

# ENSIGN

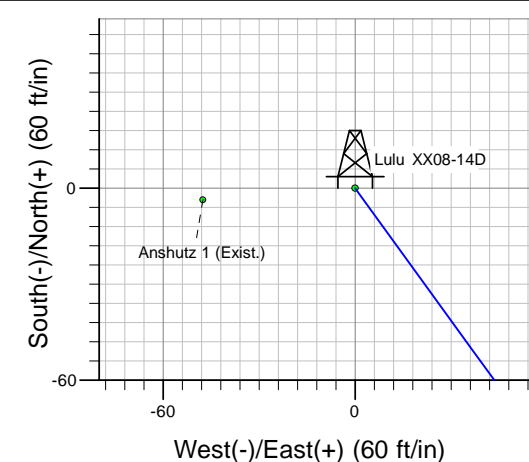
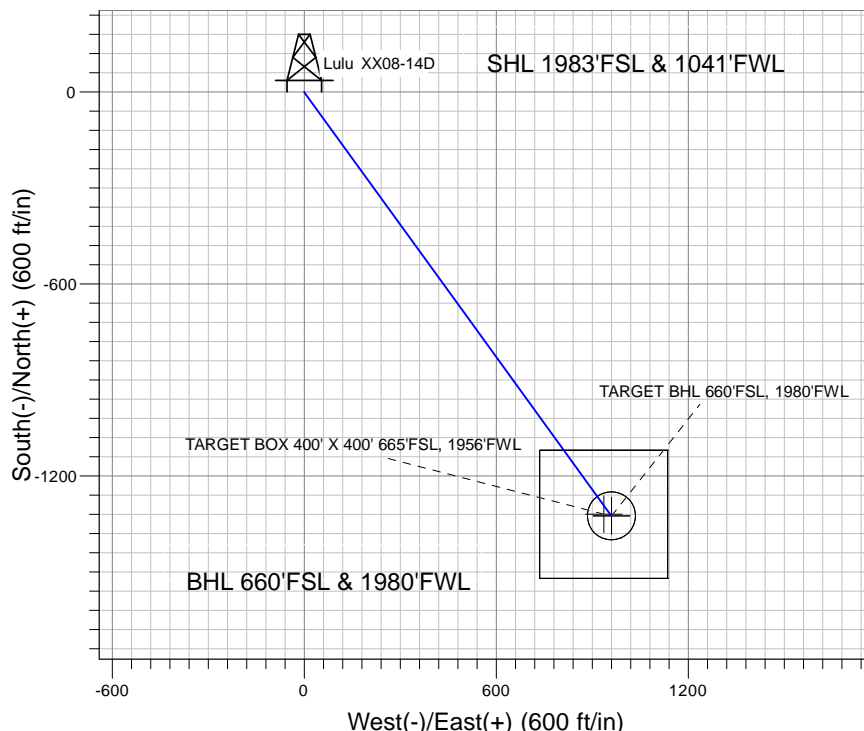
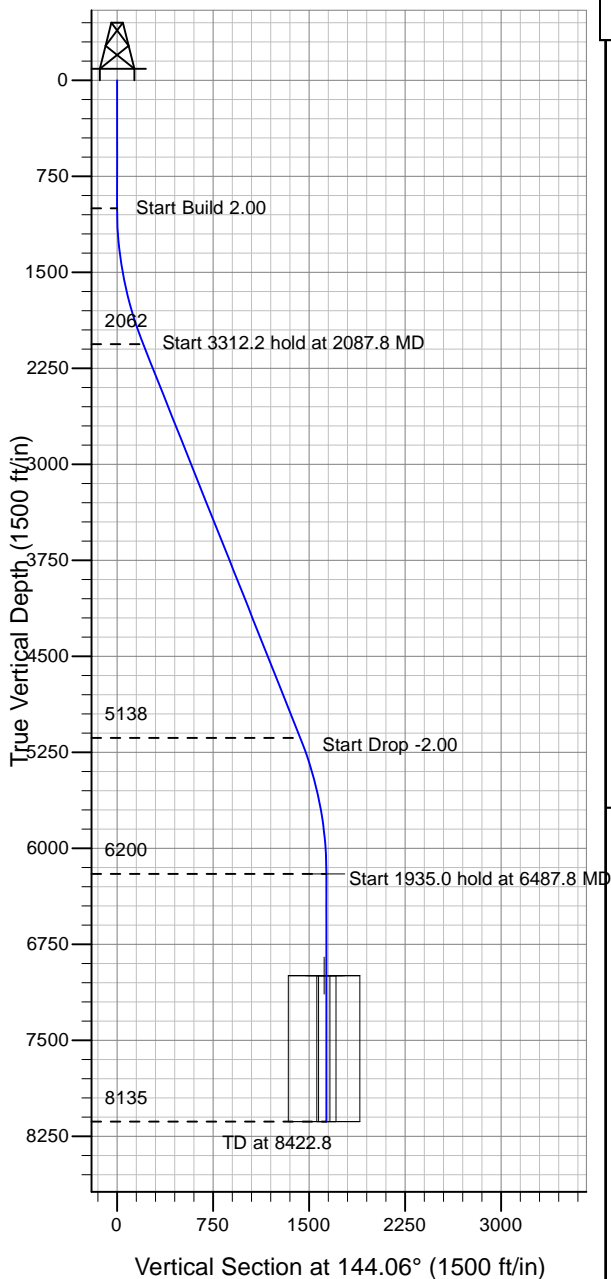
## Directional

### Well Name: Lulu XX08-14D

Surface Location: Lulu XX08-14D Pad Sec.8-T1N-T65W  
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
 Ground Elevation: 4962.0

+N/-S+E/-W Northing Easting Latitude Longitude Slot  
 0.0 0.0 1267259.94 3225744.85 40° 3' 51.120 N 104° 41' 36.384 W  
 Original Well Elev WELL @ 4975.0ft (Original Well Elev)

## NOBLE ENERGY INC WELD COUNTY CO



Lulu XX08-14D Pad Sec.8-T1N-T65W  
 Lulu XX08-14D  
 Noble Lulu XX08-14D Plan #1 (4-23-10)  
 15:16, April 23 2010



Azimuths to True North  
 Magnetic North: 8.95°

Magnetic Field  
 Strength: 53082.0nT  
 Dip Angle: 66.83°  
 Date: 4/23/2010  
 Model: IGRF2010

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 660'FSL, 1980'FWL	6200.0	-1324.4	960.1	40° 3' 38.032 N	104° 41' 24.036 W	Point
TARGET BOX 400' X 400' 665'FSL, 1956'FWL	6995.0	-1319.4	936.1	40° 3' 38.081 N	104° 41' 24.345 W	Rectangle (Sides: L400.0 W400.0)
TARGET CIRCLE 660'FSL, 1980'FWL	6995.0	-1324.4	960.1	40° 3' 38.032 N	104° 41' 24.036 W	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	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	2087.8	21.76	144.06	2061.9	-165.2	119.8	2.00	144.06	204.1	
4	5400.0	21.76	144.06	5138.1	-1159.2	840.4	0.00	0.00	1431.8	
5	6487.8	0.00	0.00	6200.0	-1324.4	960.1	2.00	180.00	1635.8	TARGET BHL 660'FSL, 1980'FWL
6	8422.8	0.00	0.00	8135.0	-1324.4	960.1	0.00	0.00	1635.8	



