

ENSIGN

Directional

Well Name: Burman C05-17D

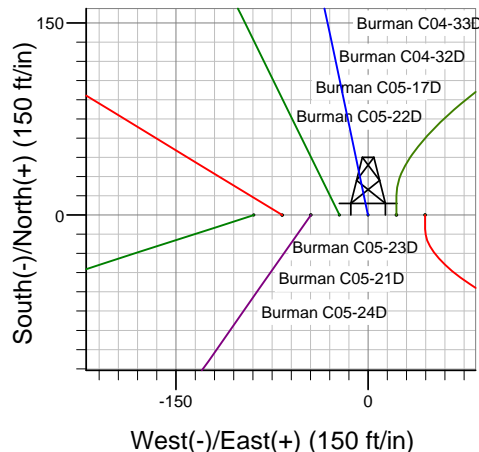
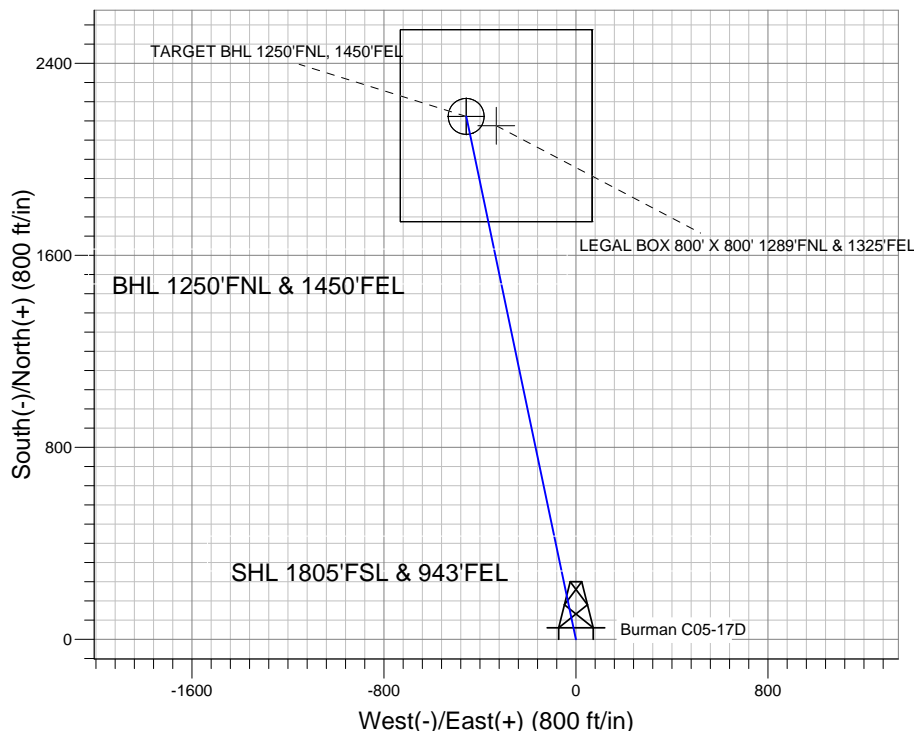
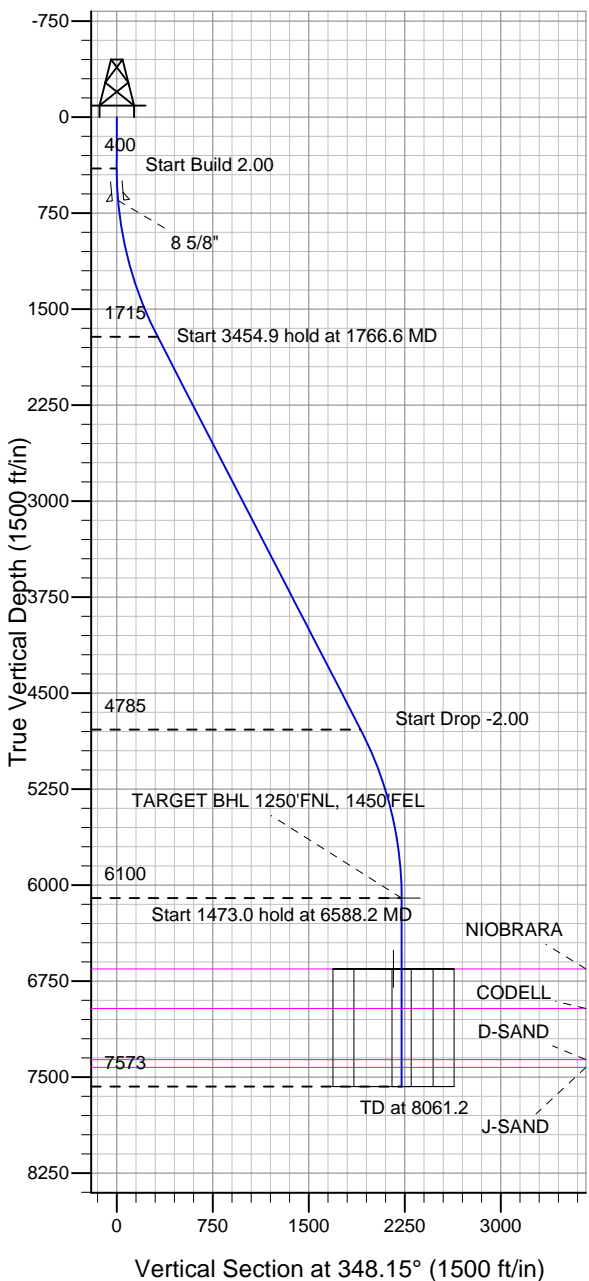
Surface Location: Burman C04-33D Pad Sec.5-T4N-R64W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4750.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1367739.42	3259733.15	40.339100	-104.568240	

