

# ENSIGN

## Directional

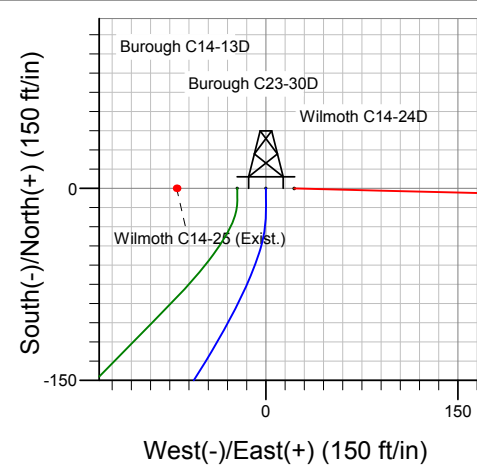
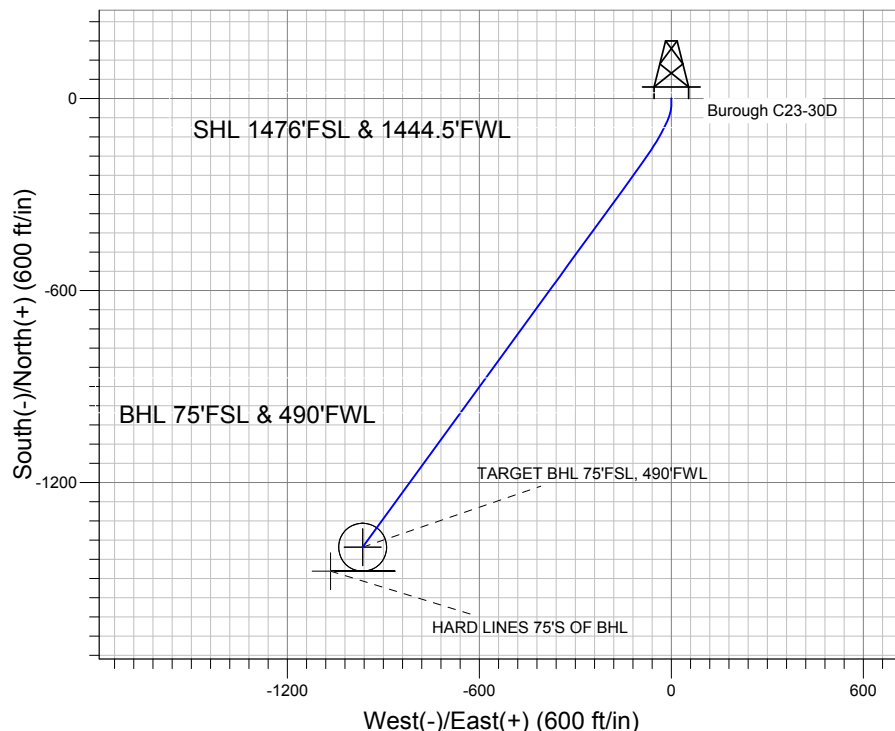
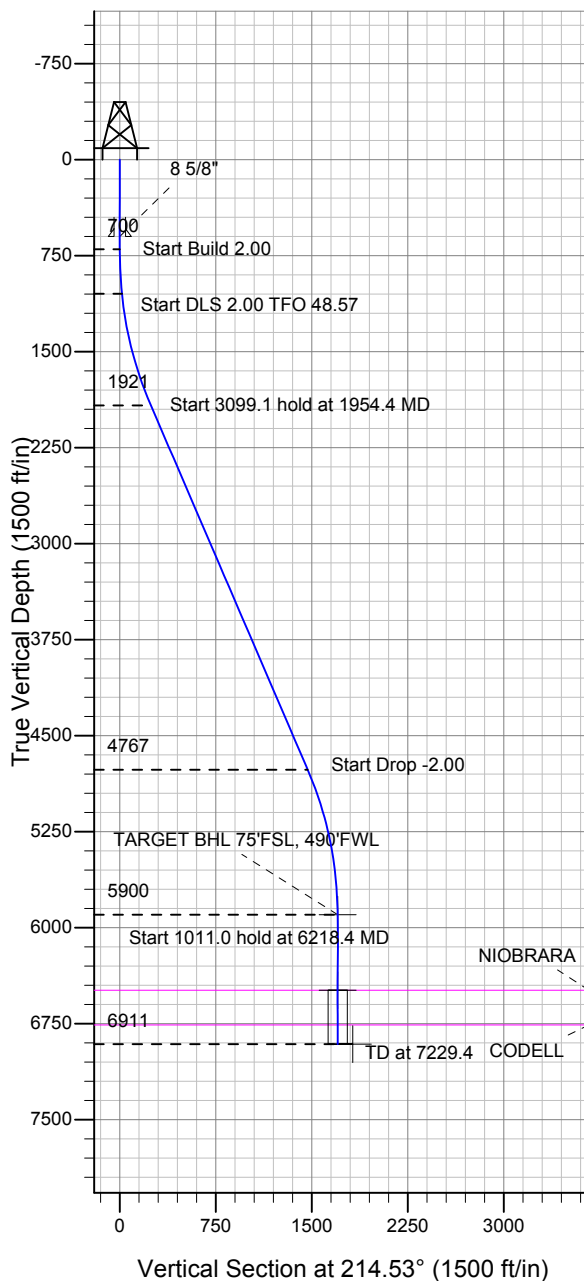
### Well Name: Burough C23-30D

