

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
RWF 43-7 KMV	6631.00	2856.46	-906.83	1630322.51	2136320.81	39.5389724	-107.9244399	Circle (Radius: 50.00)
- plan misses target center by 57.16usft at 7319.15usft MD (6640.26 TVD, 2802.70 N, -889.76 E)								
RWF 43-7 PBHL	9083.00	2856.46	-906.83	1630322.51	2136320.81	39.5389724	-107.9244399	Point
- plan hits target center								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

DOE 1-M-18

RWF 43-7 - Slot RWF 43-7 (A14)

OH

Plan: Plan #1 7Jun2018mmsdi

Standard Planning Report

12 June, 2018



Database:	Grand Junction District	Local Co-ordinate Reference:	Well RWF 43-7 - Slot RWF 43-7 (A14)
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 43-7	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 43-7 - Slot RWF 43-7 (A14)			
Well Position	+N/-S	1.56 usft	Northing:	1,627,442.90 usft
	+E/-W	9.86 usft	Easting:	2,317,151.20 usft
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	342.39

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	
160.00	0.00	0.00	160.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,080.99	27.63	342.39	1,045.71	207.59	-65.90	3.00	3.00	0.00	342.39	
6,134.43	27.63	342.39	5,522.87	2,441.29	-775.03	0.00	0.00	0.00	0.00	
7,309.75	10.00	342.39	6,631.00	2,801.15	-889.27	1.50	-1.50	0.00	180.00	
7,976.42	0.00	0.00	7,294.29	2,856.46	-906.83	1.50	-1.50	0.00	180.00	
9,765.13	0.00	0.00	9,083.00	2,856.46	-906.83	0.00	0.00	0.00	0.00	RWF 43-7 PBHL

