

Well Name: LDS D17-24D

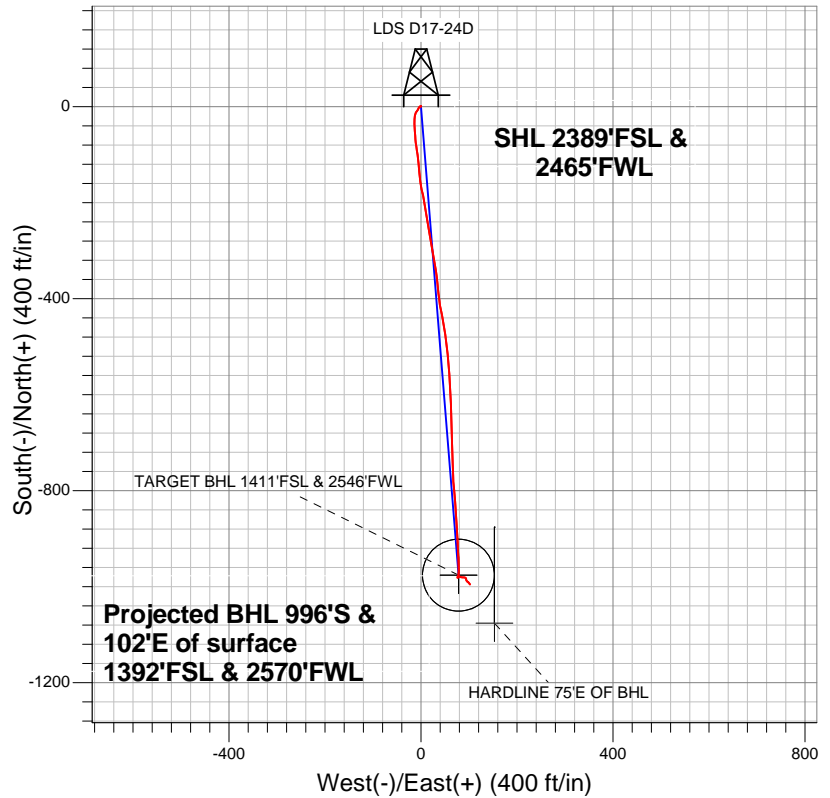
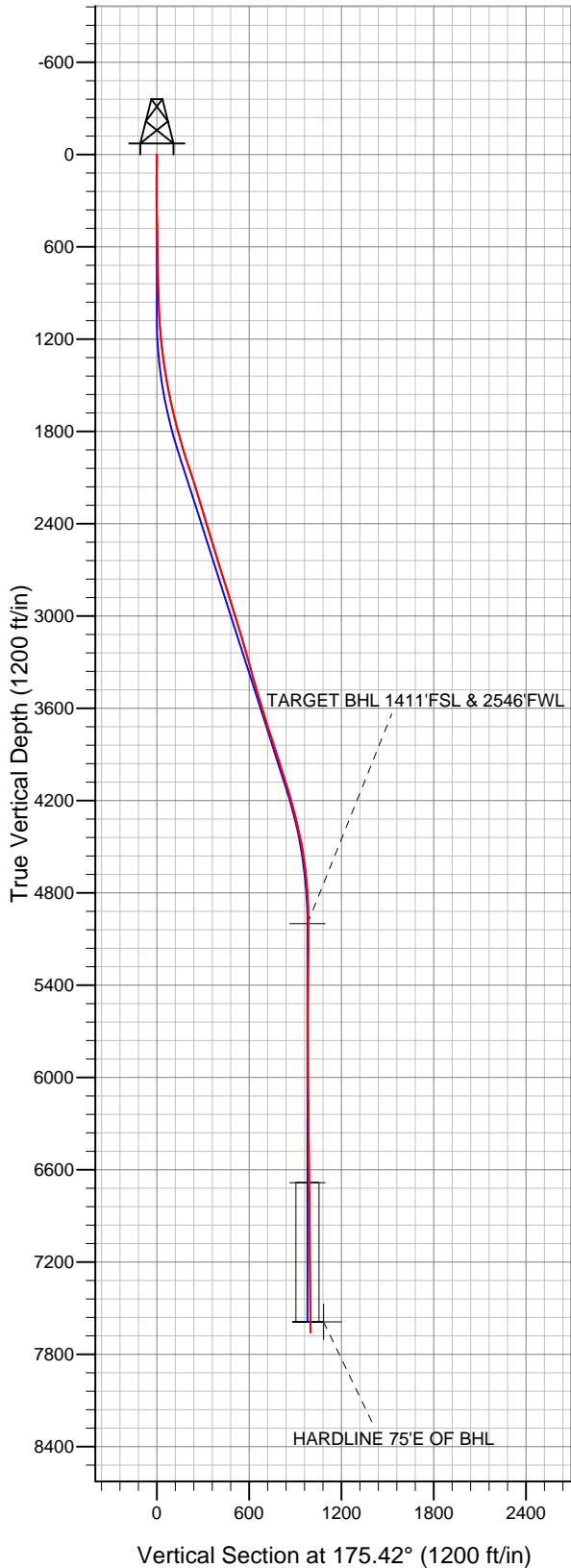
Surface Location: LDS D17-24D Pad Sec.17-T3N-R64W
 North American Datum 1983 US State Plane 1983Colorado Northern Zone
 Ground Elevation: 4752.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1326027.50	3258121.79	40.224650	-104.575580	

