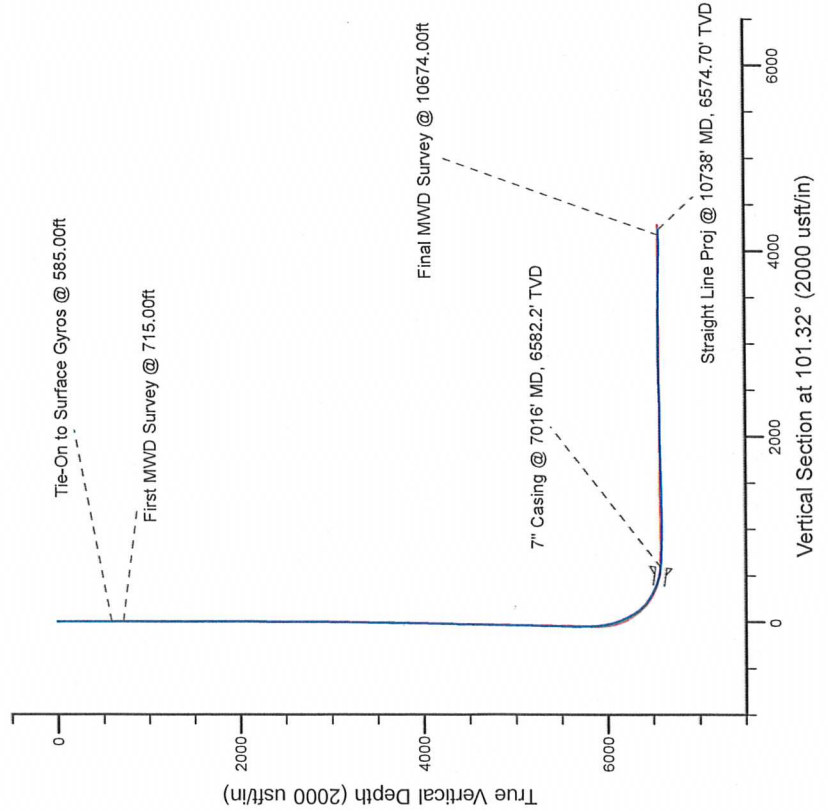
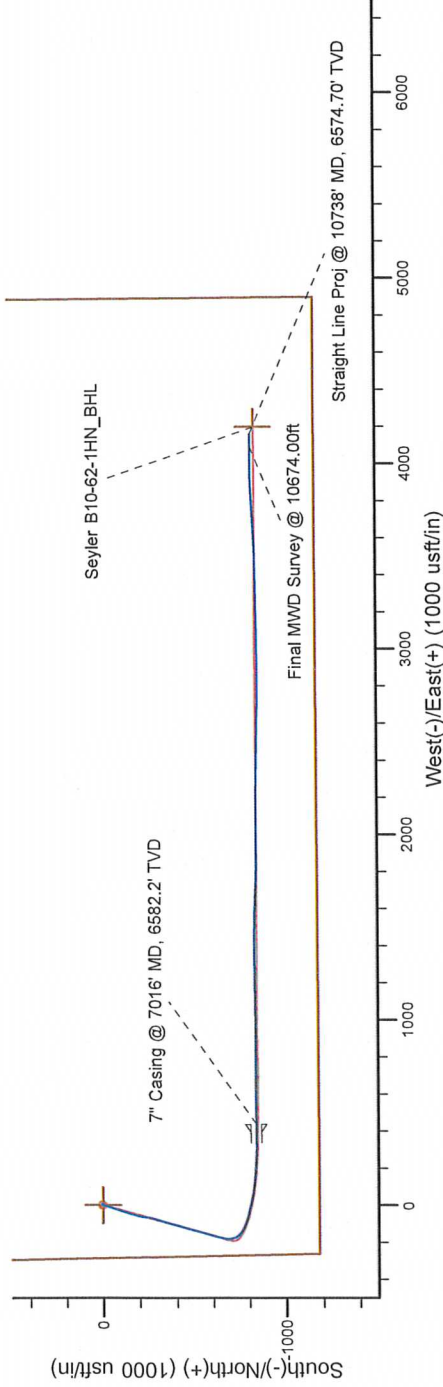


