BARNETT SHALE IMPACTS ANALYSIS

Burlington Resources Oil & Gas Company LP
Yanta North 1

Impacts Review Summary

(1) Based on Receptor and Property Line Distances
(Is there a receptor or property line within the specified distance of the registration? The distances are 1/4 mile for PBR Level 1, 1/2 mile for PBR Level 2, and 1 mile for Standard Permit.)

Authorization selected for this site:	**PBR Level 1**

Shortest distance in feet to any **receptor** from any facility/unit included in this registration	1,400.30 ft
Shortest distance in feet to any **property line** from any facility/unit included in this registration	50.00 ft

Based on the nearest receptor distance:	A full impacts review is NOT required for Benzene.
Based on the nearest property line	A full impacts review is required for H2S, SO2, and NO2.

(2) Based on Net Project Emission Increases
(Are the net project emission increases less than any of the de-minimis rates?)

	De-minimis Rates (lb/hr)	Net Project Emission Increases			
		steady state lb/hr	< 30 psig periodic lb/hr	≥ 30 psig periodic lb/hr	TPY
Benzene	0.0390	0.0034	0.1828	0.4963	0.0287
H2S	0.0250	0.0794	0.1279	0.3913	0.3456
SO2	2.0000	0.0000	0.0000	0.0000	0.0000
NOX	4.0000	0.0000	0.0000	0.0000	0.0000

Based on the net project emission increases:
A full impacts review is required for Benzene.
A full impacts review is required for H2S.
A full impacts review is NOT required for SO2.
A full impacts review is NOT required for NO2.

(3) Based on the Project Maximum Predicted Concentrations
(Are project max. predicted Benzene concentrations ≤ 10% of the applicable effects screening level (ESL) or ≤ 25% of the applicable ESL? Are project maximum predicted H2S, SO2, and NOX concentrations ≤ the significant impact level, SIL, where SIL = 4% of the applicable ambient air standard (AAQS)?)

This exemption has not been considered.

(4)

Based on the above assessment from (1) - (3):
A full impacts review is NOT required for Benzene.
A full impacts review is required for H2S. Please see H2S impacts table for detailed evaluation.
A full impacts review is NOT required for SO2.
A full impacts review is NOT required for NO2.

Burlington Resources Oil & Gas Company LP
Yanta North 1

Full Impacts Review - Benzene

Benzene Hourly Steady State - Impact Review										
EPN	FIN	Source Name	TCEQ Impacts table corresponding to EPN	Steady state hourly estimated emissions (lb/hr)	WREPNx	ESLbenzene, short term (µg/m3)	Distance to nearest receptor (ft)	Height of emission release point (ft)	GEPNx	Emax, EPNx, hourly, steadystate (lb/hr)
Tanks	Tanks	All Storage Tanks	Tank Hatch	9.8E-02	9.9E-01	170	1,400.30	20	96.6	1.7E+00
FUG	FUG	Equipment Fugitives	Fugitive	6.5E-04	6.7E-03	170	1,400.30	3	100.2	1.1E-02
Benzene Hourly Steady State - Impacts Review Summary				Eestimated, total, hourly, steadystate (lb/hr)	Total	**Pass**				Emax, total, hourly, steadystate (lb/hr)
				9.83E-02	**100%**					**1.76E+00**

