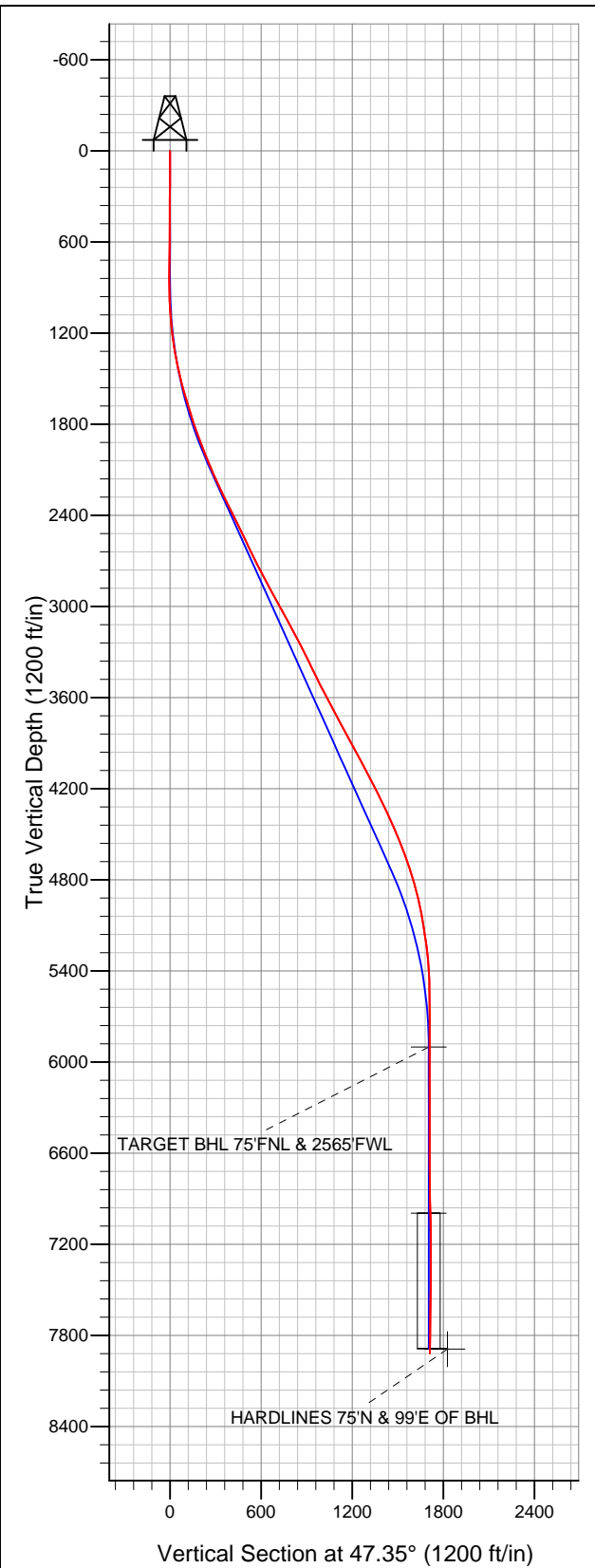


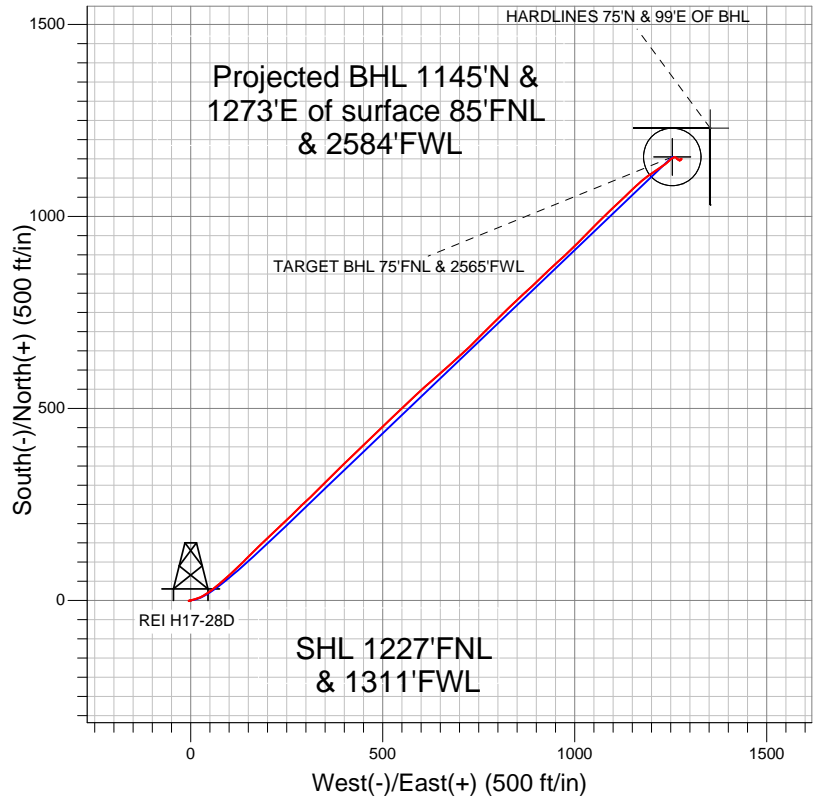
**Well Name: REI H17-28D**

Surface Location: REI H17-21D Pad Sec.17-T3N-R65W  
North American Datum 1983 US State Plane 1983Colorado Northern Zone  
Ground Elevation: 4928.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1327392.54	3225563.67	40.229270	-104.692130	
Original Well Elev		WELL @ 4941.0ft (Original Well Elev)				



**NOBLE ENERGY INC WELD COUNTY CO**



- LEGEND**
- Wellbore #1
  - REI H17-28D, Wellbore #1, Noble REI H17-28D Plan #4 (5-02-12) R V0
  - Survey #1

**Final Survey Plot**

Projected Final Survey -  
8280'MD & 7916'TVD @ 1712'VS  
0.80 deg Inc 223.70 deg AZ

Project: SEC.17-T3N-R65W  
Site: REI H17-21D Pad Sec.17-T3N-R65W  
Well: REI H17-28D  
Plan: Wellbore #1



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.17-T3N-R65W**

**REI H17-21D Pad Sec.17-T3N-R65W**

**REI H17-28D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**09 May, 2012**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well REI H17-28D
<b>Project:</b>	SEC.17-T3N-R65W	<b>TVD Reference:</b>	WELL @ 4941.0ft (Original Well Elev)
<b>Site:</b>	REI H17-21D Pad Sec.17-T3N-R65W	<b>MD Reference:</b>	WELL @ 4941.0ft (Original Well Elev)
<b>Well:</b>	REI H17-28D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

<b>Project</b>	SEC.17-T3N-R65W, 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

<b>Site</b>	REI H17-21D Pad Sec.17-T3N-R65W		
<b>Site Position:</b>		<b>Northing:</b>	1,327,370.70ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,225,563.87ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40.229210
		<b>Longitude:</b>	-104.692130
		<b>Grid Convergence:</b>	0.52 °

<b>Well</b>	REI H17-28D		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40.229270
		<b>Longitude:</b>	-104.692130
		<b>Ground Level:</b>	4,928.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	5/2/2012	8.69	66.89	52,956

