

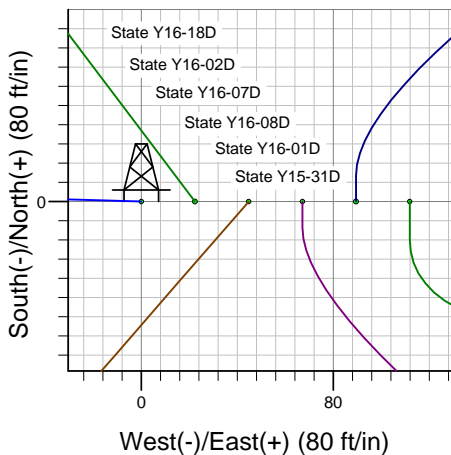
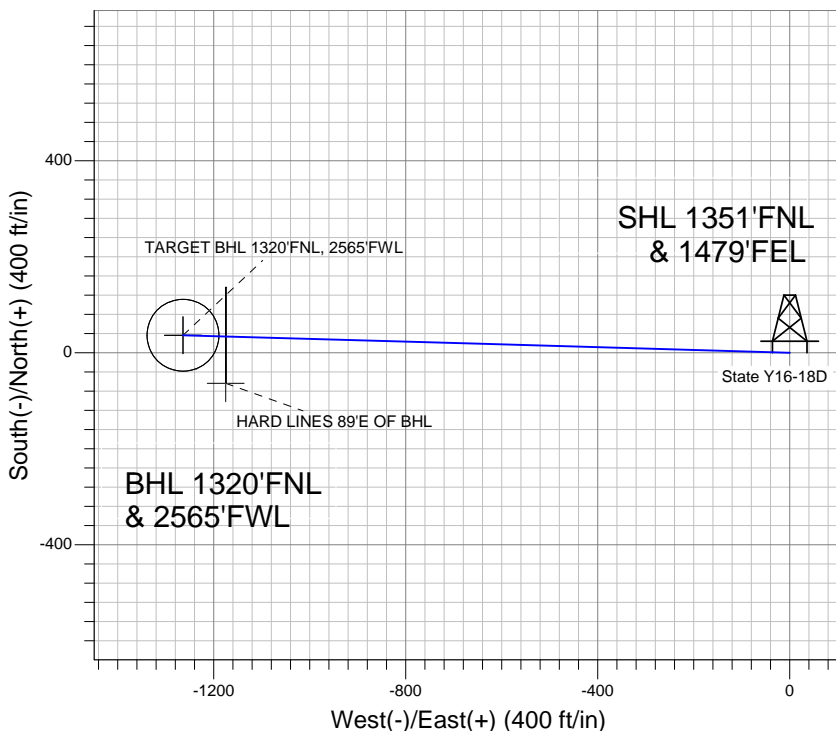
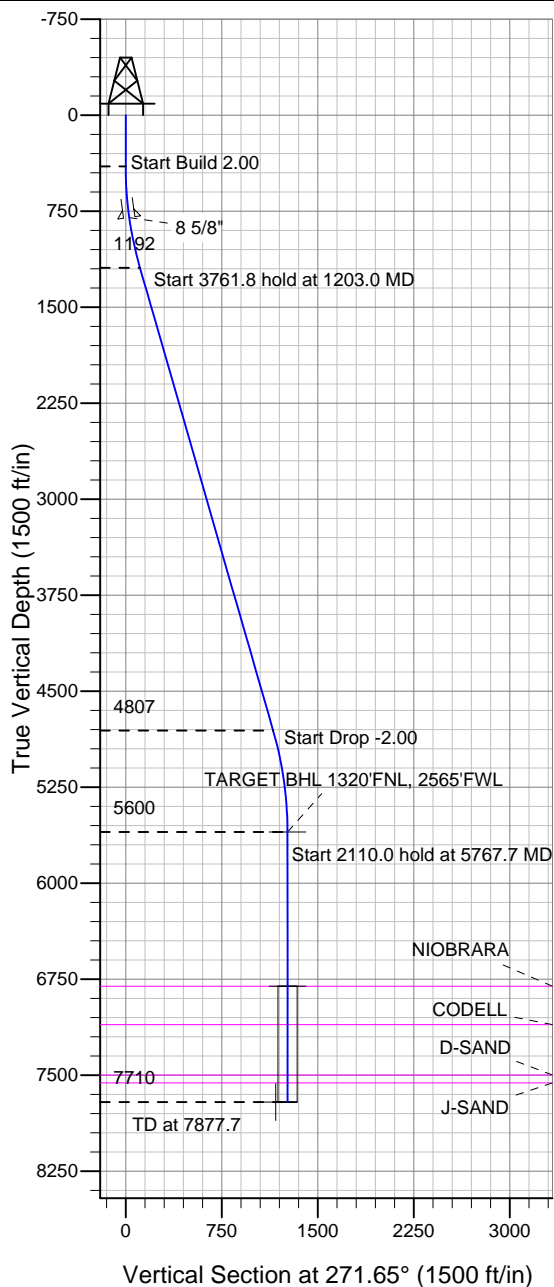
ENSIGN

