TABLE 3-1 SITE SUMMARY

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

			Hourly and Annual Potential to Emit													
			CO		NO_X		PM/PM_{10}		SO_2		VOC		CH_2O		Benzene	
FIN	EPN	Description	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)
FUG-1	FUG-1	Site Fugitives	--	--	--	--	--	--	--	--	3.65	15.98	--	--	0.01	0.05
H-01	H-01	Stabilizer Heater 1	0.22	0.24	0.36	0.40	0.02	0.02	0.001	0.001	0.02	0.02	0.0002	0.0002	0.00001	0.000011
H-02	H-02	Stabilizer Heater 2	0.22	0.24	0.36	0.40	0.02	0.02	0.001	0.001	0.02	0.02	0.0002	0.0002	0.00001	0.000011
H-03	H-03	Stabilizer Heater 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TK-1 TK-2 TK-3 TK-4 TK-5 TK-6 TK-7 TK-8 TK-9 TK-10	FL-1	Unstabilized Condensate Tanks	--	--	--	--	--	--	--	--	6.57	10.07	--	--	0.03	0.04
TK-11	FL-1	Off-Spec Tank	--	--	--	--	--	--	--	--	0.04	0.07	--	--	0.0002	0.0004
TK-12	TK-12	Rain Water Skid Tank	--	--	--	--	--	--	--	--	0.0001	0.001	--	--	0.0000003	0.000003
TK-13 and TK-14	FL-1	Accumulator Stabilized Tanks	--	--	--	--	--	--	--	--	5.67	3.37	--	--	0.03	0.02
FL-1	FL-1	Flare 1 Combustion Emissions	5.83	10.73	2.92	5.37	--	--	0.006	0.01	0.06	0.11	--	--	0.00002	0.00004
TRUCK1	FL-1	Off-Spec Collection Tank Loading- During Stabil	--	--	--	--	--	--	--	--	0.87	0.09	--	--	0.005	0.001
TRUCK2	TRUCK2	Rainwater Skid Tank Truck Loading	--	--	--	--	--	--	--	--	0.15	0.0002	--	--	0.0005	0.000001
TRUCK3	TRUCK3	Pressurized Heavy NGL Truck Unloading	--	--	--	--	--	--	--	--	0.13	0.14	--	--	0.002	0.002
TRUCK4	TRUCK4	Pressurized Light NGL Truck Unloading	--	--	--	--	--	--	--	--	0.66	0.02	--	--	0.001	0.00004
Scheduled Maintenance, Startup, and Shutdown																
COMP-01-BD	FL-1	Compressor 1 Blowdown	--	--	--	--	--	--	--	--	1.62	0.02	--	--	0.0002	0.000004
FL-1	FL-1	SMSS Flare Combustion	0.78	0.01	0.39	0.005	--	--	0.001	0.00001	0.01	0.0001	--	--	0.000004	0.00000004
			7.05	**11.22**	**4.03**	**6.18**	**0.04**	**0.04**	**0.01**	**0.01**	**19.47**	**29.91**	**0.0004**	**0.0004**	**0.08**	**0.11**

SITE FUGITIVES (FIN FUG-1) POTENTIAL TO EMIT VOC

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

Component	Number of Components	Emission Factors [a] (lb/hr-component)	Annual Operating Hours (hr/yr)	Maximum VOC (wt%)	Maximum Benzene (wt%)	Reduction Credit [a] (wt%)	Potential to Emit VOC Hourly [b] (lb/hr)	Potential to Emit VOC Annual [c] (T/yr)	Potential to Emit Benzene Hourly [b] (lb/hr)	Potential to Emit Benzene Annual [c] (T/yr)
Valves										
Gas Streams	455	0.00992	8,760	60%	0.01%	97%	0.08	0.35	0.00001	0.00004
Light Liquid Streams	664	0.0055	8,760	100%	0.53%	97%	0.11	0.48	0.001	0.004
Water/Light Oil	10	0.000216	8,760	--	0.03%	97%	0.0001	0.0004	0.00000002	0.0000
Relief Valves										
Gas Streams	25	0.0194	8,760	60%	0.01%	0%	0.29	1.27	0.00005	0.000219
Light Liquid Streams	21	0.0165	8,760	100%	0.53%	0%	0.35	1.53	0.002	0.01
Water/Light Oil	2	0.0309	8,760	--	0.03%	0%	0.06	0.26	0.00002	0.0001
Connectors										
Gas Streams	914	0.00044	8,760	60%	0.01%	0%	0.24	1.05	0.00004	0.000
Light Liquid Streams	1337	0.000463	8,760	100%	0.53%	0%	0.62	2.72	0.003	0.01314
Water/Light Oil	21	0.000243	8,760	--	0.03%	0%	0.01	0.04	0.000002	0.000009
Pumps										
Light Liquid Streams	16	0.02866	8,760	100%	0.53%	0%	0.46	2.01	0.002	0.01
Compressors										
Gas Stream	3	0.0194	8,760	60%	0.01%	0%	0.03	0.13	0.00001	0.00004
Open-ended Lines										
Gas Stream	1	0.00441	8,760	60%	0.01%	0%	0.003	0.01	0.0000004	0.000002
Water/Light Oil	1	0.00055	8,760	--	0.03%	0%	0.001	0.004	0.0000002	0.000001
Other										
Gas Streams	22	0.0194	8,760	60%	0.01%	0%	0.26	1.14	0.00004	0.0002
Light Liquid Streams	16	0.0165	8,760	100%	0.53%	0%	0.26	1.14	0.001	0.00
Flanges										
Gas Streams	1,125	0.00086	8,760	60%	0.01%	0%	0.58	2.54	0.0001	0.0004
Light Liquid Streams	1,219	0.000243	8,760	100%	0.53%	0%	0.30	1.31	0.002	0.01
Water/Light Oil	12	0.000006	8,760	--	0.03%	0%	0.0001	0.0004	0.00000002	0.0000001
							3.65	**15.98**	**0.01**	**0.05**

[a] Fugitive Emission Factors and Reduction Credits are per TCEQ Technical Guidance Document for Equipment Leak Fugitives, dated October 2000. The emission factors are for total hydrocarbon, except for the emission factors associated with Water/Light Oil. As indicated on page 6 of 55 in the mentioned Guidance document, these factors are based off of a known stream constituency of 50%-99% water, and remainder VOC. Therefore, applying a VOC wt % would be double counting for the reduction due to water. Some components are required to be monitored per the Oil and Gas Standard Permit requirements and are demonstrated accordingly here.