Original Well Elev

WELL @ 4765.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



- LEGEND
- Wellbore #1
 - LDS D17-24D, Wellbore #1, Noble LDS D17-24D Plan #1 (1-6-12) V0
 - Survey #1

Final Survey Plot

Projected Final Survey -
 7792'MD & 7658'TVD @ 1001'VS
 0.30 deg Inc 153.30 deg AZ

Project: SEC.17-T3N-R64W
 Site: LDS D17-24D Pad Sec.17-T3N-R64W
 Well: LDS D17-24D
 Plan: Wellbore #1



NOBLE ENERGY INC WELD COUNTY CO

SEC.17-T3N-R64W

LDS D17-24D Pad Sec.17-T3N-R64W

LDS D17-24D

Wellbore #1

Survey: Survey #1

Standard Survey Report

06 June, 2012



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well LDS D17-24D
Project:	SEC.17-T3N-R64W	TVD Reference:	WELL @ 4765.0ft (Original Well Elev)
Site:	LDS D17-24D Pad Sec.17-T3N-R64W	MD Reference:	WELL @ 4765.0ft (Original Well Elev)
Well:	LDS D17-24D	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 D17-24D Pad Sec.17-T3N-R64W				
Site Position:		Northing:	1,326,027.51 ft	Latitude:	40.224650
From:	Lat/Long	Easting:	3,258,121.79 ft	Longitude:	-104.575580
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.60 °

Well	LDS D17-24D					
Well Position	+N-S	0.0 ft	Northing:	1,326,027.50 ft	Latitude:	40.224650
	+E-W	0.0 ft	Easting:	3,258,121.79 ft	Longitude:	-104.575580
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,752.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/23/2012	8.62	66.91	52,961

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 (°)	
	5,000.0	0.0	0.0	175.42	

