

Noble Energy Inc.- Weld County, CO (Grid North)

Well Name: Guttersen D30-68-1HN			
Surface Location: Guttersen D30 Pad Sec.29-T3N-R64W			
North American Datum 1983, US State Plane 1983, Colorado Northern Zone			
Ground Elevation: 4787.0			
+N/-S	+E/-W	Northing	Easting
0.0	0.0	1317004.38	3256081.64
		Latitude	Longitude
		40.199940	-104.593220
Original Well Elev WELL @ 4800.0ft (Original Well Elev)			
Slot			

North American Datum 1983		US State Plane 1983		Colorado Northern Zone	
Ground Elevation: 4787.0					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1317004.38	3256081.64	40.199940	-104.583220
Original Well Elev				WELL @ 4800.0ft (Original Well Elev)	

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0.0	0.0	1317004.38	3256081.64	-104.583220
		Original Well Elev	Well @ 4800.0ft (Original Well Elev)	

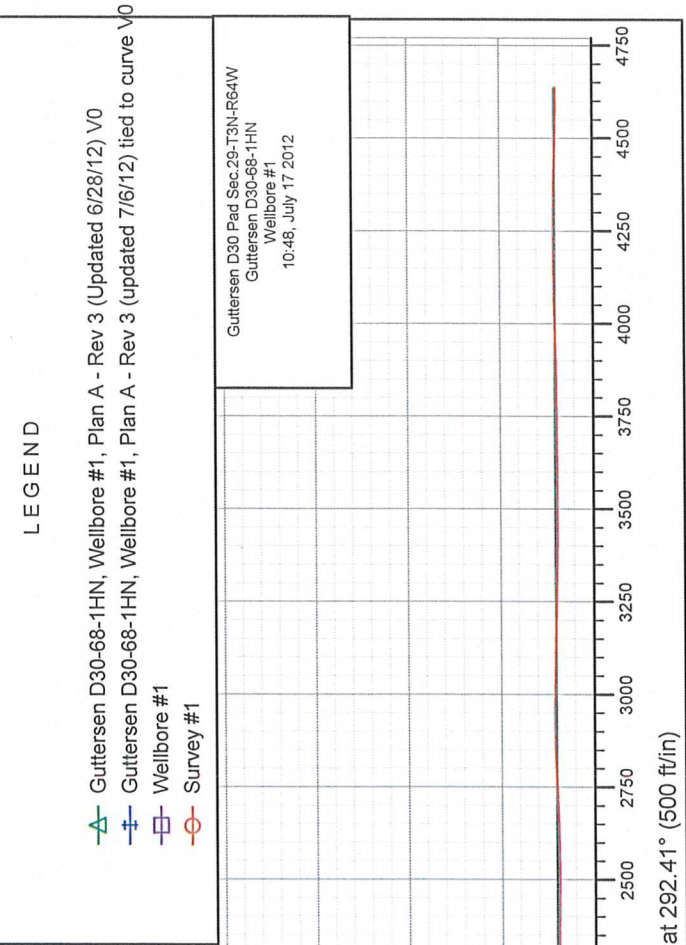
NEW	REV	DATE	DESCRIPTION	BY	CHKD
0.0	0.0	13/7/2004	38 3256081.64	40.199940	-104.583220
			Original Well Elev	WELL @ 4800.0ft (Original Well Elev)	

Original Well Elev WELL @ 4800.0ft (Original Well Elev)

[illegible]

FINAL SURVEY

Projected Bottom Hole Location
11278' MD 6901.9' TVD 225' N & 4923.5' W
of SHL
90.5 degree Incl @ 266.8 degree AZM





Directional

Noble Energy Inc.- Weld County, CO (Grid North)

Sec.29-T3N-R64W

Guttersen D30 Pad Sec.29-T3N-R64W

Guttersen D30-68-1HN

Wellbore #1

Survey: Survey #1

Standard Survey Report

17 July, 2012

Survey Report

Company:	Noble Energy Inc.- Weld County, CO (Grid North)
Project:	Sec.29-T3N-R64W
Site:	Guttersen D30 Pad Sec.29-T3N-R64W
Well:	Guttersen D30-68-1HN
Wellbore:	Wellbore #1
Desian:	Wellbore #1

