

Well Name: **LDS D20-30D**

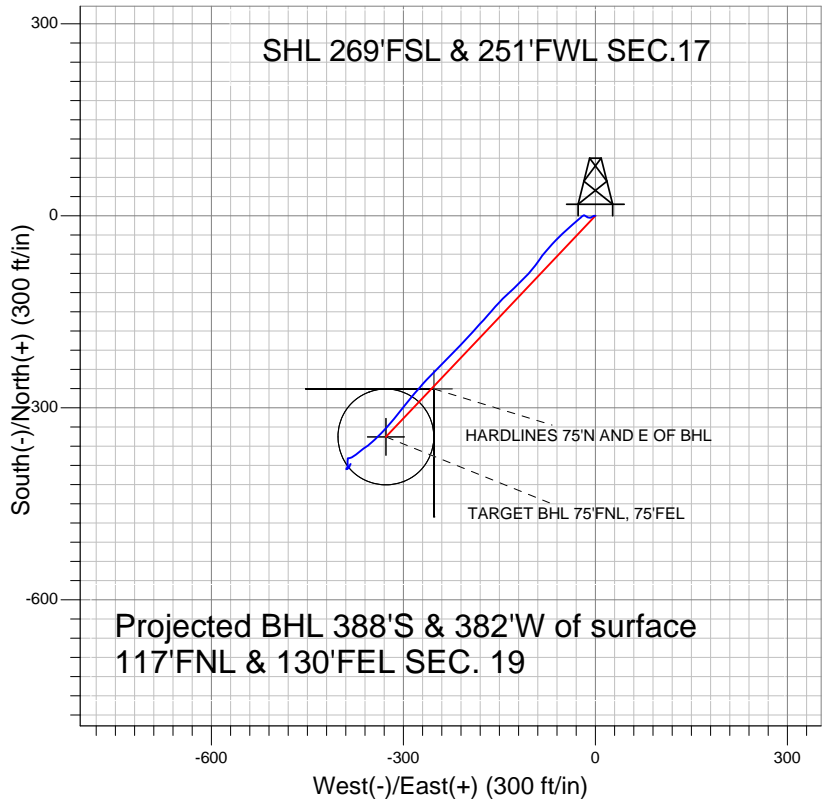
Surface Location: LDS D20-29D Pad Sec.17-T3N-R64W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4763.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1323873.50	3255924.05	40° 13' 7.680 N	104° 35' 0.708 W	

Original Well EleWELL @ 4776.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



