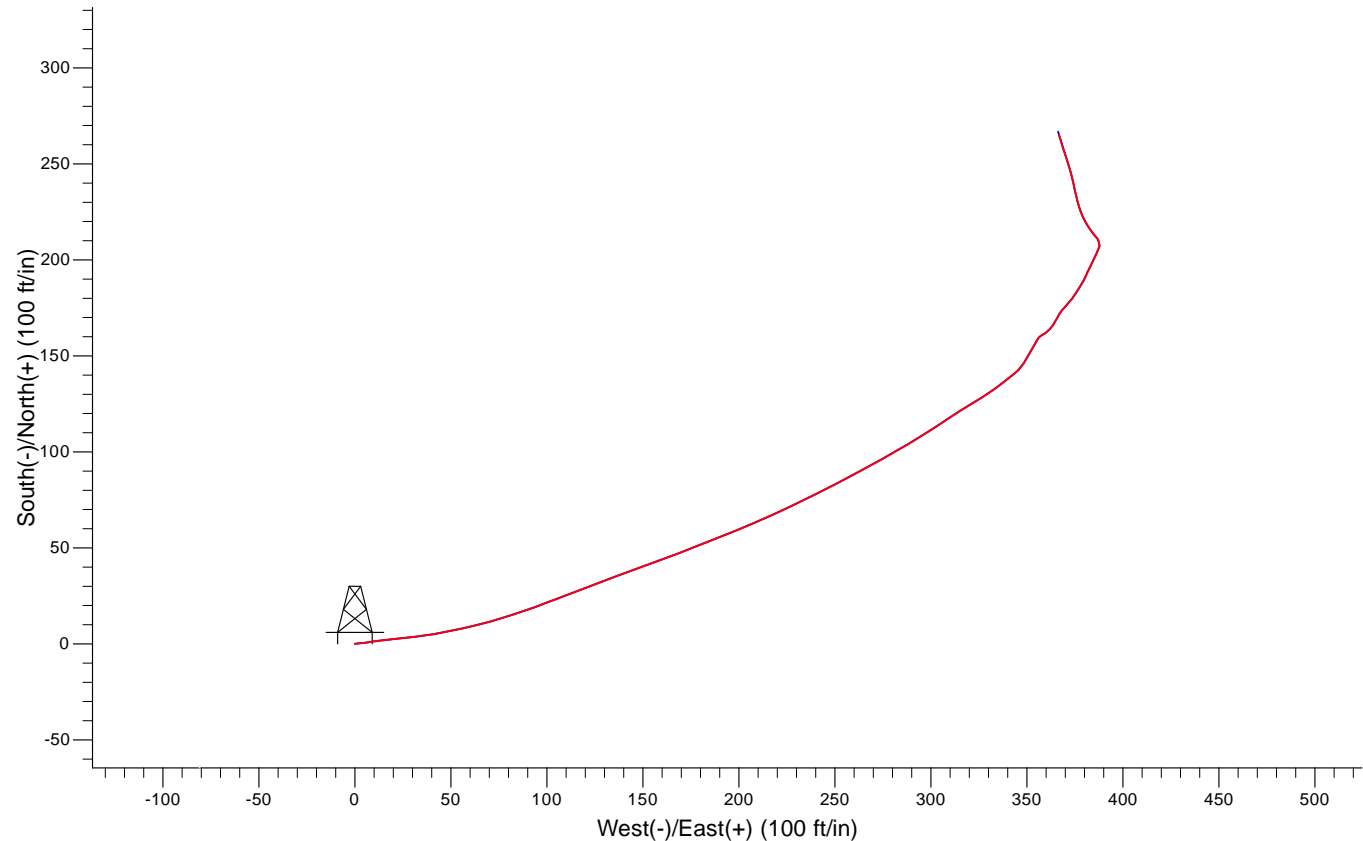
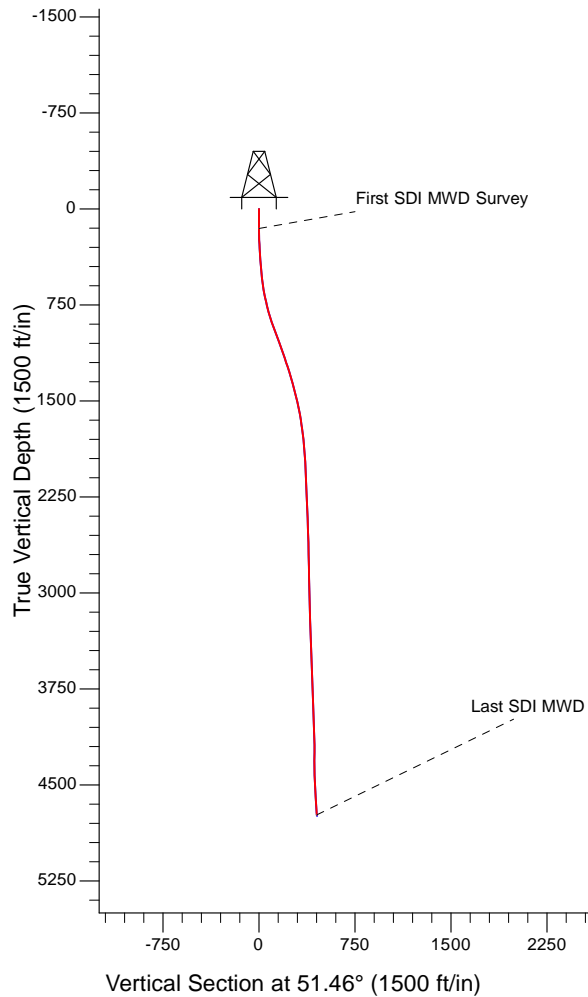