Original Well Elev WELL @ 4763.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



Burman C04-33D Pad Sec.5-T4N-R64W
 Burman C05-17D
 Noble Burman C05-17D Plan #1 (6-15-11)
 14:00, June 22 2011



Azimuths to True North
 Magnetic North: 8.75°

Magnetic Field
 Strength: 53119.3snT
 Dip Angle: 67.03°
 Date: 6/22/2011
 Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 1250'FNL, 1450'FEL	6100.0	2178.6	-457.1	40.345080	-104.569880	Point
LEGAL BOX 800' X 800' 1289'FNL & 1325'FEL	6653.0	2139.6	-332.1	40.344973	-104.569431	Rectangle (Sides: L800.0 W800.0)
TARGET CIRCLE 1250'FNL & 1450'FEL	6653.0	2178.6	-457.1	40.345080	-104.569880	Circle (Radius: 75.0)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1766.6	27.33	348.15	1715.4	313.0	-65.7	2.00	348.15	319.8	
4	5221.6	27.33	348.15	4784.6	1865.6	-391.5	0.00	0.00	1906.2	
5	6588.2	0.00	0.00	6100.0	2178.6	-457.1	2.00	180.00	2226.0	TARGET BHL 1250'FNL, 1450'FEL
6	8061.2	0.00	0.00	7573.0	2178.6	-457.1	0.00	0.00	2226.0	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.5-T4N-R64W

Burman C04-33D Pad Sec.5-T4N-R64W

Burman C05-17D

Wellbore #1

Plan: Noble Burman C05-17D Plan #1 (6-15-11)

Standard Planning Report

22 June, 2011



Database:	Landmark	Local Co-ordinate Reference:	Well Burman C05-17D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4763.0ft (Original Well Elev)
Project:	SEC.5-T4N-R64W	MD Reference:	WELL @ 4763.0ft (Original Well Elev)
Site:	Burman C04-33D Pad Sec.5-T4N-R64W	North Reference:	True
Well:	Burman C05-17D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Burman C05-17D Plan #1 (6-15-11)		

Project	SEC.5-T4N-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						Burman C04-33D Pad Sec.5-T4N-R64W											
Site Position:						Northing:			1,367,739.92 ft			Latitude:			40.339100		
From:			Lat/Long			Easting:			3,259,777.75 ft			Longitude:			-104.568080		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.60 °		

