GENE R. GEORGE & ASSOCIATES, INC.
Petroleum Geology • Engineering • Hydrogeology • Regulatory Permitting

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May 29, 2015

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

RE: Yates Petroleum Corporation
Chapter 6 Section 2 Air Quality Permit Application
Bighorn Federal Com 14FH

Dear Program Manager:

Enclosed are one hard copy and one electronic copy of the Air Quality Permit Application for the facility named above, prepared on behalf of our client Yates Petroleum Corporation. This is a new single well production facility located in Campbell County, within the "Statewide Area" that is defined in the Chapter 6, Section 2 Oil and Gas Production Facilities Permitting Guidance.

The First Date of Production was March 3, 2015 making this application due by June 3, 2015. The application has been prepared in accordance with the September 2013 O&G Permitting Guidance.

Please contact me if additional information or clarification is needed.

Sincerely,

Cynthia Madison

Cynthia Madison
Project Engineer

Attachment
CD

Reviewer ltm B
cc:
Modeler
D.E.
File A0001170
IMP FID 26893

STATE OF WYOMING
Department of Environmental Quality/Air Quality Division
C6 S2 Air Quality Permit Application

Yates Petroleum Corporation

Bighorn Federal Com 14FH

Latitude: 43.590406 Longitude: -105.746758
NE NE Section 286, Township 42N, Range 74W
Campbell County, WY

API Number 49-005-62079

ORIGINAL

TABLE of CONTENTS

Process Description

The Bighorn Federal Com 14FH is a new Frontier well that first began producing on March 3, 2015. This well is located in Campbell County within the area specified as "Statewide" in the Chapter 6, Section 2 Oil and Gas Production Facilities Permitting Guidance (C6 S2 Guidance). It produces from a field designated as Wild Cat by the Wyoming Oil and Gas Conservation Commission.

The well is produced using an electric pumping unit. Fluids are produced from the tubing at approximately 3000 PSIG. The fluids move by flowline through a 0.5 million BTU per hour (MMBTU/HR) in-line heater then into a 2-phase separator. Gas off the separator is routed through two scrubbers into a high pressure sales line. Liquids move on to a 3-phase horizontal heater-treater with a 1.0 MMBTU/HR burner. The treater operates at approximately 120 DEG F and 80 PSIG. Gas off the treater is routed to sales. Oil is sent through an ultra-low pressure separator, operating at 2 to 5 ounces, into five 400-barrel (BBL) tanks. Water is sent to one 400-BBL tank. Vapors from the ultra-low pressure separator and oil tanks are routed to 48-INCH high volume (HV) Cimarron combustors. The combustors are equipped with automated pilot controllers that are monitored via a SCADA system equipped with alarming that notifies personnel if no flames are present. Oil is sold via trucking. Water is trucked to an off-site disposal facility.

There are thirteen pneumatic process controllers that operate with and vent gas produced by the well:

- (1) no-bleed kill valve at the wellhead: shuts the well in if pressures outside of a set range are detected.
- (3) Kimray Gen II level controllers – 1 at the separator and 2 at the high pressure gas line scrubbers: activate motor valves that direct liquid flow (see Page 16).
- (4) 3-INCH no-bleed KIMRAY SGT BP valves – 2 at the separator and 2 at the treater: control the flow of gas to sales or an emergency flare (see Page 17).
- (5) no-bleed Asco electric/pneumatic solenoid valves, control gas flow to the main burners and pilots of the treater, combustors and flares (see Page 18).

There are no pneumatic pumps.

Presumptive BACT

As required under the C6 S2 Guidance for wells operating within the "Statewide Area", VOC emissions associated with flashing and standing/working/breathing losses from the oil tanks are controlled since the projected, uncontrolled VOC emission rate exceeds ten tons per year (TPY). In this case, flash vapors include those from the ultra-low pressure separator and the oil tanks. Both vapor streams are routed to two 48-INCH by 25-FOOT high volume CIMARRON combustors designed to operate smokeless and to reduce VOC emissions by at least 98% (see Pages 19-20). Each combustor is equipped with a pilot flame monitoring and data recording system that was operating on March 2, 2015, prior to startup of the well.

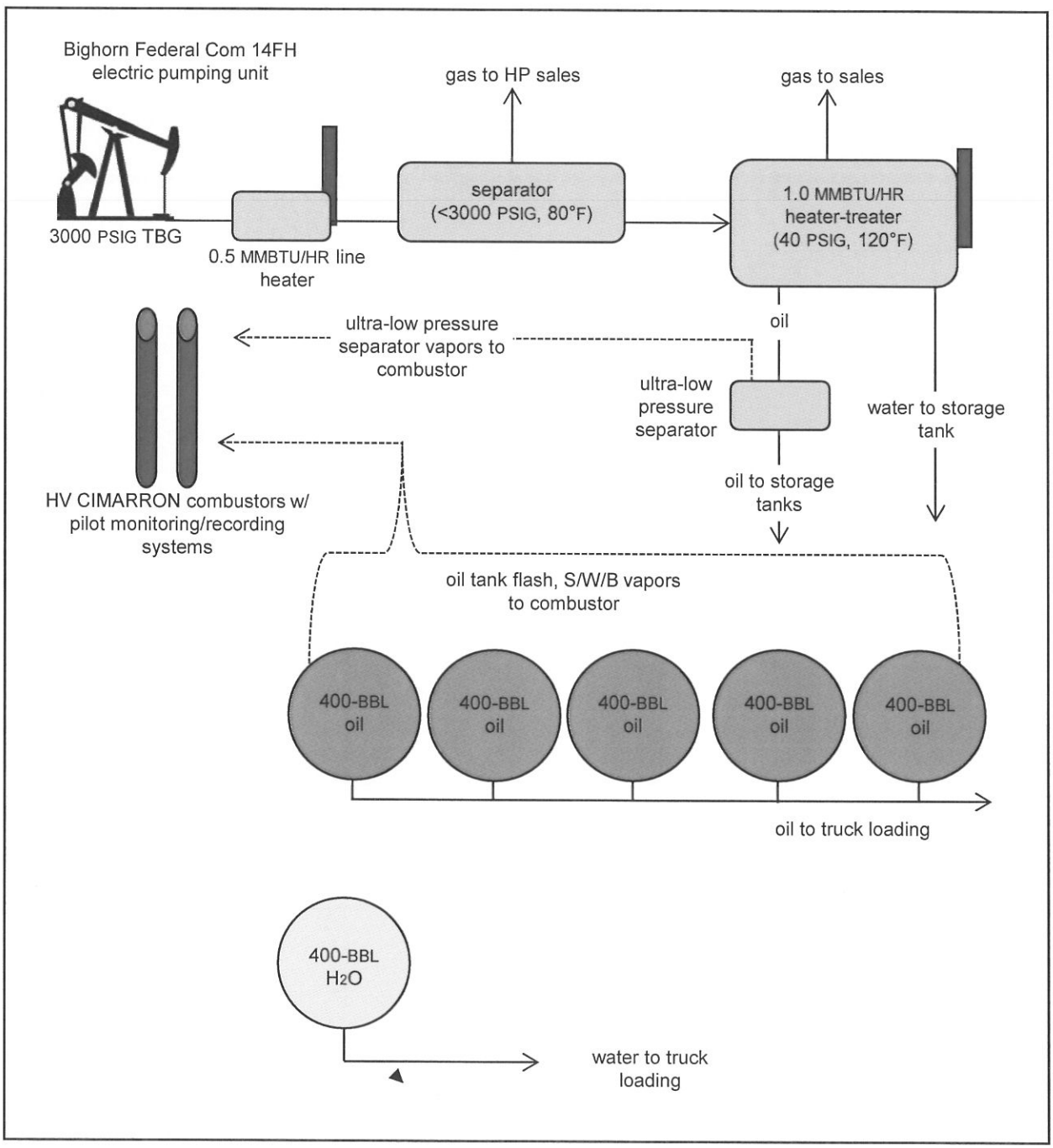
As required under the C6 S2 Guidance, all pneumatic controllers operating on natural gas are low or no bleed.

There are no natural gas operated pneumatic pumps and no sources without Presumptive BACT requirements that emit ≥8 TPY of VOC or ≥5 TPY of HAP that would require a BACT analysis to be filed with this application.

All Presumptive BACT requirements specified in the C6 S2 Guidance for "Statewide Area" production facilities have been met.

Process Diagram

Diagram does not represent actual scale or placement of equipment.



Emission Calculations

Flash & S/W/B

The projected first-year emissions from the five oil tanks are calculated using the projected oil production rate of 301 BOPD, metered flowrate of flashing and S/W/B vapors (0.1559 MCF/BBL) and the actual composition of the oil tank vapors (see Pages 12-13). The flash vapors that were metered included both the vapors from the ultra-low pressure separator and the oil tanks. The metering results, production record and projected production calculation are included on Page 11 of this application.

The ultra-low pressure separator and tank vapor flowrates were metered using a FOX Thermal Mass Flow Meter, calibrated for the composition of the flash vapors. The vapors were metered for three days while concurrent oil production was recorded.