Database:	Grand Junction District	Local Co-ordinate Reference:	Well RWF 43-7 - Slot RWF 43-7 (A14)
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 43-7	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
160.00	0.00	0.00	160.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 3.00									
200.00	1.20	342.39	200.00	0.40	-0.13	0.42	3.00	3.00	0.00
300.00	4.20	342.39	299.87	4.89	-1.55	5.13	3.00	3.00	0.00
400.00	7.20	342.39	399.37	14.35	-4.56	15.06	3.00	3.00	0.00
500.00	10.20	342.39	498.21	28.77	-9.13	30.18	3.00	3.00	0.00
600.00	13.20	342.39	596.12	48.10	-15.27	50.46	3.00	3.00	0.00
700.00	16.20	342.39	692.83	72.28	-22.95	75.83	3.00	3.00	0.00
800.00	19.20	342.39	788.09	101.25	-32.14	106.23	3.00	3.00	0.00
900.00	22.20	342.39	881.62	134.94	-42.84	141.58	3.00	3.00	0.00
1,000.00	25.20	342.39	973.18	173.25	-55.00	181.77	3.00	3.00	0.00
1,080.99	27.63	342.39	1,045.71	207.59	-65.90	217.79	3.00	3.00	0.00
Start 5053.44 hold at 1080.99 MD									
1,100.00	27.63	342.39	1,062.55	215.99	-68.57	226.61	0.00	0.00	0.00
1,200.00	27.63	342.39	1,151.15	260.19	-82.60	272.99	0.00	0.00	0.00
1,300.00	27.63	342.39	1,239.74	304.39	-96.63	319.36	0.00	0.00	0.00
9 5/8" Casing @ 1300' MD									
1,400.00	27.63	342.39	1,328.34	348.59	-110.67	365.74	0.00	0.00	0.00
1,500.00	27.63	342.39	1,416.93	392.79	-124.70	412.11	0.00	0.00	0.00
1,600.00	27.63	342.39	1,505.53	437.00	-138.73	458.49	0.00	0.00	0.00
1,700.00	27.63	342.39	1,594.13	481.20	-152.76	504.86	0.00	0.00	0.00
1,800.00	27.63	342.39	1,682.72	525.40	-166.80	551.24	0.00	0.00	0.00
1,900.00	27.63	342.39	1,771.32	569.60	-180.83	597.62	0.00	0.00	0.00
2,000.00	27.63	342.39	1,859.92	613.80	-194.86	643.99	0.00	0.00	0.00
2,100.00	27.63	342.39	1,948.51	658.00	-208.89	690.37	0.00	0.00	0.00
2,200.00	27.63	342.39	2,037.11	702.21	-222.93	736.74	0.00	0.00	0.00
2,300.00	27.63	342.39	2,125.71	746.41	-236.96	783.12	0.00	0.00	0.00
2,400.00	27.63	342.39	2,214.30	790.61	-250.99	829.49	0.00	0.00	0.00
2,500.00	27.63	342.39	2,302.90	834.81	-265.02	875.87	0.00	0.00	0.00
2,600.00	27.63	342.39	2,391.49	879.01	-279.06	922.24	0.00	0.00	0.00
2,700.00	27.63	342.39	2,480.09	923.21	-293.09	968.62	0.00	0.00	0.00
2,800.00	27.63	342.39	2,568.69	967.42	-307.12	1,015.00	0.00	0.00	0.00
2,900.00	27.63	342.39	2,657.28	1,011.62	-321.15	1,061.37	0.00	0.00	0.00
3,000.00	27.63	342.39	2,745.88	1,055.82	-335.19	1,107.75	0.00	0.00	0.00
3,100.00	27.63	342.39	2,834.48	1,100.02	-349.22	1,154.12	0.00	0.00	0.00
3,200.00	27.63	342.39	2,923.07	1,144.22	-363.25	1,200.50	0.00	0.00	0.00
3,220.24	27.63	342.39	2,941.00	1,153.17	-366.09	1,209.88	0.00	0.00	0.00
GSAND									
3,300.00	27.63	342.39	3,011.67	1,188.42	-377.28	1,246.87	0.00	0.00	0.00
3,333.11	27.63	342.39	3,041.00	1,203.06	-381.93	1,262.23	0.00	0.00	0.00
GSAND BASE									
3,400.00	27.63	342.39	3,100.26	1,232.63	-391.32	1,293.25	0.00	0.00	0.00
3,500.00	27.63	342.39	3,188.86	1,276.83	-405.35	1,339.62	0.00	0.00	0.00
3,600.00	27.63	342.39	3,277.46	1,321.03	-419.38	1,386.00	0.00	0.00	0.00
3,700.00	27.63	342.39	3,366.05	1,365.23	-433.41	1,432.38	0.00	0.00	0.00
3,800.00	27.63	342.39	3,454.65	1,409.43	-447.45	1,478.75	0.00	0.00	0.00
3,900.00	27.63	342.39	3,543.25	1,453.63	-461.48	1,525.13	0.00	0.00	0.00
4,000.00	27.63	342.39	3,631.84	1,497.84	-475.51	1,571.50	0.00	0.00	0.00
4,100.00	27.63	342.39	3,720.44	1,542.04	-489.54	1,617.88	0.00	0.00	0.00
4,200.00	27.63	342.39	3,809.03	1,586.24	-503.58	1,664.25	0.00	0.00	0.00
4,300.00	27.63	342.39	3,897.63	1,630.44	-517.61	1,710.63	0.00	0.00	0.00
4,400.00	27.63	342.39	3,986.23	1,674.64	-531.64	1,757.01	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 43-7	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	27.63	342.39	4,074.82	1,718.84	-545.67	1,803.38	0.00	0.00	0.00