[b] Hourly VOC emission rates are calculated as follows:
(455 components) * (0.00992 lb/hr-component) * (60.00% VOC) * (1 -0.97) = 0.08 lb/hr

[c] Annual VOC emission rates are calculated as follows:
(455 components) * (0.00992 lb/hr-component) * (8,760 hr/yr) * (60.00% VOC) / (2,000 lb/T) * (1 -0.97) = 0.35 T/yr

HEATER POTENTIAL TO EMIT

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

EPN	FIN	Description	Rated Duty (MMBtu/hr)	Lower Heating Value (Btu/scf)	Annual Operating Hours (hr/yr)	Correction Factor	Pollutant	Emission Factor[a]	Unit	Potential to Emit (PTE) Hourly[a] (lb/hr)	Potential to Emit (PTE) Annual[b] (T/yr)
H-1	H-1	Stabilizer Heater 1	3.0	1,639	2,208	1.61	CO	0.0722	lb/MMBtu	0.22	0.24
							NO_X	0.1197	lb/MMBtu	0.36	0.40
							PM [c]	7.6	lb/MMscf	0.02	0.022
							SO_2	4	ppm S	0.001	0.0011
							VOC	5.5	lb/MMscf	0.02	0.022
							CH_2O	0.075	lb/MMscf	0.0002	0.00022
							Benzene	0.002	lb/MMscf	0.00001	0.000011
H-2	H-2	Stabilizer Heater 2	3.0	1,639	2,208	1.61	CO	0.0722	lb/MMBtu	0.22	0.24
							NO_X	0.1197	lb/MMBtu	0.36	0.40
							PM [c]	7.6	lb/MMscf	0.02	0.022
							SO_2	4	ppm S	0.001	0.0011
							VOC	5.5	lb/MMscf	0.02	0.022
							CH_2O	0.075	lb/MMscf	0.0002	0.00022
							Benzene	0.002	lb/MMscf	0.00001	0.000011
H-3	H-3	Stabilizer Heater 3	3.0	1,639	0	1.61	CO	0.0722	lb/MMBtu	0.00	0.00
							NO_X	0.1197	lb/MMBtu	0.00	0.00
							PM [c]	7.6	lb/MMscf	0.00	0.00
							SO_2	4	ppm S	0.00	0.00
							VOC	5.5	lb/MMscf	0.00	0.00
							CH_2O	0.075	lb/MMscf	0.00	0.00
							Benzene	0.002	lb/MMscf	0.00	0.00

HEATER POTENTIAL TO EMIT

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

EPN	FIN	Description	Rated Duty (MMBtu/hr)	Lower Heating Value (Btu/scf)	Annual Operating Hours (hr/yr)	Correction Factor	Pollutant	Emission Factor[a]	Unit	Potential to Emit (PTE) Hourly[a] (lb/hr)	Potential to Emit (PTE) Annual[b] (T/yr)

[a] Emission Factors for CO and NO_X are from vendor specification sheets. An example calculation for hourly CO emissions for EPN H-1 follows:

CO (lb/hr) = (Rated Duty, MMBtu/hr)*(Emission Factor, lb/MMscf)

CO (lb/hr) = (3.0 MMBtu/hr)*(0.0722 lb/MMbtu)

= 0.22 lb/hr CO

Emission Factors for PM, VOC, CH20, and Benzene are based on factors found for small natural gas-fired boilers (<100 MMBtu/hr) found in AP-42 Table 1.4-2 and 1.4-3 (dated 7/98). The emission factors are based on a heating value of 1,020 Btu/scf, so a correction factor to ratio to the site specific heating value is used. An example calculation for hourly PM emissions for EPN H-1 follows:

PM (lb/hr) = (Rated Duty, MMBtu/hr)/(Fuel Heating Value, Btu/scf)*(Emission Factor, lb/MMscf)*(Correction Factor, LHV/1020)

PM (lb/hr) = (3.0 MMBtu/hr)/(1,639 Btu/scf)*(7.6 lb/MMscf)*(1,639/1,020)

= 0.02 lb/hr PM

A material balance approach was used to estimate the SO_2 emission rates using the maximum sulfur concentration in the natural gas. An example calculation for hourly SO_2 emissions for EPN H-1 follows. H_2S emissions are calculated in the same manner, but the unconverted percentage (2%) is used, and there is no conversion of S to SO_2:

SO_2 (lb/hr) = (Rated Duty, MMBtu/hr)/(Fuel Heating Value, Btu/scf)*(4 scf S/MMscf gas)*(1 lb-mol/379 scf)*(32.06 lb S/lb-mol)*(64.06 lb SO2/32.06 lb S)*(98% conversion of H2S at combustion

SO_2 (lb/hr) = (3.0 MMBtu/hr)/(1,639 Btu/scf)*(4 scf S/MMscf gas)*(1 lb-mol/379 scf)*(32.06 lb S/lb-mol)*(64.06 lb SO2/32.06 lb S)

= 0.001 lb/hr SO_2

[b] An example calculation for annual PTE CO for EPN H-1 follows:

CO (T/yr) = (Hourly PTE, lb/hr)*(Annual Operating Hours, hr/yr)/(2,000 lb/T)

CO (T/yr) = (0.22 lb/hr)*(2,208 hr/yr)/(2,000 lb/T)

= 0.24 T/yr CO

[c] All PM is assumed to be less than 2.5 microns in diameter per footnote "c" of AP-42 Table 1.4-2.

SUMMARY OF STORAGE TANK POTENTIAL TO EMIT

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

			VOC Potential To Emit								Benzene Potential To Emit							
			HYSYS Simulator Flash Emissions [a]		AP 42 Working Breathing Emissions [b]		Total Uncontrolled Potential to Emit		Controlled Total		HYSYS Simulator Flash Emissions [a]		AP 42 Working Breathing Emissions [b]		Total Uncontrolled Potential to Emit		Controlled Total	
FIN	EPN	Description	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)
TK-1 TK-2 TK-3 TK-4 TK-5 TK-6 TK-7 TK-8 TK-9 TK-10	FL-1	Controlled Unstabilized Condensate Tanks- During Stabilizer Runtime	115.25	127.24	66.63	49.91	181.88	177.15	3.64	3.54	0.33	0.36	0.01	0.02	0.34	0.38	0.01	0.01
TK-1 TK-2 TK-3 TK-4 TK-5 TK-6 TK-7 TK-8 TK-9 TK-10	FL-1	Controlled Unstabilized Condensate Tanks- During Stabilizer Downtime	115.25	377.56	213.46	125.87	328.71	503.43	6.57	10.07	0.33	1.08	1.13	0.67	1.46	1.75	0.03	0.04
TK-11	FL-1	Controlled Off Spec Tank- During Stabilizer Runtime	--	--	213.46	125.87	213.46	125.87	4.27	2.52	--	--	0.67	2.90	0.67	2.90	0.01	0.06
TK-11	FL-1	Controlled Off Spec Tank- During Stabilizer Downtime	--	--	2.14	3.66	2.14	3.66	0.04	0.07	--	--	0.01	0.02	0.01	0.02	0.0002	0.0004
TK-12	TK-12	Rainwater Skid Tank	--	--	0.0001	0.001	0.0001	0.001	--	--	--	--	0.0000003	0.000003	0.0000003	0.000003	--	--
TK-13 TK-14	FL-1	Controlled Accumulator Tanks	--	--	283.57	168.63	283.57	168.63	5.67	3.37	--	--	1.50	0.89	1.50	0.89	0.03	0.02