Project: Weld County, CO (NAD 83)  
Site: Sec. 10-T5N-R64W (Seyler Pad)  
Well: Seyler B10-62-1HN  
Wellbore: Plan C  
Design: Final Surveys

# Noble Energy



Platted SHL: 1176' FSL, 285' FWL  
Platted Lat/Long: 40.40981° N, 104.54459° W  
Location: Sec. 10-T5N-R64W

7" Casing: ~341.17' FSL, ~705.31' FWL  
Lat/Long: 40° 24' 27.001" N, 104° 32' 35.002" W  
State Planes - CO Northern: 1,392,730.67' N, 3,266,484.11' E  
Location: Sec. 10-T5N-R64W

BHL: ~351.4' FSL, ~738.27' FEL  
Lat/Long: 40° 24' 26.791" N, 104° 31' 46.919" W  
State Planes - CO Northern: 1,392,749.81' N, 3,270,203.61' E  
Location: Sec. 10-T5N-R64W

## LEGEND

- ✖ Seyler B10-62-1HN, Plan C, Rev C0 - PROPOSAL V0
- Final Surveys

WELL DETAILS: Seyler B10-62-1HN  
Ground Level: 4583.00  
RKB = 24 @ 4607.00usft (H&P 315)

Created By: Fred Hartmann  
Created On: 01/02/2014

# Noble Energy

Weld County, CO (NAD 83)

Sec. 10-T5N-R64W (Seyler Pad)

Seyler B10-62-1HN

Design: Final Surveys

## Sperry Drilling Services

### Final Survey Report

02 January, 2014

Surface UWI : 900916998

Well Coordinates: 1,393,567.39 N, 3,266,047.93 E (40° 24' 35.32" N, 104° 32' 40.52" W)

Ground Level: 4,583.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

Centered on Well Seyler B10-62-1HN

RKB = 24 @ 4607.00usft (H&P 315)