4,600.00	27.63	342.39	4,163.42	1,763.05	-559.71	1,849.76	0.00	0.00	0.00
4,700.00	27.63	342.39	4,252.02	1,807.25	-573.74	1,896.13	0.00	0.00	0.00
4,800.00	27.63	342.39	4,340.61	1,851.45	-587.77	1,942.51	0.00	0.00	0.00
4,900.00	27.63	342.39	4,429.21	1,895.65	-601.80	1,988.88	0.00	0.00	0.00
5,000.00	27.63	342.39	4,517.80	1,939.85	-615.84	2,035.26	0.00	0.00	0.00
5,100.00	27.63	342.39	4,606.40	1,984.05	-629.87	2,081.63	0.00	0.00	0.00
5,200.00	27.63	342.39	4,695.00	2,028.26	-643.90	2,128.01	0.00	0.00	0.00
5,251.92	27.63	342.39	4,741.00	2,051.21	-651.19	2,152.09	0.00	0.00	0.00
WSTC LOWER									
5,300.00	27.63	342.39	4,783.59	2,072.46	-657.93	2,174.39	0.00	0.00	0.00
5,400.00	27.63	342.39	4,872.19	2,116.66	-671.97	2,220.76	0.00	0.00	0.00
5,500.00	27.63	342.39	4,960.79	2,160.86	-686.00	2,267.14	0.00	0.00	0.00
5,600.00	27.63	342.39	5,049.38	2,205.06	-700.03	2,313.51	0.00	0.00	0.00
5,700.00	27.63	342.39	5,137.98	2,249.26	-714.06	2,359.89	0.00	0.00	0.00
5,800.00	27.63	342.39	5,226.58	2,293.47	-728.10	2,406.26	0.00	0.00	0.00
5,900.00	27.63	342.39	5,315.17	2,337.67	-742.13	2,452.64	0.00	0.00	0.00
5,929.15	27.63	342.39	5,341.00	2,350.55	-746.22	2,466.16	0.00	0.00	0.00
OCRK - MVRD									
6,000.00	27.63	342.39	5,403.77	2,381.87	-756.16	2,499.02	0.00	0.00	0.00
6,100.00	27.63	342.39	5,492.36	2,426.07	-770.19	2,545.39	0.00	0.00	0.00
6,134.43	27.63	342.39	5,522.87	2,441.29	-775.03	2,561.36	0.00	0.00	0.00
Start Drop -1.50									
6,200.00	26.65	342.39	5,581.22	2,469.80	-784.08	2,591.27	1.50	-1.50	0.00
6,300.00	25.15	342.39	5,671.17	2,511.42	-797.29	2,634.94	1.50	-1.50	0.00
6,400.00	23.65	342.39	5,762.24	2,550.79	-809.79	2,676.24	1.50	-1.50	0.00
6,500.00	22.15	342.39	5,854.36	2,587.87	-821.56	2,715.15	1.50	-1.50	0.00
6,600.00	20.65	342.39	5,947.47	2,622.64	-832.60	2,751.63	1.50	-1.50	0.00
6,700.00	19.15	342.39	6,041.50	2,655.08	-842.90	2,785.66	1.50	-1.50	0.00
6,800.00	17.65	342.39	6,136.38	2,685.15	-852.45	2,817.22	1.50	-1.50	0.00
6,900.00	16.15	342.39	6,232.06	2,712.85	-861.24	2,846.28	1.50	-1.50	0.00
7,000.00	14.65	342.39	6,328.47	2,738.16	-869.27	2,872.83	1.50	-1.50	0.00
7,100.00	13.15	342.39	6,425.54	2,761.05	-876.54	2,896.84	1.50	-1.50	0.00
7,200.00	11.65	342.39	6,523.21	2,781.51	-883.03	2,918.31	1.50	-1.50	0.00
7,300.00	10.15	342.39	6,621.40	2,799.52	-888.75	2,937.21	1.50	-1.50	0.00
7,309.75	10.00	342.39	6,631.00	2,801.15	-889.27	2,938.92	1.50	-1.50	0.00
Start Drop -1.50 - KMGAS									
7,319.15	9.86	342.39	6,640.26	2,802.70	-889.76	2,940.54	1.50	-1.50	0.00
RWF 43-7 KMV									
7,400.00	8.65	342.39	6,720.06	2,815.09	-893.69	2,953.54	1.50	-1.50	0.00
7,500.00	7.15	342.39	6,819.11	2,828.18	-897.85	2,967.28	1.50	-1.50	0.00
7,600.00	5.65	342.39	6,918.48	2,838.80	-901.22	2,978.42	1.50	-1.50	0.00
7,700.00	4.15	342.39	7,018.11	2,846.93	-903.80	2,986.95	1.50	-1.50	0.00
7,800.00	2.65	342.39	7,117.93	2,852.58	-905.60	2,992.88	1.50	-1.50	0.00
7,900.00	1.15	342.39	7,217.88	2,855.73	-906.60	2,996.18	1.50	-1.50	0.00
7,976.42	0.00	0.00	7,294.29	2,856.46	-906.83	2,996.95	1.50	-1.50	0.00
Start 1788.71 hold at 7976.42 MD									
8,000.00	0.00	0.00	7,317.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00
8,100.00	0.00	0.00	7,417.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00
8,200.00	0.00	0.00	7,517.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00
8,300.00	0.00	0.00	7,617.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00
8,400.00	0.00	0.00	7,717.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00
8,500.00	0.00	0.00	7,817.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00

