

Azimuths to True North
Magnetic North: 9.42°

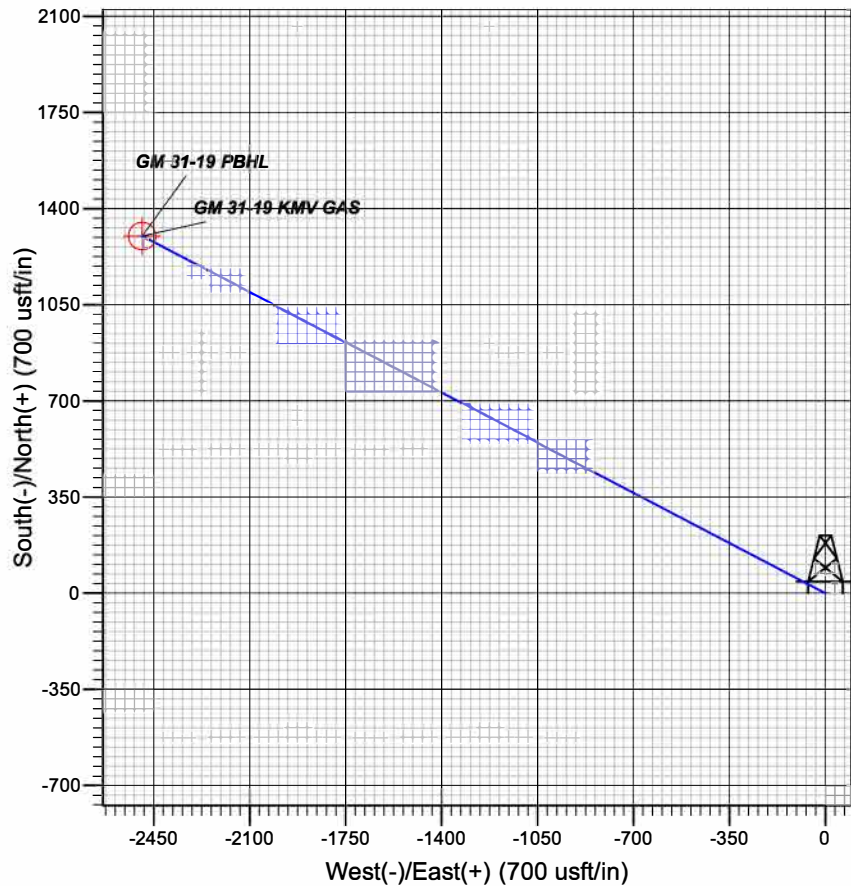
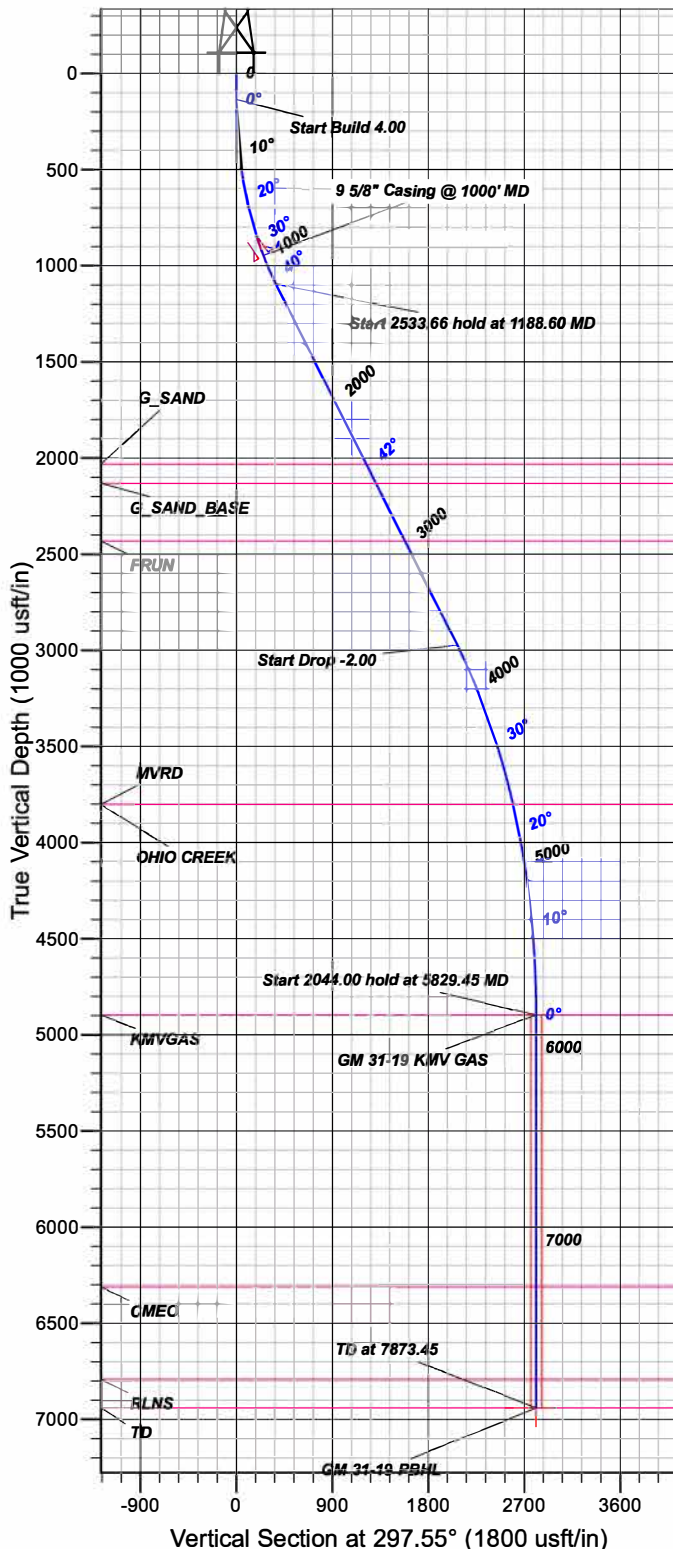
Magnetic Field
Strength: 51454.4nT
Dip Angle: 65.77°
Date: 1/13/2020
Model: HDGM_FILE