Surface Location: Burough C14-13D Pad Sec.14-T4N-R64W  
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4648.0

+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1357015.30 3272703.05 40.309280 -104.522140  
Original Well Elev WELL @ 4661.0ft (Original Well Elev)

### NOBLE ENERGY INC WELD COUNTY CO



Burough C14-13D Pad Sec.14-T4N-R64W  
Burrough C23-30D  
Noble Burrough C23-30D Plan #1 (6-14-11)  
13:07, June 21 2011



Azimuths to True North  
Magnetic North: 8.72°

Magnetic Field  
Strength: 53109.7snT  
Dip Angle: 67.02°  
Date: 6/21/2011  
Model: IGRF2010

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 75'FSL, 490'FWL	5900.0	-1402.5	-965.0	40.305430	-104.525600	Point
TARGET CIRCLE 75'FSL & 490'FWL	6489.0	-1402.5	-965.0	40.305430	-104.525600	Circle (Radius: 75.0)
HARD LINES 75'S OF BHL	6911.0	-1477.5	-1065.0	40.305224	-104.525958	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	700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.0	
3	1050.0	7.00	180.00	1049.1	-21.4	0.0	2.00	180.00	17.6	
4	1954.4	23.30	216.05	1920.5	-222.7	-106.1	2.00	48.57	243.7	
5	5053.5	23.30	216.05	4766.9	-1213.7	-827.6	0.00	0.00	1469.0	
6	6218.4	0.00	0.00	5900.0	-1402.5	-965.0	2.00	180.00	1702.5	TARGET BHL 75'FSL, 490'FWL
7	7229.4	0.00	0.00	6911.0	-1402.5	-965.0	0.00	0.00	1702.5	



## **Directional**

### **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.14-T4N-R64W**

**Borough C14-13D Pad Sec.14-T4N-R64W**

**Borough C23-30D**

**Wellbore #1**

**Plan: Noble Borough C23-30D Plan #1 (6-14-11)**

### **Standard Planning Report**

**21 June, 2011**



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Borough C23-30D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4661.0ft (Original Well Elev)
<b>Project:</b>	SEC.14-T4N-R64W	<b>MD Reference:</b>	WELL @ 4661.0ft (Original Well Elev)
<b>Site:</b>	Borough C14-13D Pad Sec.14-T4N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Borough C23-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Borough C23-30D Plan #1 (6-14-11)		

<b>Project</b>	SEC.14-T4N-R64W, 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

Site	Borough C14-13D Pad Sec.14-T4N-R64W				
Site Position:		Northing:	1,357,015.08 ft	Latitude:	40.309280
From:	Lat/Long	Easting:	3,272,680.74 ft	Longitude:	-104.522220
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.63 °

Well	Borough C23-30D					
Well Position	+N/-S	0.0 ft	Northing:	1,357,015.30 ft	Latitude:	40.309280
	+E/-W	22.3 ft	Easting:	3,272,703.05 ft	Longitude:	-104.522140
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,648.0 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	6/21/2011	8.72	67.02	53,110

<b>Design</b>	Noble Borough C23-30D Plan #1 (6-14-11)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<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>
	0.0	0.0	0.0	214.53

