

Well Name: **Booth N25-24D**

Surface Location: Booth N25-20D Pad Sec.25-T5N-R67W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

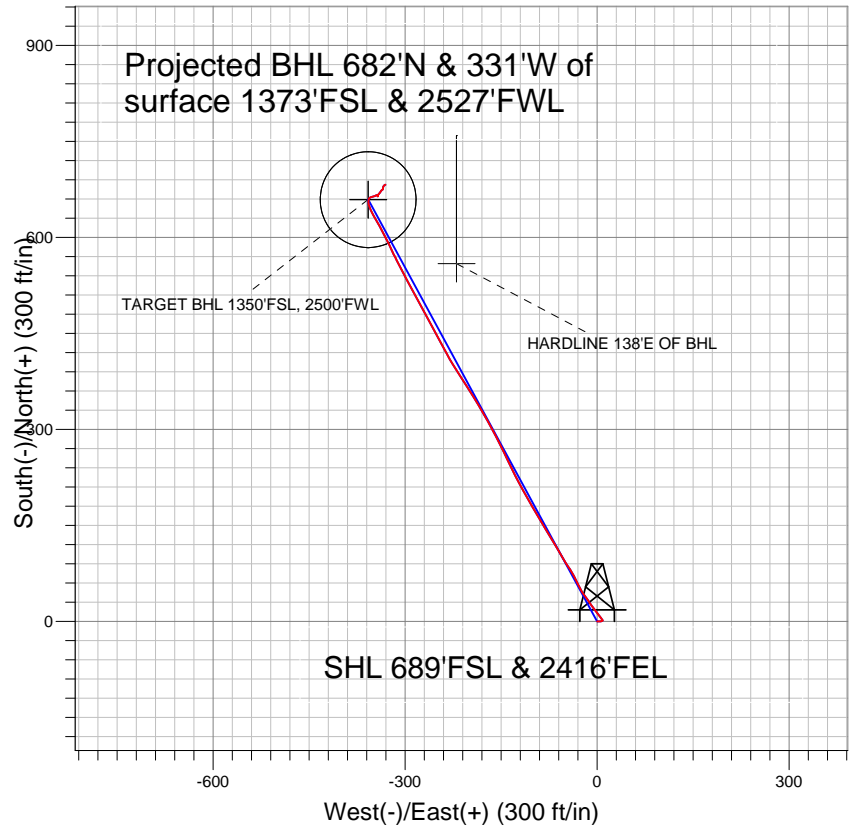
Ground Elevation: 4926.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1376554.89	3183708.95	40° 21' 54.612 N	104° 50' 26.592 W

Original Well Elev WELL @ 4939.0ft (Original Well Elev)