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC. 8-T1N-R65W**

**Lulu XX08-14D Pad Sec.8-T1N-T65W**

**Lulu XX08-14D**

**Wellbore #1**

**Plan: Noble Lulu XX08-14D Plan #1 (4-23-10)**

## **Standard Planning Report**

**23 April, 2010**



<b>Database:</b>	EDM den0-adp01 Server Data	<b>Local Co-ordinate Reference:</b>	Well Lulu XX08-14D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Project:</b>	SEC. 8-T1N-R65W	<b>MD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Site:</b>	Lulu XX08-14D Pad Sec.8-T1N-T65W	<b>North Reference:</b>	True
<b>Well:</b>	Lulu XX08-14D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Lulu XX08-14D Plan #1 (4-23-10)		

<b>Project</b>	SEC. 8-T1N-R65W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site		Lulu XX08-14D Pad Sec.8-T1N-T65W			
Site Position:		Northing:	1,267,259.95 ft	Latitude:	40° 3' 51.120 N
From:	Lat/Long	Easting:	3,225,744.85 ft	Longitude:	104° 41' 36.384 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.52 °

Well	Lulu XX08-14D					
Well Position	+N-S	0.0 ft	Northing:	1,267,259.94 ft	Latitude:	40° 3' 51.120 N
	+E-W	0.0 ft	Easting:	3,225,744.85 ft	Longitude:	104° 41' 36.384 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,962.0 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	4/23/2010	8.95	66.83	53,082

<b>Design</b>	Noble Lulu XX08-14D Plan #1 (4-23-10)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	144.06

<b>Plan Sections</b>										
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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,087.8	21.76	144.06	2,061.9	-165.2	119.8	2.00	2.00	0.00	144.06	
5,400.0	21.76	144.06	5,138.1	-1,159.2	840.4	0.00	0.00	0.00	0.00	
6,487.8	0.00	0.00	6,200.0	-1,324.4	960.1	2.00	-2.00	0.00	180.00	TARGET BHL 660'I
8,422.8	0.00	0.00	8,135.0	-1,324.4	960.1	0.00	0.00	0.00	0.00	

<b>Database:</b>	EDM den0-adp01 Server Data	<b>Local Co-ordinate Reference:</b>	Well Lulu XX08-14D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Project:</b>	SEC. 8-T1N-R65W	<b>MD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Site:</b>	Lulu XX08-14D Pad Sec.8-T1N-T65W	<b>North Reference:</b>	True
<b>Well:</b>	Lulu XX08-14D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Lulu XX08-14D Plan #1 (4-23-10)		

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
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	0.80	144.06	1,040.0	-0.2	0.2	0.3	2.00	2.00	0.00
1,080.0	1.60	144.06	1,080.0	-0.9	0.7	1.1	2.00	2.00	0.00
1,120.0	2.40	144.06	1,120.0	-2.0	1.5	2.5	2.00	2.00	0.00
1,160.0	3.20	144.06	1,159.9	-3.6	2.6	4.5	2.00	2.00	0.00
1,200.0	4.00	144.06	1,199.8	-5.6	4.1	7.0	2.00	2.00	0.00
1,240.0	4.80	144.06	1,239.7	-8.1	5.9	10.0	2.00	2.00	0.00
1,280.0	5.60	144.06	1,279.6	-11.1	8.0	13.7	2.00	2.00	0.00
1,320.0	6.40	144.06	1,319.3	-14.5	10.5	17.9	2.00	2.00	0.00
1,360.0	7.20	144.06	1,359.1	-18.3	13.3	22.6	2.00	2.00	0.00
1,400.0	8.00	144.06	1,398.7	-22.6	16.4	27.9	2.00	2.00	0.00
1,440.0	8.80	144.06	1,438.3	-27.3	19.8	33.7	2.00	2.00	0.00
1,480.0	9.60	144.06	1,477.8	-32.5	23.5	40.1	2.00	2.00	0.00
1,520.0	10.40	144.06	1,517.1	-38.1	27.6	47.1	2.00	2.00	0.00
1,560.0	11.20	144.06	1,556.4	-44.2	32.0	54.6	2.00	2.00	0.00
1,600.0	12.00	144.06	1,595.6	-50.7	36.7	62.6	2.00	2.00	0.00
1,640.0	12.80	144.06	1,634.7	-57.6	41.8	71.2	2.00	2.00	0.00
1,680.0	13.60	144.06	1,673.6	-65.0	47.1	80.3	2.00	2.00	0.00
1,720.0	14.40	144.06	1,712.4	-72.9	52.8	90.0	2.00	2.00	0.00
1,760.0	15.20	144.06	1,751.1	-81.1	58.8	100.2	2.00	2.00	0.00
1,800.0	16.00	144.06	1,789.6	-89.9	65.1	111.0	2.00	2.00	0.00
1,840.0	16.80	144.06	1,828.0	-99.0	71.8	122.3	2.00	2.00	0.00
1,880.0	17.60	144.06	1,866.2	-108.6	78.7	134.1	2.00	2.00	0.00
1,920.0	18.40	144.06	1,904.3	-118.6	86.0	146.5	2.00	2.00	0.00
1,960.0	19.20	144.06	1,942.1	-129.0	93.5	159.3	2.00	2.00	0.00
2,000.0	20.00	144.06	1,979.8	-139.9	101.4	172.8	2.00	2.00	0.00
2,040.0	20.80	144.06	2,017.3	-151.2	109.6	186.7	2.00	2.00	0.00
2,080.0	21.60	144.06	2,054.6	-162.9	118.1	201.2	2.00	2.00	0.00
2,087.8	21.76	144.06	2,061.9	-165.2	119.8	204.1	2.00	2.00	0.00

<b>Database:</b>	EDM den0-adp01 Server Data	<b>Local Co-ordinate Reference:</b>	Well Lulu XX08-14D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Project:</b>	SEC. 8-T1N-R65W	<b>MD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Site:</b>	Lulu XX08-14D Pad Sec.8-T1N-T65W	<b>North Reference:</b>	True
<b>Well:</b>	Lulu XX08-14D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Lulu XX08-14D Plan #1 (4-23-10)		

