

Name	TVD	+N/S	+E/W	Northing	Easting	Latitude	Longitude	Shape
SG 312-22 BTV	4230.00	1392.97	-1357.10	159038.31	132264345.51	39.4254079	-108.1045956	Circle (Radius: 50.00)
- plan misses target center by 42.87usft at 6493.67usft MD (4237.34 TVD, 1362.72 N, -1327.63 E)								
SG 312-22 PBHL	5860.00	1392.97	-1357.10	159038.31	132264345.51	39.4254079	-108.1045956	Point
- plan misses target center by 0.01usft at 6318.75usft MD (5860.00 TVD, 1392.97 N, -1357.10 E)								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

SG 23-22 Pad

SG 312-22 - Slot SG 312-22 (A2)

OH

Plan: Plan #1 19March2018 mmsdi

Standard Planning Report

20 March, 2018



Database:	Grand Junction District	Local Co-ordinate Reference:	Well SG 312-22 - Slot SG 312-22 (A2)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 5665' & RKB 24' @ 5689.00usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 5665' & RKB 24' @ 5689.00usft
Site:	SG 23-22 Pad	North Reference:	True
Well:	SG 312-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 19March2018 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	SG 23-22 Pad			
Site Position:		Northing:	1,588,957.40 usft	Latitude: 39.4216042
From: Map		Easting:	2,265,662.20 usft	Longitude: -108.0997922
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence: -1.64 °

Well	SG 312-22 - Slot SG 312-22 (A2)			
Well Position	+N/-S	-7.50 usft	Northing:	1,588,949.90 usft
	+E/-W	0.21 usft	Easting:	2,265,662.20 usft
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft
			Ground Level:	5,665.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/19/2018	9.47	65.62	51,729

Design	Plan #1 19March2018 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	315.75

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	
866.62	29.26	315.75	835.22	130.94	-127.57	4.00	4.00	0.00	315.75	
3,722.98	29.26	315.75	3,327.03	1,131.08	-1,101.96	0.00	0.00	0.00	0.00	
4,686.21	10.00	315.75	4,230.00	1,361.80	-1,326.73	2.00	-2.00	0.00	180.00	
5,186.21	0.00	0.00	4,727.47	1,392.97	-1,357.10	2.00	-2.00	8.85	180.00	
6,318.75	0.00	0.00	5,860.00	1,392.97	-1,357.10	0.00	0.00	0.00	0.00	SG 312-22 PBHL