<b>Plan Sections</b>										
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	
700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,050.0	7.00	180.00	1,049.1	-21.4	0.0	2.00	2.00	0.00	180.00	
1,954.4	23.30	216.05	1,920.5	-222.7	-106.1	2.00	1.80	3.99	48.57	
5,053.5	23.30	216.05	4,766.9	-1,213.7	-827.6	0.00	0.00	0.00	0.00	
6,218.4	0.00	0.00	5,900.0	-1,402.5	-965.0	2.00	-2.00	0.00	180.00	TARGET BHL 75°F
7,229.4	0.00	0.00	6,911.0	-1,402.5	-965.0	0.00	0.00	0.00	0.00	

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<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Borough C23-30D Plan #1 (6-14-11)		

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	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.40	180.00	720.0	-0.1	0.0	0.1	2.00	2.00	0.00
760.0	1.20	180.00	760.0	-0.6	0.0	0.5	2.00	2.00	0.00
800.0	2.00	180.00	800.0	-1.7	0.0	1.4	2.00	2.00	0.00
840.0	2.80	180.00	839.9	-3.4	0.0	2.8	2.00	2.00	0.00
880.0	3.60	180.00	879.9	-5.7	0.0	4.7	2.00	2.00	0.00
920.0	4.40	180.00	919.8	-8.4	0.0	7.0	2.00	2.00	0.00
960.0	5.20	180.00	959.6	-11.8	0.0	9.7	2.00	2.00	0.00
1,000.0	6.00	180.00	999.5	-15.7	0.0	12.9	2.00	2.00	0.00
1,040.0	6.80	180.00	1,039.2	-20.2	0.0	16.6	2.00	2.00	0.00
1,050.0	7.00	180.00	1,049.1	-21.4	0.0	17.6	2.00	2.00	0.00
1,080.0	7.41	183.49	1,078.9	-25.1	-0.1	20.8	2.00	1.37	11.63
1,120.0	8.00	187.57	1,118.5	-30.4	-0.6	25.4	2.00	1.46	10.19
1,160.0	8.61	191.08	1,158.1	-36.1	-1.6	30.7	2.00	1.55	8.78
1,200.0	9.26	194.11	1,197.6	-42.2	-2.9	36.4	2.00	1.62	7.58
1,240.0	9.93	196.75	1,237.1	-48.6	-4.7	42.7	2.00	1.67	6.59
1,280.0	10.62	199.05	1,276.4	-55.4	-6.9	49.6	2.00	1.72	5.75
1,320.0	11.32	201.07	1,315.7	-62.6	-9.5	56.9	2.00	1.75	5.05
1,360.0	12.03	202.86	1,354.9	-70.1	-12.6	64.8	2.00	1.78	4.47
1,400.0	12.76	204.45	1,393.9	-77.9	-16.0	73.3	2.00	1.81	3.97
1,440.0	13.49	205.87	1,432.9	-86.1	-19.9	82.2	2.00	1.83	3.55
1,480.0	14.23	207.14	1,471.7	-94.7	-24.2	91.7	2.00	1.85	3.19
1,520.0	14.97	208.29	1,510.4	-103.6	-28.8	101.7	2.00	1.86	2.88
1,560.0	15.72	209.34	1,549.0	-112.9	-33.9	112.3	2.00	1.88	2.61
1,600.0	16.48	210.29	1,587.4	-122.5	-39.5	123.3	2.00	1.89	2.38
1,640.0	17.24	211.16	1,625.7	-132.5	-45.4	134.9	2.00	1.90	2.17
1,680.0	18.00	211.95	1,663.8	-142.8	-51.7	147.0	2.00	1.91	2.00
1,720.0	18.77	212.69	1,701.8	-153.5	-58.5	159.6	2.00	1.91	1.84
1,760.0	19.53	213.37	1,739.6	-164.5	-65.6	172.7	2.00	1.92	1.70
1,800.0	20.31	214.00	1,777.2	-175.8	-73.2	186.3	2.00	1.93	1.57
1,840.0	21.08	214.58	1,814.6	-187.5	-81.2	200.5	2.00	1.93	1.46
1,880.0	21.85	215.13	1,851.8	-199.5	-89.5	215.1	2.00	1.94	1.37
1,920.0	22.63	215.64	1,888.9	-211.9	-98.3	230.2	2.00	1.94	1.28
1,954.4	23.30	216.05	1,920.5	-222.7	-106.1	243.7	2.00	1.94	1.20
1,960.0	23.30	216.05	1,925.7	-224.5	-107.5	245.9	0.00	0.00	0.00

