

ENSIGN

Directional

Well Name: State Y16-24D

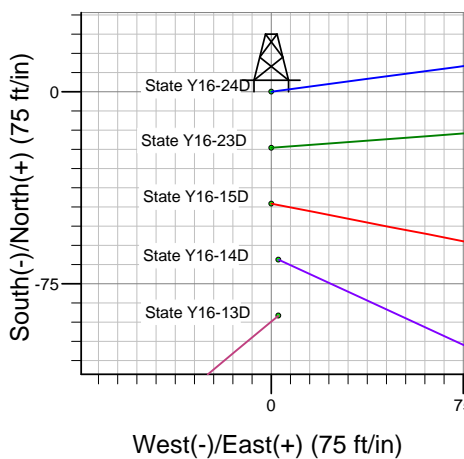
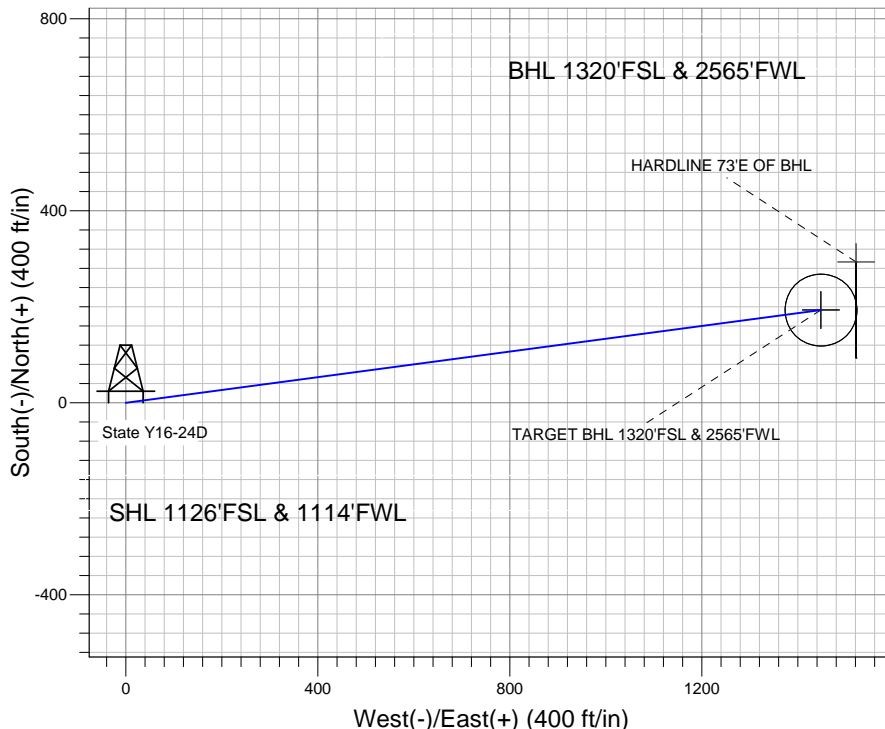
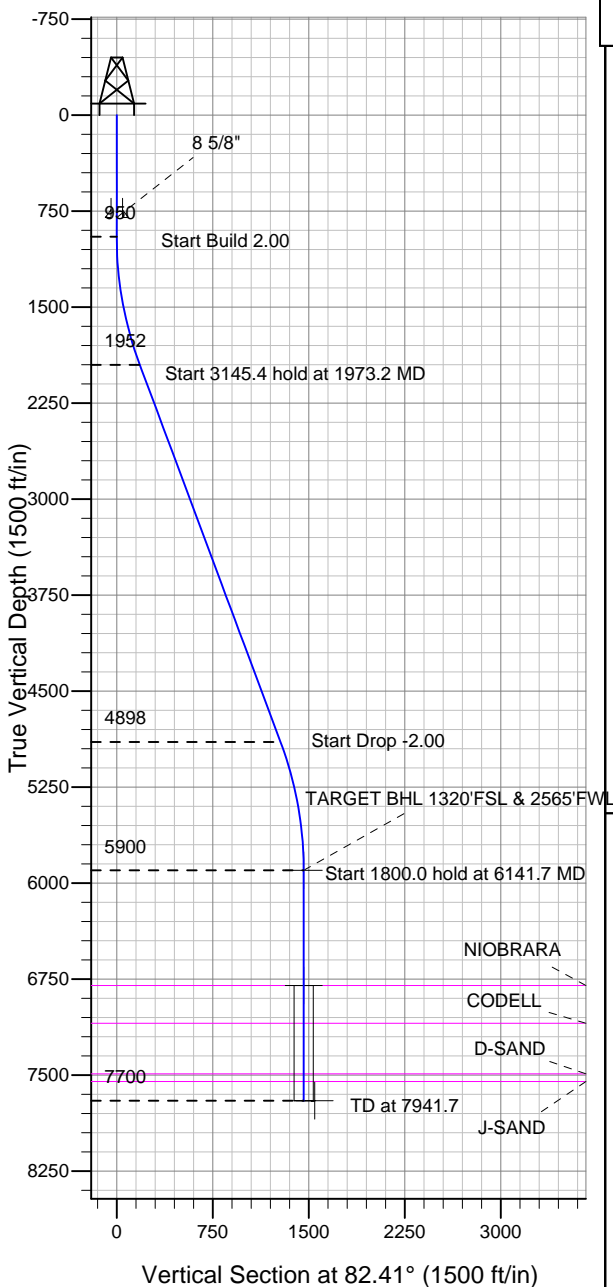
Surface Location: State Y16-24D Pad Sec.16-T2N-R64W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4927.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1293167.59	3262297.91	40.134330	-104.561870	