Well	Burman C05-17D					
Well Position	+N/-S	0.0 ft	Northing:	1,367,739.42 ft	Latitude:	40.339100
	+E/-W	-44.6 ft	Easting:	3,259,733.15 ft	Longitude:	-104.568240
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,750.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/22/2011	8.75	67.03	53,119

Design	Noble Burman C05-17D Plan #1 (6-15-11)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	348.15

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,766.6	27.33	348.15	1,715.4	313.0	-65.7	2.00	2.00	0.00	348.15	
5,221.6	27.33	348.15	4,784.6	1,865.6	-391.5	0.00	0.00	0.00	0.00	
6,588.2	0.00	0.00	6,100.0	2,178.6	-457.1	2.00	-2.00	0.00	180.00	TARGET BHL 125C
8,061.2	0.00	0.00	7,573.0	2,178.6	-457.1	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Burman C05-17D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4763.0ft (Original Well Elev)
Project:	SEC.5-T4N-R64W	MD Reference:	WELL @ 4763.0ft (Original Well Elev)
Site:	Burman C04-33D Pad Sec.5-T4N-R64W	North Reference:	True
Well:	Burman C05-17D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Burman C05-17D Plan #1 (6-15-11)		

Planned 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
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.80	348.15	440.0	0.3	-0.1	0.3	2.00	2.00	0.00
480.0	1.60	348.15	480.0	1.1	-0.2	1.1	2.00	2.00	0.00
520.0	2.40	348.15	520.0	2.5	-0.5	2.5	2.00	2.00	0.00
560.0	3.20	348.15	559.9	4.4	-0.9	4.5	2.00	2.00	0.00
600.0	4.00	348.15	599.8	6.8	-1.4	7.0	2.00	2.00	0.00
640.0	4.80	348.15	639.7	9.8	-2.1	10.0	2.00	2.00	0.00
650.3	5.01	348.15	650.0	10.7	-2.2	10.9	2.00	2.00	0.00
8 5/8"									
680.0	5.60	348.15	679.6	13.4	-2.8	13.7	2.00	2.00	0.00
720.0	6.40	348.15	719.3	17.5	-3.7	17.9	2.00	2.00	0.00
760.0	7.20	348.15	759.1	22.1	-4.6	22.6	2.00	2.00	0.00
800.0	8.00	348.15	798.7	27.3	-5.7	27.9	2.00	2.00	0.00
840.0	8.80	348.15	838.3	33.0	-6.9	33.7	2.00	2.00	0.00
880.0	9.60	348.15	877.8	39.3	-8.2	40.1	2.00	2.00	0.00
920.0	10.40	348.15	917.1	46.1	-9.7	47.1	2.00	2.00	0.00
960.0	11.20	348.15	956.4	53.4	-11.2	54.6	2.00	2.00	0.00
1,000.0	12.00	348.15	995.6	61.3	-12.9	62.6	2.00	2.00	0.00
1,040.0	12.80	348.15	1,034.7	69.7	-14.6	71.2	2.00	2.00	0.00
1,080.0	13.60	348.15	1,073.6	78.6	-16.5	80.3	2.00	2.00	0.00
1,120.0	14.40	348.15	1,112.4	88.1	-18.5	90.0	2.00	2.00	0.00
1,160.0	15.20	348.15	1,151.1	98.1	-20.6	100.2	2.00	2.00	0.00
1,200.0	16.00	348.15	1,189.6	108.6	-22.8	111.0	2.00	2.00	0.00
1,240.0	16.80	348.15	1,228.0	119.7	-25.1	122.3	2.00	2.00	0.00
1,280.0	17.60	348.15	1,266.2	131.2	-27.5	134.1	2.00	2.00	0.00
1,320.0	18.40	348.15	1,304.3	143.3	-30.1	146.5	2.00	2.00	0.00
1,360.0	19.20	348.15	1,342.1	156.0	-32.7	159.3	2.00	2.00	0.00
1,400.0	20.00	348.15	1,379.8	169.1	-35.5	172.8	2.00	2.00	0.00
1,440.0	20.80	348.15	1,417.3	182.7	-38.3	186.7	2.00	2.00	0.00
1,480.0	21.60	348.15	1,454.6	196.9	-41.3	201.2	2.00	2.00	0.00
1,520.0	22.40	348.15	1,491.7	211.6	-44.4	216.2	2.00	2.00	0.00
1,560.0	23.20	348.15	1,528.6	226.7	-47.6	231.7	2.00	2.00	0.00
1,600.0	24.00	348.15	1,565.2	242.4	-50.9	247.7	2.00	2.00	0.00
1,640.0	24.80	348.15	1,601.6	258.6	-54.3	264.2	2.00	2.00	0.00
1,680.0	25.60	348.15	1,637.8	275.2	-57.8	281.2	2.00	2.00	0.00
1,720.0	26.40	348.15	1,673.8	292.4	-61.4	298.8	2.00	2.00	0.00
1,760.0	27.20	348.15	1,709.5	310.0	-65.1	316.8	2.00	2.00	0.00
1,766.6	27.33	348.15	1,715.4	313.0	-65.7	319.8	2.00	2.00	0.00
1,800.0	27.33	348.15	1,745.0	328.0	-68.8	335.2	0.00	0.00	0.00
1,840.0	27.33	348.15	1,780.6	346.0	-72.6	353.5	0.00	0.00	0.00
1,880.0	27.33	348.15	1,816.1	364.0	-76.4	371.9	0.00	0.00	0.00
1,920.0	27.33	348.15	1,851.6	381.9	-80.1	390.3	0.00	0.00	0.00
1,960.0	27.33	348.15	1,887.2	399.9	-83.9	408.6	0.00	0.00	0.00
2,000.0	27.33	348.15	1,922.7	417.9	-87.7	427.0	0.00	0.00	0.00

