

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

Well Name: **Guttersen D29-67HN**

Surface Location: Guttersen D30 Pad Sec.29-T3N-R64W

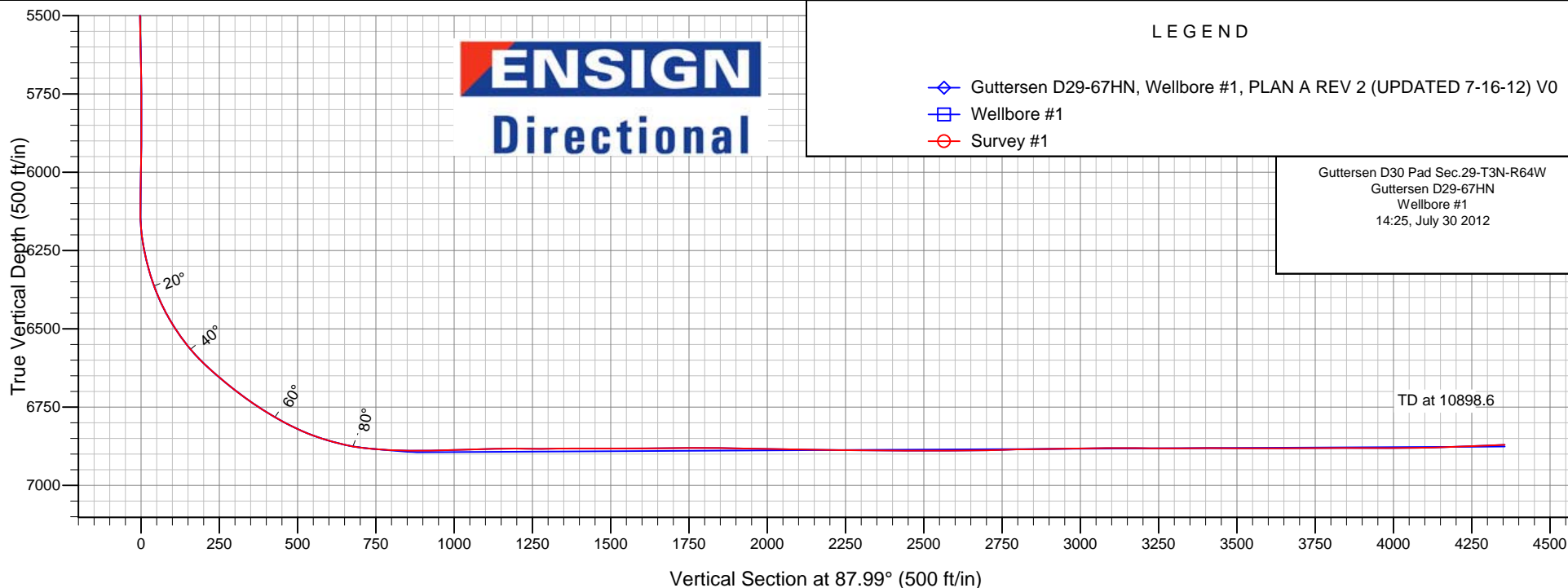
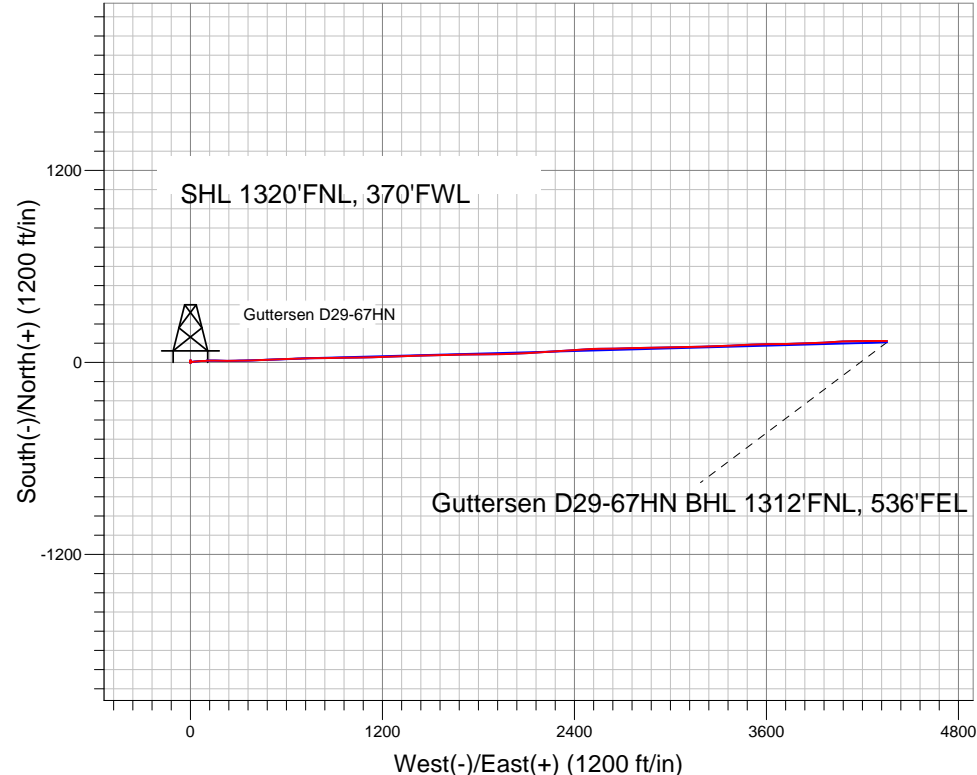
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4786.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1316982.49	3256079.08	40.199880	-104.583230	
Original Well Elev WELL @ 4799.0ft (Original Well Elev)						

