

ENSIGN

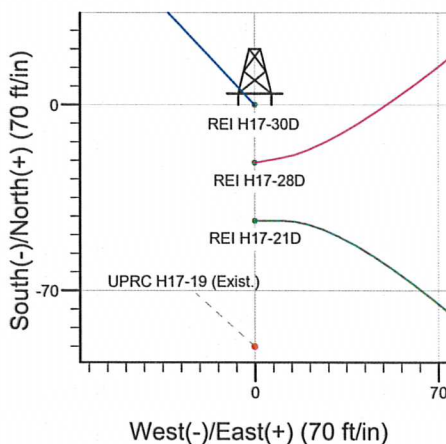
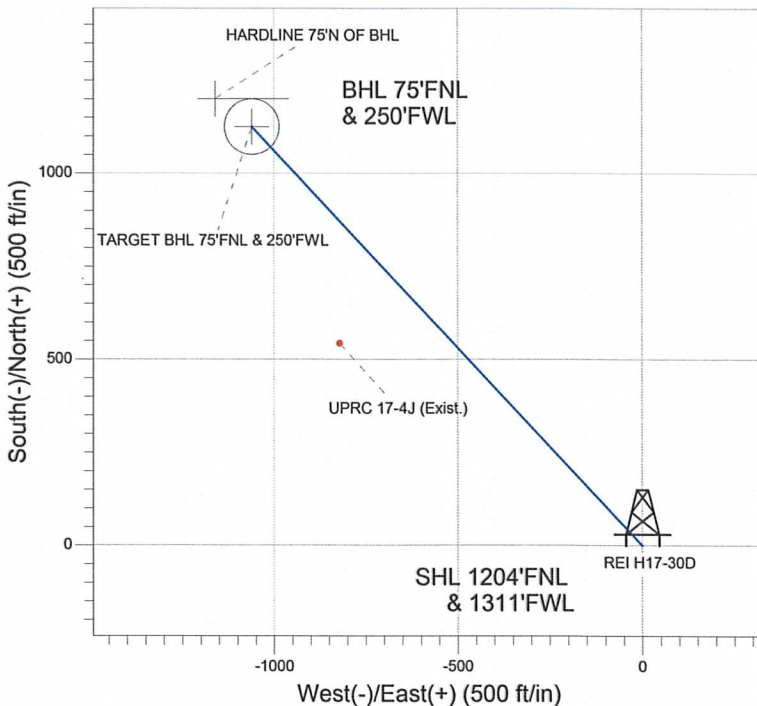
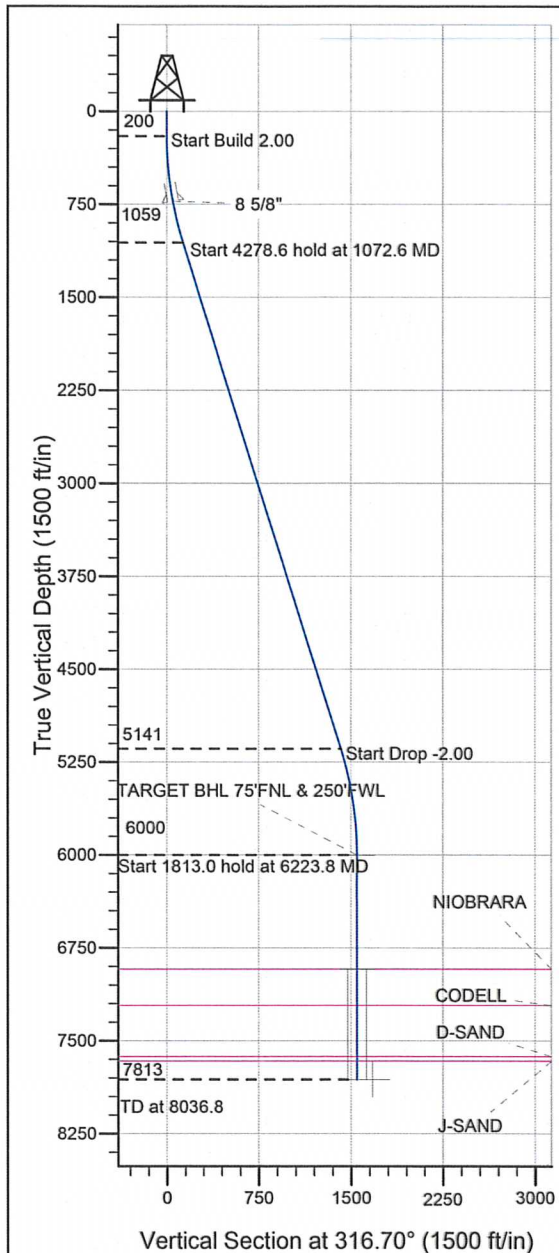
Directional