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)
2,120.0	21.76	144.06	2,091.8	-174.9	126.8	216.0	0.00	0.00	0.00
2,160.0	21.76	144.06	2,128.9	-186.9	135.5	230.8	0.00	0.00	0.00
2,200.0	21.76	144.06	2,166.1	-198.9	144.2	245.6	0.00	0.00	0.00
2,240.0	21.76	144.06	2,203.2	-210.9	152.9	260.5	0.00	0.00	0.00
2,280.0	21.76	144.06	2,240.4	-222.9	161.6	275.3	0.00	0.00	0.00
2,320.0	21.76	144.06	2,277.5	-234.9	170.3	290.1	0.00	0.00	0.00
2,360.0	21.76	144.06	2,314.7	-246.9	179.0	304.9	0.00	0.00	0.00
2,400.0	21.76	144.06	2,351.8	-258.9	187.7	319.8	0.00	0.00	0.00
2,440.0	21.76	144.06	2,389.0	-270.9	196.4	334.6	0.00	0.00	0.00
2,480.0	21.76	144.06	2,426.1	-282.9	205.1	349.4	0.00	0.00	0.00
2,520.0	21.76	144.06	2,463.3	-294.9	213.8	364.3	0.00	0.00	0.00
2,560.0	21.76	144.06	2,500.4	-306.9	222.5	379.1	0.00	0.00	0.00
2,600.0	21.76	144.06	2,537.6	-318.9	231.2	393.9	0.00	0.00	0.00
2,640.0	21.76	144.06	2,574.7	-330.9	239.9	408.7	0.00	0.00	0.00
2,680.0	21.76	144.06	2,611.9	-342.9	248.6	423.6	0.00	0.00	0.00
2,720.0	21.76	144.06	2,649.0	-354.9	257.3	438.4	0.00	0.00	0.00
2,760.0	21.76	144.06	2,686.2	-366.9	266.0	453.2	0.00	0.00	0.00
2,800.0	21.76	144.06	2,723.3	-378.9	274.7	468.0	0.00	0.00	0.00
2,840.0	21.76	144.06	2,760.5	-390.9	283.4	482.9	0.00	0.00	0.00
2,880.0	21.76	144.06	2,797.6	-402.9	292.1	497.7	0.00	0.00	0.00
2,920.0	21.76	144.06	2,834.8	-415.0	300.8	512.5	0.00	0.00	0.00
2,960.0	21.76	144.06	2,871.9	-427.0	309.5	527.3	0.00	0.00	0.00
3,000.0	21.76	144.06	2,909.1	-439.0	318.2	542.2	0.00	0.00	0.00
3,040.0	21.76	144.06	2,946.2	-451.0	326.9	557.0	0.00	0.00	0.00
3,080.0	21.76	144.06	2,983.4	-463.0	335.6	571.8	0.00	0.00	0.00
3,120.0	21.76	144.06	3,020.5	-475.0	344.3	586.6	0.00	0.00	0.00
3,160.0	21.76	144.06	3,057.7	-487.0	353.0	601.5	0.00	0.00	0.00
3,200.0	21.76	144.06	3,094.8	-499.0	361.7	616.3	0.00	0.00	0.00
3,240.0	21.76	144.06	3,132.0	-511.0	370.4	631.1	0.00	0.00	0.00
3,280.0	21.76	144.06	3,169.1	-523.0	379.1	646.0	0.00	0.00	0.00
3,320.0	21.76	144.06	3,206.3	-535.0	387.8	660.8	0.00	0.00	0.00
3,360.0	21.76	144.06	3,243.4	-547.0	396.5	675.6	0.00	0.00	0.00
3,400.0	21.76	144.06	3,280.6	-559.0	405.2	690.4	0.00	0.00	0.00
3,440.0	21.76	144.06	3,317.7	-571.0	413.9	705.3	0.00	0.00	0.00
3,480.0	21.76	144.06	3,354.9	-583.0	422.6	720.1	0.00	0.00	0.00
3,520.0	21.76	144.06	3,392.0	-595.0	431.3	734.9	0.00	0.00	0.00
3,560.0	21.76	144.06	3,429.2	-607.0	440.1	749.7	0.00	0.00	0.00
3,600.0	21.76	144.06	3,466.3	-619.0	448.8	764.6	0.00	0.00	0.00
3,640.0	21.76	144.06	3,503.5	-631.0	457.5	779.4	0.00	0.00	0.00
3,680.0	21.76	144.06	3,540.6	-643.0	466.2	794.2	0.00	0.00	0.00
3,720.0	21.76	144.06	3,577.8	-655.0	474.9	809.0	0.00	0.00	0.00
3,760.0	21.76	144.06	3,614.9	-667.0	483.6	823.9	0.00	0.00	0.00
3,800.0	21.76	144.06	3,652.1	-679.0	492.3	838.7	0.00	0.00	0.00
3,840.0	21.76	144.06	3,689.2	-691.0	501.0	853.5	0.00	0.00	0.00
3,880.0	21.76	144.06	3,726.4	-703.0	509.7	868.3	0.00	0.00	0.00
3,920.0	21.76	144.06	3,763.5	-715.0	518.4	883.2	0.00	0.00	0.00
3,960.0	21.76	144.06	3,800.7	-727.1	527.1	898.0	0.00	0.00	0.00
4,000.0	21.76	144.06	3,837.8	-739.1	535.8	912.8	0.00	0.00	0.00
4,040.0	21.76	144.06	3,875.0	-751.1	544.5	927.7	0.00	0.00	0.00
4,080.0	21.76	144.06	3,912.1	-763.1	553.2	942.5	0.00	0.00	0.00
4,120.0	21.76	144.06	3,949.3	-775.1	561.9	957.3	0.00	0.00	0.00
4,160.0	21.76	144.06	3,986.4	-787.1	570.6	972.1	0.00	0.00	0.00
4,200.0	21.76	144.06	4,023.6	-799.1	579.3	987.0	0.00	0.00	0.00
4,240.0	21.76	144.06	4,060.7	-811.1	588.0	1,001.8	0.00	0.00	0.00

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<b>Project:</b>	SEC. 8-T1N-R65W	<b>MD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Site:</b>	Lulu XX08-14D Pad Sec.8-T1N-T65W	<b>North Reference:</b>	True
<b>Well:</b>	Lulu XX08-14D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Lulu XX08-14D Plan #1 (4-23-10)		