FINAL SURVEY

Projected Bottom Hole Location
10899' MD 6870.57' TVD 134' N & 4353.4'
E of SHL
92.2 degree Incl @ 89.9 degree AZM





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

Sec.29-T3N-R64W

Guttersen D30 Pad Sec.29-T3N-R64W

Guttersen D29-67HN

Wellbore #1

Survey: Survey #1

Standard Survey Report

30 July, 2012

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)
Main Survey	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
	855.0	0.00	0.00	855.0	0.0	0.0	0.0	0.00	0.00	0.00
	908.0	0.80	352.20	908.0	0.4	-0.1	0.0	1.51	1.51	0.00
	1,001.0	0.80	25.20	1,001.0	1.6	0.1	0.2	0.49	0.00	35.48
	1,099.0	0.90	27.20	1,099.0	2.9	0.8	0.9	0.11	0.10	2.04
	1,194.0	1.10	19.30	1,194.0	4.4	1.4	1.6	0.26	0.21	-8.32
	1,288.0	0.40	22.40	1,288.0	5.6	1.8	2.0	0.75	-0.74	3.30
	1,383.0	0.60	22.20	1,383.0	6.3	2.2	2.4	0.21	0.21	-0.21
	1,478.0	0.80	357.80	1,477.9	7.5	2.3	2.6	0.37	0.21	-25.68
	1,573.0	1.10	231.30	1,572.9	7.6	1.6	1.9	1.79	0.32	-133.16
	1,668.0	1.20	211.40	1,667.9	6.1	0.4	0.6	0.43	0.11	-20.95
	1,763.0	0.70	207.90	1,762.9	4.8	-0.4	-0.3	0.53	-0.53	-3.68
	1,858.0	0.60	207.90	1,857.9	4.8	-0.4	-0.3	0.53	-0.53	-3.68
	1,953.0	0.50	207.90	1,952.9	4.8	-0.4	-0.3	0.53	-0.53	-3.68
	2,048.0	0.40	207.90	2,047.9	4.8	-0.4	-0.3	0.53	-0.53	-3.68

