

Well Name: **Camp H30-29D**

Surface Location: Wardell H19-32D Pad Sec.19-T3N-R65W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

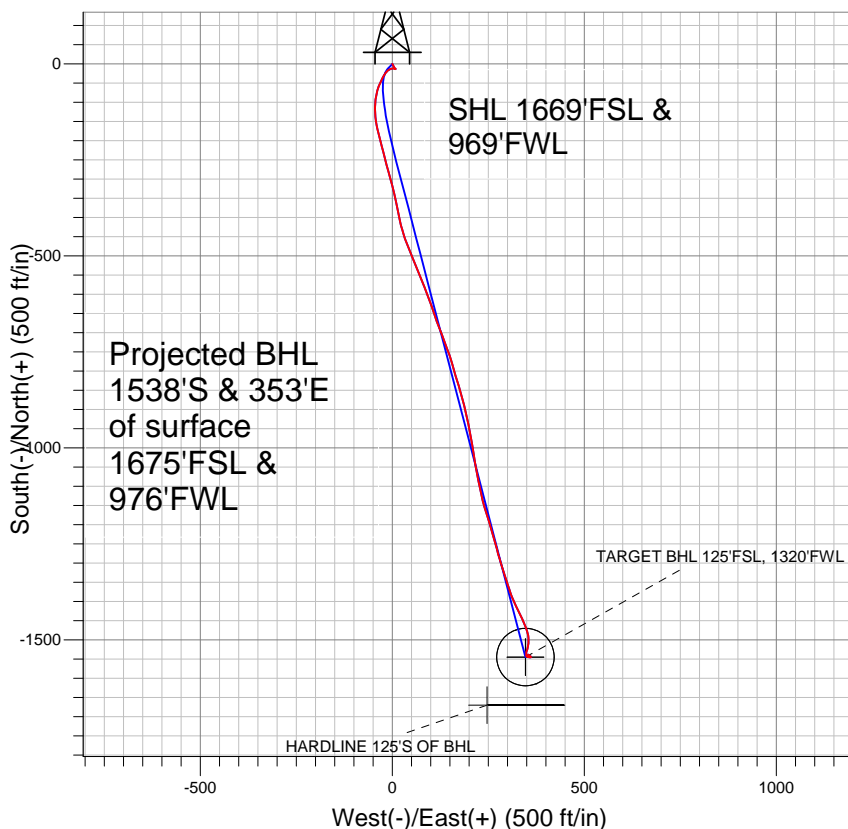
Ground Elevation: 4990.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1319681.36	3220008.63	40° 12' 29.664 N	104° 42' 44.172 W

Original Well Elev WELL @ 5003.0ft (Original Well Elev)

