



EOG Resources, Inc.
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August 10, 2015

Attn: O&G Production Facilities
Wyoming Department of Environmental Quality
Air Quality Division
Herschler Building, 2-E
122 West 25th Street
Cheyenne, Wyoming 82002

RE: EOG Resources, Inc.
Air Permit Application – Flatbow 200-25H
Campbell County, Wyoming

Dear WDEQ:

EOG Resources, Inc. (EOG) is submitting the enclosed Chapter 6 Section 2 (C6 S2) air permit application using the IMPACT Data System Forms. The air permit application is being submitted for Flatbow 200-25H which is a single well sweet crude oil and natural gas production facility.

Well Name	API Number	First Date of Production	Natural Gas Rate ¹ (MMSCFD)	Crude Oil Rate ¹ (BPD)
Flatbow 200-25H	49-005-61826	5/15/2015	0.130	385.6

¹ Based on first 30 days production, after 0.6 decline factor.

The Flatbow 200-25H well pad consists of the following sources of emissions:

- Five (5) Crude Oil Storage Tanks (400 bbl capacity each);
- Two (2) Produced Water Storage Tanks (400 bbl capacity);
- One (1) Emergency Storage Tank (400 bbl capacity);
- One (1) Heater Treater (0.375 MMBtu/hr heater capacity);
- One (1) Trace Line Heater (0.50 MMBtu/hr heater capacity);
- One (1) Vapor Recovery Tower (VRT);
- Two (2) Pneumatic Pumps (tank combustor scrubber and VRT combustor scrubber);
- Two (2) Electric Pumps (recycle and trace);
- Various Gas Dryers/Scrubbers (sales gas, fuel gas, VRT vent line, tank vent line)
- One (1) Steffes Tri-Tip Flare;
- Truck Loading Operation;
- Controllers are all non-bleed;
- Fugitive Components;
- Two (2) 500-gallon propane tanks
- One (1) Temporary Natural Gas Fired Generator (authorized under CT-14121).

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Attachments A and B contain a flow diagram/plot plan of the emissions unit and facility process description, while Attachment C contains the current production rates for the well. Gas/oil analyses are contained in Attachment D, and detailed emission calculations and supporting documentation are provided in Attachment E.

We trust the attached permit application package will meet your expectations and that you will not hesitate to call me at (303) 262-9946 or Mark Smith at (307) 823-6208 if you have any questions or need additional information. We appreciate your prompt attention to this most important project.

Sincerely,

A handwritten signature in blue ink, appearing to read "C. Rice".

Curtis Rice
EOG Environmental – Denver Division

cc: File – Well
Attachments: As stated



STATE OF WYOMING
 Department of Environmental Quality - Air Quality Division
 Oil and Gas Production Facilities C6 S2 Permit Application



Equipment List

Company Name _____ EOG Resources, Inc. _____
 Facility Name _____ Flatbow 200-25H _____

List all production equipment at the site including all pressurized vessels with the potential for flash emissions, all hydrocarbon liquids and produced water storage tanks, all dehydration units, all pneumatic pumps, all natural gas-fired burners and heaters and all emission control equipment and devices. Pressurized vessels with the potential for flash emissions are all vessels that vent vapors to the atmosphere during times other than upset or emergency conditions (water knockouts, 2-phase and 3-phase separators, heater treaters, gun barrels, scrubber pots, etc). Provide design ratings for dehyds (MMCFD), process heaters, burners and pilots (MMBtu/hr, SCFH). Provide size of production & water storage tanks (BPD). For dehydration units indicate if the unit includes a glycol flash separator and/or reboiler still vent condenser. For emission control combustors/flares indicate design rating (MMBtu/hr, SCFD) and combustor/flare height (ft). Provide pneumatic pump motive gas usage (SCFH).

If more space is required, continue on page 2 of this sheet.

PROVIDE INSTALLATION DATES OF ALL EMISSION CONTROL EQUIPMENT & MONITORING DEVICES/SYSTEMS !!!

- five (5) 400-barrel (bbl) oil storage tanks (routed to Steffes flare)
- two (2) 400-bbl produced water storage tanks (routed to Steffes flare)
- one (1) 400-bbl emergency storage tank
- one (1) heater treater w/ 0.375 MMBtu/hr heater
- one (1) 0.50 MMBtu/hr trace line heater
- one (1) 15' Steffes Smokeless Tri-Tip flare with continuous pilot and thermocouple monitored through Cygnet (controls VRT, produced water, oil storage tank, and pneumatic pump emissions,) installed prior to first date of production
- one (1) Vapor Recovery Tower (VRT) (routed to Steffes flare)
- two (2) pneumatic pumps (tank combustor scrubber, VRT combustor scrubber. 214 scf/hr each, routed to Steffes flare)
- two (2) electric pumps (recycle and trace)
- various gas scrubbers/liquids knockouts (VRT vent line, tank vent line, sales gas line, fuel gas, etc)
- controllers are all non-bleed
- truck loading
- fugitives
- two (2) 500-gallon propane tanks
- one (1) temporary natural gas fired generator (CT-14121)

Example:

- 1 2-phase high pressure separator (unheated)
- 1 3-phase low pressure separator w/ 0.5 MMBtu/hr heater
- 2 0.5 MMBtu/hr line heaters
- 1 5 MMCFD TEG dehydration unit w/ 0.5 MMBtu/hr reboiler heater, glycol flash separator(0.5 MMBtu/hr heater) and overheads condenser
- 2 400-bbl condensate tanks
- 1 400-bbl produced water tank
- 1 30-ft enclosed combustor (3.0 MMBtu/hr, 5 MCFD) for flashing & reboiler vent/glycol flash separator emissions control **installed 1/1/2007**

EOG RESOURCES, INC.
FLATBOW 25 SESE
SECTION 25, T42N, R73W, 6th P.M.

PROCEED IN AN SOUTHWESTERLY DIRECTION FROM WRIGHT, WYOMING ALONG HIGHWAY 387 APPROXIMATELY 11.7 MILES TO THE JUNCTION OF THIS ROAD AND COSNER ROAD TO THE EAST; TURN LEFT AND PROCEED IN AN EASTERLY, THEN NORTHEASTERLY DIRECTION APPROXIMATELY 1.6 MILES TO THE JUNCTION OF THIS ROAD AND AN EXISTING ROAD TO THE SOUTH; TURN RIGHT AND PROCEED IN A SOUTHERLY, THEN SOUTHEASTERLY, THEN SOUTHERLY DIRECTION APPROXIMATELY 4.1 MILES TO THE BEGINNING OF THE PROPOSED ACCESS FOR THE FLATBOW 25 SWSW TO THE SOUTH; FOLLOW ROAD FLAGS IN A SOUTHERLY, THEN SOUTHEASTERLY, THEN SOUTHERLY, THEN SOUTHEASTERLY, THEN NORTHEASTERLY DIRECTION APPROXIMATELY 13,594' TO THE FLATBOW 25 SWSW LOCATION AND TO THE BEGINNING OF THE PROPOSED ACCESS TO THE EAST; FOLLOW ROAD FLAGS IN AN EASTERLY, THEN NORTHEASTERLY, THEN SOUTHEASTERLY, THEN EASTERLY DIRECTION APPROXIMATELY 4,447' TO THE PROPOSED LOCATION.

TOTAL DISTANCE FROM WRIGHT, WYOMING TO THE PROPOSED WELL LOCATION IS APPROXIMATELY 20.8 MILES.

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**Attachment A – Flow Diagram and Plot Plan of Emission Units
and/or Facility**



Site Facility Diagram

Well Name: Flatbow 200-25H
1/4 1/4: SE/SE Lot 16 Sec: 25 T: 42N R: 73W
Latitude: 43.577108 Longitude: -105.566078
County: Campbell State: WY
Lease: WYW141219, WYW139653, WYW141652
CA: WYW-181299 PA:
Type of well: Oil

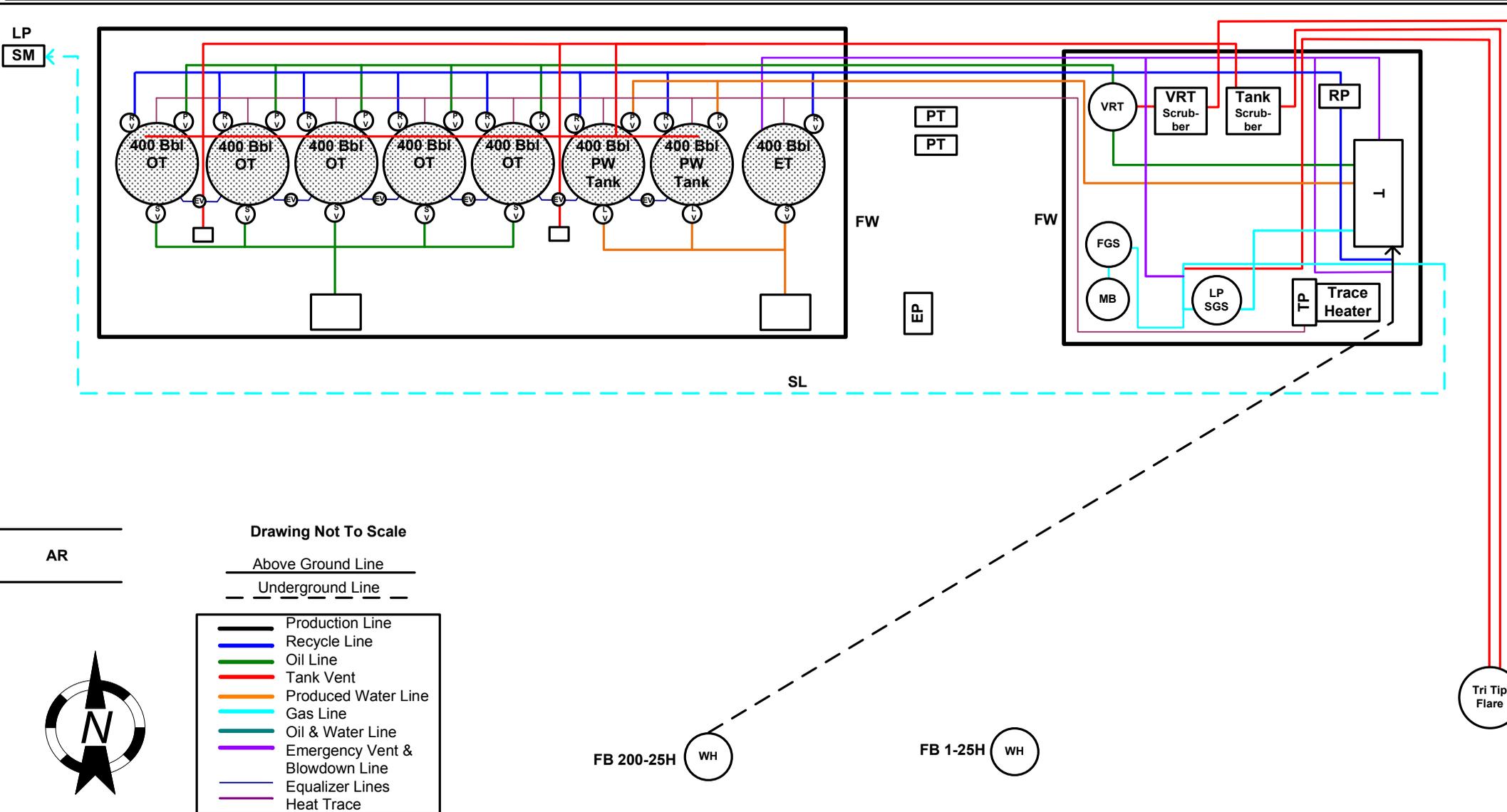
EOG Resources, Inc. site facility diagrams & site security plans are available electronically at all EOG Resources, Inc. offices. Normal business hours are 7:00am to 4:30pm MST.

Revised: 04/14/2015

Valve	Production Phase	Sales Phase	Water Drain
PV	SO	SC	SC
SV	SC	SO	SC
EV	SO	SC	SC
LV	SC	SO	SC
RV	SC	SC	SC

Abbreviations

AM= Allocation Meter
 AR = Access Road
 CHP = Chemical Pump
 CHT = Chemical Tank
 COM = Combuster
 COMP = Compressor
 COMT – Compositre Treater
 CONT = Containment Tub
 CP = Charge Pump
 CT = Condensate Tank
 DH = Dehydrator
 DL = Dump Line
 EP = Electrical Panel
 ET = Emergency Tank
 EV = Equalizer Valve
 FE = Fire Extinguisher
 FGS = Fuel Gas Scrubber
 FT = Fiberglass Tub
 FW = Firewall (dimensions feet)
 FWKO = Free Water Knockout
 GB = Gas Buster
 GEN = Generator
 HP = High Pressure
 LACT = LACT Unit
 LH = Line Heater
 LP = Low Pressure
 LV = Load Valve
 MAN = Manifold
 MB = Methanol Bath
 MBT = Methanol Bulk Tank
 MP = Methanol Pump
 OT = Oil Tank
 PIGL = Pig Launcher
 PIGR = Pig Receiver
 PL = Production Line
 POC = Pump Off Controller
 PP = Power Pole
 PRT = Product Tank
 PT = Propane Tank
 PU = Pumping Unit
 PV = Production Valve
 PW = Produced Water
 RL = Recycle Line
 RP = Recycle Pump
 RV = Recycle Valve
 SC = Sealed Closed
 SGS = Sales Gas Scrubber
 SL = Sales Line
 SM = Sales Meter
 SO = Sealed Open
 SP = Separator
 SUMP = Sump Pump
 SV = Sales Valve
 T = Treater
 TM = Test Meter
 TRFP = Transfer Pump
 TT = Test Treater
 VM = Vent Meter
 VRT = Vapor Recovery Tower
 UNP = Unload Pump
 WDP = Water Disposal Pump
 WD = Water Drain
 WFP = Water Flood Pump
 WH = Wellhead



Drawing Not To Scale

AR

— Above Ground Line

- - - Underground Line

- Production Line
- Recycle Line
- Oil Line
- Tank Vent
- Produced Water Line
- Gas Line
- Oil & Water Line
- Emergency Vent & Blowdown Line
- Equalizer Lines
- Heat Trace



FB 200-25H



FB 1-25H



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Attachment B – Process Description

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Process Description

Flatbow 200-25H single well oil & gas production facility

Flatbow 200-25H is a single well oil and gas production facility located in Campbell County, Wyoming that receives production from one well. The well produces both crude oil and natural gas.

The Flatbow 200-25H well equipment consists of the following sources of emissions:

- Five (5) Crude Oil Storage Tanks (400 bbl capacity each);
- Two (2) Produced Water Storage Tanks (400 bbl capacity);
- One (1) Emergency Storage Tank (400 bbl capacity);
- One (1) Heater Treater (0.375 MMBtu/hr heater capacity);
- One (1) Trace Line Heater (0.50 MMBtu/hr heater capacity);
- One (1) Vapor Recovery Tower (VRT);
- Two (2) Pneumatic Pumps (tank combustor scrubber and VRT combustor scrubber);
- Two (2) Electric Pumps (recycle and trace);
- Various Gas Dryers/Scrubbers (sales gas, fuel gas, VRT vent line, tank vent line)
- One (1) Steffes Tri-Tip Flare;
- Truck Loading Operation;
- Controllers are all non-bleed;
- Fugitive Components;
- Two (2) 500-gallon propane tanks
- One (1) Temporary Natural Gas Fired Generator (authorized under CT-14121).

Gas and liquids rise to the surface through the well head. The gas/liquid mixture enters the heater treater to separate the natural gas, crude oil, and produced water. The natural gas stream is tied into a pipeline. In the event of pipeline shut-in, the gas from the heater treater can be flared. Crude oil from the heater treater is sent to a VRT. Water is sent to the produced water tank. Oil from the VRT is sent to production oil tanks and the flashed gas from the VRT and the tanks is sent to the flare. The crude oil is produced in four storage tanks and hauled away by truck. The water is produced in one storage tank and also hauled away by truck as necessary. The tank vapors from the well's crude and produced water tanks are controlled and routed to the flare that has a destruction efficiency of 98%.