Database:	Grand Junction District	Local Co-ordinate Reference:	Well SG 312-22 - Slot SG 312-22 (A2)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 5665' & RKB 24' @ 5689.00usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 5665' & RKB 24' @ 5689.00usft
Site:	SG 23-22 Pad	North Reference:	True
Well:	SG 312-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 19March2018 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
100.00	0.00	0.00	100.00	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
Start Build 4.00									
200.00	2.60	315.75	199.98	1.06	-1.03	1.47	4.00	4.00	0.00
300.00	6.60	315.75	299.64	6.80	-6.62	9.49	4.00	4.00	0.00
400.00	10.60	315.75	398.49	17.51	-17.06	24.44	4.00	4.00	0.00
500.00	14.60	315.75	496.06	33.13	-32.28	46.25	4.00	4.00	0.00
600.00	18.60	315.75	591.88	53.59	-52.21	74.82	4.00	4.00	0.00
700.00	22.60	315.75	685.46	78.78	-76.76	109.99	4.00	4.00	0.00
800.00	26.60	315.75	776.37	108.60	-105.80	151.61	4.00	4.00	0.00
866.62	29.26	315.75	835.22	130.94	-127.57	182.81	4.00	4.00	0.00
Start 2856.37 hold at 866.62 MD									
900.00	29.26	315.75	864.34	142.63	-138.96	199.13	0.00	0.00	0.00
1,000.00	29.26	315.75	951.58	177.65	-173.07	248.02	0.00	0.00	0.00
9 5/8" Casing @ 1000' MD									
1,100.00	29.26	315.75	1,038.82	212.66	-207.19	296.90	0.00	0.00	0.00
1,200.00	29.26	315.75	1,126.05	247.68	-241.30	345.79	0.00	0.00	0.00
1,300.00	29.26	315.75	1,213.29	282.69	-275.41	394.67	0.00	0.00	0.00
1,400.00	29.26	315.75	1,300.53	317.71	-309.52	443.56	0.00	0.00	0.00
1,489.95	29.26	315.75	1,379.00	349.20	-340.21	487.53	0.00	0.00	0.00
G Sand									
1,500.00	29.26	315.75	1,387.76	352.72	-343.64	492.44	0.00	0.00	0.00
1,594.27	29.26	315.75	1,470.00	385.73	-375.79	538.52	0.00	0.00	0.00
G Sand Base									
1,600.00	29.26	315.75	1,475.00	387.73	-377.75	541.33	0.00	0.00	0.00
1,700.00	29.26	315.75	1,562.24	422.75	-411.86	590.21	0.00	0.00	0.00
1,800.00	29.26	315.75	1,649.48	457.76	-445.97	639.09	0.00	0.00	0.00
1,900.00	29.26	315.75	1,736.71	492.78	-480.09	687.98	0.00	0.00	0.00
1,953.06	29.26	315.75	1,783.00	511.36	-498.19	713.92	0.00	0.00	0.00
FRUN									
2,000.00	29.26	315.75	1,823.95	527.79	-514.20	736.86	0.00	0.00	0.00
2,100.00	29.26	315.75	1,911.19	562.81	-548.31	785.75	0.00	0.00	0.00
2,200.00	29.26	315.75	1,998.42	597.82	-582.43	834.63	0.00	0.00	0.00
2,300.00	29.26	315.75	2,085.66	632.84	-616.54	883.52	0.00	0.00	0.00
2,400.00	29.26	315.75	2,172.90	667.85	-650.65	932.40	0.00	0.00	0.00
2,500.00	29.26	315.75	2,260.14	702.86	-684.76	981.28	0.00	0.00	0.00
2,600.00	29.26	315.75	2,347.37	737.88	-718.88	1,030.17	0.00	0.00	0.00
2,700.00	29.26	315.75	2,434.61	772.89	-752.99	1,079.05	0.00	0.00	0.00
2,800.00	29.26	315.75	2,521.85	807.91	-787.10	1,127.94	0.00	0.00	0.00
2,900.00	29.26	315.75	2,609.08	842.92	-821.21	1,176.82	0.00	0.00	0.00
3,000.00	29.26	315.75	2,696.32	877.94	-855.33	1,225.71	0.00	0.00	0.00
3,100.00	29.26	315.75	2,783.56	912.95	-889.44	1,274.59	0.00	0.00	0.00
3,200.00	29.26	315.75	2,870.79	947.97	-923.55	1,323.48	0.00	0.00	0.00
3,266.72	29.26	315.75	2,929.00	971.33	-946.31	1,356.09	0.00	0.00	0.00
OCRK - MVRD									
3,300.00	29.26	315.75	2,958.03	982.98	-957.67	1,372.36	0.00	0.00	0.00
3,400.00	29.26	315.75	3,045.27	1,017.99	-991.78	1,421.24	0.00	0.00	0.00
3,500.00	29.26	315.75	3,132.51	1,053.01	-1,025.89	1,470.13	0.00	0.00	0.00
3,600.00	29.26	315.75	3,219.74	1,088.02	-1,060.00	1,519.01	0.00	0.00	0.00
3,700.00	29.26	315.75	3,306.98	1,123.04	-1,094.12	1,567.90	0.00	0.00	0.00
3,722.98	29.26	315.75	3,327.03	1,131.08	-1,101.96	1,579.13	0.00	0.00	0.00
Start Drop -2.00									

