



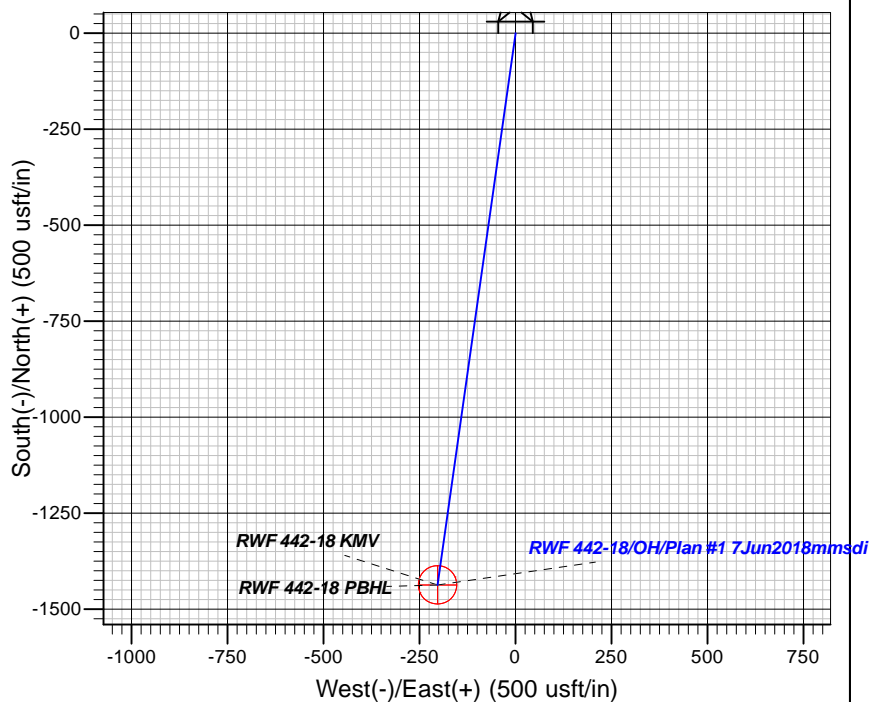
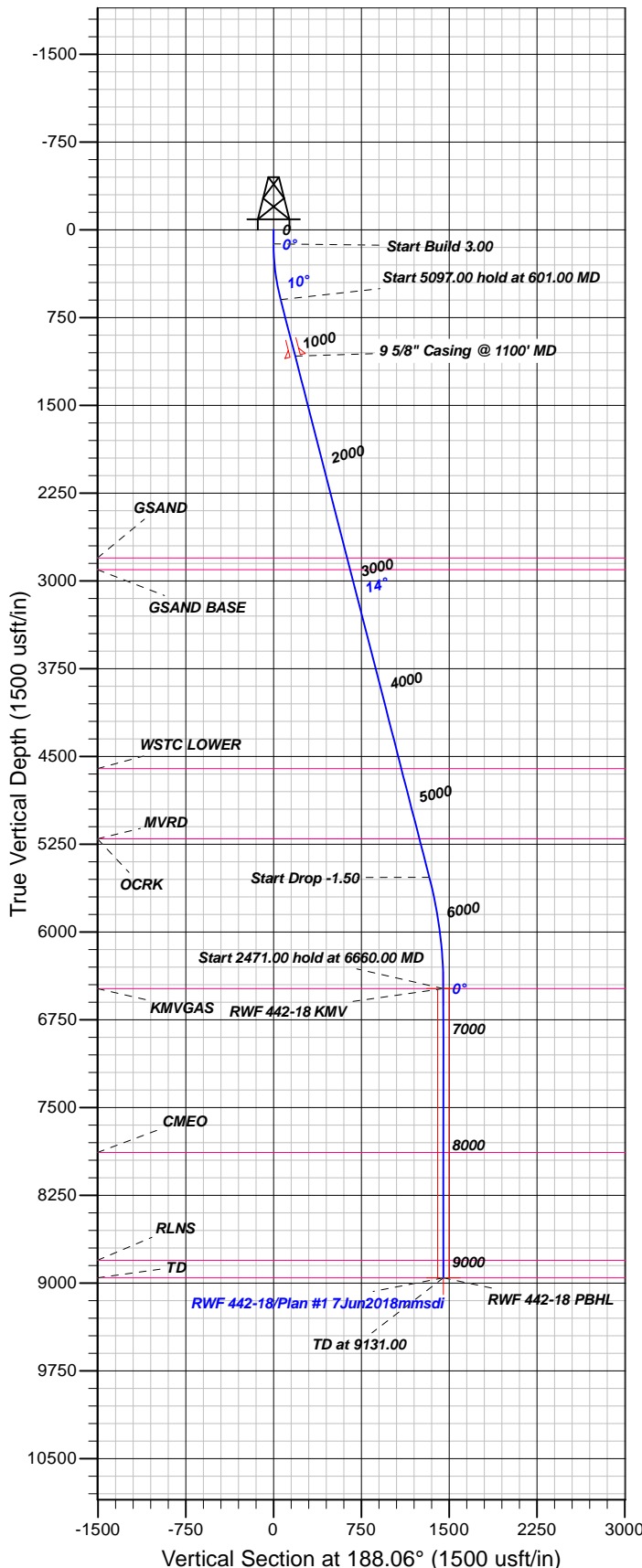
Azimuths to True North
Magnetic North: 9.43°