WELL DETAILS: Meguire 1				PROJECT DETAILS: US Rockies Wattenberg Planning UTM83	
GL 4896.6' & KB 20' @ 4916.60ft (Precision 461)		4895.80		Geodetic System: Universal Transverse Mercator (US Survey Feet)	
Northing	Easting	Latitude	Longitude	Datum: North American Datum 1983	
14572307.25	1730771.90	40.1247020	-104.6767730	Ellipsoid: GRS 1980	
				Zone: Zone 13N (108 W to 102 W)	
Design: OH (Meguire 1/OH)				System Datum: Mean Sea Level	
Created By: Seth Burstad Date: 10-16-2017				Local North: True	

ANNOTATIONS							Annotation
TVD	MD	Inc	Azi	+N/-S	+E/-W		
154.00	154.00	0.63	73.78	0.24	0.81		First SDI MWD Survey
4733.85	4790.00	11.30	342.90	265.09	366.71		Last SDI MWD Survey

Surface Hole:
 2462' FNL 460' FWL
 Sec 21 T2N R65W

BHL:
 2197' FNL 827' FWL Sec 21
 MD: 4,790.00
 TVD: 4,733.85
 Lat: 40.1254300
 Long:-104.6754611





US ROCKIES REGION PLANNING

US Rockies Wattenberg Planning UTM83

Meguire

Meguire 1

OH

Design: OH

Standard Survey Report

16 October, 2017



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Meguire 1
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4896.6' & KB 20' @ 4916.60ft (Precision 461)
Site:	Meguire	MD Reference:	GL 4896.6' & KB 20' @ 4916.60ft (Precision 461)
Well:	Meguire 1	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	Meguire, Site Center : Meguire 1				
Site Position:		Northing:	14,572,307.25 usft	Latitude:	40.1247020
From:	Lat/Long	Easting:	1,730,771.90 usft	Longitude:	-104.6767730
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.21 °

Well	Meguire 1, 2462' FNL 460' FWL Sec 21 T2N R65W					
Well Position	+N/-S	0.00 ft	Northing:	14,572,307.25 usft	Latitude:	40.1247020
	+E/-W	0.00 ft	Easting:	1,730,771.90 usft	Longitude:	-104.6767730
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,895.80 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2016	9/20/2017	8.29	66.67	52,236

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	51.46	

Survey Program	Date	10/16/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
154.00	521.00	Survey #1 (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction	
611.00	2,001.00	Survey #2 (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction	
2,085.00	3,957.00	Survey #3 (OH)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
3,989.00	4,114.00	Survey #4 (OH)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
4,147.00	4,240.00	Survey #5 (OH)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
4,273.00	4,367.00	Survey #6 (OH)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
4,401.00	4,790.00	Survey #7 (OH)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	

