

WELL DETAILS: Marrs 28C-10HZ

GL 4981' & KB 17' @ 4998.00ft (Xtreme 24) 4981.00

Northing	Easting	Latitude	Longitude
14540619.34	1674276.17	40.0380700	-104.8790280

PROJECT DETAILS: US Rockies Wattenberg Planning UTM83

Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Zone 13N (108 W to 102 W)

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Annotation
126.00	126.00	0.53	220.96	-0.44	-0.38	First Total MWD Survey
1796.58	1831.00	11.91	154.78	-256.07	106.60	Last Total MWD Survey
1908.45	1945.00	10.28	154.29	-275.88	116.02	First SDI MWD Survey
6708.50	6765.00	0.89	33.03	-499.19	118.17	First SDI MWD Curve Survey
6723.49	6780.00	2.66	8.73	-498.75	118.28	Curve KOP
7364.35	7557.87	46.44	354.81	-87.88	115.54	Enter Land Box : 7557.87' MD & 7364.35' TVD
7583.10	8540.00	87.51	357.39	834.24	132.80	Last SDI MWD Curve Survey
7583.10	8540.00	87.51	357.39	834.24	132.80	Landing Point : 1256' FNL 2144' FWL Sec 22
7585.84	8628.00	88.92	356.89	922.08	128.41	First SDI MWD Lateral Survey
7600.59	8936.27	87.86	357.77	1229.59	112.87	Cross 460' Line : 8936.27' MD & 7600.59' TVD 860' FNL 2124' FWL
7636.39	14604.06	90.15	0.10	6895.39	90.23	Cross 460' Line : 14604.06' MD & 7636.39' TVD 460' FNL 2130' FWL
7650.21	15804.00	90.50	358.83	8094.72	66.11	Last SDI MWD Survey
7649.67	15866.00	90.50	358.83	8156.71	64.85	Projection to TD : 799' FSL 2105' FWL Sec 10

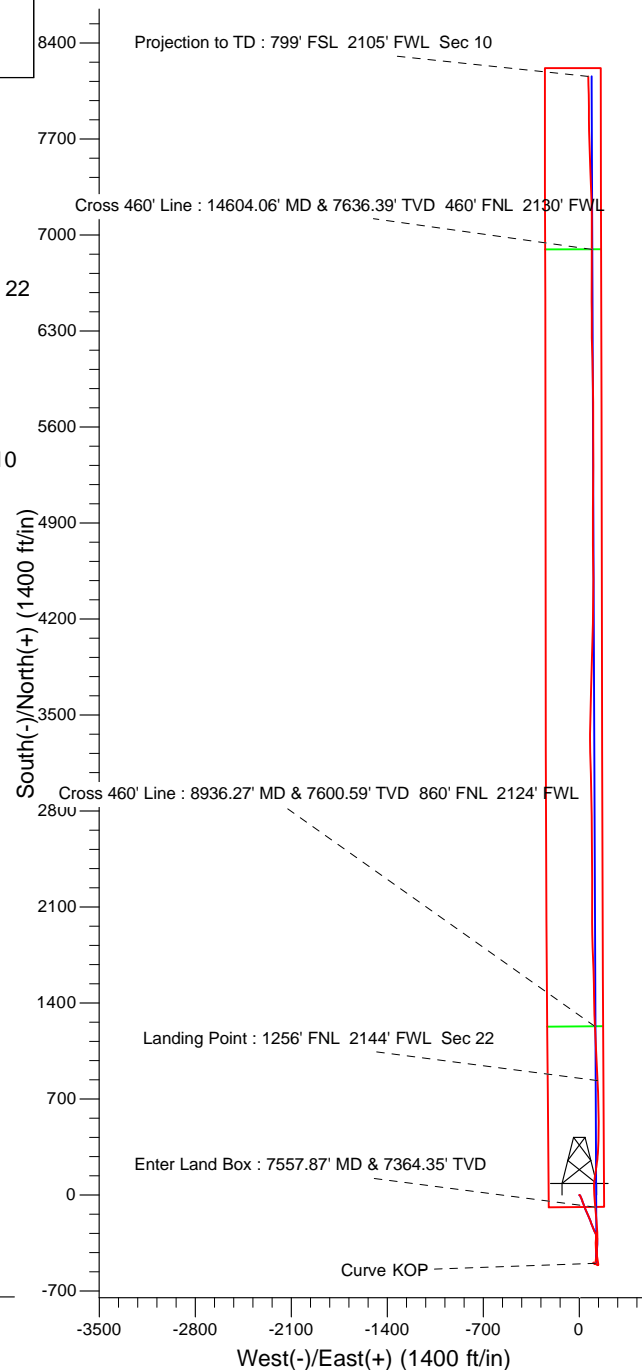
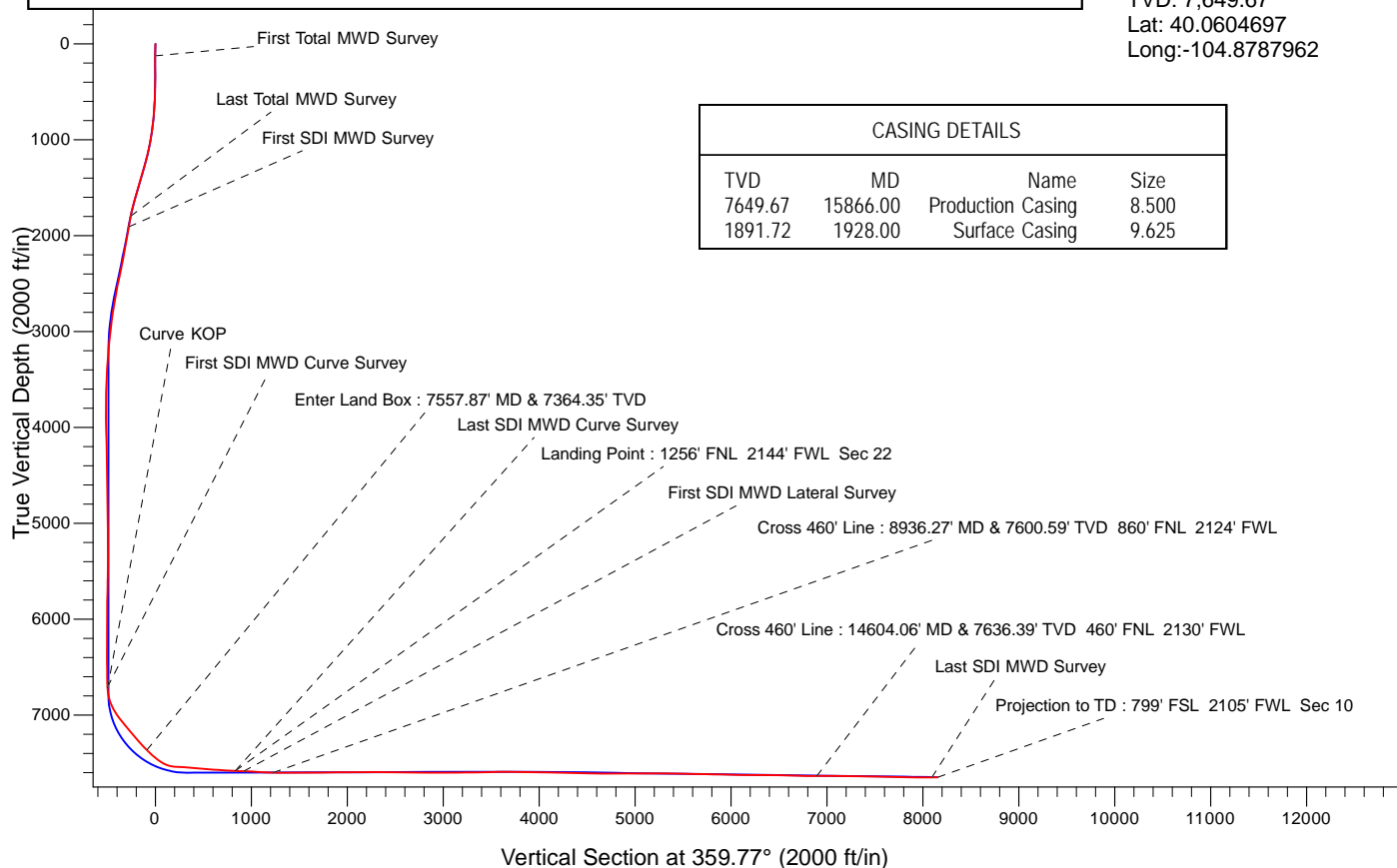
Surface Location:
2090' FNL 2011' FWL
Sec 22 T1N R67W

