

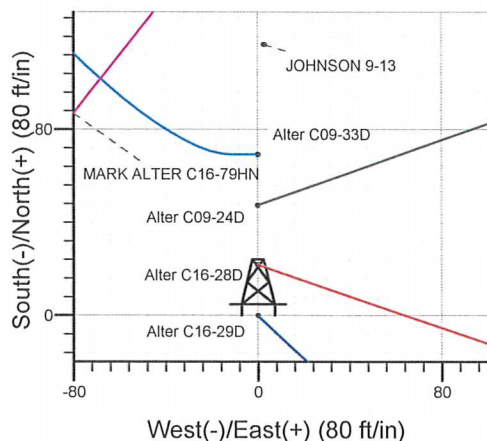
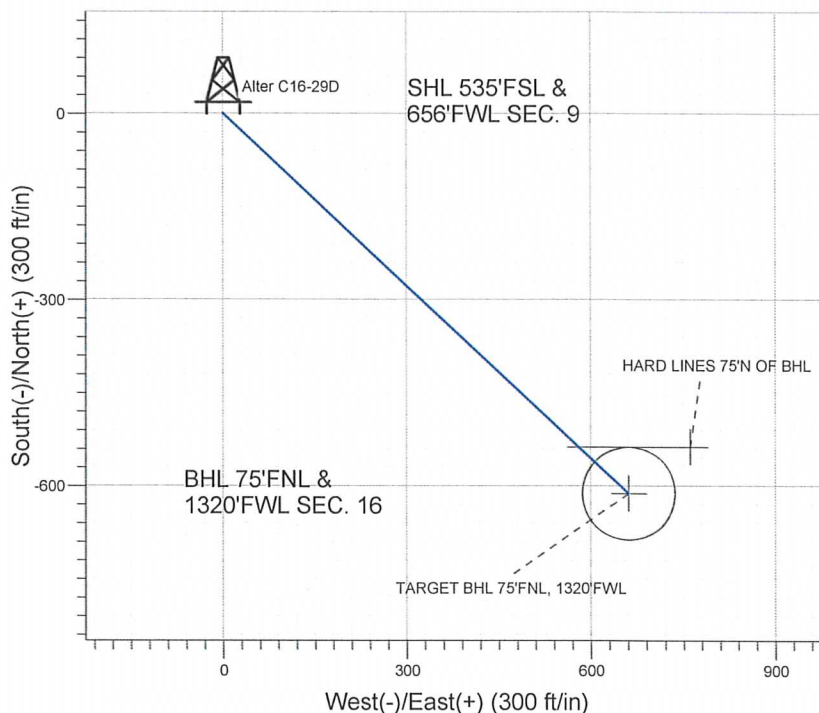
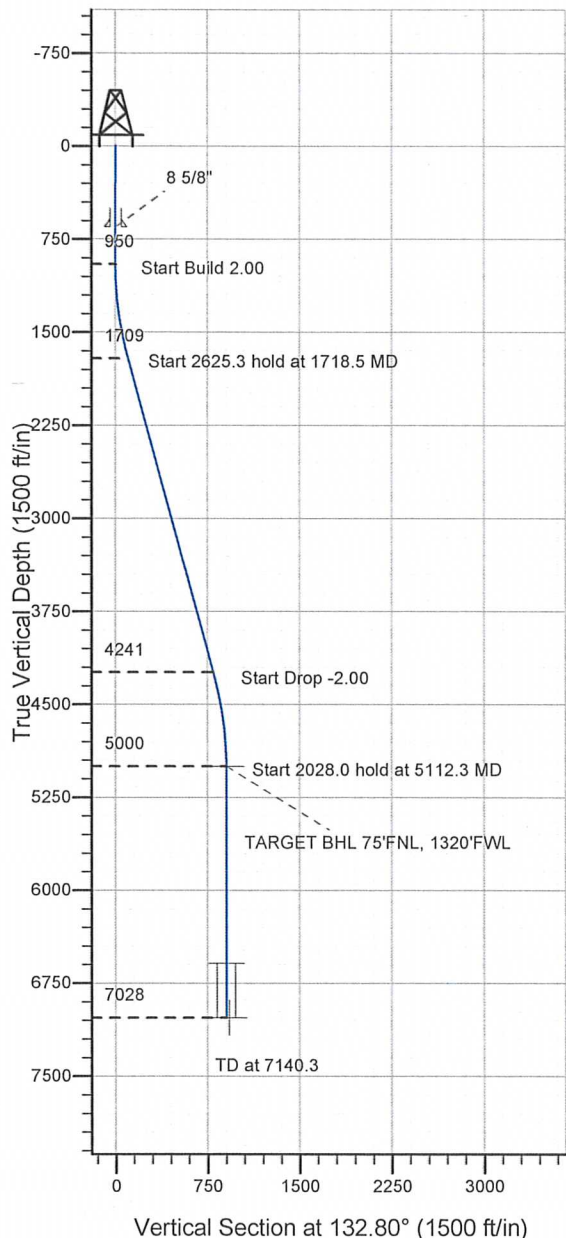
ENSIGN

