

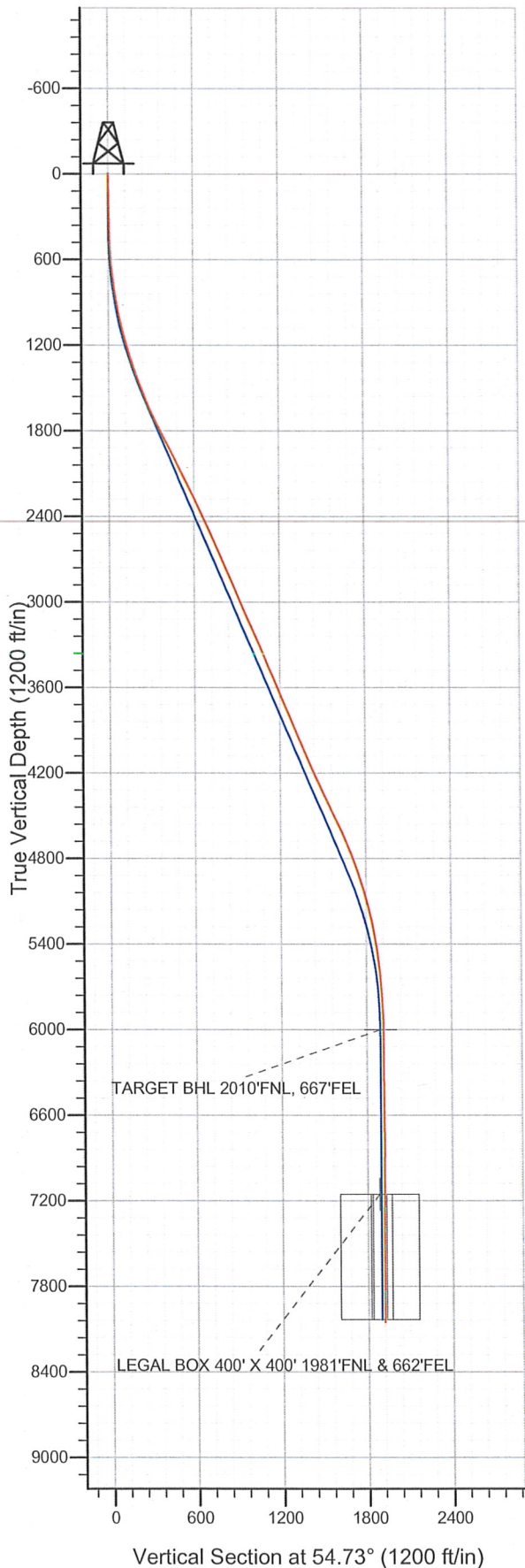
Well Name: **Brandt USX WW13-08D**

Surface Location: Brandt USX WW13-07D Pad Sec.13-T1N-R66W  
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

