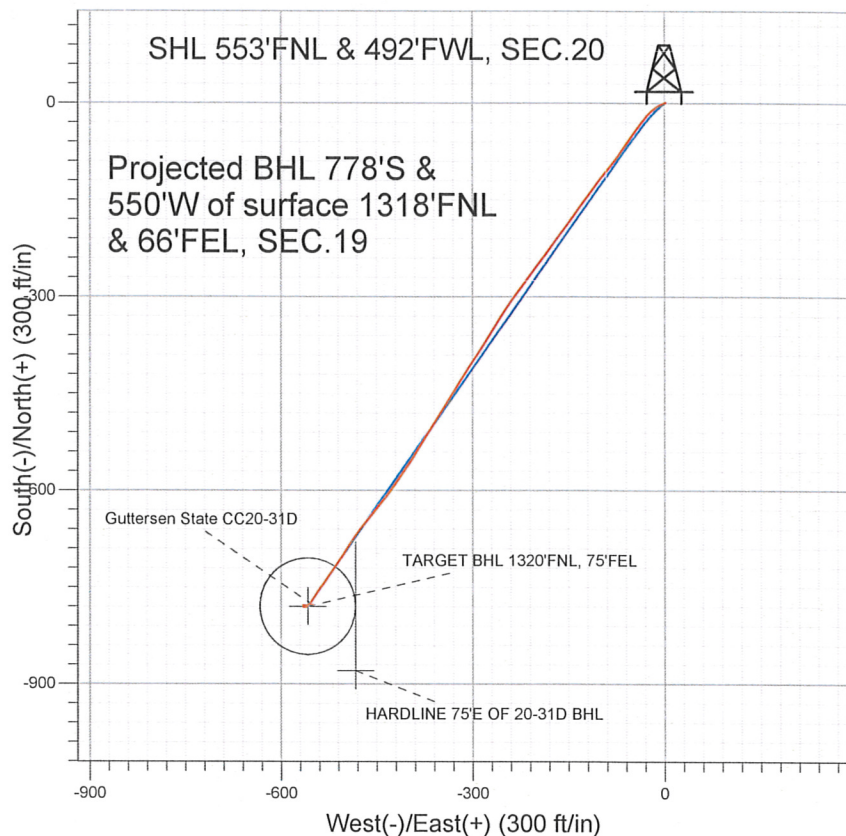


NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- △ Guttersen State CC20-31D, Wellbore #1, Noble Guttersen State CC20-31D Plan #2 (7-1-11)
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
 6992'MD & 6868'TVD @ 953'VS
 0.6 deg Inc 138.2 deg AZ

Project: SEC.20-T4N-R63W
 Site: Guttersen State CC20-31D Pad Sec.20-T4N-R63W
 Well: Guttersen State CC20-31D
 Plan: Wellbore #1

Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.20-T4N-R63W
Site: Gutttersen State CC20-31D Pad
 Sec.20-T4N-R63W
Well: Gutttersen State CC20-31D
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Site Gutttersen State CC20-31D Pad
 Sec.20-T4N-R63W
TVD Reference: WELL @ 4703.0ft (Original Well Elev)
MD Reference: WELL @ 4703.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: Landmark

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

Site Gutttersen State CC20-31D Pad Sec.20-T4N-R63W

Site Position:	Northing:	1,355,000.33 ft	Latitude:	40.303290
From: Lat/Long	Easting:	3,287,469.23 ft	Longitude:	-104.469280
Position Uncertainty: 0.0 ft	Slot Radius:	"	Grid Convergence:	0.67 °

Well Gutttersen State CC20-31D

Well Position	+N/-S	0.0 ft	Northing:	1,355,000.32 ft	Latitude:	40.303290
	+E/-W	0.0 ft	Easting:	3,287,469.23 ft	Longitude:	-104.469280
Position Uncertainty	0.0 ft		Wellhead Elevation:	ft	Ground Level:	4,690.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/1/2011	8.69	67.02	53,109

Design Wellbore #1

Audit Notes:

