



Well Name: Megan State H21-28D

Surface Location: Megan State H21-28D Pad Sec.16-T3N-R65W
North American Datum 1983 US State Plane 1983Colorado Northern Zone
Ground Elevation: 4834.0

+N/-S
0.0

+E/-W
0.0

Northing
1324031.34

Easting
3232788.08

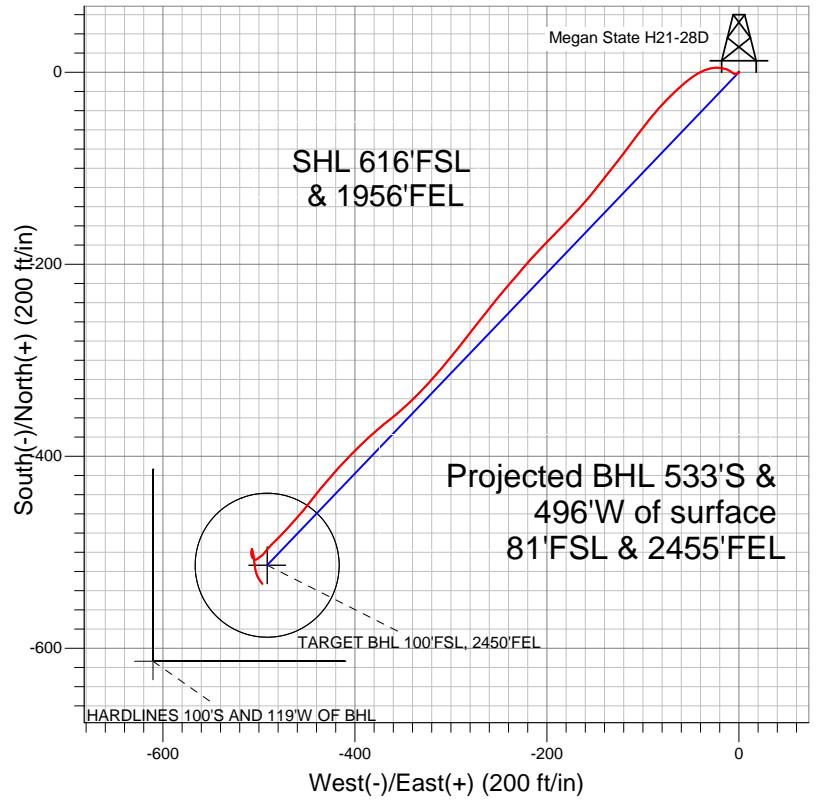
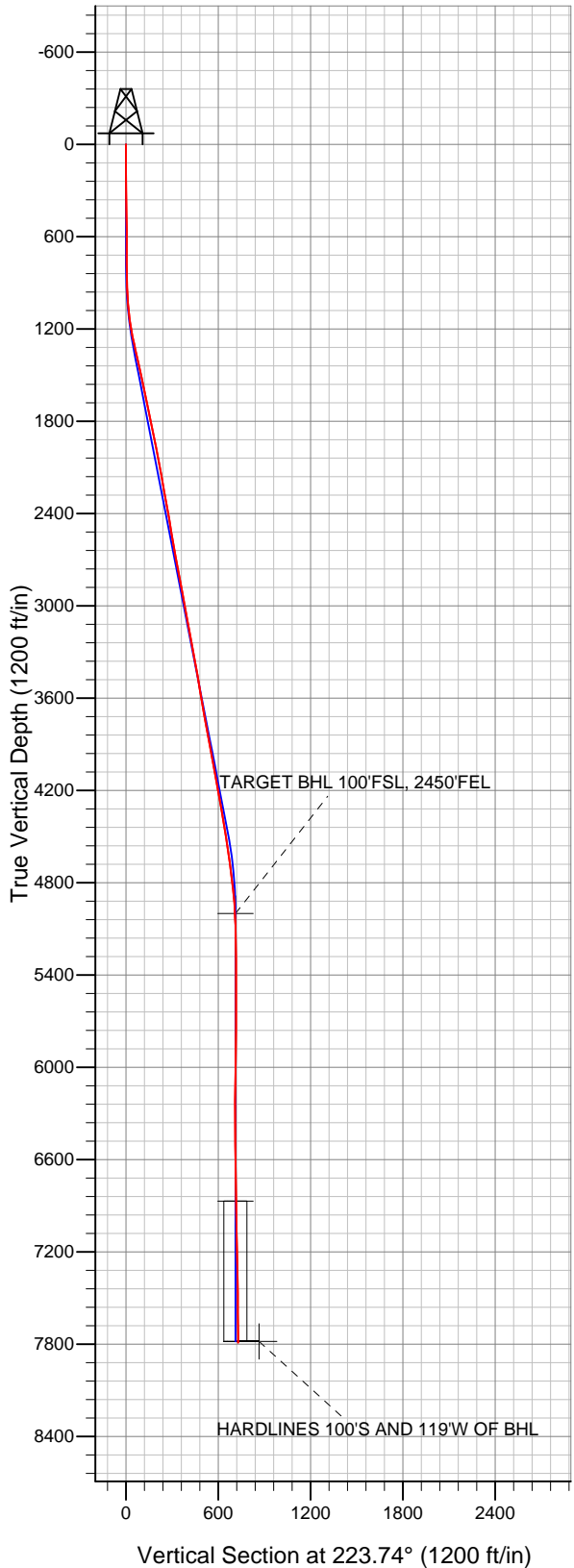
Latitude
40.219860