The Flatbow 200-25H is located in the SE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 25, T42N, R73W approximately eleven (11) miles east-southeast of Pine Tree Jct., in Campbell County, Wyoming. (Lat: 43.577108, Long: -105.566078)

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Attachment D – Production Rate Information

Selected Item	Date	Gas Prod	Oil Prod	Water Prod
FLATBOW 200-25H	5/5/2015	0	0	0
FLATBOW 200-25H	5/6/2015	0	0	0
FLATBOW 200-25H	5/7/2015	0	0	0
FLATBOW 200-25H	5/8/2015	0	0	0
FLATBOW 200-25H	5/9/2015	0	0	0
FLATBOW 200-25H	5/10/2015	0	0	0
FLATBOW 200-25H	5/11/2015	0	0	0
FLATBOW 200-25H	5/12/2015	0	0	0
FLATBOW 200-25H	5/13/2015	0	0	0
FLATBOW 200-25H	5/14/2015	0	0	0
FLATBOW 200-25H	5/15/2015	32	94	720
FLATBOW 200-25H	5/16/2015	80	519	1,222
FLATBOW 200-25H	5/17/2015	99	196	927
FLATBOW 200-25H	5/18/2015	46	38	360
FLATBOW 200-25H	5/19/2015	0	0	0
FLATBOW 200-25H	5/20/2015	0	0	0
FLATBOW 200-25H	5/21/2015	0	0	0
FLATBOW 200-25H	5/22/2015	46	271	1,471
FLATBOW 200-25H	5/23/2015	144	261	1,000
FLATBOW 200-25H	5/24/2015	0	0	0
FLATBOW 200-25H	5/25/2015	0	0	0
FLATBOW 200-25H	5/26/2015	0	0	0
FLATBOW 200-25H	5/27/2015	0	0	0
FLATBOW 200-25H	5/28/2015	0	0	0
FLATBOW 200-25H	5/29/2015	0	0	0
FLATBOW 200-25H	5/30/2015	63	186	760
FLATBOW 200-25H	5/31/2015	195	537	1,760
FLATBOW 200-25H	6/1/2015	185	555	1,660
FLATBOW 200-25H	6/2/2015	192	586	1,626
FLATBOW 200-25H	6/3/2015	199	559	1,602
FLATBOW 200-25H	6/4/2015	199	592	1,540
FLATBOW 200-25H	6/5/2015	202	604	1,538
FLATBOW 200-25H	6/6/2015	225	693	1,670
FLATBOW 200-25H	6/7/2015	206	498	1,650
FLATBOW 200-25H	6/8/2015	206	714	1,640
FLATBOW 200-25H	6/9/2015	208	632	1,630
FLATBOW 200-25H	6/10/2015	208	603	1,207
FLATBOW 200-25H	6/11/2015	210	639	1,360
FLATBOW 200-25H	6/12/2015	213	681	1,375
FLATBOW 200-25H	6/13/2015	218	664	1,440
FLATBOW 200-25H	6/14/2015	218	653	1,500
FLATBOW 200-25H	6/15/2015	214	605	1,120
FLATBOW 200-25H	6/16/2015	172	896	1,230
FLATBOW 200-25H	6/17/2015	169	377	1,380
FLATBOW 200-25H	6/18/2015	227	706	1,272
FLATBOW 200-25H	6/19/2015	228	647	1,355
FLATBOW 200-25H	6/20/2015	229	636	1,317
FLATBOW 200-25H	6/21/2015	222	722	1,360
FLATBOW 200-25H	6/22/2015	210	647	1,300
FLATBOW 200-25H	6/23/2015	232	646	1,365
FLATBOW 200-25H	6/24/2015	224	634	1,320
FLATBOW 200-25H	6/25/2015	230	725	1,270
FLATBOW 200-25H	6/26/2015	231	661	1,360
FLATBOW 200-25H	6/27/2015	231	637	1,234
FLATBOW 200-25H	6/28/2015	230	650	1,293
FLATBOW 200-25H	6/29/2015	231	676	1,240
FLATBOW 200-25H	6/30/2015	234	669	1,193
FLATBOW 200-25H	7/1/2015	233	671	1,243
FLATBOW 200-25H	7/2/2015	215	675	1,403
FLATBOW 200-25H	7/3/2015	250	663	1,340
FLATBOW 200-25H	7/4/2015	234	667	1,273
FLATBOW 200-25H	7/5/2015	225	658	1,223
FLATBOW 200-25H	7/6/2015	228	671	1,223
FLATBOW 200-25H	7/7/2015	229	660	1,178
FLATBOW 200-25H	7/8/2015	227	654	1,233
FLATBOW 200-25H	7/9/2015	223	693	1,265
FLATBOW 200-25H	7/10/2015	223	624	1,253
FLATBOW 200-25H	7/11/2015	222	619	1,201
FLATBOW 200-25H	7/12/2015	220	637	1,253
FLATBOW 200-25H	7/13/2015	208	584	1,149
FLATBOW 200-25H	7/14/2015	215	662	1,060
FLATBOW 200-25H	7/15/2015	210	636	1,133
FLATBOW 200-25H	7/16/2015	210	625	1,123
FLATBOW 200-25H	7/17/2015	205	600	1,140
FLATBOW 200-25H	7/18/2015	203	619	1,090
FLATBOW 200-25H	7/19/2015	202	604	1,079
FLATBOW 200-25H	7/20/2015	199	605	1,077
FLATBOW 200-25H	7/21/2015	198	593	1,063
FLATBOW 200-25H	7/22/2015	198	611	1,105
FLATBOW 200-25H	7/23/2015	196	616	1,052
FLATBOW 200-25H	7/24/2015	195	596	1,010
FLATBOW 200-25H	7/25/2015	193	586	1,043
FLATBOW 200-25H	7/26/2015	191	588	995
FLATBOW 200-25H	7/27/2015	186	598	1,068
FLATBOW 200-25H	7/28/2015	181	592	1,103
FLATBOW 200-25H	7/29/2015	193	619	1,090
FLATBOW 200-25H	7/30/2015	70	210	458
FLATBOW 200-25H	7/31/2015	147	489	832
FLATBOW 200-25H	8/1/2015	177	554	1,058
FLATBOW 200-25H	8/2/2015	173	562	1,013
FLATBOW 200-25H	8/3/2015	181	602	1,010

First 30 days Production Rates (Used 5/31/2015-7/12/2015)

Gas	Oil	Water
216.9	642.7	1369.7
Using 0.6 decline factor		
130.1	385.6	821.8

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Attachment E – Oil and Gas Analyses



Client:	EOG Resources-Power River Basin	Analysis Date:	4/23/2014
Sample ID:	Bolt 405-05H	Date Sampled:	4-8-14
Unique #:	536	Purpose:	NI
Sample Temperature:	66 DEG F	Sample Pressure:	71 PSI
Sampled By:	NI	Type Sample:	Spot
County:	NI		

Components	Mole %	Weight %	Liq. Vol. %
Carbon Dioxide.....	0.6584	1.077	0.530
Hydrogen Sulfide.....	0.0000	0.000	0.000
Nitrogen.....	1.8920	1.970	0.981
Methane.....	61.2263	36.504	48.944
Ethane.....	12.6662	14.155	15.973
Propane.....	13.6944	22.442	17.790
iso-Butane.....	2.0861	4.506	3.219
n-Butane.....	4.4404	9.592	6.601
iso-Pentane.....	1.0884	2.919	1.877
n-Pentane.....	1.0488	2.812	1.793
Cyclopentane.....	0.0630	0.164	0.088
n-Hexane.....	0.2293	0.734	0.445
Cyclohexane.....	0.1212	0.379	0.194
Other Hexanes	0.3191	1.022	0.619
Heptanes.....	0.2098	0.781	0.456
Methylcyclohexane.....	0.0921	0.336	0.175
2,2,4-Trimethylpentane...	0.0023	0.010	0.006
Benzene.....	0.0478	0.139	0.063
Toluene.....	0.0316	0.108	0.050
Ethylbenzene.....	0.0002	0.001	0.000
Xylenes.....	0.0057	0.022	0.010
C8+ Heavies.....	0.0770	0.327	0.186
Totals	100.000	100.000	100.000

ADDITIONAL BETX DATA

Components	Mole %	Weight %	Liq. Vol. %
Cyclopentane	0.0630	0.164	0.088
Cyclohexane	0.1212	0.379	0.194
2-Methylpentane	0.2009	0.643	0.389
3-Methylpentane	0.1183	0.379	0.229
n-Hexane	0.2293	0.734	0.445
Methylcyclohexane	0.0921	0.336	0.175
2,2,4-Trimethylpentane	0.0023	0.010	0.006
Benzene	0.0478	0.139	0.063
Toluene	0.0316	0.108	0.050
Ethylbenzene	0.0002	0.001	0.000
m-Xylene	0.0009	0.004	0.002
p-Xylene	0.0038	0.015	0.007
o-Xylene	0.0009	0.004	0.002

SPECIFIC GRAVITY @ 60/60 F, calculated.....	0.9290
TOTAL GPM (Ethane Inclusive).....	10.479
CALCULATED BTU / REAL CF @ 14.73 PSIA, dry basis.....	1555.008
CALCULATED BTU / REAL CF @ 14.73 PSIA, wet basis.....	1528.675
AVERAGE MOLECULAR WEIGHT.....	26.907
MOLAR MASS RATIO.....	0.9290
RELATIVE DENSITY (G x Z (Air) / Z), calculated.....	0.9348
IDEAL GROSS HEATING VALUE, BTU / IDEAL CF @ 14.696 PSIA.....	1541.929
COMPRESSIBILITY FACTOR (Z).....	0.99387
PROPANE GPM	3.7631
BUTANE GPM	2.0772
GASOLINE GPM (PENTANE AND HEAVIER)	1.2600
TOTAL ACID GAS MOLE %.....	0.6584
H2S MOLE %	0.0000
H2S PPM	0
VOC WEIGHT FRACTION	0.463

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.



Client:	EOG Resources	Analysis Date:	2/13/2014
Sample ID:	Bolt 221-33	Date Sampled:	1/30/2014
Unique #:	NI	Purpose:	NI
Sample Temperature:	50 DEG F	Sample Pressure:	62 PSI
Sampled By:	Steve	Type Sample:	Spot
County:	Campbell		

<u>Components</u>	<u>Mole %</u>	<u>Weight %</u>	<u>Liq. Vol. %</u>
Carbon Dioxide.....	1.2186	1.978	0.989
Hydrogen Sulfide.....	0.0000	0.000	0.000
Nitrogen.....	1.3029	1.346	0.682
Methane.....	64.8428	38.373	52.278
Ethane.....	7.3470	8.149	9.344
Propane.....	13.3110	21.652	17.440
iso-Butane.....	3.0937	6.633	4.814
n-Butane.....	5.0762	10.884	7.611
iso-Pentane.....	1.3406	3.568	2.332
n-Pentane.....	1.1630	3.095	2.005
Cyclopentane.....	0.0709	0.184	0.100
n-Hexane.....	0.2458	0.781	0.481
Cyclohexane.....	0.1480	0.459	0.239
Other Hexanes	0.3564	1.133	0.697
Heptanes.....	0.2523	0.933	0.554
Methylcyclohexane.....	0.0997	0.361	0.190
2,2,4-Trimethylpentane...	0.0000	0.000	0.000
Benzene.....	0.0440	0.127	0.059
Toluene.....	0.0257	0.087	0.041
Ethylbenzene.....	0.0017	0.007	0.003
Xylenes.....	0.0047	0.018	0.009
C8+ Heavies.....	0.0550	0.232	0.134
Totals	100.000	100.000	100.000

ADDITIONAL BETX DATA

<u>Components</u>	<u>Mole %</u>	<u>Weight %</u>	<u>Liq. Vol. %</u>
Cyclopentane	0.0709	0.184	0.100
Cyclohexane	0.1480	0.459	0.239
2-Methylpentane	0.2243	0.713	0.439
3-Methylpentane	0.1321	0.420	0.258
n-Hexane	0.2458	0.781	0.481
Methylcyclohexane	0.0997	0.361	0.190
2,2,4-Trimethylpentane	0.0000	0.000	0.000
Benzene	0.0440	0.127	0.059
Toluene	0.0257	0.087	0.041
Ethylbenzene	0.0017	0.007	0.003
m-Xylene	0.0007	0.003	0.001
p-Xylene	0.0032	0.012	0.006
o-Xylene	0.0008	0.003	0.001

SPECIFIC GRAVITY @ 60/60 F, calculated.....	0.9360
TOTAL GPM (Ethane Inclusive).....	9.658
CALCULATED BTU / REAL CF @ 14.73 PSIA, dry basis.....	1560.769
CALCULATED BTU / REAL CF @ 14.73 PSIA, wet basis.....	1534.336
AVERAGE MOLECULAR WEIGHT.....	27.109
MOLAR MASS RATIO.....	0.9360
RELATIVE DENSITY (G x Z (Air) / Z), calculated.....	0.9418
IDEAL GROSS HEATING VALUE, BTU / IDEAL CF @ 14.696 PSIA.....	1547.509
COMPRESSIBILITY FACTOR (Z).....	0.99378
PROPANE GPM	3.6578
BUTANE GPM	2.6060
GASOLINE GPM (PENTANE AND HEAVIER)	1.4340
TOTAL ACID GAS MOLE %.....	1.2186
H2S MOLE %	0.0000
H2S PPM	0
VOC WEIGHT FRACTION	0.502

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.



Client:	EOG Resources	Analysis Date:	2/13/2014
Sample ID:	Bolt 15-33	Date Sampled:	1/30/2014
Unique #:	NI	Purpose:	NI
Sample Temperature:	64 DEG F	Sample Pressure:	60 PSI
Sampled By:	Steve	Type Sample:	Spot
County:	Campbell		

<u>Components</u>	<u>Mole %</u>	<u>Weight %</u>	<u>Liq. Vol. %</u>
Carbon Dioxide.....	1.0267	1.645	0.830
Hydrogen Sulfide.....	0.0000	0.000	0.000
Nitrogen.....	1.4852	1.515	0.774
Methane.....	64.8100	37.859	52.025
Ethane.....	6.9527	7.613	8.804
Propane.....	12.7234	20.430	16.598
iso-Butane.....	2.7836	5.891	4.313
n-Butane.....	5.4490	11.532	8.134
iso-Pentane.....	1.6199	4.256	2.805
n-Pentane.....	1.5636	4.108	2.684
Cyclopentane.....	0.0980	0.250	0.137
n-Hexane.....	0.3323	1.043	0.647
Cyclohexane.....	0.1562	0.479	0.252
Other Hexanes	0.4907	1.540	0.956
Heptanes.....	0.2722	0.993	0.595
Methylcyclohexane.....	0.0917	0.328	0.174
2,2,4-Trimethylpentane...	0.0009	0.004	0.002
Benzene.....	0.0476	0.135	0.063
Toluene.....	0.0237	0.080	0.038
Ethylbenzene.....	0.0018	0.007	0.003
Xylenes.....	0.0073	0.028	0.013
C8+ Heavies.....	0.0636	0.265	0.154
Totals	100.000	100.000	100.000

ADDITIONAL BETX DATA

Components	Mole %	Weight %	Liq. Vol. %
Cyclopentane	0.0980	0.250	0.137
Cyclohexane	0.1562	0.479	0.252
2-Methylpentane	0.3089	0.969	0.601
3-Methylpentane	0.1819	0.571	0.354
n-Hexane	0.3323	1.043	0.647
Methylcyclohexane	0.0917	0.328	0.174
2,2,4-Trimethylpentane	0.0009	0.004	0.002
Benzene	0.0476	0.135	0.063
Toluene	0.0237	0.080	0.038
Ethylbenzene	0.0018	0.007	0.003
m-Xylene	0.0012	0.004	0.002
p-Xylene	0.0049	0.019	0.009
o-Xylene	0.0012	0.005	0.002

SPECIFIC GRAVITY @ 60/60 F, calculated.....	0.9482
TOTAL GPM (Ethane Inclusive).....	9.767
CALCULATED BTU / REAL CF @ 14.73 PSIA, dry basis.....	1581.267
CALCULATED BTU / REAL CF @ 14.73 PSIA, wet basis.....	1554.475
AVERAGE MOLECULAR WEIGHT.....	27.462
MOLAR MASS RATIO.....	0.9482
RELATIVE DENSITY (G x Z (Air) / Z), calculated.....	0.9543
IDEAL GROSS HEATING VALUE, BTU / IDEAL CF @ 14.696 PSIA.....	1567.509
COMPRESSIBILITY FACTOR (Z).....	0.99358
PROPANE GPM	3.4963
BUTANE GPM	2.6220
GASOLINE GPM (PENTANE AND HEAVIER)	1.7938
TOTAL ACID GAS MOLE %.....	1.0267
H2S MOLE %	0.0000
H2S PPM	0
VOC WEIGHT FRACTION	0.514

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.



