

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

2N-65W-21 Meguire 5-21HZ Pad

MEGUIRE 1

Plan A

Plan: Permit Plan-Rev1

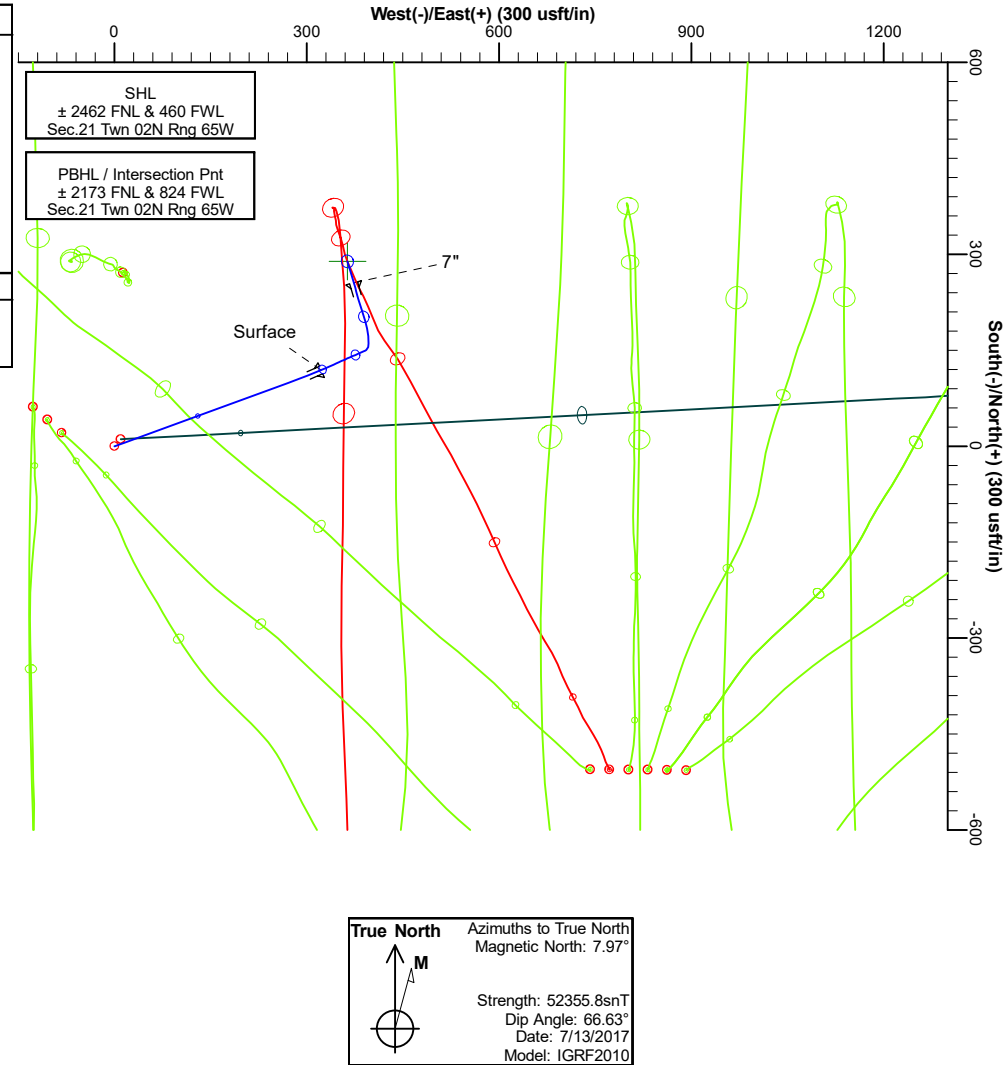
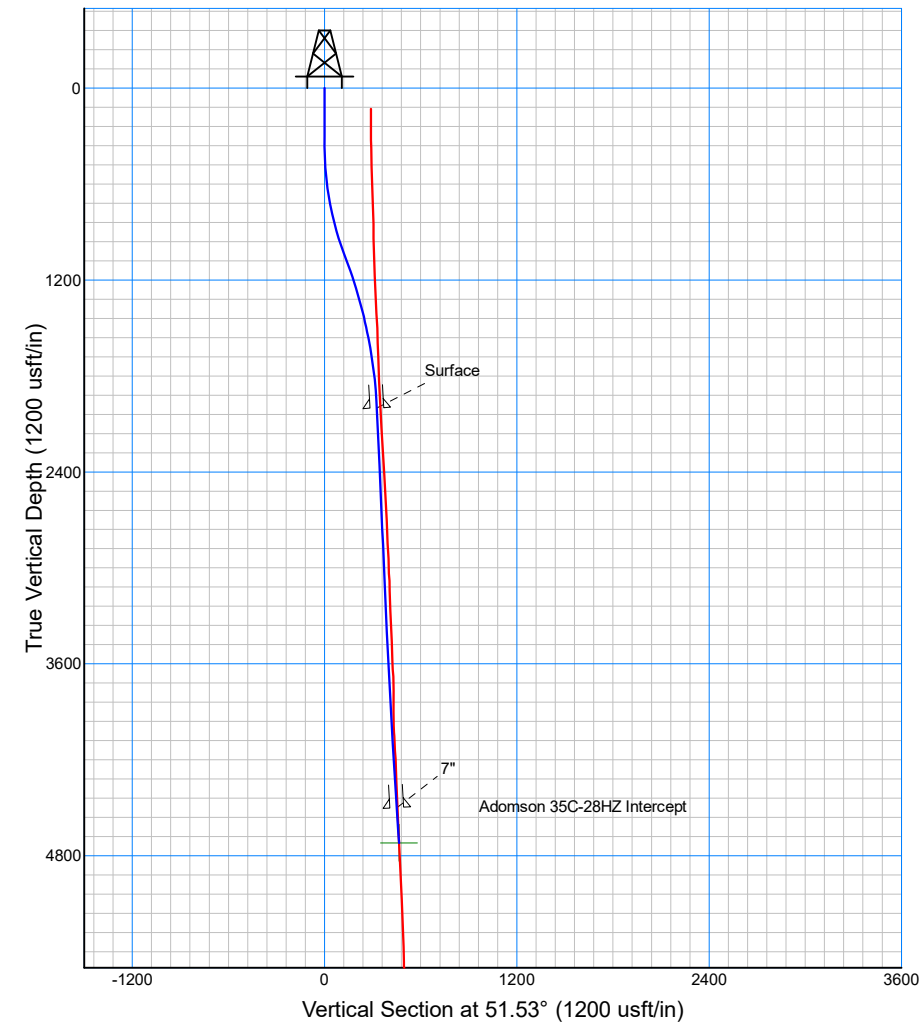
Standard Planning Report

