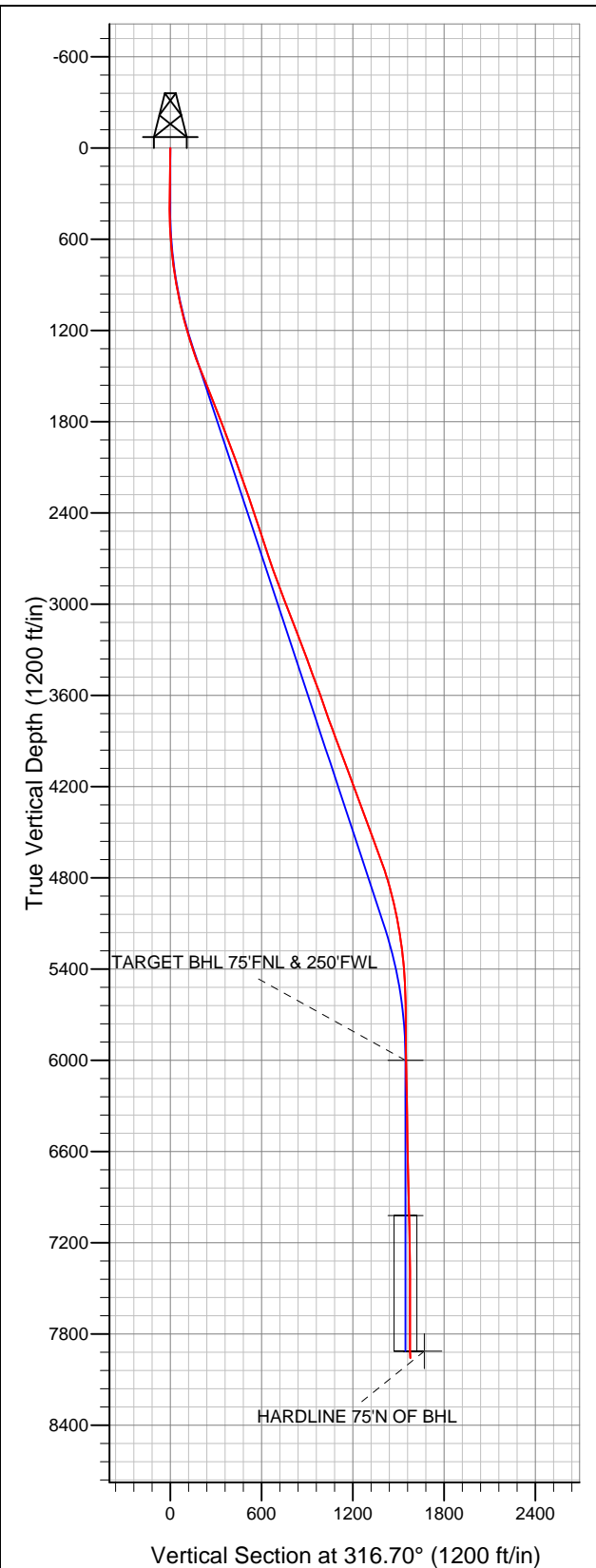


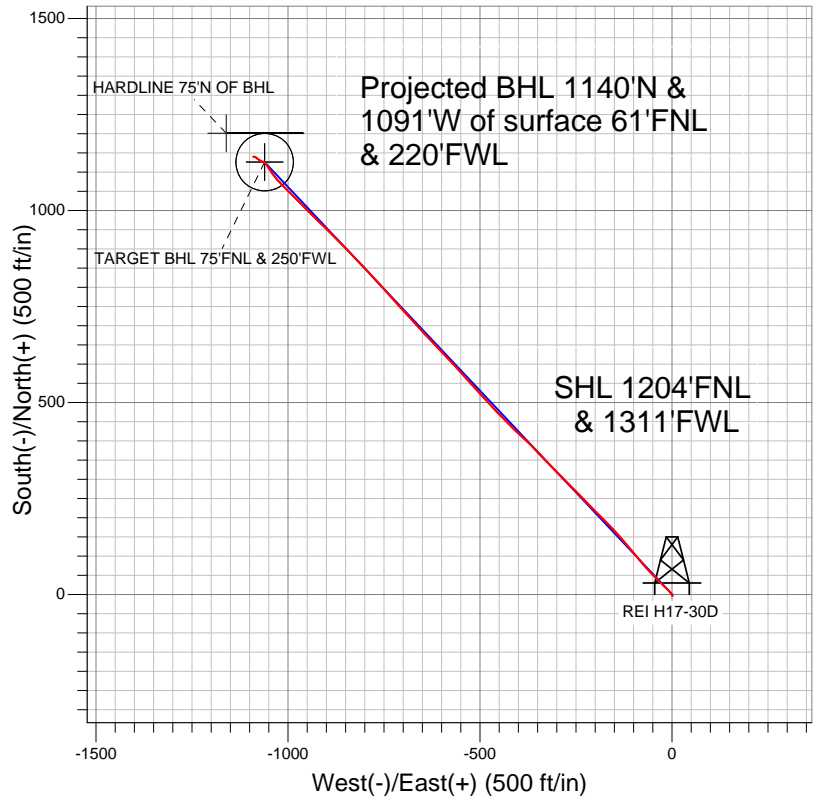
**Well Name: REI H17-30D**

Surface Location: REI H17-21D Pad Sec.17-T3N-R65W  
North American Datum 1983 US State Plane 1983Colorado Northern Zone  
Ground Elevation: 4929.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1327414.40	3225563.47	40.229330	-104.692130	
Original Well Elev		WELL @ 4942.0ft (Original Well Elev)				



**NOBLE ENERGY INC WELD COUNTY CO**



- LEGEND**
- Wellbore #1
  - REI H17-30D, Wellbore #1, Noble REI H17-30D Plan #4 (5-07-12) R V0
  - Survey #1

**Final Survey Plot**

Projected Final Survey -  
8214'MD & 7958'TVD @ 1578'VS  
0.60 deg Inc 306.00 deg AZ

Project: SEC.17-T3N-R65W  
Site: REI H17-21D Pad Sec.17-T3N-R65W  
Well: REI H17-30D  
Plan: Wellbore #1



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.17-T3N-R65W**

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

**REI H17-30D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**15 May, 2012**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well REI H17-30D
<b>Project:</b>	SEC.17-T3N-R65W	<b>TVD Reference:</b>	WELL @ 4942.0ft (Original Well Elev)
<b>Site:</b>	REI H17-21D Pad Sec.17-T3N-R65W	<b>MD Reference:</b>	WELL @ 4942.0ft (Original Well Elev)
<b>Well:</b>	REI H17-30D	<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 H17-30D		
<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>
			40.229330
			<b>Longitude:</b>
			-104.692130
			<b>Ground Level:</b>
			4,929.0 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	5/7/2012	8.69	66.89	52,954

