

Job# 900411200
Nomac 14 (16')

Chama Oil & Minerals

Kiowa County, Colorado (NAD83) Sec. 16-19S-47W (Grid)
API# 050610688100

Weimer State 16-19-47 #1H (600 FNL, 660 FEL)

Wellbore #2

Design: Lateral

Sperry Drilling Services

Combo Report

24 June, 2013

Well Coordinates: 38° 24' 34.89" N
102° 40' 37.59" W

North American Datum 1983
Colorado Southern Zone
1,646,911.42 N
3,808,781.79 E

Ground Level: 4,107.61 ft

Local Coordinate Origin:
Viewing Datum:
TVDs to System:

Centered on Well Weimer State 16-19-47 #1H
WELL @ 4123.61ft (Nomac 14 (16'))

North Reference:
Unit System:

N
Grid
API US New

Version: 2003.21 Build: 46

Report Version: Midcon Combo v1.20

HALLIBURTON

Design Report for Weimer State 16-19-47 #1H - Lateral

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates (ft)		Map Coordinates (ft)		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
						Northing	Easting	Northing	Easting			
0.00	0.00	0.00	1.73	-4,123.61	0.00	0.00 N	0.00 E	1,646,911.42	3,808,781.79	0.00	0.00	
100.00	0.28	232.58	234.32	-4,023.61	100.00	0.15 S	0.20 W	1,646,911.27	3,808,781.59	0.29	0.14	
200.00	0.21	206.98	208.71	-3,923.61	200.00	0.47 S	0.48 W	1,646,910.96	3,808,781.31	0.13	0.45	
300.00	0.13	48.40	50.13	-3,823.61	300.00	0.56 S	0.48 W	1,646,910.87	3,808,781.31	0.33	0.54	
400.00	0.23	108.30	110.03	-3,723.61	400.00	0.55 S	0.21 W	1,646,910.88	3,808,781.58	0.20	0.54	
500.00	0.61	136.37	138.10	-3,623.61	500.00	1.00 S	0.35 E	1,646,910.43	3,808,782.14	0.42	1.01	
600.00	0.71	123.75	125.48	-3,523.62	599.99	1.73 S	1.24 E	1,646,909.69	3,808,783.02	0.18	1.77	
700.00	0.65	124.48	126.21	-3,423.63	699.98	2.39 S	2.22 E	1,646,909.03	3,808,784.01	0.07	2.46	
800.00	0.95	130.41	132.14	-3,323.64	799.97	3.25 S	3.32 E	1,646,908.17	3,808,785.10	0.31	3.36	
900.00	0.94	121.16	122.90	-3,223.65	899.96	4.21 S	4.65 E	1,646,907.21	3,808,786.44	0.15	4.36	
1,000.00	0.97	114.35	116.08	-3,123.66	999.94	4.99 S	6.12 E	1,646,906.44	3,808,787.91	0.12	5.18	9 5/8"
1,100.00	1.24	104.50	106.23	-3,023.68	1,099.93	5.60 S	7.93 E	1,646,905.82	3,808,789.72	0.33	5.86	
1,200.00	1.17	94.96	96.69	-2,923.70	1,199.90	5.96 S	9.99 E	1,646,905.46	3,808,791.78	0.21	6.28	
1,300.00	1.24	99.61	101.34	-2,823.73	1,299.88	6.23 S	12.08 E	1,646,905.19	3,808,793.86	0.12	6.62	
1,400.00	0.79	76.43	78.17	-2,723.74	1,399.87	6.25 S	13.82 E	1,646,905.17	3,808,795.60	0.60	6.69	
