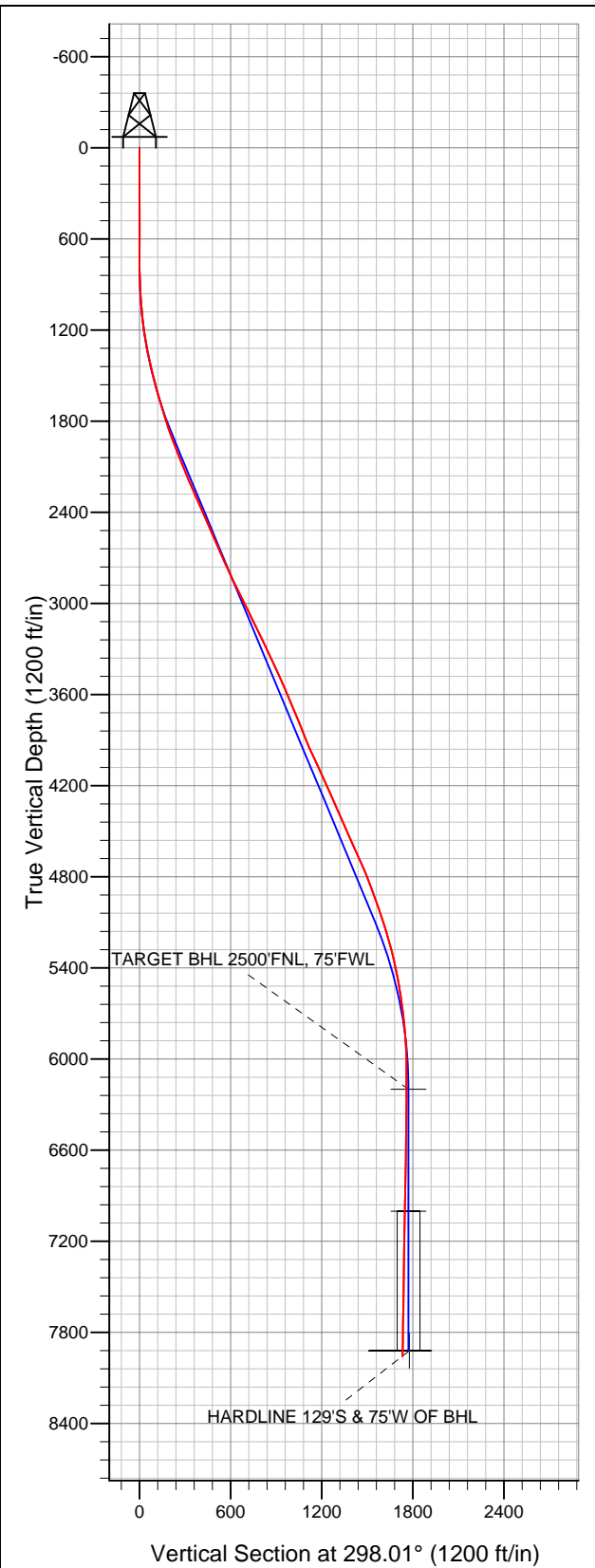




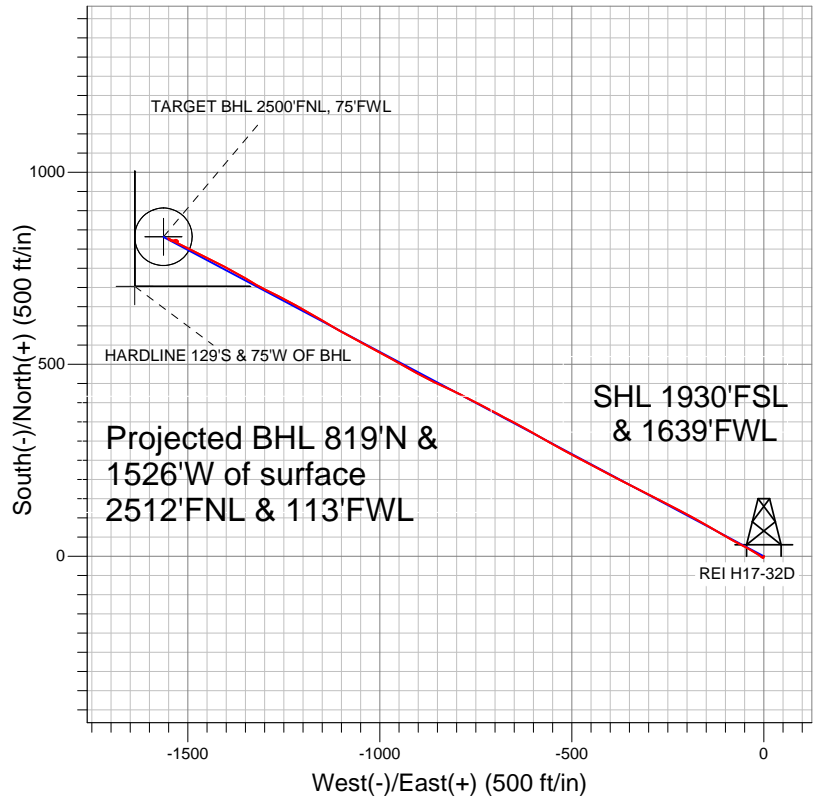
# Well Name: REI H17-32D

Surface Location: REI H17-32D Pad Sec.17-T3N-R65W  
North American Datum 1983 US State Plane 1983Colorado Northern Zone  
Ground Elevation: 4919.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1325286.40	3225909.58	40.223480	-104.690960	
Original Well Elev			WELL @ 4932.0ft (Original Well Elev)			



## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- Survey #1
- REI H17-32D, Wellbore #1, Noble REI H17-32D Plan #1 (3-20-12) V0
- Wellbore #1

## Final Survey Plot

Projected Final Survey -  
8294'MD & 7959'TVD @ 1732'VS  
1.20 deg Inc 139.10 deg AZ

Project: SEC.17-T3N-R65W  
Site: REI H17-32D Pad Sec.17-T3N-R65W  
Well: REI H17-32D  
Plan: Wellbore #1



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.17-T3N-R65W**

**REI H17-32D Pad Sec.17-T3N-R65W**

**REI H17-32D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**02 April, 2012**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well REI H17-32D
<b>Project:</b>	SEC.17-T3N-R65W	<b>TVD Reference:</b>	WELL @ 4932.0ft (Original Well Elev)
<b>Site:</b>	REI H17-32D Pad Sec.17-T3N-R65W	<b>MD Reference:</b>	WELL @ 4932.0ft (Original Well Elev)
<b>Well:</b>	REI H17-32D	<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 H17-32D Pad Sec.17-T3N-R65W		
<b>Site Position:</b>		<b>Northing:</b>	1,325,286.41 ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,225,909.58 ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40.223480
		<b>Longitude:</b>	-104.690960
		<b>Grid Convergence:</b>	0.52 °

<b>Well</b>	REI H17-32D		
<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>
			<b>Latitude:</b>
			<b>Longitude:</b>
			<b>Ground Level:</b>

<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>
	IGRF200510	3/20/2012	8.66	66.90	52,989