Slot

NOBLE ENERGY INC WELD COUNTY CO

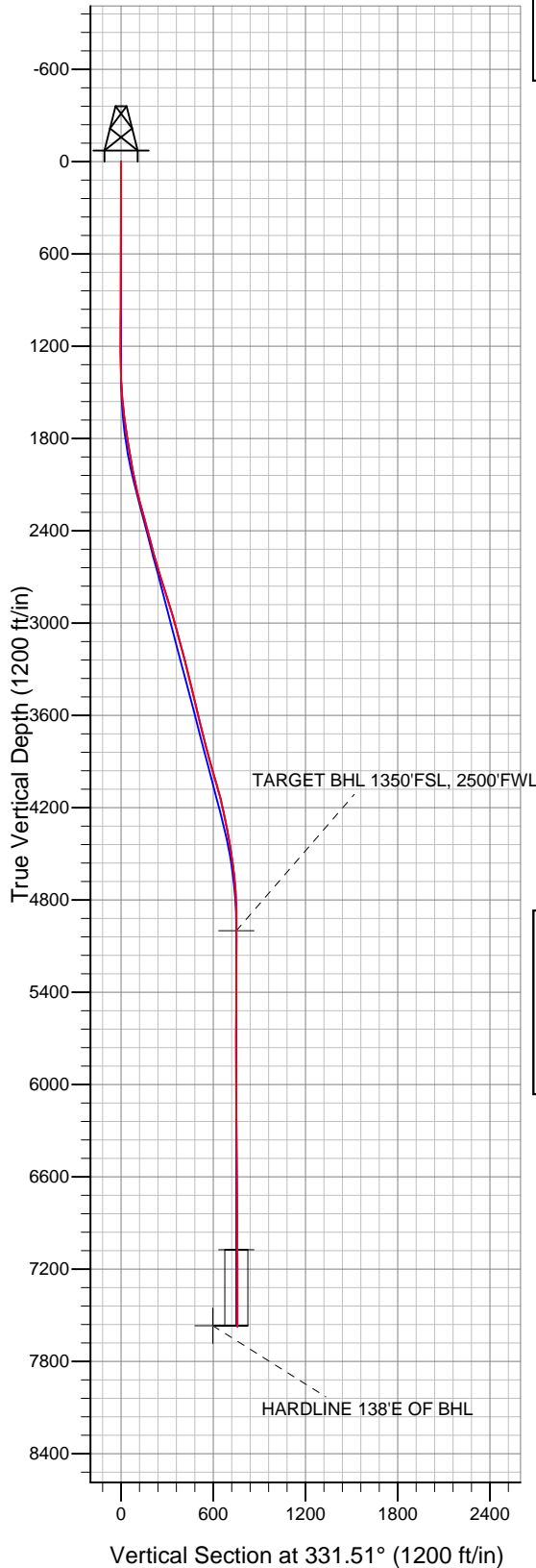


LEGEND

- △ Booth N25-24D, Wellbore #1, Noble Booth N25-24D Plan #1 (03-16-10) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7665'MD & 7575'TVD @ 757'VS
0.5 deg Inc 119.7 deg AZ



Project: SEC.25-T5N-R67W
Site: Booth N25-20D Pad Sec.25-T5N-R67W
Well: Booth N25-24D
Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.25-T5N-R67W

Booth N25-20D Pad Sec.25-T5N-R67W

Booth N25-24D

Wellbore #1

Survey: Survey #1

Standard Survey Report

06 June, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Booth N25-24D
Project:	SEC.25-T5N-R67W	TVD Reference:	WELL @ 4939.0ft (Original Well Elev)
Site:	Booth N25-20D Pad Sec.25-T5N-R67W	MD Reference:	WELL @ 4939.0ft (Original Well Elev)
Well:	Booth N25-24D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.25-T5N-R67W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Booth N25-20D Pad Sec.25-T5N-R67W		
Site Position:		Northing:	1,376,551.07 ft
From:	Lat/Long	Easting:	3,183,683.90 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40° 21' 54.576 N
		Longitude:	104° 50' 26.916 W
		Grid Convergence:	0.43 °

Well	Booth N25-24D		
Well Position	+N/-S	0.0 ft	Northing: 1,376,554.89 ft
	+E/-W	0.0 ft	Easting: 3,183,708.95 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40° 21' 54.612 N
		Longitude:	104° 50' 26.592 W
		Ground Level:	4,926.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	9.06	67.07	53,277