N

Grid

API - US Survey Feet - Custom

**HALLIBURTON**

## Design Report for Seyler B10-62-1HN - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
304.00	0.60	62.52	303.99	0.73	1.41	1.24	0.20
585.00	0.50	65.52	584.98	1.92	3.83	3.38	0.04
<b>Tie-On to Surface Gyros @ 585.00ft</b>							
715.00	0.34	83.97	714.98	2.20	4.73	4.21	0.16
<b>First MWD Survey @ 715.00ft</b>							
807.00	0.59	47.49	806.98	2.55	5.35	4.75	0.41
898.00	0.61	82.63	897.97	2.92	6.18	5.49	0.40
992.00	0.36	77.39	991.97	3.05	6.96	6.23	0.27
1,085.00	0.39	108.38	1,084.97	3.02	7.55	6.81	0.22
1,178.00	0.23	32.09	1,177.96	3.08	7.95	7.19	0.43
1,269.00	0.52	76.33	1,268.96	3.33	8.45	7.63	0.43
1,362.00	0.46	56.40	1,361.96	3.63	9.17	8.28	0.19
1,456.00	0.59	15.56	1,455.96	4.31	9.61	8.58	0.41
1,551.00	0.29	23.84	1,550.95	5.00	9.84	8.67	0.32
1,646.00	0.54	11.92	1,645.95	5.66	10.03	8.72	0.28
1,741.00	0.75	16.47	1,740.94	6.69	10.30	8.79	0.23
1,836.00	1.05	14.44	1,835.93	8.13	10.69	8.89	0.32
1,931.00	1.05	308.88	1,930.92	9.52	10.23	8.16	1.20
2,025.00	1.20	311.67	2,024.90	10.72	8.83	6.55	0.17
2,120.00	0.83	277.69	2,119.89	11.47	7.40	5.01	0.73
2,215.00	1.15	180.89	2,214.88	10.61	6.70	4.49	1.57
2,310.00	0.86	165.73	2,309.86	8.96	6.87	4.97	0.41
2,405.00	0.22	8.50	2,404.86	8.45	7.07	5.27	1.12
2,499.00	0.46	240.65	2,498.86	8.45	6.77	4.98	0.66
2,594.00	0.62	252.43	2,593.85	8.10	5.94	4.24	0.20
2,689.00	2.18	215.38	2,688.82	6.48	4.41	3.05	1.82
2,784.00	3.85	206.54	2,783.69	2.15	1.94	1.48	1.82
2,879.00	5.11	191.47	2,878.40	-4.85	-0.33	0.63	1.80
2,973.00	6.23	195.59	2,971.94	-13.87	-2.53	0.24	1.27
3,068.00	7.39	199.67	3,066.27	-24.58	-5.98	-1.03	1.32
3,163.00	10.07	198.84	3,160.16	-38.20	-10.72	-3.01	2.82
3,258.00	11.62	196.42	3,253.46	-55.24	-16.10	-4.95	1.70
3,353.00	12.54	194.93	3,346.36	-74.38	-21.46	-6.45	1.02
3,448.00	14.25	198.53	3,438.77	-95.44	-27.84	-8.56	2.00
3,542.00	16.06	198.63	3,529.50	-118.73	-35.67	-11.67	1.93
3,637.00	16.68	198.31	3,620.65	-144.12	-44.15	-15.00	0.66
3,732.00	17.03	193.98	3,711.57	-170.57	-51.79	-17.31	1.37
3,827.00	16.69	191.98	3,802.49	-197.41	-57.99	-18.11	0.71
3,922.00	13.89	185.21	3,894.12	-222.12	-61.85	-17.05	3.49
4,017.00	12.79	191.01	3,986.56	-243.80	-64.90	-15.78	1.82
4,112.00	12.87	192.94	4,079.19	-264.43	-69.28	-16.02	0.46
4,207.00	13.02	199.44	4,171.78	-284.84	-75.21	-17.83	1.54
4,302.00	14.62	198.02	4,264.03	-306.33	-82.48	-20.74	1.72
4,397.00	12.70	195.76	4,356.34	-327.78	-89.02	-22.95	2.10
4,491.00	12.99	194.25	4,447.98	-347.97	-94.43	-24.29	0.47
4,586.00	13.78	195.42	4,540.40	-369.22	-100.07	-25.65	0.88
4,681.00	13.46	196.11	4,632.73	-390.75	-106.14	-27.38	0.38
4,776.00	13.47	198.22	4,725.12	-411.88	-112.67	-29.63	0.52
4,871.00	14.83	197.46	4,817.24	-433.99	-119.78	-32.26	1.44

