

ENSIGN

Directional

Well Name: State Y16-03D

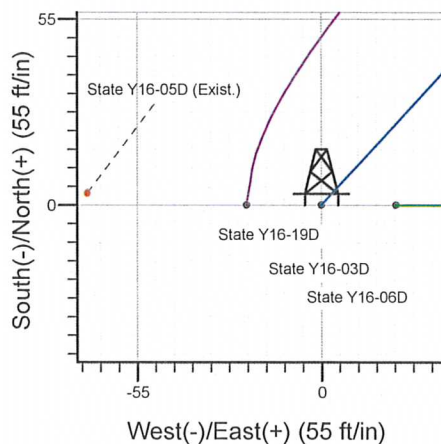
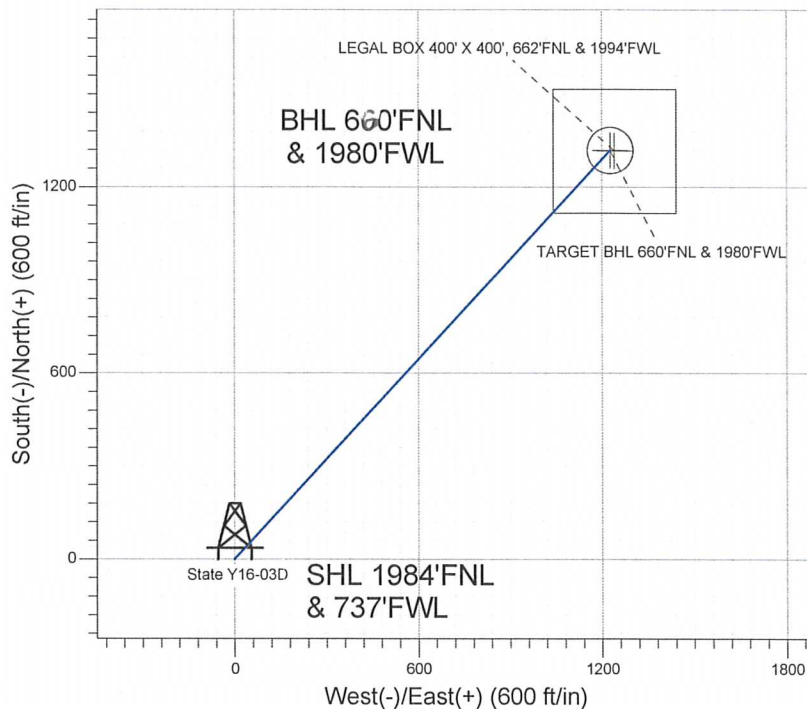
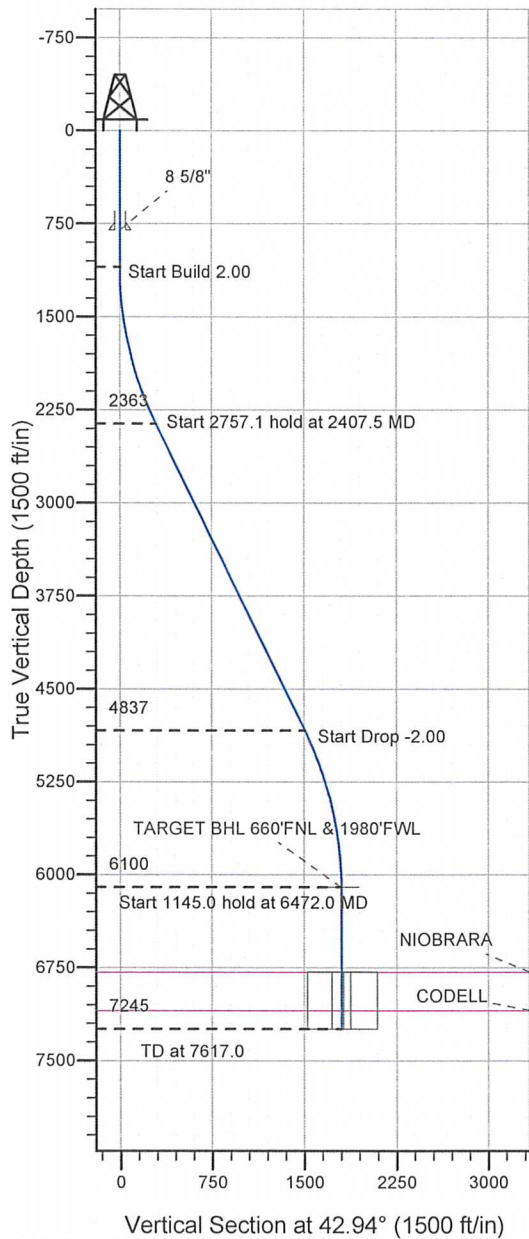
Surface Location: State Y16-19D Pad Sec.16-T2N-R64W
North American Datum 1983, US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4912.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1295352.53	3261872.18	40.140340	-104.563310	

