017	[2]	3.97E-05	lb/MMBtu
Formaldehyde	0.3000	g/hp-hr	0.8049	3.5254	[2]	8.03E-02	lb/MMBtu
Toluene	0.0015	g/hp-hr	0.0041	0.0179	[2]	4.08E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0018	0.0081	[2]	1.84E-04	lb/MMBtu
		Total HAPS	0.99	4.34			

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean 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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Compressor Engine Emissions

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

EMISSION POINTS: Caterpillar 3412CLE

Engine Make/Model	Caterpillar 3412CLE	
Site Horsepower Rating	553	hp
Fuel Consumption (BSFC)	8240	Btu/(hp-hr)
Heat Rating	4.557	MMBtu/hr
Heating Value	1094.5	Btu/Scf
Fuel usage	36.47	MMScf/yr
Operating Hours	8760	hrs/yr

Pollutant	Emission Factor		Emission Rate (lb/hr)	Emission Rate (tpy)	Emission Factor Reference		
NOx	2.0	g/hp-hr	2.44	10.7	[1]	pre-cat	
CO	1.90	g/hp-hr	2.32	10.15	[1]	pre-cat	
VOC/NMHC	0.16	g/hp-hr	0.20	0.85	[1]	pre-cat	
						AP-42 Emission Factors	
SOx	0.002	g/hp-hr	0.00	0.0	[2]	5.88E-04	lb/MMBtu
PM10	0.000	g/hp-hr	0.00	0.0	[2]	7.71E-05	lb/MMBtu
Hazardous Air Pollutants							
Acetaldehyde	0.0312	g/hp-hr	0.0381	0.1669	[2]	8.36E-03	lb/MMBtu
Acrolein	0.0192	g/hp-hr	0.0234	0.1026	[2]	5.14E-03	lb/MMBtu
Benzene	0.0164	g/hp-hr	0.0200	0.0878	[2]	4.40E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0002	0.0008	[2]	3.97E-05	lb/MMBtu
Formaldehyde	0.3000	g/hp-hr	0.3657	1.6019	[2]	8.03E-02	lb/MMBtu
Toluene	0.0015	g/hp-hr	0.0019	0.0081	[2]	4.08E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0008	0.0037	[2]	1.84E-04	lb/MMBtu
		Total HAPS	0.45	1.97			

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean 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)

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Compressor Engine Emissions

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

EMISSION POINTS: Caterpillar 3512TALE

Engine Make/Model	Caterpillar 3512TALE	
Site Horsepower Rating	941	hp
Fuel Consumption (BSFC)	8240	Btu/(hp-hr)
Heat Rating	7.754	MMBtu/hr
Heating Value	1094.5	Btu/Scf
Fuel usage	62.06	MMScf/yr
Operating Hours	8760	hrs/yr

Pollutant	Emission Factor		Emission Rate (lb/hr)	Emission Rate (tpy)	Emission Factor Reference		
NOx	1.5	g/hp-hr	3.11	13.6	[1]	pre-cat	
CO	1.90	g/hp-hr	3.94	17.26	[1]	pre-cat	
VOC/NMHC	0.31	g/hp-hr	0.64	2.82	[1]	pre-cat	
						AP-42 Emission Factors	
SOx	0.002	g/hp-hr	0.00	0.0	[2]	5.88E-04	lb/MMBtu
PM10	0.000	g/hp-hr	0.00	0.0	[2]	7.71E-05	lb/MMBtu
Hazardous Air Pollutants							
Acetaldehyde	0.0312	g/hp-hr	0.0648	0.2839	[2]	8.36E-03	lb/MMBtu
Acrolein	0.0192	g/hp-hr	0.0399	0.1746	[2]	5.14E-03	lb/MMBtu
Benzene	0.0164	g/hp-hr	0.0341	0.1494	[2]	4.40E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0003	0.0013	[2]	3.97E-05	lb/MMBtu
Formaldehyde	0.3000	g/hp-hr	0.6224	2.7259	[2]	8.03E-02	lb/MMBtu
Toluene	0.0015	g/hp-hr	0.0032	0.0139	[2]	4.08E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0014	0.0062	[2]	1.84E-04	lb/MMBtu
		Total HAPS	0.77	3.36			

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean 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)

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POTENTIAL UNCONTROLLED EMISSIONS

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Unit: TEG Dehydrator #1
Rating: 11.4 MMscf/day total

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 Dehydrator #1	11.40	69.4190	10.6845	15.5160	0.4091	5.1844	1.3714	0.0109	33.1764	31.7941
TOTAL		**69.4190**	**10.6845**	**15.5160**	**0.4091**	**5.1844**	**1.3714**	**0.0109**	**33.1764**	**31.7941**

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NATURAL GAS FUELED HEATER EMISSIONS

Company: Dominion Exploration
Facility Name: Tap 5
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)
TEG Dehy Glycol Reboiler Heater #1	200	0.8	1075	8760	2.037	100.0	0.11	84.0	0.09
				TOTALS	2.037		0.11		0.09

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)
TEG Dehy Glycol Reboiler Heater #1	11.0	0.01	0.01	7.6	0.01	7.50E-02	0.0001
TOTALS		0.01	0.01		0.01		0.0001

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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NATURAL GAS FUELED HEATER EMISSIONS

Company: Dominion Exploration
Facility Name: Tap 5
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)
Separator	150	0.8	1095	8760	1.501	100.0	0.08	84.0	0.07
				TOTALS	1.501		0.08		0.07

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)
Separator	11.0	0.01	0.01	7.6	0.01	7.50E-02	0.0001
TOTALS		0.01	0.01		0.01		0.0001

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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STOCK TANK STORAGE AND WORKING EMISSIONS

Company: **Dominion Exploration**
Location: **Tap 5**
Uintah County, Utah

TANK DESCRIPTION	WORKING LOSSES (lbs/yr)	BREATHING LOSSES (lbs/yr)	TOTAL LOSSES (lbs/yr)	TOTAL LOSSES (tons/yr)
1 - 300 bbl condensate tank	681.46	3489.34	4170.8	2.0854
1 - 300 bbl oil tank	389.37	710.1	1099.47	0.550
			0	
TOTAL	**1070.83**	**4199.44**	**5270.27**	**2.64**

Tank Emissions Calculated Using EPA Tanks 4.0

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Stock Tank Flashing Emissions

Company: **Dominion Exploration**
Location: **Tap 5**
Uintah County, Utah

	Uncontrolled
TANK	**TOTAL**
DESCRIPTION	**LOSSES**
	(tons/yr)
Total Flashing Emissions (Condensate Tank)	11.454
TOTAL	**11.45**

Calculated Using E&P Tanks

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VOC EMISSIONS FROM CONDENSATE TRUCK LOADING OPERATIONS

Company: **Dominion Exploration**
Location: **Tap 5**
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)
Tank 1	5	1.825	0.6	8.6396	67.46	514	8.4771	0.3249
TOTAL	5	1.825					8.4771	0.3249

$$\text{Loading Losses (lbs/1,000 gal)} = \frac{12.46*S*P*M}{T}$$ (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

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VOC EMISSIONS FROM OIL TRUCK LOADING OPERATIONS

Company: **Dominion Exploration**
Location: **Tap 5**
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)
Tank 2	10	3.65	0.6	3.4307	50	514	2.4949	0.1912
TOTAL	10	3.65					2.4949	0.1912

$$\text{Loading Losses (lbs/1,000 gal)} = \frac{12.46*S*P*M}{T}$$ (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

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Company: **Dominion Exploration**
Location: **Tap 5**
Uintah County, Utah

Propane Usage (gal/yr) = 1,000

Pollutant	Propane Emission Factor ($lb/10^3 gal$)	lbs/hr	tons/yr
Particulate Matter (PM)	0.60	0.000068	0.000300
SO2	0.10	0.000011	0.000050
NOx	19.00	0.002169	0.009500
CO	3.20	0.000365	0.001600
TOC	0.50	0.000057	0.000250
CH4	0.20	0.000023	0.000100

1. Propane emission factors were obtained from AP-42 Tables 1.5-1 (07/98).

Sulfur content = 1 gr/100 ft^3

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EMISSION SUMMARY

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Proposed Facility Engine Emissions (Maximum)

Source	NOx		CO		VOC		Formaldehyde		HAPs*	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	4.024	17.63	5.098	22.33	0.241	1.06	0.805	3.53	0.990	4.34
Caterpillar 3412CLE	2.438	10.68	2.316	10.15	0.195	0.85	0.366	1.60	0.450	1.97
Caterpillar 3512TALE	3.112	13.63	3.942	17.2641	0.643	2.82	0.622	2.73	0.770	3.36
Totals	**6.463**	**28.3**	**7.414**	**32.5**	**0.437**	**4.7**	**1.171**	**5.13**	**1.440**	**6.31**

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2005 ACTUAL EMISSION SUMMARY

(1/1/05 - 12/31/05)

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516LE	4.02	14.50	5.10	18.37	0.24	0.87	0.80	2.90	0.99	3.57	0.04	0.18
Caterpillar 3412CLE	2.44	10.22	2.32	9.71	0.20	0.82	0.37	1.53	0.45	1.89	0.02	0.10
Caterpillar 3512TALE	3.11	4.33	3.94	5.49	0.64	0.90	0.62	0.87	0.77	1.07	0.01	0.05
TEG Dehydrator #1	-	-	-	-	2.98	13.06	-	-	1.18	5.16	1.11	4.86
TEG Dehy Glycol Reboiler Heater #1	0.02	0.07	0.01	0.06	0.00	0.01	-	-	-	-	-	-
Separator	0.02	0.08	0.02	0.07	0.00	0.01	-	-	-	-	-	-
Condensate Tank Emissions	-	-	-	-	0.42	1.82	-	-	-	-	-	-
Oil Tank Emissions	-	-	-	-	0.11	0.46	-	-	-	-	-	-
Tank Heaters Emissions (Oil, Condensate)	0.09	0.40	0.08	0.34	0.01	0.04			-	-	-	-
Tank Flashing Emissions	-	-	-	-	0.52	2.29	-	-	-	-	-	-
Truck Loading (Oil & Condensate)	-	-	-	-	0.04	0.17	-	-	-	-	-	-
Pump Jack engine (Propane fueled)	0.0006	0.0026	0.0001	0.0004	0.0000	0.0001	-	-	-	-	-	-
Totals	**9.70**	**29.6**	**11.46**	**34.0**	**5.16**	**20.5**	**1.79**	**5.3**	**3.39**	**11.7**	**1.18**	**5.2**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator #1	0.41	1.80	0.54	2.36	0.01	0.06	0.15	0.65
Caterpillar 3516LE	0.04	0.16	0.00	0.01	0.00	0.00	0.00	0.01
Caterpillar 3412CLE	0.02	0.08	0.00	0.01	0.00	0.00	0.00	0.00
Caterpillar 3512TALE	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Totals	**0.51**	**2.1**	**0.55**	**2.4**	**0.01**	**0.1**	**0.15**	**0.7**

2005 Operational Information used to calculate Engine, dehydrator, truck loading, and tank emissions
8760 hours used to calculate 2005 tank heater emissions

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EMISSION SUMMARY

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Proposed Facility Engine Emissions (Maximum)

Source	NOx		CO		VOC		Formaldehyde		HAPs*	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516LE	4.024	14.50	5.098	18.37	0.241	0.87	0.805	2.90	0.990	3.57
Caterpillar 3412CLE	2.438	10.22	2.316	9.71	0.195	0.82	0.366	1.53	0.450	1.89
Caterpillar 3512TALE	3.112	4.33	3.942	5.4867	0.643	0.90	0.622	0.87	0.770	1.07
Totals	**6.463**	**24.7**	**7.414**	**28.1**	**0.437**	**2.6**	**1.171**	**4.43**	**1.440**	**5.46**

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NATURAL GAS FUELED HEATER EMISSIONS

Company: Dominion Exploration
Facility Name: Tap 5
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)
Heater for oil Tank	500	0.8	1095	8760	5.002	100.0	0.27	84.0	0.23
Heater for Condensate tank	250	0.8	1075	8760	2.547	100.0	0.13	84.0	0.11
				TOTALS	**7.549**		**0.400**		**0.340**

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)
Heater for oil Tank	11.0	0.03	0.03	7.6	0.02	7.50E-02	0.0002
Heater for Condensate tank	11.0	0.01	0.01	7.6	0.01	7.50E-02	0.0001
TOTALS		**0.040**	**0.040**		**0.030**		**0.000**

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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Compressor Engine Emissions

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

EMISSION POINTS: Caterpillar 3516LE

Engine Make/Model	Caterpillar 3516LE	
Site Horsepower Rating	1217	hp
Fuel Consumption (BSFC)	8240	Btu/(hp-hr)
Heat Rating	10.028	MMBtu/hr
Heating Value	1094.5	Btu/Scf
Fuel usage	66.03	MMScf/yr
Operating Hours	7207	hrs/yr

Pollutant	Emission Factor		Emission Rate (lb/hr)	Emission Rate (tpy)	Emission Factor Reference		
NOx	1.5	g/hp-hr	4.02	14.5	[1]	pre-cat	
CO	1.90	g/hp-hr	5.10	18.37	[1]	pre-cat	
VOC/NMHC	0.09	g/hp-hr	0.24	0.87	[1]	pre-cat	
						AP-42 Emission Factors	
SOx	0.002	g/hp-hr	0.01	0.0	[2]	5.88E-04	lb/MMBtu
PM10	0.000	g/hp-hr	0.00	0.0	[2]	7.71E-05	lb/MMBtu
Hazardous Air Pollutants							
Acetaldehyde	0.0312	g/hp-hr	0.0838	0.3021	[2]	8.36E-03	lb/MMBtu
Acrolein	0.0192	g/hp-hr	0.0515	0.1857	[2]	5.14E-03	lb/MMBtu
Benzene	0.0164	g/hp-hr	0.0441	0.1590	[2]	4.40E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0004	0.0014	[2]	3.97E-05	lb/MMBtu
Formaldehyde	0.3000	g/hp-hr	0.8049	2.9004	[2]	8.03E-02	lb/MMBtu
Toluene	0.0015	g/hp-hr	0.0041	0.0147	[2]	4.08E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0018	0.0066	[2]	1.84E-04	lb/MMBtu
		Total HAPS	0.99	3.57			

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean 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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Compressor Engine Emissions

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

EMISSION POINTS: Caterpillar 3412CLE

Engine Make/Model	Caterpillar 3412CLE	
Site Horsepower Rating	553	hp
Fuel Consumption (BSFC)	8240	Btu/(hp-hr)
Heat Rating	4.557	MMBtu/hr
Heating Value	1094.5	Btu/Scf
Fuel usage	34.90	MMScf/yr
Operating Hours	8382	hrs/yr

