

Well Name: State Y16-23D

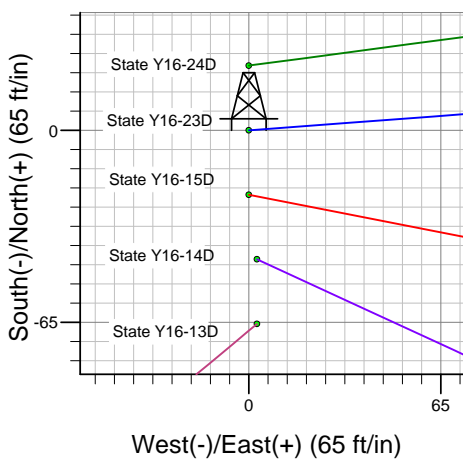
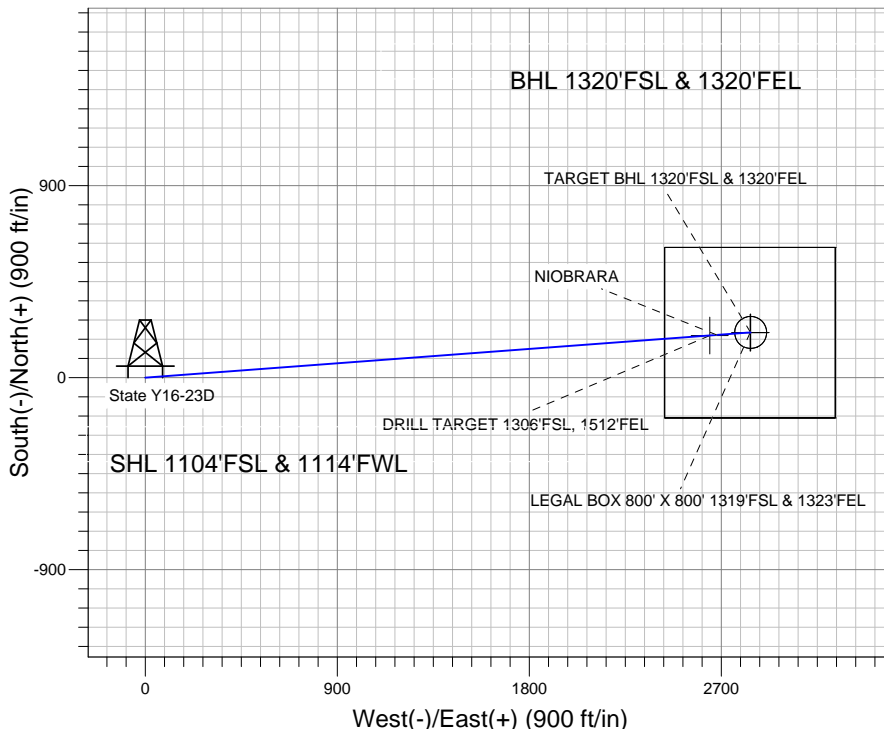
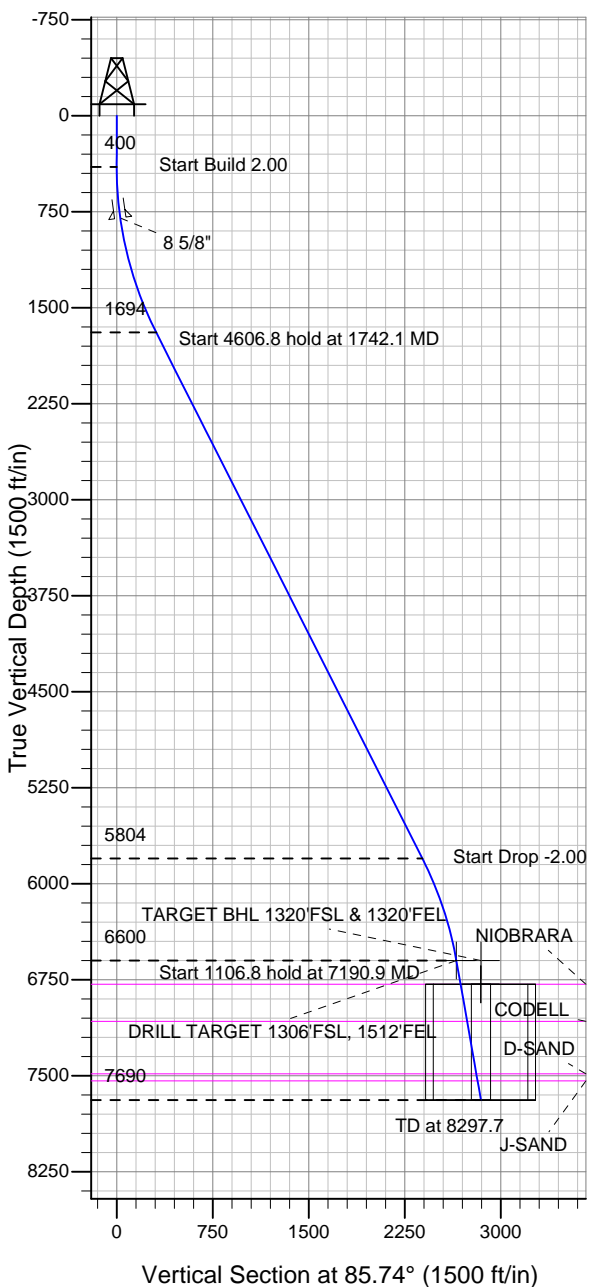
Surface Location: State Y16-24D Pad Sec.16-T2N-R64W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4927.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1293145.74	3262298.14	40.134270	-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 Y16-23D
Noble State Y16-23D Plan #1 (9-28-11)
13:07, October 03 2011