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Site:	DOE 1-M-18	North Reference:	True
Well:	RWF 43-7	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)	
8,600.00	0.00	0.00	7,917.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00	
8,695.13	0.00	0.00	8,013.00	2,856.46	-906.83	2,996.95	0.00	0.00	0.00	
CMEO										
8,700.00	0.00	0.00	8,017.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00	
8,800.00	0.00	0.00	8,117.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00	
8,900.00	0.00	0.00	8,217.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00	
9,000.00	0.00	0.00	8,317.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00	
9,100.00	0.00	0.00	8,417.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00	
9,200.00	0.00	0.00	8,517.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00	
9,300.00	0.00	0.00	8,617.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00	
9,400.00	0.00	0.00	8,717.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00	
9,500.00	0.00	0.00	8,817.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00	
9,600.00	0.00	0.00	8,917.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00	
9,615.13	0.00	0.00	8,933.00	2,856.46	-906.83	2,996.95	0.00	0.00	0.00	
RLNS										
9,700.00	0.00	0.00	9,017.87	2,856.46	-906.83	2,996.95	0.00	0.00	0.00	
9,765.13	0.00	0.00	9,083.00	2,856.46	-906.83	2,996.95	0.00	0.00	0.00	
TD at 9765.13 - RWF 43-7 PBHL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		Longitude
RWF 43-7 KMV	0.00	0.00	6,631.00	2,856.46	-906.83	1,630,322.51	2,316,320.81	39.5389724		-107.9244399
- plan misses target center by 57.16usft at 7319.15usft MD (6640.26 TVD, 2802.70 N, -889.76 E)										
- Circle (radius 50.00)										
RWF 43-7 PBHL	0.00	0.00	9,083.00	2,856.46	-906.83	1,630,322.51	2,316,320.81	39.5389724		-107.9244399
- plan hits target center										
- Point										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (in)	Hole Diameter (in)
1,300.00	1,239.74	9 5/8" Casing @ 1300' MD		9.62	13.50

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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 43-7	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 7Jun2018mmsdi		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
9,847.95		TD		0.00	0.00
3,220.24	2,941.00	GSAND		0.00	0.00
3,333.11	3,041.00	GSAND BASE		0.00	0.00
5,251.92	4,741.00	WSTC LOWER		0.00	0.00
5,929.15	5,341.00	OCRK		0.00	0.00
5,929.15	5,341.00	MVRD		0.00	0.00
7,309.75	6,631.00	KMVGAS		0.00	0.00
8,695.13	8,013.00	CMEO		0.00	0.00
9,615.13	8,933.00	RLNS		0.00	0.00

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
160.00	160.00	0.00	0.00	Start Build 3.00
1,080.99	1,045.71	207.59	-65.90	Start 5053.44 hold at 1080.99 MD
6,134.43	5,522.87	2,441.29	-775.03	Start Drop -1.50
7,309.75	6,631.00	2,801.15	-889.27	Start Drop -1.50
7,976.42	7,294.29	2,856.46	-906.83	Start 1788.71 hold at 7976.42 MD
9,765.13	9,083.00	2,856.46	-906.83	TD at 9765.13