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

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	5,000.0	0.0	0.0	215.60

Survey Program Date 7/11/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
689.0	6,992.0	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	0.40	64.90	689.0	1.0	2.2	-2.1	0.06	0.06	0.00
782.0	0.20	221.60	782.0	1.0	2.4	-2.2	0.63	-0.22	168.49
875.0	2.20	249.00	875.0	0.3	0.6	-0.6	2.18	2.15	29.46
969.0	4.20	247.80	968.8	-1.7	-4.3	3.9	2.13	2.13	-1.28
1,063.0	6.50	238.20	1,062.4	-5.8	-12.0	11.7	2.62	2.45	-10.21
1,158.0	9.00	224.70	1,156.5	-13.9	-21.8	24.0	3.24	2.63	-14.21
1,251.0	11.20	218.90	1,248.1	-26.1	-32.6	40.2	2.60	2.37	-6.24
1,346.0	13.30	215.90	1,340.9	-42.1	-44.8	60.3	2.31	2.21	-3.16
1,440.0	14.70	213.60	1,432.1	-60.8	-57.7	83.1	1.60	1.49	-2.45
1,535.0	15.20	216.60	1,523.9	-80.9	-71.8	107.6	0.97	0.53	3.16

Company: NOBLE ENERGY INC WELD COUNTY CO

Local Co-ordinate Reference: Site Gutttersen State CC20-31D Pad
Sec.20-T4N-R63W

Project: SEC.20-T4N-R63W

TVD Reference: WELL @ 4703.0ft (Original Well Elev)

Site: Gutttersen State CC20-31D Pad
Sec.20-T4N-R63W

MD Reference: WELL @ 4703.0ft (Original Well Elev)