Original Well EleWELL @ 4925.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



State Y16-19D Pad Sec.16-T2N-R64W
State Y16-03D
Noble State Y16-03D Plan #1 (10-3-11)
8:54, October 04 2011



Azimuths to True North
Magnetic North: 8.69°
Magnetic Field
Strength: 52984.1snT
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 660'FNL & 1980'FWL	6100.0	1318.8	1227.3	40.143960	-104.558920	Point
LEGAL BOX 400' X 400', 662'FNL & 1994'FWL	6785.0	1316.8	1241.3	40.143955	-104.558870	Rectangle (Sides: L400.0 W400.0)
TARGET CIRCLE 660'FNL & 1980'FWL	6785.0	1318.8	1227.3	40.143960	-104.558920	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	1100.0	0.00	0.00	1100.0	0.0	0.0	0.00	0.00	0.0	
3	2407.5	26.15	42.94	2362.6	214.7	199.8	2.00	42.94	293.2	
4	5164.6	26.15	42.94	4837.4	1104.1	1027.6	0.00	0.00	1508.3	
5	6472.0	0.00	0.00	6100.0	1318.8	1227.3	2.00	180.00	1801.5	TARGET BHL 660'FNL & 1980'FWL
6	7617.0	0.00	0.00	7245.0	1318.8	1227.3	0.00	0.00	1801.5	



NOBLE ENERGY INC WELD COUNTY CO

SEC.16-T2N-R64W

State Y16-19D Pad Sec.16-T2N-R64W

State Y16-03D

Wellbore #1

Plan: Noble State Y16-03D Plan #1 (10-3-11)

Standard Planning Report

04 October, 2011



Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.16-T2N-R64W
Site: State Y16-19D Pad Sec.16-T2N-R64W
Well: State Y16-03D
Wellbore: Wellbore #1
Design: Noble State Y16-03D Plan #1 (10-3-11)

Local Co-ordinate Reference: Well State Y16-03D
TVD Reference: WELL @ 4925.0ft (Original Well Elev)
MD Reference: WELL @ 4925.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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 Y16-19D Pad Sec.16-T2N-R64W

Site Position:		Northing:	1,295,352.31 ft	Latitude:	40.140340
From:	Lat/Long	Easting:	3,261,849.81 ft	Longitude:	-104.563390
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.61 °

Well	State Y16-03D					
Well Position	+N/-S	0.0 ft	Northing:	1,295,352.53 ft	Latitude:	40.140340
	+E/-W	22.4 ft	Easting:	3,261,872.18 ft	Longitude:	-104.563310
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,912.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/3/2011	8.69	66.86	52,984

Design Noble State Y16-03D Plan #1 (10-3-11)

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	42.94

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	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,407.5	26.15	42.94	2,362.6	214.7	199.8	2.00	2.00	0.00	42.94	
5,164.6	26.15	42.94	4,837.4	1,104.1	1,027.6	0.00	0.00	0.00	0.00	
6,472.0	0.00	0.00	6,100.0	1,318.8	1,227.3	2.00	-2.00	0.00	180.00	TARGET BHL 660'
7,617.0	0.00	0.00	7,245.0	1,318.8	1,227.3	0.00	0.00	0.00	0.00	

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.16-T2N-R64W
Site: State Y16-19D Pad Sec.16-T2N-R64W
Well: State Y16-03D
Wellbore: Wellbore #1
Design: Noble State Y16-03D Plan #1 (10-3-11)

