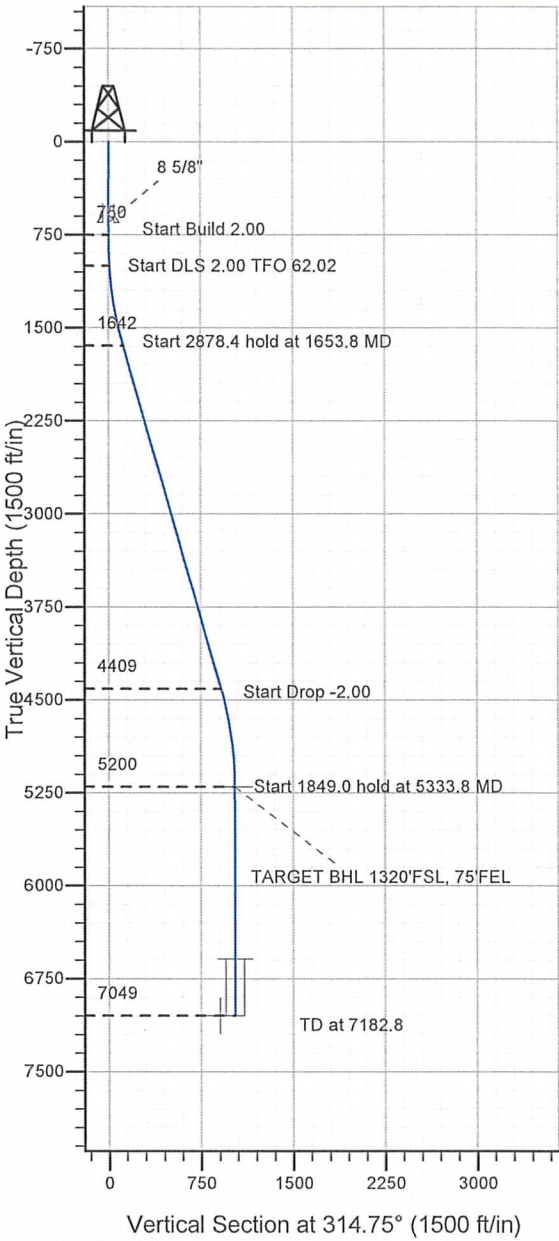


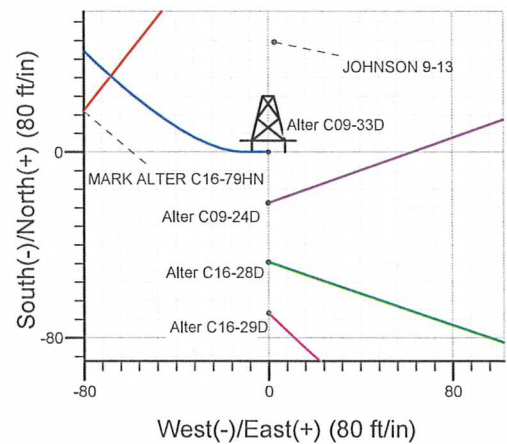
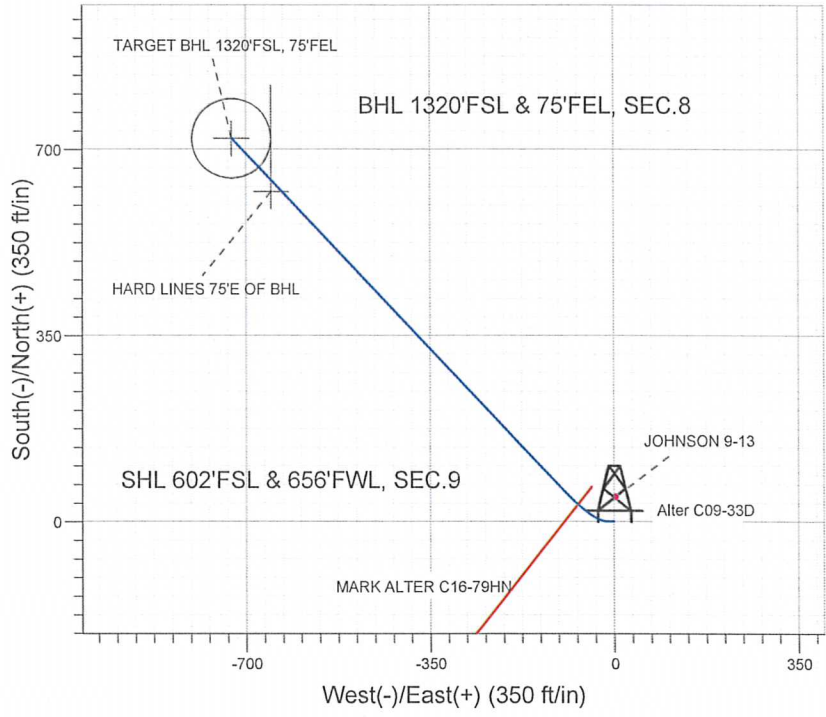
# ENSIGN Directional

