



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.20-T4N-R66W

Zabka K20-32D Pad Sec.20-T4N-R66W

Zabka K20-32D

Wellbore #1

Plan: Noble Zabka K20-32D Plan #1 (10-30-09)

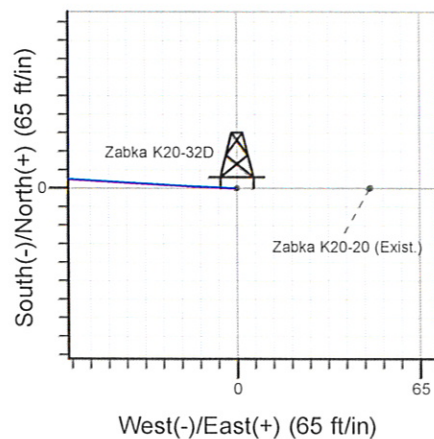
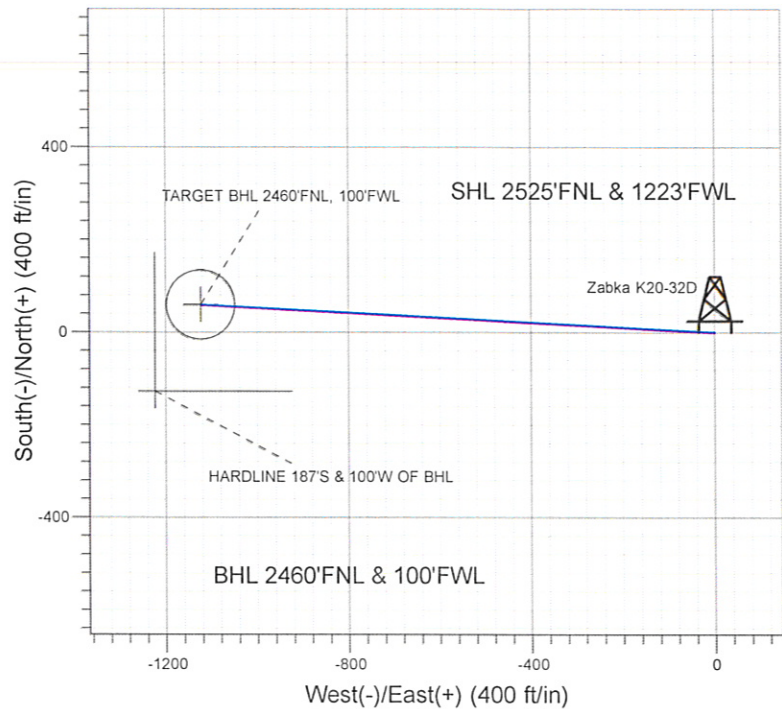
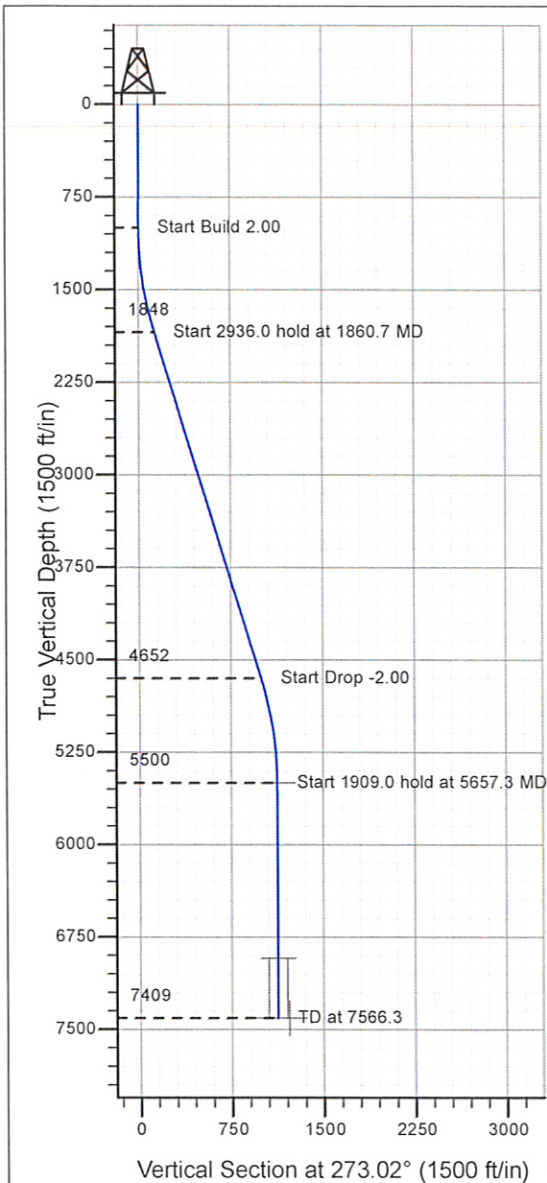
Standard Planning Report

