ENSIGN Directional

Well Name: **NCLP PC AA08-02D**

Surface Location: NCLP PC AA08-03D Pad Sec.8-T6N-R63W

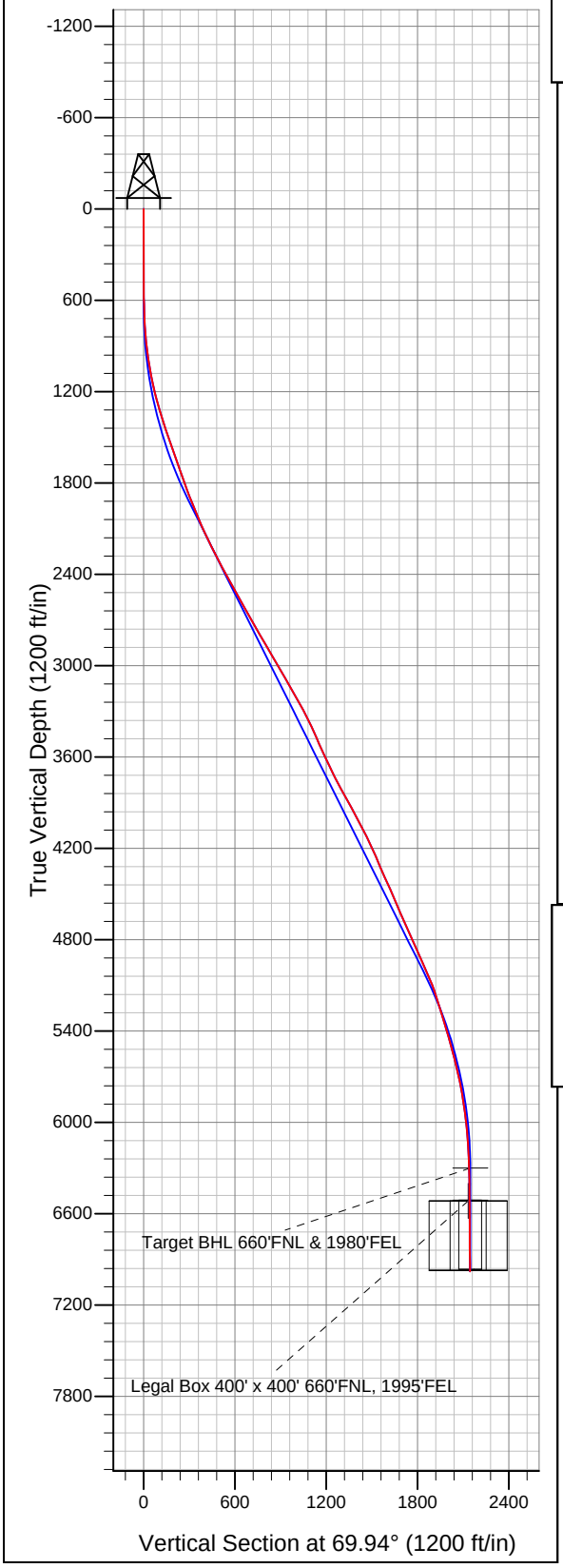
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

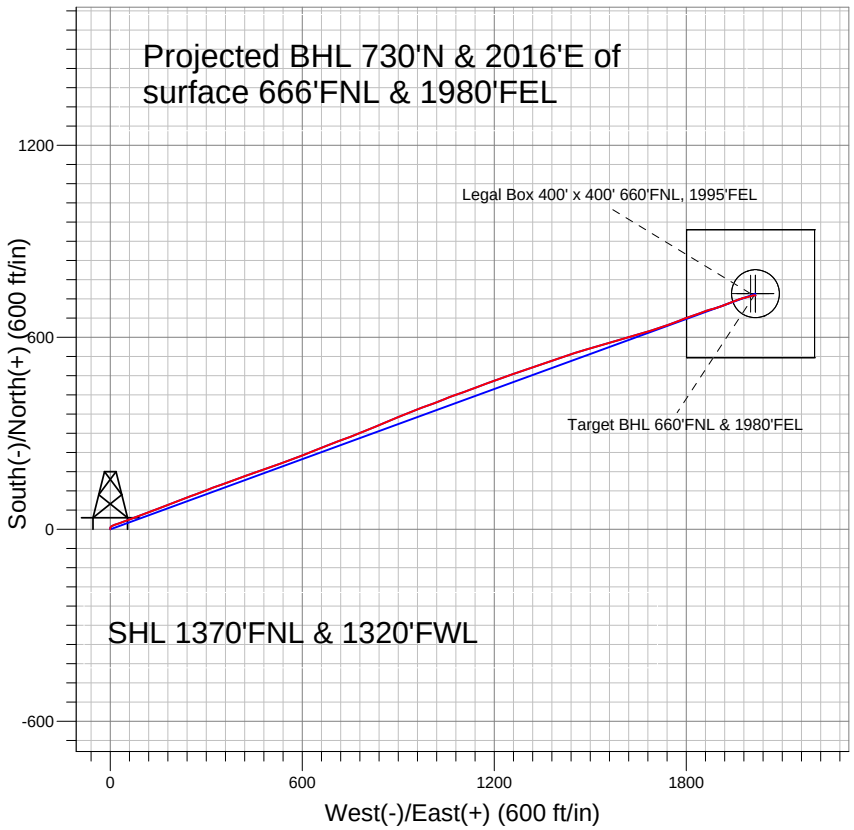
Ground Elevation: 4703.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1428333.29	3287659.67	40° 30' 16.452 N	104° 27' 55.908 W	