Well Name: Alter C09-33D

Surface Location: Alter C16-29D Pad Sec.9-T4N-R64W  
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
 Ground Elevation: 4701.0  
 +N/-S +E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1361278.97 3261345.86 40.321320 -104.562700  
 Original Well Elev WELL @ 4714.0ft (Original Well Elev)



## NOBLE ENERGY INC WELD COUNTY CO



Alter C16-29D Pad Sec.9-T4N-R64W  
 Alter C09-33D  
 Noble Alter C09-33D Plan #1 (8-04-11)  
 10:57, August 18 2011

Azimuths to True North  
 Magnetic North: 8.73°  
 Magnetic Field  
 Strength: 53098.5snT  
 Dip Angle: 67.02°  
 Date: 8/4/2011  
 Model: IGRF2010

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1320'FSL, 75'FEL	5200.0	721.4	-727.8	40.323300	-104.565310	Point
TARGET CIRCLE 1320'FSL & 75'FEL	6589.0	721.4	-727.8	40.323300	-104.565310	Circle (Radius: 75.0)
HARD LINES 75'E OF BHL	7049.0	621.3	-652.8	40.323025	-104.565041	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	750.0	0.00	0.00	750.0	0.0	0.0	0.00	0.00	0.0	
3	1000.0	5.00	270.00	999.7	0.0	-10.9	2.00	270.00	7.7	
4	1653.8	16.03	316.35	1642.4	65.6	-102.1	2.00	62.02	118.7	
5	4532.3	16.03	316.35	4408.8	640.7	-650.9	0.00	0.00	913.3	
6	5333.8	0.00	0.00	5200.0	721.4	-727.8	2.00	180.00	1024.7	TARGET BHL 1320'FSL, 75'FEL
7	7182.8	0.00	0.00	7049.0	721.4	-727.8	0.00	0.00	1024.7	



## **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.9-T4N-R64W**

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

**Alter C09-33D**

**Wellbore #1**

**Plan: Noble Alter C09-33D 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 C09-33D  
 Wellbore: Wellbore #1  
 Design: Noble Alter C09-33D Plan #1 (8-04-11)

Local Co-ordinate Reference: Well Alter C09-33D  
 TVD Reference: WELL @ 4714.0ft (Original Well Elev)  
 MD Reference: WELL @ 4714.0ft (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 C09-33D					
Well Position	+N/-S	69.2 ft	Northing:	1,361,278.97 ft	Latitude:	40.321320
	+E/-W	0.0 ft	Easting:	3,261,345.86 ft	Longitude:	-104.562700
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,701.0 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 C09-33D Plan #1 (8-04-11)			
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	314.75

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	
750.0	0.00	0.00	750.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	5.00	270.00	999.7	0.0	-10.9	2.00	2.00	0.00	270.00	
1,653.8	16.03	316.35	1,642.4	65.6	-102.1	2.00	1.69	7.09	62.02	
4,532.3	16.03	316.35	4,408.8	640.7	-650.9	0.00	0.00	0.00	0.00	
5,333.8	0.00	0.00	5,200.0	721.4	-727.8	2.00	-2.00	0.00	180.00	TARGET BHL 1320
7,182.8	0.00	0.00	7,049.0	721.4	-727.8	0.00	0.00	0.00	0.00	