**EXTENDED HYDROCARBON LIQUID STUDY
 CERTIFICATE OF ANALYSIS**

Company:	EOG Resources	Sample Name:	BOLT 211-33H
	Powder River Basin		
Date Sampled:	1/7/2015	Sample Number:	15010901-18
Sample Location:	Wyoming	Date Tested:	1/19/2015
Sample Pressure:	33 PSI	Test Method:	GPA 2186M
Sample Temperature:	84 DEG F		
County:	NI	Date Reported:	1/28/2015
Sample Source:	Separator	Note: Due to the nature of H2S, the values of H2S reported may be lower than actual.	
Sampling Method:	GPA 2174		
Type Sample:	SPOT		

Components	Mole %	Weight %	Liq. Vol. %
Hydrogen Sulfide	0.0000	0.000	0.000
Oxygen	0.0000	0.000	0.000
Carbon Dioxide	0.0512	0.012	0.011
Nitrogen	0.0672	0.010	0.009
Methane	1.2482	0.104	0.258
Ethane	0.5935	0.092	0.193
Propane	3.1315	0.715	1.051
iso-Butane	1.5783	0.475	0.629
n-Butane	4.0860	1.230	1.569
iso-Pentane	2.8977	1.083	1.291
n-Pentane	3.4825	1.302	1.538
Hexanes	2.7671	1.235	1.386
Heptanes	6.4456	3.346	3.622
Octanes	4.1966	2.483	2.619
Nonanes	0.8127	0.540	0.557
Decanes+	63.1989	84.712	82.662
Benzene	0.0763	0.031	0.026
Toluene	1.5016	0.717	0.612
Ethylbenzene	0.1343	0.074	0.063
Xylenes	0.9982	0.549	0.472
n-Hexane	2.2434	1.001	1.124
2,2,4-Trimethylpentane	0.4893	0.290	0.310
Totals	100.000	100.000	100.000

EXTENDED ANALYSIS DATA

Components	Mole %	Weight %	Liq. Vol. %
Hydrogen Sulfide	0.0000	0.000	0.000
Carbon Dioxide	0.0512	0.012	0.011
Nitrogen	0.0672	0.010	0.009
Methane	1.2482	0.104	0.263
Ethane	0.5935	0.093	0.197
Propane	3.1315	0.716	1.072
iso-Butane	1.5783	0.476	0.642
n-Butane	4.0860	1.231	1.601
iso-Pentane	2.8977	1.084	1.317
n-Pentane	3.4825	1.303	1.569
Hexanes	2.7671	1.236	1.414
Heptanes	6.4456	3.348	3.696
Octanes	4.1966	2.485	2.672
Nonanes	0.8127	0.540	0.568
Decanes	4.1906	3.091	3.197
Benzene	0.0763	0.031	0.027
Toluene	1.5016	0.717	0.625
Ethylbenzene	0.1343	0.074	0.064
Xylenes	0.9982	0.549	0.482
n-Hexane	2.2434	1.002	1.147
2,2,4-Trimethylpentane	0.4893	0.290	0.316
Undecanes(C11)	3.7735	3.058	3.120
Dodecanes(C12)	3.8885	3.434	3.462
Tridecanes(C13)	4.9309	4.713	4.707
Tetradecanes(C14)	4.6059	4.737	4.689
Pentadecanes(C15)	4.2603	4.692	4.614
Hexadecanes(C16)	4.8095	5.646	5.474
Heptadecanes(C17)	3.2516	4.054	3.895
Octadecanes(C18)	2.8324	3.737	3.566
Nonadecanes(C19)	2.5578	3.561	3.342
Eicosanes (C20)	2.8783	4.216	4.062
Heneicosanes (C21)	2.7095	4.166	3.996
Docosanes (C22)	2.1812	3.512	3.430
Tricosanes (C23)	1.9413	3.267	3.114
Tetracosanes (C24)	1.7127	3.007	2.866
Pentacosanes (C25)	2.1462	3.924	3.722
Hexacosanes (C26)	2.2287	4.237	4.138
Heptacosanes (C27)	1.9751	3.899	3.797
Octacosanes (C28)	1.4541	2.976	2.802
Nonacosanes (C29)	1.2766	2.706	2.544
Triacosanes (C30)	1.0097	2.213	2.076
Hentriacontane Plus (C31+)	2.5846	5.853	5.694
Totals	100.000	100.000	100.000

ADDITIONAL BTEX DATA

Components	Mole %	Weight %	Liq. Vol. %
2-Methylpentane	1.978	0.883	0.991
3-Methylpentane	0.789	0.352	0.395
n-Hexane	2.243	1.001	1.124
2,2,4-Trimethylpentane	0.489	0.290	0.310
Benzene	0.076	0.031	0.026
Toluene	1.502	0.717	0.612
Ethylbenzene	0.134	0.074	0.063
m-Xylene	0.115	0.063	0.054
p-Xylene	0.714	0.393	0.338
o-Xylene	0.170	0.093	0.080

RELATIVE SPECIFIC GRAVITY OF DECANES+ (C10+) FRACTION, calculated	0.76356
AVERAGE MOLECULAR WEIGHT	192.890
AVERAGE MOLECULAR WEIGHT OF DECANES+ (C10+) FRACTION, calculated	258.758
TRUE VAPOR PRESSURE AT 100 F, PSIA, calculated	77.899
AVERAGE BOILING POINT, F, calculated	520.793
CUBIC FEET OF GAS / GALLON OF LIQUID, as Ideal Gas, calculated	17.996
BTU / GALLON OF LIQUID AT 14.73 PSIA, calculated	124,383.03
LBS / GALLON OF LIQUID, calculated	6.212

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.

**FLASHED CRUDE OIL LIQUID STUDIES
CERTIFICATE OF ANALYSIS**

Sample Name: **BOLT 211-33H**
Sample Number: 15010901-17

TEST PERFORMED	RESULTS	DATE TESTED
API GRAVITY AT 60/60 F, (ASTM D-7777), calculated from SG	38.1	1/22/2015
API GRAVITY AT 100/100 F, (ASTM D-7777), calculated from SG	38.9	1/22/2015
REID VAPOR PRESSURE (ASTM D6377), PSIG AT 100 F, measured	4.74	1/22/2015
BOTTOM SEDIMENT & WATER (ASTM D-4007), weight %, measured	<0.025	1/26/2015
CLOUD POINT (ASTM D-97), deg F, measured	30.2	1/26/2015
POUR POINT (ASTM D-97), deg F, measured	-20.2	1/26/2015
SULFUR CONTENT BY XRAY (ASTM D-4294), weight %, measured	0.0767	1/22/2015
PARAFFIN CONTENT (UOP-46), weight %, measured	36.268	1/20/2015
EOG GRINDOUT (EOG METHOD), volume %, measured	27.500	1/26/2015
KINEMATIC VISCOSITY AT 100 F (ASTM D-445),	38.900	1/26/2015
KINEMATIC VISCOSITY AT 120 F (ASTM D-445),	36.537	1/26/2015
ASPHALTENES (ASTM D-3279), weight %, CL	0.10	1/15/2015

**ASTM D86 Distillation
Certificate of Analysis**

Date Tested:	1/22/2015	Qualifiers:
	% Recovery	DEG C @ 300mm Hg
	Initial Boiling Point	34
	5	70
	10	89
	20	128
	30	178
	40	221
	50	269
	64	300
	Final Boiling Point	N/A
	Volume % Recovery	64
	Volume % Residue	30
	Volume % Loss	6

Comments: Residue and loss observed
Temperatures are uncorrected for barometric pressure

Temperatures are uncorrected for barometric pressure



**EXTENDED HYDROCARBON LIQUID STUDY
 CERTIFICATE OF ANALYSIS**

Company:	EOG Resources	Sample Name:	Bolt 22-05H
	Podwer River Basin		
Date Sampled:	09/18/2014	Sample Number:	14091905-02
Sample Location:	Wyoming	Date Tested:	09/22/2014
Sample Pressure:	51 PSI	Test Method:	GPA 2186M
Sample Temperature:	113 DEG F		
County:	Campbell	Date Reported:	09/29/2014
Sampling Method:	GPA 2174	Note: Due to the nature of H2S, the values of H2S reported may be lower than actual.	
Type Sample:	SPOT		

Components	Mole %	Weight %	Liq. Vol. %
Hydrogen Sulfide	0.0000	0.000	0.000
Oxygen	0.0000	0.000	0.000
Carbon Dioxide	0.0967	0.023	0.021
Nitrogen	0.0141	0.002	0.002
Methane	1.1397	0.098	0.243
Ethane	1.4222	0.230	0.479
Propane	2.8879	0.683	1.002
iso-Butane	0.8160	0.255	0.336
n-Butane	3.2554	1.015	1.293
iso-Pentane	2.1094	0.817	0.972
n-Pentane	2.9018	1.124	1.325
Hexanes	2.3997	1.110	1.243
Heptanes	6.3014	3.389	3.662
Octanes	6.5271	4.001	4.212
Nonanes	3.3183	2.284	2.352
Decanes+	58.6087	80.730	78.926
Benzene	0.3471	0.146	0.122
Toluene	2.2600	1.118	0.953
Ethylbenzene	0.2600	0.148	0.126
Xylenes	2.8690	1.635	1.404
n-Hexane	2.1114	0.977	1.094
2,2,4-Trimethylpentane	0.3541	0.217	0.232
Totals	100.000	100.000	100.000

EXTENDED ANALYSIS DATA

Components	Mole %	Weight %	Liq. Vol. %
Hydrogen Sulfide	0.0000	0.000	0.000
Carbon Dioxide	0.0967	0.023	0.021
Nitrogen	0.0141	0.002	0.002
Methane	1.1397	0.098	0.249
Ethane	1.4222	0.230	0.490
Propane	2.8879	0.684	1.025
iso-Butane	0.8160	0.255	0.344
n-Butane	3.2554	1.016	1.322
iso-Pentane	2.1094	0.818	0.994
n-Pentane	2.9018	1.125	1.355
Hexanes	2.3997	1.111	1.271
Heptanes	6.3014	3.392	3.744
Octanes	6.5271	4.005	4.307
Nonanes	3.3183	2.286	2.405
Decanes	4.9994	3.821	3.952
Benzene	0.3471	0.146	0.125
Toluene	2.2600	1.119	0.974
Ethylbenzene	0.2600	0.148	0.129
Xylenes	2.8690	1.636	1.435
n-Hexane	2.1114	0.977	1.118
2,2,4-Trimethylpentane	0.3541	0.217	0.237
Undecanes(C11)	3.6321	3.050	3.112
Dodecanes(C12)	3.8445	3.518	3.547
Tridecanes(C13)	4.5876	4.543	4.538
Tetradecanes(C14)	3.7761	4.024	3.984
Pentadecanes(C15)	4.0721	4.646	4.570
Hexadecanes(C16)	3.5197	4.282	4.152
Heptadecanes(C17)	2.8367	3.664	3.521
Octadecanes(C18)	2.7229	3.723	3.553
Nonadecanes(C19)	2.3628	3.408	3.199
Eicosanes (C20)	2.7427	4.163	4.011
Heneicosanes (C21)	2.4628	3.924	3.764
Docosanes (C22)	1.9963	3.331	3.253
Tricosanes (C23)	1.7667	3.081	2.937
Tetracosanes (C24)	2.0080	3.653	3.482
Pentacosanes (C25)	2.0121	3.812	3.616
Hexacosanes (C26)	1.4939	2.943	2.874
Heptacosanes (C27)	1.6123	3.297	3.212
Octacosanes (C28)	1.6113	3.417	3.217
Nonacosanes (C29)	1.2161	2.670	2.511
Triacosanes (C30)	1.0420	2.367	2.220
Hentriacontane Plus (C31+)	2.2907	5.375	5.229
Totals	100.000	100.000	100.000

ADDITIONAL BTEX DATA

Components	Mole %	Weight %	Liq. Vol. %
2-Methylpentane	1.716	0.794	0.889
3-Methylpentane	0.684	0.316	0.354
n-Hexane	2.111	0.977	1.094
2,2,4-Trimethylpentane	0.354	0.217	0.232
Benzene	0.347	0.146	0.122
Toluene	2.260	1.118	0.953
Ethylbenzene	0.260	0.148	0.126
m-Xylene	0.330	0.188	0.161
p-Xylene	2.051	1.169	1.004
o-Xylene	0.488	0.278	0.239

RELATIVE SPECIFIC GRAVITY OF DECANES+ (C10+) FRACTION, calculated	0.76077
AVERAGE MOLECULAR WEIGHT	186.159
AVERAGE MOLECULAR WEIGHT OF DECANES+ (C10+) FRACTION, calculated	256.650
TRUE VAPOR PRESSURE AT 100 F, PSIA, calculated	77.420
AVERAGE BOILING POINT, F, calculated	528.479
CUBIC FEET OF GAS / GALLON OF LIQUID, as Ideal Gas, calculated	18.119
BTU / GALLON OF LIQUID AT 14.73 PSIA, calculated	124,490.91
LBS / GALLON OF LIQUID, calculated	6.201

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.