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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
154.00	0.63	73.78	154.00	0.24	0.81	0.78	0.41	0.41	0.00	
First SDI MWD Survey										
245.00	1.55	91.60	244.98	0.34	2.52	2.19	1.07	1.01	19.58	
339.00	4.35	79.90	338.85	0.93	7.31	6.29	3.03	2.98	-12.45	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Meguire 1
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4896.6' & KB 20' @ 4916.60ft (Precision 461)
Site:	Meguire	MD Reference:	GL 4896.6' & KB 20' @ 4916.60ft (Precision 461)
Well:	Meguire 1	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)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
430.00	5.70	84.12	429.49	2.00	15.20	13.13	1.54	1.48	4.64
521.00	6.63	84.47	519.97	2.97	24.92	21.34	1.02	1.02	0.38
611.00	9.88	81.34	609.02	4.63	37.73	32.40	3.64	3.61	-3.48
702.00	13.25	77.90	698.16	8.00	55.65	48.51	3.78	3.70	-3.78
795.00	15.81	72.79	788.19	13.98	78.18	69.86	3.08	2.75	-5.49
889.00	19.75	68.82	877.68	23.51	105.23	96.96	4.38	4.19	-4.22
983.00	21.62	69.67	965.62	35.27	136.28	128.57	2.01	1.99	0.90
1,077.00	20.97	69.60	1,053.20	47.15	168.29	161.00	0.69	-0.69	-0.07
1,170.00	20.37	67.42	1,140.21	59.16	198.83	192.38	1.05	-0.65	-2.34
1,263.00	18.13	64.56	1,228.01	71.59	226.85	222.04	2.61	-2.41	-3.08
1,356.00	16.75	62.43	1,316.73	84.01	251.79	249.29	1.63	-1.48	-2.29
1,451.00	15.17	60.79	1,408.07	96.42	274.78	275.00	1.73	-1.66	-1.73
1,545.00	12.96	58.12	1,499.25	107.99	294.47	297.61	2.45	-2.35	-2.84
1,638.00	10.70	56.13	1,590.27	118.31	310.49	316.57	2.47	-2.43	-2.14
1,732.00	8.56	59.26	1,682.94	126.75	323.75	332.20	2.34	-2.28	3.33
1,827.00	6.56	53.12	1,777.11	133.62	334.17	344.63	2.27	-2.11	-6.46
1,921.00	4.58	51.70	1,870.66	139.17	341.41	353.75	2.11	-2.11	-1.51
2,001.00	3.08	46.65	1,950.48	142.62	345.48	359.09	1.92	-1.88	-6.31
2,085.00	3.17	31.11	2,034.36	146.16	348.32	363.52	1.01	0.11	-18.50
2,180.00	3.08	29.53	2,129.21	150.63	350.94	368.35	0.13	-0.09	-1.66
2,275.00	2.90	31.11	2,224.09	154.91	353.44	372.97	0.21	-0.19	1.66
2,371.00	1.94	26.10	2,320.00	158.45	355.41	376.71	1.02	-1.00	-5.22
2,466.00	1.58	60.38	2,414.96	160.54	357.25	379.46	1.15	-0.38	36.08
2,562.00	1.76	58.45	2,510.92	161.96	359.66	382.23	0.20	0.19	-2.01
2,657.00	1.85	40.08	2,605.87	163.90	361.89	385.18	0.61	0.09	-19.34
2,752.00	1.58	31.64	2,700.83	166.19	363.57	387.92	0.39	-0.28	-8.88
2,847.00	1.32	30.23	2,795.80	168.25	364.80	390.17	0.28	-0.27	-1.48
2,941.00	1.23	30.94	2,889.77	170.05	365.87	392.12	0.10	-0.10	0.76
3,036.00	1.32	25.05	2,984.75	171.92	366.85	394.06	0.17	0.09	-6.20
3,132.00	1.58	45.70	3,080.72	173.84	368.27	396.36	0.60	0.27	21.51
3,227.00	1.50	41.84	3,175.69	175.68	370.04	398.89	0.14	-0.08	-4.06
3,321.00	1.85	39.29	3,269.64	177.77	371.82	401.59	0.38	0.37	-2.71
3,417.00	1.58	37.71	3,365.60	180.02	373.61	404.39	0.29	-0.28	-1.65
3,512.00	2.64	32.26	3,460.54	182.91	375.58	407.73	1.13	1.12	-5.74
3,608.00	2.29	32.43	3,556.45	186.39	377.79	411.63	0.36	-0.36	0.18
3,703.00	2.02	27.25	3,651.38	189.49	379.57	414.95	0.35	-0.28	-5.45
3,735.00	2.02	23.99	3,683.36	190.50	380.06	415.97	0.36	0.00	-10.19
3,767.00	2.20	25.66	3,715.34	191.57	380.55	417.02	0.59	0.56	5.22
3,799.00	2.11	23.91	3,747.32	192.66	381.06	418.09	0.35	-0.28	-5.47
3,830.00	2.11	24.96	3,778.29	193.70	381.53	419.11	0.12	0.00	3.39
3,862.00	2.38	26.81	3,810.27	194.83	382.08	420.24	0.87	0.84	5.78
3,894.00	2.20	28.74	3,842.24	195.96	382.67	421.41	0.61	-0.56	6.03
3,925.00	2.29	27.86	3,873.22	197.03	383.25	422.53	0.31	0.29	-2.84

