

Design Report for Letterly USX AB 23-99 HZ - Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
826.00	0.37	22.12	825.99	2.47	1.00	-1.19	0.04
920.00	0.30	23.46	919.99	2.98	1.22	-1.44	0.07
1,013.00	0.29	57.57	1,012.99	3.33	1.51	-1.50	0.19
1,106.00	0.36	52.36	1,105.99	3.63	1.94	-1.45	0.08
1,200.00	0.20	24.24	1,199.99	3.96	2.24	-1.50	0.22
1,291.00	0.48	45.32	1,290.99	4.37	2.58	-1.59	0.33
1,387.00	0.57	39.12	1,386.98	5.03	3.17	-1.69	0.11
1,479.00	0.65	62.34	1,478.98	5.63	3.92	-1.64	0.28
1,573.00	0.91	60.70	1,572.97	6.24	5.04	-1.36	0.28
1,666.00	0.99	58.70	1,665.96	7.02	6.37	-1.07	0.09
1,792.00	1.16	70.60	1,791.93	8.01	8.50	-0.41	0.22
1,887.00	0.97	63.04	1,886.92	8.69	10.13	0.15	0.25
1,985.00	1.18	70.33	1,984.90	9.41	11.82	0.72	0.26
2,080.00	1.17	70.34	2,079.88	10.06	13.65	1.44	0.01
2,174.00	0.92	77.87	2,173.87	10.54	15.29	2.16	0.30
2,269.00	0.72	74.95	2,268.86	10.86	16.62	2.80	0.22
2,364.00	0.49	73.66	2,363.85	11.13	17.58	3.23	0.24
2,460.00	0.98	72.82	2,459.84	11.49	18.76	3.74	0.51
2,555.00	1.17	56.20	2,554.83	12.26	20.34	4.20	0.38
2,650.00	1.44	65.14	2,649.80	13.31	22.23	4.66	0.36
2,745.00	1.27	60.75	2,744.77	14.32	24.23	5.22	0.21
2,872.00	1.14	60.68	2,871.75	15.63	26.56	5.77	0.10
2,935.00	1.25	59.64	2,934.73	16.28	27.70	6.03	0.18
3,029.00	1.06	57.58	3,028.71	17.27	29.32	6.36	0.21
3,124.00	1.37	54.41	3,123.69	18.40	30.99	6.61	0.33
3,218.00	1.59	72.49	3,217.66	19.45	33.14	7.24	0.55
3,314.00	1.85	88.48	3,313.62	19.89	35.96	8.77	0.57
3,409.00	1.95	94.73	3,408.57	19.79	39.11	10.91	0.24
3,535.00	1.51	94.01	3,534.51	19.50	42.90	13.63	0.35
3,630.00	0.97	337.19	3,629.50	20.16	43.84	13.76	2.24
3,819.00	1.58	260.63	3,818.46	21.21	40.64	10.87	0.87
3,851.00	1.78	251.07	3,850.45	20.97	39.74	10.44	1.07
3,993.00	2.20	245.76	3,992.36	19.14	35.17	8.81	0.32
4,042.00	2.21	242.40	4,041.32	18.31	33.47	8.31	0.26
4,137.00	2.42	243.63	4,136.25	16.58	30.05	7.36	0.23
4,232.00	1.54	240.17	4,231.19	15.05	27.15	6.59	0.93
4,326.00	1.08	268.63	4,325.16	14.40	25.17	5.77	0.83
4,422.00	0.94	287.44	4,421.15	14.61	23.51	4.52	0.37
4,516.00	1.01	317.61	4,515.14	15.46	22.22	3.03	0.54
4,612.00	0.87	298.62	4,611.12	16.43	21.01	1.50	0.35
4,707.00	0.79	316.76	4,706.11	17.25	19.93	0.17	0.29
4,802.00	0.66	354.76	4,801.11	18.28	19.43	-0.93	0.51
4,948.00	0.64	357.04	4,947.10	19.93	19.31	-2.24	0.02
4,992.00	0.94	357.72	4,991.09	20.53	19.28	-2.72	0.68
5,088.00	1.40	352.49	5,087.07	22.48	19.10	-4.31	0.49
5,216.00	1.93	339.02	5,215.02	26.05	18.12	-7.63	0.51
5,374.00	2.49	325.27	5,372.90	31.35	15.21	-13.53	0.49
5,469.00	2.18	322.62	5,467.82	34.48	12.94	-17.39	0.35
5,564.00	1.89	334.31	5,562.76	37.33	11.16	-20.70	0.53