30 October, 2009



ENSIGN**Directional****Well Name: Zabka K20-32D**

Surface Location: Zabka K20-32D Pad Sec.20-T4N-R66W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4746.0
 +N/-S+E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1351969.17 3193397.99 40° 17' 50.928 N 104° 48' 23.904 W
 Original Well Elev WELL @ 4759.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO

Zabka K20-32D Pad Sec.20-T4N-R66W
 Zabka K20-32D
 Noble Zabka K20-32D Plan #1 (10-30-09)
 14:08, October 30 2009



Azimuths to True North
 Magnetic North: 9.06°

Magnetic Field
 Strength: 53264.0snT
 Dip Angle: 67.02°
 Date: 10/30/2009
 Model: IGRF200510

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 2460'FNL, 100'FWL	5500.0	59.3	-1123.9	40° 17' 51.514 N	104° 48' 38.409 W	Point
TARGET CIRCLE 2460'FNL, 100'FWL	6924.0	59.3	-1123.9	40° 17' 51.514 N	104° 48' 38.409 W	Circle (Radius: 75.0)
HARDLINE 187'S & 100'W OF BHL	7409.0	-127.7	-1123.9	40° 17' 49.666 N	104° 48' 39.699 W	Polygon

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	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1860.7	17.21	273.02	1847.8	6.8	-128.1	2.00	273.02	128.3	
4	4796.6	17.21	273.02	4652.2	52.5	-995.8	0.00	0.00	997.1	
5	5657.3	0.00	0.00	5500.0	59.3	-1123.9	2.00	180.00	1125.5	TARGET BHL 2460'FNL, 100'FWL
6	7566.3	0.00	0.00	7409.0	59.3	-1123.9	0.00	0.00	1125.5	

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Zabka K20-32D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4759.0ft (Original Well Elev)
Project:	SEC.20-T4N-R66W	MD Reference:	WELL @ 4759.0ft (Original Well Elev)
Site:	Zabka K20-32D Pad Sec.20-T4N-R66W	North Reference:	True
Well:	Zabka K20-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Zabka K20-32D Plan #1 (10-30-09)		

Project	SEC.20-T4N-R66W, 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	Zabka K20-32D Pad Sec.20-T4N-R66W				
Site Position:		Northing:	1,351,969.18ft	Latitude:	40° 17' 50.928 N
From:	Lat/Long	Easting:	3,193,397.99ft	Longitude:	104° 48' 23.904 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.45 °

Well	Zabka K20-32D					
Well Position	+N/-S	0.0 ft	Northing:	1,351,969.17 ft	Latitude:	40° 17' 50.928 N
	+E/-W	0.0 ft	Easting:	3,193,397.99 ft	Longitude:	104° 48' 23.904 W
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,746.0 ft	

Wellbore	Wellbore #1				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	10/30/2009	9.06	67.02	53,264

Design	Noble Zabka K20-32D Plan #1 (10-30-09)			
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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	273.02