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<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Borough C23-30D Plan #1 (6-14-11)		

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)
2,000.0	23.30	216.05	1,962.4	-237.3	-116.8	261.7	0.00	0.00	0.00
2,040.0	23.30	216.05	1,999.2	-250.1	-126.1	277.5	0.00	0.00	0.00
2,080.0	23.30	216.05	2,035.9	-262.9	-135.4	293.3	0.00	0.00	0.00
2,120.0	23.30	216.05	2,072.6	-275.7	-144.7	309.1	0.00	0.00	0.00
2,160.0	23.30	216.05	2,109.4	-288.5	-154.0	325.0	0.00	0.00	0.00
2,200.0	23.30	216.05	2,146.1	-301.3	-163.3	340.8	0.00	0.00	0.00
2,240.0	23.30	216.05	2,182.8	-314.1	-172.6	356.6	0.00	0.00	0.00
2,280.0	23.30	216.05	2,219.6	-326.8	-181.9	372.4	0.00	0.00	0.00
2,320.0	23.30	216.05	2,256.3	-339.6	-191.3	388.2	0.00	0.00	0.00
2,360.0	23.30	216.05	2,293.1	-352.4	-200.6	404.0	0.00	0.00	0.00
2,400.0	23.30	216.05	2,329.8	-365.2	-209.9	419.8	0.00	0.00	0.00
2,440.0	23.30	216.05	2,366.5	-378.0	-219.2	435.7	0.00	0.00	0.00
2,480.0	23.30	216.05	2,403.3	-390.8	-228.5	451.5	0.00	0.00	0.00
2,520.0	23.30	216.05	2,440.0	-403.6	-237.8	467.3	0.00	0.00	0.00
2,560.0	23.30	216.05	2,476.8	-416.4	-247.1	483.1	0.00	0.00	0.00
2,600.0	23.30	216.05	2,513.5	-429.2	-256.4	498.9	0.00	0.00	0.00
2,640.0	23.30	216.05	2,550.2	-442.0	-265.7	514.7	0.00	0.00	0.00
2,680.0	23.30	216.05	2,587.0	-454.7	-275.1	530.5	0.00	0.00	0.00
2,720.0	23.30	216.05	2,623.7	-467.5	-284.4	546.4	0.00	0.00	0.00
2,760.0	23.30	216.05	2,660.4	-480.3	-293.7	562.2	0.00	0.00	0.00
2,800.0	23.30	216.05	2,697.2	-493.1	-303.0	578.0	0.00	0.00	0.00
2,840.0	23.30	216.05	2,733.9	-505.9	-312.3	593.8	0.00	0.00	0.00
2,880.0	23.30	216.05	2,770.7	-518.7	-321.6	609.6	0.00	0.00	0.00
2,920.0	23.30	216.05	2,807.4	-531.5	-330.9	625.4	0.00	0.00	0.00
2,960.0	23.30	216.05	2,844.1	-544.3	-340.2	641.2	0.00	0.00	0.00
3,000.0	23.30	216.05	2,880.9	-557.1	-349.5	657.1	0.00	0.00	0.00
3,040.0	23.30	216.05	2,917.6	-569.9	-358.9	672.9	0.00	0.00	0.00
3,080.0	23.30	216.05	2,954.4	-582.7	-368.2	688.7	0.00	0.00	0.00
3,120.0	23.30	216.05	2,991.1	-595.4	-377.5	704.5	0.00	0.00	0.00
3,160.0	23.30	216.05	3,027.8	-608.2	-386.8	720.3	0.00	0.00	0.00
3,200.0	23.30	216.05	3,064.6	-621.0	-396.1	736.1	0.00	0.00	0.00
3,240.0	23.30	216.05	3,101.3	-633.8	-405.4	752.0	0.00	0.00	0.00
3,280.0	23.30	216.05	3,138.0	-646.6	-414.7	767.8	0.00	0.00	0.00
3,320.0	23.30	216.05	3,174.8	-659.4	-424.0	783.6	0.00	0.00	0.00
3,360.0	23.30	216.05	3,211.5	-672.2	-433.3	799.4	0.00	0.00	0.00
3,400.0	23.30	216.05	3,248.3	-685.0	-442.7	815.2	0.00	0.00	0.00
3,440.0	23.30	216.05	3,285.0	-697.8	-452.0	831.0	0.00	0.00	0.00
3,480.0	23.30	216.05	3,321.7	-710.6	-461.3	846.8	0.00	0.00	0.00
3,520.0	23.30	216.05	3,358.5	-723.3	-470.6	862.7	0.00	0.00	0.00
3,560.0	23.30	216.05	3,395.2	-736.1	-479.9	878.5	0.00	0.00	0.00
3,600.0	23.30	216.05	3,432.0	-748.9	-489.2	894.3	0.00	0.00	0.00
3,640.0	23.30	216.05	3,468.7	-761.7	-498.5	910.1	0.00	0.00	0.00
3,680.0	23.30	216.05	3,505.4	-774.5	-507.8	925.9	0.00	0.00	0.00
3,720.0	23.30	216.05	3,542.2	-787.3	-517.1	941.7	0.00	0.00	0.00
3,760.0	23.30	216.05	3,578.9	-800.1	-526.5	957.5	0.00	0.00	0.00
3,800.0	23.30	216.05	3,615.6	-812.9	-535.8	973.4	0.00	0.00	0.00
3,840.0	23.30	216.05	3,652.4	-825.7	-545.1	989.2	0.00	0.00	0.00
3,880.0	23.30	216.05	3,689.1	-838.5	-554.4	1,005.0	0.00	0.00	0.00
3,920.0	23.30	216.05	3,725.9	-851.2	-563.7	1,020.8	0.00	0.00	0.00
3,960.0	23.30	216.05	3,762.6	-864.0	-573.0	1,036.6	0.00	0.00	0.00
4,000.0	23.30	216.05	3,799.3	-876.8	-582.3	1,052.4	0.00	0.00	0.00
4,040.0	23.30	216.05	3,836.1	-889.6	-591.6	1,068.3	0.00	0.00	0.00
4,080.0	23.30	216.05	3,872.8	-902.4	-600.9	1,084.1	0.00	0.00	0.00
4,120.0	23.30	216.05	3,909.6	-915.2	-610.3	1,099.9	0.00	0.00	0.00