1,500.00	0.72	80.32	82.05	-2,623.75	1,499.86	5.98 S	15.11 E	1,646,905.44	3,808,796.89	0.08	6.47	
1,600.00	0.88	88.24	89.98	-2,523.76	1,599.85	5.85 S	16.49 E	1,646,905.57	3,808,798.28	0.19	6.38	
1,700.00	1.03	79.63	81.36	-2,423.77	1,699.83	5.67 S	18.14 E	1,646,905.76	3,808,799.93	0.21	6.25	
1,800.00	1.05	78.26	79.99	-2,323.79	1,799.82	5.32 S	19.92 E	1,646,906.10	3,808,801.71	0.03	5.96	
1,900.00	0.87	75.34	77.07	-2,223.80	1,899.80	4.94 S	21.55 E	1,646,906.48	3,808,803.34	0.18	5.63	
2,000.00	0.83	79.44	81.17	-2,123.82	1,999.79	4.62 S	23.00 E	1,646,906.81	3,808,804.79	0.08	5.36	
2,100.00	0.44	112.67	114.40	-2,023.82	2,099.79	4.63 S	24.07 E	1,646,906.79	3,808,805.86	0.52	5.40	
2,200.00	0.56	172.20	173.93	-1,923.82	2,199.78	5.26 S	24.49 E	1,646,906.16	3,808,806.28	0.51	6.05	
2,300.00	0.59	206.08	207.81	-1,823.83	2,299.78	6.21 S	24.33 E	1,646,905.21	3,808,806.11	0.34	7.00	
2,400.00	1.00	223.72	225.45	-1,723.84	2,399.77	7.31 S	23.50 E	1,646,904.11	3,808,805.28	0.47	8.07	
2,500.00	1.06	212.97	214.70	-1,623.86	2,499.75	8.72 S	22.39 E	1,646,902.71	3,808,804.18	0.20	9.43	
2,600.00	0.83	219.28	221.01	-1,523.87	2,599.74	10.05 S	21.43 E	1,646,901.37	3,808,803.22	0.25	10.74	
2,700.00	0.61	213.45	215.19	-1,423.88	2,699.73	11.05 S	20.68 E	1,646,900.37	3,808,802.47	0.23	11.72	
2,800.00	0.77	218.93	220.66	-1,323.88	2,799.72	12.02 S	19.96 E	1,646,899.40	3,808,801.75	0.17	12.66	
2,900.00	0.84	210.97	212.70	-1,223.89	2,899.71	13.17 S	19.16 E	1,646,898.25	3,808,800.95	0.13	13.79	
3,000.00	0.71	209.46	211.19	-1,123.90	2,999.70	14.35 S	18.48 E	1,646,897.08	3,808,800.26	0.13	14.93	
3,100.00	0.66	230.32	232.06	-1,023.91	3,099.70	15.25 S	17.73 E	1,646,896.17	3,808,799.52	0.25	15.82	
3,200.00	0.78	221.35	223.08	-923.92	3,199.69	16.13 S	16.84 E	1,646,895.30	3,808,798.63	0.16	16.66	
3,300.00	0.58	221.03	222.76	-823.93	3,299.68	17.02 S	16.06 E	1,646,894.41	3,808,797.85	0.20	17.53	
3,400.00	0.52	219.33	221.06	-723.93	3,399.68	17.75 S	15.45 E	1,646,893.68	3,808,797.23	0.07	18.24	
3,500.00	0.55	220.48	222.21	-623.93	3,499.67	18.46 S	14.85 E	1,646,892.96	3,808,796.63	0.03	18.93	
3,600.00	0.40	229.99	231.72	-523.94	3,599.67	19.05 S	14.27 E	1,646,892.38	3,808,796.06	0.17	19.50	
3,700.00	0.33	219.12	220.85	-423.94	3,699.67	19.49 S	13.83 E	1,646,891.93	3,808,795.61	0.10	19.93	
3,800.00	0.30	205.94	207.67	-323.94	3,799.67	19.96 S	13.53 E	1,646,891.47	3,808,795.31	0.08	20.38	