Notes

1. Please refer to individual emissions calculation tables for steady-state emission rates information.

Burlington Resources Oil & Gas Company LP
Yanta North 1

Full Impacts Review - Benzene

Benzene Hourly Low Pressure Periodic - Impact Review										
EPN	FIN	Source Name	TCEQ Impacts table corresponding to EPN	LP Periodic hourly estimated emissions (lb/hr)	WREPNx	ESLbenzene, short term (µg/m3)	Distance to nearest receptor (ft)	Height of emission release point (ft)	GEPNx	Emax, EPNx, hourly, LP periodic (lb/hr)
Tanks	Tanks	All Storage Tanks	Tank Hatch	9.8E-02	5.3E-01	170	1,400.30	20	96.6	9.4E-01
MSS	TRUCK1	MSS Loading - Blowcase MSS / AOS	Loading	8.2E-02	4.5E-01	170	1,400.30	10	124.8	6.1E-01
TRUCK2	TRUCK2	PW Loading - Normal Ops	Loading	1.3E-03	6.9E-03	170	1,400.30	10	124.8	9.4E-03
FUG	FUG	Equipment Fugitives	Fugitive	6.5E-04	3.6E-03	170	1,400.30	3	100.2	6.1E-03
MSS	MSS-Tank Degas	Tank Degas	Low P. Blowd./Purg./Pig.	1.0E-03	5.7E-03	170	1,400.30	20	147.0	6.6E-03
Benzene Hourly Low Pressure Periodic - Impacts Review Summary				Eestimated, total, hourly, LP periodic (lb/hr)	Total	**Pass**				Emax, total, hourly, LP periodic (lb/hr)
				1.83E-01	**100%**					**1.57E+00**

Notes

1. Periodic emissions impacts table has been setup to conservatively include both steady-state and periodic emissions.

Burlington Resources Oil & Gas Company LP
Yanta North 1

Full Impacts Review - Benzene

Benzene Hourly High Pressure Periodic - Impact Review										
EPN	FIN	Source Name	TCEQ Impacts table corresponding to EPN	HP Periodic hourly estimated emissions (lb/hr)	WREPNx	ESLbenzene, short term (µg/m3)	Distance to nearest receptor (ft)	Height of emission release point (ft)	GEPNx	Emax, EPNx, hourly, HP periodic (lb/hr)
Tanks	Tanks	All Storage Tanks	Tank Hatch	9.8E-02	2.0E-01	170	1,400.30	20	96.6	3.5E-01
MSS	TRUCK1	MSS Loading - Blowcase MSS / AOS	Loading	8.2E-02	1.7E-01	170	1,400.30	10	124.8	2.3E-01
TRUCK2	TRUCK2	PW Loading - Normal Ops	Loading	1.3E-03	2.5E-03	170	1,400.30	10	124.8	3.5E-03
FUG	FUG	Equipment Fugitives	Fugitive	6.5E-04	1.3E-03	170	1,400.30	3	100.2	2.2E-03
MSS	MSS-Tank Degas	NF Tank Degas	Low P. Blowd./Purg./Pig.	1.0E-03	2.1E-03	170	1,400.30	20	147.0	2.4E-03
MSS-SEP-1	MSS-SEP-1	MSS Separator 1 Maintenance	High P. Blowd./Purg./Pig.	3.1E-01	6.3E-01	170	1,400.30	10	16.0	6.7E+00
Benzene Hourly High Pressure Periodic - Impacts Review Summary				Eestimated, total, hourly, HP periodic (lb/hr)	Total	**Pass**				Emax, total, hourly, HP periodic (lb/hr)
				4.96E-01	**100%**					**7.29E+00**

Notes

1. Periodic emissions impacts table has been setup to conservatively include both steady-state and periodic emissions.

Burlington Resources Oil & Gas Company LP
Yanta North 1

Full Impacts Review - Benzene

Benzene Annual - Impact Review										
EPN	FIN	Source Name	TCEQ Impacts table corresponding to EPN	Annual estimated emissions (tons/yr)	WREPNx	ESLbenzene, long term (µg/m3)	Distance to nearest receptor (ft)	Height of emission release point (ft)	GEPNx	Emax,EPNx, annual (tons/yr)
Tanks	Tanks	All Storage Tanks	Tank Hatch	2.5E-02	8.6E-01	4.5	1,400.30	20	96.6	2.2E+00
MSS	TRUCK1	MSS Loading - Blowcase MSS / AOS	Loading	2.4E-04	8.5E-03	4.5	1,400.30	10	124.8	1.6E-05
TRUCK2	TRUCK2	PW Loading - Normal Ops	Loading	2.8E-04	9.8E-03	4.5	1,400.30	10	124.8	1.4E-03
FUG	FUG	Equipment Fugitives	Fugitive	2.9E-03	1.0E-01	4.5	1,400.30	3	100.2	2.5E-01
MSS	MSS-Tank Degas	NF Tank Degas	Low P. Blowd./Purg./Pig.	2.4E-05	8.5E-04	4.5	1,400.30	20	147.0	1.6E-05
MSS-SEP-1	MSS-SEP-1	MSS Separator 1 Maintenance	High P. Blowd./Purg./Pig.	6.3E-04	2.2E-02	4.5	1,400.30	10	16.0	1.5E-04
Benzene Annual Emissions - Impacts Review Summary				Eestimated, total, annual (tons/yr)	Total	**Pass**				Emax, total, annual (tons/yr)
				2.87E-02	**100%**					**2.44E+00**

