May 1, 2020

U.S. Environmental Protection Agency, Region 8
Office of Partnerships and Regulatory Assistance
Tribal Air Permitting Program, 8P-AR
1595 Wynkoop Street
Denver, Colorado 80202

Via electronic submittal to R8AirPermitting@epa.gov

RE:
XTO Energy Inc.
Wild Horse Bench Site
Permit # SMNSR-UO-000124-2012.001
2019 Annual Emission Inventory
Uintah County, Utah

To Whom It May Concern:

XTO Energy, Inc. respectfully submits the attached documentation regarding the 2019 Annual Emission Report for the Wild Horse Bench Site – NSR Permit # SMNSR-UO-000124-2012.001. This report and the associated attachments satisfy the reporting requirements for Permit # SMNSR-UO-000124-2012.001, Paragraph E.1.

The 2019 Annual Emissions for the XTO Energy Inc. – Wild Horse Bench Site which includes the onsite natural gas dehydration system contains the following attached documents:

- GRI GLYCalc, Version 4.0 Dehydrator Emission Simulation for the Wild Horse Bench Triethylene Glycol (TEG) Dehydration Unit for the Calendar Year 2019.
- Summary Table of 2019 Annual Emissions for the TEG Glycol System.
- 2019 Extended Gas Analysis for the Wild Horse Bench Dehydration System.

Should you have any questions or require additional information, please feel free to contact me at 832-625-4212 or allison_ginger@xtoenergy.com.

Sincerely,

Allison Ginger
Environmental Engineer
XTO Energy, Inc.

WCA/encl

2019 ANNUAL TEG DEHY EMISSIONS

Company: XTO Energy, Inc.
Facility Name: Wild Horse Bench Compressor Station
Facility Location: Uintah County, Utah
Source: TEG Dehydrator 1 - WHD-1

Rating: 1.12 MMSCFD
Control Equipment: > 95% DRE Thermal Oxidizer
Hours of Operation: 8485 hrs

Unit Description	Gas Flow Rate (MMSCFD)	VOCs (TPY)	Benzene (TPY)	Toluene (TPY)	Ethylbenzene (TPY)	Xylenes (TPY)	Total BTEX (TPY)
TEG Dehydrator 1 - WHD-1	1.12	61.8279	4.1788	2.1091	0.0000	0.0000	6.2879
Flash Tank Off Gas							
TOTAL UNCONTROLLED		61.83	4.18	2.11	0.00	0.00	6.29
TOTAL CONTROLLED		3.09	0.21	0.11	0.000	0.00	0.31

TO Control efficiency = 95.00% Regenerator Still Vent

Uncontrolled annual % 0.0%
Controlled annual % 100.0% Flash Gas

Note 1: Used GRI-GLYCalc 4.0 to calculate emissions

PERMITTED EMISSION S	MAXIMUM PERMITTED EMISSIONS (TPY)	2019 ANNUAL CALCULATED EMISSIONS (TPY)
VOC's	7.3	3.09
TOTAL BTEX	3.6	0.31

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Wild Horse Bench
File Name: W:\EHS\Environmental\Air\Areas of Operation\Utah_MSO\Wild Horse Bench\RT20131016 WHB Syn Minor Application\Supporting Documentation\Dehy Unit\RT20131209 WHB Dehy Model.ddf
Date: April 27, 2020

DESCRIPTION:

Description: Assume No Controls for Gly-Calc Model
Rotor-Tech GS1110-E (9.6 GPM)
Flash Tank Emissions - Recycled to Inlet Separator

Annual Hours of Operation: 8485.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.9896	23.751	4.1985
Ethane	1.6981	40.754	7.2040
Propane	2.4915	59.796	10.5701
Isobutane	1.1024	26.457	4.6768
n-Butane	2.0366	48.878	8.6403
Isopentane	0.9309	22.342	3.9495
n-Pentane	1.0364	24.873	4.3968
n-Hexane	0.7334	17.601	3.1114
Cyclohexane	1.1129	26.709	4.7214
Other Hexanes	0.8624	20.698	3.6588
Heptanes	1.3761	33.027	5.8383
Methylcyclohexane	1.0712	25.710	4.5448
2,2,4-Trimethylpentane	0.0311	0.747	0.1321
Benzene	0.9850	23.640	4.1788
Toluene	0.4971	11.931	2.1091
C8+ Heavies	0.3064	7.353	1.2998
Total Emissions	17.2612	414.268	73.2305
Total Hydrocarbon Emissions	17.2612	414.268	73.2305
Total VOC Emissions	14.5735	349.763	61.8279
Total HAP Emissions	2.2466	53.919	9.5314
Total BTEX Emissions	1.4821	35.571	6.2879

