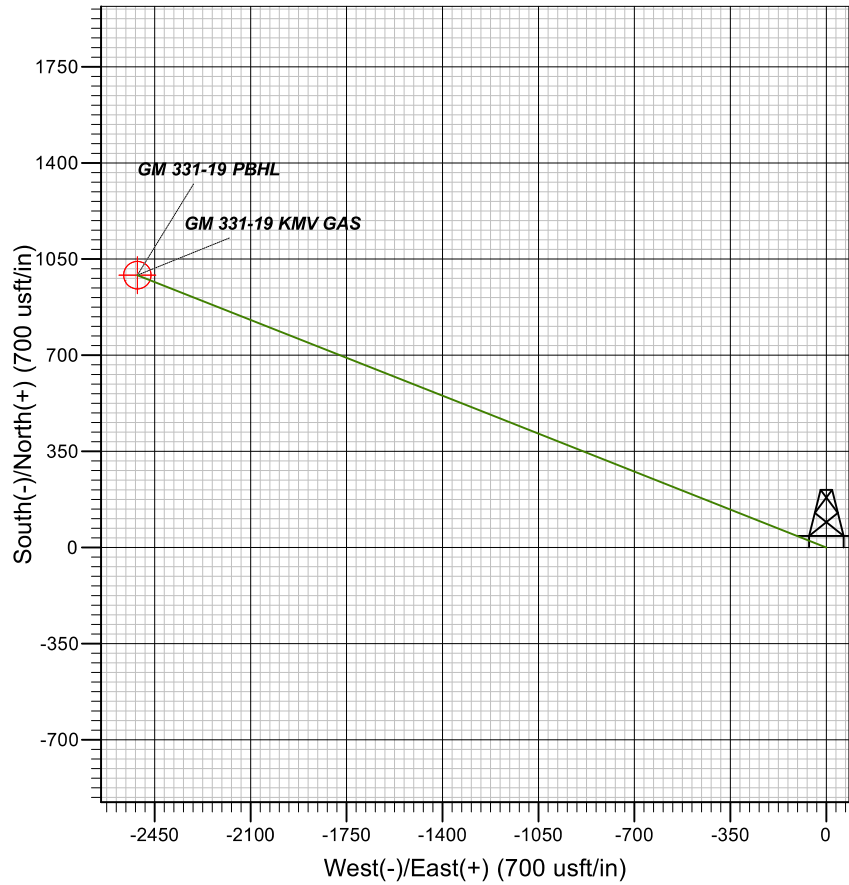
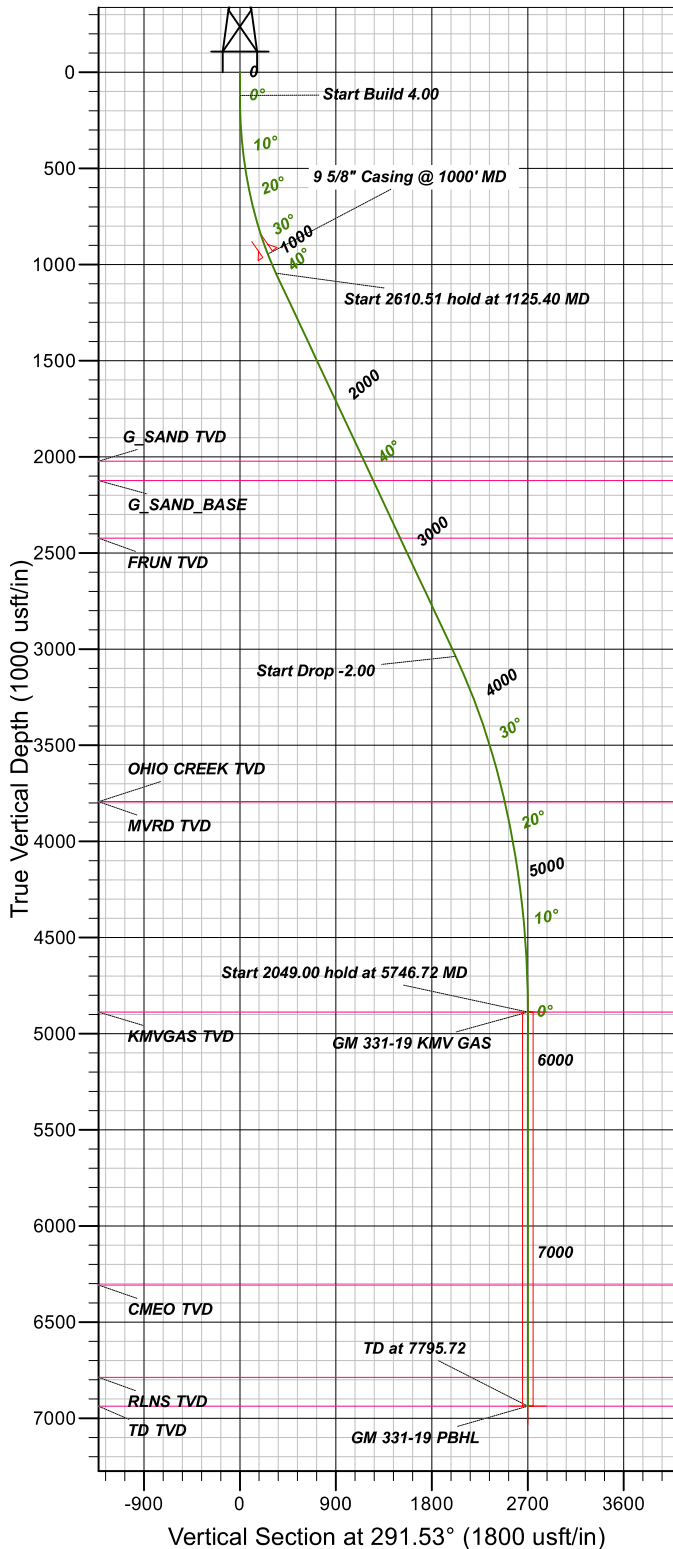