Azimuths to True North
Magnetic North: 8.69°

Magnetic Field
Strength: 52980.9snT
Dip Angle: 66.86°
Date: 10/3/2011
Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
DRILL TARGET 1306'FSL, 1512'FEL	6600.0	197.3	2646.5	40.134811	-104.552405	Point
TARGET BHL 1320'FSL & 1320'FEL	6600.0	211.5	2838.1	40.134850	-104.551720	Point
LEGAL BOX 800' X 800' 1319'FSL & 1323'FEL	6785.0	210.5	2835.1	40.134847	-104.551731	Rectangle (Sides: L800.0 W800.0)
TARGET CIRCLE 1320'FSL & 1320'FEL	6785.0	211.5	2838.1	40.134850	-104.551720	Circle (Radius: 75.0)

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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1742.1	26.84	85.74	1693.5	22.9	307.8	2.00	85.74	308.7	
4	6348.8	26.84	85.74	5803.9	177.6	2382.1	0.00	0.00	2388.7	
5	7190.9	10.00	85.74	6600.0	197.3	2646.5	2.00	180.00	2653.8	DRILL TARGET 1306'FSL, 1512'FEL
6	8297.7	10.00	85.74	7690.0	211.6	2838.2	0.00	0.00	2846.0	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.16-T2N-R64W

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

State Y16-23D

Wellbore #1

Plan: Noble State Y16-23D Plan #1 (9-28-11)

Standard Planning Report

03 October, 2011



Database:	Landmark	Local Co-ordinate Reference:	Well State Y16-23D
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 Y16-23D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-23D 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 Y16-23D					
Well Position	+N/-S	65.6 ft	Northing:	1,293,145.74 ft	Latitude:	40.134270
	+E/-W	-2.8 ft	Easting:	3,262,298.14 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 Y16-23D 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	85.74