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Gutteresen D29-67HN
Project:	Sec.29-T3N-R64W	TVD Reference:	WELL @ 4799.0ft (Original Well Elev)
Site:	Gutteresen D30 Pad Sec.29-T3N-R64W	MD Reference:	WELL @ 4799.0ft (Original Well Elev)
Well:	Gutteresen D29-67HN	North Reference:	Grid
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)
1,857.0	1.40	196.40	1,856.9	3.2	-1.0	-0.9	0.77	0.74	-12.23
1,951.0	1.80	173.10	1,950.9	0.6	-1.2	-1.2	0.80	0.43	-24.79
2,045.0	1.70	172.50	2,044.8	-2.2	-0.8	-0.9	0.11	-0.11	-0.64
2,139.0	0.60	47.00	2,138.8	-3.3	-0.3	-0.4	2.24	-1.17	-133.51
2,234.0	0.60	356.10	2,233.8	-2.5	0.1	0.0	0.54	0.00	-53.58
2,329.0	1.40	333.40	2,328.8	-0.9	-0.5	-0.5	0.92	0.84	-23.89
2,424.0	1.90	8.70	2,423.7	1.7	-0.8	-0.7	1.17	0.53	37.16
2,519.0	0.80	21.70	2,518.7	3.8	-0.3	-0.2	1.19	-1.16	13.68
2,614.0	1.20	20.30	2,613.7	5.4	0.3	0.5	0.42	0.42	-1.47
2,709.0	1.10	20.70	2,708.7	7.2	1.0	1.2	0.11	-0.11	0.42
2,803.0	1.10	8.90	2,802.7	8.9	1.4	1.7	0.24	0.00	-12.55
2,898.0	1.60	1.30	2,897.6	11.1	1.6	2.0	0.56	0.53	-8.00
2,993.0	0.30	269.60	2,992.6	12.5	1.4	1.8	1.72	-1.37	-96.53
3,088.0	0.40	90.30	3,087.6	12.5	1.5	1.9	0.74	0.11	-188.74
3,183.0	0.40	70.20	3,182.6	12.6	2.1	2.5	0.15	0.00	-21.16
3,278.0	0.60	332.00	3,277.6	13.1	2.2	2.6	0.81	0.21	-103.37
3,373.0	0.80	264.30	3,372.6	13.5	1.3	1.8	0.84	0.21	-71.26
3,468.0	1.20	274.10	3,467.6	13.5	-0.4	0.1	0.46	0.42	10.32
3,562.0	1.20	212.40	3,561.6	12.7	-1.9	-1.4	1.31	0.00	-65.64
3,658.0	0.60	219.50	3,657.6	11.5	-2.7	-2.3	0.63	-0.63	7.40
3,753.0	0.60	180.80	3,752.6	10.6	-3.1	-2.7	0.42	0.00	-40.74
3,848.0	0.80	147.10	3,847.6	9.6	-2.7	-2.4	0.47	0.21	-35.47
3,943.0	0.80	143.40	3,942.5	8.5	-1.9	-1.6	0.05	0.00	-3.89