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,860.7	17.21	273.02	1,847.8	6.8	-128.1	2.00	2.00	0.00	273.02	
4,796.6	17.21	273.02	4,652.2	52.5	-995.8	0.00	0.00	0.00	0.00	
5,657.3	0.00	0.00	5,500.0	59.3	-1,123.9	2.00	-2.00	0.00	180.00	TARGET BHL 246C
7,566.3	0.00	0.00	7,409.0	59.3	-1,123.9	0.00	0.00	0.00	0.00	

Database: EDM den0-adp01 Server Data
 Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.20-T4N-R66W
 Site: Zabka K20-32D Pad Sec.20-T4N-R66W
 Well: Zabka K20-32D
 Wellbore: Wellbore #1
 Design: Noble Zabka K20-32D Plan #1 (10-30-09)

Local Co-ordinate Reference: Well Zabka K20-32D
 TVD Reference: WELL @ 4759.0ft (Original Well Elev)
 MD Reference: WELL @ 4759.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

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	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,040.0	0.80	273.02	1,040.0	0.0	-0.3	0.3	2.00	2.00	0.00
1,080.0	1.60	273.02	1,080.0	0.1	-1.1	1.1	2.00	2.00	0.00
1,120.0	2.40	273.02	1,120.0	0.1	-2.5	2.5	2.00	2.00	0.00
1,160.0	3.20	273.02	1,159.9	0.2	-4.5	4.5	2.00	2.00	0.00
1,200.0	4.00	273.02	1,199.8	0.4	-7.0	7.0	2.00	2.00	0.00
1,240.0	4.80	273.02	1,239.7	0.5	-10.0	10.0	2.00	2.00	0.00
1,280.0	5.60	273.02	1,279.6	0.7	-13.7	13.7	2.00	2.00	0.00
1,320.0	6.40	273.02	1,319.3	0.9	-17.8	17.9	2.00	2.00	0.00
1,360.0	7.20	273.02	1,359.1	1.2	-22.6	22.6	2.00	2.00	0.00
1,400.0	8.00	273.02	1,398.7	1.5	-27.8	27.9	2.00	2.00	0.00
1,440.0	8.80	273.02	1,438.3	1.8	-33.7	33.7	2.00	2.00	0.00
1,480.0	9.60	273.02	1,477.8	2.1	-40.1	40.1	2.00	2.00	0.00
1,520.0	10.40	273.02	1,517.1	2.5	-47.0	47.1	2.00	2.00	0.00
1,560.0	11.20	273.02	1,556.4	2.9	-54.5	54.6	2.00	2.00	0.00
1,600.0	12.00	273.02	1,595.6	3.3	-62.5	62.6	2.00	2.00	0.00
1,640.0	12.80	273.02	1,634.7	3.8	-71.1	71.2	2.00	2.00	0.00
1,680.0	13.60	273.02	1,673.6	4.2	-80.2	80.3	2.00	2.00	0.00
1,720.0	14.40	273.02	1,712.4	4.7	-89.9	90.0	2.00	2.00	0.00
1,760.0	15.20	273.02	1,751.1	5.3	-100.1	100.2	2.00	2.00	0.00
1,800.0	16.00	273.02	1,789.6	5.8	-110.8	111.0	2.00	2.00	0.00
1,840.0	16.80	273.02	1,828.0	6.4	-122.1	122.3	2.00	2.00	0.00
1,860.7	17.21	273.02	1,847.8	6.8	-128.1	128.3	2.00	2.00	0.00
1,880.0	17.21	273.02	1,866.2	7.1	-133.9	134.0	0.00	0.00	0.00
1,920.0	17.21	273.02	1,904.5	7.7	-145.7	145.9	0.00	0.00	0.00
1,960.0	17.21	273.02	1,942.7	8.3	-157.5	157.7	0.00	0.00	0.00
2,000.0	17.21	273.02	1,980.9	8.9	-169.3	169.5	0.00	0.00	0.00
2,040.0	17.21	273.02	2,019.1	9.6	-181.1	181.4	0.00	0.00	0.00
2,080.0	17.21	273.02	2,057.3	10.2	-193.0	193.2	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Zabka K20-32D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4759.0ft (Original Well Elev)
Project:	SEC.20-T4N-R66W	MD Reference:	WELL @ 4759.0ft (Original Well Elev)
Site:	Zabka K20-32D Pad Sec.20-T4N-R66W	North Reference:	True
Well:	Zabka K20-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Zabka K20-32D Plan #1 (10-30-09)		