Well Details: GM 31-19

+N/-S	+E/-W	Northing	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)	Easting	Latitude	Longitude	Slot
0.00	0.00	1622131.3600		2255369.4200	39.5118296	-108.1396232	GM 31-19

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Circle (Radius: 50.00)	Shape
GM 31-19 KMV GAS - plan hits target center	4897.00	1300.28	-2492.25	1623503.5000	2252916.0000	39.5153991	-108.1484571		Circle (Radius: 50.00)
GM 31-19 PBHL - plan hits target center	6941.00	1300.28	-2492.25	1623503.5000	2252916.0000	39.5153991	-108.1484571		Point



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2032.00	2450.79	G_SAND
2132.00	2585.66	G_SAND_BASE
2432.00	2990.27	FRUN
3802.00	4705.87	OCreek
3802.00	4705.87	MVRD
4897.00	5829.45	KMGAS
6311.00	7243.45	CMEC
6791.00	7723.45	RLNS
6941.00	7873.45	TD

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	VSeet
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
1188.60	42.14	297.55	1096.13	171.30	-328.33	4.00	297.55	370.33
3722.26	42.14	297.55	2974.74	957.69	-1835.59	0.00	0.00	2070.40
5829.45	0.00	0.00	4897.00	1300.28	-2492.25	2.00	180.00	2811.06
7873.45	0.00	0.00	6941.00	1300.28	-2492.25	0.00	0.00	2811.06

TEP Rocky Mountain LLC

Garfield County, CO NAD83

GM 12-20 Pad

GM 31-19 - Slot GM 31-19

OH

Plan: Plan 2 13Jan2020 sbsdi

Standard Planning Report

13 January, 2020



Scientific Drilling, Intl

Planning Report

Database:	Grand Junction	Local Co-ordinate Reference:	Well GM 31-19 - Slot GM 31-19
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
Project:	Garfield County, CO NAD83	MD Reference:	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
Site:	GM 12-20 Pad	North Reference:	True
Well:	GM 31-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 13Jan2020 sbsdi		

