

Azimuths to True North
Magnetic North: 9.42°

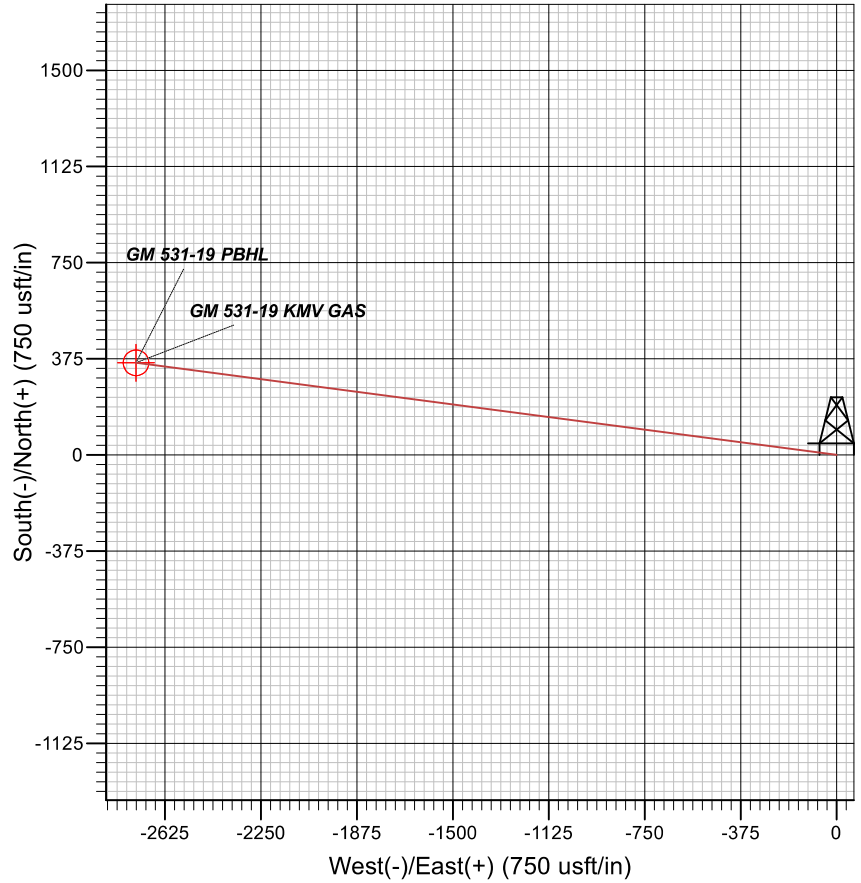