Directional

Well Name: State Y16-18D

Surface Location: State Y16-18D Pad Sec.16-T2N-R64W
 North American Datum 1983, US State Plane 1983 Colorado Northern Zone
 Ground Elevation: 4927.0
 +N/-S 0.0 +E/-W 0.0 Northing 1296004.54 Easting 3264949.12 Latitude 40.142040 Longitude -104.552280 Slot
 Original Well EleWELL @ 4940.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



State Y16-18D Pad Sec.16-T2N-R64W
 State Y16-18D
 Noble State Y16-18D Plan #1 (9-28-11)
 10:28, September 30 2011



Azimuths to True North
 Magnetic North: 8.69°
 Magnetic Field
 Strength: 52987.5snT
 Dip Angle: 66.87°
 Date: 9/28/2011
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1320'FNL, 2565'FWL	5600.0	36.5	-1263.7	40.142140	-104.556800	Point
TARGET CIRCLE 1320'FNL & 2565'FWL	6805.0	36.5	-1263.7	40.142140	-104.556800	Circle (Radius: 75.0)
HARD LINES 89°E OF BHL	7710.0	-63.5	-1174.7	40.141866	-104.556482	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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1203.0	16.06	271.65	1192.5	3.2	-111.8	2.00	271.65	111.8	
4	4964.8	16.06	271.65	4807.5	33.2	-1152.0	0.00	0.00	1152.4	
5	5767.7	0.00	0.00	5600.0	36.5	-1263.7	2.00	180.00	1264.2	TARGET BHL 1320'FNL, 2565'FWL
6	7877.7	0.00	0.00	7710.0	36.5	-1263.7	0.00	0.00	1264.2	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.16-T2N-R64W

State Y16-18D Pad Sec.16-T2N-R64W

State Y16-18D

Wellbore #1

Plan: Noble State Y16-18D Plan #1 (9-28-11)

Standard Planning Report

30 September, 2011



Database:	Landmark	Local Co-ordinate Reference:	Well State Y16-18D
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 Y16-18D Pad Sec.16-T2N-R64W	North Reference:	True
Well:	State Y16-18D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-18D 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 Y16-18D Pad Sec.16-T2N-R64W							
Site Position: From: Position Uncertainty:			Lat/Long 0.0 ft			Northing:		1,296,004.55 ft		Latitude:		40.142040	
						Easting:		3,264,949.12 ft		Longitude:		-104.552280	
						Slot Radius:		"		Grid Convergence:		0.61 °	

Well	State Y16-18D					
Well Position	+N/-S	0.0 ft	Northing:	1,296,004.54 ft	Latitude:	40.142040
	+E/-W	0.0 ft	Easting:	3,264,949.12 ft	Longitude:	-104.552280
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	9/28/2011	8.69	66.87	52,987

Design	Noble State Y16-18D 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	271.65