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

Well Details: RWF 442-18

GL 6174.5' & RKB 24' @ 6198.50usft

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1627374.70	2317149.50	39.5309430	-107.9212240	RWF 442-18 (B5)



FORMATION TOP DETAILS

TVDP	MD	Formation
2804.00	2881.00	GSAND
2904.00	2984.25	GSAND BASE
4604.00	4739.63	WSTC LOWER
5204.00	5359.18	MVRD
5204.00	5359.18	OCRK
6484.00	6660.00	KMVGAS
7885.00	8061.00	CMEQ
8805.00	8981.00	RLNS
8955.00	9131.00	TD

Plan: Plan #1 7Jun2018mmsdi

12:55, 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
1079.19	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	601.00	14.43	188.06	595.93	-59.66	-8.44	3.00	188.06	60.25	
4	5698.00	14.43	188.06	5532.14	-1317.28	-186.46	0.00	0.00	330.41	
5	6660.00	0.00	0.00	6484.00	-1436.59	-203.35	1.50	180.00	450.91	RWF 442-18 KMV
6	9131.00	0.00	0.00	8955.00	-1436.59	-203.35	0.00	0.00	450.91	RWF 442-18 PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
RWF 442-18 KMV	6484.00	-1436.59	-203.35	1625944.04	2316907.94	39.5269990	-107.9219449	Circle (Radius: 50.00)
- plan hits target center								
RWF 442-18 PBHL	8955.00	-1436.59	-203.35	1625944.04	2316907.94	39.5269990	-107.9219449	Point
- plan hits target center								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

DOE 1-M-18

RWF 442-18 - Slot RWF 442-18 (B5)

OH

Plan: Plan #1 7Jun2018mmsdi

Standard Planning Report

12 June, 2018



Database:	Grand Junction District	Local Co-ordinate Reference:	Well RWF 442-18 - Slot RWF 442-18 (B5)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6174.5' & RKB 24' @ 6198.50usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 6174.5' & RKB 24' @ 6198.50usft
Site:	DOE 1-M-18	North Reference:	True
Well:	RWF 442-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 7Jun2018mmsdi		

Project	Garfield County, CO NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	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 442-18 - Slot RWF 442-18 (B5)					
Well Position	+N/-S	-66.66 usft	Northing:	1,627,374.70 usft	Latitude:	39.5309430
	+E/-W	9.98 usft	Easting:	2,317,149.50 usft	Longitude:	-107.9212241
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,174.50 usft

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

Design	Plan #1 7Jun2018mmsdi			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	188.06

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	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	
601.00	14.43	188.06	595.93	-59.66	-8.44	3.00	3.00	0.00	188.06	
5,698.00	14.43	188.06	5,532.14	-1,317.28	-186.46	0.00	0.00	0.00	0.00	
6,660.00	0.00	0.00	6,484.00	-1,436.59	-203.35	1.50	-1.50	0.00	180.00	RWF 442-18 KMV
9,131.00	0.00	0.00	8,955.00	-1,436.59	-203.35	0.00	0.00	0.00	0.00	RWF 442-18 PBHL

