



TEP Rocky Mountain LLC

Garfield County, CO NAD83

GV 1-8 Pad

GM 14-8 - Slot GM 14-8 (B5)

OH

Plan: Plan #2 10Jul2018 mmsdi

Standard Planning Report

10 July, 2018



www.scientificdrilling.com





Scientific Drilling, Intl Planning Report

Database:	Grand Junction District	Local Co-ordinate Reference:	Well GM 14-8 - Slot GM 14-8 (B5)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6280' & RKB 24' @ 6304.00usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 6280' & RKB 24' @ 6304.00usft
Site:	GV 1-8 Pad	North Reference:	True
Well:	GM 14-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 10Jul2018 mmsdi		

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	GV 1-8 Pad				
Site Position:	Northing:	1,599,836.41 usft	Latitude:	39.4507498	
From: Map	Easting:	2,256,677.81 usft	Longitude:	-108.1326980	
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.66 °

Well	GM 14-8 - Slot GM 14-8 (B5)				
Well Position	+N/-S	0.00 usft	Northing:	1,599,836.41 usft	
	+E/-W	0.00 usft	Easting:	2,256,677.81 usft	
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,280.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/21/2018	9.52	65.68	51,679

Design	Plan #2 10Jul2018 mmsdi			
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	230.85

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	
135.00	0.00	0.00	135.00	0.00	0.00	0.00	0.00	0.00	0.00	
965.45	24.91	230.85	939.52	-112.21	-137.82	3.00	3.00	0.00	230.85	
3,566.96	24.91	230.85	3,298.95	-804.13	-987.64	0.00	0.00	0.00	0.00	
5,227.85	0.00	0.00	4,908.00	-1,028.55	-1,263.28	1.50	-1.50	0.00	180.00	GM 14-8 BTV
6,914.85	0.00	0.00	6,595.00	-1,028.55	-1,263.28	0.00	0.00	0.00	0.00	GM 14-8 PBHL



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Project:	Garfield County, CO NAD83	MD Reference:	GL 6280' & RKB 24' @ 6304.00usft
Site:	GV 1-8 Pad	North Reference:	True
Well:	GM 14-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 10Jul2018 mmsdi		