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	5,900.0	0.0	0.0	47.35	

<b>Survey Program</b>	<b>Date</b>	5/9/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
136.0	8,280.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
136.0	0.40	153.00	136.0	-0.4	0.2	-0.1	0.29	0.29	0.00	
226.0	0.40	168.10	226.0	-1.0	0.4	-0.4	0.12	0.00	16.78	
315.0	0.30	282.20	315.0	-1.3	0.3	-0.7	0.66	-0.11	128.20	
444.0	0.50	310.30	444.0	-0.8	-0.5	-0.9	0.21	0.16	21.78	
572.0	0.60	241.10	572.0	-0.8	-1.5	-1.6	0.49	0.08	-54.06	
699.0	0.90	253.40	699.0	-1.4	-3.1	-3.2	0.27	0.24	9.69	
782.0	0.80	270.40	782.0	-1.6	-4.3	-4.2	0.33	-0.12	20.48	
854.0	1.00	281.30	854.0	-1.5	-5.4	-4.9	0.36	0.28	15.14	
982.0	3.30	72.90	981.9	-0.2	-2.9	-2.3	3.29	1.80	118.44	
1,111.0	5.50	79.00	1,110.5	2.1	6.7	6.3	1.74	1.71	4.73	
1,239.0	8.00	67.80	1,237.6	6.7	20.9	19.9	2.20	1.95	-8.75	
1,367.0	10.90	57.20	1,363.9	16.6	39.4	40.2	2.63	2.27	-8.28	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well REI H17-28D
<b>Project:</b>	SEC.17-T3N-R65W	<b>TVD Reference:</b>	WELL @ 4941.0ft (Original Well Elev)
<b>Site:</b>	REI H17-21D Pad Sec.17-T3N-R65W	<b>MD Reference:</b>	WELL @ 4941.0ft (Original Well Elev)
<b>Well:</b>	REI H17-28D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)
1,496.0	13.70	51.90	1,489.9	32.6	61.6	67.4	2.34	2.17	-4.11
1,624.0	16.40	48.60	1,613.5	53.9	87.1	100.6	2.21	2.11	-2.58
1,753.0	17.10	46.50	1,737.0	79.0	114.6	137.8	0.72	0.54	-1.63
1,881.0	20.40	44.70	1,858.2	107.8	143.9	178.9	2.62	2.58	-1.41
2,009.0	21.90	45.60	1,977.6	140.4	176.7	225.1	1.20	1.17	0.70
2,138.0	22.60	47.90	2,097.0	173.9	212.2	273.9	0.87	0.54	1.78
2,266.0	25.50	45.30	2,213.9	209.7	250.1	326.0	2.41	2.27	-2.03
2,395.0	26.80	46.70	2,329.7	249.2	291.0	382.9	1.12	1.01	1.09
2,523.0	26.10	44.60	2,444.3	289.1	331.8	439.8	0.91	-0.55	-1.64
2,651.0	25.90	46.00	2,559.3	328.5	371.6	495.9	0.50	-0.16	1.09
2,780.0	25.60	44.90	2,675.5	367.8	411.6	551.9	0.44	-0.23	-0.85
2,908.0	27.50	47.00	2,790.0	407.6	452.7	609.1	1.66	1.48	1.64
3,037.0	28.70	45.80	2,903.8	449.5	496.7	669.9	1.03	0.93	-0.93
3,165.0	29.30	46.30	3,015.8	492.6	541.4	731.9	0.51	0.47	0.39
3,293.0	28.10	47.20	3,128.0	534.7	586.1	793.4	1.00	-0.94	0.70
3,422.0	27.30	49.30	3,242.2	574.6	630.9	853.3	0.98	-0.62	1.63
3,550.0	26.60	47.20	3,356.4	613.2	674.1	911.3	0.92	-0.55	-1.64
3,679.0	25.60	47.90	3,472.2	651.5	716.0	968.1	0.81	-0.78	0.54
3,807.0	29.00	44.00	3,585.9	692.4	758.1	1,026.7	3.00	2.66	-3.05
3,935.0	28.20	45.40	3,698.3	736.0	801.2	1,087.9	0.82	-0.63	1.09
4,064.0	27.70	47.70	3,812.3	777.5	845.1	1,148.4	0.92	-0.39	1.78
4,192.0	28.10	46.30	3,925.4	818.4	888.9	1,208.2	0.60	0.31	-1.09
4,321.0	28.20	46.30	4,039.1	860.4	932.9	1,269.1	0.08	0.08	0.00
4,449.0	27.30	48.10	4,152.4	900.9	976.6	1,328.7	0.96	-0.70	1.41