**FLASHED CRUDE OIL LIQUID STUDIES
CERTIFICATE OF ANALYSIS**

Sample Name: **Bolt 22-05H**
Sample Number: 14091905-01

TEST PERFORMED	RESULTS	DATE TESTED
API GRAVITY AT 60/60 F, (ASTM D-7777), calculated from SG	41.7	09/24/2014
API GRAVITY AT 100/100 F, (ASTM D-7777), calculated from SG	42.6	09/24/2014
REID VAPOR PRESSURE (ASTM D6377), PSIG AT 100 F, measured	4.19	09/23/2014
BOTTOM SEDIMENT & WATER (ASTM D-4007), weight %, measured	<0.025	09/25/2014
CLOUD POINT (ASTM D-97), deg F, measured	57.2	09/25/2014
POUR POINT (ASTM D-97), deg F, measured	-40.0	09/25/2014
SULFUR CONTENT BY XRAY (ASTM D-4294), weight %, measured	0.0314	09/25/2014
PARAFFIN CONTENT (UOP-46), weight %, measured	38.544	09/26/2014
EOG GRINDOUT (EOG METHOD), volume %, measured	5.000	09/10/2014
KINEMATIC VISCOSITY AT 100 F (ASTM D-445),	<32.0	09/26/2014
KINEMATIC VISCOSITY AT 120 F (ASTM D-445),	35.335	09/26/2014
ASPHALTENES (ASTM D-3279), weight %, CL	<0.10	09/24/2014

**ASTM D86 Distillation
Certificate of Analysis**

Date Tested:	09/25/2014	Qualifiers:
	% Recovery	DEG C @ 300mm Hg
	Intial Boiling Point	42
	5	86
	10	101
	20	130
	30	166
	40	218
	50	264
	60	299
	61	300
	Final Boiling Point	N/A
	Volume % Recovery	61
	Volume % Residue	38
	Volume % Loss	1

Comments: Residue and loss observed
Temperatures are uncorrected for barometric pressure



**EXTENDED HYDROCARBON LIQUID STUDY
 CERTIFICATE OF ANALYSIS**

Company:	EOG Resources	Sample Name:	BOLT 15-33H
	Powder River Basin		
Date Sampled:	01/07/2015	Sample Number:	15010901-16
Sample Location:	Wyoming	Date Tested:	01/19/2015
Sample Pressure:	33 PSI	Test Method:	GPA 2186M
Sample Temperature:	84 DEG F		
County:	NI	Date Reported:	01/28/2015
Sample Source:	Separator	Note: Due to the nature of H ₂ S, the values of H ₂ S reported may be lower than actual.	
Sampling Method:	GPA 2174		
Type Sample:	SPOT		

Components	Mole %	Weight %	Liq. Vol. %
Hydrogen Sulfide	0.0000	0.000	0.000
Oxygen	0.0000	0.000	0.000
Carbon Dioxide	0.0393	0.009	0.008
Nitrogen	0.0558	0.008	0.007
Methane	0.8277	0.068	0.168
Ethane	0.5106	0.078	0.164
Propane	3.2670	0.734	1.079
iso-Butane	1.4637	0.434	0.574
n-Butane	4.1199	1.221	1.557
iso-Pentane	2.8906	1.063	1.267
n-Pentane	3.5597	1.309	1.547
Hexanes	2.9142	1.280	1.437
Heptanes	6.5143	3.328	3.603
Octanes	4.2895	2.498	2.635
Nonanes	0.8182	0.535	0.552
Decanes+	63.3933	84.867	82.864
Benzene	0.0855	0.034	0.029
Toluene	1.1381	0.535	0.457
Ethylbenzene	0.1776	0.096	0.082
Xylenes	1.0708	0.580	0.499
n-Hexane	2.4132	1.060	1.190
2,2,4-Trimethylpentane	0.4512	0.263	0.281
Totals	100.000	100.000	100.000

EXTENDED ANALYSIS DATA

Components	Mole %	Weight %	Liq. Vol. %
Hydrogen Sulfide	0.0000	0.000	0.000
Carbon Dioxide	0.0393	0.009	0.008
Nitrogen	0.0558	0.008	0.008
Methane	0.8277	0.068	0.172
Ethane	0.5106	0.078	0.167
Propane	3.2670	0.735	1.103
iso-Butane	1.4637	0.434	0.587
n-Butane	4.1199	1.222	1.592
iso-Pentane	2.8906	1.064	1.295
n-Pentane	3.5597	1.311	1.581
Hexanes	2.9142	1.281	1.468
Heptanes	6.5143	3.331	3.683
Octanes	4.2895	2.500	2.693
Nonanes	0.8182	0.535	0.564
Decanes	4.0860	2.967	3.073
Benzene	0.0855	0.034	0.029
Toluene	1.1381	0.535	0.467
Ethylbenzene	0.1776	0.096	0.084
Xylenes	1.0708	0.580	0.510
n-Hexane	2.4132	1.061	1.216
2,2,4-Trimethylpentane	0.4512	0.263	0.287
Undecanes(C11)	3.6354	2.900	2.963
Dodecanes(C12)	3.7370	3.248	3.280
Tridecanes(C13)	4.7225	4.443	4.444
Tetradecanes(C14)	4.7106	4.769	4.728
Pentadecanes(C15)	4.0456	4.385	4.319
Hexadecanes(C16)	4.7356	5.472	5.314
Heptadecanes(C17)	3.0166	3.702	3.562
Octadecanes(C18)	2.8280	3.673	3.510
Nonadecanes(C19)	2.5018	3.428	3.222
Eicosanes (C20)	2.7720	3.997	3.856
Heneicosanes (C21)	2.7671	4.188	4.024
Docosanes (C22)	2.2322	3.538	3.460
Tricosanes (C23)	1.9012	3.149	3.007
Tetracosanes (C24)	1.7546	3.032	2.895
Pentacosanes (C25)	2.2936	4.128	3.921
Hexacosanes (C26)	2.3055	4.314	4.220
Heptacosanes (C27)	1.8508	3.596	3.508
Octacosanes (C28)	2.2748	4.582	4.321
Nonacosanes (C29)	1.4431	3.010	2.835
Triacosanes (C30)	1.2769	2.755	2.588
Hentriacontane Plus (C31+)	2.5025	5.578	5.435
Totals	100.000	100.000	100.000

ADDITIONAL BTEX DATA

Components	Mole %	Weight %	Liq. Vol. %
2-Methylpentane	2.084	0.915	1.027
3-Methylpentane	0.831	0.365	0.409
n-Hexane	2.413	1.060	1.190
2,2,4-Trimethylpentane	0.451	0.263	0.281
Benzene	0.086	0.034	0.029
Toluene	1.138	0.535	0.457
Ethylbenzene	0.178	0.096	0.082
m-Xylene	0.123	0.067	0.057
p-Xylene	0.766	0.414	0.357
o-Xylene	0.182	0.099	0.085

RELATIVE SPECIFIC GRAVITY OF DECANES+ (C10+) FRACTION, calculated	0.76318
AVERAGE MOLECULAR WEIGHT	195.971
AVERAGE MOLECULAR WEIGHT OF DECANES+ (C10+) FRACTION, calculated	262.579
TRUE VAPOR PRESSURE AT 100 F, PSIA, calculated	56.425
AVERAGE BOILING POINT, F, calculated	529.600
CUBIC FEET OF GAS / GALLON OF LIQUID, as Ideal Gas, calculated	17.935
BTU / GALLON OF LIQUID AT 14.73 PSIA, calculated	124,511.84
LBS / GALLON OF LIQUID, calculated	6.213

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.

**FLASHED CRUDE OIL LIQUID STUDIES
CERTIFICATE OF ANALYSIS**

Sample Name: **BOLT 15-33H**
Sample Number: 15010901-15

TEST PERFORMED	RESULTS	DATE TESTED
API GRAVITY AT 60/60 F, (ASTM D-7777), calculated from SG	39.0	01/22/2015
API GRAVITY AT 100/100 F, (ASTM D-7777), calculated from SG	39.8	01/22/2015
REID VAPOR PRESSURE (ASTM D6377), PSIG AT 100 F, measured	4.72	01/22/2015
BOTTOM SEDIMENT & WATER (ASTM D-4007), weight %, measured	<0.025	01/26/2015
CLOUD POINT (ASTM D-97), deg F, measured	32.0	01/26/2015
POUR POINT (ASTM D-97), deg F, measured	-11.2	01/26/2015
SULFUR CONTENT BY XRAY (ASTM D-4294), weight %, measured	0.0676	01/22/2015
PARAFFIN CONTENT (UOP-46), weight %, measured	39.310	01/20/2015
EOG GRINDOUT (EOG METHOD), volume %, measured	32.500	01/26/2015
KINEMATIC VISCOSITY AT 100 F (ASTM D-445),	38.700	01/26/2015
KINEMATIC VISCOSITY AT 120 F (ASTM D-445),	36.637	01/26/2015
ASPHALTENES (ASTM D-3279), weight %, CL	0.10	01/15/2015

**ASTM D86 Distillation
Certificate of Analysis**

Date Tested:	01/22/2015	Qualifiers:
	% Recovery	DEG C @ 300mm Hg
	Initial Boiling Point	36
	5	65
	10	101
	20	129
	30	168
	40	216
	50	280
	60	300
	Final Boiling Point	N/A
	Volume % Recovery	60
	Volume % Residue	34
	Volume % Loss	6

Comments: Residue and loss observed
Temperatures are uncorrected for barometric pressure

Temperatures are uncorrected for barometric pressure

August 10, 2015

Attachment F – Emissions Calculations and Supporting Documentation

Well Name:	Bolt 405-05	Bolt 15-33H	Bolt 211-33H	Composite Gas Analysis			
Date Sampled:	4/8/2014	1/30/2014	1/30/2014				
Component:	mol%	mol%	mol%	mol%	M.W.	(mol% X MW)/100	WT%
Hydrogen Sulfide (H2S)	0.00000	0.00000	0.00000	0.0000	34.08	0.0000	0.00000
Oxygen (O2)	0.00000	0.00000	0.00000	0.0000	32.00	0.0000	0.00000
Carbon Dioxide (CO2)	0.6584	1.0267	1.2186	0.9679	44.01	0.4260	0.01569
Nitrogen (N2)	1.8920	1.4852	1.3029	1.5600	28.02	0.4371	0.01610
Methane (C1)	61.2263	64.8100	64.8428	63.6264	16.04	10.2057	0.37581
Ethane (C2)	12.6662	6.9527	7.3470	8.9886	30.07	2.7029	0.09953
Propane (C3)	13.6944	12.7234	13.3110	13.2429	44.09	5.8388	0.21501
iso-Butane (i-C4)	2.0861	2.7836	3.0937	2.6545	58.12	1.5428	0.05681
n-Butane (n-C4)	4.4404	5.4490	5.0762	4.9885	58.12	2.8993	0.10677
iso-Pentane (i-C5)	1.0884	1.6199	1.3406	1.3496	72.15	0.9738	0.03586
n-Pentane (n-C5)	1.0488	1.5636	1.1630	1.2585	72.15	0.9080	0.03344
Cyclopentane	0.0630	0.0980	0.0709	0.0773	70.1	0.0542	0.00200
n-Hexane (n-C6)	0.2293	0.3323	0.2450	0.2689	86.17	0.2317	0.00853
Cyclohexane	0.1212	0.1562	0.1480	0.1418	84.16	0.1193	0.00439
Other Hexanes	0.3191	0.4907	0.3564	0.3887	85.00	0.3304	0.01217
Heptanes	0.2098	0.2722	0.2523	0.2448	100.20	0.2453	0.00903
Methylcyclohexane	0.0921	0.0917	0.0997	0.0945	98.18	0.0928	0.00342
2,2,4-Trimethylpentane	0.0023	0.0009	0.0000	0.0011	114.22	0.0012	0.00004
Benzene	0.0478	0.0476	0.0440	0.0465	78.11	0.0363	0.00134
Toluene	0.0316	0.0237	0.0257	0.0270	92.14	0.0249	0.00092
Ethylbenzene	0.0002	0.0018	0.0017	0.0012	106.17	0.0013	0.00005
Xylene	0.0057	0.0073	0.0047	0.0059	106.17	0.0063	0.00023
Octanes	0.0770	0.0636	0.0550	0.0652	120.00	0.0782	0.00288
Nonanes	0.0000	0.0000	0.0000	0.0000	128.26	0.0000	0.00000
Decanes+	0.0000	0.0000	0.0000	0.0000	142.29	0.0000	0.00000
Total	100.000	100.000	99.999	100.0001	M.W.=	27.16	
Temperature (F)	66.0	64.0	50.0	60.00			
Pressure (psig)	71.0	60.0	62.0	64.33			
Molecular WT	26.907	27.462	27.109	27.16			
Higher Heating Value (Btu/scf)	1555.01	1581.267	1560.769	1565.68			
Total VOC Weight Percent	49.29						
Total HAP Weight Percent	1.11						

Well Name:	Bolt 22-05	Bolt 15-33H	Bolt 211-33H	Composite
Date Sampled:	9/18/2014	1/19/2015	1/19/2015	
Component:	mole%	mole%	mole%	mole %
Hydrogen Sulfide (H2S)	0.0000	0.0000	0.0000	0.0000
Oxygen (O2)	0.0000	0.0000	0.0000	0.0000
Carbon Dioxide (CO2)	0.0967	0.0393	0.0512	0.0624
Nitrogen (N2)	0.0141	0.0558	0.0672	0.0457
Methane (C1)	1.1397	0.8277	1.2482	1.0719
Ethane (C2)	1.4222	0.5106	0.5935	0.8421
Propane (C3)	2.8879	3.2670	3.1315	3.0955
iso-Butane (i-C4)	0.8160	1.4637	1.5783	1.2860
n-Butane (nC-4)	3.2554	4.1199	4.0860	3.8204
iso-Pentane (i-C5)	2.1094	2.8906	2.8977	2.6326
n-Pentane (n-C5)	2.9018	3.5597	3.4825	3.3147
2-Methylpentane (C6)	1.7160	2.0840	1.9780	1.9260
3-Methylpentane (C6)	0.6840	0.8310	0.7890	0.7680
Heptanes (C7)	6.3014	6.5143	6.4456	6.4204
Octanes (C8)	6.5271	4.2895	4.1966	5.0044
Nonanes (C9)	3.3183	0.8182	0.8127	1.6497
Benzene	0.3471	0.0855	0.0763	0.1696
Toluene	2.2600	1.1381	1.5016	1.6332
Ethylbenzene	0.2600	0.1776	0.1343	0.1906
m-Xylene	0.3300	0.1230	0.1150	0.1893
p-Xylene	2.0510	0.7660	0.7140	1.1770
o-Xylene	0.4880	0.1820	0.1700	0.2800
n-Hexane	2.1114	2.4132	2.2434	2.2560
2,2,4-Trimethylpentane	0.3541	0.4512	0.4893	0.4315
Decanes+ (C10+)	58.6087	63.3933	63.1989	61.7336
Total	100.000	100.001	100.001	100.001
MW C10+	256.6500	262.5790	258.7580	259.3290
Specific Gravity C10+	0.7608	0.7632	0.7636	0.7625
API Gravity (sales oil)	41.7	39.0	38.1	39.6
RVP (sales oil)	4.19	4.72	4.74	4.6
Temperature (F)	113	84	84	93.7
Pressure (psig)	51	33	33	39.0

Heater Emission Calculations

AP-42 Emission Factors for Natural Gas Combustion, Table 1.4-1

Process Unit:	Heat Input Rating	
Heater Treater 1:	0.375	MMBtu/hr
Line Heater 1:	0.500	MMBtu/hr
NA	0.000	MMBtu/hr
Fuel Heat Value:	1565.7	Btu/scf
Annual Operating Hours:	8760	hrs
NO_x Emissions =	0.6	TPY
CO Emissions =	0.5	TPY
VOC Emissions=	0.0	TPY

Fuel Consumed (Comb. Size, MMBtu/hr Heat Input)	
Natural Gas	
NO _x	100
CO	84
VOC	5.5

Estimated Heater NO _x Emissions							
Heater Number	Heater Rating	Emissions Factor	Emissions Factor	Fuel Heat Value	Corrected Emissions Factor	Operating Hours	Estimated Emissions
()	(MMBtu/hr)	(lb/MMCF)	(lb/hr)	(Btu/scf)	(lb/hr)	(hrs)	(TPY)
1	0.375	100	0.037	1566	0.056	8760	0.247
2	0.500	100	0.049	1566	0.075	8760	0.330
3	0.000	100	0.000	1566	0.000	8760	0.000
4	0.000	100	0.000	1566	0.000	8760	0.000
5	0.000	100	0.000	1566	0.000	8760	0.000
6	0.000	100	0.000	1566	0.000	8760	0.000
7	0.000	100	0.000	1566	0.000	8760	0.000
8	0.000	100	0.000	1566	0.000	8760	0.000
9	0.000	100	0.000	1566	0.000	8760	0.000
10	0.000	100	0.000	1566	0.000	8760	0.000

Total NO_x Emissions =	0.6	TPY
Total NO_x Emissions =	0.13	lb/hr

Estimated Heater CO Emissions							
Heater Number	Heater Rating	Emissions Factor	Emissions Factor	Fuel Heat Value	Corrected Emissions Factor	Operating Hours	Estimated Emissions
()	(MMBtu/hr)	(lb/MMCF)	(lb/hr)	(Btu/scf)	(lb/hr)	(hrs)	(TPY)
1	0.375	84	0.031	1566	0.047	8760	0.208
2	0.500	84	0.041	1566	0.063	8760	0.277
3	0.000	84	0.000	1566	0.000	8760	0.000
4	0.000	84	0.000	1566	0.000	8760	0.000
5	0.000	84	0.000	1566	0.000	8760	0.000
6	0.000	84	0.000	1566	0.000	8760	0.000
7	0.000	84	0.000	1566	0.000	8760	0.000
8	0.000	84	0.000	1566	0.000	8760	0.000
9	0.000	84	0.000	1566	0.000	8760	0.000
10	0.000	84	0.000	1566	0.000	8760	0.000