Landing Point:
1256' FNL 2144' FWL Sec 22
MD: 8,540.00
TVD: 7,583.10
Lat: 40.0403610
Long: -104.8785535

BHL:
799' FSL 2105' FWL Sec 10
MD: 15,866.00
TVD: 7,649.67
Lat: 40.0604697
Long: -104.8787962

CASING DETAILS

TVD	MD	Name	Size
7649.67	15866.00	Production Casing	8.500
1891.72	1928.00	Surface Casing	9.625





US ROCKIES REGION PLANNING

US Rockies Wattenberg Planning UTM83

1N-67W-22 Marrs 6-22HZ Pad

Marrs 28C-10HZ

OH

Design: OH

Survey Report - Geographic

16 March, 2018



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Marrs 28C-10HZ
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4981' & KB 17' @ 4998.00ft (Xtreme 24)
Site:	1N-67W-22 Marrs 6-22HZ Pad	MD Reference:	GL 4981' & KB 17' @ 4998.00ft (Xtreme 24)
Well:	Marrs 28C-10HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Project	US Rockies Wattenberg Planning UTM83		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site		1N-67W-22 Marrs 6-22HZ Pad, Site Center : Marrs 3N-10HZ			
Site Position:		Northing:	14,540,634.27 usft	Latitude:	40.0381110
From:	Lat/Long	Easting:	1,674,276.15 usft	Longitude:	-104.8790280
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.08 °

Well	Marrs 28C-10HZ, 2090' FNL 2011' FWL Sec 22 T1N R67W					
Well Position	+N/-S	0.00 ft	Northing:	14,540,619.34 usft	Latitude:	40.0380700
	+E/-W	0.00 ft	Easting:	1,674,276.17 usft	Longitude:	-104.8790280
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,981.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2016	2/20/2018	8.35	66.56	52,117

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	359.77	

Survey Program	Date	3/16/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
126.00	1,831.00	Survey #1 - Surface (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
1,945.00	15,866.00	Survey #2 - Production (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction	

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,540,619.34	1,674,276.17	40.0380700	-104.8790280
126.00	0.53	220.96	126.00	-0.44	-0.38	14,540,618.89	1,674,275.79	40.0380688	-104.8790293
First Total MWD Survey									
158.00	0.62	201.89	158.00	-0.71	-0.54	14,540,618.62	1,674,275.63	40.0380681	-104.8790299
190.00	1.05	214.55	189.99	-1.11	-0.77	14,540,618.22	1,674,275.40	40.0380670	-104.8790307
222.00	0.53	209.89	221.99	-1.48	-1.01	14,540,617.85	1,674,275.16	40.0380660	-104.8790316
253.00	0.48	144.94	252.99	-1.72	-1.01	14,540,617.62	1,674,275.16	40.0380653	-104.8790316
285.00	0.31	116.55	284.99	-1.86	-0.86	14,540,617.47	1,674,275.32	40.0380649	-104.8790310
316.00	0.83	92.03	315.99	-1.91	-0.56	14,540,617.43	1,674,275.62	40.0380648	-104.8790300
348.00	0.70	108.29	347.98	-1.98	-0.14	14,540,617.36	1,674,276.03	40.0380646	-104.8790285
379.00	0.79	64.25	378.98	-1.95	0.23	14,540,617.39	1,674,276.40	40.0380647	-104.8790271