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

Well	GM 31-19 - Slot GM 31-19					
Well Position	+N/-S	0.00 usft	Northing:	1,622,131.3600 usft	Latitude:	39.5118297
	+E/-W	0.00 usft	Easting:	2,255,369.4200 usft	Longitude:	-108.1396232
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,752.10 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	1/13/2020	9.42	65.77	51,454.40000000

Design	Plan 2 13Jan2020 sbsdi			
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	297.55

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	
1,188.60	42.14	297.55	1,096.13	171.30	-328.33	4.00	4.00	0.00	297.55	
3,722.26	42.14	297.55	2,974.74	957.69	-1,835.59	0.00	0.00	0.00	0.00	
5,829.45	0.00	0.00	4,897.00	1,300.28	-2,492.25	2.00	-2.00	0.00	180.00	GM 31-19 KMV GAS
7,873.45	0.00	0.00	6,941.00	1,300.28	-2,492.25	0.00	0.00	0.00	0.00	GM 31-19 PBHL

Scientific Drilling, Intl

Planning Report

Database:	Grand Junction	Local Co-ordinate Reference:	Well GM 31-19 - Slot GM 31-19
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
Project:	Garfield County, CO NAD83	MD Reference:	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
Site:	GM 12-20 Pad	North Reference:	True
Well:	GM 31-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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	297.55	199.98	0.68	-1.31	1.47	4.00	4.00	0.00	
300.00	6.60	297.55	299.63	4.39	-8.42	9.49	4.00	4.00	0.00	
400.00	10.60	297.55	398.49	11.31	-21.67	24.44	4.00	4.00	0.00	
500.00	14.60	297.55	496.06	21.39	-41.01	46.25	4.00	4.00	0.00	
600.00	18.60	297.55	591.87	34.61	-66.33	74.82	4.00	4.00	0.00	
700.00	22.60	297.55	685.46	50.88	-97.52	109.99	4.00	4.00	0.00	
800.00	26.60	297.55	776.37	70.13	-134.42	151.61	4.00	4.00	0.00	
900.00	30.60	297.55	864.15	92.27	-176.85	199.47	4.00	4.00	0.00	
1,000.00	34.60	297.55	948.38	117.18	-224.61	253.34	4.00	4.00	0.00	
9 5/8" Casing @ 1000' MD										
1,100.00	38.60	297.55	1,028.64	144.76	-277.46	312.95	4.00	4.00	0.00	
1,188.60	42.14	297.55	1,096.13	171.30	-328.33	370.33	4.00	4.00	0.00	
Start 2533.66 hold at 1188.60 MD										
1,200.00	42.14	297.55	1,104.58	174.84	-335.11	377.98	0.00	0.00	0.00	
1,300.00	42.14	297.55	1,178.73	205.88	-394.60	445.08	0.00	0.00	0.00	