[a] The HYSYS Simulator program was utilized to determine flash losses for the Unstabilized Condensate tanks as they were offloaded from trucks. The majority of flashing losses occur at the production site when the liquids are de-pressurized into the atmospheric storage. However, there is a small pressure change beetween the trucks and tanks at the Bordovsky facility. View the attached supporting documentation pages for the HYSYS Summary. Note, that the represented emissions are based on a portion of the throughput. Therefore the the data represented in this table is ratio-ed to represent the full site throughput (20,000 bbl/day)

[b] Working and breathing losses are determined via the calculation methods listed in AP 42 Chapter 7. See the following pages for representative emissions

[c] The Unstabilized Condensate tanks, Off-Spec Tank, and Accumulator Stabilized Tanks off-gas emissions are routed to the facility's flare control device. The combustion control efficiency is 98%.

CALCULATION OF STORAGE TANK WORKING AND BREATHING POTENTIAL TO EMIT

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

ON another page - lookup

Variable	Description	Units	Value
L_T	total loss = Ls + Lw	Ton/yr	See Table
L_S	standing loss = 365 Vv Wv Ke Ks	lb/yr	See Table
L_W	working loss = 0.001 Mv Pv Q Kn Kp	lb/yr	See Table
L_H	working loss = 0.001 Mv Pmax Qh	lb/hr	See Table
	Roof Construction		Cone
ΔPb	Breather vent pressure range	psi	0.06
I	Solar insolation factor	Btu/ft2-day	1468
P_A	Atmospheric Pressure	psia	14.7
T	Annual Average Temperature	°F	66.0
T_{AX}	Daily Maximum Ambient Temperature	°R	536.9
T_{AN}	Daily Minimum Ambient Temperature	°R	515
ΔT_A	Daily average ambient temperature range	°R	21.9
Kp	Product factor		1

		Tank Specifications							Material Specifications																VOC		Benzene	
		V/H	D	H/L	Capacity	Color		α	Mv	P_{MAX}	Q^2		ΔTv	Hvo	Vv	T_{LA}	P_{VA}	Wv	ΔPv	Ke	Ks	Kn	L_S	L_W	L_H	L_T	L_H	L_T
Tank Description	No. of Tanks	Tank Type	Tank Diameter (ft)	Tank Height/ Length (ft)	Tank Capacity (bbl)	Paint Color	Paint Conditions	Paint Solar Absorbance Factor	Vapor Molecular Weight	Reid Vapor Pressure (psia)	Max. Hourly Thruput (bbl/hr)	Annual thruput (bbl)	Daily Vapor Temp. Range °F	Vapor Space Outage (ft)	Vapor Space Volume (ft3)	Daily Average Liquid Surface Temp °R	Average Vapor Pressure (psia)	Vapor Density (lb/ft3)	Daily Vapor Pressure Range	Vapor Space Expan. Factor	Vented Vapor Sat. Factor	Turnover Factor	Standing Loss per tank (lb/yr)	Working Loss per tank (lb/yr)	Total Loss (lb/hr)	Total Loss (ton/yr)	Total Loss (lb/hr)	Total Loss (ton/yr)
Unstabilized Condensate Tanks- Stabilizer Running	10	V	15.5	15	500	Tan	Good	0.43	39	9.676	176.58	1546834	33.44	7.66	1445.4	531.8	8.664	0.05921	2.30557	0.4349	0.22	0.18	5731.75	94080.42	**66.63**	**49.91**	**0.25**	**0.19**
Off-Spec Collection Tank- Stabilizer Running	1	V	15.5	15	500	Tan	Good	0.43	39	9.676	1.77	15468	33.44	7.66	1445.4	531.8	8.664	0.05921	2.30557	0.4349	0.22	1.00	573.17	5226.58	**0.67**	**2.90**	**0.003**	**0.01**
Unstabilized Condensate Tanks- Stabilizer Downtime	10	V	15.5	15	500	Tan	Good	0.43	61	6.509	537.61	4,709,468	33.44	7.66	1445.4	531.8	5.137	0.05491	1.51341	0.2149	0.32	0.17	873.25	250876.61	**213.46**	**125.87**	**1.13**	**0.67**
Off-Spec Collection Tank- Stabilizer Downtime	1	V	15.5	15	500	Tan	Good	0.43	61	6.509	5.38	47,095	33.44	7.66	1445.4	531.8	5.137	0.05491	1.51341	0.2149	0.32	0.49	87.33	7231.20	**2.14**	**3.66**	**0.01**	**0.02**
Rainwater Skid Tank	1	V	15.5	15	500	Tan	Good	0.43	19	0.065	0.06	500	33.44	7.66	1445.4	531.8	0.012	0.00004	0.00751	0.0602	1.00	1.00	1.27	0.11	**0.0001**	**0.001**	**0.0000003**	**0.000003**
Accumulator Tanks	2	V	15.5	15	500	Tan	Good	0.43	61	6.509	714.19	6,256,302	33.44	7.66	1445.4	531.8	5.137	0.05491	1.51341	0.2149	0.32	0.17	3984.21	333277.52	**283.57**	**168.63**	**1.50**	**0.89**

NOTE: Tank working and breathing emissions are based on the equations found in EPA AP 42 Chapter 7. All factors used are represented in the table on this page. The Reid Vapor Pressure and Vapor Molecular Weight are determined based on the HYSYS stream data. All other variables are found in AP 42 Chapter 7 or are default unit values.