Slot

NOBLE ENERGY INC WELD COUNTY CO

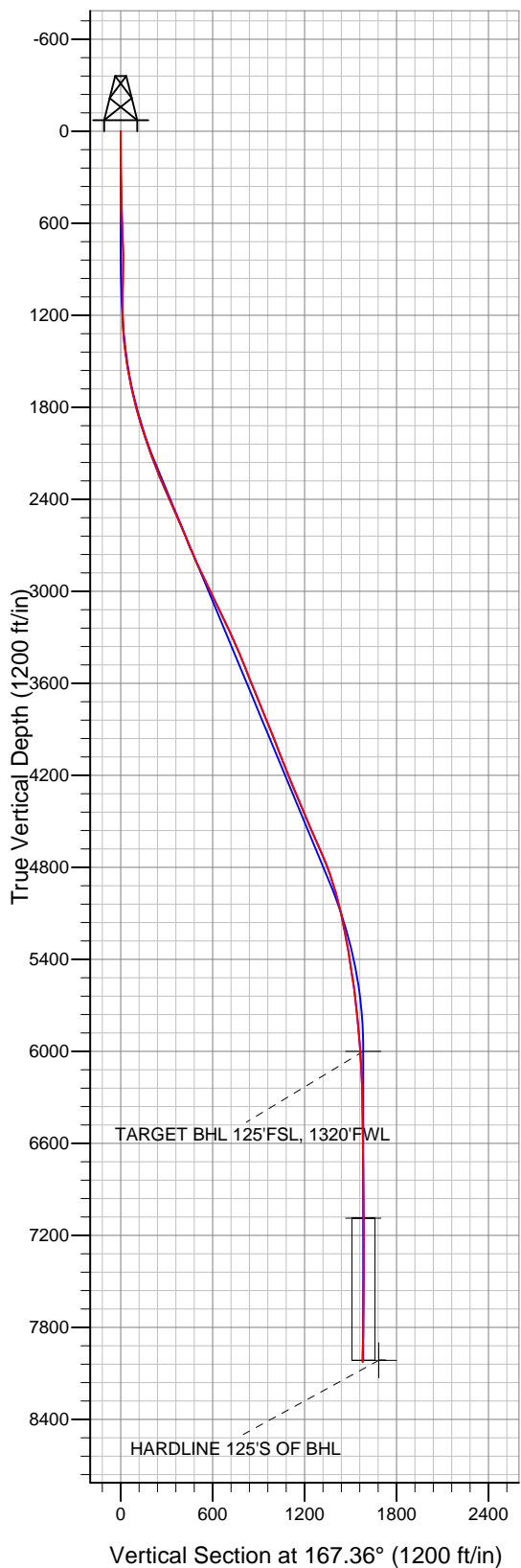


LEGEND

- ◆ Camp H30-29D, Wellbore #1, Noble Camp H30-29D Plan #3 (2-22-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
8315'MD & 8026'TVD @ 1578'VS
1.1 deg Inc 312.1 deg AZ



Project: SEC.19-T3N-R65W
Site: Wardell H19-32D Pad Sec.19-T3N-R65W
Well: Camp H30-29D
Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.19-T3N-R65W

Wardell H19-32D Pad Sec.19-T3N-R65W

Camp H30-29D

Wellbore #1

Survey: Survey #1

Standard Survey Report

21 March, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Camp H30-29D
Project:	SEC.19-T3N-R65W	TVD Reference:	WELL @ 5003.0ft (Original Well Elev)
Site:	Wardell H19-32D Pad Sec.19-T3N-R65W	MD Reference:	WELL @ 5003.0ft (Original Well Elev)
Well:	Camp H30-29D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.19-T3N-R65W, 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	Wardell H19-32D Pad Sec.19-T3N-R65W		
Site Position:		Northing:	1,319,655.62 ft
From:	Lat/Long	Easting:	3,219,980.93 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40° 12' 29.412 N
		Longitude:	104° 42' 44.532 W
		Grid Convergence:	0.51 °

Well	Camp H30-29D		
Well Position	+N-S	0.0 ft	Northing:
	+E-W	0.0 ft	Easting:
Position Uncertainty		0.0 ft	Wellhead Elevation:
			ft
			Latitude:
			40° 12' 29.664 N
			Longitude:
			104° 42' 44.172 W
			Ground Level:
			4,990.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/15/2011	8.86	66.92	53,070

