



BISON

ENGINEERING, INC.

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August 14, 2015

NSR Program Manager / Attn.: O&G Production Facilities
Air Quality Division
Department of Environmental Quality
Herschler Building, 2-E
122 West 25th Street
Cheyenne, WY 82002

Dear Program Manager:

RE: Ballard Petroleum Holdings, LLC – Reno 42-5 TH Facility

Bison Engineering, Inc. (Bison) is submitting a permit application on behalf of Ballard Petroleum Holdings, LLC (Ballard) for the Reno 42-5 TH Facility which is subject to the requirements for oil and gas production facilities under the Wyoming Air Quality Standards and Regulations. This facility consists of a single well production site.

All required facility and emissions information has been entered into the IMPACT reporting system. Additional supporting information including the emission calculations, E&P Tank program inputs and outputs, low pressure oil analysis and gas analysis, and site plans have been uploaded into IMPACT for this facility.

Regarding emissions entry into IMPACT, all emissions generated from the oil tanks, including those generated from combusting tank gas, were entered under the oil tanks and not under the flare controlling the emissions. Oil and water tank emissions were divided equally between the total number of oil and water tanks for entry into IMPACT.

Please send all correspondence regarding this matter to Ballard, Attn: Ben Davis with a copy to Bison. If the Department has any questions or concerns, please contact me (406.442.5768 or dfleming@bison-eng.com). I will be pleased to assist you.

Sincerely,
BISON ENGINEERING, INC.

Derek Fleming
Project Engineer

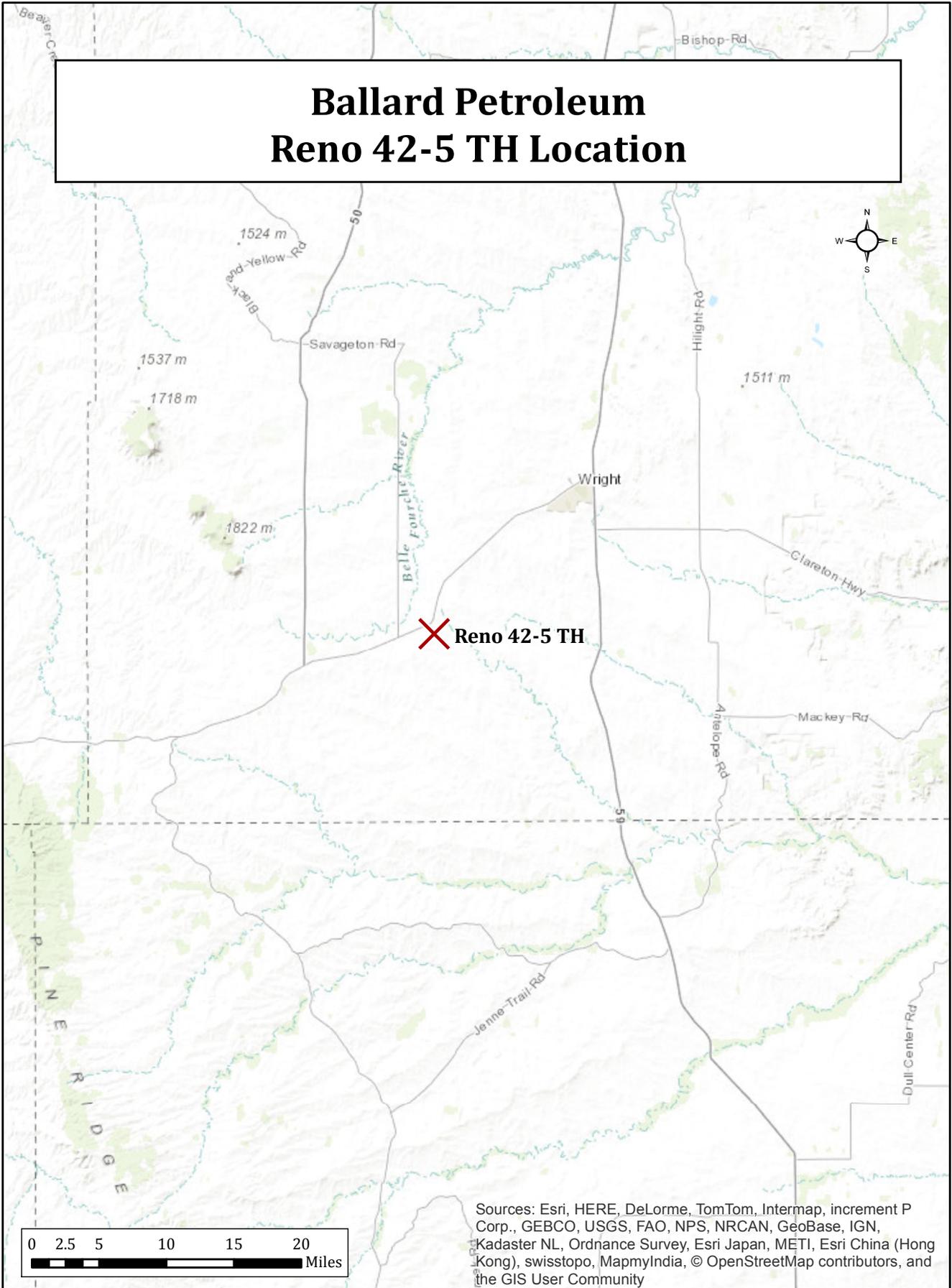
cc: Ben Davis, Ballard Petroleum Holdings, LLC
Bison File BLP215023

Attachments

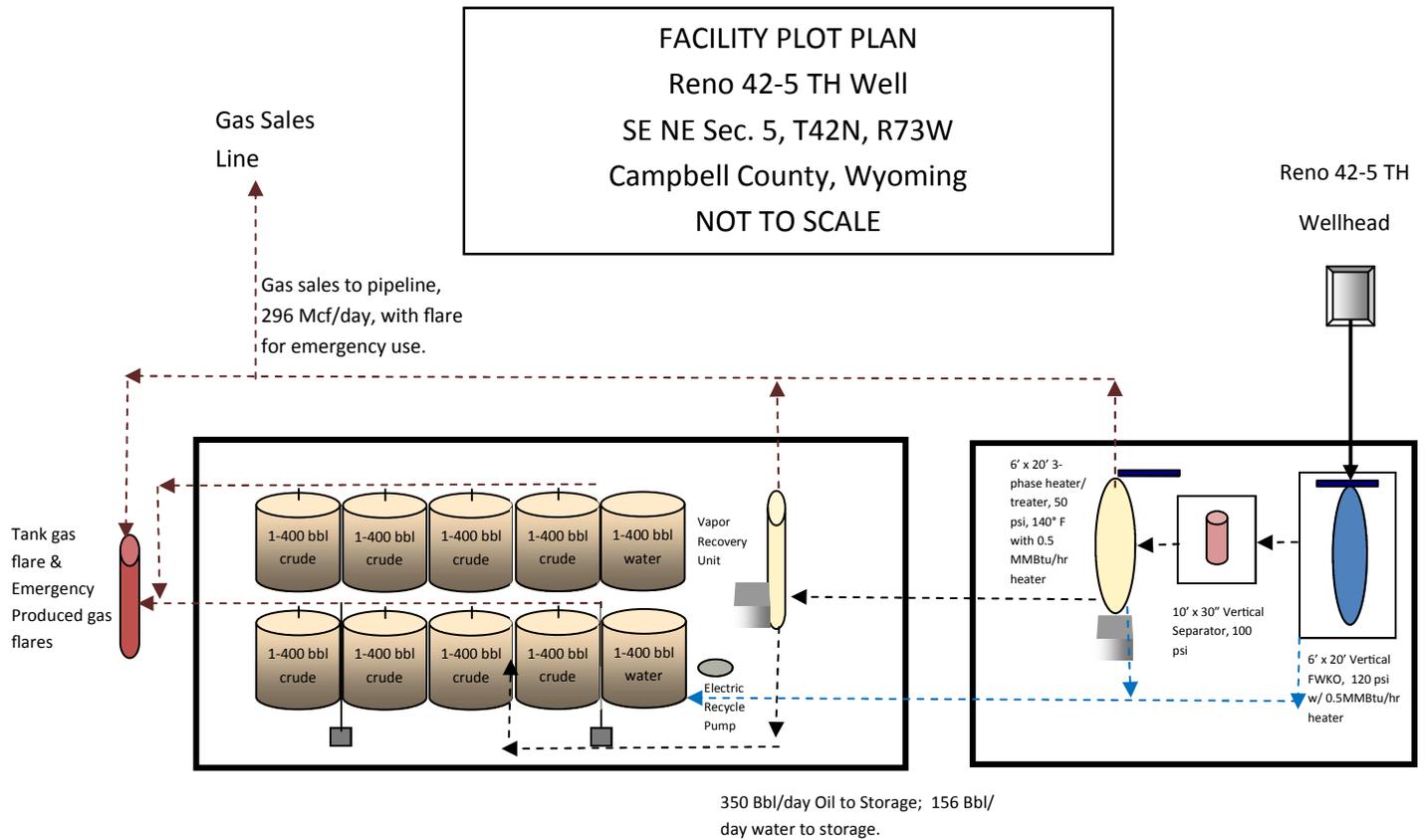
Ballard Petroleum Holdings, LLC - Reno 42-5 TH**IMPACT Equipment List**

Equipment ID	IMPACT ID	Equipment Description
Flare #1	FLA001, FLR001	Tank gas flare
Flare #2	FLA002, FLR002	Emergency produced gas flare
Fugitives #1	FUG001	Equipment leaks from oil and gas production equipment
Fugitives #2	FUG002	Fugitive dust emissions from vehicle traffic
Heater #1	HET001	Heater for the heater-treater/three phase separator
Heater #2	HET002	Heater for the freewater knock out
Truck Loading	LUD001	Truck loading of produced oil
Heater Treater #1	SEP001	Heater-treater/three phase separator
FWKO #1	SEP002	Freewater knock out
Two Phase #1	SEP003	Two Phase Separator
Tank #1	TNK001	Oil storage tank
Tank #2	TNK002	Oil storage tank
Tank #3	TNK003	Oil storage tank
Tank #4	TNK004	Oil storage tank
Tank #5	TNK005	Oil storage tank
Tank #6	TNK006	Oil storage tank
Tank #7	TNK007	Oil storage tank
Tank #8	TNK008	Oil storage tank
Tank #9	TNK009	Produced water storage tank
Tank #10	TNK010	Produced water storage tank

Ballard Petroleum Reno 42-5 TH Location

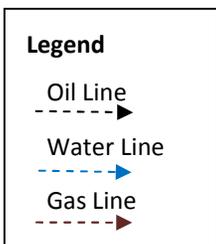


Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



Air emission sources in the diagram are the oil and water storage tanks, flares, truck loading losses, two 0.5 MMBtu heaters, fugitive VOC and road dust emissions.

The oil/water/gas emulsion produced at the wellhead is initially sent to the free water knockout, where a portion of produced water is separated from the oil/gas. The remaining fluids are processed in a 2-phase separator, which is used to separate a portion gas from the oil. The remaining fluids are sent to a heated, three phase separator which provides additional oil/water/gas separation. After 3-phase and two phase separation, a vapor recovery unit collects the flashed vapors prior to the oil entering storage tanks. Produced oil is sent to the storage tanks, where a tank gas flare provides emissions control. Gas produced in 3-phase separation and in the VRU is sold through a gas sales line, with a flare on-site to serve as an emergency backup. In the event that the vapor recovery unit is not working, the tank gas flare will control all produced oil tank emissions. Produced water is also sent to onsite storage tanks. An electric recycle pump is available to send tank fluids back through the separation process if needed. Both oil and water are trucked from on-site storage tanks to be sold or disposed of.



Ballard Petroleum Holdings, LLC

Well Completion Name: **Reno 42-5 TH**

Location: (QTR/QTR, Sec., T, R) SE NE 5 42 N 73 W
 Location: (Lat. & Long.) 43.6422 Deg. North -105.64673 Deg. East
 County: Campbell Formation: Turner Field: WC
 Production Start Date: 5/23/2015

Site and Equipment Information

Name/Description	Manufacturer	Unit Type/ Model	Mfr. Date	Design Capacity	Number	Fuel Type
Production Oil Tanks	Cameron	Steel	2014	400 bbl	8	NA
Produced Water Tanks	Cameron	Fiberglass	2014	400 bbl	2	NA
Recycle Pump	Baldor	N/A	N/A	5 bhp	1	Electric
Flare for Treater	Yes	N/A	5/23/2015	NA	NA	NA
Storage Tanks Controlled?	Yes	N/A	5/23/2015	NA	NA	NA
Sales Oil Transport by	Truck					
Heater Size, MMBtu		1.0				

Oil Well Site Production Data

# Wells Producing to Battery	1 Well(s)
Maximum 30-day Avg. Oil Production	583 bbl/day
Maximum 30-day Avg. Wastewater Production	260 bbl/day
Maximum 30-day Avg. Gas Produced	493 Mcf/day
Decline Factor	0.6 WDEQ Default
Average Daily Oil Production	350 bbl/day
Average Wastewater Production	156 bbl/day
Est Average Daily Gas Produced	296 Mcf/day
Annual Hours per Year	8760 hr

Producing Wells Flow to Tank Battery	Initial BOPD	Initial MCFD	Initial BWPD	Production Start Date	Well Formation	Well Field
Reno 42-5 TH	583	493	260	5/23/2015	Turner	WC

Total: 583 493 260

Reno 42-5 TH Emissions Summary

Component Emitted	Potential Emissions		Controlled Emissions	
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
VOC	84.25	369.02	3.12	13.68
NOx	0.05	0.23	0.18	0.80
CO	0.04	0.19	0.75	3.30
SO2	0.00	0.00	0.00	0.00
PM-10	0.06	0.28	0.08	0.34
PM-2.5	0.06	0.28	0.08	0.34
Total HAPs	0.96	4.22	0.04	0.16
CO2	117.7	515.6	341.6	1,496.3
CH4	1.56	6.82	0.06	0.28
N2O	0.00	0.00	0.00	0.00
CO2e	156.7	686.4	343.5	1504.5

Ballard Petroleum Holdings, LLC

Reno 42-5 TH

Treater Flare Combustion Emissions

Assumed flaring emission hours:	0	hrs/yr
Avg. gas burn rate	0.00	Mcf/day
Produced Gas Heat Content	1892.40	Btu/scf
VOC in gas	56.88%	
HAPs in gas	0.09%	
Ideal gas constant (C)	379	scf/lb-mole
Gas MW	33.48	lb/lb-mole

Pollutant	Emission Factor		Basis	Potential Emissions		Controlled Emissions	
				(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
VOC	98%	Efficiency	40 CFR 60.18	0.0000	0.0000	0.0000	0.0000
Total HAPs	98%	Efficiency	40 CFR 60.18	0.0000	0.0000	0.0000	0.0000
Benzene	0.0	% of total HAPS	E&P TANKS 2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	0.1	% of total HAPS	E&P TANKS 2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
E-Benzene	0.0	% of total HAPS	E&P TANKS 2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes	0.0	% of total HAPS	E&P TANKS 2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
n-Hexane	0.7	% of total HAPS	E&P TANKS 2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2,2,4-Trimethylpentane	0.1	% of total HAPS	E&P TANKS 2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VOC	5.50	lb/10 ⁶ scf	AP-42 ^(a)	0.0000	0.0000	0.0000	0.0000
NOx	0.068	lb/10 ⁶ BTU	AP-42 ^(b)	0.0000	0.0000	0.0000	0.0000
CO	0.37	lb/10 ⁶ BTU	AP-42 ^(b)	0.0000	0.0000	0.0000	0.0000
SO2	0.6	lb/10 ⁶ scf	AP-42 ^(a)	0.0000	0.0000	0.0000	0.0000
PM-10	16.73	lb/10 ⁶ scf	AP-42 ^(c)	0.0000	0.0000	0.0000	0.0000
PM-2.5	16.73	lb/10 ⁶ scf	AP-42 ^(c)	0.0000	0.0000	0.0000	0.0000
CO2	5.31E+01	kg/mmBtu	Part 98, Table C-1	0.00	0.00	0.00	0.00
CH4	1.00E-03	kg/mmBtu	Part 98, Table C-2	0.00	0.00	0.00E+00	0.00E+00
N2O	1.00E-04	kg/mmBtu	Part 98, Table C-2	0.00	0.00	0.00E+00	0.00E+00
CO2e	Calculated using global warming potential			0	0	0	0
Hazardous Air Pollutants (HAP)							
2-Methylnaphthalene	2.40E-05	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
3-Methylchloranthrene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
7-12-Dimethylbenz(a)anthracene	1.60E-05	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Acenaphthene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Acenaphthylene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Anthracene	2.40E-06	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Benz(a)anthracene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Benzen(b)	2.10E-03	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Benzo(a)pyrene	1.20E-06	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Benzo(b)fluoranthene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Benzo(g,h,i)perylene	1.20E-06	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Benzo(k)fluoranthene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Chrysene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Dibenzo(a,h)anthracene	1.20E-06	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Dichlorobenzene	1.20E-03	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Fluoranthene	3.00E-06	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Fluorene	2.80E-06	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Formaldehyde	7.50E-02	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Hexane	1.80E+00	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Indeno(1,2,3-cd)pyrene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Naphthalene	6.10E-04	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Phenanthrene	1.70E-05	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Pyrene	5.00E-06	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Toluene	3.40E-03	lb/10 ⁶ scf	AP-42 ^(a)	0.00E+00	0.00E+00	0.0000	0.0000
Total HAPs:				0.0000	0.0000	0.0000	0.0000

(a) AP42, Table 1.4-1,2,& 3, 7/1998, (b) AP-42, 13.5, Table 13.5-1

(c) combination of PM emission factor from AP-41 13.5-1 and PM condensibles emission factor from AP-42 1.4-2

Ballard Petroleum Holdings, LLC

Reno 42-5 TH
Oil Tank Emissions

400 bbl Production Tanks

Tank vents controlled? (Y/N):

Yes

Oil Production 349.80 bbl/day (BOPD)
 Emitted gas molecular weight 47.08 lb/lb-mole
 Tank Gas Emissions 49.83 scf/bbl
 Emitted HC gas amount 726.28 scf/hr
 Emitted HC gas heat value 2641.0 BTU/scf
 Tank Gas Btu Rate 1.92 10⁶BTU/hr