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<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4661.0ft (Original Well Elev)
<b>Project:</b>	SEC.14-T4N-R64W	<b>MD Reference:</b>	WELL @ 4661.0ft (Original Well Elev)
<b>Site:</b>	Borough C14-13D Pad Sec.14-T4N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Borough C23-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Borough C23-30D Plan #1 (6-14-11)		

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)
4,160.0	23.30	216.05	3,946.3	-928.0	-619.6	1,115.7	0.00	0.00	0.00
4,200.0	23.30	216.05	3,983.0	-940.8	-628.9	1,131.5	0.00	0.00	0.00
4,240.0	23.30	216.05	4,019.8	-953.6	-638.2	1,147.3	0.00	0.00	0.00
4,280.0	23.30	216.05	4,056.5	-966.4	-647.5	1,163.1	0.00	0.00	0.00
4,320.0	23.30	216.05	4,093.2	-979.1	-656.8	1,179.0	0.00	0.00	0.00
4,360.0	23.30	216.05	4,130.0	-991.9	-666.1	1,194.8	0.00	0.00	0.00
4,400.0	23.30	216.05	4,166.7	-1,004.7	-675.4	1,210.6	0.00	0.00	0.00
4,440.0	23.30	216.05	4,203.5	-1,017.5	-684.7	1,226.4	0.00	0.00	0.00
4,480.0	23.30	216.05	4,240.2	-1,030.3	-694.1	1,242.2	0.00	0.00	0.00
4,520.0	23.30	216.05	4,276.9	-1,043.1	-703.4	1,258.0	0.00	0.00	0.00
4,560.0	23.30	216.05	4,313.7	-1,055.9	-712.7	1,273.8	0.00	0.00	0.00
4,600.0	23.30	216.05	4,350.4	-1,068.7	-722.0	1,289.7	0.00	0.00	0.00
4,640.0	23.30	216.05	4,387.2	-1,081.5	-731.3	1,305.5	0.00	0.00	0.00
4,680.0	23.30	216.05	4,423.9	-1,094.3	-740.6	1,321.3	0.00	0.00	0.00
4,720.0	23.30	216.05	4,460.6	-1,107.0	-749.9	1,337.1	0.00	0.00	0.00
4,760.0	23.30	216.05	4,497.4	-1,119.8	-759.2	1,352.9	0.00	0.00	0.00
4,800.0	23.30	216.05	4,534.1	-1,132.6	-768.5	1,368.7	0.00	0.00	0.00
4,840.0	23.30	216.05	4,570.8	-1,145.4	-777.9	1,384.5	0.00	0.00	0.00
4,880.0	23.30	216.05	4,607.6	-1,158.2	-787.2	1,400.4	0.00	0.00	0.00
4,920.0	23.30	216.05	4,644.3	-1,171.0	-796.5	1,416.2	0.00	0.00	0.00
4,960.0	23.30	216.05	4,681.1	-1,183.8	-805.8	1,432.0	0.00	0.00	0.00
5,000.0	23.30	216.05	4,717.8	-1,196.6	-815.1	1,447.8	0.00	0.00	0.00
5,040.0	23.30	216.05	4,754.5	-1,209.4	-824.4	1,463.6	0.00	0.00	0.00
5,053.5	23.30	216.05	4,766.9	-1,213.7	-827.6	1,469.0	0.00	0.00	0.00
5,080.0	22.77	216.05	4,791.3	-1,222.1	-833.7	1,479.3	2.00	-2.00	0.00
5,120.0	21.97	216.05	4,828.3	-1,234.4	-842.6	1,494.5	2.00	-2.00	0.00
5,160.0	21.17	216.05	4,865.5	-1,246.3	-851.3	1,509.2	2.00	-2.00	0.00