Pollutant	Emission Factor		Emission Rate (lb/hr)	Emission Rate (tpy)	Emission Factor Reference			
NOx	2.0	g/hp-hr	2.44	10.2	[1]	pre-cat		
CO	1.90	g/hp-hr	2.32	9.71	[1]	pre-cat		
VOC/NMHC	0.16	g/hp-hr	0.20	0.82	[1]	pre-cat		
							AP-42 Emission Factors	
SOx	0.002	g/hp-hr	0.00	0.0	[2]		5.88E-04	lb/MMBtu
PM10	0.000	g/hp-hr	0.00	0.0	[2]		7.71E-05	lb/MMBtu
Hazardous Air Pollutants								
Acetaldehyde	0.0312	g/hp-hr	0.0381	0.160	[2]		8.36E-03	lb/MMBtu
Acrolein	0.0192	g/hp-hr	0.0234	0.098	[2]		5.14E-03	lb/MMBtu
Benzene	0.0164	g/hp-hr	0.0200	0.084	[2]		4.40E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0002	0.001	[2]		3.97E-05	lb/MMBtu
Formaldehyde	0.3000	g/hp-hr	0.3657	1.533	[2]		8.03E-02	lb/MMBtu
Toluene	0.0015	g/hp-hr	0.0019	0.008	[2]		4.08E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0008	0.004	[2]		1.84E-04	lb/MMBtu
		Total HAPS	0.45	1.89				

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean 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)

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Compressor Engine Emissions

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

EMISSION POINTS: Caterpillar 3512TALE

Engine Make/Model	Caterpillar 3512TALE	
Site Horsepower Rating	941	hp
Fuel Consumption (BSFC)	8240	Btu/(hp-hr)
Heat Rating	7.754	MMBtu/hr
Heating Value	1094.5	Btu/Scf
Fuel usage	19.72	MMScf/yr
Operating Hours	2784	hrs/yr

Pollutant	Emission Factor		Emission Rate (lb/hr)	Emission Rate (tpy)	Emission Factor Reference		
NOx	1.5	g/hp-hr	3.11	4.3	[1]	pre-cat	
CO	1.90	g/hp-hr	3.94	5.49	[1]	pre-cat	
VOC/NMHC	0.31	g/hp-hr	0.64	0.90	[1]	pre-cat	
						AP-42 Emission Factors	
SOx	0.002	g/hp-hr	0.00	0.0	[2]	5.88E-04	lb/MMBtu
PM10	0.000	g/hp-hr	0.00	0.0	[2]	7.71E-05	lb/MMBtu
Hazardous Air Pollutants							
Acetaldehyde	0.0312	g/hp-hr	0.0648	0.0902	[2]	8.36E-03	lb/MMBtu
Acrolein	0.0192	g/hp-hr	0.0399	0.0555	[2]	5.14E-03	lb/MMBtu
Benzene	0.0164	g/hp-hr	0.0341	0.0475	[2]	4.40E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0003	0.0004	[2]	3.97E-05	lb/MMBtu
Formaldehyde	0.3000	g/hp-hr	0.6224	0.8663	[2]	8.03E-02	lb/MMBtu
Toluene	0.0015	g/hp-hr	0.0032	0.0044	[2]	4.08E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0014	0.0020	[2]	1.84E-04	lb/MMBtu
		Total HAPS	0.77	1.07			

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean 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)

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POTENTIAL UNCONTROLLED EMISSIONS

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Unit: TEG Dehydrator #1
Rating: 4.03 MMscf/day total

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 Dehydrator #1	4.03	13.064	1.7960	2.3590	0.0570	0.6460	0.302	0.002	5.162	4.858
TOTAL		**13.0640**	**1.7960**	**2.3590**	**0.0570**	**0.6460**	**0.3020**	**0.0020**	**5.1620**	**4.8580**

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NATURAL GAS FUELED HEATER EMISSIONS

Company: Dominion Exploration
Facility Name: Tap 5
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)
TEG Dehy Glycol Reboiler Heater #1	200	0.8	1095	5472	1.250	100.0	0.07	84.0	0.06
				TOTALS	1.250		0.07		0.06

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)
TEG Dehy Glycol Reboiler Heater #1	11.0	0.01	0.01	7.6	0.01	7.50E-02	0.0001
TOTALS		0.01	0.01		0.01		0.0001

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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NATURAL GAS FUELED HEATER EMISSIONS

Company: Dominion Exploration
Facility Name: Tap 5
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)
Separator	150	0.8	1095	8760	1.501	100.0	0.08	84.0	0.07
				TOTALS	1.501		0.08		0.07

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)
Separator	11.0	0.01	0.01	7.6	0.01	7.50E-02	0.0001
TOTALS		0.01	0.01		0.01		0.0001

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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STOCK TANK STORAGE AND WORKING EMISSIONS

Company: **Dominion Exploration**
Location: **Tap 5**
Uintah County, Utah

TANK DESCRIPTION	WORKING LOSSES (lbs/yr)	BREATHING LOSSES (lbs/yr)	TOTAL LOSSES (lbs/yr)	TOTAL LOSSES (tons/yr)
1 - 300 bbl condensate tank	148.99	3489.34	3638.33	1.819165
1 - 300-bbl oil tank	218.05	710.1	928.15	0.464
TOTAL	**367.04**	**4199.44**	**4566.48**	**2.28**

Tank Emissions Calculated Using EPA Tanks 4.0

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VOC EMISSIONS FROM CONDENSATE TRUCK LOADING OPERATIONS

Company: **Dominion Exploration**
Location: **Tap 5**
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)
Tank 1	1	0.365	0.6	8.6396	67.46	514	8.4771	0.0650
				8.6396	67.46	514	0.0000	0.0000
TOTAL	1	0.365					8.4771	0.0650

$$\text{Loading Losses (lbs/1,000 gal)} = \frac{12.46*S*P*M}{T}$$ (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

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VOC EMISSIONS FROM OIL TRUCK LOADING OPERATIONS

Company: **Dominion Exploration**
Location: **Tap 5**
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)
Tank 2	5.6	2.044	0.6	3.4307	50	514	2.4949	0.1071
				3.4307	50	514	0.0000	0.0000
TOTAL	5.6	2.044					2.4949	0.1071

$$\text{Loading Losses (lbs/1,000 gal)} = \frac{12.46*S*P*M}{T}$$ (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

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Stock Tank Flashing Emissions

Company: **Dominion Exploration**
Location: **Tap 5**
Uintah County, Utah

	Uncontrolled
TANK	**TOTAL**
DESCRIPTION	**LOSSES**
	(tons/yr)
Total Flashing Emissions (Condensate Tank)	2.291
TOTAL	**2.29**

Calculated Using E&P Tanks

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Company: **Dominion Exploration**
Location: **Tap 5**
Uintah County, Utah

Propane Usage (gal/yr) = 270

Pollutant	Propane Emission Factor ($lb/10^3 gal$)	lbs/hr	tons/yr
Particulate Matter (PM)	0.60	0.000018	0.000081
SO2	0.10	0.000003	0.000014
NOx	19.00	0.000586	0.002565
CO	3.20	0.000099	0.000432
TOC	0.50	0.000015	0.000068
CH4	0.20	0.000006	0.000027

1. Propane emission factors were obtained from AP-42 Tables 1.5-1 (07/98).

Sulfur content = 1 gr/100 ft^3

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Dominion Exploration
Tap 5
Uintah County, Utah

Part 71 Emissions Fee Rate (per ton)	2005 Chargeable Emissions	Total Emissions Fee
$40.84	49	$2,001.16
TOTAL		**$2,001.16**

2006 ACTUAL EMISSION SUMMARY

(1/1/06 - 12/31/06)

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Source	NOx		CO		VOC		Formaldehyde		HAPs*		BTEX	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	4.02	17.04	5.10	21.58	0.24	1.02	0.80	3.41	0.99	4.19	0.05	0.21
Caterpillar 3412CLE	2.44	6.33	2.32	6.01	0.20	0.51	0.37	0.95	0.45	1.17	0.01	0.06
Caterpillar 3512TALE	3.11	13.43	3.94	17.01	0.64	2.78	0.62	2.69	0.77	3.31	0.04	0.17
TEG Dehydrator #1	-	-	-	-	7.57	33.14	-	-	2.86	12.51	2.67	11.71
TEG Dehy Glycol Reboiler Heater #1	0.02	0.07	0.01	0.06	0.00	0.01	-	-	-	-	-	-
Separator	0.02	0.08	0.02	0.07	0.00	0.01	-	-	-	-	-	-
Condensate Tank Emissions	-	-	-	-	0.40	1.76	-	-	-	-	-	-
Oil Tank Emissions	-	-	-	-	0.09	0.41	-	-	-	-	-	-
Tank Heaters Emissions (Oil, Condensate)	0.09	0.40	0.08	0.34	0.01	0.04			-	-	-	-
Tank Flashing Emissions	-	-	-	-	0.10	0.46	-	-	-	-	-	-
Truck Loading (Oil & Condensate)	-	-	-	-	0.02	0.07	-	-	-	-	-	-
Pump Jack engine (Propane fueled)	0.0004	0.0019	0.0001	0.0003	0.0000	0.0001	-	-	-	-	-	-
Totals	**9.70**	**37.3**	**11.46**	**45.1**	**9.28**	**40.2**	**1.79**	**7.0**	**5.07**	**21.2**	**2.77**	**12.2**

*Engine HAP emissions include Formaldehyde

Source	Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
TEG Dehydrator #1	1.01	4.41	1.29	5.67	0.03	0.13	0.34	1.50
Caterpillar 3516TALE	0.04	0.19	0.00	0.02	0.00	0.00	0.00	0.01
Caterpillar 3412CLE	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Caterpillar 3512TALE	0.03	0.15	0.00	0.01	0.00	0.00	0.00	0.01
Totals	**1.10**	**4.8**	**1.30**	**5.7**	**0.03**	**0.1**	**0.35**	**1.5**

2006 Operational Information used to calculate Engine, dehydrator, truck loading, and tank emissions
8760 hours used to calculate 2006 tank heater emissions

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EMISSION SUMMARY

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Proposed Facility Engine Emissions (Maximum)

Source	NOx		CO		VOC		Formaldehyde		HAPs*	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Caterpillar 3516TALE	4.024	17.04	5.098	21.58	0.241	1.02	0.805	3.41	0.990	4.19
Caterpillar 3412CLE	2.438	6.33	2.316	6.01	0.195	0.51	0.366	0.95	0.450	1.17
Caterpillar 3512TALE	3.112	13.43	3.942	17.0119	0.643	2.78	0.622	2.69	0.770	3.31
Totals	**6.463**	**23.4**	**7.414**	**27.6**	**0.437**	**4.3**	**1.171**	**4.36**	**1.440**	**5.36**

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NATURAL GAS FUELED HEATER EMISSIONS

Company: Dominion Exploration
Facility Name: Tap 5
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)
Heater for oil Tank	500	0.8	1095	8760	5.002	100.0	0.27	84.0	0.23
Heater for Condensate tank	250	0.8	1075	8760	2.547	100.0	0.13	84.0	0.11
				TOTALS	7.549		0.400		0.340

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)
Heater for oil Tank	11.0	0.03	0.03	7.6	0.02	7.50E-02	0.0002
Heater for Condensate tank	11.0	0.01	0.01	7.6	0.01	7.50E-02	0.0001
TOTALS		0.040	0.040		0.030		0.000

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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ph. 303-781-8211

Compressor Engine Emissions

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

EMISSION POINTS: Caterpillar 3516TALE

Engine Make/Model	Caterpillar 3516TALE	
Site Horsepower Rating	1217	hp
Fuel Consumption (BSFC)	8240	Btu/(hp-hr)
Heat Rating	10.028	MMBtu/hr
Heating Value	1094.5	Btu/Scf
Fuel usage	77.57	MMScf/yr
Operating Hours	8466.5	hrs/yr

Pollutant	Emission Factor		Emission Rate (lb/hr)	Emission Rate (tpy)	Emission Factor Reference		
NOx	1.5	g/hp-hr	4.02	17.0	[1]	pre-cat	
CO	1.90	g/hp-hr	5.10	21.58	[1]	pre-cat	
VOC/NMHC	0.09	g/hp-hr	0.24	1.02	[1]	pre-cat	
						AP-42 Emission Factors	
SOx	0.002	g/hp-hr	0.01	0.0	[2]	5.88E-04	lb/MMBtu
PM10	0.000	g/hp-hr	0.00	0.0	[2]	7.71E-05	lb/MMBtu
Hazardous Air Pollutants							
Acetaldehyde	0.0312	g/hp-hr	0.0838	0.3549	[2]	8.36E-03	lb/MMBtu
Acrolein	0.0192	g/hp-hr	0.0515	0.2182	[2]	5.14E-03	lb/MMBtu
Benzene	0.0164	g/hp-hr	0.0441	0.1868	[2]	4.40E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0004	0.0017	[2]	3.97E-05	lb/MMBtu
Formaldehyde	0.3000	g/hp-hr	0.8049	3.4073	[2]	8.03E-02	lb/MMBtu
Toluene	0.0015	g/hp-hr	0.0041	0.0173	[2]	4.08E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0018	0.0078	[2]	1.84E-04	lb/MMBtu
		Total HAPS	0.99	4.19			

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean 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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Compressor Engine Emissions

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

EMISSION POINTS: Caterpillar 3412CLE

Engine Make/Model	Caterpillar 3412CLE	
Site Horsepower Rating	553	hp
Fuel Consumption (BSFC)	8240	Btu/(hp-hr)
Heat Rating	4.557	MMBtu/hr
Heating Value	1094.5	Btu/Scf
Fuel usage	21.62	MMScf/yr
Operating Hours	5192	hrs/yr

Pollutant	Emission Factor		Emission Rate (lb/hr)	Emission Rate (tpy)	Emission Factor Reference		
NOx	2.0	g/hp-hr	2.44	6.3	[1]	pre-cat	
CO	1.90	g/hp-hr	2.32	6.01	[1]	pre-cat	
VOC/NMHC	0.16	g/hp-hr	0.20	0.51	[1]	pre-cat	
						AP-42 Emission Factors	
SOx	0.002	g/hp-hr	0.00	0.0	[2]	5.88E-04	lb/MMBtu
PM10	0.000	g/hp-hr	0.00	0.0	[2]	7.71E-05	lb/MMBtu
Hazardous Air Pollutants							
Acetaldehyde	0.0312	g/hp-hr	0.0381	0.099	[2]	8.36E-03	lb/MMBtu
Acrolein	0.0192	g/hp-hr	0.0234	0.061	[2]	5.14E-03	lb/MMBtu
Benzene	0.0164	g/hp-hr	0.0200	0.052	[2]	4.40E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0002	0.000	[2]	3.97E-05	lb/MMBtu
Formaldehyde	0.3000	g/hp-hr	0.3657	0.949	[2]	8.03E-02	lb/MMBtu
Toluene	0.0015	g/hp-hr	0.0019	0.005	[2]	4.08E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0008	0.002	[2]	1.84E-04	lb/MMBtu
		Total HAPS	0.45	1.17			

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean 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)

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Compressor Engine Emissions

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

EMISSION POINTS: Caterpillar 3512TALE

Engine Make/Model	Caterpillar 3512TALE	
Site Horsepower Rating	941	hp
Fuel Consumption (BSFC)	8240	Btu/(hp-hr)
Heat Rating	7.754	MMBtu/hr
Heating Value	1094.5	Btu/Scf
Fuel usage	61.15	MMScf/yr
Operating Hours	8632	hrs/yr