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Project:	SEC.5-T4N-R64W	MD Reference:	WELL @ 4763.0ft (Original Well Elev)
Site:	Burman C04-33D Pad Sec.5-T4N-R64W	North Reference:	True
Well:	Burman C05-17D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Burman C05-17D Plan #1 (6-15-11)		

Planned 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)
2,040.0	27.33	348.15	1,958.2	435.9	-91.5	445.4	0.00	0.00	0.00
2,080.0	27.33	348.15	1,993.8	453.8	-95.2	463.7	0.00	0.00	0.00
2,120.0	27.33	348.15	2,029.3	471.8	-99.0	482.1	0.00	0.00	0.00
2,160.0	27.33	348.15	2,064.8	489.8	-102.8	500.5	0.00	0.00	0.00
2,200.0	27.33	348.15	2,100.4	507.8	-106.5	518.8	0.00	0.00	0.00
2,240.0	27.33	348.15	2,135.9	525.7	-110.3	537.2	0.00	0.00	0.00
2,280.0	27.33	348.15	2,171.4	543.7	-114.1	555.6	0.00	0.00	0.00
2,320.0	27.33	348.15	2,207.0	561.7	-117.9	573.9	0.00	0.00	0.00
2,360.0	27.33	348.15	2,242.5	579.7	-121.6	592.3	0.00	0.00	0.00
2,400.0	27.33	348.15	2,278.0	597.6	-125.4	610.7	0.00	0.00	0.00
2,440.0	27.33	348.15	2,313.6	615.6	-129.2	629.0	0.00	0.00	0.00
2,480.0	27.33	348.15	2,349.1	633.6	-132.9	647.4	0.00	0.00	0.00
2,520.0	27.33	348.15	2,384.6	651.6	-136.7	665.8	0.00	0.00	0.00
2,560.0	27.33	348.15	2,420.2	669.5	-140.5	684.1	0.00	0.00	0.00
2,600.0	27.33	348.15	2,455.7	687.5	-144.3	702.5	0.00	0.00	0.00
2,640.0	27.33	348.15	2,491.2	705.5	-148.0	720.9	0.00	0.00	0.00
2,680.0	27.33	348.15	2,526.8	723.5	-151.8	739.2	0.00	0.00	0.00
2,720.0	27.33	348.15	2,562.3	741.4	-155.6	757.6	0.00	0.00	0.00
2,760.0	27.33	348.15	2,597.8	759.4	-159.4	775.9	0.00	0.00	0.00
2,800.0	27.33	348.15	2,633.4	777.4	-163.1	794.3	0.00	0.00	0.00
2,840.0	27.33	348.15	2,668.9	795.4	-166.9	812.7	0.00	0.00	0.00
2,880.0	27.33	348.15	2,704.4	813.3	-170.7	831.0	0.00	0.00	0.00
2,920.0	27.33	348.15	2,740.0	831.3	-174.4	849.4	0.00	0.00	0.00
2,960.0	27.33	348.15	2,775.5	849.3	-178.2	867.8	0.00	0.00	0.00
3,000.0	27.33	348.15	2,811.1	867.3	-182.0	886.1	0.00	0.00	0.00