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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,742.1	26.84	85.74	1,693.5	22.9	307.8	2.00	2.00	0.00	85.74	
6,348.8	26.84	85.74	5,803.9	177.6	2,382.1	0.00	0.00	0.00	0.00	
7,190.9	10.00	85.74	6,600.0	197.3	2,646.5	2.00	-2.00	0.00	180.00	DRILL TARGET 13
8,297.7	10.00	85.74	7,690.0	211.6	2,838.2	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well State Y16-23D
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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 Y16-23D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-23D 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	0.80	85.74	440.0	0.0	0.3	0.3	2.00	2.00	0.00
480.0	1.60	85.74	480.0	0.1	1.1	1.1	2.00	2.00	0.00
520.0	2.40	85.74	520.0	0.2	2.5	2.5	2.00	2.00	0.00
560.0	3.20	85.74	559.9	0.3	4.5	4.5	2.00	2.00	0.00
600.0	4.00	85.74	599.8	0.5	7.0	7.0	2.00	2.00	0.00
640.0	4.80	85.74	639.7	0.7	10.0	10.0	2.00	2.00	0.00
680.0	5.60	85.74	679.6	1.0	13.6	13.7	2.00	2.00	0.00
720.0	6.40	85.74	719.3	1.3	17.8	17.9	2.00	2.00	0.00
760.0	7.20	85.74	759.1	1.7	22.5	22.6	2.00	2.00	0.00
800.0	8.00	85.74	798.7	2.1	27.8	27.9	2.00	2.00	0.00
801.3	8.03	85.74	800.0	2.1	28.0	28.1	2.00	2.00	0.00
8 5/8"									
840.0	8.80	85.74	838.3	2.5	33.6	33.7	2.00	2.00	0.00
880.0	9.60	85.74	877.8	3.0	40.0	40.1	2.00	2.00	0.00
920.0	10.40	85.74	917.1	3.5	46.9	47.1	2.00	2.00	0.00
960.0	11.20	85.74	956.4	4.1	54.4	54.6	2.00	2.00	0.00
1,000.0	12.00	85.74	995.6	4.7	62.4	62.6	2.00	2.00	0.00
1,040.0	12.80	85.74	1,034.7	5.3	71.0	71.2	2.00	2.00	0.00
1,080.0	13.60	85.74	1,073.6	6.0	80.1	80.3	2.00	2.00	0.00
1,120.0	14.40	85.74	1,112.4	6.7	89.8	90.0	2.00	2.00	0.00
1,160.0	15.20	85.74	1,151.1	7.5	99.9	100.2	2.00	2.00	0.00
1,200.0	16.00	85.74	1,189.6	8.3	110.7	111.0	2.00	2.00	0.00
1,240.0	16.80	85.74	1,228.0	9.1	121.9	122.3	2.00	2.00	0.00
1,280.0	17.60	85.74	1,266.2	10.0	133.7	134.1	2.00	2.00	0.00
1,320.0	18.40	85.74	1,304.3	10.9	146.1	146.5	2.00	2.00	0.00
1,360.0	19.20	85.74	1,342.1	11.8	158.9	159.3	2.00	2.00	0.00
1,400.0	20.00	85.74	1,379.8	12.8	172.3	172.8	2.00	2.00	0.00
1,440.0	20.80	85.74	1,417.3	13.9	186.2	186.7	2.00	2.00	0.00
1,480.0	21.60	85.74	1,454.6	15.0	200.6	201.2	2.00	2.00	0.00
1,520.0	22.40	85.74	1,491.7	16.1	215.6	216.2	2.00	2.00	0.00
1,560.0	23.20	85.74	1,528.6	17.2	231.0	231.7	2.00	2.00	0.00
1,600.0	24.00	85.74	1,565.2	18.4	247.0	247.7	2.00	2.00	0.00
1,640.0	24.80	85.74	1,601.6	19.6	263.5	264.2	2.00	2.00	0.00
1,680.0	25.60	85.74	1,637.8	20.9	280.5	281.2	2.00	2.00	0.00
1,720.0	26.40	85.74	1,673.8	22.2	297.9	298.8	2.00	2.00	0.00
1,742.1	26.84	85.74	1,693.5	22.9	307.8	308.7	2.00	2.00	0.00
1,760.0	26.84	85.74	1,709.5	23.5	315.9	316.7	0.00	0.00	0.00
1,800.0	26.84	85.74	1,745.2	24.9	333.9	334.8	0.00	0.00	0.00
1,840.0	26.84	85.74	1,780.9	26.2	351.9	352.9	0.00	0.00	0.00
1,880.0	26.84	85.74	1,816.6	27.6	369.9	370.9	0.00	0.00	0.00
1,920.0	26.84	85.74	1,852.3	28.9	387.9	389.0	0.00	0.00	0.00
1,960.0	26.84	85.74	1,888.0	30.3	405.9	407.1	0.00	0.00	0.00
