

Azimuths to True North
 Magnetic North: 9.42°

Magnetic Field
 Strength: 51454.6nT
 Dip Angle: 65.77°
 Date: 1/13/2020
 Model: HDGM_FILE

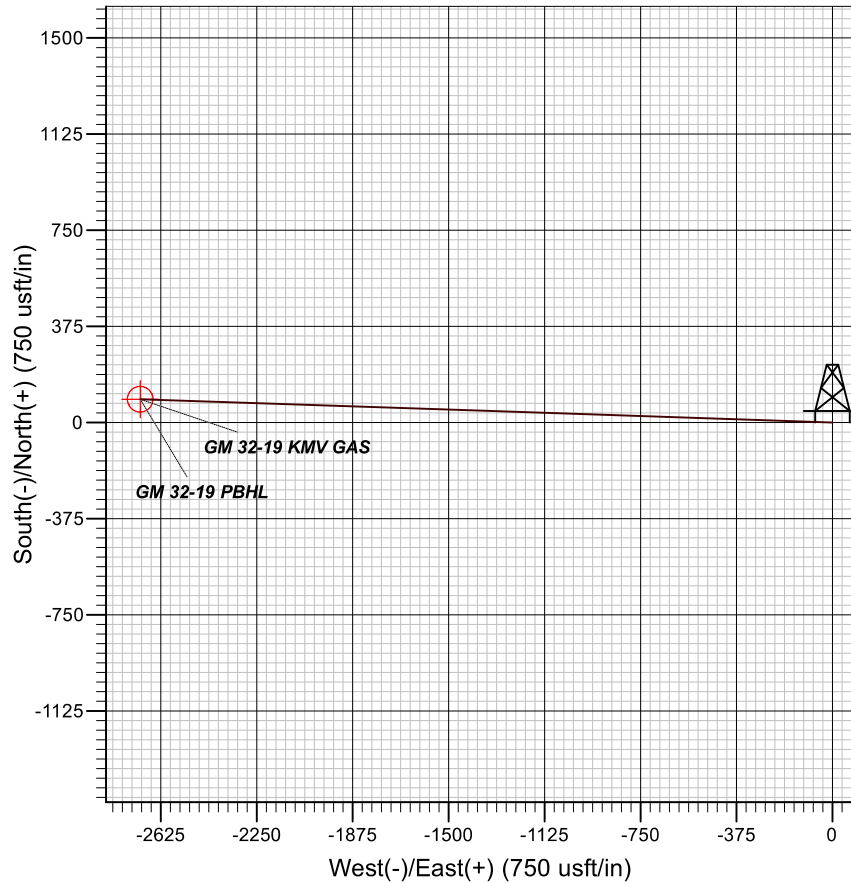
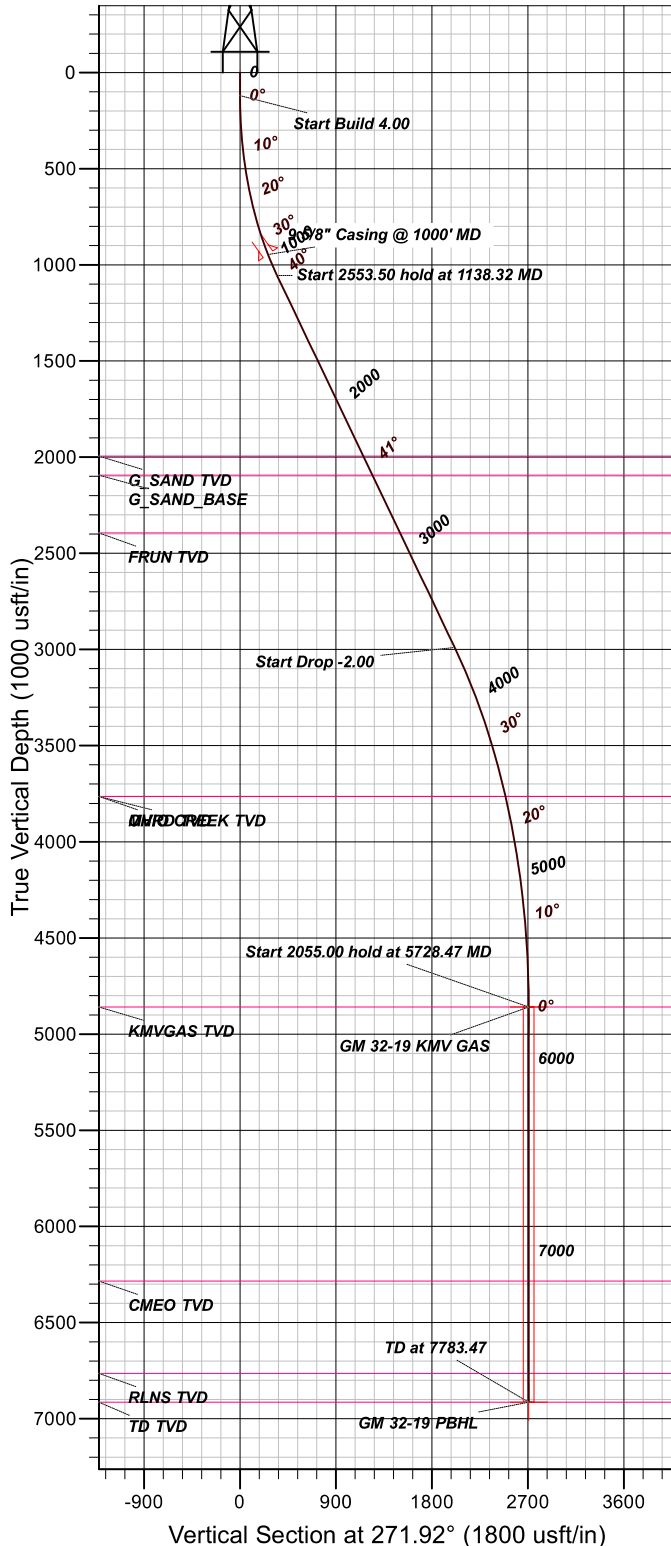
Well Details: GM 32-19