Component Emitted	Basis			Potential Emissions ^(c)		Controlled Emissions ^(b)	
				(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
VOC	1.04	tpy/bopd	E&P TANK	82.79	362.61	1.66	7.25
Total HAPs	0.012	tpy/bopd	E&P TANK	9.48E-01	4.15E+00	1.90E-02	8.30E-02
Benzene	4.53%	% of total HAPS	E&P TANK	4.30E-02	1.88E-01	8.59E-04	3.76E-03
Toluene	9.83%	% of total HAPS	E&P TANK	9.32E-02	4.08E-01	1.86E-03	8.16E-03
E-Benzene	7.94%	% of total HAPS	E&P TANK	7.52E-02	3.29E-01	1.50E-03	6.59E-03
Xylenes	5.90%	% of total HAPS	E&P TANK	5.59E-02	2.45E-01	1.12E-03	4.90E-03
n-Hexane	69.14%	% of total HAPS	E&P TANK	6.55E-01	2.87E+00	1.31E-02	5.74E-02
2,2,4-Trimethylpentane	2.66%	% of total HAPS	E&P TANK	2.52E-02	1.10E-01	5.04E-04	2.21E-03
CH4	1.91E-02	tpy/bopd	E&P TANK	1.52	6.67	0.03	0.13
CO2	1.21E-02	tpy/bopd	E&P TANK	0.96	4.22	0.96	4.22
CO2e	Calculated using global warming potential			39	171	2	8
Flare Combustion Component ^(a)	Emission Factor		Reference				
VOC	5.50	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0040	0.02
NOx	0.068	lb/10 ⁶ BTU	AP-42 ^(d)	0.00	0.00	0.1304	0.57
CO	0.37	lb/10 ⁶ BTU	AP-42 ^(d)	0.00	0.00	0.7097	3.11
SO2	0.6	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0004	0.00
PM-10	16.73	lb/10 ⁶ scf	AP-42 ^{(c)(d)}	0.00	0.00	0.0122	0.05
PM-2.5	16.73	lb/10 ⁶ scf	AP-42 ^{(c)(d)}	0.00	0.00	0.0122	0.05
CO2	5.31E+01	kg/mmBtu	Part 98, Table C-1	0.00	0.00	223.9024	980.69
CH4	1.00E-03	kg/mmBtu	Part 98, Table C-2	0.00	0.00	0.0042	1.85E-02
N2O	1.00E-04	kg/mmBtu	Part 98, Table C-2	0.00	0.00	0.0004	1.85E-03
CO2e	Calculated using global warming potential			0	0	224	982
Hazardous Air Pollutants (HAP)							
2-Methylnaphthalene	2.40E-05	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	7.63E-08
3-Methylchloranthrene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	5.73E-09
7-12-Dimethylbenz(a)anthracene	1.60E-05	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	5.09E-08
Acenaphthene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	5.73E-09
Acenaphthylene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	5.73E-09
Anthracene	2.40E-06	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	7.63E-09
Benz(a)anthracene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	5.73E-09
Benzeneb	2.10E-03	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	6.68E-06
Benzo(a)pyrene	1.20E-06	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	3.82E-09
Benzo(b)fluoranthene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	5.73E-09
Benzo(g,h,i)perylene	1.20E-06	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	3.82E-09
Benzo(k)fluoranthene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	5.73E-09
Chrysene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	5.73E-09
Dibenzo(a,h)anthracene	1.20E-06	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	3.82E-09
Dichlorobenzene	1.20E-03	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	3.82E-06
Fluoranthene	3.00E-06	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	9.54E-09
Fluorene	2.80E-06	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	8.91E-09
Formaldehyde	7.50E-02	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0001	2.39E-04
Hexane	1.80E+00	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0013	5.73E-03
Indeno(1,2,3-cd)pyrene	1.80E-06	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	5.73E-09
Naphthalene	6.10E-04	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	1.94E-06
Phenanthrene	1.70E-05	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	5.41E-08
Pyrene	5.00E-06	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	1.59E-08
Toluene	3.40E-03	lb/10 ⁶ scf	AP-42 ^(c)	0.00	0.00	0.0000	1.08E-05
Total HAPs:				0.00	0.00	1.37E-03	0.0060

(a) Tank emissions controlled at 98% per WDEQ requirements

(b) Emission calculations include potential emissions due to flaring tank gas to account for potential time when the VRU is down.

(c) AP42, Table 1.4-1,2,& 3, 7/1998

(d) AP-42, 13.5, Table 13.5-1

Ballard Petroleum Holdings, LLC

Reno 42-5 TH

Oil Truck Loading Emissions

Vapor MW	50 lb/lb-mole	From AP 42, Chapter 5.2, Table 5.2.1, sales oil RVP of 5
Sales Oil Vapor Pressure	2.3 psia	Calculated from Sales Oil RVP using AP-42 Fig. 7.1-13a at avg. temp. of 50°F
Saturation Factor (S)	0.60 fraction	From AP 42, Chapter 5.2, Table 5.2.1
Ideal Gas Constant (C)	379 scf/lb-mole	
Volume Oil =	350 bbl/day	

Oil Transport by: Truck

Pollutant	Emission Factor	Basis	Potential Emissions ^(a)		Controlled Emissions ^(b)	
			(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
VOC	1.7 lb/1000 gal	AP-42 5.2	1.0320	4.5200	1.0320	4.5200
CO2	0.020 Ratio of CO2/VOC	Calculation	0.020	0.0887	0.020	0.0887
CH4	0.031 Ratio of CH4/VOC	Calculation	0.032	0.1401	0.032	0.1401
Total HAPs	1.14% frac of VOC	Calculation	0.0118	0.0517	0.0118	0.0517

(a) Uncontrolled = Truck transport

(b) Controlled = Pipeline transport if available, otherwise = to truck transport.

Reno 42-5 TH

Produced Water Tank Emissions

Wastewater rate: 156 bbl/day Tank vents connected to flare? (Y/N):

Pollutant	Emission Factor	Basis	Potential Emissions		Controlled Emissions	
			(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
VOC	1.84E-03 ton VOC / 1000 bopd	WDEQ EI ³	0.0027	0.0120	0.0027	0.0120
Total HAPs	1.14% frac of VOC	Calculation	0.0000	0.0001	0.0000	0.0001

³Emission factor derived from the Wyoming DEQ 2013 Southern Powder River Basin emission inventory for Campbell County produced water

Ballard Petroleum Holdings, LLC

Reno 42-5 TH

Separation Vessel Heaters

Natural gas fired, fire tube heater in treaters

Heater in Use? (Y/N):

Total Heater Burner Size 1.0 MMBtu/hr
 Natural Gas Heat Value: 1892.40 BTU/scf
 Gas volume 0.53 Mscf/hr
 VOC (NMHC) in gas 56.88%
 HAPs in gas 0.09%
 Ideal gas constant (C) 379 scf/lb-mole
 Gas MW 33.48 lb/lb-mole

Pollutant	Emission Factor	Basis	Potential Emissions		Controlled Emissions		
			(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
VOC	5.50 lb/10 ⁶ scf	AP42 ^(a)	2.906E-03	0.0127	2.906E-03	0.0127	
NOx	100 lb/10 ⁶ scf	AP42 ^(a)	5.284E-02	0.2315	5.284E-02	0.2315	
CO	84 lb/10 ⁶ scf	AP42 ^(a)	4.439E-02	0.1944	4.439E-02	0.1944	
SO2	0.6 lb/10 ⁶ scf	AP42 ^(a)	3.171E-04	0.0014	3.171E-04	0.0014	
PM-10	1.9 lb/10 ⁶ scf	AP42 ^(a)	1.004E-03	0.0044	1.004E-03	0.0044	
PM-2.5	1.9 lb/10 ⁶ scf	AP42 ^(a)	1.004E-03	0.0044	1.004E-03	0.0044	
CO2	5.31E+01 kg/mmBtu	Part 98, Table C-1	116.73	511.29	117	511	
CH4	1.00E-03 kg/mmBtu	Part 98, Table C-2	0.00	0.01	0.00	0.01	
N2O	1.00E-04 kg/mmBtu	Part 98, Table C-2	0.00	0.00	0.00	0.00	
CO2e	Calculated using global warming potential		1.17E+02	512	1.17E+02	5.12E+02	
Hazardous Air Pollutants (HAP)							
2-Methylnaphthalene	2.40E-05 lb/10 ⁶ scf	AP42 ^(a)	1.268E-08	5.555E-08	1.268E-08	5.555E-08	
3-Methylchloranthrene	1.80E-06 lb/10 ⁶ scf	AP42 ^(a)	9.512E-10	4.166E-09	9.512E-10	4.166E-09	
7-12-Dimethylbenz(a)anthracene	1.60E-05 lb/10 ⁶ scf	AP42 ^(a)	8.455E-09	3.703E-08	8.455E-09	3.703E-08	
Acenaphthene	1.80E-06 lb/10 ⁶ scf	AP42 ^(a)	9.512E-10	4.166E-09	9.512E-10	4.166E-09	
Acenaphthylene	1.80E-06 lb/10 ⁶ scf	AP42 ^(a)	9.512E-10	4.166E-09	9.512E-10	4.166E-09	
Anthracene	2.40E-06 lb/10 ⁶ scf	AP42 ^(a)	1.268E-09	5.555E-09	1.268E-09	5.555E-09	
Benz(a)anthracene	1.80E-06 lb/10 ⁶ scf	AP42 ^(a)	9.512E-10	4.166E-09	9.512E-10	4.166E-09	
Benzene	2.10E-03 lb/10 ⁶ scf	AP42 ^(a)	1.110E-06	4.860E-06	1.110E-06	4.860E-06	
Benzo(a)pyrene	1.20E-06 lb/10 ⁶ scf	AP42 ^(a)	6.341E-10	2.777E-09	6.341E-10	2.777E-09	
Benzo(b)fluoranthene	1.80E-06 lb/10 ⁶ scf	AP42 ^(a)	9.512E-10	4.166E-09	9.512E-10	4.166E-09	
Benzo(g,h,i)perylene	1.20E-06 lb/10 ⁶ scf	AP42 ^(a)	6.341E-10	2.777E-09	6.341E-10	2.777E-09	
Benzo(k)fluoranthene	1.80E-06 lb/10 ⁶ scf	AP42 ^(a)	9.512E-10	4.166E-09	9.512E-10	4.166E-09	
Chrysene	1.80E-06 lb/10 ⁶ scf	AP42 ^(a)	9.512E-10	4.166E-09	9.512E-10	4.166E-09	
Dibenzo(a,h)anthracene	1.20E-06 lb/10 ⁶ scf	AP42 ^(a)	6.341E-10	2.777E-09	6.341E-10	2.777E-09	
Dichlorobenzene	1.20E-03 lb/10 ⁶ scf	AP42 ^(a)	6.341E-07	2.777E-06	6.341E-07	2.777E-06	
Fluoranthene	3.00E-06 lb/10 ⁶ scf	AP42 ^(a)	1.585E-09	6.944E-09	1.585E-09	6.944E-09	
Fluorene	2.80E-06 lb/10 ⁶ scf	AP42 ^(a)	1.480E-09	6.481E-09	1.480E-09	6.481E-09	
Formaldehyde	7.50E-02 lb/10 ⁶ scf	AP42 ^(a)	3.963E-05	1.736E-04	3.963E-05	1.736E-04	
Hexane	1.80E+00 lb/10 ⁶ scf	AP42 ^(a)	9.512E-04	4.166E-03	9.512E-04	4.166E-03	
Indeno(1,2,3-cd)pyrene	1.80E-06 lb/10 ⁶ scf	AP42 ^(a)	9.512E-10	4.166E-09	9.512E-10	4.166E-09	
Naphthalene	6.10E-04 lb/10 ⁶ scf	AP42 ^(a)	3.223E-07	1.412E-06	3.223E-07	1.412E-06	
Phenanthrene	1.70E-05 lb/10 ⁶ scf	AP42 ^(a)	8.983E-09	3.935E-08	8.983E-09	3.935E-08	
Pyrene	5.00E-06 lb/10 ⁶ scf	AP42 ^(a)	2.642E-09	1.157E-08	2.642E-09	1.157E-08	
Toluene	3.40E-03 lb/10 ⁶ scf	AP42 ^(a)	1.797E-06	7.869E-06	1.797E-06	7.869E-06	
Total HAPs			0.0010	0.0044	0.0010	0.0044	

(a) AP42, Table 1.4-1,2,& 3, 7/1998

Ballard Petroleum Holdings, LLC

Reno 42-5 TH

Fugitive Emissions from Equipment Leaks

Produced Gas Stream VOC Weight Percent:	56.88%
Produced Gas Air Toxics Weight Percent:	0.09%
Tank Gas Stream VOC Weight Percent:	86.51%
Tank Gas Air Toxics Weight Percent:	1.00%

VOC Fugitive Calculations:	Emission Factor ^a	Component	VOC Weight ^{c,d}	VOC Emission	VOC Emission	HAPs Emissions ^{c,d}	HAPs Emissions
	(lbs/hr/ comp.)	Number ^b	Fraction	Rate (lbs/hr)	Rate (tons/yr)	Rate (lbs/hr)	Rate (tons/yr)
Gas Valve VOCs:	0.0099	19	56.88%	0.1070	0.4686	0.0002	0.0008
Light Oil Valve VOCs:	0.0055	19	86.51%	0.0904	0.3960	0.0010	0.0046
Gas Connection VOCs:	0.0004	29	56.88%	0.0073	0.0318	0.0000	0.0001
Light Oil Connection VOCs:	0.0005	29	86.51%	0.0116	0.0508	0.0001	0.0006
Gas Flange VOCs:	0.0009	34	56.88%	0.0166	0.0727	0.0000	0.0001
Light Oil Flange VOCs:	0.0002	34	86.51%	0.0071	0.0312	0.0001	0.0004
Gas Other VOCs	0.0194	4	56.88%	0.0440	0.1929	0.0001	0.0003
Light Oil Other VOCs	0.0165	10	86.51%	0.1427	0.6252	0.0017	0.0072
Total Emission (tons/yr):				0.4267	1.8691	0.0032	0.0140

^aReferenced EPA Protocol for Equipment Leak Emission Estimates, Table 2-4: Oil and Gas Production Operations Average Emission Factors

^bComponent count based upon 40 CFR 98 Table W-1C and applying a safety factor of 1.5 to increase conservatism (rounding up to the next whole number).

^cConstituent Weight % values for gas components are based on Casing Head Gas values

^dConstituent Weight % values for heavy oil components are based on Tank Gas values

Reno 42-5 TH

Fugitive Dust Emissions

Source	Travel	Distance	AVMT	PM ₁₀ Emission Factor	Potential PM ₁₀ Emissions		Controlled PM ₁₀ Emissions
	(trips/yr)	(miles/trip) ^a	(miles/yr)	lb/AVMT ^b	(lb/hr)	(ton/yr)	(ton/yr)
Misc. Pickups	365	0.28	104	2.70	0.0320	0.1400	N/A
Produced Oil Trucks (Tankers)	365	0.28	104	2.70	0.0320	0.1400	N/A
Total PM₁₀:					0.0639	0.2800	N/A

^aEstimated 1 trip to location each day for Misc. Pickups and 1 trip per week for Tanker Trucks at 500 yards along each site and access road.

^bReferenced MDEQ's Instructions for Registering, Updating, or Deregistering an Oil or Gas Well Facility, April 2009, Table 1

 * Project Setup Information *

Project File : \\tsclient\Y\Projects\Ballard Petroleum BLP\BLP214738 Powder
 River Basin Permitting\Samples & EP Tank\State 41-36TH.ept
 Flowsheet Selection : Oil Tank with Separator
 Calculation Method : RVP Distillation
 Control Efficiency : 100.0%
 Known Separator Stream : Low Pressure Oil
 Entering Air Composition : No

Filed Name : Ballard Petroleum
 Well Name : Leavitt Trust 21-7TH
 Date : 2014.04.17

 * Data Input *

Separator Pressure : 36.00[psig]
 Separator Temperature : 105.00[F]
 Ambient Pressure : 12.20[psia]
 Ambient Temperature : 57.00[F]
 C10+ SG : 0.8586
 C10+ MW : 286.00

-- Low Pressure Oil -----

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.0650
4	N2	0.0210
5	C1	0.5150
6	C2	1.3230
7	C3	4.2410
8	i-C4	1.1480
9	n-C4	4.4490
10	i-C5	2.1380
11	n-C5	3.1170
12	C6	7.7810
13	C7	5.9880
14	C8	3.3180
15	C9	3.6190
16	C10+	54.9960
17	Benzene	0.1660
18	Toluene	1.2830
19	E-Benzene	1.5750
20	Xylenes	1.9410
21	n-C6	2.1090
22	224Trimethylp	0.2080

-- Sales Oil -----

Production Rate : 1000[bb1/day]
 Days of Annual Operation : 365 [days/year]
 API Gravity : 40.0
 Reid Vapor Pressure : 6.77[psia]

 * Calculation Results *

-- Emission Summary -----

Item	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]	Controlled [ton/yr]	Controlled [lb/hr]
Total HAPs	6.380	1.457	0.534	0.122
Page 1	----- E&P TANK			

Total HC	712.456	162.661	60.556	13.826
VOCs, C2+	690.357	157.616	60.235	13.752
VOCs, C3+	584.600	133.470	54.980	12.553

Uncontrolled Recovery Info.				
Vapor	34.5400	[MSCFD]		
HC Vapor	34.0600	[MSCFD]		
GOR	34.54	[SCF/bbl]		

-- Emission Composition -----

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]	Controlled [ton/yr]	Controlled [lb/hr]
1	H2S	0.000	0.000	0.000	0.000
2	O2	0.000	0.000	0.000	0.000
3	CO2	7.648	1.746	5.160	1.178
4	N2	1.574	0.359	0.306	0.070
5	C1	22.100	5.046	0.322	0.073
6	C2	105.756	24.145	5.254	1.200
7	C3	334.360	76.338	28.881	6.594
8	i-C4	44.201	10.092	5.458	1.246
9	n-C4	118.227	26.992	13.524	3.088
10	i-C5	25.574	5.839	2.195	0.501
11	n-C5	27.265	6.225	2.116	0.483
12	C6	21.103	4.818	1.677	0.383
13	C7	5.913	1.350	0.478	0.109
14	C8	1.117	0.255	0.075	0.017
15	C9	0.457	0.104	0.043	0.010
16	C10+	0.000	0.000	0.000	0.000
17	Benzene	0.301	0.069	0.019	0.004
18	Toluene	0.724	0.165	0.042	0.010
19	E-Benzene	0.320	0.073	0.046	0.011
20	Xylenes	0.339	0.077	0.042	0.009
21	n-C6	4.508	1.029	0.368	0.084
22	2,2,4-Trimethylp	0.191	0.044	0.017	0.004
	Total	721.678	164.767	60.830	13.888

-- Stream Data -----

No.	Component Emissions	MW	LP Oil mol %	Flash Oil mol %	Sale Oil mol %	Flash Gas mol %	W&S Gas mol %	Total 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	0.0650	0.0220	0.0000	1.5116	0.6396	1.0449
4	N2	28.01	0.0210	0.0009	0.0000	0.6952	0.0273	0.3377
5	C1	16.04	0.5150	0.0694	0.0000	15.4889	2.0245	8.2826
6	C2	30.07	1.3230	0.6361	0.0087	24.4028	18.3187	21.1465
7	C3	44.10	4.2410	3.3118	1.4995	35.4638	54.3844	45.5903
8	i-C4	58.12	1.1480	1.0576	0.9210	4.1867	4.9073	4.5723
9	n-C4	58.12	4.4490	4.2368	3.9331	11.5792	12.7952	12.2300
10	i-C5	72.15	2.1380	2.1395	2.1384	2.0876	2.1691	2.1312

