

Azimuths to True North  
Magnetic North: 9.42°

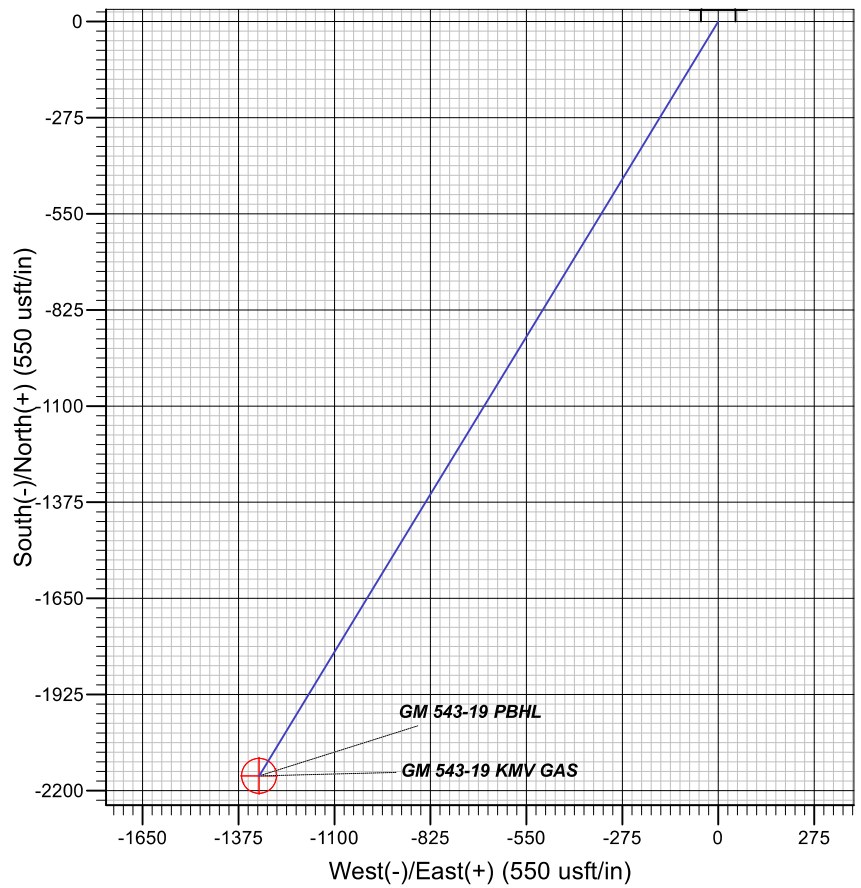
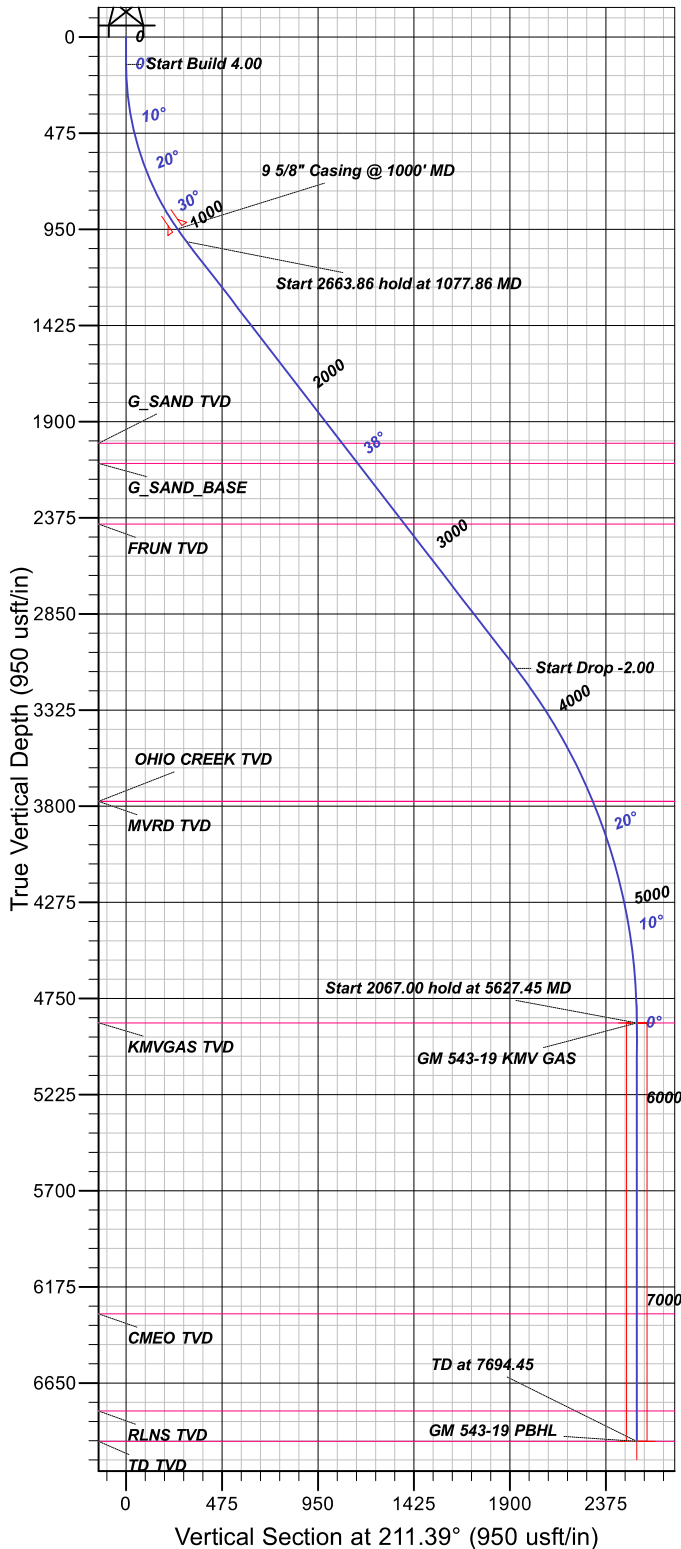
Magnetic Field  
Strength: 51454.3nT  
Dip Angle: 65.77°  
Date: 1/13/2020  
Model: HDGM\_FILE