CALCULATION OF TRUCK LOADING POTENTIAL TO EMIT

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

Sample Calculations for Off-Spec Collection Tank

Loading Loss (lb/Mgal) = 12.46 * S * P * M / T (AP-42 Section 5.2)
Maximum Loading Loss = 12.46 * 0.60 * 6.510 * 61 / 560 = 5.301 lb/Mgal

Annual Emissions = (Annual Throughput, Mgal/yr) * (Average Loading Loss, lb/Mgal) * (1 - Control Efficiency) / (2000 lb/T)
Annual Emissions = (1977.99 Mgal/yr) * (4.399 lb/Mgal) * (1 - 0.98) / (2000 lb/T) = 0.09 T/yr

Hourly PTE = (Hourly Throughput, Mgal/hr) * (Maximum Loading Loss, lb/Mgal) * (1 - Control Efficiency)
Hourly PTE = (8.19 Mgal/hr) * (5.301 lb/Mgal) * (1 - 0.98) = 0.87 lb/hr

												VOC PTE		Benzene PTE	
FIN	EPN	Description	S	P @ 560 °R (psia)	P @531.7 °R (psia)	M	Maximum Loading Loss (lb/Mgal)	Average Loading Loss (lb/Mgal)	Hourly Throughput (Mgal/hr)	Annual Throughput (Mgals/yr)	Capture and Control Efficiency	Hourly PTE (lb/hr)	Annual PTE (T/yr)	Hourly PTE (lb/hr)	Annual PTE (T/yr)
TRUCK1	FL-1	Off-Spec Collection Tank Loading- During Stabilizer Runtime	0.60	9.68	8.6550	39	5.040	4.746	8.19	649.66	0.98	0.83	0.03083	0.003	0.0001
TRUCK1	FL-1	Off-Spec Collection Tank Loading- During Stabilizer Downtime	0.60	6.51	5.129	61	5.301	4.399	8.19	1,977.99	0.98	0.87	0.087012	0.005	0.0005
TRUCK2	TRUCK2	Rainwater Skid Tank Truck Loading	0.60	0.07	0.013	19	0.018	0.019	8.19	21.00	0.00	0.15	0.0002	0.0005	0.000001

Daily maximum and daily minimum ambient temperature from Tanks 4.09d for this area's annual averages (81.6 and 62.5, for average of 72.1).

Annual Average Condensate (during stabilizer downtime) Vapor Pressure at T_{LA}:
P = exp{ [(2799/(T+459.6) - 2.227]log10(RVP) - 7261/(T+459.6) + 12.82}
exp{ [(2799/(72.1+459.6) - 2.227]log10(06.51) - 7261/(72.1+459.6) + 12.82}
5.129 psia

Annual Average Condensate (during stabilizer run time) Vapor Pressure at T_{LA}:
P = exp{ [(2799/(T+459.6) - 2.227]log10(RVP) - 7261/(T+459.6) + 12.82}
exp{ [(2799/(72.1+459.6) - 2.227]log10(09.68) - 7261/(72.1+459.6) + 12.82}
8.655 psia

Annual Average Rainwater Vapor Pressure at T_{LA}:
P = exp{ [(2799/(T+459.6) - 2.227]log10(RVP) - 7261/(T+459.6) + 12.82}
exp{ [(2799/(72.1+459.6) - 2.227]log10(06.51*.01) - 7261/(72.1+459.6) + 12.82}
0.013 psia

CALCULATION OF PRESSURIZED TRUCK LOADING POTENTIAL TO EMIT

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

Sample Calculations for Pressurized Loading/Unloading (FIN TRUCK1):

Condensate Emissions from Disconnecting Loading Lines from Pressurized Vessels

Line Diameter 3 inches

Line Length 1.5 feet

Volume in Lin 0.295 ft^3

Sample Calculations:

Hourly PTE = (Pressure, psia) * (Volume, ft^3) * (Molecular Weight, lb/lb-mol) * (Number of Disconnects per Hour) * (% VOC) / ((Temperature, deg R) * (Gas Constant, ft^3*psia/lb-mol*deg R))

Hourly PTE = (244.7 psia) * (0.295 cubic ft) * (52.30 lb/lbmol) * (1.0 disconnects/hr) / ((531.0 deg R) * (10.73 cubic ft*psia/lb-mol*deg R)) = 0.66 lb/hr

Annual PTE = (Pressure, psia) * (Volume, ft^3) * (Molecular Weight, lb/lb-mol) * (Number of Disconnects per Year) / ((Temperature, deg R) * (Gas Constant, ft^3*psia/lb-mol*deg R) * 2,000 lbs/T))

Annual PTE = (244.7 psia) * (0.295 cubic ft) * (52.30 lb/lbmol) * (0,054 disconnects/yr) / ((531.0 deg R) * (10.73 cubic ft*psia/lb-mol*deg R)) = 0.02 Tons

												VOC PTE		Benzene PTE	
Facility ID Number (FIN)	Emission Point Number (EPN)	Description	Hourly Number of Disconnects (disconnects/hr)	Annual Number of Disconnects (disconnects/yr)	Line Pressure (psia)	Molecular Weight (lb/lbmol)	Temp. (deg R)	Gas Constant (ft^3*psia/ lb-mol*deg R)	Volume (ft^3)	Maxiumum % VOC	Maximum % Benzene	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)
TRUCK3	TRUCK3	Pressurized Heavy NGL Truck Unloading	1.0	2,113.3	34.7	72.00	531.0	10.73	0.295	100%	1.23%	0.13	0.14	0.002	0.002
TRUCK4	TRUCK4	Pressurized Light NGL Truck Unloading	1.0	53.7	244.7	52.30	531.0	10.73	0.295	100%	0.21%	0.66	0.02	0.001	0.00004

SUMMARY OF PROCESS FLARE FUEL GAS COMBUSTION AND WASTE GAS COMBUSTION POTENTIAL TO EMIT

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

EPN	FIN	Description	CO		NO_X		SO_2		VOC		Benzene	
			(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)
FL-1	FL-1	Pilot Gas Combustion	0.38	1.66	0.19	0.83	0.0005	0.002	0.005	0.02	0.000002	0.00001
FL-1	FL-1	Process Flare Assist Gas Combustion	0.56	2.45	0.28	1.23	0.001	0.004	0.01	0.04	0.000003	0.00001
FL-1	FL-1	Waste Gas Combustion	4.89	6.62	2.45	3.31	0.004	0.006	0.04	0.05	0.00001	0.00002
		Totals:	**5.83**	**10.73**	**2.92**	**5.37**	**0.006**	**0.01**	**0.06**	**0.11**	**0.00002**	**0.00004**