Notes

1. Please refer to individual emissions calculation tables for annual emission rates information.

Burlington Resources Oil & Gas Company LP
Yanta North 1

Full Impacts Review - H2S

H2S Hourly Steady State - Impact Review										
EPN	FIN	Source Name	TCEQ Impacts table corresponding to EPN	Steady state hourly emissions (lb/hr)	WREPNx	AAQSH2S, hourly (µg/m3)	Distance to nearest property line (ft)	Height of emission release point (ft)	GEPNx	Emax,EPNx, hourly, steadystate (lb/hr)
Tanks	Tanks	All Storage Tanks	Tank Hatch	1.1E-01	1.0E+00	108	50.00	20	183.0	5.9E-01
FUG	FUG	Equipment Fugitives	Fugitive	3.3E-04	3.0E-03	108	50.00	3	2,625.0	1.3E-04
H2S Hourly Steady State - Impacts Review Summary				Eestimated, total, hourly, steadystate (lb/hr)	Total	**Pass**				Emax,total, hourly, steadystate (lb/hr)
				1.08E-01	**100%**					**5.88E-01**

Notes

1. Please refer to individual emissions calculation tables for steady-state emission rates information.

Burlington Resources Oil & Gas Company LP
Yanta North 1

Full Impacts Review - H2S

H2S Hourly Low Pressure Periodic - Impact Review										
EPN	FIN	Source Name	TCEQ Impacts table corresponding to EPN	LP Periodic hourly emissions (lb/hr)	WREPNx	AAQSH2S, hourly (µg/m3)	Distance to nearest property line (ft)	Height of emission release point (ft)	GEPNx	Emax,EPNx, hourly, LP periodic (lb/hr)
Tanks	Tanks	All Storage Tanks	Tank Hatch	1.1E-01	8.4E-01	108	50.00	20	183.0	5.0E-01
MSS	TRUCK1	MSS Loading - Blowcase MSS / AOS	Loading	1.9E-02	1.5E-01	108	50.00	10	739.2	2.2E-02
TRUCK2	TRUCK2	PW Loading - Normal Ops	Loading	2.9E-04	2.2E-03	108	50.00	10	739.2	3.3E-04
FUG	FUG	Equipment Fugitives	Fugitive	3.3E-04	2.6E-03	108	50.00	3	2,625.0	1.1E-04
MSS	MSS-Tank Degas	Tank Degas	Low P. Blowd./Purg./Pig.	2.4E-04	1.9E-03	108	50.00	20	244.0	8.3E-04
H2S Hourly Low Pressure Periodic - Impacts Review Summary				Eestimated, hourly, LP periodic (lb/hr)	Total	**Pass**				Emax, hourly, LP periodic (lb/hr)
				1.28E-01	**100%**					**5.20E-01**

Notes
1. Periodic emissions impacts tables have been setup to conservatively include both steady-state and periodic emissions that could occur simultaneously any given hour.