Well Name: REI H17-30D

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1327414.41	3225563.47	40.229330	-104.692130	
		Original Well Elev	WELL @ 4942.0ft (Original Well Elev)			

NOBLE ENERGY INC WELD COUNTY CO



REI H17-21D Pad Sec.17-T3N-R65W
REI H17-30D
Noble REI H17-30D Plan #2 (2-20-12)
11:37, February 21 2012



Azimuths to True North
Magnetic North: 8.72°
Magnetic Field
Strength: 52976.6snT
Dip Angle: 66.90°
Date: 2/20/2012
Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 75'FNL & 250'FWL	6000.0	1125.7	-1061.0	40.232420	-104.695930	Point
TARGET CIRCLE 75'FNL & 250'FWL	6921.0	1125.7	-1061.0	40.232420	-104.695930	Circle (Radius: 75.0)
HARDLINE 75'N OF BHL	7813.0	1200.7	-1161.0	40.232626	-104.696288	Polygon

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	1072.6	17.45	316.70	1059.2	96.0	-90.4	2.00	316.70	131.9	
4	5351.2	17.45	316.70	5140.8	1029.8	-970.6	0.00	0.00	1415.1	
5	6223.8	0.00	0.00	6000.0	1125.7	-1061.0	2.00	180.00	1546.9	TARGET BHL 75'FNL & 250'FWL
6	8036.8	0.00	0.00	7813.0	1125.7	-1061.0	0.00	0.00	1546.9	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.17-T3N-R65W

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

REI H17-30D

Wellbore #1

Plan: Noble REI H17-30D Plan #2 (2-20-12)

Standard Planning Report

21 February, 2012



Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.17-T3N-R65W
Site: REI H17-21D Pad Sec.17-T3N-R65W
Well: REI H17-30D
Wellbore: Wellbore #1
Design: Noble REI H17-30D Plan #2 (2-20-12)

Local Co-ordinate Reference: Well REI H17-30D
TVD Reference: WELL @ 4942.0ft (Original Well Elev)
MD Reference: WELL @ 4942.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Project	SEC.17-T3N-R65W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

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

Well	REI H17-30D					
Well Position	+N/-S	43.7 ft	Northing:	1,327,414.41 ft	Latitude:	40.229330
	+E/-W	0.0 ft	Easting:	3,225,563.47 ft	Longitude:	-104.692130
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,929.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/20/2012	8.72	66.90	52,977

Design Noble REI H17-30D Plan #2 (2-20-12)

Audit Notes:

Version: **Phase:** PROTOTYPE **Tie On Depth:** 0.0

Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	316.70

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,072.6	17.45	316.70	1,059.2	96.0	-90.4	2.00	2.00	0.00	316.70	
5,351.2	17.45	316.70	5,140.8	1,029.8	-970.6	0.00	0.00	0.00	0.00	
6,223.8	0.00	0.00	6,000.0	1,125.7	-1,061.0	2.00	-2.00	0.00	180.00	TARGET BHL 75'FI
8,036.8	0.00	0.00	7,813.0	1,125.7	-1,061.0	0.00	0.00	0.00	0.00	