2,000.0	26.84	85.74	1,923.7	31.6	423.9	425.1	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 Y16-23D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-23D 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	26.84	85.74	1,959.3	32.9	441.9	443.2	0.00	0.00	0.00
2,080.0	26.84	85.74	1,995.0	34.3	460.0	461.2	0.00	0.00	0.00
2,120.0	26.84	85.74	2,030.7	35.6	478.0	479.3	0.00	0.00	0.00
2,160.0	26.84	85.74	2,066.4	37.0	496.0	497.4	0.00	0.00	0.00
2,200.0	26.84	85.74	2,102.1	38.3	514.0	515.4	0.00	0.00	0.00
2,240.0	26.84	85.74	2,137.8	39.7	532.0	533.5	0.00	0.00	0.00
2,280.0	26.84	85.74	2,173.5	41.0	550.0	551.5	0.00	0.00	0.00
2,320.0	26.84	85.74	2,209.2	42.3	568.0	569.6	0.00	0.00	0.00
2,360.0	26.84	85.74	2,244.9	43.7	586.0	587.7	0.00	0.00	0.00
2,400.0	26.84	85.74	2,280.6	45.0	604.0	605.7	0.00	0.00	0.00
2,440.0	26.84	85.74	2,316.3	46.4	622.1	623.8	0.00	0.00	0.00
2,480.0	26.84	85.74	2,351.9	47.7	640.1	641.8	0.00	0.00	0.00
2,520.0	26.84	85.74	2,387.6	49.1	658.1	659.9	0.00	0.00	0.00
2,560.0	26.84	85.74	2,423.3	50.4	676.1	678.0	0.00	0.00	0.00
2,600.0	26.84	85.74	2,459.0	51.7	694.1	696.0	0.00	0.00	0.00
2,640.0	26.84	85.74	2,494.7	53.1	712.1	714.1	0.00	0.00	0.00
2,680.0	26.84	85.74	2,530.4	54.4	730.1	732.1	0.00	0.00	0.00
2,720.0	26.84	85.74	2,566.1	55.8	748.1	750.2	0.00	0.00	0.00
2,760.0	26.84	85.74	2,601.8	57.1	766.1	768.3	0.00	0.00	0.00
2,800.0	26.84	85.74	2,637.5	58.5	784.2	786.3	0.00	0.00	0.00
2,840.0	26.84	85.74	2,673.2	59.8	802.2	804.4	0.00	0.00	0.00
2,880.0	26.84	85.74	2,708.8	61.1	820.2	822.5	0.00	0.00	0.00
2,920.0	26.84	85.74	2,744.5	62.5	838.2	840.5	0.00	0.00	0.00
2,960.0	26.84	85.74	2,780.2	63.8	856.2	858.6	0.00	0.00	0.00
3,000.0	26.84	85.74	2,815.9	65.2	874.2	876.6	0.00	0.00	0.00
3,040.0	26.84	85.74	2,851.6	66.5	892.2	894.7	0.00	0.00	0.00
3,080.0	26.84	85.74	2,887.3	67.9	910.2	912.8	0.00	0.00	0.00
3,120.0	26.84	85.74	2,923.0	69.2	928.2	930.8	0.00	0.00	0.00
3,160.0	26.84	85.74	2,958.7	70.5	946.3	948.9	0.00	0.00	0.00
3,200.0	26.84	85.74	2,994.4	71.9	964.3	966.9	0.00	0.00	0.00
3,240.0	26.84	85.74	3,030.1	73.2	982.3	985.0	0.00	0.00	0.00
3,280.0	26.84	85.74	3,065.7	74.6	1,000.3	1,003.1	0.00	0.00	0.00
3,320.0	26.84	85.74	3,101.4	75.9	1,018.3	1,021.1	0.00	0.00	0.00
3,360.0	26.84	85.74	3,137.1	77.3	1,036.3	1,039.2	0.00	0.00	0.00
3,400.0	26.84	85.74	3,172.8	78.6	1,054.3	1,057.2	0.00	0.00	0.00
3,440.0	26.84	85.74	3,208.5	79.9	1,072.3	1,075.3	0.00	0.00	0.00
3,480.0	26.84	85.74	3,244.2	81.3	1,090.3	1,093.4	0.00	0.00	0.00
3,520.0	26.84	85.74	3,279.9	82.6	1,108.4	1,111.4	0.00	0.00	0.00
3,560.0	26.84	85.74	3,315.6	84.0	1,126.4	1,129.5	0.00	0.00	0.00
3,600.0	26.84	85.74	3,351.3	85.3	1,144.4	1,147.6	0.00	0.00	0.00
3,640.0	26.84	85.74	3,387.0	86.7	1,162.4	1,165.6	0.00	0.00	0.00
3,680.0	26.84	85.74	3,422.7	88.0	1,180.4	1,183.7	0.00	0.00	0.00
3,720.0	26.84	85.74	3,458.3	89.3	1,198.4	1,201.7	0.00	0.00	0.00
3,760.0	26.84	85.74	3,494.0	90.7	1,216.4	1,219.8	0.00	0.00	0.00