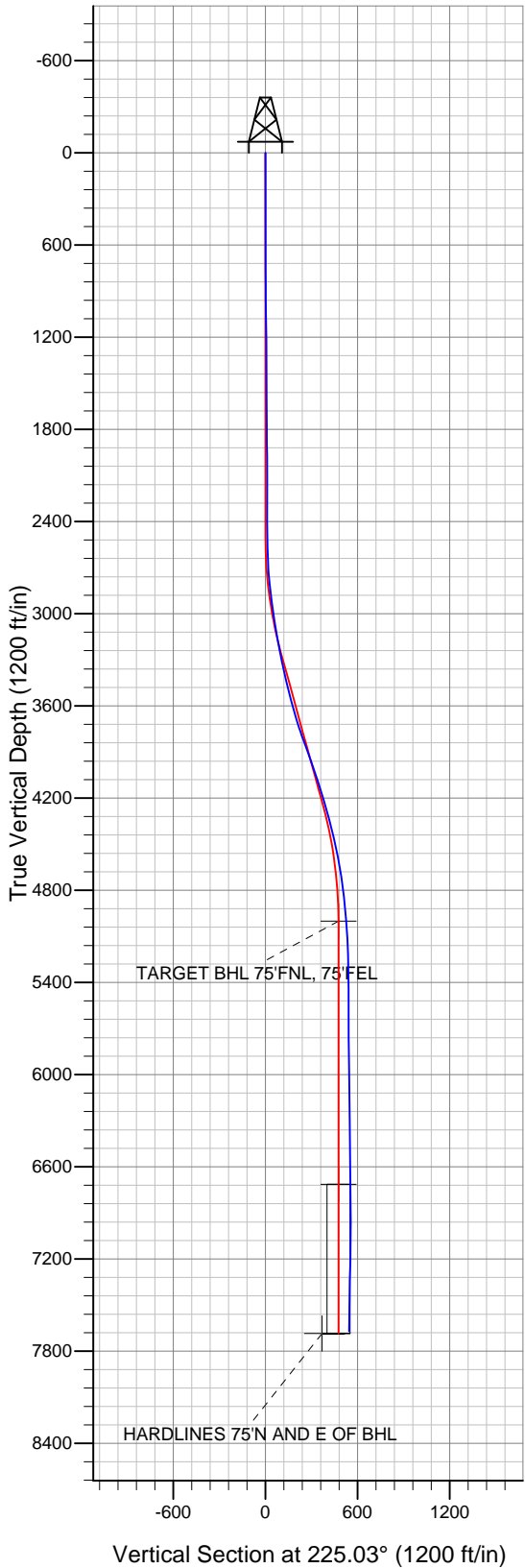
LEGEND

- △ LDS D20-30D, Wellbore #1, Noble LDS D20-30D Plan #1 (12-16-09) V0
- Wellbore #1

Final Survey Plot

Projected Final Survey -
7734'MD & 7670'TVD @ 544' VS
0.6 deg Inc 26.8 deg AZ

Project: SEC.17-T3N-R64W
Site: LDS D20-29D Pad Sec.17-T3N-R64W
Well: LDS D20-30D
Plan: Wellbore #1





Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.17-T3N-R64W

LDS D20-29D Pad Sec.17-T3N-R64W

LDS D20-30D

Wellbore #1

Design: Wellbore #1

Standard Survey Report

05 October, 2010



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well LDS D20-30D
Project:	SEC.17-T3N-R64W	TVD Reference:	WELL @ 4776.0ft (Original Well Elev)
Site:	LDS D20-29D Pad Sec.17-T3N-R64W	MD Reference:	WELL @ 4776.0ft (Original Well Elev)
Well:	LDS D20-30D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.17-T3N-R64W, 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	LDS D20-29D Pad Sec.17-T3N-R64W		
Site Position:		Northing:	1,323,837.46ft
From:	Lat/Long	Easting:	3,255,960.73ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40° 13' 7.320 N
		Longitude:	104° 35' 0.240 W
		Grid Convergence:	0.59 °

Well	LDS D20-30D		
Well Position	+N-S	0.0 ft	Northing: 1,323,873.50 ft
	+E-W	0.0 ft	Easting: 3,255,924.05 ft
Position Uncertainty		0.0 ft	Wellhead Elevation: ft
			Latitude: 40° 13' 7.680 N
			Longitude: 104° 35' 0.708 W
			Ground Level: 4,763.0ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/21/2010	8.85	66.96	53,134