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)
2,120.0	17.21	273.02	2,095.5	10.8	-204.8	205.1	0.00	0.00	0.00
2,160.0	17.21	273.02	2,133.7	11.4	-216.6	216.9	0.00	0.00	0.00
2,200.0	17.21	273.02	2,171.9	12.1	-228.4	228.7	0.00	0.00	0.00
2,240.0	17.21	273.02	2,210.1	12.7	-240.2	240.6	0.00	0.00	0.00
2,280.0	17.21	273.02	2,248.3	13.3	-252.1	252.4	0.00	0.00	0.00
2,320.0	17.21	273.02	2,286.5	13.9	-263.9	264.2	0.00	0.00	0.00
2,360.0	17.21	273.02	2,324.7	14.5	-275.7	276.1	0.00	0.00	0.00
2,400.0	17.21	273.02	2,363.0	15.2	-287.5	287.9	0.00	0.00	0.00
2,440.0	17.21	273.02	2,401.2	15.8	-299.3	299.8	0.00	0.00	0.00
2,480.0	17.21	273.02	2,439.4	16.4	-311.2	311.6	0.00	0.00	0.00
2,520.0	17.21	273.02	2,477.6	17.0	-323.0	323.4	0.00	0.00	0.00
2,560.0	17.21	273.02	2,515.8	17.7	-334.8	335.3	0.00	0.00	0.00
2,600.0	17.21	273.02	2,554.0	18.3	-346.6	347.1	0.00	0.00	0.00
2,640.0	17.21	273.02	2,592.2	18.9	-358.4	358.9	0.00	0.00	0.00
2,680.0	17.21	273.02	2,630.4	19.5	-370.3	370.8	0.00	0.00	0.00
2,720.0	17.21	273.02	2,668.6	20.2	-382.1	382.6	0.00	0.00	0.00
2,760.0	17.21	273.02	2,706.8	20.8	-393.9	394.5	0.00	0.00	0.00
2,800.0	17.21	273.02	2,745.0	21.4	-405.7	406.3	0.00	0.00	0.00
2,840.0	17.21	273.02	2,783.2	22.0	-417.5	418.1	0.00	0.00	0.00
2,880.0	17.21	273.02	2,821.5	22.7	-429.4	430.0	0.00	0.00	0.00
2,920.0	17.21	273.02	2,859.7	23.3	-441.2	441.8	0.00	0.00	0.00
2,960.0	17.21	273.02	2,897.9	23.9	-453.0	453.6	0.00	0.00	0.00
3,000.0	17.21	273.02	2,936.1	24.5	-464.8	465.5	0.00	0.00	0.00
3,040.0	17.21	273.02	2,974.3	25.1	-476.7	477.3	0.00	0.00	0.00
3,080.0	17.21	273.02	3,012.5	25.8	-488.5	489.2	0.00	0.00	0.00
3,120.0	17.21	273.02	3,050.7	26.4	-500.3	501.0	0.00	0.00	0.00
3,160.0	17.21	273.02	3,088.9	27.0	-512.1	512.8	0.00	0.00	0.00