## Well Details: GM 543-19

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1622101.4000	2255430.7000	39.5117523	-108.1394030	GM 543-19

### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 543-19 KMV GAS - plan hits target center	4871.00	-2157.55	-1316.28	1619983.0000	2254052.3000	39.5058288	-108.1440680	Circle (Radius: 50.00)
GM 543-19 PBHL - plan hits target center	6938.00	-2157.55	-1316.28	1619983.0000	2254052.3000	39.5058288	-108.1440680	Point



### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2006.00	2335.36	G_SAND TVD
2106.00	2461.77	G_SAND_BASE
2406.00	2841.00	FRUN TVD
3776.00	4503.86	MVRD TVD
3776.00	4503.86	OHIO CREEK TVD
4871.00	5627.45	KMGAS TVD
6308.00	7064.45	CMEO TVD
6788.00	7544.45	RLNS TVD
6938.00	7694.45	TD TVD

### 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
948.38	1000.00	9 5/8" Casing @ 1000' MD	9.62

### SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
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
1077.86	37.71	211.39	1011.23	-255.48	-155.86	4.00	211.39	299.27
3741.72	37.71	211.39	3118.53	-1646.59	-1004.55	0.00	0.00	1928.83
5627.45	0.00	0.00	4871.00	-2157.55	-1316.28	2.00	180.00	2527.37
7694.45	0.00	0.00	6938.00	-2157.55	-1316.28	0.00	0.00	2527.37

# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**GM 12-20 Pad**

**GM 543-19 - Slot GM 543-19**

**OH**

**Plan: Plan 2 13Jan2020 sbsdi**

## **Standard Planning Report**

**14 January, 2020**



# Scientific Drilling, Intl

## Planning Report

<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well GM 543-19 - Slot GM 543-19
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
<b>Site:</b>	GM 12-20 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 543-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan 2 13Jan2020 sbsdi		

<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		

<b>Site</b>	GM 12-20 Pad, Site Center : GM 31-19		
<b>Site Position:</b>		<b>Northing:</b>	1,622,131.3600 usft
<b>From:</b>	Map	<b>Easting:</b>	2,255,369.4200 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.20 in
		<b>Latitude:</b>	39.5118297
		<b>Longitude:</b>	-108.1396232
		<b>Grid Convergence:</b>	-1.66 °