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	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135.00	0.00	0.00	135.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 3.00										
200.00	1.95	230.85	199.99	-0.70	-0.86	1.11	3.00	3.00	0.00	0.00
300.00	4.95	230.85	299.79	-4.50	-5.52	7.12	3.00	3.00	0.00	0.00
400.00	7.95	230.85	399.15	-11.59	-14.23	18.36	3.00	3.00	0.00	0.00
500.00	10.95	230.85	497.78	-21.95	-26.96	34.77	3.00	3.00	0.00	0.00
600.00	13.95	230.85	595.42	-35.56	-43.68	56.33	3.00	3.00	0.00	0.00
700.00	16.95	230.85	691.79	-52.38	-64.34	82.97	3.00	3.00	0.00	0.00
800.00	19.95	230.85	786.64	-72.36	-88.88	114.61	3.00	3.00	0.00	0.00
900.00	22.95	230.85	879.71	-95.45	-117.23	151.17	3.00	3.00	0.00	0.00
965.45	24.91	230.85	939.52	-112.21	-137.82	177.72	3.00	3.00	0.00	0.00
Start 2601.51 hold at 965.45 MD										
1,000.00	24.91	230.85	970.86	-121.40	-149.11	192.28	0.00	0.00	0.00	0.00
9 5/8" Casing @ 1000' MD										
1,100.00	24.91	230.85	1,061.56	-148.00	-181.77	234.40	0.00	0.00	0.00	0.00
1,200.00	24.91	230.85	1,152.25	-174.59	-214.44	276.53	0.00	0.00	0.00	0.00
1,300.00	24.91	230.85	1,242.95	-201.19	-247.10	318.65	0.00	0.00	0.00	0.00
1,400.00	24.91	230.85	1,333.64	-227.79	-279.77	360.78	0.00	0.00	0.00	0.00
1,500.00	24.91	230.85	1,424.34	-254.38	-312.44	402.90	0.00	0.00	0.00	0.00
1,600.00	24.91	230.85	1,515.03	-280.98	-345.10	445.02	0.00	0.00	0.00	0.00
1,700.00	24.91	230.85	1,605.72	-307.58	-377.77	487.15	0.00	0.00	0.00	0.00
1,800.00	24.91	230.85	1,696.42	-334.17	-410.44	529.27	0.00	0.00	0.00	0.00
1,900.00	24.91	230.85	1,787.11	-360.77	-443.10	571.40	0.00	0.00	0.00	0.00
2,000.00	24.91	230.85	1,877.81	-387.37	-475.77	613.52	0.00	0.00	0.00	0.00
2,100.00	24.91	230.85	1,968.50	-413.96	-508.44	655.65	0.00	0.00	0.00	0.00
2,197.58	24.91	230.85	2,057.00	-439.92	-540.31	696.75	0.00	0.00	0.00	0.00
GSAND										
2,200.00	24.91	230.85	2,059.20	-440.56	-541.10	697.77	0.00	0.00	0.00	0.00
2,300.00	24.91	230.85	2,149.89	-467.16	-573.77	739.90	0.00	0.00	0.00	0.00
2,313.35	24.91	230.85	2,162.00	-470.71	-578.13	745.52	0.00	0.00	0.00	0.00
GSAND BASE										
2,400.00	24.91	230.85	2,240.59	-493.75	-606.44	782.02	0.00	0.00	0.00	0.00
2,500.00	24.91	230.85	2,331.28	-520.35	-639.10	824.15	0.00	0.00	0.00	0.00
2,600.00	24.91	230.85	2,421.98	-546.95	-671.77	866.27	0.00	0.00	0.00	0.00
2,693.75	24.91	230.85	2,507.00	-571.88	-702.40	905.76	0.00	0.00	0.00	0.00
FRUN										
2,700.00	24.91	230.85	2,512.67	-573.54	-704.44	908.40	0.00	0.00	0.00	0.00
2,800.00	24.91	230.85	2,603.36	-600.14	-737.10	950.52	0.00	0.00	0.00	0.00
2,900.00	24.91	230.85	2,694.06	-626.74	-769.77	992.65	0.00	0.00	0.00	0.00
3,000.00	24.91	230.85	2,784.75	-653.34	-802.44	1,034.77	0.00	0.00	0.00	0.00
3,100.00	24.91	230.85	2,875.45	-679.93	-835.10	1,076.90	0.00	0.00	0.00	0.00
3,200.00	24.91	230.85	2,966.14	-706.53	-867.77	1,119.02	0.00	0.00	0.00	0.00
3,300.00	24.91	230.85	3,056.84	-733.13	-900.44	1,161.15	0.00	0.00	0.00	0.00
3,400.00	24.91	230.85	3,147.53	-759.72	-933.10	1,203.27	0.00	0.00	0.00	0.00
3,500.00	24.91	230.85	3,238.23	-786.32	-965.77	1,245.40	0.00	0.00	0.00	0.00
3,566.96	24.91	230.85	3,298.95	-804.13	-987.64	1,273.60	0.00	0.00	0.00	0.00
Start Drop -1.50										
3,600.00	24.42	230.85	3,328.98	-812.83	-998.34	1,287.39	1.50	-1.50	0.00	0.00
3,700.00	22.92	230.85	3,420.57	-838.18	-1,029.47	1,327.53	1.50	-1.50	0.00	0.00
3,800.00	21.42	230.85	3,513.17	-862.00	-1,058.72	1,365.26	1.50	-1.50	0.00	0.00
3,900.00	19.92	230.85	3,606.73	-884.29	-1,086.09	1,400.56	1.50	-1.50	0.00	0.00



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Well:	GM 14-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 10Jul2018 mmsdi		