Design Report for Weimer State 16-19-47 #1H - Lateral

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates (ft)		Map Coordinates (ft)		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
						Northing	Easting	Northing	Easting			
3,900.00	0.38	147.90	149.63	-223.94	3,899.67	20.47 S	13.59 E	1,646,890.95	3,808,795.37	0.34	20.90	
4,000.00	0.37	175.39	177.12	-123.94	3,999.66	21.08 S	13.79 E	1,646,890.35	3,808,795.57	0.18	21.51	
4,100.00	0.57	170.36	172.10	-23.95	4,099.66	21.89 S	13.90 E	1,646,889.53	3,808,795.68	0.20	22.33	
4,200.00	0.46	189.85	191.58	76.05	4,199.66	22.78 S	13.91 E	1,646,888.65	3,808,795.70	0.21	23.21	
4,300.00	0.57	185.85	187.58	176.04	4,299.65	23.67 S	13.79 E	1,646,887.75	3,808,795.58	0.12	24.10	
4,400.00	0.55	197.66	199.40	276.04	4,399.65	24.62 S	13.60 E	1,646,886.80	3,808,795.38	0.12	25.05	
4,500.00	0.73	195.51	197.24	376.03	4,499.64	25.69 S	13.28 E	1,646,885.74	3,808,795.07	0.18	26.10	
4,600.00	0.48	167.48	169.21	476.03	4,599.64	26.71 S	13.20 E	1,646,884.72	3,808,794.99	0.38	27.12	
4,622.00	0.66	174.97	176.70	498.03	4,621.63	26.92 S	13.24 E	1,646,884.50	3,808,795.02	0.88	27.34	ST1 Start MWD @ 4622.00 MD
4,674.00	1.21	163.39	165.12	550.02	4,673.63	27.75 S	13.42 E	1,646,883.68	3,808,795.20	1.11	28.17	KOP
4,685.00	1.33	162.18	163.91	561.02	4,684.62	27.98 S	13.49 E	1,646,883.44	3,808,795.28	1.11	28.40	
4,748.00	7.08	173.20	174.93	623.82	4,747.43	32.54 S	14.18 E	1,646,878.89	3,808,795.96	9.17	32.98	
4,812.00	15.15	182.37	184.10	686.57	4,810.18	44.83 S	14.30 E	1,646,866.59	3,808,796.08	12.87	45.27	
4,874.00	22.84	179.43	181.16	745.15	4,868.76	64.99 S	14.08 E	1,646,846.44	3,808,795.87	12.50	65.41	
4,936.00	30.13	178.58	180.31	800.61	4,924.22	92.61 S	14.59 E	1,646,818.81	3,808,796.37	11.77	93.04	
4,998.00	37.82	178.38	180.11	851.99	4,975.60	127.22 S	15.51 E	1,646,784.20	3,808,797.30	12.40	127.66	
5,061.00	45.43	179.39	181.12	899.05	5,022.65	169.03 S	16.30 E	1,646,742.39	3,808,798.08	12.13	169.47	
5,123.00	53.62	180.64	182.37	939.26	5,062.87	216.15 S	16.25 E	1,646,695.27	3,808,798.04	13.30	216.56	
5,186.00	63.02	181.25	182.98	972.31	5,095.92	269.70 S	15.36 E	1,646,641.73	3,808,797.14	14.94	270.05	
5,249.00	68.67	180.72	182.45	998.08	5,121.69	327.15 S	14.37 E	1,646,584.28	3,808,796.16	9.00	327.44	
5,280.00	70.99	180.22	181.95	1,008.77	5,132.37	356.24 S	14.14 E	1,646,555.18	3,808,795.92	7.64	356.51	
5,312.00	73.39	180.31	182.04	1,018.55	5,142.16	386.71 S	14.00 E	1,646,524.72	3,808,795.78	7.50	386.96	
5,343.00	76.54	179.64	181.37	1,026.59	5,150.20	416.64 S	14.01 E	1,646,494.78	3,808,795.80	10.37	416.88	
5,375.00	79.18	179.77	181.50	1,033.32	5,156.93	447.92 S	14.17 E	1,646,463.50	3,808,795.96	8.26	448.15	Start of Tangent
5,406.00	80.22	179.79	181.52	1,038.86	5,162.47	478.42 S	14.29 E	1,646,433.00	3,808,796.07	3.36	478.64	
5,438.00	80.79	179.63	181.36	1,044.14	5,167.75	509.98 S	14.45 E	1,646,401.44	3,808,796.23	1.85	510.19	
5,470.00	81.50	179.57	181.30	1,049.07	5,172.68	541.60 S	14.67 E	1,646,369.82	3,808,796.45	2.23	541.79	
5,502.00	82.04	179.13	180.86	1,053.65	5,177.26	573.27 S	15.03 E	1,646,338.15	3,808,796.81	2.17	573.46	
5,533.00	82.95	179.51	181.24	1,057.70	5,181.31	604.00 S	15.39 E	1,646,307.42	3,808,797.18	3.18	604.18	
5,565.00	83.53	179.14	180.87	1,061.47	5,185.07	635.78 S	15.77 E	1,646,275.65	3,808,797.55	2.15	635.96	
5,588.00	84.66	178.90	180.63	1,063.83	5,187.44	658.65 S	16.16 E	1,646,252.77	3,808,797.94	5.01	658.83	End of Tangent
5,597.00	85.10	178.81	180.54	1,064.64	5,188.24	667.61 S	16.34 E	1,646,243.81	3,808,798.12	5.01	667.79	
5,629.00	86.47	178.65	180.38	1,066.99	5,190.60	699.52 S	17.04 E	1,646,211.91	3,808,798.83	4.31	699.70	
5,655.00	87.92	178.50	180.23	1,068.26	5,191.87	725.48 S	17.69 E	1,646,185.95	3,808,799.48	5.61	725.67	
5,690.00	89.10	178.18	179.91	1,069.17	5,192.78	760.45 S	18.70 E	1,646,150.97	3,808,800.49	3.49	760.66	
5,745.00	90.27	178.74	180.47	1,069.47	5,193.08	815.43 S	20.18 E	1,646,096.00	3,808,801.97	2.36	815.66	7"
5,781.00	91.04	179.10	180.83	1,069.06	5,192.67	851.42 S	20.86 E	1,646,060.00	3,808,802.65	2.36	851.65	
5,844.00	91.65	180.05	181.78	1,067.58	5,191.19	914.40 S	21.33 E	1,645,997.02	3,808,803.12	1.79	914.61	
5,907.00	90.47	179.00	180.73	1,066.41	5,190.02	977.39 S	21.85 E	1,645,934.04	3,808,803.64	2.51	977.58	