## Design Report for Seyler B10-62-1HN - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
4,966.00	15.30	195.13	4,908.97	-457.69	-126.70	-34.39	0.81
5,061.00	12.40	192.92	5,001.20	-479.74	-132.25	-35.51	3.10
5,155.00	12.65	194.01	5,092.96	-499.56	-137.00	-36.28	0.37
5,250.00	12.47	195.97	5,185.69	-519.51	-142.34	-37.60	0.49
5,345.00	12.36	193.80	5,278.47	-539.25	-147.59	-38.87	0.50
5,440.00	13.16	196.29	5,371.12	-559.50	-153.05	-40.25	1.02
5,535.00	14.11	197.68	5,463.44	-580.92	-159.60	-42.47	1.06
5,630.00	13.75	198.48	5,555.65	-602.66	-166.69	-45.16	0.43
5,725.00	14.34	191.04	5,647.82	-624.91	-172.52	-46.51	2.00
5,820.00	14.71	190.13	5,739.78	-648.33	-176.90	-46.20	0.46
5,913.00	15.22	189.88	5,829.63	-671.98	-181.07	-45.65	0.55
5,954.00	14.85	187.64	5,869.22	-682.49	-182.69	-45.17	1.68
6,101.00	20.50	149.54	6,009.68	-723.52	-172.11	-26.74	8.55
6,149.00	22.42	134.14	6,054.38	-737.15	-161.27	-13.44	12.36
6,196.00	21.36	126.96	6,098.00	-748.54	-147.99	1.82	6.12
6,244.00	21.66	119.14	6,142.67	-758.11	-133.27	18.13	6.00
6,290.00	23.17	115.64	6,185.19	-766.16	-117.69	34.99	4.38
6,338.00	26.50	112.02	6,228.75	-774.26	-99.24	54.66	7.62
6,385.00	28.97	106.68	6,270.36	-781.47	-78.61	76.31	7.45
6,433.00	32.75	106.50	6,311.55	-788.49	-55.02	100.82	7.88
6,480.00	38.81	105.45	6,349.66	-796.03	-28.61	128.20	12.96
6,528.00	43.94	103.67	6,385.67	-803.98	2.09	159.86	10.96
6,575.00	49.08	101.97	6,418.01	-811.52	35.33	193.94	11.25
6,623.00	54.45	99.72	6,447.71	-818.59	72.35	231.62	11.78
6,670.00	59.65	96.99	6,473.27	-824.29	111.35	270.98	12.09
6,718.00	62.33	94.72	6,496.54	-828.56	153.11	312.76	6.95
6,765.00	64.43	93.86	6,517.60	-831.70	195.00	354.46	4.76
6,813.00	69.29	93.15	6,536.46	-834.39	239.05	398.18	10.22
6,860.00	73.18	92.42	6,551.58	-836.55	283.49	442.18	8.41
6,908.00	76.47	90.23	6,564.14	-837.61	329.79	487.79	8.15
6,970.00	81.45	89.31	6,576.01	-837.37	390.62	547.39	8.16
7,016.00	83.08	89.16	6,582.20	-836.76	436.20	591.96	3.57
7" Casing @ 7016' MD, 6582.2' TVD							
7,126.00	86.99	88.81	6,591.72	-834.82	545.75	698.99	3.57
7,221.00	87.53	89.87	6,596.26	-833.72	640.63	791.82	1.25
7,315.00	89.57	90.07	6,598.64	-833.68	734.60	883.95	2.18
7,410.00	89.63	90.29	6,599.30	-833.97	829.59	977.15	0.24
7,505.00	90.86	89.81	6,598.89	-834.06	924.59	1,070.32	1.39
7,600.00	90.86	89.26	6,597.47	-833.29	1,019.58	1,163.30	0.58
7,695.00	90.74	89.01	6,596.14	-831.85	1,114.56	1,256.16	0.29
7,790.00	92.22	88.80	6,593.69	-830.04	1,209.50	1,348.90	1.57
7,885.00	91.76	90.70	6,590.39	-829.62	1,304.44	1,441.91	2.06
7,980.00	90.83	89.47	6,588.24	-829.76	1,399.41	1,535.06	1.62
8,074.00	90.52	91.48	6,587.13	-830.54	1,493.40	1,627.37	2.16
8,169.00	90.12	90.91	6,586.60	-832.52	1,588.38	1,720.89	0.73
8,264.00	92.50	92.90	6,584.43	-835.68	1,683.29	1,814.57	3.27
8,359.00	91.51	92.34	6,581.11	-840.02	1,778.13	1,908.42	1.20
8,454.00	90.15	90.53	6,579.73	-842.40	1,873.08	2,002.00	2.38
8,549.00	89.78	89.68	6,579.79	-842.57	1,968.08	2,095.18	0.98
8,644.00	90.95	90.27	6,579.18	-842.53	2,063.08	2,188.32	1.38
8,739.00	91.14	89.35	6,577.45	-842.22	2,158.06	2,281.39	0.99



