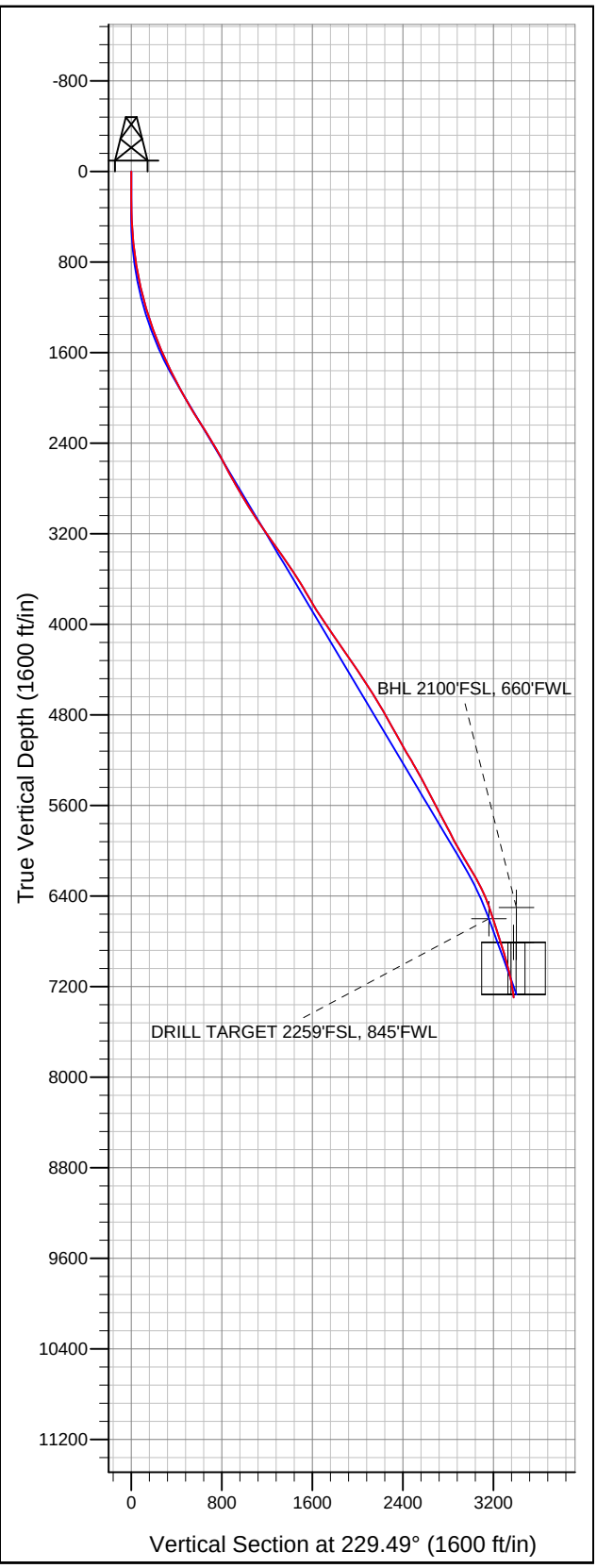
ENSIGN Directional

Well Name: **Booth USX EE35-12D**

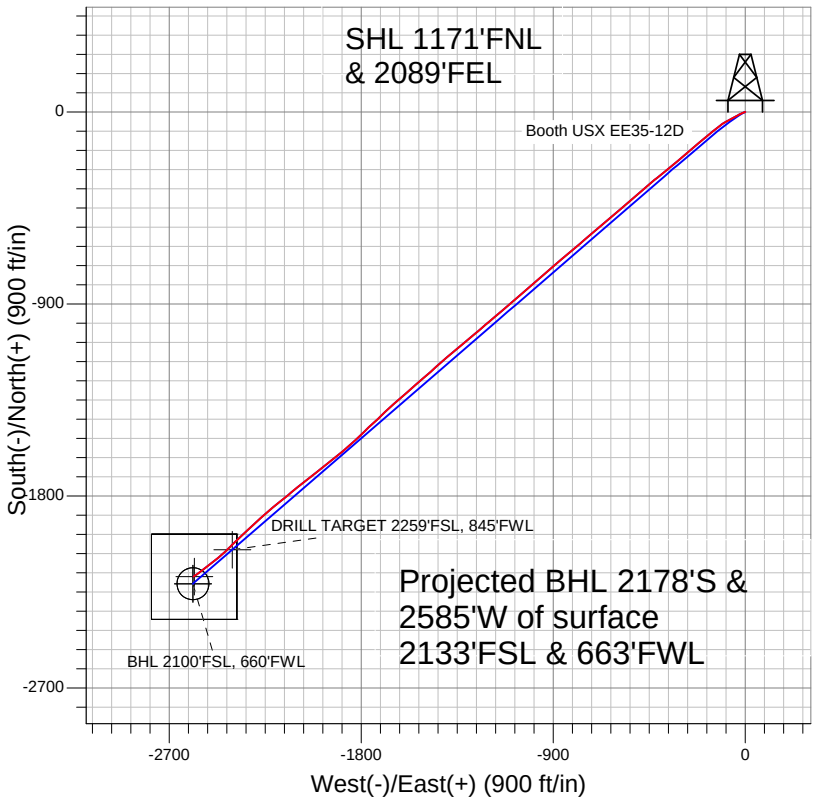
Surface Location: Booth USX EE35-05D Pad Sec.35-T7N-R65W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone
Ground Elevation: 4831.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1438856.37	3242365.91	40.534790	-104.628030	

Original Well EleWELL @ 4844.0ft (Original Well Elev)



NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Booth USX EE35-12D, Wellbore #1, Noble Booth USX EE35-12D Plan #1 (7-13-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
8162'MD & 7297'TVD @ 3380'VS
8.4 deg Inc 234.7 deg AZ

Project: SEC.35-T7N-R65W
Site: Booth USX EE35-05D Pad Sec.35-T7N-R65W
Well: Booth USX EE35-12D
Plan: Wellbore #1

ENSIGN Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.35-T7N-R65W
Booth USX EE35-05D Pad Sec.35-T7N-R65W
Booth USX EE35-12D

Wellbore #1

Survey: Survey #1

Standard Survey Report

17 October, 2011

noble energy

Company:	NOBLE ENERGY INC WELD COUNTY CO	**Local Co-ordinate Reference:**	Well Booth USX EE35-12D
Project:	SEC.35-T7N-R65W	**TVD Reference:**	WELL @ 4844.0ft (Original Well Elev)
Site:	Booth USX EE35-05D Pad Sec.35-T7N-R65W	**MD Reference:**	WELL @ 4844.0ft (Original Well Elev)
Well:	Booth USX EE35-12D	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	Landmark

Project SEC.35-T7N-R65W, 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 Booth USX EE35-05D Pad Sec.35-T7N-R65W