3,040.0	27.33	348.15	2,846.6	885.2	-185.8	904.5	0.00	0.00	0.00
3,080.0	27.33	348.15	2,882.1	903.2	-189.5	922.9	0.00	0.00	0.00
3,120.0	27.33	348.15	2,917.7	921.2	-193.3	941.2	0.00	0.00	0.00
3,160.0	27.33	348.15	2,953.2	939.2	-197.1	959.6	0.00	0.00	0.00
3,200.0	27.33	348.15	2,988.7	957.1	-200.8	978.0	0.00	0.00	0.00
3,240.0	27.33	348.15	3,024.3	975.1	-204.6	996.3	0.00	0.00	0.00
3,280.0	27.33	348.15	3,059.8	993.1	-208.4	1,014.7	0.00	0.00	0.00
3,320.0	27.33	348.15	3,095.3	1,011.1	-212.2	1,033.1	0.00	0.00	0.00
3,360.0	27.33	348.15	3,130.9	1,029.0	-215.9	1,051.4	0.00	0.00	0.00
3,400.0	27.33	348.15	3,166.4	1,047.0	-219.7	1,069.8	0.00	0.00	0.00
3,440.0	27.33	348.15	3,201.9	1,065.0	-223.5	1,088.2	0.00	0.00	0.00
3,480.0	27.33	348.15	3,237.5	1,083.0	-227.2	1,106.5	0.00	0.00	0.00
3,520.0	27.33	348.15	3,273.0	1,100.9	-231.0	1,124.9	0.00	0.00	0.00
3,560.0	27.33	348.15	3,308.5	1,118.9	-234.8	1,143.3	0.00	0.00	0.00
3,600.0	27.33	348.15	3,344.1	1,136.9	-238.6	1,161.6	0.00	0.00	0.00
3,640.0	27.33	348.15	3,379.6	1,154.9	-242.3	1,180.0	0.00	0.00	0.00
3,680.0	27.33	348.15	3,415.1	1,172.8	-246.1	1,198.4	0.00	0.00	0.00
3,720.0	27.33	348.15	3,450.7	1,190.8	-249.9	1,216.7	0.00	0.00	0.00
3,760.0	27.33	348.15	3,486.2	1,208.8	-253.6	1,235.1	0.00	0.00	0.00
3,800.0	27.33	348.15	3,521.7	1,226.8	-257.4	1,253.5	0.00	0.00	0.00
3,840.0	27.33	348.15	3,557.3	1,244.7	-261.2	1,271.8	0.00	0.00	0.00
3,880.0	27.33	348.15	3,592.8	1,262.7	-265.0	1,290.2	0.00	0.00	0.00
3,920.0	27.33	348.15	3,628.3	1,280.7	-268.7	1,308.6	0.00	0.00	0.00
3,960.0	27.33	348.15	3,663.9	1,298.7	-272.5	1,326.9	0.00	0.00	0.00
4,000.0	27.33	348.15	3,699.4	1,316.6	-276.3	1,345.3	0.00	0.00	0.00
4,040.0	27.33	348.15	3,734.9	1,334.6	-280.0	1,363.7	0.00	0.00	0.00
4,080.0	27.33	348.15	3,770.5	1,352.6	-283.8	1,382.0	0.00	0.00	0.00
4,120.0	27.33	348.15	3,806.0	1,370.6	-287.6	1,400.4	0.00	0.00	0.00
4,160.0	27.33	348.15	3,841.5	1,388.5	-291.4	1,418.8	0.00	0.00	0.00