Database: Landmark
 Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.17-T3N-R65W
 Site: REI H17-21D Pad Sec.17-T3N-R65W
 Well: REI H17-30D
 Wellbore: Wellbore #1
 Design: Noble REI H17-30D Plan #2 (2-20-12)

Local Co-ordinate Reference: Well REI H17-30D
 TVD Reference: WELL @ 4942.0ft (Original Well Elev)
 MD Reference: WELL @ 4942.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned 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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.80	316.70	240.0	0.2	-0.2	0.3	2.00	2.00	0.00
280.0	1.60	316.70	280.0	0.8	-0.8	1.1	2.00	2.00	0.00
320.0	2.40	316.70	320.0	1.8	-1.7	2.5	2.00	2.00	0.00
360.0	3.20	316.70	359.9	3.3	-3.1	4.5	2.00	2.00	0.00
400.0	4.00	316.70	399.8	5.1	-4.8	7.0	2.00	2.00	0.00
440.0	4.80	316.70	439.7	7.3	-6.9	10.0	2.00	2.00	0.00
480.0	5.60	316.70	479.6	9.9	-9.4	13.7	2.00	2.00	0.00
520.0	6.40	316.70	519.3	13.0	-12.2	17.9	2.00	2.00	0.00
560.0	7.20	316.70	559.1	16.4	-15.5	22.6	2.00	2.00	0.00
600.0	8.00	316.70	598.7	20.3	-19.1	27.9	2.00	2.00	0.00
640.0	8.80	316.70	638.3	24.5	-23.1	33.7	2.00	2.00	0.00
680.0	9.60	316.70	677.8	29.2	-27.5	40.1	2.00	2.00	0.00
720.0	10.40	316.70	717.1	34.2	-32.3	47.1	2.00	2.00	0.00
728.0	10.56	316.70	725.0	35.3	-33.3	48.5	2.00	2.00	0.00
8 5/8"									
760.0	11.20	316.70	756.4	39.7	-37.4	54.6	2.00	2.00	0.00
800.0	12.00	316.70	795.6	45.6	-42.9	62.6	2.00	2.00	0.00
840.0	12.80	316.70	834.7	51.8	-48.8	71.2	2.00	2.00	0.00
880.0	13.60	316.70	873.6	58.5	-55.1	80.3	2.00	2.00	0.00
920.0	14.40	316.70	912.4	65.5	-61.7	90.0	2.00	2.00	0.00
960.0	15.20	316.70	951.1	72.9	-68.7	100.2	2.00	2.00	0.00
1,000.0	16.00	316.70	989.6	80.8	-76.1	111.0	2.00	2.00	0.00
1,040.0	16.80	316.70	1,028.0	89.0	-83.9	122.3	2.00	2.00	0.00
1,072.6	17.45	316.70	1,059.2	96.0	-90.4	131.9	2.00	2.00	0.00
1,080.0	17.45	316.70	1,066.2	97.6	-92.0	134.1	0.00	0.00	0.00
1,120.0	17.45	316.70	1,104.4	106.3	-100.2	146.1	0.00	0.00	0.00
1,160.0	17.45	316.70	1,142.5	115.0	-108.4	158.1	0.00	0.00	0.00
1,200.0	17.45	316.70	1,180.7	123.8	-116.7	170.1	0.00	0.00	0.00
1,240.0	17.45	316.70	1,218.9	132.5	-124.9	182.1	0.00	0.00	0.00
1,280.0	17.45	316.70	1,257.0	141.2	-133.1	194.1	0.00	0.00	0.00
1,320.0	17.45	316.70	1,295.2	150.0	-141.3	206.1	0.00	0.00	0.00
1,360.0	17.45	316.70	1,333.3	158.7	-149.6	218.1	0.00	0.00	0.00
1,400.0	17.45	316.70	1,371.5	167.4	-157.8	230.1	0.00	0.00	0.00
1,440.0	17.45	316.70	1,409.7	176.1	-166.0	242.1	0.00	0.00	0.00
1,480.0	17.45	316.70	1,447.8	184.9	-174.2	254.1	0.00	0.00	0.00
1,520.0	17.45	316.70	1,486.0	193.6	-182.5	266.0	0.00	0.00	0.00
1,560.0	17.45	316.70	1,524.1	202.3	-190.7	278.0	0.00	0.00	0.00
1,600.0	17.45	316.70	1,562.3	211.1	-198.9	290.0	0.00	0.00	0.00
1,640.0	17.45	316.70	1,600.5	219.8	-207.2	302.0	0.00	0.00	0.00
1,680.0	17.45	316.70	1,638.6	228.5	-215.4	314.0	0.00	0.00	0.00
1,720.0	17.45	316.70	1,676.8	237.3	-223.6	326.0	0.00	0.00	0.00
1,760.0	17.45	316.70	1,714.9	246.0	-231.8	338.0	0.00	0.00	0.00
1,800.0	17.45	316.70	1,753.1	254.7	-240.1	350.0	0.00	0.00	0.00
1,840.0	17.45	316.70	1,791.2	263.4	-248.3	362.0	0.00	0.00	0.00
1,880.0	17.45	316.70	1,829.4	272.2	-256.5	374.0	0.00	0.00	0.00
1,920.0	17.45	316.70	1,867.6	280.9	-264.8	386.0	0.00	0.00	0.00
1,960.0	17.45	316.70	1,905.7	289.6	-273.0	398.0	0.00	0.00	0.00
2,000.0	17.45	316.70	1,943.9	298.4	-281.2	410.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well REI H17-30D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4942.0ft (Original Well Elev)
Project:	SEC.17-T3N-R65W	MD Reference:	WELL @ 4942.0ft (Original Well Elev)
Site:	REI H17-21D Pad Sec.17-T3N-R65W	North Reference:	True
Well:	REI H17-30D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble REI H17-30D Plan #2 (2-20-12)		