Local Co-ordinate Reference: Well State Y16-03D
TVL Reference: WELL @ 4925.0ft (Original Well Elev)
MD Reference: WELL @ 4925.0ft (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	0.00	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
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,040.0	0.00	0.00	1,040.0	0.0	0.0	0.0	0.00	0.00	0.00
1,080.0	0.00	0.00	1,080.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,120.0	0.40	42.94	1,120.0	0.1	0.0	0.1	2.00	2.00	0.00
1,160.0	1.20	42.94	1,160.0	0.5	0.4	0.6	2.00	2.00	0.00
1,200.0	2.00	42.94	1,200.0	1.3	1.2	1.7	2.00	2.00	0.00
1,240.0	2.80	42.94	1,239.9	2.5	2.3	3.4	2.00	2.00	0.00
1,280.0	3.60	42.94	1,279.9	4.1	3.9	5.7	2.00	2.00	0.00
1,320.0	4.40	42.94	1,319.8	6.2	5.8	8.4	2.00	2.00	0.00
1,360.0	5.20	42.94	1,359.6	8.6	8.0	11.8	2.00	2.00	0.00
1,400.0	6.00	42.94	1,399.5	11.5	10.7	15.7	2.00	2.00	0.00
1,440.0	6.80	42.94	1,439.2	14.8	13.7	20.2	2.00	2.00	0.00
1,480.0	7.60	42.94	1,478.9	18.4	17.1	25.2	2.00	2.00	0.00
1,520.0	8.40	42.94	1,518.5	22.5	20.9	30.7	2.00	2.00	0.00
1,560.0	9.20	42.94	1,558.0	27.0	25.1	36.9	2.00	2.00	0.00
1,600.0	10.00	42.94	1,597.5	31.9	29.7	43.5	2.00	2.00	0.00
1,640.0	10.80	42.94	1,636.8	37.1	34.6	50.7	2.00	2.00	0.00
1,680.0	11.60	42.94	1,676.0	42.8	39.9	58.5	2.00	2.00	0.00
1,720.0	12.40	42.94	1,715.2	48.9	45.5	66.8	2.00	2.00	0.00
1,760.0	13.20	42.94	1,754.2	55.4	51.6	75.7	2.00	2.00	0.00
1,800.0	14.00	42.94	1,793.1	62.3	58.0	85.1	2.00	2.00	0.00
1,840.0	14.80	42.94	1,831.8	69.6	64.8	95.0	2.00	2.00	0.00
1,880.0	15.60	42.94	1,870.4	77.3	71.9	105.5	2.00	2.00	0.00
1,920.0	16.40	42.94	1,908.8	85.3	79.4	116.6	2.00	2.00	0.00
1,960.0	17.20	42.94	1,947.1	93.8	87.3	128.1	2.00	2.00	0.00
2,000.0	18.00	42.94	1,985.3	102.6	95.5	140.2	2.00	2.00	0.00
2,040.0	18.80	42.94	2,023.2	111.9	104.1	152.8	2.00	2.00	0.00

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC. 16-T2N-R64W
Site: State Y16-19D Pad Sec. 16-T2N-R64W
Well: State Y16-03D
Wellbore: Wellbore #1
Design: Noble State Y16-03D Plan #1 (10-3-11)