GL 5752.1' & KB 24' @ 5776.10usft (H&P 318)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1622121.8000	2255366.4000	39.5118031	-108.1396329	GM 32-19

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 32-19 KMV GAS	4859.00	90.73	-2705.68	1622291.1000	2252664.5000	39.5120518	-108.1492228	Circle (Radius: 50.00)
GM 32-19 PBHL	6914.00	90.73	-2705.68	1622291.1000	2252664.5000	39.5120518	-108.1492228	Point



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1994.00	2377.92	G_SAND TVD
2094.00	2509.88	G_SAND_BASE
2394.00	2905.79	FRUN TVD
3764.00	4604.89	MVRD TVD
3764.00	4604.89	OHIO CREEK TVD
4859.00	5728.47	KMGAS TVD
6284.00	7153.47	CMEO TVD
6764.00	7633.47	RLNS TVD
6914.00	7783.47	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
1138.32	40.73	271.92	1054.69	11.63	-346.79	4.00	271.92	346.98
3691.83	40.73	271.92	2989.63	67.47	-2012.10	0.00	0.00	2013.23
5728.47	0.00	0.00	4859.00	90.73	-2705.68	2.00	180.00	2707.20
7783.47	0.00	0.00	6914.00	90.73	-2705.68	0.00	0.00	2707.20

TEP Rocky Mountain LLC

Garfield County, CO NAD83

GM 12-20 Pad

GM 32-19 - Slot GM 32-19

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 32-19 - Slot GM 32-19
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 32-19	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 32-19 - Slot GM 32-19					
Well Position	+N/-S	-9.64 usft	Northing:	1,622,121.8000 usft	Latitude:	39.5118032
	+E/-W	-2.74 usft	Easting:	2,255,366.4000 usft	Longitude:	-108.1396329
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	51,454.60000000