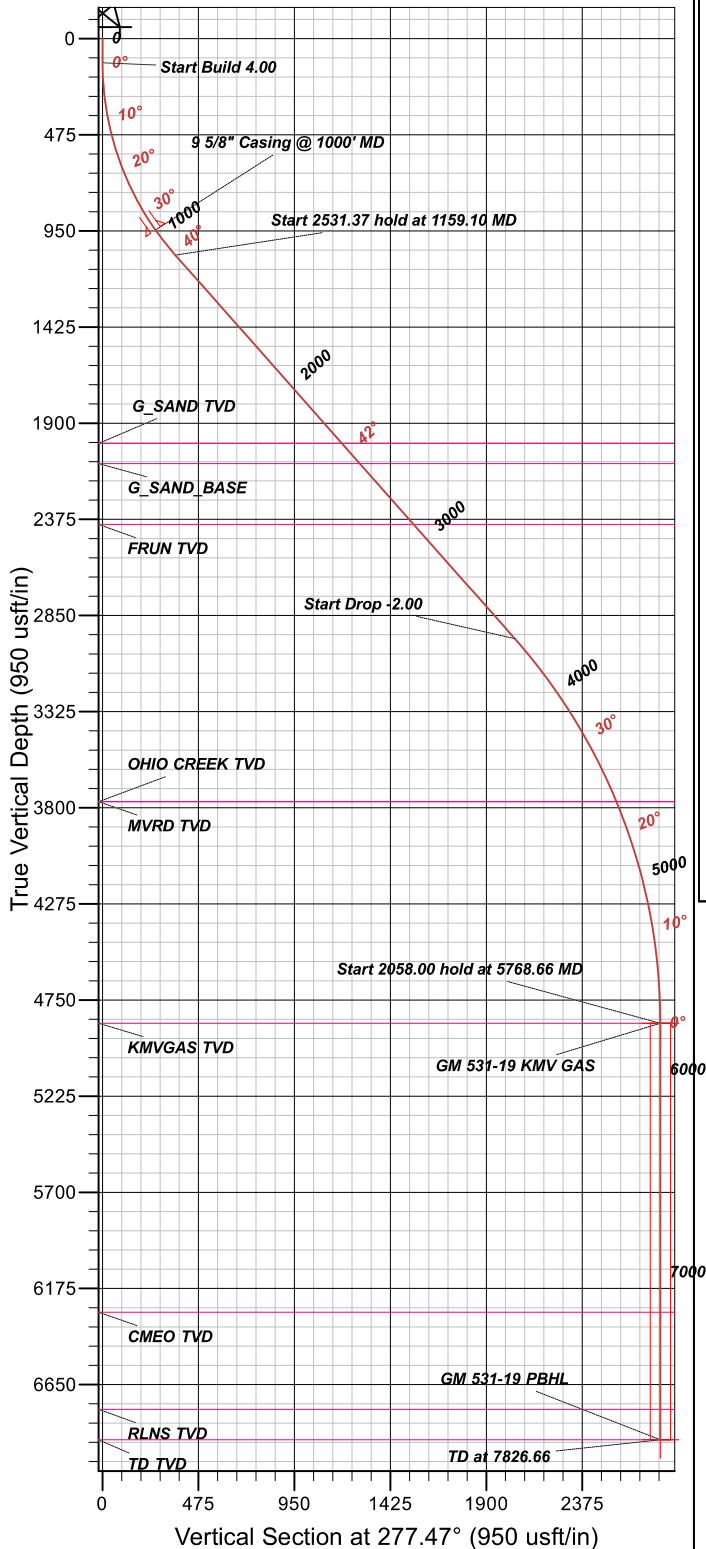
Magnetic Field
Strength: 51454.4nT
Dip Angle: 65.77°
Date: 1/13/2020
Model: HDGM_FILE