Original Well Elev WELL @ 4716.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO





L E G E N D

- NCLP PC AA08-02D, Wellbore #1, NCLP PC AA08-02D Plan #2 (3-24-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7430'MD & 6978'TVD @ 2144'VS
0.7 deg Inc 116.8 deg AZ

Project: SEC.8-T6N-R63W
Site: NCLP PC AA08-03D Pad Sec.8-T6N-R63W
Well: NCLP PC AA08-02D
Plan: Wellbore #1

ENSIGN Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.8-T6N-R63W
NCLP PC AA08-03D Pad Sec.8-T6N-R63W
NCLP PC AA08-02D

Wellbore #1

Survey: Survey #1

Standard Survey Report

04 April, 2011

noble energy

Company:	NOBLE ENERGY INC WELD COUNTY CO	**Local Co-ordinate Reference:**	Well NCLP PC AA08-02D
Project:	SEC.8-T6N-R63W	**TVD Reference:**	WELL @ 4716.0ft (Original Well Elev)
Site:	NCLP PC AA08-03D Pad Sec.8-T6N-R63W	**MD Reference:**	WELL @ 4716.0ft (Original Well Elev)
Well:	NCLP PC AA08-02D	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	Landmark

Project SEC.8-T6N-R63W, 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 NCLP PC AA08-03D Pad Sec.8-T6N-R63W

Site Position:		**Northing:**	1,428,358.79 ft	**Latitude:**	40° 30' 16.704 N
From:	Lat/Long	**Easting:**	3,287,659.37 ft	**Longitude:**	104° 27' 55.908 W
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.67 °

Well NCLP PC AA08-02D

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,428,333.29 ft	**Latitude:**	40° 30' 16.452 N
	+E/-W	0.0 ft	**Easting:**	3,287,659.67 ft	**Longitude:**	104° 27' 55.908 W
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,703.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/18/2011	8.75	67.19	53,245

Design Wellbore #1

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	69.94

Survey Program **Date** 4/4/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
583.0	7,430.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard

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
583.0	0.90	359.30	583.0	4.6	-0.1	1.5	0.15	0.15	0.00
665.0	2.00	39.00	665.0	6.3	0.8	3.0	1.74	1.34	48.41
746.0	3.20	52.20	745.9	8.8	3.5	6.3	1.65	1.48	16.30
828.0	5.10	65.80	827.6	11.7	8.6	12.1	2.59	2.32	16.59
909.0	6.60	70.70	908.2	14.7	16.3	20.4	1.95	1.85	6.05
991.0	8.40	72.50	989.5	18.1	26.5	31.1	2.21	2.20	2.20
1,073.0	10.60	69.60	1,070.4	22.5	39.3	44.6	2.74	2.68	-3.54
1,155.0	12.40	68.10	1,150.7	28.4	54.5	61.0	2.23	2.20	-1.83
1,236.0	14.40	69.10	1,229.5	35.3	72.0	79.7	2.49	2.47	1.23
1,318.0	15.90	70.30	1,308.7	42.7	92.1	101.1	1.87	1.83	1.46
1,399.0	17.90	69.70	1,386.2	50.8	114.2	124.7	2.48	2.47	-0.74
1,481.0	18.90	68.80	1,464.0	59.9	138.4	150.6	1.27	1.22	-1.10

Company:	NOBLE ENERGY INC WELD COUNTY CO	**Local Co-ordinate Reference:**	Well NCLP PC AA08-02D
Project:	SEC.8-T6N-R63W	**TVD Reference:**	WELL @ 4716.0ft (Original Well Elev)
Site:	NCLP PC AA08-03D Pad Sec.8-T6N-R63W	**MD Reference:**	WELL @ 4716.0ft (Original Well Elev)
Well:	NCLP PC AA08-02D	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	Landmark

