



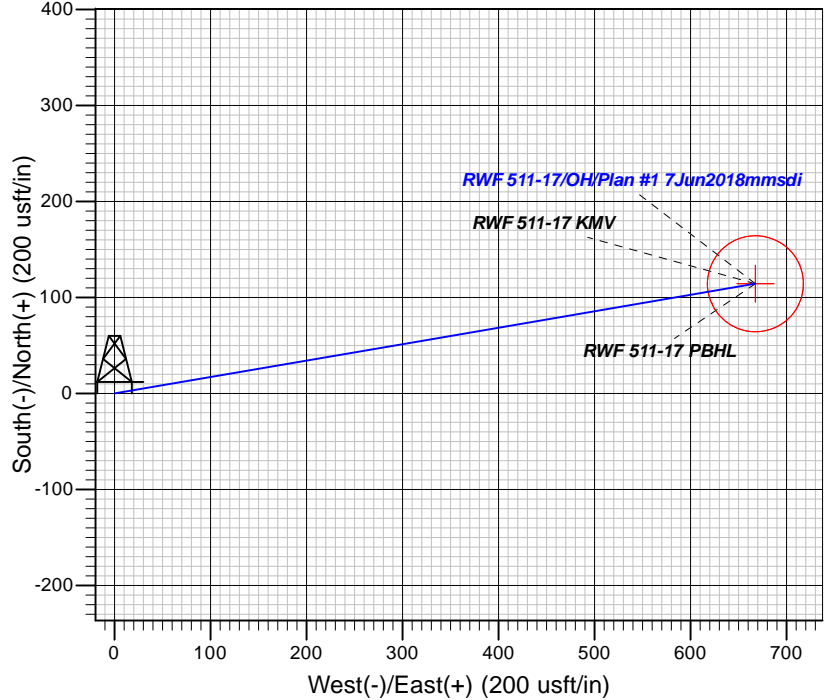
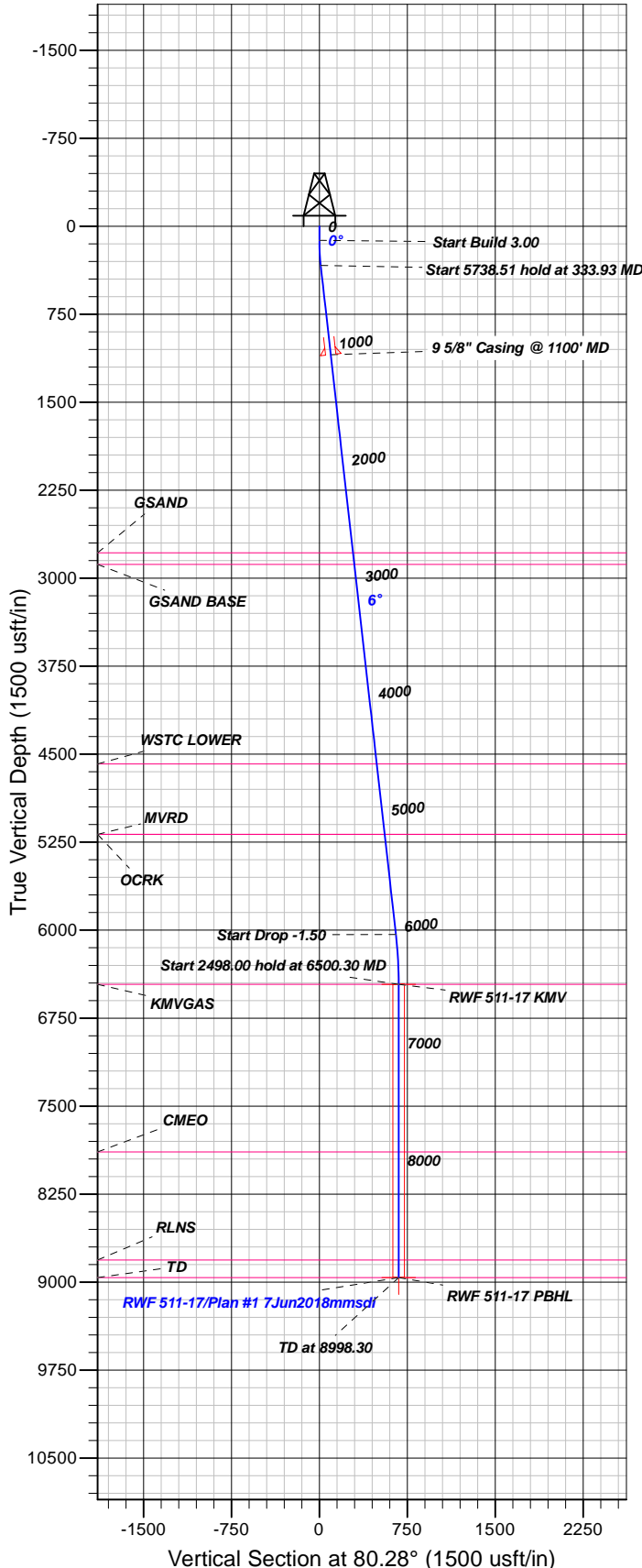
Azimuths to True North  
Magnetic North: 9.43°