4,038.0	0.70	121.60	4,037.5	7.6	-1.1	-0.8	0.32	-0.11	-22.95
4,133.0	1.00	99.20	4,132.5	7.2	0.3	0.5	0.47	0.32	-23.58
4,228.0	1.10	104.00	4,227.5	6.9	2.0	2.2	0.14	0.11	5.05
4,323.0	1.70	159.20	4,322.5	5.3	3.3	3.5	1.48	0.63	58.11
4,417.0	1.70	155.50	4,416.4	2.7	4.4	4.5	0.12	0.00	-3.94
4,512.0	1.10	141.40	4,511.4	0.8	5.6	5.6	0.72	-0.63	-14.84
4,607.0	0.30	226.90	4,606.4	-0.1	6.0	5.9	1.18	-0.84	90.00
4,702.0	0.40	304.40	4,701.4	-0.1	5.5	5.5	0.47	0.11	81.58
4,797.0	1.10	320.70	4,796.4	0.8	4.7	4.7	0.76	0.74	17.16
4,892.0	1.70	328.10	4,891.4	2.7	3.3	3.4	0.66	0.63	7.79
4,987.0	1.00	263.40	4,986.4	3.8	1.8	1.9	1.64	-0.74	-68.11
5,082.0	0.60	230.20	5,081.3	3.4	0.6	0.7	0.63	-0.42	-34.95
5,177.0	0.40	237.20	5,176.3	2.9	-0.1	0.0	0.22	-0.21	7.37
5,272.0	0.80	248.50	5,271.3	2.4	-1.0	-0.9	0.44	0.42	11.89
5,367.0	1.00	283.50	5,366.3	2.4	-2.4	-2.3	0.60	0.21	36.84
5,462.0	0.20	37.40	5,461.3	2.7	-3.1	-3.0	1.15	-0.84	119.89
5,557.0	1.10	32.30	5,556.3	3.6	-2.5	-2.4	0.95	0.95	-5.37
5,652.0	1.80	97.70	5,651.3	4.2	-0.6	-0.4	1.76	0.74	68.84
5,747.0	0.40	36.10	5,746.3	4.3	1.1	1.2	1.73	-1.47	-64.84
5,841.0	0.30	286.40	5,840.3	4.6	1.1	1.2	0.61	-0.11	-116.70
5,936.0	0.60	236.70	5,935.3	4.4	0.4	0.6	0.49	0.32	-52.32
6,031.0	1.10	228.40	6,030.3	3.5	-0.7	-0.6	0.54	0.53	-8.74
6,126.0	0.90	217.20	6,125.2	2.3	-1.8	-1.7	0.29	-0.21	-11.79
6,221.0	9.00	83.10	6,219.9	2.6	5.1	5.2	10.16	8.53	-141.16
6,316.0	15.70	83.20	6,312.6	5.0	25.3	25.4	7.05	7.05	0.11
6,411.0	23.40	84.50	6,402.1	8.4	56.9	57.1	8.12	8.11	1.37
6,506.0	31.70	89.60	6,486.2	10.4	100.7	101.0	9.08	8.74	5.37
6,601.0	39.70	90.10	6,563.3	10.5	156.1	156.3	8.43	8.42	0.53
6,696.0	48.90	90.30	6,631.2	10.2	222.4	222.6	9.69	9.68	0.21
6,791.0	51.30	89.20	6,692.2	10.6	295.2	295.4	2.68	2.53	-1.16