Well	GM 543-19 - Slot GM 543-19					
Well Position	+N/-S	-28.17 usft	Northing:	1,622,101.4000 usft	Latitude:	39.5117523
	+E/-W	62.12 usft	Easting:	2,255,430.7000 usft	Longitude:	-108.1394030
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,752.10 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_FILE	1/13/2020	9.42	65.77	51,454.30000000

<b>Design</b>	Plan 2 13Jan2020 sbsdi			
<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	211.39

<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	
135.00	0.00	0.00	135.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,077.86	37.71	211.39	1,011.23	-255.48	-155.86	4.00	4.00	0.00	211.39	
3,741.72	37.71	211.39	3,118.53	-1,646.59	-1,004.55	0.00	0.00	0.00	0.00	
5,627.45	0.00	0.00	4,871.00	-2,157.55	-1,316.28	2.00	-2.00	0.00	180.00	GM 543-19 KMV GAS
7,694.45	0.00	0.00	6,938.00	-2,157.55	-1,316.28	0.00	0.00	0.00	0.00	GM 543-19 PBHL

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## Planning Report

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<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
<b>Site:</b>	GM 12-20 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 543-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan 2 13Jan2020 sbsdi		

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	211.39	199.98	-1.26	-0.77	1.47	4.00	4.00	0.00	
300.00	6.60	211.39	299.64	-8.10	-4.94	9.49	4.00	4.00	0.00	
400.00	10.60	211.39	398.49	-20.87	-12.73	24.44	4.00	4.00	0.00	
500.00	14.60	211.39	496.06	-39.49	-24.09	46.25	4.00	4.00	0.00	
600.00	18.60	211.39	591.88	-63.87	-38.97	74.82	4.00	4.00	0.00	
700.00	22.60	211.39	685.46	-93.90	-57.29	109.99	4.00	4.00	0.00	
800.00	26.60	211.39	776.37	-129.43	-78.96	151.61	4.00	4.00	0.00	
900.00	30.60	211.39	864.15	-170.28	-103.89	199.47	4.00	4.00	0.00	
1,000.00	34.60	211.39	948.38	-216.27	-131.94	253.34	4.00	4.00	0.00	
9 5/8" Casing @ 1000' MD										
1,077.86	37.71	211.39	1,011.23	-255.48	-155.86	299.27	4.00	4.00	0.00	
Start 2663.86 hold at 1077.86 MD										
1,100.00	37.71	211.39	1,028.75	-267.04	-162.92	312.81	0.00	0.00	0.00	
1,200.00	37.71	211.39	1,107.85	-319.26	-194.78	373.99	0.00	0.00	0.00	
1,300.00	37.71	211.39	1,186.96	-371.48	-226.64	435.16	0.00	0.00	0.00	
