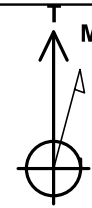




Company: TEP Rocky Mountain LLC  
Project: Garfield County, CO NAD83  
Site: GM 12-20 Pad  
Well: GM 43-19

Plan: Plan 2 13Jan2020 sbsdi



Azimuths to True North  
Magnetic North: 9.42°

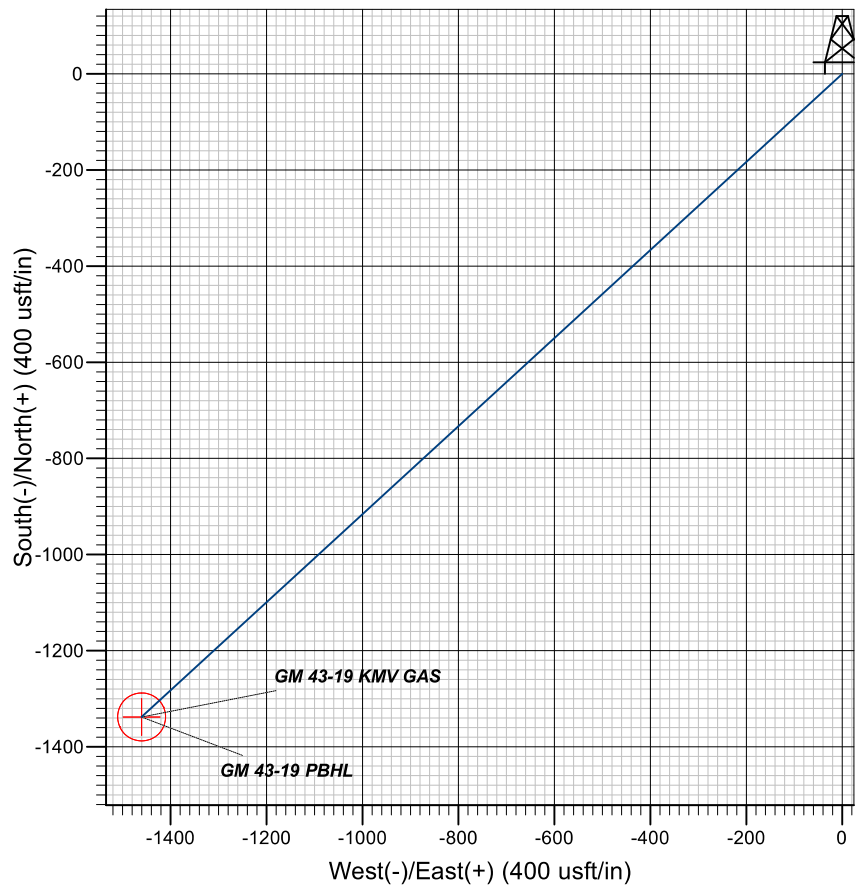
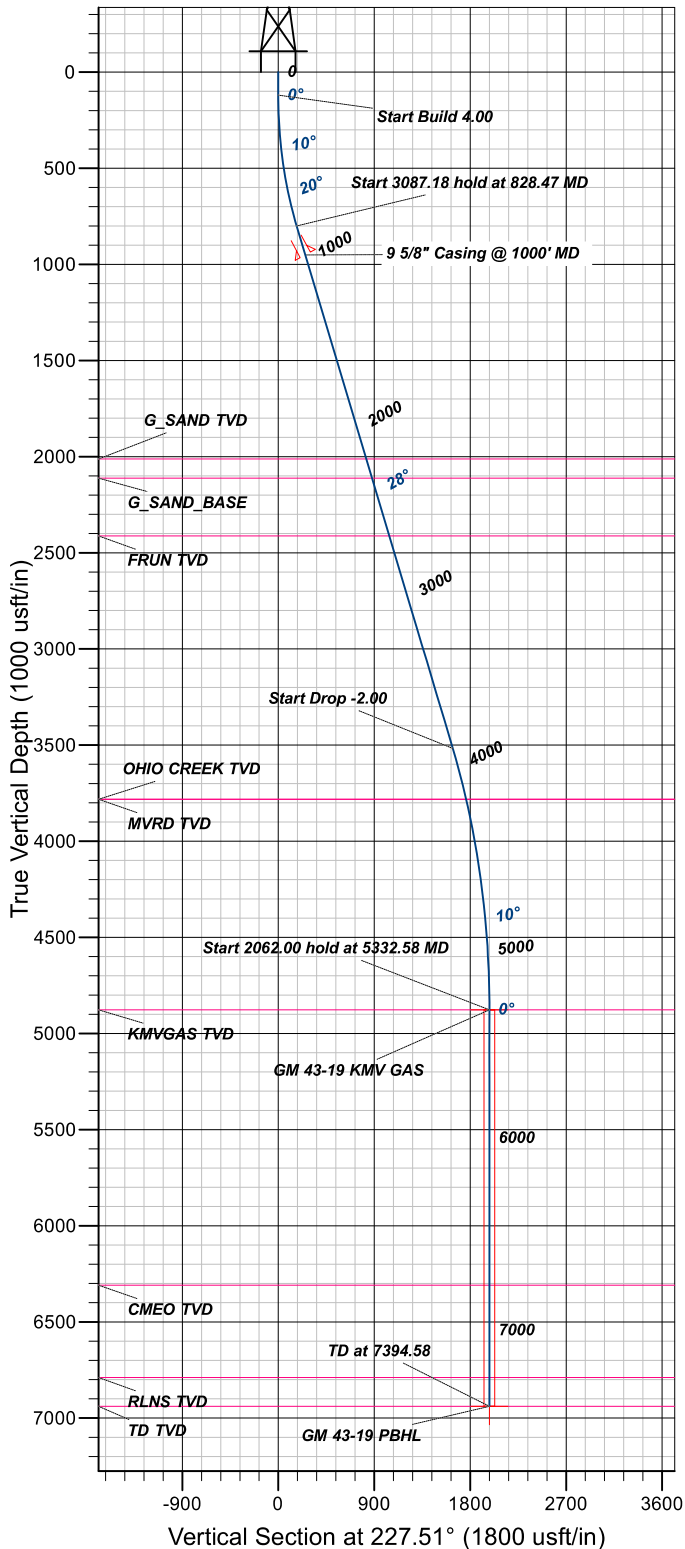
Magnetic Field  
Strength: 51454.3nT  
Dip Angle: 65.77°  
Date: 1/13/2020  
Model: HDGM\_FILE