11	n-C5	72.15	3.1170	3.1433	3.1730	2.2320	2.3069	2.2721
12	C6	86.16	7.7810	7.9682	8.1966	1.4871	1.5310	1.5106
13	C7	100.20	5.9880	6.1554	6.3606	0.3600	0.3722	0.3665
14	C8	114.23	3.3180	3.4149	3.5339	0.0592	0.0616	0.0605
15	C9	128.28	3.6190	3.7260	3.8574	0.0210	0.0235	0.0224
16	C10+	286.00	54.9960	56.6321	58.6417	0.0000	0.0000	0.0000
17	Benzene	78.11	0.1660	0.1703	0.1755	0.0228	0.0235	0.0232
18	Toluene	92.13	1.2830	1.3198	1.3649	0.0464	0.0481	0.0473
19	E-Benzene	106.17	1.5750	1.6213	1.6782	0.0177	0.0185	0.0181
20	Xylenes	106.17	1.9410	1.9982	2.0684	0.0187	0.0196	0.0192
21	n-C6	86.18	2.1090	2.1625	2.2280	0.3094	0.3189	0.3145
22	2,2,4-Trimethylp	114.24	0.2080	0.2139	0.2211	0.0099	0.0102	0.0101
	MW		194.29	198.87	204.30	40.67	45.76	43.39
	Stream Mole Ratio		1.0000	0.9711	0.9378	0.0289	0.0333	0.0622
	Heating Value	[BTU/SCF]				2281.58	2587.64	2445.38
	Gas Gravity	[Gas/Air]				1.40	1.58	1.50
	Bubble Pt. @ 100F	[psia]	44.19	20.13	8.88			
	RVP @ 100F	[psia]	16.31	11.54	6.96			
Page	2-----							E&P TANK
	Spec. Gravity @ 100F		0.727	0.729	0.731			

 * Project Setup Information *

Project File : \\tsclient\Y\Projects\Ballard Petroleum BLP\BLP214738 Powder
 River Basin Permitting\Samples & EP Tank\Leavitt Trust 44-31TH.ept
 Flowsheet Selection : Oil Tank with Separator
 Calculation Method : RVP Distillation
 Control Efficiency : 100.0%
 Known Separator Stream : Low Pressure Oil
 Entering Air Composition : No

Filed Name : Ballard Petroleum
 Well Name : Leavitt Trust 44-31TH
 Date : 2014.04.17

 * Data Input *

Separator Pressure : 34.00[psig]
 Separator Temperature : 127.00[F]
 Ambient Pressure : 12.20[psia]
 Ambient Temperature : 57.00[F]
 C10+ SG : 0.8618
 C10+ MW : 291.00

-- Low Pressure Oil -----

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.0430
4	N2	0.0040
5	C1	0.1470
6	C2	1.2820
7	C3	4.9990
8	i-C4	1.3000
9	n-C4	5.1130
10	i-C5	2.2470
11	n-C5	3.0160
12	C6	7.7850
13	C7	6.0750
14	C8	2.7580
15	C9	4.1330
16	C10+	51.8190
17	Benzene	0.1290
18	Toluene	0.9350
19	E-Benzene	2.8480
20	Xylenes	2.9650
21	n-C6	2.1680
22	224Trimethylp	0.2330

-- Sales Oil -----

Production Rate : 1000[bb1/day]
 Days of Annual Operation : 365 [days/year]
 API Gravity : 39.0
 Reid Vapor Pressure : 4.89[psia]

 * Calculation Results *

-- Emission Summary -----

Item	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]	Controlled [ton/yr]	Controlled [lb/hr]
Total HAPs	10.680	2.438	0.534	0.122
Page 1	----- E&P TANK			

Total HC	1211.126	276.513	60.556	13.826
VOCs, C2+	1204.695	275.045	60.235	13.752
VOCs, C3+	1099.609	251.052	54.980	12.553

Uncontrolled Recovery Info.				
Vapor	52.9300	[MSCFD]		
HC Vapor	52.6600	[MSCFD]		
GOR	52.93	[SCF/bbl]		

-- Emission Composition

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]	Controlled [ton/yr]	Controlled [lb/hr]
1	H2S	0.000	0.000	0.000	0.000
2	O2	0.000	0.000	0.000	0.000
3	CO2	5.160	1.178	5.160	1.178
4	N2	0.306	0.070	0.306	0.070
5	C1	6.431	1.468	0.322	0.073
6	C2	105.086	23.992	5.254	1.200
7	C3	577.627	131.878	28.881	6.594
8	i-C4	109.162	24.923	5.458	1.246
9	n-C4	270.470	61.751	13.524	3.088
10	i-C5	43.910	10.025	2.195	0.501
11	n-C5	42.317	9.661	2.116	0.483
12	C6	33.539	7.657	1.677	0.383
13	C7	9.560	2.183	0.478	0.109
14	C8	1.491	0.340	0.075	0.017
15	C9	0.855	0.195	0.043	0.010
16	C10+	0.000	0.000	0.000	0.000
17	Benzene	0.371	0.085	0.019	0.004
18	Toluene	0.841	0.192	0.042	0.010
19	E-Benzene	0.928	0.212	0.046	0.011
20	Xylenes	0.832	0.190	0.042	0.009
21	n-C6	7.365	1.682	0.368	0.084
22	2,2,4-Trimethylp	0.341	0.078	0.017	0.004
	Total	1216.592	277.761	60.830	13.888

-- Stream Data

No.	Component Emissions	MW	LP Oil mol %	Flash Oil mol %	Sale Oil mol %	Flash Gas mol %	W&S Gas mol %	Total 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	0.0430	0.0163	0.0000	1.1185	0.2293	0.4601
4	N2	28.01	0.0040	0.0002	0.0000	0.1565	0.0029	0.0428
5	C1	16.04	0.1470	0.0230	0.0000	5.1335	0.3248	1.5728
6	C2	30.07	1.2820	0.6742	0.0004	25.7312	9.4998	13.7121
7	C3	44.10	4.9990	4.0518	0.2153	43.1039	54.3024	51.3962
8	i-C4	58.12	1.3000	1.2138	0.6743	4.7674	8.2808	7.3690
9	n-C4	58.12	5.1130	4.9094	3.7577	13.3050	19.9941	18.2581
10	i-C5	72.15	2.2470	2.2487	2.2325	2.1794	2.4610	2.3879

11	n-C5	72.15	3.0160	3.0378	3.0897	2.1418	2.3571	2.3012
12	C6	86.16	7.7850	7.9417	8.4262	1.4848	1.5953	1.5666
13	C7	100.20	6.0750	6.2170	6.6616	0.3645	0.3944	0.3867
14	C8	114.23	2.7580	2.8254	3.0370	0.0492	0.0539	0.0527
15	C9	128.28	4.1330	4.2352	4.5564	0.0240	0.0284	0.0273
16	C10+	291.00	51.8190	53.1077	57.1623	0.0000	0.0000	0.0000
17	Benzene	78.11	0.1290	0.1318	0.1404	0.0176	0.0190	0.0186
18	Toluene	92.13	0.9350	0.9574	1.0277	0.0336	0.0366	0.0358
19	E-Benzene	106.17	2.8480	2.9180	3.1381	0.0319	0.0351	0.0343
20	Xylenes	106.17	2.9650	3.0380	3.2676	0.0285	0.0315	0.0308
21	n-C6	86.18	2.1680	2.2140	2.3570	0.3174	0.3416	0.3353
22	2,2,4-Trimethylp	114.24	0.2330	0.2385	0.2558	0.0110	0.0119	0.0117

MW		190.80	194.45	205.55	43.81	49.11	47.74
Stream Mole Ratio		1.0000	0.9757	0.9065	0.0243	0.0692	0.0935
Heating Value	[BTU/SCF]				2468.98	2776.79	2696.91
Gas Gravity	[Gas/Air]				1.51	1.70	1.65
Bubble Pt. @ 100F	[psia]	32.15	20.91	5.64			
RVP @ 100F	[psia]	16.63	13.00	4.93			

Page 2----- E&P TANK

Spec. Gravity @ 100F	0.727	0.728	0.732
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 * Project Setup Information *

Project File : \\tsclient\Y\Projects\Ballard Petroleum BLP\BLP214738 Powder
 River Basin Permitting\Samples & EP Tank\Leavitt Trust 21-7TH.ept
 Flowsheet Selection : Oil Tank with Separator
 Calculation Method : RVP Distillation
 Control Efficiency : 100.0%
 Known Separator Stream : Low Pressure Oil
 Entering Air Composition : No

Filed Name : Ballard Petroleum
 Well Name : Leavitt Trust 21-7TH
 Date : 2014.04.17

 * Data Input *

Separator Pressure : 40.00[psig]
 Separator Temperature : 165.00[F]
 Ambient Pressure : 12.20[psia]
 Ambient Temperature : 57.00[F]
 C10+ SG : 0.8443
 C10+ MW : 279.00

-- Low Pressure Oil -----

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.1360
4	N2	0.1450
5	C1	0.3100
6	C2	1.2370
7	C3	4.3960
8	i-C4	1.3390
9	n-C4	5.0250
10	i-C5	2.7480
11	n-C5	3.8240
12	C6	9.5010
13	C7	7.1010
14	C8	3.7770
15	C9	4.0600
16	C10+	47.9010
17	Benzene	0.1960
18	Toluene	1.5020
19	E-Benzene	2.6770
20	Xylenes	1.3760
21	n-C6	2.5540
22	224Trimethylp	0.1940

-- Sales Oil -----

Production Rate : 1000[bb1/day]
 Days of Annual Operation : 365 [days/year]
 API Gravity : 42.0
 Reid Vapor Pressure : 3.87[psia]

 * Calculation Results *

-- Emission Summary -----

Item		Uncontrolled [ton/yr]	Uncontrolled [lb/hr]	
Total HAPs		17.710	4.043	
Page 1	-----			E&P TANK

Total HC	1636.747	373.687
VOCs, C2+	1622.380	370.406
VOCs, C3+	1514.931	345.875

Uncontrolled Recovery Info.		
Vapor	69.0800	[MSCFD]
HC Vapor	67.3900	[MSCFD]
GOR	69.08	[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	17.291	3.948
4	N2	11.734	2.679
5	C1	14.367	3.280
6	C2	107.449	24.532
7	C3	555.932	126.925
8	i-C4	183.870	41.979
9	n-C4	510.875	116.638
10	i-C5	85.705	19.567
11	n-C5	81.361	18.576
12	C6	59.033	13.478
13	C7	16.185	3.695
14	C8	3.000	0.685
15	C9	1.256	0.287
16	C10+	0.000	0.000
17	Benzene	0.834	0.190
18	Toluene	2.022	0.462
19	E-Benzene	1.325	0.303
20	Xylenes	0.589	0.134
21	n-C6	12.537	2.862
22	2,2,4-Trimethylp	0.408	0.093
	Total	1665.773	380.313

-- Stream Data -----

No.	Component Emissions	MW	LP Oil mol %	Flash Oil mol %	Sale Oil mol %	Flash Gas mol %	W&S Gas mol %	Total 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	0.1360	0.0456	0.0000	3.1035	0.5173	1.1812
4	N2	28.01	0.1450	0.0065	0.0000	4.6912	0.0742	1.2593
5	C1	16.04	0.3100	0.0422	0.0000	9.1030	0.4785	2.6923
6	C2	30.07	1.2370	0.5986	0.0001	22.1974	6.7871	10.7427
7	C3	44.10	4.3960	3.4478	0.0361	35.5305	38.7204	37.9016
8	i-C4	58.12	1.3390	1.2366	0.2757	4.7009	11.1713	9.5104
9	n-C4	58.12	5.0250	4.7938	2.2404	12.6168	31.1926	26.4244
10	i-C5	72.15	2.7480	2.7528	2.6409	2.5898	3.9100	3.5711

11	n-C5	72.15	3.8240	3.8599	3.8805	2.6479	3.6465	3.3901
12	C6	86.16	9.5010	9.7357	10.4625	1.7992	2.2211	2.1128
13	C7	100.20	7.1010	7.3045	7.9598	0.4226	0.5289	0.5016
14	C8	114.23	3.7770	3.8900	4.2580	0.0666	0.0863	0.0812
15	C9	128.28	4.0600	4.1830	4.5844	0.0233	0.0333	0.0307
16	C10+	279.00	47.9010	49.3604	54.1348	0.0000	0.0000	0.0000
17	Benzene	78.11	0.1960	0.2011	0.2173	0.0274	0.0337	0.0321
18	Toluene	92.13	1.5020	1.5461	1.6889	0.0552	0.0697	0.0660
19	E-Benzene	106.17	2.6770	2.7576	3.0205	0.0306	0.0399	0.0375
20	Xylenes	106.17	1.3760	1.4175	1.5529	0.0135	0.0178	0.0167
21	n-C6	86.18	2.5540	2.6205	2.8295	0.3716	0.4601	0.4374
22	2,2,4-Trimethylp	114.24	0.1940	0.1996	0.2178	0.0091	0.0113	0.0107

MW		176.86	180.95	193.36	42.80	52.59	50.08
Stream Mole Ratio		1.0000	0.9704	0.8849	0.0296	0.0856	0.1151
Heating Value	[BTU/SCF]				2288.92	2951.74	2781.60
Gas Gravity	[Gas/Air]				1.48	1.82	1.73
Bubble Pt. @ 100F	[psia]	49.34	20.51	4.28			
RVP @ 100F	[psia]	17.52	12.52	3.91			

Page 2----- E&P TANK
Spec. Gravity @ 100F 0.709 0.710 0.715

 * Project Setup Information *

Project File : \\tsclient\Y\Projects\Ballard Petroleum BLP\BLP214738 Powder
 River Basin Permitting\Samples & EP Tank\Leavitt Trust 14-2TH.ept
 Flowsheet Selection : Oil Tank with Separator
 Calculation Method : RVP Distillation
 Control Efficiency : 100.0%
 Known Separator Stream : Low Pressure Oil
 Entering Air Composition : No

Filed Name : Ballard Petroleum
 Well Name : Leavitt Trust 14-2TH
 Date : 2014.04.17

 * Data Input *

Separator Pressure : 20.00[psig]
 Separator Temperature : 70.00[F]
 Ambient Pressure : 12.20[psia]
 Ambient Temperature : 57.00[F]
 C10+ SG : 0.8514
 C10+ MW : 270.00

-- Low Pressure Oil -----

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.0720
4	N2	0.0000
5	C1	0.2840
6	C2	0.8620
7	C3	2.7070
8	i-C4	0.8710
9	n-C4	3.6210
10	i-C5	2.2520
11	n-C5	2.9730
12	C6	8.6260
13	C7	6.4910
14	C8	4.4240
15	C9	4.8470
16	C10+	51.6660
17	Benzene	0.1880
18	Toluene	1.2270
19	E-Benzene	3.3400
20	Xylenes	3.0280
21	n-C6	2.3220
22	2,2,4-Trimethylp	0.1980

-- Sales Oil -----

Production Rate : 1000[bb1/day]
 Days of Annual Operation : 365 [days/year]
 API Gravity : 42.5
 Reid Vapor Pressure : 6.03[psia]

 * Calculation Results *

-- Emission Summary -----

Item		Uncontrolled	Uncontrolled	
		[ton/yr]	[lb/hr]	
Total HAPs		4.350	0.993	
Page 1	-----			E&P TANK

Total HC	399.256	91.154
VOCs, C2+	386.587	88.262
VOCs, C3+	315.419	72.013

Uncontrolled Recovery Info.		
Vapor	19.7900	[MSCFD]
HC Vapor	19.3700	[MSCFD]
GOR	19.79	[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	8.801	2.009
4	N2	0.000	0.000
5	C1	12.670	2.893
6	C2	71.168	16.248
7	C3	179.900	41.073
8	i-C4	21.787	4.974
9	n-C4	59.548	13.595
10	i-C5	15.829	3.614
11	n-C5	15.159	3.461
12	C6	13.794	3.149
13	C7	3.794	0.866
14	C8	0.888	0.203
15	C9	0.373	0.085
16	C10+	0.000	0.000
17	Benzene	0.198	0.045
18	Toluene	0.405	0.092
19	E-Benzene	0.398	0.091
20	Xylenes	0.311	0.071
21	n-C6	2.927	0.668
22	2,2,4-Trimethylp	0.108	0.025
	Total	408.058	93.164

-- Stream Data -----

No.	Component Emissions	MW	LP Oil mol %	Flash Oil mol %	Sale Oil mol %	Flash Gas mol %	W&S Gas mol %	Total 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	0.0720	0.0473	0.0001	3.3005	1.7567	2.0990
4	N2	28.01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	C1	16.04	0.2840	0.1050	0.0000	23.6709	3.9075	8.2886
6	C2	30.07	0.8620	0.6709	0.0113	25.8281	24.5591	24.8404
7	C3	44.10	2.7070	2.5208	1.2839	27.0350	47.3138	42.8184
8	i-C4	58.12	0.8710	0.8518	0.7623	3.3803	4.0918	3.9341
9	n-C4	58.12	3.6210	3.5739	3.3680	9.7758	11.0309	10.7527
10	i-C5	72.15	2.2520	2.2523	2.2502	2.2138	2.3278	2.3025

11	n-C5	72.15	2.9730	2.9795	3.0003	2.1296	2.2266	2.2051
12	C6	86.16	8.6260	8.6793	8.8710	1.6693	1.7390	1.7235
13	C7	100.20	6.4910	6.5377	6.7068	0.3959	0.4147	0.4105
14	C8	114.23	4.4240	4.4573	4.5780	0.0804	0.0850	0.0840
15	C9	128.28	4.8470	4.8839	5.0179	0.0288	0.0327	0.0319
16	C10+	270.00	51.6660	52.0620	53.4996	0.0000	0.0000	0.0000
17	Benzene	78.11	0.1880	0.1892	0.1937	0.0257	0.0269	0.0266
18	Toluene	92.13	1.2270	1.2361	1.2689	0.0443	0.0466	0.0461
19	E-Benzene	106.17	3.3400	3.3653	3.4571	0.0376	0.0399	0.0394
20	Xylenes	106.17	3.0280	3.0510	3.1344	0.0293	0.0312	0.0308
21	n-C6	86.18	2.3220	2.3372	2.3918	0.3449	0.3598	0.3565
22	2,2,4-Trimethylp	114.24	0.1980	0.1994	0.2047	0.0096	0.0100	0.0099
	MW		182.09	183.19	187.03	38.07	44.18	42.83
	Stream Mole Ratio		1.0000	0.9924	0.9657	0.0076	0.0267	0.0343
	Heating Value	[BTU/SCF]				2108.21	2475.44	2394.03
	Gas Gravity	[Gas/Air]				1.31	1.53	1.48
	Bubble Pt. @ 100F	[psia]	27.12	19.22	7.85			
	RVP @ 100F	[psia]	11.93	10.40	6.31			
Page	2-----							E&P TANK
	Spec. Gravity @ 100F		0.730	0.731	0.732			

 * Project Setup Information *

Project File : \\tsclient\Y\Projects\Ballard Petroleum BLP\BLP214738 Powder
 River Basin Permitting\Samples & EP Tank\Dilts 44-14TH.ept
 Flowsheet Selection : Oil Tank with Separator
 Calculation Method : RVP Distillation
 Control Efficiency : 100.0%
 Known Separator Stream : Low Pressure Oil
 Entering Air Composition : No