Planned 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)
2,040.0	17.45	316.70	1,982.0	307.1	-289.4	422.0	0.00	0.00	0.00
2,080.0	17.45	316.70	2,020.2	315.8	-297.7	434.0	0.00	0.00	0.00
2,120.0	17.45	316.70	2,058.4	324.6	-305.9	446.0	0.00	0.00	0.00
2,160.0	17.45	316.70	2,096.5	333.3	-314.1	458.0	0.00	0.00	0.00
2,200.0	17.45	316.70	2,134.7	342.0	-322.4	470.0	0.00	0.00	0.00
2,240.0	17.45	316.70	2,172.8	350.7	-330.6	482.0	0.00	0.00	0.00
2,280.0	17.45	316.70	2,211.0	359.5	-338.8	494.0	0.00	0.00	0.00
2,320.0	17.45	316.70	2,249.1	368.2	-347.0	506.0	0.00	0.00	0.00
2,360.0	17.45	316.70	2,287.3	376.9	-355.3	518.0	0.00	0.00	0.00
2,400.0	17.45	316.70	2,325.5	385.7	-363.5	530.0	0.00	0.00	0.00
2,440.0	17.45	316.70	2,363.6	394.4	-371.7	542.0	0.00	0.00	0.00
2,480.0	17.45	316.70	2,401.8	403.1	-379.9	554.0	0.00	0.00	0.00
2,520.0	17.45	316.70	2,439.9	411.9	-388.2	566.0	0.00	0.00	0.00
2,560.0	17.45	316.70	2,478.1	420.6	-396.4	578.0	0.00	0.00	0.00
2,600.0	17.45	316.70	2,516.3	429.3	-404.6	589.9	0.00	0.00	0.00
2,640.0	17.45	316.70	2,554.4	438.0	-412.9	601.9	0.00	0.00	0.00
2,680.0	17.45	316.70	2,592.6	446.8	-421.1	613.9	0.00	0.00	0.00
2,720.0	17.45	316.70	2,630.7	455.5	-429.3	625.9	0.00	0.00	0.00
2,760.0	17.45	316.70	2,668.9	464.2	-437.5	637.9	0.00	0.00	0.00
2,800.0	17.45	316.70	2,707.1	473.0	-445.8	649.9	0.00	0.00	0.00
2,840.0	17.45	316.70	2,745.2	481.7	-454.0	661.9	0.00	0.00	0.00
2,880.0	17.45	316.70	2,783.4	490.4	-462.2	673.9	0.00	0.00	0.00
2,920.0	17.45	316.70	2,821.5	499.2	-470.5	685.9	0.00	0.00	0.00
2,960.0	17.45	316.70	2,859.7	507.9	-478.7	697.9	0.00	0.00	0.00
3,000.0	17.45	316.70	2,897.8	516.6	-486.9	709.9	0.00	0.00	0.00
3,040.0	17.45	316.70	2,936.0	525.3	-495.1	721.9	0.00	0.00	0.00
3,080.0	17.45	316.70	2,974.2	534.1	-503.4	733.9	0.00	0.00	0.00