3,800.0	26.84	85.74	3,529.7	92.0	1,234.4	1,237.9	0.00	0.00	0.00
3,840.0	26.84	85.74	3,565.4	93.4	1,252.4	1,255.9	0.00	0.00	0.00
3,880.0	26.84	85.74	3,601.1	94.7	1,270.5	1,274.0	0.00	0.00	0.00
3,920.0	26.84	85.74	3,636.8	96.1	1,288.5	1,292.0	0.00	0.00	0.00
3,960.0	26.84	85.74	3,672.5	97.4	1,306.5	1,310.1	0.00	0.00	0.00
4,000.0	26.84	85.74	3,708.2	98.7	1,324.5	1,328.2	0.00	0.00	0.00
4,040.0	26.84	85.74	3,743.9	100.1	1,342.5	1,346.2	0.00	0.00	0.00
4,080.0	26.84	85.74	3,779.6	101.4	1,360.5	1,364.3	0.00	0.00	0.00
4,120.0	26.84	85.74	3,815.2	102.8	1,378.5	1,382.3	0.00	0.00	0.00
4,160.0	26.84	85.74	3,850.9	104.1	1,396.5	1,400.4	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 Y16-23D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-23D 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	26.84	85.74	3,886.6	105.5	1,414.5	1,418.5	0.00	0.00	0.00
4,240.0	26.84	85.74	3,922.3	106.8	1,432.5	1,436.5	0.00	0.00	0.00
4,280.0	26.84	85.74	3,958.0	108.1	1,450.6	1,454.6	0.00	0.00	0.00
4,320.0	26.84	85.74	3,993.7	109.5	1,468.6	1,472.6	0.00	0.00	0.00
4,360.0	26.84	85.74	4,029.4	110.8	1,486.6	1,490.7	0.00	0.00	0.00
4,400.0	26.84	85.74	4,065.1	112.2	1,504.6	1,508.8	0.00	0.00	0.00
4,440.0	26.84	85.74	4,100.8	113.5	1,522.6	1,526.8	0.00	0.00	0.00
4,480.0	26.84	85.74	4,136.5	114.9	1,540.6	1,544.9	0.00	0.00	0.00
4,520.0	26.84	85.74	4,172.2	116.2	1,558.6	1,563.0	0.00	0.00	0.00
4,560.0	26.84	85.74	4,207.8	117.5	1,576.6	1,581.0	0.00	0.00	0.00
4,600.0	26.84	85.74	4,243.5	118.9	1,594.6	1,599.1	0.00	0.00	0.00
4,640.0	26.84	85.74	4,279.2	120.2	1,612.7	1,617.1	0.00	0.00	0.00
4,680.0	26.84	85.74	4,314.9	121.6	1,630.7	1,635.2	0.00	0.00	0.00
4,720.0	26.84	85.74	4,350.6	122.9	1,648.7	1,653.3	0.00	0.00	0.00
4,760.0	26.84	85.74	4,386.3	124.3	1,666.7	1,671.3	0.00	0.00	0.00
4,800.0	26.84	85.74	4,422.0	125.6	1,684.7	1,689.4	0.00	0.00	0.00
4,840.0	26.84	85.74	4,457.7	126.9	1,702.7	1,707.4	0.00	0.00	0.00
4,880.0	26.84	85.74	4,493.4	128.3	1,720.7	1,725.5	0.00	0.00	0.00
4,920.0	26.84	85.74	4,529.1	129.6	1,738.7	1,743.6	0.00	0.00	0.00
4,960.0	26.84	85.74	4,564.7	131.0	1,756.7	1,761.6	0.00	0.00	0.00
5,000.0	26.84	85.74	4,600.4	132.3	1,774.8	1,779.7	0.00	0.00	0.00
5,040.0	26.84	85.74	4,636.1	133.7	1,792.8	1,797.7	0.00	0.00	0.00
5,080.0	26.84	85.74	4,671.8	135.0	1,810.8	1,815.8	0.00	0.00	0.00
5,120.0	26.84	85.74	4,707.5	136.3	1,828.8	1,833.9	0.00	0.00	0.00
5,160.0	26.84	85.74	4,743.2	137.7	1,846.8	1,851.9	0.00	0.00	0.00
5,200.0	26.84	85.74	4,778.9	139.0	1,864.8	1,870.0	0.00	0.00	0.00
5,240.0	26.84	85.74	4,814.6	140.4	1,882.8	1,888.0	0.00	0.00	0.00
5,280.0	26.84	85.74	4,850.3	141.7	1,900.8	1,906.1	0.00	0.00	0.00
5,320.0	26.84	85.74	4,886.0	143.1	1,918.8	1,924.2	0.00	0.00	0.00
5,360.0	26.84	85.74	4,921.6	144.4	1,936.9	1,942.2	0.00	0.00	0.00
5,400.0	26.84	85.74	4,957.3	145.7	1,954.9	1,960.3	0.00	0.00	0.00
5,440.0	26.84	85.74	4,993.0	147.1	1,972.9	1,978.4	0.00	0.00	0.00
5,480.0	26.84	85.74	5,028.7	148.4	1,990.9	1,996.4	0.00	0.00	0.00
5,520.0	26.84	85.74	5,064.4	149.8	2,008.9	2,014.5	0.00	0.00	0.00