### Well Details: GM 43-19

+N/-S	+E/-W	Northing	GL 5752.1' & KB 24' @ 5776.10usft (H&P 3185)	Easting	Latitude	Longitude	Slot
0.00	0.00	1622108.2000		2255409.3000	39.5117692	-108.1394795	GM 43-19

### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 43-19 KMV GAS	4877.00	-1337.69	-1460.36	1620813.5000	2253910.7000	39.5080966	-108.1446553	Circle (Radius: 50.00)
GM 43-19 PBHL	6939.00	-1337.69	-1460.36	1620813.5000	2253910.7000	39.5080966	-108.1446553	Point



### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2012.00	2205.57	G_SAND TVD
2112.00	2319.19	G_SAND_BASE
2412.00	2660.03	FRUN TVD
3782.00	4208.99	MVRD TVD
3782.00	4208.99	OHIO CREEK TVD
4877.00	5332.58	KMGAS TVD
6309.00	6764.58	CMEO TVD
6789.00	7244.58	RLNS TVD
6939.00	7394.58	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
950.91	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
828.47	28.34	227.51	799.93	-115.95	-126.58	4.00	227.51	171.66
3915.65	28.34	227.51	3517.13	-1105.79	-1207.19	0.00	0.00	1637.09
5332.58	0.00	0.00	4877.00	-1337.69	-1460.36	2.00	180.00	1980.42
7394.58	0.00	0.00	6939.00	-1337.69	-1460.36	0.00	0.00	1980.42

# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**GM 12-20 Pad**

**GM 43-19 - Slot GM 43-19**

**OH**

**Plan: Plan 2 13Jan2020 sbsdi**

## **Standard Planning Report**

**13 January, 2020**



# Scientific Drilling, Intl

## Planning Report

<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well GM 43-19 - Slot GM 43-19
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 3185)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 3185)
<b>Site:</b>	GM 12-20 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 43-19	<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 43-19 - Slot GM 43-19					
Well Position	+N/-S	-21.99 usft	Northing:	1,622,108.2000 usft	Latitude:	39.5117693
	+E/-W	40.54 usft	Easting:	2,255,409.3000 usft	Longitude:	-108.1394795
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	227.51

<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	
828.47	28.34	227.51	799.93	-115.95	-126.58	4.00	4.00	0.00	227.51	
3,915.65	28.34	227.51	3,517.13	-1,105.79	-1,207.19	0.00	0.00	0.00	0.00	
5,332.58	0.00	0.00	4,877.00	-1,337.69	-1,460.36	2.00	-2.00	0.00	180.00	GM 43-19 KMV GAS
7,394.58	0.00	0.00	6,939.00	-1,337.69	-1,460.36	0.00	0.00	0.00	0.00	GM 43-19 PBHL

# Scientific Drilling, Intl

## Planning Report

<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well GM 43-19 - Slot GM 43-19
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 3185)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 3185)
<b>Site:</b>	GM 12-20 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 43-19	<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
<b>Start Build 4.00</b>									
200.00	3.20	227.51	199.96	-1.51	-1.65	2.23	4.00	4.00	0.00
300.00	7.20	227.51	299.53	-7.63	-8.33	11.29	4.00	4.00	0.00
400.00	11.20	227.51	398.22	-18.43	-20.12	27.28	4.00	4.00	0.00
500.00	15.20	227.51	495.56	-33.85	-36.95	50.11	4.00	4.00	0.00
600.00	19.20	227.51	591.07	-53.82	-58.75	79.67	4.00	4.00	0.00
700.00	23.20	227.51	684.28	-78.24	-85.41	115.83	4.00	4.00	0.00
800.00	27.20	227.51	774.74	-106.99	-116.80	158.40	4.00	4.00	0.00
828.47	28.34	227.51	799.93	-115.95	-126.58	171.66	4.00	4.00	0.00
<b>Start 3087.18 hold at 828.47 MD</b>									
900.00	28.34	227.51	862.89	-138.89	-151.62	205.62	0.00	0.00	0.00
1,000.00	28.34	227.51	950.91	-170.95	-186.63	253.09	0.00	0.00	0.00
<b>9 5/8" Casing @ 1000' MD</b>									