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)
4,280.0	21.76	144.06	4,097.9	-823.1	596.7	1,016.6	0.00	0.00	0.00
4,320.0	21.76	144.06	4,135.0	-835.1	605.4	1,031.4	0.00	0.00	0.00
4,360.0	21.76	144.06	4,172.2	-847.1	614.1	1,046.3	0.00	0.00	0.00
4,400.0	21.76	144.06	4,209.3	-859.1	622.8	1,061.1	0.00	0.00	0.00
4,440.0	21.76	144.06	4,246.5	-871.1	631.5	1,075.9	0.00	0.00	0.00
4,480.0	21.76	144.06	4,283.6	-883.1	640.2	1,090.7	0.00	0.00	0.00
4,520.0	21.76	144.06	4,320.8	-895.1	648.9	1,105.6	0.00	0.00	0.00
4,560.0	21.76	144.06	4,358.0	-907.1	657.6	1,120.4	0.00	0.00	0.00
4,600.0	21.76	144.06	4,395.1	-919.1	666.3	1,135.2	0.00	0.00	0.00
4,640.0	21.76	144.06	4,432.3	-931.1	675.0	1,150.0	0.00	0.00	0.00
4,680.0	21.76	144.06	4,469.4	-943.1	683.7	1,164.9	0.00	0.00	0.00
4,720.0	21.76	144.06	4,506.6	-955.1	692.4	1,179.7	0.00	0.00	0.00
4,760.0	21.76	144.06	4,543.7	-967.1	701.1	1,194.5	0.00	0.00	0.00
4,800.0	21.76	144.06	4,580.9	-979.1	709.8	1,209.4	0.00	0.00	0.00
4,840.0	21.76	144.06	4,618.0	-991.1	718.5	1,224.2	0.00	0.00	0.00
4,880.0	21.76	144.06	4,655.2	-1,003.1	727.2	1,239.0	0.00	0.00	0.00
4,920.0	21.76	144.06	4,692.3	-1,015.1	735.9	1,253.8	0.00	0.00	0.00
4,960.0	21.76	144.06	4,729.5	-1,027.1	744.6	1,268.7	0.00	0.00	0.00
5,000.0	21.76	144.06	4,766.6	-1,039.2	753.3	1,283.5	0.00	0.00	0.00
5,040.0	21.76	144.06	4,803.8	-1,051.2	762.0	1,298.3	0.00	0.00	0.00
5,080.0	21.76	144.06	4,840.9	-1,063.2	770.7	1,313.1	0.00	0.00	0.00
5,120.0	21.76	144.06	4,878.1	-1,075.2	779.4	1,328.0	0.00	0.00	0.00
5,160.0	21.76	144.06	4,915.2	-1,087.2	788.1	1,342.8	0.00	0.00	0.00
5,200.0	21.76	144.06	4,952.4	-1,099.2	796.8	1,357.6	0.00	0.00	0.00
5,240.0	21.76	144.06	4,989.5	-1,111.2	805.5	1,372.4	0.00	0.00	0.00
5,280.0	21.76	144.06	5,026.7	-1,123.2	814.2	1,387.3	0.00	0.00	0.00
5,320.0	21.76	144.06	5,063.8	-1,135.2	822.9	1,402.1	0.00	0.00	0.00
5,360.0	21.76	144.06	5,101.0	-1,147.2	831.6	1,416.9	0.00	0.00	0.00
5,400.0	21.76	144.06	5,138.1	-1,159.2	840.4	1,431.8	0.00	0.00	0.00
5,440.0	20.96	144.06	5,175.4	-1,171.0	848.9	1,446.3	2.00	-2.00	0.00
5,480.0	20.16	144.06	5,212.8	-1,182.4	857.1	1,460.4	2.00	-2.00	0.00
5,520.0	19.36	144.06	5,250.5	-1,193.3	865.1	1,473.9	2.00	-2.00	0.00
5,560.0	18.56	144.06	5,288.3	-1,203.8	872.7	1,486.9	2.00	-2.00	0.00
5,600.0	17.76	144.06	5,326.3	-1,213.9	880.0	1,499.3	2.00	-2.00	0.00
5,640.0	16.96	144.06	5,364.5	-1,223.6	887.0	1,511.3	2.00	-2.00	0.00
5,680.0	16.16	144.06	5,402.8	-1,232.8	893.7	1,522.7	2.00	-2.00	0.00
5,720.0	15.36	144.06	5,441.3	-1,241.6	900.1	1,533.5	2.00	-2.00	0.00
5,760.0	14.56	144.06	5,480.0	-1,250.0	906.1	1,543.9	2.00	-2.00	0.00
5,800.0	13.76	144.06	5,518.8	-1,257.9	911.9	1,553.6	2.00	-2.00	0.00
5,840.0	12.96	144.06	5,557.7	-1,265.4	917.3	1,562.9	2.00	-2.00	0.00
5,880.0	12.16	144.06	5,596.7	-1,272.4	922.4	1,571.6	2.00	-2.00	0.00
5,920.0	11.36	144.06	5,635.9	-1,279.0	927.2	1,579.7	2.00	-2.00	0.00
5,960.0	10.56	144.06	5,675.1	-1,285.2	931.7	1,587.3	2.00	-2.00	0.00
6,000.0	9.76	144.06	5,714.5	-1,290.9	935.8	1,594.4	2.00	-2.00	0.00
6,040.0	8.96	144.06	5,754.0	-1,296.1	939.6	1,600.9	2.00	-2.00	0.00
6,080.0	8.16	144.06	5,793.5	-1,300.9	943.1	1,606.8	2.00	-2.00	0.00
6,120.0	7.36	144.06	5,833.2	-1,305.3	946.3	1,612.2	2.00	-2.00	0.00
6,160.0	6.56	144.06	5,872.9	-1,309.2	949.1	1,617.1	2.00	-2.00	0.00
6,200.0	5.76	144.06	5,912.6	-1,312.7	951.6	1,621.4	2.00	-2.00	0.00
6,240.0	4.96	144.06	5,952.5	-1,315.7	953.8	1,625.1	2.00	-2.00	0.00
6,280.0	4.16	144.06	5,992.3	-1,318.3	955.7	1,628.3	2.00	-2.00	0.00
6,320.0	3.36	144.06	6,032.3	-1,320.4	957.2	1,630.9	2.00	-2.00	0.00
6,360.0	2.56	144.06	6,072.2	-1,322.1	958.5	1,633.0	2.00	-2.00	0.00
6,400.0	1.76	144.06	6,112.2	-1,323.3	959.3	1,634.5	2.00	-2.00	0.00

<b>Database:</b>	EDM den0-adp01 Server Data	<b>Local Co-ordinate Reference:</b>	Well Lulu XX08-14D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Project:</b>	SEC. 8-T1N-R65W	<b>MD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Site:</b>	Lulu XX08-14D Pad Sec.8-T1N-T65W	<b>North Reference:</b>	True
<b>Well:</b>	Lulu XX08-14D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Lulu XX08-14D Plan #1 (4-23-10)		

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)
6,440.0	0.96	144.06	6,152.2	-1,324.1	959.9	1,635.4	2.00	-2.00	0.00
6,480.0	0.16	144.06	6,192.2	-1,324.4	960.1	1,635.8	2.00	-2.00	0.00
6,487.8	0.00	0.00	6,200.0	-1,324.4	960.1	1,635.8	2.00	-2.00	0.00
<b>TARGET BHL 660'FSL, 1980'FWL</b>									
6,520.0	0.00	0.00	6,232.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
6,560.0	0.00	0.00	6,272.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
6,600.0	0.00	0.00	6,312.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
6,640.0	0.00	0.00	6,352.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
6,680.0	0.00	0.00	6,392.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
6,720.0	0.00	0.00	6,432.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
6,760.0	0.00	0.00	6,472.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
6,800.0	0.00	0.00	6,512.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
6,840.0	0.00	0.00	6,552.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
6,880.0	0.00	0.00	6,592.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
6,920.0	0.00	0.00	6,632.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
6,960.0	0.00	0.00	6,672.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,000.0	0.00	0.00	6,712.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,040.0	0.00	0.00	6,752.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,080.0	0.00	0.00	6,792.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,120.0	0.00	0.00	6,832.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,160.0	0.00	0.00	6,872.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,200.0	0.00	0.00	6,912.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,240.0	0.00	0.00	6,952.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,280.0	0.00	0.00	6,992.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,282.8	0.00	0.00	6,995.0	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
<b>NIOBRARA - TARGET CIRCLE 660'FSL, 1980'FWL - TARGET BOX 400' X 400' 665'FSL, 1956'FWL</b>									
7,320.0	0.00	0.00	7,032.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,360.0	0.00	0.00	7,072.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,400.0	0.00	0.00	7,112.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,440.0	0.00	0.00	7,152.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,480.0	0.00	0.00	7,192.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,520.0	0.00	0.00	7,232.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,560.0	0.00	0.00	7,272.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,600.0	0.00	0.00	7,312.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,632.8	0.00	0.00	7,345.0	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
<b>CODELL</b>									
7,640.0	0.00	0.00	7,352.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,680.0	0.00	0.00	7,392.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,720.0	0.00	0.00	7,432.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,760.0	0.00	0.00	7,472.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,800.0	0.00	0.00	7,512.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,840.0	0.00	0.00	7,552.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,880.0	0.00	0.00	7,592.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,920.0	0.00	0.00	7,632.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
7,960.0	0.00	0.00	7,672.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
8,000.0	0.00	0.00	7,712.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
8,012.8	0.00	0.00	7,725.0	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
<b>D-SAND</b>									
8,040.0	0.00	0.00	7,752.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
8,080.0	0.00	0.00	7,792.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
8,112.8	0.00	0.00	7,825.0	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
<b>J-SAND</b>									
8,120.0	0.00	0.00	7,832.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00