Original Well Elev WELL @ 4940.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



State Y16-24D Pad Sec.16-T2N-R64W
 State Y16-24D
 Noble State Y16-24D Plan #1 (9-28-11)
 12:48, October 03 2011



Azimuths to True North
 Magnetic North: 8.69°

Magnetic Field
 Strength: 52981.0snT
 Dip Angle: 66.86°
 Date: 10/3/2011
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1320'FSL & 2565'FWL	5900.0	193.1	1448.4	40.134860	-104.556690	Point
TARGET CIRCLE 1320'FSL & 2565'FWL	6800.0	193.1	1448.4	40.134860	-104.556690	Circle (Radius: 75.0)
HARDLINE 73'E OF BHL	7700.0	293.1	1521.4	40.135134	-104.556429	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	950.0	0.00	0.00	950.0	0.0	0.0	0.00	0.00	0.0	
3	1973.2	20.46	82.41	1951.6	23.9	179.2	2.00	82.41	180.8	
4	5118.5	20.46	82.41	4898.4	169.2	1269.2	0.00	0.00	1280.4	
5	6141.7	0.00	0.00	5900.0	193.1	1448.4	2.00	180.00	1461.2	TARGET BHL 1320'FSL & 2565'FWL
6	7941.7	0.00	0.00	7700.0	193.1	1448.4	0.00	0.00	1461.2	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.16-T2N-R64W

State Y16-24D Pad Sec.16-T2N-R64W

State Y16-24D

Wellbore #1

Plan: Noble State Y16-24D Plan #1 (9-28-11)

Standard Planning Report

03 October, 2011



Database:	Landmark	Local Co-ordinate Reference:	Well State Y16-24D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4940.0ft (Original Well Elev)
Project:	SEC.16-T2N-R64W	MD Reference:	WELL @ 4940.0ft (Original Well Elev)
Site:	State Y16-24D Pad Sec.16-T2N-R64W	North Reference:	True
Well:	State Y16-24D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-24D Plan #1 (9-28-11)		

Project	SEC.16-T2N-R64W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site						State Y16-24D Pad Sec.16-T2N-R64W											
Site Position:						Northing:			1,293,080.21 ft			Latitude:			40.134090		
From:			Lat/Long			Easting:			3,262,301.63ft			Longitude:			-104.561860		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.61 °		

Well	State Y16-24D					
Well Position	+N/-S	87.4 ft	Northing:	1,293,167.59 ft	Latitude:	40.134330
	+E/-W	-2.8 ft	Easting:	3,262,297.91 ft	Longitude:	-104.561870
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,927.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/3/2011	8.69	66.86	52,981

Design	Noble State Y16-24D Plan #1 (9-28-11)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	82.41

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	
950.0	0.00	0.00	950.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,973.2	20.46	82.41	1,951.6	23.9	179.2	2.00	2.00	0.00	82.41	
5,118.5	20.46	82.41	4,898.4	169.2	1,269.2	0.00	0.00	0.00	0.00	
6,141.7	0.00	0.00	5,900.0	193.1	1,448.4	2.00	-2.00	0.00	180.00	TARGET BHL 132C
7,941.7	0.00	0.00	7,700.0	193.1	1,448.4	0.00	0.00	0.00	0.00	