3,120.0	17.45	316.70	3,012.3	542.8	-511.6	745.9	0.00	0.00	0.00
3,160.0	17.45	316.70	3,050.5	551.5	-519.8	757.9	0.00	0.00	0.00
3,200.0	17.45	316.70	3,088.6	560.3	-528.1	769.9	0.00	0.00	0.00
3,240.0	17.45	316.70	3,126.8	569.0	-536.3	781.9	0.00	0.00	0.00
3,280.0	17.45	316.70	3,165.0	577.7	-544.5	793.9	0.00	0.00	0.00
3,320.0	17.45	316.70	3,203.1	586.5	-552.7	805.9	0.00	0.00	0.00
3,360.0	17.45	316.70	3,241.3	595.2	-561.0	817.9	0.00	0.00	0.00
3,400.0	17.45	316.70	3,279.4	603.9	-569.2	829.9	0.00	0.00	0.00
3,440.0	17.45	316.70	3,317.6	612.6	-577.4	841.9	0.00	0.00	0.00
3,480.0	17.45	316.70	3,355.8	621.4	-585.6	853.9	0.00	0.00	0.00
3,520.0	17.45	316.70	3,393.9	630.1	-593.9	865.9	0.00	0.00	0.00
3,560.0	17.45	316.70	3,432.1	638.8	-602.1	877.9	0.00	0.00	0.00
3,600.0	17.45	316.70	3,470.2	647.6	-610.3	889.9	0.00	0.00	0.00
3,640.0	17.45	316.70	3,508.4	656.3	-618.6	901.9	0.00	0.00	0.00
3,680.0	17.45	316.70	3,546.5	665.0	-626.8	913.8	0.00	0.00	0.00
3,720.0	17.45	316.70	3,584.7	673.8	-635.0	925.8	0.00	0.00	0.00
3,760.0	17.45	316.70	3,622.9	682.5	-643.2	937.8	0.00	0.00	0.00
3,800.0	17.45	316.70	3,661.0	691.2	-651.5	949.8	0.00	0.00	0.00
3,840.0	17.45	316.70	3,699.2	699.9	-659.7	961.8	0.00	0.00	0.00
3,880.0	17.45	316.70	3,737.3	708.7	-667.9	973.8	0.00	0.00	0.00
3,920.0	17.45	316.70	3,775.5	717.4	-676.2	985.8	0.00	0.00	0.00
3,960.0	17.45	316.70	3,813.7	726.1	-684.4	997.8	0.00	0.00	0.00
4,000.0	17.45	316.70	3,851.8	734.9	-692.6	1,009.8	0.00	0.00	0.00
4,040.0	17.45	316.70	3,890.0	743.6	-700.8	1,021.8	0.00	0.00	0.00
4,080.0	17.45	316.70	3,928.1	752.3	-709.1	1,033.8	0.00	0.00	0.00
4,120.0	17.45	316.70	3,966.3	761.1	-717.3	1,045.8	0.00	0.00	0.00
4,160.0	17.45	316.70	4,004.5	769.8	-725.5	1,057.8	0.00	0.00	0.00