5,560.0	26.84	85.74	5,100.1	151.1	2,026.9	2,032.5	0.00	0.00	0.00
5,600.0	26.84	85.74	5,135.8	152.5	2,044.9	2,050.6	0.00	0.00	0.00
5,640.0	26.84	85.74	5,171.5	153.8	2,062.9	2,068.7	0.00	0.00	0.00
5,680.0	26.84	85.74	5,207.2	155.1	2,080.9	2,086.7	0.00	0.00	0.00
5,720.0	26.84	85.74	5,242.9	156.5	2,099.0	2,104.8	0.00	0.00	0.00
5,760.0	26.84	85.74	5,278.6	157.8	2,117.0	2,122.8	0.00	0.00	0.00
5,800.0	26.84	85.74	5,314.2	159.2	2,135.0	2,140.9	0.00	0.00	0.00
5,840.0	26.84	85.74	5,349.9	160.5	2,153.0	2,159.0	0.00	0.00	0.00
5,880.0	26.84	85.74	5,385.6	161.9	2,171.0	2,177.0	0.00	0.00	0.00
5,920.0	26.84	85.74	5,421.3	163.2	2,189.0	2,195.1	0.00	0.00	0.00
5,960.0	26.84	85.74	5,457.0	164.5	2,207.0	2,213.1	0.00	0.00	0.00
6,000.0	26.84	85.74	5,492.7	165.9	2,225.0	2,231.2	0.00	0.00	0.00
6,040.0	26.84	85.74	5,528.4	167.2	2,243.0	2,249.3	0.00	0.00	0.00
6,080.0	26.84	85.74	5,564.1	168.6	2,261.1	2,267.3	0.00	0.00	0.00
6,120.0	26.84	85.74	5,599.8	169.9	2,279.1	2,285.4	0.00	0.00	0.00
6,160.0	26.84	85.74	5,635.5	171.2	2,297.1	2,303.4	0.00	0.00	0.00
6,200.0	26.84	85.74	5,671.1	172.6	2,315.1	2,321.5	0.00	0.00	0.00
6,240.0	26.84	85.74	5,706.8	173.9	2,333.1	2,339.6	0.00	0.00	0.00
6,280.0	26.84	85.74	5,742.5	175.3	2,351.1	2,357.6	0.00	0.00	0.00
6,320.0	26.84	85.74	5,778.2	176.6	2,369.1	2,375.7	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well State Y16-23D
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 Y16-23D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-23D 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)
6,348.8	26.84	85.74	5,803.9	177.6	2,382.1	2,388.7	0.00	0.00	0.00
6,360.0	26.62	85.74	5,813.9	178.0	2,387.1	2,393.7	2.00	-2.00	0.00
6,400.0	25.82	85.74	5,849.8	179.3	2,404.7	2,411.4	2.00	-2.00	0.00
6,440.0	25.02	85.74	5,885.9	180.6	2,421.9	2,428.6	2.00	-2.00	0.00
6,480.0	24.22	85.74	5,922.3	181.8	2,438.5	2,445.2	2.00	-2.00	0.00
6,520.0	23.42	85.74	5,958.9	183.0	2,454.6	2,461.4	2.00	-2.00	0.00
6,560.0	22.62	85.74	5,995.7	184.2	2,470.2	2,477.0	2.00	-2.00	0.00
6,600.0	21.82	85.74	6,032.7	185.3	2,485.3	2,492.2	2.00	-2.00	0.00
6,640.0	21.02	85.74	6,070.0	186.4	2,499.8	2,506.8	2.00	-2.00	0.00
6,680.0	20.22	85.74	6,107.4	187.4	2,513.9	2,520.8	2.00	-2.00	0.00
6,720.0	19.42	85.74	6,145.0	188.4	2,527.4	2,534.4	2.00	-2.00	0.00
6,760.0	18.62	85.74	6,182.9	189.4	2,540.4	2,547.4	2.00	-2.00	0.00
6,800.0	17.82	85.74	6,220.8	190.3	2,552.9	2,560.0	2.00	-2.00	0.00
6,840.0	17.02	85.74	6,259.0	191.2	2,564.8	2,571.9	2.00	-2.00	0.00
6,880.0	16.22	85.74	6,297.3	192.1	2,576.2	2,583.4	2.00	-2.00	0.00
6,920.0	15.42	85.74	6,335.8	192.9	2,587.1	2,594.3	2.00	-2.00	0.00
6,960.0	14.62	85.74	6,374.5	193.6	2,597.4	2,604.6	2.00	-2.00	0.00
7,000.0	13.82	85.74	6,413.2	194.4	2,607.2	2,614.5	2.00	-2.00	0.00
7,040.0	13.02	85.74	6,452.1	195.1	2,616.5	2,623.7	2.00	-2.00	0.00
7,080.0	12.22	85.74	6,491.2	195.7	2,625.2	2,632.5	2.00	-2.00	0.00
7,120.0	11.42	85.74	6,530.3	196.3	2,633.4	2,640.7	2.00	-2.00	0.00