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Project:	SEC.16-T2N-R64W	MD Reference:	WELL @ 4940.0ft (Original Well Elev)
Site:	State Y16-24D Pad Sec.16-T2N-R64W	North Reference:	True
Well:	State Y16-24D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-24D Plan #1 (9-28-11)		

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
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
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
950.0	0.00	0.00	950.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.20	82.41	960.0	0.0	0.0	0.0	2.00	2.00	0.00
1,000.0	1.00	82.41	1,000.0	0.1	0.4	0.4	2.00	2.00	0.00
1,040.0	1.80	82.41	1,040.0	0.2	1.4	1.4	2.00	2.00	0.00
1,080.0	2.60	82.41	1,080.0	0.4	2.9	2.9	2.00	2.00	0.00
1,120.0	3.40	82.41	1,119.9	0.7	5.0	5.0	2.00	2.00	0.00
1,160.0	4.20	82.41	1,159.8	1.0	7.6	7.7	2.00	2.00	0.00
1,200.0	5.00	82.41	1,199.7	1.4	10.8	10.9	2.00	2.00	0.00
1,240.0	5.80	82.41	1,239.5	1.9	14.5	14.7	2.00	2.00	0.00
1,280.0	6.60	82.41	1,279.3	2.5	18.8	19.0	2.00	2.00	0.00
1,320.0	7.40	82.41	1,319.0	3.2	23.7	23.9	2.00	2.00	0.00
1,360.0	8.20	82.41	1,358.6	3.9	29.0	29.3	2.00	2.00	0.00
1,400.0	9.00	82.41	1,398.2	4.7	35.0	35.3	2.00	2.00	0.00
1,440.0	9.80	82.41	1,437.6	5.5	41.4	41.8	2.00	2.00	0.00
1,480.0	10.60	82.41	1,477.0	6.5	48.5	48.9	2.00	2.00	0.00
1,520.0	11.40	82.41	1,516.2	7.5	56.0	56.5	2.00	2.00	0.00
1,560.0	12.20	82.41	1,555.4	8.6	64.1	64.7	2.00	2.00	0.00
1,600.0	13.00	82.41	1,594.4	9.7	72.8	73.4	2.00	2.00	0.00
1,640.0	13.80	82.41	1,633.3	10.9	82.0	82.7	2.00	2.00	0.00
1,680.0	14.60	82.41	1,672.1	12.2	91.7	92.5	2.00	2.00	0.00
1,720.0	15.40	82.41	1,710.8	13.6	102.0	102.9	2.00	2.00	0.00
1,760.0	16.20	82.41	1,749.3	15.0	112.8	113.7	2.00	2.00	0.00
1,800.0	17.00	82.41	1,787.6	16.5	124.1	125.2	2.00	2.00	0.00
1,840.0	17.80	82.41	1,825.8	18.1	135.9	137.1	2.00	2.00	0.00
1,880.0	18.60	82.41	1,863.8	19.8	148.3	149.6	2.00	2.00	0.00
1,920.0	19.40	82.41	1,901.6	21.5	161.2	162.7	2.00	2.00	0.00
1,960.0	20.20	82.41	1,939.2	23.3	174.7	176.2	2.00	2.00	0.00
1,973.2	20.46	82.41	1,951.6	23.9	179.2	180.8	2.00	2.00	0.00
2,000.0	20.46	82.41	1,976.7	25.1	188.5	190.2	0.00	0.00	0.00

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Site:	State Y16-24D Pad Sec.16-T2N-R64W	North Reference:	True
Well:	State Y16-24D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-24D Plan #1 (9-28-11)		