<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>	
	6,000.0	0.0	0.0	316.70	

<b>Survey Program</b>	<b>Date</b>	5/15/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
163.0	8,214.0	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	
163.0	0.50	175.50	163.0	-0.7	0.1	-0.6	0.31	0.31	0.00	
252.0	1.10	159.90	252.0	-1.9	0.4	-1.6	0.71	0.67	-17.53	
342.0	0.70	144.10	342.0	-3.2	1.0	-3.0	0.52	-0.44	-17.56	
469.0	1.10	335.80	469.0	-2.7	1.0	-2.6	1.41	0.31	-132.52	
597.0	4.10	323.70	596.8	2.1	-2.3	3.1	2.37	2.34	-9.45	
724.0	6.70	316.30	723.3	11.2	-10.1	15.0	2.12	2.05	-5.83	
784.0	8.30	316.50	782.7	16.8	-15.5	22.9	2.67	2.67	0.33	
854.0	8.80	312.50	852.0	24.1	-22.9	33.2	1.11	0.71	-5.71	
982.0	12.00	316.10	977.8	40.3	-39.3	56.3	2.55	2.50	2.81	
1,111.0	13.40	315.60	1,103.7	60.7	-59.1	84.7	1.09	1.09	-0.39	
1,239.0	16.90	320.00	1,227.2	85.5	-81.4	118.1	2.88	2.73	3.44	
1,367.0	19.40	320.50	1,348.8	116.2	-106.9	157.9	1.96	1.95	0.39	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well REI H17-30D
<b>Project:</b>	SEC.17-T3N-R65W	<b>TVD Reference:</b>	WELL @ 4942.0ft (Original Well Elev)
<b>Site:</b>	REI H17-21D Pad Sec.17-T3N-R65W	<b>MD Reference:</b>	WELL @ 4942.0ft (Original Well Elev)
<b>Well:</b>	REI H17-30D	<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	21.40	318.30	1,469.7	150.3	-136.2	202.8	1.66	1.55	-1.71
1,624.0	22.30	316.00	1,588.6	185.2	-168.6	250.4	0.97	0.70	-1.80
1,753.0	21.50	314.40	1,708.2	219.3	-202.5	298.5	0.77	-0.62	-1.24
1,881.0	21.50	316.10	1,827.3	252.7	-235.5	345.4	0.49	0.00	1.33
2,009.0	20.80	316.30	1,946.7	286.0	-267.5	391.6	0.55	-0.55	0.16
2,138.0	19.30	314.40	2,067.9	317.5	-298.6	435.8	1.27	-1.16	-1.47
2,266.0	18.80	315.30	2,188.9	346.9	-328.2	477.6	0.45	-0.39	0.70
2,395.0	19.30	318.40	2,310.8	377.6	-357.0	519.6	0.87	0.39	2.40
2,523.0	18.90	310.00	2,431.8	406.8	-386.9	561.4	2.17	-0.31	-6.56
2,651.0	18.60	315.80	2,553.0	434.8	-417.0	602.4	1.47	-0.23	4.53
2,780.0	17.60	316.30	2,675.6	463.6	-444.8	642.5	0.78	-0.78	0.39
2,908.0	20.40	316.80	2,796.6	493.9	-473.5	684.1	2.19	2.19	0.39
3,037.0	20.60	317.20	2,917.5	526.9	-504.3	729.3	0.19	0.16	0.31
3,165.0	21.50	318.80	3,036.9	561.1	-535.0	775.3	0.83	0.70	1.25
3,293.0	20.80	317.50	3,156.3	595.5	-565.8	821.4	0.66	-0.55	-1.02
3,422.0	21.20	316.10	3,276.7	629.2	-597.5	867.7	0.50	0.31	-1.09
3,550.0	19.60	316.30	3,396.7	661.4	-628.4	912.3	1.25	-1.25	0.16
3,679.0	20.70	317.50	3,517.8	693.8	-658.7	956.7	0.91	0.85	0.93
3,807.0	19.60	318.30	3,638.0	726.5	-688.3	1,000.8	0.89	-0.86	0.63
3,935.0	19.40	317.00	3,758.6	758.1	-717.1	1,043.5	0.37	-0.16	-1.02
4,064.0	20.60	318.60	3,879.9	790.8	-746.7	1,087.6	1.02	0.93	1.24
4,192.0	20.80	317.50	3,999.6	824.4	-776.9	1,132.8	0.34	0.16	-0.86
4,321.0	20.30	316.10	4,120.4	857.5	-807.9	1,178.1	0.54	-0.39	-1.09
4,449.0	20.10	316.70	4,240.5	889.5	-838.4	1,222.3	0.22	-0.16	0.47
