



# Noble Energy, Inc

Weld County, CO (NAD 83)

Sec 12 - T6N - R63N (Wells Ranch USX AE07 Pad)

Wells Ranch USX AE07-69-1HN

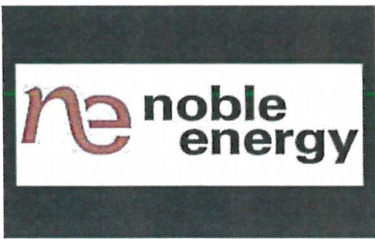
Wellbore #1

Design: OH


## Final Survey Report

22 June, 2013



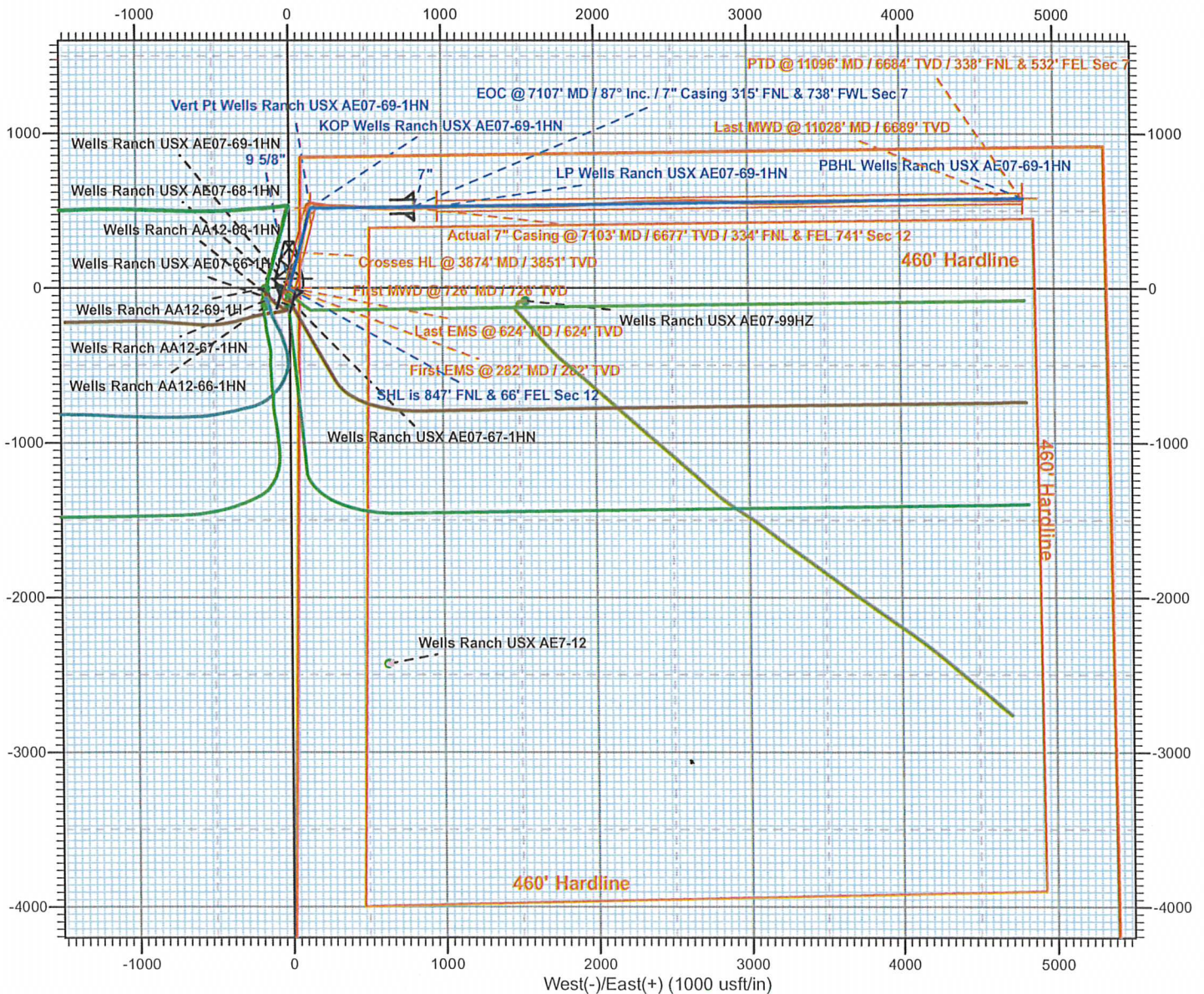


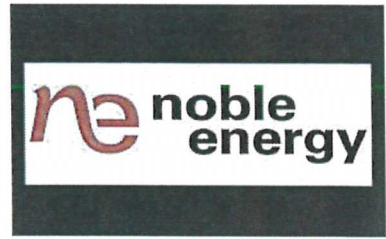
Weld County, CO (NAD 83)  
 Sec 12 - T6N - R63N (Wells Ranch USX AE07 Pad)  
 Wells Ranch USX AE07-69-1HN  
 Daily Survey Rpt Plan View  
 H&P 277