<b>Database:</b>	EDM den0-adp01 Server Data	<b>Local Co-ordinate Reference:</b>	Well Lulu XX08-14D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Project:</b>	SEC. 8-T1N-R65W	<b>MD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Site:</b>	Lulu XX08-14D Pad Sec.8-T1N-T65W	<b>North Reference:</b>	True
<b>Well:</b>	Lulu XX08-14D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Lulu XX08-14D Plan #1 (4-23-10)		

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)
8,160.0	0.00	0.00	7,872.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
8,200.0	0.00	0.00	7,912.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
8,240.0	0.00	0.00	7,952.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
8,272.8	0.00	0.00	7,985.0	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
<b>DAKOTA</b>									
8,280.0	0.00	0.00	7,992.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
8,320.0	0.00	0.00	8,032.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
8,360.0	0.00	0.00	8,072.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
8,400.0	0.00	0.00	8,112.2	-1,324.4	960.1	1,635.8	0.00	0.00	0.00
8,422.8	0.00	0.00	8,135.0	-1,324.4	960.1	1,635.8	0.00	0.00	0.00

Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	
	- Shape								Latitude Longitude
TARGET CIRCLE 66'	- plan hits target center	0.00	0.00	6,995.0	-1,324.4	960.1	1,265,944.38	3,226,716.92	40° 3' 38.032 N 104° 41' 24.036 W
	- Circle (radius 75.0)								
TARGET BHL 660'FS	- plan hits target center	0.00	0.00	6,200.0	-1,324.4	960.1	1,265,944.37	3,226,716.94	40° 3' 38.032 N 104° 41' 24.036 W
	- Point								
TARGET BOX 400' X	- plan misses target center by 24.5ft at 7282.8ft MD (6995.0 TVD, -1324.4 N, 960.1 E)	0.00	0.00	6,995.0	-1,319.4	936.1	1,265,949.17	3,226,692.88	40° 3' 38.081 N 104° 41' 24.345 W
	- Rectangle (sides W400.0 H400.0 D1,140.0)								

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
7,282.8	6,995.0	NIOBRARA		0.00		
7,632.8	7,345.0	CODELL		0.00		
8,012.8	7,725.0	D-SAND		0.00		
8,112.8	7,825.0	J-SAND		0.00		
8,272.8	7,985.0	DAKOTA		0.00		





# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC. 8-T1N-R65W**

**Lulu XX08-14D Pad Sec.8-T1N-T65W**

**Lulu XX08-14D**

**Wellbore #1**

**Noble Lulu XX08-14D Plan #1 (4-23-10)**

## **Anticollision Report**

**23 April, 2010**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Lulu XX08-14D
<b>Project:</b>	SEC. 8-T1N-R65W	<b>TVD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Reference Site:</b>	Lulu XX08-14D Pad Sec.8-T1N-T65W	<b>MD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Lulu XX08-14D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM den0-adp01 Server Data
<b>Reference Design:</b>	Noble Lulu XX08-14D Plan #1 (4-23-10)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Noble Lulu XX08-14D Plan #1 (4-23-		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.0ft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 2,000.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b> 4/23/2010			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	8,422.8	Noble Lulu XX08-14D Plan #1 (4-23-10) \ MWD		MWD - Standard

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (ft)</b>	<b>Offset Measured Depth (ft)</b>	<b>Distance Between Centres (ft)</b>	<b>Distance Between Ellipses (ft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
Lulu XX08-14D Pad Sec.8-T1N-T65W						
Anshutz 1 (Exist.) - Wellbore #1 - Design #1	1,000.0	1,000.0	47.7	43.5	11.252 CC, ES	
Anshutz 1 (Exist.) - Wellbore #1 - Design #1	1,200.0	1,199.8	51.7	46.7	10.205 SF	

<b>Offset Design</b> Lulu XX08-14D Pad Sec.8-T1N-T65W - Anshutz 1 (Exist.) - Wellbore #1 - Design #1												
Survey Program: 0-MWD												
<b>Reference</b>		<b>Offset</b>		<b>Semi Major Axis</b>		<b>Distance</b>						
<b>Measured Depth (ft)</b>	<b>Vertical Depth (ft)</b>	<b>Measured Depth (ft)</b>	<b>Vertical Depth (ft)</b>	<b>Reference (ft)</b>	<b>Offset (ft)</b>	<b>Highside Toolface (°)</b>	<b>Offset Wellbore Centre +N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Between Centres (ft)</b>	<b>Between Ellipses (ft)</b>	<b>Minimum Separation (ft)</b>	<b>Separation Factor</b>
0.0	0.0	0.0	0.0	0.0	0.0	-94.38	-3.6	-47.6	47.7			
100.0	100.0	100.0	100.0	0.1	0.1	-94.38	-3.6	-47.6	47.7	47.5	0.20	244.046
200.0	200.0	200.0	200.0	0.3	0.3	-94.38	-3.6	-47.6	47.7	47.1	0.65	73.979
300.0	300.0	300.0	300.0	0.5	0.5	-94.38	-3.6	-47.6	47.7	46.6	1.09	43.598
400.0	400.0	400.0	400.0	0.8	0.8	-94.38	-3.6	-47.6	47.7	46.2	1.54	30.905
500.0	500.0	500.0	500.0	1.0	1.0	-94.38	-3.6	-47.6	47.7	45.7	1.99	23.937
600.0	600.0	600.0	600.0	1.2	1.2	-94.38	-3.6	-47.6	47.7	45.3	2.44	19.533
700.0	700.0	700.0	700.0	1.4	1.4	-94.38	-3.6	-47.6	47.7	44.8	2.89	16.497
800.0	800.0	800.0	800.0	1.7	1.7	-94.38	-3.6	-47.6	47.7	44.4	3.34	14.278
900.0	900.0	900.0	900.0	1.9	1.9	-94.38	-3.6	-47.6	47.7	43.9	3.79	12.586
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-94.38	-3.6	-47.6	47.7	43.5	4.24	11.252 CC, ES
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	123.30	-3.6	-47.6	48.7	44.0	4.66	10.432
1,200.0	1,199.8	1,199.8	1,199.8	2.5	2.6	128.10	-3.6	-47.6	51.7	46.7	5.07	10.205 SF
1,300.0	1,299.5	1,299.5	1,299.5	2.7	2.8	134.85	-3.6	-47.6	57.5	52.0	5.48	10.499
1,400.0	1,398.7	1,398.7	1,398.7	2.9	3.0	142.16	-3.6	-47.6	66.7	60.8	5.89	11.317
1,500.0	1,497.5	1,497.5	1,497.5	3.2	3.2	148.92	-3.6	-47.6	79.7	73.4	6.31	12.629
1,600.0	1,595.6	1,595.6	1,595.6	3.5	3.5	154.61	-3.6	-47.6	96.6	89.8	6.72	14.369
1,700.0	1,693.1	1,693.1	1,693.1	3.8	3.7	159.16	-3.6	-47.6	117.3	110.2	7.13	16.462
1,800.0	1,789.6	1,789.6	1,789.6	4.3	3.9	162.72	-3.6	-47.6	141.9	134.4	7.53	18.837
1,900.0	1,885.3	1,885.3	1,885.3	4.7	4.1	165.49	-3.6	-47.6	170.1	162.2	7.94	21.438
2,000.0	1,979.8	1,979.8	1,979.8	5.3	4.3	167.66	-3.6	-47.6	201.9	193.5	8.34	24.219
2,100.0	2,073.2	2,073.2	2,073.2	5.9	4.5	169.38	-3.6	-47.6	237.1	228.3	8.74	27.115
2,200.0	2,166.1	2,166.1	2,166.1	6.6	4.7	170.81	-3.6	-47.6	273.7	264.4	9.22	29.689
2,300.0	2,258.9	2,258.9	2,258.9	7.3	5.0	171.90	-3.6	-47.6	310.4	300.7	9.70	31.995
2,400.0	2,351.8	2,351.8	2,351.8	8.0	5.2	172.76	-3.6	-47.6	347.1	337.0	10.19	34.066