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Marrs 28C-10HZ
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4981' & KB 17' @ 4998.00ft (Xtreme 24)
Site:	1N-67W-22 Marrs 6-22HZ Pad	MD Reference:	GL 4981' & KB 17' @ 4998.00ft (Xtreme 24)
Well:	Marrs 28C-10HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
411.00	0.92	61.97	410.98	-1.73	0.66	14,540,617.61	1,674,276.83	40.0380653	-104.8790256	
442.00	0.88	90.36	441.97	-1.61	1.12	14,540,617.72	1,674,277.29	40.0380656	-104.8790240	
474.00	1.19	107.41	473.97	-1.71	1.68	14,540,617.62	1,674,277.85	40.0380653	-104.8790220	
505.00	1.67	138.43	504.96	-2.15	2.28	14,540,617.19	1,674,278.46	40.0380641	-104.8790198	
537.00	2.11	131.75	536.94	-2.89	3.03	14,540,616.45	1,674,279.21	40.0380621	-104.8790171	
569.00	2.37	130.35	568.92	-3.71	3.98	14,540,615.63	1,674,280.15	40.0380598	-104.8790138	
601.00	3.08	143.44	600.88	-4.83	4.99	14,540,614.51	1,674,281.17	40.0380568	-104.8790101	
633.00	3.96	150.47	632.82	-6.48	6.05	14,540,612.86	1,674,282.23	40.0380522	-104.8790064	
664.00	4.48	148.72	663.74	-8.45	7.21	14,540,610.90	1,674,283.39	40.0380468	-104.8790022	
696.00	5.23	154.69	695.62	-10.83	8.48	14,540,608.51	1,674,284.66	40.0380403	-104.8789977	
728.00	5.63	155.13	727.48	-13.58	9.76	14,540,605.77	1,674,285.95	40.0380327	-104.8789931	
760.00	5.84	157.77	759.32	-16.51	11.04	14,540,602.84	1,674,287.23	40.0380247	-104.8789885	
791.00	6.59	156.72	790.14	-19.60	12.34	14,540,599.75	1,674,288.54	40.0380162	-104.8789839	
823.00	7.56	158.47	821.89	-23.25	13.84	14,540,596.11	1,674,290.04	40.0380062	-104.8789785	
855.00	7.82	157.68	853.60	-27.22	15.44	14,540,592.14	1,674,291.64	40.0379953	-104.8789728	
887.00	8.39	160.06	885.28	-31.43	17.06	14,540,587.93	1,674,293.27	40.0379837	-104.8789670	
918.00	9.23	160.14	915.92	-35.89	18.68	14,540,583.47	1,674,294.89	40.0379715	-104.8789613	
950.00	9.71	161.11	947.48	-40.86	20.42	14,540,578.50	1,674,296.65	40.0379578	-104.8789550	
982.00	10.15	160.32	979.00	-46.07	22.24	14,540,573.30	1,674,298.48	40.0379435	-104.8789485	
1,014.00	10.68	161.20	1,010.48	-51.53	24.15	14,540,567.84	1,674,300.39	40.0379285	-104.8789417	
1,045.00	11.56	159.53	1,040.89	-57.16	26.16	14,540,562.21	1,674,302.41	40.0379131	-104.8789345	
1,077.00	12.17	161.20	1,072.21	-63.35	28.37	14,540,556.02	1,674,304.63	40.0378960	-104.8789266	
1,109.00	12.57	160.06	1,103.47	-69.82	30.64	14,540,549.56	1,674,306.91	40.0378783	-104.8789185	
1,140.00	13.18	160.49	1,133.69	-76.32	32.97	14,540,543.06	1,674,309.25	40.0378604	-104.8789102	
1,172.00	14.63	159.09	1,164.75	-83.54	35.64	14,540,535.85	1,674,311.92	40.0378406	-104.8789007	
1,204.00	15.69	157.77	1,195.63	-91.32	38.72	14,540,528.07	1,674,315.01	40.0378193	-104.8788897	
1,236.00	15.95	156.28	1,226.42	-99.35	42.12	14,540,520.04	1,674,318.43	40.0377972	-104.8788775	
1,268.00	16.52	156.72	1,257.15	-107.55	45.69	14,540,511.84	1,674,322.00	40.0377747	-104.8788647	
1,299.00	17.05	156.54	1,286.83	-115.77	49.24	14,540,503.63	1,674,325.57	40.0377521	-104.8788521	
1,331.00	17.71	156.19	1,317.36	-124.53	53.07	14,540,494.88	1,674,329.41	40.0377281	-104.8788384	
1,363.00	18.28	154.08	1,347.80	-133.49	57.23	14,540,485.92	1,674,333.58	40.0377034	-104.8788235	
1,394.00	17.40	156.54	1,377.31	-142.12	61.20	14,540,477.30	1,674,337.56	40.0376797	-104.8788093	
1,426.00	17.53	157.42	1,407.83	-150.96	64.96	14,540,468.47	1,674,341.33	40.0376555	-104.8787959	
1,458.00	17.53	157.51	1,438.35	-159.86	68.65	14,540,459.57	1,674,345.04	40.0376310	-104.8787827	
1,490.00	16.79	157.68	1,468.92	-168.59	72.25	14,540,450.84	1,674,348.65	40.0376071	-104.8787698	