Design Report for Weimer State 16-19-47 #1H - Lateral

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft)	Easting (ft)	Map Coordinates Northing (ft)	Easting (ft)	Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
5,970.00	89.73	177.95	179.68	1,066.30	5,189.91	1,040.36 S	23.53 E	1,645,871.06	3,808,805.31	2.04	1,040.58	
6,033.00	89.60	178.00	179.73	1,066.67	5,190.28	1,103.32 S	25.76 E	1,645,808.10	3,808,807.54	0.22	1,103.58	
6,097.00	89.19	178.15	179.88	1,067.35	5,190.96	1,167.28 S	27.91 E	1,645,744.14	3,808,809.69	0.68	1,167.57	
6,160.00	89.80	178.14	179.87	1,067.90	5,191.51	1,230.25 S	29.94 E	1,645,681.18	3,808,811.73	0.97	1,230.57	
6,224.00	89.13	178.53	180.26	1,068.50	5,192.11	1,294.22 S	31.80 E	1,645,617.21	3,808,813.59	1.21	1,294.57	
6,287.00	89.37	177.01	178.74	1,069.33	5,192.93	1,357.16 S	34.26 E	1,645,554.27	3,808,816.04	2.44	1,357.56	
6,350.00	89.02	177.44	179.17	1,070.21	5,193.82	1,420.08 S	37.30 E	1,645,491.35	3,808,819.09	0.88	1,420.54	
6,413.00	88.79	177.57	179.30	1,071.42	5,195.02	1,483.01 S	40.05 E	1,645,428.42	3,808,821.83	0.42	1,483.53	
6,447.00	87.21	177.24	178.97	1,072.60	5,196.21	1,516.95 S	41.59 E	1,645,394.47	3,808,823.37	4.75	1,517.50	
6,540.00	88.69	177.60	179.33	1,075.93	5,199.54	1,609.80 S	45.77 E	1,645,301.63	3,808,827.55	1.64	1,610.43	
6,604.00	90.98	178.44	180.17	1,076.11	5,199.72	1,673.75 S	47.98 E	1,645,237.67	3,808,829.76	3.81	1,674.43	
6,667.00	91.34	178.80	180.53	1,074.84	5,198.45	1,736.72 S	49.50 E	1,645,174.71	3,808,831.28	0.81	1,737.41	
6,730.00	88.75	177.81	179.54	1,074.79	5,198.40	1,799.69 S	51.36 E	1,645,111.74	3,808,833.14	4.40	1,800.41	
6,793.00	88.49	176.87	178.60	1,076.31	5,199.91	1,862.60 S	54.28 E	1,645,048.83	3,808,836.07	1.55	1,863.38	
6,856.00	87.65	176.91	178.64	1,078.43	5,202.04	1,925.47 S	57.70 E	1,644,985.96	3,808,839.48	1.33	1,926.33	
6,920.00	88.05	176.92	178.65	1,080.83	5,204.44	1,989.33 S	61.14 E	1,644,922.09	3,808,842.93	0.63	1,990.27	
6,983.00	89.36	177.62	179.35	1,082.25	5,205.86	2,052.24 S	64.14 E	1,644,859.18	3,808,845.93	2.36	2,053.25	
7,047.00	88.39	177.16	178.89	1,083.51	5,207.12	2,116.16 S	67.05 E	1,644,795.26	3,808,848.84	1.68	2,117.23	