Local Co-ordinate Reference: Well State Y16-03D
TVD Reference: WELL @ 4925.0ft (Original Well Elev)
MD Reference: WELL @ 4925.0ft (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)
2,080.0	19.60	42.94	2,061.0	121.5	113.1	166.0	2.00	2.00	0.00
2,120.0	20.40	42.94	2,098.6	131.5	122.4	179.7	2.00	2.00	0.00
2,160.0	21.20	42.94	2,136.0	141.9	132.1	193.9	2.00	2.00	0.00
2,200.0	22.00	42.94	2,173.2	152.7	142.1	208.6	2.00	2.00	0.00
2,240.0	22.80	42.94	2,210.2	163.9	152.5	223.8	2.00	2.00	0.00
2,280.0	23.60	42.94	2,246.9	175.4	163.2	239.6	2.00	2.00	0.00
2,320.0	24.40	42.94	2,283.5	187.3	174.3	255.9	2.00	2.00	0.00
2,360.0	25.20	42.94	2,319.8	199.6	185.7	272.6	2.00	2.00	0.00
2,400.0	26.00	42.94	2,355.8	212.2	197.5	289.9	2.00	2.00	0.00
2,407.5	26.15	42.94	2,362.6	214.7	199.8	293.2	2.00	2.00	0.00
2,440.0	26.15	42.94	2,391.8	225.1	209.5	307.6	0.00	0.00	0.00
2,480.0	26.15	42.94	2,427.7	238.0	221.5	325.2	0.00	0.00	0.00
2,520.0	26.15	42.94	2,463.6	250.9	233.5	342.8	0.00	0.00	0.00
2,560.0	26.15	42.94	2,499.5	263.9	245.6	360.4	0.00	0.00	0.00
2,600.0	26.15	42.94	2,535.4	276.8	257.6	378.1	0.00	0.00	0.00
2,640.0	26.15	42.94	2,571.3	289.7	269.6	395.7	0.00	0.00	0.00
2,680.0	26.15	42.94	2,607.2	302.6	281.6	413.3	0.00	0.00	0.00
2,720.0	26.15	42.94	2,643.1	315.5	293.6	431.0	0.00	0.00	0.00
2,760.0	26.15	42.94	2,679.0	328.4	305.6	448.6	0.00	0.00	0.00
2,800.0	26.15	42.94	2,714.9	341.3	317.6	466.2	0.00	0.00	0.00
2,840.0	26.15	42.94	2,750.8	354.2	329.6	483.8	0.00	0.00	0.00
2,880.0	26.15	42.94	2,786.7	367.1	341.6	501.5	0.00	0.00	0.00
2,920.0	26.15	42.94	2,822.6	380.0	353.6	519.1	0.00	0.00	0.00
2,960.0	26.15	42.94	2,858.5	392.9	365.7	536.7	0.00	0.00	0.00
3,000.0	26.15	42.94	2,894.4	405.8	377.7	554.4	0.00	0.00	0.00
3,040.0	26.15	42.94	2,930.3	418.7	389.7	572.0	0.00	0.00	0.00
3,080.0	26.15	42.94	2,966.2	431.6	401.7	589.6	0.00	0.00	0.00
3,120.0	26.15	42.94	3,002.1	444.5	413.7	607.2	0.00	0.00	0.00
3,160.0	26.15	42.94	3,038.1	457.4	425.7	624.9	0.00	0.00	0.00
3,200.0	26.15	42.94	3,074.0	470.3	437.7	642.5	0.00	0.00	0.00
3,240.0	26.15	42.94	3,109.9	483.2	449.7	660.1	0.00	0.00	0.00
3,280.0	26.15	42.94	3,145.8	496.1	461.7	677.8	0.00	0.00	0.00
3,320.0	26.15	42.94	3,181.7	509.0	473.7	695.4	0.00	0.00	0.00
3,360.0	26.15	42.94	3,217.6	522.0	485.8	713.0	0.00	0.00	0.00
3,400.0	26.15	42.94	3,253.5	534.9	497.8	730.6	0.00	0.00	0.00
3,440.0	26.15	42.94	3,289.4	547.8	509.8	748.3	0.00	0.00	0.00
3,480.0	26.15	42.94	3,325.3	560.7	521.8	765.9	0.00	0.00	0.00
3,520.0	26.15	42.94	3,361.2	573.6	533.8	783.5	0.00	0.00	0.00
3,560.0	26.15	42.94	3,397.1	586.5	545.8	801.2	0.00	0.00	0.00
3,600.0	26.15	42.94	3,433.0	599.4	557.8	818.8	0.00	0.00	0.00
3,640.0	26.15	42.94	3,468.9	612.3	569.8	836.4	0.00	0.00	0.00
3,680.0	26.15	42.94	3,504.8	625.2	581.8	854.0	0.00	0.00	0.00
3,720.0	26.15	42.94	3,540.7	638.1	593.8	871.7	0.00	0.00	0.00
3,760.0	26.15	42.94	3,576.6	651.0	605.9	889.3	0.00	0.00	0.00
3,800.0	26.15	42.94	3,612.5	663.9	617.9	906.9	0.00	0.00	0.00
3,840.0	26.15	42.94	3,648.5	676.8	629.9	924.6	0.00	0.00	0.00
3,880.0	26.15	42.94	3,684.4	689.7	641.9	942.2	0.00	0.00	0.00
3,920.0	26.15	42.94	3,720.3	702.6	653.9	959.8	0.00	0.00	0.00
3,960.0	26.15	42.94	3,756.2	715.5	665.9	977.4	0.00	0.00	0.00
4,000.0	26.15	42.94	3,792.1	728.4	677.9	995.1	0.00	0.00	0.00
4,040.0	26.15	42.94	3,828.0	741.3	689.9	1,012.7	0.00	0.00	0.00
4,080.0	26.15	42.94	3,863.9	754.2	701.9	1,030.3	0.00	0.00	0.00
4,120.0	26.15	42.94	3,899.8	767.1	713.9	1,048.0	0.00	0.00	0.00
4,160.0	26.15	42.94	3,935.7	780.0	726.0	1,065.6	0.00	0.00	0.00