Total CO Emissions =	0.5	TPY
Total CO Emissions =	0.11	lb/hr

Estimated Heater VOC Emissions							
Heater Number	Heater Rating	Emissions Factor	Emissions Factor	Fuel Heat Value	Corrected Emissions Factor	Annual Operating	Estimated Emissions
()	(MMBtu/hr)	(lb/MMCF)	(lb/hr)	(Btu/scf)	(lb/hr)	(hrs)	(TPY)
1	0.375	5.5	0.002	1566	0.003	8760	0.014
2	0.500	5.5	0.003	1566	0.004	8760	0.018
3	0.000	5.5	0.000	1566	0.000	8760	0.000
4	0.000	5.5	0.000	1566	0.000	8760	0.000
5	0.000	5.5	0.000	1566	0.000	8760	0.000
6	0.000	5.5	0.000	1566	0.000	8760	0.000
7	0.000	5.5	0.000	1566	0.000	8760	0.000
8	0.000	5.5	0.000	1566	0.000	8760	0.000
9	0.000	5.5	0.000	1566	0.000	8760	0.000
10	0.000	5.5	0.000	1566	0.000	8760	0.000

Total VOC Emissions =	0.0	TPY
Total VOC Emissions =	0.01	lb/hr

Combustor Emission Calculations

Emission Source:

Tank Vent Gas Flowrate: 5.6 Mcf/day (from Promax, includes VRT gas)
 Tank Vent Gas Flowrate: 234.2 scf/hr
 Estimated Heating Value: 2266.2 Btu/scf (Average Btu content of tank flash and VRT gas from Promax)
 Pneumatic Pumps Flowrate: 10272.0 scf/day
 Pneumatic Pumps Flowrate: 428.0 scf/hr
 Pilot Gas Flowrate: 0.14 scf/min (one flare @ 0.14 CFM)
 Pilot Gas Flowrate: 8.4 scf/hr
 Estimated Heating Value: 1565.7 Btu/scf
 Total Flow to Flare: 16094.6 scf/day

Pollutant	lb/hr	ton/yr
NO_x	0.17	0.7
CO	0.04	0.2

Emission Factors (From Ch. 6, Sec. 2 Guidance)

NO_x 0.14 lb/MMBtu
 CO 0.035 lb/MMBtu

PNEUMATIC PUMP EMISSIONS CALCULATIONS

COMPONENT	mol %	M.W.	(mol % X MW)/100	WT% of i
H2S	0.0000	34.08	0	0
O2	0.0000	32.00	0	0.0000
CO2	0.9679	44.01	0.4260	0.0157
N2	1.5600	28.02	0.4371	0.0161
Methane C1	63.6264	16.04	10.2057	0.3758
Ethane C2	8.9886	30.07	2.7029	0.0995
Propane C3	13.2429	44.09	5.8388	0.2150
i-Butane i-C4	2.6545	58.12	1.5428	0.0568
n-Butane n-C4	4.9885	58.12	2.8993	0.1068
i-Pentane iC5	1.3496	72.15	0.9738	0.0359
n-Pentane nC5	1.2585	72.15	0.9080	0.0334
Cyclopentane	0.0773	70.1	0.0542	0.0020
n-Hexane n-C6	0.2689	86.17	0.2317	0.0085
Cyclohexane	0.1418	84.16	0.1193	0.0044
other Hexanes	0.3887	85.00	0.3304	0.0122
Heptanes	0.2448	100.20	0.2453	0.0090
Methylcyclohexane	0.0945	98.18	0.0928	0.0034
2,2,4 Trimethylpentane	0.0011	114.22	0.0012	0.0000
Benzene	0.0465	78.11	0.0363	0.0013
Toluene	0.0270	92.14	0.0249	0.0009
Ethylbenzene	0.0012	106.17	0.0013	0.0000
Xylenes	0.0059	106.17	0.0063	0.0002
C8+ Heavies	0.0652	120.00	0.0782	0.0029
nonanes	0.0000	128.26	0.0000	0.0000
C ₁₀ +	0.0000	142.29	0.0000	0.0000
	100.000			1.0000
MOLECULAR WEIGHT (lb/lb-mol)=			27.1562	
TOTAL VOCs WEIGHT PERCENT =			0.4929	
TOTAL HAPs WEIGHT PERCENT =			0.0111	
WEIGHT PERCENT H2S =			0.0000	

# of Pumps	2	
Flow rate	10272	scf/day
Gas Consumption Rate (Pumps)		
scf/hr	214	

Emission Summary	
VOC TPY	66.2
controlled	1.3
HAP TPY	1.5
controlled	0.0
H2S	0.0
controlled	0.0
SO2	0.0
NOx	0.4
CO	0.1

Truck Loading Emission Calculations

VOC Emissions from Truck Loading - AP-42 Chapter 5.2

AP-42 Chapter 5.2, Table 5.2-1	
Tank trucks and rail cars submerged loading of a clean cargo tank	0.5
Submerged loading; dedicated normal service	0.6
Submerged loading; dedicated vapor balance service	1
Splash loading of a clean cargo tank	1.45
Splash loading; dedicated normal service	1.45
Splash loading; dedicated vapor balance service	1
Marine vessels, submerged loading; ships	0.2
Submerged loading; barges	0.5

Equation 1 for loading losses: $(12.46) * (SPM / T) = L_L$

Where:

L_L = loading losses, lbs/1000 gal of liquid loaded

S = saturation factor

P = true vapor pressure of liquid loaded (psia). Source: 4.6 RVP of crude oil (from Precision Analysis) converted to TVP @50°F using Figure 7.1-13a of AP-42 Chapter 7 (11/06).

M = Molecular wt of vapors, lb/lb-mol (from Promax)

T = temperature of bulk liquids loaded °R (°F = 460)

385.6	barrels/day	(production rates)
140750.8	bbls/yr	
5911533	gallons/yr	

S= 0.6

P= 2 psia

M= 45.32 lb/lb-mol (taken from Promax)

T= 510 °R

L_L = **1.33 lb/1000 gallons**

Total Loss= 3.9 TPY TOC

Uncontrolled VOC Emissions:	3.4	TPY
Uncontrolled HAP Emissions:	0.1	TPY

COMPONENT	(Taken from Promax)			
	mol %	M.W.	(mol % X MW)/100	WT% of i
H2S	0	34.08	0	0
O2	0.0000	32.00	0	0.0000
CO2	0.5703	44.01	0.2510	0.0056
N2	0.4946	28.02	0.1386	0.0031
Methane C1	13.7749	16.04	2.2095	0.0493
Ethane C2	10.9340	30.07	3.2878	0.0733
Propane C3	36.2828	44.09	15.9971	0.3566
i-Butane i-C4	7.5084	58.12	4.3639	0.0973
n-Butane n-C4	15.6946	58.12	9.1217	0.2033
i-Pentane iC5	4.4641	72.15	3.2209	0.0718
n-Pentane nC5	4.2432	72.15	3.0615	0.0682
n-Hexane n-C6	0.8911	86.17	0.7678	0.0171
Cyclohexane	0.0000	84.16	0.0000	0.0000
other Hexanes	1.4196	85.00	1.2067	0.0269
Heptanes	0.7787	100.20	0.7803	0.0174
Methylcyclohexane	0.0000	98.18	0.0000	0.0000
2,2,4 Trimethylpentane	0.0559	114.22	0.0639	0.0014
Benzene	0.0314	78.11	0.0245	0.0005
Toluene	0.1196	92.14	0.1102	0.0025
Ethylbenzene	0.0066	106.17	0.0070	0.0002
Xylenes	0.0338	106.17	0.0359	0.0008
C8+ Heavies	0.1655	120.00	0.1986	0.0044
nonanes	0.0109	128.26	0.0140	0.0003
C ₁₀ +	0.0000	142.29	0.0000	0.0000
Water	2.5197			
	100.000			1.0000
			MOLECULAR WEIGHT (lb/lb-mol)=	44.8610
			TOTAL VOCs WEIGHT PERCENT =	0.8688
			TOTAL HAPs WEIGHT PERCENT =	0.0225

Fugitive Emissions Calculations - Flatbow 200-25H

EPA Average Emission Factors for Total Hydrocarbon (THC) Emissions from O&G Production Operations
(lb/component-day)

Equipment Service Category

Equipment Type	Gas	Heavy Oil (<20° API)	Light Oil (>20° API)	Water/Light Oil
connector	0.011	0.0004	0.011	0.0058
flange	0.021	0.000021	0.0058	0.00015
open ended line	0.11	0.0074	0.074	0.013
other	0.47	0.0017	0.4	0.74
pump	0.13	0	0.69	0.0013
valve	0.24	0.00044	0.13	0.0052

Speciated Fugitive Emission Factors

(Estimated weight fractions of THC emissions in each category)

	Methane	NMHC	VOC	C6+	Benzene	Toluene	Ethyl- Benzene	Xylenes
Light Crude	0.613	0.387	0.292	0.0243	0.00027	0.00075	0.00017	0.00036
Heavy Crude	0.942	0.058	0.030	0.00752	0.00935	0.00344	0.00051	0.00372
Gas Production	0.92	0.080	0.035	0.00338	0.00023	0.00039	0.00002	0.0001

Service

Type	Gas	Heavy Oil	Light Oil	Water/Light Oil
connector	281	0	118	58
flange	57	0	53	44
open ended line	1	0	0	0
other	11	0	0	0
pump	0	0	4	0
valve	112	0	68	33
Emissions (lb/day)	36.448	0	13.2054	0.5146

365 days

2000 lbs

0.869 VOC concentration - light crude from Promax

0.493 VOC concentration - gas sample

Using Site Specific Data

	TOC	VOC	C6+	Benzene	Toluene	Ethyl- Benzene	Xylene	Total HAP
lb/day	50.2	29.690	0.446	0.012	0.024	0.003	0.008	0.494
ton/yr	9.2	5.4	0.081	0.0022	0.004	0.001	0.002	0.1



STATE OF WYOMING

Department of Environmental Quality - Air Quality Division
Oil and Gas Production Facilities C6 S2 Permit Application
EMISSION SUMMARY



Company Name EOG Resources, Inc.
Facility Name Flatbow 200-25H

This form must be completed for each emission source at the facility. A list of the emission sources which must be considered is found in Appendix B of the C6 S2 O&G Production Facilities Permitting Guidance.

UNCONTROLLED EMISSIONS (Tons Per Year)

These are the total uncontrolled, potential emissions from each source.

Table with 7 columns: EMISSION SOURCE, VOCs, total HAPs, NOx, CO, SO2, H2S. Rows include five (5) 400-bbl oil storage tanks & VRT, 0.375 MMBtu/hr heater treater heater, 0.50 MMBtu/hr line heater, two (2) pneumatic pumps, truck loading, fugitives, and a Total row.

CONTROLLED EMISSIONS (Tons Per Year)

These are the total emissions from each source. Include controlled emissions from each controlled source and uncontrolled emissions from each source which does not require control, such as process equipment burners.

Table with 7 columns: EMISSION SOURCE, VOCs, total HAPs, NOx, CO, SO2, H2S. Rows include five (5) 400-bbl oil storage tanks & VRT, 0.375 MMBtu/hr heater treater heater, 0.50 MMBtu/hr line heater, two (2) pneumatic pumps, truck loading, Steffes flare, fugitives, and a Total row.

HAZARDOUS AIR POLLUTANT SUMMARY (Tons Per Year)

Complete this section for each emissions source if TOTAL HAPs from that source are 9 TPY or greater.

Table with 6 columns: SOURCE, Benzene, Toluene, Ethyl-Benzene, Xylenes, Other. Includes a blank row for data entry.



STATE OF WYOMING
 Department of Environmental Quality - Air Quality Division
 Oil and Gas Production Facilities C6 S2 Permit Application



Equipment List

Company Name _____ EOG Resources, Inc. _____
 Facility Name _____ Flatbow 200-25H _____

List all production equipment at the site including all pressurized vessels with the potential for flash emissions, all hydrocarbon liquids and produced water storage tanks, all dehydration units, all pneumatic pumps, all natural gas-fired burners and heaters and all emission control equipment and devices. Pressurized vessels with the potential for flash emissions are all vessels that vent vapors to the atmosphere during times other than upset or emergency conditions (water knockouts, 2-phase and 3-phase separators, heater treaters, gun barrels, scrubber pots, etc). Provide design ratings for dehyds (MMCFD), process heaters, burners and pilots (MMBtu/hr, SCFH). Provide size of production & water storage tanks (BPD). For dehydration units indicate if the unit includes a glycol flash separator and/or reboiler still vent condenser. For emission control combustors/flares indicate design rating (MMBtu/hr, SCFD) and combustor/flare height (ft). Provide pneumatic pump motive gas usage (SCFH).

If more space is required, continue on page 2 of this sheet.

PROVIDE INSTALLATION DATES OF ALL EMISSION CONTROL EQUIPMENT & MONITORING DEVICES/SYSTEMS !!!

- five (5) 400-barrel (bbl) oil storage tanks (routed to Steffes flare)
- two (2) 400-bbl produced water storage tanks (routed to Steffes flare)
- one (1) 400-bbl emergency storage tank
- one (1) heater treater w/ 0.375 MMBtu/hr heater
- one (1) 0.50 MMBtu/hr trace line heater
- one (1) 15' Steffes Smokeless Tri-Tip flare with continuous pilot and thermocouple monitored through Cygnet (controls VRT, produced water, oil storage tank, and pneumatic pump emissions,) installed prior to first date of production
- one (1) Vapor Recovery Tower (VRT) (routed to Steffes flare)
- two (2) pneumatic pumps (tank combustor scrubber, VRT combustor scrubber. 214 scf/hr each, routed to Steffes flare)
- two (2) electric pumps (recycle and trace)
- various gas scrubbers/liquids knockouts (VRT vent line, tank vent line, sales gas line, fuel gas, etc)
- controllers are all non-bleed
- truck loading
- fugitives
- two (2) 500-gallon propane tanks
- one (1) temporary natural gas fired generator (CT-14121)

Example:

- 1 2-phase high pressure separator (unheated)
- 1 3-phase low pressure separator w/ 0.5 MMBtu/hr heater
- 2 0.5 MMBtu/hr line heaters
- 1 5 MMCFD TEG dehydration unit w/ 0.5 MMBtu/hr reboiler heater, glycol flash separator(0.5 MMBtu/hr heater) and overheads condenser
- 2 400-bbl condensate tanks
- 1 400-bbl produced water tank
- 1 30-ft enclosed combustor (3.0 MMBtu/hr, 5 MCFD) for flashing & reboiler vent/glycol flash separator emissions control **installed 1/1/2007**



Bryan Research & Engineering, Inc.

ProMax[®] 3.2

with
TSWEET[®] & PROSIM[®]

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Simulation Report

Project: Flatbow 200-25H.pmx

Licensed to EOG Resources, Inc. and Affiliates

Client Name: EOG

Location: Flatbow 200-25H

Job:

ProMax Filename: M:\ProMax\Flatbow 200-25H.pmx

ProMax Version: 3.2.13330.0

Simulation Initiated: 8/5/2015 4:26:11 PM

Bryan Research & Engineering, Inc.