 Azimuths to Grid North  
 Convergence: 0.73°  
 Total Correction: 7.67°  
 Magnetic Field  
 Strength: 53020.4snT  
 Dip Angle: 67.13°  
 Date: 5/31/2013  
 Model: IGRF2010

LEGEND

- ◇ Wells Ranch USX AE07-69-1HN, Wellbore #1, OH V0
- Wells Ranch USX AE07-99HZ, Wellbore #1, OH V0
- ◇ Wells Ranch USX AE7-12, Wellbore #1, OH V0
- Wells Ranch USX AE07-67-1HN, Wellbore #1, Plan #1 V0
- Wells Ranch USX AE07-68-1HN, Wellbore #1, Plan #1 V0
- ✕ Wells Ranch USX AE07-66-1HN, Wellbore #1, Plan #1 V0
- ⊕ Wells Ranch AA12-69-1H, Wellbore #1, OH V0
- Wells Ranch AA12-68-1HN, Wellbore #1, OH V0
- △ Wells Ranch AA12-67-1HN, Wellbore #1, OH V0
- Plan #1
- ⊕ Wells Ranch AA12-66-1HN, Wellbore #1, OH V0





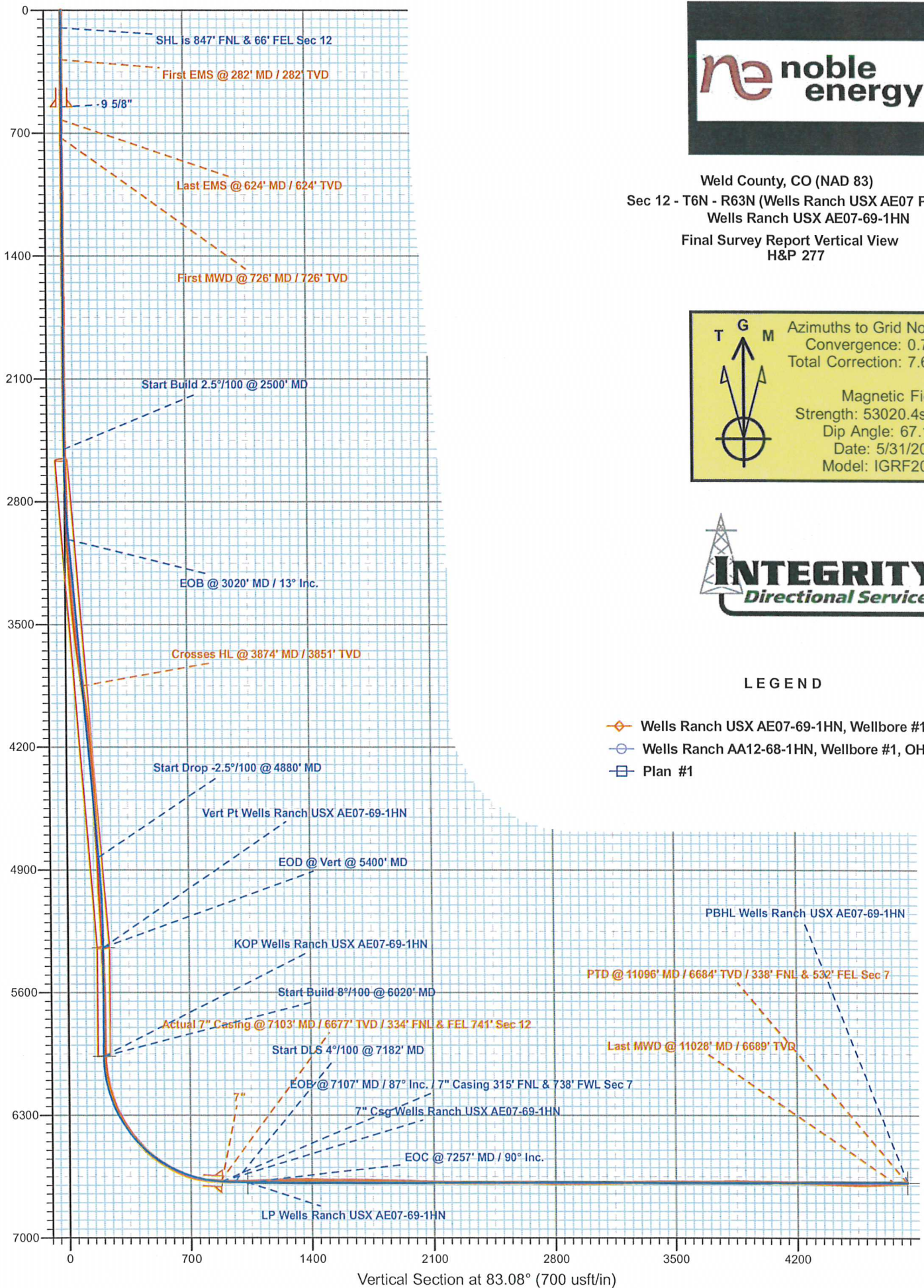
Weld County, CO (NAD 83)  
 Sec 12 - T6N - R63N (Wells Ranch USX AE07 Pad)  
 Wells Ranch USX AE07-69-1HN  
 Final Survey Report Vertical View  
 H&P 277