CALCULATION OF FLARE PILOT GAS AND FLARE ASSIST GAS POTENTIAL TO EMIT

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY, LP

EPN	FIN	Description	LHV (Btu/scf)	Heat Release (scf/hr)	Operating Hours (hr/yr)	Pollutant	Emission Factors	Units	Emission Rates Hourly [a] (lb/hr)	Emission Rates Annual [b] (T/yr)
FL-1	FL-1	Flare 1- Pilot Combustion	1,639	833	8,760	CO	0.2755	lb/MMBtu	0.38	1.66
						NO_X	0.138	lb/MMBtu	0.19	0.83
						PM	-- [c]	--	--	--
						SO_2	0.6	lb/MMscf	0.0005	0.002
						VOC	5.5	lb/MMscf	0.005	0.02
						Benzene	0.0021	lb/MMscf	0.000002	0.00001
FL-1	FL-1	Flare 1- Process Flare Assist Gas Combustion	1,639	1,250	8,760	CO	0.2755	lb/MMBtu	0.56	2.45
						NO_X	0.138	lb/MMBtu	0.28	1.23
						PM	-- [c]	--	--	--
						SO_2	0.6	lb/MMscf	0.001	0.004
						VOC	5.5	lb/MMscf	0.01	0.04
						Benzene	0.0021	lb/MMscf	0.000003	0.00001

[a] Emission Factors for CO and NO_X are based upon the Draft TNRCC Guidance Document for Flares and Vapor Oxidizers (dated 10/00) for non-assisted high-Btu flares. An example calculation for hourly CO emissions for EPN FL-1 follows:

CO (lb/hr) = (Heat Release, scf/hr) * (Lower Heating Value, Btu/scf) * (MM/10^6) * (Emission Factor, lb/MMBtu)

CO (lb/hr) = (833 scf/hr) * (1,639 Btu/scf) * (MM/10^6) * (0.2755 lb/MMBtu)

= 0.38 lb/hr CO

The Emission Factors for VOC, SO_2 and PM were based upon AP-42 Table 1.4-2 and the Emission Factor for Benzene is from Table 1.4-3 (dated 7/98). An example calculation for hourly VOC emissions for EPN FL-1 follows:

VOC (lb/hr) = (Heat Release, scf/hr) * (MM/10^6) * (Emission Factor, lb/MMscf)

VOC (lb/hr) = (833 scf/hr) * (MM/10^6) * (5.5 lb/MMscf)

= 0.005 lb/hr VOC

[b] An example calculation for annual CO emissions for EPN FL-1 follows:

CO (T/yr) = (Hourly Emissions, lb/hr)*(Annual Operating Hours, hr/yr)*(1 T/2,000 lb)

CO (T/yr) = (0.38 lb/hr)*(8,760 hr/yr)*(1 T/2,000 lb)

CO (T/yr) = 1.66 T/yr CO

[c] The process flares are smokeless per 40 CFR §60.18 requirements; therefore, PM emissions are negligible.

PROCESS FLARE WASTE GAS COMBUSTION EMISSIONS

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

EPN	FIN	Description	LHV[a] (Btu/scf)	Waste Gas Flow Rate Hourly (MMBtu/hr)	Waste Gas Flow Rate Annual (MMBtu/yr)	Pollutant	Emission Factors	Units	Potential to Emit Hourly[b] (lb/hr)	Potential to Emit Annual[c] (T/yr)
FL-1	FL-1	High Pressure Flare	1,977	11.29	17,314.84	CO	0.2755	lb/MMBtu	3.11	2.39
		Unstabilized Condensate Tanks				NO_X	0.1380	lb/MMBtu	1.56	1.19
		Off-Spec Tank				PM	-- [d]	--	--	--
		During Stabilizer Runtime				SO_2	0.6	lb/MMscf	0.003	0.0026
						VOC	5.5	lb/MMscf	0.03	0.024
						Benzene	0.0021	lb/MMscf	0.00001	0.00001
FL-1	FL-1	High Pressure Flare	3,218	7.53	22,986.15	CO	0.2755	lb/MMBtu	2.07	3.17
		Unstabilized Condensate Tanks				NO_X	0.1380	lb/MMBtu	1.04	1.59
		Off-Spec Tank				PM	-- [d]	--	--	--
		During Stabilizer Downtime				SO_2	0.6	lb/MMscf	0.001	0.002
						VOC	5.5	lb/MMscf	0.01	0.02
						Benzene	0.0021	lb/MMscf	0.000005	0.00001
FL-1	FL-1	High Pressure Flare	3,218	6.45	7,667.06	CO	0.2755	lb/MMBtu	1.78	1.06
		Stabilized Accumulator Tanks				NO_X	0.1380	lb/MMBtu	0.89	0.53
						PM	-- [d]	--	--	--
						SO_2	0.6	lb/MMscf	0.001	0.001
						VOC	5.5	lb/MMscf	0.01	0.01
						Benzene	0.0021	lb/MMscf	0.000004	0.000003

a Waste gas stream lower heating value was determined by taking a ratio-ed value of the LHV of each was gas stream based on flow rate.

b Emission Factors for CO and NO_X are based upon the Draft TNRCC Guidance Document for Flares and Vapor Oxidizers (dated 10/00) for non-assisted high-Btu flares. An example calculation for hourly CO emissions for EPN Fl-1 follows:

CO (lb/hr) = (Hourly Waste Gas Flow Rate, MMBtu/hr) * (Emission Factor, lb/MMBtu)

CO (lb/hr) = (11.29 MMBtu/hr) * (0.2755 lb/MMBtu)

= 3.11 lb/hr CO

The Emission Factors for VOC and SO_2 were based upon AP-42 Table 1.4-2 and the Emission Factor for Benzene is from Table 1.4-3 (dated 7/98). An example calculation for hourly VOC emissions for EPN FL-1 follows:

VOC (lb/hr) = (Hourly Waste Gas Flow Rate, MMBtu/hr) * (Emission Factor, lb/MMscf)

VOC (lb/hr) = (11.29 MMBtu/hr) / (1,977 Btu/scf) * (5.5 lb/MMscf)

= 0.03 lb/hr VOC

c An example calculation for annual CO emissions for EPN FL-1 follows:

CO (T/yr) = (Annual Waste Gas Flow Rate, MMBtu/yr) * (Emission Factor, lb/MMBtu) * (1 T / 2,000 lb)

CO (T/yr) = (17,314.84 MMBtu/yr) * (0.2755 lb/MMBtu) * (1 T / 2,000 lb)

= 2.39 T/yr CO

d The process flares are smokeless per 40 CFR §60.18 requirements; therefore, PM emissions are negligible.