Chemical Engineering Consultants

P.O. Box 4747 Bryan, Texas 77805

Office: (979) 776-5220

FAX: (979) 776-4818

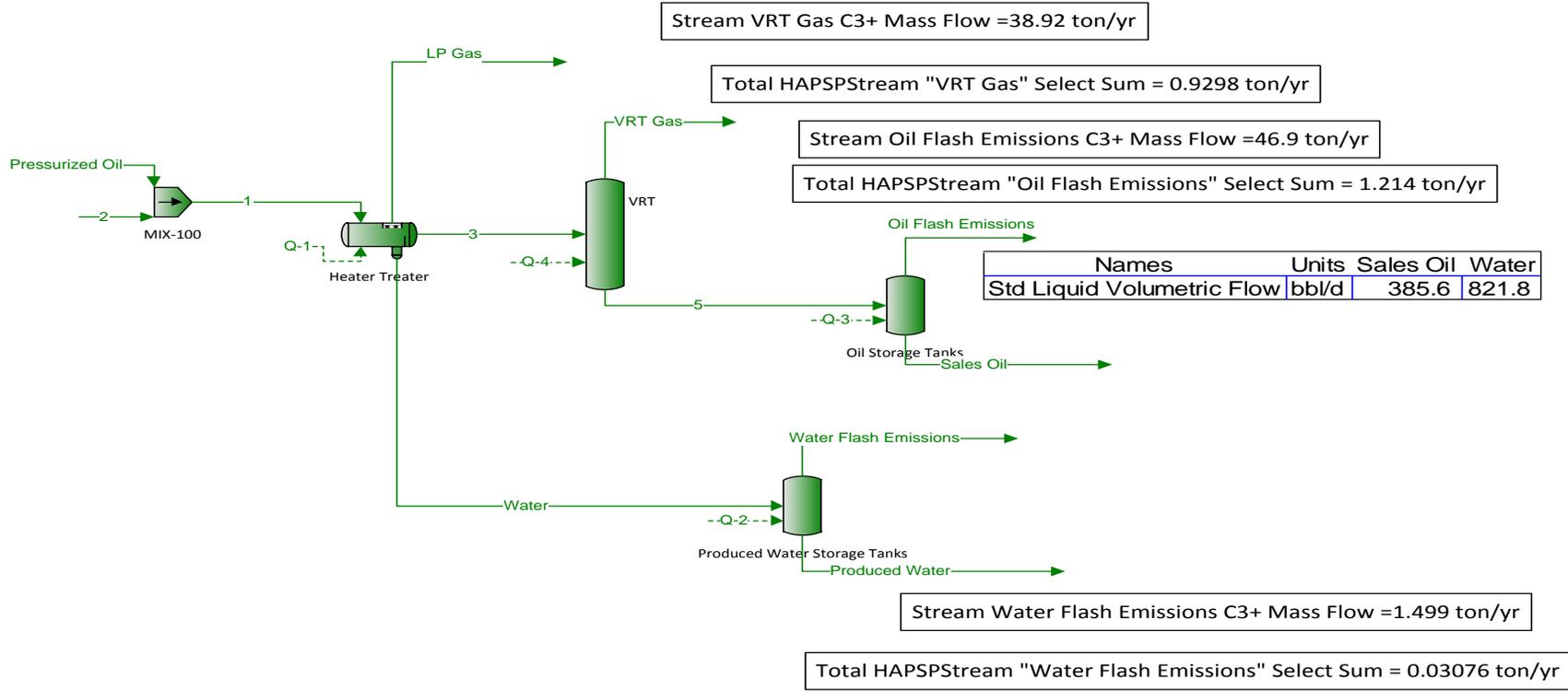
<mailto:sales@bre.com>

<http://www.bre.com/>

Report Navigator can be activated via the ProMax Navigator Toolbar.

An asterisk (*), throughout the report, denotes a user specified value.

An asterisk (*) after a value, throughout the report, denotes an extrapolated or approximated value.



Process Streams	Oil Flash Emissions	Sales Oil	VRT Gas	Water Flash Emissions
Composition	Solved		Solved	
Phase: Total	From Block: To Block:		VRT	Produced Water Storage Tanks
Mass Flow	lb/h	lb/h	lb/h	lb/h
Hydrogen Sulfide	0	0	0	0
Oxygen	0	0	0	0
Carbon Dioxide	0.0689419	0.0940322	0.0901777	0.0169859
Nitrogen	0.0380554	0.00455068	0.267684	0.0446364
Methane	0.606983	0.188868	1.92389	0.262962
Ethane	0.903053	1.46834	1.10030	0.0701015
Propane	4.39453	24.9545	3.90946	0.191057
Isobutane	1.19869	17.6134	0.970681	0.0201741
n-Butane	2.50557	51.1410	1.99357	0.0789125
Isopentane	0.884670	46.9604	0.685516	0.0189713
n-Pentane	0.840889	58.2801	0.648948	0.0186371
2-Methylpentane	0.246703	41.3720	0.189099	0.00293954
3-Methylpentane	0.0893231	16.5114	0.0684323	0.00233567
Heptane	0.214318	151.589	0.164144	0.00168775
Octane	0.0519390	113.983	0.038417	0.000354424
Nonane	0.00385624	24.4243	0.00296293	3.86097E-05
Benzene	0.00674324	1.51180	0.00515790	0.000688528
Toluene	0.0302665	24.2437	0.0231384	0.00309120
Ethylbenzene	0.00191926	4.38017	0.00146984	0.000192862
m-Xylene	0.00112720	3.03432	0.000863494	0.000114344
p-Xylene	0.00722233	18.8975	0.00553273	0.000731188
o-Xylene	0.00151251	4.48870	0.00115858	0.000155154
n-Hexane	0.210920	48.0411	0.161523	0.00202087
2,2,4-Trimethylpentane	0.0175501	11.9682	0.0134428	2.90674E-05
Water	0.124683	0.180622	0.159068	0.0306144
C10+	2.26529E-05	3827.41	1.78868E-05	4.51883E-10
Mole Fraction	%	%	%	%
Hydrogen Sulfide	0	0	0	0
Oxygen	0	0	0	0
Carbon Dioxide	0.570324	0.00943451	0.598264	1.32544
Nitrogen	0.494578	0.000717298	2.78996	5.47195
Methane	13.7749	0.0519848	35.0146	56.2913
Ethane	10.9340	0.215623	10.6839	8.00619
Propane	36.2828	2.49887	25.8958	14.8795
Isobutane	7.50844	1.33811	4.87613	1.19198
n-Butane	15.6946	3.88523	10.0145	4.66254
Isopentane	4.46413	2.87404	2.77414	0.902996
n-Pentane	4.24320	3.56681	2.62616	0.887091
2-Methylpentane	1.04226	2.11989	0.640688	0.117143
3-Methylpentane	0.377368	0.846039	0.231856	0.0930781
Heptane	0.778696	6.88005	0.478287	0.0578428
Octane	0.165540	4.40811	0.101837	0.0106553
Nonane	0.0109465	0.840887	0.00674508	0.00103381
Benzene	0.0314294	0.0854608	0.0192795	0.0302707
Toluene	0.119593	1.16184	0.0733217	0.115214
Ethylbenzene	0.00658167	0.182179	0.00404229	0.00623854
m-Xylene	0.00386549	0.126203	0.00237475	0.00369870
p-Xylene	0.0247674	0.785981	0.0152159	0.0236513
o-Xylene	0.00518682	0.186693	0.00318628	0.00501881
n-Hexane	0.891085	2.46161	0.547258	0.0805331
2,2,4-Trimethylpentane	0.059357	0.462642	0.0343602	0.000873877
Water	2.51971	0.0442710	2.57799	5.83584
C10+	3.18022E-05	65.1693	2.01177E-05	5.98403E-09
Mass Fraction	%	%	%	%
Hydrogen Sulfide	0	0	0	0
Oxygen	0	0	0	0
Carbon Dioxide	0.553773	0.00209298	0.725713	2.21334
Nitrogen	0.305679	0.000101290	2.15421	5.81633
Methane	4.87556	0.00420385	15.4827	34.2652
Ethane	7.25374	0.0326824	8.85473	9.13455
Propane	35.2988	0.555441	31.4617	24.8957
Isobutane	9.62844	0.392041	7.81164	2.62878
n-Butane	20.1259	1.13830	16.0435	10.2827
Isopentane	7.10608	1.04525	5.51675	2.47205
n-Pentane	6.75440	1.29721	5.22247	2.42850
2-Methylpentane	1.98163	0.920863	1.52179	0.383036
3-Methylpentane	0.717484	0.367513	0.550715	0.304349
Heptane	1.72150	3.37408	1.32096	0.219921
Octane	0.417198	2.53705	0.320630	0.0461831
Nonane	0.0309751	0.543640	0.0238445	0.00503103
Benzene	0.0541648	0.0336499	0.0415087	0.0897184
Toluene	0.243114	0.539620	0.186208	0.402798
Ethylbenzene	0.0154163	0.0974944	0.0102896	0.0251308
m-Xylene	0.0095419	0.0675384	0.00694905	0.0148905
p-Xylene	0.0580130	0.420623	0.0445252	0.0952746
o-Xylene	0.0121492	0.0999101	0.00932375	0.0202173
n-Hexane	1.69421	1.06931	1.29987	0.263329
2,2,4-Trimethylpentane	0.140970	0.266390	0.108182	0.00378762
Water	1.00151	0.00402031	1.28011	3.98920
C10+	0.000181958	85.1910	0.000143799	5.88825E-08

SWB HAP TPY
(assume 2.25% HAP
based on oil flash
concentration)
SWB VOC TPY from
Tanks 4.0
1.5
output stream HAP
0.03

VRT VOC TPY
38.9
VRT HAP TPY
0.9

Oil Flash VOC TPY
46.9
Oil Flash HAP TPY
1.2

Total VOC TPY	Total HAP TPY
87.3	2.2

Process Streams	Oil Flash Emissions	Sales Oil	VRT Gas	Water Flash Emissions
Properties				
Phase: Total	Status: Solved	Status: Solved	Status: Solved	Status: Solved
From Block: To Block:	Oil Storage Tanks	Oil Storage Tanks	VRT	Produced Water Storage Tanks
Property	Units			
Temperature	°F	90°	90°	90°
Pressure	psia	12"	12	19.6959"
Mole Fraction Vapor	%	100	0	100
Mole Fraction Light Liquid	%	0	100	0
Mole Fraction Heavy Liquid	%	0	0	0
Molecular Weight	lb/lbmol	45.3248	198.381	36.2806
Mass Density	lb/ft ³	0.0934067	49.1308	0.122766
Molar Flow	lbmol/h	0.274673	22.6470	0.342499
Mass Flow	lb/h	12.4495	4492.74	12.4261
Vapor Volumetric Flow	ft ³ /h	133.283	91.4445	101.218
Liquid Volumetric Flow	gpm	16.6171	11.4009	12.6193
Std Vapor Volumetric Flow	MMSCFD	0.00250162	0.206280	0.0031936
Std Liquid Volumetric Flow	sgpm	0.0478660	11.2467	0.0521161
Compressibility		0.987128	0.00821414	0.986751
Specific Gravity		1.56494	0.787743	1.25267
API Gravity			45.3217	
Enthalpy	Btu/h	-13466.0	-3.72482E+06	-14909.0
Mass Enthalpy	Btu/lb	-1081.65	-829.075	-1199.81
Mass Cp	Btu/(lb*°F)	0.415017	0.486178	0.426696
Ideal Gas Cp/Cv Ratio		1.11877	1.02646	1.14840
Dynamic Viscosity	cP	0.00856544	1.96324	0.00942611
Kinematic Viscosity	cSt	5.72468	2.49458	4.79329
Thermal Conductivity	Btu/(ft ² *h*°F)	0.0112576	0.0709115	0.0133371
Surface Tension	lb/ft		0.00180726	
Net Ideal Gas Heating Value	Btu/ft ³	2325.63	9794.61	1838.68
Net Liquid Heating Value	Btu/lb	19312.0	18583.2	19090.2
Gross Ideal Gas Heating Value	Btu/ft ³	2527.55	10458.8	2004.92
Gross Liquid Heating Value	Btu/lb	21002.6	19853.7	20829.0

Process Streams	Oil Flash Emissions	Sales Oil	VRT Gas	Water Flash Emissions
Composition				
Phase: Vapor	Status: Solved	Status: Solved	Status: Solved	Status: Solved
From Block: To Block:	Oil Storage Tanks	Oil Storage Tanks	VRT	Produced Water Storage Tanks
Mass Flow	lb/h		lb/h	lb/h
Hydrogen Sulfide	0		0	0
Oxygen	0		0	0
Carbon Dioxide	0.0689419		0.0901777	0.0169859
Nitrogen	0.0380554		0.267684	0.0446364
Methane	0.606983		1.92389	0.262962
Ethane	0.903053		1.10030	0.0701015
Propane	4.39453		3.90946	0.191057
Isobutane	1.19869		0.970681	0.0201741
n-Butane	2.50557		1.95357	0.0789125
Isopentane	0.684670		0.685516	0.0189713
n-Pentane	0.840889		0.648948	0.0186371
2-Methylpentane	0.246703		0.189099	0.00293954
3-Methylpentane	0.0893231		0.0684323	0.00233567
Heptane	0.214318		0.164144	0.00168775
Octane	0.0519390		0.0398417	0.000354424
Nonane	0.00385624		0.00296293	3.86097E-05
Benzene	0.00674324		0.00515790	0.000688528
Toluene	0.0302665		0.0231384	0.00309120
Ethylbenzene	0.00191926		0.00146984	0.000192862
m-Xylene	0.00112720		0.000863494	0.000114344
p-Xylene	0.00722323		0.00553273	0.000731168
o-Xylene	0.00151251		0.00115858	0.000155154
n-Hexane	0.210920		0.161523	0.00202087
2,2,4-Trimethylpentane	0.0175501		0.0134428	2.96074E-05
Water	0.124683		0.159068	0.0306144
C10+	2.26529E-05		1.78666E-05	4.51883E-10
Mole Fraction	%		%	%
Hydrogen Sulfide	0		0	0
Oxygen	0		0	0
Carbon Dioxide	0.570324		0.596264	1.32544
Nitrogen	0.494578		2.78996	5.47185
Methane	13.7749		35.0146	56.2913
Ethane	10.9340		10.6839	8.00619
Propane	36.2828		25.8858	14.8795
Isobutane	7.50844		4.87613	1.19198
n-Butane	15.6946		10.0145	4.66254
Isopentane	4.46413		2.77414	0.902996
n-Pentane	4.24320		2.62616	0.887091
2-Methylpentane	1.04226		0.640688	0.117143
3-Methylpentane	0.373768		0.231856	0.0930781
Heptane	0.779696		0.478287	0.0578228
Octane	0.185540		0.101837	0.0165553
Nonane	0.0109465		0.00674508	0.00103381
Benzene	0.0314294		0.0192795	0.0302707
Toluene	0.119593		0.0733217	0.115214
Ethylbenzene	0.00658167		0.00404229	0.00623854
m-Xylene	0.00386549		0.00237475	0.00369870
p-Xylene	0.0247674		0.0152159	0.0236513
o-Xylene	0.00518682		0.00318628	0.00501881
n-Hexane	0.891085		0.547258	0.0805331
2,2,4-Trimethylpentane	0.059357		0.0343602	0.000973877
Water	2.51971		2.57799	5.83584
C10+	3.18022E-05		2.01177E-05	5.98403E-09
Mass Fraction	%		%	%
Hydrogen Sulfide	0		0	0
Oxygen	0		0	0
Carbon Dioxide	0.553773		0.725713	2.21334
Nitrogen	0.305679		2.15421	5.81633
Methane	4.87556		15.4827	34.2652
Ethane	7.25374		8.85473	9.13455
Propane	35.2988		31.4617	24.8957
Isobutane	9.62844		7.81164	2.62878
n-Butane	20.1259		16.0435	10.2827
Isopentane	7.10608		5.51675	2.47205
n-Pentane	6.75440		5.22247	2.42850
2-Methylpentane	1.98163		1.52179	0.383036
3-Methylpentane	0.717484		0.550715	0.304349
Heptane	1.72150		1.32096	0.219921
Octane	0.417198		0.320630	0.0461831
Nonane	0.0309751		0.0238445	0.00503103
Benzene	0.0541648		0.0415087	0.0897184
Toluene	0.243114		0.186208	0.402788
Ethylbenzene	0.0154163		0.0118286	0.0251308
m-Xylene	0.00905419		0.00694905	0.0148995
p-Xylene	0.0580130		0.0445252	0.0952746
o-Xylene	0.0121492		0.00932375	0.0202173
n-Hexane	1.69421		1.29987	0.263329
2,2,4-Trimethylpentane	0.140970		0.108182	0.00378762
Water	1.00151		1.28011	3.98920
C10+	0.000181958		0.000143799	5.88825E-08