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	225.03	

Survey Program	Date	10/4/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
775.0	7,734.0	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	
775.0	0.30	264.90	775.0	-0.2	-2.0	1.6	0.04	0.04	0.00	
860.0	0.50	250.00	860.0	-0.3	-2.6	2.1	0.26	0.24	-17.53	
946.0	0.50	256.30	946.0	-0.5	-3.3	2.7	0.06	0.00	7.33	
1,031.0	0.60	238.20	1,031.0	-0.9	-4.0	3.5	0.23	0.12	-21.29	
1,116.0	0.60	229.80	1,116.0	-1.4	-4.8	4.4	0.10	0.00	-9.88	
1,202.0	0.60	239.40	1,202.0	-1.9	-5.5	5.2	0.12	0.00	11.16	
1,287.0	0.40	250.30	1,287.0	-2.2	-6.2	5.9	0.26	-0.24	12.82	
1,373.0	0.50	231.60	1,373.0	-2.6	-6.7	6.6	0.21	0.12	-21.74	
1,458.0	0.30	256.60	1,458.0	-2.9	-7.2	7.1	0.31	-0.24	29.41	
1,543.0	0.50	258.90	1,543.0	-3.0	-7.8	7.6	0.24	0.24	2.71	
1,629.0	0.40	264.20	1,629.0	-3.1	-8.5	8.2	0.13	-0.12	6.16	
1,714.0	0.50	278.20	1,714.0	-3.1	-9.2	8.6	0.17	0.12	16.47	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well LDS D20-30D
Project:	SEC.17-T3N-R64W	TVD Reference:	WELL @ 4776.0ft (Original Well Elev)
Site:	LDS D20-29D Pad Sec.17-T3N-R64W	MD Reference:	WELL @ 4776.0ft (Original Well Elev)
Well:	LDS D20-30D	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)
1,800.0	0.50	282.80	1,800.0	-2.9	-9.9	9.1	0.05	0.00	5.35
1,885.0	0.50	269.60	1,885.0	-2.8	-10.6	9.5	0.14	0.00	-15.53
1,970.0	0.80	295.00	1,970.0	-2.6	-11.5	10.0	0.48	0.35	29.88
2,056.0	0.50	293.10	2,055.9	-2.2	-12.4	10.3	0.35	-0.35	-2.21
2,141.0	0.70	310.40	2,140.9	-1.7	-13.2	10.5	0.31	0.24	20.35
2,227.0	1.00	296.90	2,226.9	-1.0	-14.2	10.8	0.42	0.35	-15.70
2,312.0	0.70	300.90	2,311.9	-0.4	-15.3	11.1	0.36	-0.35	4.71
2,397.0	0.80	302.70	2,396.9	0.2	-16.3	11.4	0.12	0.12	2.12
2,483.0	0.70	300.40	2,482.9	0.8	-17.2	11.7	0.12	-0.12	-2.67
2,568.0	1.80	236.50	2,567.9	0.3	-18.8	13.1	1.90	1.29	-75.18
2,654.0	2.40	233.00	2,653.8	-1.5	-21.4	16.2	0.71	0.70	-4.07
2,739.0	4.40	228.30	2,738.7	-4.8	-25.2	21.2	2.37	2.35	-5.53
2,824.0	5.80	228.10	2,823.3	-9.8	-30.8	28.8	1.65	1.65	-0.24
2,910.0	7.30	230.00	2,908.8	-16.2	-38.3	38.6	1.76	1.74	2.21
2,995.0	8.90	227.30	2,992.9	-24.2	-47.2	50.5	1.93	1.88	-3.18
3,081.0	9.40	224.30	3,077.8	-33.7	-57.0	64.2	0.80	0.58	-3.49
3,166.0	10.50	223.90	3,161.5	-44.3	-67.3	78.9	1.30	1.29	-0.47
3,251.0	10.80	220.00	3,245.1	-55.9	-77.7	94.5	0.92	0.35	-4.59
3,337.0	11.80	215.00	3,329.4	-69.3	-88.0	111.2	1.63	1.16	-5.81
3,422.0	13.00	217.80	3,412.4	-84.0	-98.8	129.3	1.58	1.41	3.29
3,508.0	13.70	225.90	3,496.1	-98.7	-112.1	149.0	2.32	0.81	9.42
3,593.0	15.30	227.30	3,578.4	-113.3	-127.5	170.3	1.93	1.88	1.65
3,678.0	16.70	225.50	3,660.1	-129.5	-144.5	193.7	1.75	1.65	-2.12
3,764.0	18.30	220.20	3,742.1	-148.5	-162.0	219.6	2.62	1.86	-6.16
3,849.0	20.40	223.20	3,822.3	-169.5	-180.8	247.7	2.73	2.47	3.53
3,935.0	20.00	221.90	3,903.0	-191.3	-200.8	277.3	0.70	-0.47	-1.51
4,020.0	18.60	223.50	3,983.3	-212.0	-219.9	305.4	1.76	-1.65	1.88
4,105.0	17.80	226.50	4,064.0	-230.8	-238.6	331.9	1.45	-0.94	3.53
4,191.0	18.50	223.10	4,145.7	-249.8	-257.5	358.7	1.48	0.81	-3.95
4,276.0	16.20	221.30	4,226.9	-268.5	-274.5	384.0	2.78	-2.71	-2.12
4,362.0	15.30	219.20	4,309.6	-286.3	-289.6	407.3	1.24	-1.05	-2.44
4,447.0	14.20	218.40	4,391.8	-303.2	-303.2	428.8	1.32	-1.29	-0.94
4,532.0	13.10	219.80	4,474.4	-318.8	-315.8	448.7	1.35	-1.29	1.65
4,625.0	11.30	222.00	4,565.3	-333.7	-328.7	468.3	2.00	-1.94	2.37
4,711.0	9.50	225.70	4,649.9	-344.9	-339.4	483.9	2.23	-2.09	4.30
4,796.0	8.50	229.10	4,733.9	-353.9	-349.2	497.1	1.33	-1.18	4.00
4,882.0	6.30	232.70	4,819.1	-360.9	-357.7	508.2	2.61	-2.56	4.19
4,967.0	5.80	236.60	4,903.7	-366.1	-365.0	517.0	0.76	-0.59	4.59
5,053.0	5.00	228.00	4,989.3	-371.0	-371.4	525.0	1.32	-0.93	-10.00
5,059.7	4.92	228.40	4,996.0	-371.4	-371.9	525.6	1.31	-1.20	6.02
TARGET BHL 75'FNL, 75'FEL									
5,138.0	4.00	234.30	5,074.0	-375.2	-376.6	531.6	1.31	-1.17	7.53
5,224.0	2.40	249.30	5,159.9	-377.6	-380.7	536.2	2.08	-1.86	17.44
5,309.0	1.80	260.90	5,244.8	-378.4	-383.7	538.9	0.86	-0.71	13.65
5,395.0	0.50	247.40	5,330.8	-378.8	-385.4	540.4	1.53	-1.51	-15.70
5,480.0	0.30	288.20	5,415.8	-378.9	-385.9	540.8	0.40	-0.24	48.00
5,565.0	0.30	265.20	5,500.8	-378.8	-386.4	541.1	0.14	0.00	-27.06
5,694.0	0.40	192.90	5,629.8	-379.3	-386.8	541.7	0.33	0.08	-56.05
5,865.0	0.80	181.20	5,800.8	-381.1	-387.0	543.1	0.24	0.23	-6.84
6,036.0	0.90	184.60	5,971.8	-383.6	-387.1	545.0	0.07	0.06	1.99
6,207.0	0.90	179.50	6,142.8	-386.3	-387.2	546.9	0.05	0.00	-2.98
6,378.0	1.00	173.60	6,313.7	-389.1	-387.0	548.8	0.08	0.06	-3.45
6,549.0	1.00	192.70	6,484.7	-392.0	-387.2	551.0	0.19	0.00	11.17
6,719.0	0.30	238.00	6,654.7	-393.7	-387.9	552.7	0.48	-0.41	26.65