1,400.00	42.14	297.55	1,252.87	236.91	-454.09	512.18	0.00	0.00	0.00	
1,500.00	42.14	297.55	1,327.02	267.95	-513.58	579.28	0.00	0.00	0.00	
1,600.00	42.14	297.55	1,401.17	298.99	-573.07	646.38	0.00	0.00	0.00	
1,700.00	42.14	297.55	1,475.31	330.03	-632.56	713.47	0.00	0.00	0.00	
1,800.00	42.14	297.55	1,549.46	361.06	-692.05	780.57	0.00	0.00	0.00	
1,900.00	42.14	297.55	1,623.60	392.10	-751.54	847.67	0.00	0.00	0.00	
2,000.00	42.14	297.55	1,697.75	423.14	-811.03	914.77	0.00	0.00	0.00	
2,100.00	42.14	297.55	1,771.90	454.18	-870.52	981.87	0.00	0.00	0.00	
2,200.00	42.14	297.55	1,846.04	485.21	-930.00	1,048.97	0.00	0.00	0.00	
2,300.00	42.14	297.55	1,920.19	516.25	-989.49	1,116.07	0.00	0.00	0.00	
2,400.00	42.14	297.55	1,994.34	547.29	-1,048.98	1,183.17	0.00	0.00	0.00	
2,450.79	42.14	297.55	2,032.00	563.05	-1,079.20	1,217.26	0.00	0.00	0.00	
G_SAND										
2,500.00	42.14	297.55	2,068.48	578.33	-1,108.47	1,250.27	0.00	0.00	0.00	
2,585.66	42.14	297.55	2,132.00	604.91	-1,159.44	1,307.75	0.00	0.00	0.00	
G_SAND_BASE										
2,599.99	42.14	297.55	2,142.63	609.36	-1,167.96	1,317.37	0.00	0.00	0.00	
2,699.99	42.14	297.55	2,216.77	640.40	-1,227.45	1,384.47	0.00	0.00	0.00	
2,799.99	42.14	297.55	2,290.92	671.44	-1,286.94	1,451.57	0.00	0.00	0.00	
2,899.99	42.14	297.55	2,365.07	702.48	-1,346.43	1,518.67	0.00	0.00	0.00	
2,990.27	42.14	297.55	2,432.00	730.49	-1,400.13	1,579.24	0.00	0.00	0.00	
FRUN										
2,999.99	42.14	297.55	2,439.21	733.51	-1,405.92	1,585.77	0.00	0.00	0.00	
3,099.99	42.14	297.55	2,513.36	764.55	-1,465.41	1,652.87	0.00	0.00	0.00	
3,199.99	42.14	297.55	2,587.50	795.59	-1,524.90	1,719.96	0.00	0.00	0.00	
3,299.99	42.14	297.55	2,661.65	826.63	-1,584.39	1,787.06	0.00	0.00	0.00	
3,399.99	42.14	297.55	2,735.80	857.66	-1,643.88	1,854.16	0.00	0.00	0.00	
3,499.99	42.14	297.55	2,809.94	888.70	-1,703.37	1,921.26	0.00	0.00	0.00	
3,599.99	42.14	297.55	2,884.09	919.74	-1,762.86	1,988.36	0.00	0.00	0.00	
3,699.99	42.14	297.55	2,958.23	950.78	-1,822.35	2,055.46	0.00	0.00	0.00	
3,722.26	42.14	297.55	2,974.74	957.69	-1,835.59	2,070.40	0.00	0.00	0.00	
Start Drop -2.00										
3,799.99	40.59	297.55	3,033.08	981.45	-1,881.14	2,121.77	2.00	-2.00	0.00	

