

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	850.0	0.00	0.00	850.0	0.0	0.0	0.00	0.00	0.0	
3	2089.7	24.79	46.11	2051.4	183.1	190.3	2.00	46.11	264.1	
4	5115.9	24.79	46.11	4798.6	1062.9	1104.9	0.00	0.00	1533.2	
5	6355.6	0.00	0.00	6000.0	1246.0	1295.2	2.00	180.00	1797.2	TARGET BHL 1950°FSL, 660°FEL
6	7598.6	0.00	0.00	7243.0	1246.0	1295.2	0.00	0.00	1797.2	



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.29-T7N-R64W**

**Heinze USX AB29-09D Pad Sec.29-T7N-R64W**

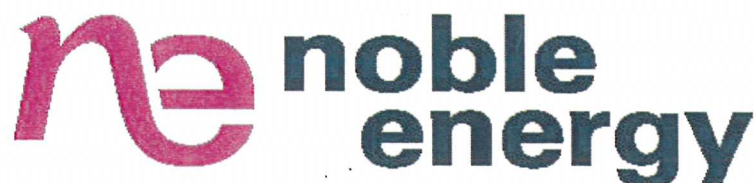
**Heinze USX AB29-09D**

**Wellbore #1**

**Plan: Plan #1 (3-14-11)**

## **Standard Planning Report**

**15 March, 2011**



**Database:** Landmark  
**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.29-T7N-R64W  
**Site:** Heinze USX AB29-09D Pad  
 Sec.29-T7N-R64W  
**Well:** Heinze USX AB29-09D  
**Wellbore:** Wellbore #1  
**Design:** Plan #1 (3-14-11)

**Local Co-ordinate Reference:** Well Heinze USX AB29-09D  
**TVD Reference:** WELL @ 4823.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4823.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

<b>Project</b>	SEC.29-T7N-R64W		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site	Heinze USX AB29-09D Pad Sec.29-T7N-R64W				
Site Position:		Northing:	1,440,366.91 ft	Latitude:	40.538500
From:	Lat/Long	Easting:	3,258,016.59ft	Longitude:	-104.571670
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.60 °

Well	Heinze USX AB29-09D					
Well Position	+N/-S	0.0 ft	Northing:	1,440,366.90 ft	Latitude:	40.538500
	+E/-W	0.0 ft	Easting:	3,258,016.59 ft	Longitude:	-104.571670
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,810.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	3/14/2011	8.81	67.20	53,252

**Design** Plan #1 (3-14-11)

**Audit Notes:**

**Version:** Phase: PROTOTYPE Tie On Depth: 0.0

<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	46.11

**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	
850.0	0.00	0.00	850.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,089.7	24.79	46.11	2,051.4	183.1	190.3	2.00	2.00	0.00	46.11	
5,115.9	24.79	46.11	4,798.6	1,062.9	1,104.9	0.00	0.00	0.00	0.00	
6,355.6	0.00	0.00	6,000.0	1,246.0	1,295.2	2.00	-2.00	0.00	180.00	TARGET BHL 195C
7,598.6	0.00	0.00	7,243.0	1,246.0	1,295.2	0.00	0.00	0.00	0.00	



Database: Landmark  
 Company: NOBLE ENERGY INC WELD COUNTY CO  
 Project: SEC.29-T7N-R64W  
 Site: Heinze USX AB29-09D Pad  
 Sec.29-T7N-R64W  
 Well: Heinze USX AB29-09D  
 Wellbore: Wellbore #1  
 Design: Plan #1 (3-14-11)