Date	oil (BBL)	Total Meter Reading (MCF)
4/14/15	466	67
4/15/15	297	52
4/16/15	372	58
Total	**1135**	**177**

177 MCF/1135 BBL = **0.1559 MCF/BBL**

Bighorn Federal Com 14FH tank vapors:

Molecular WT:	**39.732 LB/LB-MOL**
VOC WT Percent:	**55.0424 %**
HAP WT Percent:	**1.8389 %**
Heat Content:	**1324 BTU/SCF**

(301 BBL/DAY)(0.1559 MCF/BBL)(39.732 LB/LB-MOL)(1 LB-MOL/379 SCF)(1000 SCF/MCF)(1 TON/2000 LB)(365 DAY/YR) = **897.79 TPY** total vapors

(0.1559 MCF/BBL) (301 BBL/DAY) (365 DAY/YR) = **17,128 MCF/YR**
(17,128 MCF/YR) (1000 SCF/MCF) (YR/365 DAYS) =**46,926 SCF/DAY**
46,926 SCF/DAY (DAY/24 HR) (HR/60 MIN) = **32.59 SCF/MIN**

897.79 TONS/YR (55.0424/100) = **494.17 TPY VOC**
897.79 TONS/YR (1.8389/100) = **16.51 TPY HAP**

UNCONTROLLED

First year controlled VOC and HAP emissions are based on 98% destruction efficiency.

494.17 TPY VOC (0.02) = **9.88 TPY VOC**
16.51 TPY HAP (0.02) = **0.33 TPY HAP**

CONTROLLED

Nitrogen oxides (NO_X) and carbon monoxide (CO) emissions from combustion of the tank vapors are calculated using the AP-42 EF for flares listed in the C6 S2 Guidance, the projected vent rate and the measured heat content of the tank vapors.

AP-42 EF: 0.14 LB NO_X/MMBTU & 0.035 LB CO/MMBTU

0.14 LB NO_X/MMBTU (17,128 MCF/YR)(1324 BTU/SCF)(1000 SCF/MCF)(MMBTU/10^6BTU)(TON/2000 LB)
= **1.59 TPY NO_X**
0.035 LB CO/MMBTU (17,128 MCF/YR)(1324 BTU/SCF)(1000 SCF/MCF)(MMBTU/10^6 BTU)(TON/2000 LB)
= **0.40 TPY CO**

Burners

NO_X and CO emissions from the in-line heater and treater burners were calculated using AP-42 emission factors from the C6 S2 Guidance, 1.5 MMBTU/HR total heat capacity for the two burners and the heat content of the produced gas (see Pages 14-15) that is used as burner fuel. For the purposes of this application it is assumed the burners operate 8760 hours annually.

Bighorn Federal Com 14FH Produced Gas Heat Content: 1534 BTU/SCF

AP-42 EF for <100 MMBTU/HR heat input = 100 LB NO_X/MMCF and 84 LB CO/MMCF

1.5 MMBTU/HR (100 LB NO_X/MMCF) (1534 BTU/1020 BTU) (1 SCF/1020 BTU) (8760 HOURS/YR) (TON/2000 LB) = **0.97 TPY NO_X**

1.5 MMBTU/HR (84 LB CO/MMCF) (1534 BTU/1020 BTU) (1 SCF/1020 BTU) (8760 HOURS/YEAR) (TON/2000 LB) = **0.81 TPY CO**

Pneumatic Equipment

Emissions from pneumatic equipment are calculated using the well's produced gas properties (see Pages 14-15) and equipment vent rates.

Bighorn Federal Com 14FH produced gas:

Molecular WT:	**26.814 LB/LB-MOL**
VOC WT %:	**40.8724**
HAPs WTt %:	**0.9748**

One no-bleed Kimray **kill valve** is used to shut the well in when pressures that are outside of a set operating range are detected. Activation of the valve would be a rare occurrence. This is a no-bleed valve and associated emissions should be considered insignificant.

Three **Kimray Gen II level controllers**, 1 at the separator and 2 at the high pressure gas line scrubbers, activate valves that direct liquid flow from the vessels. As shown on Page 16, these controllers vent up 0.4 SCFD when operating in the snap-acting (no-bleed) mode and 0.6 SCFD when operating in the throttling mode.

3 (0.6 ~~SCF~~/DAY)(26.814-~~LB/LB-MOL~~)(1 ~~LB-MOL~~/379 ~~SCF~~)(TON/2000 ~~LB~~)(365 DAY/YR) = 0.02 TPY total

0.02 TPY (40.8724/100) = **0.01 TPY VOC**
0.02 TPY (0.9748/100) = **0.00 TPY HAP**

Four 3-INCH no-bleed **Kimray SGT BP valves**, 2 at the separator and 2 at the treater, control the flow of gas to sales or an emergency flare (see Page 17). The valves maintain steady pressure on the treater and separator by allowing produced gas to vent to a sales line when a set pressure is reached or to a flare during emergency or upset conditions. Increasing vessel pressure raises the valve diaphragm which raises a pilot plug that allows gas to flow through the valve. Once vessel pressure returns to the set point the diaphragm lowers, the pilot plug closes and several cubic inches of gas under the diaphragm are vented. The frequency of valve activation depends on varying gas production rates so to estimate emissions it is assumed each valve activates 100 times per day. Emissions from emergency operation are not considered.

4 (2 IN^3)(100/DAY)(26.814 LB/LB-MOL)(1 LB-MOL/379 SCF)(0.00115741 SCF/IN^3)(TON/2000 LB)
(365 DAY/YR) = 0.01 TPY total vapors

0.01 TPY (40.8724/100) = **0.00 TPY VOC**
0.01 TPY (0.9748/100) = **0.00 TPY HAP**

Five **ASCO electric/pneumatic solenoid valves** are used to turn the gas supply on/off to the in-line heater, treater, combustor and flare main burners and pilots (see Page 18). Gas pressure causes a spring or piston to rise. This activates an electric coil which sends a signal to a process valve, causing it to open or close. The gas that raised the spring is vented once the corresponding valve is actuated. The volume of gas that is vented is tiny as the entire solenoids themselves are only several inches in length. Associated VOC and HAP emissions should be considered too small to measure.

Fugitives

A component count specific to the production equipment at this site, the fugitive emission factors listed in the C6 S2 Guidance and the composition of the produced gas are used to estimate fugitive emissions.

VOC Weight %: **40.8725**
HAPs Weight %: **0.9748**

Emission Factors

Component	Gas	Light Oil	Water/Light Oil
	LB THC/day/component	LB THC/day/component	LB THC/day/component
Connector	0.0110	0.0110	0.0058
Flange	0.0210	0.0058	0.0002
Open line	0.1100	0.0740	0.0130
Other	0.4700	0.4000	0.7400
Pump	0.1300	0.6900	0.0013
Valve	0.2400	0.1300	0.0052

Component Count and Service Type

Component	Gas			Light Oil			Water/Light Oil		
	#	LB THC/day	TPY	#	LB THC/day	TPY	#	LB THC/day	TPY
Connector	36	0.40	0.07	28	0.31	0.06	21	0.12	0.02
Flange	7	0.15	0.03	15	0.09	0.02	15	0.003	0.00
Open line	0			0			0		
Other	5	2.35	0.43	0			1	0.74	0.14
Pump	0			1	0.69	0.13	0		
Valve	23	5.52	1.01	25	3.25	0.59	7	0.04	0.01
Subtotals			1.54			0.80			0.17

Total THC = **2.51 TPY**

fugitive VOC = 2.51 * 40.8725/100 = **1.03 TPY** fugitive HAP = 2.51 * 0.9748/100 = **0.02 TPY**

Truck Loading

Truck loading emissions are estimated using the method described in the C6 S2 Guidance, the projected daily oil production rate and measured properties of the oil tank vapors (see Pages 12-13).

projected BOPD ⟶ BBL/YR	301 * 365 = 109,865 BBL/YR	
saturation factor (submerged loading, normal svc.)	0.6	**S**
true vapor pressure of oil @ T = 50°F	2.3	**P**
molecular weight of tank vapors (LB/LB-MOL)	39.732	**M**
temperature (°R)	510	**T**
VOC content of tank vapors	55.0424 WT%	
HAP content of tank vapors	1.8389 WT%	

LL = 12.46 * S * P * M/T = 12.46 * 0.6 * 2.3 * 39.732/510 = **1.34 LB/1000 GAL**
1.34 LB/1000 GAL loaded (42 GAL/BBL) (109,865 BBL/YR) (TON/2000 LB) = **3.10 TPY total losses**
3.10 TPY (55.0424/100) = **1.71 TPY VOC**
3.10 TPY (1.8389/100) = **0.06 TPY HAP**

Emission Summary

Total Estimated Uncontrolled Emissions (Tons Per Year)

EMISSION SOURCE	VOCs	total HAPs	NO_X	CO	SO_2	H_2S
oil tanks	494.17	16.51				
burners			0.97	0.81		
pneumatics	0.01	0.00				
fugitives	1.03	0.02				
truck loading	1.71	0.06				
TOTAL	496.9	16.6	1.0	0.8		