Filed Name : Ballard Petroleum
 Well Name : Leavitt Trust 21-7TH
 Date : 2014.04.17

 * Data Input *

Separator Pressure : 32.00[psig]
 Separator Temperature : 157.00[F]
 Ambient Pressure : 12.20[psia]
 Ambient Temperature : 57.00[F]
 C10+ SG : 0.8493
 C10+ MW : 279.00

-- Low Pressure Oil -----

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.0510
4	N2	0.0180
5	C1	0.1580
6	C2	1.3040
7	C3	4.4710
8	i-C4	1.3860
9	n-C4	5.1420
10	i-C5	2.7410
11	n-C5	3.5660
12	C6	9.0610
13	C7	7.1490
14	C8	3.6620
15	C9	3.3910
16	C10+	47.5730
17	Benzene	0.2220
18	Toluene	1.2780
19	E-Benzene	3.3700
20	Xylenes	2.6710
21	n-C6	2.5700
22	2,2,4-Trimethylp	0.2170

-- Sales Oil -----

Production Rate : 1000[bb1/day]
 Days of Annual Operation : 365 [days/year]
 API Gravity : 42.0
 Reid Vapor Pressure : 3.43[psia]

 * Calculation Results *

-- Emission Summary -----

Item	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]	Controlled [ton/yr]	Controlled [lb/hr]
Total HAPs	20.210	4.614	0.534	0.122
Page 1	----- E&P TANK			

Total HC	1792.552	409.258	60.556	13.826
VOCs, C2+	1785.220	407.584	60.235	13.752
VOCs, C3+	1671.792	381.688	54.980	12.553

Uncontrolled Recovery Info.				
Vapor	72.8100	[MSCFD]		
HC Vapor	72.3900	[MSCFD]		
GOR	72.81	[SCF/bbl]		

-- Emission Composition

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]	Controlled [ton/yr]	Controlled [lb/hr]
1	H2S	0.000	0.000	0.000	0.000
2	O2	0.000	0.000	0.000	0.000
3	CO2	6.493	1.482	5.160	1.178
4	N2	1.459	0.333	0.306	0.070
5	C1	7.333	1.674	0.322	0.073
6	C2	113.428	25.897	5.254	1.200
7	C3	567.760	129.626	28.881	6.594
8	i-C4	204.720	46.740	5.458	1.246
9	n-C4	606.560	138.484	13.524	3.088
10	i-C5	101.435	23.159	2.195	0.501
11	n-C5	87.239	19.918	2.116	0.483
12	C6	61.676	14.081	1.677	0.383
13	C7	17.830	4.071	0.478	0.109
14	C8	3.199	0.730	0.075	0.017
15	C9	1.165	0.266	0.043	0.010
16	C10+	0.000	0.000	0.000	0.000
17	Benzene	1.015	0.232	0.019	0.004
18	Toluene	1.851	0.423	0.042	0.010
19	E-Benzene	1.804	0.412	0.046	0.011
20	Xylenes	1.237	0.282	0.042	0.009
21	n-C6	13.798	3.150	0.368	0.084
22	2,2,4-Trimethylp	0.501	0.114	0.017	0.004
	Total	1800.503	411.074	60.830	13.888

-- Stream Data

No.	Component Emissions	MW	LP Oil mol %	Flash Oil mol %	Sale Oil mol %	Flash Gas mol %	W&S Gas mol %	Total 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	0.0510	0.0206	0.0000	1.4122	0.2031	0.4208
4	N2	28.01	0.0180	0.0011	0.0000	0.7774	0.0104	0.1485
5	C1	16.04	0.1580	0.0275	0.0000	6.0103	0.2703	1.3037
6	C2	30.07	1.3040	0.7264	0.0001	27.1983	7.1498	10.7593
7	C3	44.10	4.4710	3.7098	0.0230	38.5944	36.3135	36.7242
8	i-C4	58.12	1.3860	1.3052	0.1917	5.0075	11.1525	10.0461
9	n-C4	58.12	5.1420	4.9632	1.7461	13.1540	33.4130	29.7656
10	i-C5	72.15	2.7410	2.7440	2.5660	2.6051	4.3184	4.0100

11	n-C5	72.15	3.5660	3.5901	3.5821	2.4817	3.6611	3.4488
12	C6	86.16	9.0610	9.2246	10.0217	1.7213	2.1762	2.0943
13	C7	100.20	7.1490	7.2989	8.0625	0.4271	0.5456	0.5243
14	C8	114.23	3.6620	3.7422	4.1556	0.0650	0.0860	0.0822
15	C9	128.28	3.3910	3.4662	3.8549	0.0196	0.0287	0.0270
16	C10+	279.00	47.5730	48.6337	54.1331	0.0000	0.0000	0.0000
17	Benzene	78.11	0.2220	0.2263	0.2475	0.0306	0.0385	0.0371
18	Toluene	92.13	1.2780	1.3055	1.4463	0.0463	0.0597	0.0573
19	E-Benzene	106.17	3.3700	3.4443	3.8280	0.0380	0.0508	0.0485
20	Xylenes	106.17	2.6710	2.7300	3.0347	0.0259	0.0348	0.0332
21	n-C6	86.18	2.5700	2.6189	2.8614	0.3749	0.4747	0.4567
22	2,2,4-Trimethylp	114.24	0.2170	0.2216	0.2452	0.0102	0.0130	0.0125
	MW		176.50	179.46	193.75	43.65	53.05	51.36
	Stream Mole Ratio		1.0000	0.9782	0.8788	0.0218	0.0994	0.1212
	Heating Value	[BTU/SCF]				2442.26	2984.59	2886.95
	Gas Gravity	[Gas/Air]				1.51	1.83	1.77
	Bubble Pt. @ 100F	[psia]	32.74	20.87	3.77			
	RVP @ 100F	[psia]	16.60	13.25	3.48			

Page 2----- E&P TANK

Spec. Gravity @ 100F	0.717	0.718	0.723
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2110 Overland Avenue
 Suite 101a
 Billings, MT 59102
 406-850-3642 406-661-3893

CLIENT NAME: Bison Engineering, Inc.

Operator: Ballard
 Well Name: Leavitt Trust 44-31TH
 Sample Temp: 127°F
 Sample Pressure: 34 psi
 Sample Container: WC1014
 Date Collected: 4/2/2014
 Sampled By: Bison Staff

Received: 4/3/2014
 Reported: 4/16/2014
 Sample Number: 201404100216

Gas Processors Association Method 2103 Modified

COMPONENT	MOLE%	WEIGHT %	VOLUME%
NITROGEN	0.004	0.001	0.001
METHANE	0.147	0.012	0.033
CARBON DIOXIDE	0.043	0.010	0.010
ETHANE	1.282	0.201	0.460
PROPANE	4.999	1.151	1.848
I-BUTANE	1.300	0.395	0.571
N-BUTANE	5.113	1.552	2.164
I-PENTANE	2.247	0.847	1.104
N-PENTANE	3.016	1.137	1.467
N-HEXANE	2.168	0.976	1.197
BENZENE	0.129	0.053	0.048
OTHER HEXANES	7.785	3.504	4.298
TOLUENE	0.935	0.450	0.420
OTHER HEPTANES	6.075	3.179	3.762
ETHYLBENZENE	2.848	1.579	1.475
TOTAL XYLENES	2.965	1.644	1.533
2,2,4-TRIMETHYLPENTANE	0.233	0.139	0.162
OTHER OCTANES	2.758	1.646	1.897
NONANES	4.133	2.769	3.122
DECANES PLUS	51.819	78.756	74.429
TOTAL ALL COMPONENTS	100.000	100.000	100.000

	Cylinder Sample Decanes Plus	Cylinder Sample All Fractions	Tank Sample	Method
Specific Gravity, unitless	0.8618	0.7664	0.8299	Calculated
API Gravity, °	32.7	53.1	39.0	ASTM D4052-11
Average Molecular Weight	291	191	-----	ASTM D2887-08mod
Absolute Density, lbs/gal	7.18	6.39	6.92	Calculated
Reid Vapor Pressure, psi	-----	-----	4.89	ASTM D323-08

Flash Factor
 Shrinkage

Prepared by:

Kathy Smit
 Senior Chemist



2110 Overland Avenue
 Suite 101a
 Billings, MT 59102
 406-850-3642 406-661-3893

CLIENT NAME: Bison Engineering, Inc.

Operator: Ballard
 Well Name: State 41-36TH
 Sample Temp: 105°F
 Sample Pressure: 36 psi
 Sample Container: WC1015
 Date Collected: 4/2/2014
 Sampled By: Bison Staff

Received: 4/3/2014
 Reported: 4/16/2014
 Sample Number: 201404100213

Gas Processors Association Method 2103 Modified

COMPONENT	MOLE%	WEIGHT %	VOLUME%
NITROGEN	0.021	0.003	0.003
METHANE	0.515	0.042	0.115
CARBON DIOXIDE	0.065	0.015	0.014
ETHANE	1.323	0.204	0.466
PROPANE	4.241	0.959	1.540
I-BUTANE	1.148	0.342	0.495
N-BUTANE	4.449	1.326	1.849
I-PENTANE	2.138	0.791	1.032
N-PENTANE	3.117	1.154	1.488
N-HEXANE	2.109	0.932	1.143
BENZENE	0.166	0.066	0.061
OTHER HEXANES	7.781	3.439	4.218
TOLUENE	1.283	0.606	0.566
OTHER HEPTANES	5.988	3.078	3.641
ETHYLBENZENE	1.575	0.858	0.801
TOTAL XYLENES	1.941	1.057	0.986
2,2,4-TRIMETHYLPENTANE	0.208	0.122	0.143
OTHER OCTANES	3.318	1.944	2.241
NONANES	3.619	2.381	2.684
DECANES PLUS	54.996	80.680	76.514
TOTAL ALL COMPONENTS	100.000	100.000	100.000

	Cylinder Sample Decanes Plus	Cylinder Sample All Fractions	Tank Sample	Method
Specific Gravity, unitless	0.8586	0.7673	0.8251	Calculated
API Gravity, °	33.3	52.9	40.0	ASTM D4052-11
Average Molecular Weight	286	195	-----	ASTM D2887-08mod
Absolute Density, lbs/gal	7.16	6.40	6.88	Calculated
Reid Vapor Pressure, psi	-----	-----	6.77	ASTM D323-08

Flash Factor
 Shrinkage

Prepared by:

Kathy Smit
 Senior Chemist



2110 Overland Avenue
 Suite 101a
 Billings, MT 59102
 406-850-3642 406-661-3893

CLIENT NAME: Bison Engineering, Inc.

Operator: Ballard
 Well Name: Leavitt Trust 21-7TH
 Sample Temp: 165°F
 Sample Pressure: 40 psi
 Sample Container: WC1013
 Date Collected: 4/2/2014
 Sampled By: Bison Staff

Received: 4/3/2014
 Reported: 4/16/2014
 Sample Number: 201404100210

Gas Processors Association Method 2103 Modified

COMPONENT	MOLE%	WEIGHT %	VOLUME%
NITROGEN	0.145	0.023	0.023
METHANE	0.310	0.028	0.074
CARBON DIOXIDE	0.136	0.034	0.032
ETHANE	1.237	0.209	0.467
PROPANE	4.396	1.091	1.708
I-BUTANE	1.339	0.438	0.618
N-BUTANE	5.025	1.644	2.236
I-PENTANE	2.748	1.116	1.419
N-PENTANE	3.824	1.553	1.954
N-HEXANE	2.554	1.239	1.482
BENZENE	0.196	0.086	0.077
OTHER HEXANES	9.501	4.609	5.512
TOLUENE	1.502	0.779	0.709
OTHER HEPTANES	7.101	4.005	4.622
ETHYLBENZENE	2.677	1.600	1.457
TOTAL XYLENES	1.376	0.822	0.748
2,2,4-TRIMETHYLPENTANE	0.194	0.125	0.143
OTHER OCTANES	3.777	2.429	2.730
NONANES	4.060	2.932	3.224
DECANES PLUS	47.901	75.236	70.766
TOTAL ALL COMPONENTS	100.000	100.000	100.000

	Cylinder Sample Decanes Plus	Cylinder Sample All Fractions	Tank Sample	Method
Specific Gravity, unitless	0.8443	0.7490	0.8156	Calculated
API Gravity, °	36.1	57.4	42.0	ASTM D4052-11
Average Molecular Weight	279	178	-----	ASTM D2887-08mod
Absolute Density, lbs/gal	7.04	6.80	6.24	Calculated
Reid Vapor Pressure, psi	-----	-----	3.87	ASTM D323-08

Prepared by:

Kathy Smit
 Senior Chemist



2110 Overland Avenue
 Suite 101a
 Billings, MT 59102
 406-850-3642 406-661-3893

CLIENT NAME: Bison Engineering, Inc.

Operator: Ballard
 Well Name: Dilts 44-14TH
 Sample Temp: 157°F
 Sample Pressure: 32 psi
 Sample Container: WC1021
 Date Collected: 4/2/2014
 Sampled By: Bison Staff

Received: 4/3/2014
 Reported: 4/16/2014
 Sample Number: 201404100207

Gas Processors Association Method 2103 Modified

COMPONENT	MOLE%	WEIGHT %	VOLUME%
NITROGEN	0.018	0.003	0.003
METHANE	0.158	0.014	0.038
CARBON DIOXIDE	0.051	0.013	0.012
ETHANE	1.304	0.221	0.496
PROPANE	4.471	1.112	1.751
I-BUTANE	1.386	0.455	0.645
N-BUTANE	5.142	1.686	2.306
I-PENTANE	2.741	1.116	1.427
N-PENTANE	3.566	1.452	1.837
N-HEXANE	2.570	1.250	1.503
BENZENE	0.222	0.098	0.088
OTHER HEXANES	9.061	4.406	5.300
TOLUENE	1.278	0.665	0.609
OTHER HEPTANES	7.149	4.042	4.692
ETHYLBENZENE	3.370	2.019	1.849
TOTAL XYLENES	2.671	1.600	1.464
2,2,4-TRIMETHYLPENTANE	0.217	0.140	0.160
OTHER OCTANES	3.662	2.360	2.669
NONANES	3.391	2.454	2.714
DECANES PLUS	47.573	74.894	70.436
TOTAL ALL COMPONENTS	100.000	100.000	100.000

	Cylinder Sample Decanes Plus	Cylinder Sample All Fractions	Tank Sample	Method
Specific Gravity, unitless	0.8493	0.7539	0.8156	Calculated
API Gravity, °	35.1	56.2	42.0	ASTM D4052-11
Average Molecular Weight	279	177	-----	ASTM D2887-08mod
Absolute Density, lbs/gal	7.08	6.29	6.80	Calculated
Reid Vapor Pressure, psi	-----	-----	3.43	ASTM D323-08

Prepared by:

Kathy Smit
 Senior Chemist



2110 Overland Avenue
 Suite 101a
 Billings, MT 59102
 406-850-3642 406-661-3893

CLIENT NAME: Bison Engineering, Inc.

Operator: Ballard
 Well Name: Leavitt Trust 14-2TH
 Sample Temp: 70°F
 Sample Pressure: 20 psi
 Sample Container: WC1015
 Date Collected: 4/2/2014
 Sampled By: Bison Staff

Received: 4/3/2014
 Reported: 4/16/2014
 Sample Number: 201404100201

Gas Processors Association Method 2103 Modified

COMPONENT	MOLE%	WEIGHT %	VOLUME%
NITROGEN	0.000	0.000	0.000
METHANE	0.284	0.025	0.067
CARBON DIOXIDE	0.072	0.017	0.017
ETHANE	0.862	0.142	0.321
PROPANE	2.707	0.653	1.038
I-BUTANE	0.871	0.277	0.397
N-BUTANE	3.621	1.151	1.591
I-PENTANE	2.252	0.888	1.148
N-PENTANE	2.973	1.173	1.500
N-HEXANE	2.322	1.094	1.330
BENZENE	0.188	0.080	0.073
OTHER HEXANES	8.626	4.065	4.941
TOLUENE	1.227	0.618	0.572
OTHER HEPTANES	6.491	3.557	4.171
ETHYLBENZENE	3.340	1.939	1.795
TOTAL XYLENES	3.028	1.758	1.625
2,2,4-TRIMETHYLPENTANE	0.198	0.124	0.143
OTHER OCTANES	4.424	2.763	3.156
NONANES	4.847	3.399	3.799
DECANES PLUS	51.666	76.278	72.316
TOTAL ALL COMPONENTS	100.000	100.000	100.000

	Cylinder Sample Decanes Plus	Cylinder Sample All Fractions	Tank Sample	Method
Specific Gravity, unitless	0.8514	0.7699	0.8132	Calculated
API Gravity, °	34.7	52.3	42.5	ASTM D4052-11
Average Molecular Weight	270	183	-----	ASTM D2887-08mod
Absolute Density, lbs/gal	7.10	6.42	6.78	Calculated
Reid Vapor Pressure, psi	-----	-----	6.03	ASTM D323-08

Prepared by:

Kathy Smit
 Senior Chemist



Client Name	Bison Engineering, Inc. 1400 11th Avenue Helena, MT 59601	Date Received	4/3/2014
Attn:	Mr. Derek Fleming 406-442-5768 dfleming@bison-eng.com	Date Reported	4/17/2014
		Lab Number	201404100211
		Date Analyzed	4/9/2014
		File #	gases\04071422
		Page	1 of 2
Company/Operator	Ballard	Date Sampled	4/2/2014
Location	Leavitt Fed Trust 21-7H	Time Sampled	Not given
		Cylinder #:	SC1004
Sample Type	Natural Gas	Source Temp	165°F
Sampled by	Ian Erickson Bison Engineering Inc.	Source Press.	40 psi

GAS ANALYSIS BY GC/TCD/FID GPA Method 2286-95

COMPONENT	Normalized Mole Percent	Gross Heating Value (BTU/ft3)	Gross Heating Value (BTU/lb)	Gasoline Content (gal/1000ft3)	Specific Gravity
Carbon Dioxide	1.61%	0.00	0.00	0.00	0.0244
Ethane	14.27%	252.51	4232.29	3.81	0.1481
Nitrogen	0.42%	0.00	0.00	0.00	0.0041
Methane	71.61%	723.27	12122.88	12.11	0.3967
Propane	8.01%	201.48	3377.03	2.20	0.1219
I-butane	0.96%	31.32	524.87	0.31	0.0193
N-butane	2.19%	71.45	1197.54	0.69	0.0440
Neopentane	0.00%	0.13	2.21	0.00	0.0001
I-pentane	0.49%	19.50	326.80	0.18	0.0121
N-pentane	0.43%	17.32	290.24	0.16	0.0108
Hexanes	0.00%	0.15	2.49	0.00	0.0001
Heptanes	0.00%	0.06	1.05	0.00	0.0000
Octanes	0.00%	0.05	0.81	0.00	0.0000
Nonanes	0.00%	0.05	0.81	0.00	0.0000
Decanes+	0.00%	0.12	2.29	0.00	0.0003
TOTAL	100.000%	1300.0	21790	7.19	0.7819
COMPRESSIBILITY =		0.9958			
DRY BTU (IDEAL) =		1317.4			
DRY BTU (REAL) =		1322.8			
SATURATED BTU (IDEAL) =		1294.4			
SATURATED BTU (REAL) =		1300.3			
UNNORMALIZED TOTAL PERCENT =		100.000%			
AVERAGE MOLAR MASS =		22.6			

NOTES: IDEAL VALUES NOT CORRECTED FOR COMPRESSIBILITY
REAL VALUES CORRECTED FOR COMPRESSIBILITY
STD CONDITIONS: 14.696 PSIA & SP. GR. @ AIR = 0.9995
GAS CONSTANTS FOR DECANES+ ARE FOR N-DECANE
ACCURACY IS TO 1 PART IN 1000 (EXTRA DIGITS FOR ROUNDING)
CALCULATIONS ARE BASED UPON DRY ANALYSIS



Report of Natural Gas Analysis (continued)

Company/Operator	Ballard	Date Received	4/3/2014
Location	Leavitt Fed Trust 21-7H	Date Reported	4/17/2014
Sample Type	Natural Gas	Lab Number	201404100211
Date Sampled	4/2/2014	Date Analyzed	4/9/2014
Time Sampled	Not given	Page	2 of 2
Sample Point	SC1004		
Source Temp	165°F		
Source Press.	40 psi		
Sampled by	Ian Erickson	Bison Engineering Inc.	