Database: Landmark  
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 Project: SEC.9-T4N-R64W  
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Local Co-ordinate Reference: Well Alter C09-33D  
 TVD Reference: WELL @ 4714.0ft (Original Well Elev)  
 MD Reference: WELL @ 4714.0ft (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
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.20	270.00	760.0	0.0	0.0	0.0	2.00	2.00	0.00
800.0	1.00	270.00	800.0	0.0	-0.4	0.3	2.00	2.00	0.00
840.0	1.80	270.00	840.0	0.0	-1.4	1.0	2.00	2.00	0.00
880.0	2.60	270.00	880.0	0.0	-2.9	2.1	2.00	2.00	0.00
920.0	3.40	270.00	919.9	0.0	-5.0	3.6	2.00	2.00	0.00
960.0	4.20	270.00	959.8	0.0	-7.7	5.5	2.00	2.00	0.00
1,000.0	5.00	270.00	999.7	0.0	-10.9	7.7	2.00	2.00	0.00
1,040.0	5.42	277.50	1,039.5	0.2	-14.5	10.5	2.00	1.05	18.75
1,080.0	5.92	283.83	1,079.3	1.0	-18.4	13.8	2.00	1.25	15.83
1,120.0	6.48	289.12	1,119.1	2.2	-22.5	17.6	2.00	1.40	13.24
1,160.0	7.09	293.55	1,158.8	3.9	-26.9	21.9	2.00	1.52	11.06
1,200.0	7.73	297.26	1,198.5	6.2	-31.6	26.8	2.00	1.60	9.28
1,240.0	8.40	300.40	1,238.1	8.9	-36.5	32.2	2.00	1.67	7.84
1,280.0	9.09	303.07	1,277.6	12.1	-41.7	38.1	2.00	1.72	6.68
1,320.0	9.79	305.36	1,317.1	15.8	-47.1	44.5	2.00	1.77	5.73
1,360.0	10.51	307.35	1,356.4	19.9	-52.8	51.5	2.00	1.80	4.96
1,400.0	11.24	309.08	1,395.7	24.6	-58.7	59.0	2.00	1.83	4.33
1,440.0	11.98	310.60	1,434.9	29.8	-64.9	67.0	2.00	1.85	3.80
1,480.0	12.73	311.95	1,474.0	35.4	-71.3	75.6	2.00	1.87	3.37
1,520.0	13.48	313.14	1,512.9	41.6	-78.0	84.6	2.00	1.88	3.00
1,560.0	14.24	314.22	1,551.8	48.2	-84.9	94.2	2.00	1.89	2.68
1,600.0	15.00	315.19	1,590.5	55.3	-92.1	104.3	2.00	1.90	2.42
1,640.0	15.77	316.06	1,629.0	62.9	-99.5	114.9	2.00	1.91	2.19
1,653.8	16.03	316.35	1,642.4	65.6	-102.1	118.7	2.00	1.92	2.05
1,680.0	16.03	316.35	1,667.5	70.8	-107.1	125.9	0.00	0.00	0.00
1,720.0	16.03	316.35	1,705.9	78.8	-114.7	137.0	0.00	0.00	0.00
1,760.0	16.03	316.35	1,744.4	86.8	-122.4	148.0	0.00	0.00	0.00
1,800.0	16.03	316.35	1,782.8	94.8	-130.0	159.1	0.00	0.00	0.00
1,840.0	16.03	316.35	1,821.3	102.8	-137.6	170.1	0.00	0.00	0.00
1,880.0	16.03	316.35	1,859.7	110.8	-145.2	181.1	0.00	0.00	0.00
1,920.0	16.03	316.35	1,898.2	118.8	-152.9	192.2	0.00	0.00	0.00
1,960.0	16.03	316.35	1,936.6	126.8	-160.5	203.2	0.00	0.00	0.00



Database: Landmark  
 Company: NOBLE ENERGY INC WELD COUNTY CO  
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 Wellbore: Wellbore #1  
 Design: Noble Alter C09-33D Plan #1 (8-04-11)