Database:	Grand Junction District	Local Co-ordinate Reference:	Well SG 312-22 - Slot SG 312-22 (A2)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 5665' & RKB 24' @ 5689.00usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 5665' & RKB 24' @ 5689.00usft
Site:	SG 23-22 Pad	North Reference:	True
Well:	SG 312-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 19March2018 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)
3,800.00	27.72	315.75	3,394.72	1,157.40	-1,127.60	1,615.87	2.00	-2.00	0.00
3,900.00	25.72	315.75	3,484.03	1,189.61	-1,158.97	1,660.84	2.00	-2.00	0.00
4,000.00	23.72	315.75	3,574.86	1,219.57	-1,188.16	1,702.66	2.00	-2.00	0.00
4,100.00	21.72	315.75	3,667.09	1,247.23	-1,215.12	1,741.29	2.00	-2.00	0.00
4,200.00	19.72	315.75	3,760.62	1,272.58	-1,239.81	1,776.68	2.00	-2.00	0.00
4,300.00	17.72	315.75	3,855.32	1,295.57	-1,262.21	1,808.78	2.00	-2.00	0.00
4,400.00	15.72	315.75	3,951.08	1,316.18	-1,282.29	1,837.55	2.00	-2.00	0.00
4,500.00	13.72	315.75	4,047.79	1,334.39	-1,300.02	1,862.97	2.00	-2.00	0.00
4,600.00	11.72	315.75	4,145.33	1,350.16	-1,315.39	1,884.99	2.00	-2.00	0.00
4,686.21	10.00	315.75	4,230.00	1,361.80	-1,326.73	1,901.24	2.00	-2.00	0.00
Start DLS 2.00 TFO 180.00 - KMVGAS									
4,693.67	9.85	315.75	4,237.34	1,362.72	-1,327.63	1,902.52	2.00	-2.00	0.00
SG 312-22 BTV									
4,700.00	9.72	315.75	4,243.58	1,363.49	-1,328.38	1,903.60	2.00	-2.00	0.00
4,800.00	7.72	315.75	4,342.42	1,374.36	-1,338.96	1,918.77	2.00	-2.00	0.00
4,900.00	5.72	315.75	4,441.73	1,382.74	-1,347.13	1,930.48	2.00	-2.00	0.00
5,000.00	3.72	315.75	4,541.38	1,388.64	-1,352.88	1,938.71	2.00	-2.00	0.00
5,100.00	1.72	315.75	4,641.26	1,392.04	-1,356.20	1,943.46	2.00	-2.00	0.00
5,186.21	0.00	0.00	4,727.47	1,392.97	-1,357.10	1,944.76	2.00	-2.00	51.33
Start 1132.53 hold at 5186.21 MD									
5,200.00	0.00	0.00	4,741.25	1,392.97	-1,357.10	1,944.76	0.00	0.00	0.00
5,300.00	0.00	0.00	4,841.25	1,392.97	-1,357.10	1,944.76	0.00	0.00	0.00
5,400.00	0.00	0.00	4,941.25	1,392.97	-1,357.10	1,944.76	0.00	0.00	0.00
5,500.00	0.00	0.00	5,041.25	1,392.97	-1,357.10	1,944.76	0.00	0.00	0.00
5,600.00	0.00	0.00	5,141.25	1,392.97	-1,357.10	1,944.76	0.00	0.00	0.00
5,700.00	0.00	0.00	5,241.25	1,392.97	-1,357.10	1,944.76	0.00	0.00	0.00
5,732.75	0.00	0.00	5,274.00	1,392.97	-1,357.10	1,944.76	0.00	0.00	0.00
CMEO									
5,800.00	0.00	0.00	5,341.25	1,392.97	-1,357.10	1,944.76	0.00	0.00	0.00
5,900.00	0.00	0.00	5,441.25	1,392.97	-1,357.10	1,944.76	0.00	0.00	0.00
6,000.00	0.00	0.00	5,541.25	1,392.97	-1,357.10	1,944.76	0.00	0.00	0.00
6,100.00	0.00	0.00	5,641.25	1,392.97	-1,357.10	1,944.76	0.00	0.00	0.00
6,200.00	0.00	0.00	5,741.25	1,392.97	-1,357.10	1,944.76	0.00	0.00	0.00
6,218.75	0.00	0.00	5,760.00	1,392.97	-1,357.10	1,944.76	0.00	0.00	0.00
RLNS									
6,300.00	0.00	0.00	5,841.25	1,392.97	-1,357.10	1,944.76	0.00	0.00	0.00
6,318.75	0.00	0.00	5,860.00	1,392.97	-1,357.10	1,944.76	0.00	0.00	0.00
TD at 6318.75 - TD - SG 312-22 PBHL									

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									
SG 312-22 BTV	0.00	0.00	4,230.00	1,392.97	-1,357.10	1,590,381.13	2,264,345.51	39.4254080	-108.1045956
- plan misses target center by 42.87usft at 4693.67usft MD (4237.34 TVD, 1362.72 N, -1327.63 E)									
- Circle (radius 50.00)									
SG 312-22 PBHL	0.00	0.00	5,860.00	1,392.97	-1,357.10	1,590,381.13	2,264,345.51	39.4254080	-108.1045956
- plan misses target center by 0.01usft at 6318.75usft MD (5860.00 TVD, 1392.97 N, -1357.10 E)									
- Point									

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Project:	Garfield County, CO NAD83	MD Reference:	GL 5665' & RKB 24' @ 5689.00usft
Site:	SG 23-22 Pad	North Reference:	True
Well:	SG 312-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 19March2018 mmsdi		

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,000.00	951.58	9 5/8" Casing @ 1000' MD	9.62	13.50

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,489.95	1,379.00	G Sand		0.00	0.00
1,594.27	1,470.00	G Sand Base		0.00	0.00
1,953.06	1,783.00	FRUN		0.00	0.00
3,266.72	2,929.00	OCRK		0.00	0.00
3,266.72	2,929.00	MVRD		0.00	0.00
4,686.21	4,230.00	KMVGAS		0.00	0.00
5,732.75	5,274.00	CMEO		0.00	0.00
6,218.75	5,760.00	RLNS		0.00	0.00
6,318.75	5,860.00	TD		0.00	0.00

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
135.00	135.00	0.00	0.00	Start Build 4.00
866.62	835.22	130.94	-127.57	Start 2856.37 hold at 866.62 MD
3,722.98	3,327.03	1,131.08	-1,101.96	Start Drop -2.00
4,686.21	4,230.00	1,361.80	-1,326.73	Start DLS 2.00 TFO 180.00
5,186.21	4,727.47	1,392.97	-1,357.10	Start 1132.53 hold at 5186.21 MD
6,318.75	5,860.00	1,392.97	-1,357.10	TD at 6318.75