Site Position:		**Northing:**	1,438,878.24 ft	**Latitude:**	40.534850
From:	Lat/Long	**Easting:**	3,242,365.69 ft	**Longitude:**	-104.628030
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.56 °

Well Booth USX EE35-12D

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,438,856.37 ft	**Latitude:**	40.534790
	+E/-W	0.0 ft	**Easting:**	3,242,365.91 ft	**Longitude:**	-104.628030
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,831.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/13/2011	8.79	67.18	53,209

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 (°)
	6,500.0	0.0	0.0	229.49

Survey Program **Date** 10/17/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
138.0	8,162.0	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
138.0	0.70	261.60	138.0	-0.1	-0.8	0.7	0.51	0.51	0.00
233.0	0.50	255.00	233.0	-0.3	-1.8	1.6	0.22	-0.21	-6.95
328.0	0.70	242.60	328.0	-0.7	-2.7	2.5	0.25	0.21	-13.05
423.0	2.50	240.40	422.9	-2.0	-5.0	5.1	1.90	1.89	-2.32
518.0	3.80	249.10	517.8	-4.1	-9.8	10.1	1.45	1.37	9.16
613.0	5.80	246.90	612.5	-7.1	-17.1	17.7	2.11	2.11	-2.32
708.0	7.60	241.10	706.8	-12.1	-27.1	28.4	2.02	1.89	-6.11
776.0	8.50	241.30	774.1	-16.6	-35.4	37.7	1.32	1.32	0.29
857.0	9.90	242.70	854.1	-22.7	-46.8	50.4	1.75	1.73	1.73
939.0	11.50	242.80	934.7	-29.7	-60.4	65.2	1.95	1.95	0.12
1,021.0	12.70	240.90	1,014.8	-37.8	-75.5	82.0	1.54	1.46	-2.32
1,103.0	14.30	240.30	1,094.6	-47.2	-92.2	100.8	1.96	1.95	-0.73