COMPONENT	Mole %	Volume %	Weight %
Carbon Dioxide	1.61%	1.383	3.124
Nitrogen	0.42%	0.235	0.524
Methane	71.61%	61.227	50.74
Ethane	14.27%	19.245	18.95
Propane	8.01%	11.126	15.60
I-Butane	0.96%	1.589	2.472
N-Butane	2.19%	3.482	5.622
I-Pentane	0.49%	0.899	1.553
N-Pentane	0.43%	0.790	1.377
2,2-Dimethylpropane	0.00%	0.006	0.011
Cyclopentane	***	***	***
N-Hexane	0.00%	0.002	0.003
Cyclohexane	0.00%	0.001	0.002
Methylcyclopentane	0.00%	0.002	0.004
2,2-Dimethylbutane	0.00%	0.000	0.001
2,3-Dimethylbutane***	0.00%	0.001	0.002
2-Methylpentane	0.00%	0.001	0.001
3-Methylpentane	0.00%	0.000	0.000
Benzene	0.00%	0.000	0.000
Hexanes, balance	0.00%	0.001	0.001
Toluene	0.00%	0.000	0.001
Heptanes, balance	0.00%	0.002	0.004
Ethylbenzene	0.00%	0.000	0.000
Total Xylenes	0.00%	0.000	0.000
2,2,4-Trimethylpentane	0.00%	0.000	0.001
Octanes, balance	0.00%	0.001	0.003
Nonanes	0.00%	0.005	0.011
Decanes+	0.00%	0.000	0.000
	100.00%	100.000	100.000

***Cyclopentane coelutes in the chromatography with 2,3-dimethylbutane (2,3-DMB). Therefore, the combined concentration of cyclopentane and 2,3-DMB is reported as 2,3-DMB.

Reviewed by

Kathy Smit
Senior Chemist



Client Name	Bison Engineering, Inc. 1400 11th Avenue Helena, MT 59601	Date Received	4/3/2014
Attn:	Mr. Derek Fleming 406-442-5768 dfleming@bison-eng.com	Date Reported	4/17/2014
		Lab Number	201404100202
		Date Analyzed	4/12/2014
		File #	gases\04121409
		Page	1 of 2
Company/Operator	Ballard	Date Sampled	4/2/2014
Location	Leavitt Trust 14-2TH	Time Sampled	1:00 PM
		Cylinder #:	SC1056
Sample Type	Natural Gas	Source Temp	70°F
Sampled by	Ian Erickson Bison Engineering Inc.	Source Press.	20 psi

GAS ANALYSIS BY GC/TCD/FID GPA Method 2286-95

COMPONENT	Normalized Mole Percent	Gross Heating Value (BTU/ft3)	Gross Heating Value (BTU/lb)	Gasoline Content (gal/1000ft3)	Specific Gravity
Carbon Dioxide	1.40%	0.00	0.00	0.00	0.0212
Ethane	14.43%	255.28	3808.63	3.85	0.1498
Nitrogen	0.41%	0.00	0.00	0.00	0.0040
Methane	64.53%	651.77	9724.26	10.91	0.3574
Propane	10.78%	271.18	4046.00	2.96	0.1641
I-butane	1.69%	55.05	821.39	0.55	0.0340
N-butane	4.33%	141.19	2106.52	1.36	0.0869
Neopentane	0.01%	0.44	6.50	0.00	0.0003
I-pentane	1.25%	49.83	743.52	0.45	0.0310
N-pentane	1.16%	46.41	692.50	0.42	0.0288
Hexanes	0.01%	0.50	7.41	0.00	0.0003
Heptanes	0.00%	0.13	1.91	0.00	0.0001
Octanes	0.00%	0.12	1.83	0.00	0.0000
Nonanes	0.01%	0.12	1.83	0.00	0.0000
Decanes+	0.00%	0.35	5.91	0.00	0.0008
TOTAL	100.000%	1425.9	21274	9.19	0.8787
COMPRESSIBILITY =		0.9946			
DRY BTU (IDEAL) =		1472.3			
DRY BTU (REAL) =		1480.3			
SATURATED BTU (IDEAL) =		1446.6			
SATURATED BTU (REAL) =		1455.1			
UNNORMALIZED TOTAL PERCENT =		100.000%			
AVERAGE MOLAR MASS =		25.4			

NOTES: IDEAL VALUES NOT CORRECTED FOR COMPRESSIBILITY
REAL VALUES CORRECTED FOR COMPRESSIBILITY
STD CONDITIONS: 14.696 PSIA & SP. GR. @ AIR = 0.9995
GAS CONSTANTS FOR DECANES+ ARE FOR N-DECANE
ACCURACY IS TO 1 PART IN 1000 (EXTRA DIGITS FOR ROUNDING)
CALCULATIONS ARE BASED UPON DRY ANALYSIS



Report of Natural Gas Analysis (continued)

Company/Operator	Ballard	Date Received	4/3/2014
Location	Leavitt Trust 14-2TH	Date Reported	4/17/2014
Sample Type	Natural Gas	Lab Number	201404100202
Date Sampled	4/2/2014	Date Analyzed	4/12/2014
Time Sampled	0.541666667	Page	2 of 2
Sample Point	SC1056		
Source Temp	70°F		
Source Press.	20 psi		
Sampled by	Ian Erickson	Bison Engineering Inc.	

COMPONENT	Mole %	Volume %	Weight %
Carbon Dioxide	1.40%	1.142	2.415
Nitrogen	0.41%	0.218	0.456
Methane	64.53%	52.449	40.70
Ethane	14.43%	18.495	17.05
Propane	10.78%	14.235	18.68
I-Butane	1.69%	2.656	3.868
N-Butane	4.33%	6.541	9.889
I-Pentane	1.25%	2.184	3.533
N-Pentane	1.16%	2.012	3.284
2,2-Dimethylpropane	0.01%	0.020	0.031
Cyclopentane	***	***	***
N-Hexane	0.00%	0.005	0.009
Cyclohexane	0.00%	0.003	0.006
Methylcyclopentane	0.00%	0.004	0.008
2,2-Dimethylbutane	0.00%	0.001	0.003
2,3-Dimethylbutane***	0.00%	0.005	0.008
2-Methylpentane	0.00%	0.002	0.004
3-Methylpentane	0.00%	0.000	0.001
Benzene	0.00%	0.000	0.001
Hexanes, balance	0.00%	0.001	0.002
Toluene	0.00%	0.000	0.001
Heptanes, balance	0.00%	0.004	0.008
Ethylbenzene	0.00%	0.000	0.000
Total Xylenes	0.00%	0.000	0.000
2,2,4-Trimethylpentane	0.00%	0.000	0.001
Octanes, balance	0.00%	0.004	0.007
Nonanes	0.01%	0.014	0.028
Decanes+	0.00%	0.001	0.002
	100.00%	100.000	100.000

***Cyclopentane coelutes in the chromatography with 2,3-dimethylbutane (2,3-DMB). Therefore, the combined concentration of cyclopentane and 2,3-DMB is reported as 2,3-DMB.

Reviewed by

Kathy Smit
Senior Chemist



Client Name	Bison Engineering, Inc. 1400 11th Avenue Helena, MT 59601	Date Received	4/3/2014
Attn:	Mr. Derek Fleming 406-442-5768 dfleming@bison-eng.com	Date Reported	4/17/2014
		Lab Number	201404100208
		Date Analyzed	4/12/2014
		File #	gases\04121421
		Page	1 of 2
Company/Operator	Ballard	Date Sampled	4/2/2014
Location	Dilts 44-14TH	Time Sampled	Not given
		Cylinder #:	SC1035
Sample Type	Natural Gas	Source Temp	157°F
Sampled by	Ian Erickson Bison Engineering Inc.	Source Press.	32 psi

GAS ANALYSIS BY GC/TCD/FID GPA Method 2286-95

COMPONENT	Normalized Mole Percent	Gross Heating Value (BTU/ft3)	Gross Heating Value (BTU/lb)	Gasoline Content (gal/1000ft3)	Specific Gravity
Carbon Dioxide	1.08%	0.00	0.00	0.00	0.0165
Ethane	24.61%	435.46	4165.12	6.56	0.2555
Nitrogen	0.03%	0.00	0.00	0.00	0.0003
Methane	20.51%	207.18	1981.67	3.47	0.1136
Propane	28.15%	708.39	6775.85	7.74	0.4286
I-butane	5.04%	163.77	1566.47	1.64	0.1011
N-butane	12.42%	405.20	3875.77	3.91	0.2493
Neopentane	0.15%	5.85	55.93	0.06	0.0037
I-pentane	3.97%	158.85	1519.38	1.45	0.0989
N-pentane	3.78%	151.57	1449.75	1.37	0.0942
Hexanes	0.18%	8.47	81.03	0.07	0.0053
Heptanes	0.04%	2.35	22.48	0.00	0.0015
Octanes	0.02%	1.05	10.00	0.01	0.0002
Nonanes	0.02%	1.05	10.00	0.01	0.0002
Decanes+	0.00%	1.16	12.38	0.01	0.0027
TOTAL	100.000%	2097.7	20066	21.45	1.3714
COMPRESSIBILITY =		0.9858			
DRY BTU (IDEAL) =		2249.3			
DRY BTU (REAL) =		2281.8			
SATURATED BTU (IDEAL) =		2210.1			
SATURATED BTU (REAL) =		2243.2			
UNNORMALIZED TOTAL PERCENT =		100.000%			
AVERAGE MOLAR MASS =		39.7			

NOTES: IDEAL VALUES NOT CORRECTED FOR COMPRESSIBILITY
REAL VALUES CORRECTED FOR COMPRESSIBILITY
STD CONDITIONS: 14.696 PSIA & SP. GR. @ AIR = 0.9995
GAS CONSTANTS FOR DECANES+ ARE FOR N-DECANE
ACCURACY IS TO 1 PART IN 1000 (EXTRA DIGITS FOR ROUNDING)
CALCULATIONS ARE BASED UPON DRY ANALYSIS



Report of Natural Gas Analysis (continued)

Company/Operator	Ballard	Date Received	4/3/2014
Location	Dilts 44-14TH	Date Reported	4/17/2014
Sample Type	Natural Gas	Lab Number	201404100208
Date Sampled	4/2/2014	Date Analyzed	4/12/2014
Time Sampled	Not given	Page	2 of 2
Sample Point	SC1035		
Source Temp	157°F		
Source Press.	32 psi		
Sampled by	Ian Erickson	Bison Engineering Inc.	

COMPONENT	Mole %	Volume %	Weight %
Carbon Dioxide	1.08%	0.697	1.202
Nitrogen	0.03%	0.013	0.022
Methane	20.51%	13.094	8.29
Ethane	24.61%	24.779	18.64
Propane	28.15%	29.206	31.28
I-Butane	5.04%	6.205	7.375
N-Butane	12.42%	14.744	18.190
I-Pentane	3.97%	5.467	7.218
N-Pentane	3.78%	5.161	6.874
2,2-Dimethylpropane	0.15%	0.212	0.267
Cyclopentane	***	***	***
N-Hexane	0.05%	0.076	0.106
Cyclohexane	0.01%	0.015	0.024
Methylcyclopentane	0.04%	0.058	0.095
2,2-Dimethylbutane	0.01%	0.017	0.023
2,3-Dimethylbutane***	0.04%	0.060	0.084
2-Methylpentane	0.02%	0.032	0.045
3-Methylpentane	0.00%	0.007	0.009
Benzene	0.00%	0.005	0.009
Hexanes, balance	0.01%	0.021	0.030
Toluene	0.00%	0.005	0.010
Heptanes, balance	0.04%	0.062	0.096
Ethylbenzene	0.00%	0.000	0.001
Total Xylenes	0.00%	0.001	0.003
2,2,4-Trimethylpentane	0.00%	0.008	0.011
Octanes, balance	0.01%	0.020	0.033
Nonanes	0.02%	0.035	0.059
Decanes+	0.00%	0.001	0.001
	100.01%	100.000	100.000

***Cyclopentane coelutes in the chromatography with 2,3-dimethylbutane (2,3-DMB). Therefore, the combined concentration of cyclopentane and 2,3-DMB is reported as 2,3-DMB.

Reviewed by

Kathy Smit
Senior Chemist



Client Name	Bison Engineering, Inc. 1400 11th Avenue Helena, MT 59601	Date Received	4/3/2014
Attn:	Mr. Derek Fleming 406-442-5768 dfleming@bison-eng.com	Date Reported	4/17/2014
		Lab Number	201404100217
		Date Analyzed	4/12/2014
		File #	gases\04121408
		Page	1 of 2
Company/Operator	Ballard	Date Sampled	4/2/2014
Location	Leavitt Fed Trust 44-31TH	Time Sampled	Not given
		Cylinder #:	SC1002
Sample Type	Natural Gas	Source Temp	127°F
Sampled by	Ian Erickson Bison Engineering Inc.	Source Press.	34 psi

GAS ANALYSIS BY GC/TCD/FID GPA Method 2286-95

COMPONENT	Normalized Mole Percent	Gross Heating Value (BTU/ft3)	Gross Heating Value (BTU/lb)	Gasoline Content (gal/1000ft3)	Specific Gravity
Carbon Dioxide	1.24%	0.00	0.00	0.00	0.0189
Ethane	24.53%	434.16	4237.49	6.54	0.2547
Nitrogen	0.05%	0.00	0.00	0.00	0.0005
Methane	21.02%	212.35	2072.63	3.56	0.1165
Propane	30.78%	774.55	7560.07	8.46	0.4687
I-butane	4.37%	142.10	1386.91	1.43	0.0877
N-butane	11.56%	377.26	3682.24	3.64	0.2321
Neopentane	0.10%	3.89	37.93	0.04	0.0024
I-pentane	2.99%	119.45	1165.86	1.09	0.0744
N-pentane	3.02%	121.11	1182.05	1.09	0.0753
Hexanes	0.16%	7.71	75.20	0.07	0.0048
Heptanes	0.06%	3.30	32.22	0.00	0.0021
Octanes	0.04%	2.20	21.44	0.02	0.0004
Nonanes	0.07%	2.20	21.44	0.02	0.0004
Decanes+	0.00%	4.32	47.16	0.04	0.0101
TOTAL	100.000%	2081.3	20320	21.32	1.3488
COMPRESSIBILITY =		0.9865			
DRY BTU (IDEAL) =		2202.5			
DRY BTU (REAL) =		2232.7			
SATURATED BTU (IDEAL) =		2164.0			
SATURATED BTU (REAL) =		2195.0			
UNNORMALIZED TOTAL PERCENT =		100.000%			
AVERAGE MOLAR MASS =		38.9			

NOTES: IDEAL VALUES NOT CORRECTED FOR COMPRESSIBILITY
 REAL VALUES CORRECTED FOR COMPRESSIBILITY
 STD CONDITIONS: 14.696 PSIA & SP. GR. @ AIR = 0.9995
 GAS CONSTANTS FOR DECANES+ ARE FOR N-DECANE
 ACCURACY IS TO 1 PART IN 1000 (EXTRA DIGITS FOR ROUNDING)
 CALCULATIONS ARE BASED UPON DRY ANALYSIS



Report of Natural Gas Analysis (continued)

Company/Operator	Ballard	Date Received	4/3/2014
Location	Leavitt Fed Trust 44-31TH	Date Reported	4/17/2014
Sample Type	Natural Gas	Lab Number	201404100217
Date Sampled	4/2/2014	Date Analyzed	4/12/2014
Time Sampled	Not given	Page	2 of 2
Sample Point	SC1002		
Source Temp	127°F		
Source Press.	34 psi		
Sampled by	Ian Erickson	Bison Engineering Inc.	

COMPONENT	Mole %	Volume %	Weight %
Carbon Dioxide	1.24%	0.806	1.403
Nitrogen	0.05%	0.022	0.038
Methane	21.02%	13.562	8.67
Ethane	24.53%	24.965	18.96
Propane	30.78%	32.270	34.88
I-Butane	4.37%	5.441	6.526
N-Butane	11.56%	13.872	17.272
I-Pentane	2.99%	4.154	5.535
N-Pentane	3.02%	4.167	5.601
2,2-Dimethylpropane	0.10%	0.142	0.181
Cyclopentane	***	***	***
N-Hexane	0.04%	0.070	0.099
Cyclohexane	0.02%	0.031	0.053
Methylcyclopentane	0.06%	0.084	0.139
2,2-Dimethylbutane	0.01%	0.015	0.021
2,3-Dimethylbutane***	0.03%	0.051	0.073
2-Methylpentane	0.02%	0.028	0.040
3-Methylpentane	0.00%	0.005	0.007
Benzene	0.00%	0.003	0.006
Hexanes, balance	0.01%	0.016	0.022
Toluene	0.00%	0.006	0.012
Heptanes, balance	0.06%	0.090	0.140
Ethylbenzene	0.00%	0.001	0.002
Total Xylenes	0.00%	0.003	0.005
2,2,4-Trimethylpentane	0.01%	0.017	0.025
Octanes, balance	0.02%	0.043	0.070
Nonanes	0.07%	0.133	0.224
Decanes+	0.00%	0.003	0.005
	100.04%	100.000	100.000

***Cyclopentane coelutes in the chromatography with 2,3-dimethylbutane (2,3-DMB). Therefore, the combined concentration of cyclopentane and 2,3-DMB is reported as 2,3-DMB.