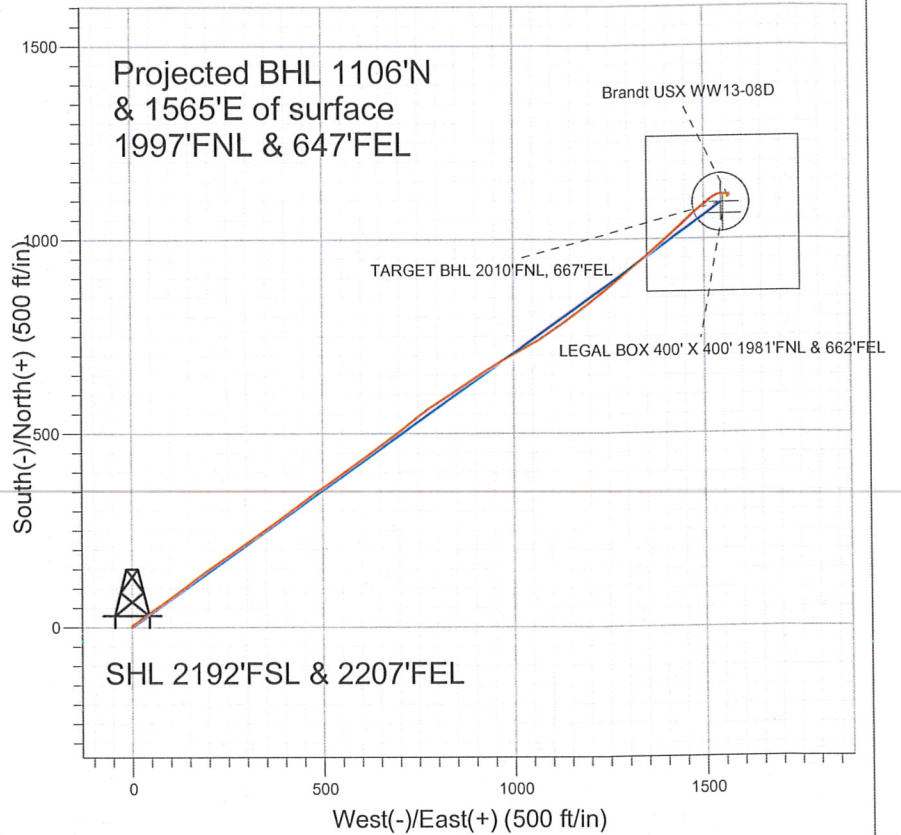
Ground Elevation: 5047.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1262036.82	3217262.00	40.050070	-104.723910	

Original Well Elev WELL @ 5060.0ft (Original Well Elev)



## NOBLE ENERGY INC WELD COUNTY CO



### LEGEND

- Brandt USX WW13-08D, Wellbore #1, Noble Brandt USX WW13-08D Plan #2 (7-12-11) V
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 8425'MD & 8052'TVD @ 1916'VS  
 0.4 deg Inc 125.0 deg AZ

Project: SEC.13-T1N-R66W  
 Site: Brandt USX WW13-07D Pad Sec.13-T1N-R66W  
 Well: Brandt USX WW13-08D  
 Plan: Wellbore #1



**Directional**

**NOBLE ENERGY INC WELD  
COUNTY CO**

**SEC.13-T1N-R66W**

**Brandt USX WW13-07D Pad Sec.13-T1N-R66W**

**Brandt USX WW13-08D**

**Wellbore #1**

**Survey: Survey #1**

**Standard Survey Report**

**01 December, 2011**





Company: NOBLE ENERGY INC WELD COUNTY CO  
 Project: SEC.13-T1N-R66W  
 Site: Brandt USX WW13-07D Pad Sec.13-T1N-R66W  
 Well: Brandt USX WW13-08D  
 Wellbore: Wellbore #1  
 Design: Wellbore #1

Local Co-ordinate Reference: Well Brandt USX WW13-08D  
 TVD Reference: WELL @ 5060.0ft (Original Well Elev)  
 MD Reference: WELL @ 5060.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature  
 Database: Landmark

Project SEC.13-T1N-R66W, 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 Brandt USX WW13-07D Pad Sec.13-T1N-R66W

Site Position:		Northing:	1,262,058.41 ft	Latitude:	40.050130
From:	Lat/Long	Easting:	3,217,231.01 ft	Longitude:	-104.724020
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.50 °

Well Brandt USX WW13-08D

Well Position	+N/-S	0.0 ft	Northing:	1,262,036.82 ft	Latitude:	40.050070
	+E/-W	0.0 ft	Easting:	3,217,262.00 ft	Longitude:	-104.723910
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,047.0 ft	