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	271.92	

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	
1,138.32	40.73	271.92	1,054.69	11.63	-346.79	4.00	4.00	0.00	271.92	
3,691.83	40.73	271.92	2,989.63	67.47	-2,012.10	0.00	0.00	0.00	0.00	
5,728.47	0.00	0.00	4,859.00	90.73	-2,705.68	2.00	-2.00	0.00	180.00	GM 32-19 KMW GAS
7,783.47	0.00	0.00	6,914.00	90.73	-2,705.68	0.00	0.00	0.00	0.00	GM 32-19 PBHL

Scientific Drilling, Intl

Planning Report

Database:	Grand Junction	Local Co-ordinate Reference:	Well GM 32-19 - Slot GM 32-19
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 32-19	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	271.92	199.96	0.07	-2.23	2.23	4.00	4.00	0.00	
300.00	7.20	271.92	299.53	0.38	-11.29	11.29	4.00	4.00	0.00	
400.00	11.20	271.92	398.22	0.91	-27.26	27.28	4.00	4.00	0.00	
500.00	15.20	271.92	495.56	1.68	-50.08	50.11	4.00	4.00	0.00	
600.00	19.20	271.92	591.07	2.67	-79.63	79.67	4.00	4.00	0.00	
700.00	23.20	271.92	684.28	3.88	-115.76	115.83	4.00	4.00	0.00	
800.00	27.20	271.92	774.74	5.31	-158.31	158.40	4.00	4.00	0.00	
900.00	31.20	271.92	862.02	6.94	-207.06	207.17	4.00	4.00	0.00	
1,000.00	35.20	271.92	945.68	8.78	-261.77	261.92	4.00	4.00	0.00	
9 5/8" Casing @ 1000' MD										
1,100.00	39.20	271.92	1,025.31	10.80	-322.19	322.37	4.00	4.00	0.00	
1,138.32	40.73	271.92	1,054.69	11.63	-346.79	346.98	4.00	4.00	0.00	
Start 2553.50 hold at 1138.32 MD										
1,200.00	40.73	271.92	1,101.42	12.98	-387.01	387.23	0.00	0.00	0.00	
1,300.00	40.73	271.92	1,177.20	15.17	-452.23	452.48	0.00	0.00	0.00	
1,400.00	40.73	271.92	1,252.97	17.35	-517.44	517.74	0.00	0.00	0.00	
1,500.00	40.73	271.92	1,328.75	19.54	-582.66	582.99	0.00	0.00	0.00	
1,600.00	40.73	271.92	1,404.52	21.73	-647.88	648.24	0.00	0.00	0.00	
1,700.00	40.73	271.92	1,480.30	23.91	-713.09	713.49	0.00	0.00	0.00	
1,800.00	40.73	271.92	1,556.08	26.10	-778.31	778.75	0.00	0.00	0.00	
1,900.00	40.73	271.92	1,631.85	28.29	-843.53	844.00	0.00	0.00	0.00	
2,000.00	40.73	271.92	1,707.63	30.47	-908.74	909.25	0.00	0.00	0.00	
2,100.00	40.73	271.92	1,783.40	32.66	-973.96	974.51	0.00	0.00	0.00	
2,200.00	40.73	271.92	1,859.18	34.85	-1,039.18	1,039.76	0.00	0.00	0.00	
2,300.00	40.73	271.92	1,934.95	37.04	-1,104.39	1,105.01	0.00	0.00	0.00	
2,377.92	40.73	271.92	1,994.00	38.74	-1,155.21	1,155.86	0.00	0.00	0.00	
G_SAND TVD										
2,400.00	40.73	271.92	2,010.73	39.22	-1,169.61	1,170.27	0.00	0.00	0.00	
2,500.00	40.73	271.92	2,086.51	41.41	-1,234.83	1,235.52	0.00	0.00	0.00	
2,509.88	40.73	271.92	2,094.00	41.63	-1,241.28	1,241.97	0.00	0.00	0.00	
G_SAND_BASE										
2,599.99	40.73	271.92	2,162.28	43.60	-1,300.04	1,300.77	0.00	0.00	0.00	
2,699.99	40.73	271.92	2,238.06	45.78	-1,365.26	1,366.03	0.00	0.00	0.00	
2,799.99	40.73	271.92	2,313.83	47.97	-1,430.48	1,431.28	0.00	0.00	0.00	
2,899.99	40.73	271.92	2,389.61	50.16	-1,495.69	1,496.53	0.00	0.00	0.00	
2,905.79	40.73	271.92	2,394.00	50.28	-1,499.47	1,500.31	0.00	0.00	0.00	
FRUN TVD										
2,999.99	40.73	271.92	2,465.39	52.34	-1,560.91	1,561.79	0.00	0.00	0.00	
3,099.99	40.73	271.92	2,541.16	54.53	-1,626.13	1,627.04	0.00	0.00	0.00	
3,199.99	40.73	271.92	2,616.94	56.72	-1,691.34	1,692.29	0.00	0.00	0.00	
3,299.99	40.73	271.92	2,692.71	58.91	-1,756.56	1,757.55	0.00	0.00	0.00	
3,399.99	40.73	271.92	2,768.49	61.09	-1,821.78	1,822.80	0.00	0.00	0.00	
3,499.99	40.73	271.92	2,844.26	63.28	-1,886.99	1,888.05	0.00	0.00	0.00	
3,599.99	40.73	271.92	2,920.04	65.47	-1,952.21	1,953.31	0.00	0.00	0.00	
3,691.83	40.73	271.92	2,989.63	67.47	-2,012.10	2,013.23	0.00	0.00	0.00	
Start Drop -2.00										
3,699.99	40.57	271.92	2,995.82	67.65	-2,017.42	2,018.55	2.00	-2.00	0.00	
3,799.99	38.57	271.92	3,072.90	69.79	-2,081.08	2,082.25	2.00	-2.00	0.00	