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 MD Reference: WELL @ 4714.0ft (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	16.03	316.35	1,975.1	134.8	-168.1	214.3	0.00	0.00	0.00
2,040.0	16.03	316.35	2,013.5	142.8	-175.7	225.3	0.00	0.00	0.00
2,080.0	16.03	316.35	2,051.9	150.8	-183.4	236.4	0.00	0.00	0.00
2,120.0	16.03	316.35	2,090.4	158.8	-191.0	247.4	0.00	0.00	0.00
2,160.0	16.03	316.35	2,128.8	166.7	-198.6	258.4	0.00	0.00	0.00
2,200.0	16.03	316.35	2,167.3	174.7	-206.2	269.5	0.00	0.00	0.00
2,240.0	16.03	316.35	2,205.7	182.7	-213.9	280.5	0.00	0.00	0.00
2,280.0	16.03	316.35	2,244.2	190.7	-221.5	291.6	0.00	0.00	0.00
2,320.0	16.03	316.35	2,282.6	198.7	-229.1	302.6	0.00	0.00	0.00
2,360.0	16.03	316.35	2,321.1	206.7	-236.7	313.7	0.00	0.00	0.00
2,400.0	16.03	316.35	2,359.5	214.7	-244.4	324.7	0.00	0.00	0.00
2,440.0	16.03	316.35	2,397.9	222.7	-252.0	335.7	0.00	0.00	0.00
2,480.0	16.03	316.35	2,436.4	230.7	-259.6	346.8	0.00	0.00	0.00
2,520.0	16.03	316.35	2,474.8	238.7	-267.2	357.8	0.00	0.00	0.00
2,560.0	16.03	316.35	2,513.3	246.7	-274.9	368.9	0.00	0.00	0.00
2,600.0	16.03	316.35	2,551.7	254.7	-282.5	379.9	0.00	0.00	0.00
2,640.0	16.03	316.35	2,590.2	262.7	-290.1	390.9	0.00	0.00	0.00
2,680.0	16.03	316.35	2,628.6	270.6	-297.7	402.0	0.00	0.00	0.00
2,720.0	16.03	316.35	2,667.1	278.6	-305.4	413.0	0.00	0.00	0.00
2,760.0	16.03	316.35	2,705.5	286.6	-313.0	424.1	0.00	0.00	0.00
2,800.0	16.03	316.35	2,743.9	294.6	-320.6	435.1	0.00	0.00	0.00
2,840.0	16.03	316.35	2,782.4	302.6	-328.2	446.2	0.00	0.00	0.00
2,880.0	16.03	316.35	2,820.8	310.6	-335.9	457.2	0.00	0.00	0.00
2,920.0	16.03	316.35	2,859.3	318.6	-343.5	468.2	0.00	0.00	0.00
2,960.0	16.03	316.35	2,897.7	326.6	-351.1	479.3	0.00	0.00	0.00
3,000.0	16.03	316.35	2,936.2	334.6	-358.7	490.3	0.00	0.00	0.00
3,040.0	16.03	316.35	2,974.6	342.6	-366.4	501.4	0.00	0.00	0.00
3,080.0	16.03	316.35	3,013.1	350.6	-374.0	512.4	0.00	0.00	0.00
3,120.0	16.03	316.35	3,051.5	358.6	-381.6	523.5	0.00	0.00	0.00
3,160.0	16.03	316.35	3,089.9	366.6	-389.2	534.5	0.00	0.00	0.00
3,200.0	16.03	316.35	3,128.4	374.5	-396.9	545.5	0.00	0.00	0.00
3,240.0	16.03	316.35	3,166.8	382.5	-404.5	556.6	0.00	0.00	0.00
3,280.0	16.03	316.35	3,205.3	390.5	-412.1	567.6	0.00	0.00	0.00
3,320.0	16.03	316.35	3,243.7	398.5	-419.8	578.7	0.00	0.00	0.00
3,360.0	16.03	316.35	3,282.2	406.5	-427.4	589.7	0.00	0.00	0.00
3,400.0	16.03	316.35	3,320.6	414.5	-435.0	600.8	0.00	0.00	0.00
3,440.0	16.03	316.35	3,359.1	422.5	-442.6	611.8	0.00	0.00	0.00
3,480.0	16.03	316.35	3,397.5	430.5	-450.3	622.8	0.00	0.00	0.00
3,520.0	16.03	316.35	3,435.9	438.5	-457.9	633.9	0.00	0.00	0.00
3,560.0	16.03	316.35	3,474.4	446.5	-465.5	644.9	0.00	0.00	0.00
3,600.0	16.03	316.35	3,512.8	454.5	-473.1	656.0	0.00	0.00	0.00
3,640.0	16.03	316.35	3,551.3	462.5	-480.8	667.0	0.00	0.00	0.00
3,680.0	16.03	316.35	3,589.7	470.5	-488.4	678.0	0.00	0.00	0.00
3,720.0	16.03	316.35	3,628.2	478.4	-496.0	689.1	0.00	0.00	0.00
3,760.0	16.03	316.35	3,666.6	486.4	-503.6	700.1	0.00	0.00	0.00
3,800.0	16.03	316.35	3,705.1	494.4	-511.3	711.2	0.00	0.00	0.00
3,840.0	16.03	316.35	3,743.5	502.4	-518.9	722.2	0.00	0.00	0.00
3,880.0	16.03	316.35	3,781.9	510.4	-526.5	733.3	0.00	0.00	0.00
3,920.0	16.03	316.35	3,820.4	518.4	-534.1	744.3	0.00	0.00	0.00
3,960.0	16.03	316.35	3,858.8	526.4	-541.8	755.3	0.00	0.00	0.00
4,000.0	16.03	316.35	3,897.3	534.4	-549.4	766.4	0.00	0.00	0.00
4,040.0	16.03	316.35	3,935.7	542.4	-557.0	777.4	0.00	0.00	0.00
4,080.0	16.03	316.35	3,974.2	550.4	-564.6	788.5	0.00	0.00	0.00
4,120.0	16.03	316.35	4,012.6	558.4	-572.3	799.5	0.00	0.00	0.00