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)
2,040.0	20.46	82.41	2,014.2	27.0	202.4	204.1	0.00	0.00	0.00
2,080.0	20.46	82.41	2,051.6	28.8	216.2	218.1	0.00	0.00	0.00
2,120.0	20.46	82.41	2,089.1	30.7	230.1	232.1	0.00	0.00	0.00
2,160.0	20.46	82.41	2,126.6	32.5	243.9	246.1	0.00	0.00	0.00
2,200.0	20.46	82.41	2,164.1	34.4	257.8	260.1	0.00	0.00	0.00
2,240.0	20.46	82.41	2,201.5	36.2	271.7	274.1	0.00	0.00	0.00
2,280.0	20.46	82.41	2,239.0	38.1	285.5	288.1	0.00	0.00	0.00
2,320.0	20.46	82.41	2,276.5	39.9	299.4	302.0	0.00	0.00	0.00
2,360.0	20.46	82.41	2,314.0	41.8	313.2	316.0	0.00	0.00	0.00
2,400.0	20.46	82.41	2,351.5	43.6	327.1	330.0	0.00	0.00	0.00
2,440.0	20.46	82.41	2,388.9	45.5	341.0	344.0	0.00	0.00	0.00
2,480.0	20.46	82.41	2,426.4	47.3	354.8	358.0	0.00	0.00	0.00
2,520.0	20.46	82.41	2,463.9	49.2	368.7	372.0	0.00	0.00	0.00
2,560.0	20.46	82.41	2,501.4	51.0	382.6	385.9	0.00	0.00	0.00
2,600.0	20.46	82.41	2,538.8	52.9	396.4	399.9	0.00	0.00	0.00
2,640.0	20.46	82.41	2,576.3	54.7	410.3	413.9	0.00	0.00	0.00
2,680.0	20.46	82.41	2,613.8	56.6	424.1	427.9	0.00	0.00	0.00
2,720.0	20.46	82.41	2,651.3	58.4	438.0	441.9	0.00	0.00	0.00
2,760.0	20.46	82.41	2,688.7	60.3	451.9	455.9	0.00	0.00	0.00
2,800.0	20.46	82.41	2,726.2	62.1	465.7	469.8	0.00	0.00	0.00
2,840.0	20.46	82.41	2,763.7	63.9	479.6	483.8	0.00	0.00	0.00
2,880.0	20.46	82.41	2,801.2	65.8	493.4	497.8	0.00	0.00	0.00
2,920.0	20.46	82.41	2,838.6	67.6	507.3	511.8	0.00	0.00	0.00
2,960.0	20.46	82.41	2,876.1	69.5	521.2	525.8	0.00	0.00	0.00
3,000.0	20.46	82.41	2,913.6	71.3	535.0	539.8	0.00	0.00	0.00
3,040.0	20.46	82.41	2,951.1	73.2	548.9	553.8	0.00	0.00	0.00
3,080.0	20.46	82.41	2,988.5	75.0	562.8	567.7	0.00	0.00	0.00
3,120.0	20.46	82.41	3,026.0	76.9	576.6	581.7	0.00	0.00	0.00
3,160.0	20.46	82.41	3,063.5	78.7	590.5	595.7	0.00	0.00	0.00
3,200.0	20.46	82.41	3,101.0	80.6	604.3	609.7	0.00	0.00	0.00
3,240.0	20.46	82.41	3,138.4	82.4	618.2	623.7	0.00	0.00	0.00
3,280.0	20.46	82.41	3,175.9	84.3	632.1	637.7	0.00	0.00	0.00
3,320.0	20.46	82.41	3,213.4	86.1	645.9	651.6	0.00	0.00	0.00
3,360.0	20.46	82.41	3,250.9	88.0	659.8	665.6	0.00	0.00	0.00
3,400.0	20.46	82.41	3,288.3	89.8	673.6	679.6	0.00	0.00	0.00
3,440.0	20.46	82.41	3,325.8	91.7	687.5	693.6	0.00	0.00	0.00
3,480.0	20.46	82.41	3,363.3	93.5	701.4	707.6	0.00	0.00	0.00
3,520.0	20.46	82.41	3,400.8	95.4	715.2	721.6	0.00	0.00	0.00
3,560.0	20.46	82.41	3,438.3	97.2	729.1	735.5	0.00	0.00	0.00
3,600.0	20.46	82.41	3,475.7	99.1	743.0	749.5	0.00	0.00	0.00
3,640.0	20.46	82.41	3,513.2	100.9	756.8	763.5	0.00	0.00	0.00
3,680.0	20.46	82.41	3,550.7	102.8	770.7	777.5	0.00	0.00	0.00
3,720.0	20.46	82.41	3,588.2	104.6	784.5	791.5	0.00	0.00	0.00
3,760.0	20.46	82.41	3,625.6	106.5	798.4	805.5	0.00	0.00	0.00
3,800.0	20.46	82.41	3,663.1	108.3	812.3	819.5	0.00	0.00	0.00
3,840.0	20.46	82.41	3,700.6	110.2	826.1	833.4	0.00	0.00	0.00
3,880.0	20.46	82.41	3,738.1	112.0	840.0	847.4	0.00	0.00	0.00
3,920.0	20.46	82.41	3,775.5	113.9	853.9	861.4	0.00	0.00	0.00
3,960.0	20.46	82.41	3,813.0	115.7	867.7	875.4	0.00	0.00	0.00
4,000.0	20.46	82.41	3,850.5	117.5	881.6	889.4	0.00	0.00	0.00
4,040.0	20.46	82.41	3,888.0	119.4	895.4	903.4	0.00	0.00	0.00
4,080.0	20.46	82.41	3,925.4	121.2	909.3	917.3	0.00	0.00	0.00
4,120.0	20.46	82.41	3,962.9	123.1	923.2	931.3	0.00	0.00	0.00
4,160.0	20.46	82.41	4,000.4	124.9	937.0	945.3	0.00	0.00	0.00