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	331.51	

Survey Program	Date	6/6/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
870.0	7,665.0	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	
870.0	0.70	90.90	870.0	-0.1	5.3	-2.6	0.08	0.08	0.00	
951.0	0.60	75.90	951.0	0.0	6.2	-3.0	0.24	-0.12	-18.52	
1,033.0	0.60	88.50	1,033.0	0.1	7.1	-3.3	0.16	0.00	15.37	
1,115.0	0.50	54.50	1,115.0	0.3	7.8	-3.4	0.41	-0.12	-41.46	
1,196.0	0.40	52.10	1,196.0	0.7	8.3	-3.3	0.13	-0.12	-2.96	
1,278.0	0.40	60.70	1,278.0	1.0	8.8	-3.3	0.07	0.00	10.49	
1,360.0	1.40	323.40	1,360.0	2.0	8.4	-2.3	1.83	1.22	-118.66	
1,441.0	3.30	327.20	1,440.9	4.7	6.6	1.0	2.35	2.35	4.69	
1,523.0	4.90	320.40	1,522.7	9.4	3.1	6.8	2.04	1.95	-8.29	
1,605.0	6.20	320.20	1,604.3	15.5	-2.0	14.6	1.59	1.59	-0.24	
1,686.0	7.50	327.10	1,684.7	23.3	-7.7	24.2	1.90	1.60	8.52	
1,768.0	8.50	325.20	1,765.9	32.8	-14.0	35.5	1.26	1.22	-2.32	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Booth N25-24D
Project:	SEC.25-T5N-R67W	TVD Reference:	WELL @ 4939.0ft (Original Well Elev)
Site:	Booth N25-20D Pad Sec.25-T5N-R67W	MD Reference:	WELL @ 4939.0ft (Original Well Elev)
Well:	Booth N25-24D	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)	
1,850.0	9.30	322.70	1,846.9	43.0	-21.5	48.1	1.08	0.98	-3.05	
1,931.0	9.70	337.20	1,926.8	54.5	-28.1	61.4	2.99	0.49	17.90	
2,013.0	10.80	332.20	2,007.5	67.7	-34.4	75.9	1.72	1.34	-6.10	
2,095.0	11.60	326.70	2,087.9	81.4	-42.5	91.8	1.63	0.98	-6.71	
2,176.0	13.90	328.50	2,166.9	96.5	-52.1	109.6	2.88	2.84	2.22	
2,258.0	15.70	330.50	2,246.2	114.6	-62.7	130.6	2.28	2.20	2.44	
2,340.0	15.00	327.80	2,325.3	133.2	-73.8	152.3	1.22	-0.85	-3.29	
2,422.0	14.80	328.60	2,404.5	151.1	-84.9	173.3	0.35	-0.24	0.98	
2,503.0	15.40	330.90	2,482.7	169.3	-95.5	194.4	1.05	0.74	2.84	
2,585.0	15.70	329.70	2,561.7	188.4	-106.4	216.4	0.54	0.37	-1.46	
2,666.0	15.80	331.00	2,639.7	207.5	-117.3	238.3	0.45	0.12	1.60	
2,748.0	17.40	333.40	2,718.3	228.3	-128.2	261.8	2.12	1.95	2.93	
2,830.0	17.90	334.30	2,796.4	250.6	-139.1	286.6	0.69	0.61	1.10	
2,912.0	17.80	333.50	2,874.5	273.2	-150.2	311.7	0.32	-0.12	-0.98	
2,993.0	16.00	333.30	2,952.0	294.2	-160.7	335.3	2.22	-2.22	-0.25	
3,075.0	15.00	329.40	3,031.0	313.4	-171.2	357.2	1.76	-1.22	-4.76	
3,157.0	15.50	330.10	3,110.1	332.1	-182.1	378.7	0.65	0.61	0.85	
3,239.0	14.50	328.00	3,189.3	350.3	-193.0	399.9	1.39	-1.22	-2.56	
3,320.0	14.10	328.20	3,267.8	367.3	-203.6	419.9	0.50	-0.49	0.25	
3,402.0	14.50	326.40	3,347.3	384.3	-214.5	440.1	0.73	0.49	-2.20	
3,483.0	13.70	328.30	3,425.8	400.9	-225.2	459.8	1.14	-0.99	2.35	
3,565.0	13.50	332.80	3,505.5	417.7	-234.6	479.0	1.31	-0.24	5.49	
3,646.0	13.30	331.50	3,584.3	434.3	-243.4	497.8	0.45	-0.25	-1.60	
3,728.0	13.70	332.00	3,664.1	451.1	-252.5	516.9	0.51	0.49	0.61	
3,810.0	14.20	330.70	3,743.6	468.5	-261.9	536.7	0.72	0.61	-1.59	
3,891.0	14.90	330.90	3,822.0	486.2	-271.9	557.0	0.87	0.86	0.25	
3,973.0	15.50	331.50	3,901.2	505.1	-282.2	578.5	0.76	0.73	0.73	
4,055.0	16.00	332.80	3,980.1	524.8	-292.6	600.8	0.75	0.61	1.59	
4,137.0	16.10	332.60	4,058.9	544.9	-303.0	623.5	0.14	0.12	-0.24	
4,218.0	14.90	332.30	4,136.9	564.1	-313.0	645.1	1.48	-1.48	-0.37	
4,300.0	11.80	334.80	4,216.7	581.0	-321.5	664.0	3.84	-3.78	3.05	
4,382.0	11.40	335.00	4,297.0	596.0	-328.5	680.5	0.49	-0.49	0.24	
4,463.0	10.90	330.00	4,376.5	609.9	-335.7	696.1	1.34	-0.62	-6.17	
4,545.0	8.90	330.80	4,457.3	622.1	-342.7	710.2	2.44	-2.44	0.98	
4,627.0	8.20	331.30	4,538.4	632.8	-348.6	722.4	0.86	-0.85	0.61	
4,708.0	6.90	334.90	4,618.7	642.2	-353.4	733.1	1.71	-1.60	4.44	
4,790.0	5.10	343.60	4,700.2	650.2	-356.5	741.5	2.45	-2.20	10.61	
4,872.0	3.30	5.90	4,782.0	656.0	-357.3	747.0	2.93	-2.20	27.20	
4,954.0	1.90	17.30	4,863.9	659.7	-356.7	749.9	1.81	-1.71	13.90	
5,035.0	1.50	49.80	4,944.9	661.7	-355.5	751.1	1.27	-0.49	40.12	
5,090.0	1.54	66.78	4,999.9	662.4	-354.2	751.2	0.82	0.07	30.87	
TARGET BHL 1350'FSL, 2500'FWL										
5,117.0	1.60	74.50	5,026.9	662.7	-353.5	751.1	0.82	0.24	28.60	
5,199.0	1.10	78.90	5,108.8	663.1	-351.7	750.6	0.62	-0.61	5.37	
5,280.0	0.90	70.80	5,189.8	663.5	-350.3	750.2	0.30	-0.25	-10.00	
5,362.0	0.90	80.80	5,271.8	663.8	-349.1	749.9	0.19	0.00	12.20	
5,445.0	1.00	59.30	5,354.8	664.3	-347.8	749.7	0.44	0.12	-25.90	
5,525.0	0.70	75.40	5,434.8	664.7	-346.7	749.6	0.48	-0.38	20.13	
5,606.0	0.70	47.40	5,515.8	665.2	-345.9	749.6	0.42	0.00	-34.57	
5,689.0	1.10	71.00	5,598.8	665.8	-344.8	749.6	0.65	0.48	28.43	
5,770.0	0.70	103.80	5,679.8	665.9	-343.5	749.2	0.79	-0.49	40.49	
5,852.0	0.70	152.70	5,761.8	665.4	-342.8	748.3	0.71	0.00	59.63	
5,934.0	0.50	170.20	5,843.8	664.6	-342.5	747.5	0.33	-0.24	21.34	
6,015.0	0.20	202.90	5,924.8	664.1	-342.5	747.1	0.43	-0.37	40.37	