## Design Report for Seyler B10-62-1HN - Final Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
8,833.00	89.57	91.05	6,576.87	-842.54	2,252.05	2,373.62	2.46
8,928.00	91.48	91.09	6,576.00	-844.32	2,347.03	2,467.10	2.01
9,023.00	90.98	91.10	6,573.96	-846.13	2,441.99	2,560.57	0.53
9,118.00	91.91	91.34	6,571.56	-848.15	2,536.93	2,654.06	1.01
9,213.00	91.08	91.49	6,569.08	-850.50	2,631.87	2,747.61	0.89
9,308.00	91.48	90.47	6,566.96	-852.12	2,726.83	2,841.05	1.15
9,403.00	90.03	90.51	6,565.71	-852.94	2,821.82	2,934.34	1.53
9,498.00	89.97	88.68	6,565.71	-852.27	2,916.81	3,027.36	1.93
9,593.00	89.69	88.93	6,565.99	-850.28	3,011.79	3,120.10	0.40
9,688.00	90.31	90.08	6,565.99	-849.46	3,106.78	3,213.09	1.38
9,783.00	90.71	88.85	6,565.15	-848.58	3,201.77	3,306.05	1.36
9,878.00	89.20	89.21	6,565.22	-846.97	3,296.76	3,398.87	1.63
9,973.00	88.71	88.58	6,566.95	-845.14	3,391.72	3,491.63	0.84
10,068.00	87.84	87.33	6,569.81	-841.75	3,486.62	3,584.02	1.60
10,163.00	89.41	88.42	6,572.09	-838.23	3,581.52	3,676.38	2.01
10,258.00	87.75	85.84	6,574.45	-833.47	3,676.36	3,768.44	3.23
10,353.00	89.14	85.91	6,577.03	-826.64	3,771.08	3,859.98	1.47
10,448.00	90.15	87.69	6,577.61	-821.34	3,865.92	3,951.94	2.15
10,543.00	89.72	89.14	6,577.72	-818.71	3,960.88	4,044.53	1.59
10,637.00	91.45	89.97	6,576.76	-817.98	4,054.87	4,136.55	2.04
10,674.00	91.11	89.75	6,575.94	-817.89	4,091.86	4,172.80	1.09
Final MWD Survey @ 10674.00ft							
10,738.00	91.11	89.75	6,574.70	-817.61	4,155.85	4,235.49	0.00
Straight Line Proj @ 10738' MD, 6574.70' TVD							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
585.00	584.98	1.92	3.83	Tie-On to Surface Gyros @ 585.00ft
715.00	714.98	2.20	4.73	First MWD Survey @ 715.00ft
10,674.00	6,575.94	-817.89	4,091.86	Final MWD Survey @ 10674.00ft
10,738.00	6,574.70	-817.61	4,155.85	Straight Line Proj @ 10738' MD, 6574.70' TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	+N/-S (usft)	+E/-W (usft)	Start TVD (usft)
Target	Seyler B10-62-1HN_BHL	101.32	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
304.00	585.00	Surface Gyros	Flexi-Shot
715.00	6,970.00	MWD Surveys - Vert/Build	MWD+IFR1+MS_WY
7,126.00	10,674.00	MWD Surveys - Lateral	MWD+IFR1+MS_WY

## Design Report for Seyler B10-62-1HN - Final Surveys

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
7,016.00	6,582.20	7" Casing @ 7016' MD, 6582.2' TVD	7	8-3/4