Company:	NOBLE ENERGY INC WELD COUNTY CO	**Local Co-ordinate Reference:**	Well Booth USX EE35-12D
Project:	SEC.35-T7N-R65W	**TVD Reference:**	WELL @ 4844.0ft (Original Well Elev)
Site:	Booth USX EE35-05D Pad Sec.35-T7N-R65W	**MD Reference:**	WELL @ 4844.0ft (Original Well Elev)
Well:	Booth USX EE35-12D	**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)
1,184.0	15.70	235.30	1,172.8	-58.4	-109.9	121.5	2.35	1.73	-6.17
1,266.0	17.70	232.40	1,251.4	-72.3	-128.9	145.0	2.64	2.44	-3.54
1,348.0	19.00	230.70	1,329.2	-88.4	-149.1	170.8	1.71	1.59	-2.07
1,430.0	20.20	229.10	1,406.4	-106.1	-170.1	198.3	1.60	1.46	-1.95
1,512.0	21.40	231.00	1,483.1	-124.8	-192.5	227.4	1.68	1.46	2.32
1,594.0	22.60	228.60	1,559.1	-144.6	-215.9	258.1	1.83	1.46	-2.93
1,675.0	24.10	229.00	1,633.5	-165.8	-240.1	290.2	1.86	1.85	0.49
1,757.0	25.20	229.50	1,708.0	-188.1	-266.0	324.4	1.37	1.34	0.61
1,839.0	26.80	231.10	1,781.7	-211.0	-293.6	360.3	2.13	1.95	1.95
1,921.0	28.00	230.30	1,854.5	-234.9	-322.8	398.1	1.53	1.46	-0.98
2,002.0	28.60	230.00	1,925.8	-259.6	-352.3	436.5	0.76	0.74	-0.37
2,084.0	28.30	230.30	1,997.9	-284.6	-382.3	475.5	0.41	-0.37	0.37
2,166.0	30.00	232.40	2,069.5	-309.5	-413.5	515.4	2.42	2.07	2.56
2,248.0	32.50	230.70	2,139.6	-336.0	-446.8	557.9	3.23	3.05	-2.07
2,329.0	32.70	228.00	2,207.9	-364.4	-479.9	601.6	1.81	0.25	-3.33
2,411.0	32.20	228.90	2,277.1	-393.6	-512.8	645.6	0.85	-0.61	1.10
2,493.0	31.70	227.40	2,346.7	-422.5	-545.2	688.9	1.14	-0.61	-1.83
2,574.0	31.20	229.50	2,415.8	-450.6	-576.8	731.2	1.49	-0.62	2.59
2,656.0	28.50	231.80	2,486.9	-476.5	-608.3	772.0	3.58	-3.29	2.80
2,738.0	28.20	230.40	2,559.0	-500.9	-638.6	810.9	0.89	-0.37	-1.71
2,820.0	27.50	228.10	2,631.5	-525.9	-667.6	849.2	1.56	-0.85	-2.80
2,902.0	28.60	229.70	2,703.9	-551.2	-696.7	887.8	1.63	1.34	1.95
2,983.0	30.10	228.90	2,774.5	-577.1	-726.8	927.5	1.91	1.85	-0.99
3,065.0	30.60	228.80	2,845.3	-604.4	-758.0	968.9	0.61	0.61	-0.12
3,147.0	30.90	230.90	2,915.7	-631.4	-790.0	1,010.8	1.36	0.37	2.56