1,100.00	28.34	227.51	1,038.92	-203.01	-221.63	300.55	0.00	0.00	0.00
1,200.00	28.34	227.51	1,126.94	-235.07	-256.63	348.02	0.00	0.00	0.00
1,300.00	28.34	227.51	1,214.95	-267.14	-291.63	395.49	0.00	0.00	0.00
1,400.00	28.34	227.51	1,302.97	-299.20	-326.64	442.96	0.00	0.00	0.00
1,500.00	28.34	227.51	1,390.98	-331.26	-361.64	490.43	0.00	0.00	0.00
1,600.00	28.34	227.51	1,479.00	-363.32	-396.64	537.89	0.00	0.00	0.00
1,700.00	28.34	227.51	1,567.02	-395.39	-431.65	585.36	0.00	0.00	0.00
1,800.00	28.34	227.51	1,655.03	-427.45	-466.65	632.83	0.00	0.00	0.00
1,900.00	28.34	227.51	1,743.05	-459.51	-501.65	680.30	0.00	0.00	0.00
2,000.00	28.34	227.51	1,831.06	-491.58	-536.65	727.77	0.00	0.00	0.00
2,100.00	28.34	227.51	1,919.08	-523.64	-571.66	775.23	0.00	0.00	0.00
2,200.00	28.34	227.51	2,007.09	-555.70	-606.66	822.70	0.00	0.00	0.00
2,205.57	28.34	227.51	2,012.00	-557.49	-608.61	825.35	0.00	0.00	0.00
<b>G_SAND TVD</b>									
2,300.00	28.34	227.51	2,095.11	-587.76	-641.66	870.17	0.00	0.00	0.00
2,319.19	28.34	227.51	2,112.00	-593.92	-648.38	879.28	0.00	0.00	0.00
<b>G_SAND_BASE</b>									
2,400.00	28.34	227.51	2,183.12	-619.83	-676.67	917.64	0.00	0.00	0.00
2,500.00	28.34	227.51	2,271.14	-651.89	-711.67	965.11	0.00	0.00	0.00
2,599.99	28.34	227.51	2,359.16	-683.95	-746.67	1,012.58	0.00	0.00	0.00
2,660.03	28.34	227.51	2,412.00	-703.20	-767.69	1,041.08	0.00	0.00	0.00
<b>FRUN TVD</b>									
2,699.99	28.34	227.51	2,447.17	-716.02	-781.67	1,060.04	0.00	0.00	0.00
2,799.99	28.34	227.51	2,535.19	-748.08	-816.68	1,107.51	0.00	0.00	0.00
2,899.99	28.34	227.51	2,623.20	-780.14	-851.68	1,154.98	0.00	0.00	0.00
2,999.99	28.34	227.51	2,711.22	-812.20	-886.68	1,202.45	0.00	0.00	0.00
3,099.99	28.34	227.51	2,799.23	-844.27	-921.69	1,249.92	0.00	0.00	0.00
3,199.99	28.34	227.51	2,887.25	-876.33	-956.69	1,297.38	0.00	0.00	0.00
3,299.99	28.34	227.51	2,975.26	-908.39	-991.69	1,344.85	0.00	0.00	0.00
3,399.99	28.34	227.51	3,063.28	-940.45	-1,026.70	1,392.32	0.00	0.00	0.00
3,499.99	28.34	227.51	3,151.30	-972.52	-1,061.70	1,439.79	0.00	0.00	0.00
3,599.99	28.34	227.51	3,239.31	-1,004.58	-1,096.70	1,487.26	0.00	0.00	0.00
3,699.99	28.34	227.51	3,327.33	-1,036.64	-1,131.70	1,534.73	0.00	0.00	0.00
3,799.99	28.34	227.51	3,415.34	-1,068.71	-1,166.71	1,582.19	0.00	0.00	0.00
3,899.99	28.34	227.51	3,503.36	-1,100.77	-1,201.71	1,629.66	0.00	0.00	0.00