Wellbore Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Seyler B10-62-1HN_S	0.00	0.00	0.00	0.01	0.00	1,393,567.40	3,266,047.93	40° 24' 35.316 N	104° 32' 40.524 W
- actual wellpath misses target center by 0.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	4,073.03	-358.53	1,397,640.27	3,265,689.41	
Point 2				0.00	-1,179.63	-263.02	1,392,387.82	3,265,784.92	
Point 3				0.00	-1,167.26	4,897.65	1,392,400.19	3,270,945.39	
Point 4				0.00	4,158.72	4,844.79	1,397,725.96	3,270,892.53	
Point 5				0.00	4,073.03	-358.53	1,397,640.27	3,265,689.41	
Seyler B10-62-1HN_4i	0.00	0.00	0.00	0.01	0.00	1,393,567.40	3,266,047.93	40° 24' 35.316 N	104° 32' 40.524 W
- actual wellpath misses target center by 0.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Polygon									
Point 1				0.00	3,613.01	101.49	1,397,180.27	3,266,149.41	
Point 2				0.00	-719.61	197.00	1,392,847.82	3,266,244.92	
Point 3				0.00	-707.24	4,437.64	1,392,860.19	3,270,485.39	
Point 4				0.00	3,698.70	4,384.77	1,397,265.96	3,270,432.53	
Point 5				0.00	3,613.01	101.49	1,397,180.27	3,266,149.41	
Seyler B10-62-1HN_S	0.00	0.00	0.00	0.01	0.00	1,393,567.40	3,266,047.93	40° 24' 35.316 N	104° 32' 40.524 W
- actual wellpath misses target center by 0.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
Seyler B10-62-1HN_Ki	0.00	0.00	5,923.35	-699.37	-192.15	1,392,868.05	3,265,855.79	40° 24' 28.426 N	104° 32' 43.105 W
- actual wellpath misses target center by 10.03usft at 6009.97usft MD (5923.19 TVD, -697.27 N, -182.33 E)									
- Circle (radius 35.00)									
Seyler B10-62-1HN_B	0.00	0.00	6,570.22	-839.77	4,195.01	1,392,727.66	3,270,242.77	40° 24' 26.568 N	104° 31' 46.416 W
- actual wellpath misses target center by 45.22usft at 10738.00usft MD (6574.70 TVD, -817.61 N, 4155.85 E)									
- Point									
Seyler B10-62-1HN_7'	0.00	0.00	6,583.34	-847.84	411.01	1,392,719.59	3,266,458.93	40° 24' 26.895 N	104° 32' 35.329 W
- actual wellpath misses target center by 11.59usft at 6991.05usft MD (6579.01 TVD, -837.10 N, 411.46 E)									
- Point									
Seyler B10-62-1HN_Li	0.00	0.00	6,589.21	-0.41	-38.99	1,393,566.98	3,266,008.94	40° 24' 35.316 N	104° 32' 41.028 W
- actual wellpath misses target center by 829.89usft at 6521.35usft MD (6380.85 TVD, -802.89 N, -2.36 E)									
- Polygon									
Point 1				6,589.21	-812.42	442.00	1,392,754.59	3,266,450.93	
Point 2				6,589.21	-882.43	442.00	1,392,684.59	3,266,450.93	
Point 3				6,589.21	-874.51	4,241.77	1,392,692.51	3,270,250.55	
Point 4				6,589.21	-804.50	4,241.77	1,392,762.51	3,270,250.55	
Point 5				6,589.21	-812.42	442.00	1,392,754.59	3,266,450.93	

Directional Difficulty Index

Average Dogleg over Survey:	1.88 °/100usft	Maximum Dogleg over Survey:	12.96 °/100usft at 6,480.00 usft
Net Tortosity applicable to Plans:	0.87 °/100usft	Directional Difficulty Index:	6.227

Audit Info

**North Reference Sheet for Sec. 10-T5N-R64W (Seyler Pad) - Seyler B10-62-1HN -**

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to RKB = 24 @ 4607.00usft (H&P 315). Northing and Easting are relative to Seyler B10-62-1HN

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is 105° 30' 0.000 W°, Longitude Origin: 0° 0' 0.000 E°, Latitude Origin: 40° 47' 0.000 N°

False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996069

Grid Coordinates of Well: 1,393,567.39 usft N, 3,266,047.93 usft E

Geographical Coordinates of Well: 40° 24' 35.32" N, 104° 32' 40.52" W

Grid Convergence at Surface is: 0.62°

Based upon Minimum Curvature type calculations, at a Measured Depth of 10,738.00usft  
the Bottom Hole Displacement is 4,235.51usft in the Direction of 101.13° (Grid).

Magnetic Convergence at surface is: -7.83° (12 December 2013, , BGGM2013)