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Project:	SEC.16-T2N-R64W	MD Reference:	WELL @ 4940.0ft (Original Well Elev)
Site:	State Y16-24D Pad Sec.16-T2N-R64W	North Reference:	True
Well:	State Y16-24D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-24D Plan #1 (9-28-11)		

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)
4,200.0	20.46	82.41	4,037.9	126.8	950.9	959.3	0.00	0.00	0.00
4,240.0	20.46	82.41	4,075.3	128.6	964.7	973.3	0.00	0.00	0.00
4,280.0	20.46	82.41	4,112.8	130.5	978.6	987.3	0.00	0.00	0.00
4,320.0	20.46	82.41	4,150.3	132.3	992.5	1,001.3	0.00	0.00	0.00
4,360.0	20.46	82.41	4,187.8	134.2	1,006.3	1,015.2	0.00	0.00	0.00
4,400.0	20.46	82.41	4,225.2	136.0	1,020.2	1,029.2	0.00	0.00	0.00
4,440.0	20.46	82.41	4,262.7	137.9	1,034.1	1,043.2	0.00	0.00	0.00
4,480.0	20.46	82.41	4,300.2	139.7	1,047.9	1,057.2	0.00	0.00	0.00
4,520.0	20.46	82.41	4,337.7	141.6	1,061.8	1,071.2	0.00	0.00	0.00
4,560.0	20.46	82.41	4,375.1	143.4	1,075.6	1,085.2	0.00	0.00	0.00
4,600.0	20.46	82.41	4,412.6	145.3	1,089.5	1,099.1	0.00	0.00	0.00
4,640.0	20.46	82.41	4,450.1	147.1	1,103.4	1,113.1	0.00	0.00	0.00
4,680.0	20.46	82.41	4,487.6	149.0	1,117.2	1,127.1	0.00	0.00	0.00
4,720.0	20.46	82.41	4,525.1	150.8	1,131.1	1,141.1	0.00	0.00	0.00
4,760.0	20.46	82.41	4,562.5	152.7	1,144.9	1,155.1	0.00	0.00	0.00
4,800.0	20.46	82.41	4,600.0	154.5	1,158.8	1,169.1	0.00	0.00	0.00
4,840.0	20.46	82.41	4,637.5	156.4	1,172.7	1,183.0	0.00	0.00	0.00
4,880.0	20.46	82.41	4,675.0	158.2	1,186.5	1,197.0	0.00	0.00	0.00
4,920.0	20.46	82.41	4,712.4	160.1	1,200.4	1,211.0	0.00	0.00	0.00
4,960.0	20.46	82.41	4,749.9	161.9	1,214.3	1,225.0	0.00	0.00	0.00
5,000.0	20.46	82.41	4,787.4	163.8	1,228.1	1,239.0	0.00	0.00	0.00
5,040.0	20.46	82.41	4,824.9	165.6	1,242.0	1,253.0	0.00	0.00	0.00
5,080.0	20.46	82.41	4,862.3	167.5	1,255.8	1,267.0	0.00	0.00	0.00
5,118.5	20.46	82.41	4,898.4	169.2	1,269.2	1,280.4	0.00	0.00	0.00
5,120.0	20.43	82.41	4,899.8	169.3	1,269.7	1,280.9	2.00	-2.00	0.00
5,160.0	19.63	82.41	4,937.4	171.1	1,283.3	1,294.6	2.00	-2.00	0.00
5,200.0	18.83	82.41	4,975.2	172.9	1,296.3	1,307.8	2.00	-2.00	0.00