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5,660.00	1.44	350.66	5,658.72	39.95	10.28	-23.25	0.68
5,755.00	1.42	353.86	5,753.69	42.30	9.96	-25.22	0.09
5,849.00	0.88	13.84	5,847.67	44.15	10.01	-26.59	0.71
5,944.00	0.45	35.43	5,942.67	45.17	10.40	-27.09	0.52
6,055.00	0.13	45.07	6,053.67	45.61	10.74	-27.20	0.29
6,089.00	0.26	14.06	6,087.67	45.71	10.79	-27.25	0.48
6,121.00	0.10	315.23	6,119.67	45.80	10.79	-27.31	0.70
6,153.00	0.31	139.91	6,151.67	45.76	10.82	-27.26	1.28
6,184.00	3.03	163.25	6,182.65	44.91	11.11	-26.43	8.86
6,216.00	6.35	166.34	6,214.54	42.38	11.77	-24.09	10.40
6,248.00	9.34	168.94	6,246.24	38.11	12.69	-20.28	9.41
6,280.00	11.78	168.81	6,277.69	32.35	13.82	-15.20	7.63
6,311.00	14.07	169.45	6,307.90	25.55	15.13	-9.22	7.40
6,343.00	16.09	171.49	6,338.80	17.33	16.50	-2.15	6.53
6,375.00	17.97	174.55	6,369.40	8.03	17.62	5.58	6.51
6,407.00	19.93	175.23	6,399.66	-2.32	18.54	13.97	6.16
6,438.00	22.78	173.12	6,428.53	-13.54	19.70	23.17	9.52
6,470.00	25.46	168.39	6,457.74	-26.43	21.83	34.27	10.32
6,502.00	28.28	166.06	6,486.28	-40.53	25.04	46.98	9.41
6,534.00	30.21	164.52	6,514.20	-55.65	29.02	60.97	6.47
6,566.00	32.27	162.25	6,541.56	-71.55	33.77	76.05	7.41
6,598.00	34.69	159.40	6,568.25	-88.21	39.58	92.41	9.02
6,629.00	37.89	157.56	6,593.23	-105.27	46.32	109.68	10.90
6,661.00	41.44	158.00	6,617.86	-124.18	54.04	128.98	11.13
6,693.00	45.11	158.37	6,641.16	-144.54	62.19	149.66	11.50
6,725.00	47.53	158.04	6,663.26	-166.03	70.78	171.48	7.60
6,757.00	50.09	158.32	6,684.33	-188.38	79.73	194.18	8.03
6,789.00	52.07	159.92	6,704.43	-211.64	88.60	217.52	7.31
6,821.00	54.34	160.04	6,723.60	-235.72	97.37	241.40	7.10
6,852.00	56.21	158.27	6,741.26	-259.52	106.44	265.28	7.64
6,884.00	58.47	156.32	6,758.52	-284.37	116.84	290.81	8.73
6,916.00	60.03	153.84	6,774.89	-309.30	128.43	317.20	8.25
6,948.00	61.22	153.27	6,790.58	-334.27	140.85	344.16	4.03
6,979.00	63.45	153.35	6,804.98	-358.80	153.18	370.73	7.20
7,011.00	66.12	153.86	6,818.61	-384.73	166.05	398.71	8.47
7,042.00	68.66	154.85	6,830.53	-410.53	178.43	426.26	8.71
7,074.00	70.38	155.51	6,841.72	-437.74	191.01	455.01	5.71
7,106.00	72.23	155.84	6,851.98	-465.36	203.50	484.01	5.86
7,137.00	74.33	155.95	6,860.90	-492.45	215.62	512.37	6.78
7,169.00	76.64	155.61	6,868.92	-520.70	228.33	541.99	7.29
7,201.00	79.51	155.79	6,875.53	-549.24	241.21	571.93	8.99
7,233.00	81.57	156.09	6,880.79	-578.06	254.08	602.09	6.50
7,252.00	83.88	156.23	6,883.19	-595.30	261.70	620.07	12.18
7,313.00	86.23	155.67	6,888.45	-650.79	286.46	678.11	3.96
7,342.00	86.85	155.58	6,890.20	-677.15	298.41	705.81	2.16
7,374.00	87.10	155.40	6,891.89	-706.23	311.67	736.41	0.96
7,405.00	86.29	153.80	6,893.68	-734.19	324.94	766.18	5.78
7,436.00	85.43	151.56	6,895.91	-761.65	339.13	796.18	7.72
7,466.00	85.55	148.78	6,898.27	-787.60	354.01	825.49	9.25
7,497.00	87.71	146.70	6,900.10	-813.76	370.52	856.06	9.66