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	
1,203.0	16.06	271.65	1,192.5	3.2	-111.8	2.00	2.00	0.00	271.65	
4,964.8	16.06	271.65	4,807.5	33.2	-1,152.0	0.00	0.00	0.00	0.00	
5,767.7	0.00	0.00	5,600.0	36.5	-1,263.7	2.00	-2.00	0.00	180.00	TARGET BHL 132C
7,877.7	0.00	0.00	7,710.0	36.5	-1,263.7	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well State Y16-18D
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 Y16-18D Pad Sec.16-T2N-R64W	North Reference:	True
Well:	State Y16-18D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-18D 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	271.65	440.0	0.0	-0.3	0.3	2.00	2.00	0.00
480.0	1.60	271.65	480.0	0.0	-1.1	1.1	2.00	2.00	0.00
520.0	2.40	271.65	520.0	0.1	-2.5	2.5	2.00	2.00	0.00
560.0	3.20	271.65	559.9	0.1	-4.5	4.5	2.00	2.00	0.00
600.0	4.00	271.65	599.8	0.2	-7.0	7.0	2.00	2.00	0.00
640.0	4.80	271.65	639.7	0.3	-10.0	10.0	2.00	2.00	0.00
680.0	5.60	271.65	679.6	0.4	-13.7	13.7	2.00	2.00	0.00
720.0	6.40	271.65	719.3	0.5	-17.8	17.9	2.00	2.00	0.00
760.0	7.20	271.65	759.1	0.7	-22.6	22.6	2.00	2.00	0.00
800.0	8.00	271.65	798.7	0.8	-27.9	27.9	2.00	2.00	0.00
801.3	8.03	271.65	800.0	0.8	-28.1	28.1	2.00	2.00	0.00
8 5/8"									
840.0	8.80	271.65	838.3	1.0	-33.7	33.7	2.00	2.00	0.00
880.0	9.60	271.65	877.8	1.2	-40.1	40.1	2.00	2.00	0.00
920.0	10.40	271.65	917.1	1.4	-47.0	47.1	2.00	2.00	0.00
960.0	11.20	271.65	956.4	1.6	-54.5	54.6	2.00	2.00	0.00
1,000.0	12.00	271.65	995.6	1.8	-62.6	62.6	2.00	2.00	0.00
1,040.0	12.80	271.65	1,034.7	2.1	-71.2	71.2	2.00	2.00	0.00
1,080.0	13.60	271.65	1,073.6	2.3	-80.3	80.3	2.00	2.00	0.00
1,120.0	14.40	271.65	1,112.4	2.6	-90.0	90.0	2.00	2.00	0.00
1,160.0	15.20	271.65	1,151.1	2.9	-100.2	100.2	2.00	2.00	0.00
1,200.0	16.00	271.65	1,189.6	3.2	-110.9	111.0	2.00	2.00	0.00
1,203.0	16.06	271.65	1,192.5	3.2	-111.8	111.8	2.00	2.00	0.00
1,240.0	16.06	271.65	1,228.1	3.5	-122.0	122.0	0.00	0.00	0.00
1,280.0	16.06	271.65	1,266.5	3.8	-133.1	133.1	0.00	0.00	0.00
1,320.0	16.06	271.65	1,305.0	4.2	-144.1	144.2	0.00	0.00	0.00
1,360.0	16.06	271.65	1,343.4	4.5	-155.2	155.2	0.00	0.00	0.00
1,400.0	16.06	271.65	1,381.8	4.8	-166.2	166.3	0.00	0.00	0.00
1,440.0	16.06	271.65	1,420.3	5.1	-177.3	177.4	0.00	0.00	0.00
1,480.0	16.06	271.65	1,458.7	5.4	-188.4	188.4	0.00	0.00	0.00
1,520.0	16.06	271.65	1,497.2	5.8	-199.4	199.5	0.00	0.00	0.00
1,560.0	16.06	271.65	1,535.6	6.1	-210.5	210.6	0.00	0.00	0.00
1,600.0	16.06	271.65	1,574.0	6.4	-221.5	221.6	0.00	0.00	0.00
1,640.0	16.06	271.65	1,612.5	6.7	-232.6	232.7	0.00	0.00	0.00
1,680.0	16.06	271.65	1,650.9	7.0	-243.7	243.8	0.00	0.00	0.00
1,720.0	16.06	271.65	1,689.4	7.4	-254.7	254.8	0.00	0.00	0.00
1,760.0	16.06	271.65	1,727.8	7.7	-265.8	265.9	0.00	0.00	0.00
1,800.0	16.06	271.65	1,766.2	8.0	-276.8	277.0	0.00	0.00	0.00
1,840.0	16.06	271.65	1,804.7	8.3	-287.9	288.0	0.00	0.00	0.00
1,880.0	16.06	271.65	1,843.1	8.6	-299.0	299.1	0.00	0.00	0.00
1,920.0	16.06	271.65	1,881.5	8.9	-310.0	310.2	0.00	0.00	0.00
1,960.0	16.06	271.65	1,920.0	9.3	-321.1	321.2	0.00	0.00	0.00
2,000.0	16.06	271.65	1,958.4	9.6	-332.1	332.3	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well State Y16-18D
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 Y16-18D Pad Sec.16-T2N-R64W	North Reference:	True
Well:	State Y16-18D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-18D 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	16.06	271.65	1,996.9	9.9	-343.2	343.3	0.00	0.00	0.00
2,080.0	16.06	271.65	2,035.3	10.2	-354.3	354.4	0.00	0.00	0.00
2,120.0	16.06	271.65	2,073.7	10.5	-365.3	365.5	0.00	0.00	0.00
2,160.0	16.06	271.65	2,112.2	10.9	-376.4	376.5	0.00	0.00	0.00