5,240.0	18.03	82.41	5,013.1	174.5	1,308.9	1,320.5	2.00	-2.00	0.00
5,280.0	17.23	82.41	5,051.2	176.1	1,320.9	1,332.6	2.00	-2.00	0.00
5,320.0	16.43	82.41	5,089.5	177.7	1,332.4	1,344.2	2.00	-2.00	0.00
5,360.0	15.63	82.41	5,128.0	179.1	1,343.3	1,355.2	2.00	-2.00	0.00
5,400.0	14.83	82.41	5,166.5	180.5	1,353.7	1,365.7	2.00	-2.00	0.00
5,440.0	14.03	82.41	5,205.3	181.8	1,363.6	1,375.7	2.00	-2.00	0.00
5,480.0	13.23	82.41	5,244.2	183.1	1,373.0	1,385.1	2.00	-2.00	0.00
5,520.0	12.43	82.41	5,283.2	184.2	1,381.8	1,394.0	2.00	-2.00	0.00
5,560.0	11.63	82.41	5,322.3	185.3	1,390.0	1,402.3	2.00	-2.00	0.00
5,600.0	10.83	82.41	5,361.5	186.4	1,397.8	1,410.1	2.00	-2.00	0.00
5,640.0	10.03	82.41	5,400.8	187.3	1,405.0	1,417.4	2.00	-2.00	0.00
5,680.0	9.23	82.41	5,440.3	188.2	1,411.6	1,424.1	2.00	-2.00	0.00
5,720.0	8.43	82.41	5,479.8	189.0	1,417.7	1,430.2	2.00	-2.00	0.00
5,760.0	7.63	82.41	5,519.4	189.8	1,423.2	1,435.8	2.00	-2.00	0.00
5,800.0	6.83	82.41	5,559.1	190.4	1,428.2	1,440.9	2.00	-2.00	0.00
5,840.0	6.03	82.41	5,598.8	191.0	1,432.7	1,445.3	2.00	-2.00	0.00
5,880.0	5.23	82.41	5,638.7	191.5	1,436.5	1,449.3	2.00	-2.00	0.00
5,920.0	4.43	82.41	5,678.5	192.0	1,439.9	1,452.6	2.00	-2.00	0.00
5,960.0	3.63	82.41	5,718.4	192.4	1,442.7	1,455.4	2.00	-2.00	0.00
6,000.0	2.83	82.41	5,758.3	192.7	1,444.9	1,457.7	2.00	-2.00	0.00
6,040.0	2.03	82.41	5,798.3	192.9	1,446.6	1,459.4	2.00	-2.00	0.00
6,080.0	1.23	82.41	5,838.3	193.0	1,447.7	1,460.5	2.00	-2.00	0.00
6,120.0	0.43	82.41	5,878.3	193.1	1,448.3	1,461.1	2.00	-2.00	0.00
6,141.7	0.00	0.00	5,900.0	193.1	1,448.4	1,461.2	2.00	-2.00	0.00
TARGET BHL 1320'FSL & 2565'FWL									
6,160.0	0.00	0.00	5,918.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,200.0	0.00	0.00	5,958.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well State Y16-24D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4940.0ft (Original Well Elev)
Project:	SEC.16-T2N-R64W	MD Reference:	WELL @ 4940.0ft (Original Well Elev)
Site:	State Y16-24D Pad Sec.16-T2N-R64W	North Reference:	True
Well:	State Y16-24D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-24D Plan #1 (9-28-11)		