4,577.0	19.90	315.40	4,360.8	921.0	-868.8	1,266.1	0.38	-0.16	-1.02
4,706.0	20.50	313.20	4,481.9	952.1	-900.7	1,310.6	0.75	0.47	-1.71
4,834.0	20.80	315.40	4,601.6	983.6	-933.0	1,355.7	0.65	0.23	1.72
4,963.0	19.30	314.90	4,722.8	1,015.0	-964.1	1,399.9	1.17	-1.16	-0.39
5,091.0	15.60	315.40	4,844.9	1,042.2	-991.2	1,438.3	2.89	-2.89	0.39
5,219.0	13.20	314.40	4,968.9	1,064.6	-1,013.8	1,470.1	1.88	-1.88	-0.78
5,348.0	10.30	321.40	5,095.2	1,084.0	-1,031.5	1,496.3	2.50	-2.25	5.43
5,476.0	8.50	324.60	5,221.4	1,100.6	-1,044.1	1,517.1	1.46	-1.41	2.50
5,605.0	5.50	328.60	5,349.5	1,113.7	-1,052.8	1,532.6	2.35	-2.33	3.10
5,733.0	3.30	322.80	5,477.1	1,121.8	-1,058.3	1,542.2	1.75	-1.72	-4.53
5,861.0	0.80	283.40	5,605.0	1,125.0	-1,061.4	1,546.6	2.13	-1.95	-30.78
5,990.0	0.60	307.70	5,734.0	1,125.6	-1,062.8	1,548.1	0.27	-0.16	18.84
6,118.0	0.60	299.40	5,862.0	1,126.3	-1,063.9	1,549.4	0.07	0.00	-6.48
6,247.0	1.20	288.90	5,991.0	1,127.1	-1,065.8	1,551.2	0.48	0.47	-8.14
6,255.9	1.19	287.97	5,999.9	1,127.2	-1,065.9	1,551.4	0.24	-0.10	-10.42
<b>TARGET BHL 75'FNL &amp; 250'FWL</b>									
6,375.0	1.10	274.30	6,118.9	1,127.6	-1,068.2	1,553.3	0.24	-0.08	-11.48
6,503.0	1.10	305.20	6,246.9	1,128.4	-1,070.5	1,555.4	0.46	0.00	24.14
6,632.0	1.40	305.20	6,375.9	1,130.1	-1,072.8	1,558.2	0.23	0.23	0.00
6,760.0	0.60	284.70	6,503.9	1,131.1	-1,074.7	1,560.3	0.67	-0.63	-16.02
6,889.0	1.00	300.70	6,632.8	1,131.9	-1,076.3	1,561.9	0.35	0.31	12.40
7,017.0	1.10	308.20	6,760.8	1,133.2	-1,078.2	1,564.2	0.13	0.08	5.86
7,145.0	1.40	316.70	6,888.8	1,135.1	-1,080.3	1,567.0	0.27	0.23	6.64
7,274.0	1.60	311.70	7,017.8	1,137.5	-1,082.7	1,570.4	0.19	0.16	-3.88
7,276.5	1.60	311.28	7,020.3	1,137.5	-1,082.8	1,570.4	0.46	0.00	-16.42
<b>TARGET CIRCLE 75'FNL &amp; 250'FWL</b>									
7,402.0	1.70	291.50	7,145.7	1,139.3	-1,085.8	1,573.9	0.46	0.08	-15.77
7,531.0	0.70	269.40	7,274.7	1,140.0	-1,088.4	1,576.1	0.84	-0.78	-17.13
7,659.0	0.40	216.10	7,402.7	1,139.7	-1,089.4	1,576.6	0.44	-0.23	-41.64
7,787.0	0.10	238.40	7,530.7	1,139.2	-1,089.8	1,576.5	0.24	-0.23	17.42

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well REI H17-30D
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<b>Site:</b>	REI H17-21D Pad Sec.17-T3N-R65W	<b>MD Reference:</b>	WELL @ 4942.0ft (Original Well Elev)
<b>Well:</b>	REI H17-30D	<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	0.20	60.60	7,659.7	1,139.3	-1,089.7	1,576.5	0.23	0.08	-137.83	
8,044.0	0.10	245.10	7,787.7	1,139.4	-1,089.6	1,576.5	0.23	-0.08	-137.11	
8,167.0	0.60	306.10	7,910.7	1,139.7	-1,090.2	1,577.1	0.45	0.41	49.59	
<b>HARDLINE 75'N OF BHL</b>										
8,214.0	0.60	306.00	7,957.7	1,140.0	-1,090.6	1,577.6	0.00	0.00	-0.21	

Checked By: _____	Approved By: _____	Date: _____
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