Well: Gutttersen State CC20-31D

North Reference: True

Wellbore: Wellbore #1

Survey Calculation Method: Minimum Curvature

Design: Wellbore #1

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)
1,628.0	16.20	218.60	1,613.4	-100.8	-87.2	132.7	1.22	1.08	2.15
1,721.0	16.40	218.00	1,702.7	-121.3	-103.4	158.8	0.28	0.22	-0.65
1,815.0	16.10	214.40	1,793.0	-142.5	-118.9	185.1	1.12	-0.32	-3.83
1,908.0	15.70	216.60	1,882.4	-163.2	-133.7	210.5	0.78	-0.43	2.37
2,001.0	15.10	214.60	1,972.1	-183.3	-148.1	235.2	0.86	-0.65	-2.15
2,095.0	15.30	217.00	2,062.8	-203.3	-162.5	259.9	0.70	0.21	2.55
2,189.0	15.30	216.30	2,153.4	-223.2	-177.3	284.7	0.20	0.00	-0.74
2,282.0	15.30	217.00	2,243.1	-242.9	-191.9	309.2	0.20	0.00	0.75
2,375.0	15.60	216.50	2,332.8	-262.7	-206.8	334.0	0.35	0.32	-0.54
2,469.0	15.70	217.60	2,423.3	-283.0	-222.0	359.3	0.33	0.11	1.17
2,563.0	15.50	215.10	2,513.8	-303.3	-237.0	384.6	0.75	-0.21	-2.66
2,657.0	15.90	212.10	2,604.3	-324.5	-251.1	410.0	0.96	0.43	-3.19
2,750.0	15.80	212.30	2,693.8	-346.0	-264.6	435.4	0.12	-0.11	0.22
2,844.0	15.50	212.50	2,784.3	-367.4	-278.2	460.7	0.32	-0.32	0.21
2,937.0	15.70	214.60	2,873.9	-388.2	-292.0	485.7	0.64	0.22	2.26
3,031.0	15.90	211.70	2,964.3	-409.7	-306.0	511.2	0.87	0.21	-3.09
3,125.0	14.80	211.90	3,055.0	-430.8	-319.1	536.1	1.17	-1.17	0.21
3,218.0	14.90	212.10	3,144.9	-451.0	-331.8	559.9	0.12	0.11	0.22
3,311.0	14.40	213.10	3,234.8	-470.8	-344.4	583.3	0.60	-0.54	1.08
3,404.0	15.80	210.90	3,324.6	-491.4	-357.2	607.5	1.63	1.51	-2.37
3,497.0	14.40	212.40	3,414.4	-512.0	-369.9	631.7	1.56	-1.51	1.61
3,591.0	15.40	212.00	3,505.3	-532.5	-382.8	655.8	1.07	1.06	-0.43
3,685.0	15.60	212.20	3,595.8	-553.8	-396.2	680.9	0.22	0.21	0.21
3,778.0	16.40	213.70	3,685.2	-575.3	-410.1	706.5	0.97	0.86	1.61
3,872.0	16.40	217.40	3,775.4	-596.9	-425.5	733.0	1.11	0.00	3.94
3,966.0	15.80	217.10	3,865.7	-617.6	-441.3	759.1	0.64	-0.64	-0.32
4,059.0	15.90	220.50	3,955.2	-637.4	-457.2	784.4	1.00	0.11	3.66
4,153.0	16.40	216.70	4,045.5	-657.8	-473.5	810.5	1.24	0.53	-4.04
4,246.0	16.00	214.40	4,134.8	-678.9	-488.6	836.5	0.81	-0.43	-2.47
4,339.0	14.10	213.20	4,224.6	-699.0	-502.1	860.6	2.07	-2.04	-1.29
4,432.0	13.50	215.30	4,314.9	-717.3	-514.5	882.8	0.84	-0.65	2.26
4,526.0	11.80	214.40	4,406.6	-734.2	-526.3	903.3	1.82	-1.81	-0.96
4,620.0	9.70	215.80	4,499.0	-748.6	-536.4	920.9	2.25	-2.23	1.49
4,713.0	8.40	214.40	4,590.8	-760.5	-544.8	935.5	1.42	-1.40	-1.51
4,807.0	6.10	213.10	4,684.1	-770.4	-551.4	947.4	2.45	-2.45	-1.38
4,900.0	4.60	218.70	4,776.7	-777.4	-556.4	956.0	1.71	-1.61	6.02
4,992.0	2.10	256.90	4,868.5	-780.7	-560.4	961.0	3.50	-2.72	41.52
5,086.0	0.70	287.50	4,962.5	-780.9	-562.6	962.4	1.64	-1.49	32.55
5,123.5	0.70	292.77	5,000.0	-780.7	-563.0	962.6	0.17	-0.01	14.07
TARGET BHL 1320'FNL, 75'FEL									
5,179.0	0.70	300.60	5,055.5	-780.4	-563.6	962.7	0.17	0.01	14.10
5,273.0	0.40	312.10	5,149.5	-779.9	-564.4	962.7	0.34	-0.32	12.23
5,366.0	0.50	312.50	5,242.5	-779.4	-564.9	962.6	0.11	0.11	0.43
5,459.0	0.40	312.30	5,335.5	-778.9	-565.4	962.5	0.11	-0.11	-0.22
5,552.0	0.40	31.10	5,428.5	-778.4	-565.5	962.1	0.55	0.00	84.73
5,646.0	0.40	75.60	5,522.5	-778.1	-565.0	961.6	0.32	0.00	47.34
5,739.0	0.50	89.30	5,615.4	-778.0	-564.3	961.1	0.16	0.11	14.73
5,833.0	0.60	95.90	5,709.4	-778.0	-563.4	960.6	0.13	0.11	7.02
5,927.0	0.70	97.50	5,803.4	-778.2	-562.4	960.1	0.11	0.11	1.70
6,022.0	0.70	95.30	5,898.4	-778.3	-561.2	959.5	0.03	0.00	-2.32
6,115.0	0.80	87.80	5,991.4	-778.3	-560.0	958.8	0.15	0.11	-8.06
6,209.0	0.90	75.60	6,085.4	-778.1	-558.6	957.9	0.22	0.11	-12.98

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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)
6,303.0	0.70	82.40	6,179.4	-777.9	-557.3	956.9	0.24	-0.21	7.23
6,396.0	0.40	339.40	6,272.4	-777.5	-556.9	956.3	0.95	-0.32	-110.75
6,490.0	0.80	74.20	6,366.4	-777.0	-556.4	955.6	0.98	0.43	100.85
6,545.6	0.97	81.86	6,421.9	-776.8	-555.5	955.0	0.38	0.31	13.78
TARGET CIRCLE 20-31D									
6,583.0	1.10	85.60	6,459.4	-776.7	-554.9	954.6	0.38	0.33	10.00
6,677.0	1.10	92.70	6,553.4	-776.7	-553.1	953.5	0.14	0.00	7.55
6,770.0	0.70	100.40	6,646.4	-776.9	-551.6	952.8	0.45	-0.43	8.28
6,863.0	0.60	123.00	6,739.3	-777.2	-550.6	952.5	0.29	-0.11	24.30
6,947.0	0.60	138.20	6,823.3	-777.8	-550.0	952.6	0.19	0.00	18.10
6,987.9	0.60	138.20	6,864.3	-778.1	-549.7	952.7	0.00	0.00	0.00
HARDLINE 75'E OF 20-31D BHL									
6,992.0	0.60	138.20	6,868.3	-778.1	-549.7	952.7	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____