18 August, 2017

Well: MEGUIRE 1	Plan: Permit Plan-Rev1	Field: WELD-NAD83-UTMTF13N	Site: 2N-65W-21 Meguire 5-21HZ Pad	Rig: Drilling Rig
Borehole: Plan A	Plan Date: 7:23, August 18 2017	Datum: UTM (US Survey Ft)	RKB: 4913ft	Latitude: 40.124702
Grid Conv: 0.21	VSec: 51.53deg	Zone: Zone 13N (108 W to 102 W)	GL: 4896.00ft	Longitude: -104.676773
				Northing / Y: 14572307.25
				Easting / X: 1730771.90
				Model: IGRF2010
				Date: 13-Jul-17
				DEC: 7.98°
				DIP: 66.63°
				FS: 52355.79783557nT
				North Ref: True

Critical Points										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	Build 3°/100 DLS
3	1080.00	22.00	70.00	1062.19	47.35	130.09	3.01	70.00	131.31	Drop & Turn 2°/100 DLS
4	2046.66	2.67	66.10	2002.07	119.09	322.67	2.00	-179.45	326.73	Hold Inc
5	3657.90	2.67	66.10	3611.55	149.54	391.39	0.00	0.00	399.47	Build 2°/100 DLS
6	4047.86	8.00	350.00	4000.00	180.00	395.00	2.00	-95.41	421.25	Build & Turn 1.5°/100 DLS
7	4140.42	9.02	343.59	4091.55	193.30	391.83	1.50	-46.24	427.04	Hold Inc
8	4776.52	9.02	343.59	4719.79	288.92	363.67	0.00	0.00	464.47	Intercept Point

Target Details							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Adomson 35C-28HZ Intercept	4719.79	288.92	363.67	14572597.49	1731134.51	40.125495	-104.675472



Database:	PLANNING	Local Co-ordinate Reference:	Well MEGUIRE 1
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 4913.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 4913.00usft (Drilling Rig)
Site:	2N-65W-21 Meguire 5-21HZ Pad	North Reference:	True
Well:	MEGUIRE 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Plan-Rev1		

Project	WELD-NAD83-UTMFT13N		
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	2N-65W-21 Meguire 5-21HZ Pad				
Site Position:		Northing:	14,572,368.33 usft	Latitude:	40.124871
From:	Lat/Long	Easting:	1,730,645.04 usft	Longitude:	-104.677226
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.21

Well	MEGUIRE 1					
Well Position	+N/-S	-61.54 usft	Northing:	14,572,307.25 usft	Latitude:	40.124702
	+E/-W	126.63 usft	Easting:	1,730,771.90 usft	Longitude:	-104.676773
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	4,896.00 usft

Wellbore	Plan A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/13/2017	7.98	66.63	52,355.79783557

Design	Permit Plan-Rev1				
Audit Notes:					
Version:		Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	51.53	

Plan Survey Tool Program	Date	8/18/2017			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	0.00 Permit Plan-Rev1 (Plan A)	APC_ISCWSA REV 2 MWD+I		
		Frequency: 30ft	Fixed:v2:crustal field declination		
2	2,012.00	4,776.52 Permit Plan-Rev1 (Plan A)	APC_ISCWSA REV 2 MWD+I		
		Frequency: 30ft	Fixed:v2:crustal field declination		

Database:	PLANNING	Local Co-ordinate Reference:	Well MEGUIRE 1
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 4913.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 4913.00usft (Drilling Rig)
Site:	2N-65W-21 Meguire 5-21HZ Pad	North Reference:	True
Well:	MEGUIRE 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Plan-Rev1		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,080.00	22.00	70.00	1,062.19	47.35	130.09	3.01	3.01	0.00	70.00	
2,046.66	2.67	66.10	2,002.07	119.09	322.67	2.00	-2.00	-0.40	-179.45	
3,657.90	2.67	66.10	3,611.55	149.54	391.39	0.00	0.00	0.00	0.00	
4,047.86	8.00	350.00	4,000.00	180.00	395.00	2.00	1.37	-19.51	-95.41	
4,140.42	9.02	343.59	4,091.55	193.30	391.83	1.50	1.10	-6.93	-46.24	
4,776.52	9.02	343.59	4,719.79	288.92	363.67	0.00	0.00	0.00	0.00	Adomson 35C-28HZ I