Reviewed by

Kathy Smit
Senior Chemist



Client Name	Bison Engineering, Inc. 1400 11th Avenue Helena, MT 59601	Date Received	4/3/2014
Attn:	Mr. Derek Fleming 406-442-5768 dfleming@bison-eng.com	Date Reported	4/17/2014
		Lab Number	201404100214
		Date Analyzed	4/12/2014
		File #	gases\04121404
		Page	1 of 2
Company/Operator	Ballard	Date Sampled	4/2/2014
Location	Roush 44-25TH	Time Sampled	Not given
		Cylinder #:	SC1049
Sample Type	Natural Gas	Source Temp	161°F
Sampled by	Ian Erickson Bison Engineering Inc.	Source Press.	32 psi

GAS ANALYSIS BY GC/TCD/FID GPA Method 2286-95

COMPONENT	Normalized Mole Percent	Gross Heating Value (BTU/ft3)	Gross Heating Value (BTU/lb)	Gasoline Content (gal/1000ft3)	Specific Gravity
Carbon Dioxide	0.93%	0.00	0.00	0.00	0.0142
Ethane	21.52%	380.92	3540.10	5.74	0.2235
Nitrogen	0.07%	0.00	0.00	0.00	0.0007
Methane	18.86%	190.52	1770.66	3.19	0.1045
Propane	31.45%	791.36	7354.96	8.64	0.4789
I-butane	4.96%	161.31	1499.19	1.62	0.0995
N-butane	13.78%	449.58	4178.32	4.33	0.2766
Neopentane	0.12%	4.69	43.60	0.04	0.0029
I-pentane	3.92%	156.85	1457.78	1.43	0.0977
N-pentane	4.06%	162.81	1513.15	1.47	0.1012
Hexanes	0.20%	9.66	89.79	0.08	0.0060
Heptanes	0.06%	3.24	30.07	0.00	0.0020
Octanes	0.02%	1.49	13.82	0.01	0.0002
Nonanes	0.03%	1.49	13.82	0.01	0.0002
Decanes+	0.00%	1.72	17.93	0.02	0.0041
TOTAL	100.000%	2151.4	19996	21.93	1.4122
COMPRESSIBILITY =		0.9849			
DRY BTU (IDEAL) =		2314.2			
DRY BTU (REAL) =		2349.7			
SATURATED BTU (IDEAL) =		2273.8			
SATURATED BTU (REAL) =		2310.0			
UNNORMALIZED TOTAL PERCENT =		100.000%			
AVERAGE MOLAR MASS =		40.8			

NOTES: IDEAL VALUES NOT CORRECTED FOR COMPRESSIBILITY
REAL VALUES CORRECTED FOR COMPRESSIBILITY
STD CONDITIONS: 14.696 PSIA & SP. GR. @ AIR = 0.9995
GAS CONSTANTS FOR DECANES+ ARE FOR N-DECANE
ACCURACY IS TO 1 PART IN 1000 (EXTRA DIGITS FOR ROUNDING)
CALCULATIONS ARE BASED UPON DRY ANALYSIS



Report of Natural Gas Analysis (continued)

Company/Operator	Ballard	Date Received	4/3/2014
Location	Roush 44-25TH	Date Reported	4/17/2014
Sample Type	Natural Gas	Lab Number	201404100214
Date Sampled	4/2/2014	Date Analyzed	4/12/2014
Time Sampled	Not given	Page	2 of 2
Sample Point	SC1049		
Source Temp	161°F		
Source Press.	32 psi		
Sampled by	Ian Erickson	Bison Engineering Inc.	

COMPONENT	Mole %	Volume %	Weight %	
Carbon Dioxide	0.93%	0.594	1.006	
Nitrogen	0.07%	0.029	0.049	
Methane	18.86%	11.912	7.41	
Ethane	21.52%	21.442	15.84	
Propane	31.45%	32.275	33.95	
I-Butane	4.96%	6.046	7.057	
N-Butane	13.78%	16.183	19.605	
I-Pentane	3.92%	5.341	6.923	
N-Pentane	4.06%	5.484	7.172	
2,2-Dimethylpropane	0.12%	0.168	0.208	
Cyclopentane	***	***	***	
N-Hexane	0.06%	0.086	0.119	
Cyclohexane	0.02%	0.020	0.033	
Methylcyclopentane	0.05%	0.082	0.132	
2,2-Dimethylbutane	0.01%	0.020	0.027	
2,3-Dimethylbutane***	0.04%	0.067	0.092	
2-Methylpentane	0.02%	0.036	0.050	
3-Methylpentane	0.00%	0.006	0.008	
Benzene	0.00%	0.004	0.007	
Hexanes, balance	0.01%	0.018	0.025	
Toluene	0.00%	0.005	0.009	
Heptanes, balance	0.05%	0.088	0.133	
Ethylbenzene	0.00%	0.000	0.001	
Total Xylenes	0.00%	0.001	0.001	
2,2,4-Trimethylpentane	0.01%	0.013	0.019	
Octanes, balance	0.02%	0.028	0.044	
Nonanes	0.03%	0.052	0.085	
Decanes+	0.00%	0.001	0.001	
	100.02%	100.000	100.000	

***Cyclopentane coelutes in the chromatography with 2,3-dimethylbutane (2,3-DMB). Therefore, the combined concentration of cyclopentane and 2,3-DMB is reported as 2,3-DMB.

Reviewed by

Kathy Smit
Senior Chemist

Facility Detail Report
Facility Name: Reno 42-5 TH
ID: F026962

- **Facility Information**

Facility ID: F026962
 FacilityName: Reno 42-5 TH
 Facility Description: Oil and Gas Well
 Company Name: Ballard Petroleum Holdings
 Operating Status: Operating
 Facility Class: Minor
 CERR Class: NON
 AFS:
 Facility Type: Production Site

- **Location**

Physical Address	City	County	Lat/Long	PLSS	Effective Date
Section 5, 42N, 73W	Campbell County	Campbell	43.64220/-105.64673	QSENE-S5-T42N-R73W	07/21/2015

Location Detail For : Section 5, 42N, 73W

Latitude: 43.64220 Longitude: -105.64673
 Quarter Quarter: SE Quarter: NE
 Section: 5
 Township: 42N Range: 73W
 County: Campbell State: Wyoming
 Distict: District 3
 Physical Address 1: Section 5, 42N, 73W Physical Address 2:
 City: Campbell County Zip: 82716
 Effective Date: 07/21/2015

- **API**

API
0562449

- **Notes**

User Name	Date	Note
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- **NAICS Codes**

211111 Crude Petroleum and Natural Gas Extraction (SIC 1311)

- **Contacts**

Contact Type	Contact Person	Phone Number	Email	Start Date	End Date
Environmental contact	Davis, Benjamin	(406)281-8230	bdavis@ballardpetroleum.com	08/13/2015	

Contact Detail For : Davis, Benjamin

Prefix: Mr. First Name: Benjamin
 Middle Name: Last Name: Davis
 Suffix:

Company Title:

Contact's Company Name: Ballard Petroleum Holdings

Address 1: 845 12th St. West

Address 2:

City: Billings

Zip Code: 59102

State: Montana

Work Phone No: (406)281-8230

Secondary Phone No.:

Address 2:

Secondary Ext. No.:

Mobile Phone No.:

Pager No.:

Fax No:

Pager PIN No.:

Email: bdavis@ballardpetroleum.com

Email Pager Address:

- **Rules & Regs**

Subject to Part 60 NSPS:

Subject to 112(r) Accidental Release
Prevention:

Subject to Part 61 NESHAP:

Subject to non-attainment NSR:

Subject Part 63 NESHAP:

Subject to PSD:

Subject to Title IV Acid Rain:

- **Attachments**

Description	Type	Modified By	Modified Date
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- **Version**

Version ID	Version Start Date	Version End Date	Preserved
CURRENT	08/14/2015		X
31237	07/21/2015	08/14/2015	X

Emission Unit : FLR001

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: FLR001

Emission Unit Type: Flare

Maximum Design Capacity: 106000.0

Units : scf/day

Minimum Design Capacity: 17280.0

Units : scf/day

Pilot Gas Volume (scf/min): 0.8300

AQD Description: Tank Gas Flare

Company Equipment ID: Flare #1

Company Equipment Description: Tank gas flare

Operating Status: Operating

Initial Construction Commencement Date: 05/23/2015

Initial Operation Commencement Date: 05/23/2015

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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- Processes

- Emission Process Information

Process ID: PRC001

Process Name: Flare #1

Company Process Description: Tank gas flare for produced oil storage tanks

Source Classification Code (SCC): 3-10-001-60

Release points(s) directly associated with this process

VER001

Emission Unit : FLR002

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: FLR002

Emission Unit Type: Flare

Maximum Design Capacity: 1100000.0

Units : scf/day

Minimum Design Capacity: 27000.0

Units : scf/day

Pilot Gas Volume (scf/min): 0.8300

AQD Description: Emergency Produced Gas Flare

Company Equipment ID: Flare #2

Company Equipment Description: Emergency Produced Gas Flare

Operating Status: Operating

Initial Construction Commencement Date: 05/23/2015

Date:

Initial Operation Commencement Date: 05/23/2015

Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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- Processes

- Emission Process Information

Process ID: PRC002

Process Name: Flare #2

Company Process Description: Emergency produced gas flare

Source Classification Code (SCC): 3-10-001-60

Release points(s) directly associated with this process

VER002

Emission Unit : FUG001

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: FUG001

Emission Unit Type: Fugitive

AQD Description:

Company Equipment ID: Fugitives #1

Company Equipment Description: Fugitive equipment leaks from oil and gas production equipment

Operating Status: Operating

Initial Construction Commencement Date: 05/23/2015

Initial Operation Commencement Date: 05/23/2015

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
-----------	--------------------------------	---------------------------------	--------------------------------	---------------------------------	----------

- Processes

- Emission Process Information

Process ID: PRC003

Process Name: Fugitives

Company Process Description: Fugitive equipment leaks from oil and gas production equipment

Source Classification Code (SCC): 3-10-888-11

Release points(s) directly associated with this process

AVL001

Emission Unit : FUG002

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: FUG002

Emission Unit Type: Fugitive

AQD Description:

Company Equipment ID: Fugitives #2

Company Equipment Description: Fugitive dust emissions from vehicle traffic

Operating Status: Operating

Initial Construction Commencement Date: 05/23/2015

Initial Operation Commencement Date: 05/23/2015

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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- Processes

- Emission Process Information

Process ID: PRC004

Process Name: Vehicle traffic dust

Company Process Description: Fugitive dust from on-pad vehicle traffic

Source Classification Code (SCC): 3-10-888-01

Release points(s) directly associated with this process

AVL002

Emission Unit : HET001

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: HET001

Emission Unit Type: Heater/Chiller

Firing Type: Direct

Heat Input Rating: 0.5

Units: MMBtu/hr

Primary Fuel Type: Field Gas

Secondary Fuel Type: N/A

Heat Content of Fuel (BTU/scf): 1892

AQD Description: Heater

Company Equipment ID: HET001

Company Equipment Description: Heater used for the Heater-treater/3-phase separator

Operating Status: Operating

Initial Construction Commencement 05/23/2015
Date:

Initial Operation Commencement 05/23/2015
Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
-----------	--------------------------------	---------------------------------	--------------------------------	---------------------------------	----------

- Processes

- Emission Process Information

Process ID: PRC005

Process Name: Heater #1

Company Process Description: Heater for heater-treater

Source Classification Code (SCC): 3-10-004-04

Release points(s) directly associated with this process

VER003

Emission Unit : HET002

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: HET002

Emission Unit Type: Heater/Chiller

Firing Type: Indirect

Heat Input Rating: 0.5

Units: MMBtu/hr

Primary Fuel Type: Field Gas

Secondary Fuel Type: N/A

Heat Content of Fuel (BTU/scf): 1892

AQD Description:

Company Equipment ID: Heater #2

Company Equipment Description: Heater used for the free water knock out.

Operating Status: Operating

Initial Construction Commencement 05/23/2015
Date:

Initial Operation Commencement 05/23/2015
Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
-----------	--------------------------------	---------------------------------	--------------------------------	---------------------------------	----------

- Processes

- Emission Process Information

Process ID: PRC006

Process Name: Heater #2

Company Process Description: Heater used on the freewater knock out

Source Classification Code (SCC): 3-10-004-04

Release points(s) directly associated with this process

VER004

Emission Unit : LUD001

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: LUD001

Emission Unit Type: Loading/Unloading/Dump

Type of Material: liquid

Material Description: Oil

Maximum Annual Throughput: 127678

Units: barrels/yr

AQD Description: Truck Loading of Oil

Company Equipment ID: LUD001

Company Equipment Description: Truck Loading of Oil

Operating Status: Operating

Initial Construction Commencement Date: 05/23/2015

Date:

Initial Operation Commencement Date: 05/23/2015

Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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- Processes

- Emission Process Information

Process ID: PRC007

Process Name: Oil Truck Loading

Company Process Description: Truck loading of produced oil

Source Classification Code (SCC): 4-06-001-32

Release points(s) directly associated with this process

AVL004

Emission Unit : SEP001

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: SEP001

Emission Unit Type: Separator/Treater

Type Of Vessel: 3-Phase Separator

is Vessel Heated: Yes

AQD Description: Three Phase Separator/Heater Treater

Company Equipment ID: SEP001

Company Equipment Description: Three Phase Separator/Heater Treater

Operating Status: Operating

Initial Construction Commencement 05/23/2015
Date:

Initial Operation Commencement 05/23/2015
Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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- Processes

- Emission Process Information

Process ID: PRC008

Process Name: Heater Treater #1

Company Process Description: Heater Treater/3-phase separator

Source Classification Code (SCC): 3-10-001-29

Control equipment(s) directly associated with this process

FLA002

Emission Unit : SEP002

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: SEP002

Emission Unit Type: Separator/Treater

Type Of Vessel: FWKO

is Vessel Heated: Yes

AQD Description:

Company Equipment ID: FWKO #1

Company Equipment Description: Freewater knock out

Operating Status: Operating

Initial Construction Commencement 05/23/2015
Date:

Initial Operation Commencement 05/23/2015
Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
-----------	--------------------------------	---------------------------------	--------------------------------	---------------------------------	----------

- Processes

- Emission Process Information

Process ID: PRC009

Process Name: FWKO

Company Process Description: Freewater knock out

Source Classification Code (SCC): 3-10-001-29

Emission Unit : SEP003

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: SEP003

Emission Unit Type: Separator/Treater

Type Of Vessel: 2-Phase Separator

is Vessel Heated: No

AQD Description: 2-phase separator

Company Equipment ID: Separator #3

Company Equipment Description: Two phase separator

Operating Status: Operating

Initial Construction Commencement 05/23/2015
Date:

Initial Operation Commencement 05/23/2015
Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
-----------	--------------------------------	---------------------------------	--------------------------------	---------------------------------	----------

- Processes

- Emission Process Information

Process ID: PRC010

Process Name: Two-Phase Seperrator

Company Process Description: Two-Phase Seperator

Source Classification Code (SCC): 3-10-001-29

Control equipment(s) directly associated with this process

FLA002

Emission Unit : TNK001

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: TNK001

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: Oil

Capacity: 400

Units: barrels

Maximum Throughput: 127678.0000

Units: barrels/yr

AQD Description: Oil Storage Tank

Company Equipment ID: TNK001

Company Equipment Description: Oil Storage Tank #1

Operating Status: Operating

Initial Construction Commencement Date: 05/23/2015

Initial Operation Commencement Date: 05/23/2015

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
-----------	--------------------------------	---------------------------------	--------------------------------	---------------------------------	----------

- Processes

- Emission Process Information

Process ID: PRC011

Process Name: Tank Gas #1

Company Process Description: Tank Gas Emissions

Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

FLA001

Emission Unit : TNK002

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: TNK002

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: Oil

Capacity: 400

Units: barrels

Maximum Throughput: 127678.0000

Units: barrels/yr

AQD Description: Water Storage Tank

Company Equipment ID: TNK002

Company Equipment Description: Oil Storage Tank #2

Operating Status: Operating

Initial Construction Commencement 05/23/2015
Date:

Initial Operation Commencement 05/23/2015
Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
-----------	--------------------------------	---------------------------------	--------------------------------	---------------------------------	----------

- Processes

- Emission Process Information

Process ID: PRC012

Process Name: Tank Gas #2

Company Process Description: Tank Gas Emissions

Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

VRU001

FLA001

Emission Unit : TNK003

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: TNK003

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: Oil

Capacity: 400

Units: barrels

Maximum Throughput: 127678.0000

Units: barrels/yr

AQD Description:

Company Equipment ID: TNK003

Company Equipment Description: Oil Storage Tank #3

Operating Status: Operating

Initial Construction Commencement 05/23/2015
Date:

Initial Operation Commencement 05/23/2015
Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
-----------	--------------------------------	---------------------------------	--------------------------------	---------------------------------	----------

- Processes

- Emission Process Information

Process ID: PRC013

Process Name: Tank Gas #3

Company Process Description: Tank Gas Emissions

Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

VRU001

FLA001

Emission Unit : TNK004

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: TNK004

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: Oil

Capacity: 400

Units: barrels

Maximum Throughput: 127678.0000

Units: barrels/yr

AQD Description:

Company Equipment ID: TNK004

Company Equipment Description: Oil Storage Tank #4

Operating Status: Operating

Initial Construction Commencement 05/23/2015

Date:

Initial Operation Commencement 05/23/2015

Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
-----------	--------------------------------	---------------------------------	--------------------------------	---------------------------------	----------

- Processes

- Emission Process Information

Process ID: PRC014

Process Name: Tank Gas #4

Company Process Description: Tank Gas Emissions

Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

VRU001

FLA001

Emission Unit : TNK005

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: TNK005

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: Oil

Capacity: 400

Units: barrels

Maximum Throughput: 127678.0000

Units: barrels/yr

AQD Description:

Company Equipment ID: TNK005

Company Equipment Description: Oil Storage Tank #5

Operating Status: Operating

Initial Construction Commencement 05/23/2015

Date:

Initial Operation Commencement 05/23/2015

Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
-----------	--------------------------------	---------------------------------	--------------------------------	---------------------------------	----------

- Processes

- Emission Process Information

Process ID: PRC015

Process Name: Tank Gas #5

Company Process Description: Tank Gas Emissions

Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

VRU001

FLA001

- **Emission Unit Information**

AQD Emissions Unit ID: TNK006

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: Oil

Capacity: 400

Units: barrels

Maximum Throughput: 127678.0000

Units: barrels/yr

AQD Description:

Company Equipment ID: TNK006

Company Equipment Description: Oil Storage Tank #6

Operating Status: Operating

Initial Construction Commencement 05/23/2015

Date:

Initial Operation Commencement 05/23/2015

Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- **Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments

- **Processes**

- **Emission Process Information**

Process ID: PRC016

Process Name: Tank Gas #6

Company Process Description: Tank Gas Emissions

Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

VRU001

FLA001

Emission Unit : TNK007

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: TNK007

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: Oil

Capacity: 400

Units: barrels

Maximum Throughput: 127678.0000

Units: barrels/yr

AQD Description:

Company Equipment ID: TNK007

Company Equipment Description: Oil Storage Tank #7

Operating Status: Operating

Initial Construction Commencement 05/23/2015
Date:

Initial Operation Commencement 05/23/2015
Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
-----------	--------------------------------	---------------------------------	--------------------------------	---------------------------------	----------

- Processes

- Emission Process Information

Process ID: PRC017

Process Name: Tank Gas #7

Company Process Description: Tank Gas Emissions

Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

VRU001

FLA001

Emission Unit : TNK008

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: TNK008

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: Oil

Capacity: 400

Units: barrels

Maximum Throughput: 127678.0000

Units: barrels/yr

AQD Description:

Company Equipment ID: TNK008

Company Equipment Description: Oil Storage Tank #8

Operating Status: Operating

Initial Construction Commencement 05/23/2015
Date:

Initial Operation Commencement 05/23/2015
Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
-----------	--------------------------------	---------------------------------	--------------------------------	---------------------------------	----------

- Processes

- Emission Process Information

Process ID: PRC018

Process Name: Tank Gas #8

Company Process Description: Tank Gas Emissions

Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

VRU001

FLA001

Emission Unit : TNK009

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: TNK009

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: Water

Capacity: 400

Units: barrels

Maximum Throughput: 56860.0000

Units: barrels/yr

AQD Description:

Company Equipment ID: TNK009

Company Equipment Description: Water Storage Tank #1

Operating Status: Operating

Initial Construction Commencement 05/23/2015

Date:

Initial Operation Commencement 05/23/2015

Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
-----------	--------------------------------	---------------------------------	--------------------------------	---------------------------------	----------

- Processes

- Emission Process Information

Process ID: PRC019

Process Name: Water Tank Gas #1

Company Process Description: Emissions from water tanks

Source Classification Code (SCC): 4-04-003-15

Release points(s) directly associated with this process

AVL003

Emission Unit : TNK010

Sep 16 2015, 10:04:35

- Emission Unit Information

AQD Emissions Unit ID: TNK010

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: Water

Capacity: 400

Units: barrels

Maximum Throughput: 56860.0000

Units: barrels/yr

AQD Description:

Company Equipment ID: TNK010

Company Equipment Description: Water Storage Tank #2

Operating Status: Operating

Initial Construction Commencement 05/23/2015

Date:

Initial Operation Commencement 05/23/2015

Date:

Most Recent
Construction/Modification
Commencement Date:

Most Recent Operation
Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
-----------	--------------------------------	---------------------------------	--------------------------------	---------------------------------	----------

- Processes

- Emission Process Information

Process ID: PRC020

Process Name: Water Tank Gas #2

Company Process Description: Emission from produced water tanks

Source Classification Code (SCC): 4-04-003-15

Release points(s) directly associated with this process

AVL003

Control Equipment : FLA001

Sep 16 2015, 10:04:35

- Control Equipment Information

Equipment Type: Flare

Control Equipment ID: FLA001

AQD Description:

Company Control Equipment ID: Flare #1

Company Control Equipment Description: Tank gas flare to provide control for oil storage tank emissions.