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)
1,563.0	19.20	69.40	1,541.5	69.5	163.4	177.3	0.44	0.37	0.73
1,644.0	19.20	68.40	1,618.0	79.1	188.3	204.0	0.41	0.00	-1.23
1,726.0	19.40	68.60	1,695.4	89.0	213.5	231.1	0.26	0.24	0.24
1,808.0	19.70	68.90	1,772.7	98.9	239.1	258.5	0.39	0.37	0.37
1,890.0	20.70	69.90	1,849.6	108.9	265.6	286.8	1.29	1.22	1.22
1,971.0	21.80	69.50	1,925.1	119.1	293.1	316.2	1.37	1.36	-0.49
2,053.0	22.70	69.40	2,001.0	130.0	322.2	347.2	1.10	1.10	-0.12
2,135.0	23.60	69.60	2,076.4	141.3	352.4	379.4	1.10	1.10	0.24
2,216.0	25.20	71.00	2,150.2	152.5	383.9	412.9	2.10	1.98	1.73
2,298.0	26.90	70.10	2,223.8	164.5	417.8	448.9	2.13	2.07	-1.10
2,380.0	27.50	69.90	2,296.8	177.4	453.0	486.4	0.74	0.73	-0.24
2,462.0	27.50	71.00	2,369.5	190.0	488.7	524.3	0.62	0.00	1.34
2,543.0	29.00	70.60	2,440.8	202.6	524.9	562.6	1.87	1.85	-0.49
2,625.0	29.60	70.00	2,512.3	216.2	562.7	602.7	0.81	0.73	-0.73
2,706.0	29.10	68.20	2,583.0	230.3	599.8	642.4	1.25	-0.62	-2.22
2,788.0	29.70	67.30	2,654.4	245.6	637.0	682.6	0.91	0.73	-1.10
2,870.0	29.40	68.80	2,725.7	260.7	674.5	723.0	0.97	-0.37	1.83
2,951.0	30.10	69.30	2,796.1	275.1	712.1	763.2	0.92	0.86	0.62
3,033.0	30.60	69.60	2,866.8	289.6	750.9	804.7	0.64	0.61	0.37
3,115.0	29.90	68.20	2,937.6	304.5	789.4	846.0	1.21	-0.85	-1.71
3,197.0	29.80	67.80	3,008.8	319.8	827.3	886.8	0.27	-0.12	-0.49
3,279.0	31.30	66.00	3,079.4	336.1	865.6	928.4	2.14	1.83	-2.20
3,360.0	30.50	67.90	3,148.9	352.4	903.9	969.9	1.56	-0.99	2.35
3,441.0	28.70	69.00	3,219.3	367.1	941.1	1,009.9	2.32	-2.22	1.36
3,523.0	27.40	69.40	3,291.7	380.8	977.1	1,048.5	1.60	-1.59	0.49
3,605.0	25.90	69.20	3,365.0	393.8	1,011.5	1,085.2	1.83	-1.83	-0.24
3,687.0	24.70	68.50	3,439.1	406.4	1,044.2	1,120.3	1.51	-1.46	-0.85
3,768.0	23.70	69.50	3,513.0	418.4	1,075.2	1,153.5	1.33	-1.23	1.23
3,850.0	24.60	70.50	3,587.8	429.8	1,106.7	1,187.0	1.21	1.10	1.22
3,931.0	25.50	69.30	3,661.2	441.6	1,138.9	1,221.3	1.28	1.11	-1.48
4,013.0	26.90	69.20	3,734.8	454.4	1,172.8	1,257.5	1.71	1.71	-0.12
4,095.0	28.60	70.70	3,807.3	467.5	1,208.6	1,295.7	2.24	2.07	1.83
4,177.0	29.70	71.60	3,878.9	480.4	1,246.4	1,335.6	1.44	1.34	1.10
4,258.0	28.40	70.90	3,949.8	493.1	1,283.7	1,374.9	1.66	-1.60	-0.86
4,340.0	28.20	70.80	4,022.0	505.8	1,320.4	1,413.8	0.25	-0.24	-0.12
4,422.0	26.50	70.60	4,094.8	518.3	1,356.0	1,451.5	2.08	-2.07	-0.24
4,503.0	25.30	71.00	4,167.6	529.9	1,389.4	1,486.8	1.50	-1.48	0.49
4,585.0	23.20	71.60	4,242.4	540.7	1,421.3	1,520.5	2.58	-2.56	0.73
4,667.0	23.30	72.80	4,317.7	550.6	1,452.1	1,552.9	0.59	0.12	1.46
4,748.0	24.30	72.90	4,391.9	560.2	1,483.3	1,585.5	1.24	1.23	0.12
4,830.0	24.70	73.90	4,466.5	569.9	1,515.9	1,619.4	0.70	0.49	1.22
4,912.0	23.30	73.10	4,541.4	579.4	1,547.9	1,652.7	1.75	-1.71	-0.98
4,994.0	23.10	74.30	4,616.8	588.5	1,578.9	1,685.0	0.63	-0.24	1.46
5,075.0	23.50	74.20	4,691.1	597.2	1,609.7	1,716.9	0.50	0.49	-0.12
5,157.0	24.00	74.30	4,766.2	606.1	1,641.5	1,749.8	0.61	0.61	0.12
5,239.0	23.60	72.60	4,841.2	615.6	1,673.2	1,782.9	0.97	-0.49	-2.07
5,320.0	24.40	71.60	4,915.2	625.7	1,704.6	1,815.8	1.11	0.99	-1.23
5,402.0	25.10	71.50	4,989.7	636.6	1,737.1	1,850.1	0.86	0.85	-0.12
5,484.0	23.10	69.30	5,064.5	647.8	1,768.7	1,883.6	2.67	-2.44	-2.68
5,565.0	17.70	68.40	5,140.4	657.9	1,795.0	1,911.8	6.68	-6.67	-1.11
5,647.0	17.20	70.80	5,218.7	666.5	1,818.1	1,936.4	1.07	-0.61	2.93
5,729.0	17.40	70.50	5,297.0	674.6	1,841.1	1,960.8	0.27	0.24	-0.37
5,810.0	16.70	70.10	5,374.4	682.6	1,863.4	1,984.5	0.88	-0.86	-0.49
5,892.0	16.40	74.90	5,453.0	689.6	1,885.7	2,007.8	1.71	-0.37	5.85