Database:	PLANNING	Local Co-ordinate Reference:	Well MEGUIRE 1
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 4913.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 4913.00usft (Drilling Rig)
Site:	2N-65W-21 Meguire 5-21HZ Pad	North Reference:	True
Well:	MEGUIRE 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Plan-Rev1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00
Build 3°/100 DLS									
400.00	1.51	70.00	399.99	0.22	0.62	0.62	3.01	3.01	0.00
500.00	4.52	70.00	499.84	2.02	5.56	5.61	3.01	3.01	0.00
600.00	7.53	70.00	599.28	5.61	15.42	15.57	3.01	3.01	0.00
700.00	10.55	70.00	698.03	10.99	30.19	30.47	3.01	3.01	0.00
800.00	13.56	70.00	795.81	18.13	49.81	50.28	3.01	3.01	0.00
900.00	16.58	70.00	892.36	27.02	74.24	74.93	3.01	3.01	0.00
1,000.00	19.59	70.00	987.41	37.63	103.40	104.37	3.01	3.01	0.00
1,080.00	22.00	70.00	1,062.19	47.35	130.09	131.31	3.01	3.01	0.00
Drop & Turn 2°/100 DLS									
1,100.00	21.60	69.99	1,080.76	49.89	137.07	138.35	2.00	-2.00	-0.05
1,200.00	19.60	69.93	1,174.36	61.94	170.12	171.73	2.00	-2.00	-0.06
1,300.00	17.60	69.86	1,269.14	72.91	200.07	202.00	2.00	-2.00	-0.07
1,339.64	16.81	69.83	1,307.00	76.95	211.08	213.13	2.00	-2.00	-0.08
Fox Hills									
1,400.00	15.60	69.77	1,364.96	82.76	226.89	229.13	2.00	-2.00	-0.09
1,500.00	13.60	69.66	1,461.73	91.50	250.53	253.08	2.00	-2.00	-0.11
1,600.00	11.60	69.51	1,559.32	99.11	270.97	273.82	2.00	-2.00	-0.15
1,700.00	9.60	69.29	1,657.60	105.58	288.19	291.32	2.00	-2.00	-0.21
1,800.00	7.60	68.97	1,756.47	110.90	302.17	305.58	2.00	-2.00	-0.33
1,900.00	5.60	68.41	1,855.81	115.07	312.88	316.56	2.00	-2.00	-0.56
2,000.00	3.60	67.24	1,955.48	118.08	320.32	324.26	2.00	-2.00	-1.17
2,044.59	2.72	66.17	2,000.00	119.05	322.58	326.63	2.00	-2.00	-2.41
Surface									
2,046.66	2.67	66.10	2,002.07	119.09	322.67	326.73	2.00	-1.99	-3.25
Hold Inc									
2,100.00	2.67	66.10	2,055.35	120.10	324.95	329.13	0.00	0.00	0.00
2,200.00	2.67	66.10	2,155.24	121.99	329.21	333.65	0.00	0.00	0.00
2,300.00	2.67	66.10	2,255.13	123.88	333.48	338.16	0.00	0.00	0.00
2,400.00	2.67	66.10	2,355.02	125.77	337.74	342.68	0.00	0.00	0.00
2,500.00	2.67	66.10	2,454.91	127.66	342.01	347.19	0.00	0.00	0.00
2,600.00	2.67	66.10	2,554.81	129.55	346.27	351.71	0.00	0.00	0.00
2,700.00	2.67	66.10	2,654.70	131.44	350.54	356.22	0.00	0.00	0.00
2,800.00	2.67	66.10	2,754.59	133.33	354.80	360.74	0.00	0.00	0.00
2,845.46	2.67	66.10	2,800.00	134.19	356.74	362.79	0.00	0.00	0.00
Parkman									
2,900.00	2.67	66.10	2,854.48	135.22	359.07	365.25	0.00	0.00	0.00
3,000.00	2.67	66.10	2,954.37	137.11	363.33	369.77	0.00	0.00	0.00
3,100.00	2.67	66.10	3,054.26	139.00	367.60	374.28	0.00	0.00	0.00
3,200.00	2.67	66.10	3,154.15	140.89	371.86	378.80	0.00	0.00	0.00
3,300.00	2.67	66.10	3,254.04	142.78	376.13	383.31	0.00	0.00	0.00
3,400.00	2.67	66.10	3,353.93	144.67	380.39	387.83	0.00	0.00	0.00
3,500.00	2.67	66.10	3,453.83	146.56	384.66	392.34	0.00	0.00	0.00
3,600.00	2.67	66.10	3,553.72	148.45	388.92	396.86	0.00	0.00	0.00
3,657.90	2.67	66.10	3,611.55	149.54	391.39	399.47	0.00	0.00	0.00
Build 2°/100 DLS									
3,700.00	2.73	48.18	3,653.61	150.61	393.03	401.42	2.00	0.12	-42.55
3,800.00	3.71	16.44	3,753.46	155.30	395.72	406.45	2.00	0.99	-31.75