Directional

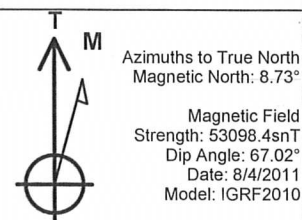
Well Name: Alter C16-29D

Surface Location: Alter C16-29D Pad Sec.9-T4N-R64W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4700.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1361209.76 3261346.59 40.321130 -104.562700
 Original Well Elev WELL @ 4713.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



Alter C16-29D Pad Sec.9-T4N-R64W
 Alter C16-29D
 Noble Alter C16-29D Plan #1 (8-04-11)
 11:21, August 18 2011



WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 75'FNL, 1320'FWL	5000.0	-612.0	660.9	40.319450	-104.560330	Point
TARGET CIRCLE 75'FNL & 1320'FWL	6588.0	-612.0	660.9	40.319450	-104.560330	Circle (Radius: 75.0)
HARD LINES 75'N OF BHL	7028.0	-537.0	760.9	40.319656	-104.559971	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	1718.5	15.37	132.80	1709.3	-69.6	75.2	2.00	132.80	102.5	
4	4343.8	15.37	132.80	4240.7	-542.4	585.7	0.00	0.00	798.3	
5	5112.3	0.00	0.00	5000.0	-612.0	660.9	2.00	180.00	900.7	TARGET BHL 75'FNL, 1320'FWL
6	7140.3	0.00	0.00	7028.0	-612.0	660.9	0.00	0.00	900.7	



NOBLE ENERGY INC WELD COUNTY CO

SEC.9-T4N-R64W

Alter C16-29D Pad Sec.9-T4N-R64W

Alter C16-29D

Wellbore #1

Plan: Noble Alter C16-29D Plan #1 (8-04-11)

Standard Planning Report

18 August, 2011



Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.9-T4N-R64W
Site: Alter C16-29D Pad Sec.9-T4N-R64W
Well: Alter C16-29D
Wellbore: Wellbore #1
Design: Noble Alter C16-29D Plan #1 (8-04-11)

Local Co-ordinate Reference: Well Alter C16-29D
TVD Reference: WELL @ 4713.0ft (Original Well Elev)
MD Reference: WELL @ 4713.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Project	SEC.9-T4N-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	Alter C16-29D Pad Sec.9-T4N-R64W				
Site Position:		Northing:	1,361,209.77 ft	Latitude:	40.321130
From:	Lat/Long	Easting:	3,261,346.59 ft	Longitude:	-104.562700
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.61 °

Well	Alter C16-29D					
Well Position	+N/-S	0.0 ft	Northing:	1,361,209.76 ft	Latitude:	40.321130
	+E/-W	0.0 ft	Easting:	3,261,346.59 ft	Longitude:	-104.562700
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,700.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/4/2011	8.73	67.02	53,098

Design	Noble Alter C16-29D Plan #1 (8-04-11)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	132.80

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	
1,718.5	15.37	132.80	1,709.3	-69.6	75.2	2.00	2.00	0.00	132.80	
4,343.8	15.37	132.80	4,240.7	-542.4	585.7	0.00	0.00	0.00	0.00	
5,112.3	0.00	0.00	5,000.0	-612.0	660.9	2.00	-2.00	0.00	180.00	TARGET BHL 75'FI
7,140.3	0.00	0.00	7,028.0	-612.0	660.9	0.00	0.00	0.00	0.00	

Database: Landmark
 Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.9-T4N-R64W
 Site: Alter C16-29D Pad Sec.9-T4N-R64W
 Well: Alter C16-29D
 Wellbore: Wellbore #1
 Design: Noble Alter C16-29D Plan #1 (8-04-11)