Database:	Grand Junction District	Local Co-ordinate Reference:	Well RWF 442-18 - Slot RWF 442-18 (B5)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6174.5' & RKB 24' @ 6198.50usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 6174.5' & RKB 24' @ 6198.50usft
Site:	DOE 1-M-18	North Reference:	True
Well:	RWF 442-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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	188.06	199.98	-1.66	-0.23	1.68	3.00	3.00	0.00
300.00	5.40	188.06	299.73	-8.39	-1.19	8.48	3.00	3.00	0.00
400.00	8.40	188.06	399.00	-20.29	-2.87	20.49	3.00	3.00	0.00
500.00	11.40	188.06	497.50	-37.31	-5.28	37.68	3.00	3.00	0.00
600.00	14.40	188.06	594.96	-59.41	-8.41	60.00	3.00	3.00	0.00
601.00	14.43	188.06	595.93	-59.66	-8.44	60.25	3.00	3.00	0.00
Start 5097.00 hold at 601.00 MD									
700.00	14.43	188.06	691.81	-84.08	-11.90	84.92	0.00	0.00	0.00
800.00	14.43	188.06	788.65	-108.76	-15.39	109.84	0.00	0.00	0.00
900.00	14.43	188.06	885.50	-133.43	-18.89	134.76	0.00	0.00	0.00
1,000.00	14.43	188.06	982.34	-158.10	-22.38	159.68	0.00	0.00	0.00
1,100.00	14.43	188.06	1,079.19	-182.78	-25.87	184.60	0.00	0.00	0.00
9 5/8" Casing @ 1100' MD									
1,200.00	14.43	188.06	1,176.03	-207.45	-29.36	209.52	0.00	0.00	0.00
1,300.00	14.43	188.06	1,272.88	-232.13	-32.86	234.44	0.00	0.00	0.00
1,400.00	14.43	188.06	1,369.73	-256.80	-36.35	259.36	0.00	0.00	0.00
1,500.00	14.43	188.06	1,466.57	-281.47	-39.84	284.28	0.00	0.00	0.00
1,600.00	14.43	188.06	1,563.42	-306.15	-43.34	309.20	0.00	0.00	0.00
1,700.00	14.43	188.06	1,660.26	-330.82	-46.83	334.12	0.00	0.00	0.00
1,800.00	14.43	188.06	1,757.11	-355.49	-50.32	359.04	0.00	0.00	0.00
1,900.00	14.43	188.06	1,853.95	-380.17	-53.81	383.96	0.00	0.00	0.00
2,000.00	14.43	188.06	1,950.80	-404.84	-57.31	408.88	0.00	0.00	0.00
2,100.00	14.43	188.06	2,047.64	-429.52	-60.80	433.80	0.00	0.00	0.00
2,200.00	14.43	188.06	2,144.49	-454.19	-64.29	458.72	0.00	0.00	0.00
2,300.00	14.43	188.06	2,241.33	-478.86	-67.78	483.64	0.00	0.00	0.00
2,400.00	14.43	188.06	2,338.18	-503.54	-71.28	508.56	0.00	0.00	0.00
2,500.00	14.43	188.06	2,435.02	-528.21	-74.77	533.48	0.00	0.00	0.00
2,600.00	14.43	188.06	2,531.87	-552.88	-78.26	558.40	0.00	0.00	0.00
2,700.00	14.43	188.06	2,628.71	-577.56	-81.75	583.32	0.00	0.00	0.00
2,800.00	14.43	188.06	2,725.56	-602.23	-85.25	608.23	0.00	0.00	0.00
2,881.00	14.43	188.06	2,804.00	-622.22	-88.07	628.42	0.00	0.00	0.00
GSAND									
2,900.00	14.43	188.06	2,822.40	-626.91	-88.74	633.15	0.00	0.00	0.00
2,984.25	14.43	188.06	2,904.00	-647.69	-91.68	654.15	0.00	0.00	0.00
GSAND BASE									
3,000.00	14.43	188.06	2,919.25	-651.58	-92.23	658.07	0.00	0.00	0.00
3,100.00	14.43	188.06	3,016.09	-676.25	-95.72	682.99	0.00	0.00	0.00
3,200.00	14.43	188.06	3,112.94	-700.93	-99.22	707.91	0.00	0.00	0.00
3,300.00	14.43	188.06	3,209.79	-725.60	-102.71	732.83	0.00	0.00	0.00
3,400.00	14.43	188.06	3,306.63	-750.27	-106.20	757.75	0.00	0.00	0.00
3,500.00	14.43	188.06	3,403.48	-774.95	-109.69	782.67	0.00	0.00	0.00
3,600.00	14.43	188.06	3,500.32	-799.62	-113.19	807.59	0.00	0.00	0.00
3,700.00	14.43	188.06	3,597.17	-824.30	-116.68	832.51	0.00	0.00	0.00
3,800.00	14.43	188.06	3,694.01	-848.97	-120.17	857.43	0.00	0.00	0.00
3,900.00	14.43	188.06	3,790.86	-873.64	-123.66	882.35	0.00	0.00	0.00
4,000.00	14.43	188.06	3,887.70	-898.32	-127.16	907.27	0.00	0.00	0.00
4,100.00	14.43	188.06	3,984.55	-922.99	-130.65	932.19	0.00	0.00	0.00
4,200.00	14.43	188.06	4,081.39	-947.66	-134.14	957.11	0.00	0.00	0.00
4,300.00	14.43	188.06	4,178.24	-972.34	-137.63	982.03	0.00	0.00	0.00
4,400.00	14.43	188.06	4,275.08	-997.01	-141.13	1,006.95	0.00	0.00	0.00