5,200.0	20.37	216.05	4,902.9	-1,257.7	-859.6	1,523.4	2.00	-2.00	0.00
5,240.0	19.57	216.05	4,940.5	-1,268.8	-867.7	1,537.1	2.00	-2.00	0.00
5,280.0	18.77	216.05	4,978.3	-1,279.4	-875.4	1,550.2	2.00	-2.00	0.00
5,320.0	17.97	216.05	5,016.3	-1,289.6	-882.8	1,562.8	2.00	-2.00	0.00
5,360.0	17.17	216.05	5,054.4	-1,299.3	-889.9	1,574.9	2.00	-2.00	0.00
5,400.0	16.37	216.05	5,092.7	-1,308.7	-896.7	1,586.4	2.00	-2.00	0.00
5,440.0	15.57	216.05	5,131.1	-1,317.6	-903.2	1,597.4	2.00	-2.00	0.00
5,480.0	14.77	216.05	5,169.7	-1,326.0	-909.3	1,607.9	2.00	-2.00	0.00
5,520.0	13.97	216.05	5,208.5	-1,334.1	-915.2	1,617.8	2.00	-2.00	0.00
5,560.0	13.17	216.05	5,247.4	-1,341.6	-920.7	1,627.2	2.00	-2.00	0.00
5,600.0	12.37	216.05	5,286.4	-1,348.8	-925.9	1,636.0	2.00	-2.00	0.00
5,640.0	11.57	216.05	5,325.5	-1,355.5	-930.8	1,644.3	2.00	-2.00	0.00
5,680.0	10.77	216.05	5,364.8	-1,361.8	-935.3	1,652.0	2.00	-2.00	0.00
5,720.0	9.97	216.05	5,404.1	-1,367.6	-939.6	1,659.2	2.00	-2.00	0.00
5,760.0	9.17	216.05	5,443.6	-1,373.0	-943.5	1,665.9	2.00	-2.00	0.00
5,800.0	8.37	216.05	5,483.1	-1,377.9	-947.1	1,672.0	2.00	-2.00	0.00
5,840.0	7.57	216.05	5,522.7	-1,382.4	-950.3	1,677.5	2.00	-2.00	0.00
5,880.0	6.77	216.05	5,562.4	-1,386.4	-953.3	1,682.5	2.00	-2.00	0.00
5,920.0	5.97	216.05	5,602.1	-1,390.0	-955.9	1,686.9	2.00	-2.00	0.00
5,960.0	5.17	216.05	5,642.0	-1,393.1	-958.2	1,690.8	2.00	-2.00	0.00
6,000.0	4.37	216.05	5,681.8	-1,395.8	-960.1	1,694.2	2.00	-2.00	0.00
6,040.0	3.57	216.05	5,721.7	-1,398.1	-961.8	1,696.9	2.00	-2.00	0.00
6,080.0	2.77	216.05	5,761.7	-1,399.8	-963.1	1,699.1	2.00	-2.00	0.00
6,120.0	1.97	216.05	5,801.6	-1,401.2	-964.0	1,700.8	2.00	-2.00	0.00
6,160.0	1.17	216.05	5,841.6	-1,402.1	-964.7	1,701.9	2.00	-2.00	0.00
6,200.0	0.37	216.05	5,881.6	-1,402.5	-965.0	1,702.4	2.00	-2.00	0.00
6,218.4	0.00	0.00	5,900.0	-1,402.5	-965.0	1,702.5	2.00	-2.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Burough C23-30D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4661.0ft (Original Well Elev)
<b>Project:</b>	SEC.14-T4N-R64W	<b>MD Reference:</b>	WELL @ 4661.0ft (Original Well Elev)
<b>Site:</b>	Burrough C14-13D Pad Sec.14-T4N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Burrough C23-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Burrough C23-30D Plan #1 (6-14-11)		