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)
6,240.0	0.00	0.00	5,998.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,280.0	0.00	0.00	6,038.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,320.0	0.00	0.00	6,078.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,360.0	0.00	0.00	6,118.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,400.0	0.00	0.00	6,158.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,440.0	0.00	0.00	6,198.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,480.0	0.00	0.00	6,238.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,520.0	0.00	0.00	6,278.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,560.0	0.00	0.00	6,318.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,600.0	0.00	0.00	6,358.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,640.0	0.00	0.00	6,398.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,680.0	0.00	0.00	6,438.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,720.0	0.00	0.00	6,478.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,760.0	0.00	0.00	6,518.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,800.0	0.00	0.00	6,558.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,840.0	0.00	0.00	6,598.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,880.0	0.00	0.00	6,638.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,920.0	0.00	0.00	6,678.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
6,960.0	0.00	0.00	6,718.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,000.0	0.00	0.00	6,758.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,040.0	0.00	0.00	6,798.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,041.7	0.00	0.00	6,800.0	193.1	1,448.4	1,461.2	0.00	0.00	0.00
NOBRARA - TARGET CIRCLE 1320'FSL & 2565'FWL									
7,080.0	0.00	0.00	6,838.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,120.0	0.00	0.00	6,878.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,160.0	0.00	0.00	6,918.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,200.0	0.00	0.00	6,958.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,240.0	0.00	0.00	6,998.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,280.0	0.00	0.00	7,038.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,320.0	0.00	0.00	7,078.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,336.7	0.00	0.00	7,095.0	193.1	1,448.4	1,461.2	0.00	0.00	0.00
CODELL									
7,360.0	0.00	0.00	7,118.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,400.0	0.00	0.00	7,158.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,440.0	0.00	0.00	7,198.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,480.0	0.00	0.00	7,238.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,520.0	0.00	0.00	7,278.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,560.0	0.00	0.00	7,318.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,600.0	0.00	0.00	7,358.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,640.0	0.00	0.00	7,398.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,680.0	0.00	0.00	7,438.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,720.0	0.00	0.00	7,478.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,731.7	0.00	0.00	7,490.0	193.1	1,448.4	1,461.2	0.00	0.00	0.00
D-SAND									
7,760.0	0.00	0.00	7,518.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,791.7	0.00	0.00	7,550.0	193.1	1,448.4	1,461.2	0.00	0.00	0.00
J-SAND									
7,800.0	0.00	0.00	7,558.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,840.0	0.00	0.00	7,598.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,880.0	0.00	0.00	7,638.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,920.0	0.00	0.00	7,678.3	193.1	1,448.4	1,461.2	0.00	0.00	0.00
7,941.7	0.00	0.00	7,700.0	193.1	1,448.4	1,461.2	0.00	0.00	0.00
HARDLINE 73'E OF BHL									

Database:	Landmark	Local Co-ordinate Reference:	Well State Y16-24D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4940.0ft (Original Well Elev)
Project:	SEC.16-T2N-R64W	MD Reference:	WELL @ 4940.0ft (Original Well Elev)
Site:	State Y16-24D Pad Sec.16-T2N-R64W	North Reference:	True
Well:	State Y16-24D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-24D Plan #1 (9-28-11)		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
HARDLINE 73'E OF E	0.00	0.00	7,700.0	293.1	1,521.4	1,293,476.76	3,263,816.06	40.135134	-104.556429
- plan misses target center by 123.8ft at 7941.7ft MD (7700.0 TVD, 193.1 N, 1448.4 E)									
- Polygon									
Point 1			7,700.0	0.0	0.0	1,293,476.76	3,263,816.06		
Point 2			7,700.0	-200.0	0.0	1,293,276.78	3,263,818.17		
Point 3			7,700.0	0.0	0.0	1,293,476.76	3,263,816.06		
TARGET CIRCLE 132'	0.00	0.00	6,800.0	193.1	1,448.4	1,293,376.02	3,263,744.11	40.134860	-104.556690
- plan hits target center									
- Circle (radius 75.0)									
TARGET BHL 1320'F:	0.00	0.00	5,900.0	193.1	1,448.4	1,293,376.02	3,263,744.11	40.134860	-104.556690
- plan hits target center									
- Point									

Casing Points					
	Measured Depth	Vertical Depth		Casing Diameter	Hole Diameter
	(ft)	(ft)	Name	(")	(")
	800.0	800.0	8 5/8"	8-5/8	12-1/4

Formations						
	Measured Depth	Vertical Depth			Dip	Dip Direction
	(ft)	(ft)	Name	Lithology	(°)	(°)
	7,041.7	6,800.0	NIOBRARA		0.00	
	7,336.7	7,095.0	CODELL		0.00	
	7,731.7	7,490.0	D-SAND		0.00	
	7,791.7	7,550.0	J-SAND		0.00	