Local Co-ordinate Reference: Well Alter C16-29D
 TVD Reference: WELL @ 4713.0ft (Original Well Elev)
 MD Reference: WELL @ 4713.0ft (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
650.0	0.00	0.00	650.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
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
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	132.80	960.0	0.0	0.0	0.0	2.00	2.00	0.00
1,000.0	1.00	132.80	1,000.0	-0.3	0.3	0.4	2.00	2.00	0.00
1,040.0	1.80	132.80	1,040.0	-1.0	1.0	1.4	2.00	2.00	0.00
1,080.0	2.60	132.80	1,080.0	-2.0	2.2	2.9	2.00	2.00	0.00
1,120.0	3.40	132.80	1,119.9	-3.4	3.7	5.0	2.00	2.00	0.00
1,160.0	4.20	132.80	1,159.8	-5.2	5.6	7.7	2.00	2.00	0.00
1,200.0	5.00	132.80	1,199.7	-7.4	8.0	10.9	2.00	2.00	0.00
1,240.0	5.80	132.80	1,239.5	-10.0	10.8	14.7	2.00	2.00	0.00
1,280.0	6.60	132.80	1,279.3	-12.9	13.9	19.0	2.00	2.00	0.00
1,320.0	7.40	132.80	1,319.0	-16.2	17.5	23.9	2.00	2.00	0.00
1,360.0	8.20	132.80	1,358.6	-19.9	21.5	29.3	2.00	2.00	0.00
1,400.0	9.00	132.80	1,398.2	-24.0	25.9	35.3	2.00	2.00	0.00
1,440.0	9.80	132.80	1,437.6	-28.4	30.7	41.8	2.00	2.00	0.00
1,480.0	10.60	132.80	1,477.0	-33.2	35.9	48.9	2.00	2.00	0.00
1,520.0	11.40	132.80	1,516.2	-38.4	41.5	56.5	2.00	2.00	0.00
1,560.0	12.20	132.80	1,555.4	-44.0	47.5	64.7	2.00	2.00	0.00
1,600.0	13.00	132.80	1,594.4	-49.9	53.9	73.4	2.00	2.00	0.00
1,640.0	13.80	132.80	1,633.3	-56.2	60.7	82.7	2.00	2.00	0.00
1,680.0	14.60	132.80	1,672.1	-62.9	67.9	92.5	2.00	2.00	0.00
1,718.5	15.37	132.80	1,709.3	-69.6	75.2	102.5	2.00	2.00	0.00
1,720.0	15.37	132.80	1,710.8	-69.9	75.5	102.9	0.00	0.00	0.00
1,760.0	15.37	132.80	1,749.3	-77.1	83.2	113.5	0.00	0.00	0.00
1,800.0	15.37	132.80	1,787.9	-84.3	91.0	124.1	0.00	0.00	0.00
1,840.0	15.37	132.80	1,826.5	-91.5	98.8	134.7	0.00	0.00	0.00
1,880.0	15.37	132.80	1,865.0	-98.7	106.6	145.3	0.00	0.00	0.00
1,920.0	15.37	132.80	1,903.6	-105.9	114.4	155.9	0.00	0.00	0.00
1,960.0	15.37	132.80	1,942.2	-113.1	122.1	166.5	0.00	0.00	0.00

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.9-T4N-R64W
Site: Alter C16-29D Pad Sec.9-T4N-R64W
Well: Alter C16-29D
Wellbore: Wellbore #1
Design: Noble Alter C16-29D Plan #1 (8-04-11)