Local Co-ordinate Reference: Well Heinze USX AB29-09D  
 TVD Reference: WELL @ 4823.0ft (Original Well Elev)  
 MD Reference: WELL @ 4823.0ft (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
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
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
850.0	0.00	0.00	850.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.60	46.11	880.0	0.1	0.1	0.2	2.00	2.00	0.00
920.0	1.40	46.11	920.0	0.6	0.6	0.9	2.00	2.00	0.00
960.0	2.20	46.11	960.0	1.5	1.5	2.1	2.00	2.00	0.00
1,000.0	3.00	46.11	999.9	2.7	2.8	3.9	2.00	2.00	0.00
1,040.0	3.80	46.11	1,039.9	4.4	4.5	6.3	2.00	2.00	0.00
1,080.0	4.60	46.11	1,079.8	6.4	6.7	9.2	2.00	2.00	0.00
1,120.0	5.40	46.11	1,119.6	8.8	9.2	12.7	2.00	2.00	0.00
1,160.0	6.20	46.11	1,159.4	11.6	12.1	16.8	2.00	2.00	0.00
1,200.0	7.00	46.11	1,199.1	14.8	15.4	21.4	2.00	2.00	0.00
1,240.0	7.80	46.11	1,238.8	18.4	19.1	26.5	2.00	2.00	0.00
1,280.0	8.60	46.11	1,278.4	22.3	23.2	32.2	2.00	2.00	0.00
1,320.0	9.40	46.11	1,317.9	26.7	27.7	38.5	2.00	2.00	0.00
1,360.0	10.20	46.11	1,357.3	31.4	32.6	45.3	2.00	2.00	0.00
1,400.0	11.00	46.11	1,396.6	36.5	37.9	52.6	2.00	2.00	0.00
1,440.0	11.80	46.11	1,435.8	42.0	43.6	60.5	2.00	2.00	0.00
1,480.0	12.60	46.11	1,474.9	47.8	49.7	69.0	2.00	2.00	0.00
1,520.0	13.40	46.11	1,513.9	54.1	56.2	78.0	2.00	2.00	0.00
1,560.0	14.20	46.11	1,552.8	60.7	63.1	87.5	2.00	2.00	0.00
1,600.0	15.00	46.11	1,591.5	67.7	70.3	97.6	2.00	2.00	0.00
1,640.0	15.80	46.11	1,630.0	75.0	78.0	108.2	2.00	2.00	0.00
1,680.0	16.60	46.11	1,668.4	82.8	86.0	119.4	2.00	2.00	0.00
1,720.0	17.40	46.11	1,706.7	90.9	94.5	131.1	2.00	2.00	0.00
1,760.0	18.20	46.11	1,744.8	99.4	103.3	143.3	2.00	2.00	0.00
1,800.0	19.00	46.11	1,782.7	108.2	112.5	156.1	2.00	2.00	0.00
1,840.0	19.80	46.11	1,820.4	117.4	122.1	169.4	2.00	2.00	0.00
1,880.0	20.60	46.11	1,858.0	127.0	132.0	183.2	2.00	2.00	0.00
1,920.0	21.40	46.11	1,895.3	136.9	142.3	197.5	2.00	2.00	0.00
1,960.0	22.20	46.11	1,932.4	147.2	153.0	212.4	2.00	2.00	0.00

Database: Landmark  
 Company: NOBLE ENERGY INC WELD COUNTY CO  
 Project: SEC.29-T7N-R64W  
 Site: Heinze USX AB29-09D Pad  
 Sec.29-T7N-R64W  
 Well: Heinze USX AB29-09D  
 Wellbore: Wellbore #1  
 Design: Plan #1 (3-14-11)