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Site:	Burman C04-33D Pad Sec.5-T4N-R64W	North Reference:	True
Well:	Burman C05-17D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Burman C05-17D Plan #1 (6-15-11)		

Planned 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)
4,200.0	27.33	348.15	3,877.1	1,406.5	-295.1	1,437.1	0.00	0.00	0.00
4,240.0	27.33	348.15	3,912.6	1,424.5	-298.9	1,455.5	0.00	0.00	0.00
4,280.0	27.33	348.15	3,948.1	1,442.5	-302.7	1,473.9	0.00	0.00	0.00
4,320.0	27.33	348.15	3,983.7	1,460.4	-306.4	1,492.2	0.00	0.00	0.00
4,360.0	27.33	348.15	4,019.2	1,478.4	-310.2	1,510.6	0.00	0.00	0.00
4,400.0	27.33	348.15	4,054.7	1,496.4	-314.0	1,529.0	0.00	0.00	0.00
4,440.0	27.33	348.15	4,090.3	1,514.4	-317.8	1,547.3	0.00	0.00	0.00
4,480.0	27.33	348.15	4,125.8	1,532.3	-321.5	1,565.7	0.00	0.00	0.00
4,520.0	27.33	348.15	4,161.4	1,550.3	-325.3	1,584.1	0.00	0.00	0.00
4,560.0	27.33	348.15	4,196.9	1,568.3	-329.1	1,602.4	0.00	0.00	0.00
4,600.0	27.33	348.15	4,232.4	1,586.3	-332.9	1,620.8	0.00	0.00	0.00
4,640.0	27.33	348.15	4,268.0	1,604.2	-336.6	1,639.2	0.00	0.00	0.00
4,680.0	27.33	348.15	4,303.5	1,622.2	-340.4	1,657.5	0.00	0.00	0.00
4,720.0	27.33	348.15	4,339.0	1,640.2	-344.2	1,675.9	0.00	0.00	0.00
4,760.0	27.33	348.15	4,374.6	1,658.2	-347.9	1,694.3	0.00	0.00	0.00
4,800.0	27.33	348.15	4,410.1	1,676.1	-351.7	1,712.6	0.00	0.00	0.00
4,840.0	27.33	348.15	4,445.6	1,694.1	-355.5	1,731.0	0.00	0.00	0.00
4,880.0	27.33	348.15	4,481.2	1,712.1	-359.3	1,749.4	0.00	0.00	0.00
4,920.0	27.33	348.15	4,516.7	1,730.1	-363.0	1,767.7	0.00	0.00	0.00
4,960.0	27.33	348.15	4,552.2	1,748.0	-366.8	1,786.1	0.00	0.00	0.00
5,000.0	27.33	348.15	4,587.8	1,766.0	-370.6	1,804.5	0.00	0.00	0.00
5,040.0	27.33	348.15	4,623.3	1,784.0	-374.3	1,822.8	0.00	0.00	0.00
5,080.0	27.33	348.15	4,658.8	1,802.0	-378.1	1,841.2	0.00	0.00	0.00
5,120.0	27.33	348.15	4,694.4	1,819.9	-381.9	1,859.6	0.00	0.00	0.00
5,160.0	27.33	348.15	4,729.9	1,837.9	-385.7	1,877.9	0.00	0.00	0.00
5,200.0	27.33	348.15	4,765.4	1,855.9	-389.4	1,896.3	0.00	0.00	0.00
5,221.6	27.33	348.15	4,784.6	1,865.6	-391.5	1,906.2	0.00	0.00	0.00
5,240.0	26.96	348.15	4,801.0	1,873.8	-393.2	1,914.6	2.00	-2.00	0.00