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	167.36	

Survey Program	Date	3/21/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
725.0	8,315.0	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	
725.0	2.20	153.40	724.8	-12.4	6.2	13.5	0.30	0.30	0.00	
788.0	0.90	102.90	787.8	-13.6	7.3	14.9	2.81	-2.06	-80.16	
882.0	0.70	40.00	881.8	-13.4	8.3	14.9	0.91	-0.21	-66.92	
976.0	1.80	283.20	975.8	-12.6	7.3	13.9	2.35	1.17	-124.26	
1,070.0	3.00	276.90	1,069.7	-12.0	3.4	12.4	1.31	1.28	-6.70	
1,164.0	4.90	255.60	1,163.5	-12.7	-2.9	11.7	2.52	2.02	-22.66	
1,258.0	6.10	234.70	1,257.0	-16.5	-10.9	13.8	2.46	1.28	-22.23	
1,352.0	8.00	216.70	1,350.3	-24.7	-18.9	19.9	3.08	2.02	-19.15	
1,446.0	10.00	205.90	1,443.2	-37.3	-26.4	30.6	2.78	2.13	-11.49	
1,540.0	10.80	203.50	1,535.6	-52.7	-33.4	44.1	0.97	0.85	-2.55	
1,634.0	12.50	194.50	1,627.7	-70.6	-39.5	60.3	2.64	1.81	-9.57	
1,727.0	14.30	187.90	1,718.2	-91.7	-43.6	80.0	2.54	1.94	-7.10	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Camp H30-29D
Project:	SEC.19-T3N-R65W	TVD Reference:	WELL @ 5003.0ft (Original Well Elev)
Site:	Wardell H19-32D Pad Sec.19-T3N-R65W	MD Reference:	WELL @ 5003.0ft (Original Well Elev)
Well:	Camp H30-29D	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)	
1,821.0	15.10	180.60	1,809.1	-115.5	-45.3	102.8	2.14	0.85	-7.77	
1,915.0	16.90	173.50	1,899.5	-141.3	-43.9	128.3	2.83	1.91	-7.55	
2,009.0	18.80	167.60	1,989.0	-169.7	-39.1	157.0	2.79	2.02	-6.28	
2,103.0	18.90	164.70	2,077.9	-199.1	-31.8	187.4	1.00	0.11	-3.09	
2,196.0	20.80	166.10	2,165.4	-229.7	-23.9	218.9	2.11	2.04	1.51	
2,290.0	22.50	165.10	2,252.7	-263.3	-15.3	253.6	1.85	1.81	-1.06	
2,384.0	24.10	163.60	2,339.1	-299.1	-5.2	290.7	1.82	1.70	-1.60	
2,478.0	23.90	167.10	2,425.0	-336.1	4.5	328.9	1.53	-0.21	3.72	
2,572.0	23.30	169.50	2,511.1	-372.9	12.1	366.5	1.20	-0.64	2.55	
2,666.0	23.10	167.20	2,597.5	-409.2	19.6	403.5	0.99	-0.21	-2.45	
2,760.0	22.20	162.20	2,684.3	-444.1	29.1	439.7	2.26	-0.96	-5.32	
2,854.0	23.60	157.40	2,770.9	-478.3	41.7	475.9	2.48	1.49	-5.11	
2,948.0	25.70	158.60	2,856.3	-514.7	56.4	514.6	2.30	2.23	1.28	
3,042.0	25.90	157.70	2,940.9	-552.7	71.6	555.0	0.47	0.21	-0.96	
3,136.0	26.40	157.80	3,025.3	-591.0	87.3	595.8	0.53	0.53	0.11	
3,230.0	27.10	162.10	3,109.2	-630.7	101.8	637.7	2.19	0.74	4.57	
3,324.0	25.20	159.40	3,193.6	-669.8	115.4	678.9	2.38	-2.02	-2.87	
3,417.0	24.70	159.00	3,277.9	-706.5	129.4	717.7	0.57	-0.54	-0.43	
3,511.0	23.80	159.90	3,363.6	-742.7	142.9	755.9	1.04	-0.96	0.96	
3,605.0	22.70	163.70	3,450.0	-777.9	154.5	792.9	1.98	-1.17	4.04	
3,699.0	21.20	164.40	3,537.2	-811.7	164.2	827.9	1.62	-1.60	0.74	
3,793.0	22.20	162.10	3,624.5	-844.9	174.2	862.6	1.40	1.06	-2.45	
3,887.0	22.40	164.80	3,711.5	-879.1	184.4	898.2	1.11	0.21	2.87	
3,981.0	22.20	167.90	3,798.5	-913.8	192.8	933.8	1.27	-0.21	3.30	
4,075.0	21.60	170.10	3,885.7	-948.2	199.5	968.9	1.08	-0.64	2.34	
4,169.0	22.00	168.90	3,973.0	-982.5	205.9	1,003.7	0.64	0.43	-1.28	
4,263.0	21.20	171.90	4,060.4	-1,016.6	211.6	1,038.3	1.45	-0.85	3.19	
4,357.0	22.30	169.90	4,147.7	-1,051.0	217.2	1,073.0	1.41	1.17	-2.13	
4,451.0	21.90	168.60	4,234.8	-1,085.7	223.8	1,108.4	0.67	-0.43	-1.38	
4,545.0	22.30	167.20	4,321.9	-1,120.3	231.2	1,143.8	0.70	0.43	-1.49	
4,639.0	23.60	163.50	4,408.4	-1,155.8	240.5	1,180.4	2.07	1.38	-3.94	
4,733.0	22.90	163.00	4,494.8	-1,191.3	251.2	1,217.4	0.77	-0.74	-0.53	
4,827.0	23.90	163.80	4,581.1	-1,227.1	261.8	1,254.6	1.12	1.06	0.85	
4,921.0	24.10	165.00	4,666.9	-1,263.9	272.1	1,292.8	0.56	0.21	1.28	
5,015.0	22.20	163.00	4,753.4	-1,299.4	282.3	1,329.7	2.19	-2.02	-2.13	
5,109.0	19.70	162.30	4,841.1	-1,331.5	292.3	1,363.2	2.67	-2.66	-0.74	
5,203.0	16.80	162.00	4,930.4	-1,359.5	301.3	1,392.5	3.09	-3.09	-0.32	
5,297.0	14.40	159.90	5,020.9	-1,383.4	309.5	1,417.6	2.62	-2.55	-2.23	
5,391.0	12.60	155.40	5,112.3	-1,403.7	317.8	1,439.2	2.22	-1.91	-4.79	
5,485.0	11.50	151.20	5,204.3	-1,421.2	326.6	1,458.3	1.50	-1.17	-4.47	
5,578.0	10.70	157.40	5,295.5	-1,437.3	334.4	1,475.7	1.54	-0.86	6.67	
5,672.0	9.10	154.60	5,388.1	-1,452.1	340.9	1,491.5	1.78	-1.70	-2.98	
5,766.0	9.10	161.00	5,481.0	-1,465.9	346.5	1,506.2	1.08	0.00	6.81	
5,860.0	8.60	162.10	5,573.8	-1,479.6	351.1	1,520.5	0.56	-0.53	1.17	
5,954.0	6.30	174.90	5,667.0	-1,491.4	353.7	1,532.7	3.00	-2.45	13.62	
6,048.0	4.70	177.00	5,760.6	-1,500.4	354.4	1,541.6	1.72	-1.70	2.23	
6,142.0	5.70	186.50	5,854.2	-1,508.9	354.0	1,549.8	1.40	1.06	10.11	
6,236.0	5.50	190.40	5,947.8	-1,517.9	352.7	1,558.3	0.46	-0.21	4.15	
6,290.4	4.80	193.40	6,001.9	-1,522.7	351.7	1,562.8	1.38	-1.29	5.52	
TARGET BHL 125'FSL, 1320'FWL										
6,330.0	4.30	196.20	6,041.4	-1,525.8	350.9	1,565.6	1.38	-1.26	7.06	
6,423.0	3.00	202.10	6,134.2	-1,531.4	349.0	1,570.6	1.45	-1.40	6.34	
6,517.0	1.60	179.10	6,228.2	-1,534.9	348.1	1,573.9	1.76	-1.49	-24.47	
6,611.0	1.80	183.10	6,322.1	-1,537.7	348.0	1,576.6	0.25	0.21	4.26	