Local Co-ordinate Reference: Well Heinze USX AB29-09D  
 TVD Reference: WELL @ 4823.0ft (Original Well Elev)  
 MD Reference: WELL @ 4823.0ft (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	23.00	46.11	1,969.4	157.9	164.1	227.7	2.00	2.00	0.00
2,040.0	23.80	46.11	2,006.1	168.9	175.6	243.6	2.00	2.00	0.00
2,080.0	24.60	46.11	2,042.6	180.3	187.4	260.0	2.00	2.00	0.00
2,089.7	24.79	46.11	2,051.4	183.1	190.3	264.1	2.00	2.00	0.00
2,120.0	24.79	46.11	2,078.9	191.9	199.5	276.8	0.00	0.00	0.00
2,160.0	24.79	46.11	2,115.2	203.5	211.5	293.6	0.00	0.00	0.00
2,200.0	24.79	46.11	2,151.5	215.1	223.6	310.3	0.00	0.00	0.00
2,240.0	24.79	46.11	2,187.8	226.8	235.7	327.1	0.00	0.00	0.00
2,280.0	24.79	46.11	2,224.1	238.4	247.8	343.9	0.00	0.00	0.00
2,320.0	24.79	46.11	2,260.4	250.0	259.9	360.7	0.00	0.00	0.00
2,360.0	24.79	46.11	2,296.8	261.7	272.0	377.4	0.00	0.00	0.00
2,400.0	24.79	46.11	2,333.1	273.3	284.1	394.2	0.00	0.00	0.00
2,440.0	24.79	46.11	2,369.4	284.9	296.2	411.0	0.00	0.00	0.00
2,480.0	24.79	46.11	2,405.7	296.6	308.3	427.8	0.00	0.00	0.00
2,520.0	24.79	46.11	2,442.0	308.2	320.3	444.5	0.00	0.00	0.00
2,560.0	24.79	46.11	2,478.3	319.8	332.4	461.3	0.00	0.00	0.00
2,600.0	24.79	46.11	2,514.6	331.4	344.5	478.1	0.00	0.00	0.00
2,640.0	24.79	46.11	2,550.9	343.1	356.6	494.8	0.00	0.00	0.00
2,680.0	24.79	46.11	2,587.3	354.7	368.7	511.6	0.00	0.00	0.00
2,720.0	24.79	46.11	2,623.6	366.3	380.8	528.4	0.00	0.00	0.00
2,760.0	24.79	46.11	2,659.9	378.0	392.9	545.2	0.00	0.00	0.00
2,800.0	24.79	46.11	2,696.2	389.6	405.0	561.9	0.00	0.00	0.00
2,840.0	24.79	46.11	2,732.5	401.2	417.1	578.7	0.00	0.00	0.00
2,880.0	24.79	46.11	2,768.8	412.9	429.1	595.5	0.00	0.00	0.00
2,920.0	24.79	46.11	2,805.1	424.5	441.2	612.3	0.00	0.00	0.00
2,960.0	24.79	46.11	2,841.4	436.1	453.3	629.0	0.00	0.00	0.00
3,000.0	24.79	46.11	2,877.8	447.7	465.4	645.8	0.00	0.00	0.00
3,040.0	24.79	46.11	2,914.1	459.4	477.5	662.6	0.00	0.00	0.00
3,080.0	24.79	46.11	2,950.4	471.0	489.6	679.4	0.00	0.00	0.00
3,120.0	24.79	46.11	2,986.7	482.6	501.7	696.1	0.00	0.00	0.00
3,160.0	24.79	46.11	3,023.0	494.3	513.8	712.9	0.00	0.00	0.00
3,200.0	24.79	46.11	3,059.3	505.9	525.9	729.7	0.00	0.00	0.00
3,240.0	24.79	46.11	3,095.6	517.5	537.9	746.5	0.00	0.00	0.00
3,280.0	24.79	46.11	3,131.9	529.2	550.0	763.2	0.00	0.00	0.00
3,320.0	24.79	46.11	3,168.3	540.8	562.1	780.0	0.00	0.00	0.00
3,360.0	24.79	46.11	3,204.6	552.4	574.2	796.8	0.00	0.00	0.00
3,400.0	24.79	46.11	3,240.9	564.0	586.3	813.6	0.00	0.00	0.00
3,440.0	24.79	46.11	3,277.2	575.7	598.4	830.3	0.00	0.00	0.00
3,480.0	24.79	46.11	3,313.5	587.3	610.5	847.1	0.00	0.00	0.00
3,520.0	24.79	46.11	3,349.8	598.9	622.6	863.9	0.00	0.00	0.00
3,560.0	24.79	46.11	3,386.1	610.6	634.7	880.7	0.00	0.00	0.00
3,600.0	24.79	46.11	3,422.4	622.2	646.7	897.4	0.00	0.00	0.00
3,640.0	24.79	46.11	3,458.8	633.8	658.8	914.2	0.00	0.00	0.00
3,680.0	24.79	46.11	3,495.1	645.5	670.9	931.0	0.00	0.00	0.00
3,720.0	24.79	46.11	3,531.4	657.1	683.0	947.8	0.00	0.00	0.00
3,760.0	24.79	46.11	3,567.7	668.7	695.1	964.5	0.00	0.00	0.00
3,800.0	24.79	46.11	3,604.0	680.3	707.2	981.3	0.00	0.00	0.00
3,840.0	24.79	46.11	3,640.3	692.0	719.3	998.1	0.00	0.00	0.00
3,880.0	24.79	46.11	3,676.6	703.6	731.4	1,014.9	0.00	0.00	0.00
3,920.0	24.79	46.11	3,712.9	715.2	743.5	1,031.6	0.00	0.00	0.00
3,960.0	24.79	46.11	3,749.3	726.9	755.5	1,048.4	0.00	0.00	0.00
4,000.0	24.79	46.11	3,785.6	738.5	767.6	1,065.2	0.00	0.00	0.00
4,040.0	24.79	46.11	3,821.9	750.1	779.7	1,082.0	0.00	0.00	0.00