CALCULATION OF FLARE FEED RATES FROM FINs TK-1 THROUGH TK-11 AND TRUCK1 During Stabilizer Runtime

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

TK-1 through TK-11 and TRUCK1 Total Emissions:[a]

VOC Emissions (lb/hr):	395.34
VOC Emissions (TPY):	303.02
Hydrocarbon Emissions (lb/hr):	559.58
Hydrocarbon Emissions (TPY):	428.90

Constituent	Heating Value[b] (Btu/lb)	Unstabilized Condensate Tanks Flash Gas Weight (%)	TK-1 through TK-11 and TRUCK1 Emissions [c] Hourly (lb/hr)	TK-1 through TK-11 and TRUCK1 Emissions [c] Annual (T/yr)	Flare Feed Rate [d] Hourly (MMBtu/hr)	Flare Feed Rate [d] Annual (MMBtu/yr)
Methane	23,861	10.26%	57.41	44.01	1.34	2,058.24
Ethane	22,304	13.98%	78.23	59.96	1.71	2,621.20
Propane	21,646	24.19%	135.36	103.75	2.87	4,401.71
I-Butane	21,242	7.89%	44.15	33.84	0.92	1,408.91
N-Butane	21,293	16.05%	89.81	68.84	1.87	2,872.99
I-Pentane	21,025	6.95%	38.89	29.81	0.80	1,228.44
N-Pentane	21,072	6.00%	33.57	25.73	0.69	1,062.68
Cyclopentane	20,350	0.00%	0.00	0.00	0.00	0.00
n-Hexane	20,928	1.89%	10.58	8.11	0.22	332.66
Cyclohexane	20,195	0.43%	2.41	1.84	0.05	72.83
Other Hexanes	20,928	3.40%	19.03	14.58	0.39	598.06
Heptanes	20,825	2.21%	12.37	9.48	0.25	386.95
Octanes	20,747	0.59%	3.30	2.53	0.07	102.88
Nonanes	20,687	0.16%	0.90	0.69	0.02	27.98
Decanes Plus	20,638	0.09%	0.50	0.39	0.01	15.78
Benzene	18,172	0.20%	1.12	0.86	0.02	30.63
Toluene	18,422	0.37%	2.07	1.59	0.04	57.41
Ethylbenzene	18,658	0.04%	0.22	0.17	0.004	6.22
Xylene	18,438	0.19%	1.06	0.81	0.02	29.27
	VOC	70.65%				
				Total:	**11.29**	**17,314.84**

[a] Total VOC Emissions were determined by adding the Uncontrolled Streams for FIN TK-1 through TK-11 and TRUCK1 on the Tank Summary table. Total Hydrocarbon Emissions were calculated as follows:

Total HC (lb/hr) = VOC Emissions (lb/hr) * (1/ VOC% of stream)

Total HC (lb/hr) = (303.02 lb/hr) * (1 / 70.65%)

Total HC (lb/hr) = 559.58 lb/hr

[b] Heating values taken from Perry's Chemical Engineers' Handbook , Table 3-207 (pg. 3-155)

[c] Emission Rates were proportioned from the Total Hydrocarbon Emissions using the Unstabilized Condensate Tank Flash Gas stream constituents weight percents.

[d] An example calculation for the hourly flare feed rate for Methane is demonstrated.

MMBtu/hr Methane = Methane Heating Value (Btu/lb) * Hourly Methane Emissions (lb/hr) * 98% of stream is combusted / 10^6

MMBtu/hr Methane = (23,861 Btu/lb) * (57.41 lb/hr) * 98% / (10^6)

MMBtu/hr Methane = 1.34 MMBtu/hr

An example calculation for the annual flare feed rate for Methane is demonstrated.

MMBtu/yr Methane = Methane Heating Value (Btu/lb) * Annual Methane Emissions (T/yr) * (2,000 lb/T) * 98% of stream is combusted / 10^6

MMBtu/yr Methane = (23,861 Btu/lb) * (44.01 T/yr) * (2,000 lb/T) * 98% / (10^6)

MMBtu/yr Methane = 2058.24 MMBtu/yr

CALCULATION OF FLARE FEED RATES FROM FINs TK-1 THROUGH TK-11 AND TRUCK1 During Stabilizer Downtime

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

TK-1 through TK-11 and TRUCK1 Total Emissions:[a]

VOC Emissions (lb/hr):	330.85
VOC Emissions (TPY):	505.57
Hydrocarbon Emissions (lb/hr):	364.98
Hydrocarbon Emissions (TPY):	557.72

Constituent	Heating Value[b] (Btu/lb)	Unstabilized Condensate Tanks Flash Gas Weight (%)	TK-1 through TK-11 and TRUCK1 Emissions [c] Hourly (lb/hr)	TK-1 through TK-11 and TRUCK1 Emissions [c] Annual (T/yr)	Flare Feed Rate[d] Hourly (MMBtu/hr)	Flare Feed Rate[d] Annual (MMBtu/yr)
Methane	23,861	2.69%	9.82	15.00	0.23	701.51
Ethane	22,304	5.30%	19.34	29.56	0.42	1,292.24
Propane	21,646	21.38%	78.03	119.24	1.66	5,058.90
I-Butane	21,242	9.93%	36.24	55.38	0.75	2,305.71
N-Butane	21,293	21.59%	78.80	120.41	1.64	5,025.22
I-Pentane	21,025	10.69%	39.02	59.62	0.80	2,456.88
N-Pentane	21,072	9.43%	34.42	52.59	0.71	2,172.03
Cyclopentane	20,350	0.00%	0.00	0.00	0.00	0.00
n-Hexane	20,928	3.35%	12.23	18.68	0.25	766.23
Cyclohexane	20,195	0.77%	2.81	4.29	0.06	169.81
Other Hexanes	20,928	5.81%	21.21	32.40	0.44	1,329.01
Heptanes	20,825	4.25%	15.51	23.70	0.32	967.36
Octanes	20,747	1.27%	4.64	7.08	0.09	287.90
Nonanes	20,687	0.37%	1.35	2.06	0.03	83.53
Decanes Plus	20,638	0.24%	0.88	1.34	0.02	54.20
Benzene	18,172	0.35%	1.28	1.95	0.02	69.45
Toluene	18,422	0.72%	2.63	4.02	0.05	145.15
Ethylbenzene	18,658	0.08%	0.29	0.45	0.005	16.46
Xylene	18,438	0.42%	1.53	2.34	0.03	84.56
	VOC	90.65%				
	Totals:				**7.53**	**22,986.15**

[a] Total VOC Emissions were determined by adding the Uncontrolled Streams for FIN TK-13 through TK-14 on the Tank Summary table. Total Hydrocarbon Emissions were calculated as follows:

Total HC (lb/hr) = VOC Emissions (lb/hr) * (1/ VOC% of stream)
Total HC (lb/hr) = (330.85 lb/hr) * (1/ 90.65%)
Total HC (lb/hr) = 364.98 lb/hr

[b] Heating values taken from Perry's Chemical Engineers' Handbook , Table 3-207 (pg. 3-155)

[c] Emission Rates were proportioned from the Total Hydrocarbon Emissions using the Stabilized Condensate Tank Off-Gas stream constituents weight percents.