Scientific Drilling, Intl

Planning Report

Database:	Grand Junction	Local Co-ordinate Reference:	Well GM 32-19 - Slot GM 32-19
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 32-19	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	36.57	271.92	3,152.16	71.83	-2,142.01	2,143.22	2.00	-2.00	0.00
3,999.99	34.57	271.92	3,233.50	73.78	-2,200.15	2,201.38	2.00	-2.00	0.00
4,099.99	32.57	271.92	3,316.82	75.63	-2,255.41	2,256.68	2.00	-2.00	0.00
4,199.99	30.57	271.92	3,402.01	77.39	-2,307.73	2,309.03	2.00	-2.00	0.00
4,299.99	28.57	271.92	3,488.98	79.04	-2,357.05	2,358.37	2.00	-2.00	0.00
4,399.99	26.57	271.92	3,577.62	80.59	-2,403.30	2,404.65	2.00	-2.00	0.00
4,499.99	24.57	271.92	3,667.82	82.04	-2,446.44	2,447.81	2.00	-2.00	0.00
4,599.99	22.57	271.92	3,759.48	83.38	-2,486.40	2,487.80	2.00	-2.00	0.00
4,604.89	22.47	271.92	3,764.00	83.44	-2,488.27	2,489.67	2.00	-2.00	0.00
OHIO CREEK TVD - MVRD TVD									
4,699.99	20.57	271.92	3,852.47	84.61	-2,523.14	2,524.56	2.00	-2.00	0.00
4,799.99	18.57	271.92	3,946.69	85.73	-2,556.61	2,558.05	2.00	-2.00	0.00
4,899.99	16.57	271.92	4,042.02	86.75	-2,586.78	2,588.24	2.00	-2.00	0.00
4,999.99	14.57	271.92	4,138.34	87.65	-2,613.61	2,615.07	2.00	-2.00	0.00
5,099.99	12.57	271.92	4,235.55	88.43	-2,637.05	2,638.54	2.00	-2.00	0.00
5,199.99	10.57	271.92	4,333.51	89.10	-2,657.10	2,658.59	2.00	-2.00	0.00
5,299.99	8.57	271.92	4,432.11	89.66	-2,673.71	2,675.21	2.00	-2.00	0.00
5,399.99	6.57	271.92	4,531.24	90.10	-2,686.88	2,688.39	2.00	-2.00	0.00
5,499.99	4.57	271.92	4,630.76	90.43	-2,696.58	2,698.09	2.00	-2.00	0.00
5,599.99	2.57	271.92	4,730.56	90.64	-2,702.80	2,704.32	2.00	-2.00	0.00
5,699.99	0.57	271.92	4,830.52	90.73	-2,705.54	2,707.06	2.00	-2.00	0.00
5,728.47	0.00	0.00	4,859.00	90.73	-2,705.68	2,707.20	2.00	-2.00	0.00
Start 2055.00 hold at 5728.47 MD - KMGAS TVD									
5,799.99	0.00	0.00	4,930.52	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
5,899.99	0.00	0.00	5,030.52	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
5,999.99	0.00	0.00	5,130.52	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
6,099.99	0.00	0.00	5,230.52	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
6,199.99	0.00	0.00	5,330.52	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
6,299.99	0.00	0.00	5,430.51	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
6,399.99	0.00	0.00	5,530.51	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
6,499.99	0.00	0.00	5,630.51	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
6,599.99	0.00	0.00	5,730.51	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
6,699.99	0.00	0.00	5,830.51	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
6,799.99	0.00	0.00	5,930.51	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
6,899.99	0.00	0.00	6,030.51	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
6,999.99	0.00	0.00	6,130.51	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
7,099.99	0.00	0.00	6,230.51	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
7,153.47	0.00	0.00	6,284.00	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
CMEQ TVD									
7,199.99	0.00	0.00	6,330.51	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
7,299.99	0.00	0.00	6,430.51	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
7,399.99	0.00	0.00	6,530.51	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
7,499.99	0.00	0.00	6,630.51	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
7,599.98	0.00	0.00	6,730.51	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
7,633.47	0.00	0.00	6,764.00	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
RLNS TVD									
7,699.98	0.00	0.00	6,830.51	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
7,783.47	0.00	0.00	6,914.00	90.73	-2,705.68	2,707.20	0.00	0.00	0.00
TD at 7783.47 - TD TVD									

Scientific Drilling, Intl

Planning Report

Database:	Grand Junction	Local Co-ordinate Reference:	Well GM 32-19 - Slot GM 32-19
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 32-19	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 32-19 KMV GAS - plan hits target center - Circle (radius 50.00)	0.00	0.00	4,859.00	90.73	-2,705.68	1,622,291.1000	2,252,664.5000	39.5120519	-108.1492229
GM 32-19 PBHL - plan hits target center - Point	0.00	0.00	6,914.00	90.73	-2,705.68	1,622,291.1000	2,252,664.5000	39.5120519	-108.1492229

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 (°)
2,377.92	1,994.00	G_SAND TVD		0.00	
2,509.88	2,094.00	G_SAND_BASE		0.00	
2,905.79	2,394.00	FRUN TVD		0.00	
4,604.89	3,764.00	OHIO CREEK TVD		0.00	
4,604.89	3,764.00	MVRD TVD		0.00	
5,728.47	4,859.00	KMVGAS TVD		0.00	
7,153.47	6,284.00	CMEO TVD		0.00	
7,633.47	6,764.00	RLNS TVD		0.00	
7,783.47	6,914.00	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
1,138.32	1,054.69	11.63	-346.79	Start 2553.50 hold at 1138.32 MD
3,691.83	2,989.63	67.47	-2,012.10	Start Drop -2.00
5,728.47	4,859.00	90.73	-2,705.68	Start 2055.00 hold at 5728.47 MD
7,783.47	6,914.00	90.73	-2,705.68	TD at 7783.47