Database: Landmark  
 Company: NOBLE ENERGY INC WELD COUNTY CO  
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Local Co-ordinate Reference: Well Heinze USX AB29-09D  
 TVD Reference: WELL @ 4823.0ft (Original Well Elev)  
 MD Reference: WELL @ 4823.0ft (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)
4,080.0	24.79	46.11	3,858.2	761.8	791.8	1,098.7	0.00	0.00	0.00
4,120.0	24.79	46.11	3,894.5	773.4	803.9	1,115.5	0.00	0.00	0.00
4,160.0	24.79	46.11	3,930.8	785.0	816.0	1,132.3	0.00	0.00	0.00
4,200.0	24.79	46.11	3,967.1	796.6	828.1	1,149.1	0.00	0.00	0.00
4,240.0	24.79	46.11	4,003.4	808.3	840.2	1,165.8	0.00	0.00	0.00
4,280.0	24.79	46.11	4,039.8	819.9	852.2	1,182.6	0.00	0.00	0.00
4,320.0	24.79	46.11	4,076.1	831.5	864.3	1,199.4	0.00	0.00	0.00
4,360.0	24.79	46.11	4,112.4	843.2	876.4	1,216.2	0.00	0.00	0.00
4,400.0	24.79	46.11	4,148.7	854.8	888.5	1,232.9	0.00	0.00	0.00
4,440.0	24.79	46.11	4,185.0	866.4	900.6	1,249.7	0.00	0.00	0.00
4,480.0	24.79	46.11	4,221.3	878.1	912.7	1,266.5	0.00	0.00	0.00
4,520.0	24.79	46.11	4,257.6	889.7	924.8	1,283.3	0.00	0.00	0.00
4,560.0	24.79	46.11	4,294.0	901.3	936.9	1,300.0	0.00	0.00	0.00
4,600.0	24.79	46.11	4,330.3	912.9	949.0	1,316.8	0.00	0.00	0.00
4,640.0	24.79	46.11	4,366.6	924.6	961.0	1,333.6	0.00	0.00	0.00
4,680.0	24.79	46.11	4,402.9	936.2	973.1	1,350.4	0.00	0.00	0.00
4,720.0	24.79	46.11	4,439.2	947.8	985.2	1,367.1	0.00	0.00	0.00
4,760.0	24.79	46.11	4,475.5	959.5	997.3	1,383.9	0.00	0.00	0.00
4,800.0	24.79	46.11	4,511.8	971.1	1,009.4	1,400.7	0.00	0.00	0.00
4,840.0	24.79	46.11	4,548.1	982.7	1,021.5	1,417.5	0.00	0.00	0.00
4,880.0	24.79	46.11	4,584.5	994.3	1,033.6	1,434.2	0.00	0.00	0.00
4,920.0	24.79	46.11	4,620.8	1,006.0	1,045.7	1,451.0	0.00	0.00	0.00
4,960.0	24.79	46.11	4,657.1	1,017.6	1,057.8	1,467.8	0.00	0.00	0.00
5,000.0	24.79	46.11	4,693.4	1,029.2	1,069.8	1,484.6	0.00	0.00	0.00
5,040.0	24.79	46.11	4,729.7	1,040.9	1,081.9	1,501.3	0.00	0.00	0.00