Process Streams		Oil Flash Emissions	Sales Oil	VRT Gas	Water Flash Emissions
Properties		Status: Solved		Solved	Solved
Phase: Vapor	From Block: To Block:	Oil Storage Tanks	Oil Storage Tanks	VRT	Produced Water Storage Tanks
Property	Units				
Temperature	°F	90		90	90
Pressure	psia	12		19.6959	12
Mole Fraction Vapor	%	100		100	100
Mole Fraction Light Liquid	%	0		0	0
Mole Fraction Heavy Liquid	%	0		0	0
Molecular Weight	lb/lbmol	45.3248		36.2806	26.3547
Mass Density	lb/ft³	0.0934067		0.122766	0.0538304
Molar Flow	lbmol/h	0.274673		0.342499	0.0291193
Mass Flow	lb/h	12.4495		12.4261	0.767432
Vapor Volumetric Flow	ft³/h	133.283		101.218	14.2565
Liquid Volumetric Flow	gpm	16.6171		12.6193	1.77743
Std Vapor Volumetric Flow	MMSCFD	0.00250162		0.00311936	0.000265208
Std Liquid Volumetric Flow	sgpm	0.0478660		0.0521161	0.00361371
Compressibility		0.987128		0.986751	0.995970
Specific Gravity		1.56494		1.25267	0.909957
API Gravity					
Enthalpy	Btu/h	-13466.0		-14909.0	-1176.84
Mass Enthalpy	Btu/lb	-1081.65		-1199.81	-1533.48
Mass Cp	Btu/(lb*°F)	0.415017		0.426696	0.441212
Ideal Gas Cp/Cv Ratio		1.11877		1.14840	1.20676
Dynamic Viscosity	cP	0.00856544		0.00942611	0.0107051
Kinematic Viscosity	cSt	5.72468		4.79329	12.4149
Thermal Conductivity	Btu/(ft²*°F)	0.0112576		0.0133371	0.0158447
Surface Tension	lb/ft				
Net Ideal Gas Heating Value	Btu/ft³	2325.63		1838.68	1252.83
Net Liquid Heating Value	Btu/lb	19312.0		19090.2	17910.1
Gross Ideal Gas Heating Value	Btu/ft³	2527.55		2004.92	1376.19
Gross Liquid Heating Value	Btu/lb	21002.6		20829.0	19686.4

Process Streams		Oil Flash Emissions	Sales Oil	VRT Gas	Water Flash Emissions
Composition		Status: Solved		Solved	Solved
Phase: Light Liquid	From Block: To Block:	Oil Storage Tanks	Oil Storage Tanks	VRT	Produced Water Storage Tanks
Mass Flow			lb/h		
Hydrogen Sulfide			0		
Oxygen			0		
Carbon Dioxide			0.0940322		
Nitrogen			0.00455068		
Methane			0.188868		
Ethane			1.46834		
Propane			24.9545		
Isobutane			17.6134		
n-Butane			51.1410		
Isopentane			46.9804		
n-Pentane			58.2901		
2-Methylpentane			41.3720		
3-Methylpentane			16.5114		
Heptane			151.589		
Octane			113.983		
Nonane			24.4243		
Benzene			1.51180		
Toluene			24.2437		
Ethylbenzene			4.38017		
m-Xylene			3.03432		
p-Xylene			18.8975		
o-Xylene			4.48870		
n-Hexane			48.0411		
2,2,4-Trimethylpentane			11.9682		
Water			0.180622		
C10+			3827.41		
Mole Fraction			%		
Hydrogen Sulfide			0		
Oxygen			0		
Carbon Dioxide			0.00943451		
Nitrogen			0.000717298		
Methane			0.0519848		
Ethane			0.215623		
Propane			2.49887		
Isobutane			1.33811		
n-Butane			3.88523		
Isopentane			2.87404		
n-Pentane			3.56681		
2-Methylpentane			2.11989		
3-Methylpentane			0.846039		
Heptane			6.88005		
Octane			4.40611		
Nonane			0.840887		
Benzene			0.0854608		
Toluene			1.16184		
Ethylbenzene			0.182179		
m-Xylene			0.126203		
p-Xylene			0.785981		
o-Xylene			0.186693		
n-Hexane			2.46161		
2,2,4-Trimethylpentane			0.462642		
Water			0.0442710		
C10+			65.1693		
Mass Fraction			%		
Hydrogen Sulfide			0		
Oxygen			0		
Carbon Dioxide			0.00209298		
Nitrogen			0.000101290		
Methane			0.00420385		
Ethane			0.0326824		
Propane			0.555441		
Isobutane			0.392041		
n-Butane			1.13830		
Isopentane			1.04525		
n-Pentane			1.29721		
2-Methylpentane			0.920863		
3-Methylpentane			0.367513		
Heptane			3.37408		
Octane			2.53705		
Nonane			0.543640		
Benzene			0.0336499		
Toluene			0.539620		
Ethylbenzene			0.0974944		
m-Xylene			0.0675384		
p-Xylene			0.420623		
o-Xylene			0.0999101		
n-Hexane			1.06931		
2,2,4-Trimethylpentane			0.266390		
Water			0.00402031		
C10+			85.1910		

Process Streams	Oil Flash Emissions	Sales Oil	VRT Gas	Water Flash Emissions
Properties				
Phase: Light Liquid	Status: Solved	Status: Solved	Status: Solved	Status: Solved
From Block: To Block:	Oil Storage Tanks	Oil Storage Tanks	VRT	Produced Water Storage Tanks
	--	--	--	--
Property	Units			
Temperature	°F		90	
Pressure	psia		12	
Mole Fraction Vapor	%		0	
Mole Fraction Light Liquid	%		100	
Mole Fraction Heavy Liquid	%		0	
Molecular Weight	lb/lbmol		198.381	
Mass Density	lb/ft³		49.1308	
Molar Flow	lbmol/h		22.6470	
Mass Flow	lb/h		4492.74	
Vapor Volumetric Flow	ft³/h		91.4445	
Liquid Volumetric Flow	gpm		11.4009	
Std Vapor Volumetric Flow	MMSCFD		0.206280	
Std Liquid Volumetric Flow	sgpm		11.2467	
Compressibility			0.00821414	
Specific Gravity			0.787743	
API Gravity			45.3217	
Enthalpy	Btu/h		-3.72482E+06	
Mass Enthalpy	Btu/lb		-829.075	
Mass Cp	Btu/(lb*°F)		0.486178	
Ideal Gas Cp/Cv Ratio			1.02646	
Dynamic Viscosity	cP		1.96324	
Kinematic Viscosity	cSt		2.49458	
Thermal Conductivity	Btu/(ft²*°F)		0.0709115	
Surface Tension	lb/ft		0.00180726	
Net Ideal Gas Heating Value	Btu/ft³		9794.61	
Net Liquid Heating Value	Btu/lb		18583.2	
Gross Ideal Gas Heating Value	Btu/ft³		10458.8	
Gross Liquid Heating Value	Btu/lb		19853.7	

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification: Flatbow 200-25H
City:
State:
Company:
Type of Tank: Vertical Fixed Roof Tank
Description:

Tank Dimensions

Shell Height (ft): 20.00
Diameter (ft): 12.00
Liquid Height (ft) : 15.00
Avg. Liquid Height (ft): 14.00
Volume (gallons): 12,690.44
Turnovers: 465.80
Net Throughput(gal/yr): 5,911,248.00
Is Tank Heated (y/n): N

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: White/White
Roof Condition: Good

Roof Characteristics

Type: Cone
Height (ft) 0.50
Slope (ft/ft) (Cone Roof) 0.08

Breather Vent Settings

Vacuum Settings (psig): -0.03
Pressure Settings (psig) 0.03

Meteorological Data used in Emissions Calculations: Casper, Wyoming (Avg Atmospheric Pressure = 12.14 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Flatbow 200-25H - Vertical Fixed Roof Tank

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Crude oil (RVP 5)	All	46.94	40.44	53.44	45.07	2.2119	1.9304	2.5257	50.0000			207.00	Option 4: RVP=5

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

Emissions Report for: Annual

Flatbow 200-25H - Vertical Fixed Roof Tank

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	2,697.60	316.45	3,014.05

Facility Detail Report
Facility Name: Flatbow 200-25H
ID: F026955

- **Facility Information**

Facility ID: F026955
 FacilityName: Flatbow 200-25H
 Facility Description: single well sweet crude oil and natural gas production facility
 Company Name: EOG Resources, Inc.
 Operating Status: Operating AFS:
 Facility Class: Minor Facility Type: Production Site
 CERR Class: NON

- **Location**

Physical Address	City	County	Lat/Long	PLSS	Effective Date
Section 25, 42N, 73W	Campbell County	Campbell	43.57711/-105.56607	QSESE-S25-T42N-R73W	07/14/2015

Location Detail For : Section 25, 42N, 73W

Latitude: 43.57711 Longitude: -105.56607
 Quarter Quarter: SE Quarter: SE
 Section: 25
 Township: 42N Range: 73W
 County: Campbell State: Wyoming
 Distict: District 3
 Physical Address 1: Section 25, 42N, 73W Physical Address 2:
 City: Campbell County Zip: 82716
 Effective Date: 07/14/2015

- **API**

API
561826

- **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	Rice, Curtis	(303)262-9946	Curtis_Rice@eogresources.com	03/09/2015	
NSR Permitting contact	Smith, Mark	(307)399-2365	mark_smith@eogresources.com	01/05/2015	

Contact Detail For : Rice, Curtis

Prefix: Mr. First Name: Curtis
 Middle Name: Last Name: Rice

Emission Unit : FLR001

Sep 15 2015, 09:44:37

- Emission Unit Information

AQD Emissions Unit ID: FLR001

Emission Unit Type: Flare

Maximum Design Capacity: 1000000.0

Units : scf/day

Minimum Design Capacity: 1000.0

Units : scf/day

Pilot Gas Volume (scf/min): 0.1400

AQD Description:

Company Equipment ID: FLA1

Company Equipment Description: Steffes Tri-Tip Flare

Operating Status: Operating

Initial Construction Commencement Date: 05/15/2015

Date:

Initial Operation Commencement Date: 05/15/2015

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: PRC001

Process Name: Steffes Tri-Tip Flare

Company Process Description: Steffes Tri-Tip Flare

Source Classification Code (SCC): 3-10-002-05

Release points(s) directly associated with this process

VER003

Emission Unit : FUG001

Sep 15 2015, 09:44:37

- Emission Unit Information

AQD Emissions Unit ID: FUG001

Emission Unit Type: Fugitive

AQD Description:

Company Equipment ID: FUG1

Company Equipment Description: process fugitives

Operating Status: Operating

Initial Construction Commencement Date: 05/15/2015

Initial Operation Commencement Date: 05/15/2015

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: PRC002

Process Name: fugitive emissions

Company Process Description: fugitive emissions

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

Release points(s) directly associated with this process

AVL003

Emission Unit : HET001

Sep 15 2015, 09:44:37

- Emission Unit Information

AQD Emissions Unit ID: HET001

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): 1565

AQD Description:

Company Equipment ID: HET1

Company Equipment Description: Trace Line Heater - 0.50 MMBtu/hr

Operating Status: Operating

Initial Construction Commencement 05/15/2015
Date:

Initial Operation Commencement 05/15/2015
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: PRC003

Process Name: Line Heater

Company Process Description: Line Heater

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

Release points(s) directly associated with this process

VER001

Emission Unit : HET002

Sep 15 2015, 09:44:38

- Emission Unit Information

AQD Emissions Unit ID: HET002

Emission Unit Type: Heater/Chiller

Firing Type: Indirect

Heat Input Rating: 0.38

Units: MMBtu/hr

Primary Fuel Type: Field Gas

Secondary Fuel Type: N/A

Heat Content of Fuel (BTU/scf): 1565

AQD Description:

Company Equipment ID: HET2

Company Equipment Description: heater treater - 0.375 MMBtu/hr

Operating Status: Operating

Initial Construction Commencement 05/15/2015

Date:

Initial Operation Commencement 05/15/2015

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: PRC004

Process Name: heater treater heater

Company Process Description: heater treater heater

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

Release points(s) directly associated with this process

VER002

Emission Unit : LUD001

Sep 15 2015, 09:44:38

- Emission Unit Information

AQD Emissions Unit ID: LUD001

Emission Unit Type: Loading/Unloading/Dump

Type of Material: liquid

Material Description: crude oil - 385.6 bbls/day

Maximum Annual Throughput: 140744

Units: barrels/yr

AQD Description:

Company Equipment ID: TL01

Company Equipment Description: truck oil loading from storage tanks

Operating Status: Operating

Initial Construction Commencement Date: 05/15/2015

Date:

Initial Operation Commencement Date: 05/15/2015

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: truck loadout

Company Process Description: truck loadout

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

Release points(s) directly associated with this process

AVL002

- **Emission Unit Information**

AQD Emissions Unit ID: PNE001

Emission Unit Type: Pneumatic Equipment

Type of Equipment: Pump

Bleed rate (cu. ft/hr):

Gas Consumption Rate (cu. ft/hr): 428.0000

AQD Description:

Company Equipment ID: PNE1

Company Equipment Description: two (2) pneumatic pumps (tank combustor scrubber, VRT combustor scrubber) each pump has a gas consumption rate of 214 scf/hr for a total of 428 scf/hr

Operating Status: Operating

Initial Construction Commencement Date: 05/15/2015

Initial Operation Commencement Date: 05/15/2015

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: PRC006

Process Name: pneumatic pumps

Company Process Description: pneumatic pumps

Source Classification Code (SCC): 3-10-001-99

Control equipment(s) directly associated with this process

FLA001

- **Emission Unit Information**

AQD Emissions Unit ID: PNE002

Emission Unit Type: Pneumatic Equipment

Type of Equipment: Pump

Bleed rate (cu. ft/hr):

Gas Consumption Rate (cu. ft/hr): 0.0000

AQD Description:

Company Equipment ID: PNE2

Company Equipment Description: two (2) electric pumps (recycle and trace)

Operating Status: Operating

Initial Construction Commencement Date: 05/15/2015

Date:

Initial Operation Commencement Date: 05/15/2015

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: PRC007

Process Name: electric pumps

Company Process Description: electric pumps

Source Classification Code (SCC): 3-10-001-99

Emission Unit : SEP001

Sep 15 2015, 09:44:38

- Emission Unit Information

AQD Emissions Unit ID: SEP001

Emission Unit Type: Separator/Treater

Type Of Vessel: Heater-Treater

is Vessel Heated: Yes

AQD Description:

Company Equipment ID: HT1

Company Equipment Description: Heater Treater

Operating Status: Operating

Initial Construction Commencement 05/15/2015
Date:

Initial Operation Commencement 05/15/2015
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: PRC008

Process Name: heater treater

Company Process Description: heater treater

Source Classification Code (SCC): 3-10-001-07

Emission Unit : TNK001

Sep 15 2015, 09:44:38

- Emission Unit Information

AQD Emissions Unit ID: TNK001

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: crude oil - 385.6 bbl/day total throughput. 77.1 bbl/tank

Capacity: 400

Units: barrels

Maximum Throughput: 77.1000

Units: barrels/day

AQD Description:

Company Equipment ID: T1

Company Equipment Description: 400-bbl oil storage tank

Operating Status: Operating

Initial Construction Commencement 05/15/2015

Date:

Initial Operation Commencement 05/15/2015

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: oil storage tank

Company Process Description: oil storage tank

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

Control equipment(s) directly associated with this process

FLA001

- Emission Unit Information

AQD Emissions Unit ID: TNK002

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: crude oil - 385.6 bbl/day total throughput. 77.1 bbl/tank

Capacity: 400

Units: barrels

Maximum Throughput: 77.1000

Units: barrels/day

AQD Description:

Company Equipment ID: T2

Company Equipment Description: 400-bbl oil storage tank

Operating Status: Operating

Initial Construction Commencement 05/15/2015
Date:

Initial Operation Commencement 05/15/2015
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: oil storage tank