1,521.00	16.39	158.56	1,498.63	-176.80	75.55	14,540,442.64	1,674,351.96	40.0375845	-104.8787581	
1,553.00	16.74	159.53	1,529.30	-185.32	78.81	14,540,434.12	1,674,355.23	40.0375611	-104.8787464	
1,584.00	17.45	158.56	1,558.93	-193.83	82.07	14,540,425.62	1,674,358.50	40.0375377	-104.8787348	
1,616.00	17.58	160.76	1,589.45	-202.86	85.42	14,540,416.59	1,674,361.86	40.0375129	-104.8787228	
1,648.00	17.58	160.93	1,619.96	-211.99	88.59	14,540,407.47	1,674,365.05	40.0374879	-104.8787115	
1,680.00	16.70	158.03	1,650.54	-220.82	91.89	14,540,398.64	1,674,368.36	40.0374636	-104.8786997	
1,743.00	15.21	158.12	1,711.11	-236.89	98.35	14,540,382.58	1,674,374.85	40.0374195	-104.8786766	
1,775.00	14.28	157.95	1,742.05	-244.44	101.40	14,540,375.03	1,674,377.90	40.0373988	-104.8786657	
1,807.00	13.05	155.13	1,773.15	-251.38	104.40	14,540,368.10	1,674,380.91	40.0373797	-104.8786550	
1,831.00	11.91	154.78	1,796.58	-256.07	106.60	14,540,363.41	1,674,383.11	40.0373668	-104.8786471	
Last Total MWD Survey										
1,945.00	10.28	154.29	1,908.45	-275.88	116.02	14,540,343.61	1,674,392.57	40.0373124	-104.8786135	
First SDI MWD Survey										
2,034.00	9.07	169.99	1,996.19	-289.95	120.69	14,540,329.55	1,674,397.25	40.0372738	-104.8785968	
2,123.00	9.78	180.85	2,084.00	-304.42	121.79	14,540,315.08	1,674,398.38	40.0372340	-104.8785928	
2,212.00	11.26	183.66	2,171.50	-320.65	121.13	14,540,298.85	1,674,397.73	40.0371895	-104.8785952	
2,301.00	11.06	182.83	2,258.82	-337.85	120.15	14,540,281.65	1,674,396.78	40.0371422	-104.8785987	
2,390.00	12.57	180.25	2,345.93	-356.06	119.69	14,540,263.44	1,674,396.34	40.0370922	-104.8786004	
2,478.00	11.93	176.88	2,431.93	-374.72	120.14	14,540,244.79	1,674,396.82	40.0370410	-104.8785987	
2,567.00	11.40	176.39	2,519.09	-392.68	121.20	14,540,226.83	1,674,397.90	40.0369917	-104.8785950	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Marrs 28C-10HZ
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4981' & KB 17' @ 4998.00ft (Xtreme 24)
Site:	1N-67W-22 Marrs 6-22HZ Pad	MD Reference:	GL 4981' & KB 17' @ 4998.00ft (Xtreme 24)
Well:	Marrs 28C-10HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
2,655.00	10.53	173.90	2,605.48	-409.36	122.60	14,540,210.16	1,674,399.32	40.0369459	-104.8785900
2,770.00	9.18	173.43	2,718.78	-428.92	124.76	14,540,190.60	1,674,401.52	40.0368922	-104.8785822
2,858.00	8.39	169.55	2,805.75	-442.21	126.73	14,540,177.31	1,674,403.50	40.0368557	-104.8785752
2,947.00	7.52	166.00	2,893.89	-454.24	129.32	14,540,165.28	1,674,406.10	40.0368226	-104.8785660
3,036.00	6.59	164.37	2,982.22	-464.81	132.10	14,540,154.71	1,674,408.90	40.0367936	-104.8785560
3,125.00	6.04	168.70	3,070.68	-474.32	134.40	14,540,145.21	1,674,411.21	40.0367675	-104.8785478
3,213.00	5.22	171.53	3,158.25	-482.82	135.89	14,540,136.71	1,674,412.72	40.0367441	-104.8785425
3,302.00	4.75	170.96	3,246.92	-490.46	137.07	14,540,129.07	1,674,413.90	40.0367231	-104.8785383
3,390.00	4.13	177.92	3,334.65	-497.23	137.76	14,540,122.30	1,674,414.60	40.0367046	-104.8785358
3,479.00	3.93	179.61	3,423.43	-503.48	137.89	14,540,116.05	1,674,414.75	40.0366874	-104.8785353
3,568.00	2.57	189.35	3,512.29	-508.50	137.59	14,540,111.03	1,674,414.45	40.0366736	-104.8785364
3,657.00	0.84	240.39	3,601.25	-510.79	136.70	14,540,108.74	1,674,413.56	40.0366673	-104.8785396
3,745.00	0.93	248.75	3,689.24	-511.37	135.47	14,540,108.16	1,674,412.34	40.0366657	-104.8785440
3,834.00	0.66	230.61	3,778.23	-511.96	134.40	14,540,107.57	1,674,411.27	40.0366641	-104.8785478
3,923.00	0.77	248.47	3,867.22	-512.50	133.45	14,540,107.03	1,674,410.32	40.0366626	-104.8785512
4,012.00	1.56	316.86	3,956.21	-511.84	132.07	14,540,107.69	1,674,408.93	40.0366644	-104.8785561