## Well Details: GM 331-19

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1622129.1000	2255376.5600	39.5118240	-108.1395976	GM 331-19

### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 331-19 KMV GAS	4888.00	991.42	-2512.82	1623193.1000	2252893.6000	39.5145455	-108.1485044	Circle (Radius: 50.00)
GM 331-19 PBHL	6937.00	991.42	-2512.82	1623193.1000	2252893.6000	39.5145455	-108.1485044	Point



FORMATION TOP DETAILS				PROJECT DETAILS: Garfield County, CO NAD83			
TVDPath	MDPath	Formation		Geodetic System:	US State Plane 1983		
2023.00	2406.34	G_SAND TVD		Datum:	North American Datum 1983		
2123.00	2537.30	G_SAND_BASE		Ellipsoid:	GRS 1980		
2423.00	2930.17	FRUN TVD		Zone:	Colorado Central Zone		
3793.00	4623.14	MVRD TVD		System Datum:	Mean Sea Level		
3793.00	4623.14	OHIO CREEK TVD					
4888.00	5746.72	KMGAS TVD					
6307.00	7165.72	CMEO TVD					
6787.00	7645.72	RLNS TVD					
6937.00	7795.72	TD TVD					

CASING DETAILS				
TVD	MD	Name	Size	
945.68	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	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	
1125.40	40.22	291.53	1044.86	124.27	-314.97	4.00	291.53	338.60	
3735.92	40.22	291.53	3038.28	742.88	-1882.88	0.00	0.00	2024.14	
5746.72	0.00	0.00	4888.00	991.42	-2512.82	2.00	180.00	2701.33	
7795.72	0.00	0.00	6937.00	991.42	-2512.82	0.00	0.00	2701.33	

# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**GM 12-20 Pad**

**GM 331-19 - Slot GM 331-19**

**OH**

**Plan: Plan 2 13Jan2020 sbsdi**

## **Standard Planning Report**

**13 January, 2020**



[www.scientificdrilling.com](http://www.scientificdrilling.com)