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Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6174.5' & RKB 24' @ 6198.50usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 6174.5' & RKB 24' @ 6198.50usft
Site:	DOE 1-M-18	North Reference:	True
Well:	RWF 442-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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	14.43	188.06	4,371.93	-1,021.69	-144.62	1,031.87	0.00	0.00	0.00
4,600.00	14.43	188.06	4,468.77	-1,046.36	-148.11	1,056.79	0.00	0.00	0.00
4,700.00	14.43	188.06	4,565.62	-1,071.03	-151.60	1,081.71	0.00	0.00	0.00
4,739.63	14.43	188.06	4,604.00	-1,080.81	-152.99	1,091.59	0.00	0.00	0.00
WSTC LOWER									
4,800.00	14.43	188.06	4,662.46	-1,095.71	-155.10	1,106.63	0.00	0.00	0.00
4,900.00	14.43	188.06	4,759.31	-1,120.38	-158.59	1,131.55	0.00	0.00	0.00
5,000.00	14.43	188.06	4,856.16	-1,145.05	-162.08	1,156.47	0.00	0.00	0.00
5,100.00	14.43	188.06	4,953.00	-1,169.73	-165.57	1,181.39	0.00	0.00	0.00
5,200.00	14.43	188.06	5,049.85	-1,194.40	-169.07	1,206.31	0.00	0.00	0.00
5,300.00	14.43	188.06	5,146.69	-1,219.08	-172.56	1,231.23	0.00	0.00	0.00
5,359.18	14.43	188.06	5,204.00	-1,233.68	-174.63	1,245.97	0.00	0.00	0.00
OCRK - MVRD									
5,400.00	14.43	188.06	5,243.54	-1,243.75	-176.05	1,256.15	0.00	0.00	0.00
5,500.00	14.43	188.06	5,340.38	-1,268.42	-179.54	1,281.07	0.00	0.00	0.00
5,600.00	14.43	188.06	5,437.23	-1,293.10	-183.04	1,305.99	0.00	0.00	0.00
5,698.00	14.43	188.06	5,532.14	-1,317.28	-186.46	1,330.41	0.00	0.00	0.00
Start Drop -1.50									
5,700.00	14.40	188.06	5,534.07	-1,317.77	-186.53	1,330.91	1.50	-1.50	0.00
5,800.00	12.90	188.06	5,631.25	-1,341.14	-189.84	1,354.50	1.50	-1.50	0.00
5,900.00	11.40	188.06	5,729.00	-1,361.97	-192.79	1,375.55	1.50	-1.50	0.00
6,000.00	9.90	188.06	5,827.28	-1,380.27	-195.38	1,394.03	1.50	-1.50	0.00
6,100.00	8.40	188.06	5,926.00	-1,396.02	-197.61	1,409.93	1.50	-1.50	0.00
6,200.00	6.90	188.06	6,025.11	-1,409.20	-199.47	1,423.24	1.50	-1.50	0.00
6,300.00	5.40	188.06	6,124.53	-1,419.80	-200.97	1,433.96	1.50	-1.50	0.00
6,400.00	3.90	188.06	6,224.20	-1,427.83	-202.11	1,442.06	1.50	-1.50	0.00
6,500.00	2.40	188.06	6,324.04	-1,433.27	-202.88	1,447.56	1.50	-1.50	0.00
6,600.00	0.90	188.06	6,424.00	-1,436.12	-203.28	1,450.44	1.50	-1.50	0.00
6,660.00	0.00	0.00	6,484.00	-1,436.59	-203.35	1,450.91	1.50	-1.50	0.00
Start 2471.00 hold at 6660.00 MD - KMGAS - RWF 442-18 KMV									
6,700.00	0.00	0.00	6,524.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
6,800.00	0.00	0.00	6,624.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
6,900.00	0.00	0.00	6,724.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
7,000.00	0.00	0.00	6,824.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
7,100.00	0.00	0.00	6,924.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
7,200.00	0.00	0.00	7,024.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
7,300.00	0.00	0.00	7,124.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
7,400.00	0.00	0.00	7,224.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
7,500.00	0.00	0.00	7,324.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
7,600.00	0.00	0.00	7,424.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
7,700.00	0.00	0.00	7,524.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
7,800.00	0.00	0.00	7,624.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
7,900.00	0.00	0.00	7,724.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
8,000.00	0.00	0.00	7,824.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
8,061.00	0.00	0.00	7,885.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
CME0									
8,100.00	0.00	0.00	7,924.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
8,200.00	0.00	0.00	8,024.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
8,300.00	0.00	0.00	8,124.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
8,400.00	0.00	0.00	8,224.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
8,500.00	0.00	0.00	8,324.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
8,600.00	0.00	0.00	8,424.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00
8,700.00	0.00	0.00	8,524.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00