<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>	
	6,200.0	0.0	0.0	298.01	

<b>Survey Program</b>	<b>Date</b>	4/2/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
46.0	8,294.0	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	
46.0	0.50	149.30	46.0	-0.2	0.1	-0.2	1.09	1.09	0.00	
137.0	0.50	259.00	137.0	-0.6	-0.1	-0.2	0.90	0.00	120.55	
226.0	0.40	228.20	226.0	-0.9	-0.7	0.2	0.29	-0.11	-34.61	
317.0	0.40	192.40	317.0	-1.4	-1.0	0.2	0.27	0.00	-39.34	
445.0	0.40	197.30	445.0	-2.3	-1.2	0.0	0.03	0.00	3.83	
572.0	0.50	172.30	572.0	-3.2	-1.3	-0.4	0.17	0.08	-19.69	
700.0	0.40	204.80	700.0	-4.2	-1.4	-0.7	0.21	-0.08	25.39	
769.0	0.40	220.30	769.0	-4.6	-1.7	-0.7	0.16	0.00	22.46	
898.0	2.30	301.70	897.9	-3.6	-4.2	2.0	1.76	1.47	63.10	
1,026.0	4.80	306.10	1,025.7	0.9	-10.7	9.9	1.96	1.95	3.44	
1,154.0	7.10	304.00	1,153.0	8.5	-21.6	23.0	1.80	1.80	-1.64	
1,283.0	9.80	299.40	1,280.6	18.4	-37.7	41.9	2.16	2.09	-3.57	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well REI H17-32D
<b>Project:</b>	SEC.17-T3N-R65W	<b>TVD Reference:</b>	WELL @ 4932.0ft (Original Well Elev)
<b>Site:</b>	REI H17-32D Pad Sec.17-T3N-R65W	<b>MD Reference:</b>	WELL @ 4932.0ft (Original Well Elev)
<b>Well:</b>	REI H17-32D	<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)	
1,411.0	12.50	296.40	1,406.2	29.9	-59.6	66.7	2.16	2.11	-2.34	
1,540.0	14.30	299.20	1,531.6	43.9	-86.0	96.6	1.48	1.40	2.17	
1,668.0	16.40	301.30	1,655.1	61.0	-115.3	130.4	1.70	1.64	1.64	
1,796.0	17.10	299.20	1,777.6	79.5	-147.2	167.3	0.72	0.55	-1.64	
1,925.0	20.80	299.40	1,899.6	100.0	-183.7	209.1	2.87	2.87	0.16	
2,053.0	20.80	296.80	2,019.3	121.4	-223.8	254.6	0.72	0.00	-2.03	
2,182.0	23.00	297.10	2,139.0	143.2	-266.6	302.7	1.71	1.71	0.23	
2,310.0	23.30	297.30	2,256.7	166.2	-311.4	353.0	0.24	0.23	0.16	
2,438.0	24.30	296.90	2,373.8	189.8	-357.4	404.6	0.79	0.78	-0.31	
2,567.0	23.00	297.50	2,491.9	213.4	-403.4	456.4	1.02	-1.01	0.47	
2,695.0	23.50	297.50	2,609.5	236.7	-448.2	506.9	0.39	0.39	0.00	
2,824.0	24.40	298.00	2,727.4	261.1	-494.6	559.3	0.72	0.70	0.39	
2,952.0	25.80	299.60	2,843.3	287.3	-542.1	613.6	1.22	1.09	1.25	
3,080.0	26.00	299.60	2,958.5	314.9	-590.8	669.5	0.16	0.16	0.00	
3,209.0	27.40	298.50	3,073.7	343.1	-641.4	727.4	1.15	1.09	-0.85	
3,337.0	24.80	297.30	3,188.7	369.4	-691.2	783.7	2.07	-2.03	-0.94	
3,466.0	25.90	298.20	3,305.2	395.1	-740.1	838.9	0.90	0.85	0.70	
3,594.0	24.70	296.10	3,421.0	420.1	-788.7	893.6	1.17	-0.94	-1.64	
3,722.0	23.70	295.00	3,537.7	442.8	-836.0	946.0	0.86	-0.78	-0.86	
3,851.0	22.60	296.90	3,656.3	464.9	-881.6	996.7	1.03	-0.85	1.47	
3,979.0	22.40	299.80	3,774.6	488.2	-924.7	1,045.7	0.88	-0.16	2.27	
4,108.0	22.00	298.90	3,894.0	512.1	-967.2	1,094.4	0.41	-0.31	-0.70	
4,236.0	24.50	298.70	4,011.6	536.4	-1,011.5	1,144.9	1.95	1.95	-0.16	
4,364.0	25.80	298.50	4,127.5	562.4	-1,059.3	1,199.3	1.02	1.02	-0.16	
4,493.0	23.40	298.50	4,244.8	588.1	-1,106.4	1,253.0	1.86	-1.86	0.00	