4,101.00	1.74	305.58	4,045.17	-510.17	130.14	14,540,109.36	1,674,407.00	40.0366690	-104.8785630
4,189.00	1.67	304.73	4,133.13	-508.66	128.00	14,540,110.86	1,674,404.86	40.0366732	-104.8785707
4,278.00	1.93	295.48	4,222.09	-507.28	125.58	14,540,112.24	1,674,402.44	40.0366770	-104.8785793
4,367.00	1.99	304.57	4,311.04	-505.75	122.95	14,540,113.76	1,674,399.81	40.0366811	-104.8785887
4,456.00	2.27	297.40	4,399.97	-504.07	120.12	14,540,115.44	1,674,396.97	40.0366858	-104.8785988
4,544.00	2.05	303.42	4,487.91	-502.40	117.26	14,540,117.11	1,674,394.11	40.0366904	-104.8786091
4,633.00	1.73	307.62	4,576.86	-500.70	114.86	14,540,118.80	1,674,391.71	40.0366950	-104.8786176
4,722.00	1.45	303.21	4,665.83	-499.26	112.86	14,540,120.24	1,674,389.70	40.0366990	-104.8786248
4,811.00	1.51	304.52	4,754.80	-497.98	110.95	14,540,121.51	1,674,387.79	40.0367025	-104.8786316
4,900.00	1.76	291.81	4,843.76	-496.81	108.71	14,540,122.68	1,674,385.56	40.0367057	-104.8786396
4,989.00	1.19	316.53	4,932.73	-495.63	106.81	14,540,123.86	1,674,383.65	40.0367089	-104.8786464
5,078.00	0.83	357.97	5,021.72	-494.32	106.15	14,540,125.17	1,674,382.99	40.0367126	-104.8786487
5,167.00	0.53	292.01	5,110.72	-493.52	105.74	14,540,125.97	1,674,382.59	40.0367147	-104.8786502
5,255.00	0.95	283.13	5,198.71	-493.20	104.66	14,540,126.29	1,674,381.50	40.0367156	-104.8786541
5,344.00	0.77	121.65	5,287.71	-493.35	104.45	14,540,126.14	1,674,381.29	40.0367152	-104.8786548
5,433.00	0.71	217.49	5,376.70	-494.10	104.62	14,540,125.39	1,674,381.46	40.0367132	-104.8786542
5,522.00	1.17	262.79	5,465.69	-494.65	103.38	14,540,124.84	1,674,380.23	40.0367116	-104.8786586
5,611.00	0.82	203.20	5,554.68	-495.35	102.23	14,540,124.14	1,674,379.07	40.0367097	-104.8786627
5,700.00	1.85	137.76	5,643.66	-497.00	102.95	14,540,122.49	1,674,379.79	40.0367052	-104.8786602
5,788.00	1.40	124.46	5,731.62	-498.66	104.79	14,540,120.83	1,674,381.63	40.0367006	-104.8786536
5,877.00	1.24	120.17	5,820.60	-499.76	106.52	14,540,119.73	1,674,383.37	40.0366976	-104.8786474
5,966.00	0.76	113.63	5,909.58	-500.48	107.89	14,540,119.02	1,674,384.74	40.0366956	-104.8786425
6,055.00	0.78	124.50	5,998.58	-501.06	108.93	14,540,118.44	1,674,385.78	40.0366940	-104.8786388
6,144.00	0.90	95.64	6,087.57	-501.47	110.13	14,540,118.03	1,674,386.98	40.0366929	-104.8786345
6,232.00	1.11	99.98	6,175.55	-501.68	111.65	14,540,117.81	1,674,388.50	40.0366923	-104.8786291
6,321.00	0.84	90.35	6,264.54	-501.84	113.15	14,540,117.66	1,674,390.01	40.0366919	-104.8786237
6,410.00	0.50	96.55	6,353.53	-501.89	114.19	14,540,117.62	1,674,391.04	40.0366918	-104.8786200
6,499.00	0.81	72.15	6,442.53	-501.74	115.18	14,540,117.77	1,674,392.03	40.0366922	-104.8786165
6,588.00	0.61	50.63	6,531.52	-501.24	116.14	14,540,118.26	1,674,392.99	40.0366935	-104.8786130
6,677.00	1.13	47.43	6,620.51	-500.35	117.15	14,540,119.16	1,674,394.00	40.0366960	-104.8786094
6,765.00	0.89	33.03	6,708.50	-499.19	118.17	14,540,120.32	1,674,395.01	40.0366992	-104.8786058
First SDI MWD Curve Survey									
6,780.00	2.66	8.73	6,723.49	-498.75	118.28	14,540,120.76	1,674,395.13	40.0367004	-104.8786054
Curve KOP									
6,854.00	11.93	359.99	6,796.81	-489.38	118.54	14,540,130.13	1,674,395.38	40.0367261	-104.8786045
6,942.00	22.84	9.09	6,880.68	-463.34	121.25	14,540,156.17	1,674,398.05	40.0367976	-104.8785948
7,031.00	30.92	5.49	6,960.00	-423.45	126.17	14,540,196.07	1,674,402.92	40.0369072	-104.8785772
7,120.00	36.67	2.73	7,033.94	-374.10	129.63	14,540,245.42	1,674,406.31	40.0370427	-104.8785648
7,208.00	40.38	0.22	7,102.78	-319.33	130.99	14,540,300.19	1,674,407.59	40.0371931	-104.8785600