# Scientific Drilling, Intl

## Planning Report

<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well GM 331-19 - Slot GM 331-19
<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 331-19	<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 331-19 - Slot GM 331-19					
Well Position	+N/-S	-2.05 usft	Northing:	1,622,129.1000 usft	Latitude:	39.5118240
	+E/-W	7.20 usft	Easting:	2,255,376.5600 usft	Longitude:	-108.1395977
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	51,454.40000000

<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	291.53

<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	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,125.40	40.22	291.53	1,044.86	124.27	-314.97	4.00	4.00	0.00	291.53	
3,735.92	40.22	291.53	3,038.28	742.88	-1,882.88	0.00	0.00	0.00	0.00	
5,746.72	0.00	0.00	4,888.00	991.42	-2,512.82	2.00	-2.00	0.00	180.00	GM 331-19 KMV GAS
7,795.72	0.00	0.00	6,937.00	991.42	-2,512.82	0.00	0.00	0.00	0.00	GM 331-19 PBHL

# Scientific Drilling, Intl

## Planning Report

<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well GM 331-19 - Slot GM 331-19
<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 331-19	<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	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	
Start Build 4.00										
200.00	3.20	291.53	199.96	0.82	-2.08	2.23	4.00	4.00	0.00	
300.00	7.20	291.53	299.53	4.15	-10.51	11.29	4.00	4.00	0.00	
400.00	11.20	291.53	398.22	10.01	-25.38	27.28	4.00	4.00	0.00	
500.00	15.20	291.53	495.56	18.39	-46.61	50.11	4.00	4.00	0.00	
600.00	19.20	291.53	591.07	29.24	-74.11	79.67	4.00	4.00	0.00	
700.00	23.20	291.53	684.28	42.51	-107.75	115.83	4.00	4.00	0.00	
800.00	27.20	291.53	774.74	58.13	-147.35	158.40	4.00	4.00	0.00	
900.00	31.20	291.53	862.02	76.04	-192.72	207.17	4.00	4.00	0.00	
1,000.00	35.20	291.53	945.68	96.13	-243.64	261.92	4.00	4.00	0.00	
9 5/8" Casing @ 1000' MD										
1,100.00	39.20	291.53	1,025.31	118.31	-299.87	322.37	4.00	4.00	0.00	
1,125.40	40.22	291.53	1,044.86	124.27	-314.97	338.60	4.00	4.00	0.00	
Start 2610.51 hold at 1125.40 MD										
1,200.00	40.22	291.53	1,101.82	141.95	-359.77	386.76	0.00	0.00	0.00	
1,300.00	40.22	291.53	1,178.18	165.64	-419.83	451.33	0.00	0.00	0.00	