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Well:	Camp H30-29D	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)
6,705.0	1.00	165.00	6,416.1	-1,540.0	348.2	1,578.9	0.96	-0.85	-19.26
6,799.0	0.70	189.50	6,510.1	-1,541.4	348.3	1,580.2	0.49	-0.32	26.06
6,893.0	0.30	136.70	6,604.1	-1,542.1	348.4	1,581.0	0.61	-0.43	-56.17
6,987.0	0.00	192.70	6,698.1	-1,542.3	348.5	1,581.2	0.32	-0.32	0.00
7,081.0	0.40	104.40	6,792.1	-1,542.4	348.9	1,581.3	0.43	0.43	0.00
7,174.0	0.40	123.40	6,885.1	-1,542.6	349.4	1,581.7	0.14	0.00	20.43
7,268.0	1.00	124.40	6,979.1	-1,543.3	350.4	1,582.5	0.64	0.64	1.06
7,362.0	1.10	118.28	7,073.0	-1,544.2	351.9	1,583.7	0.16	0.11	-6.51
7,376.8	1.21	113.51	7,087.9	-1,544.3	352.1	1,583.9	1.00	0.76	-32.19
TARGET CIRCLE 125'FSL, 1320'FWL									
7,456.0	1.90	98.60	7,167.0	-1,544.8	354.2	1,584.9	1.00	0.87	-18.83
7,550.0	1.80	90.90	7,261.0	-1,545.1	357.2	1,585.8	0.28	-0.11	-8.19
7,644.0	1.10	95.00	7,354.9	-1,545.2	359.6	1,586.4	0.75	-0.74	4.36
7,738.0	0.70	5.30	7,448.9	-1,544.7	360.5	1,586.1	1.38	-0.43	-95.43
7,832.0	1.00	316.60	7,542.9	-1,543.5	360.0	1,584.9	0.80	0.32	-51.81
7,926.0	1.10	307.40	7,636.9	-1,542.4	358.8	1,583.5	0.21	0.11	-9.79
8,020.0	0.90	298.70	7,730.9	-1,541.5	357.4	1,582.3	0.27	-0.21	-9.26
8,144.0	1.00	302.10	7,854.9	-1,540.4	355.6	1,580.9	0.09	0.08	2.74
8,265.0	1.10	312.10	7,975.9	-1,539.1	353.9	1,579.2	0.17	0.08	8.26
8,304.0	1.10	312.10	8,014.8	-1,538.6	353.3	1,578.6	0.00	0.00	0.00
HARDLINE 125'S OF BHL									
8,315.0	1.10	312.10	8,025.8	-1,538.4	353.1	1,578.4	0.00	0.00	0.00

Checked By: _____	Approved By: _____	Date: _____
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