Magnetic Field  
Strength: 51582.5nT  
Dip Angle: 65.80°  
Date: 6/7/2018  
Model: HDGM

## Well Details: RWF 511-17

GL 6174.5' & RKB 24' @ 6198.50usft

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1627397.00	2317146.80	39.5310040	-107.9212357	RWF 511-17 (B8)



## FORMATION TOP DETAILS

TVDPth	MDPath	Formation
2783.00	2798.90	GSAND
2883.00	2899.53	GSAND BASE
4583.00	4610.25	WSTC LOWER
5183.00	5214.03	MVRD
5183.00	5214.03	OCRK
6463.00	6500.30	KMVGAS
7891.00	7928.30	CMEO
8811.00	8848.30	RLNS

Plan: Plan #1 7Jun2018mmsdi

17:27, June 12 2018  
Created By: Mel Mireles

PROJECT DETAILS: Garfield County, CO NAD83

Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Central Zone

System Datum: Mean Sea Level

## CASING DETAILS

TVD	MD	Name	Size
1094.75	1100.00	5/8" Casing @ 1100' MD	9.62

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	
3	333.93	6.42	80.28	333.48	2.02	11.80	3.00	80.28	11.97	
4	6072.44	6.42	80.28	6036.03	110.28	644.05	0.00	0.00	653.42	
5	6500.30	0.00	0.00	6463.00	114.32	667.64	1.50	180.00	677.36	RWF 511-17 KMV
6	8998.30	0.00	0.00	8961.00	114.32	667.64	0.00	0.00	677.36	RWF 511-17 PBHL

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
RWF 511-17 KMV	6463.00	114.32	667.64	1627493.49	2317817.25	39.5313178	-107.9188687	Circle (Radius: 50.00)
- plan hits target center								
RWF 511-17 PBHL	8961.00	114.32	667.64	1627493.49	2317817.25	39.5313178	-107.9188687	Point
- plan hits target center								



# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**DOE 1-M-18**

**RWF 511-17 - Slot RWF 511-17 (B8)**

**OH**

**Plan: Plan #1 7Jun2018mmsdi**

## **Standard Planning Report**

**12 June, 2018**



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well RWF 511-17 - Slot RWF 511-17 (B8)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 6174.5' & RKB 24' @ 6198.50usft
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6174.5' & RKB 24' @ 6198.50usft
<b>Site:</b>	DOE 1-M-18	<b>North Reference:</b>	True
<b>Well:</b>	RWF 511-17	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 7Jun2018mmsdi		

<b>Project</b>	Garfield County, CO NAD83		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

Site	DOE 1-M-18					
Site Position:		Northing:	1,627,441.60 usft	Latitude:	39.5311260	
From:	Map	Easting:	2,317,141.30 usft	Longitude:	-107.9212595	
Position Uncertainty:		0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.53 °

Well	RWF 511-17 - Slot RWF 511-17 (B8)					
Well Position	+N/-S	-44.44 usft	Northing:	1,627,397.00 usft	Latitude:	39.5310040
	+E/-W	6.69 usft	Easting:	2,317,146.80 usft	Longitude:	-107.9212358
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,174.50 usft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	6/7/2018	9.43	65.80	51,583

<b>Design</b>	Plan #1 7Jun2018mmsdi			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	80.28

<b>Plan Sections</b>										
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	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	
333.93	6.42	80.28	333.48	2.02	11.80	3.00	3.00	0.00	80.28	
6,072.44	6.42	80.28	6,036.03	110.28	644.05	0.00	0.00	0.00	0.00	
6,500.30	0.00	0.00	6,463.00	114.32	667.64	1.50	-1.50	0.00	180.00	RWF 511-17 KMV
8,998.30	0.00	0.00	8,961.00	114.32	667.64	0.00	0.00	0.00	0.00	RWF 511-17 PBHL