3,229.0	32.30	230.50	2,985.6	-658.6	-823.3	1,053.8	1.73	1.71	-0.49
3,311.0	33.50	229.40	3,054.4	-687.3	-857.4	1,098.3	1.63	1.46	-1.34
3,392.0	34.20	228.00	3,121.7	-717.1	-891.2	1,143.4	1.29	0.86	-1.73
3,474.0	34.10	228.90	3,189.6	-747.6	-925.7	1,189.4	0.63	-0.12	1.10
3,556.0	35.00	230.70	3,257.1	-777.6	-961.2	1,235.9	1.66	1.10	2.20
3,638.0	35.70	229.80	3,324.0	-808.0	-997.7	1,283.4	1.06	0.85	-1.10
3,719.0	36.40	228.10	3,389.5	-839.3	-1,033.6	1,331.0	1.51	0.86	-2.10
3,801.0	34.00	227.50	3,456.5	-871.0	-1,068.6	1,378.3	2.96	-2.93	-0.73
3,883.0	32.70	230.80	3,525.0	-900.5	-1,102.7	1,423.3	2.72	-1.59	4.02
3,965.0	32.30	229.80	3,594.1	-928.6	-1,136.6	1,467.4	0.82	-0.49	-1.22
4,046.0	32.00	229.20	3,662.7	-956.6	-1,169.4	1,510.5	0.54	-0.37	-0.74
4,128.0	29.90	230.10	3,733.0	-983.9	-1,201.5	1,552.7	2.62	-2.56	1.10
4,210.0	30.50	227.70	3,803.9	-1,011.1	-1,232.6	1,593.9	1.64	0.73	-2.93
4,292.0	32.50	230.40	3,873.8	-1,039.1	-1,265.0	1,636.7	2.98	2.44	3.29
4,374.0	33.10	230.50	3,942.8	-1,067.4	-1,299.2	1,681.1	0.73	0.73	0.12
4,455.0	34.20	230.20	4,010.2	-1,096.0	-1,333.8	1,726.0	1.37	1.36	-0.37
4,537.0	35.20	229.60	4,077.6	-1,126.1	-1,369.5	1,772.7	1.29	1.22	-0.73
4,619.0	35.30	228.80	4,144.6	-1,157.0	-1,405.3	1,820.0	0.58	0.12	-0.98
4,701.0	34.20	228.10	4,211.9	-1,188.0	-1,440.3	1,866.8	1.43	-1.34	-0.85
4,783.0	34.00	229.30	4,279.8	-1,218.4	-1,474.8	1,912.7	0.86	-0.24	1.46
4,865.0	34.60	228.50	4,347.6	-1,248.7	-1,509.6	1,958.9	0.92	0.73	-0.98
4,946.0	33.90	229.00	4,414.5	-1,278.8	-1,543.9	2,004.5	0.93	-0.86	0.62
5,028.0	33.90	228.90	4,482.6	-1,308.8	-1,578.4	2,050.2	0.07	0.00	-0.12
5,110.0	32.30	228.60	4,551.3	-1,338.4	-1,612.1	2,095.0	1.96	-1.95	-0.37
5,192.0	32.40	228.80	4,620.6	-1,367.3	-1,645.0	2,138.9	0.18	0.12	0.24
5,274.0	31.40	226.40	4,690.2	-1,396.5	-1,677.0	2,182.2	1.97	-1.22	-2.93
5,355.0	29.60	225.80	4,760.0	-1,425.0	-1,706.7	2,223.2	2.25	-2.22	-0.74
5,437.0	28.90	228.40	4,831.5	-1,452.3	-1,736.0	2,263.3	1.77	-0.85	3.17
5,519.0	29.10	227.30	4,903.2	-1,479.0	-1,765.5	2,303.0	0.69	0.24	-1.34