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Meguire 1
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4896.6' & KB 20' @ 4916.60ft (Precision 461)
Site:	Meguire	MD Reference:	GL 4896.6' & KB 20' @ 4916.60ft (Precision 461)
Well:	Meguire 1	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)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
3,957.00	2.46	24.08	3,905.19	198.22	383.83	423.72	0.72	0.53	-11.81	
3,989.00	2.55	25.22	3,937.16	199.49	384.41	424.97	0.32	0.28	3.56	
4,020.00	2.38	24.17	3,968.13	200.70	384.97	426.16	0.57	-0.55	-3.39	
4,052.00	2.46	25.05	4,000.11	201.93	385.53	427.37	0.28	0.25	2.75	
4,084.00	2.90	26.37	4,032.07	203.28	386.18	428.72	1.39	1.38	4.13	
4,114.00	2.99	24.52	4,062.03	204.67	386.84	430.10	0.44	0.30	-6.17	
4,147.00	3.08	18.02	4,094.98	206.30	387.48	431.61	1.08	0.27	-19.70	
4,176.00	2.99	358.68	4,123.94	207.79	387.70	432.72	3.53	-0.31	-66.69	
4,210.00	2.99	344.44	4,157.90	209.54	387.44	433.60	2.18	0.00	-41.88	
4,240.00	2.73	324.14	4,187.86	210.87	386.81	433.94	3.47	-0.87	-67.67	
4,273.00	2.82	319.83	4,220.82	212.13	385.83	433.95	0.69	0.27	-13.06	
4,302.00	2.90	320.27	4,249.79	213.23	384.90	433.92	0.29	0.28	1.52	
4,337.00	2.82	324.49	4,284.74	214.62	383.83	433.94	0.64	-0.23	12.06	
4,367.00	2.55	324.84	4,314.71	215.76	383.02	434.02	0.90	-0.90	1.17	
4,401.00	2.55	327.13	4,348.68	217.02	382.17	434.14	0.30	0.00	6.74	
4,430.00	2.73	326.69	4,377.65	218.14	381.45	434.27	0.62	0.62	-1.52	
4,462.00	2.90	326.34	4,409.61	219.45	380.58	434.41	0.53	0.53	-1.09	
4,496.00	4.49	335.39	4,443.54	221.37	379.55	434.80	4.97	4.68	26.62	
4,510.00	5.28	337.76	4,457.49	222.47	379.08	435.11	5.82	5.64	16.93	
4,542.00	6.69	338.99	4,489.31	225.57	377.85	436.09	4.42	4.41	3.84	
4,558.00	8.09	342.77	4,505.18	227.52	377.18	436.78	9.26	8.75	23.63	
4,580.00	8.62	344.88	4,526.94	230.59	376.29	438.00	2.78	2.41	9.59	
4,612.00	9.41	346.73	4,558.55	235.45	375.07	440.07	2.63	2.47	5.78	
4,623.00	9.33	347.52	4,569.40	237.19	374.67	440.84	1.38	-0.73	7.18	
4,640.00	9.68	347.26	4,586.17	239.93	374.06	442.07	2.07	2.06	-1.53	
4,672.00	9.68	347.17	4,617.71	245.18	372.86	444.41	0.05	0.00	-0.28	
4,682.00	9.59	346.38	4,627.57	246.81	372.48	445.12	1.60	-0.90	-7.90	
4,692.00	9.50	342.25	4,637.43	248.40	372.03	445.77	6.91	-0.90	-41.30	
4,702.00	9.59	342.25	4,647.29	249.98	371.53	446.35	0.90	0.90	0.00	
4,710.00	9.59	342.25	4,655.18	251.25	371.12	446.83	0.00	0.00	0.00	
4,732.00	10.21	341.54	4,676.85	254.85	369.95	448.15	2.87	2.82	-3.23	
4,740.00	10.21	341.54	4,684.73	256.19	369.50	448.63	0.00	0.00	0.00	
4,747.00	10.47	342.25	4,691.61	257.39	369.11	449.07	4.14	3.71	10.14	
4,757.00	10.56	342.07	4,701.45	259.12	368.55	449.72	0.96	0.90	-1.80	
4,765.00	10.56	342.07	4,709.31	260.52	368.10	450.23	0.00	0.00	0.00	
4,772.00	10.91	343.30	4,716.19	261.76	367.71	450.71	5.98	5.00	17.57	
4,780.00	11.10	343.60	4,724.04	263.23	367.27	451.28	2.48	2.38	3.75	
4,790.00	11.30	342.90	4,733.85	265.09	366.71	452.00	2.42	2.00	-7.00	
Last SDI MWD Survey										

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Meguire 1
Project:	US Rockies Wattenberg Planning UTM83	TVD Reference:	GL 4896.6' & KB 20' @ 4916.60ft (Precision 461)
Site:	Meguire	MD Reference:	GL 4896.6' & KB 20' @ 4916.60ft (Precision 461)
Well:	Meguire 1	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)	
154.00	154.00	0.24	0.81	First SDI MWD Survey
4,790.00	4,733.85	265.09	366.71	Last SDI MWD Survey

Checked By: _____	Approved By: _____	Date: _____
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