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7,528.00	90.00	144.52	6,900.72	-839.34	388.03	886.82	10.20
7,559.00	91.42	142.11	6,900.33	-864.19	406.54	917.72	9.02
7,590.00	92.16	139.35	6,899.36	-888.18	426.15	948.68	9.21
7,621.00	92.28	137.76	6,898.16	-911.40	446.66	979.66	5.14
7,651.00	91.42	135.22	6,897.19	-933.14	467.30	1,009.62	8.93
7,682.00	90.68	134.15	6,896.63	-954.94	489.33	1,040.53	4.20
7,713.00	90.25	134.09	6,896.37	-976.52	511.59	1,071.43	1.40
7,744.00	88.83	134.58	6,896.62	-998.18	533.76	1,102.34	4.85
7,805.00	89.69	134.89	6,897.41	-1,041.11	577.09	1,163.18	1.50
7,866.00	90.19	135.08	6,897.47	-1,084.23	620.23	1,224.05	0.88
7,928.00	90.68	135.36	6,897.00	-1,128.24	663.90	1,285.93	0.91
7,989.00	89.26	135.83	6,897.04	-1,171.82	706.59	1,346.84	2.45
8,049.00	89.88	135.88	6,897.49	-1,214.87	748.37	1,406.76	1.04
8,110.00	90.93	135.71	6,897.05	-1,258.59	790.90	1,467.68	1.74
8,171.00	88.89	135.76	6,897.15	-1,302.28	833.48	1,528.59	3.35
8,251.00	89.20	135.39	6,898.48	-1,359.40	889.47	1,608.46	0.60
8,315.00	89.69	135.68	6,899.10	-1,405.07	934.29	1,672.36	0.89
8,379.00	90.62	136.36	6,898.93	-1,451.13	978.74	1,736.28	1.80
8,442.00	88.70	135.51	6,899.30	-1,496.39	1,022.55	1,799.20	3.33
8,505.00	88.70	135.16	6,900.73	-1,541.19	1,066.82	1,862.08	0.56
8,569.00	87.59	135.31	6,902.81	-1,586.60	1,111.87	1,925.92	1.75
8,633.00	87.65	135.14	6,905.46	-1,632.00	1,156.90	1,989.75	0.28
8,696.00	88.15	135.64	6,907.77	-1,676.82	1,201.12	2,052.60	1.12
8,760.00	87.71	135.11	6,910.08	-1,722.34	1,246.05	2,116.45	1.08
8,824.00	88.52	134.45	6,912.19	-1,767.39	1,291.45	2,180.26	1.63
8,888.00	89.57	134.83	6,913.26	-1,812.35	1,336.98	2,244.08	1.74
8,951.00	88.21	135.67	6,914.48	-1,857.09	1,381.32	2,306.95	2.54
9,015.00	88.09	136.25	6,916.54	-1,903.07	1,425.79	2,370.84	0.92
9,079.00	90.56	135.50	6,917.30	-1,949.00	1,470.34	2,434.76	4.03
9,143.00	91.92	135.51	6,915.91	-1,994.64	1,515.18	2,498.64	2.13
9,206.00	90.12	135.86	6,914.79	-2,039.71	1,559.19	2,561.54	2.91
9,270.00	89.51	135.13	6,915.00	-2,085.35	1,604.05	2,625.43	1.49
9,334.00	90.00	134.00	6,915.27	-2,130.26	1,649.65	2,689.26	1.92
9,397.00	90.25	132.72	6,915.13	-2,173.52	1,695.45	2,751.98	2.07
9,461.00	90.37	132.33	6,914.79	-2,216.77	1,742.61	2,815.61	0.64
9,525.00	91.42	132.16	6,913.79	-2,259.79	1,789.99	2,879.19	1.66
9,589.00	91.36	131.85	6,912.23	-2,302.61	1,837.53	2,942.73	0.49
9,652.00	90.68	131.70	6,911.11	-2,344.57	1,884.50	3,005.25	1.11
9,716.00	92.04	131.96	6,909.59	-2,387.24	1,932.18	3,068.77	2.16
9,779.00	91.42	131.47	6,907.69	-2,429.15	1,979.18	3,131.27	1.25
9,843.00	91.79	130.60	6,905.90	-2,471.15	2,027.44	3,194.66	1.48
9,907.00	92.29	130.61	6,903.62	-2,512.77	2,076.00	3,257.98	0.78
9,971.00	93.58	131.96	6,900.34	-2,554.94	2,124.03	3,321.35	2.92
10,034.00	91.60	131.92	6,897.50	-2,597.01	2,170.84	3,383.84	3.14
10,097.00	90.00	133.00	6,896.62	-2,639.53	2,217.31	3,446.46	3.06
10,161.00	90.06	134.43	6,896.58	-2,683.76	2,263.57	3,510.21	2.24
10,225.00	89.88	134.44	6,896.62	-2,728.56	2,309.27	3,574.03	0.28
10,288.00	89.94	134.03	6,896.72	-2,772.51	2,354.40	3,636.84	0.66
10,351.00	90.19	133.79	6,896.64	-2,816.20	2,399.79	3,699.61	0.55
10,415.00	90.56	133.34	6,896.23	-2,860.31	2,446.16	3,763.35	0.91
10,479.00	90.86	133.40	6,895.43	-2,904.26	2,492.68	3,827.07	0.48