1,400.00	37.71	211.39	1,266.07	-423.71	-258.49	496.33	0.00	0.00	0.00	
1,500.00	37.71	211.39	1,345.17	-475.93	-290.35	557.50	0.00	0.00	0.00	
1,600.00	37.71	211.39	1,424.28	-528.15	-322.21	618.68	0.00	0.00	0.00	
1,700.00	37.71	211.39	1,503.39	-580.37	-354.07	679.85	0.00	0.00	0.00	
1,800.00	37.71	211.39	1,582.50	-632.59	-385.93	741.02	0.00	0.00	0.00	
1,900.00	37.71	211.39	1,661.60	-684.81	-417.79	802.20	0.00	0.00	0.00	
2,000.00	37.71	211.39	1,740.71	-737.03	-449.65	863.37	0.00	0.00	0.00	
2,100.00	37.71	211.39	1,819.82	-789.26	-481.51	924.54	0.00	0.00	0.00	
2,200.00	37.71	211.39	1,898.92	-841.48	-513.37	985.71	0.00	0.00	0.00	
2,300.00	37.71	211.39	1,978.03	-893.70	-545.23	1,046.89	0.00	0.00	0.00	
2,335.36	37.71	211.39	2,006.00	-912.16	-556.49	1,068.52	0.00	0.00	0.00	
G SAND TVD										
2,400.00	37.71	211.39	2,057.14	-945.92	-577.09	1,108.06	0.00	0.00	0.00	
2,461.77	37.71	211.39	2,106.00	-978.18	-596.77	1,145.85	0.00	0.00	0.00	
G SAND BASE										
2,500.00	37.71	211.39	2,136.24	-998.14	-608.95	1,169.23	0.00	0.00	0.00	
2,600.00	37.71	211.39	2,215.35	-1,050.36	-640.81	1,230.41	0.00	0.00	0.00	
2,700.00	37.71	211.39	2,294.46	-1,102.58	-672.67	1,291.58	0.00	0.00	0.00	
2,800.00	37.71	211.39	2,373.56	-1,154.81	-704.53	1,352.75	0.00	0.00	0.00	
2,841.00	37.71	211.39	2,406.00	-1,176.22	-717.59	1,377.83	0.00	0.00	0.00	
FRUN TVD										
2,900.00	37.71	211.39	2,452.67	-1,207.03	-736.39	1,413.92	0.00	0.00	0.00	
3,000.00	37.71	211.39	2,531.78	-1,259.25	-768.24	1,475.10	0.00	0.00	0.00	
3,100.00	37.71	211.39	2,610.88	-1,311.47	-800.10	1,536.27	0.00	0.00	0.00	
3,200.00	37.71	211.39	2,689.99	-1,363.69	-831.96	1,597.44	0.00	0.00	0.00	
3,300.00	37.71	211.39	2,769.10	-1,415.91	-863.82	1,658.61	0.00	0.00	0.00	
3,400.00	37.71	211.39	2,848.21	-1,468.14	-895.68	1,719.79	0.00	0.00	0.00	
3,500.00	37.71	211.39	2,927.31	-1,520.36	-927.54	1,780.96	0.00	0.00	0.00	
3,600.00	37.71	211.39	3,006.42	-1,572.58	-959.40	1,842.13	0.00	0.00	0.00	
3,700.00	37.71	211.39	3,085.53	-1,624.80	-991.26	1,903.31	0.00	0.00	0.00	
3,741.72	37.71	211.39	3,118.53	-1,646.59	-1,004.55	1,928.83	0.00	0.00	0.00	
Start Drop -2.00										
3,800.00	36.55	211.39	3,164.99	-1,676.62	-1,022.87	1,964.01	2.00	-2.00	0.00	