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.16-T2N-R64W
Site: State Y16-19D Pad Sec.16-T2N-R64W
Well: State Y16-03D
Wellbore: Wellbore #1
Design: Noble State Y16-03D Plan #1 (10-3-11)

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well State Y16-03D
WELL @ 4925.0ft (Original Well Elev)
WELL @ 4925.0ft (Original Well Elev)
True
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	26.15	42.94	3,971.6	793.0	738.0	1,083.2	0.00	0.00	0.00
4,240.0	26.15	42.94	4,007.5	805.9	750.0	1,100.8	0.00	0.00	0.00
4,280.0	26.15	42.94	4,043.4	818.8	762.0	1,118.5	0.00	0.00	0.00
4,320.0	26.15	42.94	4,079.3	831.7	774.0	1,136.1	0.00	0.00	0.00
4,360.0	26.15	42.94	4,115.2	844.6	786.0	1,153.7	0.00	0.00	0.00
4,400.0	26.15	42.94	4,151.1	857.5	798.0	1,171.4	0.00	0.00	0.00
4,440.0	26.15	42.94	4,187.0	870.4	810.0	1,189.0	0.00	0.00	0.00
4,480.0	26.15	42.94	4,222.9	883.3	822.0	1,206.6	0.00	0.00	0.00
4,520.0	26.15	42.94	4,258.9	896.2	834.0	1,224.2	0.00	0.00	0.00
4,560.0	26.15	42.94	4,294.8	909.1	846.1	1,241.9	0.00	0.00	0.00
4,600.0	26.15	42.94	4,330.7	922.0	858.1	1,259.5	0.00	0.00	0.00
4,640.0	26.15	42.94	4,366.6	934.9	870.1	1,277.1	0.00	0.00	0.00
4,680.0	26.15	42.94	4,402.5	947.8	882.1	1,294.8	0.00	0.00	0.00
4,720.0	26.15	42.94	4,438.4	960.7	894.1	1,312.4	0.00	0.00	0.00
4,760.0	26.15	42.94	4,474.3	973.6	906.1	1,330.0	0.00	0.00	0.00
4,800.0	26.15	42.94	4,510.2	986.5	918.1	1,347.7	0.00	0.00	0.00
4,840.0	26.15	42.94	4,546.1	999.4	930.1	1,365.3	0.00	0.00	0.00
4,880.0	26.15	42.94	4,582.0	1,012.3	942.1	1,382.9	0.00	0.00	0.00
4,920.0	26.15	42.94	4,617.9	1,025.2	954.1	1,400.5	0.00	0.00	0.00
4,960.0	26.15	42.94	4,653.8	1,038.1	966.2	1,418.2	0.00	0.00	0.00
5,000.0	26.15	42.94	4,689.7	1,051.1	978.2	1,435.8	0.00	0.00	0.00
5,040.0	26.15	42.94	4,725.6	1,064.0	990.2	1,453.4	0.00	0.00	0.00
5,080.0	26.15	42.94	4,761.5	1,076.9	1,002.2	1,471.1	0.00	0.00	0.00
5,120.0	26.15	42.94	4,797.4	1,089.8	1,014.2	1,488.7	0.00	0.00	0.00
5,160.0	26.15	42.94	4,833.3	1,102.7	1,026.2	1,506.3	0.00	0.00	0.00