Operating Status: Operating

Initial Installation Date: 05/23/2015

Manufacturer: Steffes

Model: SVG-3

- Specific Equipment Type information

Flare Type: Elevated - Open

Elevated Flare Type: Non-Assisted

Ignition Device: Yes

Flame Presence Sensor: Yes

Inlet Gas Temp: 100

Flame Presence Type: Thermocouple

Gas Flow Rate: 12.1

Sec. Outlet Gas Temp: 700

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
VOC - Volatile Organic Compounds	98	98	100	98

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER001

Control Equipment : FLA002

Sep 16 2015, 10:04:35

- Control Equipment Information

Equipment Type: Flare

Control Equipment ID: FLA002

AQD Description:

Company Control Equipment ID: Flare #2

Company Control Equipment Description: Emergency flare for controlling produced gas when sales is unavailable.

Operating Status: Operating

Initial Installation Date: 05/23/2015

Manufacturer: Steffes

Model: SHP-6

- Specific Equipment Type information

Flare Type: Elevated - Open

Elevated Flare Type: Non-Assisted

Ignition Device: Yes

Flame Presence Sensor: Yes

Inlet Gas Temp: 153

Flame Presence Type: Thermocouple

Gas Flow Rate: 20.5

Sec. Outlet Gas Temp: 700

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
VOC - Volatile Organic Compounds	98	98	100	98

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER002

Control Equipment : VRU001

Sep 16 2015, 10:04:35

- Control Equipment Information

Equipment Type: Vapor Recovery Unit

Control Equipment ID: VRU001

AQD Description:

Company Control Equipment ID: VRU #1

Company Control Equipment Description: Vapor Recovery Unit

Operating Status: Operating

Initial Installation Date: 05/23/2015

Manufacturer: Flogistix

Model: Vapor Recovery Unit

- Specific Equipment Type information

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
VOC - Volatile Organic Compounds	98	100	98	98

- Associated Control Equipments And Release Points

Release Point : VER001

Sep 16 2015, 10:04:35

- Release Point Information

Release Point ID: VER001

Release Type: Vertical

AQD Description:

Company Release Point ID: Flare #1

Company Release Point Description: Tank gas flare

Operating Status: Operating

Base Elevation (ft): 5280.0

- Stack Details

Stack Height (ft): 25.0

Stack Diameter (ft): 0.5

Exit Gas Velocity (ft/s): 51.9

Exit Gas Flow Rate (acfm): 611.7

Exit Gas Temp (F): 700.0

- Release Latitude and Longitude

Latitude: 43.6422

Longitude: -105.64673

- CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
-------------	-----	-----	-----	----	-----	-----	-----	---	-----	-----	------	---------	----

Release Point : VER002

Sep 16 2015, 10:04:35

- Release Point Information

Release Point ID: VER002

Release Type: Vertical

AQD Description:

Company Release Point ID: Flare #2

Company Release Point Description: Emergency produced gas flare

Operating Status: Operating

Base Elevation (ft): 5280.0

- Stack Details

Stack Height (ft): 25.0

Stack Diameter (ft): 0.5

Exit Gas Velocity (ft/s): 630.0

Exit Gas Flow Rate (acfm): 7431.0

Exit Gas Temp (F): 700.0

- Release Latitude and Longitude

Latitude: 43.6422

Longitude: -105.64673

- CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
-------------	-----	-----	-----	----	-----	-----	-----	---	-----	-----	------	---------	----

Release Point : AVL001

Sep 16 2015, 10:04:35

- Release Point Information

Release Point ID: AVL001

Release Type: Fugitive (Area, Volume, Line)

AQD Description:

Company Release Point ID: Fugitives #1

Company Release Point Description: Fugitive equipment leaks from oil and gas production equipment

Operating Status: Operating

Release Height (ft): 5.0

- Release Latitude and Longitude

Latitude: 43.6422

Longitude: -105.64673

- CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
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Release Point : VER003

Sep 16 2015, 10:04:35

- Release Point Information

Release Point ID: VER003

Release Type: Vertical

AQD Description:

Company Release Point ID: Heater #1

Company Release Point Description: Heater used for the Heater-Treater

Operating Status: Operating

Base Elevation (ft): 5280.0

- Stack Details

Stack Height (ft): 15.0

Stack Diameter (ft): 0.5

Exit Gas Velocity (ft/s): 18.9

Exit Gas Flow Rate (acfm): 222.7

Exit Gas Temp (F): 350.0

- Release Latitude and Longitude

Latitude: 43.6422

Longitude: -105.64673

- CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
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Release Point : VER004

Sep 16 2015, 10:04:35

- Release Point Information

Release Point ID: VER004

Release Type: Vertical

AQD Description:

Company Release Point ID: Heater #2

Company Release Point Description: Heater used with the freewater knock out

Operating Status: Operating

Base Elevation (ft): 5280.0

- Stack Details

Stack Height (ft): 15.0

Stack Diameter (ft): 0.5

Exit Gas Velocity (ft/s): 18.9

Exit Gas Flow Rate (acfm): 222.7

Exit Gas Temp (F): 350.0

- Release Latitude and Longitude

Latitude: 43.6422

Longitude: -105.64673

- CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
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Release Point : AVL004

Sep 16 2015, 10:04:35

- Release Point Information

Release Point ID: AVL004

Release Type: Fugitive (Area, Volume, Line)

AQD Description:

Company Release Point ID: Truck Load

Company Release Point Description: Emissions from truck loading of produced oil

Operating Status: Operating

Release Height (ft): 15.0

- Release Latitude and Longitude

Latitude: 43.6422

Longitude: -105.65673

- CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
-------------	-----	-----	-----	----	-----	-----	-----	---	-----	-----	------	---------	----

Release Point : AVL002

Sep 16 2015, 10:04:35

- Release Point Information

Release Point ID: AVL002

Release Type: Fugitive (Area, Volume, Line)

AQD Description:

Company Release Point ID: Vehicle Dust

Company Release Point Description: Fugitive Dust from on-pad vehicle traffic

Operating Status: Operating

Release Height (ft): 2.0

- Release Latitude and Longitude

Latitude: 43.6422

Longitude: -105.64673

- CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
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Release Point : AVL003

Sep 16 2015, 10:04:35

- Release Point Information

Release Point ID: AVL003

Release Type: Fugitive (Area, Volume, Line)

AQD Description:

Company Release Point ID: Water Tanks

Company Release Point Description: Emissions from produced water tanks

Operating Status: Operating

Release Height (ft): 20.0

- Release Latitude and Longitude

Latitude: 43.6422

Longitude: -105.64673

- CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
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**NSR Application A0001435
Reno 42-5 TH
F026962
August 14, 2015**

Air Quality Division
Application for NSR Permit

Sep 16 2015, 10:04:35

NSR Application

Date application received : 08/14/2015

Is this a legacy NSR Application? No

This information should be filled out for each New Source Review (NSR) application. An NSR permit is required for all air contaminant sources (emissions units) installed or modified after January 1, 1974. See the application instructions for additional information.

Emission Unit application reason summary :	<input checked="" type="checkbox"/> Construction	<input type="checkbox"/> Synthetic Minor
	<input type="checkbox"/> Modification	<input type="checkbox"/> Temporary Permit
	<input type="checkbox"/> Reconstruction	<input type="checkbox"/> Other

Facility Type :
Sage Grouse :

Purpose of Application

Please summarize the reason this permit is being applied for.

The permit is being applied for the Reno 42-5 TH, an oil and gas production facility located in Campbell county. This facility is subject to the requirements for oil and gas production facilities under the Wyoming air quality standards and regulations.

Has the facility changed location or is it a new/greenfield facility? Yes

Has a Land Use Planning document been included in this application? No

Does production at this facility contain H2S? No

Federal Rules Applicability - Facility Level

Prevention of Significant Deterioration (PSD)

These rules are found under WAQSR Chapter 6, Section 4.

Not affected

Non-Attainment New Source Review

These rules are found under WAQSR Chapter 6, Section 13.

Not affected

Trade Secret Information - One or more Emissions Units in this application contains trade secret information.

No

Permit Application Contact - Newly created contacts and application contact changes will be saved when the application is saved.

Benjamin Davis	Ballard Petroleum Holdings	
Name	Title	Company
845 12th St. West	Billings, MT	59102
Street Address	City/Township, State	Zip Code
(406) 281-8230		Bdavis@ballardpetroleum.com
Phone	Fax	E-mail

Modeling Section

Ambient Air Quality Impact Analysis: WAQSR Chapter 6, Section 2(c)(ii) requires that permit applicants demonstrate that a proposed facility will not prevent the attainment or maintenance of any ambient air quality standard.

Has the applicant contacted AQD to determine if modeling is required? No

Is a modeling analysis part of this application? No

Is the proposed project subject to Prevention of Significant Deterioration (PSD) requirements? No

- **Application Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
X	7421	Process Flow Diagram	Reno 42-5 TH Plot Plan & Process Diagram
X	7422	Emissions Calculations	Reno 42-5 TH EI
X	7423	Cover Letter/Project Description	Reno 42-5 TH Cover Letter
X	7424	Equipment List	Reno 42-5 TH Equipment List
X	7441	Facility Map	Reno 42-5 TH Map

- **Notes**

User Name	Date	Note
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Section II - Specific Air Contaminant Source Information

AQD EU ID: FLR001

AQD EU description: Tank Gas Flare

Company EU ID: Flare #1

Company EU Description: Tank gas flare

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Flare

Emergency Flare Only : No

Btu Content (Btu/scf) : 2,641.00

Assist Gas Utilized : No

Waste Gas Volume : 726.30

Installation Date : 05/23/2015

Continuously Monitored : Yes

Describe Continuous Monitored by thermocouple Monitoring :

Ignition Device Type : Pilot

Smokeless Design : Yes

Units : scf/hr

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter,	0	0		0	0	

PM)						
PM # 10 microns in diameter (PE/PM10)	0	0		0	0	
PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0	0	
Sulfur dioxide (SO2)	0	0		0	0	
Nitrogen oxides (NOx)	0	0		0	0	
Carbon monoxide (CO)	0	0		0	0	
Volatiles organic compounds (VOC)	0	0		0	0	
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0	0	
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- **Best Available Control Technology (BACT)**

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS)

New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

Not affected

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61)

National Emissions Standards for Hazardous Air Pollutants

Not affected

(NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: FLR002

AQD EU description: Emergency
Produced Gas Flare

Company EU ID: Flare #2

Company EU Description: Emergency
Produced Gas Flare

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Flare

Emergency Flare Only : Yes

Btu Content (Btu/scf) : 1,892.00

Assist Gas Utilized : No

Waste Gas Volume : 296.00

Installation Date : 05/23/2015

Continuously Monitored : Yes

Describe Continuous Monitored by thermocouple
Monitoring :

Ignition Device Type : Pilot

Smokeless Design : Yes

Units : scf/hr

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions	0	0		0	0	

(PE/PM) (formerly particulate matter, PM)						
PM # 10 microns in diameter (PE/PM10)	0	0		0	0	
PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0	0	
Sulfur dioxide (SO2)	0	0		0	0	
Nitrogen oxides (NOx)	0	0		0	0	
Carbon monoxide (CO)	0	0		0	0	
Volatile organic compounds (VOC)	0	0		0	0	
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0	0	
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- Lowest Achievable Emission Rate (LAER)

Was a LAER Analysis completed for this unit? No

- Federal and State Rule Applicability

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Not affected

Pollutants (NESHAP Part 61)

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Not affected

Prevention of Significant Deterioration (PSD)

These rules are found under WAQSR Chapter 6, Section 4.

Not Affected

Non-Attainment New Source Review

These rules are found under WAQSR Chapter 6, Section 13.

Not Affected

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: FUG001

AQD EU description:

Company EU ID: Fugitives #1

Company EU Description: Fugitive equipment leaks from oil and gas production equipment

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Fugitive

Type of Fugitive Emission : Other

Detailed Description of Fugitive VOC leaks at an oil an gas production site. No leak Fugitive Source: detection has been performed, so the "Fugitive leaks at O&G" selection could not be used. Emissions have been estimated using EPA's protocol for estimating equipment leaks.

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0	0	
PM # 10 microns in	0	0		0	0	

diameter (PE/PM10)						
PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0	0	
Sulfur dioxide (SO2)	0	0		0	0	
Nitrogen oxides (NOx)	0	0		0	0	
Carbon monoxide (CO)	0	0		0	0	
Volatile organic compounds (VOC)	1.87	0		0.43	1.87	Other
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.014	0		0.003	0.014	Other
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0001	0		0.00002	0.0001	Other
Toluene	VOC-HAP	0.001	0		0.0002	0.001	Other
Hexane, N-	VOC-HAP	0.0102	0		0.0023	0.0102	Other
Xylenes (Isomers and Mixture)	VOC-HAP	0.0003	0		0.0001	0.0003	Other
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.0017	0		0.0004	0.0017	Other
Benzene	VOC-HAP	0.0007	0		0.0002	0.0007	Other

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0.0579	0		0.0132	0.0579	Other
Carbon Dioxide	GHG	0.0367	0		0.0084	0.0367	Other
CO2e - Carbon Dioxide Equivalent	Other	1.4852	0		0.3391	1.4852	Other

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: FUG002

AQD EU description:

Company EU ID: Fugitives #2

Company EU Description: Fugitive dust emissions from vehicle traffic

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Fugitive

Type of Fugitive Emission : Other

Detailed Description of Fugitive dust from vehicle traffic at an oil and gas production Fugitive Source : site.

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0.28	0		0.06	0.28	AP-42
PM # 10 microns in diameter (PE/PM10)	0.28	0		0.06	0.28	AP-42
PM # 2.5 microns in diameter (PE/PM2.5)	0.28	0		0.06	0.28	AP-42

Sulfur dioxide (SO2)	0	0		0	0	
Nitrogen oxides (NOx)	0	0		0	0	
Carbon monoxide (CO)	0	0		0	0	
Volatile organic compounds (VOC)	0	0		0	0	
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0	0	
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- Lowest Achievable Emission Rate (LAER)

Was a LAER Analysis completed for this unit? No

- Federal and State Rule Applicability

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: HET001

AQD EU description: Heater

Company EU ID: HET001

Company EU Description: Heater used for the Heater-treater/3-phase separator

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Heater/Chiller

Fuel Sulfur Content : 0.00

Units : ppm

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0.0022	0		0.0005	0.0022	AP-42
PM # 10 microns in diameter (PE/PM10)	0.0022	0		0.0005	0.0022	AP-42
PM # 2.5 microns in diameter (PE/PM2.5)	0.0022	0		0.0005	0.0022	AP-42
Sulfur dioxide (SO2)	0.0007	0		0.0002	0.0007	AP-42

Nitrogen oxides (NOx)	0.1157	0		0.0264	0.1157	AP-42
Carbon monoxide (CO)	0.0972	0		0.0222	0.0972	AP-42
Volatile organic compounds (VOC)	0.0064	0		0.0015	0.0064	AP-42
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.0022	0		0.0005	0.0022	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Toluene	VOC-HAP	0.000004	0		0.000001	0.000004	AP-42
Hexane, N-	VOC-HAP	0.00208	0		0.000476	0.0208	AP-42
Formaldehyde	VOC-HAP	0.000087	0		0.00002	0.000087	AP-42
Benzene	VOC-HAP	0.000002	0		0.000001	0.000002	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0.0048	0		0.0011	0.0048	Other
Carbon Dioxide	GHG	255.64	0		58.37	255.64	Other
CO2e - Carbon Dioxide Equivalent	Other	255.91	0		58.43	255.91	Other
Nitrous Oxide	GHG	0.0005	0		0.0001	0.0005	Other

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- Lowest Achievable Emission Rate (LAER)

Was a LAER Analysis completed for this unit? No

- Federal and State Rule Applicability

New Source Performance Standards (NSPS)
 New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

Not affected

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: HET002

AQD EU description:

Company EU ID: Heater #2

Company EU Description: Heater used for the free water knock out.