# Scientific Drilling, Intl

## Planning Report

<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well GM 43-19 - Slot GM 43-19
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 3185)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 3185)
<b>Site:</b>	GM 12-20 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 43-19	<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)
3,915.65	28.34	227.51	3,517.13	-1,105.79	-1,207.19	1,637.09	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
3,999.99	26.65	227.51	3,591.95	-1,132.09	-1,235.90	1,676.03	2.00	-2.00	0.00
4,099.99	24.65	227.51	3,682.09	-1,161.33	-1,267.82	1,719.32	2.00	-2.00	0.00
4,199.99	22.65	227.51	3,773.69	-1,188.42	-1,297.40	1,759.43	2.00	-2.00	0.00
4,208.99	22.47	227.51	3,782.00	-1,190.76	-1,299.95	1,762.89	2.00	-2.00	0.00
<b>OHIO CREEK TVD - MVRD TVD</b>									
4,299.99	20.65	227.51	3,866.63	-1,213.34	-1,324.61	1,796.33	2.00	-2.00	0.00
4,399.99	18.65	227.51	3,960.80	-1,236.06	-1,349.41	1,829.96	2.00	-2.00	0.00
4,499.99	16.65	227.51	4,056.08	-1,256.54	-1,371.77	1,860.28	2.00	-2.00	0.00
4,599.99	14.65	227.51	4,152.37	-1,274.76	-1,391.66	1,887.26	2.00	-2.00	0.00
4,699.99	12.65	227.51	4,249.54	-1,290.70	-1,409.06	1,910.86	2.00	-2.00	0.00
4,799.99	10.65	227.51	4,347.47	-1,304.34	-1,423.96	1,931.05	2.00	-2.00	0.00
4,899.99	8.65	227.51	4,446.05	-1,315.67	-1,436.32	1,947.82	2.00	-2.00	0.00
4,999.99	6.65	227.51	4,545.16	-1,324.66	-1,446.14	1,961.13	2.00	-2.00	0.00
5,099.99	4.65	227.51	4,644.67	-1,331.31	-1,453.40	1,970.98	2.00	-2.00	0.00
5,199.99	2.65	227.51	4,744.46	-1,335.62	-1,458.09	1,977.35	2.00	-2.00	0.00
5,299.99	0.65	227.51	4,844.41	-1,337.56	-1,460.22	1,980.23	2.00	-2.00	0.00
5,332.58	0.00	0.00	4,877.00	-1,337.69	-1,460.36	1,980.42	2.00	-2.00	406.53
<b>Start 2062.00 hold at 5332.58 MD - KMGAS TVD</b>									
5,399.99	0.00	0.00	4,944.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
5,499.99	0.00	0.00	5,044.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
5,599.99	0.00	0.00	5,144.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
5,699.99	0.00	0.00	5,244.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
5,799.99	0.00	0.00	5,344.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
5,899.99	0.00	0.00	5,444.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
5,999.99	0.00	0.00	5,544.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
6,099.99	0.00	0.00	5,644.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
6,199.99	0.00	0.00	5,744.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
6,299.99	0.00	0.00	5,844.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
6,399.99	0.00	0.00	5,944.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
6,499.99	0.00	0.00	6,044.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
6,599.99	0.00	0.00	6,144.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
6,699.99	0.00	0.00	6,244.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
6,764.58	0.00	0.00	6,309.00	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
<b>CMEQ TVD</b>									
6,799.99	0.00	0.00	6,344.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
6,899.99	0.00	0.00	6,444.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
6,999.99	0.00	0.00	6,544.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
7,099.99	0.00	0.00	6,644.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
7,199.99	0.00	0.00	6,744.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
7,244.58	0.00	0.00	6,789.00	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
<b>RLNS TVD</b>									
7,299.99	0.00	0.00	6,844.41	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
7,394.58	0.00	0.00	6,939.00	-1,337.69	-1,460.36	1,980.42	0.00	0.00	0.00
<b>TD at 7394.58 - TD TVD</b>									

# Scientific Drilling, Intl

## Planning Report

<b>Database:</b>	Grand Junction	<b>Local Co-ordinate Reference:</b>	Well GM 43-19 - Slot GM 43-19
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 3185)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 5752.1' & KB 24' @ 5776.10usft (H&P 3185)
<b>Site:</b>	GM 12-20 Pad	<b>North Reference:</b>	True
<b>Well:</b>	GM 43-19	<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 43-19 KMV GAS - plan hits target center - Circle (radius 50.00)	0.00	0.00	4,877.00	-1,337.69	-1,460.36	1,620,813.5000	2,253,910.7000	39.5080966	-108.1446553
GM 43-19 PBHL - plan hits target center - Point	0.00	0.00	6,939.00	-1,337.69	-1,460.36	1,620,813.5000	2,253,910.7000	39.5080966	-108.1446553

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,000.00	950.91	9 5/8" Casing @ 1000' MD	9.62	13.50	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,205.57	2,012.00	G_SAND TVD		0.00		
2,319.19	2,112.00	G_SAND_BASE		0.00		
2,660.03	2,412.00	FRUN TVD		0.00		
4,208.99	3,782.00	OHIO CREEK TVD		0.00		
4,208.99	3,782.00	MVRD TVD		0.00		
5,332.58	4,877.00	KMVGAS TVD		0.00		
6,764.58	6,309.00	CMEO TVD		0.00		
7,244.58	6,789.00	RLNS TVD		0.00		
7,394.58	6,939.00	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	
828.47	799.93	-115.95	-126.58	Start 3087.18 hold at 828.47 MD	
3,915.65	3,517.13	-1,105.79	-1,207.19	Start Drop -2.00	
5,332.58	4,877.00	-1,337.69	-1,460.36	Start 2062.00 hold at 5332.58 MD	
7,394.58	6,939.00	-1,337.69	-1,460.36	TD at 7394.58	