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/12/2011	8.80	66.77	52,942

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 (°)
	6,000.0	0.0	0.0	54.73

Survey Program Date 12/1/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
229.0	8,425.0	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
229.0	1.20	32.70	229.0	2.0	1.3	2.2	0.52	0.52	0.00
321.0	1.20	36.40	321.0	3.6	2.4	4.0	0.08	0.00	4.02
413.0	1.70	43.80	412.9	5.4	3.9	6.3	0.58	0.54	8.04
506.0	3.00	59.20	505.9	7.6	6.9	10.1	1.54	1.40	16.56
598.0	4.30	56.30	597.7	10.8	11.9	15.9	1.43	1.41	-3.15
690.0	6.90	51.70	689.2	16.1	19.1	24.9	2.87	2.83	-5.00
783.0	8.50	49.90	781.4	24.0	28.7	37.3	1.74	1.72	-1.94
864.0	8.80	56.40	861.5	31.3	38.5	49.5	1.26	0.37	8.02
946.0	10.90	59.10	942.2	38.7	50.4	63.5	2.62	2.56	3.29
1,027.0	12.10	55.60	1,021.6	47.5	63.9	79.6	1.71	1.48	-4.32
1,109.0	14.20	54.70	1,101.5	58.1	79.2	98.2	2.57	2.56	-1.10
1,191.0	16.10	53.10	1,180.6	70.8	96.5	119.7	2.37	2.32	-1.95