Total Estimated Controlled Emissions (Tons Per Year)

EMISSION SOURCE	VOCs	total HAPs	NO_X	CO	SO_2	H_2S
oil tanks	9.88	0.33	1.59	0.4		
burner			0.97	0.81		
pneumatics	0.01	0.00				
fugitives	1.03	0.02				
truck loading	1.71	0.06				
	12.6	0.4	2.6	1.2		

Bighorn Federal Com 14FH Production

	BOPD		BWPD	MCFD
3/5/2015	237		1800	366
3/6/2015	403		1997	1381
3/7/2015	448		1511	1708
3/8/2015	614		1167	2018
3/9/2015	625		1023	2059
3/10/2015	402		539	1300
3/11/2015	607		690	2029
3/12/2015	231		172	1077
3/13/2015	393		560	660
3/14/2015	519		616	1667
3/15/2015	502		483	1806
3/16/2015	536		418	1896
3/17/2015	560		445	2278
3/18/2015	723		583	2288
3/19/2015	421		259	1642
3/20/2015	348	Initial 30-Day Average	240	1252
3/21/2015	347	= **502 BOPD**	160	1176
3/22/2015	333	Projected Rate	88	1447
3/23/2015	557	= 502 * 0.6	443	1704
3/24/2015	494	= **301 BOPD**	244	1720
3/25/2015	481		282	1603
3/26/2015	476		401	1806
3/27/2015	559		299	2076
3/28/2015	524		25	2192
3/29/2015	737		140	2442
3/30/2015	638		426	2798
3/31/2015	651		212	2480
4/1/2015	651		388	2925
4/2/2015	515		330	2483
4/3/2015	757		475	3021
4/4/2015	430		252	2303
4/5/2015	347		242	2366
4/6/2015	522		267	2473
4/7/2015	447		510	2400
4/8/2015	514		298	2597
4/9/2015	471		312	2540
4/10/2015	443		250	2369
4/11/2015	362	Tank Vapor Metering	190	2240
4/12/2015	372		242	2156
4/13/2015	504	Meter Reading (Total MCFD)	277	2375
4/14/2015	466	67	267	2464
4/15/2015	297	52	145	2167
4/16/2015	372	58	168	1964
4/17/2015	259	Total = **177 MCF**	242	2383
4/18/2015	359		155	2061
4/19/2015	368		180	1784

Tank Vapor Rate = 177 MCF/1135 BBL = **0.1559 MCF/BBL**

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901
(307) 352-7292

LIMS ID:	N/A		Description	Bighorn 14FH Tk. Vapor
Analysis Date/Time:	4/6/2015	10:31 AM	Field:	Wildcat
Analyst Initials:	PRP		ML#:	Tk.# 220597
Instrument ID:	Instrument 1		GC Method	Quesbtex
Data File:	QPC20.D		GPA 2286	
Date Sampled:	4/1/2015			Yates Petroleum

Component	Mol%	Wt%	LV%
Methane	1.7972	0.7257	1.5541
Ethane	5.0844	3.8480	6.9559
Propane	12.5582	13.9378	17.6644
Isobutane	4.0332	5.9000	6.7349
n-Butane	9.8586	14.4220	15.8662
Neopentane	0.0305	0.0554	0.0597
Isopentane	4.1612	7.5563	7.7750
n-Pentane	3.2486	5.8991	6.0060
2,2-Dimethylbutane	0.0764	0.1657	0.1628
2,3-Dimethylbutane	0.2652	0.5752	0.5546
2-Methylpentane	0.7683	1.6664	1.6274
3-Methylpentane	0.4520	0.9803	0.9413
n-Hexane	0.7771	1.6855	1.6308
Heptanes	0.8919	2.1258	1.8514
Octanes	0.0250	0.0714	0.0628
Nonanes	0.0005	0.0015	0.0014
Decanes plus	0.0000	0.0000	0.0000
Nitrogen	47.6291	33.5812	26.6561
Carbon Dioxide	0.2772	0.3071	0.2412
Oxygen	8.0654	6.4956	3.6540
Hydrogen Sulfide	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties		Units
Gross BTU/Real CF	1345.5	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	1323.6	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9929	
Specific Gravity	1.3756	air=1
Avg Molecular Weight	39.732	gm/mole
Propane GPM	3.441734	gal/MCF
Butane GPM	4.416539	gal/MCF
Gasoline GPM	3.991107	gal/MCF
26# Gasoline GPM	7.092215	gal/MCF
Total GPM	19.241198	gal/MCF
Base Mol%	99.962	%v/v

***Oxygen detected in sample: may require a rerun or a resample.

Sample Temperature:	78	°F
Sample Pressure:	30	psig
H2SLength of Stain Tube	N/A	ppm

Component	Mol%	Wt%	LV%
Benzene	0.0379	0.0745	0.0541
Toluene	0.0016	0.0038	0.0028
Ethylbenzene	0.0000	0.0000	0.0000
M&P Xylene	0.0000	0.0000	0.0000
O-Xylene	0.0000	0.0000	0.0000
2,2,4-Trimethylpentane	0.0261	0.0751	0.0670
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.2538	0.5376	0.4409
Methylcyclohexane	0.1449	0.3581	0.2973
Description:	Bighorn 14FH Tk. Vapor		

GRI GlyCalc Information

Component	Mol%		Wt%		LV%
Carbon Dioxide	0.2772		0.3071		0.2412
Hydrogen Sulfide	0.0000		0		0.0000
Nitrogen	47.6291		33.5812		26.6561
Methane	1.7972		0.7257		1.5541
Ethane	5.0844		3.848		6.9559
Propane	12.5582		13.9378		17.6644
Isobutane	4.0332		5.9		6.7349
n-Butane	9.8586		14.422		15.8662
Isopentane	4.1917		7.6117		7.8347
n-Pentane	3.2486		5.8991		6.0060
Cyclopentane	0.0000		0		0.0000
n-Hexane	0.7771		1.6855		1.6308
Cyclohexane	0.2538		0.5376		0.4409
Other Hexanes	1.5619		3.3876	55.0424 WT% VOC	3.2861
Heptanes	0.4276	1.8389 WT% HAP	1.0767		0.9893
Methylcyclohexane	0.1449		0.3581		0.2973
2,2,4 Trimethylpentane	0.0261		0.0751		0.0670
Benzene	0.0379		0.0745		0.0541
Toluene	0.0016		0.0038		0.0028
Ethylbenzene	0.0000		0.0000		0.0000
Xylenes	0.0000		0.0000		0.0000
C8+ Heavies	0.0255		0.0729		0.0642
Subtotal	91.9346		93.5044		96.3460
Oxygen	8.0654		6.4956		3.6540
Total	100.0000		100.0000		100.0000

QUESTAR APPLIED TECHNOLOGY

1210 D. Street, Rock Springs, Wyoming 82901
(307) 352-7292

LIMS ID:	N/A		Description:	Bighorn 14FH
Analysis Date/Time:	4/6/2015	8:48 AM	Field:	Wildcat
Analyst Initials:	PRP		ML#:	Yates Petroleum
Instrument ID:	Instrument 1		GC Method:	Quesbtex
Data File:	QPC18.D		GPA 2286	
Date Sampled:	4/1/2015			

Component	Mol%	Wt%	LV%
Methane	58.6988	35.1200	46.0921
Ethane	19.0363	21.3478	23.6483
Propane	11.8308	19.4563	15.1110
Isobutane	1.9004	4.1193	2.8815
n-Butane	3.6849	7.9876	5.3850
Neopentane	0.0105	0.0282	0.0186
Isopentane	1.1573	3.1140	1.9635
n-Pentane	0.8643	2.3256	1.4510
2,2-Dimethylbutane	0.0200	0.0644	0.0388
2,3-Dimethylbutane	0.0704	0.2262	0.1337
2-Methylpentane	0.2089	0.6714	0.4018
3-Methylpentane	0.1256	0.4038	0.2376
n-Hexane	0.2322	0.7464	0.4425
Heptanes	0.4197	1.4895	0.7859
Octanes	0.0410	0.1734	0.0941
Nonanes	0.0141	0.0622	0.0313
Decanes plus	0.0008	0.0041	0.0022
Nitrogen	0.1746	0.1824	0.0887
Carbon Dioxide	1.5094	2.4774	1.1924
Oxygen	0.0000	0.0000	0.0000
Hydrogen Sulfide	0.0000	0.0000	0.0000
Total	100.0000	100.0000	100.0000

Global Properties		Units
Gross BTU/Real CF	1560.0	BTU/SCF at 60°F and14.73 psia
Sat.Gross BTU/Real CF	1534.4	BTU/SCF at 60°F and14.73 psia
Gas Compressibility (Z)	0.9938	
Specific Gravity	0.9281	air=1
Avg Molecular Weight	26.814	gm/mole
Propane GPM	3.242381	gal/MCF
Butane GPM	1.779033	gal/MCF
Gasoline GPM	1.170058	gal/MCF
26# Gasoline GPM	2.331005	gal/MCF
Total GPM	11.578444	gal/MCF
Base Mol%	100.613	%v/v
Sample Temperature:	115	°F
Sample Pressure:	92	psig
H2SLength of Stain Tube	N/A	ppm