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)
4,000.00	18.42	230.85	3,701.19	-905.01	-1,111.55	1,433.39	1.50	-1.50	0.00
4,049.24	17.68	230.85	3,748.00	-914.65	-1,123.38	1,448.64	1.50	-1.50	0.00
OCRK - MVRD									
4,100.00	16.92	230.85	3,796.47	-924.18	-1,135.09	1,463.74	1.50	-1.50	0.00
4,200.00	15.42	230.85	3,892.51	-941.76	-1,156.68	1,491.58	1.50	-1.50	0.00
4,300.00	13.92	230.85	3,989.25	-957.74	-1,176.32	1,516.90	1.50	-1.50	0.00
4,400.00	12.42	230.85	4,086.62	-972.13	-1,193.98	1,539.68	1.50	-1.50	0.00
4,500.00	10.92	230.85	4,184.55	-984.89	-1,209.66	1,559.91	1.50	-1.50	0.00
4,600.00	9.42	230.85	4,282.97	-996.04	-1,223.35	1,577.56	1.50	-1.50	0.00
4,700.00	7.92	230.85	4,381.83	-1,005.56	-1,235.04	1,592.63	1.50	-1.50	0.00
4,800.00	6.42	230.85	4,481.05	-1,013.43	-1,244.72	1,605.11	1.50	-1.50	0.00
4,900.00	4.92	230.85	4,580.55	-1,019.67	-1,252.37	1,614.98	1.50	-1.50	0.00
5,000.00	3.42	230.85	4,680.29	-1,024.26	-1,258.01	1,622.25	1.50	-1.50	0.00
5,100.00	1.92	230.85	4,780.18	-1,027.20	-1,261.62	1,626.90	1.50	-1.50	0.00
5,200.00	0.42	230.85	4,880.15	-1,028.48	-1,263.20	1,628.94	1.50	-1.50	0.00
5,227.85	0.00	0.00	4,908.00	-1,028.55	-1,263.28	1,629.04	1.50	-1.50	0.00
Start 1687.00 hold at 5227.85 MD - KMGAS - GM 14-8 BTW									
5,300.00	0.00	0.00	4,980.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
5,400.00	0.00	0.00	5,080.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
5,500.00	0.00	0.00	5,180.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
5,600.00	0.00	0.00	5,280.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
5,700.00	0.00	0.00	5,380.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
5,800.00	0.00	0.00	5,480.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
5,900.00	0.00	0.00	5,580.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
6,000.00	0.00	0.00	5,680.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
6,100.00	0.00	0.00	5,780.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
6,200.00	0.00	0.00	5,880.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
6,300.00	0.00	0.00	5,980.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
6,400.00	0.00	0.00	6,080.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
6,440.85	0.00	0.00	6,121.00	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
CMEQ									
6,500.00	0.00	0.00	6,180.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
6,600.00	0.00	0.00	6,280.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
6,700.00	0.00	0.00	6,380.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
6,764.85	0.00	0.00	6,445.00	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
RLNS									
6,800.00	0.00	0.00	6,480.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
6,900.00	0.00	0.00	6,580.15	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
6,914.85	0.00	0.00	6,595.00	-1,028.55	-1,263.28	1,629.04	0.00	0.00	0.00
TD at 6914.85 - TD - GM 14-8 PBHL									



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Planning Report

Database:	Grand Junction District	Local Co-ordinate Reference:	Well GM 14-8 - Slot GM 14-8 (B5)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6280' & RKB 24' @ 6304.00usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 6280' & RKB 24' @ 6304.00usft
Site:	GV 1-8 Pad	North Reference:	True
Well:	GM 14-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 10Jul2018 mmsdi		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
GM 14-8 BTV - plan hits target center - Circle (radius 50.00)	0.00	0.00	4,908.00	-1,028.55	-1,263.28	1,598,844.90	2,255,385.26	39.4479259	-108.1371715
GM 14-8 PBHL - plan hits target center - Point	0.00	0.00	6,595.00	-1,028.55	-1,263.28	1,598,844.90	2,255,385.26	39.4479259	-108.1371715

Casing Points				
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(usft)	(usft)		(in)	(in)
1,000.00	970.86	9 5/8" Casing @ 1000' MD	9.62	13.50

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)			(°)	(°)
2,197.58	2,057.00	GSAND		0.00	0.00
2,313.35	2,162.00	GSAND BASE		0.00	0.00
2,693.75	2,507.00	FRUN		0.00	0.00
4,049.24	3,748.00	OCRK		0.00	0.00
4,049.24	3,748.00	MVRD		0.00	0.00
5,227.85	4,908.00	KMVGAS		0.00	0.00
6,440.85	6,121.00	CME0		0.00	0.00
6,764.85	6,445.00	RLNS		0.00	0.00
6,914.85	6,595.00	TD		0.00	0.00

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S	+E/-W	
		(usft)	(usft)	
135.00	135.00	0.00	0.00	Start Build 3.00
965.45	939.52	-112.21	-137.82	Start 2601.51 hold at 965.45 MD
3,566.96	3,298.95	-804.13	-987.64	Start Drop -1.50
5,227.85	4,908.00	-1,028.55	-1,263.28	Start 1687.00 hold at 5227.85 MD
6,914.85	6,595.00	-1,028.55	-1,263.28	TD at 6914.85