2,200.0	16.06	271.65	2,150.6	11.2	-387.4	387.6	0.00	0.00	0.00
2,240.0	16.06	271.65	2,189.1	11.5	-398.5	398.7	0.00	0.00	0.00
2,280.0	16.06	271.65	2,227.5	11.8	-409.6	409.7	0.00	0.00	0.00
2,320.0	16.06	271.65	2,265.9	12.1	-420.6	420.8	0.00	0.00	0.00
2,360.0	16.06	271.65	2,304.4	12.5	-431.7	431.9	0.00	0.00	0.00
2,400.0	16.06	271.65	2,342.8	12.8	-442.8	442.9	0.00	0.00	0.00
2,440.0	16.06	271.65	2,381.3	13.1	-453.8	454.0	0.00	0.00	0.00
2,480.0	16.06	271.65	2,419.7	13.4	-464.9	465.1	0.00	0.00	0.00
2,520.0	16.06	271.65	2,458.1	13.7	-475.9	476.1	0.00	0.00	0.00
2,560.0	16.06	271.65	2,496.6	14.1	-487.0	487.2	0.00	0.00	0.00
2,600.0	16.06	271.65	2,535.0	14.4	-498.1	498.3	0.00	0.00	0.00
2,640.0	16.06	271.65	2,573.4	14.7	-509.1	509.3	0.00	0.00	0.00
2,680.0	16.06	271.65	2,611.9	15.0	-520.2	520.4	0.00	0.00	0.00
2,720.0	16.06	271.65	2,650.3	15.3	-531.2	531.5	0.00	0.00	0.00
2,760.0	16.06	271.65	2,688.8	15.6	-542.3	542.5	0.00	0.00	0.00
2,800.0	16.06	271.65	2,727.2	16.0	-553.4	553.6	0.00	0.00	0.00
2,840.0	16.06	271.65	2,765.6	16.3	-564.4	564.7	0.00	0.00	0.00
2,880.0	16.06	271.65	2,804.1	16.6	-575.5	575.7	0.00	0.00	0.00
2,920.0	16.06	271.65	2,842.5	16.9	-586.5	586.8	0.00	0.00	0.00
2,960.0	16.06	271.65	2,881.0	17.2	-597.6	597.9	0.00	0.00	0.00
3,000.0	16.06	271.65	2,919.4	17.6	-608.7	608.9	0.00	0.00	0.00
3,040.0	16.06	271.65	2,957.8	17.9	-619.7	620.0	0.00	0.00	0.00
3,080.0	16.06	271.65	2,996.3	18.2	-630.8	631.0	0.00	0.00	0.00
3,120.0	16.06	271.65	3,034.7	18.5	-641.8	642.1	0.00	0.00	0.00
3,160.0	16.06	271.65	3,073.2	18.8	-652.9	653.2	0.00	0.00	0.00
3,200.0	16.06	271.65	3,111.6	19.2	-664.0	664.2	0.00	0.00	0.00
3,240.0	16.06	271.65	3,150.0	19.5	-675.0	675.3	0.00	0.00	0.00
3,280.0	16.06	271.65	3,188.5	19.8	-686.1	686.4	0.00	0.00	0.00
3,320.0	16.06	271.65	3,226.9	20.1	-697.1	697.4	0.00	0.00	0.00
3,360.0	16.06	271.65	3,265.4	20.4	-708.2	708.5	0.00	0.00	0.00
3,400.0	16.06	271.65	3,303.8	20.8	-719.3	719.6	0.00	0.00	0.00
3,440.0	16.06	271.65	3,342.2	21.1	-730.3	730.6	0.00	0.00	0.00
3,480.0	16.06	271.65	3,380.7	21.4	-741.4	741.7	0.00	0.00	0.00
3,520.0	16.06	271.65	3,419.1	21.7	-752.5	752.8	0.00	0.00	0.00
3,560.0	16.06	271.65	3,457.5	22.0	-763.5	763.8	0.00	0.00	0.00
3,600.0	16.06	271.65	3,496.0	22.4	-774.6	774.9	0.00	0.00	0.00
3,640.0	16.06	271.65	3,534.4	22.7	-785.6	786.0	0.00	0.00	0.00
3,680.0	16.06	271.65	3,572.9	23.0	-796.7	797.0	0.00	0.00	0.00
3,720.0	16.06	271.65	3,611.3	23.3	-807.8	808.1	0.00	0.00	0.00
3,760.0	16.06	271.65	3,649.7	23.6	-818.8	819.2	0.00	0.00	0.00
3,800.0	16.06	271.65	3,688.2	23.9	-829.9	830.2	0.00	0.00	0.00
3,840.0	16.06	271.65	3,726.6	24.3	-840.9	841.3	0.00	0.00	0.00
3,880.0	16.06	271.65	3,765.1	24.6	-852.0	852.4	0.00	0.00	0.00
3,920.0	16.06	271.65	3,803.5	24.9	-863.1	863.4	0.00	0.00	0.00
3,960.0	16.06	271.65	3,841.9	25.2	-874.1	874.5	0.00	0.00	0.00
4,000.0	16.06	271.65	3,880.4	25.5	-885.2	885.5	0.00	0.00	0.00
4,040.0	16.06	271.65	3,918.8	25.9	-896.2	896.6	0.00	0.00	0.00
4,080.0	16.06	271.65	3,957.3	26.2	-907.3	907.7	0.00	0.00	0.00
4,120.0	16.06	271.65	3,995.7	26.5	-918.4	918.7	0.00	0.00	0.00
4,160.0	16.06	271.65	4,034.1	26.8	-929.4	929.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well State Y16-18D
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 Y16-18D Pad Sec.16-T2N-R64W	North Reference:	True
Well:	State Y16-18D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-18D 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	16.06	271.65	4,072.6	27.1	-940.5	940.9	0.00	0.00	0.00
4,240.0	16.06	271.65	4,111.0	27.5	-951.5	951.9	0.00	0.00	0.00
4,280.0	16.06	271.65	4,149.4	27.8	-962.6	963.0	0.00	0.00	0.00
4,320.0	16.06	271.65	4,187.9	28.1	-973.7	974.1	0.00	0.00	0.00