5,280.0	26.16	348.15	4,836.8	1,891.3	-396.9	1,932.5	2.00	-2.00	0.00
5,320.0	25.36	348.15	4,872.8	1,908.3	-400.4	1,949.9	2.00	-2.00	0.00
5,360.0	24.56	348.15	4,909.1	1,924.8	-403.9	1,966.8	2.00	-2.00	0.00
5,400.0	23.76	348.15	4,945.6	1,940.9	-407.3	1,983.1	2.00	-2.00	0.00
5,440.0	22.96	348.15	4,982.3	1,956.4	-410.5	1,999.0	2.00	-2.00	0.00
5,480.0	22.16	348.15	5,019.2	1,971.4	-413.7	2,014.4	2.00	-2.00	0.00
5,520.0	21.36	348.15	5,056.4	1,985.9	-416.7	2,029.2	2.00	-2.00	0.00
5,560.0	20.56	348.15	5,093.7	1,999.9	-419.7	2,043.5	2.00	-2.00	0.00
5,600.0	19.76	348.15	5,131.3	2,013.4	-422.5	2,057.3	2.00	-2.00	0.00
5,640.0	18.96	348.15	5,169.0	2,026.4	-425.2	2,070.5	2.00	-2.00	0.00
5,680.0	18.16	348.15	5,206.9	2,038.9	-427.8	2,083.3	2.00	-2.00	0.00
5,720.0	17.36	348.15	5,245.0	2,050.8	-430.3	2,095.5	2.00	-2.00	0.00
5,760.0	16.56	348.15	5,283.3	2,062.2	-432.7	2,107.2	2.00	-2.00	0.00
5,800.0	15.76	348.15	5,321.7	2,073.1	-435.0	2,118.3	2.00	-2.00	0.00
5,840.0	14.96	348.15	5,360.3	2,083.5	-437.2	2,128.9	2.00	-2.00	0.00
5,880.0	14.16	348.15	5,399.0	2,093.4	-439.3	2,138.9	2.00	-2.00	0.00
5,920.0	13.36	348.15	5,437.8	2,102.7	-441.2	2,148.5	2.00	-2.00	0.00
5,960.0	12.56	348.15	5,476.8	2,111.5	-443.1	2,157.4	2.00	-2.00	0.00
6,000.0	11.76	348.15	5,515.9	2,119.7	-444.8	2,165.9	2.00	-2.00	0.00
6,040.0	10.96	348.15	5,555.1	2,127.4	-446.4	2,173.8	2.00	-2.00	0.00
6,080.0	10.16	348.15	5,594.4	2,134.6	-447.9	2,181.1	2.00	-2.00	0.00
6,120.0	9.36	348.15	5,633.9	2,141.2	-449.3	2,187.9	2.00	-2.00	0.00
6,160.0	8.56	348.15	5,673.4	2,147.3	-450.6	2,194.1	2.00	-2.00	0.00
6,200.0	7.76	348.15	5,713.0	2,152.9	-451.8	2,199.8	2.00	-2.00	0.00
6,240.0	6.96	348.15	5,752.6	2,157.9	-452.8	2,204.9	2.00	-2.00	0.00
6,280.0	6.16	348.15	5,792.4	2,162.4	-453.7	2,209.5	2.00	-2.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Burman C05-17D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4763.0ft (Original Well Elev)
Project:	SEC.5-T4N-R64W	MD Reference:	WELL @ 4763.0ft (Original Well Elev)
Site:	Burman C04-33D Pad Sec.5-T4N-R64W	North Reference:	True
Well:	Burman C05-17D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Burman C05-17D Plan #1 (6-15-11)		