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Project:	Garfield County, CO NAD83	MD Reference:	GL 6174.5' & RKB 24' @ 6198.50usft
Site:	DOE 1-M-18	North Reference:	True
Well:	RWF 442-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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	8,624.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00	
8,900.00	0.00	0.00	8,724.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00	
8,981.00	0.00	0.00	8,805.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00	
RLNS										
9,000.00	0.00	0.00	8,824.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00	
9,100.00	0.00	0.00	8,924.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00	
9,131.00	0.00	0.00	8,955.00	-1,436.59	-203.35	1,450.91	0.00	0.00	0.00	
TD at 9131.00 - TD - RWF 442-18 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 442-18 KMV - plan hits target center - Circle (radius 50.00)	0.00	0.00	6,484.00	-1,436.59	-203.35	1,625,944.04	2,316,907.94	39.5269990	-107.9219450
RWF 442-18 PBHL - plan hits target center - Point	0.00	0.00	8,955.00	-1,436.59	-203.35	1,625,944.04	2,316,907.94	39.5269990	-107.9219450

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,100.00	1,079.19	9 5/8" Casing @ 1100' MD	9.62	13.50	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,881.00	2,804.00	GSAND		0.00	0.00
2,984.25	2,904.00	GSAND BASE		0.00	0.00
4,739.63	4,604.00	WSTC LOWER		0.00	0.00
5,359.18	5,204.00	OCRK		0.00	0.00
5,359.18	5,204.00	MVRD		0.00	0.00
6,660.00	6,484.00	KMVGAS		0.00	0.00
8,061.00	7,885.00	CME0		0.00	0.00
8,981.00	8,805.00	RLNS		0.00	0.00
9,131.00	8,955.00	TD		0.00	0.00

Database:	Grand Junction District	Local Co-ordinate Reference:	Well RWF 442-18 - Slot RWF 442-18 (B5)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6174.5' & RKB 24' @ 6198.50usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 6174.5' & RKB 24' @ 6198.50usft
Site:	DOE 1-M-18	North Reference:	True
Well:	RWF 442-18	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 7Jun2018mmsdi		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
120.00	120.00	0.00	0.00	Start Build 3.00
601.00	595.93	-59.66	-8.44	Start 5097.00 hold at 601.00 MD
5,698.00	5,532.14	-1,317.28	-186.46	Start Drop -1.50
6,660.00	6,484.00	-1,436.59	-203.35	Start 2471.00 hold at 6660.00 MD
9,131.00	8,955.00	-1,436.59	-203.35	TD at 9131.00