Pollutant	Emission Factor		Emission Rate (lb/hr)	Emission Rate (tpy)	Emission Factor Reference		
NOx	1.5	g/hp-hr	3.11	13.4	[1]	pre-cat	
CO	1.90	g/hp-hr	3.94	17.01	[1]	pre-cat	
VOC/NMHC	0.31	g/hp-hr	0.64	2.78	[1]	pre-cat	
						AP-42 Emission Factors	
SOx	0.002	g/hp-hr	0.00	0.0	[2]	5.88E-04	lb/MMBtu
PM10	0.000	g/hp-hr	0.00	0.0	[2]	7.71E-05	lb/MMBtu
Hazardous Air Pollutants							
Acetaldehyde	0.0312	g/hp-hr	0.0648	0.2798	[2]	8.36E-03	lb/MMBtu
Acrolein	0.0192	g/hp-hr	0.0399	0.1720	[2]	5.14E-03	lb/MMBtu
Benzene	0.0164	g/hp-hr	0.0341	0.1472	[2]	4.40E-03	lb/MMBtu
Ethylbenzene	0.0001	g/hp-hr	0.0003	0.0013	[2]	3.97E-05	lb/MMBtu
Formaldehyde	0.3000	g/hp-hr	0.6224	2.6861	[2]	8.03E-02	lb/MMBtu
Toluene	0.0015	g/hp-hr	0.0032	0.0137	[2]	4.08E-04	lb/MMBtu
Xylene	0.0007	g/hp-hr	0.0014	0.0062	[2]	1.84E-04	lb/MMBtu
		Total HAPS	0.77	3.31			

[1] Emission Factors provided by Manufacturer
[2] AP-42 Table 3.2-2 for stationary IC sources; July 2000, 4-stroke lean 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)

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POTENTIAL UNCONTROLLED EMISSIONS

Company: Dominion Exploration
Facility Name: Tap 5
Facility Location: Uintah County, Utah

Unit: TEG Dehydrator #1
Rating: 3.371 MMscf/day total

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 Dehydrator #1	3.37	33.144	4.4074	5.6666	0.1346	1.5040	0.7918	0.0063	12.5107	11.7126
TOTAL		**33.1440**	**4.4074**	**5.6666**	**0.1346**	**1.5040**	**0.7918**	**0.0063**	**12.5107**	**11.7126**

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NATURAL GAS FUELED HEATER EMISSIONS

Company: Dominion Exploration
Facility Name: Tap 5
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)
TEG Dehy Glycol Reboiler Heater #1	200	0.8	1095	5472	1.250	100.0	0.07	84.0	0.06
				TOTALS	**1.250**		**0.07**		**0.06**

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)
TEG Dehy Glycol Reboiler Heater #1	11.0	0.01	0.01	7.6	0.01	7.50E-02	0.0001
	TOTALS	**0.01**	**0.01**		**0.01**		**0.0001**

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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NATURAL GAS FUELED HEATER EMISSIONS

Company: Dominion Exploration
Facility Name: Tap 5
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)
Separator	150	0.8	1095	8760	1.501	100.0	0.08	84.0	0.07
				TOTALS	1.501		0.08		0.07

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)
Separator	11.0	0.01	0.01	7.6	0.01	7.50E-02	0.0001
TOTALS		0.01	0.01		0.01		0.0001

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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STOCK TANK STORAGE AND WORKING EMISSIONS

Company: **Dominion Exploration**
Location: **Tap 5**
Uintah County, Utah

TANK DESCRIPTION	WORKING LOSSES (lbs/yr)	BREATHING LOSSES (lbs/yr)	TOTAL LOSSES (lbs/yr)	TOTAL LOSSES (tons/yr)
1 - 300 bbl condensate tank	31.85	3489.34	3521.19	1.760595
1 - 300-bbl oil tank	115.1	710.1	825.2	0.413
TOTAL	**146.95**	**4199.44**	**4346.39**	**2.17**

Tank Emissions Calculated Using EPA Tanks 4.0

Buys Associates, Inc.
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VOC EMISSIONS FROM CONDENSATE TRUCK LOADING OPERATIONS

Company: **Dominion Exploration**
Location: **Tap 5**
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)
Tank 1	0.234	0.08541	0.6	8.6396	67.46	514	8.4771	0.0152
				8.6396	67.46	514	0.0000	0.0000
TOTAL	0.234	0.08541					8.4771	0.0152

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

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Stock Tank Flashing Emissions

Company: **Dominion Exploration**
Location: **Tap 5**
Uintah County, Utah

TANK DESCRIPTION	Uncontrolled TOTAL LOSSES (tons/yr)
Total Flashing Emissions (Condensate Tank)	0.458
TOTAL	**0.46**

Calculated Using E&P Tanks

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VOC EMISSIONS FROM OIL TRUCK LOADING OPERATIONS

Company: **Dominion Exploration**
Location: **Tap 5**
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)
Tank 2	2.956	1.07894	0.6	3.4307	50	514	2.4949	0.0565
				3.4307	50	514	0.0000	0.0000
TOTAL	2.956	1.07894					2.4949	0.0565

$$\text{Loading Losses (lbs/1,000 gal)} = \frac{12.46*S*P*M}{T}$$ (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

Buys Associates, Inc.
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ph. 303-781-8211

Company: **Dominion Exploration**
Location: **Tap 5**
Uintah County, Utah

Propane Usage (gal/yr) = 203

Pollutant	Propane Emission Factor ($lb/10^3 gal$)	lbs/hr	tons/yr
Particulate Matter (PM)	0.60	0.000014	0.000061
SO2	0.10	0.000002	0.000010
NOx	19.00	0.000440	0.001929
CO	3.20	0.000074	0.000325
TOC	0.50	0.000012	0.000051
CH4	0.20	0.000005	0.000020

1. Propane emission factors were obtained from AP-42 Tables 1.5-1 (07/98).

Sulfur content = 1 gr/100 ft^3

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Dominion Exploration
Tap 5
Uintah County, Utah

Part 71 Emissions Fee Rate (per ton)	2006 Chargeable Emissions	Total Emissions Fee
$40.84	76	$3,103.84
TOTAL		**$3,103.84**

```
*****************************************************************************************
*     Project Setup Information                                                         *
*****************************************************************************************
Project File                : \\Desktop34\data\Clients\Dominion\Tap 5\Title V\Condensate flash from 300 bbl
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                  : Dominion
Well Name                   : Tap 5
Well ID                     : PTE
Permit Number               : Compressor condensate
Date                        : 2007.03.16


*****************************************************************************************
*     Data Input                                                                        *
*****************************************************************************************

Separator Pressure          : 810.00[psig]
Separator Temperature       : 95.00[F]
Ambient Pressure            : 12.64[psia]
Ambient Temperature         : 51.96[F]
C10+ SG                     : 0.7442
C10+ MW                     : 158.447

-- Low Pressure Oil ----------------------------------------------------------------------
```

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.5185
4	N2	0.0084
5	C1	20.0804
6	C2	6.0183
7	C3	4.6153
8	i-C4	1.9782
9	n-C4	2.7527
10	i-C5	2.6198
11	n-C5	2.1621
12	C6	3.0447
13	C7	16.7459
14	C8	7.4847
15	C9	5.8056
16	C10+	7.6235
17	Benzene	1.0666
18	Toluene	4.6506
19	E-Benzene	0.0160
20	Xylenes	9.9732
21	n-C6	2.3892
22	224Trimethylp	0.4463

```
-- Sales Oil -----------------------------------------------------------------------------
Production Rate             : 5[bbl/day]
Days of Annual Operation    : 365 [days/year]
API Gravity                 : 50.0
Reid Vapor Pressure         : 8.146[psia]


*****************************************************************************************
*     Calculation Results                                                               *
*****************************************************************************************

-- Emission Summary ----------------------------------------------------------------------
Item                  Uncontrolled   Uncontrolled
```

	[ton/yr]	[lb/hr]
Total HAPs	0.380	0.087
Total HC	28.637	6.538
VOCs, C2+	17.539	4.004
VOCs, C3+	11.454	2.615

Uncontrolled Recovery Info.

Vapor	2.3300	[MSCFD]
HC Vapor	2.3000	[MSCFD]
GOR	466.00	[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	0.785	0.179
4	N2	0.008	0.002
5	C1	11.099	2.534
6	C2	6.085	1.389
7	C3	5.059	1.155
8	i-C4	1.745	0.398
9	n-C4	1.846	0.421
10	i-C5	0.938	0.214
11	n-C5	0.553	0.126
12	C6	0.301	0.069
13	C7	0.542	0.124
14	C8	0.073	0.017
15	C9	0.018	0.004
16	C10+	0.003	0.001
17	Benzene	0.063	0.014
18	Toluene	0.075	0.017
19	E-Benzene	0.000	0.000
20	Xylenes	0.043	0.010
21	n-C6	0.180	0.041
22	224Trimethylp	0.014	0.003
	Total	29.430	6.719

-- 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	0.5185	0.0318	0.0007	1.5632	2.5392	1.5882
4	N2	28.01	0.0084	0.0000	0.0000	0.0264	0.0027	0.0258
5	C1	16.04	20.0804	0.3508	0.0001	62.4311	28.6372	61.5653
6	C2	30.07	6.0183	0.7816	0.2154	17.2593	46.4439	18.0069
7	C3	44.10	4.6153	2.0447	1.9074	10.1333	13.1165	10.2097
8	i-C4	58.12	1.9782	1.6578	1.6424	2.6660	2.9029	2.6720
9	n-C4	58.12	2.7527	2.7208	2.7169	2.8212	3.0297	2.8266
10	i-C5	72.15	2.6198	3.3024	3.3281	1.1547	1.2287	1.1566
11	n-C5	72.15	2.1621	2.8522	2.8786	0.6807	0.7261	0.6818
12	C6	86.16	3.0447	4.3149	4.3641	0.3182	0.3420	0.3188
13	C7	100.20	16.7459	24.3159	24.6107	0.4964	0.5398	0.4975
14	C8	114.23	7.4847	10.9444	11.0793	0.0583	0.0642	0.0584
15	C9	128.28	5.8056	8.5041	8.6094	0.0130	0.0157	0.0131
16	C10+	158.45	7.6235	11.1741	11.3126	0.0019	0.0022	0.0019
17	Benzene	78.11	1.0666	1.5300	1.5480	0.0720	0.0779	0.0721
18	Toluene	92.13	4.6506	6.7834	6.8665	0.0725	0.0796	0.0727
19	E-Benzene	106.17	0.0160	0.0234	0.0237	0.0001	0.0001	0.0001
20	Xylenes	106.17	9.9732	14.6025	14.7831	0.0362	0.0403	0.0363
21	n-C6	86.18	2.3892	3.4161	3.4559	0.1850	0.1995	0.1854
22	224Trimethylp	114.24	0.4463	0.6492	0.6571	0.0107	0.0116	0.0107
	MW		78.08	102.33	103.20	26.05	31.59	26.19
	Stream Mole Ratio		1.0000	0.6822	0.6738	0.3178	0.0084	0.3262
	Heating Value	[BTU/SCF]				1506.88	1782.02	1513.93
	Gas Gravity	[Gas/Air]				0.90	1.09	0.90

Bubble Pt. @ 100F	[psia]	754.72	24.54	9.78
RVP @ 100F	[psia]	167.26	12.33	8.23
Spec. Gravity @ 100F		0.647	0.694	0.695

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

Identification

User Identification:	Dominion Oil Tank
City:	Roosevelt
State:	Utah
Company:	Dominion E & P
Type of Tank:	Vertical Fixed Roof Tank
Description:	300-bbl oil tank Tap 5 PTE

Tank Dimensions

Shell Height (ft):		15.00
Diameter (ft):		12.00
Liquid Height (ft) :		14.50
Avg. Liquid Height (ft):		8.00
Volume (gallons):		11,172.00
Turnovers:		14.00
Net Throughput(gal/yr):		153,300.00
Is Tank Heated (y/n):	N	

Paint Characteristics

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

Roof Characteristics

Type:	Dome	
Height (ft)		3.00
Radius (ft) (Dome Roof)		12.00

Breather Vent Settings

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

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

Dominion Oil Tank - Vertical Fixed Roof Tank
Roosevelt, 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	59.41	49.72	69.11	54.20	2.8447	2.3420	3.4307	50.0000			207.00	Option 4: RVP=5

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

Dominion Oil Tank - Vertical Fixed Roof Tank
Roosevelt, Utah

Annual Emission Calcaulations

Standing Losses (lb):	710.1004
Vapor Space Volume (cu ft):	975.4645
Vapor Density (lb/cu ft):	0.0255
Vapor Space Expansion Factor:	0.1797
Vented Vapor Saturation Factor:	0.4347
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	975.4645
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	8.6250
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	1.6250
Roof Outage (Dome Roof)	
Roof Outage (ft):	1.6250
Dome Radius (ft):	12.0000
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0255
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.8447
Daily Avg. Liquid Surface Temp. (deg. R):	519.0816
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):	513.8725
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:	0.1797
Daily Vapor Temperature Range (deg. R):	38.7740
Daily Vapor Pressure Range (psia):	1.0887
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.8447
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.3420
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	3.4307
Daily Avg. Liquid Surface Temp. (deg R):	519.0816
Daily Min. Liquid Surface Temp. (deg R):	509.3881
Daily Max. Liquid Surface Temp. (deg R):	528.7751
Daily Ambient Temp. Range (deg. R):	23.3583
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.4347
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.8447
Vapor Space Outage (ft):	8.6250

Working Losses (lb):	389.3666
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.8447
Annual Net Throughput (gal/yr.):	153,300.0000
Annual Turnovers:	14.0000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	11,172.0000
Maximum Liquid Height (ft):	14.5000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	0.7500
Total Losses (lb):	1,099.4670

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

Emissions Report for: Annual

Dominion Oil Tank - Vertical Fixed Roof Tank
Roosevelt, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	389.37	710.10	1,099.47

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

Identification

User Identification:	Dominion Condensate Tank
City:	Roosevelt
State:	Utah
Company:	Dominion
Type of Tank:	Vertical Fixed Roof Tank
Description:	Dominion Exploration and Production, Inc. 300 bbl condensate tank Tap 5 PTE

Tank Dimensions

Shell Height (ft):		15.00
Diameter (ft):		12.00
Liquid Height (ft) :		14.50
Avg. Liquid Height (ft):		8.00
Volume (gallons):		11,172.00
Turnovers:		7.00
Net Throughput(gal/yr):		76,650.00
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)		3.00
Slope (ft/ft) (Cone Roof)		0.50

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

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

Dominion Condensate Tank - Vertical Fixed Roof Tank
Roosevelt, 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
Condensate (RVP 10)	All	59.41	49.72	69.11	54.20	7.3802	6.2668	8.6396	67.4600			90.00	Option 4: RVP=10