Component	Mol%	Wt%	LV%
Benzene	0.0215	0.0628	0.0279
Toluene	0.0261	0.0897	0.0405
Ethylbenzene	0.0006	0.0025	0.0011
M&P Xylene	0.0054	0.0213	0.0096
O-Xylene	0.0009	0.0037	0.0017
2,2,4-Trimethylpentane	0.0114	0.0484	0.0264
Cyclopentane	0.0000	0.0000	0.0000
Cyclohexane	0.0885	0.2777	0.1396
Methylcyclohexane	0.0845	0.3092	0.1573
Description:	Bighorn 14FH		

GRI GlyCalc Information

Component	Mol%		Wt%		LV%
Carbon Dioxide	1.5094		2.4774		1.1924
Hydrogen Sulfide	0		0		0.0000
Nitrogen	0.1746		0.1824		0.0887
Methane	58.6988		35.12		46.0921
Ethane	19.0363		21.3478		23.6483
Propane	11.8308		19.4563		15.1110
Isobutane	1.9004		4.1193		2.8815
n-Butane	3.6849		7.9876		5.3850
Isopentane	1.1678		3.1422		1.9821
n-Pentane	0.8643		2.3256		1.4510
Cyclopentane	0		0		0.0000
n-Hexane	0.2322		0.7464		0.4425
Cyclohexane	0.0885		0.2777		0.1396
Other Hexanes	0.4249		1.3658	40.8724 WT% VOC	0.8119
Heptanes	0.1877		0.7017		0.3942
Methylcyclohexane	0.0845	0.9748 WT% HAP	0.3092		0.1573
2,2,4 Trimethylpentane	0.0114		0.0484		0.0264
Benzene	0.0215		0.0628		0.0279
Toluene	0.0261		0.0897		0.0405
Ethylbenzene	0.0006		0.0025		0.0011
Xylenes	0.0063		0.0250		0.0113
C8+ Heavies	0.0490		0.2122		0.1152
Subtotal	100.0000		100.0000		100.0000
Oxygen	0		0		0.0000
Total	100.0000		100.0000		100.0000

KIMRAY INC.®

FLOAT OPERATED LEVEL CONTROLLER

GEN II

APPLICATIONS:

Liquid level controller for oil and gas separators, water knock-outs, gas scrubbers and accumulators.

Liquid interface control in fluids of 0.20 minimum differential specific gravities with the standard displacer. Other displacers are available to control liquid interface to 0.10 minimum specific gravities.

Operates any diaphragm motor valve requiring not more than 30 psig diaphragm pressure. See sections E1, E2, E3, and E4 for diaphragm operated motor valves.

FEATURES:

Compact design
Snap or throttle control in one pilot
Intermittent bleed pilot (Preferred EPA Natural Gas Star BMP)
Bleed Rate (@ 30 psi - 0.4 scfd snap; 0.6 scfd throttle)
Conditional NACE MR0175 Wetted Parts
Low Temp Process Seal (Std.) (-50°F to 300°F)
Powder coated enclosure
Vibration tough
No vent gas in Enclosure
PVC Displacer (Std.) (4000 psi, 175°F);
316 SS Displacer (1500 psi, 350°F)
40 micron supply gas filter
1/4" NPT vented pilot
Simple pilot removal

SUPPLY PRESSURE:

5 to 30 psig

OPERATING PRESSURE:

0 to 4000 psig

OPERATION:

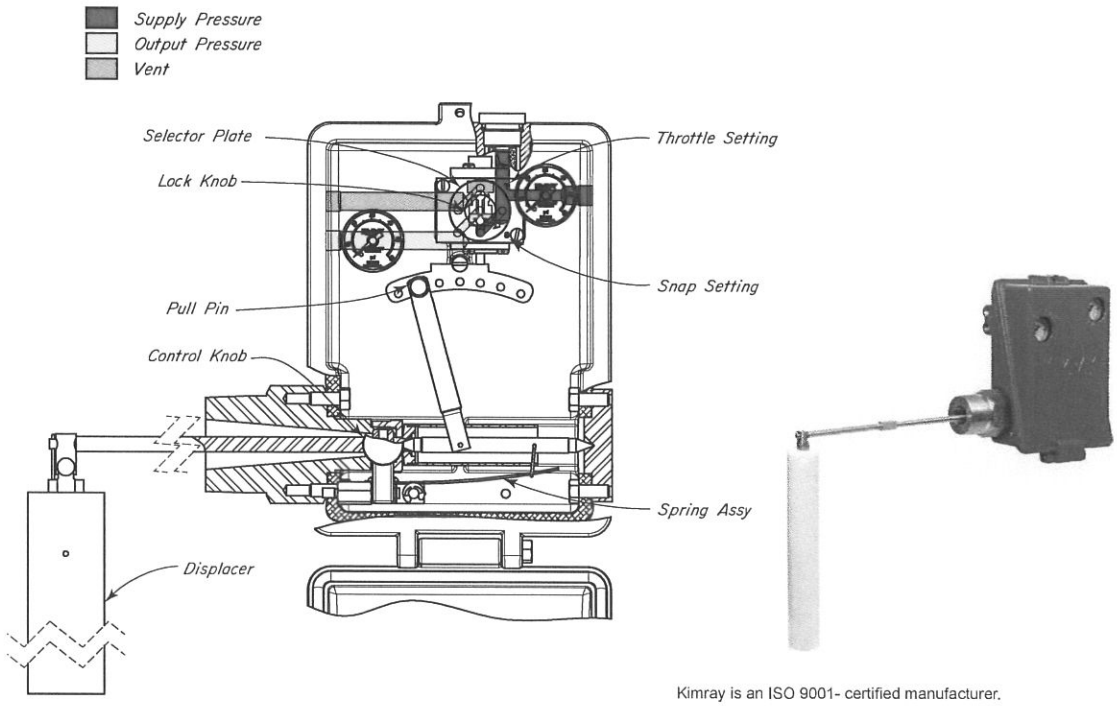
The GEN II Side Mount Liquid Level Controller consists of a DISPLACER for monitoring the changing liquid level, a SPRING for counterbalancing the weight of the DISPLACER, a WAGGLE ARM to transmit DISPLACER movement, a CASE upon which the controller mechanism is mounted, a 30 psig PILOT, a LINK and TANGENT ARM for setting the pilot sensitivity and direct/indirect action of the controller.

The color cross section of the pilot is shown identifying the supply, output and vent connections. In SNAP SERVICE the SELECTOR PLATE is position to the "S". To operate a Pressure Opening Motor Valve, the PULL PIN is place in the outer most hole of the TANGENT ARM right of the PIVOT. As the vessel liquid rises to partially submerge the DISPLACER, the displaced volume of liquid causes the counterbalance spring to exert a downward force at the end of the WAGGLE ARM HOUSING. The resulting downward movement of the LINK moves the TANGENT ARM downward from the ACTUATOR of the PILOT. The generated force of the DISPLACER continues until it activates and SNAPS the PILOT on. YELLOW OUTPUT pressure opens the Pressure Opening Motor Valve allowing the vessel liquid to drain.

As the vessel liquid lowers, the DISPLACER flexes the COUNTERBALANCE SPRING, causing an upward force. The WAGGLE ARM transmits the action through the linkage to the ACTUATOR on the PILOT. The force on the ACTUATOR of the PILOT continues to increase until the PILOT SNAPS off. The YELLOW OUTPUT pressure is vented through the PILOT allowing the Motor Valve to close.

The TANGENT ARM can be adjusted to increase or decrease the SNAP RANGE from 5" to 10" in water. Moving the PULL PIN inward will increase the SNAP RANGE.

For THROTTLE mode the LOCK KNOB is loosened and the SELECTOR PLATE is moved from the "S" position to the "T" position. The PULL PIN is placed left of the PIVOT for a Pressure Open Motor Valve and right of the PIVOT for a Pressure Close Motor Valve.



Kimray is an ISO 9001- certified manufacturer.

KIMRAY INC.®

PRESSURE REGULATORS

GAS BACK PRESSURE

APPLICATION:

Vent lines on oil separators, flow treaters, compressor stations, gas gathering systems.

PRESSURE RANGE:

Ductile Iron: 5 psig to 125 psig
Ductile Iron: 10 psig to 280 psig
Steel: 10 psig to 280 psig

CAPACITY:

Refer to Table of Contents.