1,400.00	40.22	291.53	1,254.54	189.34	-479.89	515.90	0.00	0.00	0.00	
1,500.00	40.22	291.53	1,330.90	213.04	-539.96	580.46	0.00	0.00	0.00	
1,600.00	40.22	291.53	1,407.26	236.73	-600.02	645.03	0.00	0.00	0.00	
1,700.00	40.22	291.53	1,483.63	260.43	-660.08	709.60	0.00	0.00	0.00	
1,800.00	40.22	291.53	1,559.99	284.13	-720.14	774.16	0.00	0.00	0.00	
1,900.00	40.22	291.53	1,636.35	307.82	-780.20	838.73	0.00	0.00	0.00	
2,000.00	40.22	291.53	1,712.71	331.52	-840.26	903.30	0.00	0.00	0.00	
2,100.00	40.22	291.53	1,789.07	355.22	-900.32	967.87	0.00	0.00	0.00	
2,200.00	40.22	291.53	1,865.43	378.91	-960.39	1,032.43	0.00	0.00	0.00	
2,300.00	40.22	291.53	1,941.79	402.61	-1,020.45	1,097.00	0.00	0.00	0.00	
2,400.00	40.22	291.53	2,018.15	426.31	-1,080.51	1,161.57	0.00	0.00	0.00	
2,406.34	40.22	291.53	2,023.00	427.81	-1,084.32	1,165.66	0.00	0.00	0.00	
G_SAND TVD										
2,500.00	40.22	291.53	2,094.52	450.00	-1,140.57	1,226.13	0.00	0.00	0.00	
2,537.30	40.22	291.53	2,123.00	458.84	-1,162.97	1,250.22	0.00	0.00	0.00	
G_SAND_BASE										
2,599.99	40.22	291.53	2,170.88	473.70	-1,200.63	1,290.70	0.00	0.00	0.00	
2,699.99	40.22	291.53	2,247.24	497.40	-1,260.69	1,355.27	0.00	0.00	0.00	
2,799.99	40.22	291.53	2,323.60	521.09	-1,320.75	1,419.84	0.00	0.00	0.00	
2,899.99	40.22	291.53	2,399.96	544.79	-1,380.82	1,484.40	0.00	0.00	0.00	
2,930.17	40.22	291.53	2,423.00	551.94	-1,398.94	1,503.88	0.00	0.00	0.00	
FRUN TVD										
2,999.99	40.22	291.53	2,476.32	568.49	-1,440.88	1,548.97	0.00	0.00	0.00	
3,099.99	40.22	291.53	2,552.68	592.19	-1,500.94	1,613.54	0.00	0.00	0.00	
3,199.99	40.22	291.53	2,629.04	615.88	-1,561.00	1,678.10	0.00	0.00	0.00	
3,299.99	40.22	291.53	2,705.41	639.58	-1,621.06	1,742.67	0.00	0.00	0.00	
3,399.99	40.22	291.53	2,781.77	663.28	-1,681.12	1,807.24	0.00	0.00	0.00	
3,499.99	40.22	291.53	2,858.13	686.97	-1,741.18	1,871.81	0.00	0.00	0.00	
3,599.99	40.22	291.53	2,934.49	710.67	-1,801.25	1,936.37	0.00	0.00	0.00	
3,699.99	40.22	291.53	3,010.85	734.37	-1,861.31	2,000.94	0.00	0.00	0.00	
3,735.92	40.22	291.53	3,038.28	742.88	-1,882.88	2,024.14	0.00	0.00	0.00	
Start Drop -2.00										
3,799.99	38.93	291.53	3,087.67	757.86	-1,920.86	2,064.96	2.00	-2.00	0.00	