**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.13-T1N-R66W  
**Site:** Brandt USX WW13-07D Pad Sec.13-T1N-R66W  
**Well:** Brandt USX WW13-08D  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well Brandt USX WW13-08D  
**TVD Reference:** WELL @ 5060.0ft (Original Well Elev)  
**MD Reference:** WELL @ 5060.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**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)
1,314.0	17.50	54.30	1,298.4	91.8	125.2	155.2	1.17	1.14	0.98
1,396.0	18.40	53.60	1,376.4	106.7	145.6	180.5	1.13	1.10	-0.85
1,478.0	20.80	52.40	1,453.6	123.2	167.6	208.0	2.97	2.93	-1.46
1,560.0	21.70	55.60	1,530.0	140.7	191.6	237.7	1.79	1.10	3.90
1,641.0	23.30	55.20	1,604.9	158.3	217.1	268.7	1.98	1.98	-0.49
1,723.0	24.70	55.20	1,679.8	177.3	244.5	302.0	1.71	1.71	0.00
1,805.0	27.10	55.90	1,753.5	197.6	274.1	337.8	2.95	2.93	0.85
1,887.0	27.00	55.60	1,826.6	218.6	304.9	375.1	0.21	-0.12	-0.37
1,968.0	27.90	53.80	1,898.4	240.1	335.3	412.5	1.51	1.11	-2.22
2,050.0	27.10	53.60	1,971.2	262.6	365.9	450.3	0.98	-0.98	-0.24
2,132.0	26.50	54.50	2,044.4	284.3	395.8	487.3	0.88	-0.73	1.10
2,213.0	26.70	54.30	2,116.8	305.4	425.3	523.5	0.27	0.25	-0.25
2,295.0	26.50	54.50	2,190.1	326.7	455.1	560.3	0.27	-0.24	0.24
2,377.0	25.70	54.20	2,263.8	347.8	484.5	596.3	0.99	-0.98	-0.37
2,459.0	25.50	54.70	2,337.7	368.4	513.3	631.8	0.36	-0.24	0.61
2,540.0	24.10	54.20	2,411.2	388.1	540.9	665.7	1.75	-1.73	-0.62
2,622.0	24.10	54.20	2,486.1	407.7	568.1	699.2	0.00	0.00	0.00
2,702.0	23.80	54.50	2,559.2	426.6	594.5	731.7	0.40	-0.38	0.38
2,785.0	24.20	54.70	2,635.0	446.2	622.0	765.5	0.49	0.48	0.24
2,867.0	24.20	54.90	2,709.8	465.6	649.5	799.1	0.10	0.00	0.24
2,949.0	22.70	52.90	2,785.0	484.8	675.8	831.7	2.07	-1.83	-2.44
3,031.0	22.80	52.90	2,860.7	503.9	701.1	863.4	0.12	0.12	0.00
3,112.0	23.40	52.00	2,935.2	523.3	726.3	895.1	0.86	0.74	-1.11
3,194.0	23.20	52.20	3,010.5	543.2	751.9	927.5	0.26	-0.24	0.24
3,276.0	22.70	54.50	3,086.0	562.3	777.5	959.5	1.25	-0.61	2.80
3,357.0	24.40	58.50	3,160.3	580.1	804.5	991.8	2.88	2.10	4.94
3,439.0	23.10	57.10	3,235.3	597.7	832.5	1,024.8	1.73	-1.59	-1.71
3,521.0	24.40	57.00	3,310.4	615.7	860.2	1,057.8	1.59	1.59	-0.12
3,603.0	22.80	56.40	3,385.5	633.7	887.6	1,090.6	1.97	-1.95	-0.73
3,684.0	22.50	55.60	3,460.3	651.1	913.5	1,121.8	0.53	-0.37	-0.99
3,766.0	23.30	58.40	3,535.8	668.5	940.3	1,153.7	1.65	0.98	3.41
3,848.0	23.30	60.00	3,611.1	685.1	968.1	1,186.0	0.77	0.00	1.95
3,930.0	23.10	63.30	3,686.5	700.4	996.5	1,218.1	1.60	-0.24	4.02
4,011.0	22.60	59.60	3,761.1	715.4	1,024.2	1,249.3	1.88	-0.62	-4.57
4,093.0	22.90	59.90	3,836.7	731.4	1,051.5	1,280.9	0.39	0.37	0.37
4,175.0	23.50	56.60	3,912.1	748.4	1,079.0	1,313.1	1.75	0.73	-4.02
4,256.0	23.50	55.70	3,986.4	766.4	1,105.8	1,345.4	0.44	0.00	-1.11
4,338.0	23.10	55.00	4,061.7	784.8	1,132.5	1,377.8	0.59	-0.49	-0.85
4,420.0	23.60	54.30	4,137.0	803.7	1,159.0	1,410.3	0.70	0.61	-0.85
4,502.0	24.30	53.30	4,211.9	823.3	1,185.9	1,443.6	0.99	0.85	-1.22
4,583.0	24.60	52.00	4,285.7	843.7	1,212.5	1,477.1	0.76	0.37	-1.60
4,665.0	25.90	49.90	4,359.8	865.7	1,239.7	1,512.0	1.93	1.59	-2.56
4,747.0	25.70	51.90	4,433.7	888.2	1,267.4	1,547.6	1.09	-0.24	2.44
4,828.0	25.30	50.50	4,506.8	910.1	1,294.5	1,582.4	0.89	-0.49	-1.73
4,910.0	25.20	50.60	4,580.9	932.3	1,321.5	1,617.3	0.13	-0.12	0.12
4,992.0	23.80	50.10	4,655.6	954.0	1,347.7	1,651.2	1.73	-1.71	-0.61
5,074.0	22.20	49.20	4,731.0	974.7	1,372.2	1,683.1	2.00	-1.95	-1.10
5,155.0	20.40	49.20	4,806.5	993.9	1,394.4	1,712.4	2.22	-2.22	0.00
5,237.0	19.30	48.70	4,883.6	1,012.2	1,415.4	1,740.1	1.36	-1.34	-0.61
5,319.0	18.20	48.20	4,961.3	1,029.7	1,435.2	1,766.3	1.36	-1.34	-0.61
5,400.0	16.10	46.20	5,038.7	1,045.9	1,452.7	1,790.0	2.69	-2.59	-2.47
5,482.0	14.20	46.10	5,117.8	1,060.7	1,468.1	1,811.2	2.32	-2.32	-0.12
5,564.0	12.60	53.30	5,197.6	1,073.1	1,482.6	1,830.0	2.82	-1.95	8.78
5,646.0	10.70	51.70	5,277.9	1,083.1	1,495.7	1,846.6	2.35	-2.32	-1.95