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	14.2047	340.912	60.2632
Ethane	6.0019	144.046	25.4631
Propane	4.1131	98.715	17.4499
Isobutane	1.1064	26.554	4.6939
n-Butane	1.5104	36.250	6.4079
Isopentane	0.5664	13.595	2.4032
n-Pentane	0.4885	11.723	2.0723
n-Hexane	0.1748	4.194	0.7414
Cyclohexane	0.0619	1.485	0.2625
Other Hexanes	0.2785	6.683	1.1814
Heptanes	0.1441	3.459	0.6114
Methylcyclohexane	0.0438	1.050	0.1856
2,2,4-Trimethylpentane	0.0068	0.163	0.0288
Benzene	0.0071	0.170	0.0301
Toluene	0.0021	0.050	0.0089
C8+ Heavies	0.0028	0.068	0.0121
Total Emissions	28.7132	689.117	121.8158
Total Hydrocarbon Emissions	28.7132	689.117	121.8158
Total VOC Emissions	8.5066	204.160	36.0895
Total HAP Emissions	0.1907	4.578	0.8093
Total BTEX Emissions	0.0092	0.221	0.0390

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:	1.11	lbs. H2O/MMSCF
Temperature:	82.0	deg. F
Pressure:	980.0	psig
Dry Gas Flow Rate:	1.1200	MMSCF/day
Glycol Losses with Dry Gas:	0.0101	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	34.88	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	342.64	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.14%	96.86%
Carbon Dioxide	88.14%	11.86%
Nitrogen	98.96%	1.04%
Methane	99.12%	0.88%
Ethane	97.29%	2.71%
Propane	96.05%	3.95%
Isobutane	94.67%	5.33%

n-Butane	93.04%	6.96%
Isopentane	93.29%	6.71%
n-Pentane	91.32%	8.68%
n-Hexane	86.65%	13.35%
Cyclohexane	54.85%	45.15%
Other Hexanes	89.57%	10.43%
Heptanes	77.84%	22.16%
Methylcyclohexane	53.77%	46.23%
2,2,4-Trimethylpentane	90.14%	9.86%
Benzene	8.22%	91.78%
Toluene	5.52%	94.48%
C8+ Heavies	64.49%	35.51%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 100.0 deg. F
Flash Pressure: 60.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.99%	0.01%
Carbon Dioxide	50.18%	49.82%
Nitrogen	6.43%	93.57%
Methane	6.51%	93.49%
Ethane	22.05%	77.95%
Propane	37.72%	62.28%
Isobutane	49.91%	50.09%
n-Butane	57.42%	42.58%
Isopentane	62.36%	37.64%
n-Pentane	68.13%	31.87%
n-Hexane	80.85%	19.15%
Cyclohexane	94.90%	5.10%
Other Hexanes	75.83%	24.17%
Heptanes	90.57%	9.43%
Methylcyclohexane	96.23%	3.77%
2,2,4-Trimethylpentane	82.38%	17.62%
Benzene	99.32%	0.68%
Toluene	99.61%	0.39%
C8+ Heavies	99.19%	0.81%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	97.95%	2.05%
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	0.80%	99.20%
n-Pentane	0.73%	99.27%
n-Hexane	0.62%	99.38%
Cyclohexane	3.37%	96.63%
Other Hexanes	1.32%	98.68%
Heptanes	0.55%	99.45%
Methylcyclohexane	4.16%	95.84%
2,2,4-Trimethylpentane	1.82%	98.18%
Benzene	5.03%	94.97%
Toluene	7.93%	92.07%
C8+ Heavies	12.10%	87.90%

STREAM REPORTS:

WET GAS STREAM

Temperature: 82.00 deg. F
Pressure: 994.70 psia
Flow Rate: 4.73e+004 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.35e-002	1.65e+000
Carbon Dioxide	6.47e-001	3.55e+001
Nitrogen	5.48e-001	1.92e+001
Methane	8.61e+001	1.72e+003
Ethane	7.57e+000	2.84e+002
Propane	3.04e+000	1.67e+002
Isobutane	5.71e-001	4.14e+001
n-Butane	7.03e-001	5.10e+001
Isopentane	2.48e-001	2.23e+001
n-Pentane	1.95e-001	1.76e+001
n-Hexane	6.33e-002	6.80e+000
Cyclohexane	2.48e-002	2.60e+000
Other Hexanes	1.02e-001	1.09e+001
Heptanes	5.49e-002	6.86e+000
Methylcyclohexane	1.97e-002	2.41e+000
2,2,4-Trimethylpentane	2.70e-003	3.85e-001
Benzene	1.11e-002	1.08e+000
Toluene	4.60e-003	5.28e-001
C8+ Heavies	4.10e-003	8.71e-001
Total Components	100.00	2.40e+003

DRY GAS STREAM

Temperature: 82.00 deg. F
Pressure: 994.70 psia
Flow Rate: 4.67e+004 scfh

Component	Conc.	Loading

	(vol%)	(lb/hr)
Water	2.34e-003	5.18e-002
Carbon Dioxide	5.79e-001	3.13e+001
Nitrogen	5.51e-001	1.90e+001
Methane	8.66e+001	1.71e+003
Ethane	7.47e+000	2.76e+002
Propane	2.96e+000	1.61e+002
Isobutane	5.48e-001	3.92e+001
n-Butane	6.63e-001	4.74e+001
Isopentane	2.35e-001	2.08e+001
n-Pentane	1.81e-001	1.61e+001
n-Hexane	5.56e-002	5.89e+000
Cyclohexane	1.38e-002	1.43e+000
Other Hexanes	9.24e-002	9.80e+000
Heptanes	4.33e-002	5.34e+000
Methylcyclohexane	1.07e-002	1.30e+000
2,2,4-Trimethylpentane	2.47e-003	3.47e-001
Benzene	9.25e-004	8.88e-002
Toluene	2.58e-004	2.92e-002
C8+ Heavies	2.68e-003	5.61e-001
Total Components	100.00	2.34e+003

LEAN GLYCOL STREAM

Temperature: 82.00 deg. F
Flow Rate: 9.00e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	4.99e+003
Water	1.50e+000	7.60e+001
Carbon Dioxide	8.32e-012	4.21e-010
Nitrogen	3.92e-013	1.99e-011
Methane	1.01e-017	5.11e-016
Ethane	7.17e-008	3.63e-006
Propane	5.30e-009	2.69e-007
Isobutane	1.31e-009	6.63e-008
n-Butane	1.74e-009	8.80e-008
Isopentane	1.48e-004	7.52e-003
n-Pentane	1.51e-004	7.66e-003
n-Hexane	9.01e-005	4.56e-003
Cyclohexane	7.66e-004	3.88e-002
Other Hexanes	2.27e-004	1.15e-002
Heptanes	1.51e-004	7.64e-003
Methylcyclohexane	9.17e-004	4.65e-002
2,2,4-Trimethylpentane	1.14e-005	5.77e-004
Benzene	1.03e-003	5.22e-002
Toluene	8.45e-004	4.28e-002
C8+ Heavies	8.32e-004	4.22e-002
Total Components	100.00	5.07e+003