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Lulu XX08-14D
<b>Project:</b>	SEC. 8-T1N-R65W	<b>TVD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Reference Site:</b>	Lulu XX08-14D Pad Sec.8-T1N-T65W	<b>MD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Lulu XX08-14D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM den0-adp01 Server Data
<b>Reference Design:</b>	Noble Lulu XX08-14D Plan #1 (4-23-10)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Lulu XX08-14D Pad Sec.8-T1N-T65W - Anshutz 1 (Exist.) - Wellbore #1 - Design #1												<b>Offset Site Error:</b>	0.0ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.0ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,500.0	2,444.7	2,444.7	2,444.7	8.7	5.4	173.46	-3.6	-47.6	384.0	373.3	10.69	35.933	
2,600.0	2,537.6	2,537.6	2,537.6	9.4	5.6	174.03	-3.6	-47.6	420.9	409.7	11.19	37.621	
2,700.0	2,630.4	2,630.4	2,630.4	10.2	5.8	174.52	-3.6	-47.6	457.8	446.1	11.69	39.152	
2,800.0	2,723.3	2,723.3	2,723.3	10.9	6.0	174.93	-3.6	-47.6	494.7	482.5	12.20	40.547	
2,900.0	2,816.2	2,816.2	2,816.2	11.7	6.2	175.28	-3.6	-47.6	531.6	518.9	12.71	41.820	
3,000.0	2,909.1	2,909.1	2,909.1	12.4	6.4	175.59	-3.6	-47.6	568.6	555.4	13.23	42.987	
3,100.0	3,001.9	3,001.9	3,001.9	13.2	6.6	175.86	-3.6	-47.6	605.6	591.8	13.74	44.060	
3,200.0	3,094.8	3,094.8	3,094.8	13.9	6.8	176.09	-3.6	-47.6	642.6	628.3	14.26	45.049	
3,300.0	3,187.7	3,187.7	3,187.7	14.7	7.0	176.31	-3.6	-47.6	679.6	664.8	14.79	45.963	
3,400.0	3,280.6	3,280.6	3,280.6	15.5	7.2	176.50	-3.6	-47.6	716.6	701.3	15.31	46.809	
3,500.0	3,373.5	3,373.5	3,373.5	16.2	7.5	176.67	-3.6	-47.6	753.6	737.7	15.83	47.596	
3,600.0	3,466.3	3,466.3	3,466.3	17.0	7.7	176.83	-3.6	-47.6	790.6	774.2	16.36	48.328	
3,700.0	3,559.2	3,559.2	3,559.2	17.7	7.9	176.97	-3.6	-47.6	827.6	810.7	16.89	49.012	
3,800.0	3,652.1	3,652.1	3,652.1	18.5	8.1	177.10	-3.6	-47.6	864.6	847.2	17.41	49.650	
3,900.0	3,745.0	3,745.0	3,745.0	19.3	8.3	177.22	-3.6	-47.6	901.7	883.7	17.94	50.249	
4,000.0	3,837.8	3,837.8	3,837.8	20.0	8.5	177.33	-3.6	-47.6	938.7	920.2	18.47	50.810	
4,100.0	3,930.7	3,930.7	3,930.7	20.8	8.7	177.43	-3.6	-47.6	975.7	956.7	19.01	51.338	
4,200.0	4,023.6	4,023.6	4,023.6	21.6	8.9	177.52	-3.6	-47.6	1,012.8	993.2	19.54	51.836	
4,300.0	4,116.5	4,116.5	4,116.5	22.4	9.1	177.61	-3.6	-47.6	1,049.8	1,029.7	20.07	52.304	
4,400.0	4,209.3	4,209.3	4,209.3	23.1	9.3	177.69	-3.6	-47.6	1,086.8	1,066.2	20.60	52.747	
4,500.0	4,302.2	4,302.2	4,302.2	23.9	9.5	177.77	-3.6	-47.6	1,123.9	1,102.7	21.14	53.166	
4,600.0	4,395.1	4,395.1	4,395.1	24.7	9.8	177.84	-3.6	-47.6	1,160.9	1,139.2	21.67	53.563	
4,700.0	4,488.0	4,488.0	4,488.0	25.4	10.0	177.91	-3.6	-47.6	1,198.0	1,175.7	22.21	53.939	
4,800.0	4,580.9	4,580.9	4,580.9	26.2	10.2	177.97	-3.6	-47.6	1,235.0	1,212.3	22.75	54.297	
4,900.0	4,673.7	4,673.7	4,673.7	27.0	10.4	178.03	-3.6	-47.6	1,272.0	1,248.8	23.28	54.636	
5,000.0	4,766.6	4,766.6	4,766.6	27.8	10.6	178.08	-3.6	-47.6	1,309.1	1,285.3	23.82	54.959	
5,100.0	4,859.5	4,859.5	4,859.5	28.5	10.8	178.14	-3.6	-47.6	1,346.1	1,321.8	24.36	55.267	
5,200.0	4,952.4	4,952.4	4,952.4	29.3	11.0	178.19	-3.6	-47.6	1,383.2	1,358.3	24.90	55.561	
5,300.0	5,045.2	5,045.2	5,045.2	30.1	11.2	178.23	-3.6	-47.6	1,420.2	1,394.8	25.43	55.841	
5,400.0	5,138.1	5,138.1	5,138.1	30.8	11.4	178.28	-3.6	-47.6	1,457.3	1,431.3	25.97	56.109	
5,500.0	5,231.6	5,231.6	5,231.6	31.5	11.6	178.34	-3.6	-47.6	1,492.7	1,466.1	26.63	56.059	