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10,543.00	89.44	134.89	6,895.27	-2,948.83	2,538.61	3,890.86	3.22
10,607.00	91.36	134.55	6,894.82	-2,993.86	2,584.08	3,954.69	3.05
10,671.00	89.63	135.03	6,894.27	-3,038.94	2,629.49	4,018.54	2.81
10,735.00	90.19	135.03	6,894.37	-3,084.22	2,674.73	4,082.40	0.87
10,798.00	88.64	134.24	6,895.01	-3,128.48	2,719.55	4,145.24	2.76
10,862.00	87.84	135.66	6,896.98	-3,173.67	2,764.82	4,209.06	2.55
10,926.00	88.58	135.47	6,898.97	-3,219.35	2,809.61	4,272.94	1.19
10,990.00	90.19	135.62	6,899.66	-3,265.03	2,854.43	4,336.83	2.53
11,054.00	89.75	136.58	6,899.69	-3,311.14	2,898.80	4,400.76	1.65
11,117.00	90.06	136.91	6,899.80	-3,357.03	2,941.97	4,463.72	0.72
11,181.00	88.52	135.68	6,900.59	-3,403.29	2,986.19	4,527.66	3.08
11,245.00	89.20	136.51	6,901.87	-3,449.39	3,030.56	4,591.58	1.68
11,309.00	90.68	136.09	6,901.93	-3,495.66	3,074.78	4,655.52	2.40
11,373.00	91.48	135.81	6,900.73	-3,541.65	3,119.27	4,719.43	1.32
11,437.00	91.91	135.14	6,898.83	-3,587.26	3,164.12	4,783.30	1.24
11,500.00	92.78	134.30	6,896.26	-3,631.55	3,208.85	4,846.09	1.92
11,564.00	92.90	134.18	6,893.08	-3,676.14	3,254.65	4,909.81	0.27
11,628.00	92.10	134.81	6,890.29	-3,720.95	3,300.25	4,973.58	1.59
11,691.00	89.75	135.32	6,889.28	-3,765.54	3,344.74	5,036.43	3.82
11,755.00	88.95	136.25	6,890.00	-3,811.41	3,389.37	5,100.34	1.92
11,819.00	90.00	136.12	6,890.59	-3,857.59	3,433.67	5,164.28	1.65
11,883.00	90.37	135.71	6,890.38	-3,903.56	3,478.20	5,228.20	0.86
11,946.00	90.93	136.24	6,889.67	-3,948.86	3,521.98	5,291.12	1.22
12,009.00	91.85	136.21	6,888.14	-3,994.33	3,565.55	5,354.04	1.46
12,073.00	90.19	136.41	6,887.00	-4,040.60	3,609.75	5,417.97	2.61
12,136.00	91.17	136.65	6,886.25	-4,086.32	3,653.09	5,480.92	1.60
12,200.00	92.16	136.28	6,884.39	-4,132.69	3,697.16	5,544.84	1.65
12,264.00	93.15	136.18	6,881.43	-4,178.86	3,741.38	5,608.71	1.55
12,327.00	93.84	135.76	6,877.59	-4,224.07	3,785.09	5,671.52	1.28
12,390.00	94.26	135.35	6,873.14	-4,268.94	3,829.09	5,734.27	0.93
12,422.00	94.26	135.35	6,870.76	-4,291.64	3,851.52	5,766.12	0.00