Company:	NOBLE ENERGY INC WELD COUNTY CO	**Local Co-ordinate Reference:**	Well Booth USX EE35-12D
Project:	SEC.35-T7N-R65W	**TVD Reference:**	WELL @ 4844.0ft (Original Well Elev)
Site:	Booth USX EE35-05D Pad Sec.35-T7N-R65W	**MD Reference:**	WELL @ 4844.0ft (Original Well Elev)
Well:	Booth USX EE35-12D	**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)
5,600.0	29.80	225.80	4,973.8	-1,506.4	-1,794.4	2,342.8	1.26	0.86	-1.85
5,681.0	29.00	226.10	5,044.3	-1,534.0	-1,823.0	2,382.4	1.00	-0.99	0.37
5,764.0	29.80	227.30	5,116.6	-1,562.0	-1,852.6	2,423.1	1.20	0.96	1.45
5,846.0	31.50	231.10	5,187.2	-1,589.2	-1,884.3	2,464.9	3.14	2.07	4.63
5,927.0	29.40	229.90	5,257.0	-1,615.3	-1,915.9	2,506.0	2.70	-2.59	-1.48
6,009.0	28.90	230.90	5,328.6	-1,640.8	-1,946.7	2,545.9	0.85	-0.61	1.22
6,091.0	28.40	232.90	5,400.6	-1,665.0	-1,977.6	2,585.2	1.32	-0.61	2.44
6,172.0	27.60	233.80	5,472.1	-1,687.8	-2,008.2	2,623.1	1.12	-0.99	1.11
6,254.0	27.60	232.30	5,544.8	-1,710.6	-2,038.5	2,661.0	0.85	0.00	-1.83
6,336.0	27.30	230.30	5,617.6	-1,734.2	-2,068.0	2,698.8	1.18	-0.37	-2.44
6,418.0	28.30	230.90	5,690.1	-1,758.5	-2,097.6	2,737.0	1.27	1.22	0.73
6,499.0	28.60	229.50	5,761.3	-1,783.2	-2,127.2	2,775.6	0.90	0.37	-1.73
6,580.0	26.90	231.10	5,833.0	-1,807.3	-2,156.2	2,813.3	2.29	-2.10	1.98
6,663.0	27.20	231.50	5,906.9	-1,830.9	-2,185.7	2,851.1	0.42	0.36	0.48
6,745.0	29.50	230.00	5,979.1	-1,855.5	-2,215.8	2,890.0	2.94	2.80	-1.83
6,826.0	31.30	228.00	6,048.9	-1,882.4	-2,246.7	2,931.0	2.55	2.22	-2.47
6,908.0	31.90	227.60	6,118.8	-1,911.3	-2,278.5	2,973.9	0.78	0.73	-0.49
6,990.0	30.40	227.00	6,188.9	-1,940.1	-2,309.7	3,016.3	1.87	-1.83	-0.73
7,072.0	28.30	228.00	6,260.4	-1,967.2	-2,339.3	3,056.5	2.63	-2.56	1.22
7,153.0	25.90	227.30	6,332.5	-1,992.1	-2,366.6	3,093.3	2.99	-2.96	-0.86
7,235.0	23.30	225.30	6,407.1	-2,015.6	-2,391.3	3,127.4	3.33	-3.17	-2.44
7,317.0	20.50	223.50	6,483.1	-2,037.4	-2,412.7	3,157.9	3.51	-3.41	-2.20
7,399.0	18.20	227.70	6,560.5	-2,056.5	-2,432.1	3,185.0	3.28	-2.80	5.12
7,409.1	18.04	227.61	6,570.1	-2,058.6	-2,434.4	3,188.1	1.63	-1.61	-0.93
BHL 2100'FSL, 660'FWL									
7,429.5	17.71	227.41	6,589.5	-2,062.8	-2,439.0	3,194.3	1.63	-1.61	-0.95
DRILL TARGET 2259'FSL, 845'FWL									
7,480.0	16.90	226.90	6,637.7	-2,073.0	-2,450.0	3,209.4	1.63	-1.60	-1.01
7,562.0	17.50	231.00	6,716.1	-2,088.9	-2,468.3	3,233.6	1.65	0.73	5.00
7,644.0	18.20	233.60	6,794.1	-2,104.3	-2,488.2	3,258.7	1.29	0.85	3.17
7,695.1	17.88	233.04	6,842.7	-2,113.8	-2,500.9	3,274.5	0.71	-0.62	-1.10
LEGAL BOX 400' X 400' 2133'FSL & 666'FWL									
7,702.5	17.84	232.95	6,849.8	-2,115.1	-2,502.7	3,276.8	0.71	-0.62	-1.12
TARGET CIRCLE 2100'FSL & 660'FWL									
7,725.0	17.70	232.70	6,871.2	-2,119.3	-2,508.2	3,283.6	0.71	-0.62	-1.13
7,807.0	16.60	230.70	6,949.5	-2,134.2	-2,527.2	3,307.8	1.52	-1.34	-2.44
7,889.0	14.20	231.90	7,028.6	-2,147.9	-2,544.2	3,329.5	2.95	-2.93	1.46
7,971.0	11.90	233.10	7,108.5	-2,159.2	-2,558.8	3,348.0	2.82	-2.80	1.46
8,053.0	9.90	234.50	7,189.0	-2,168.3	-2,571.3	3,363.5	2.46	-2.44	1.71
8,116.0	8.40	234.70	7,251.2	-2,174.1	-2,579.5	3,373.4	2.38	-2.38	0.32
8,162.0	8.40	234.70	7,296.7	-2,178.0	-2,585.0	3,380.1	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____