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Survey									
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6,777.8	0.36	225.80	6,713.5	-393.9	-388.1	553.0	0.16	0.10	-20.75
TARGET CIRCLE 75'FNL, 75'FEL									
6,890.0	0.50	211.80	6,825.7	-394.6	-388.7	553.8	0.16	0.13	-12.48
7,061.0	0.40	189.30	6,996.7	-395.8	-389.1	555.0	0.12	-0.06	-13.16
7,146.0	0.20	76.10	7,081.7	-396.1	-389.0	555.2	0.60	-0.24	-133.18
7,232.0	1.40	70.30	7,167.7	-395.7	-387.9	554.1	1.40	1.40	-6.74
7,317.0	1.60	59.80	7,252.7	-394.7	-385.9	552.0	0.40	0.24	-12.35
7,403.0	1.60	15.30	7,338.6	-393.0	-384.6	549.8	1.41	0.00	-51.74
7,488.0	1.10	26.00	7,423.6	-391.1	-383.9	548.0	0.66	-0.59	12.59
7,573.0	1.10	18.00	7,508.6	-389.6	-383.3	546.5	0.18	0.00	-9.41
7,659.0	0.60	26.80	7,594.6	-388.4	-382.8	545.3	0.60	-0.58	10.23
7,734.0	0.60	26.80	7,669.6	-387.7	-382.5	544.6	0.00	0.00	0.00
HARDLINES 75'N AND E OF BHL									

Checked By: _____ Approved By: _____ Date: _____