[d] An example calculation for the hourly flare feed rate for Methane is demonstrated.
MMBtu/hr Methane = Methane Heating Value (Btu/lb) * Hourly Methane Emissions (lb/hr) * 98% of stream is combusted / 10^6
MMBtu/hr Methane = (23,861 Btu/lb) * (9.82 lb/hr) * 98% / (10^6)
MMBtu/hr Methane = 0.23 MMBtu/hr

An example calculation for the annual flare feed rate for Methane is demonstrated.
MMBtu/yr Methane = Methane Heating Value (Btu/lb) * Annual Methane Emissions (T/yr) * (2,000 lb/T) * 98% of stream is combusted / 10^6
MMBtu/yr Methane = (23,861 Btu/lb) * (15.00 T/yr) * (2,000 lb/T) * 98% / (10^6)
MMBtu/yr Methane = 701.51 MMBtu/yr

CALCULATION OF FLARE FEED RATES FROM FINs TK-13 AND TK-14

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

TK-13 through TK-14 Total Emissions:[a]

VOC Emissions (lb/hr):	283.57
VOC Emissions (TPY):	168.63
Hydrocarbon Emissions (lb/hr):	312.82
Hydrocarbon Emissions (TPY):	186.02

Constituent	Heating Value[b] (Btu/lb)	Accumulator Tank Condensate Tanks Off- Gas Weight (%)	VOC Emissions[c] Hourly (lb/hr)	VOC Emissions[c] Annual (T/yr)	Flare Feed Rate[d] Hourly (MMBtu/hr)	Flare Feed Rate[d] Annual (MMBtu/yr)
Methane	23,861	2.69%	8.41	5.00	0.20	233.84
Ethane	22,304	5.30%	16.58	9.86	0.36	431.04
Propane	21,646	21.38%	66.88	39.77	1.42	1,687.29
I-Butane	21,242	9.93%	31.06	18.47	0.65	768.99
N-Butane	21,293	21.59%	67.54	40.16	1.41	1,676.05
I-Pentane	21,025	10.69%	33.44	19.89	0.69	819.65
N-Pentane	21,072	9.43%	29.50	17.54	0.61	724.42
Cyclopentane	20,350	0.00%	0.00	0.00	0.00	0.00
n-Hexane	20,928	3.35%	10.48	6.23	0.21	255.55
Cyclohexane	20,195	0.77%	2.41	1.43	0.05	56.60
Other Hexanes	20,928	5.81%	18.17	10.81	0.37	443.41
Heptanes	20,825	4.25%	13.29	7.91	0.27	322.86
Octanes	20,747	1.27%	3.97	2.36	0.08	95.97
Nonanes	20,687	0.37%	1.16	0.69	0.02	27.98
Decanes Plus	20,638	0.24%	0.75	0.45	0.02	18.20
Benzene	18,172	0.35%	1.09	0.65	0.02	23.15
Toluene	18,422	0.72%	2.25	1.34	0.04	48.38
Ethylbenzene	18,658	0.08%	0.25	0.15	0.005	5.49
Xylene	18,438	0.42%	1.31	0.78	0.02	28.19
	VOC	90.65%				
	Totals:				**6.45**	**7,667.06**

[a] Total VOC Emissions were determined by adding the Uncontrolled Streams for FIN TK-13 through TK-14 on the Tank Summary table. Total Hydrocarbon Emissions were calculated as follows:

Total HC (lb/hr) = VOC Emissions (lb/hr) * (1/ VOC% of stream)
Total HC (lb/hr) = (283.57 lb/hr) * (1/ 90.65%)
Total HC (lb/hr) = 312.82 lb/hr

[b] Heating values taken from Perry's Chemical Engineers' Handbook , Table 3-207 (pg. 3-155)

[c] Emission Rates were proportioned from the Total Hydrocarbon Emissions using the Stabilized Condensate Tank Off-Gas stream constituents weight percents.

[d] An example calculation for the hourly flare feed rate for Methane is demonstrated.
MMBtu/hr Methane = Methane Heating Value (Btu/lb) * Hourly Methane Emissions (lb/hr) * 98% of stream is combusted / 10^6
MMBtu/hr Methane = (23,861 Btu/lb) * (8.41 lb/hr) * 98% / (10^6)
MMBtu/hr Methane = 0.20 MMBtu/hr

An example calculation for the annual flare feed rate for Methane is demonstrated.
MMBtu/yr Methane = Methane Heating Value (Btu/lb) * Annual Methane Emissions (T/yr) * (2,000 lb/T) * 98% of stream is combusted / 10^6
MMBtu/yr Methane = (23,861 Btu/lb) * (5.00 T/yr) * (2,000 lb/T) * 98% / (10^6)
MMBtu/yr Methane = 233.84 MMBtu/yr

CALCULATION OF COMPRESSOR ENGINE BLOWDOWN POTENTIAL TO EMIT

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

								Potential to Emit (PTE)			
								VOC		Benzene	
Facility Identification Number (FIN)	**Number of Blowdowns (per year)**	**Number of Blowdowns (per hour)**	**Volume per Event (scf)**	**Gas Stream Specific Gravity**	**Gas Stream Density [a] (lb/scf)**	**Max VOC Percentage in Gas (wt%)**	**Benzene Percentage in Gas (wt%)**	**Hourly Emission Rate [b] (lb/hr)**	**Annual Emission Rate[c] (T/yr)**	**Hourly Emission Rate[b] (lb/hr)**	**Annual Emission Rate[c] (T/yr)**
COMP-1-BD	24	1	2098	0.8426	0.0644	60%	0.01%	81.07	0.97	0.01	0.0002

[a] Gas stream density is calculated as follows:
(28.96 lb/mole) / (379 scf/mole) * (0.8426) = 0.064 lb/scf

[b] Hourly blowdown VOC emission rates are calculated as follows:
VOC (lb/hr) = (1 blowdown/hr) * (2,098 scf/blowdown) * (0.064 lb/scf) * (60.00%) = 81.07 lb/hr

[c] Annual blowdown VOC emission rates are calculated as follows:
VOC (lb/hr) = (24 blowdows/yr) * (2,098 scf/blowdown) * (0.064 lb/scf) * (60.00%) / (2,000 lb/T) = 0.97 T/yr

Note: Electricity driven engines, so no starter vent.