Well Details: GM 531-19

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1622124.6000	2255390.9000	39.5118128	-108.1395464	GM 531-19

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 531-19 KMV GAS	4865.00	358.91	-2737.98	1622562.9000	2252664.5000	39.5127977	-108.1492509	Circle (Radius: 50.00)
GM 531-19 PBHL	6923.00	358.91	-2737.98	1622562.9000	2252664.5000	39.5127977	-108.1492509	Point



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2000.00	2401.61	G_SAND TVD
2100.00	2535.26	G_SAND_BASE
2400.00	2936.22	FRUN TVD
3770.00	4645.07	MVRD TVD
3770.00	4645.07	OHIO CREEK TVD
4865.00	5768.66	KMGAS TVD
6293.00	7196.66	CMEO TVD
6773.00	7676.66	RLNS TVD
6923.00	7826.66	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
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
1159.10	41.56	277.47	1070.33	46.88	-357.59	4.00	277.47	360.65
3690.47	41.56	277.47	2964.34	265.16	-2022.80	0.00	0.00	2040.10
5768.66	0.00	0.00	4865.00	358.91	-2737.98	2.00	180.00	2761.41
7826.66	0.00	0.00	6923.00	358.91	-2737.98	0.00	0.00	2761.41

TEP Rocky Mountain LLC

Garfield County, CO NAD83

GM 12-20 Pad

GM 531-19 - Slot GM 531-19

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 531-19 - Slot GM 531-19
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 531-19	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
From:	Map	Easting:	2,255,369.4200 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in
		Latitude:	39.5118297
		Longitude:	-108.1396232
		Grid Convergence:	-1.66 °