4,360.0	16.06	271.65	4,226.3	28.4	-984.7	985.1	0.00	0.00	0.00
4,400.0	16.06	271.65	4,264.8	28.7	-995.8	996.2	0.00	0.00	0.00
4,440.0	16.06	271.65	4,303.2	29.1	-1,006.8	1,007.3	0.00	0.00	0.00
4,480.0	16.06	271.65	4,341.6	29.4	-1,017.9	1,018.3	0.00	0.00	0.00
4,520.0	16.06	271.65	4,380.1	29.7	-1,029.0	1,029.4	0.00	0.00	0.00
4,560.0	16.06	271.65	4,418.5	30.0	-1,040.0	1,040.5	0.00	0.00	0.00
4,600.0	16.06	271.65	4,457.0	30.3	-1,051.1	1,051.5	0.00	0.00	0.00
4,640.0	16.06	271.65	4,495.4	30.6	-1,062.2	1,062.6	0.00	0.00	0.00
4,680.0	16.06	271.65	4,533.8	31.0	-1,073.2	1,073.7	0.00	0.00	0.00
4,720.0	16.06	271.65	4,572.3	31.3	-1,084.3	1,084.7	0.00	0.00	0.00
4,760.0	16.06	271.65	4,610.7	31.6	-1,095.3	1,095.8	0.00	0.00	0.00
4,800.0	16.06	271.65	4,649.2	31.9	-1,106.4	1,106.9	0.00	0.00	0.00
4,840.0	16.06	271.65	4,687.6	32.2	-1,117.5	1,117.9	0.00	0.00	0.00
4,880.0	16.06	271.65	4,726.0	32.6	-1,128.5	1,129.0	0.00	0.00	0.00
4,920.0	16.06	271.65	4,764.5	32.9	-1,139.6	1,140.1	0.00	0.00	0.00
4,960.0	16.06	271.65	4,802.9	33.2	-1,150.6	1,151.1	0.00	0.00	0.00
4,964.8	16.06	271.65	4,807.5	33.2	-1,152.0	1,152.4	0.00	0.00	0.00
5,000.0	15.35	271.65	4,841.4	33.5	-1,161.5	1,162.0	2.00	-2.00	0.00
5,040.0	14.55	271.65	4,880.1	33.8	-1,171.8	1,172.3	2.00	-2.00	0.00
5,080.0	13.75	271.65	4,918.8	34.1	-1,181.6	1,182.1	2.00	-2.00	0.00
5,120.0	12.95	271.65	4,957.8	34.4	-1,190.8	1,191.3	2.00	-2.00	0.00
5,160.0	12.15	271.65	4,996.8	34.6	-1,199.5	1,200.0	2.00	-2.00	0.00
5,200.0	11.35	271.65	5,036.0	34.8	-1,207.7	1,208.2	2.00	-2.00	0.00
5,240.0	10.55	271.65	5,075.2	35.1	-1,215.3	1,215.8	2.00	-2.00	0.00
5,280.0	9.75	271.65	5,114.6	35.3	-1,222.3	1,222.8	2.00	-2.00	0.00
5,320.0	8.95	271.65	5,154.1	35.5	-1,228.8	1,229.3	2.00	-2.00	0.00
5,360.0	8.15	271.65	5,193.6	35.6	-1,234.8	1,235.3	2.00	-2.00	0.00
5,400.0	7.35	271.65	5,233.3	35.8	-1,240.1	1,240.7	2.00	-2.00	0.00
5,440.0	6.55	271.65	5,273.0	35.9	-1,245.0	1,245.5	2.00	-2.00	0.00
5,480.0	5.75	271.65	5,312.7	36.0	-1,249.3	1,249.8	2.00	-2.00	0.00
5,520.0	4.95	271.65	5,352.6	36.2	-1,253.0	1,253.5	2.00	-2.00	0.00
5,560.0	4.15	271.65	5,392.4	36.2	-1,256.2	1,256.7	2.00	-2.00	0.00
5,600.0	3.35	271.65	5,432.3	36.3	-1,258.8	1,259.3	2.00	-2.00	0.00
5,640.0	2.55	271.65	5,472.3	36.4	-1,260.9	1,261.4	2.00	-2.00	0.00
5,680.0	1.75	271.65	5,512.3	36.4	-1,262.4	1,262.9	2.00	-2.00	0.00
5,720.0	0.95	271.65	5,552.3	36.5	-1,263.3	1,263.8	2.00	-2.00	0.00
5,760.0	0.15	271.65	5,592.3	36.5	-1,263.7	1,264.2	2.00	-2.00	0.00
5,767.7	0.00	0.00	5,600.0	36.5	-1,263.7	1,264.2	2.00	-2.00	0.00
TARGET BHL 1320'FNL, 2565'FWL									
5,800.0	0.00	0.00	5,632.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
5,840.0	0.00	0.00	5,672.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
5,880.0	0.00	0.00	5,712.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
5,920.0	0.00	0.00	5,752.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
5,960.0	0.00	0.00	5,792.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,000.0	0.00	0.00	5,832.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,040.0	0.00	0.00	5,872.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,080.0	0.00	0.00	5,912.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,120.0	0.00	0.00	5,952.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,160.0	0.00	0.00	5,992.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,200.0	0.00	0.00	6,032.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well State Y16-18D
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 Y16-18D Pad Sec.16-T2N-R64W	North Reference:	True