Azimuths to Grid North  
 Convergence: 0.73°  
 Total Correction: 7.67°  
 Magnetic Field  
 Strength: 53020.4snT  
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LEGEND

- Wells Ranch USX AE07-69-1HN, Wellbore #1, OH V0
- Wells Ranch AA12-68-1HN, Wellbore #1, OH V0
- Plan #1



Vertical Section at 83.08° (700 usft/in)



Job Number: CO13305NB  
 Company: Integrity Directional Services  
 Lease/Well: Well Ranch USX AE07-69-1HN  
 Location: Wells Ranch  
 Rig Name: H&P 277  
 RKB:  
 G.L. or M.S.L.: 4912'

State/Country: Colorado  
 Declination: 8.4  
 Grid: 7.67  
 File name: C:\WINSERVE\IC13305NB.SVY  
 Date/Time: 24-Jun-13 / 16:13  
 Curve Name: WR. USX AE07-69-1HN

**Integrity Directional Services**

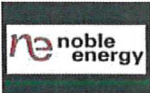
WINSERVE SURVEY CALCULATIONS  
 Minimum Curvature Method  
 Vertical Section Plane 83.08  
 Vertical Section Referenced to Wellhead  
 Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
<b>Tied Into Gyro</b>									
624.00	.60	342.40	623.98	2.77	-3.63	-3.27	4.57	307.35	.00
<b>First MWD Survey</b>									
726.00	1.60	350.90	725.96	4.69	-4.02	-3.42	6.17	319.39	.99
820.00	1.70	4.00	819.92	7.37	-4.13	-3.21	8.45	330.76	.41
912.00	1.80	4.20	911.88	10.17	-3.93	-2.67	10.91	338.90	.11
1004.00	1.90	356.20	1003.83	13.14	-3.92	-2.31	13.71	343.38	.30
1098.00	2.10	358.40	1097.77	16.41	-4.07	-2.07	16.91	346.06	.23
1192.00	2.00	2.80	1191.71	19.77	-4.04	-1.63	20.18	348.45	.20
1284.00	2.30	356.80	1283.65	23.22	-4.07	-1.24	23.57	350.07	.41
1378.00	2.40	356.50	1377.57	27.07	-4.29	-1.00	27.41	350.99	.11
1470.00	2.20	1.20	1469.49	30.76	-4.37	-.63	31.07	351.91	.30
1565.00	2.90	4.30	1564.40	34.98	-4.15	.09	35.22	353.23	.75
1660.00	.50	334.00	1659.35	37.75	-4.16	.42	37.97	353.72	2.61
1755.00	.90	179.50	1754.35	37.37	-4.33	.20	37.62	353.39	1.44
1850.00	1.30	181.70	1849.33	35.55	-4.36	-.04	35.81	353.01	.42
1946.00	1.20	179.80	1945.31	33.45	-4.38	-.32	33.74	352.53	.11
2041.00	1.20	177.00	2040.29	31.47	-4.33	-.51	31.76	352.17	.06
2136.00	.40	150.10	2135.28	30.19	-4.11	-.44	30.46	352.24	.91
2231.00	.50	101.90	2230.27	29.81	-3.54	.08	30.02	353.23	.40
2326.00	.40	67.90	2325.27	29.85	-2.83	.79	29.99	354.59	.29
2421.00	.40	44.50	2420.27	30.21	-2.29	1.37	30.30	355.67	.17
2517.00	.60	76.50	2516.27	30.57	-1.56	2.13	30.61	357.07	.35