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<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6174.5' & RKB 24' @ 6198.50usft
<b>Site:</b>	DOE 1-M-18	<b>North Reference:</b>	True
<b>Well:</b>	RWF 511-17	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 7Jun2018mmsdi		

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
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 3.00									
200.00	2.40	80.28	199.98	0.28	1.65	1.68	3.00	3.00	0.00
300.00	5.40	80.28	299.73	1.43	8.35	8.48	3.00	3.00	0.00
333.93	6.42	80.28	333.48	2.02	11.80	11.97	3.00	3.00	0.00
Start 5738.51 hold at 333.93 MD									
400.00	6.42	80.28	399.14	3.27	19.08	19.35	0.00	0.00	0.00
500.00	6.42	80.28	498.51	5.15	30.09	30.53	0.00	0.00	0.00
600.00	6.42	80.28	597.89	7.04	41.11	41.71	0.00	0.00	0.00
700.00	6.42	80.28	697.26	8.93	52.13	52.89	0.00	0.00	0.00
800.00	6.42	80.28	796.63	10.81	63.15	64.07	0.00	0.00	0.00
900.00	6.42	80.28	896.01	12.70	74.16	75.24	0.00	0.00	0.00
1,000.00	6.42	80.28	995.38	14.59	85.18	86.42	0.00	0.00	0.00
1,100.00	6.42	80.28	1,094.75	16.47	96.20	97.60	0.00	0.00	0.00
9 5/8" Casing @ 1100' MD									
1,200.00	6.42	80.28	1,194.13	18.36	107.22	108.78	0.00	0.00	0.00
1,300.00	6.42	80.28	1,293.50	20.25	118.24	119.96	0.00	0.00	0.00
1,400.00	6.42	80.28	1,392.87	22.13	129.25	131.13	0.00	0.00	0.00
1,500.00	6.42	80.28	1,492.25	24.02	140.27	142.31	0.00	0.00	0.00
1,600.00	6.42	80.28	1,591.62	25.91	151.29	153.49	0.00	0.00	0.00
1,700.00	6.42	80.28	1,690.99	27.79	162.31	164.67	0.00	0.00	0.00
1,800.00	6.42	80.28	1,790.37	29.68	173.32	175.85	0.00	0.00	0.00
1,900.00	6.42	80.28	1,889.74	31.57	184.34	187.02	0.00	0.00	0.00
2,000.00	6.42	80.28	1,989.11	33.45	195.36	198.20	0.00	0.00	0.00
2,100.00	6.42	80.28	2,088.48	35.34	206.38	209.38	0.00	0.00	0.00
2,200.00	6.42	80.28	2,187.86	37.23	217.39	220.56	0.00	0.00	0.00
2,300.00	6.42	80.28	2,287.23	39.11	228.41	231.74	0.00	0.00	0.00
2,400.00	6.42	80.28	2,386.60	41.00	239.43	242.91	0.00	0.00	0.00
2,500.00	6.42	80.28	2,485.98	42.88	250.45	254.09	0.00	0.00	0.00
2,600.00	6.42	80.28	2,585.35	44.77	261.46	265.27	0.00	0.00	0.00
2,700.00	6.42	80.28	2,684.72	46.66	272.48	276.45	0.00	0.00	0.00
2,798.90	6.42	80.28	2,783.00	48.52	283.38	287.50	0.00	0.00	0.00
GSAND									
2,800.00	6.42	80.28	2,784.10	48.54	283.50	287.63	0.00	0.00	0.00
2,899.53	6.42	80.28	2,883.00	50.42	294.47	298.75	0.00	0.00	0.00
GSAND BASE									
2,900.00	6.42	80.28	2,883.47	50.43	294.52	298.80	0.00	0.00	0.00
3,000.00	6.42	80.28	2,982.84	52.32	305.54	309.98	0.00	0.00	0.00
3,100.00	6.42	80.28	3,082.22	54.20	316.55	321.16	0.00	0.00	0.00
3,200.00	6.42	80.28	3,181.59	56.09	327.57	332.34	0.00	0.00	0.00
3,300.00	6.42	80.28	3,280.96	57.98	338.59	343.52	0.00	0.00	0.00
3,400.00	6.42	80.28	3,380.34	59.86	349.61	354.69	0.00	0.00	0.00
3,500.00	6.42	80.28	3,479.71	61.75	360.62	365.87	0.00	0.00	0.00
3,600.00	6.42	80.28	3,579.08	63.64	371.64	377.05	0.00	0.00	0.00
3,700.00	6.42	80.28	3,678.46	65.52	382.66	388.23	0.00	0.00	0.00
3,800.00	6.42	80.28	3,777.83	67.41	393.68	399.41	0.00	0.00	0.00
3,900.00	6.42	80.28	3,877.20	69.30	404.69	410.58	0.00	0.00	0.00
4,000.00	6.42	80.28	3,976.58	71.18	415.71	421.76	0.00	0.00	0.00
4,100.00	6.42	80.28	4,075.95	73.07	426.73	432.94	0.00	0.00	0.00
4,200.00	6.42	80.28	4,175.32	74.96	437.75	444.12	0.00	0.00	0.00
4,300.00	6.42	80.28	4,274.70	76.84	448.76	455.30	0.00	0.00	0.00
4,400.00	6.42	80.28	4,374.07	78.73	459.78	466.47	0.00	0.00	0.00