Well:	State Y16-18D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-18D 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	6,072.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,280.0	0.00	0.00	6,112.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,320.0	0.00	0.00	6,152.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,360.0	0.00	0.00	6,192.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,400.0	0.00	0.00	6,232.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,440.0	0.00	0.00	6,272.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,480.0	0.00	0.00	6,312.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,520.0	0.00	0.00	6,352.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,560.0	0.00	0.00	6,392.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,600.0	0.00	0.00	6,432.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,640.0	0.00	0.00	6,472.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,680.0	0.00	0.00	6,512.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,720.0	0.00	0.00	6,552.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,760.0	0.00	0.00	6,592.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,800.0	0.00	0.00	6,632.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,840.0	0.00	0.00	6,672.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,880.0	0.00	0.00	6,712.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,920.0	0.00	0.00	6,752.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,960.0	0.00	0.00	6,792.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
6,972.7	0.00	0.00	6,805.0	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 1320'FNL & 2565'FWL									
7,000.0	0.00	0.00	6,832.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,040.0	0.00	0.00	6,872.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,080.0	0.00	0.00	6,912.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,120.0	0.00	0.00	6,952.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,160.0	0.00	0.00	6,992.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,200.0	0.00	0.00	7,032.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,240.0	0.00	0.00	7,072.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,272.7	0.00	0.00	7,105.0	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
CODELL									
7,280.0	0.00	0.00	7,112.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,320.0	0.00	0.00	7,152.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,360.0	0.00	0.00	7,192.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,400.0	0.00	0.00	7,232.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,440.0	0.00	0.00	7,272.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,480.0	0.00	0.00	7,312.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,520.0	0.00	0.00	7,352.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,560.0	0.00	0.00	7,392.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,600.0	0.00	0.00	7,432.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,640.0	0.00	0.00	7,472.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,665.7	0.00	0.00	7,498.0	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
D-SAND									
7,680.0	0.00	0.00	7,512.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,720.0	0.00	0.00	7,552.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,727.7	0.00	0.00	7,560.0	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
J-SAND									
7,760.0	0.00	0.00	7,592.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,800.0	0.00	0.00	7,632.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,840.0	0.00	0.00	7,672.3	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
7,877.7	0.00	0.00	7,710.0	36.5	-1,263.7	1,264.2	0.00	0.00	0.00
HARD LINES 89'E OF BHL									