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
2612.00	1.50	29.40	2611.25	31.77	-.47	3.36	31.77	359.15	1.24
2707.00	2.90	30.30	2706.18	34.93	1.35	5.55	34.95	2.22	1.47
2802.00	3.10	18.00	2801.05	39.45	3.36	8.09	39.59	4.87	.71
2898.00	4.70	16.80	2896.82	45.68	5.30	10.76	45.99	6.62	1.67
2993.00	5.50	16.70	2991.45	53.77	7.73	14.15	54.32	8.18	.84
3088.00	7.40	13.90	3085.84	64.07	10.51	18.15	64.92	9.32	2.03
3183.00	9.40	15.10	3179.82	77.50	14.00	23.24	78.75	10.24	2.11
3278.00	11.10	13.30	3273.30	93.89	18.13	29.31	95.62	10.93	1.82
3373.00	12.90	11.90	3366.22	113.17	22.42	35.89	115.36	11.20	1.92
3469.00	13.40	13.80	3459.70	134.45	27.28	43.28	137.19	11.47	.69
3564.00	12.80	24.80	3552.24	154.70	34.32	52.71	158.46	12.51	2.69
3659.00	13.70	27.00	3644.71	174.28	43.84	64.52	179.71	14.12	1.09
3754.00	16.20	25.30	3736.49	196.29	54.61	77.87	203.74	15.55	2.67
3849.00	17.80	19.90	3827.34	221.92	65.22	91.48	231.31	16.38	2.36
<b>Crossed Hardline at 3,874' MD</b>									
3944.00	19.30	14.70	3917.41	250.77	74.15	103.82	261.50	16.47	2.35
4039.00	19.60	11.60	4006.99	281.56	81.34	114.67	293.07	16.11	1.13
4135.00	17.40	12.20	4098.03	311.37	87.61	124.49	323.46	15.71	2.30
4230.00	15.10	12.90	4189.22	337.32	93.37	133.33	350.00	15.47	2.43
4325.00	13.10	12.20	4281.36	359.90	98.41	141.06	373.12	15.29	2.11
4420.00	10.50	9.30	4374.34	378.97	102.09	147.00	392.48	15.08	2.81
4515.00	10.40	12.70	4467.77	395.88	105.37	152.30	409.66	14.90	.66
4611.00	11.10	13.60	4562.08	413.31	109.45	158.45	427.56	14.83	.75
4706.00	12.00	12.90	4655.16	431.83	113.80	165.00	446.57	14.76	.96
4801.00	12.10	6.40	4748.07	451.35	117.12	170.65	466.30	14.55	1.43
4896.00	11.90	7.10	4840.99	470.97	119.44	175.31	485.88	14.23	.26
4991.00	9.40	3.50	4934.35	488.43	121.12	179.09	503.23	13.93	2.72
5086.00	9.70	9.00	5028.04	504.08	122.85	182.69	518.84	13.70	1.01
5181.00	9.00	15.70	5121.78	519.14	126.11	187.74	534.24	13.65	1.36
5277.00	6.60	19.00	5216.88	531.59	129.94	193.04	547.24	13.74	2.54
5372.00	4.70	22.60	5311.42	540.34	133.21	197.35	556.52	13.85	2.03
5467.00	2.80	29.60	5406.21	545.95	135.86	200.65	562.60	13.97	2.05
5562.00	1.80	49.00	5501.13	548.95	138.13	203.26	566.06	14.12	1.32
5657.00	1.20	104.30	5596.10	549.68	140.22	205.43	567.29	14.31	1.57
5752.00	1.00	77.60	5691.09	549.62	141.99	207.18	567.66	14.49	.57
5848.00	1.00	62.80	5787.07	550.18	143.56	208.80	568.60	14.62	.27
5939.00	.80	42.30	5878.06	551.01	144.69	210.02	569.69	14.71	.41
6034.00	.50	65.30	5973.05	551.68	145.51	210.92	570.54	14.78	.41
6082.00	5.50	104.20	6020.98	551.20	147.93	213.27	570.71	15.02	10.67
6129.00	11.50	101.90	6067.44	549.68	154.71	219.81	571.04	15.72	12.78
6177.00	15.40	106.10	6114.11	546.92	165.52	230.21	571.42	16.84	8.37
6224.00	17.10	102.20	6159.24	543.73	178.27	242.48	572.21	18.15	4.30
6272.00	17.80	98.80	6205.03	541.12	192.42	256.21	574.31	19.58	2.58
6319.00	20.60	96.10	6249.41	539.14	207.74	271.19	577.78	21.07	6.25
6367.00	26.20	99.30	6293.45	536.53	226.61	289.60	582.42	22.90	11.96