7,160.0	10.62	85.74	6,569.6	196.9	2,641.0	2,648.3	2.00	-2.00	0.00
7,190.9	10.00	85.74	6,600.0	197.3	2,646.5	2,653.8	2.00	-2.00	0.00
DRILL TARGET 1306'FSL, 1512'FEL									
7,200.0	10.00	85.74	6,609.0	197.4	2,648.1	2,655.4	0.00	0.00	0.00
7,224.3	10.00	85.74	6,632.8	197.7	2,652.3	2,659.6	0.00	0.00	0.00
TARGET BHL 1320'FSL & 1320'FEL									
7,240.0	10.00	85.74	6,648.3	197.9	2,655.0	2,662.4	0.00	0.00	0.00
7,280.0	10.00	85.74	6,687.7	198.5	2,661.9	2,669.3	0.00	0.00	0.00
7,320.0	10.00	85.74	6,727.1	199.0	2,668.9	2,676.3	0.00	0.00	0.00
7,360.0	10.00	85.74	6,766.5	199.5	2,675.8	2,683.2	0.00	0.00	0.00
7,378.8	10.00	85.74	6,785.0	199.7	2,679.0	2,686.5	0.00	0.00	0.00
NIOBRARA									
7,400.0	10.00	85.74	6,805.9	200.0	2,682.7	2,690.2	0.00	0.00	0.00
7,405.9	10.00	85.74	6,811.8	200.1	2,683.7	2,691.2	0.00	0.00	0.00
LEGAL BOX 800' X 800' 1319'FSL & 1323'FEL									
7,406.5	10.00	85.74	6,812.3	200.1	2,683.8	2,691.3	0.00	0.00	0.00
TARGET CIRCLE 1320'FSL & 1320'FEL									
7,440.0	10.00	85.74	6,845.3	200.5	2,689.6	2,697.1	0.00	0.00	0.00
7,480.0	10.00	85.74	6,884.7	201.0	2,696.6	2,704.0	0.00	0.00	0.00
7,520.0	10.00	85.74	6,924.1	201.5	2,703.5	2,711.0	0.00	0.00	0.00
7,560.0	10.00	85.74	6,963.5	202.1	2,710.4	2,717.9	0.00	0.00	0.00
7,600.0	10.00	85.74	7,002.9	202.6	2,717.3	2,724.9	0.00	0.00	0.00
7,640.0	10.00	85.74	7,042.3	203.1	2,724.3	2,731.8	0.00	0.00	0.00
7,673.2	10.00	85.74	7,075.0	203.5	2,730.0	2,737.6	0.00	0.00	0.00
CODELL									
7,680.0	10.00	85.74	7,081.7	203.6	2,731.2	2,738.8	0.00	0.00	0.00
7,720.0	10.00	85.74	7,121.1	204.1	2,738.1	2,745.7	0.00	0.00	0.00
7,760.0	10.00	85.74	7,160.4	204.6	2,745.0	2,752.7	0.00	0.00	0.00
7,800.0	10.00	85.74	7,199.8	205.2	2,752.0	2,759.6	0.00	0.00	0.00
7,840.0	10.00	85.74	7,239.2	205.7	2,758.9	2,766.6	0.00	0.00	0.00
7,880.0	10.00	85.74	7,278.6	206.2	2,765.8	2,773.5	0.00	0.00	0.00
7,920.0	10.00	85.74	7,318.0	206.7	2,772.8	2,780.4	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well State Y16-23D
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 Y16-23D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-23D 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)	
7,960.0	10.00	85.74	7,357.4	207.2	2,779.7	2,787.4	0.00	0.00	0.00	
8,000.0	10.00	85.74	7,396.8	207.7	2,786.6	2,794.3	0.00	0.00	0.00	
8,040.0	10.00	85.74	7,436.2	208.3	2,793.5	2,801.3	0.00	0.00	0.00	
8,080.0	10.00	85.74	7,475.6	208.8	2,800.5	2,808.2	0.00	0.00	0.00	
8,089.6	10.00	85.74	7,485.0	208.9	2,802.1	2,809.9	0.00	0.00	0.00	
D-SAND										
8,120.0	10.00	85.74	7,515.0	209.3	2,807.4	2,815.2	0.00	0.00	0.00	
8,145.4	10.00	85.74	7,540.0	209.6	2,811.8	2,819.6	0.00	0.00	0.00	
J-SAND										
8,160.0	10.00	85.74	7,554.4	209.8	2,814.3	2,822.1	0.00	0.00	0.00	
8,200.0	10.00	85.74	7,593.8	210.3	2,821.2	2,829.1	0.00	0.00	0.00	
8,240.0	10.00	85.74	7,633.2	210.8	2,828.2	2,836.0	0.00	0.00	0.00	
8,280.0	10.00	85.74	7,672.5	211.4	2,835.1	2,843.0	0.00	0.00	0.00	
8,297.7	10.00	85.74	7,690.0	211.6	2,838.2	2,846.0	0.00	0.00	0.00	