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

Dominion Condensate Tank - Vertical Fixed Roof Tank
Roosevelt, Utah

Annual Emission Calcaulations

Standing Losses (lb):	3,489.3427
Vapor Space Volume (cu ft):	904.7787
Vapor Density (lb/cu ft):	0.0894
Vapor Space Expansion Factor:	0.4881
Vented Vapor Saturation Factor:	0.2422
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	904.7787
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	8.0000
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	1.0000
Roof Outage (Cone Roof)	
Roof Outage (ft):	1.0000
Roof Height (ft):	3.0000
Roof Slope (ft/ft):	0.5000
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0894
Vapor Molecular Weight (lb/lb-mole):	67.4600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.3802
Daily Avg. Liquid Surface Temp. (deg. R):	519.0816
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):	513.8725
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:	0.4881
Daily Vapor Temperature Range (deg. R):	19.3870
Daily Vapor Pressure Range (psia):	2.3728
Breather Vent Press. Setting Range(psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.3802
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	6.2668
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	8.6396
Daily Avg. Liquid Surface Temp. (deg R):	519.0816
Daily Min. Liquid Surface Temp. (deg R):	509.3881
Daily Max. Liquid Surface Temp. (deg R):	528.7751
Daily Ambient Temp. Range (deg. R):	23.3583
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.2422
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.3802

Vapor Space Outage (ft):	8.0000
Working Losses (lb):	681.4614
Vapor Molecular Weight (lb/lb-mole):	67.4600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.3802
Annual Net Throughput (gal/yr.):	76,650.0000
Annual Turnovers:	7.0000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	11,172.0000
Maximum Liquid Height (ft):	14.5000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	0.7500
Total Losses (lb):	4,170.8041

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

Emissions Report for: Annual

Dominion Condensate Tank - Vertical Fixed Roof Tank
Roosevelt, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Condensate (RVP 10)	681.46	3,489.34	4,170.80

11.4mm with 21015 pump PTE Dehy 1 Emissions

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Dominion - Tap 5 Compressor Station
File Name: \\Desktop34\data\Clients\Dominion\Tap 5\TAP5_PTE_ with 21015 pump .ddf
Date: February 21, 2007

DESCRIPTION:

Description: 11.4 MMscf/day
No Emission Control
Dehy Inlet Gas Analysis Dated 10/16/06
Kimray 21015 glycol pump
Potential to Emit

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	19.0638	457.531	83.4993
Ethane	2.7331	65.595	11.9711
Propane	1.5971	38.331	6.9954
Isobutane	0.5694	13.666	2.4940
n-Butane	0.7774	18.657	3.4048
Isopentane	0.4285	10.285	1.8770
n-Pentane	0.3851	9.242	1.6867
n-Hexane	0.3131	7.514	1.3714
Cyclohexane	0.7638	18.332	3.3455
Other Hexanes	0.3920	9.409	1.7171
Heptanes	0.7681	18.435	3.3644
Methylcyclohexane	1.1728	28.148	5.1371
2,2,4-Trimethylpentane	0.0025	0.059	0.0109
Benzene	2.4394	58.545	10.6845
Toluene	3.5425	85.019	15.5160
Ethylbenzene	0.0934	2.242	0.4091
Xylenes	1.1837	28.408	5.1844
C8+ Heavies	1.4202	34.085	6.2206
Total Emissions	37.6460	903.503	164.8894
Total Hydrocarbon Emissions	37.6460	903.503	164.8894
Total VOC Emissions	15.8491	380.378	69.4190
Total HAP Emissions	7.5745	181.788	33.1764
Total BTEX Emissions	7.2589	174.214	31.7941

EQUIPMENT REPORTS:

11.4mm with 21015 pump PTE Dehy 1 Emissions

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:	2.99	lbs. H2O/MMSCF
Temperature:	98.0	deg. F
Pressure:	800.0	psig
Dry Gas Flow Rate:	11.4000	MMSCF/day
Glycol Losses with Dry Gas:	0.1082	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	64.78	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	7.25	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	4.61%	95.39%
Carbon Dioxide	99.62%	0.38%
Nitrogen	99.97%	0.03%
Methane	99.97%	0.03%
Ethane	99.91%	0.09%
Propane	99.85%	0.15%
Isobutane	99.79%	0.21%
n-Butane	99.73%	0.27%
Isopentane	99.73%	0.27%
n-Pentane	99.65%	0.35%
n-Hexane	99.41%	0.59%
Cyclohexane	97.39%	2.61%
Other Hexanes	99.55%	0.45%
Heptanes	98.92%	1.08%
Methylcyclohexane	97.13%	2.87%
2,2,4-Trimethylpentane	99.53%	0.47%
Benzene	79.97%	20.03%
Toluene	72.18%	27.82%
Ethylbenzene	64.97%	35.03%
Xylenes	55.62%	44.38%
C8+ Heavies	95.84%	4.16%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	50.45%	49.55%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%

11.4mm with 21015 pump PTE Dehy 1 Emissions

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	0.39%	99.61%
n-Pentane	0.41%	99.59%
n-Hexane	0.44%	99.56%
Cyclohexane	3.12%	96.88%
Other Hexanes	0.86%	99.14%
Heptanes	0.47%	99.53%
Methylcyclohexane	3.90%	96.10%
2,2,4-Trimethylpentane	1.30%	98.70%
Benzene	4.98%	95.02%
Toluene	7.85%	92.15%
Ethylbenzene	10.32%	89.68%
Xylenes	12.78%	87.22%
C8+ Heavies	11.71%	88.29%

STREAM REPORTS:

WET GAS STREAM

Temperature: 98.00 deg. F
Pressure: 814.70 psia
Flow Rate: 4.76e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.36e-001	3.08e+001
Carbon Dioxide	2.50e-001	1.38e+002
Nitrogen	2.11e-001	7.42e+001
Methane	9.26e+001	1.86e+004
Ethane	4.39e+000	1.66e+003
Propane	1.30e+000	7.21e+002
Isobutane	2.79e-001	2.03e+002
n-Butane	3.09e-001	2.25e+002
Isopentane	1.36e-001	1.23e+002
n-Pentane	9.97e-002	9.02e+001
n-Hexane	4.39e-002	4.75e+001
Cyclohexane	2.70e-002	2.85e+001
Other Hexanes	6.95e-002	7.51e+001
Heptanes	5.29e-002	6.65e+001
Methylcyclohexane	3.24e-002	3.98e+001
2,2,4-Trimethylpentane	3.20e-004	4.58e-001
Benzene	1.24e-002	1.21e+001
Toluene	1.10e-002	1.27e+001
Ethylbenzene	2.00e-004	2.66e-001
Xylenes	2.00e-003	2.66e+000

C8+ Heavies	1.57e-002	3.35e+001
Total Components	100.00	2.22e+004

DRY GAS STREAM

Temperature: 98.00 deg. F
Pressure: 814.70 psia
Flow Rate: 4.75e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	6.31e-003	1.42e+000
Carbon Dioxide	2.50e-001	1.38e+002
Nitrogen	2.11e-001	7.41e+001
Methane	9.28e+001	1.86e+004
Ethane	4.40e+000	1.65e+003
Propane	1.30e+000	7.20e+002
Isobutane	2.79e-001	2.03e+002
n-Butane	3.09e-001	2.25e+002
Isopentane	1.36e-001	1.23e+002
n-Pentane	9.95e-002	8.99e+001
n-Hexane	4.38e-002	4.72e+001
Cyclohexane	2.63e-002	2.77e+001
Other Hexanes	6.93e-002	7.48e+001
Heptanes	5.24e-002	6.58e+001
Methylcyclohexane	3.15e-002	3.87e+001
2,2,4-Trimethylpentane	3.19e-004	4.56e-001
Benzene	9.92e-003	9.70e+000
Toluene	7.94e-003	9.16e+000
Ethylbenzene	1.30e-004	1.73e-001
Xylenes	1.11e-003	1.48e+000
C8+ Heavies	1.51e-002	3.21e+001
Total Components	100.00	2.22e+004

LEAN GLYCOL STREAM

Temperature: 98.00 deg. F
Flow Rate: 3.55e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.97e+003
Water	1.50e+000	3.00e+001
Carbon Dioxide	2.60e-012	5.19e-011
Nitrogen	1.15e-013	2.30e-012
Methane	8.83e-018	1.76e-016
Ethane	3.56e-008	7.10e-007
Propane	2.16e-009	4.32e-008
Isobutane	6.29e-010	1.26e-008

n-Butane	7.58e-010	1.51e-008
Isopentane	8.49e-005	1.70e-003
n-Pentane	8.00e-005	1.60e-003
n-Hexane	6.99e-005	1.40e-003
Cyclohexane	1.23e-003	2.46e-002
Other Hexanes	1.70e-004	3.40e-003
Heptanes	1.81e-004	3.61e-003
Methylcyclohexane	2.39e-003	4.77e-002
2,2,4-Trimethylpentane	1.63e-006	3.26e-005
Benzene	6.40e-003	1.28e-001
Toluene	1.51e-002	3.02e-001
Ethylbenzene	5.38e-004	1.08e-002
Xylenes	8.69e-003	1.73e-001
C8+ Heavies	9.43e-003	1.88e-001
Total Components	100.00	2.00e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 98.00 deg. F
Pressure: 814.70 psia
Flow Rate: 3.69e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.52e+001	1.97e+003
Water	2.88e+000	5.94e+001
Carbon Dioxide	3.01e-002	6.22e-001
Nitrogen	3.78e-003	7.81e-002
Methane	9.23e-001	1.91e+001
Ethane	1.32e-001	2.73e+000
Propane	7.74e-002	1.60e+000
Isobutane	2.76e-002	5.69e-001
n-Butane	3.76e-002	7.77e-001
Isopentane	2.08e-002	4.30e-001
n-Pentane	1.87e-002	3.87e-001
n-Hexane	1.52e-002	3.14e-001
Cyclohexane	3.82e-002	7.88e-001
Other Hexanes	1.92e-002	3.95e-001
Heptanes	3.74e-002	7.72e-001
Methylcyclohexane	5.91e-002	1.22e+000
2,2,4-Trimethylpentane	1.22e-004	2.51e-003
Benzene	1.24e-001	2.57e+000
Toluene	1.86e-001	3.84e+000
Ethylbenzene	5.05e-003	1.04e-001
Xylenes	6.57e-002	1.36e+000
C8+ Heavies	7.79e-002	1.61e+000
Total Components	100.00	2.06e+003

11.4mm with 21015 pump PTE Dehy 1 Emissions

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 1.19e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.22e+001	2.94e+001
Carbon Dioxide	4.52e-001	6.22e-001
Nitrogen	8.91e-002	7.81e-002
Methane	3.80e+001	1.91e+001
Ethane	2.91e+000	2.73e+000
Propane	1.16e+000	1.60e+000
Isobutane	3.13e-001	5.69e-001
n-Butane	4.28e-001	7.77e-001
Isopentane	1.90e-001	4.29e-001
n-Pentane	1.71e-001	3.85e-001
n-Hexane	1.16e-001	3.13e-001
Cyclohexane	2.90e-001	7.64e-001
Other Hexanes	1.45e-001	3.92e-001
Heptanes	2.45e-001	7.68e-001
Methylcyclohexane	3.82e-001	1.17e+000
2,2,4-Trimethylpentane	6.93e-004	2.48e-003
Benzene	9.98e-001	2.44e+000
Toluene	1.23e+000	3.54e+000
Ethylbenzene	2.81e-002	9.34e-002
Xylenes	3.56e-001	1.18e+000
C8+ Heavies	2.67e-001	1.42e+000
Total Components	100.00	6.78e+001

```
*****************************************************************************************
*     Project Setup Information                                                         *
*****************************************************************************************
Project File                : \\Desktop34\data\Clients\Dominion\Tap 5\Title V\Condensate flash from 300 bb
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                  : Dominion
Well Name                   : Tap 5
Well ID                     : 2005 Actuals
Permit Number               : Compressor condensate
Date                        : 2007.03.16


*****************************************************************************************
*     Data Input                                                                        *
*****************************************************************************************

Separator Pressure          : 810.00[psig]
Separator Temperature       : 95.00[F]
Ambient Pressure            : 12.64[psia]
Ambient Temperature         : 51.96[F]
C10+ SG                     : 0.7442
C10+ MW                     : 158.447

-- Low Pressure Oil ----------------------------------------------------------------------
```

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.5185
4	N2	0.0084
5	C1	20.0804
6	C2	6.0183
7	C3	4.6153
8	i-C4	1.9782
9	n-C4	2.7527
10	i-C5	2.6198
11	n-C5	2.1621
12	C6	3.0447
13	C7	16.7459
14	C8	7.4847
15	C9	5.8056
16	C10+	7.6235
17	Benzene	1.0666
18	Toluene	4.6506
19	E-Benzene	0.0160
20	Xylenes	9.9732
21	n-C6	2.3892
22	224Trimethylp	0.4463

```
-- Sales Oil -----------------------------------------------------------------------------
Production Rate             : 1[bbl/day]
Days of Annual Operation    : 365 [days/year]
API Gravity                 : 50.0
Reid Vapor Pressure         : 8.146[psia]


*****************************************************************************************
*     Calculation Results                                                               *
*****************************************************************************************

-- Emission Summary ----------------------------------------------------------------------
Item                  Uncontrolled   Uncontrolled
```

	[ton/yr]	[lb/hr]
Total HAPs	0.080	0.018
Total HC	5.727	1.308
VOCs, C2+	3.508	0.801
VOCs, C3+	2.291	0.523

Uncontrolled Recovery Info.