# Scientific Drilling, Intl

## Planning Report

<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well GM 543-19 - Slot GM 543-19
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
<b>Site:</b>	GM 12-20 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 543-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan 2 13Jan2020 sbsdi		

### 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)
3,900.00	34.55	211.39	3,246.35	-1,726.25	-1,053.15	2,022.14	2.00	-2.00	0.00
4,000.00	32.55	211.39	3,329.69	-1,773.42	-1,081.93	2,077.41	2.00	-2.00	0.00
4,100.00	30.55	211.39	3,414.90	-1,818.09	-1,109.18	2,129.73	2.00	-2.00	0.00
4,200.00	28.55	211.39	3,501.89	-1,860.19	-1,134.87	2,179.04	2.00	-2.00	0.00
4,300.00	26.55	211.39	3,590.55	-1,899.67	-1,158.95	2,225.29	2.00	-2.00	0.00
4,400.00	24.55	211.39	3,680.77	-1,936.48	-1,181.41	2,268.41	2.00	-2.00	0.00
4,500.00	22.55	211.39	3,772.43	-1,970.59	-1,202.22	2,308.36	2.00	-2.00	0.00
4,503.86	22.47	211.39	3,776.00	-1,971.85	-1,202.99	2,309.84	2.00	-2.00	0.00
<b>OHIO CREEK TVD - MVRD TVD</b>									
4,600.00	20.55	211.39	3,865.44	-2,001.94	-1,221.35	2,345.09	2.00	-2.00	0.00
4,700.00	18.55	211.39	3,959.67	-2,030.50	-1,238.77	2,378.55	2.00	-2.00	0.00
4,800.00	16.55	211.39	4,055.01	-2,056.24	-1,254.48	2,408.70	2.00	-2.00	0.00
4,900.00	14.55	211.39	4,151.35	-2,079.13	-1,268.44	2,435.51	2.00	-2.00	0.00
5,000.00	12.55	211.39	4,248.56	-2,099.12	-1,280.64	2,458.93	2.00	-2.00	0.00
5,100.00	10.55	211.39	4,346.53	-2,116.21	-1,291.06	2,478.95	2.00	-2.00	0.00
5,200.00	8.55	211.39	4,445.14	-2,130.38	-1,299.70	2,495.54	2.00	-2.00	0.00
5,300.00	6.55	211.39	4,544.27	-2,141.59	-1,306.54	2,508.68	2.00	-2.00	0.00
5,400.00	4.55	211.39	4,643.79	-2,149.84	-1,311.58	2,518.35	2.00	-2.00	0.00
5,500.00	2.55	211.39	4,743.60	-2,155.13	-1,314.80	2,524.54	2.00	-2.00	0.00
5,600.00	0.55	211.39	4,843.55	-2,157.44	-1,316.21	2,527.24	2.00	-2.00	0.00
5,627.45	0.00	0.00	4,871.00	-2,157.55	-1,316.28	2,527.37	2.00	-2.00	541.46
<b>Start 2067.00 hold at 5627.45 MD - KMGAS TVD</b>									
5,700.00	0.00	0.00	4,943.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
5,800.00	0.00	0.00	5,043.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
5,900.00	0.00	0.00	5,143.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
6,000.00	0.00	0.00	5,243.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
6,100.00	0.00	0.00	5,343.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
6,200.00	0.00	0.00	5,443.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
6,300.00	0.00	0.00	5,543.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
6,400.00	0.00	0.00	5,643.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
6,500.00	0.00	0.00	5,743.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
6,600.00	0.00	0.00	5,843.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
6,700.00	0.00	0.00	5,943.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
6,800.00	0.00	0.00	6,043.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
6,900.00	0.00	0.00	6,143.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
7,000.00	0.00	0.00	6,243.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
7,064.45	0.00	0.00	6,308.00	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
<b>CMEO TVD</b>									
7,100.00	0.00	0.00	6,343.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
7,200.00	0.00	0.00	6,443.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
7,300.00	0.00	0.00	6,543.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
7,400.00	0.00	0.00	6,643.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
7,500.00	0.00	0.00	6,743.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
7,544.45	0.00	0.00	6,788.00	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
<b>RLNS TVD</b>									
7,600.00	0.00	0.00	6,843.55	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
7,694.45	0.00	0.00	6,938.00	-2,157.55	-1,316.28	2,527.37	0.00	0.00	0.00
<b>TD at 7694.45 - TD TVD</b>									

# Scientific Drilling, Intl

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<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
<b>Site:</b>	GM 12-20 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 543-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan 2 13Jan2020 sbsdi		

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
GM 543-19 KMV GAS - plan hits target center - Circle (radius 50.00)	0.00	0.00	4,871.00	-2,157.55	-1,316.28	1,619,983.0000	2,254,052.3000	39.5058288	-108.1440680
GM 543-19 PBHL - plan hits target center - Point	0.00	0.00	6,938.00	-2,157.55	-1,316.28	1,619,983.0000	2,254,052.3000	39.5058288	-108.1440680

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,000.00	948.38	9 5/8" Casing @ 1000' MD	9.62	13.50	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,335.36	2,006.00	G_SAND TVD		0.00		
2,461.77	2,106.00	G_SAND_BASE		0.00		
2,841.00	2,406.00	FRUN TVD		0.00		
4,503.86	3,776.00	OHIO CREEK TVD		0.00		
4,503.86	3,776.00	MVRD TVD		0.00		
5,627.45	4,871.00	KMVGAS TVD		0.00		
7,064.45	6,308.00	CMEO TVD		0.00		
7,544.45	6,788.00	RLNS TVD		0.00		
7,694.45	6,938.00	TD TVD		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	
1,077.86	1,011.23	-255.48	-155.86	Start 2663.86 hold at 1077.86 MD	
3,741.72	3,118.53	-1,646.59	-1,004.55	Start Drop -2.00	
5,627.45	4,871.00	-2,157.55	-1,316.28	Start 2067.00 hold at 5627.45 MD	
7,694.45	6,938.00	-2,157.55	-1,316.28	TD at 7694.45	