Planned 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)
6,320.0	5.36	348.15	5,832.2	2,166.3	-454.6	2,213.5	2.00	-2.00	0.00
6,360.0	4.56	348.15	5,872.0	2,169.7	-455.3	2,217.0	2.00	-2.00	0.00
6,400.0	3.76	348.15	5,911.9	2,172.6	-455.9	2,219.9	2.00	-2.00	0.00
6,440.0	2.96	348.15	5,951.8	2,174.8	-456.4	2,222.2	2.00	-2.00	0.00
6,480.0	2.16	348.15	5,991.8	2,176.6	-456.7	2,224.0	2.00	-2.00	0.00
6,520.0	1.36	348.15	6,031.8	2,177.8	-457.0	2,225.2	2.00	-2.00	0.00
6,560.0	0.56	348.15	6,071.8	2,178.5	-457.1	2,225.9	2.00	-2.00	0.00
6,588.2	0.00	0.00	6,100.0	2,178.6	-457.1	2,226.0	2.00	-2.00	0.00
TARGET BHL 1250'FNL, 1450'FEL									
6,600.0	0.00	0.00	6,111.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
6,640.0	0.00	0.00	6,151.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
6,680.0	0.00	0.00	6,191.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
6,720.0	0.00	0.00	6,231.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
6,760.0	0.00	0.00	6,271.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,311.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
6,840.0	0.00	0.00	6,351.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
6,880.0	0.00	0.00	6,391.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
6,920.0	0.00	0.00	6,431.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
6,960.0	0.00	0.00	6,471.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,511.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,040.0	0.00	0.00	6,551.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,080.0	0.00	0.00	6,591.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,120.0	0.00	0.00	6,631.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,141.2	0.00	0.00	6,653.0	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
NIOBRARA - LEGAL BOX 800' X 800' 1289'FNL & 1325'FEL - TARGET CIRCLE 1250'FNL & 1450'FEL									
7,160.0	0.00	0.00	6,671.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,200.0	0.00	0.00	6,711.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,240.0	0.00	0.00	6,751.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,280.0	0.00	0.00	6,791.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,320.0	0.00	0.00	6,831.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,360.0	0.00	0.00	6,871.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,400.0	0.00	0.00	6,911.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,440.0	0.00	0.00	6,951.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,451.2	0.00	0.00	6,963.0	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
CODELL									
7,480.0	0.00	0.00	6,991.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,520.0	0.00	0.00	7,031.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,560.0	0.00	0.00	7,071.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,111.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,640.0	0.00	0.00	7,151.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,680.0	0.00	0.00	7,191.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,720.0	0.00	0.00	7,231.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,760.0	0.00	0.00	7,271.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,311.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,840.0	0.00	0.00	7,351.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,851.2	0.00	0.00	7,363.0	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
D-SAND									
7,880.0	0.00	0.00	7,391.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,911.2	0.00	0.00	7,423.0	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
J-SAND									
7,920.0	0.00	0.00	7,431.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
7,960.0	0.00	0.00	7,471.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
8,000.0	0.00	0.00	7,511.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00
8,040.0	0.00	0.00	7,551.8	2,178.6	-457.1	2,226.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Burman C05-17D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4763.0ft (Original Well Elev)
Project:	SEC.5-T4N-R64W	MD Reference:	WELL @ 4763.0ft (Original Well Elev)
Site:	Burman C04-33D Pad Sec.5-T4N-R64W	North Reference:	True
Well:	Burman C05-17D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Burman C05-17D Plan #1 (6-15-11)		

Planned 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)
8,061.2	0.00	0.00	7,573.0	2,178.6	-457.1	2,226.0	0.00	0.00	0.00

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
LEGAL BOX 800' X 800' - hit/miss target - Shape	0.00	0.00	6,653.0	2,139.6	-332.1	1,369,875.32	3,259,378.60	40.344973	-104.569431
- plan misses target center by 131.0ft at 7141.2ft MD (6653.0 TVD, 2178.6 N, -457.1 E) - Rectangle (sides W800.0 H800.0 D920.0)									
TARGET CIRCLE 1250'F - plan hits target center - Circle (radius 75.0)	0.00	0.00	6,653.0	2,178.6	-457.1	1,369,913.00	3,259,253.16	40.345080	-104.569880
TARGET BHL 1250'F - plan hits target center - Point	0.00	0.00	6,100.0	2,178.6	-457.1	1,369,913.00	3,259,253.16	40.345080	-104.569880

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
650.3	650.0	8 5/8"	8-5/8	12-1/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,141.2	6,653.0	NIOBRARA		0.00	
7,451.2	6,963.0	CODELL		0.00	
7,851.2	7,363.0	D-SAND		0.00	
7,911.2	7,423.0	J-SAND		0.00	