Vapor	466.7300 x1E-3	[MSCFD]
HC Vapor	459.1900 x1E-3	[MSCFD]
GOR	466.73	[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	0.157	0.036
4	N2	0.002	0.000
5	C1	2.220	0.507
6	C2	1.217	0.278
7	C3	1.012	0.231
8	i-C4	0.349	0.080
9	n-C4	0.369	0.084
10	i-C5	0.188	0.043
11	n-C5	0.111	0.025
12	C6	0.060	0.014
13	C7	0.108	0.025
14	C8	0.015	0.003
15	C9	0.004	0.001
16	C10+	0.001	0.000
17	Benzene	0.013	0.003
18	Toluene	0.015	0.003
19	E-Benzene	0.000	0.000
20	Xylenes	0.009	0.002
21	n-C6	0.036	0.008
22	224Trimethylp	0.003	0.001
	Total	5.889	1.345

-- 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	0.5185	0.0318	0.0007	1.5632	2.5392	1.5882
4	N2	28.01	0.0084	0.0000	0.0000	0.0264	0.0027	0.0258
5	C1	16.04	20.0804	0.3508	0.0001	62.4311	28.6372	61.5653
6	C2	30.07	6.0183	0.7816	0.2154	17.2593	46.4439	18.0069
7	C3	44.10	4.6153	2.0447	1.9074	10.1333	13.1165	10.2097
8	i-C4	58.12	1.9782	1.6578	1.6424	2.6660	2.9029	2.6720
9	n-C4	58.12	2.7527	2.7208	2.7169	2.8212	3.0297	2.8266
10	i-C5	72.15	2.6198	3.3024	3.3281	1.1547	1.2287	1.1566
11	n-C5	72.15	2.1621	2.8522	2.8786	0.6807	0.7261	0.6818
12	C6	86.16	3.0447	4.3149	4.3641	0.3182	0.3420	0.3188
13	C7	100.20	16.7459	24.3159	24.6107	0.4964	0.5398	0.4975
14	C8	114.23	7.4847	10.9444	11.0793	0.0583	0.0642	0.0584
15	C9	128.28	5.8056	8.5041	8.6094	0.0130	0.0157	0.0131
16	C10+	158.45	7.6235	11.1741	11.3126	0.0019	0.0022	0.0019
17	Benzene	78.11	1.0666	1.5300	1.5480	0.0720	0.0779	0.0721
18	Toluene	92.13	4.6506	6.7834	6.8665	0.0725	0.0796	0.0727
19	E-Benzene	106.17	0.0160	0.0234	0.0237	0.0001	0.0001	0.0001
20	Xylenes	106.17	9.9732	14.6025	14.7831	0.0362	0.0403	0.0363
21	n-C6	86.18	2.3892	3.4161	3.4559	0.1850	0.1995	0.1854
22	224Trimethylp	114.24	0.4463	0.6492	0.6571	0.0107	0.0116	0.0107
	MW		78.08	102.33	103.20	26.05	31.59	26.19
	Stream Mole Ratio		1.0000	0.6822	0.6738	0.3178	0.0084	0.3262
	Heating Value	[BTU/SCF]				1506.88	1782.02	1513.93
	Gas Gravity	[Gas/Air]				0.90	1.09	0.90

Bubble Pt. @ 100F	[psia]	754.72	24.54	9.78
RVP @ 100F	[psia]	167.26	12.33	8.23
Spec. Gravity @ 100F		0.647	0.694	0.695

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

Identification

User Identification:	Dominion Oil Tank
City:	Roosevelt
State:	Utah
Company:	Dominion E & P
Type of Tank:	Vertical Fixed Roof Tank
Description:	300-bbl oil tank Tap 5 2005 Actuals

Tank Dimensions

Shell Height (ft):		15.00
Diameter (ft):		12.00
Liquid Height (ft) :		14.50
Avg. Liquid Height (ft):		8.00
Volume (gallons):		11,172.00
Turnovers:		8.00
Net Throughput(gal/yr):		85,848.00
Is Tank Heated (y/n):	N	

Paint Characteristics

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

Roof Characteristics

Type:	Dome	
Height (ft)		3.00
Radius (ft) (Dome Roof)		12.00

Breather Vent Settings

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

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

Dominion Oil Tank - Vertical Fixed Roof Tank
Roosevelt, 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	59.41	49.72	69.11	54.20	2.8447	2.3420	3.4307	50.0000			207.00	Option 4: RVP=5

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

Dominion Oil Tank - Vertical Fixed Roof Tank
Roosevelt, Utah

Annual Emission Calcaulations

Standing Losses (lb):	710.1004
Vapor Space Volume (cu ft):	975.4645
Vapor Density (lb/cu ft):	0.0255
Vapor Space Expansion Factor:	0.1797
Vented Vapor Saturation Factor:	0.4347
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	975.4645
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	8.6250
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	1.6250
Roof Outage (Dome Roof)	
Roof Outage (ft):	1.6250
Dome Radius (ft):	12.0000
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0255
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.8447
Daily Avg. Liquid Surface Temp. (deg. R):	519.0816
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):	513.8725
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:	0.1797
Daily Vapor Temperature Range (deg. R):	38.7740
Daily Vapor Pressure Range (psia):	1.0887
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.8447
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.3420
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	3.4307
Daily Avg. Liquid Surface Temp. (deg R):	519.0816
Daily Min. Liquid Surface Temp. (deg R):	509.3881
Daily Max. Liquid Surface Temp. (deg R):	528.7751
Daily Ambient Temp. Range (deg. R):	23.3583
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.4347
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.8447
Vapor Space Outage (ft):	8.6250

Working Losses (lb):	218.0453
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.8447
Annual Net Throughput (gal/yr.):	85,848.0000
Annual Turnovers:	8.0000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	11,172.0000
Maximum Liquid Height (ft):	14.5000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	0.7500
Total Losses (lb):	928.1457

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

Emissions Report for: Annual

Dominion Oil Tank - Vertical Fixed Roof Tank
Roosevelt, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	218.05	710.10	928.15

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

Identification

User Identification:	Dominion Condensate Tank
City:	Roosevelt
State:	Utah
Company:	Dominion
Type of Tank:	Vertical Fixed Roof Tank
Description:	Dominion Exploration and Production, Inc. 300 bbl condensate tank Tap 5 2005 Actual Emissions

Tank Dimensions

Shell Height (ft):		15.00
Diameter (ft):		12.00
Liquid Height (ft) :		14.50
Avg. Liquid Height (ft):		8.00
Volume (gallons):		11,172.00
Turnovers:		1.50
Net Throughput(gal/yr):		16,758.00
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)		3.00
Slope (ft/ft) (Cone Roof)		0.50

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

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

Dominion Condensate Tank - Vertical Fixed Roof Tank
Roosevelt, 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
Condensate (RVP 10)	All	59.41	49.72	69.11	54.20	7.3802	6.2668	8.6396	67.4600			90.00	Option 4: RVP=10

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

Dominion Condensate Tank - Vertical Fixed Roof Tank
Roosevelt, Utah

Annual Emission Calcaulations

Standing Losses (lb):	3,489.3427
Vapor Space Volume (cu ft):	904.7787
Vapor Density (lb/cu ft):	0.0894
Vapor Space Expansion Factor:	0.4881
Vented Vapor Saturation Factor:	0.2422
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	904.7787
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	8.0000
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	1.0000
Roof Outage (Cone Roof)	
Roof Outage (ft):	1.0000
Roof Height (ft):	3.0000
Roof Slope (ft/ft):	0.5000
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0894
Vapor Molecular Weight (lb/lb-mole):	67.4600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.3802
Daily Avg. Liquid Surface Temp. (deg. R):	519.0816
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):	513.8725
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:	0.4881
Daily Vapor Temperature Range (deg. R):	19.3870
Daily Vapor Pressure Range (psia):	2.3728
Breather Vent Press. Setting Range(psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.3802
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	6.2668
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	8.6396
Daily Avg. Liquid Surface Temp. (deg R):	519.0816
Daily Min. Liquid Surface Temp. (deg R):	509.3881
Daily Max. Liquid Surface Temp. (deg R):	528.7751
Daily Ambient Temp. Range (deg. R):	23.3583
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.2422
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.3802

Vapor Space Outage (ft):	8.0000
Working Losses (lb):	148.9880
Vapor Molecular Weight (lb/lb-mole):	67.4600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.3802
Annual Net Throughput (gal/yr.):	16,758.0000
Annual Turnovers:	1.5000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	11,172.0000
Maximum Liquid Height (ft):	14.5000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	0.7500
Total Losses (lb):	3,638.3307

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

Emissions Report for: Annual

Dominion Condensate Tank - Vertical Fixed Roof Tank
Roosevelt, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Condensate (RVP 10)	148.99	3,489.34	3,638.33

4.03mm with 21015 pump 2005 Actuals

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Dominion - Tap 5 Compressor Station 2005 actual emissions
File Name: \\Desktop34\data\Clients\Dominion\Tap 5\TAP5_Actual_ with 21015 pump .ddf
Date: March 16, 2007

DESCRIPTION:

Description: 4.03 MM/day
No Emission Control
Dehy Inlet Gas Analysis Dated 10/16/06
Kimray 21015 glycol pump
79 days of operation

Annual Hours of Operation: 1896.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	19.0089	456.214	18.0204
Ethane	2.7692	66.460	2.6252
Propane	1.5983	38.359	1.5152
Isobutane	0.5728	13.746	0.5430
n-Butane	0.7823	18.774	0.7416
Isopentane	0.4324	10.379	0.4100
n-Pentane	0.3894	9.346	0.3692
n-Hexane	0.3183	7.639	0.3018
Cyclohexane	0.7752	18.604	0.7348
Other Hexanes	0.3985	9.563	0.3777
Heptanes	0.7854	18.850	0.7446
Methylcyclohexane	1.1876	28.503	1.1259
2,2,4-Trimethylpentane	0.0025	0.061	0.0024
Benzene	1.8947	45.474	1.7962
Toluene	2.4883	59.720	2.3589
Ethylbenzene	0.0601	1.441	0.0569
Xylenes	0.6810	16.345	0.6456
C8+ Heavies	1.4138	33.931	1.3403
Total Emissions	35.5586	853.407	33.7096
Total Hydrocarbon Emissions	35.5586	853.407	33.7096
Total VOC Emissions	13.7806	330.734	13.0640
Total HAP Emissions	5.4450	130.680	5.1619
Total BTEX Emissions	5.1241	122.980	4.8577

EQUIPMENT REPORTS:

4.03mm with 21015 pump 2005 Actuals

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:	2.16 lbs. H2O/MMSCF
Temperature:	98.0 deg. F
Pressure:	800.0 psig
Dry Gas Flow Rate:	4.0300 MMSCF/day
Glycol Losses with Dry Gas:	0.0382 lb/hr
Wet Gas Water Content:	Subsaturated
Specified Wet Gas Water Content:	14.75 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	100.69 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	14.61%	85.39%
Carbon Dioxide	98.93%	1.07%
Nitrogen	99.91%	0.09%
Methane	99.92%	0.08%
Ethane	99.73%	0.27%
Propane	99.58%	0.42%
Isobutane	99.41%	0.59%
n-Butane	99.23%	0.77%
Isopentane	99.21%	0.79%
n-Pentane	98.99%	1.01%
n-Hexane	98.31%	1.69%
Cyclohexane	92.51%	7.49%
Other Hexanes	98.71%	1.29%
Heptanes	96.87%	3.13%
Methylcyclohexane	91.78%	8.22%
2,2,4-Trimethylpentane	98.64%	1.36%
Benzene	56.06%	43.94%
Toluene	44.80%	55.20%
Ethylbenzene	36.37%	63.63%
Xylenes	27.82%	72.18%
C8+ Heavies	88.27%	11.73%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	93.38%	6.62%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%

4.03mm with 21015 pump 2005 Actuals		
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	0.40%	99.60%
n-Pentane	0.42%	99.58%
n-Hexane	0.45%	99.55%
Cyclohexane	3.12%	96.88%
Other Hexanes	0.86%	99.14%
Heptanes	0.47%	99.53%
Methylcyclohexane	3.91%	96.09%
2,2,4-Trimethylpentane	1.31%	98.69%
Benzene	4.98%	95.02%
Toluene	7.87%	92.13%
Ethylbenzene	10.37%	89.63%
Xylenes	12.87%	87.13%
C8+ Heavies	11.83%	88.17%

STREAM REPORTS:

WET GAS STREAM

Temperature: 98.00 deg. F
Pressure: 814.70 psia
Flow Rate: 1.68e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	3.11e-002	2.48e+000
Carbon Dioxide	2.50e-001	4.89e+001
Nitrogen	2.11e-001	2.62e+001
Methane	9.27e+001	6.59e+003
Ethane	4.40e+000	5.86e+002
Propane	1.31e+000	2.55e+002
Isobutane	2.79e-001	7.19e+001
n-Butane	3.10e-001	7.97e+001
Isopentane	1.36e-001	4.35e+001
n-Pentane	9.98e-002	3.19e+001
n-Hexane	4.40e-002	1.68e+001
Cyclohexane	2.70e-002	1.01e+001
Other Hexanes	6.96e-002	2.66e+001
Heptanes	5.30e-002	2.35e+001
Methylcyclohexane	3.24e-002	1.41e+001
2,2,4-Trimethylpentane	3.20e-004	1.62e-001
Benzene	1.24e-002	4.29e+000
Toluene	1.10e-002	4.49e+000
Ethylbenzene	2.00e-004	9.41e-002
Xylenes	2.00e-003	9.41e-001

C8+ Heavies	1.57e-002	1.19e+001
Total Components	100.00	7.85e+003

DRY GAS STREAM

Temperature: 98.00 deg. F
Pressure: 814.70 psia
Flow Rate: 1.68e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	4.55e-003	3.63e-001
Carbon Dioxide	2.48e-001	4.83e+001
Nitrogen	2.11e-001	2.62e+001
Methane	9.28e+001	6.59e+003
Ethane	4.39e+000	5.84e+002
Propane	1.30e+000	2.54e+002
Isobutane	2.78e-001	7.14e+001
n-Butane	3.08e-001	7.91e+001
Isopentane	1.35e-001	4.32e+001
n-Pentane	9.89e-002	3.16e+001
n-Hexane	4.33e-002	1.65e+001
Cyclohexane	2.50e-002	9.31e+000
Other Hexanes	6.88e-002	2.62e+001
Heptanes	5.14e-002	2.28e+001
Methylcyclohexane	2.98e-002	1.29e+001
2,2,4-Trimethylpentane	3.16e-004	1.60e-001
Benzene	6.96e-003	2.41e+000
Toluene	4.93e-003	2.01e+000
Ethylbenzene	7.28e-005	3.42e-002
Xylenes	5.57e-004	2.62e-001
C8+ Heavies	1.39e-002	1.05e+001
Total Components	100.00	7.83e+003

LEAN GLYCOL STREAM

Temperature: 98.00 deg. F
Flow Rate: 3.55e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.97e+003
Water	1.50e+000	3.00e+001
Carbon Dioxide	2.62e-012	5.24e-011
Nitrogen	1.20e-013	2.39e-012
Methane	9.08e-018	1.81e-016
Ethane	3.68e-008	7.36e-007
Propane	2.18e-009	4.36e-008
Isobutane	6.37e-010	1.27e-008

4.03mm with 21015 pump 2005 Actuals

n-Butane	7.67e-010	1.53e-008
Isopentane	8.62e-005	1.72e-003
n-Pentane	8.14e-005	1.63e-003
n-Hexane	7.13e-005	1.43e-003
Cyclohexane	1.25e-003	2.49e-002
Other Hexanes	1.74e-004	3.47e-003
Heptanes	1.85e-004	3.70e-003
Methylcyclohexane	2.42e-003	4.83e-002
2,2,4-Trimethylpentane	1.68e-006	3.36e-005
Benzene	4.97e-003	9.93e-002
Toluene	1.06e-002	2.13e-001
Ethylbenzene	3.48e-004	6.95e-003
Xylenes	5.04e-003	1.01e-001
C8+ Heavies	9.49e-003	1.90e-001
Total Components	100.00	2.00e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 98.00 deg. F
Pressure: 814.70 psia
Flow Rate: 3.63e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.66e+001	1.97e+003
Water	1.58e+000	3.21e+001
Carbon Dioxide	3.07e-002	6.25e-001
Nitrogen	3.84e-003	7.81e-002
Methane	9.34e-001	1.90e+001
Ethane	1.36e-001	2.77e+000
Propane	7.85e-002	1.60e+000
Isobutane	2.81e-002	5.73e-001
n-Butane	3.84e-002	7.82e-001
Isopentane	2.13e-002	4.34e-001
n-Pentane	1.92e-002	3.91e-001
n-Hexane	1.57e-002	3.20e-001
Cyclohexane	3.93e-002	8.00e-001
Other Hexanes	1.97e-002	4.02e-001
Heptanes	3.88e-002	7.89e-001
Methylcyclohexane	6.07e-002	1.24e+000
2,2,4-Trimethylpentane	1.26e-004	2.57e-003
Benzene	9.79e-002	1.99e+000
Toluene	1.33e-001	2.70e+000
Ethylbenzene	3.29e-003	6.70e-002
Xylenes	3.84e-002	7.82e-001
C8+ Heavies	7.88e-002	1.60e+000
Total Components	100.00	2.04e+003