5,600.0	5,326.3	5,326.3	5,326.3	32.0	11.8	178.40	-3.6	-47.6	1,524.9	1,497.6	27.23	55.994	
5,700.0	5,422.1	5,422.1	5,422.1	32.5	12.1	178.44	-3.6	-47.6	1,553.7	1,525.9	27.80	55.887	
5,800.0	5,518.8	5,518.8	5,518.8	32.9	12.3	178.48	-3.6	-47.6	1,579.1	1,550.8	28.33	55.743	
5,900.0	5,616.3	5,616.3	5,616.3	33.3	12.5	178.51	-3.6	-47.6	1,601.2	1,572.4	28.82	55.564	
6,000.0	5,714.5	5,714.5	5,714.5	33.6	12.7	178.54	-3.6	-47.6	1,619.9	1,590.6	29.26	55.354	
6,100.0	5,813.3	5,813.3	5,813.3	33.9	12.9	178.56	-3.6	-47.6	1,635.1	1,605.4	29.67	55.114	
6,200.0	5,912.6	5,912.6	5,912.6	34.1	13.2	178.58	-3.6	-47.6	1,646.9	1,616.8	30.03	54.845	
6,300.0	6,012.3	6,012.3	6,012.3	34.3	13.4	178.59	-3.6	-47.6	1,655.1	1,624.8	30.34	54.548	
6,400.0	6,112.2	6,112.2	6,112.2	34.4	13.6	178.60	-3.6	-47.6	1,660.0	1,629.3	30.61	54.224	
6,500.0	6,212.2	6,212.2	6,212.2	34.5	13.8	-37.34	-3.6	-47.6	1,661.3	1,630.4	30.86	53.826	
6,600.0	6,312.2	6,312.2	6,312.2	34.6	14.1	-37.34	-3.6	-47.6	1,661.3	1,630.1	31.24	53.186	
6,700.0	6,412.2	6,412.2	6,412.2	34.7	14.3	-37.34	-3.6	-47.6	1,661.3	1,629.7	31.61	52.558	
6,800.0	6,512.2	6,512.2	6,512.2	34.7	14.5	-37.34	-3.6	-47.6	1,661.3	1,629.3	31.98	51.942	
6,900.0	6,612.2	6,612.2	6,612.2	34.8	14.7	-37.34	-3.6	-47.6	1,661.3	1,628.9	32.36	51.338	
7,000.0	6,712.2	6,712.2	6,712.2	34.9	15.0	-37.34	-3.6	-47.6	1,661.3	1,628.6	32.74	50.746	
7,100.0	6,812.2	6,812.2	6,812.2	35.0	15.2	-37.34	-3.6	-47.6	1,661.3	1,628.2	33.12	50.164	
7,200.0	6,912.2	6,912.2	6,912.2	35.1	15.4	-37.34	-3.6	-47.6	1,661.3	1,627.8	33.50	49.594	
7,300.0	7,012.2	7,012.2	7,012.2	35.1	15.6	-37.34	-3.6	-47.6	1,661.3	1,627.4	33.88	49.035	
7,400.0	7,112.2	7,112.2	7,112.2	35.2	15.9	-37.34	-3.6	-47.6	1,661.3	1,627.0	34.26	48.486	
7,500.0	7,212.2	7,212.2	7,212.2	35.3	16.1	-37.34	-3.6	-47.6	1,661.3	1,626.6	34.65	47.947	
7,600.0	7,312.2	7,312.2	7,312.2	35.4	16.3	-37.34	-3.6	-47.6	1,661.3	1,626.3	35.04	47.418	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Lulu XX08-14D
<b>Project:</b>	SEC. 8-T1N-R65W	<b>TVD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Reference Site:</b>	Lulu XX08-14D Pad Sec.8-T1N-T65W	<b>MD Reference:</b>	WELL @ 4975.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Lulu XX08-14D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM den0-adp01 Server Data
<b>Reference Design:</b>	Noble Lulu XX08-14D Plan #1 (4-23-10)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Lulu XX08-14D Pad Sec.8-T1N-T65W - Anshutz 1 (Exist.) - Wellbore #1 - Design #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
7,700.0	7,412.2	7,412.2	7,412.2	35.5	16.5	-37.34	-3.6	-47.6	1,661.3	1,625.9	35.42	46.899		
7,800.0	7,512.2	7,512.2	7,512.2	35.6	16.8	-37.34	-3.6	-47.6	1,661.3	1,625.5	35.81	46.390		
7,900.0	7,612.2	7,612.2	7,612.2	35.7	17.0	-37.34	-3.6	-47.6	1,661.3	1,625.1	36.20	45.890		
8,000.0	7,712.2	7,712.2	7,712.2	35.8	17.2	-37.34	-3.6	-47.6	1,661.3	1,624.7	36.59	45.399		
8,100.0	7,812.2	7,812.2	7,812.2	35.9	17.4	-37.34	-3.6	-47.6	1,661.3	1,624.3	36.99	44.917		
8,200.0	7,912.2	7,912.2	7,912.2	35.9	17.7	-37.34	-3.6	-47.6	1,661.3	1,623.9	37.38	44.444		
8,262.1	7,974.2	7,974.2	7,974.2	36.0	17.8	-37.34	-3.6	-47.6	1,661.3	1,623.7	37.62	44.155		
8,300.0	8,012.2	8,000.0	8,000.0	36.0	17.9	-37.34	-3.6	-47.6	1,661.3	1,623.6	37.75	44.013		
8,400.0	8,112.2	8,000.0	8,000.0	36.1	17.9	-37.34	-3.6	-47.6	1,665.1	1,627.2	37.92	43.913		
8,422.8	8,135.0	8,000.0	8,000.0	36.2	17.9	-37.34	-3.6	-47.6	1,666.8	1,628.8	37.96	43.912		