3,200.0	17.21	273.02	3,127.1	27.6	-523.9	524.7	0.00	0.00	0.00
3,240.0	17.21	273.02	3,165.3	28.3	-535.8	536.5	0.00	0.00	0.00
3,280.0	17.21	273.02	3,203.5	28.9	-547.6	548.3	0.00	0.00	0.00
3,320.0	17.21	273.02	3,241.7	29.5	-559.4	560.2	0.00	0.00	0.00
3,360.0	17.21	273.02	3,280.0	30.1	-571.2	572.0	0.00	0.00	0.00
3,400.0	17.21	273.02	3,318.2	30.8	-583.0	583.8	0.00	0.00	0.00
3,440.0	17.21	273.02	3,356.4	31.4	-594.9	595.7	0.00	0.00	0.00
3,480.0	17.21	273.02	3,394.6	32.0	-606.7	607.5	0.00	0.00	0.00
3,520.0	17.21	273.02	3,432.8	32.6	-618.5	619.4	0.00	0.00	0.00
3,560.0	17.21	273.02	3,471.0	33.3	-630.3	631.2	0.00	0.00	0.00
3,600.0	17.21	273.02	3,509.2	33.9	-642.1	643.0	0.00	0.00	0.00
3,640.0	17.21	273.02	3,547.4	34.5	-654.0	654.9	0.00	0.00	0.00
3,680.0	17.21	273.02	3,585.6	35.1	-665.8	666.7	0.00	0.00	0.00
3,720.0	17.21	273.02	3,623.8	35.7	-677.6	678.5	0.00	0.00	0.00
3,760.0	17.21	273.02	3,662.0	36.4	-689.4	690.4	0.00	0.00	0.00
3,800.0	17.21	273.02	3,700.2	37.0	-701.2	702.2	0.00	0.00	0.00
3,840.0	17.21	273.02	3,738.5	37.6	-713.1	714.1	0.00	0.00	0.00
3,880.0	17.21	273.02	3,776.7	38.2	-724.9	725.9	0.00	0.00	0.00
3,920.0	17.21	273.02	3,814.9	38.9	-736.7	737.7	0.00	0.00	0.00
3,960.0	17.21	273.02	3,853.1	39.5	-748.5	749.6	0.00	0.00	0.00
4,000.0	17.21	273.02	3,891.3	40.1	-760.3	761.4	0.00	0.00	0.00
4,040.0	17.21	273.02	3,929.5	40.7	-772.2	773.2	0.00	0.00	0.00
4,080.0	17.21	273.02	3,967.7	41.4	-784.0	785.1	0.00	0.00	0.00
4,120.0	17.21	273.02	4,005.9	42.0	-795.8	796.9	0.00	0.00	0.00
4,160.0	17.21	273.02	4,044.1	42.6	-807.6	808.8	0.00	0.00	0.00
4,200.0	17.21	273.02	4,082.3	43.2	-819.5	820.6	0.00	0.00	0.00
4,240.0	17.21	273.02	4,120.5	43.9	-831.3	832.4	0.00	0.00	0.00