OPERATION:

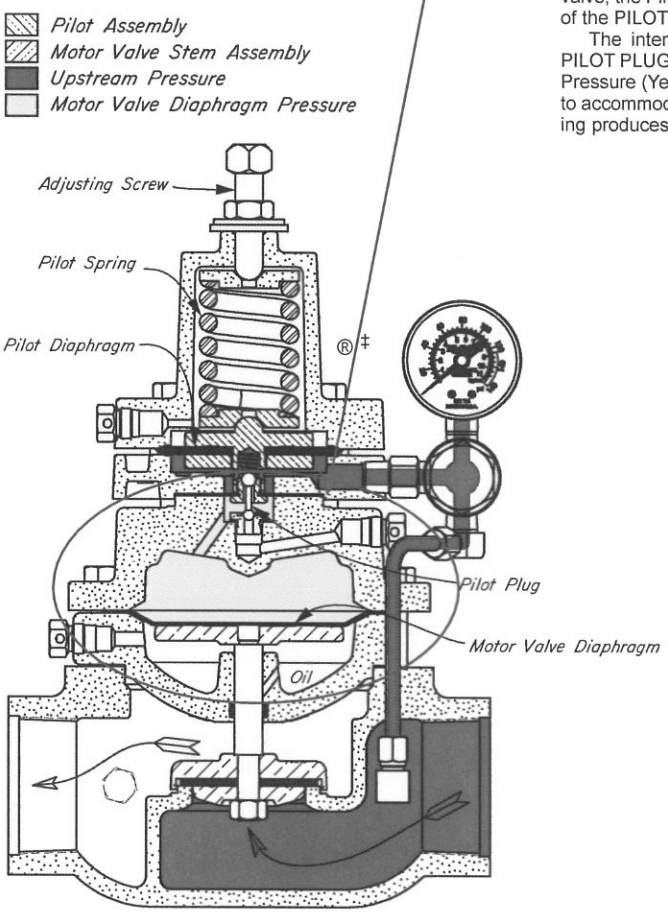
The Pilot Assembly and Motor Valve Stem Assembly (Crosshatched) are the only moving units in the regulator. The PILOT PLUG consists of two stainless balls rigidly connected together. The upper seat for the PILOT PLUG is the Motor Valve Diaphragm Pressure inlet (Red to Yellow). The lower seat for the PILOT PLUG is the pressure vent (Yellow to Atmosphere).

The PILOT SPRING in the bonnet loads the upper side of the Pilot Assembly and is opposed on the underside by Upstream Pressure (Red).

Assume the PILOT SPRING is compressed with the ADJUSTING SCREW for a set pressure greater than the Upstream Pressure (Red). The Pilot Assembly is forced downward by the PILOT SPRING. The lower seat for the PILOT PLUG (Yellow to Atmosphere) is closed and the upper seat for the PILOT PLUG (Red to Yellow) is open. This lets full Upstream Pressure (Red) load the motor valve. The area of the MOTOR VALVE DIAPHRAGM is twice the area of the motor valve seat, assuring a positive shut-off.

As the Upstream Pressure (Red) increases to the set pressure, the Pilot Assembly moves upward against the PILOT SPRING to first close the upper seat (Red to Yellow) and open the pressure vent (Yellow to Atmosphere). As the Motor Valve Diaphragm Pressure (Yellow) is decreased, the Upstream Pressure (Red) acting under the motor valve seat, opens the valve. With relief of Upstream Pressure (Red) through the motor valve, the Pilot Assembly assumes a position in which both seats of the PILOT PLUG are closed.

The intermittent bleed pilot, three-way valve action of the PILOT PLUG against its seat adjusts the Motor Valve Diaphragm Pressure (Yellow), repositioning the Motor Valve Stem Assembly to accommodate any rate of flow. The rapid but stable repositioning produces a true throttling action.



‡ Configuration of Back Pressure Valve is a trademark of Kimray, Inc.
www.kimray.com

ASCO 2-Way Valve Operation

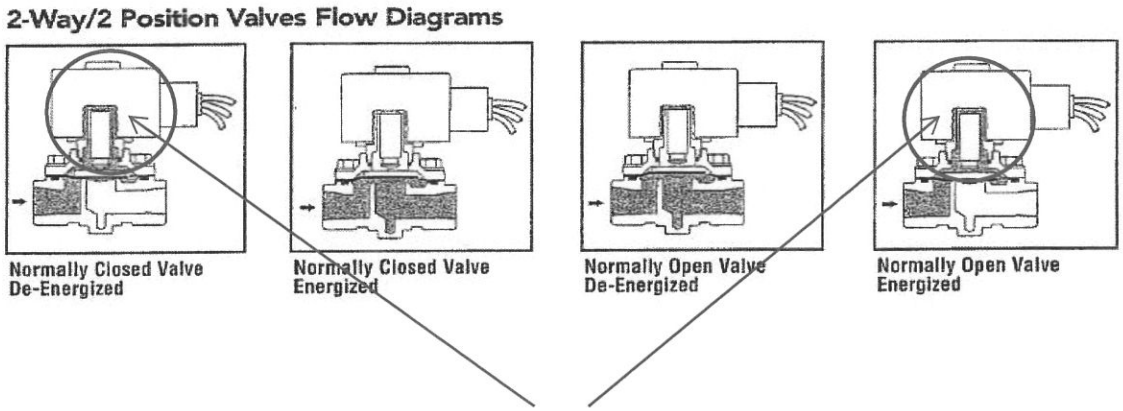
Two-way solenoid valves have one inlet and one outlet, and are used to permit and shut off fluid flow

Two Types of Operations

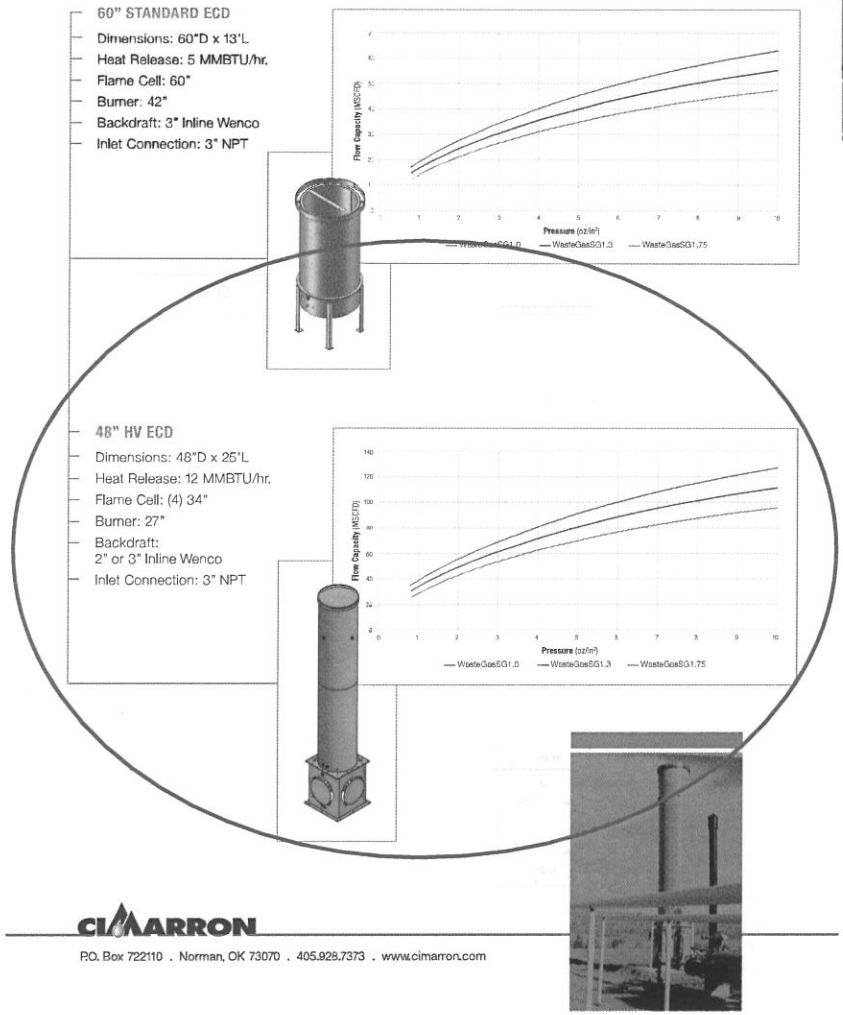
Normally Closed (NC) – Fluid is shut off when the coil is de-energized, flows through the valve when the coil is energized.

Normally Open (NO) – Fluid flows through the valve when the coil is de-energized, shuts off when the coil is energized.

Internally Piloted – These valves use line pressure to assist operation. When the coil is de-energized (on a Normally Closed valve), the pilot orifice is closed and line pressure is applied to the top of the piston or diaphragm through the bleed orifice, closing the valve. When the coil is energized, the core opens the pilot orifice, relieving pressure from the diaphragm or piston. Line pressure, alone, opens the valve by lifting the diaphragm or piston off the main orifice.

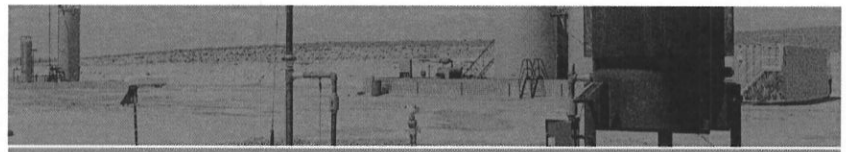


Shaded area shows the gas that is vented upon activation.