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 TVD Reference: WELL @ 4714.0ft (Original Well Elev)  
 MD Reference: WELL @ 4714.0ft (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	16.03	316.35	4,051.1	566.4	-579.9	810.6	0.00	0.00	0.00
4,200.0	16.03	316.35	4,089.5	574.4	-587.5	821.6	0.00	0.00	0.00
4,240.0	16.03	316.35	4,127.9	582.3	-595.1	832.6	0.00	0.00	0.00
4,280.0	16.03	316.35	4,166.4	590.3	-602.8	843.7	0.00	0.00	0.00
4,320.0	16.03	316.35	4,204.8	598.3	-610.4	854.7	0.00	0.00	0.00
4,360.0	16.03	316.35	4,243.3	606.3	-618.0	865.8	0.00	0.00	0.00
4,400.0	16.03	316.35	4,281.7	614.3	-625.6	876.8	0.00	0.00	0.00
4,440.0	16.03	316.35	4,320.2	622.3	-633.3	887.9	0.00	0.00	0.00
4,480.0	16.03	316.35	4,358.6	630.3	-640.9	898.9	0.00	0.00	0.00
4,520.0	16.03	316.35	4,397.1	638.3	-648.5	909.9	0.00	0.00	0.00
4,532.3	16.03	316.35	4,408.8	640.7	-650.9	913.3	0.00	0.00	0.00
4,560.0	15.48	316.35	4,435.5	646.2	-656.1	920.8	2.00	-2.00	0.00
4,600.0	14.68	316.35	4,474.2	653.7	-663.2	931.3	2.00	-2.00	0.00
4,640.0	13.88	316.35	4,512.9	660.9	-670.0	941.1	2.00	-2.00	0.00
4,680.0	13.08	316.35	4,551.8	667.6	-676.5	950.4	2.00	-2.00	0.00
4,720.0	12.28	316.35	4,590.8	674.0	-682.5	959.2	2.00	-2.00	0.00
4,760.0	11.48	316.35	4,630.0	679.9	-688.2	967.4	2.00	-2.00	0.00
4,800.0	10.68	316.35	4,669.2	685.5	-693.5	975.1	2.00	-2.00	0.00
4,840.0	9.88	316.35	4,708.6	690.6	-698.5	982.2	2.00	-2.00	0.00
4,880.0	9.08	316.35	4,748.1	695.4	-703.0	988.8	2.00	-2.00	0.00
4,920.0	8.28	316.35	4,787.6	699.8	-707.2	994.9	2.00	-2.00	0.00
4,960.0	7.48	316.35	4,827.2	703.7	-711.0	1,000.3	2.00	-2.00	0.00
5,000.0	6.68	316.35	4,866.9	707.3	-714.4	1,005.3	2.00	-2.00	0.00
5,040.0	5.88	316.35	4,906.7	710.5	-717.4	1,009.6	2.00	-2.00	0.00
5,080.0	5.08	316.35	4,946.5	713.2	-720.0	1,013.5	2.00	-2.00	0.00
5,120.0	4.28	316.35	4,986.4	715.6	-722.3	1,016.7	2.00	-2.00	0.00
5,160.0	3.48	316.35	5,026.3	717.5	-724.1	1,019.4	2.00	-2.00	0.00
5,200.0	2.68	316.35	5,066.2	719.1	-725.6	1,021.6	2.00	-2.00	0.00
5,240.0	1.88	316.35	5,106.2	720.2	-726.7	1,023.2	2.00	-2.00	0.00
5,280.0	1.08	316.35	5,146.2	721.0	-727.4	1,024.2	2.00	-2.00	0.00
5,320.0	0.28	316.35	5,186.2	721.3	-727.7	1,024.7	2.00	-2.00	0.00
5,333.8	0.00	0.00	5,200.0	721.4	-727.8	1,024.7	2.00	-2.00	0.00
TARGET BHL 1320'FSL, 75'FEL									
5,360.0	0.00	0.00	5,226.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
5,400.0	0.00	0.00	5,266.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
5,440.0	0.00	0.00	5,306.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
5,480.0	0.00	0.00	5,346.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
5,520.0	0.00	0.00	5,386.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
5,560.0	0.00	0.00	5,426.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
5,600.0	0.00	0.00	5,466.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
5,640.0	0.00	0.00	5,506.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
5,680.0	0.00	0.00	5,546.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
5,720.0	0.00	0.00	5,586.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
5,760.0	0.00	0.00	5,626.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
5,800.0	0.00	0.00	5,666.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
5,840.0	0.00	0.00	5,706.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
5,880.0	0.00	0.00	5,746.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
5,920.0	0.00	0.00	5,786.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
5,960.0	0.00	0.00	5,826.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,000.0	0.00	0.00	5,866.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,040.0	0.00	0.00	5,906.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,080.0	0.00	0.00	5,946.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,120.0	0.00	0.00	5,986.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,160.0	0.00	0.00	6,026.2	721.4	-727.8	1,024.7	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 C09-33D  
 Wellbore: Wellbore #1  
 Design: Noble Alter C09-33D Plan #1 (8-04-11)