Longitude
-104.666370

Slot

Original Well ElevWELL @ 4846.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Survey #1
- Megan State H21-28D, Wellbore #1, Noble Megan State H21-28D Plan #2 (6-29-10) V0
- Wellbore #1

Final Survey Plot

Projected Final Survey -
7854'MD & 7789'TVD @ 728'VS
1.0 deg Inc 135.0 deg AZ

Project: SEC.16-T3N-R65W
Site: Megan State H21-28D Pad Sec.16-T3N-R65W
Well: Megan State H21-28D
Plan: Wellbore #1



NOBLE ENERGY INC WELD COUNTY CO

SEC.16-T3N-R65W

Megan State H21-28D Pad Sec.16-T3N-R65W

Megan State H21-28D

Wellbore #1

Survey: Survey #1

Standard Survey Report

16 January, 2012



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Megan State H21-28D
Project:	SEC.16-T3N-R65W	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	Megan State H21-28D Pad Sec.16-T3N-R65W	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Well:	Megan State H21-28D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.16-T3N-R65W, 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	Megan State H21-28D Pad Sec.16-T3N-R65W		
Site Position:		Northing:	1,324,031.36ft
From:	Lat/Long	Easting:	3,232,788.08ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.219860
		Longitude:	-104.666370
		Grid Convergence:	0.54 °

Well	Megan State H21-28D		
Well Position	+N/-S	0.0 ft	Northing: 1,324,031.34 ft
	+E/-W	0.0 ft	Easting: 3,232,788.08 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40.219860
		Longitude:	-104.666370
		Ground Level:	4,834.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/27/2011	8.68	66.91	53,014