4.03mm with 21015 pump 2005 Actuals

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 6.02e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.43e+000	2.12e+000
Carbon Dioxide	8.95e-001	6.25e-001
Nitrogen	1.76e-001	7.81e-002
Methane	7.47e+001	1.90e+001
Ethane	5.80e+000	2.77e+000
Propane	2.28e+000	1.60e+000
Isobutane	6.21e-001	5.73e-001
n-Butane	8.48e-001	7.82e-001
Isopentane	3.78e-001	4.32e-001
n-Pentane	3.40e-001	3.89e-001
n-Hexane	2.33e-001	3.18e-001
Cyclohexane	5.80e-001	7.75e-001
Other Hexanes	2.91e-001	3.98e-001
Heptanes	4.94e-001	7.85e-001
Methylcyclohexane	7.62e-001	1.19e+000
2,2,4-Trimethylpentane	1.40e-003	2.54e-003
Benzene	1.53e+000	1.89e+000
Toluene	1.70e+000	2.49e+000
Ethylbenzene	3.56e-002	6.01e-002
Xylenes	4.04e-001	6.81e-001
C8+ Heavies	5.23e-001	1.41e+000
Total Components	100.00	3.84e+001

```
*****************************************************************************************
*     Project Setup Information                                                         *
*****************************************************************************************
Project File                : \\Desktop34\data\Clients\Dominion\Tap 5\Title V\Condensate flash from 300 bbl
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                  : Dominion
Well Name                   : Tap 5
Well ID                     : 2006 Actuals
Permit Number               : Compressor condensate
Date                        : 2007.03.16


*****************************************************************************************
*     Data Input                                                                        *
*****************************************************************************************

Separator Pressure          : 810.00[psig]
Separator Temperature       : 95.00[F]
Ambient Pressure            : 12.64[psia]
Ambient Temperature         : 51.96[F]
C10+ SG                     : 0.7442
C10+ MW                     : 158.447

-- Low Pressure Oil ----------------------------------------------------------------------
```

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.5185
4	N2	0.0084
5	C1	20.0804
6	C2	6.0183
7	C3	4.6153
8	i-C4	1.9782
9	n-C4	2.7527
10	i-C5	2.6198
11	n-C5	2.1621
12	C6	3.0447
13	C7	16.7459
14	C8	7.4847
15	C9	5.8056
16	C10+	7.6235
17	Benzene	1.0666
18	Toluene	4.6506
19	E-Benzene	0.0160
20	Xylenes	9.9732
21	n-C6	2.3892
22	224Trimethylp	0.4463

```
-- Sales Oil -----------------------------------------------------------------------------
Production Rate             : 0.2[bbl/day]
Days of Annual Operation    : 365 [days/year]
API Gravity                 : 50.0
Reid Vapor Pressure         : 8.146[psia]

*****************************************************************************************
*     Calculation Results                                                               *
*****************************************************************************************

-- Emission Summary ----------------------------------------------------------------------
Item                  Uncontrolled   Uncontrolled
```

	[ton/yr]	[lb/hr]
Total HAPs	0.020	0.005
Total HC	1.145	0.261
VOCs, C2+	0.702	0.160
VOCs, C3+	0.458	0.105

Uncontrolled Recovery Info.

Vapor	93.3500 x1E-3	[MSCFD]
HC Vapor	91.8400 x1E-3	[MSCFD]
GOR	466.75	[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	0.031	0.007
4	N2	0.000	0.000
5	C1	0.444	0.101
6	C2	0.243	0.055
7	C3	0.202	0.046
8	i-C4	0.070	0.016
9	n-C4	0.074	0.017
10	i-C5	0.038	0.009
11	n-C5	0.022	0.005
12	C6	0.012	0.003
13	C7	0.022	0.005
14	C8	0.003	0.001
15	C9	0.001	0.000
16	C10+	0.000	0.000
17	Benzene	0.003	0.001
18	Toluene	0.003	0.001
19	E-Benzene	0.000	0.000
20	Xylenes	0.002	0.000
21	n-C6	0.007	0.002
22	224Trimethylp	0.001	0.000
	Total	1.178	0.269

-- 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	0.5185	0.0318	0.0007	1.5632	2.5392	1.5882
4	N2	28.01	0.0084	0.0000	0.0000	0.0264	0.0027	0.0258
5	C1	16.04	20.0804	0.3508	0.0001	62.4311	28.6372	61.5653
6	C2	30.07	6.0183	0.7816	0.2154	17.2593	46.4439	18.0069
7	C3	44.10	4.6153	2.0447	1.9074	10.1333	13.1165	10.2097
8	i-C4	58.12	1.9782	1.6578	1.6424	2.6660	2.9029	2.6720
9	n-C4	58.12	2.7527	2.7208	2.7169	2.8212	3.0297	2.8266
10	i-C5	72.15	2.6198	3.3024	3.3281	1.1547	1.2287	1.1566
11	n-C5	72.15	2.1621	2.8522	2.8786	0.6807	0.7261	0.6818
12	C6	86.16	3.0447	4.3149	4.3641	0.3182	0.3420	0.3188
13	C7	100.20	16.7459	24.3159	24.6107	0.4964	0.5398	0.4975
14	C8	114.23	7.4847	10.9444	11.0793	0.0583	0.0642	0.0584
15	C9	128.28	5.8056	8.5041	8.6094	0.0130	0.0157	0.0131
16	C10+	158.45	7.6235	11.1741	11.3126	0.0019	0.0022	0.0019
17	Benzene	78.11	1.0666	1.5300	1.5480	0.0720	0.0779	0.0721
18	Toluene	92.13	4.6506	6.7834	6.8665	0.0725	0.0796	0.0727
19	E-Benzene	106.17	0.0160	0.0234	0.0237	0.0001	0.0001	0.0001
20	Xylenes	106.17	9.9732	14.6025	14.7831	0.0362	0.0403	0.0363
21	n-C6	86.18	2.3892	3.4161	3.4559	0.1850	0.1995	0.1854
22	224Trimethylp	114.24	0.4463	0.6492	0.6571	0.0107	0.0116	0.0107
	MW		78.08	102.33	103.20	26.05	31.59	26.19
	Stream Mole Ratio		1.0000	0.6822	0.6738	0.3178	0.0084	0.3262
	Heating Value	[BTU/SCF]				1506.88	1782.02	1513.93
	Gas Gravity	[Gas/Air]				0.90	1.09	0.90

Bubble Pt. @ 100F	[psia]	754.72	24.54	9.78
RVP @ 100F	[psia]	167.26	12.33	8.23
Spec. Gravity @ 100F		0.647	0.694	0.695

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

Identification

User Identification:	Dominion Oil Tank
City:	Roosevelt
State:	Utah
Company:	Dominion E & P
Type of Tank:	Vertical Fixed Roof Tank
Description:	300-bbl oil tank Tap 5 2006 Actuals

Tank Dimensions

Shell Height (ft):		15.00
Diameter (ft):		12.00
Liquid Height (ft) :		14.50
Avg. Liquid Height (ft):		8.00
Volume (gallons):		11,172.00
Turnovers:		4.06
Net Throughput(gal/yr):		45,318.00
Is Tank Heated (y/n):	N	

Paint Characteristics

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

Roof Characteristics

Type:	Dome	
Height (ft)		3.00
Radius (ft) (Dome Roof)		12.00

Breather Vent Settings

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

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

Dominion Oil Tank - Vertical Fixed Roof Tank
Roosevelt, 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	59.41	49.72	69.11	54.20	2.8447	2.3420	3.4307	50.0000			207.00	Option 4: RVP=5

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

Dominion Oil Tank - Vertical Fixed Roof Tank
Roosevelt, Utah

Annual Emission Calcaulations	
Standing Losses (lb):	710.1004
Vapor Space Volume (cu ft):	975.4645
Vapor Density (lb/cu ft):	0.0255
Vapor Space Expansion Factor:	0.1797
Vented Vapor Saturation Factor:	0.4347
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	975.4645
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	8.6250
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	1.6250
Roof Outage (Dome Roof)	
Roof Outage (ft):	1.6250
Dome Radius (ft):	12.0000
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0255
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.8447
Daily Avg. Liquid Surface Temp. (deg. R):	519.0816
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):	513.8725
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:	0.1797
Daily Vapor Temperature Range (deg. R):	38.7740
Daily Vapor Pressure Range (psia):	1.0887
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.8447
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.3420
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	3.4307
Daily Avg. Liquid Surface Temp. (deg R):	519.0816
Daily Min. Liquid Surface Temp. (deg R):	509.3881
Daily Max. Liquid Surface Temp. (deg R):	528.7751
Daily Ambient Temp. Range (deg. R):	23.3583
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.4347
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.8447
Vapor Space Outage (ft):	8.6250

Working Losses (lb):	115.1032
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.8447
Annual Net Throughput (gal/yr.):	45,318.0000
Annual Turnovers:	4.0564
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	11,172.0000
Maximum Liquid Height (ft):	14.5000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	0.7500
Total Losses (lb):	825.2036

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

Emissions Report for: Annual

Dominion Oil Tank - Vertical Fixed Roof Tank
Roosevelt, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	115.10	710.10	825.20

TANKS 4.0.9d

Emissions Report - Detail Format

Tank Indentification and Physical Characteristics

Identification

User Identification:	Dominion Condensate Tank
City:	Roosevelt
State:	Utah
Company:	Dominion
Type of Tank:	Vertical Fixed Roof Tank
Description:	Dominion Exploration and Production, Inc. 300 bbl condensate tank Tap 5 2006 Actual Emissions

Tank Dimensions

Shell Height (ft):		15.00
Diameter (ft):		12.00
Liquid Height (ft) :		14.50
Avg. Liquid Height (ft):		8.00
Volume (gallons):		11,172.00
Turnovers:		0.32
Net Throughput(gal/yr):		3,582.60
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)		3.00
Slope (ft/ft) (Cone Roof)		0.50

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

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

Dominion Condensate Tank - Vertical Fixed Roof Tank
Roosevelt, 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
Condensate (RVP 10)	All	59.41	49.72	69.11	54.20	7.3802	6.2668	8.6396	67.4600			90.00	Option 4: RVP=10

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

Dominion Condensate Tank - Vertical Fixed Roof Tank
Roosevelt, Utah

Annual Emission Calcaulations

Standing Losses (lb):	3,489.3427
Vapor Space Volume (cu ft):	904.7787
Vapor Density (lb/cu ft):	0.0894
Vapor Space Expansion Factor:	0.4881
Vented Vapor Saturation Factor:	0.2422
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	904.7787
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	8.0000
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	1.0000
Roof Outage (Cone Roof)	
Roof Outage (ft):	1.0000
Roof Height (ft):	3.0000
Roof Slope (ft/ft):	0.5000
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0894
Vapor Molecular Weight (lb/lb-mole):	67.4600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.3802
Daily Avg. Liquid Surface Temp. (deg. R):	519.0816
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):	513.8725
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:	0.4881
Daily Vapor Temperature Range (deg. R):	19.3870
Daily Vapor Pressure Range (psia):	2.3728
Breather Vent Press. Setting Range(psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.3802
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	6.2668
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	8.6396
Daily Avg. Liquid Surface Temp. (deg R):	519.0816
Daily Min. Liquid Surface Temp. (deg R):	509.3881
Daily Max. Liquid Surface Temp. (deg R):	528.7751
Daily Ambient Temp. Range (deg. R):	23.3583
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.2422
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.3802

Vapor Space Outage (ft):	8.0000
Working Losses (lb):	31.8513
Vapor Molecular Weight (lb/lb-mole):	67.4600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.3802
Annual Net Throughput (gal/yr.):	3,582.6000
Annual Turnovers:	0.3207
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	11,172.0000
Maximum Liquid Height (ft):	14.5000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	0.7500
Total Losses (lb):	3,521.1940

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

Emissions Report for: Annual

Dominion Condensate Tank - Vertical Fixed Roof Tank
Roosevelt, Utah

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Condensate (RVP 10)	31.85	3,489.34	3,521.19

3.371mm with 21015 pump 2006 Actuals

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Dominion - Tap 5 Compressor Station
File Name: \\Desktop34\data\Clients\Dominion\Tap 5\TAP5_Actuals_2006_ with 21015 pump.ddf
Date: March 15, 2007

DESCRIPTION:

Description: 3.371 MMscf/day
No Emission Control
Dehy Inlet Gas Analysis Dated 10/16/06
Kimray 21015 glycol pump
2006 Actuals

Annual Hours of Operation: 5016.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	18.9827	455.584	47.6085
Ethane	2.7540	66.096	6.9071
Propane	1.5945	38.268	3.9990
Isobutane	0.5706	13.694	1.4310
n-Butane	0.7790	18.695	1.9536
Isopentane	0.4301	10.323	1.0788
n-Pentane	0.3872	9.294	0.9712
n-Hexane	0.3157	7.577	0.7918
Cyclohexane	0.7591	18.219	1.9039
Other Hexanes	0.3954	9.490	0.9917
Heptanes	0.7757	18.616	1.9454
Methylcyclohexane	1.1617	27.881	2.9135
2,2,4-Trimethylpentane	0.0025	0.060	0.0063
Benzene	1.7573	42.176	4.4074
Toluene	2.2594	54.226	5.6666
Ethylbenzene	0.0537	1.288	0.1346
Xylenes	0.5997	14.392	1.5040
C8+ Heavies	1.3737	32.968	3.4452
Total Emissions	34.9520	838.848	87.6596
Total Hydrocarbon Emissions	34.9520	838.848	87.6596
Total VOC Emissions	13.2153	317.168	33.1440
Total HAP Emissions	4.9883	119.719	12.5107
Total BTEX Emissions	4.6701	112.082	11.7126

EQUIPMENT REPORTS:

3.371mm with 21015 pump 2006 Actuals

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:	2.31	lbs. H2O/MMSCF
Temperature:	98.0	deg. F
Pressure:	800.0	psig
Dry Gas Flow Rate:	3.3710	MMSCF/day
Glycol Losses with Dry Gas:	0.0319	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	64.78	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	24.26	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.55%	96.45%
Carbon Dioxide	98.72%	1.28%
Nitrogen	99.89%	0.11%
Methane	99.90%	0.10%
Ethane	99.69%	0.31%
Propane	99.50%	0.50%
Isobutane	99.30%	0.70%
n-Butane	99.08%	0.92%
Isopentane	99.07%	0.93%
n-Pentane	98.80%	1.20%
n-Hexane	98.00%	2.00%
Cyclohexane	91.24%	8.76%
Other Hexanes	98.47%	1.53%
Heptanes	96.31%	3.69%
Methylcyclohexane	90.40%	9.60%
2,2,4-Trimethylpentane	98.39%	1.61%
Benzene	51.31%	48.69%
Toluene	40.12%	59.88%
Ethylbenzene	32.06%	67.94%
Xylenes	24.07%	75.93%
C8+ Heavies	86.39%	13.61%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	77.25%	22.75%
Carbon Dioxide	0.00%	100.00%