**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC. 8-T1N-R65W  
**Reference Site:** Lulu XX08-14D Pad Sec.8-T1N-T65W  
**Site Error:** 0.0ft  
**Reference Well:** Lulu XX08-14D  
**Well Error:** 0.0ft  
**Reference Wellbore:** Wellbore #1  
**Reference Design:** Noble Lulu XX08-14D Plan #1 (4-23-10)

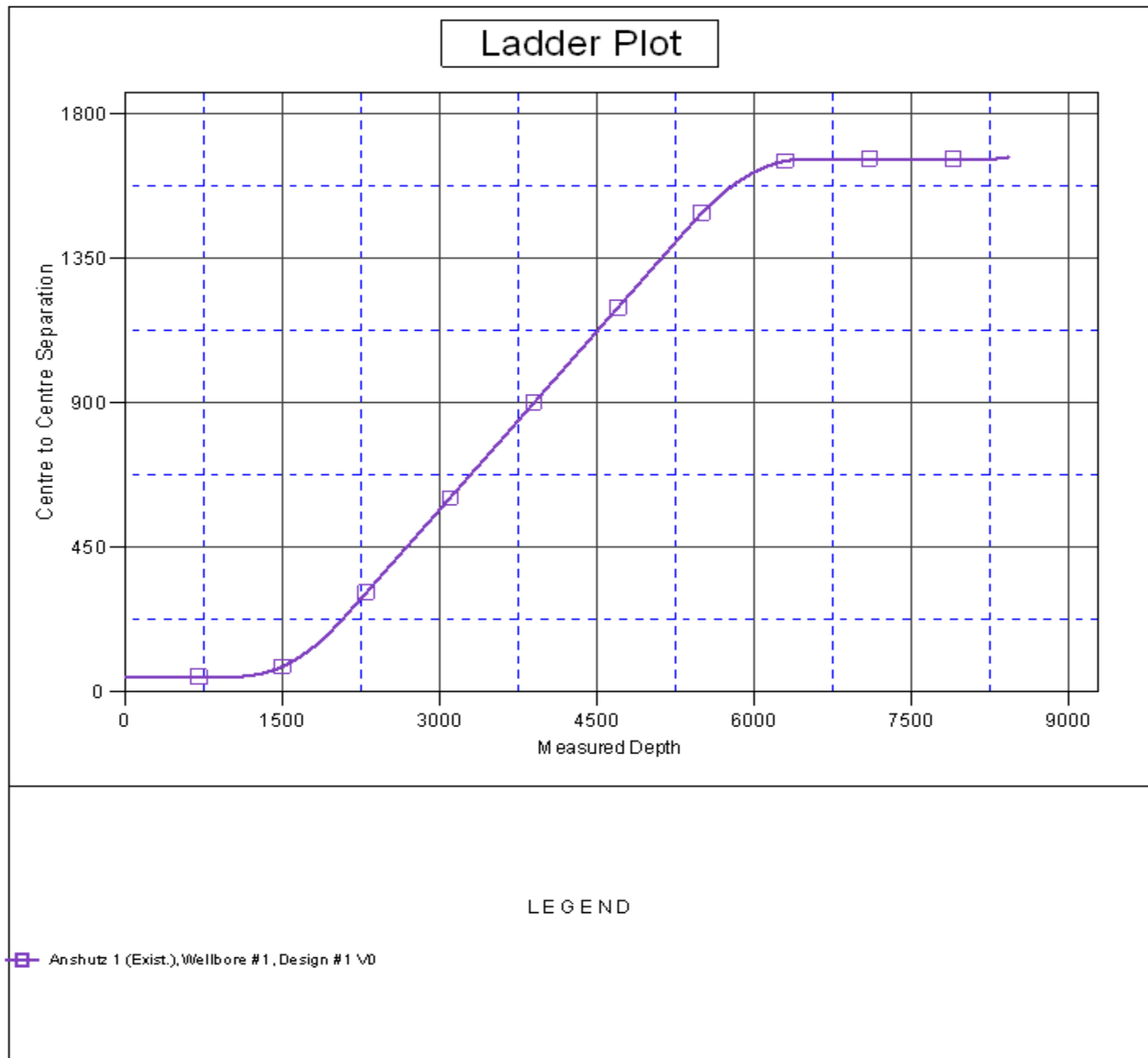
**Local Co-ordinate Reference:** Well Lulu XX08-14D  
**TVD Reference:** WELL @ 4975.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4975.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM den0-adp01 Server Data  
**Offset TVD Reference:** Offset Datum

Reference Depths are relative to WELL @ 4975.0ft (Original Well Elev) Coordinates are relative to: Lulu XX08-14D

Offset Depths are relative to Offset Datum

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.52°

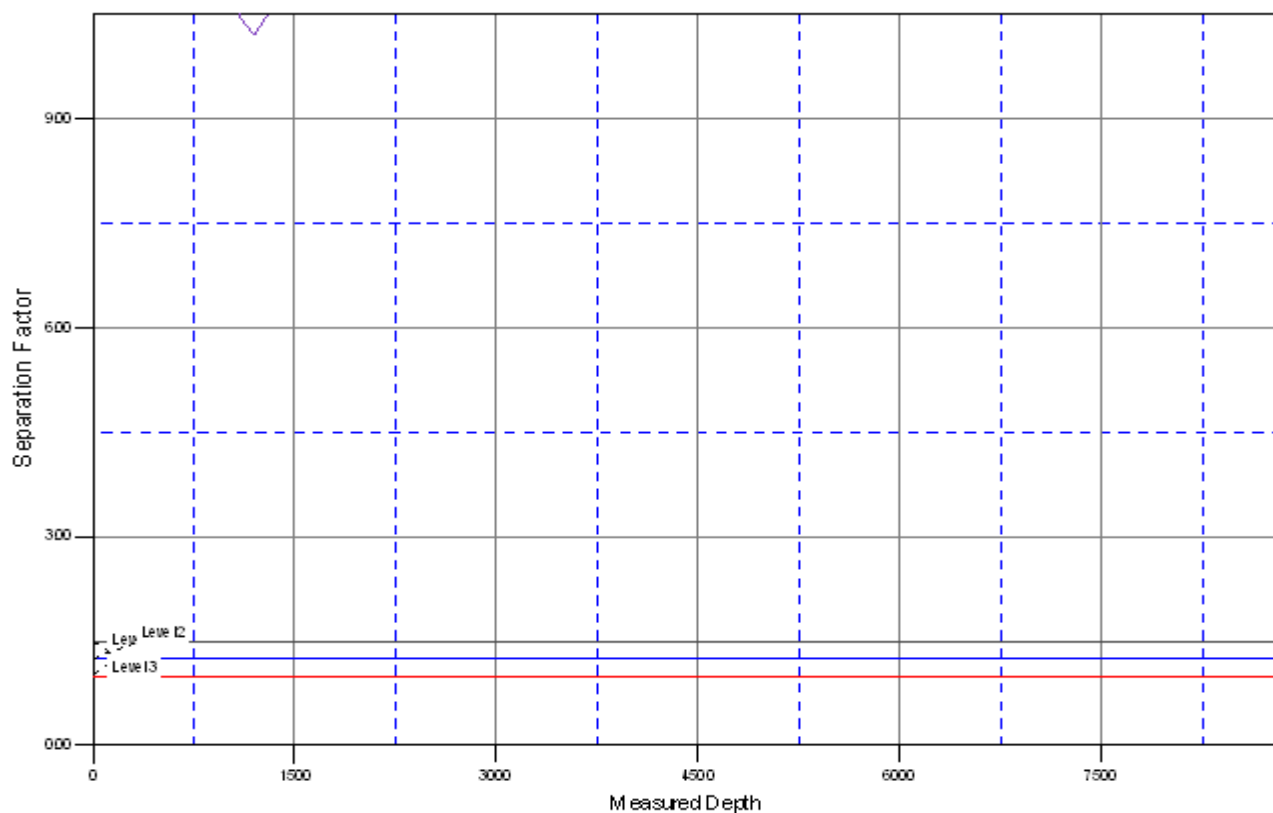


**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC. 8-T1N-R65W  
**Reference Site:** Lulu XX08-14D Pad Sec.8-T1N-T65W  
**Site Error:** 0.0ft  
**Reference Well:** Lulu XX08-14D  
**Well Error:** 0.0ft  
**Reference Wellbore:** Wellbore #1  
**Reference Design:** Noble Lulu XX08-14D Plan #1 (4-23-10)


**Local Co-ordinate Reference:** Well Lulu XX08-14D  
**TVD Reference:** WELL @ 4975.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4975.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM den0-adp01 Server Data  
**Offset TVD Reference:** Offset Datum

Reference Depths are relative to WELL @ 4975.0ft (Original Well Elev) Coordinates are relative to: Lulu XX08-14D  
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone  
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.52°

## Separation Factor Plot



### LEGEND

 Anshutz 1 (Exist.), Wellbore #1, Design #1 \0