Local Co-ordinate Reference: Well Alter C16-29D
TVD Reference: WELL @ 4713.0ft (Original Well Elev)
MD Reference: WELL @ 4713.0ft (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)
2,000.0	15.37	132.80	1,980.7	-120.3	129.9	177.1	0.00	0.00	0.00
2,040.0	15.37	132.80	2,019.3	-127.5	137.7	187.7	0.00	0.00	0.00
2,080.0	15.37	132.80	2,057.9	-134.7	145.5	198.3	0.00	0.00	0.00
2,120.0	15.37	132.80	2,096.5	-141.9	153.3	208.9	0.00	0.00	0.00
2,160.0	15.37	132.80	2,135.0	-149.1	161.0	219.5	0.00	0.00	0.00
2,200.0	15.37	132.80	2,173.6	-156.3	168.8	230.1	0.00	0.00	0.00
2,240.0	15.37	132.80	2,212.2	-163.5	176.6	240.7	0.00	0.00	0.00
2,280.0	15.37	132.80	2,250.7	-170.7	184.4	251.3	0.00	0.00	0.00
2,320.0	15.37	132.80	2,289.3	-177.9	192.1	261.9	0.00	0.00	0.00
2,360.0	15.37	132.80	2,327.9	-185.1	199.9	272.5	0.00	0.00	0.00
2,400.0	15.37	132.80	2,366.4	-192.3	207.7	283.1	0.00	0.00	0.00
2,440.0	15.37	132.80	2,405.0	-199.6	215.5	293.7	0.00	0.00	0.00
2,480.0	15.37	132.80	2,443.6	-206.8	223.3	304.3	0.00	0.00	0.00
2,520.0	15.37	132.80	2,482.2	-214.0	231.0	314.9	0.00	0.00	0.00
2,560.0	15.37	132.80	2,520.7	-221.2	238.8	325.5	0.00	0.00	0.00
2,600.0	15.37	132.80	2,559.3	-228.4	246.6	336.1	0.00	0.00	0.00
2,640.0	15.37	132.80	2,597.9	-235.6	254.4	346.7	0.00	0.00	0.00
2,680.0	15.37	132.80	2,636.4	-242.8	262.2	357.3	0.00	0.00	0.00
2,720.0	15.37	132.80	2,675.0	-250.0	269.9	367.9	0.00	0.00	0.00
2,760.0	15.37	132.80	2,713.6	-257.2	277.7	378.5	0.00	0.00	0.00
2,800.0	15.37	132.80	2,752.1	-264.4	285.5	389.1	0.00	0.00	0.00
2,840.0	15.37	132.80	2,790.7	-271.6	293.3	399.7	0.00	0.00	0.00
2,880.0	15.37	132.80	2,829.3	-278.8	301.1	410.3	0.00	0.00	0.00
2,920.0	15.37	132.80	2,867.8	-286.0	308.8	420.9	0.00	0.00	0.00
2,960.0	15.37	132.80	2,906.4	-293.2	316.6	431.5	0.00	0.00	0.00
3,000.0	15.37	132.80	2,945.0	-300.4	324.4	442.1	0.00	0.00	0.00
3,040.0	15.37	132.80	2,983.6	-307.6	332.2	452.7	0.00	0.00	0.00
3,080.0	15.37	132.80	3,022.1	-314.8	339.9	463.3	0.00	0.00	0.00
3,120.0	15.37	132.80	3,060.7	-322.0	347.7	473.9	0.00	0.00	0.00
3,160.0	15.37	132.80	3,099.3	-329.2	355.5	484.5	0.00	0.00	0.00
3,200.0	15.37	132.80	3,137.8	-336.4	363.3	495.1	0.00	0.00	0.00
3,240.0	15.37	132.80	3,176.4	-343.6	371.1	505.7	0.00	0.00	0.00
3,280.0	15.37	132.80	3,215.0	-350.8	378.8	516.3	0.00	0.00	0.00
3,320.0	15.37	132.80	3,253.5	-358.0	386.6	526.9	0.00	0.00	0.00
3,360.0	15.37	132.80	3,292.1	-365.2	394.4	537.5	0.00	0.00	0.00
3,400.0	15.37	132.80	3,330.7	-372.4	402.2	548.1	0.00	0.00	0.00
3,440.0	15.37	132.80	3,369.2	-379.6	410.0	558.7	0.00	0.00	0.00
3,480.0	15.37	132.80	3,407.8	-386.8	417.7	569.3	0.00	0.00	0.00
3,520.0	15.37	132.80	3,446.4	-394.0	425.5	579.9	0.00	0.00	0.00
3,560.0	15.37	132.80	3,485.0	-401.3	433.3	590.5	0.00	0.00	0.00
3,600.0	15.37	132.80	3,523.5	-408.5	441.1	601.1	0.00	0.00	0.00
3,640.0	15.37	132.80	3,562.1	-415.7	448.8	611.7	0.00	0.00	0.00
3,680.0	15.37	132.80	3,600.7	-422.9	456.6	622.3	0.00	0.00	0.00
3,720.0	15.37	132.80	3,639.2	-430.1	464.4	633.0	0.00	0.00	0.00
3,760.0	15.37	132.80	3,677.8	-437.3	472.2	643.6	0.00	0.00	0.00
3,800.0	15.37	132.80	3,716.4	-444.5	480.0	654.2	0.00	0.00	0.00
3,840.0	15.37	132.80	3,754.9	-451.7	487.7	664.8	0.00	0.00	0.00
3,880.0	15.37	132.80	3,793.5	-458.9	495.5	675.4	0.00	0.00	0.00
3,920.0	15.37	132.80	3,832.1	-466.1	503.3	686.0	0.00	0.00	0.00
3,960.0	15.37	132.80	3,870.7	-473.3	511.1	696.6	0.00	0.00	0.00
4,000.0	15.37	132.80	3,909.2	-480.5	518.9	707.2	0.00	0.00	0.00
4,040.0	15.37	132.80	3,947.8	-487.7	526.6	717.8	0.00	0.00	0.00
4,080.0	15.37	132.80	3,986.4	-494.9	534.4	728.4	0.00	0.00	0.00
4,120.0	15.37	132.80	4,024.9	-502.1	542.2	739.0	0.00	0.00	0.00

