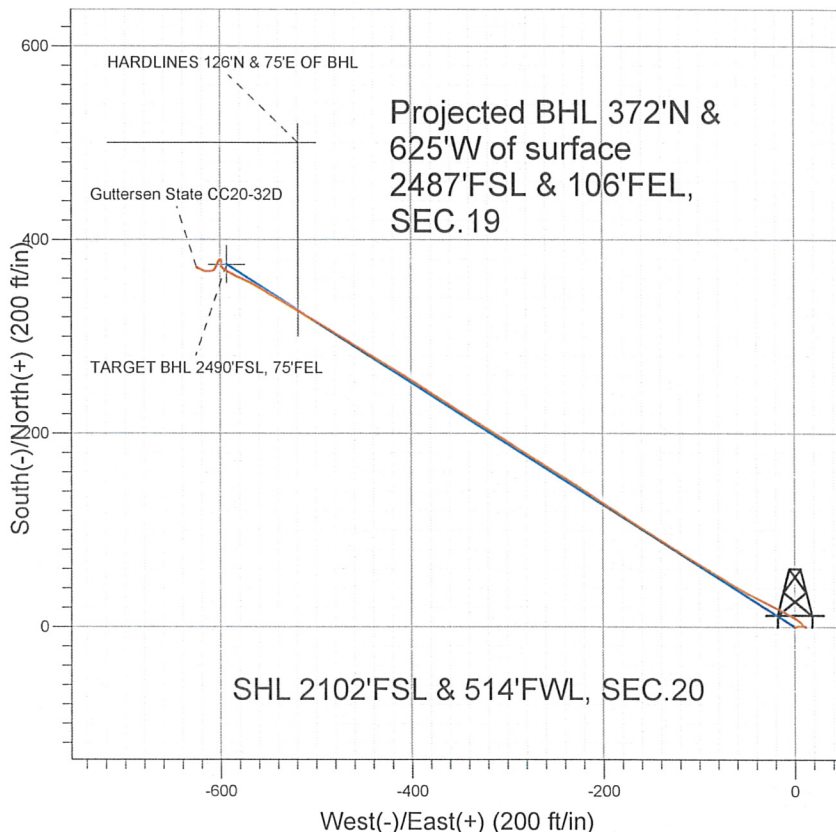


## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- ◆ Guttersen State CC20-32D, Wellbore #1, Noble Guttersen State CC20-32D Plan #1 (10-13-09)
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 6967'MD & 6880'TVD @ 727°VS  
 2.2 deg Inc 298.2 deg AZ

Project: SEC.20-T4N-R63W  
 Site: Guttersen State CC20-32D Pad Sec.20-T4N-R63W  
 Well: Guttersen State CC20-32D  
 Plan: Wellbore #1

**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.20-T4N-R63W  
**Site:** Guttersen State CC20-32D Pad  
 Sec.20-T4N-R63W  
**Well:** Guttersen State CC20-32D  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well Guttersen State CC20-32D  
**TVD Reference:** WELL @ 4725.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4725.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Landmark

<b>Project</b>	SEC.20-T4N-R63W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

**Site** Guttersen State CC20-32D Pad Sec.20-T4N-R63W

<b>Site Position:</b>	<b>Northing:</b>	1,352,421.59 ft	<b>Latitude:</b>	40.296210
<b>From:</b>	<b>Easting:</b>	3,287,521.52 ft	<b>Longitude:</b>	-104.469200
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"	<b>Grid Convergence:</b>
				0.67 °

**Well** Guttersen State CC20-32D

<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,352,421.57 ft	<b>Latitude:</b>	40.296210
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	3,287,521.52 ft	<b>Longitude:</b>	-104.469200
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	4,712.0 ft	

**Wellbore** Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	10/13/2009	8.88	67.08	53,305

**Design** Wellbore #1

**Audit Notes:**

**Version:** 1.0      **Phase:** ACTUAL      **Tie On Depth:** 0.0

<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	302.24

**Survey Program** Date 7/25/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
689.0	6,967.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard

**Survey**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
689.0	0.70	76.60	689.0	1.0	4.1	-2.9	0.10	0.10	0.00
782.0	0.60	87.30	782.0	1.1	5.1	-3.7	0.17	-0.11	11.51
876.0	0.70	81.60	876.0	1.2	6.2	-4.6	0.13	0.11	-6.06
971.0	0.60	84.60	971.0	1.4	7.3	-5.4	0.11	-0.11	3.16
1,064.0	0.70	96.90	1,064.0	1.3	8.3	-6.3	0.18	0.11	13.23
1,158.0	0.70	103.00	1,158.0	1.1	9.4	-7.4	0.08	0.00	6.49
1,251.0	0.60	101.00	1,250.9	0.9	10.5	-8.4	0.11	-0.11	-2.15
1,344.0	0.60	122.10	1,343.9	0.6	11.4	-9.3	0.24	0.00	22.69
1,438.0	0.30	225.00	1,437.9	0.1	11.6	-9.7	0.77	-0.32	109.47
1,531.0	0.90	297.10	1,530.9	0.3	10.8	-9.0	0.92	0.65	77.53
1,624.0	1.40	312.50	1,623.9	1.4	9.3	-7.1	0.63	0.54	16.56



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 Wellbore: Wellbore #1  
 Design: Wellbore #1

Local Co-ordinate Reference: Well Guttersen State CC20-32D  
 TVD Reference: WELL @ 4725.0ft (Original Well Elev)  
 MD Reference: WELL @ 4725.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature  
 Database: Landmark