# Scientific Drilling, Intl

## Planning Report

<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well GM 331-19 - Slot GM 331-19
<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 331-19	<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)
3,899.99	36.93	291.53	3,166.54	780.42	-1,978.04	2,126.43	2.00	-2.00	0.00
3,999.99	34.93	291.53	3,247.50	801.96	-2,032.63	2,185.11	2.00	-2.00	0.00
4,099.99	32.93	291.53	3,330.47	822.45	-2,084.55	2,240.93	2.00	-2.00	0.00
4,199.99	30.93	291.53	3,415.33	841.86	-2,133.76	2,293.83	2.00	-2.00	0.00
4,299.99	28.93	291.53	3,501.98	860.17	-2,180.17	2,343.72	2.00	-2.00	0.00
4,399.99	26.93	291.53	3,590.33	877.36	-2,223.75	2,390.57	2.00	-2.00	0.00
4,499.99	24.93	291.53	3,680.25	893.41	-2,264.43	2,434.30	2.00	-2.00	0.00
4,599.99	22.93	291.53	3,771.65	908.30	-2,302.16	2,474.87	2.00	-2.00	0.00
4,623.14	22.47	291.53	3,793.00	911.58	-2,310.47	2,483.80	2.00	-2.00	0.00
OHIO CREEK TVD - MVRD TVD									
4,699.99	20.93	291.53	3,864.40	922.01	-2,336.91	2,512.22	2.00	-2.00	0.00
4,799.99	18.93	291.53	3,958.41	934.52	-2,368.62	2,546.31	2.00	-2.00	0.00
4,899.99	16.93	291.53	4,053.54	945.83	-2,397.27	2,577.11	2.00	-2.00	0.00
4,999.99	14.93	291.53	4,149.69	955.90	-2,422.80	2,604.56	2.00	-2.00	0.00
5,099.99	12.93	291.53	4,246.75	964.74	-2,445.20	2,628.64	2.00	-2.00	0.00
5,199.99	10.93	291.53	4,344.58	972.33	-2,464.44	2,649.32	2.00	-2.00	0.00
5,299.99	8.93	291.53	4,443.07	978.66	-2,480.49	2,666.57	2.00	-2.00	0.00
5,399.99	6.93	291.53	4,542.11	983.73	-2,493.33	2,680.37	2.00	-2.00	0.00
5,499.99	4.93	291.53	4,641.57	987.52	-2,502.95	2,690.71	2.00	-2.00	0.00
5,599.99	2.93	291.53	4,741.33	990.04	-2,509.33	2,697.57	2.00	-2.00	0.00
5,699.99	0.93	291.53	4,841.27	991.28	-2,512.47	2,700.95	2.00	-2.00	0.00
5,746.72	0.00	0.00	4,888.00	991.42	-2,512.82	2,701.33	2.00	-2.00	0.00
Start 2049.00 hold at 5746.72 MD - KMGAS TVD									
5,799.99	0.00	0.00	4,941.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
5,899.99	0.00	0.00	5,041.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
5,999.99	0.00	0.00	5,141.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
6,099.99	0.00	0.00	5,241.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
6,199.99	0.00	0.00	5,341.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
6,299.99	0.00	0.00	5,441.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
6,399.99	0.00	0.00	5,541.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
6,499.99	0.00	0.00	5,641.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
6,599.99	0.00	0.00	5,741.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
6,699.99	0.00	0.00	5,841.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
6,799.99	0.00	0.00	5,941.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
6,899.99	0.00	0.00	6,041.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
6,999.99	0.00	0.00	6,141.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
7,099.99	0.00	0.00	6,241.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
7,165.72	0.00	0.00	6,307.00	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
CMEQ TVD									
7,199.99	0.00	0.00	6,341.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
7,299.99	0.00	0.00	6,441.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
7,399.99	0.00	0.00	6,541.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
7,499.99	0.00	0.00	6,641.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
7,599.98	0.00	0.00	6,741.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
7,645.72	0.00	0.00	6,787.00	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
RLNS TVD									
7,699.98	0.00	0.00	6,841.26	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
7,795.72	0.00	0.00	6,937.00	991.42	-2,512.82	2,701.33	0.00	0.00	0.00
TD at 7795.72 - TD TVD									

# Scientific Drilling, Intl

## Planning Report

<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well GM 331-19 - Slot GM 331-19
<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 331-19	<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 331-19 KMV GAS - plan hits target center - Circle (radius 50.00)	0.00	0.00	4,888.00	991.42	-2,512.82	1,623,193.1000	2,252,893.6000	39.5145455	-108.1485044
GM 331-19 PBHL - plan hits target center - Point	0.00	0.00	6,937.00	991.42	-2,512.82	1,623,193.1000	2,252,893.6000	39.5145455	-108.1485044

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,000.00	945.68	9 5/8" Casing @ 1000' MD	9.62	13.50	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,406.34	2,023.00	G_SAND TVD		0.00		
2,537.30	2,123.00	G_SAND_BASE		0.00		
2,930.17	2,423.00	FRUN TVD		0.00		
4,623.14	3,793.00	OHIO CREEK TVD		0.00		
4,623.14	3,793.00	MVRD TVD		0.00		
5,746.72	4,888.00	KMVGAS TVD		0.00		
7,165.72	6,307.00	CMEO TVD		0.00		
7,645.72	6,787.00	RLNS TVD		0.00		
7,795.72	6,937.00	TD TVD		0.00		

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 4.00	
1,125.40	1,044.86	124.27	-314.97	Start 2610.51 hold at 1125.40 MD	
3,735.92	3,038.28	742.88	-1,882.88	Start Drop -2.00	
5,746.72	4,888.00	991.42	-2,512.82	Start 2049.00 hold at 5746.72 MD	
7,795.72	6,937.00	991.42	-2,512.82	TD at 7795.72	