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.9-T4N-R64W
Site: Alter C16-29D Pad Sec.9-T4N-R64W
Well: Alter C16-29D
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Design: Noble Alter C16-29D Plan #1 (8-04-11)

Local Co-ordinate Reference: Well Alter C16-29D
TVD Reference: WELL @ 4713.0ft (Original Well Elev)
MD Reference: WELL @ 4713.0ft (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)
4,160.0	15.37	132.80	4,063.5	-509.3	550.0	749.6	0.00	0.00	0.00
4,200.0	15.37	132.80	4,102.1	-516.5	557.7	760.2	0.00	0.00	0.00
4,240.0	15.37	132.80	4,140.6	-523.7	565.5	770.8	0.00	0.00	0.00
4,280.0	15.37	132.80	4,179.2	-530.9	573.3	781.4	0.00	0.00	0.00
4,320.0	15.37	132.80	4,217.8	-538.1	581.1	792.0	0.00	0.00	0.00
4,343.8	15.37	132.80	4,240.7	-542.4	585.7	798.3	0.00	0.00	0.00
4,360.0	15.05	132.80	4,256.4	-545.3	588.8	802.5	2.00	-2.00	0.00
4,400.0	14.25	132.80	4,295.1	-552.2	596.3	812.7	2.00	-2.00	0.00
4,440.0	13.45	132.80	4,333.9	-558.7	603.3	822.2	2.00	-2.00	0.00
4,480.0	12.65	132.80	4,372.9	-564.8	609.9	831.3	2.00	-2.00	0.00
4,520.0	11.85	132.80	4,412.0	-570.6	616.1	839.7	2.00	-2.00	0.00
4,560.0	11.05	132.80	4,451.2	-576.0	621.9	847.7	2.00	-2.00	0.00
4,600.0	10.25	132.80	4,490.5	-581.0	627.4	855.1	2.00	-2.00	0.00
4,640.0	9.45	132.80	4,529.9	-585.6	632.4	861.9	2.00	-2.00	0.00
4,680.0	8.65	132.80	4,569.4	-589.9	637.0	868.2	2.00	-2.00	0.00
4,720.0	7.85	132.80	4,609.0	-593.8	641.2	873.9	2.00	-2.00	0.00
4,760.0	7.05	132.80	4,648.6	-597.3	645.0	879.1	2.00	-2.00	0.00
4,800.0	6.25	132.80	4,688.4	-600.5	648.4	883.7	2.00	-2.00	0.00
4,840.0	5.45	132.80	4,728.2	-603.2	651.4	887.8	2.00	-2.00	0.00
4,880.0	4.65	132.80	4,768.0	-605.6	654.0	891.3	2.00	-2.00	0.00
4,920.0	3.85	132.80	4,807.9	-607.6	656.2	894.3	2.00	-2.00	0.00
4,960.0	3.05	132.80	4,847.8	-609.3	657.9	896.7	2.00	-2.00	0.00
5,000.0	2.25	132.80	4,887.8	-610.5	659.3	898.5	2.00	-2.00	0.00
5,040.0	1.45	132.80	4,927.7	-611.4	660.2	899.8	2.00	-2.00	0.00
5,080.0	0.65	132.80	4,967.7	-611.9	660.7	900.6	2.00	-2.00	0.00
5,112.3	0.00	0.00	5,000.0	-612.0	660.9	900.7	2.00	-2.00	0.00
TARGET BHL 75'FNL, 1320'FWL									
5,120.0	0.00	0.00	5,007.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,160.0	0.00	0.00	5,047.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,200.0	0.00	0.00	5,087.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,240.0	0.00	0.00	5,127.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,280.0	0.00	0.00	5,167.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,320.0	0.00	0.00	5,207.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,360.0	0.00	0.00	5,247.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,400.0	0.00	0.00	5,287.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,440.0	0.00	0.00	5,327.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,480.0	0.00	0.00	5,367.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,520.0	0.00	0.00	5,407.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,560.0	0.00	0.00	5,447.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,600.0	0.00	0.00	5,487.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,640.0	0.00	0.00	5,527.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,680.0	0.00	0.00	5,567.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,720.0	0.00	0.00	5,607.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,760.0	0.00	0.00	5,647.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,800.0	0.00	0.00	5,687.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,840.0	0.00	0.00	5,727.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,880.0	0.00	0.00	5,767.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,920.0	0.00	0.00	5,807.7	-612.0	660.9	900.7	0.00	0.00	0.00
5,960.0	0.00	0.00	5,847.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,000.0	0.00	0.00	5,887.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,040.0	0.00	0.00	5,927.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,080.0	0.00	0.00	5,967.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,120.0	0.00	0.00	6,007.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,160.0	0.00	0.00	6,047.7	-612.0	660.9	900.7	0.00	0.00	0.00