3.371mm with 21015 pump 2006 Actuals		
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	0.40%	99.60%
n-Pentane	0.42%	99.58%
n-Hexane	0.45%	99.55%
Cyclohexane	3.11%	96.89%
Other Hexanes	0.86%	99.14%
Heptanes	0.47%	99.53%
Methylcyclohexane	3.90%	96.10%
2,2,4-Trimethylpentane	1.30%	98.70%
Benzene	4.98%	95.02%
Toluene	7.87%	92.13%
Ethylbenzene	10.37%	89.63%
Xylenes	12.86%	87.14%
C8+ Heavies	11.82%	88.18%

STREAM REPORTS:

WET GAS STREAM

Temperature: 98.00 deg. F
Pressure: 814.70 psia
Flow Rate: 1.41e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.36e-001	9.12e+000
Carbon Dioxide	2.50e-001	4.09e+001
Nitrogen	2.11e-001	2.20e+001
Methane	9.26e+001	5.51e+003
Ethane	4.39e+000	4.90e+002
Propane	1.30e+000	2.13e+002
Isobutane	2.79e-001	6.01e+001
n-Butane	3.09e-001	6.67e+001
Isopentane	1.36e-001	3.64e+001
n-Pentane	9.97e-002	2.67e+001
n-Hexane	4.39e-002	1.41e+001
Cyclohexane	2.70e-002	8.42e+000
Other Hexanes	6.95e-002	2.22e+001
Heptanes	5.29e-002	1.97e+001
Methylcyclohexane	3.24e-002	1.18e+001
2,2,4-Trimethylpentane	3.20e-004	1.36e-001
Benzene	1.24e-002	3.59e+000
Toluene	1.10e-002	3.76e+000
Ethylbenzene	2.00e-004	7.87e-002

3.371mm with 21015 pump 2006 Actuals

Xylenes	2.00e-003	7.87e-001
C8+ Heavies	1.57e-002	9.91e+000
Total Components	100.00	6.57e+003

DRY GAS STREAM

Temperature: 98.00 deg. F
Pressure: 814.70 psia
Flow Rate: 1.40e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	4.86e-003	3.24e-001
Carbon Dioxide	2.48e-001	4.03e+001
Nitrogen	2.11e-001	2.19e+001
Methane	9.28e+001	5.51e+003
Ethane	4.39e+000	4.89e+002
Propane	1.30e+000	2.12e+002
Isobutane	2.77e-001	5.97e+001
n-Butane	3.07e-001	6.61e+001
Isopentane	1.35e-001	3.61e+001
n-Pentane	9.87e-002	2.64e+001
n-Hexane	4.32e-002	1.38e+001
Cyclohexane	2.47e-002	7.69e+000
Other Hexanes	6.86e-002	2.19e+001
Heptanes	5.11e-002	1.90e+001
Methylcyclohexane	2.93e-002	1.07e+001
2,2,4-Trimethylpentane	3.15e-004	1.33e-001
Benzene	6.37e-003	1.84e+000
Toluene	4.42e-003	1.51e+000
Ethylbenzene	6.42e-005	2.52e-002
Xylenes	4.82e-004	1.89e-001
C8+ Heavies	1.36e-002	8.57e+000
Total Components	100.00	6.55e+003

LEAN GLYCOL STREAM

Temperature: 98.00 deg. F
Flow Rate: 3.55e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.97e+003
Water	1.50e+000	3.00e+001
Carbon Dioxide	2.61e-012	5.21e-011
Nitrogen	1.18e-013	2.36e-012
Methane	8.99e-018	1.79e-016
Ethane	3.64e-008	7.27e-007
Propane	2.17e-009	4.34e-008

3.371mm with 21015 pump 2006 Actuals		
Isobutane	6.34e-010	1.27e-008
n-Butane	7.62e-010	1.52e-008
Isopentane	8.56e-005	1.71e-003
n-Pentane	8.08e-005	1.61e-003
n-Hexane	7.07e-005	1.41e-003
Cyclohexane	1.22e-003	2.44e-002
Other Hexanes	1.72e-004	3.44e-003
Heptanes	1.83e-004	3.65e-003
Methylcyclohexane	2.36e-003	4.72e-002
2,2,4-Trimethylpentane	1.66e-006	3.32e-005
Benzene	4.61e-003	9.20e-002
Toluene	9.66e-003	1.93e-001
Ethylbenzene	3.11e-004	6.21e-003
Xylenes	4.43e-003	8.85e-002
C8+ Heavies	9.22e-003	1.84e-001
Total Components	100.00	2.00e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 98.00 deg. F
Pressure: 814.70 psia
Flow Rate: 3.64e+000 gpm .
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.63e+001	1.97e+003
Water	1.90e+000	3.88e+001
Carbon Dioxide	3.05e-002	6.22e-001
Nitrogen	3.82e-003	7.79e-002
Methane	9.30e-001	1.90e+001
Ethane	1.35e-001	2.75e+000
Propane	7.81e-002	1.59e+000
Isobutane	2.79e-002	5.71e-001
n-Butane	3.82e-002	7.79e-001
Isopentane	2.12e-002	4.32e-001
n-Pentane	1.90e-002	3.89e-001
n-Hexane	1.55e-002	3.17e-001
Cyclohexane	3.84e-002	7.84e-001
Other Hexanes	1.95e-002	3.99e-001
Heptanes	3.82e-002	7.79e-001
Methylcyclohexane	5.92e-002	1.21e+000
2,2,4-Trimethylpentane	1.25e-004	2.55e-003
Benzene	9.06e-002	1.85e+000
Toluene	1.20e-001	2.45e+000
Ethylbenzene	2.93e-003	5.99e-002
Xylenes	3.37e-002	6.88e-001
C8+ Heavies	7.63e-002	1.56e+000
Total Components	100.00	2.04e+003

3.371mm with 21015 pump 2006 Actuals

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 7.40e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.51e+001	8.82e+000
Carbon Dioxide	7.25e-001	6.22e-001
Nitrogen	1.43e-001	7.79e-002
Methane	6.07e+001	1.90e+001
Ethane	4.70e+000	2.75e+000
Propane	1.85e+000	1.59e+000
Isobutane	5.03e-001	5.71e-001
n-Butane	6.87e-001	7.79e-001
Isopentane	3.06e-001	4.30e-001
n-Pentane	2.75e-001	3.87e-001
n-Hexane	1.88e-001	3.16e-001
Cyclohexane	4.62e-001	7.59e-001
Other Hexanes	2.35e-001	3.95e-001
Heptanes	3.97e-001	7.76e-001
Methylcyclohexane	6.07e-001	1.16e+000
2,2,4-Trimethylpentane	1.13e-003	2.51e-003
Benzene	1.15e+000	1.76e+000
Toluene	1.26e+000	2.26e+000
Ethylbenzene	2.59e-002	5.37e-002
Xylenes	2.90e-001	6.00e-001
C8+ Heavies	4.13e-001	1.37e+000
Total Components	100.00	4.45e+001

DOMINION EXPLORATION AND PRODUCTION, INC.

TAP-5 Compressor Station

UINTAH COUNTY, UTAH

STARTUP/SHUTDOWN/MALFUNCTION PLAN

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1.0 INTRODUCTION

Dominion Exploration and Production, Inc. (Dominion) operates a natural gas compressor station located in Uintah County, Utah. The TAP-5 Compressor Station is located within a Tribal Airshed in Utah. The facility gathers natural gas from surrounding wellsites, compresses the gas, and dries the gas before sending it on to sales pipeline.

The TAP-5 Compressor Station is subject to the Oil & Gas MACT and Reciprocating Internal Combustion Engine (RICE) MACT as the facility is a major source for hazardous air pollutants. The Startup, Shutdown, and Malfunction Plan is required by MACT regulations (40 CFR 63).

The purpose of this Startup, Shutdown, and Malfunction Plan (SSMP) is to provide all employees and employee trainees, that contribute to the operation of the plant, with information required to safely, efficiently and effectively start, operate, respond to operational deviations, emergencies and shutdown the plant in such as fashion as to prevent or minimize excess emissions to the maximum extent practicable. The manual will address those elements specifically related to the TAP-5 Compressor Station.

Records of the occurrence and duration of each startup, shutdown, and malfunction of air pollution control equipment must be documented. Forms to document these actions are in Appendix A. The forms will also record actions taken which were consistent or inconsistent with the SSMP as well as the duration of any malfunctions.

The SSMP has been written to conform to the MACT standards. This is a "living" document that must be updated continually to reflect new conditions and equipment changes. Difficulties in using these procedures due to omissions and errors must be corrected as discovered. Improvements and updates to the plan will be made based on operational experience.

Section 63.6655(a)(2) of the RICE MACT rule and Section 63.762(d) of the Oil and Gas MACT requires an affected facility to develop a startup, shutdown, and malfunction plan (SSMP) as specified in Section 63.6(e)(3) of the MACT General Provisions. Startup, shutdown, and malfunction are defined in Section 4.0. The purpose of the SSMP is to do the following:

- To ensure that the compressor engines, including emission control equipment is operated and maintained in fulfillment of Dominion's general duty to minimize emissions to the greatest extent in a manner consistent with good air pollution control practices

- To ensure that owners and operators are prepared to correct malfunction as soon as practicable

- To minimize reporting burden associated with excess emissions. The SSMP should address startup, shutdown, and malfunction events of the compressor engines and catalytic converters that could result in a RICE MACT emission or operating limit exceedances

To meet these SSMP objectives, this Plan includes a description of:

- Procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction

- The corrective action program for responding to malfunctioning process, air pollution control, and related monitoring equipment used to comply with the SSMP standard

- Potential causes of the identified malfunctions that may result in significant releases of hazardous air pollutants (HAPS), and actions to be taken to minimize the frequency and severity of those malfunctions.

2.0 PLAN ORGANIZATION AND OBJECTIVE

This SSMP has been developed to provide guidance for operating and maintaining the natural gas compressor engines, glycol dehydration unit and emission controls during startup, shutdown, and malfunctions in a manner consistent with safety and good air pollution control practices for minimizing emissions. Preventative measures as well as corrective measures associated with the malfunctions are also key aspects of this plan.

3.0 STARTUP SHUTDOWN MALFUNCTION IMPLEMENTATION

The SSMP provisions place significant emphasis on operation and maintenance of HAP emission sources during periods of startup, shutdown, and malfunction. The presumption is that startup, shutdown, and malfunction events have a greater chance of excess emissions or operating limit exceedances compared to normal operation. This section defines the periods of startup, shutdown, and malfunctions as it applies to the SSMP, and describes activities and responsibilities for following and documenting compliance with the SSMP procedures.

3.1 Applicability

3.1.1 Startup

Startup is defined under Section 63.2 of the MACT General Provisions as the setting in operation of an affected source or portion of an affected source for any purpose. For the purpose of the SSMP, startup will begin when the compressors are fired up and when the glycol dehydration units are fired.

3.1.2 Shutdown

Shutdown is defined under Section 63.2 of the MACT General Provisions as the cessation of operation of an affected source or portion of an affected source for any purpose.

3.1.3 Malfunction

Section 63.2 of the MACT General Provisions defines a malfunction as any sudden, infrequent, and not reasonably preventable failure of air pollution control, monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded.

3.2 Following the Startup, Shutdown, and Malfunction Plan

Pursuant to Section 63.6(e) of the General Provisions, one purpose of the SSMP is to ensure that Dominion fulfills its general duty to operate and maintain the affected sources, including emission control equipment, in a manner consistent with safety and good air pollution control practices during periods of startup and shutdown, and in responding to potential malfunctions. The instructions in this SSMP, including equipment manufacturer operation and maintenance plans (O&M Plan) that are referenced in this plan, must be followed during all startups, shutdowns, and malfunctions. Also documentation of whether the SSMP and/or O&M Plan were followed during periods of startups, shutdowns, and malfunctions must be maintained as well as specific details of the event.

3.3 Procedure Development and Maintenance

Startup and shutdown procedures have been developed to ensure proper operation of the affected sources. These are further discussed in the following sections for the affected sources. The compressor engines and glycol dehydration systems have startup and shutdown procedures outlined in their corresponding O&M Plan provided by the equipment manufacturer. These documents are referenced in this SSMP and highlighted in the sections below.

Pursuant to Section 63.6(e)(Viii) of the MACT General Provisions, Dominion will periodically revise the SSMP as necessary to address periodic changes in equipment or procedures that are currently addressed in the SSMP. Each revision to the SSMP will be reported to the semiannual Periodic Startup, Shutdown, and Malfunction report required under Section 63.10(d)(5) of the MACT General Provisions.

In the event the SSMP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, Dominion will revise the SSMP to include detailed procedures for operating and maintaining the affected source during a malfunction.

3.4 Decisions, Actions, and Records associated with Startups, Shutdowns, and Malfunctions

When a startup, shutdown, or malfunction occurs, whether actions taken were consistent or not consistent with the SSMP will be documented and reported in the Periodic Startup, Shutdown, and Malfunction Report. Also, if it is a malfunction that occurs, the duration and a brief description of the malfunction must be included in the Periodic Startup, Shutdown, and Malfunction Report. A determination must be made as whether a MACT emission standard or operating limit exceedances occurred while any emissions control was shutdown or malfunctioned. If exceedances occurred, the occurrence and duration of the exceedances will be recorded. If exceedances did not occur, determine whether the SSMP adequately addressed the SSM event. If so, no further action is required.

A determination must then be made as to whether the exceedance was a result of a malfunction. In order to qualify as a malfunction, the event must be sudden, infrequent, and not reasonably preventable. If the event was caused by a malfunction, investigate whether the malfunction was adequately addressed in the SSMP and whether actions taken in response to the event were consistent with the SSMP. If the SSMP adequately addressed the malfunction and the actions take were consistent with the SSMP, document the event and report the event in the Periodic Startup, Shutdown, and Malfunction report required by

63.10(d)(5)(i). If the SSMP does not adequately address the malfunction or actions taken during the malfunction were not consistent with the SSMP, such details are to be reported to the EPA within 2 working days followed by a letter within 7 working days after the end of the event (Immediate Startup, Shutdown and Malfunction report required by Section 63.10(d)(5)(ii)). In addition the SSMP should be revised to incorporate any changes.

4.0 STARTUP AND SHUTDOWN PROCEDURES

This section describes the startup and shutdown procedures for both the compressor engines and glycol dehydration units at the TAP-5 Compressor Station.

4.1 Compressor Engines

The procedures for operating the Caterpillar compressor engines and the catalytic converters are delineated in detailed Standard Operating Procedures (SOP) maintained at the facility by personnel responsible for the operation of the engines and control equipment. The catalytic converter does not have any startup and shutdown procedures. The catalyst is installed in the same manner as an engine muffler with flanged connections. Conceptual startup and shutdown procedures are provided below.

4.1.1 Startup Procedures

Detailed instructions for startup of the compressor engines are contained in the Caterpillar Standard Operating Procedures that are incorporated into this plan by reference.

The sequence below is a general summary of the procedures used for startup of the compressor engines:

1. Check all liquid levels associated with the Caterpillar engines (engine oil level, compressor oil level, coolant levels).