Survey Program	Date	6/6/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
81.0	7,792.0	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	
81.0	0.50	25.50	81.0	0.3	0.2	-0.3	0.62	0.62	0.00	
144.0	0.40	10.20	144.0	0.8	0.3	-0.8	0.25	-0.16	-24.29	
236.0	0.50	271.90	236.0	1.1	0.0	-1.1	0.74	0.11	-106.85	
328.0	1.10	243.80	328.0	0.7	-1.2	-0.8	0.76	0.65	-30.54	
420.0	1.60	227.50	420.0	-0.5	-3.0	0.3	0.68	0.54	-17.72	
511.0	1.50	204.30	510.9	-2.5	-4.4	2.1	0.69	-0.11	-25.49	
613.0	1.40	205.50	612.9	-4.8	-5.5	4.4	0.10	-0.10	1.18	
695.0	1.50	213.80	694.9	-6.6	-6.5	6.1	0.28	0.12	10.12	
777.0	1.50	211.60	776.8	-8.4	-7.7	7.8	0.07	0.00	-2.68	
835.0	1.60	210.90	834.8	-9.7	-8.5	9.0	0.18	0.17	-1.21	
957.0	1.60	219.00	956.8	-12.5	-10.4	11.7	0.19	0.00	6.64	
1,039.0	3.60	193.00	1,038.7	-15.9	-11.7	14.9	2.77	2.44	-31.71	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well LDS D17-24D
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Site:	LDS D17-24D Pad Sec.17-T3N-R64W	MD Reference:	WELL @ 4765.0ft (Original Well Elev)
Well:	LDS D17-24D	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)
1,121.0	4.70	188.80	1,120.5	-21.8	-12.8	20.7	1.39	1.34	-5.12
1,202.0	5.70	182.80	1,201.1	-29.1	-13.5	27.9	1.40	1.23	-7.41
1,284.0	6.80	177.50	1,282.6	-38.0	-13.5	36.8	1.51	1.34	-6.46
1,366.0	8.10	175.60	1,364.0	-48.6	-12.9	47.4	1.61	1.59	-2.32
1,447.0	9.60	177.70	1,444.0	-61.0	-12.1	59.9	1.89	1.85	2.59
1,529.0	10.80	170.70	1,524.7	-75.4	-10.6	74.4	2.10	1.46	-8.54
1,611.0	12.00	172.30	1,605.1	-91.5	-8.2	90.5	1.51	1.46	1.95
1,692.0	14.00	173.70	1,684.0	-109.6	-6.0	108.7	2.50	2.47	1.73
1,774.0	14.60	175.80	1,763.5	-129.7	-4.2	129.0	0.97	0.73	2.56
1,856.0	15.60	173.20	1,842.6	-151.0	-2.1	150.3	1.47	1.22	-3.17
1,937.0	16.90	167.50	1,920.4	-173.3	1.7	172.9	2.54	1.60	-7.04
2,019.0	18.20	169.60	1,998.6	-197.5	6.6	197.4	1.76	1.59	2.56
2,101.0	18.20	170.70	2,076.5	-222.8	11.0	222.9	0.42	0.00	1.34
2,182.0	18.30	171.60	2,153.4	-247.8	14.9	248.2	0.37	0.12	1.11
2,264.0	17.30	168.60	2,231.5	-272.5	19.2	273.2	1.65	-1.22	-3.66
2,346.0	16.60	169.60	2,309.9	-296.0	23.7	296.9	0.92	-0.85	1.22
2,427.0	16.60	171.20	2,387.5	-318.8	27.5	320.0	0.56	0.00	1.98
2,509.0	16.60	171.20	2,466.1	-341.9	31.1	343.3	0.00	0.00	0.00
2,591.0	17.40	174.40	2,544.5	-365.7	34.1	367.3	1.50	0.98	3.90
2,673.0	17.10	174.70	2,622.8	-389.9	36.4	391.6	0.38	-0.37	0.37
2,754.0	17.80	170.10	2,700.1	-414.0	39.7	415.8	1.91	0.86	-5.68
2,836.0	16.70	168.60	2,778.4	-437.9	44.1	440.0	1.45	-1.34	-1.83
2,918.0	18.00	169.50	2,856.7	-461.9	48.8	464.3	1.62	1.59	1.10
2,999.0	18.20	174.90	2,933.7	-486.8	52.2	489.4	2.09	0.25	6.67
3,081.0	16.40	172.10	3,012.0	-511.0	54.9	513.8	2.42	-2.20	-3.41
3,163.0	17.20	174.00	3,090.5	-534.5	57.8	537.5	1.18	0.98	2.32
3,244.0	16.20	178.80	3,168.1	-557.8	59.3	560.7	2.10	-1.23	5.93
3,326.0	15.80	177.40	3,246.9	-580.3	60.0	583.3	0.68	-0.49	-1.71
3,408.0	15.40	174.60	3,325.9	-602.3	61.5	605.3	1.04	-0.49	-3.41
3,489.0	15.50	178.20	3,404.0	-623.9	62.9	626.9	1.19	0.12	4.44
3,571.0	17.00	178.40	3,482.7	-646.8	63.6	649.8	1.83	1.83	0.24
3,653.0	16.20	180.50	3,561.3	-670.2	63.8	673.2	1.22	-0.98	2.56
3,734.0	16.60	177.20	3,639.0	-693.1	64.3	696.0	1.25	0.49	-4.07
3,816.0	17.80	179.10	3,717.3	-717.3	65.0	720.2	1.62	1.46	2.32
3,898.0	18.60	177.20	3,795.2	-742.9	65.9	745.8	1.21	0.98	-2.32
3,979.0	18.60	177.40	3,872.0	-768.7	67.1	771.6	0.08	0.00	0.25
4,061.0	17.70	175.80	3,949.9	-794.2	68.6	797.1	1.25	-1.10	-1.95
4,143.0	17.90	174.70	4,028.0	-819.2	70.7	822.2	0.48	0.24	-1.34
4,224.0	17.10	176.00	4,105.2	-843.5	72.7	846.6	1.10	-0.99	1.60
4,306.0	15.00	177.50	4,184.0	-866.1	74.0	869.2	2.61	-2.56	1.83
4,388.0	14.80	175.10	4,263.2	-887.1	75.3	890.3	0.79	-0.24	-2.93
4,469.0	13.40	178.40	4,341.8	-906.8	76.5	910.0	1.99	-1.73	4.07
4,551.0	12.50	177.40	4,421.7	-925.2	77.1	928.4	1.13	-1.10	-1.22
4,633.0	9.80	177.00	4,502.2	-941.0	77.9	944.2	3.29	-3.29	-0.49
4,715.0	8.40	177.00	4,583.1	-954.0	78.6	957.2	1.71	-1.71	0.00
4,796.0	6.20	180.20	4,663.5	-964.3	78.9	967.5	2.76	-2.72	3.95
4,878.0	4.70	187.20	4,745.1	-972.0	78.4	975.2	2.00	-1.83	8.54
4,960.0	3.10	183.20	4,826.9	-977.6	77.9	980.7	1.98	-1.95	-4.88
5,041.0	1.30	191.30	4,907.8	-980.6	77.6	983.7	2.25	-2.22	10.00
5,123.0	0.60	250.30	4,989.8	-981.7	77.0	984.7	1.36	-0.85	71.95
5,133.1	0.58	250.18	5,000.0	-981.7	76.9	984.7	0.24	-0.24	-1.19
TARGET BHL 1411'FSL & 2546'FWL									
5,205.0	0.40	248.90	5,071.8	-982.0	76.3	984.9	0.24	-0.24	-1.78
5,286.0	0.20	13.50	5,152.8	-981.9	76.1	984.9	0.67	-0.25	153.83