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 CIRCLE 132	0.00	0.00	6,785.0	211.5	2,838.1	1,293,387.20	3,265,133.68	40.134850	-104.551720	
- plan misses target center by 157.0ft at 7406.5ft MD (6812.3 TVD, 200.1 N, 2683.8 E)										
- Circle (radius 75.0)										
TARGET BHL 1320'F	0.00	0.00	6,600.0	211.5	2,838.1	1,293,387.20	3,265,133.68	40.134850	-104.551720	
- plan misses target center by 189.2ft at 7224.3ft MD (6632.8 TVD, 197.7 N, 2652.3 E)										
- Point										
DRILL TARGET 1306	0.00	0.00	6,600.0	197.3	2,646.5	1,293,371.01	3,264,942.29	40.134811	-104.552405	
- plan hits target center										
- Point										
LEGAL BOX 800' X 800'	0.00	0.00	6,785.0	210.5	2,835.1	1,293,386.21	3,265,130.73	40.134847	-104.551731	
- plan misses target center by 154.1ft at 7405.9ft MD (6811.8 TVD, 200.1 N, 2683.7 E)										
- Rectangle (sides W800.0 H800.0 D905.0)										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
801.3	800.0	8 5/8"	8-5/8	12-1/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
7,378.8	6,785.0	NIOBRARA		0.00		
7,673.2	7,075.0	CODELL		0.00		
8,089.6	7,485.0	D-SAND		0.00		
8,145.4	7,540.0	J-SAND		0.00		

Database:	Landmark	Local Co-ordinate Reference:	Well State Y16-23D
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 Y16-23D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-23D Plan #1 (9-28-11)		