5,164.6	26.15	42.94	4,837.4	1,104.1	1,027.6	1,508.3	0.00	0.00	0.00
5,200.0	25.44	42.94	4,869.3	1,115.4	1,038.1	1,523.7	2.00	-2.00	0.00
5,240.0	24.64	42.94	4,905.6	1,127.8	1,049.6	1,540.7	2.00	-2.00	0.00
5,280.0	23.84	42.94	4,942.1	1,139.8	1,060.8	1,557.1	2.00	-2.00	0.00
5,320.0	23.04	42.94	4,978.8	1,151.5	1,071.6	1,573.0	2.00	-2.00	0.00
5,360.0	22.24	42.94	5,015.7	1,162.8	1,082.1	1,588.4	2.00	-2.00	0.00
5,400.0	21.44	42.94	5,052.8	1,173.7	1,092.3	1,603.3	2.00	-2.00	0.00
5,440.0	20.64	42.94	5,090.1	1,184.2	1,102.0	1,617.6	2.00	-2.00	0.00
5,480.0	19.84	42.94	5,127.7	1,194.3	1,111.5	1,631.5	2.00	-2.00	0.00
5,520.0	19.04	42.94	5,165.4	1,204.0	1,120.5	1,644.8	2.00	-2.00	0.00
5,560.0	18.24	42.94	5,203.3	1,213.4	1,129.3	1,657.6	2.00	-2.00	0.00
5,600.0	17.44	42.94	5,241.4	1,222.4	1,137.6	1,669.8	2.00	-2.00	0.00
5,640.0	16.64	42.94	5,279.6	1,231.0	1,145.6	1,681.6	2.00	-2.00	0.00
5,680.0	15.84	42.94	5,318.0	1,239.1	1,153.2	1,692.7	2.00	-2.00	0.00
5,720.0	15.04	42.94	5,356.6	1,246.9	1,160.5	1,703.4	2.00	-2.00	0.00
5,760.0	14.24	42.94	5,395.3	1,254.3	1,167.4	1,713.5	2.00	-2.00	0.00
5,800.0	13.44	42.94	5,434.1	1,261.4	1,173.9	1,723.1	2.00	-2.00	0.00
5,840.0	12.64	42.94	5,473.1	1,268.0	1,180.0	1,732.1	2.00	-2.00	0.00
5,880.0	11.84	42.94	5,512.2	1,274.2	1,185.8	1,740.6	2.00	-2.00	0.00
5,920.0	11.04	42.94	5,551.4	1,280.0	1,191.2	1,748.5	2.00	-2.00	0.00
5,960.0	10.24	42.94	5,590.7	1,285.4	1,196.2	1,755.9	2.00	-2.00	0.00
6,000.0	9.44	42.94	5,630.1	1,290.4	1,200.9	1,762.7	2.00	-2.00	0.00
6,040.0	8.64	42.94	5,669.6	1,295.0	1,205.2	1,769.0	2.00	-2.00	0.00
6,080.0	7.84	42.94	5,709.2	1,299.2	1,209.1	1,774.8	2.00	-2.00	0.00
6,120.0	7.04	42.94	5,748.8	1,303.0	1,212.6	1,779.9	2.00	-2.00	0.00
6,160.0	6.24	42.94	5,788.6	1,306.4	1,215.8	1,784.6	2.00	-2.00	0.00
6,200.0	5.44	42.94	5,828.4	1,309.3	1,218.5	1,788.6	2.00	-2.00	0.00
6,240.0	4.64	42.94	5,868.2	1,311.9	1,220.9	1,792.1	2.00	-2.00	0.00
6,280.0	3.84	42.94	5,908.1	1,314.1	1,222.9	1,795.1	2.00	-2.00	0.00