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
7,294.00	6,887.08	-633.51	278.68	Projection To Bit

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
User	No Target (Freehand)	138.74	Slot	0.00	0.00	0.00

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Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
826.00	6,055.00	BHA#2 Vertical EM	MWD
6,089.00	7,294.00	BHA#3 Build EM-Gamma	MWD
7,313.00	9,971.00	BHA#4 Lateral MWD #1	MWD
10,000.00	12,422.00	BHA#5 Lateral MWD #2	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
795.00		9-5/8in	9-5/8	13-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	TVDSS (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,962.26	2,962.00	-1,880.00	Pierre Silt		-0.12	138.74
3,732.49	3,732.00	-1,110.00	Parkman		-0.12	138.74
4,520.86	4,520.00	-322.00	Sussex		-0.12	138.74
5,088.94	5,088.00	246.00	Shannon		-0.12	138.74
5,972.39	5,971.00	1,129.00	Teepee Buttes		-0.12	138.74
6,865.04	6,749.00	1,907.00	Niobrara		-0.12	138.74
6,891.41	6,763.00	1,921.00	Niobrara A		-0.12	138.74
6,926.93	6,781.00	1,939.00	Niobrara A Base		-0.12	138.74
7,168.78	6,870.00	2,028.00	Niobrara B		-0.12	138.74
7,330.52	6,891.00	2,049.00	Nio B Tgt top		-0.12	138.74
7,375.27	6,893.50	2,051.50	Nio B Tgt		-0.12	138.74