Local Co-ordinate Reference: Well Alter C09-33D  
 TVD Reference: WELL @ 4714.0ft (Original Well Elev)  
 MD Reference: WELL @ 4714.0ft (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	6,066.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,240.0	0.00	0.00	6,106.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,280.0	0.00	0.00	6,146.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,320.0	0.00	0.00	6,186.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,360.0	0.00	0.00	6,226.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,400.0	0.00	0.00	6,266.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,440.0	0.00	0.00	6,306.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,480.0	0.00	0.00	6,346.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,520.0	0.00	0.00	6,386.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,560.0	0.00	0.00	6,426.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,600.0	0.00	0.00	6,466.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,640.0	0.00	0.00	6,506.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,680.0	0.00	0.00	6,546.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,720.0	0.00	0.00	6,586.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,722.8	0.00	0.00	6,589.0	721.4	-727.8	1,024.7	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 1320'FSL & 75'FEL									
6,760.0	0.00	0.00	6,626.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,800.0	0.00	0.00	6,666.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,840.0	0.00	0.00	6,706.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,880.0	0.00	0.00	6,746.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,920.0	0.00	0.00	6,786.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
6,960.0	0.00	0.00	6,826.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
7,000.0	0.00	0.00	6,866.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
7,032.8	0.00	0.00	6,899.0	721.4	-727.8	1,024.7	0.00	0.00	0.00
CODELL									
7,040.0	0.00	0.00	6,906.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
7,080.0	0.00	0.00	6,946.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
7,120.0	0.00	0.00	6,986.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
7,160.0	0.00	0.00	7,026.2	721.4	-727.8	1,024.7	0.00	0.00	0.00
7,182.8	0.00	0.00	7,049.0	721.4	-727.8	1,024.7	0.00	0.00	0.00
HARD LINES 75'E OF BHL									

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 CIRCLE 1320'FSL - plan hits target center - Circle (radius 75.0)	0.00	0.00	6,589.0	721.4	-727.8	1,361,992.56	3,260,610.54	40.323300	-104.565310
HARD LINES 75'E OF BHL - plan misses target center by 125.0ft at 7182.8ft MD (7049.0 TVD, 721.4 N, -727.8 E) - Polygon	0.00	0.00	7,049.0	621.3	-652.8	1,361,893.32	3,260,686.56	40.323025	-104.565041
Point 1			7,049.0	0.0	0.0	1,361,893.32	3,260,686.56		
Point 2			7,049.0	200.0	0.0	1,362,093.30	3,260,684.44		
TARGET BHL 1320'F - plan hits target center - Point	0.00	0.00	5,200.0	721.4	-727.8	1,361,992.56	3,260,610.54	40.323300	-104.565310

**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 C09-33D  
**Wellbore:** Wellbore #1  
**Design:** Noble Alter C09-33D Plan #1 (8-04-11)

**Local Co-ordinate Reference:** Well Alter C09-33D  
**TVD Reference:** WELL @ 4714.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4714.0ft (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 (°)
6,722.8	6,589.0	NIOBRARA		0.00	
7,032.8	6,899.0	CODELL		0.00	