Burlington Resources Oil & Gas Company LP
Yanta North 1

Full Impacts Review - H2S

H2S Hourly High Pressure Periodic - Impact Review										
EPN	FIN	Source Name	TCEQ Impacts table corresponding to EPN	HP Periodic hourly emissions (lb/hr)	WREPNx	AAQSH2S, hourly (µg/m3)	Distance to nearest property line (ft)	Height of emission release point (ft)	GEPNx	Emax,EPNx, hourly, HP periodic (lb/hr)
Tanks	Tanks	All Storage Tanks	Tank Hatch	1.1E-01	2.8E-01	108	50.00	20	183.0	1.6E-01
MSS	TRUCK1	MSS Loading - Blowcase MSS / AOS	Loading	1.9E-02	5.0E-02	108	50.00	10	739.2	7.2E-03
TRUCK2	TRUCK2	PW Loading - Normal Ops	Loading	2.9E-04	7.3E-04	108	50.00	10	739.2	1.1E-04
FUG	FUG	Equipment Fugitives	Fugitive	3.3E-04	8.4E-04	108	50.00	3	2,625.0	3.5E-05
MSS	MSS-Tank Degas	NF Tank Degas	Low P. Blowd./Purg./Pig.	2.4E-04	6.1E-04	108	50.00	20	244.0	2.7E-04
MSS-SEP-1	MSS-SEP-1	MSS Separator 1 Maintenance	High P. Blowd./Purg./Pig.	2.6E-01	6.7E-01	108	50.00	10	25.0	2.9E+00
H2S Hourly High Pressure Periodic - Impacts Review Summary				Eestimated, hourly, HP periodic (lb/hr)	Total	**Pass**				Emax, hourly, HP periodic (lb/hr)
				3.91E-01	**100%**					**3.08E+00**

Notes

1. Periodic emissions impacts tables have been setup to conservatively include both steady-state and periodic emissions that could occur simultaneously any given hour.

NAAQS COMPLIANCE

Burlington Resources Oil & Gas Company LP
Yanta North 1

Screen3 Modeling - 1-Hour and Annual NO2

Inputs and Assumptions	
County	Karnes
Ambient Temperature	293
Receptor Height	0
Urban/Rural	Rural
Building Downwash	No
Full Meteorology	Yes
Automated Distance Array	Yes
Terrain Height Above Stack Base	0

Modeled Results - 1-Hour NO2	
Modeled NO2 1-Hour Concentration (µg/m3)	0.00
Background NO2 1-Hour Concentration (µg/m3)	70.00
Total NO2 1-Hour Concentration (µg/m3)	70.00
NO2 Hourly NAAQS (µg/m3)	188
Does Site Meet 1-Hour NO2 NAAQS?	**Pass**

Modeled Results - Annual NO2	
Modeled NO2 Annual Concentration (µg/m3)	0.00
Background NO2 Annual Concentration (µg/m3)	20.00
Total NO2 Annual Concentration (µg/m3)	20.00
NO2 Annual NAAQS (µg/m3)	100
Does Site Meet Annual NO2 NAAQS?	**Pass**

Notes

1. The site is assumed to be in compliance with NO2 NAAQS due to the absence of any significant NOx emissions sources.

Burlington Resources Oil & Gas Company LP
Yanta North 1

Screen3 Modeling - 1-Hour, 3-Hour, 24-Hour, and Annual SO2

Inputs and Assumptions	
County	Karnes
Ambient Temperature	293
Receptor Height	0
Urban/Rural	Rural
Building Downwash	No
Full Meteorology	Yes
Automated Distance Array	Yes
Terrain Height Above Stack Base	0

Modeled Results - 1-Hour SO2	
Modeled SO2 Concentration (µg/m3)	0.00
Background Concentration (µg/m3)	50.00
Total SO2 Concentration (µg/m3)	50.00
SO2 NAAQS (µg/m3)	196
Does Site Meet 1-Hr SO2 NAAQS?	**Pass**

Modeled Results - 3-Hour SO2	
Modeled SO2 Concentration (µg/m3)	0.00
Background Concentration (µg/m3)	130.00
Total SO2 Concentration (µg/m3)	130.00
SO2 NAAQS (µg/m3)	1300
Does Site Meet 3-Hour SO2 NAAQS?	**Pass**

Modeled Results - 24-Hour SO2	
Modeled SO2 Concentration (µg/m3)	0.00
Background Concentration (µg/m3)	36.00
Total SO2 Concentration (µg/m3)	36.00
SO2 NAAQS (µg/m3)	365
Does Site Meet 24-Hour SO2 NAAQS?	**Pass**

Modeled Results - Annual SO2	
Modeled SO2 Concentration (µg/m3)	0.00
Background Concentration (µg/m3)	8.00
Total SO2 Concentration (µg/m3)	8.00
SO2 NAAQS (µg/m3)	80
Does Site Meet Annual SO2 NAAQS?	**Pass**

Notes

1. The site is assumed to be in compliance with SO2 NAAQS due to the absence of any significant SO2 emissions sources.