Database:	Landmark	Local Co-ordinate Reference:	Well State Y16-18D
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 Y16-18D Pad Sec.16-T2N-R64W	North Reference:	True
Well:	State Y16-18D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble State Y16-18D Plan #1 (9-28-11)		

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	6,805.0	36.5	-1,263.7	1,296,027.50	3,263,685.15	40.142140	-104.556800
- plan hits target center									
- Circle (radius 75.0)									
TARGET BHL 1320'F	0.00	0.00	5,600.0	36.5	-1,263.7	1,296,027.50	3,263,685.15	40.142140	-104.556800
- plan hits target center									
- Point									
HARD LINES 89'E OF	0.00	0.00	7,710.0	-63.5	-1,174.7	1,295,928.50	3,263,775.22	40.141866	-104.556482
- plan misses target center by 133.9ft at 7877.7ft MD (7710.0 TVD, 36.5 N, -1263.7 E)									
- Polygon									
Point 1			7,710.0	0.0	0.0	1,295,928.50	3,263,775.22		
Point 2			7,710.0	200.0	0.0	1,296,128.48	3,263,773.08		

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 (°)
6,972.7	6,805.0	NIOBRARA		0.00	
7,272.7	7,105.0	CODELL		0.00	
7,665.7	7,498.0	D-SAND		0.00	
7,727.7	7,560.0	J-SAND		0.00	