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.17-T3N-R65W
Site: REI H17-21D Pad Sec.17-T3N-R65W
Well: REI H17-30D
Wellbore: Wellbore #1
Design: Noble REI H17-30D Plan #2 (2-20-12)

Local Co-ordinate Reference: Well REI H17-30D
TVD Reference: WELL @ 4942.0ft (Original Well Elev)
MD Reference: WELL @ 4942.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned 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)
4,200.0	17.45	316.70	4,042.6	778.5	-733.8	1,069.8	0.00	0.00	0.00
4,240.0	17.45	316.70	4,080.8	787.2	-742.0	1,081.8	0.00	0.00	0.00
4,280.0	17.45	316.70	4,118.9	796.0	-750.2	1,093.8	0.00	0.00	0.00
4,320.0	17.45	316.70	4,157.1	804.7	-758.4	1,105.8	0.00	0.00	0.00
4,360.0	17.45	316.70	4,195.2	813.4	-766.7	1,117.8	0.00	0.00	0.00
4,400.0	17.45	316.70	4,233.4	822.2	-774.9	1,129.8	0.00	0.00	0.00
4,440.0	17.45	316.70	4,271.6	830.9	-783.1	1,141.8	0.00	0.00	0.00
4,480.0	17.45	316.70	4,309.7	839.6	-791.3	1,153.8	0.00	0.00	0.00
4,520.0	17.45	316.70	4,347.9	848.3	-799.6	1,165.8	0.00	0.00	0.00
4,560.0	17.45	316.70	4,386.0	857.1	-807.8	1,177.8	0.00	0.00	0.00
4,600.0	17.45	316.70	4,424.2	865.8	-816.0	1,189.8	0.00	0.00	0.00
4,640.0	17.45	316.70	4,462.4	874.5	-824.3	1,201.8	0.00	0.00	0.00
4,680.0	17.45	316.70	4,500.5	883.3	-832.5	1,213.8	0.00	0.00	0.00
4,720.0	17.45	316.70	4,538.7	892.0	-840.7	1,225.8	0.00	0.00	0.00
4,760.0	17.45	316.70	4,576.8	900.7	-848.9	1,237.7	0.00	0.00	0.00
4,800.0	17.45	316.70	4,615.0	909.5	-857.2	1,249.7	0.00	0.00	0.00
4,840.0	17.45	316.70	4,653.2	918.2	-865.4	1,261.7	0.00	0.00	0.00
4,880.0	17.45	316.70	4,691.3	926.9	-873.6	1,273.7	0.00	0.00	0.00
4,920.0	17.45	316.70	4,729.5	935.6	-881.9	1,285.7	0.00	0.00	0.00
4,960.0	17.45	316.70	4,767.6	944.4	-890.1	1,297.7	0.00	0.00	0.00
5,000.0	17.45	316.70	4,805.8	953.1	-898.3	1,309.7	0.00	0.00	0.00
5,040.0	17.45	316.70	4,843.9	961.8	-906.5	1,321.7	0.00	0.00	0.00
5,080.0	17.45	316.70	4,882.1	970.6	-914.8	1,333.7	0.00	0.00	0.00
5,120.0	17.45	316.70	4,920.3	979.3	-923.0	1,345.7	0.00	0.00	0.00