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<b>Site:</b>	DOE 1-M-18	<b>North Reference:</b>	True
<b>Well:</b>	RWF 511-17	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 7Jun2018mmsdi		

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)
4,500.00	6.42	80.28	4,473.44	80.62	470.80	477.65	0.00	0.00	0.00
4,600.00	6.42	80.28	4,572.82	82.50	481.82	488.83	0.00	0.00	0.00
4,610.25	6.42	80.28	4,583.00	82.70	482.95	489.98	0.00	0.00	0.00
<b>WSTC LOWER</b>									
4,700.00	6.42	80.28	4,672.19	84.39	492.84	500.01	0.00	0.00	0.00
4,800.00	6.42	80.28	4,771.56	86.28	503.85	511.19	0.00	0.00	0.00
4,900.00	6.42	80.28	4,870.94	88.16	514.87	522.36	0.00	0.00	0.00
5,000.00	6.42	80.28	4,970.31	90.05	525.89	533.54	0.00	0.00	0.00
5,100.00	6.42	80.28	5,069.68	91.94	536.91	544.72	0.00	0.00	0.00
5,200.00	6.42	80.28	5,169.06	93.82	547.92	555.90	0.00	0.00	0.00
5,214.03	6.42	80.28	5,183.00	94.09	549.47	557.47	0.00	0.00	0.00
<b>OCRK - MVRD</b>									
5,300.00	6.42	80.28	5,268.43	95.71	558.94	567.08	0.00	0.00	0.00
5,400.00	6.42	80.28	5,367.80	97.60	569.96	578.25	0.00	0.00	0.00
5,500.00	6.42	80.28	5,467.18	99.48	580.98	589.43	0.00	0.00	0.00
5,600.00	6.42	80.28	5,566.55	101.37	591.99	600.61	0.00	0.00	0.00
5,700.00	6.42	80.28	5,665.92	103.26	603.01	611.79	0.00	0.00	0.00
5,800.00	6.42	80.28	5,765.30	105.14	614.03	622.97	0.00	0.00	0.00
5,900.00	6.42	80.28	5,864.67	107.03	625.05	634.14	0.00	0.00	0.00
6,000.00	6.42	80.28	5,964.04	108.92	636.06	645.32	0.00	0.00	0.00
6,072.44	6.42	80.28	6,036.03	110.28	644.05	653.42	0.00	0.00	0.00
<b>Start Drop -1.50</b>									
6,100.00	6.00	80.28	6,063.43	110.79	646.98	656.40	1.50	-1.50	0.00
6,200.00	4.50	80.28	6,163.00	112.33	656.01	665.56	1.50	-1.50	0.00
6,300.00	3.00	80.28	6,262.79	113.44	662.47	672.11	1.50	-1.50	0.00
6,400.00	1.50	80.28	6,362.71	114.10	666.34	676.04	1.50	-1.50	0.00
6,500.00	0.00	80.28	6,462.70	114.32	667.64	677.36	1.50	-1.50	0.00
6,500.30	0.00	0.00	6,463.00	114.32	667.64	677.36	1.50	-1.50	-26,356.85
<b>Start 2498.00 hold at 6500.30 MD - KMGAS - RWF 511-17 KMW</b>									
6,600.00	0.00	0.00	6,562.70	114.32	667.64	677.36	0.00	0.00	0.00
6,700.00	0.00	0.00	6,662.70	114.32	667.64	677.36	0.00	0.00	0.00
6,800.00	0.00	0.00	6,762.70	114.32	667.64	677.36	0.00	0.00	0.00
6,900.00	0.00	0.00	6,862.70	114.32	667.64	677.36	0.00	0.00	0.00
7,000.00	0.00	0.00	6,962.70	114.32	667.64	677.36	0.00	0.00	0.00
7,100.00	0.00	0.00	7,062.70	114.32	667.64	677.36	0.00	0.00	0.00
7,200.00	0.00	0.00	7,162.70	114.32	667.64	677.36	0.00	0.00	0.00
7,300.00	0.00	0.00	7,262.70	114.32	667.64	677.36	0.00	0.00	0.00
7,400.00	0.00	0.00	7,362.70	114.32	667.64	677.36	0.00	0.00	0.00
7,500.00	0.00	0.00	7,462.70	114.32	667.64	677.36	0.00	0.00	0.00
7,600.00	0.00	0.00	7,562.70	114.32	667.64	677.36	0.00	0.00	0.00
7,700.00	0.00	0.00	7,662.70	114.32	667.64	677.36	0.00	0.00	0.00
7,800.00	0.00	0.00	7,762.70	114.32	667.64	677.36	0.00	0.00	0.00
7,900.00	0.00	0.00	7,862.70	114.32	667.64	677.36	0.00	0.00	0.00
7,928.30	0.00	0.00	7,891.00	114.32	667.64	677.36	0.00	0.00	0.00
<b>CME0</b>									
8,000.00	0.00	0.00	7,962.70	114.32	667.64	677.36	0.00	0.00	0.00
8,100.00	0.00	0.00	8,062.70	114.32	667.64	677.36	0.00	0.00	0.00
8,200.00	0.00	0.00	8,162.70	114.32	667.64	677.36	0.00	0.00	0.00
8,300.00	0.00	0.00	8,262.70	114.32	667.64	677.36	0.00	0.00	0.00
8,400.00	0.00	0.00	8,362.70	114.32	667.64	677.36	0.00	0.00	0.00
8,500.00	0.00	0.00	8,462.70	114.32	667.64	677.36	0.00	0.00	0.00
8,600.00	0.00	0.00	8,562.70	114.32	667.64	677.36	0.00	0.00	0.00
8,700.00	0.00	0.00	8,662.70	114.32	667.64	677.36	0.00	0.00	0.00