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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)	
6,097.0	0.50	342.80	6,006.8	664.3	-342.7	747.3	0.81	0.37	170.61	
6,179.0	0.80	26.60	6,088.8	665.2	-342.5	748.0	0.68	0.37	53.41	
6,261.0	1.10	32.30	6,170.7	666.3	-341.9	748.7	0.38	0.37	6.95	
6,342.0	1.50	39.50	6,251.7	667.8	-340.8	749.5	0.53	0.49	8.89	
6,415.0	2.30	35.50	6,324.7	669.7	-339.3	750.5	1.11	1.10	-5.48	
6,506.0	1.80	37.50	6,415.6	672.4	-337.4	751.9	0.55	-0.55	2.20	
6,588.0	1.20	50.10	6,497.6	673.9	-335.9	752.6	0.83	-0.73	15.37	
6,669.0	0.80	46.50	6,578.6	674.9	-334.9	752.9	0.50	-0.49	-4.44	
6,751.0	0.50	12.60	6,660.6	675.6	-334.4	753.3	0.58	-0.37	-41.34	
6,832.0	0.50	322.30	6,741.6	676.2	-334.5	753.9	0.52	0.00	-62.10	
6,914.0	0.60	30.90	6,823.6	676.9	-334.5	754.5	0.76	0.12	83.66	
6,996.0	0.20	358.70	6,905.6	677.4	-334.3	754.8	0.54	-0.49	-39.27	
7,078.0	0.20	352.90	6,987.6	677.7	-334.3	755.1	0.02	0.00	-7.07	
7,159.0	0.80	12.20	7,068.6	678.4	-334.2	755.7	0.76	0.74	23.83	
7,164.1	0.80	12.79	7,073.6	678.5	-334.2	755.7	0.16	-0.01	11.54	
TARGET CIRCLE 1350'FSL, 2500'FWL										
7,241.0	0.80	21.70	7,150.6	679.5	-333.9	756.5	0.16	0.00	11.59	
7,323.0	0.90	50.00	7,232.5	680.4	-333.2	757.0	0.52	0.12	34.51	
7,405.0	0.80	57.50	7,314.5	681.1	-332.2	757.1	0.18	-0.12	9.15	
7,487.0	0.40	28.70	7,396.5	681.7	-331.6	757.3	0.60	-0.49	-35.12	
7,568.0	0.40	40.10	7,477.5	682.2	-331.3	757.6	0.10	0.00	14.07	
7,615.0	0.50	119.70	7,524.5	682.2	-331.0	757.5	1.24	0.21	169.36	
7,660.8	0.50	119.70	7,570.4	682.0	-330.6	757.1	0.00	0.00	0.00	
HARDLINE 138'E OF BHL										
7,665.0	0.50	119.70	7,574.5	682.0	-330.6	757.1	0.00	0.00	0.00	

Checked By: _____	Approved By: _____	Date: _____
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