Database:	PLANNING	Local Co-ordinate Reference:	Well MEGUIRE 1
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 4913.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 4913.00usft (Drilling Rig)
Site:	2N-65W-21 Meguire 5-21HZ Pad	North Reference:	True
Well:	MEGUIRE 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Plan-Rev1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,900.00	5.30	0.73	3,853.15	163.03	396.70	412.02	2.00	1.59	-15.71
4,000.00	7.10	352.58	3,952.56	173.79	395.96	418.13	2.00	1.80	-8.15
4,047.86	8.00	350.00	4,000.00	180.00	395.00	421.25	2.00	1.87	-5.40
Build & Turn 1.5°/100 DLS									
4,100.00	8.56	346.20	4,051.60	187.34	393.44	424.59	1.50	1.07	-7.29
4,140.42	9.02	343.59	4,091.55	193.30	391.83	427.04	1.50	1.13	-6.47
Hold Inc									
4,200.00	9.02	343.59	4,150.39	202.26	389.19	430.54	0.00	0.00	0.00
4,300.00	9.02	343.59	4,249.15	217.29	384.77	436.43	0.00	0.00	0.00
4,379.83	9.02	343.59	4,328.00	229.29	381.23	441.13	0.00	0.00	0.00
Sussex									
4,400.00	9.02	343.59	4,347.92	232.32	380.34	442.31	0.00	0.00	0.00
4,500.00	9.02	343.59	4,446.68	247.35	375.91	448.20	0.00	0.00	0.00
4,553.98	9.02	343.59	4,500.00	255.47	373.52	451.37	0.00	0.00	0.00
7"									
4,600.00	9.02	343.59	4,545.45	262.39	371.48	454.08	0.00	0.00	0.00
4,700.00	9.02	343.59	4,644.21	277.42	367.05	459.96	0.00	0.00	0.00
4,776.52	9.02	343.59	4,719.79	288.92	363.67	464.47	0.00	0.00	0.00
Intercept Point									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Adomson 35C-28HZ Intr	0.00	0.00	4,719.79	288.92	363.67	14,572,597.49	1,731,134.51	40.125496	-104.675472
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
2,044.59	2,000.00	Surface	9-5/8	13-1/2	
4,553.98	4,500.00	7"	7	8-3/4	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,339.64	1,307.00	Fox Hills			
2,845.46	2,800.00	Parkman			
4,379.83	4,328.00	Sussex			

Database:	PLANNING	Local Co-ordinate Reference:	Well MEGUIRE 1
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	KB @ 4913.00usft (Drilling Rig)
Project:	WELD-NAD83-UTMFT13N	MD Reference:	KB @ 4913.00usft (Drilling Rig)
Site:	2N-65W-21 Meguire 5-21HZ Pad	North Reference:	True
Well:	MEGUIRE 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Plan A		
Design:	Permit Plan-Rev1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
350.00	350.00	0.00	0.00	Build 3°/100 DLS
1,080.00	1,062.19	47.35	130.09	Drop & Turn 2°/100 DLS
2,046.66	2,002.07	119.09	322.67	Hold Inc
3,657.90	3,611.55	149.54	391.39	Build 2°/100 DLS
4,047.86	4,000.00	180.00	395.00	Build & Turn 1.5°/100 DLS
4,140.42	4,091.55	193.30	391.83	Hold Inc
4,776.52	4,719.79	288.92	363.67	Intercept Point