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 Company: NOBLE ENERGY INC WELD COUNTY CO
 Project: SEC.20-T4N-R66W
 Site: Zabka K20-32D Pad Sec.20-T4N-R66W
 Well: Zabka K20-32D
 Wellbore: Wellbore #1
 Design: Noble Zabka K20-32D Plan #1 (10-30-09)

Local Co-ordinate Reference: Well Zabka K20-32D
 TVD Reference: WELL @ 4759.0ft (Original Well Elev)
 MD Reference: WELL @ 4759.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

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)
4,280.0	17.21	273.02	4,158.7	44.5	-843.1	844.3	0.00	0.00	0.00
4,320.0	17.21	273.02	4,197.0	45.1	-854.9	856.1	0.00	0.00	0.00
4,360.0	17.21	273.02	4,235.2	45.7	-866.7	867.9	0.00	0.00	0.00
4,400.0	17.21	273.02	4,273.4	46.4	-878.6	879.8	0.00	0.00	0.00
4,440.0	17.21	273.02	4,311.6	47.0	-890.4	891.6	0.00	0.00	0.00
4,480.0	17.21	273.02	4,349.8	47.6	-902.2	903.5	0.00	0.00	0.00
4,520.0	17.21	273.02	4,388.0	48.2	-914.0	915.3	0.00	0.00	0.00
4,560.0	17.21	273.02	4,426.2	48.8	-925.8	927.1	0.00	0.00	0.00
4,600.0	17.21	273.02	4,464.4	49.5	-937.7	939.0	0.00	0.00	0.00
4,640.0	17.21	273.02	4,502.6	50.1	-949.5	950.8	0.00	0.00	0.00
4,680.0	17.21	273.02	4,540.8	50.7	-961.3	962.6	0.00	0.00	0.00
4,720.0	17.21	273.02	4,579.0	51.3	-973.1	974.5	0.00	0.00	0.00
4,760.0	17.21	273.02	4,617.3	52.0	-984.9	986.3	0.00	0.00	0.00
4,796.6	17.21	273.02	4,652.2	52.5	-995.8	997.1	0.00	0.00	0.00
4,800.0	17.15	273.02	4,655.5	52.6	-996.8	998.1	2.00	-2.00	0.00
4,840.0	16.35	273.02	4,693.8	53.2	-1,008.3	1,009.7	2.00	-2.00	0.00
4,880.0	15.55	273.02	4,732.2	53.8	-1,019.2	1,020.7	2.00	-2.00	0.00
4,920.0	14.75	273.02	4,770.8	54.3	-1,029.7	1,031.1	2.00	-2.00	0.00
4,960.0	13.95	273.02	4,809.6	54.8	-1,039.6	1,041.0	2.00	-2.00	0.00
5,000.0	13.15	273.02	4,848.5	55.3	-1,048.9	1,050.4	2.00	-2.00	0.00
5,040.0	12.35	273.02	4,887.5	55.8	-1,057.7	1,059.2	2.00	-2.00	0.00
5,080.0	11.55	273.02	4,926.6	56.2	-1,066.0	1,067.5	2.00	-2.00	0.00
5,120.0	10.75	273.02	4,965.9	56.6	-1,073.7	1,075.2	2.00	-2.00	0.00
5,160.0	9.95	273.02	5,005.2	57.0	-1,080.9	1,082.4	2.00	-2.00	0.00
5,200.0	9.15	273.02	5,044.7	57.4	-1,087.5	1,089.0	2.00	-2.00	0.00
5,240.0	8.35	273.02	5,084.2	57.7	-1,093.6	1,095.1	2.00	-2.00	0.00
5,280.0	7.55	273.02	5,123.8	58.0	-1,099.1	1,100.7	2.00	-2.00	0.00
5,320.0	6.75	273.02	5,163.5	58.2	-1,104.1	1,105.6	2.00	-2.00	0.00
5,360.0	5.95	273.02	5,203.3	58.5	-1,108.5	1,110.0	2.00	-2.00	0.00
5,400.0	5.15	273.02	5,243.1	58.7	-1,112.4	1,113.9	2.00	-2.00	0.00
5,440.0	4.35	273.02	5,282.9	58.9	-1,115.7	1,117.2	2.00	-2.00	0.00
5,480.0	3.55	273.02	5,322.8	59.0	-1,118.4	1,120.0	2.00	-2.00	0.00
5,520.0	2.75	273.02	5,362.8	59.1	-1,120.6	1,122.2	2.00	-2.00	0.00
5,560.0	1.95	273.02	5,402.7	59.2	-1,122.2	1,123.8	2.00	-2.00	0.00
5,600.0	1.15	273.02	5,442.7	59.3	-1,123.3	1,124.9	2.00	-2.00	0.00
5,640.0	0.35	273.02	5,482.7	59.3	-1,123.8	1,125.4	2.00	-2.00	0.00
5,657.3	0.00	0.00	5,500.0	59.3	-1,123.9	1,125.5	2.00	-2.00	0.00
TARGET BHL 2460'FNL, 100'FWL									
5,680.0	0.00	0.00	5,522.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
5,720.0	0.00	0.00	5,562.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
5,760.0	0.00	0.00	5,602.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,642.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
5,840.0	0.00	0.00	5,682.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
5,880.0	0.00	0.00	5,722.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
5,920.0	0.00	0.00	5,762.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
5,960.0	0.00	0.00	5,802.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,000.0	0.00	0.00	5,842.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,040.0	0.00	0.00	5,882.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,080.0	0.00	0.00	5,922.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,120.0	0.00	0.00	5,962.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,160.0	0.00	0.00	6,002.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,200.0	0.00	0.00	6,042.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,240.0	0.00	0.00	6,082.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Zabka K20-32D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4759.0ft (Original Well Elev)
Project:	SEC.20-T4N-R66W	MD Reference:	WELL @ 4759.0ft (Original Well Elev)
Site:	Zabka K20-32D Pad Sec.20-T4N-R66W	North Reference:	True
Well:	Zabka K20-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Zabka K20-32D Plan #1 (10-30-09)		