2. Verify that all protective guards and shields on both engine and driven equipment are secure.

3. Reset all engine protection switches and devices.

4. Place governor speed control lever or dial (synchronizer) to 1/3 open position.

5. Make sure that the IGNITION (emergency stop) buttons are pulled out. To ignite switch to the ON position.

6. Press START button until engine starts.

7. Warm engine and gradually apply load to avoid overloading the engine.

8. Observe and record normal operating readings for oil pressure, oil temperature, and water temperature on the engine instrument panel.

4.1.2 Shutdown Procedures

The procedures for operating the Caterpillar engines and catalytic converter are delineated in detailed SOPs maintained at the facility and offices by personnel responsible for the operation of the engines and control equipment. In general, normal shutdown procedures are in reverse sequence used for startup.

Emergency shutdown procedures occur either automatically or by manual control. Conditions of unsafe operations for either the equipment or personnel can result in emergency shutdown. In the event any emergency shutdown occurs, the reason for the condition was occurring and the corrective action taken must be logged in the operating log and documented according to the SSMP requirements found in this plan.

4.1.3 Procedures to Respond to Compressor Engine Malfunctions

This section provides information on the procedures for responding to identified malfunctions. The potential malfunctions and preventative maintenance activities listed in Table 1 in the Appendix are a combination of procedures that provide proactive measures to prevent malfunctions and procedures that provide responses to such malfunctions. For potential malfunctions, the following is provided as referenced above:

- A description of how the malfunction could credibly occur and lead to an exceedance;
- Design and operational proactive measures that have been taken to prevent occurrences of the malfunction; and
- Corrective measures that should be taken in response to the malfunction.

4.2 TEG DEHYDRATION

This section describes the operation of the TEG (Tri-Ethylene Glycol) Dehydration system for the TAP-5 Compressor Station. The TEG dehydration system removes water from the compressed gas. Gas flows into the TEG systems from the outlet of the gas compressors.

4.2.1 Description of Process

The dehydration system removes water present in gas streams entering into the units. The glycol dehydration systems use tri-ethylene glycol (TEG) as the dehydrating solution. The TEG contacts the gas in the absorber and absorbs almost all the waste present in the gas stream. Any hydrocarbons absorbed by the TEG systems is flashed off in a separator and used as fuel in the reboiler. The glycol is regenerated in a fuel-fired reboiler. The water lean glycol is returned to the absorber for further gas treating. The dehydration system emissions are controlled by a combination control device consisting of a condenser and a process heater. Uncondensed vapors from the condenser are routed to a process heater. This control device setup is designed to remove greater than 95% BTEX and VOC emissions.

4.2.2 TEG Startup Procedures

This section presents the procedures for startup of the dehydration units located at the TAP-5 Compressor Station. Detailed instructions for startup of the glycol dehydration systems are contained in the manufacturer's operating procedures that are incorporated into this plan by reference.

The sequence below is a general summary of the procedures used for startup of the glycol dehydration units. Actual startup procedures can be found in the glycol dehydration system's SOP:

1. Pressurize glycol dehydration units

    a. Confirm all block valves and bypass valves are open.

    b. Open separator vent valves and crack inlet valve until flow is heard.

    c. Remove hand hole cover on the flame arrestor and allow the firetube to purge for several minutes and close separator vent valve.

d. Once units are at pressure, fully open inlet and outlet valves.

e. Close bypass valves.

2. Light glycol reboiler pilot by following the procedure given on the flame arrestor and in the manufacturer's operating manual.

3. Light the main burner by allowing the fuel valve to open slightly.

   a. Adjust the mixer and regulator for a blue flame with a yellow "cast" at the tip of the flame.

   b. Shut-off main burner valve.

4. Start glycol circulation

   a. opening the glycol suction and discharge lines

   b. Start the pump and bleed air from lines

   c. Verify the pump flow and adjust as necessary using the speed control valves.

5. Once glycol circulation has been established, gas flow can be introduced to the contactor as follows:

   a. Establish gas rate to the contactor to approximately 25% of the design flow rate

   b. When circulation is maintained after 30 minutes of operation at 25% flow rate, slowly increase the gas rate to the contactor to the full design rate.

4.2.3 TEG Shutdown Procedures

Prior to shutting down the units, it is recommended to record the data for temperatures, pressures, liquid levels, and pump rates. This information will enable the unit to be put back in service in less time.

1. Close valves on burner manifold and continue to circulate glycol. Allow reboiler temperature to cool to around 175°F to 200°F to prevent overheating.

2. While maintaining gas pressure in the contactor, stop the gas flow through the contactor.

3. Stop the glycol pumps after the reboiler temperature has decreased.

4. Shut off the supply of fuel and instrument gas to the reconcentrator.

5. Standard maintenance procedures should be performed if the unit is to be taken out of service for an extended period of time.

4.2.4 Procedures to respond to TEG control malfunctions

This section provides information on the procedures for responding to identified malfunctions. The procedures listed in Table 1 in the Appendix are a combination of procedures that provide proactive measures to prevent malfunctions and procedures that provide responses to such malfunctions. For potential malfunctions, the following is provided as referenced above:

- A description of how the malfunction could credibly occur and lead to an exceedance;

- Design and operational proactive measures that have been taken to prevent occurrences of the malfunction; and

- Corrective measures that should be taken in response to the malfunction.

5.0 RECORDKEEPING REQUIREMENTS

As required by Section 63.6(e)(3) of the MACT General Provisions, Dominion will keep records for events of startup, shutdown, or corrective measures resulting from malfunction which document that the procedures referenced in the Plan were followed. Records will be maintained for events that occur where the procedures were not followed and for malfunction events that occur where no corresponding response to malfunctions exist in the SSMP. The occurrence and duration of all startups, shutdowns, and malfunctions must be maintained in the operating record. Dominion will document compliance with these record keeping requirements using the Dominion will maintain the current SSMP and will make it available for inspection upon request. In addition, if the SSMP is revised, Dominion will maintain each previous version of the SSMP for a period of 5 years after the revision of the plan.

6.0 REPORTING REQUIREMENTS

Reporting requirements pertaining to the SSMP are discussed in Section 63.10(d)(5) of the MACT General Provisions. Details on the SSMP reports are provided below:

6.1 Periodic Startup, Shutdown, and Malfunction Reports

These reports are required semi-annually and will be certified by the facility's Responsible Official. The reports must contain the following:

- If actions taken during a startup, shutdown, or malfunction event are consistent with the procedures specified in Dominion's SSMP, Dominion shall report such information in the semi-annual report.
- The identification of each instance if actions taken during startup, shutdown, or malfunction event are not consistent with the SSMP, but no exceedances occurs.
- Number, duration and brief report of each malfunction.
- The report shall consist of a letter containing the name, title, and signature of the responsible official certifying accuracy.
- Summary of any changes to the SSMP during the last reporting period.
- The report shall be delivered or postmarked by the 30th day following the end of each calendar half.

6.2 Immediate Startup, Shutdown, and Malfunction Reports

These reports must be certified by the facility's Responsible Official and must be filed as follows:

- Any time an action taken during startup, shutdown, or malfunction event is inconsistent with the procedures specified in the SSMP and an exceedances of an emission standard or operating limit occurs, Dominion will notify EPA Region 8 (i.e. by fax or telephone call) of such actions taken within 2 working days after commencing actions inconsistent with the SSMP
- Dominion will follow the initial notification with a letter postmarked 7 working days after the end of the event that does the following:
    - Includes the name, title, and signature of the responsible official certifying the letter's accuracy
    - Explains the circumstances of the event
    - Explains the reasons for not following the SSMP and
    - Describes whether any excess emissions and/or operating parameter limits exceedances are believed to have occurred.

6.3 Additional reporting requirements for continuous monitoring systems

These reports must be certified by the facility's Responsible Official and must be filed as follows:

- A copy of a written report of the results of the CMS performance evaluation and the performance test (required under Section 63.7) will be furnished to the Region 8 EPA.
- Excess emissions and continuous monitoring system performance report will be submitted to the Region 8 EPA
- Each report shall be delivered or postmarked by the 30th day following the end of each calendar half

6.4 Summary Report

This report must be certified by the facility's Responsible Official, must be entitled "Summary Report – Gaseous and Opacity Excess Emission and Continuous Monitoring System Performance" and must contain the following information:

- Company name and address of the affected source;
- Identification of each hazardous air pollutant (HAP) monitored at the affected source;
- Beginning and ending dates of the reporting period;
- Brief description of the process units;
- Emission and operating parameter limitations;
- Monitoring equipment manufacturer and model number;
- Date of the latest CMS certification or audit;
- Total operating time of the affected source during the reporting period;
- Emission data summary
    - Total duration of excess emissions during the reporting period
    - Total duration of excess emissions expressed as a percent of the total source operating time during the reporting period
    - Breakdown of the total duration of excess emissions during the reporting period according to which are startup/shutdown, control

equipment problems, process problems, other known causes and other unknown causes;

- CMS performance summary
    - Total CMS downtime during the reporting period
    - Total duration of CMS downtime expressed as a percent of the total source operating time during that reporting period
    - Breakdown of the total CMS downtime during the reporting period into periods that are due to monitoring equipment malfunctions, nonmonitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes and other unknown causes;
- Description of any changes in CMS, processes or controls since the last reporting period;
- The report shall consist of a letter containing the name, title, and signature of the responsible official certifying accuracy;
- Date of the report.

APPENDIX A

Table 1 - Potential Malfunctions from Affected Emission Sources

Catalyst Related Malfunctions	*Cause*	*Preventative Measure*
Carbon Fouled/Masked	Clogging of air cleaner, carburetor problem, or a too rich air/fuel mixture. A weak ignition voltage or extreme low cylinder compression can also contribute to carbon fouling	Regular check of pressure drop (ΔP-differential pressure) will alarm this condition as will visual inspection of catalyst. Correct air/fuel ratio of engine, conduct periodic chemical wash of the catalyst, check air filter, carburetor, and ignition system.
Ash Fouled/Masked	Ash fouling originates from the sulfated ash content in the engine oil	Regular check of pressure drop (ΔP-differential pressure) will alarm this condition as will visual inspection of catalyst. Engine - lower lube oil consumption rate, lower sulfated ash and ZDP content of oil, chemical wash of catalyst
Oil Fouled/Masked	Caused by too much oil entering the combustion chamber or a damaged turbocharger. A build up of crankcase pressure can force vapors past the rings and valve guides into the combustion chamber.	Regular check of pressure drop (ΔP-differential pressure) will alarm this condition as will visual inspection of catalyst. Correct engine, chemical wash of catalyst
Overheated	Condition caused by ignition misfire, sticking exhaust valve, or leaking intake manifold	replace catalyst, correct engine malfunction.
Mechanical Damage	Caused or accelerated by excess vibration or engine backfires	Recalibration of all engine parameters be done to ensure correct engine operation. Inspect and replace if need the catalyst element.
Catalyst Gasketing	Gaskets fail or leaking	Check gasket material or sealing mechanism around the perimeter of the catalyst element.
Catalyst Masking	Caused from sulfated ash that is present in the lubrication oil	Chemical wash of catalyst based on the observed increase in ΔP or decrease in ΔT
Controller Related Problems	Improper Exhaust Gas Oxygen sensor target	Controller should be fined tuned with an exhaust analyzer to determine the correct exhaust gas oxygen target voltage
Controller Related Problems	Aged Exhaust Gas Oxygen sensor	The exhaust gas oxygen sensors have an expected operating life of 2,000 hours and needs to be replaced at regular intervals as part of the preventative maintenance schedule
Engine Related Malfunctions	***Cause***	***Preventative Maintenance***
Exhaust Leaks		Check all exhaust components for leaks including turbocharger boot, expansion joint, flanges, and sample ports.
Ignition Misfire		Check magneto, ignition coils, wiring, spark plugs, and firing order
Leaking Exhaust Valves		Check exhaust valves with cylinder leak down test.
Low Combustion		Check ratio the cylinders
Low Load		Keep engine load at optimal levels
Glycol Dehydration Units Malfunction	***Cause***	***Preventative Maintenance***
High water content, High dew point of outgoing gas	insufficient glycol flow rate	Verify Glycol Pump operation / flow rate
	contact tower "coked" up	Verify glycol fluid not burned
	Glycol fluid burned/coked	Verify thermostatic control of reboiler burner operation

BTEX Control Malfunction	*Cause*	*Preventive Maintenance*
Temperature monitors not collecting data	equipment malfunction	Frequent inspection of monitoring equipment and data to ensure that its in proper working order

Planned Startup/Shutdown Checklist

This form is ONLY used to document actions taken during each planned startup and shutdown.

Facility ID: _____

Plan Developed by: _____

Date Plan Developed: _____

Equipment Type: _____

List below the procedure that was followed for each planned process equipment or air pollution control equipment startup or shutdown.

Procedure for (Startup Shutdown) circle one:

_____

_____

_____

There were (**check one**) _____ **NO** deviations from procedure

_____ Deviations from procedure (Fill out "Report of Deviation Form")

There were (**check one**) _____ NO excess emissions

_____ Excess emissions

Malfunction Plan/Checklist

This form is ONLY used to document actions taken during each malfunction the causes EXCESS EMISSIONS.

Facility ID: _____

Plan Developed by: _____

Date Plan Developed: _____

Equipment Type: _____

Description of Malfunction: _____

_____

_____

Event Date Start: _____

Event Time Start: _____

Event Recorded by: _____

Event Date End: _____

Event Time End: _____

List below the procedure that was followed to respond to the above described malfunction.

Procedure:

_____

_____

_____

There were (**check one**)

_____ **NO** deviations from procedure

_____ Deviations from procedure (Fill out "Report of Deviation Form")

Report Of Deviation From Startup/Shutdown/Malfunction Plan

Complete this form if a startup, shutdown, or malfunction occurred **WHICH CAUSED EXCESS EMISSIONS**, and the S/S/M Plan was **NOT** followed.

Facility ID: _____

Date Deviation Started: _____ Date Deviation Ended: _____
Time Deviation Started: _____ Time Deviation Ended: _____
Deviation Recorded By: _____

The deviation was a result of a: _____ **Startup** _____ **Shutdown** _____ **Malfunction**

The deviation involved the following equipment:

Circumstances leading to the event:

Reason for not following S/S/M Plan:

Continuous Monitoring System Downtime Report[a]

Company Name: _____ Page: _____

Reporting Period: From: _____ To: _____

CMS has not been inoperative, out-of-control, repaired or adjusted during the reporting period [b] ☐ Yes ☐ No

HAPs Monitored: _____

Name of Unit Monitored:

Downtime Began [c]		Downtime Ended [c]		Explanation of Downtime [d]	Corrective Action/Preventive Measures Taken [e]
Date	Time	Date	Time		

[a] As required by 40 CFR 63.8(c)(8) and 40 CFR 63.10(b)(2)(vi).
[b] 40 CFR 63.10(e)(3)(v).
[c] Downtime defined as inoperative, or out-of-control [40 CFR 63.10(c)(5) and (6)].
[d] 40 CFR 63.10(c)(10).
[e] Include nature of the repairs and adjustments made [40 CFR 63.10(c)(11) and (12)].