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Heater/Chiller

Fuel Sulfur Content : 0.00

Units : ppm

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0.0022	0		0.0005	0.0022	AP-42
PM # 10 microns in diameter (PE/PM10)	0.0022	0		0.0005	0.0022	AP-42
PM # 2.5 microns in diameter (PE/PM2.5)	0.0022	0		0.0005	0.0022	AP-42
Sulfur dioxide (SO2)	0.0007	0		0.0002	0.0007	AP-42

Nitrogen oxides (NOx)	0.1157	0		0.0264	0.1157	AP-42
Carbon monoxide (CO)	0.0972	0		0.0222	0.0972	AP-42
Volatile organic compounds (VOC)	0.0064	0		0.0015	0.0064	AP-42
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.0022	0		0.0005	0.0022	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Toluene	VOC-HAP	0.000004	0		0.000001	0.000004	AP-42
Hexane, N-	VOC-HAP	0.00208	0		0.000476	0.0208	AP-42
Formaldehyde	VOC-HAP	0.000087	0		0.00002	0.000087	AP-42
Benzene	VOC-HAP	0.000002	0		0.000001	0.000002	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0.0048	0		0.0011	0.0048	Other
Carbon Dioxide	GHG	255.64	0		58.37	255.64	Other
CO2e - Carbon Dioxide Equivalent	Other	255.91	0		58.43	255.91	Other
Nitrous Oxide	GHG	0.0005	0		0.0001	0.0005	Other

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- Lowest Achievable Emission Rate (LAER)

Was a LAER Analysis completed for this unit? No

- Federal and State Rule Applicability

New Source Performance Standards (NSPS)
 New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

Not affected

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: LUD001

AQD EU description: Truck Loading of Oil

Company EU ID: LUD001

Company EU Description: Truck Loading of Oil

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Loading/Unloading/Dump

Maximum Hourly Throughput 583

Units : barrels/hr

Detailed Description of Loading of produced oil into tanker trucks for offsite transport. Loading/Unloading/Dump VOC emissions are generated by vapor displacement. Source :

**Provide detailed calculations documenting the potential emissions and emission factors used to calculate emissions from this source.*

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0	0	

PM # 10 microns in diameter (PE/PM10)	0	0		0	0	
PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0	0	
Sulfur dioxide (SO2)	0	0		0	0	
Nitrogen oxides (NOx)	0	0		0	0	
Carbon monoxide (CO)	0	0		0	0	
Volatile organic compounds (VOC)	4.52	0		1.03	4.52	AP-42
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.05	0		0.01	0.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0041	0		0.00094	0.0041	Other
Toluene	VOC-HAP	0.0051	0		0.00116	0.0051	Other
Hexane, N-	VOC-HAP	0.0358	0		0.0082	0.0358	Other
Xylenes (Isomers and Mixture)	VOC-HAP	0.00305	0		0.0082	0.00305	Other
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.0014	0		0.00032	0.0014	Other
Benzene	VOC-HAP	0.0023	0		0.00054	0.0023	Other

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0.14	0		0.03	0.14	Other
Carbon Dioxide	GHG	0.09	0		0.02	0.09	Other
CO2e - Carbon Dioxide Equivalent	Other	3.59	0		0.82	3.59	Other

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: SEP001

AQD EU description: Three Phase Separator/Heater Treater

Company EU ID: SEP001

Company EU Description: Three Phase Separator/Heater Treater

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Separator/Treater

Operating Temperature (F) : 140

Operating Pressure (psig) : 50.00

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0	0	
PM # 10 microns in diameter (PE/PM10)	0	0		0	0	
PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0	0	

Sulfur dioxide (SO2)	0	0		0	0	
Nitrogen oxides (NOx)	0	0		0	0	
Carbon monoxide (CO)	0	0		0	0	
Volatile organic compounds (VOC)	0	0		0	0	
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0	0	
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- **Best Available Control Technology (BACT)**

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: SEP002

AQD EU description:

Company EU ID: FWKO #1

Company EU Description: Freewater knock out

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Separator/Treater

Operating Temperature (F) : 100

Operating Pressure (psig) : 120.00

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0	0	
PM # 10 microns in diameter (PE/PM10)	0	0		0	0	
PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0	0	
Sulfur dioxide (SO2)	0	0		0	0	
Nitrogen oxides (NOx)	0	0		0	0	

Carbon monoxide (CO)	0	0		0	0	
Volatile organic compounds (VOC)	0	0		0	0	
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0	0	
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- **Best Available Control Technology (BACT)**

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: SEP003

AQD EU description: 2-phase separator

Company EU ID: Separator #3

Company EU Description: Two phase separator

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Separator/Treater

Operating Temperature (F) : 100

Operating Pressure (psig) : 100.00

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0	0	
PM # 10 microns in diameter (PE/PM10)	0	0		0	0	
PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0	0	
Sulfur dioxide (SO2)	0	0		0	0	
Nitrogen oxides (NOx)	0	0		0	0	

Carbon monoxide (CO)	0	0		0	0	
Volatile organic compounds (VOC)	0	0		0	0	
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0	0	
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- **Best Available Control Technology (BACT)**

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: TNK001

AQD EU description: Oil Storage Tank

Company EU ID: TNK001

Company EU Description: Oil Storage Tank #1

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 24.2900

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.25

Vapor Pressure of Material 2.30
Stored (psig) :

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0.0015	0.007	AP-42
PM # 10 microns in diameter (PE/PM10)	0	0		0.0015	0.007	AP-42

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0.0015	0.007	AP-42
Sulfur dioxide (SO2)	0	0		0.0001	0.0004	AP-42
Nitrogen oxides (NOx)	0	0		0.016	0.071	AP-42
Carbon monoxide (CO)	0	0		0.09	0.4	AP-42
Volatile organic compounds (VOC)	45.32	0		0.21	0.9	Tanks Program
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.519	0		0.0025	0.011	Tanks Program
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.041	0		0.000188	0.000823	Tanks Program
Toluene	VOC-HAP	0.051	0		0.000233	0.00102	Tanks Program
Hexane, N-	VOC-HAP	0.36	0		0.00164	0.00717	Tanks Program
Xylenes (Isomers and Mixture)	VOC-HAP	0.0306	0		0.00014	0.000612	Tanks Program
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.014	0		0.000063	0.000276	Tanks Program
Benzene	VOC-HAP	0.0235	0		0.000107	0.00047	Tanks Program

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0.83	0		0.0038	0.017	Other
Carbon Dioxide	GHG	0.53	0		28.11	123.11	Other
CO2e - Carbon Dioxide Equivalent	Other	21.36	0		28.23	123.7	Other
Nitrous Oxide	GHG	0	0		0	0.0002	Other

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: TNK002

AQD EU description: Water Storage Tank

Company EU ID: TNK002

Company EU Description: Oil Storage Tank #2

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 24.2900

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.25

Vapor Pressure of Material 2.30
Stored (psig) :

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0.0015	0.007	AP-42
PM # 10 microns in diameter (PE/PM10)	0	0		0.0015	0.007	AP-42

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0.0015	0.007	AP-42
Sulfur dioxide (SO2)	0	0		0.0001	0.0004	AP-42
Nitrogen oxides (NOx)	0	0		0.016	0.071	AP-42
Carbon monoxide (CO)	0	0		0.09	0.4	AP-42
Volatile organic compounds (VOC)	45.32	0		0.21	0.9	Tanks Program
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.519	0		0.0025	0.011	Tanks Program
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.041	0		0.000188	0.000823	Tanks Program
Toluene	VOC-HAP	0.051	0		0.000233	0.00102	Tanks Program
Hexane, N-	VOC-HAP	0.36	0		0.00164	0.00717	Tanks Program
Xylenes (Isomers and Mixture)	VOC-HAP	0.0306	0		0.00014	0.000612	Tanks Program
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.014	0		0.000063	0.000276	Tanks Program
Benzene	VOC-HAP	0.0235	0		0.000107	0.00047	Tanks Program

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0.83	0		0.0038	0.017	Other
Carbon Dioxide	GHG	0.53	0		28.11	123.11	Other
CO2e - Carbon Dioxide Equivalent	Other	21.36	0		28.23	123.7	Other
Nitrous Oxide	GHG	0	0		0	0.0002	Other

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: TNK003

AQD EU description:

Company EU ID: TNK003

Company EU Description: Oil Storage Tank #3

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 24.2900

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.25

Vapor Pressure of Material 2.30
Stored (psig) :

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0.0015	0.007	AP-42
PM # 10 microns in diameter (PE/PM10)	0	0		0.0015	0.007	AP-42

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0.0015	0.007	AP-42
Sulfur dioxide (SO2)	0	0		0.0001	0.0004	AP-42
Nitrogen oxides (NOx)	0	0		0.016	0.071	AP-42
Carbon monoxide (CO)	0	0		0.09	0.4	AP-42
Volatile organic compounds (VOC)	45.32	0		0.21	0.9	Tanks Program
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.519	0		0.0025	0.011	Tanks Program
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.041	0		0.000188	0.000823	Tanks Program
Toluene	VOC-HAP	0.051	0		0.000233	0.00102	Tanks Program
Hexane, N-	VOC-HAP	0.36	0		0.00164	0.00717	Tanks Program
Xylenes (Isomers and Mixture)	VOC-HAP	0.0306	0		0.00014	0.000612	Tanks Program
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.014	0		0.000063	0.000276	Tanks Program
Benzene	VOC-HAP	0.0235	0		0.000107	0.00047	Tanks Program

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0.83	0		0.0038	0.017	Other
Carbon Dioxide	GHG	0.53	0		28.11	123.11	Other
CO2e - Carbon Dioxide Equivalent	Other	21.36	0		28.23	123.7	Other
Nitrous Oxide	GHG	0	0		0	0.0002	Other

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: TNK004

AQD EU description:

Company EU ID: TNK004

Company EU Description: Oil Storage Tank #4

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 24.2900

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.25

Vapor Pressure of Material 2.30
Stored (psig) :

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0.0015	0.007	AP-42
PM # 10 microns in diameter (PE/PM10)	0	0		0.0015	0.007	AP-42

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0.0015	0.007	AP-42
Sulfur dioxide (SO2)	0	0		0.0001	0.0004	AP-42
Nitrogen oxides (NOx)	0	0		0.016	0.071	AP-42
Carbon monoxide (CO)	0	0		0.09	0.4	AP-42
Volatile organic compounds (VOC)	45.32	0		0.21	0.9	Tanks Program
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.519	0		0.0025	0.011	Tanks Program
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.041	0		0.000188	0.000823	Tanks Program
Toluene	VOC-HAP	0.051	0		0.000233	0.00102	Tanks Program
Hexane, N-	VOC-HAP	0.36	0		0.00164	0.00717	Tanks Program
Xylenes (Isomers and Mixture)	VOC-HAP	0.0306	0		0.00014	0.000612	Tanks Program
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.014	0		0.000063	0.000276	Tanks Program
Benzene	VOC-HAP	0.0235	0		0.000107	0.00047	Tanks Program

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0.83	0		0.0038	0.017	Other
Carbon Dioxide	GHG	0.53	0		28.11	123.11	Other
CO2e - Carbon Dioxide Equivalent	Other	21.36	0		28.23	123.7	Other
Nitrous Oxide	GHG	0	0		0	0.0002	Other

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: TNK005

AQD EU description:

Company EU ID: TNK005

Company EU Description: Oil Storage Tank #5

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 24.2900

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.25

Vapor Pressure of Material 2.30
Stored (psig) :

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0.0015	0.007	AP-42
PM # 10 microns in diameter (PE/PM10)	0	0		0.0015	0.007	AP-42

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0.0015	0.007	AP-42
Sulfur dioxide (SO2)	0	0		0.0001	0.0004	AP-42
Nitrogen oxides (NOx)	0	0		0.016	0.071	AP-42
Carbon monoxide (CO)	0	0		0.09	0.4	AP-42
Volatile organic compounds (VOC)	45.32	0		0.21	0.9	Tanks Program
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.519	0		0.0025	0.011	Tanks Program
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.041	0		0.000188	0.000823	Tanks Program
Toluene	VOC-HAP	0.051	0		0.000233	0.00102	Tanks Program
Hexane, N-	VOC-HAP	0.36	0		0.00164	0.00717	Tanks Program
Xylenes (Isomers and Mixture)	VOC-HAP	0.0306	0		0.00014	0.000612	Tanks Program
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.014	0		0.000063	0.000276	Tanks Program
Benzene	VOC-HAP	0.0235	0		0.000107	0.00047	Tanks Program

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0.83	0		0.0038	0.017	Other
Carbon Dioxide	GHG	0.53	0		28.11	123.11	Other
CO2e - Carbon Dioxide Equivalent	Other	21.36	0		28.23	123.7	Other
Nitrous Oxide	GHG	0	0		0	0.0002	Other

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: TNK006

AQD EU description:

Company EU ID: TNK006

Company EU Description: Oil Storage Tank #6

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 24.2900

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.25

Vapor Pressure of Material 2.30
Stored (psig) :

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0.0015	0.007	AP-42
PM # 10 microns in diameter (PE/PM10)	0	0		0.0015	0.007	AP-42

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0.0015	0.007	AP-42
Sulfur dioxide (SO2)	0	0		0.0001	0.0004	AP-42
Nitrogen oxides (NOx)	0	0		0.016	0.071	AP-42
Carbon monoxide (CO)	0	0		0.09	0.4	AP-42
Volatile organic compounds (VOC)	45.32	0		0.21	0.9	Tanks Program
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.519	0		0.0025	0.011	Tanks Program
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.041	0		0.000188	0.000823	Tanks Program
Toluene	VOC-HAP	0.051	0		0.000233	0.00102	Tanks Program
Hexane, N-	VOC-HAP	0.36	0		0.00164	0.00717	Tanks Program
Xylenes (Isomers and Mixture)	VOC-HAP	0.0306	0		0.00014	0.000612	Tanks Program
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.014	0		0.000063	0.000276	Tanks Program
Benzene	VOC-HAP	0.0235	0		0.000107	0.00047	Tanks Program

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0.83	0		0.0038	0.017	Other
Carbon Dioxide	GHG	0.53	0		28.11	123.11	Other
CO2e - Carbon Dioxide Equivalent	Other	21.36	0		28.23	123.7	Other
Nitrous Oxide	GHG	0	0		0	0.0002	Other

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: TNK007

AQD EU description:

Company EU ID: TNK007

Company EU Description: Oil Storage Tank #7

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 24.2900

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.25

Vapor Pressure of Material 2.30
Stored (psig) :

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0.0015	0.007	AP-42
PM # 10 microns in diameter (PE/PM10)	0	0		0.0015	0.007	AP-42

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0.0015	0.007	AP-42
Sulfur dioxide (SO2)	0	0		0.0001	0.0004	AP-42
Nitrogen oxides (NOx)	0	0		0.016	0.071	AP-42
Carbon monoxide (CO)	0	0		0.09	0.4	AP-42
Volatile organic compounds (VOC)	45.32	0		0.21	0.9	Tanks Program
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.519	0		0.0025	0.011	Tanks Program
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.041	0		0.000188	0.000823	Tanks Program
Toluene	VOC-HAP	0.051	0		0.000233	0.00102	Tanks Program
Hexane, N-	VOC-HAP	0.36	0		0.00164	0.00717	Tanks Program
Xylenes (Isomers and Mixture)	VOC-HAP	0.0306	0		0.00014	0.000612	Tanks Program
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.014	0		0.000063	0.000276	Tanks Program
Benzene	VOC-HAP	0.0235	0		0.000107	0.00047	Tanks Program

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0.83	0		0.0038	0.017	Other
Carbon Dioxide	GHG	0.53	0		28.11	123.11	Other
CO2e - Carbon Dioxide Equivalent	Other	21.36	0		28.23	123.7	Other
Nitrous Oxide	GHG	0	0		0	0.0002	Other

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: TNK008

AQD EU description:

Company EU ID: TNK008

Company EU Description: Oil Storage Tank #8

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 24.2900

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.25

Vapor Pressure of Material 2.30
Stored (psig) :

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0.0015	0.007	AP-42
PM # 10 microns in diameter (PE/PM10)	0	0		0.0015	0.007	AP-42

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0.0015	0.007	AP-42
Sulfur dioxide (SO2)	0	0		0.0001	0.0004	AP-42
Nitrogen oxides (NOx)	0	0		0.016	0.071	AP-42
Carbon monoxide (CO)	0	0		0.09	0.4	AP-42
Volatile organic compounds (VOC)	45.32	0		0.21	0.9	Tanks Program
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.519	0		0.0025	0.011	Tanks Program
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.041	0		0.000188	0.000823	Tanks Program
Toluene	VOC-HAP	0.051	0		0.000233	0.00102	Tanks Program
Hexane, N-	VOC-HAP	0.36	0		0.00164	0.00717	Tanks Program
Xylenes (Isomers and Mixture)	VOC-HAP	0.0306	0		0.00014	0.000612	Tanks Program
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.014	0		0.000063	0.000276	Tanks Program
Benzene	VOC-HAP	0.0235	0		0.000107	0.00047	Tanks Program

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0.83	0		0.0038	0.017	Other
Carbon Dioxide	GHG	0.53	0		28.11	123.11	Other
CO2e - Carbon Dioxide Equivalent	Other	21.36	0		28.23	123.7	Other
Nitrous Oxide	GHG	0	0		0	0.0002	Other

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: TNK009

AQD EU description:

Company EU ID: TNK009

Company EU Description: Water Storage Tank #1

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 10.8000

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.25

Vapor Pressure of Material 1.50
Stored (psig) :

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0	0	
PM # 10 microns in diameter (PE/PM10)	0	0		0	0	

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0	0	
Sulfur dioxide (SO2)	0	0		0	0	
Nitrogen oxides (NOx)	0	0		0	0	
Carbon monoxide (CO)	0	0		0	0	
Volatile organic compounds (VOC)	0.006	0		0.0014	0.006	Other
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.0001	0		0	0.0001	Other
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.000003	0		0.000001	0.000003	Tanks Program
Toluene	VOC-HAP	0.000007	0		0.000001	0.000007	Tanks Program
Hexane, N-	VOC-HAP	0.000048	0		0.000005	0.000048	Tanks Program
Xylenes (Isomers and Mixture)	VOC-HAP	0.000004	0		0	0.000004	Tanks Program
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.000002	0		0	0.000002	Tanks Program
Benzene	VOC-HAP	0.000003	0		0	0.000003	Tanks Program

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- Lowest Achievable Emission Rate (LAER)

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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Section II - Specific Air Contaminant Source Information

AQD EU ID: TNK010

AQD EU description:

Company EU ID: TNK010

Company EU Description: Water Storage Tank #2

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Construction(greenfield/new facility)

Date production began:

05/23/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 10.8000

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.25

Vapor Pressure of Material 1.50
Stored (psig) :

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0	0	
PM # 10 microns in diameter (PE/PM10)	0	0		0	0	

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0	0	
Sulfur dioxide (SO2)	0	0		0	0	
Nitrogen oxides (NOx)	0	0		0	0	
Carbon monoxide (CO)	0	0		0	0	
Volatile organic compounds (VOC)	0.006	0		0.0014	0.006	Other
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.0001	0		0	0.0001	Other
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.000003	0		0.000001	0.000003	Tanks Program
Toluene	VOC-HAP	0.000007	0		0.000001	0.000007	Tanks Program
Hexane, N-	VOC-HAP	0.000048	0		0.000005	0.000048	Tanks Program
Xylenes (Isomers and Mixture)	VOC-HAP	0.000004	0		0	0.000004	Tanks Program
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.000002	0		0	0.000002	Tanks Program
Benzene	VOC-HAP	0.000003	0		0	0.000003	Tanks Program

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

** AQD Calculated - See 'Help' for more information.

- Best Available Control Technology (BACT)

Was a BACT Analysis completed for this unit? No

- Lowest Achievable Emission Rate (LAER)

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Not affected
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Not affected
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Prevention of Significant Deterioration (PSD) Not Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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