7,111.00	87.92	177.40	179.13	1,085.57	5,209.18	2,180.06 S	70.09 E	1,644,731.37	3,808,851.87	0.82	2,181.19	
7,174.00	88.49	177.31	179.04	1,087.54	5,211.15	2,242.96 S	73.00 E	1,644,668.47	3,808,854.78	0.92	2,244.15	
7,237.00	88.72	177.76	179.49	1,089.08	5,212.68	2,305.88 S	75.70 E	1,644,605.54	3,808,857.49	0.80	2,307.13	
7,301.00	89.80	178.42	180.15	1,089.90	5,213.51	2,369.84 S	77.84 E	1,644,541.59	3,808,859.62	1.98	2,371.12	
7,364.00	90.34	178.47	180.20	1,089.83	5,213.43	2,432.82 S	79.55 E	1,644,478.61	3,808,861.33	0.86	2,434.12	
7,427.00	89.97	178.59	180.32	1,089.65	5,213.26	2,495.80 S	81.16 E	1,644,415.63	3,808,862.95	0.62	2,497.12	
7,490.00	91.08	179.07	180.80	1,089.08	5,212.69	2,558.78 S	82.45 E	1,644,352.65	3,808,864.23	1.92	2,560.11	
7,554.00	90.57	178.61	180.34	1,088.16	5,211.76	2,622.76 S	83.74 E	1,644,288.67	3,808,865.53	1.07	2,624.10	
7,617.00	89.80	178.87	180.60	1,087.95	5,211.56	2,685.74 S	85.13 E	1,644,225.69	3,808,866.91	1.29	2,687.09	
7,680.00	90.20	179.37	181.10	1,087.95	5,211.56	2,748.74 S	86.10 E	1,644,162.69	3,808,867.88	1.02	2,750.08	
7,743.00	89.53	179.85	181.58	1,088.10	5,211.71	2,811.73 S	86.53 E	1,644,099.70	3,808,868.31	1.31	2,813.06	
7,807.00	89.16	178.80	180.53	1,088.83	5,212.44	2,875.72 S	87.28 E	1,644,035.71	3,808,869.07	1.74	2,877.04	
7,870.00	90.00	178.89	180.62	1,089.29	5,212.90	2,938.71 S	88.55 E	1,643,972.72	3,808,870.34	1.34	2,940.04	
7,933.00	89.87	178.64	180.37	1,089.37	5,212.97	3,001.69 S	89.91 E	1,643,909.74	3,808,871.69	0.45	3,003.03	
7,996.00	89.29	178.61	180.34	1,089.83	5,213.44	3,064.67 S	91.42 E	1,643,846.76	3,808,873.20	0.92	3,066.03	
8,059.00	88.35	178.73	180.46	1,091.13	5,214.73	3,127.64 S	92.88 E	1,643,783.79	3,808,874.67	1.50	3,129.01	
8,122.00	90.34	178.32	180.05	1,091.85	5,215.45	3,190.62 S	94.50 E	1,643,720.82	3,808,876.29	3.23	3,192.00	
8,185.00	89.83	178.75	180.48	1,091.75	5,215.36	3,253.59 S	96.11 E	1,643,657.84	3,808,877.90	1.06	3,255.00	
8,248.00	89.29	178.68	180.41	1,092.24	5,215.84	3,316.58 S	97.53 E	1,643,594.85	3,808,879.31	0.86	3,318.00	
8,311.00	87.75	179.24	180.97	1,093.86	5,217.47	3,379.54 S	98.67 E	1,643,531.89	3,808,880.45	2.60	3,380.97	
8,374.00	87.92	178.86	180.59	1,096.24	5,219.85	3,442.49 S	99.71 E	1,643,468.94	3,808,881.50	0.66	3,443.91	