Well	GM 531-19 - Slot GM 531-19					
Well Position	+N/-S	-6.13 usft	Northing:	1,622,124.6000 usft	Latitude:	39.5118128
	+E/-W	21.67 usft	Easting:	2,255,390.9000 usft	Longitude:	-108.1395464
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	277.47	

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	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,159.10	41.56	277.47	1,070.33	46.88	-357.59	4.00	4.00	0.00	277.47	
3,690.47	41.56	277.47	2,964.34	265.16	-2,022.80	0.00	0.00	0.00	0.00	
5,768.66	0.00	0.00	4,865.00	358.91	-2,737.98	2.00	-2.00	0.00	180.00	GM 531-19 KMV GAS
7,826.66	0.00	0.00	6,923.00	358.91	-2,737.98	0.00	0.00	0.00	0.00	GM 531-19 PBHL

Scientific Drilling, Intl

Planning Report

Database:	Grand Junction	Local Co-ordinate Reference:	Well GM 531-19 - Slot GM 531-19
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 531-19	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	
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	277.47	199.96	0.29	-2.21	2.23	4.00	4.00	0.00	
300.00	7.20	277.47	299.53	1.47	-11.20	11.29	4.00	4.00	0.00	
400.00	11.20	277.47	398.22	3.55	-27.05	27.28	4.00	4.00	0.00	
500.00	15.20	277.47	495.56	6.51	-49.68	50.11	4.00	4.00	0.00	
600.00	19.20	277.47	591.07	10.36	-79.00	79.67	4.00	4.00	0.00	
700.00	23.20	277.47	684.28	15.05	-114.85	115.83	4.00	4.00	0.00	
800.00	27.20	277.47	774.74	20.59	-157.06	158.40	4.00	4.00	0.00	
900.00	31.20	277.47	862.02	26.93	-205.42	207.17	4.00	4.00	0.00	
1,000.00	35.20	277.47	945.68	34.04	-259.70	261.92	4.00	4.00	0.00	
9 5/8" Casing @ 1000' MD										
1,100.00	39.20	277.47	1,025.31	41.90	-319.63	322.37	4.00	4.00	0.00	
1,159.10	41.56	277.47	1,070.33	46.88	-357.59	360.65	4.00	4.00	0.00	
Start 2531.37 hold at 1159.10 MD										
1,200.00	41.56	277.47	1,100.93	50.40	-384.50	387.79	0.00	0.00	0.00	
1,300.00	41.56	277.47	1,175.75	59.03	-450.28	454.13	0.00	0.00	0.00	
1,400.00	41.56	277.47	1,250.57	67.65	-516.06	520.48	0.00	0.00	0.00	
1,500.00	41.56	277.47	1,325.40	76.27	-581.85	586.82	0.00	0.00	0.00	
1,600.00	41.56	277.47	1,400.22	84.89	-647.63	653.17	0.00	0.00	0.00	
1,700.00	41.56	277.47	1,475.04	93.52	-713.41	719.52	0.00	0.00	0.00	
1,800.00	41.56	277.47	1,549.86	102.14	-779.19	785.86	0.00	0.00	0.00	
1,900.00	41.56	277.47	1,624.68	110.76	-844.98	852.21	0.00	0.00	0.00	
2,000.00	41.56	277.47	1,699.50	119.39	-910.76	918.55	0.00	0.00	0.00	
2,100.00	41.56	277.47	1,774.33	128.01	-976.54	984.90	0.00	0.00	0.00	
2,200.00	41.56	277.47	1,849.15	136.63	-1,042.32	1,051.24	0.00	0.00	0.00	
2,300.00	41.56	277.47	1,923.97	145.26	-1,108.11	1,117.59	0.00	0.00	0.00	
2,400.00	41.56	277.47	1,998.79	153.88	-1,173.89	1,183.93	0.00	0.00	0.00	
2,401.61	41.56	277.47	2,000.00	154.02	-1,174.95	1,185.00	0.00	0.00	0.00	
G_SAND TVD										
2,500.00	41.56	277.47	2,073.61	162.50	-1,239.67	1,250.28	0.00	0.00	0.00	
2,535.26	41.56	277.47	2,100.00	165.54	-1,262.87	1,273.68	0.00	0.00	0.00	
G_SAND_BASE										
2,599.99	41.56	277.47	2,148.43	171.13	-1,305.45	1,316.62	0.00	0.00	0.00	
2,699.99	41.56	277.47	2,223.25	179.75	-1,371.24	1,382.97	0.00	0.00	0.00	
2,799.99	41.56	277.47	2,298.08	188.37	-1,437.02	1,449.31	0.00	0.00	0.00	
2,899.99	41.56	277.47	2,372.90	197.00	-1,502.80	1,515.66	0.00	0.00	0.00	
2,936.22	41.56	277.47	2,400.00	200.12	-1,526.63	1,539.69	0.00	0.00	0.00	
FRUN TVD										
2,999.99	41.56	277.47	2,447.72	205.62	-1,568.58	1,582.00	0.00	0.00	0.00	
3,099.99	41.56	277.47	2,522.54	214.24	-1,634.37	1,648.35	0.00	0.00	0.00	
3,199.99	41.56	277.47	2,597.36	222.87	-1,700.15	1,714.69	0.00	0.00	0.00	
3,299.99	41.56	277.47	2,672.18	231.49	-1,765.93	1,781.04	0.00	0.00	0.00	
3,399.99	41.56	277.47	2,747.01	240.11	-1,831.71	1,847.38	0.00	0.00	0.00	
3,499.99	41.56	277.47	2,821.83	248.73	-1,897.50	1,913.73	0.00	0.00	0.00	
3,599.99	41.56	277.47	2,896.65	257.36	-1,963.28	1,980.08	0.00	0.00	0.00	
3,690.47	41.56	277.47	2,964.34	265.16	-2,022.80	2,040.10	0.00	0.00	0.00	
Start Drop -2.00										
3,699.99	41.37	277.47	2,971.48	265.98	-2,029.05	2,046.41	2.00	-2.00	0.00	
3,799.99	39.37	277.47	3,047.66	274.40	-2,093.27	2,111.18	2.00	-2.00	0.00	