CIMARRON

P.O. Box 722110 . Norman, OK 73070 . 405.928.7373 . www.cimarron.com



Engineering a **Cleaner** Environment.

EMISSION CONTROL DEVICES (ECD)

As a company committed to both environmental safety and client satisfaction, Cimarron is proud to offer its Storage Tank VOC Emission Control Devices (ECD). Pioneered in Colorado prior to the state becoming one of the first in the nation to implement stringent emission cutting rules, Cimarron's ECDs are designed to capture and combust VOC emissions from the oil/condensate production tanks. These enclosed combustor units provide a clean, safe, and efficient solution for eliminating hazardous vapors and ensuring regulatory compliance. More importantly, their performance has been proven to exceed the EPA's strict requirements with a 99% destruction rate.

Designed for both low volume and high volume applications, Cimarron flares are enclosed for maximum safety benefits. In addition, the units are both easy to install and user friendly – offering reliable operations and low-maintenance care.

- Certified to reduce emissions up to 99%
- Designed for low- and high-volume applications
- Safe and reliable operations
- User friendly and easy to install
- Available with automation and data logging

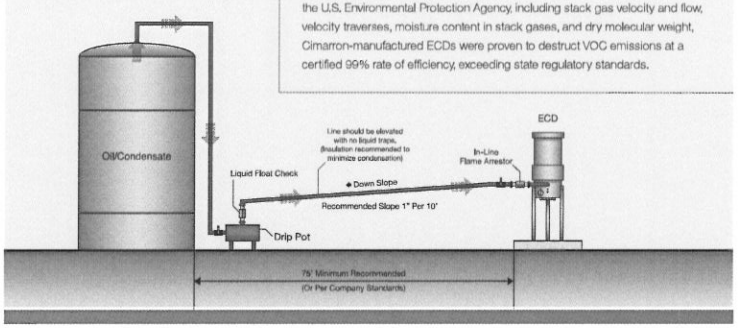
To learn more about Cimarron's Emission Control Devices call **877.928.9922** or visit **www.cimarron.com.**

CIMARRON

Drivinginnovation. Producingexcellence.
www.cimarron.com

Testing the Boundaries. Setting a New Standard.

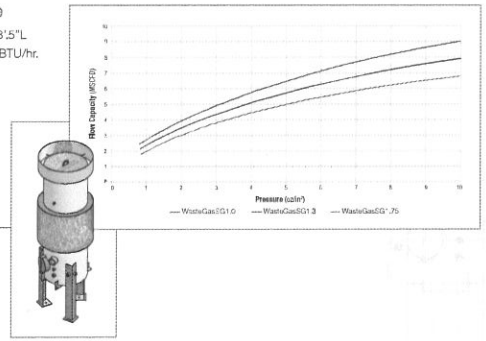
Cimarron collaborated with an independent agency to conduct a series of emissions tests on various sized enclosed flare units. The purpose of the testing program was to determine the mass emission rates of oxygen (O2), carbon dioxide (CO2), carbon monoxide (CO), methane (CH4) and non-methane organic compounds (NMOC), and the destruction removal efficiencies (DRE) of total volatile organic compounds (TVOC). Using methods in accordance with the U.S. Environmental Protection Agency, including stack gas velocity and flow, velocity traverses, moisture content in stack gases, and dry molecular weight, Cimarron-manufactured ECDs were proven to destruct VOC emissions at a certified 99% rate of efficiency, exceeding state regulatory standards.



SPECIFICATIONS & FLOW CAPACITY

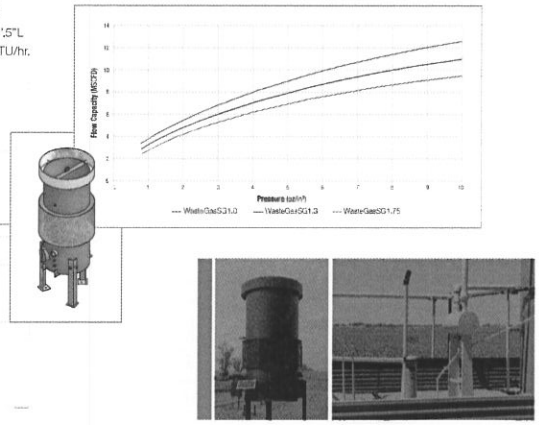
24" STANDARD ECD

- Dimensions: 24"D x 8'.5"L
- Heat Release: .7 MMBTU/hr.
- Flame Cell: 24"
- Burner: 16"
- Backdraft: 2" Inline Wenco
- Inlet Connection: 2" NPT



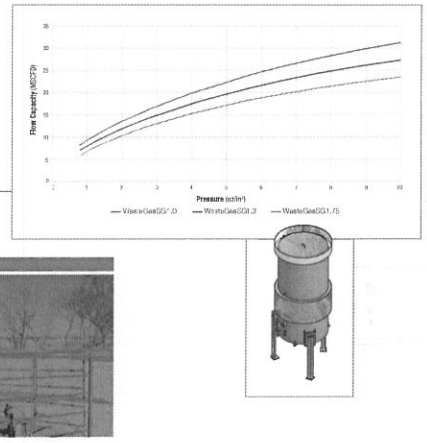
30" STANDARD ECD

- Dimensions: 30"D x 8'.5"L
- Heat Release: 1 MMBTU/hr.
- Flame Cell: 30"
- Burner: 25"
- Backdraft: 2" or 3" Inline Wenco
- Inlet Connection: 3" NPT



48" STANDARD ECD

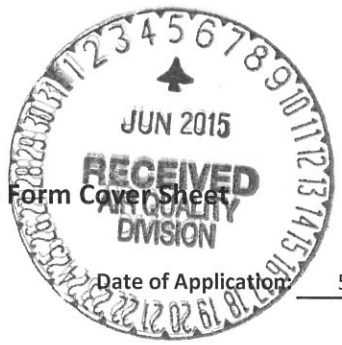
- Dimensions: 48"D x 12'L
- Heat Release: 2 MMBTU/hr.
- Flame Cell: 48"
- Burner: 34"
- Backdraft: 2" or 3" Inline Wenco
- Inlet Connection: 3" NPT



DEQ
WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Air Quality Division

New Source Review Permit Application Form Cover Sheet



Is this a revision to an existing application?
Yes _____ **No** X

Previous Application #: _____

Date of Application: 5/29/2015

COMPANY INFORMATION:

Company Name: Yates Petroleum Corporation
Address: P.O. Box 2560, 408 Frontage Road
City: Gillette State: Wyoming Zip Code: 82717
Country: USA Phone Number: 307-682-4638

FACILITY INFORMATION:

Facility Name: Bighorn Federal Com 14FH
New Facility or Existing Facility: New
Facility Description: Oil and Gas Production Facility
Facility Class: Minor Operating Status: Operating
Facility Type: Production Site

For Oil & Gas Production Sites ONLY:

First Date of Production (FDOP)/Date of Modification: 3/3/2015
Single well or multiple well facility? Single
Does production at this facility contain H2S?* No
If yes, contact the Division.
API Number(s): 49-005-62079

NAICS Code: 2111 Oil and Gas Extraction

FACILITY LOCATION:

***Enter the facility location in either the latitude/longitude area or section/township/range area. Both are not required.**

Physical Address:
City: Zip Code:
State: WY County:

OR

Latitude: 43.590406 Longitude: -105.746758 County: Campbell
Quarter Quarter: NE Quarter: NE
Section: 28 Township: 42N Range: **74W**

For longitude and latitude, use NAD 83/WGS84 datum and 5 digits after the decimal (i.e. 41.12345, -107.56789)

CONTACT INFORMATION:

***Note that an Environmental AND NSR Permitting Contact is required for your application to be deemed complete by the agency.**

Title: Mr. First Name: Tim
Last Name: Barber
Company Name: Yates Petroleum Corporation
Job Title: Rockies Division Regulatory Manager
Address: P.O. Box 2560, 408 Frontage Road
City: Gillette State: Wyoming
Zip Code: 82717
Primary Phone No.: 307-682-4638 E-mail: tbarber@yatespetroleum.com
Mobile Phone No.: Fax No.: 307-682-4641
Contact Type: Environmental contact Start Date:

***Name of the contact to whom the permit will be issued:**

Additional Contact Type (if needed): Environmental contact
Title: Mr. First Name: Tim
Last Name: Barber
Company Name: Yates Petroleum Corporation
Job Title: Rockies Division Regulatory Manager
Address: P.O. Box 2560, 408 Frontage Road
City: Gillette State: Wyoming
Zip Code: 82717
Primary Phone No.: 307-682-4638 E-mail: tbarber@yatespetroleum.com
Mobile Phone No.: Fax No.: 307-682-4641
Contact Type: Environmental contact Start Date:

FACILITY APPLICATION INFORMATION:

General Info:

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
Is the facility located in a sage grouse core area?*	No
If the facility is in a sage grouse core area, what is the WER number?	