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,718.0	2.10	317.30	1,717.9	3.4	7.3	-4.3	0.76	0.74	5.11
1,811.0	3.40	308.70	1,810.8	6.4	4.0	0.1	1.46	1.40	-9.25
1,904.0	5.00	301.30	1,903.5	10.2	-1.6	6.9	1.81	1.72	-7.96
1,998.0	6.90	299.10	1,997.0	15.1	-10.1	16.6	2.04	2.02	-2.34
2,092.0	9.60	296.10	2,090.0	21.3	-22.1	30.0	2.91	2.87	-3.19
2,185.0	11.00	295.40	2,181.5	28.5	-37.0	46.5	1.51	1.51	-0.75
2,278.0	12.60	299.80	2,272.6	37.4	-53.9	65.5	1.97	1.72	4.73
2,372.0	15.30	301.30	2,363.8	48.9	-73.3	88.1	2.90	2.87	1.60
2,465.0	16.20	300.40	2,453.3	61.9	-95.0	113.4	1.00	0.97	-0.97
2,558.0	15.50	301.30	2,542.7	74.9	-116.8	138.8	0.80	-0.75	0.97
2,652.0	16.00	303.10	2,633.2	88.5	-138.4	164.3	0.74	0.53	1.91
2,746.0	16.20	302.00	2,723.5	102.5	-160.4	190.3	0.39	0.21	-1.17
2,839.0	16.30	303.50	2,812.8	116.6	-182.3	216.4	0.46	0.11	1.61
2,932.0	14.90	303.40	2,902.4	130.4	-203.1	241.4	1.51	-1.51	-0.11
3,026.0	14.90	303.70	2,993.2	143.7	-223.3	265.5	0.08	0.00	0.32
3,119.0	14.40	300.50	3,083.2	156.2	-243.2	289.0	1.02	-0.54	-3.44
3,214.0	13.30	303.60	3,175.4	168.3	-262.5	311.8	1.40	-1.16	3.26
3,307.0	14.10	300.40	3,265.8	179.9	-281.2	333.8	1.18	0.86	-3.44
3,401.0	14.50	304.80	3,356.9	192.4	-300.7	357.0	1.23	0.43	4.68
3,494.0	14.60	300.90	3,446.9	205.1	-320.3	380.3	1.06	0.11	-4.19
3,587.0	16.30	302.30	3,536.5	218.1	-341.4	405.1	1.87	1.83	1.51
3,680.0	16.90	302.00	3,625.7	232.2	-363.9	431.7	0.65	0.65	-0.32
3,773.0	16.90	302.90	3,714.6	246.7	-386.7	458.7	0.28	0.00	0.97
3,867.0	15.80	301.70	3,804.8	260.9	-409.1	485.2	1.22	-1.17	-1.28
3,960.0	15.10	300.00	3,894.5	273.6	-430.3	509.9	0.90	-0.75	-1.83
4,053.0	16.90	302.10	3,983.9	286.8	-452.3	535.6	2.03	1.94	2.26
4,146.0	15.50	301.50	4,073.2	300.5	-474.3	561.5	1.52	-1.51	-0.65
4,241.0	15.30	300.20	4,164.8	313.5	-496.0	586.7	0.42	-0.21	-1.37
4,335.0	13.50	301.40	4,255.8	325.4	-516.1	610.1	1.94	-1.91	1.28
4,430.0	12.20	299.40	4,348.4	336.1	-534.3	631.2	1.45	-1.37	-2.11
4,524.0	9.50	302.20	4,440.7	345.1	-549.5	648.9	2.93	-2.87	2.98
4,618.0	7.30	298.20	4,533.7	352.1	-561.3	662.6	2.42	-2.34	-4.26
4,712.0	6.30	294.40	4,627.1	357.0	-571.3	673.7	1.17	-1.06	-4.04
4,805.0	4.60	294.80	4,719.6	360.7	-579.3	682.4	1.83	-1.83	0.43
4,899.0	4.00	294.90	4,813.4	363.7	-585.7	689.4	0.64	-0.64	0.11
4,993.0	3.40	300.40	4,907.2	366.5	-591.1	695.5	0.74	-0.64	5.85
5,086.0	3.01	306.26	5,000.0	369.3	-595.4	700.6	0.55	-0.42	6.30
TARGET BHL 2490'FSL, 75'FEL									
5,088.0	3.00	306.40	5,002.0	369.4	-595.5	700.8	0.55	-0.40	7.13
5,181.0	1.70	320.10	5,095.0	371.9	-598.4	704.5	1.51	-1.40	14.73
5,274.0	0.70	341.10	5,187.9	373.5	-599.4	706.2	1.16	-1.08	22.58
5,368.0	1.00	30.80	5,281.9	374.7	-599.2	706.7	0.81	0.32	52.87
5,461.0	0.90	11.50	5,374.9	376.1	-598.6	707.0	0.36	-0.11	-20.75
5,554.0	0.40	357.70	5,467.9	377.2	-598.5	707.4	0.56	-0.54	-14.84
5,649.0	0.50	356.30	5,562.9	377.9	-598.6	707.9	0.11	0.11	-1.47
5,742.0	0.60	329.90	5,655.9	378.7	-598.8	708.5	0.29	0.11	-28.39
5,836.0	0.30	322.80	5,749.9	379.4	-599.2	709.2	0.32	-0.32	-7.55
5,929.0	0.20	271.00	5,842.9	379.6	-599.5	709.6	0.25	-0.11	-55.70
6,022.0	0.50	234.70	5,935.9	379.3	-600.0	709.9	0.39	0.32	-39.03
6,115.0	1.00	223.40	6,028.9	378.5	-600.9	710.2	0.56	0.54	-12.15
6,209.0	1.50	211.70	6,122.9	376.9	-602.1	710.3	0.59	0.53	-12.45
6,302.0	2.20	202.80	6,215.8	374.2	-603.5	710.0	0.81	0.75	-9.57
6,396.0	2.60	204.90	6,309.7	370.6	-605.0	709.5	0.44	0.43	2.23

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Survey

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6,490.0	2.00	253.70	6,403.7	368.2	-607.5	710.3	2.10	-0.64	51.91
6,583.0	2.50	258.70	6,496.6	367.3	-611.1	712.8	0.58	0.54	5.38
6,677.0	2.30	280.80	6,590.5	367.3	-614.9	716.1	1.00	-0.21	23.51
6,771.0	2.10	297.40	6,684.4	368.4	-618.3	719.5	0.71	-0.21	17.66
6,864.0	1.90	294.70	6,777.4	369.9	-621.2	722.7	0.24	-0.22	-2.90
6,922.0	2.20	298.20	6,835.4	370.8	-623.1	724.8	0.56	0.52	6.03
6,965.4	2.20	298.20	6,878.7	371.6	-624.5	726.5	0.00	0.00	0.00
<b>HARDLINES 126'N &amp; 75'E OF BHL</b>									
6,967.0	2.20	298.20	6,880.3	371.6	-624.6	726.5	0.00	0.00	0.00

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_