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Marrs 28C-10HZ
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4981' & KB 17' @ 4998.00ft (Xtreme 24)
Site:	1N-67W-22 Marrs 6-22HZ Pad	MD Reference:	GL 4981' & KB 17' @ 4998.00ft (Xtreme 24)
Well:	Marrs 28C-10HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
7,297.00	41.15	357.99	7,170.19	-261.23	130.07	14,540,358.28	1,674,406.60	40.0373527	-104.8785633
7,386.00	39.67	355.73	7,237.96	-203.63	126.93	14,540,415.88	1,674,403.38	40.0375108	-104.8785745
7,474.00	42.27	353.50	7,304.40	-146.20	121.49	14,540,473.30	1,674,397.86	40.0376685	-104.8785939
7,557.87	46.44	354.81	7,364.35	-87.88	115.54	14,540,531.61	1,674,391.83	40.0378287	-104.8786152
Enter Land Box : 7557.87' MD & 7364.35' TVD									
7,563.00	46.70	354.88	7,367.88	-84.17	115.21	14,540,535.32	1,674,391.49	40.0378389	-104.8786164
7,651.00	48.12	355.81	7,427.43	-19.60	109.96	14,540,599.88	1,674,386.15	40.0380162	-104.8786351
7,740.00	54.54	358.89	7,483.02	49.76	106.83	14,540,669.24	1,674,382.93	40.0382067	-104.8786463
7,829.00	71.22	8.89	7,523.53	128.34	112.69	14,540,747.83	1,674,388.69	40.0384225	-104.8786254
7,918.00	87.45	7.71	7,539.95	214.60	125.25	14,540,834.11	1,674,401.13	40.0386594	-104.8785805
8,007.00	86.31	4.64	7,544.79	302.94	134.81	14,540,922.46	1,674,410.57	40.0389020	-104.8785463
8,095.00	84.73	1.56	7,551.67	390.53	139.56	14,541,010.05	1,674,415.19	40.0391425	-104.8785294
8,184.00	84.56	359.53	7,559.98	479.13	140.40	14,541,098.66	1,674,415.92	40.0393858	-104.8785264
8,273.00	85.54	359.23	7,567.65	567.79	139.44	14,541,187.32	1,674,414.84	40.0396293	-104.8785298
8,365.00	86.61	359.27	7,573.95	659.57	138.24	14,541,279.09	1,674,413.51	40.0398813	-104.8785341
8,451.00	86.94	358.12	7,578.79	745.41	136.28	14,541,364.93	1,674,411.44	40.0401170	-104.8785411
8,540.00	87.51	357.39	7,583.10	834.24	132.80	14,541,453.75	1,674,407.84	40.0403610	-104.8785535
Last SDI MWD Curve Survey - Landing Point : 1256' FNL 2144' FWL Sec 22									
8,628.00	88.92	356.89	7,585.84	922.08	128.41	14,541,541.59	1,674,403.33	40.0406022	-104.8785692
First SDI MWD Lateral Survey									
8,717.00	86.98	357.34	7,589.02	1,010.91	123.93	14,541,630.41	1,674,398.73	40.0408461	-104.8785852
8,806.00	86.57	356.99	7,594.03	1,099.66	119.54	14,541,719.15	1,674,394.21	40.0410899	-104.8786009
8,895.00	87.25	356.89	7,598.83	1,188.40	114.79	14,541,807.89	1,674,389.35	40.0413336	-104.8786178
8,936.27	87.86	357.77	7,600.59	1,229.59	112.87	14,541,849.07	1,674,387.37	40.0414467	-104.8786247
Cross 460' Line : 8936.27' MD & 7600.59' TVD 860' FNL 2124' FWL									
8,984.00	88.56	358.79	7,602.08	1,277.27	111.44	14,541,896.75	1,674,385.88	40.0415776	-104.8786298
9,073.00	89.70	358.98	7,603.43	1,366.24	109.71	14,541,985.72	1,674,384.03	40.0418220	-104.8786360
9,161.00	90.60	358.67	7,603.20	1,454.22	107.91	14,542,073.70	1,674,382.10	40.0420636	-104.8786424
9,250.00	91.51	358.63	7,601.56	1,543.18	105.81	14,542,162.66	1,674,379.88	40.0423079	-104.8786499
9,339.00	89.93	358.18	7,600.45	1,632.14	103.33	14,542,251.61	1,674,377.29	40.0425522	-104.8786588
9,427.00	90.60	357.95	7,600.04	1,720.09	100.36	14,542,339.55	1,674,374.20	40.0427937	-104.8786694
9,516.00	91.44	357.35	7,598.45	1,809.00	96.71	14,542,428.46	1,674,370.43	40.0430378	-104.8786824
9,605.00	90.87	359.38	7,596.66	1,897.94	94.18	14,542,517.39	1,674,367.77	40.0432821	-104.8786915
9,694.00	88.89	359.23	7,596.85	1,986.93	93.10	14,542,606.38	1,674,366.57	40.0435265	-104.8786953
9,782.00	89.73	359.09	7,597.91	2,074.91	91.81	14,542,694.36	1,674,365.16	40.0437681	-104.8786999
9,871.00	90.40	0.65	7,597.81	2,163.91	91.60	14,542,783.36	1,674,364.83	40.0440125	-104.8787007
9,960.00	91.14	0.35	7,596.61	2,252.89	92.38	14,542,872.35	1,674,365.49	40.0442568	-104.8786979
10,049.00	89.87	0.22	7,595.83	2,341.89	92.82	14,542,961.34	1,674,365.81	40.0445012	-104.8786963
10,137.00	90.34	359.91	7,595.66	2,429.89	92.92	14,543,049.34	1,674,365.79	40.0447429	-104.8786960
10,226.00	88.89	0.35	7,596.26	2,518.88	93.12	14,543,138.34	1,674,365.87	40.0449873	-104.8786952
10,315.00	88.79	359.50	7,598.06	2,607.86	93.01	14,543,227.32	1,674,365.64	40.0452316	-104.8786956
10,404.00	89.09	358.74	7,599.71	2,696.84	91.64	14,543,316.29	1,674,364.15	40.0454760	-104.8787005
10,492.00	89.73	358.13	7,600.62	2,784.80	89.24	14,543,404.25	1,674,361.63	40.0457175	-104.8787091
10,581.00	88.72	358.69	7,601.82	2,873.75	86.77	14,543,493.20	1,674,359.04	40.0459618	-104.8787179
10,670.00	89.33	358.35	7,603.33	2,962.71	84.47	14,543,582.15	1,674,356.62	40.0462061	-104.8787261
10,759.00	91.58	0.34	7,602.63	3,051.69	83.45	14,543,671.13	1,674,355.48	40.0464505	-104.8787298
10,848.00	91.71	359.32	7,600.07	3,140.65	83.19	14,543,760.09	1,674,355.09	40.0466948	-104.8787307
10,936.00	90.20	356.47	7,598.61	3,228.57	79.96	14,543,848.00	1,674,351.74	40.0469362	-104.8787423
11,025.00	90.03	0.69	7,598.43	3,317.52	77.75	14,543,936.95	1,674,349.42	40.0471805	-104.8787501
11,114.00	91.14	1.77	7,597.52	3,406.49	79.66	14,544,025.93	1,674,351.21	40.0474248	-104.8787433
11,203.00	92.25	1.17	7,594.89	3,495.42	81.95	14,544,114.86	1,674,353.37	40.0476690	-104.8787352
11,292.00	89.80	0.59	7,593.29	3,584.39	83.31	14,544,203.83	1,674,354.61	40.0479134	-104.8787303
11,381.00	90.84	1.16	7,592.80	3,673.38	84.67	14,544,292.82	1,674,355.85	40.0481577	-104.8787254
11,469.00	89.87	1.73	7,592.25	3,761.35	86.89	14,544,380.79	1,674,357.95	40.0483993	-104.8787175