Company:	NOBLE ENERGY INC WELD COUNTY CO	**Local Co-ordinate Reference:**	Well NCLP PC AA08-02D
Project:	SEC.8-T6N-R63W	**TVD Reference:**	WELL @ 4716.0ft (Original Well Elev)
Site:	NCLP PC AA08-03D Pad Sec.8-T6N-R63W	**MD Reference:**	WELL @ 4716.0ft (Original Well Elev)
Well:	NCLP PC AA08-02D	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	Landmark

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)
5,974.0	14.40	72.20	5,532.1	695.7	1,906.6	2,029.5	2.59	-2.44	-3.29
6,055.0	14.00	67.50	5,610.6	702.6	1,925.2	2,049.4	1.51	-0.49	-5.80
6,137.0	12.70	66.70	5,690.4	709.9	1,942.7	2,068.3	1.60	-1.59	-0.98
6,219.0	10.50	70.30	5,770.7	716.0	1,958.0	2,084.8	2.82	-2.68	4.39
6,301.0	9.30	73.70	5,851.5	720.4	1,971.4	2,098.9	1.63	-1.46	4.15
6,383.0	7.70	74.70	5,932.6	723.7	1,983.0	2,111.0	1.96	-1.95	1.22
6,464.0	6.10	76.30	6,013.0	726.1	1,992.4	2,120.6	1.99	-1.98	1.98
6,546.0	4.20	76.80	6,094.6	727.9	1,999.6	2,128.0	2.32	-2.32	0.61
6,627.0	3.20	72.60	6,175.5	729.2	2,004.6	2,133.2	1.28	-1.23	-5.19
6,709.0	2.50	68.70	6,257.4	730.6	2,008.5	2,137.2	0.89	-0.85	-4.76
6,751.9	1.72	78.36	6,300.2	731.0	2,010.0	2,138.8	2.00	-1.83	22.52
Target BHL 660'FNL & 1980'FEL									
6,791.0	1.10	98.70	6,339.3	731.1	2,010.9	2,139.7	2.00	-1.57	52.01
6,872.0	0.80	80.40	6,420.3	731.1	2,012.3	2,140.9	0.52	-0.37	-22.59
6,954.0	0.70	68.20	6,502.3	731.3	2,013.3	2,142.0	0.23	-0.12	-14.88
6,962.7	0.63	67.22	6,511.0	731.4	2,013.4	2,142.1	0.87	-0.86	-11.17
Target Circle 660'FNL & 1980'FEL									
6,967.6	0.58	66.57	6,515.9	731.4	2,013.4	2,142.2	0.87	-0.85	-13.41
Legal Box 400' x 400' 660'FNL, 1995'FEL									
7,036.0	0.10	336.90	6,584.3	731.6	2,013.7	2,142.5	0.87	-0.71	-131.18
7,118.0	0.30	119.10	6,666.3	731.6	2,013.9	2,142.6	0.47	0.24	173.41
7,200.0	0.40	134.90	6,748.3	731.2	2,014.3	2,142.9	0.17	0.12	19.27
7,281.0	0.50	133.30	6,829.3	730.8	2,014.7	2,143.2	0.12	0.12	-1.98
7,380.0	0.70	116.80	6,928.3	730.2	2,015.6	2,143.8	0.26	0.20	-16.67
7,430.0	0.70	116.80	6,978.3	730.0	2,016.1	2,144.2	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____