Local Co-ordinate Reference:	Well Guttersten D30-68-1HN
TVD Reference:	WELL @ 4800.0ft (Original Well Elev)
MD Reference:	WELL @ 4800.0ft (Original Well Elev)
North Reference:	Grid
Survey Calculation Method:	Minimum Curvature
Database:	Landmark

Project	Sec.29-T3N-R64W, Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site Guttersen D30 Pad Sec.29-T3N-R64W					
Site Position:		Northing:	1,317,026.24 ft	Latitude:	40.200000
From:	Lat/Long	Easting:	3,256,081.42 ft	Longitude:	-104.583220
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.59 °

Well	Guttersen D30-68-1HN				
Well Position	+N/-S	0.0 ft	Northing:	1,317,004.38 ft	Latitude: 40.199940
	+E/-W	0.0 ft	Easting:	3,256,081.64 ft	Longitude: -104.583220
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level: 4,787.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/16/2012	8.63	66.89	52,949

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	292.41	

Survey Program		Date	7/17/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
835.0	11,278.0	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
835.0	0.00	0.00	835.0	0.0	0.0	0.0	0.00	0.00	0.00
909.0	0.20	206.10	909.0	-0.1	-0.1	0.0	0.27	0.27	0.00
1,002.0	0.40	195.90	1,002.0	-0.6	-0.2	0.0	0.22	0.22	-10.97
1,099.0	1.30	294.40	1,099.0	-0.4	-1.3	1.0	1.46	0.93	101.55
1,194.0	1.30	300.40	1,194.0	0.5	-3.2	3.2	0.14	0.00	6.32
1,288.0	1.30	300.50	1,287.9	1.6	-5.1	5.3	0.00	0.00	0.11
1,383.0	1.20	308.40	1,382.9	2.8	-6.8	7.3	0.21	-0.11	8.32
1,479.0	1.10	313.50	1,478.9	4.0	-8.2	9.1	0.15	-0.10	5.31
1,574.0	2.90	320.00	1,573.8	6.5	-10.4	12.1	1.91	1.89	6.84
1,669.0	4.90	322.20	1,668.6	11.6	-14.5	17.8	2.11	2.11	2.32
1,764.0	5.50	312.30	1,763.2	17.8	-20.3	25.6	1.13	0.63	-10.42