5,160.0	17.45	316.70	4,958.4	988.0	-931.2	1,357.7	0.00	0.00	0.00
5,200.0	17.45	316.70	4,996.6	996.8	-939.5	1,369.7	0.00	0.00	0.00
5,240.0	17.45	316.70	5,034.7	1,005.5	-947.7	1,381.7	0.00	0.00	0.00
5,280.0	17.45	316.70	5,072.9	1,014.2	-955.9	1,393.7	0.00	0.00	0.00
5,320.0	17.45	316.70	5,111.1	1,022.9	-964.1	1,405.7	0.00	0.00	0.00
5,351.2	17.45	316.70	5,140.8	1,029.8	-970.6	1,415.1	0.00	0.00	0.00
5,360.0	17.28	316.70	5,149.2	1,031.7	-972.4	1,417.7	2.00	-2.00	0.00
5,400.0	16.48	316.70	5,187.5	1,040.1	-980.3	1,429.3	2.00	-2.00	0.00
5,440.0	15.68	316.70	5,225.9	1,048.2	-987.9	1,440.4	2.00	-2.00	0.00
5,480.0	14.88	316.70	5,264.5	1,055.8	-995.1	1,450.9	2.00	-2.00	0.00
5,520.0	14.08	316.70	5,303.2	1,063.1	-1,002.0	1,460.9	2.00	-2.00	0.00
5,560.0	13.28	316.70	5,342.1	1,070.0	-1,008.5	1,470.4	2.00	-2.00	0.00
5,600.0	12.48	316.70	5,381.1	1,076.5	-1,014.6	1,479.3	2.00	-2.00	0.00
5,640.0	11.68	316.70	5,420.2	1,082.6	-1,020.3	1,487.6	2.00	-2.00	0.00
5,680.0	10.88	316.70	5,459.4	1,088.3	-1,025.7	1,495.5	2.00	-2.00	0.00
5,720.0	10.08	316.70	5,498.8	1,093.6	-1,030.7	1,502.7	2.00	-2.00	0.00
5,760.0	9.28	316.70	5,538.2	1,098.5	-1,035.3	1,509.5	2.00	-2.00	0.00
5,800.0	8.48	316.70	5,577.7	1,103.0	-1,039.5	1,515.6	2.00	-2.00	0.00
5,840.0	7.68	316.70	5,617.3	1,107.0	-1,043.4	1,521.3	2.00	-2.00	0.00
5,880.0	6.88	316.70	5,657.0	1,110.7	-1,046.9	1,526.3	2.00	-2.00	0.00
5,920.0	6.08	316.70	5,696.8	1,114.0	-1,050.0	1,530.8	2.00	-2.00	0.00
5,960.0	5.28	316.70	5,736.6	1,116.9	-1,052.7	1,534.8	2.00	-2.00	0.00
6,000.0	4.48	316.70	5,776.4	1,119.4	-1,055.0	1,538.2	2.00	-2.00	0.00
6,040.0	3.68	316.70	5,816.3	1,121.4	-1,057.0	1,541.0	2.00	-2.00	0.00
6,080.0	2.88	316.70	5,856.2	1,123.1	-1,058.5	1,543.3	2.00	-2.00	0.00
6,120.0	2.08	316.70	5,896.2	1,124.4	-1,059.7	1,545.0	2.00	-2.00	0.00
6,160.0	1.28	316.70	5,936.2	1,125.2	-1,060.5	1,546.2	2.00	-2.00	0.00
6,200.0	0.48	316.70	5,976.2	1,125.7	-1,060.9	1,546.8	2.00	-2.00	0.00
6,223.8	0.00	0.00	6,000.0	1,125.7	-1,061.0	1,546.9	2.00	-2.00	0.00