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	223.74	

Survey Program	Date	1/15/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
177.0	7,854.0	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	
177.0	0.20	173.30	177.0	-0.3	0.0	0.2	0.11	0.11	0.00	
298.0	0.50	245.10	298.0	-0.7	-0.4	0.8	0.39	0.25	59.34	
451.0	0.70	243.70	451.0	-1.4	-1.9	2.3	0.13	0.13	-0.92	
605.0	0.70	249.50	605.0	-2.2	-3.6	4.1	0.05	0.00	3.77	
713.0	1.10	298.90	713.0	-1.9	-5.1	4.9	0.77	0.37	45.74	
771.0	1.40	316.50	771.0	-1.1	-6.1	5.0	0.83	0.52	30.34	
865.0	3.00	302.10	864.9	1.0	-9.0	5.5	1.79	1.70	-15.32	
959.0	5.00	287.20	958.6	3.5	-15.0	7.8	2.38	2.13	-15.85	
1,053.0	6.90	268.40	1,052.1	4.6	-24.5	13.6	2.87	2.02	-20.00	
1,147.0	9.20	246.90	1,145.2	1.5	-37.1	24.6	3.99	2.45	-22.87	
1,241.0	11.30	232.80	1,237.7	-7.0	-51.3	40.6	3.47	2.23	-15.00	
1,335.0	12.70	225.50	1,329.7	-19.9	-66.0	60.0	2.19	1.49	-7.77	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Megan State H21-28D
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Site:	Megan State H21-28D Pad Sec.16-T3N-R65W	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Well:	Megan State H21-28D	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)
1,429.0	12.80	223.70	1,421.4	-34.6	-80.6	80.7	0.44	0.11	-1.91
1,523.0	12.40	218.10	1,513.1	-50.1	-94.0	101.2	1.37	-0.43	-5.96
1,617.0	11.90	216.90	1,605.0	-65.8	-106.1	120.9	0.60	-0.53	-1.28
1,711.0	11.20	217.00	1,697.1	-80.8	-117.4	139.6	0.74	-0.74	0.11
1,805.0	12.30	217.90	1,789.1	-96.0	-129.0	158.6	1.19	1.17	0.96
1,898.0	11.50	218.30	1,880.1	-111.1	-140.9	177.7	0.86	-0.86	0.43
1,992.0	11.00	218.40	1,972.3	-125.5	-152.2	195.9	0.53	-0.53	0.11
2,086.0	10.30	223.20	2,064.7	-138.6	-163.6	213.3	1.20	-0.74	5.11
2,180.0	10.30	222.50	2,157.2	-151.0	-175.0	230.1	0.13	0.00	-0.74
2,274.0	10.40	223.50	2,249.7	-163.3	-186.5	246.9	0.22	0.11	1.06
2,368.0	10.30	226.00	2,342.1	-175.3	-198.4	263.8	0.49	-0.11	2.66
2,462.0	9.90	222.30	2,434.7	-187.1	-209.9	280.3	0.81	-0.43	-3.94
2,556.0	9.70	221.40	2,527.3	-199.0	-220.6	296.3	0.27	-0.21	-0.96
2,650.0	9.20	219.70	2,620.0	-210.8	-230.6	311.7	0.61	-0.53	-1.81
2,744.0	10.60	221.80	2,712.6	-223.0	-241.2	327.8	1.54	1.49	2.23
2,838.0	10.60	217.90	2,805.0	-236.3	-252.2	345.1	0.76	0.00	-4.15
2,932.0	10.70	219.10	2,897.4	-249.9	-263.0	362.4	0.26	0.11	1.28
3,026.0	11.20	218.40	2,989.7	-263.8	-274.2	380.2	0.55	0.53	-0.74
3,120.0	9.80	217.40	3,082.1	-277.3	-284.7	397.2	1.50	-1.49	-1.06
3,213.0	10.50	218.40	3,173.7	-290.2	-294.8	413.5	0.78	0.75	1.08
3,307.0	10.50	219.80	3,266.1	-303.5	-305.6	430.6	0.27	0.00	1.49
3,401.0	10.10	222.10	3,358.6	-316.2	-316.6	447.4	0.61	-0.43	2.45
3,495.0	10.10	222.60	3,451.1	-328.4	-327.7	463.8	0.09	0.00	0.53
3,589.0	9.80	225.30	3,543.7	-340.1	-339.0	480.1	0.59	-0.32	2.87
3,683.0	10.40	228.50	3,636.3	-351.3	-351.0	496.5	0.87	0.64	3.40
3,777.0	8.90	232.10	3,728.9	-361.4	-363.1	512.2	1.72	-1.60	3.83
3,871.0	10.30	230.60	3,821.6	-371.2	-375.4	527.7	1.51	1.49	-1.60
3,965.0	10.90	225.80	3,914.0	-382.8	-388.2	545.0	1.14	0.64	-5.11
4,059.0	10.90	225.30	4,006.3	-395.2	-400.9	562.7	0.10	0.00	-0.53
4,153.0	10.60	222.80	4,098.7	-407.8	-413.1	580.2	0.59	-0.32	-2.66
4,247.0	9.80	222.00	4,191.2	-420.1	-424.3	596.9	0.86	-0.85	-0.85
4,341.0	9.80	219.00	4,283.8	-432.2	-434.7	612.9	0.54	0.00	-3.19
4,435.0	9.50	217.00	4,376.5	-444.7	-444.4	628.5	0.48	-0.32	-2.13
4,528.0	8.80	220.70	4,468.3	-456.2	-453.7	643.3	0.98	-0.75	3.98
4,622.0	9.40	221.20	4,561.1	-467.4	-463.4	658.1	0.64	0.64	0.53
4,716.0	8.30	223.20	4,654.0	-478.1	-473.1	672.6	1.21	-1.17	2.13
4,810.0	7.30	226.20	4,747.1	-487.2	-482.1	685.3	1.15	-1.06	3.19
4,904.0	5.90	221.40	4,840.5	-495.0	-489.6	696.1	1.60	-1.49	-5.11
4,998.0	3.70	218.10	4,934.1	-501.0	-494.7	704.0	2.36	-2.34	-3.51
5,064.1	2.89	230.06	5,000.2	-503.7	-497.3	707.7	1.60	-1.23	18.09
TARGET BHL 100'FSL, 2450'FEL									
5,092.0	2.60	237.20	5,028.0	-504.5	-498.3	709.0	1.60	-1.03	25.61
5,186.0	1.60	230.00	5,121.9	-506.5	-501.1	712.4	1.10	-1.06	-7.66
5,280.0	0.50	240.60	5,215.9	-507.6	-502.5	714.1	1.18	-1.17	11.28
5,405.0	0.40	259.60	5,340.9	-507.9	-503.4	715.0	0.14	-0.08	15.20
5,530.0	0.60	301.80	5,465.9	-507.6	-504.4	715.5	0.32	0.16	33.76
5,656.0	1.10	301.80	5,591.9	-506.7	-506.0	715.9	0.40	0.40	0.00
5,781.0	1.10	339.40	5,716.9	-504.9	-507.4	715.6	0.57	0.00	30.08
5,906.0	1.30	0.60	5,841.9	-502.4	-507.8	714.0	0.39	0.16	16.96
6,031.0	0.90	350.00	5,966.8	-500.0	-508.0	712.4	0.36	-0.32	-8.48
6,157.0	1.10	24.90	6,092.8	-497.9	-507.6	710.7	0.50	0.16	27.70
6,282.0	0.40	326.00	6,217.8	-496.5	-507.4	709.5	0.77	-0.56	-47.12
6,407.0	0.60	162.50	6,342.8	-496.7	-507.4	709.7	0.79	0.16	-130.80
6,532.0	0.40	138.80	6,467.8	-497.7	-506.9	710.0	0.23	-0.16	-18.96