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Marrs 28C-10HZ
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4981' & KB 17' @ 4998.00ft (Xtreme 24)
Site:	1N-67W-22 Marrs 6-22HZ Pad	MD Reference:	GL 4981' & KB 17' @ 4998.00ft (Xtreme 24)
Well:	Marrs 28C-10HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,558.00	88.35	1.99	7,593.63	3,850.29	89.78	14,544,469.73	1,674,360.72	40.0486436	-104.8787072
11,647.00	87.65	1.88	7,596.74	3,939.18	92.78	14,544,558.63	1,674,363.60	40.0488877	-104.8786964
11,736.00	88.72	1.75	7,599.56	4,028.09	95.60	14,544,647.54	1,674,366.30	40.0491318	-104.8786864
11,825.00	88.42	1.16	7,601.78	4,117.03	97.86	14,544,736.49	1,674,368.44	40.0493761	-104.8786783
11,914.00	89.50	1.12	7,603.40	4,206.00	99.63	14,544,825.46	1,674,370.08	40.0496204	-104.8786720
12,003.00	90.47	1.16	7,603.42	4,294.98	101.40	14,544,914.44	1,674,371.73	40.0498648	-104.8786656
12,091.00	89.16	359.49	7,603.70	4,382.98	101.90	14,545,002.44	1,674,372.11	40.0501064	-104.8786639
12,180.00	88.69	359.93	7,605.37	4,471.96	101.45	14,545,091.42	1,674,371.54	40.0503508	-104.8786655
12,269.00	87.82	359.45	7,608.08	4,560.91	100.97	14,545,180.37	1,674,370.94	40.0505950	-104.8786672
12,357.00	88.69	359.38	7,610.76	4,648.87	100.07	14,545,268.33	1,674,369.92	40.0508366	-104.8786704
12,446.00	90.13	359.40	7,611.68	4,737.86	99.12	14,545,357.31	1,674,368.86	40.0510810	-104.8786738
12,535.00	91.34	359.66	7,610.54	4,826.84	98.39	14,545,446.30	1,674,368.00	40.0513253	-104.8786764
12,624.00	89.97	0.33	7,609.52	4,915.84	98.38	14,545,535.29	1,674,367.88	40.0515697	-104.8786764
12,713.00	90.84	359.59	7,608.89	5,004.83	98.32	14,545,624.29	1,674,367.69	40.0518141	-104.8786766
12,802.00	89.03	0.72	7,608.99	5,093.83	98.56	14,545,713.28	1,674,367.81	40.0520585	-104.8786758
12,891.00	90.23	0.38	7,609.57	5,182.82	99.42	14,545,802.27	1,674,368.55	40.0523029	-104.8786727
12,980.00	89.36	0.67	7,609.88	5,271.81	100.23	14,545,891.27	1,674,369.24	40.0525473	-104.8786698
13,068.00	90.44	0.76	7,610.04	5,359.81	101.33	14,545,979.26	1,674,370.22	40.0527889	-104.8786659
13,157.00	88.42	0.38	7,610.92	5,448.79	102.21	14,546,068.25	1,674,370.98	40.0530333	-104.8786627
13,246.00	88.52	0.05	7,613.30	5,537.76	102.55	14,546,157.22	1,674,371.20	40.0532776	-104.8786615
13,335.00	89.87	0.29	7,614.55	5,626.75	102.81	14,546,246.21	1,674,371.34	40.0535220	-104.8786606
13,424.00	88.32	359.11	7,615.96	5,715.73	102.35	14,546,335.19	1,674,370.75	40.0537664	-104.8786622
13,513.00	88.66	358.84	7,618.30	5,804.69	100.76	14,546,424.14	1,674,369.04	40.0540106	-104.8786679
13,602.00	89.60	358.83	7,619.65	5,893.66	98.95	14,546,513.11	1,674,367.11	40.0542550	-104.8786744
13,691.00	88.29	359.04	7,621.29	5,982.62	97.29	14,546,602.07	1,674,365.34	40.0544993	-104.8786803
13,779.00	88.46	358.26	7,623.79	6,070.56	95.22	14,546,690.01	1,674,363.14	40.0547408	-104.8786877
13,868.00	89.77	358.34	7,625.16	6,159.51	92.58	14,546,778.95	1,674,360.38	40.0549850	-104.8786971
13,957.00	89.13	359.49	7,626.02	6,248.49	90.89	14,546,867.93	1,674,358.58	40.0552294	-104.8787031
14,046.00	90.50	0.02	7,626.30	6,337.49	90.51	14,546,956.93	1,674,358.08	40.0554738	-104.8787045
14,134.00	88.86	359.36	7,626.79	6,425.48	90.04	14,547,044.92	1,674,357.48	40.0557154	-104.8787062
14,223.00	89.87	359.10	7,627.78	6,514.46	88.84	14,547,133.90	1,674,356.16	40.0559598	-104.8787105
14,312.00	87.88	0.66	7,629.53	6,603.44	88.66	14,547,222.88	1,674,355.86	40.0562041	-104.8787111
14,401.00	88.15	0.54	7,632.61	6,692.38	89.59	14,547,311.82	1,674,356.67	40.0564484	-104.8787078
14,490.00	88.62	0.08	7,635.12	6,781.34	90.07	14,547,400.78	1,674,357.03	40.0566927	-104.8787061
14,579.00	89.77	0.08	7,636.37	6,870.33	90.19	14,547,489.77	1,674,357.03	40.0569371	-104.8787056
14,604.06	90.15	0.10	7,636.39	6,895.39	90.23	14,547,514.83	1,674,357.04	40.0570059	-104.8787055
Cross 460' Line : 14604.06' MD & 7636.39' TVD 460' FNL 2130' FWL									
14,667.00	91.11	0.16	7,635.69	6,958.33	90.38	14,547,577.77	1,674,357.09	40.0571787	-104.8787050
14,756.00	89.90	0.00	7,634.91	7,047.32	90.50	14,547,666.76	1,674,357.10	40.0574231	-104.8787045
14,845.00	90.37	359.68	7,634.70	7,136.32	90.25	14,547,755.76	1,674,356.73	40.0576675	-104.8787054
14,934.00	89.09	358.96	7,635.12	7,225.31	89.20	14,547,844.75	1,674,355.55	40.0579119	-104.8787092
15,023.00	87.98	357.43	7,637.39	7,314.24	86.39	14,547,933.67	1,674,352.63	40.0581561	-104.8787192
15,112.00	88.25	356.98	7,640.32	7,403.08	82.06	14,548,022.51	1,674,348.17	40.0584001	-104.8787347
15,201.00	88.93	359.45	7,642.51	7,492.00	79.29	14,548,111.43	1,674,345.28	40.0586443	-104.8787446
15,290.00	89.73	358.37	7,643.55	7,580.98	77.59	14,548,200.40	1,674,343.47	40.0588886	-104.8787507
15,379.00	89.66	357.02	7,644.03	7,669.91	74.01	14,548,289.32	1,674,339.77	40.0591328	-104.8787635
15,468.00	87.78	359.05	7,646.02	7,758.82	70.96	14,548,378.23	1,674,336.59	40.0593770	-104.8787744
15,556.00	88.72	359.48	7,648.70	7,846.77	69.83	14,548,466.18	1,674,335.35	40.0596185	-104.8787784
15,645.00	89.23	359.20	7,650.30	7,935.75	68.81	14,548,555.16	1,674,334.20	40.0598629	-104.8787821
15,734.00	90.27	359.02	7,650.68	8,024.74	67.43	14,548,644.14	1,674,332.70	40.0601073	-104.8787870
15,804.00	90.50	358.83	7,650.21	8,094.73	66.11	14,548,714.13	1,674,331.29	40.0602994	-104.8787917
Last SDI MWD Survey									
15,866.00	90.50	358.83	7,649.67	8,156.71	64.85	14,548,776.11	1,674,329.94	40.0604697	-104.8787962
Projection to TD : 799' FSL 2105' FWL Sec 10									