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)
<b>TARGET BHL 75'FSL, 490'FWL</b>									
6,240.0	0.00	0.00	5,921.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,280.0	0.00	0.00	5,961.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,320.0	0.00	0.00	6,001.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,360.0	0.00	0.00	6,041.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,400.0	0.00	0.00	6,081.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,440.0	0.00	0.00	6,121.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,480.0	0.00	0.00	6,161.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,520.0	0.00	0.00	6,201.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,560.0	0.00	0.00	6,241.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,600.0	0.00	0.00	6,281.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,640.0	0.00	0.00	6,321.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,680.0	0.00	0.00	6,361.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,720.0	0.00	0.00	6,401.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,760.0	0.00	0.00	6,441.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,800.0	0.00	0.00	6,481.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,807.4	0.00	0.00	6,489.0	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
<b>NOBRARA - TARGET CIRCLE 75'FSL &amp; 490'FWL</b>									
6,840.0	0.00	0.00	6,521.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,880.0	0.00	0.00	6,561.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,920.0	0.00	0.00	6,601.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
6,960.0	0.00	0.00	6,641.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
7,000.0	0.00	0.00	6,681.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
7,040.0	0.00	0.00	6,721.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
7,079.4	0.00	0.00	6,761.0	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
<b>CODELL</b>									
7,080.0	0.00	0.00	6,761.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
7,120.0	0.00	0.00	6,801.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
7,160.0	0.00	0.00	6,841.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
7,200.0	0.00	0.00	6,881.6	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
7,229.4	0.00	0.00	6,911.0	-1,402.5	-965.0	1,702.5	0.00	0.00	0.00
<b>HARD LINES 75'S OF BHL</b>									

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
TARGET BHL 75'FSL	0.00	0.00	5,900.0	-1,402.5	-965.0	1,355,602.27	3,271,753.59	40.305430	-104.525600
- plan hits target center									
- Point									
TARGET CIRCLE 75'	0.00	0.00	6,489.0	-1,402.5	-965.0	1,355,602.27	3,271,753.59	40.305430	-104.525600
- plan hits target center									
- Circle (radius 75.0)									
HARD LINES 75'S OF	0.00	0.00	6,911.0	-1,477.5	-1,065.0	1,355,526.22	3,271,654.46	40.305224	-104.525958
- plan misses target center by 124.9ft at 7229.4ft MD (6911.0 TVD, -1402.5 N, -965.0 E)									
- Polygon									
Point 1			6,911.0	0.0	0.0	1,355,526.22	3,271,654.46		
Point 2			6,911.0	0.0	200.0	1,355,528.42	3,271,854.44		



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Burough C23-30D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4661.0ft (Original Well Elev)
<b>Project:</b>	SEC.14-T4N-R64W	<b>MD Reference:</b>	WELL @ 4661.0ft (Original Well Elev)
<b>Site:</b>	Burrough C14-13D Pad Sec.14-T4N-R64W	<b>North Reference:</b>	True
<b>Well:</b>	Burrough C23-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Burough C23-30D Plan #1 (6-14-11)		

Casing Points					
	Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
	600.0	600.0	8 5/8"	8-5/8	12-1/4

Formations					
	Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°) Dip Direction (°)
	6,807.4	6,489.0	NIOBRARA		0.00
	7,079.4	6,761.0	CODELL		0.00