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Site: Gutteresen D30 Pad Sec.29-T3N-R64W
Well: Gutteresen D30-68-1HN
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Gutteresen D30-68-1HN
TVD Reference: WELL @ 4800.0ft (Original Well Elev)
MD Reference: WELL @ 4800.0ft (Original Well Elev)
North Reference: Grid
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)
1,858.0	7.10	311.10	1,856.7	24.7	-28.0	35.3	1.71	1.70	-1.28
1,952.0	8.90	310.90	1,949.7	33.3	-37.9	47.7	1.92	1.91	-0.21
2,046.0	11.00	311.60	2,042.3	44.0	-50.1	63.1	2.24	2.23	0.74
2,140.0	12.00	314.90	2,134.4	56.8	-63.7	80.6	1.27	1.06	3.51
2,235.0	13.50	313.50	2,227.1	71.4	-78.8	100.1	1.61	1.58	-1.47
2,330.0	12.50	311.30	2,319.6	85.9	-94.5	120.1	1.17	-1.05	-2.32
2,425.0	13.20	317.20	2,412.3	100.6	-109.6	139.7	1.56	0.74	6.21
2,520.0	14.00	316.20	2,504.6	116.9	-125.0	160.1	0.88	0.84	-1.05
2,614.0	13.40	319.90	2,595.9	133.4	-139.8	180.1	1.13	-0.64	3.94
2,709.0	15.20	314.10	2,688.0	150.5	-155.9	201.5	2.42	1.89	-6.11
2,804.0	14.90	311.60	2,779.7	167.3	-174.0	224.6	0.75	-0.32	-2.63
2,899.0	15.40	314.10	2,871.4	184.1	-192.2	247.8	0.87	0.53	2.63
2,994.0	15.50	314.90	2,963.0	201.9	-210.2	271.3	0.25	0.11	0.84
3,089.0	15.70	313.90	3,054.5	219.8	-228.5	295.0	0.35	0.21	-1.05
3,184.0	15.90	316.70	3,145.9	238.1	-246.6	318.8	0.83	0.21	2.95
3,279.0	14.00	315.10	3,237.7	255.8	-263.7	341.3	2.05	-2.00	-1.68
3,374.0	11.60	312.80	3,330.3	270.4	-278.8	360.8	2.58	-2.53	-2.42
3,469.0	9.80	310.90	3,423.7	282.2	-291.9	377.4	1.93	-1.89	-2.00
3,564.0	8.20	315.10	3,517.5	292.3	-302.8	391.4	1.82	-1.68	4.42
3,659.0	5.50	323.60	3,611.8	300.7	-310.3	401.5	3.03	-2.84	8.95
3,754.0	2.80	322.70	3,706.6	306.2	-314.4	407.4	2.84	-2.84	-0.95
3,849.0	0.60	296.80	3,801.5	308.3	-316.3	409.9	2.40	-2.32	-27.26
3,943.0	0.70	300.50	3,895.5	308.8	-317.2	411.0	0.12	0.11	3.94
4,038.0	1.00	49.70	3,990.5	309.7	-317.1	411.2	1.47	0.32	114.95
4,133.0	1.70	110.00	4,085.5	309.7	-315.1	409.4	1.56	0.74	63.47
4,228.0	1.20	112.10	4,180.4	308.9	-312.9	407.0	0.53	-0.53	2.21
4,323.0	1.10	113.70	4,275.4	308.1	-311.1	405.1	0.11	-0.11	1.68
4,418.0	1.00	117.00	4,370.4	307.4	-309.5	403.3	0.12	-0.11	3.47
4,513.0	1.10	110.90	4,465.4	306.7	-307.9	401.6	0.16	0.11	-6.42
4,608.0	0.80	125.10	4,560.4	306.0	-306.5	400.0	0.40	-0.32	14.95
4,703.0	0.70	116.80	4,655.4	305.3	-305.5	398.8	0.16	-0.11	-8.74
4,798.0	0.90	124.00	4,750.4	304.6	-304.3	397.5	0.24	0.21	7.58
4,893.0	1.30	126.50	4,845.3	303.6	-302.9	395.7	0.42	0.42	2.63
4,988.0	2.70	93.30	4,940.3	302.8	-299.8	392.6	1.86	1.47	-34.95
5,083.0	1.70	133.70	5,035.2	301.7	-296.5	389.1	1.88	-1.05	42.53
5,178.0	0.40	22.40	5,130.2	301.0	-295.4	387.8	1.98	-1.37	-117.16
5,273.0	0.50	75.90	5,225.2	301.4	-294.8	387.5	0.44	0.11	56.32
5,368.0	0.60	60.20	5,320.2	301.8	-294.0	386.8	0.19	0.11	-16.53
5,463.0	0.60	40.40	5,415.2	302.4	-293.2	386.4	0.22	0.00	-20.84
5,557.0	0.50	49.70	5,509.2	303.1	-292.6	386.0	0.14	-0.11	9.89
5,652.0	1.00	114.20	5,604.2	303.0	-291.5	385.0	0.95	0.53	67.89
5,747.0	1.10	110.90	5,699.2	302.3	-289.9	383.3	0.12	0.11	-3.47
5,842.0	0.80	75.90	5,794.2	302.2	-288.4	381.8	0.67	-0.32	-36.84
5,937.0	0.40	85.70	5,889.2	302.3	-287.5	381.0	0.43	-0.42	10.32
6,032.0	1.50	275.70	5,984.1	302.5	-288.4	381.9	1.99	1.16	-178.95
6,127.0	1.60	263.80	6,079.1	302.5	-290.9	384.3	0.35	0.11	-12.53
6,222.0	3.40	268.20	6,174.0	302.2	-295.1	388.0	1.90	1.89	4.63
6,317.0	12.30	269.10	6,268.0	302.0	-308.0	399.9	9.37	9.37	0.95
6,412.0	16.90	275.00	6,359.9	303.0	-331.9	422.4	5.08	4.84	6.21
6,507.0	19.50	284.70	6,450.2	308.3	-361.0	451.3	4.19	2.74	10.21
6,601.0	23.70	281.20	6,537.6	315.9	-394.7	485.4	4.67	4.47	-3.72
6,697.0	32.70	274.00	6,622.1	321.5	-439.6	529.0	10.01	9.38	-7.50
6,792.0	41.20	268.90	6,698.0	322.7	-496.6	582.1	9.50	8.95	-5.37