** For questions about sage grouse core area, contact WY Game & Fish Department.*

Federal Rules Applicability - Facility Level:

Prevention of Significant Deterioration (PSD):	No
Non-Attainment New Source Review:	No

Modeling Section:

Has the Air Quality Division been contacted to determine if modeling is required?	No
Is a modeling analysis part of this application?	No
Is the proposed project subject to Prevention of Significant Deterioration (PSD) requirements?	No
Has the Air Quality Division been notified to schedule a pre-application meeting?	No
Has a modeling protocol been submitted to and approved by the Air Quality Division?	No
Has the Air Quality Division received a Q/D analysis to submit to the respective FLMs to determine the need for an AQRV analysis?	No

Required Attachments:

Facility Map	☐
Process Flow Diagram	☑
Modeling Analysis (if applicable)	☐
Land Use Planning Document	☐
Detailed Project Description	☑
Emissions Calculations	☑

I, Tim Barber (Responsible Official (Printed Name)) Rockies Division Regulatory Manager (Title)

an Official Representative of the Company, state that I have knowledge of the facts herein set forth and that the same are true and correct to the best of my knowledge and belief. I further certify that the operational information provided and emission rates listed on this application reflect the anticipated emissions due to the operation of this facility. The facility will operate in compliance with all applicable Wyoming Air Quality Standards and Regulations.

Signature: Tim Barber (ink) Date: June 2, 2015

ORIGINAL

Specific Emission Unit Attributes:

Heater/Chiller

Company Equipment ID: In-Line Heater
Company Equipment Description: In-Line Heater

Operating Status: Operating
Initial Construction Commencement Date: Feb-15
Initial Operation Commencement Date: 3/3/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

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: 1534 Units: BTU/scf
Fuel Sulfur Content: 0 Units:

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

31000107

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 24
Hours/year: 8760

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: _____

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

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

NSPS Subpart: *OOOO*

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).

Part 61 NESHAP Subpart: _____

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

Part 63 NESHAP Subpart: _____

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.

Specific Emission Unit Attributes:

Separator/Treater

Company Equipment ID: 2-Phase Seperator
Company Equipment Description: 2-Phase Seperator

Operating Status: Operating
Initial Construction Commencement Date: Feb-15
Initial Operation Commencement Date: 3/3/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Vessel: 2-Phase Separator
Is Vessel Heated? No
Operating Temperature (F): 80
Operating Pressure (psig): 3000

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

31000107

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: 24
Hours/year: 8760

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: _____

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

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

NSPS Subpart: *O*

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).

Part 61 NESHAP Subpart: _____

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

Part 63 NESHAP Subpart: _____

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.

Specific Emission Unit Attributes:

Separator/Treater

Company Equipment ID: Treater
Company Equipment Description: Treater

Operating Status: Operating
Initial Construction Commencement Date: Feb-15
Initial Operation Commencement Date: 3/3/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Vessel: Heater-Treater
Is Vessel Heated? Yes
Operating Temperature (F): 80
Operating Pressure (psig): 120

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

31000107

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 24
Hours/year: 8760

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: _____

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

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

NSPS Subpart: *OOOO*

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).

Part 61 NESHAP Subpart: _____

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

Part 63 NESHAP Subpart: _____

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.

Specific Emission Unit Attributes:

Separator/Treater

Company Equipment ID: Ultra Low Pressure Separator
Company Equipment Description: Ultra Low Pressure Separator

Operating Status: Operating
Initial Construction Commencement Date: Feb-15
Initial Operation Commencement Date: 3/3/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Vessel: 2-Phase Separator
Is Vessel Heated? No
Operating Temperature (F): 80
Operating Pressure (psig): 2-5 OUNCES

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

31000107

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 24
Hours/year: 8760

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: _____

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

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

NSPS Subpart: *O*

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): Not Affected

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Part 61 NESHAP Subpart: _____

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

Part 63 NESHAP Subpart: _____

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.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: Oil Tanks
Company Equipment Description: 5 400-BBL Oil Tanks

Operating Status: Operating
Initial Construction Commencement Date: Feb-15
Initial Operation Commencement Date: 3/3/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: Liquid
Description of Material Stored: 46 Deg API Crude Oil

Capacity: 2000 Units: barrels
Maximum Throughput: 500 Units: barrels/day
Maximum Hourly Throughput: 21 Units: barrels/hr
Operating Pressure (psig): 12
Vapor Pressure of Material Stored (psig): 3.6
Is Tank Heated?: No

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

40400312

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 24
Hours/year: 8760

Control Equipment: Yes

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: _____

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

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

NSPS Subpart: *OOOO*

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).

Part 61 NESHAP Subpart: _____

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

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): _____

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

Non-Attainment New Source Review: _____

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

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: Water Tank
Company Equipment Description: 400-BBL Produced Water Tank

Operating Status: Operating
Initial Construction Commencement Date: Feb-15
Initial Operation Commencement Date: 3/3/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: Liquid
Description of Material Stored: Produced Water

Capacity: 400 Units: barrels
Maximum Throughput: 200 Units: barrels/day
Maximum Hourly Throughput: 21 Units: barrels/hr
Operating Pressure (psig): 9
Vapor Pressure of Material Stored (psig): 0.178
Is Tank Heated?: No

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

40400312

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 24
Hours/year: 8760

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: _____

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

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

NSPS Subpart: *OOOO*

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).

Part 61 NESHAP Subpart: _____

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

Part 63 NESHAP Subpart: _____

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.

Specific Emission Unit Attributes:

Loading/Unloading/Dump

Company Equipment ID: Truckloading
Company Equipment Description: Truckloading

Operating Status: Operating
Initial Construction Commencement Date: Feb-15
Initial Operation Commencement Date: 3/3/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Material: Liquid
Material Description: Crude Oil

Maximum Annual Throughput: 109865 Units: barrels/yr
Maximum Hourly Throughput: 13 Units: barrels/hr
Detailed Description of Loading/Unloading/Dump Source:
submerged loading, dedicated service from oil storage tanks to 180-BBL truck tank

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

40600132

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 2
Hours/year: 610

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: _____

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

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

NSPS Subpart: *OOOO*

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).

Part 61 NESHAP Subpart: _____

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

Part 63 NESHAP Subpart: _____

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.

Specific Emission Unit Attributes:

Pneumatic Equipment (Pumps and Controllers)

Company Equipment ID: Kill Valve
Company Equipment Description: Kill Valve

Operating Status: Operating
Initial Construction Commencement Date: Feb-15
Initial Operation Commencement Date: 3/3/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Equipment: Controller
Bleed/Consumption Rate (cfh): 0.0000001
Controller Type: Intermittent
Motive Force: Field Gas
VOC Content (%): 40.8724
HAP Content (%): 0.9748

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

31000199

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 0
Hours/year: 0

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: _____

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

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

NSPS Subpart: *OOOO*

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).

Part 61 NESHAP Subpart: _____

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

Part 63 NESHAP Subpart: _____

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.

Specific Emission Unit Attributes:

Pneumatic Equipment (Pumps and Controllers)

Company Equipment ID: Back Pressure Valves
Company Equipment Description: Back Pressure Valves

Operating Status: Operating
Initial Construction Commencement Date: Feb-15
Initial Operation Commencement Date: 3/3/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Equipment: Controller
Controller Type: Intermittent
Motive Force: Field Gas
HAP Content (%): 0.9748
Bleed/Consumption Rate (cfh): 0.009
VOC Content (%): 40.8724

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

31000199

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 24
Hours/year: 8760

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: _____

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

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

NSPS Subpart: *OOOO*

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).

Part 61 NESHAP Subpart: _____

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

Part 63 NESHAP Subpart: _____

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.

Specific Emission Unit Attributes:

Pneumatic Equipment (Pumps and Controllers)

Company Equipment ID: Level Controllers
Company Equipment Description: Level Controllers

Operating Status: Operating
Initial Construction Commencement Date: Feb-15
Initial Operation Commencement Date: 3/3/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Equipment: Controller
Controller Type: Intermittent
Motive Force: Field Gas
HAP Content (%): 0.9748
Bleed/Consumption Rate (cfh): 0.75
VOC Content (%): 40.8724

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

31000199

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 24
Hours/year: 8760

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: _____

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

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

NSPS Subpart: *OOOO*

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).

Part 61 NESHAP Subpart: _____

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

Part 63 NESHAP Subpart: _____

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.

Specific Emission Unit Attributes:

Pneumatic Equipment (Pumps and Controllers)

Company Equipment ID: Solonoids
Company Equipment Description: Solonoidds

Operating Status: Operating
Initial Construction Commencement Date: Feb-15
Initial Operation Commencement Date: 3/3/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Equipment: Controller
Controller Type: Intermittent
Motive Force: Field Gas
HAP Content (%): 0.9748
Bleed/Consumption Rate (cfh): 0.00001
VOC Content (%): 40.8724

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

31000199

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 24
Hours/year: 8760

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: _____

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

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

NSPS Subpart: *OOOO*

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).

Part 61 NESHAP Subpart: _____

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

Part 63 NESHAP Subpart: _____

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.