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Survey										
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6,658.0	0.90	172.30	6,593.8	-499.0	-506.5	710.7	0.48	0.40	26.59	
6,783.0	1.50	178.40	6,718.8	-501.6	-506.3	712.5	0.49	0.48	4.88	
6,908.0	1.70	157.80	6,843.7	-504.9	-505.6	714.4	0.48	0.16	-16.48	
6,933.6	1.72	162.67	6,869.3	-505.7	-505.3	714.7	0.57	0.07	19.00	
TARGET CIRCLE 100'FSL, 2450'FEL										
7,033.0	1.90	179.80	6,968.7	-508.7	-504.9	716.6	0.57	0.18	17.24	
7,159.0	2.30	177.00	7,094.6	-513.4	-504.7	719.9	0.33	0.32	-2.22	
7,284.0	2.20	165.50	7,219.5	-518.2	-504.0	722.8	0.37	-0.08	-9.20	
7,409.0	1.90	160.80	7,344.4	-522.5	-502.7	725.0	0.27	-0.24	-3.76	
7,534.0	1.80	147.20	7,469.3	-526.1	-501.0	726.4	0.36	-0.08	-10.88	
7,659.0	1.70	152.00	7,594.3	-529.4	-499.0	727.5	0.14	-0.08	3.84	
7,809.0	1.10	135.10	7,744.2	-532.3	-497.0	728.2	0.48	-0.40	-11.27	
7,846.4	1.02	135.02	7,781.6	-532.8	-496.5	728.2	0.22	-0.22	-0.22	
HARDLINES 100'S AND 119'W OF BHL										
7,854.0	1.00	135.00	7,789.2	-532.9	-496.4	728.2	0.22	-0.22	-0.24	

Checked By: _____ Approved By: _____ Date: _____