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Marrs 28C-10HZ
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4981' & KB 17' @ 4998.00ft (Xtreme 24)
Site:	1N-67W-22 Marrs 6-22HZ Pad	MD Reference:	GL 4981' & KB 17' @ 4998.00ft (Xtreme 24)
Well:	Marrs 28C-10HZ	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Denver Sales Office

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
126.00	126.00	-0.44	-0.38	First Total MWD Survey
1,831.00	1,796.58	-256.07	106.60	Last Total MWD Survey
1,945.00	1,908.45	-275.88	116.02	First SDI MWD Survey
6,765.00	6,708.50	-499.19	118.17	First SDI MWD Curve Survey
6,780.00	6,723.49	-498.75	118.28	Curve KOP
7,557.87	7,364.35	-87.88	115.54	Enter Land Box : 7557.87' MD & 7364.35' TVD
8,540.00	7,583.10	834.24	132.80	Last SDI MWD Curve Survey
8,540.00	7,583.10	834.24	132.80	Landing Point : 1256' FNL 2144' FWL Sec 22
8,628.00	7,585.84	922.08	128.41	First SDI MWD Lateral Survey
8,936.27	7,600.59	1,229.59	112.87	Cross 460' Line : 8936.27' MD & 7600.59' TVD 860' FNL 2124' FWL
14,604.06	7,636.39	6,895.39	90.23	Cross 460' Line : 14604.06' MD & 7636.39' TVD 460' FNL 2130' FWL
15,804.00	7,650.21	8,094.73	66.11	Last SDI MWD Survey
15,866.00	7,649.67	8,156.71	64.85	Projection to TD : 799' FSL 2105' FWL Sec 10

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------