Scientific Drilling, Intl

Planning Report

Database:	Grand Junction	Local Co-ordinate Reference:	Well GM 31-19 - Slot GM 31-19
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
Project:	Garfield County, CO NAD83	MD Reference:	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
Site:	GM 12-20 Pad	North Reference:	True
Well:	GM 31-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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	38.59	297.55	3,110.14	1,010.93	-1,937.63	2,185.50	2.00	-2.00	0.00
3,999.99	36.59	297.55	3,189.38	1,039.14	-1,991.71	2,246.49	2.00	-2.00	0.00
4,099.99	34.59	297.55	3,270.69	1,066.06	-2,043.31	2,304.69	2.00	-2.00	0.00
4,199.99	32.59	297.55	3,353.99	1,091.65	-2,092.35	2,360.01	2.00	-2.00	0.00
4,299.99	30.59	297.55	3,439.17	1,115.88	-2,138.79	2,412.39	2.00	-2.00	0.00
4,399.99	28.59	297.55	3,526.12	1,138.71	-2,182.57	2,461.76	2.00	-2.00	0.00
4,499.99	26.59	297.55	3,614.75	1,160.14	-2,223.63	2,508.07	2.00	-2.00	0.00
4,599.99	24.59	297.55	3,704.93	1,180.11	-2,261.92	2,551.26	2.00	-2.00	0.00
4,699.99	22.59	297.55	3,796.57	1,198.62	-2,297.39	2,591.28	2.00	-2.00	0.00
4,705.87	22.47	297.55	3,802.00	1,199.66	-2,299.39	2,593.53	2.00	-2.00	0.00
OHIO CREEK - MVRD									
4,799.99	20.59	297.55	3,889.55	1,215.64	-2,330.01	2,628.07	2.00	-2.00	0.00
4,899.99	18.59	297.55	3,983.76	1,231.15	-2,359.74	2,661.60	2.00	-2.00	0.00
4,999.99	16.59	297.55	4,079.08	1,245.13	-2,386.53	2,691.81	2.00	-2.00	0.00
5,099.99	14.59	297.55	4,175.40	1,257.56	-2,410.35	2,718.69	2.00	-2.00	0.00
5,199.99	12.59	297.55	4,272.59	1,268.43	-2,431.18	2,742.18	2.00	-2.00	0.00
5,299.99	10.59	297.55	4,370.55	1,277.72	-2,448.99	2,762.27	2.00	-2.00	0.00
5,399.99	8.59	297.55	4,469.15	1,285.42	-2,463.76	2,778.93	2.00	-2.00	0.00
5,499.99	6.59	297.55	4,568.26	1,291.53	-2,475.47	2,792.13	2.00	-2.00	0.00
5,599.99	4.59	297.55	4,667.78	1,296.04	-2,484.10	2,801.87	2.00	-2.00	0.00
5,699.99	2.59	297.55	4,767.58	1,298.93	-2,489.65	2,808.13	2.00	-2.00	0.00
5,799.99	0.59	297.55	4,867.54	1,300.21	-2,492.11	2,810.90	2.00	-2.00	0.00
5,829.45	0.00	0.00	4,897.00	1,300.28	-2,492.25	2,811.06	2.00	-2.00	0.00
Start 2044.00 hold at 5829.45 MD - KMGAS									
5,899.99	0.00	0.00	4,967.54	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
5,999.99	0.00	0.00	5,067.54	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
6,099.99	0.00	0.00	5,167.54	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
6,199.99	0.00	0.00	5,267.54	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
6,299.99	0.00	0.00	5,367.54	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
6,399.99	0.00	0.00	5,467.54	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
6,499.99	0.00	0.00	5,567.54	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
6,599.99	0.00	0.00	5,667.54	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
6,699.99	0.00	0.00	5,767.54	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
6,799.99	0.00	0.00	5,867.54	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
6,899.99	0.00	0.00	5,967.54	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
6,999.99	0.00	0.00	6,067.54	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
7,099.99	0.00	0.00	6,167.54	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
7,199.99	0.00	0.00	6,267.54	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
7,243.45	0.00	0.00	6,311.00	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
CME0									
7,299.99	0.00	0.00	6,367.54	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
7,399.99	0.00	0.00	6,467.53	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
7,499.99	0.00	0.00	6,567.53	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
7,599.98	0.00	0.00	6,667.53	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
7,699.98	0.00	0.00	6,767.53	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
7,723.45	0.00	0.00	6,791.00	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
RLNS									
7,799.98	0.00	0.00	6,867.53	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
7,873.45	0.00	0.00	6,941.00	1,300.28	-2,492.25	2,811.06	0.00	0.00	0.00
TD at 7873.45 - TD									

Scientific Drilling, Intl

Planning Report

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Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
Project:	Garfield County, CO NAD83	MD Reference:	GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)
Site:	GM 12-20 Pad	North Reference:	True
Well:	GM 31-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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 31-19 KMV GAS - plan hits target center - Circle (radius 50.00)	0.00	0.00	4,897.00	1,300.28	-2,492.25	1,623,503.5000	2,252,916.0000	39.5153992	-108.1484571
GM 31-19 PBHL - plan hits target center - Point	0.00	0.00	6,941.00	1,300.28	-2,492.25	1,623,503.5000	2,252,916.0000	39.5153992	-108.1484571

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	13.52	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,450.79	2,032.00	G_SAND		0.00		
2,585.66	2,132.00	G_SAND_BASE		0.00		
2,990.27	2,432.00	FRUN		0.00		
4,705.87	3,802.00	OHIO CREEK		0.00		
4,705.87	3,802.00	MVRD		0.00		
5,829.45	4,897.00	KMVGAS		0.00		
7,243.45	6,311.00	CME0		0.00		
7,723.45	6,791.00	RLNS		0.00		
7,873.45	6,941.00	TD		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	
1,188.60	1,096.13	171.30	-328.33	Start 2533.66 hold at 1188.60 MD	
3,722.26	2,974.74	957.69	-1,835.59	Start Drop -2.00	
5,829.45	4,897.00	1,300.28	-2,492.25	Start 2044.00 hold at 5829.45 MD	
7,873.45	6,941.00	1,300.28	-2,492.25	TD at 7873.45	