TARGET BHL 75'FNL & 250'FWL

Database:	Landmark	Local Co-ordinate Reference:	Well REI H17-30D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4942.0ft (Original Well Elev)
Project:	SEC.17-T3N-R65W	MD Reference:	WELL @ 4942.0ft (Original Well Elev)
Site:	REI H17-21D Pad Sec.17-T3N-R65W	North Reference:	True
Well:	REI H17-30D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble REI H17-30D Plan #2 (2-20-12)		

Planned 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)
6,240.0	0.00	0.00	6,016.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,280.0	0.00	0.00	6,056.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,320.0	0.00	0.00	6,096.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,360.0	0.00	0.00	6,136.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,400.0	0.00	0.00	6,176.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,440.0	0.00	0.00	6,216.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,480.0	0.00	0.00	6,256.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,520.0	0.00	0.00	6,296.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,560.0	0.00	0.00	6,336.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,600.0	0.00	0.00	6,376.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,640.0	0.00	0.00	6,416.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,680.0	0.00	0.00	6,456.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,720.0	0.00	0.00	6,496.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,760.0	0.00	0.00	6,536.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,800.0	0.00	0.00	6,576.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,840.0	0.00	0.00	6,616.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,880.0	0.00	0.00	6,656.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,920.0	0.00	0.00	6,696.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
6,960.0	0.00	0.00	6,736.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,000.0	0.00	0.00	6,776.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,040.0	0.00	0.00	6,816.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,080.0	0.00	0.00	6,856.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,120.0	0.00	0.00	6,896.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,144.8	0.00	0.00	6,921.0	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
NIORARA - TARGET CIRCLE 75'FNL & 250'FWL									
7,160.0	0.00	0.00	6,936.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,200.0	0.00	0.00	6,976.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,240.0	0.00	0.00	7,016.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,280.0	0.00	0.00	7,056.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,320.0	0.00	0.00	7,096.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,360.0	0.00	0.00	7,136.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,400.0	0.00	0.00	7,176.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,437.8	0.00	0.00	7,214.0	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
CODELL									
7,440.0	0.00	0.00	7,216.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,480.0	0.00	0.00	7,256.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,520.0	0.00	0.00	7,296.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,560.0	0.00	0.00	7,336.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,600.0	0.00	0.00	7,376.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,640.0	0.00	0.00	7,416.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,680.0	0.00	0.00	7,456.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,720.0	0.00	0.00	7,496.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,760.0	0.00	0.00	7,536.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,800.0	0.00	0.00	7,576.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,840.0	0.00	0.00	7,616.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,849.8	0.00	0.00	7,626.0	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
D-SAND									
7,880.0	0.00	0.00	7,656.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,886.8	0.00	0.00	7,663.0	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
J-SAND									
7,920.0	0.00	0.00	7,696.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
7,960.0	0.00	0.00	7,736.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
8,000.0	0.00	0.00	7,776.2	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.17-T3N-R65W
Site: REI H17-21D Pad Sec.17-T3N-R65W
Well: REI H17-30D
Wellbore: Wellbore #1
Design: Noble REI H17-30D Plan #2 (2-20-12)

Local Co-ordinate Reference: Well REI H17-30D
TVD Reference: WELL @ 4942.0ft (Original Well Elev)
MD Reference: WELL @ 4942.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned 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)
8,036.8	0.00	0.00	7,813.0	1,125.7	-1,061.0	1,546.9	0.00	0.00	0.00
HARDLINE 75°N OF BHL									

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
TARGET BHL 75°FNL - plan hits target center - Point	0.00	0.00	6,000.0	1,125.7	-1,061.0	1,328,530.36	3,224,492.30	40.232420	-104.695930
HARDLINE 75°N OF E - plan misses target center by 125.0ft at 8036.8ft MD (7813.0 TVD, 1125.7 N, -1061.0 E) - Polygon	0.00	0.00	7,813.0	1,200.7	-1,161.0	1,328,604.42	3,224,391.64	40.232626	-104.696288
Point 1			7,813.0	0.0	0.0	1,328,604.42	3,224,391.64		
Point 2			7,813.0	0.0	200.0	1,328,606.24	3,224,591.63		
TARGET CIRCLE 75° - plan hits target center - Circle (radius 75.0)	0.00	0.00	6,921.0	1,125.7	-1,061.0	1,328,530.36	3,224,492.30	40.232420	-104.695930

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
728.0	725.0	8 5/8"	8-5/8	12-1/4

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,144.8	6,921.0	NIOBRARA		0.00	
7,437.8	7,214.0	CODELL		0.00	
7,849.8	7,626.0	D-SAND		0.00	
7,886.8	7,663.0	J-SAND		0.00	