4,577.0	25.80	43.30	4,266.9	940.8	1,017.5	1,385.8	2.04	-1.17	-3.75
4,706.0	25.60	45.30	4,383.2	980.9	1,056.6	1,441.7	0.69	-0.16	1.55
4,834.0	22.90	46.80	4,499.9	1,017.4	1,094.4	1,494.2	2.16	-2.11	1.17
4,963.0	20.00	46.00	4,619.9	1,049.9	1,128.6	1,541.4	2.26	-2.25	-0.62
5,091.0	18.40	47.00	4,740.8	1,078.9	1,159.1	1,583.5	1.28	-1.25	0.78
5,219.0	14.90	53.30	4,863.4	1,102.5	1,187.1	1,620.1	3.07	-2.73	4.92
5,348.0	11.50	56.30	4,989.0	1,119.5	1,211.1	1,649.3	2.69	-2.64	2.33
5,476.0	9.00	56.20	5,114.9	1,132.2	1,230.0	1,671.8	1.95	-1.95	-0.08
5,605.0	7.70	45.60	5,242.6	1,143.8	1,244.6	1,690.4	1.56	-1.01	-8.22
5,733.0	4.20	62.70	5,369.9	1,152.0	1,254.9	1,703.5	3.04	-2.73	13.36
5,861.0	1.80	100.50	5,497.7	1,153.8	1,261.0	1,709.2	2.33	-1.88	29.53
5,990.0	0.80	135.40	5,626.7	1,152.8	1,263.7	1,710.5	0.96	-0.78	27.05
6,118.0	1.10	136.80	5,754.6	1,151.2	1,265.1	1,710.5	0.24	0.23	1.09
6,247.0	0.90	138.40	5,883.6	1,149.6	1,266.6	1,710.5	0.16	-0.16	1.24
6,263.2	0.81	137.79	5,899.9	1,149.4	1,266.8	1,710.5	0.56	-0.56	-3.75
<b>TARGET BHL 75°FNL &amp; 2565°FNL</b>									
6,375.0	0.20	118.60	6,011.6	1,148.7	1,267.5	1,710.5	0.56	-0.55	-17.17
6,503.0	0.40	285.00	6,139.6	1,148.7	1,267.3	1,710.4	0.47	0.16	130.00
6,632.0	0.20	310.70	6,268.6	1,149.0	1,266.7	1,710.1	0.18	-0.16	19.92
6,760.0	0.20	295.00	6,396.6	1,149.2	1,266.3	1,710.0	0.04	0.00	-12.27
6,889.0	0.30	105.20	6,525.6	1,149.2	1,266.4	1,710.1	0.39	0.08	131.94
7,017.0	0.20	110.50	6,653.6	1,149.1	1,267.0	1,710.4	0.08	-0.08	4.14
7,145.0	1.10	115.80	6,781.6	1,148.5	1,268.3	1,710.9	0.70	0.70	4.14
7,274.0	1.70	95.00	6,910.6	1,147.8	1,271.3	1,712.7	0.60	0.47	-16.12
7,356.9	1.72	76.02	6,993.4	1,147.9	1,273.7	1,714.6	0.68	0.02	-22.89
<b>TARGET CIRCLE 75°FNL &amp; 2565°FNL</b>									
7,402.0	1.80	66.40	7,038.5	1,148.4	1,275.0	1,715.8	0.68	0.19	-21.33
7,531.0	0.70	45.40	7,167.5	1,149.8	1,277.4	1,718.5	0.91	-0.85	-16.28
7,659.0	0.40	162.90	7,295.5	1,149.9	1,278.1	1,719.1	0.74	-0.23	91.80
7,787.0	0.70	221.00	7,423.5	1,148.9	1,277.7	1,718.2	0.46	0.23	45.39

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well REI H17-28D
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<b>Site:</b>	REI H17-21D Pad Sec.17-T3N-R65W	<b>MD Reference:</b>	WELL @ 4941.0ft (Original Well Elev)
<b>Well:</b>	REI H17-28D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)
7,916.0	0.70	234.10	7,552.5	1,147.8	1,276.6	1,716.6	0.12	0.00	10.16
8,044.0	0.80	240.90	7,680.5	1,146.9	1,275.2	1,715.0	0.10	0.08	5.31
8,173.0	0.70	227.90	7,809.4	1,145.9	1,273.8	1,713.3	0.15	-0.08	-10.08
8,233.0	0.80	223.70	7,869.4	1,145.4	1,273.2	1,712.5	0.19	0.17	-7.00
HARDLINES 75°N & 99°E OF BHL									
8,280.0	0.80	223.70	7,916.4	1,144.9	1,272.8	1,711.9	0.00	0.00	0.00

Checked By: _____	Approved By: _____	Date: _____
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