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
6415.00	31.70	95.90	6335.43	533.52	249.63	312.09	589.03	25.07	11.96
6462.00	35.30	92.50	6374.62	531.66	275.49	337.54	598.79	27.39	8.64
6510.00	37.60	89.10	6413.24	531.28	304.00	365.79	612.10	29.78	6.38
6557.00	40.90	91.50	6449.63	531.10	333.72	395.28	627.25	32.14	7.73
6605.00	43.40	92.60	6485.21	529.94	365.91	427.09	644.00	34.62	5.43
6653.00	49.80	94.60	6518.18	527.72	400.69	461.36	662.61	37.21	13.67
6700.00	54.70	95.60	6546.94	524.41	437.70	497.69	683.07	39.85	10.56
6748.00	57.30	95.50	6573.78	520.56	477.30	536.54	706.26	42.52	5.42
6795.00	60.60	93.00	6598.03	517.59	517.45	576.04	731.88	44.99	8.37
6843.00	63.40	90.90	6620.56	516.16	559.80	617.91	761.44	47.32	7.00
6890.00	67.80	90.60	6639.97	515.60	602.58	660.32	793.07	49.45	9.38
6938.00	74.60	89.50	6655.43	515.57	648.00	705.39	828.08	51.49	14.33
6986.00	80.50	89.50	6665.77	515.98	694.84	751.95	865.47	53.40	12.29
7033.00	84.50	89.30	6671.91	516.47	741.43	798.25	903.58	55.14	8.52
7232.00	90.80	87.90	6680.06	521.33	940.10	996.06	1074.97	60.99	3.24
7339.00	92.70	88.60	6676.80	524.60	1046.99	1102.57	1171.07	63.39	1.89
7434.00	92.70	88.70	6672.32	526.83	1141.86	1197.02	1257.54	65.23	.11
7529.00	91.60	90.10	6668.76	527.83	1236.78	1291.37	1344.71	66.89	1.87
7624.00	88.00	90.50	6669.09	527.33	1331.77	1385.60	1432.37	68.40	3.81
7720.00	88.60	89.80	6671.94	527.08	1427.72	1480.83	1521.91	69.74	.96
7815.00	90.20	89.90	6672.93	527.33	1522.71	1575.16	1611.44	70.90	1.69
7910.00	90.70	89.30	6672.19	527.99	1617.71	1669.54	1701.69	71.92	.82
8005.00	88.20	88.40	6673.10	529.90	1712.68	1764.04	1792.78	72.81	2.80
8100.00	87.90	87.60	6676.33	533.21	1807.56	1858.64	1884.57	73.56	.90
8195.00	89.30	87.10	6678.65	537.60	1902.43	1953.34	1976.93	74.22	1.56
8290.00	88.00	87.20	6680.89	542.32	1997.28	2048.08	2069.60	74.81	1.37
8386.00	88.10	87.50	6684.16	546.76	2093.13	2143.75	2163.36	75.36	.33
8481.00	89.30	87.20	6686.31	551.15	2188.00	2238.46	2256.35	75.86	1.30
8576.00	90.70	86.90	6686.31	556.04	2282.87	2333.23	2349.61	76.31	1.51
8671.00	89.70	88.60	6685.98	559.77	2377.79	2427.91	2442.79	76.75	2.08
8766.00	91.50	89.10	6684.98	561.67	2472.76	2522.42	2535.75	77.20	1.97
8862.00	89.80	88.20	6683.90	563.94	2568.73	2617.96	2629.90	77.62	2.00
8957.00	87.60	90.90	6686.05	564.68	2663.68	2712.31	2722.88	78.03	3.67
9052.00	88.60	91.90	6689.20	562.36	2758.60	2806.26	2815.34	78.48	1.49
9147.00	90.00	92.30	6690.36	558.88	2853.53	2900.08	2907.74	78.92	1.53
9242.00	91.60	92.70	6689.03	554.74	2948.42	2993.78	3000.16	79.34	1.74
9338.00	91.50	92.00	6686.44	550.80	3044.31	3088.49	3093.73	79.74	.74
9433.00	91.00	90.00	6684.37	549.15	3139.27	3182.56	3186.93	80.08	2.17
9528.00	90.70	88.70	6682.96	550.22	3234.25	3276.98	3280.72	80.35	1.40
9623.00	90.40	89.10	6682.04	552.05	3329.22	3371.49	3374.68	80.58	.53
9718.00	90.30	88.90	6681.46	553.71	3424.21	3465.98	3468.69	80.81	.24
9813.00	89.40	87.20	6681.71	556.94	3519.15	3560.61	3562.95	81.01	2.02
9909.00	90.70	87.10	6681.63	561.71	3615.03	3656.37	3658.41	81.17	1.36
10004.00	90.90	88.00	6680.30	565.77	3709.93	3751.07	3752.82	81.33	.97
10099.00	90.30	89.00	6679.31	568.26	3804.89	3845.64	3847.09	81.51	1.23