Database: Landmark
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.9-T4N-R64W
Site: Alter C16-29D Pad Sec.9-T4N-R64W
Well: Alter C16-29D
Wellbore: Wellbore #1
Design: Noble Alter C16-29D Plan #1 (8-04-11)

Local Co-ordinate Reference: Well Alter C16-29D
TVD Reference: WELL @ 4713.0ft (Original Well Elev)
MD Reference: WELL @ 4713.0ft (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)
6,200.0	0.00	0.00	6,087.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,240.0	0.00	0.00	6,127.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,280.0	0.00	0.00	6,167.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,320.0	0.00	0.00	6,207.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,360.0	0.00	0.00	6,247.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,400.0	0.00	0.00	6,287.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,440.0	0.00	0.00	6,327.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,480.0	0.00	0.00	6,367.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,520.0	0.00	0.00	6,407.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,560.0	0.00	0.00	6,447.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,600.0	0.00	0.00	6,487.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,640.0	0.00	0.00	6,527.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,680.0	0.00	0.00	6,567.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,700.3	0.00	0.00	6,588.0	-612.0	660.9	900.7	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 75'FNL & 1320'FWL									
6,720.0	0.00	0.00	6,607.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,760.0	0.00	0.00	6,647.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,800.0	0.00	0.00	6,687.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,840.0	0.00	0.00	6,727.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,880.0	0.00	0.00	6,767.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,920.0	0.00	0.00	6,807.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,960.0	0.00	0.00	6,847.7	-612.0	660.9	900.7	0.00	0.00	0.00
6,990.3	0.00	0.00	6,878.0	-612.0	660.9	900.7	0.00	0.00	0.00
CODELL									
7,000.0	0.00	0.00	6,887.7	-612.0	660.9	900.7	0.00	0.00	0.00
7,040.0	0.00	0.00	6,927.7	-612.0	660.9	900.7	0.00	0.00	0.00
7,080.0	0.00	0.00	6,967.7	-612.0	660.9	900.7	0.00	0.00	0.00
7,120.0	0.00	0.00	7,007.7	-612.0	660.9	900.7	0.00	0.00	0.00
7,140.3	0.00	0.00	7,028.0	-612.0	660.9	900.7	0.00	0.00	0.00
HARD LINES 75'N OF BHL									

Targets

Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
HARD LINES 75'N OF	- plan misses target center by 125.0ft at 7140.3ft MD (7028.0 TVD, -612.0 N, 660.9 E)	0.00	0.00	7,028.0	-537.0	760.9	1,360,680.87	3,262,113.09	40.319656	-104.559971
- Polygon										
Point 1				7,028.0	0.0	0.0	1,360,680.87	3,262,113.09		
Point 2				7,028.0	0.0	-200.0	1,360,678.75	3,261,913.11		
TARGET BHL 75'FNL	- plan hits target center	0.00	0.00	5,000.0	-612.0	660.9	1,360,604.79	3,262,013.87	40.319450	-104.560330
- Point										
TARGET CIRCLE 75'	- plan hits target center	0.00	0.00	6,588.0	-612.0	660.9	1,360,604.79	3,262,013.89	40.319450	-104.560330
- Circle (radius 75.0)										

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Local Co-ordinate Reference: Well Alter C16-29D
TVD Reference: WELL @ 4713.0ft (Original Well Elev)
MD Reference: WELL @ 4713.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
650.0	650.0	8 5/8"	8-5/8	12-1/4

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,700.3	6,588.0	NIOBRARA		0.00	
6,990.3	6,878.0	CODELL		0.00	