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6,886.0	56.70	88.00	6,748.0	12.5	372.0	372.2	5.78	5.68	-1.26
6,981.0	61.50	87.30	6,796.8	15.8	453.4	453.7	5.09	5.05	-0.74
7,076.0	68.10	88.00	6,837.2	19.3	539.3	539.6	6.98	6.95	0.74
7,123.0	73.70	88.30	6,852.6	20.8	583.7	584.0	11.93	11.91	0.64
7,170.0	75.00	87.80	6,865.3	22.3	628.9	629.3	2.95	2.77	-1.06
7,217.0	79.80	87.50	6,875.5	24.2	674.7	675.1	10.23	10.21	-0.64
7,238.0	82.40	88.50	6,878.7	24.9	695.4	695.9	13.24	12.38	4.76
7,265.2	83.71	88.50	6,882.0	25.6	722.5	722.9	4.81	4.81	0.00
Kate Red D29-2J									
7,292.0	85.00	88.50	6,884.7	26.3	749.1	749.6	4.81	4.81	0.00
7,299.0	85.80	89.20	6,885.2	26.5	756.1	756.5	15.16	11.43	10.00
7,394.0	89.40	89.70	6,889.2	27.4	851.0	851.4	3.83	3.79	0.53
7,489.0	91.50	89.00	6,888.5	28.4	945.9	946.4	2.33	2.21	-0.74
7,584.0	91.60	88.90	6,885.9	30.2	1,040.9	1,041.3	0.15	0.11	-0.11
7,679.0	91.10	88.20	6,883.7	32.6	1,135.8	1,136.3	0.91	-0.53	-0.74
7,774.0	89.30	87.80	6,883.3	35.9	1,230.8	1,231.3	1.94	-1.89	-0.42
7,869.0	91.10	88.50	6,883.0	39.0	1,325.7	1,326.3	2.03	1.89	0.74
7,964.0	89.80	87.60	6,882.3	42.2	1,420.7	1,421.3	1.66	-1.37	-0.95
8,059.0	90.50	89.00	6,882.0	45.0	1,515.6	1,516.3	1.65	0.74	1.47
8,144.9	90.14	88.73	6,881.5	46.7	1,601.5	1,602.1	0.53	-0.42	-0.32
Kate Red D29-6									
8,154.0	90.10	88.70	6,881.5	46.9	1,610.6	1,611.2	0.53	-0.42	-0.32
8,169.5	90.08	88.75	6,881.5	47.3	1,626.0	1,626.7	0.33	-0.11	0.32
Kate Red D29-3									
8,249.0	90.00	89.00	6,881.4	48.8	1,705.6	1,706.2	0.33	-0.11	0.32
8,343.0	90.60	89.60	6,880.9	50.0	1,799.6	1,800.2	0.90	0.64	0.64
8,438.0	88.60	89.00	6,881.6	51.1	1,894.6	1,895.2	2.20	-2.11	-0.63
8,533.0	88.80	88.20	6,883.7	53.5	1,989.5	1,990.1	0.87	0.21	-0.84
8,628.0	89.60	86.90	6,885.1	57.5	2,084.4	2,085.1	1.61	0.84	-1.37
8,723.0	88.70	86.80	6,886.5	62.7	2,179.2	2,180.1	0.95	-0.95	-0.11
8,818.0	89.00	86.10	6,888.4	68.6	2,274.0	2,275.0	0.80	0.32	-0.74
8,913.0	89.80	85.40	6,889.4	75.7	2,368.8	2,370.0	1.12	0.84	-0.74
9,008.0	90.30	87.30	6,889.3	81.7	2,463.6	2,464.9	2.07	0.53	2.00
9,103.0	90.10	88.50	6,889.0	85.2	2,558.5	2,559.9	1.28	-0.21	1.26
9,198.0	90.30	89.20	6,888.6	87.1	2,653.5	2,654.9	0.77	0.21	0.74
9,293.0	91.90	88.30	6,886.8	89.2	2,748.4	2,749.9	1.93	1.68	-0.95
9,388.0	90.80	89.00	6,884.6	91.4	2,843.4	2,844.8	1.37	-1.16	0.74
9,483.0	90.80	88.90	6,883.3	93.2	2,938.4	2,939.8	0.11	0.00	-0.11
9,578.0	91.10	89.60	6,881.7	94.4	3,033.3	3,034.8	0.80	0.32	0.74
9,673.0	89.30	88.70	6,881.3	95.8	3,128.3	3,129.8	2.12	-1.89	-0.95
9,711.0	89.58	88.34	6,881.7	96.8	3,166.3	3,167.8	1.20	0.74	-0.95
Kate White D29-7									
9,768.0	90.00	87.80	6,881.9	98.7	3,223.3	3,224.8	1.20	0.74	-0.95
9,863.0	90.30	87.30	6,881.7	102.8	3,318.2	3,319.8	0.61	0.32	-0.53
9,958.0	90.00	86.90	6,881.4	107.6	3,413.1	3,414.7	0.53	-0.32	-0.42
10,052.0	89.90	88.70	6,881.5	111.2	3,507.0	3,508.7	1.92	-0.11	1.91
10,147.0	90.10	88.20	6,881.5	113.7	3,602.0	3,603.7	0.57	0.21	-0.53
10,242.0	90.00	89.00	6,881.4	116.1	3,696.9	3,698.7	0.85	-0.11	0.84
10,337.0	90.10	89.20	6,881.3	117.6	3,791.9	3,793.7	0.24	0.11	0.21
10,432.0	90.10	87.10	6,881.2	120.6	3,886.9	3,888.7	2.21	0.00	-2.21
10,527.0	90.00	86.40	6,881.1	126.0	3,981.7	3,983.7	0.74	-0.11	-0.74
10,622.0	90.90	87.80	6,880.3	130.8	4,076.6	4,078.7	1.75	0.95	1.47
10,717.0	92.20	89.20	6,877.8	133.3	4,171.5	4,173.6	2.01	1.37	1.47

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
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10,839.0	92.20	89.90	6,873.1	134.3	4,293.4	4,295.5	0.57	0.00	0.57
Kate White D29-8									
10,899.0	92.20	89.90	6,870.8	134.4	4,353.4	4,355.4	0.00	0.00	0.00
Gutteresen D29-67HN BHL 1320'FNL, 535'FEL									

Checked By: _____ Approved By: _____ Date: _____