RICH GLYCOL STREAM

Temperature: 82.00 deg. F
Pressure: 994.70 psia
Flow Rate: 9.11e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.75e+001	4.99e+003
Water	1.52e+000	7.76e+001
Carbon Dioxide	8.23e-002	4.21e+000
Nitrogen	3.89e-003	1.99e-001
Methane	2.97e-001	1.52e+001
Ethane	1.50e-001	7.70e+000
Propane	1.29e-001	6.60e+000
Isobutane	4.31e-002	2.21e+000
n-Butane	6.93e-002	3.55e+000
Isopentane	2.94e-002	1.50e+000
n-Pentane	2.99e-002	1.53e+000
n-Hexane	1.78e-002	9.13e-001
Cyclohexane	2.37e-002	1.21e+000
Other Hexanes	2.25e-002	1.15e+000
Heptanes	2.98e-002	1.53e+000
Methylcyclohexane	2.27e-002	1.16e+000
2,2,4-Trimethylpentane	7.52e-004	3.85e-002
Benzene	2.04e-002	1.04e+000
Toluene	1.06e-002	5.42e-001
C8+ Heavies	6.86e-003	3.51e-001
Total Components	100.00	5.12e+003

FLASH TANK OFF GAS STREAM

Temperature: 100.00 deg. F
Pressure: 74.70 psia
Flow Rate: 4.94e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	4.32e-002	1.01e-002
Carbon Dioxide	3.67e+000	2.10e+000
Nitrogen	5.11e-001	1.86e-001
Methane	6.81e+001	1.42e+001
Ethane	1.53e+001	6.00e+000
Propane	7.17e+000	4.11e+000
Isobutane	1.46e+000	1.11e+000
n-Butane	2.00e+000	1.51e+000
Isopentane	6.03e-001	5.66e-001
n-Pentane	5.20e-001	4.88e-001
n-Hexane	1.56e-001	1.75e-001
Cyclohexane	5.65e-002	6.19e-002
Other Hexanes	2.48e-001	2.78e-001
Heptanes	1.11e-001	1.44e-001
Methylcyclohexane	3.43e-002	4.38e-002
2,2,4-Trimethylpentane	4.56e-003	6.78e-003
Benzene	6.99e-003	7.10e-003
Toluene	1.75e-003	2.10e-003
C8+ Heavies	1.28e-003	2.85e-003

Total Components	100.00	3.10e+001

FLASH TANK GLYCOL STREAM

Temperature: 100.00 deg. F
Flow Rate: 9.05e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.81e+001	4.99e+003
Water	1.53e+000	7.76e+001
Carbon Dioxide	4.16e-002	2.11e+000
Nitrogen	2.52e-004	1.28e-002
Methane	1.95e-002	9.90e-001
Ethane	3.34e-002	1.70e+000
Propane	4.90e-002	2.49e+000
Isobutane	2.17e-002	1.10e+000
n-Butane	4.00e-002	2.04e+000
Isopentane	1.84e-002	9.38e-001
n-Pentane	2.05e-002	1.04e+000
n-Hexane	1.45e-002	7.38e-001
Cyclohexane	2.26e-002	1.15e+000
Other Hexanes	1.72e-002	8.74e-001
Heptanes	2.72e-002	1.38e+000
Methylcyclohexane	2.20e-002	1.12e+000
2,2,4-Trimethylpentane	6.23e-004	3.17e-002
Benzene	2.04e-002	1.04e+000
Toluene	1.06e-002	5.40e-001
C8+ Heavies	6.85e-003	3.49e-001
Total Components	100.00	5.09e+003

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 1.78e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.88e+001	1.59e+000
Carbon Dioxide	1.02e+001	2.12e+000
Nitrogen	9.74e-002	1.28e-002
Methane	1.32e+001	9.90e-001
Ethane	1.20e+001	1.70e+000
Propane	1.20e+001	2.49e+000

Isobutane	4.04e+000	1.10e+000
n-Butane	7.47e+000	2.04e+000
Isopentane	2.75e+000	9.31e-001
n-Pentane	3.06e+000	1.04e+000
n-Hexane	1.81e+000	7.33e-001
Cyclohexane	2.82e+000	1.11e+000
Other Hexanes	2.13e+000	8.62e-001
Heptanes	2.93e+000	1.38e+000
Methylcyclohexane	2.33e+000	1.07e+000
2,2,4-Trimethylpentane	5.81e-002	3.11e-002
Benzene	2.69e+000	9.85e-001
Toluene	1.15e+000	4.97e-001
C8+ Heavies	3.83e-001	3.06e-001
Total Components	100.00	2.10e+001