Specific Emission Unit Attributes:

Fugitives

Company Equipment ID: Fugitives
Company Equipment Description: Fugitives

Operating Status: Operating
Initial Construction Commencement Date: 1-Feb
Initial Operation Commencement Date: 3/3/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Fugitive Emission: Fugitive Leaks at O&G

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

31000101

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: 24
Hours/year: 8760

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: _____

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

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

NSPS Subpart: *OOOO*

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).

Part 61 NESHAP Subpart: _____

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

Part 63 NESHAP Subpart: _____

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.

Control Equipment:

Flare/Combustor

Manufacturer:	CIMMARON	Date Installed:	3/2/2015
Model Name and Number:	48" HV ECD	Company Control Equipment ID:	
Company Control Equipment Description:	Tank Vapor Combustor and Ultra Low Pressure Separator Combustor		

Pollutant(s) Controlled:	☐ CO	☐ NOx	☐ Pb	☐ SO2	☑ VOC	☐ PM	
☐ PM (FIL)	☐ PM Condensible	☐ PM 10 (FIL)		☐ PM 2.5 (FIL)		☐ PM 10	☐ PM 2.5
☐ Other							

NOTE: The following fields require numeric values unless otherwise denoted with an asterisk*

Maximum Design Capacity (MMSCF/hr):	0.004		
Minimum Design Capacity (MMSCF/hr):	0		
Design Control Efficiency (%):	98	Capture Efficiency (%):	100
Operating Control Efficiency (%):	98		
Flare Type:*	Enclosed	**Elevated Flare Type:***	Non-Assisted
Ignition Device:*	Yes	**Flame Presence Sensor:***	Yes
Inlet Gas Temp (F):	80	**Flame Presence Type:***	Thermocouple
Gas Flow Rate (acfm):	32.59	Outlet Gas Temp (F):	1000

☑ This is the only control equipment on this air contaminant source

If not, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel

List all other emission units that are also vented to this control equipment:* none

List all release point IDs associated with this control equipment:* none

Pollutant Emissions Form
(submit one for each emission unit)

OIL TANKS

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)	0.00	0.238184	lb/ton of production	0.363014	1.59	AP-42
6.)	Carbon monoxide (CO)	0	0.059921	lb/ton of production	0.091324	0.4	AP-42
7.)	Volatile organic compounds (VOC)	494.17	1.480039	lb/ton of production	2.255708	9.88	Test results for this source
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	16.51	0.049434	lb/ton of production	0.075342	0.33	Test results for this source
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Bighorn Federal Com 14FH oil weighs 243.04 LB/BBL
Projected oil production = 109,865 BBL
243.04 LB/BBL (108,865 BBL) (TON/2000 LB) = 13,351 TONS oil/yr.
LB/TON of production = X TON / 13,351 TONS (2000 LB/TON)
LB/HR = X TONS/8760 HR (2000 LB/TON)

Pollutant Emissions Form
(submit one for each emission unit)

BURNERS

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)	0.97	0.145307	lb/ton of production	0.221461	0.97	AP-42
6.)	Carbon monoxide (CO)	0.81	0.121339	lb/ton of production	0.184932	0.81	AP-42
7.)	Volatile organic compounds (VOC)						
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)						
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Bighorn Federal Com 14FH oil weighs 243.04 LB/BBL
Projected oil production = 109,865 BBL
243.04 LB/BBL (108,865 BBL) (TON/2000 LB) = 13,351 TONS oil/yr.
LB/TON of production = X TON / 13,351 TONS (2000 LB/TON)
LB/HR = X TONS/8760 HR (2000 LB/TON)

Pollutant Emissions Form
(submit one for each emission unit)

FUGITIVES

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	1.03	0.154296	lb/ton of production	0.23516	1.03	AP-42
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	0.02	0.002996	lb/ton of production	0.004566	0.02	AP-42
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Bighorn Federal Com 14FH oil weighs 243.04 LB/BBL
Projected oil production = 109,865 BBL
243.04 LB/BBL (108,865 BBL) (TON/2000 LB) = 13,351 TONS oil/yr.
LB/TON of production = X TON / 13,351 TONS (2000 LB/TON)
LB/HR = X TONS/8760 HR (2000 LB/TON)

Pollutant Emissions Form
(submit one for each emission unit)

PNEUMATICS

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	0.01	0.001498	lb/ton of production	0.002283	0.01	Manufacturer Data
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	0	0	lb/ton of production	0	0	Manufacturer Data
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Bighorn Federal Com 14FH oil weighs 243.04 LB/BBL
Projected oil production = 109,865 BBL
243.04 LB/BBL (108,865 BBL) (TON/2000 LB) = 13,351 TONS oil/yr.
LB/TON of production = X TON / 13,351 TONS (2000 LB/TON)
LB/HR = X TONS/8760 HR (2000 LB/TON)

Pollutant Emissions Form
(submit one for each emission unit)

Truck Loading

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	1.71	0.256161	lb/ton of production	0.390411	1.71	AP-42
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	0.06	0.008988	lb/ton of production	0.013699	0.06	AP-42
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Bighorn Federal Com 14FH oil weighs 243.04 LB/BBL
Projected oil production = 109,865 BBL
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LB/TON of production = X TON / 13,351 TONS (2000 LB/TON)
LB/HR = X TONS/8760 HR (2000 LB/TON)

Complete the table below for ***each*** release point. Please include release point information for each emission unit. Multiple attachments may be necessary. A release point is a point at which emissions from an emission unit are released into the ambient (outside)air. List each individual release point on a separate pair of lines (release point ID and description). ***For longitude and latitude, use NAD 83/WGS84 datum and 5 digits after the decimal (i.e. 41.12345, -107.56789)***

Stack Release Point Information		
Company Release Point ID:	Release Point Type:	Vertical
OIL TANKS	Release Point Latitude:	43.590406
	Release Point Longitude:	-105.746758
Company Release Point Description:	Base Elevation (ft):	5247
vapors from oil tanks routed to 48-IN by 25-FT combustors	Stack Height (ft):	25
	Stack Diameter (ft):	4
	Exit Gas Velocity (ft/s):	0.01
	Exit Gas Temp (F):	1000
	Exit Gas Flow Rate (acfm):	32.6
Company Release Point ID:	Release Point Type:	Vertical
TREATER BURNER	Release Point Latitude:	43.590406
	Release Point Longitude:	-105.746758
Company Release Point Description:	Base Elevation (ft):	5247
fumes from the combustion of natural gas exiting the burner stack	Stack Height (ft):	20
	Stack Diameter (ft):	0.83
	Exit Gas Velocity (ft/s):	0.01
	Exit Gas Temp (F):	1000
	Exit Gas Flow Rate (acfm):	10.86
Company Release Point ID:	Release Point Type:	Vertical
IN-LINE HEATER BURNER	Release Point Latitude:	43.590406
	Release Point Longitude:	-105.746758
Company Release Point Description:	Base Elevation (ft):	5247
fumes from the combustion of natural gas exiting the burner stack	Stack Height (ft):	20
	Stack Diameter (ft):	0.83
	Exit Gas Velocity (ft/s):	0.005
	Exit Gas Temp (F):	1000
	Exit Gas Flow Rate (acfm):	5.4
Company Release Point ID:	Release Point Type:	Horizontal
PNEUMATICS	Release Point Latitude:	43.590406
	Release Point Longitude:	-105.746758
Company Release Point Description:	Base Elevation (ft):	5247
13 pneumatic controllers release vapors at an average 4' height	Stack Height (ft):	4
	Stack Diameter (ft):	0.0001
	Exit Gas Velocity (ft/s):	0.1
	Exit Gas Temp (F):	80
	Exit Gas Flow Rate (acfm):	0.001

Tanks: ACFM = (MSCF/DAY) (1000 SCF/MCF) (DAY/24 HR) (HR/60 MIN)

Burners: ACFM = (MMBTU/HR)(HR/60 MIN)(SCF/BTU)(10^6 BTU/MMBTU)

Truckloading: (180 BBL/HR)(HR/60 MIN)(5.61 CF/BBL) = 16.83 ACFM

Pneumatic vent rate: (400 IN^3/DAY) (FT^3/1778 IN^3)(DAY/24 HR)(HR/60 MIN) = 0.000156 FT^3/MIN

Company Release Point ID:	Release Point Type: Horizontal
TRUCK LOADING	Release Point Latitude: 43.590406
	Release Point Longitude: -105.746758
Company Release Point Description:	Base Elevation (ft): 5247
vapors displaced from truck tank as oil is loaded into tank	Stack Height (ft): 12
	Stack Diameter (ft): 0.83
	Exit Gas Velocity (ft/s): 0.01
	Exit Gas Temp (F): 50
	Exit Gas Flow Rate (acfm): 16.83
Company Release Point ID:	Release Point Latitude: 43.590406
FUGITIVES	Release Point Longitude: -105.746758
	Release Height (ft): 4
Company Release Point Description:	
Potential leaks	
Company Release Point ID:	Release Point Latitude:
	Release Point Longitude:
	Release Height (ft):
Company Release Point Description:	
Company Release Point ID:	Release Point Latitude:
	Release Point Longitude:
	Release Height (ft):
Company Release Point Description:	