SMSS- FLARE WASTE GAS COMBUSTION EMISSIONS

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

EPN	FIN	Description	LHV[a] (Btu/scf)	Waste Gas Flow Rate Hourly (MMBtu/hr)	Waste Gas Flow Rate Annual (MMBtu/yr)	Pollutant	Emission Factors	Units	Potential to Emit Hourly[b] (lb/hr)	Potential to Emit Annual[c] (T/yr)
FL-1	FL-1	High Pressure Flare	1,639	2.83	67.53	CO	0.2755	lb/MMBtu	0.78	0.01
		Compressor BD				NO_X	0.1380	lb/MMBtu	0.39	0.005
						PM	-- [d]	--	--	--
						SO_2	0.6	lb/MMscf	0.001	0.00001
						VOC	5.5	lb/MMscf	0.01	0.0001
						Benzene	0.0021	lb/MMscf	0.000004	0.00000004

a Waste gas stream lower heating value was determined by taking a ratio-ed value of the LHV of each was gas stream based on flow rate.

b Emission Factors for CO and NO_X are based upon the Draft TNRCC Guidance Document for Flares and Vapor Oxidizers (dated 10/00) for non-assisted high-Btu flares. An example calculation for hourly CO emissions for EPN Fl-1 follows:

CO (lb/hr) = (Hourly Waste Gas Flow Rate, MMBtu/hr) * (Emission Factor, lb/MMBtu)

CO (lb/hr) = (2.83 MMBtu/hr) * (0.2755 lb/MMBtu)

= 0.78 lb/hr CO

The Emission Factors for VOC and SO_2 were based upon AP-42 Table 1.4-2 and the Emission Factor for Benzene is from Table 1.4-3 (dated 7/98). An example calculation for hourly VOC emissions for EPN FL-1 follows:

VOC (lb/hr) = (Hourly Waste Gas Flow Rate, MMBtu/hr) * (Emission Factor, lb/MMBtu)

VOC (lb/hr) = (2.83 MMBtu/hr) / (1,639 Btu/scf) * (5.5 lb/MMBtu)

= 0.01 lb/hr VOC

c An example calculation for annual CO emissions for EPN FL-1 follows:

CO (T/yr) = (Annual Waste Gas Flow Rate, MMBtu/yr) * (Emission Factor, lb/MMBtu) * (1 T / 2,000 lb)

CO (T/yr) = (00,067.53 MMBtu/yr) * (0.2755 lb/MMBtu) * (1 T / 2,000 lb)

= 0.01 T/yr CO

d The process flares are smokeless per 40 CFR §60.18 requirements; therefore, PM emissions are negligible.

CALCULATION OF FLARE FEED RATES FROM BLOWDOWNS

BORDOVSKY STABILIZATION FACILITY October 1 2012 through September 30 2013

BURLINGTON RESOURCES OIL & GAS COMPANY LP

Max BD Volume (scf/hr) 2,098
Max BD Volume (scf/yr) 50,352
Gas Density (lb/scf) 0.0644

Constituent	Heating Value[a] (Btu/lb)	Inlet Gas Weight (%)	BD Emissions[b] Hourly (lb/hr)	BD Emissions[b] Annual (T/yr)	Flare Feed Rate[c] Hourly (MMBtu/hr)	Flare Feed Rate[c] Annual (MMBtu/yr)
Methane	23,861	19.8620%	26.84	0.32	0.63	14.97
Ethane	22,304	22.3210%	30.16	0.36	0.66	15.74
Propane	21,646	36.9060%	49.86	0.60	1.06	25.46
I-Butane	21,242	6.0700%	8.20	0.10	0.17	4.16
N-Butane	21,293	8.7640%	11.84	0.14	0.25	5.84
I-Pentane	21,025	1.3460%	1.82	0.02	0.04	0.82
N-Pentane	21,072	0.8020%	1.08	0.01	0.02	0.41
Cyclopentane	20,350	0.0000%	0.00	0.00	0.00	0.00
n-Hexane	20,928	0.0490%	0.07	0.001	0.001	0.04
Cyclohexane	20,195	0.0060%	0.01	0.0001	0.0002	0.004
Other Hexanes	20,928	0.1240%	0.17	0.002	0.003	0.08
Heptanes	20,825	0.0090%	0.01	0.0001	0.0002	0.004
Octanes	20,747	0.0000%	0.00	0.00	0.00	0.00
Nonanes	20,687	0.0000%	0.00	0.00	0.00	0.00
Decanes Plus	20,638	0.0000%	0.00	0.00	0.00	0.00
Benzene	18,172	0.0040%	0.005	0.0001	0.0001	0.004
Toluene	18,422	0.0010%	0.001	0.00002	0.00002	0.001
Ethylbenzene	18,658	0.0000%	0.00	0.00	0.00	0.00
Xylene	18,438	0.0000%	0.00	0.00	0.00	0.00
Totals:					**2.83**	**67.53**

[a] Heating values taken from Perry's Chemical Engineers' Handbook , Table 3-207 (pg. 3-155)

[b] Constituent Emission Rates were calculated from the known maximum blowdown volumes and density then proportioned wusing the Inlet Gas stream constituents weight percents. An example calculation for Methane Emissions is as follows:

Methane (lb/hr) = Maximum BD Volume (Mscf/hr) * Gas Density (lb/scf) * Inlet Gas Weight %
Methane (lb/hr) = (2098 Mscf/hr) * (0.0644 lb/scf) * 19.86%
Methane (lb/hr) = 26.84 lb/hr

[c] An example calculation for the hourly flare feed rate for Methane is demonstrated.

MMBtu/hr Methane = Methane Heating Value (Btu/lb) * Hourly Methane Emissions (lb/hr) * 98% of stream is combusted / 10^6
MMBtu/hr Methane = (23,861 Btu/lb) * (26.84 lb/hr) * 98% / (10^6)
MMBtu/hr Methane = 0.63 MMBtu/hr

An example calculation for the annual flare feed rate for Methane is demonstrated.

MMBtu/yr Methane = Methane Heating Value (Btu/lb) * Annual Methane Emissions (T/yr) * (2,000 lb/T) * 98% of stream is combusted / 10^6
MMBtu/yr Methane = (23,861 Btu/lb) * (0.32 T/yr) * (2,000 lb/T) * 98% / (10^6)
MMBtu/yr Methane = 14.97 MMBtu/yr