5,080.0	24.79	46.11	4,766.0	1,052.5	1,094.0	1,518.1	0.00	0.00	0.00
5,115.9	24.79	46.11	4,798.6	1,062.9	1,104.9	1,533.2	0.00	0.00	0.00
5,120.0	24.71	46.11	4,802.3	1,064.1	1,106.1	1,534.9	2.00	-2.00	0.00
5,160.0	23.91	46.11	4,838.8	1,075.5	1,118.0	1,551.3	2.00	-2.00	0.00
5,200.0	23.11	46.11	4,875.5	1,086.6	1,129.5	1,567.3	2.00	-2.00	0.00
5,240.0	22.31	46.11	4,912.4	1,097.3	1,140.6	1,582.7	2.00	-2.00	0.00
5,280.0	21.51	46.11	4,949.5	1,107.7	1,151.4	1,597.7	2.00	-2.00	0.00
5,320.0	20.71	46.11	4,986.8	1,117.7	1,161.7	1,612.1	2.00	-2.00	0.00
5,360.0	19.91	46.11	5,024.3	1,127.3	1,171.8	1,626.0	2.00	-2.00	0.00
5,400.0	19.11	46.11	5,062.0	1,136.5	1,181.4	1,639.3	2.00	-2.00	0.00
5,440.0	18.31	46.11	5,099.9	1,145.4	1,190.6	1,652.2	2.00	-2.00	0.00
5,480.0	17.51	46.11	5,137.9	1,154.0	1,199.5	1,664.5	2.00	-2.00	0.00
5,520.0	16.71	46.11	5,176.2	1,162.1	1,208.0	1,676.2	2.00	-2.00	0.00
5,560.0	15.91	46.11	5,214.6	1,169.9	1,216.1	1,687.5	2.00	-2.00	0.00
5,600.0	15.11	46.11	5,253.1	1,177.3	1,223.8	1,698.2	2.00	-2.00	0.00
5,640.0	14.31	46.11	5,291.8	1,184.4	1,231.1	1,708.3	2.00	-2.00	0.00
5,680.0	13.51	46.11	5,330.6	1,191.0	1,238.0	1,717.9	2.00	-2.00	0.00
5,720.0	12.71	46.11	5,369.6	1,197.3	1,244.6	1,727.0	2.00	-2.00	0.00
5,760.0	11.91	46.11	5,408.7	1,203.2	1,250.7	1,735.5	2.00	-2.00	0.00
5,800.0	11.11	46.11	5,447.8	1,208.8	1,256.5	1,743.5	2.00	-2.00	0.00
5,840.0	10.31	46.11	5,487.2	1,213.9	1,261.8	1,751.0	2.00	-2.00	0.00
5,880.0	9.51	46.11	5,526.6	1,218.7	1,266.8	1,757.8	2.00	-2.00	0.00
5,920.0	8.71	46.11	5,566.0	1,223.1	1,271.4	1,764.2	2.00	-2.00	0.00
5,960.0	7.91	46.11	5,605.6	1,227.1	1,275.5	1,770.0	2.00	-2.00	0.00
6,000.0	7.11	46.11	5,645.3	1,230.7	1,279.3	1,775.2	2.00	-2.00	0.00
6,040.0	6.31	46.11	5,685.0	1,234.0	1,282.7	1,779.9	2.00	-2.00	0.00
6,080.0	5.51	46.11	5,724.8	1,236.8	1,285.6	1,784.0	2.00	-2.00	0.00
6,120.0	4.71	46.11	5,764.6	1,239.3	1,288.2	1,787.6	2.00	-2.00	0.00