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
10194.00	88.60	89.70	6680.22	569.34	3899.88	3940.06	3941.22	81.69	1.94
10289.00	88.60	89.20	6682.54	570.25	3994.84	4034.45	4035.34	81.88	.53
10385.00	89.70	89.50	6683.96	571.34	4090.83	4129.86	4130.53	82.05	1.19
10480.00	89.20	89.10	6684.88	572.50	4185.81	4224.30	4224.78	82.21	.67
10575.00	86.90	89.80	6688.11	573.41	4280.75	4318.65	4318.98	82.37	2.53
10670.00	87.60	90.10	6692.67	573.49	4375.64	4412.86	4413.06	82.53	.80
10765.00	88.50	90.60	6695.90	572.91	4470.58	4507.04	4507.14	82.70	1.08
10861.00	90.50	91.20	6696.74	571.40	4566.56	4602.14	4602.17	82.87	2.18
10956.00	93.10	89.90	6693.75	570.49	4661.50	4696.27	4696.28	83.02	3.06
<b>Last MWD Survey</b>									
11028.00	94.30	89.90	6689.11	570.62	4733.35	4767.61	4767.62	83.13	1.67
<b>Straight Line Projection to TD</b>									
11096.00	94.30	89.90	6684.01	570.74	4801.15	4834.94	4834.96	83.22	.00



**IDS**  
Final Survey Report



<b>Company:</b>	Noble Energy, Inc	<b>Local Co-ordinate Reference:</b>	Well Wells Ranch USX AE07-69-1HN
<b>Project:</b>	Weld County, CO (NAD 83)	<b>TVD Reference:</b>	WELL @ 4912.0usft (H&P 277)
<b>Site:</b>	Sec 12 - T6N - R63N (Wells Ranch USX AE07 Pa	<b>MD Reference:</b>	WELL @ 4912.0usft (H&P 277)
<b>Well:</b>	Wells Ranch USX AE07-69-1HN	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM 5000.1 Single User Db

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)		Name	Casing Diameter (")	Hole Diameter (")
612.0	612.0	9 5/8"		9-5/8	12-1/4
7,103.0	6,677.3	7"		7	8-3/4

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
282.0	282.0	0.5	-1.4	First EMS @ 282' MD / 282' TVD	
624.0	624.0	2.8	-3.6	Last EMS @ 624' MD / 624' TVD	
726.0	726.0	4.7	-4.0	First MWD @ 726' MD / 726' TVD	
3,874.0	3,851.1	229.2	67.8	Crosses HL @ 3874' MD / 3851' TVD	
7,103.0	6,677.3	517.5	811.1	Actual 7" Casing @ 7103' MD / 6677' TVD / 334' FNL & FEL 741' Sec 1	
11,028.0	6,689.1	570.4	4,733.2	Last MWD @ 11028' MD / 6689' TVD	
11,096.0	6,684.0	570.5	4,801.0	PTD @ 11096' MD / 6684' TVD / 338' FNL & 532' FEL Sec 7	

Checked By: _____	Approved By: _____	Date: _____
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