4,621.0	23.70	301.70	4,362.1	613.7	-1,150.7	1,304.1	1.03	0.23	2.50	
4,750.0	24.00	299.20	4,480.1	640.1	-1,195.6	1,356.2	0.82	0.23	-1.94	
4,878.0	24.20	297.80	4,596.9	665.1	-1,241.6	1,408.5	0.47	0.16	-1.09	
5,006.0	24.00	296.60	4,713.8	689.0	-1,288.0	1,460.7	0.41	-0.16	-0.94	
5,135.0	21.20	299.90	4,832.9	712.3	-1,331.7	1,510.3	2.38	-2.17	2.56	
5,263.0	19.30	299.80	4,953.0	734.4	-1,370.2	1,554.6	1.48	-1.48	-0.08	
5,392.0	18.40	298.50	5,075.0	754.7	-1,406.6	1,596.2	0.77	-0.70	-1.01	
5,520.0	17.00	296.10	5,197.0	772.6	-1,441.1	1,635.1	1.23	-1.09	-1.88	
5,648.0	13.10	296.60	5,320.6	787.3	-1,470.9	1,668.3	3.05	-3.05	0.39	
5,777.0	11.10	295.40	5,446.7	799.2	-1,495.2	1,695.4	1.56	-1.55	-0.93	
5,905.0	8.80	296.40	5,572.8	808.8	-1,515.1	1,717.5	1.80	-1.80	0.78	
6,034.0	6.80	295.50	5,700.6	816.5	-1,530.8	1,735.0	1.55	-1.55	-0.70	
6,162.0	4.70	300.60	5,827.9	822.4	-1,542.2	1,747.8	1.69	-1.64	3.98	
6,290.0	2.50	301.70	5,955.6	826.6	-1,549.1	1,755.8	1.72	-1.72	0.86	
6,419.0	0.40	135.20	6,084.6	827.7	-1,551.1	1,758.2	2.24	-1.63	-129.07	
6,534.3	0.40	154.61	6,199.9	827.1	-1,550.7	1,757.5	0.12	0.00	16.83	
TARGET BHL 2500'FNL, 75'FWL										
6,547.0	0.40	156.70	6,212.6	827.0	-1,550.7	1,757.4	0.12	0.02	16.51	
6,676.0	0.30	152.40	6,341.6	826.3	-1,550.3	1,756.8	0.08	-0.08	-3.33	
6,804.0	0.50	128.70	6,469.6	825.6	-1,549.7	1,755.9	0.20	0.16	-18.52	
6,932.0	0.80	115.50	6,597.6	824.9	-1,548.5	1,754.5	0.26	0.23	-10.31	
7,061.0	0.90	121.00	6,726.6	824.0	-1,546.8	1,752.6	0.10	0.08	4.26	
7,189.0	1.10	122.70	6,854.6	822.8	-1,544.9	1,750.4	0.16	0.16	1.33	
7,318.0	1.30	119.10	6,983.5	821.4	-1,542.6	1,747.7	0.17	0.16	-2.79	
7,335.9	1.31	112.39	7,001.4	821.3	-1,542.2	1,747.3	0.85	0.05	-37.44	
TARGET CIRCLE 2500'FNL, 75'FWL										
7,446.0	1.70	79.10	7,111.5	821.1	-1,539.5	1,744.7	0.85	0.35	-30.24	
7,574.0	1.60	65.10	7,239.4	822.2	-1,536.0	1,742.2	0.32	-0.08	-10.94	
7,703.0	1.10	75.80	7,368.4	823.3	-1,533.1	1,740.2	0.43	-0.39	8.29	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well REI H17-32D
<b>Project:</b>	SEC.17-T3N-R65W	<b>TVD Reference:</b>	WELL @ 4932.0ft (Original Well Elev)
<b>Site:</b>	REI H17-32D Pad Sec.17-T3N-R65W	<b>MD Reference:</b>	WELL @ 4932.0ft (Original Well Elev)
<b>Well:</b>	REI H17-32D	<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)
7,831.0	0.70	78.10	7,496.4	823.7	-1,531.2	1,738.7	0.31	-0.31	1.80
7,960.0	0.70	117.10	7,625.4	823.5	-1,529.7	1,737.3	0.36	0.00	30.23
8,088.0	1.00	142.60	7,753.4	822.3	-1,528.3	1,735.5	0.37	0.23	19.92
8,216.0	1.10	135.60	7,881.3	820.5	-1,526.8	1,733.3	0.13	0.08	-5.47
8,247.0	1.20	139.10	7,912.3	820.1	-1,526.4	1,732.7	0.39	0.32	11.29
<b>HARDLINE 129'S &amp; 75'W OF BHL</b>									
8,294.0	1.20	139.10	7,959.3	819.3	-1,525.7	1,731.8	0.00	0.00	0.00

Checked By: _____	Approved By: _____	Date: _____
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