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Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Guttersen D30-68-1HN
TVD Reference: WELL @ 4800.0ft (Original Well Elev)
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North Reference: Grid
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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)
6,887.0	51.00	259.70	6,763.9	315.5	-564.5	642.1	12.43	10.32	-9.68
6,982.0	62.00	260.80	6,816.2	302.1	-642.4	709.1	11.62	11.58	1.16
7,077.0	73.20	266.10	6,852.4	292.3	-729.5	785.9	12.86	11.79	5.58
7,124.0	75.50	265.70	6,865.1	289.0	-774.7	826.4	4.96	4.89	-0.85
7,168.0	77.70	267.10	6,875.3	286.4	-817.4	864.8	5.88	5.00	3.18
7,220.0	81.20	268.50	6,884.8	284.4	-868.5	911.3	7.23	6.73	2.69
7,253.0	84.00	267.30	6,889.0	283.2	-901.2	941.1	9.22	8.48	-3.64
7,301.0	84.60	267.70	6,893.8	281.1	-948.9	984.4	1.50	1.25	0.83
7,396.0	86.80	267.30	6,900.9	277.0	-1,043.5	1,070.3	2.35	2.32	-0.42
7,491.0	90.10	267.80	6,903.5	272.9	-1,138.4	1,156.5	3.51	3.47	0.53
7,586.0	91.60	268.90	6,902.1	270.2	-1,233.3	1,243.2	1.96	1.58	1.16
7,681.0	92.00	270.60	6,899.1	269.8	-1,328.3	1,330.8	1.84	0.42	1.79
7,776.0	90.40	270.60	6,897.1	270.8	-1,423.2	1,419.0	1.68	-1.68	0.00
7,871.0	90.70	270.60	6,896.2	271.8	-1,518.2	1,507.2	0.32	0.32	0.00
7,965.0	89.30	270.50	6,896.2	272.7	-1,612.2	1,594.4	1.49	-1.49	-0.11
8,060.0	90.60	269.60	6,896.3	272.7	-1,707.2	1,682.3	1.66	1.37	-0.95
8,155.0	89.10	269.20	6,896.5	271.8	-1,802.2	1,769.7	1.63	-1.58	-0.42
8,250.0	89.90	269.80	6,897.4	270.9	-1,897.2	1,857.2	1.05	0.84	0.63
8,345.0	88.50	268.40	6,898.7	269.4	-1,992.2	1,944.5	2.08	-1.47	-1.47
8,440.0	89.10	268.50	6,900.7	266.9	-2,087.1	2,031.3	0.64	0.63	0.11
8,535.0	89.50	269.10	6,901.8	264.9	-2,182.1	2,118.3	0.76	0.42	0.63
8,630.0	89.10	268.20	6,903.0	262.6	-2,277.1	2,205.3	1.04	-0.42	-0.95
8,725.0	89.90	267.80	6,903.8	259.3	-2,372.0	2,291.8	0.94	0.84	-0.42
8,820.0	89.30	267.50	6,904.5	255.4	-2,466.9	2,378.0	0.71	-0.63	-0.32
8,915.0	89.00	267.80	6,905.9	251.5	-2,561.8	2,464.3	0.45	-0.32	0.32
9,010.0	90.50	267.80	6,906.3	247.9	-2,656.8	2,550.7	1.58	1.58	0.00
9,105.0	91.30	268.40	6,904.8	244.7	-2,751.7	2,637.2	1.05	0.84	0.63