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.16-T2N-R64W
Site: State Y16-19D Pad Sec.16-T2N-R64W
Well: State Y16-03D
Wellbore: Wellbore #1
Design: Noble State Y16-03D Plan #1 (10-3-11)

Local Co-ordinate Reference: Well State Y16-03D
TVD Reference: WELL @ 4925.0ft (Original Well Elev)
MD Reference: WELL @ 4925.0ft (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)
6,320.0	3.04	42.94	5,948.0	1,315.8	1,224.6	1,797.5	2.00	-2.00	0.00
6,360.0	2.24	42.94	5,988.0	1,317.2	1,225.8	1,799.3	2.00	-2.00	0.00
6,400.0	1.44	42.94	6,028.0	1,318.1	1,226.7	1,800.6	2.00	-2.00	0.00
6,440.0	0.64	42.94	6,068.0	1,318.7	1,227.2	1,801.4	2.00	-2.00	0.00
6,472.0	0.00	0.00	6,100.0	1,318.8	1,227.3	1,801.5	2.00	-2.00	0.00
TARGET BHL 660'FNL & 1980'FWL									
6,480.0	0.00	0.00	6,108.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
6,520.0	0.00	0.00	6,148.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
6,560.0	0.00	0.00	6,188.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
6,600.0	0.00	0.00	6,228.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
6,640.0	0.00	0.00	6,268.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
6,680.0	0.00	0.00	6,308.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
6,720.0	0.00	0.00	6,348.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
6,760.0	0.00	0.00	6,388.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
6,800.0	0.00	0.00	6,428.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
6,840.0	0.00	0.00	6,468.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
6,880.0	0.00	0.00	6,508.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
6,920.0	0.00	0.00	6,548.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
6,960.0	0.00	0.00	6,588.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,000.0	0.00	0.00	6,628.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,040.0	0.00	0.00	6,668.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,080.0	0.00	0.00	6,708.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,120.0	0.00	0.00	6,748.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,157.0	0.00	0.00	6,785.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
NIOBRARA - LEGAL BOX 400' X 400', 662'FNL & 1994'FWL - TARGET CIRCLE 660'FNL & 1980'FWL									
7,160.0	0.00	0.00	6,788.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,200.0	0.00	0.00	6,828.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,240.0	0.00	0.00	6,868.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,280.0	0.00	0.00	6,908.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,320.0	0.00	0.00	6,948.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,360.0	0.00	0.00	6,988.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,400.0	0.00	0.00	7,028.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,440.0	0.00	0.00	7,068.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,467.0	0.00	0.00	7,095.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
CODELL									
7,480.0	0.00	0.00	7,108.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,520.0	0.00	0.00	7,148.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,560.0	0.00	0.00	7,188.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,600.0	0.00	0.00	7,228.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00
7,617.0	0.00	0.00	7,245.0	1,318.8	1,227.3	1,801.5	0.00	0.00	0.00

Database: Landmark
 Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.16-T2N-R64W
 Site: State Y16-19D Pad Sec.16-T2N-R64W
 Well: State Y16-03D
 Wellbore: Wellbore #1
 Design: Noble State Y16-03D Plan #1 (10-3-11)

Local Co-ordinate Reference: Well State Y16-03D
 TVD Reference: WELL @ 4925.0ft (Original Well Elev)
 MD Reference: WELL @ 4925.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

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 660'FN - plan hits target center - Point	0.00	0.00	6,100.0	1,318.8	1,227.3	1,296,684.16	3,263,085.46	40.143960	-104.558920
LEGAL BOX 400' X 400' - plan misses target center by 14.1ft at 7157.0ft MD (6785.0 TVD, 1318.8 N, 1227.3 E) - Rectangle (sides W400.0 H400.0 D460.0)	0.00	0.00	6,785.0	1,316.8	1,241.3	1,296,682.31	3,263,099.45	40.143955	-104.558870
TARGET CIRCLE 660' - plan hits target center - Circle (radius 75.0)	0.00	0.00	6,785.0	1,318.8	1,227.3	1,296,684.16	3,263,085.46	40.143960	-104.558920

Casing Points

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

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,157.0	6,785.0	NIOBRARA		0.00	
7,467.0	7,095.0	CODELL		0.00	