QUESTAR ENERGY SERVICES

1210 D. Street, Rock Springs, Wyoming 82901

(307) 352-7292

Description:	Wild Horse Bench Pre Contactor	Company:	XTO
Field:	Vernal	Data File:	004466.D
Meter Number:		G.C. Method:	GAS EXTENDED.M
Analysis Date/Time:	12-Jun-19, 08:33:53	GPA Method	GPA 2286
Date Sampled:	6-Jun-19	Sampled By:	KL
Sample Temperature:	82	Analyst Initials:	TVS
Sample Pressure:	980		

Component	Mol%	Wt%	LV%
Methane	86.1839	72.0090	79.6741
Ethane	7.5727	11.8593	11.0756
Propane	3.0414	6.9848	4.5735
Isobutane	0.5714	1.7297	1.0201
n-Butane	0.6956	2.1056	1.1968
Neopentane	0.0078	0.0295	0.0164
Isopentane	0.2480	0.9319	0.4954
n-Pentane	0.1954	0.7341	0.3861
2,2-Dimethylbutane	0.0078	0.0350	0.0178
2,3-Dimethylbutane	0.0119	0.0536	0.0267
2-Methylpentane	0.0513	0.2301	0.1161
3-Methylpentane	0.0308	0.1380	0.0685
n-Hexane	0.0633	0.2839	0.1419
Heptanes	0.1178	0.5652	0.2489
Octanes	0.0041	0.0243	0.0111
Nonanes	0.0000	0.0000	0.0000
Decanes plus	0.0000	0.0000	0.0000
Nitrogen	0.5489	0.8009	0.3284
Carbon Dioxide	0.6479	1.4851	0.6026
Oxygen	ND	ND	ND
Hydrogen Sulfide	ND	ND	ND
Total	100.0000	100.0000	100.0000

Calculated Global Properties		**Units**
Gross BTU/Real CF	1160.2	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	1141.3	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9971	
Specific Gravity	0.6647	air=1
Avg Molecular Weight	19.201	gm/mole
Propane GPM	0.833534	gal/MCF
Butane GPM	0.405242	gal/MCF
Gasoline GPM	0.275793	gal/MCF
26# Gasoline GPM	0.494528	gal/MCF
Total GPM	3.707830	gal/MCF
Base Mol%	100.574	%v/v

H2S detection limit 100 ppm (+/-)

Component	Mol%	Wt%	LV%
Benzene	0.0111	0.0452	0.0170
Toluene	0.0046	0.0221	0.0084
Ethylbenzene	0.0000	0.0000	0.0000
M&P Xylene	0.0000	0.0000	0.0000
O-Xylene	0.0000	0.0000	0.0000
2,2,4-Trimethylpentane	0.0027	0.0161	0.0074
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0248	0.1088	0.0461
Methylcyclohexane	0.0197	0.1009	0.0433
Description:	Wild Horse Bench Pre Contactor		

GRI GlyCalc Information

Component	Mol%	Wt%	LV%
Carbon Dioxide	0.6479	1.4851	0.6026
Hydrogen Sulfide	ND	ND	ND
Nitrogen	0.5489	0.8009	0.3284
Methane	86.1839	72.0090	79.6741
Ethane	7.5727	11.8593	11.0756
Propane	3.0414	6.9848	4.5735
Isobutane	0.5714	1.7297	1.0201
n-Butane	0.7034	2.1056	1.1968
Isopentane	0.2480	0.9614	0.5118
n-Pentane	0.1954	0.7341	0.3861
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.0633	0.2839	0.1419
Cyclohexane	0.0248	0.1088	0.0461
Other Hexanes	0.1018	0.4567	0.2291
Heptanes	0.0549	0.2721	0.1267
Methylcyclohexane	0.0197	0.1009	0.0433
2,2,4 Trimethylpentane	0.0027	0.0161	0.0074
Benzene	0.0111	0.0452	0.0170
Toluene	0.0046	0.0221	0.0084
Ethylbenzene	0.0000	0.0000	0.0000
Xylenes	0.0000	0.0000	0.0000
C8+ Heavies	0.0041	0.0243	0.0111
Subtotal	100.0000	100.0000	100.0000
Oxygen	ND	ND	ND
Total	100.0000	100.0000	100.0000