Design Report for Letterly USX AB 23-99 HZ - Field Surveys

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Letterly USX AB23-13 - actual wellpath misses target center by 4452.26ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 400.00)	0.00	0.00	0.00	-4,446.05	235.08	1,445,727.95	3,271,074.45	40° 33' 10.188 N	104° 31' 28.128 W
Letterly USX AB23-99f - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,450,173.87	3,270,839.38	40° 33' 54.144 N	104° 31' 30.540 W
Point 1				-250.00	350.00	1,450,523.87	3,270,589.39		
Point 2				5,018.00	350.00	1,450,523.87	3,275,857.24		
Letterly USX AB23-99f - actual wellpath misses target center by 56.39ft at 12259.51ft MD (6881.67 TVD, -4175.62 N, 3738.28 E) - Point	0.00	0.00	6,887.92	-4,214.60	3,698.01	1,445,959.39	3,274,537.28	40° 33' 12.096 N	104° 30' 43.236 W
Letterly USX AB23-99f - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,450,173.87	3,270,839.38	40° 33' 54.144 N	104° 31' 30.540 W
Point 1				210.00	-110.00	1,450,063.88	3,271,049.38		
Point 2				4,558.00	-110.00	1,450,063.88	3,275,397.25		
Letterly USX AB23-99f - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,450,173.87	3,270,839.38	40° 33' 54.144 N	104° 31' 30.540 W
Point 1				210.00	-4,465.00	1,445,709.00	3,271,049.38		
Point 2				4,558.00	-4,415.00	1,445,759.00	3,275,397.25		
Letterly USX AB23-99f - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,450,173.87	3,270,839.38	40° 33' 54.144 N	104° 31' 30.540 W
Point 1				210.00	-110.00	1,450,063.88	3,271,049.38		
Point 2				210.00	-4,465.00	1,445,709.00	3,271,049.38		
Letterly USX AB23-99f - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,450,173.87	3,270,839.38	40° 33' 54.144 N	104° 31' 30.540 W
Point 1				4,558.00	-110.00	1,450,063.88	3,275,397.25		
Point 2				4,558.00	-4,415.00	1,445,759.00	3,275,397.25		
Letterly USX AB23-99f - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,450,173.87	3,270,839.38	40° 33' 54.144 N	104° 31' 30.540 W
Point 1				5,018.00	350.00	1,450,523.87	3,275,857.24		
Point 2				5,018.00	-4,875.00	1,445,299.01	3,275,857.24		
Owl Creek #14A - actual wellpath misses target center by 488.27ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 400.00)	0.00	0.00	0.00	-326.10	363.41	1,449,847.79	3,271,202.79	40° 33' 50.882 N	104° 31' 25.878 W
Letterly USX AB23-99f - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,450,173.87	3,270,839.38	40° 33' 54.144 N	104° 31' 30.540 W
Point 1				-250.00	-4,925.00	1,445,249.01	3,270,589.39		
Point 2				5,018.00	-4,875.00	1,445,299.01	3,275,857.24		
Letterly USX AB23-99f - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,450,173.87	3,270,839.38	40° 33' 54.144 N	104° 31' 30.540 W
Point 1				-250.00	350.00	1,450,523.87	3,270,589.39		
Point 2				-250.00	-4,925.00	1,445,249.01	3,270,589.39		

North Reference Sheet for Sec. 23-T7N-R64W - Letterly USX AB 23-99 HZ - Plan #3

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

Vertical Depths are relative to RKB 16' @ 4842.00ft (Cade 22). Northing and Easting are relative to Letterly USX AB 23-99 HZ

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: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99997186

Grid Coordinates of Well: 1,450,173.87 ft N, 3,270,839.38 ft E

Geographical Coordinates of Well: 40° 33' 54.14" N, 104° 31' 30.54" W

Grid Convergence at Surface is: 0.63°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,422.00ft
the Bottom Hole Displacement is 5,766.48ft in the Direction of 138.09° (Grid).

Magnetic Convergence at surface is: -8.20° (30 July 2010, , BGGM2010)