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 North Reference: True  
 Survey Calculation Method: Minimum Curvature  
 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)
5,727.0	9.70	51.20	5,357.6	1,092.1	1,506.9	1,860.9	1.24	-1.23	-0.62
5,809.0	8.90	52.60	5,438.5	1,100.3	1,517.4	1,874.1	1.01	-0.98	1.71
5,891.0	7.20	58.00	5,519.7	1,106.8	1,526.8	1,885.6	2.27	-2.07	6.59
5,973.0	6.50	70.70	5,601.1	1,111.1	1,535.5	1,895.2	2.03	-0.85	15.49
6,054.0	4.90	73.70	5,681.7	1,113.6	1,543.1	1,902.9	2.01	-1.98	3.70
6,136.0	4.00	98.60	5,763.5	1,114.1	1,549.3	1,908.3	2.57	-1.10	30.37
6,218.0	4.50	96.30	5,845.3	1,113.3	1,555.4	1,912.7	0.64	0.61	-2.80
6,299.0	1.80	110.20	5,926.1	1,112.6	1,559.7	1,915.8	3.44	-3.33	17.16
6,372.7	0.72	99.73	5,999.8	1,112.1	1,561.2	1,916.8	1.50	-1.47	-14.21
<b>TARGET BHL 2010'FNL, 667'FEL</b>									
6,381.0	0.60	96.20	6,008.1	1,112.1	1,561.3	1,916.9	1.50	-1.41	-42.42
6,463.0	0.90	62.40	6,090.1	1,112.3	1,562.3	1,917.8	0.64	0.37	-41.22
6,545.0	1.10	64.70	6,172.1	1,113.0	1,563.6	1,919.3	0.25	0.24	2.80
6,626.0	0.80	112.70	6,253.1	1,113.1	1,564.8	1,920.3	1.01	-0.37	59.26
6,708.0	1.10	106.40	6,335.1	1,112.6	1,566.1	1,921.1	0.39	0.37	-7.68
6,790.0	0.40	288.50	6,417.1	1,112.5	1,566.6	1,921.4	1.83	-0.85	-216.95
6,871.0	0.40	290.20	6,498.1	1,112.7	1,566.1	1,921.1	0.01	0.00	2.10
6,953.0	0.40	277.00	6,580.1	1,112.8	1,565.5	1,920.7	0.11	0.00	-16.10
7,035.0	0.10	52.20	6,662.1	1,112.9	1,565.3	1,920.6	0.58	-0.37	164.88
7,117.0	0.50	138.40	6,744.1	1,112.7	1,565.6	1,920.7	0.61	0.49	105.12
7,280.0	0.60	89.70	6,907.1	1,112.1	1,566.9	1,921.5	0.28	0.06	-29.88
7,443.0	0.60	174.00	7,070.1	1,111.3	1,567.9	1,921.8	0.49	0.00	51.72
7,527.2	0.55	197.95	7,154.2	1,110.5	1,567.8	1,921.2	0.29	-0.06	28.46
<b>TARGET CIRCLE 2010'FNL &amp; 667'FEL</b>									
7,527.4	0.55	197.95	7,154.5	1,110.5	1,567.8	1,921.2	0.00	0.00	0.00
<b>LEGAL BOX 400' X 400' 1981'FNL &amp; 662'FEL</b>									
7,607.0	0.60	220.60	7,234.1	1,109.8	1,567.4	1,920.5	0.29	0.06	28.46
7,770.0	0.60	241.00	7,397.0	1,108.7	1,566.1	1,918.8	0.13	0.00	12.52
7,976.0	0.50	248.00	7,603.0	1,107.9	1,564.3	1,916.9	0.06	-0.05	3.40
8,139.0	0.30	184.90	7,766.0	1,107.2	1,563.6	1,915.9	0.28	-0.12	-38.71
8,302.0	0.40	100.90	7,929.0	1,106.6	1,564.1	1,916.0	0.29	0.06	-51.53
8,375.0	0.40	125.00	8,002.0	1,106.5	1,564.6	1,916.3	0.23	0.00	33.01
8,425.0	0.40	125.00	8,052.0	1,106.3	1,564.9	1,916.4	0.00	0.00	0.00

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_