Database: Landmark  
 Company: NOBLE ENERGY INC WELD COUNTY CO  
 Project: SEC.29-T7N-R64W  
 Site: Heinze USX AB29-09D Pad  
 Sec.29-T7N-R64W  
 Well: Heinze USX AB29-09D  
 Wellbore: Wellbore #1  
 Design: Plan #1 (3-14-11)

Local Co-ordinate Reference: Well Heinze USX AB29-09D  
 TVD Reference: WELL @ 4823.0ft (Original Well Elev)  
 MD Reference: WELL @ 4823.0ft (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)
6,160.0	3.91	46.11	5,804.5	1,241.4	1,290.4	1,790.6	2.00	-2.00	0.00
6,200.0	3.11	46.11	5,844.4	1,243.1	1,292.1	1,793.0	2.00	-2.00	0.00
6,240.0	2.31	46.11	5,884.4	1,244.4	1,293.5	1,794.9	2.00	-2.00	0.00
6,280.0	1.51	46.11	5,924.4	1,245.3	1,294.5	1,796.2	2.00	-2.00	0.00
6,320.0	0.71	46.11	5,964.4	1,245.9	1,295.0	1,797.0	2.00	-2.00	0.00
6,355.6	0.00	0.00	6,000.0	1,246.0	1,295.2	1,797.2	2.00	-2.00	-129.42
<b>TARGET BHL 1950'FSL, 660'FEL</b>									
6,360.0	0.00	0.00	6,004.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
6,400.0	0.00	0.00	6,044.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
6,440.0	0.00	0.00	6,084.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
6,480.0	0.00	0.00	6,124.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
6,520.0	0.00	0.00	6,164.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
6,560.0	0.00	0.00	6,204.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
6,600.0	0.00	0.00	6,244.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
6,640.0	0.00	0.00	6,284.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
6,680.0	0.00	0.00	6,324.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
6,720.0	0.00	0.00	6,364.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
6,760.0	0.00	0.00	6,404.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
6,800.0	0.00	0.00	6,444.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
6,840.0	0.00	0.00	6,484.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
6,880.0	0.00	0.00	6,524.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
6,920.0	0.00	0.00	6,564.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
6,960.0	0.00	0.00	6,604.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,000.0	0.00	0.00	6,644.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,040.0	0.00	0.00	6,684.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,080.0	0.00	0.00	6,724.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,120.0	0.00	0.00	6,764.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,142.6	0.00	0.00	6,787.0	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
<b>NIORARA - TARGET CIRCLE 1950'FSL, 660'FEL - LEGAL BOX 400' X 400' 1988'FSL &amp; 648'FEL</b>									
7,160.0	0.00	0.00	6,804.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,200.0	0.00	0.00	6,844.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,240.0	0.00	0.00	6,884.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,280.0	0.00	0.00	6,924.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,320.0	0.00	0.00	6,964.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,360.0	0.00	0.00	7,004.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,400.0	0.00	0.00	7,044.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,440.0	0.00	0.00	7,084.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,448.6	0.00	0.00	7,093.0	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
<b>CODELL</b>									
7,480.0	0.00	0.00	7,124.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,520.0	0.00	0.00	7,164.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,560.0	0.00	0.00	7,204.4	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00
7,598.6	0.00	0.00	7,243.0	1,246.0	1,295.2	1,797.2	0.00	0.00	0.00



**Database:** Landmark  
**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.29-T7N-R64W  
**Site:** Heinze USX AB29-09D Pad  
 Sec.29-T7N-R64W  
**Well:** Heinze USX AB29-09D  
**Wellbore:** Wellbore #1  
**Design:** Plan #1 (3-14-11)

**Local Co-ordinate Reference:** Well Heinze USX AB29-09D  
**TVD Reference:** WELL @ 4823.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4823.0ft (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 CIRCLE 19'	0.00	0.00	6,787.0	1,246.0	1,295.2	1,441,626.38	3,259,298.61	40.541920	-104.567010
- plan hits target center									
- Circle (radius 75.0)									
TARGET BHL 1950'	0.00	0.00	6,000.0	1,246.0	1,295.2	1,441,626.38	3,259,298.61	40.541920	-104.567010
- plan hits target center									
- Point									
LEGAL BOX 400' X 40'	0.00	0.00	6,787.0	1,284.0	1,307.2	1,441,664.48	3,259,310.23	40.542024	-104.566967
- plan misses target center by 39.8ft at 7142.6ft MD (6787.0 TVD, 1246.0 N, 1295.2 E)									
- Rectangle (sides W400.0 H400.0 D456.0)									

#### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
750.0	750.0	8 5/8"	8-5/8	12-1/4

#### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,142.6	6,787.0	NIOBRARA		0.00	
7,448.6	7,093.0	CODELL		0.00	