9,200.0	92.20	269.10	6,901.9	242.7	-2,846.6	2,724.2	1.20	0.95	0.74
9,295.0	92.00	269.80	6,898.4	241.8	-2,941.6	2,811.6	0.77	-0.21	0.74
9,390.0	90.90	269.40	6,896.0	241.1	-3,036.5	2,899.2	1.23	-1.16	-0.42
9,485.0	88.90	268.50	6,896.2	239.3	-3,131.5	2,986.3	2.31	-2.11	-0.95
9,580.0	89.00	269.80	6,897.9	237.9	-3,226.5	3,073.6	1.37	0.11	1.37
9,674.0	89.00	271.40	6,899.6	238.9	-3,320.4	3,160.8	1.70	0.00	1.70
9,769.0	89.10	271.70	6,901.1	241.5	-3,415.4	3,249.6	0.33	0.11	0.32
9,864.0	89.10	272.10	6,902.6	244.6	-3,510.3	3,338.6	0.42	0.00	0.42
9,959.0	89.10	271.00	6,904.1	247.2	-3,605.3	3,427.3	1.16	0.00	-1.16
10,054.0	90.10	269.80	6,904.8	247.9	-3,700.3	3,515.4	1.64	1.05	-1.26
10,149.0	90.10	268.00	6,904.6	246.1	-3,795.3	3,602.5	1.89	0.00	-1.89
10,244.0	90.10	267.30	6,904.5	242.2	-3,890.2	3,688.8	0.74	0.00	-0.74
10,339.0	90.70	267.70	6,903.8	238.0	-3,985.1	3,774.9	0.76	0.63	0.42
10,434.0	91.20	267.70	6,902.2	234.2	-4,080.0	3,861.2	0.53	0.53	0.00
10,529.0	90.80	269.60	6,900.6	232.0	-4,174.9	3,948.2	2.04	-0.42	2.00
10,624.0	91.40	269.40	6,898.7	231.1	-4,269.9	4,035.7	0.67	0.63	-0.21
10,719.0	90.70	271.70	6,897.0	232.0	-4,364.9	4,123.8	2.53	-0.74	2.42
10,814.0	89.80	271.90	6,896.6	235.0	-4,459.9	4,212.7	0.97	-0.95	0.21
10,909.0	90.30	270.50	6,896.5	237.0	-4,554.8	4,301.3	1.56	0.53	-1.47
11,004.0	87.90	268.90	6,898.0	236.5	-4,649.8	4,388.9	3.04	-2.53	-1.68
11,099.0	88.50	267.80	6,901.0	233.8	-4,744.7	4,475.6	1.32	0.63	-1.16
11,194.0	89.80	267.50	6,902.4	229.9	-4,839.6	4,561.9	1.40	1.37	-0.32
11,218.0	90.00	267.30	6,902.4	228.8	-4,863.6	4,583.6	1.18	0.83	-0.83
11,278.0	90.50	266.80	6,902.2	225.7	-4,923.5	4,637.8	1.18	0.83	-0.83

Guttersen D30-68-1HN BHL 990'FNL, 535'FWL

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Gutteresen D30-68-1HN
Project:	Sec.29-T3N-R64W	TVD Reference:	WELL @ 4800.0ft (Original Well Elev)
Site:	Gutteresen D30 Pad Sec.29-T3N-R64W	MD Reference:	WELL @ 4800.0ft (Original Well Elev)
Well:	Gutteresen D30-68-1HN	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Checked By: _____	Approved By: _____	Date: _____
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