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)
6,280.0	0.00	0.00	6,122.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,320.0	0.00	0.00	6,162.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,360.0	0.00	0.00	6,202.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,400.0	0.00	0.00	6,242.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,440.0	0.00	0.00	6,282.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,480.0	0.00	0.00	6,322.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,520.0	0.00	0.00	6,362.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,560.0	0.00	0.00	6,402.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,600.0	0.00	0.00	6,442.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,640.0	0.00	0.00	6,482.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,680.0	0.00	0.00	6,522.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,720.0	0.00	0.00	6,562.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,760.0	0.00	0.00	6,602.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,800.0	0.00	0.00	6,642.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,840.0	0.00	0.00	6,682.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,880.0	0.00	0.00	6,722.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,920.0	0.00	0.00	6,762.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
6,960.0	0.00	0.00	6,802.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,000.0	0.00	0.00	6,842.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,040.0	0.00	0.00	6,882.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,080.0	0.00	0.00	6,922.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,081.3	0.00	0.00	6,924.0	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 2460'FNL, 100'FWL									
7,120.0	0.00	0.00	6,962.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,160.0	0.00	0.00	7,002.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,200.0	0.00	0.00	7,042.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,240.0	0.00	0.00	7,082.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,280.0	0.00	0.00	7,122.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,320.0	0.00	0.00	7,162.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,360.0	0.00	0.00	7,202.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,400.0	0.00	0.00	7,242.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,416.3	0.00	0.00	7,259.0	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
CODELL									
7,440.0	0.00	0.00	7,282.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,480.0	0.00	0.00	7,322.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,520.0	0.00	0.00	7,362.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,560.0	0.00	0.00	7,402.7	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
7,566.3	0.00	0.00	7,409.0	59.3	-1,123.9	1,125.5	0.00	0.00	0.00
HARDLINE 187'S & 100'W OF BHL									

Database:	EDM den0-adp01 Server Data	Local Co-ordinate Reference:	Well Zabka K20-32D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4759.0ft (Original Well Elev)
Project:	SEC.20-T4N-R66W	MD Reference:	WELL @ 4759.0ft (Original Well Elev)
Site:	Zabka K20-32D Pad Sec.20-T4N-R66W	North Reference:	True
Well:	Zabka K20-32D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble Zabka K20-32D Plan #1 (10-30-09)		

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
HARDLINE 187'S & 1	0.00	0.00	7,409.0	-127.7	-1,223.9	1,351,831.91	3,192,175.18	40° 17' 49.666 N	104° 48' 39.699 W
- plan misses target center by 212.1ft at 7566.3ft MD (7409.0 TVD, 59.3 N, -1123.9 E)									
- Polygon									
Point 1			7,409.0	0.0	0.0	1,351,831.91	3,192,175.18		
Point 2			7,409.0	0.0	300.0	1,351,834.26	3,192,475.16		
Point 3			7,409.0	0.0	0.0	1,351,831.91	3,192,175.18		
Point 4			7,409.0	300.0	0.0	1,352,131.89	3,192,172.84		
TARGET CIRCLE 246'	0.00	0.00	6,924.0	59.3	-1,123.9	1,352,019.68	3,192,273.71	40° 17' 51.514 N	104° 48' 38.409 W
- plan hits target center									
- Circle (radius 75.0)									
TARGET BHL 2460'F	0.00	0.00	5,500.0	59.3	-1,123.9	1,352,019.67	3,192,273.72	40° 17' 51.514 N	104° 48' 38.409 W
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
7,081.3	6,924.0	NIOBRARA		0.00		
7,416.3	7,259.0	CODELL		0.00		