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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)
5,368.0	0.20	312.40	5,234.8	-981.7	76.0	984.6	0.25	0.00	-74.51
5,450.0	0.40	43.20	5,316.8	-981.4	76.1	984.3	0.55	0.24	110.73
5,531.0	1.00	0.00	5,397.8	-980.5	76.3	983.4	0.94	0.74	-53.33
5,613.0	0.40	25.50	5,479.8	-979.5	76.4	982.5	0.81	-0.73	31.10
5,695.0	0.60	89.10	5,561.8	-979.2	77.0	982.2	0.68	0.24	77.56
5,776.0	0.40	119.40	5,642.8	-979.4	77.7	982.4	0.40	-0.25	37.41
5,858.0	0.60	92.60	5,724.8	-979.5	78.3	982.6	0.37	0.24	-32.68
5,940.0	0.60	112.20	5,806.8	-979.7	79.2	982.9	0.25	0.00	23.90
6,021.0	0.80	86.70	5,887.8	-979.8	80.1	983.1	0.45	0.25	-31.48
6,103.0	0.80	106.70	5,969.8	-980.0	81.2	983.3	0.34	0.00	24.39
6,185.0	1.10	104.60	6,051.8	-980.3	82.6	983.8	0.37	0.37	-2.56
6,266.0	1.50	99.30	6,132.8	-980.7	84.4	984.3	0.52	0.49	-6.54
6,348.0	2.00	93.00	6,214.7	-980.9	86.8	984.7	0.65	0.61	-7.68
6,430.0	2.30	93.00	6,296.7	-981.1	89.9	985.1	0.37	0.37	0.00
6,511.0	1.40	119.90	6,377.6	-981.7	92.4	985.9	1.52	-1.11	33.21
6,593.0	0.80	166.10	6,459.6	-982.7	93.4	987.0	1.25	-0.73	56.34
6,675.0	1.00	157.90	6,541.6	-983.9	93.8	988.3	0.29	0.24	-10.00
6,757.0	1.00	171.40	6,623.6	-985.3	94.2	989.7	0.29	0.00	16.46
6,817.2	1.00	162.10	6,683.8	-986.3	94.4	990.7	0.27	-0.01	-15.45
TARGET CIRCLE 1411'FSL & 2546'FWL									
6,838.0	1.00	158.90	6,704.6	-986.7	94.5	991.1	0.27	0.02	-15.39
6,920.0	0.70	141.30	6,786.6	-987.7	95.1	992.2	0.48	-0.37	-21.46
7,002.0	0.60	138.50	6,868.6	-988.4	95.7	992.9	0.13	-0.12	-3.41
7,083.0	0.90	136.10	6,949.5	-989.2	96.4	993.8	0.37	0.37	-2.96
7,165.0	0.80	163.30	7,031.5	-990.2	97.0	994.8	0.50	-0.12	33.17
7,247.0	0.80	73.10	7,113.5	-990.6	97.8	995.3	1.38	0.00	-110.00
7,328.0	0.50	155.60	7,194.5	-990.8	98.4	995.5	1.09	-0.37	101.85
7,410.0	0.60	118.00	7,276.5	-991.3	99.0	996.0	0.45	0.12	-45.85
7,492.0	0.90	156.60	7,358.5	-992.1	99.6	996.9	0.70	0.37	47.07
7,573.0	0.90	139.60	7,439.5	-993.2	100.3	998.0	0.33	0.00	-20.99
7,655.0	1.00	146.40	7,521.5	-994.3	101.1	999.1	0.18	0.12	8.29
7,724.0	0.83	143.97	7,590.5	-995.2	101.7	1,000.1	0.25	-0.24	-3.52
HARDLINE 75'E OF BHL									
7,737.0	0.80	143.40	7,603.5	-995.3	101.8	1,000.3	0.25	-0.24	-4.40
7,747.0	0.40	153.30	7,613.5	-995.4	101.9	1,000.3	4.12	-4.00	99.00
7,792.0	0.30	153.30	7,658.5	-995.6	102.0	1,000.6	0.22	-0.22	0.00

Checked By: _____	Approved By: _____	Date: _____
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