Design Report for Weimer State 16-19-47 #1H - Lateral

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft)	Local Coordinates Easting (ft)	Map Coordinates Northing (ft)	Map Coordinates Easting (ft)	Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
8,438.00	88.99	178.90	180.63	1,097.97	5,221.58	3,506.45 S	100.96 E	1,643,404.98	3,808,882.75	1.67	3,507.88	ST1 Last MWD @ 8438.00 MD
8,580.00	88.99	178.90	180.63	1,100.47	5,224.08	3,648.40 S	103.69 E	1,643,263.03	3,808,885.47	0.00	3,649.85	ST1 Bit Projection @ 8580.00 MD - Weimer State 16-19-47 #1H BHL

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
4,622.00	4,621.63	-26.92	13.24	ST1 Start MWD @ 4622.00 MD
4,674.00	4,673.63	-27.75	13.42	KOP
5,375.00	5,156.93	-447.92	14.17	Start of Tangent
5,588.00	5,187.44	-658.65	16.16	End of Tangent
8,438.00	5,221.58	-3,506.45	100.96	ST1 Last MWD @ 8438.00 MD
8,580.00	5,224.08	-3,648.40	103.69	ST1 Bit Projection @ 8580.00 MD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	Origin +E/-W (ft)	Start TVD (ft)
User	No Target (Freehand)	178.15	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
100.00	4,600.00	Gyro	NS-GYRO-MS
4,622.00	8,580.00	MWD	MWD+SC

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,000.00	999.94	9 5/8"	9-5/8	12-1/4
5,745.00	5,193.08	7"	7	7-1/2

Design Report for Weimer State 16-19-47 #1H - Lateral

Design Targets

Target Name	Dip	Dip	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	Angle	Dir.							
- Shape	()	()	()	()	()	()	()		
()									

Directional Difficulty Index

Average Dogleg over Survey:	1.65 °/100ft	Maximum Dogleg over Survey:	14.94 °/100ft at 5,186.00 ft
Net Tortosity applicable to Plans:	0.30 °/100ft	Directional Difficulty Index:	5.933

North Reference Sheet for Sec. 16-19S-47W (Grid) - Weimer State 16-19-47 #1H - Wellbore #2

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

Vertical Depths are relative to WELL @ 4123.61ft (Nomac 14 (16')). Northing and Easting are relative to Weimer State 16-19-47 #1H

Coordinate System is US State Plane 1983, Colorado Southern 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:38° 26' 0.000 N°

False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99999577

Grid Coordinates of Well: 1,646,911.42 ft N, 3,808,781.79 ft E

Geographical Coordinates of Well: 38° 24' 34.89" N, 102° 40' 37.59" W

Grid Convergence at Surface is: 1.73°

Based upon Minimum Curvature type calculations, at a Measured Depth of 8,580.00ft
the Bottom Hole Displacement is 3,649.88ft in the Direction of 178.37° (Grid).

Magnetic Convergence at surface is: -5.70° (29 May 2013, , BGGM2012)