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<b>Site:</b>	DOE 1-M-18	<b>North Reference:</b>	True
<b>Well:</b>	RWF 511-17	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 7Jun2018mmsdi		

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)
8,800.00	0.00	0.00	8,762.70	114.32	667.64	677.36	0.00	0.00	0.00
8,848.30	0.00	0.00	8,811.00	114.32	667.64	677.36	0.00	0.00	0.00
RLNS									
8,900.00	0.00	0.00	8,862.70	114.32	667.64	677.36	0.00	0.00	0.00
8,998.30	0.00	0.00	8,961.00	114.32	667.64	677.36	0.00	0.00	0.00
TD at 8998.30 - RWF 511-17 PBHL									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
RWF 511-17 KMV - plan hits target center - Circle (radius 50.00)	0.00	0.00	6,463.00	114.32	667.64	1,627,493.49	2,317,817.25	39.5313179	-107.9188687
RWF 511-17 PBHL - plan hits target center - Point	0.00	0.00	8,961.00	114.32	667.64	1,627,493.49	2,317,817.25	39.5313179	-107.9188687

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,100.00	1,094.75	9 5/8" Casing @ 1100' MD	9.62	13.50	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,798.90	2,783.00	GSAND		0.00	0.00
2,899.53	2,883.00	GSAND BASE		0.00	0.00
4,610.25	4,583.00	WSTC LOWER		0.00	0.00
5,214.03	5,183.00	OCRK		0.00	0.00
5,214.03	5,183.00	MVRD		0.00	0.00
6,500.30	6,463.00	KMVGAS		0.00	0.00
7,928.30	7,891.00	CME0		0.00	0.00
8,848.30	8,811.00	RLNS		0.00	0.00

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
120.00	120.00	0.00	0.00	Start Build 3.00
333.93	333.48	2.02	11.80	Start 5738.51 hold at 333.93 MD
6,072.44	6,036.03	110.28	644.05	Start Drop -1.50
6,500.30	6,463.00	114.32	667.64	Start 2498.00 hold at 6500.30 MD
8,998.30	8,961.00	114.32	667.64	TD at 8998.30