Scientific Drilling, Intl

Planning Report

Database:	Grand Junction	Local Co-ordinate Reference:	Well GM 531-19 - Slot GM 531-19
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 531-19	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	37.37	277.47	3,126.06	282.47	-2,154.82	2,173.26	2.00	-2.00	0.00
3,999.99	35.37	277.47	3,206.57	290.17	-2,213.62	2,232.56	2.00	-2.00	0.00
4,099.99	33.37	277.47	3,289.10	297.51	-2,269.60	2,289.01	2.00	-2.00	0.00
4,199.99	31.37	277.47	3,373.55	304.47	-2,322.68	2,342.55	2.00	-2.00	0.00
4,299.99	29.37	277.47	3,459.82	311.04	-2,372.81	2,393.11	2.00	-2.00	0.00
4,399.99	27.37	277.47	3,547.81	317.22	-2,419.93	2,440.63	2.00	-2.00	0.00
4,499.99	25.37	277.47	3,637.39	322.99	-2,463.97	2,485.05	2.00	-2.00	0.00
4,599.99	23.37	277.47	3,728.48	328.36	-2,504.89	2,526.32	2.00	-2.00	0.00
4,645.07	22.47	277.47	3,770.00	330.64	-2,522.30	2,543.88	2.00	-2.00	0.00
OHIO CREEK TVD - MVRD TVD									
4,699.99	21.37	277.47	3,820.94	333.30	-2,542.63	2,564.38	2.00	-2.00	0.00
4,799.99	19.37	277.47	3,914.68	337.83	-2,577.15	2,599.19	2.00	-2.00	0.00
4,899.99	17.37	277.47	4,009.58	341.92	-2,608.40	2,630.71	2.00	-2.00	0.00
4,999.99	15.37	277.47	4,105.52	345.59	-2,636.35	2,658.90	2.00	-2.00	0.00
5,099.99	13.37	277.47	4,202.39	348.81	-2,660.96	2,683.72	2.00	-2.00	0.00
5,199.99	11.37	277.47	4,300.06	351.60	-2,682.20	2,705.15	2.00	-2.00	0.00
5,299.99	9.37	277.47	4,398.42	353.94	-2,700.06	2,723.16	2.00	-2.00	0.00
5,399.99	7.37	277.47	4,497.35	355.83	-2,714.49	2,737.72	2.00	-2.00	0.00
5,499.99	5.37	277.47	4,596.72	357.27	-2,725.50	2,748.82	2.00	-2.00	0.00
5,599.99	3.37	277.47	4,696.43	358.27	-2,733.06	2,756.44	2.00	-2.00	0.00
5,699.99	1.37	277.47	4,796.34	358.80	-2,737.17	2,760.58	2.00	-2.00	0.00
5,768.66	0.00	0.00	4,865.00	358.91	-2,737.98	2,761.41	2.00	-2.00	0.00
Start 2058.00 hold at 5768.66 MD - KMGAS TVD									
5,799.99	0.00	0.00	4,896.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
5,899.99	0.00	0.00	4,996.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
5,999.99	0.00	0.00	5,096.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
6,099.99	0.00	0.00	5,196.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
6,199.99	0.00	0.00	5,296.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
6,299.99	0.00	0.00	5,396.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
6,399.99	0.00	0.00	5,496.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
6,499.99	0.00	0.00	5,596.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
6,599.99	0.00	0.00	5,696.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
6,699.99	0.00	0.00	5,796.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
6,799.99	0.00	0.00	5,896.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
6,899.99	0.00	0.00	5,996.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
6,999.99	0.00	0.00	6,096.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
7,099.99	0.00	0.00	6,196.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
7,196.66	0.00	0.00	6,293.00	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
CMEQ TVD									
7,199.99	0.00	0.00	6,296.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
7,299.99	0.00	0.00	6,396.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
7,399.99	0.00	0.00	6,496.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
7,499.99	0.00	0.00	6,596.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
7,599.98	0.00	0.00	6,696.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
7,676.66	0.00	0.00	6,773.00	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
RLNS TVD									
7,699.98	0.00	0.00	6,796.33	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
7,799.98	0.00	0.00	6,896.32	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
7,826.66	0.00	0.00	6,923.00	358.91	-2,737.98	2,761.41	0.00	0.00	0.00
TD at 7826.66 - TD TVD									

Scientific Drilling, Intl

Planning Report

Database:	Grand Junction	Local Co-ordinate Reference:	Well GM 531-19 - Slot GM 531-19
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 531-19	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 531-19 KMV GAS - plan hits target center - Circle (radius 50.00)	0.00	0.00	4,865.00	358.91	-2,737.98	1,622,562.9000	2,252,664.5000	39.5127978	-108.1492510
GM 531-19 PBHL - plan hits target center - Point	0.00	0.00	6,923.00	358.91	-2,737.98	1,622,562.9000	2,252,664.5000	39.5127978	-108.1492510

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 (°)	
2,401.61	2,000.00	G_SAND TVD		0.00		
2,535.26	2,100.00	G_SAND_BASE		0.00		
2,936.22	2,400.00	FRUN TVD		0.00		
4,645.07	3,770.00	OHIO CREEK TVD		0.00		
4,645.07	3,770.00	MVRD TVD		0.00		
5,768.66	4,865.00	KMVGAS TVD		0.00		
7,196.66	6,293.00	CME0 TVD		0.00		
7,676.66	6,773.00	RLNS TVD		0.00		
7,826.66	6,923.00	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	
1,159.10	1,070.33	46.88	-357.59	Start 2531.37 hold at 1159.10 MD	
3,690.47	2,964.34	265.16	-2,022.80	Start Drop -2.00	
5,768.66	4,865.00	358.91	-2,737.98	Start 2058.00 hold at 5768.66 MD	
7,826.66	6,923.00	358.91	-2,737.98	TD at 7826.66	