Company Process Description: oil storage tank

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

Control equipment(s) directly associated with this process

FLA001

- **Emission Unit Information**

AQD Emissions Unit ID: TNK003

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: crude oil - 385.6 bbl/day total throughput. 77.1 bbl/tank

Capacity: 400

Units: barrels

Maximum Throughput: 77.1000

Units: barrels/day

AQD Description:

Company Equipment ID: T3

Company Equipment Description: 400-bbl oil storage tank

Operating Status: Operating

Initial Construction Commencement 05/15/2015
Date:

Initial Operation Commencement 05/15/2015
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: PRC011

Process Name: oil storage tank

Company Process Description: oil storage tank

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

Control equipment(s) directly associated with this process

FLA001

Emission Unit : TNK004

Sep 15 2015, 09:44:38

- Emission Unit Information

AQD Emissions Unit ID: TNK004

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: crude oil - 385.6 bbl/day total throughput. 77.1 bbl/tank

Capacity: 400

Units: barrels

Maximum Throughput: 77.1000

Units: barrels/day

AQD Description:

Company Equipment ID: T4

Company Equipment Description: 400-bbl oil storage tank

Operating Status: Operating

Initial Construction Commencement 05/15/2015

Date:

Initial Operation Commencement 05/15/2015

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: oil storage tank

Company Process Description: oil storage tank

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

Control equipment(s) directly associated with this process

FLA001

- **Emission Unit Information**

AQD Emissions Unit ID: TNK005

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: crude oil - 385.6 bbl/day total throughput. 77.1 bbl/tank

Capacity: 400

Units: barrels

Maximum Throughput: 77.1000

Units: barrels/day

AQD Description:

Company Equipment ID: T5

Company Equipment Description: 400-bbl oil storage tank

Operating Status: Operating

Initial Construction Commencement 05/15/2015
Date:

Initial Operation Commencement 05/15/2015
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: oil storage tank

Company Process Description: oil storage tank

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

Control equipment(s) directly associated with this process

FLA001

- Emission Unit Information

AQD Emissions Unit ID: TNK006

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: produced water - 821.8 bbl/day total throughput. 410.9 bbl/tank

Capacity: 400

Units: barrels

Maximum Throughput: 410.9000

Units: barrels/day

AQD Description:

Company Equipment ID: T6

Company Equipment Description: 400-bbl produced water storage tank

Operating Status: Operating

Initial Construction Commencement 05/15/2015

Date:

Initial Operation Commencement 05/15/2015

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: produced water storage tank

Company Process Description: produced water storage tank

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

Control equipment(s) directly associated with this process

FLA001

- Emission Unit Information

AQD Emissions Unit ID: TNK007

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: produced water - 821.8 bbl/day total throughput. 410.9 bbl/tank

Capacity: 400

Units: barrels

Maximum Throughput: 410.9000

Units: barrels/day

AQD Description:

Company Equipment ID: T7

Company Equipment Description: 400-bbl produced water storage tank

Operating Status: Operating

Initial Construction Commencement 05/15/2015

Date:

Initial Operation Commencement 05/15/2015

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: produced water storage tank

Company Process Description: produced water storage tank

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

Control equipment(s) directly associated with this process

FLA001

- **Emission Unit Information**

AQD Emissions Unit ID: TNK008

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: emergency tank

Capacity: 400

Units: barrels

Maximum Throughput: 1.0000

Units: barrels/day

AQD Description:

Company Equipment ID: T8

Company Equipment Description: 400-bbl emergency tank

Operating Status: Operating

Initial Construction Commencement 05/15/2015
Date:

Initial Operation Commencement 05/15/2015
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: emergency tank

Company Process Description: emergency tank

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

Release points(s) directly associated with this process

AVL001

Emission Unit : VNT001

Sep 15 2015, 09:44:38

- Emission Unit Information

AQD Emissions Unit ID: VNT001

Emission Unit Type: Process Vent

AQD Description:

Company Equipment ID: VRT1

Company Equipment Description: Vapor Recovery Tower

Operating Status: Operating

Initial Construction Commencement Date: 05/15/2015

Initial Operation Commencement Date: 05/15/2015

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: PRC015

Process Name: Vapor Recovery Tower

Company Process Description: Vapor Recovery Tower

Source Classification Code (SCC): 3-10-001-07

Control equipment(s) directly associated with this process

FLA001

Control Equipment : FLA001

Sep 15 2015, 09:44:38

- Control Equipment Information

Equipment Type: Flare

Control Equipment ID: FLA001

AQD Description:

Company Control Equipment ID: FL1

Company Control Equipment Description: Steffes Tri-Tip Flare

Operating Status: Operating

Initial Installation Date: 05/15/2015

Manufacturer: Steffes

Model: Tri-Tip

- Specific Equipment Type information

Flare Type: Elevated - Open

Elevated Flare Type: Non-Assisted

Ignition Device: Yes

Flame Presence Sensor: Yes

Inlet Gas Temp: 50

Flame Presence Type: Thermocouple

Gas Flow Rate:

Sec. Outlet Gas Temp:

- Pollutants Controlled

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

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER003

Release Point : AVL001

Sep 15 2015, 09:44:38

- Release Point Information

Release Point ID: AVL001

Release Type: Fugitive (Area, Volume, Line)

AQD Description:

Company Release Point ID: AVL1

Company Release Point Description: emergency tank

Operating Status: Operating

Release Height (ft): 15.0

- Release Latitude and Longitude

Latitude:

Longitude:

- CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
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Release Point : AVL002

Sep 15 2015, 09:44:38

- Release Point Information

Release Point ID: AVL002

Release Type: Fugitive (Area, Volume, Line)

AQD Description:

Company Release Point ID: AVL2

Company Release Point Description: truck loadout

Operating Status: Operating

Release Height (ft): 3.0

- Release Latitude and Longitude

Latitude:

Longitude:

- CEM Data

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

Release Point : AVL003

Sep 15 2015, 09:44:38

- Release Point Information

Release Point ID: AVL003

Release Type: Fugitive (Area, Volume, Line)

AQD Description:

Company Release Point ID: FUG001

Company Release Point Description: process fugitives

Operating Status: Operating

Release Height (ft): 3.0

- Release Latitude and Longitude

Latitude: 43.57711

Longitude: -105.56607

- CEM Data

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

Release Point : VER001

Sep 15 2015, 09:44:38

- Release Point Information

Release Point ID: VER001

Release Type: Vertical

AQD Description:

Company Release Point ID: HET001

Company Release Point Description: 0.50 MMBtu/hr line heater

Operating Status: Operating

Base Elevation (ft): 4988.0

- Stack Details

Stack Height (ft): 15.0

Stack Diameter (ft): 1.0

Exit Gas Velocity (ft/s): 50.0

Exit Gas Flow Rate (acfm): 1.0

Exit Gas Temp (F): 600.0

- Release Latitude and Longitude

Latitude: 43.57711

Longitude: -105.56607

- CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
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Release Point : VER002

Sep 15 2015, 09:44:38

- Release Point Information

Release Point ID: VER002

Release Type: Vertical

AQD Description:

Company Release Point ID: HET002

Company Release Point Description: 0.375 MMBtu/hr heater treater heater

Operating Status: Operating

Base Elevation (ft): 4988.0

- Stack Details

Stack Height (ft): 15.0

Stack Diameter (ft): 1.0

Exit Gas Velocity (ft/s): 50.0

Exit Gas Flow Rate (acfm): 1.0

Exit Gas Temp (F): 600.0

- Release Latitude and Longitude

Latitude: 43.57711

Longitude: -105.56607

- CEM Data

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

Sep 15 2015, 09:44:38

- Release Point Information

Release Point ID: VER003

Release Type: Vertical

AQD Description:

Company Release Point ID: VER1

Company Release Point Description: Steffes Tri-Tip Flare

Operating Status: Not Operating

Base Elevation (ft): 4988.0

- Stack Details

Stack Height (ft): 15.0

Stack Diameter (ft): 0.25

Exit Gas Velocity (ft/s): 3.79

Exit Gas Flow Rate (acfm): 11.17

Exit Gas Temp (F): 1400.0

- Release Latitude and Longitude

Latitude: 43.57711

Longitude: -105.56607

- CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
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**NSR Application A0001424
Flatbow 200-25H
F026955
August 10, 2015**

Air Quality Division
Application for NSR Permit

Sep 15 2015, 09:44:38

- NSR Application

Date application received : 08/10/2015

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.

to construct a new single well sweet crude oil and natural gas production facility known as the Flatbow 200-25H, located in the SE¼ SE¼ of Section 25, T42N, R73W approximately eleven (11) miles east-southeast of Pine Tree Jct., in Campbell County, Wyoming.

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) 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.

- 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.

Curtis Rice	Senior Environmental Specialist	EOG Resources, Inc.
Name	Title	Company
600 17th Street, Suite 1000N	Denver, CO	80202
Street Address	City/Township, State	Zip Code
(303)262-9946		Curtis_Rice@eogresources.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) No requirements?

- **Application Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
X	7319	Process Flow Diagram	process flow-site diagram
X	7320	Emissions Calculations	emission calculations
X	7321	Cover Letter/Project Description	Cover letter and process description
X	7322	Equipment List	equipment list
X	7323	Facility Map	facility map

- **Notes**

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

AQD EU ID: FLR001

AQD EU description:

Company EU ID: FLA1

Company EU Description: Steffes Tri-Tip 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:

05/15/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Flare

Emergency Flare Only : No

Btu Content (Btu/scf) : 2,266.00

Assist Gas Utilized : No

Waste Gas Volume : 16,094.60

Installation Date : 05/15/2015

Continuously Monitored : Yes

Describe Continuous Monitoring : continuous pilot flame monitored through Cygnet

Ignition Device Type : Pilot

Smokeless Design : Yes

Units : scf/day

- **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	0	0		0	0	

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		0.17	0.7	AP-42
Carbon monoxide (CO)	0	0		0.04	0.2	AP-42
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)

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: FUG001

AQD EU description:

Company EU ID: FUG1

Company EU Description: process fugitives

- **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:

05/15/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Fugitive

Type of Fugitive Emission : Fugitive Leaks at O&G

Equipment and Service Type	Number of Each Equipment Type	Leak Rate (ppm)	Percent VOC
Connector; Gas	281	10,000.00	49.300
Flange; Gas	57	10,000.00	49.300
Open Ended Line; Gas	1	10,000.00	49.300
Other; Gas	11	10,000.00	49.300
Valve; Gas	112	10,000.00	49.300
Connector; Light Oil	118	10,000.00	86.900
Flange; Light Oil	53	10,000.00	86.900
Pump; Light Oil	4	10,000.00	86.900
Valve; Light Oil	68	10,000.00	86.900
Connector; Water/Light Oil	58	10,000.00	86.900
Flange; Water/Light Oil	44	10,000.00	86.900
Valve; Water/Light Oil	33	10,000.00	86.900

- **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)	5.4	0		0	0	AP-42
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.1	0		0	0	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*			

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:

Company EU ID: HET1

Company EU Description: Trace Line Heater
- 0.50 MMBtu/hr

- **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:

05/15/2015

- **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	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		0.075	0.33	AP-42

Carbon monoxide (CO)	0	0		0.063	0.28	AP-42
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: HET002

AQD EU description:

Company EU ID: HET2

Company EU Description: heater treater -
0.375 MMBtu/hr

- **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:

05/15/2015

- **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	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		0.056	0.25	AP-42

Carbon monoxide (CO)	0	0		0.047	0.21	AP-42
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: LUD001

AQD EU description:

Company EU ID: TLO1

Company EU Description: truck oil loading from storage tanks

- **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:

05/15/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Loading/Unloading/Dump

Maximum Hourly Throughput 16

Units : barrels/hr

Detailed Description of Loading/Unloading/Dump Source : truck loading crude oil from five (5) oil storage tanks, 385.6 bbl/day (16.1 bbl/hr)

**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	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)	3.4	0		0	0	AP-42
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.1	0		0	0	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*			

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: PNE001

AQD EU description:

Company EU ID: PNE1

Company EU Description: two (2) pneumatic pumps (tank combustor scrubber, VRT combustor scrubber) each pump has a gas consumption rate of 214 scf/hr for a total of 428 scf/hr

- **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:

05/15/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Pneumatic Equipment

Motive Force : Field Gas

VOC Content (%) : 49.300

HAP Content (%) : 1.100

- **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	0	0		0	0	

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)	66.2	0		0.3	1.3	AP-42
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	1.5	0		0.007	0.03	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*			

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: PNE002

AQD EU description:

Company EU ID: PNE2

Company EU Description: two (2) electric pumps (recycle and trace)

- **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:

05/15/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Pneumatic Equipment

Motive Force : Other

VOC Content (%) : 0.000

HAP Content (%) : 0.000

- **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: SEP001

AQD EU description:

Company EU ID: HT1

Company EU Description: 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:

05/15/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Separator/Treater

Operating Temperature (F) : 94

Operating Pressure (psig) : 39.00

- **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 (H ₂ S)	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:

Company EU ID: T1

Company EU Description: 400-bbl oil storage tank

- **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:

05/15/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 3.2100

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.01

Vapor Pressure of Material 2.00
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)	17.46	0		0.08	0.35	Tanks Program
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.44	0		0.002	0.009	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*			

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.

Subject to subpart

NSPS Subpart
0000 - Crude Oil and Natural Gas Production, Transmission and Distribution

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:

Company EU ID: T2

Company EU Description: 400-bbl oil storage tank

- **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:

05/15/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 3.2100

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.01

Vapor Pressure of Material 2.00
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)	17.46	0		0.08	0.35	Tanks Program
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.44	0		0.002	0.009	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*			

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.

Subject to subpart

NSPS Subpart
0000 - Crude Oil and Natural Gas Production, Transmission and Distribution

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: T3

Company EU Description: 400-bbl oil storage tank

- **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:

05/15/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 3.2100

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.01

Vapor Pressure of Material 2.00
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)	17.46	0		0.08	0.35	Tanks Program
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.44	0		0.002	0.009	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*			

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.

Subject to subpart

NSPS Subpart
0000 - Crude Oil and Natural Gas Production, Transmission and Distribution

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: T4

Company EU Description: 400-bbl oil storage tank

- **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:

05/15/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 3.2100

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.01

Vapor Pressure of Material 2.00
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)	17.46	0		0.08	0.35	Tanks Program
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.44	0		0.002	0.009	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*			

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.

Subject to subpart

NSPS Subpart
0000 - Crude Oil and Natural Gas Production, Transmission and Distribution

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: T5

Company EU Description: 400-bbl oil storage tank

- **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:

05/15/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 3.2100

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.01

Vapor Pressure of Material 2.00
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)	17.46	0		0.08	0.35	Tanks Program
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0.44	0		0.002	0.009	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*			

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.

Subject to subpart

NSPS Subpart
0000 - Crude Oil and Natural Gas Production, Transmission and Distribution

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: T6

Company EU Description: 400-bbl produced water storage tank

- **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:

05/15/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 17.1000

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.01

Vapor Pressure of Material 0.01
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	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.

Subject to subpart

NSPS Subpart
0000 - Crude Oil and Natural Gas Production, Transmission and Distribution

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: T7

Company EU Description: 400-bbl produced water storage tank

- **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:

05/15/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 17.1000

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.01

Vapor Pressure of Material 0.01
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	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.

Subject to subpart

NSPS Subpart
0000 - Crude Oil and Natural Gas Production, Transmission and Distribution

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: T8

Company EU Description: 400-bbl emergency tank

- **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:

05/15/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Storage Tank/Silo

Maximum Hourly Throughput 0.0000

Units : barrels/hr

Is Tank Heated : No

Operating Pressure (psig) : 0.01

Vapor Pressure of Material 0.01
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	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: VNT001

AQD EU description:

Company EU ID: VRT1

Company EU Description: Vapor Recovery Tower

- **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:

05/15/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Process Vent

Flow Rate or Throughput : 674.8

Units : gallons/hr

VOC Concentration (%) : 86.900

HAPs Concentration (%) : 2.250

- **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.

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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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