

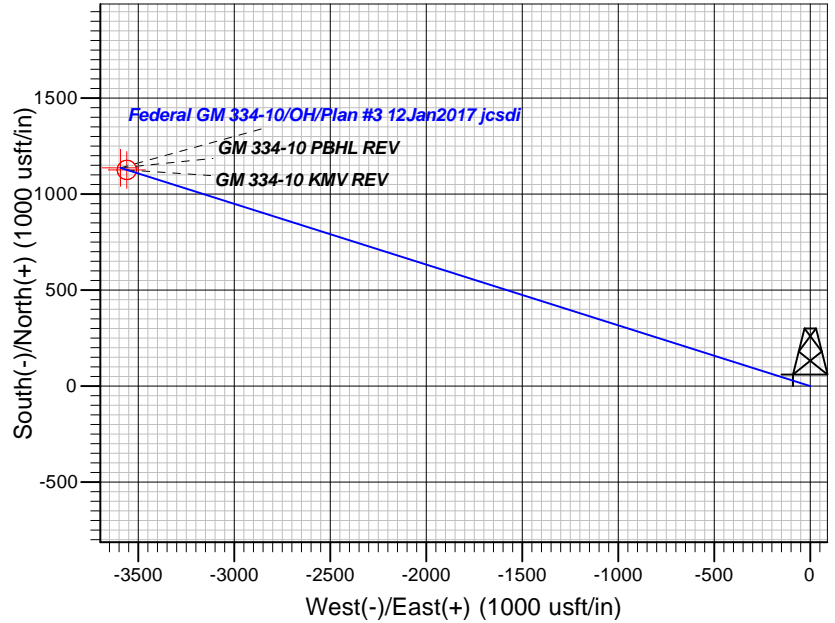
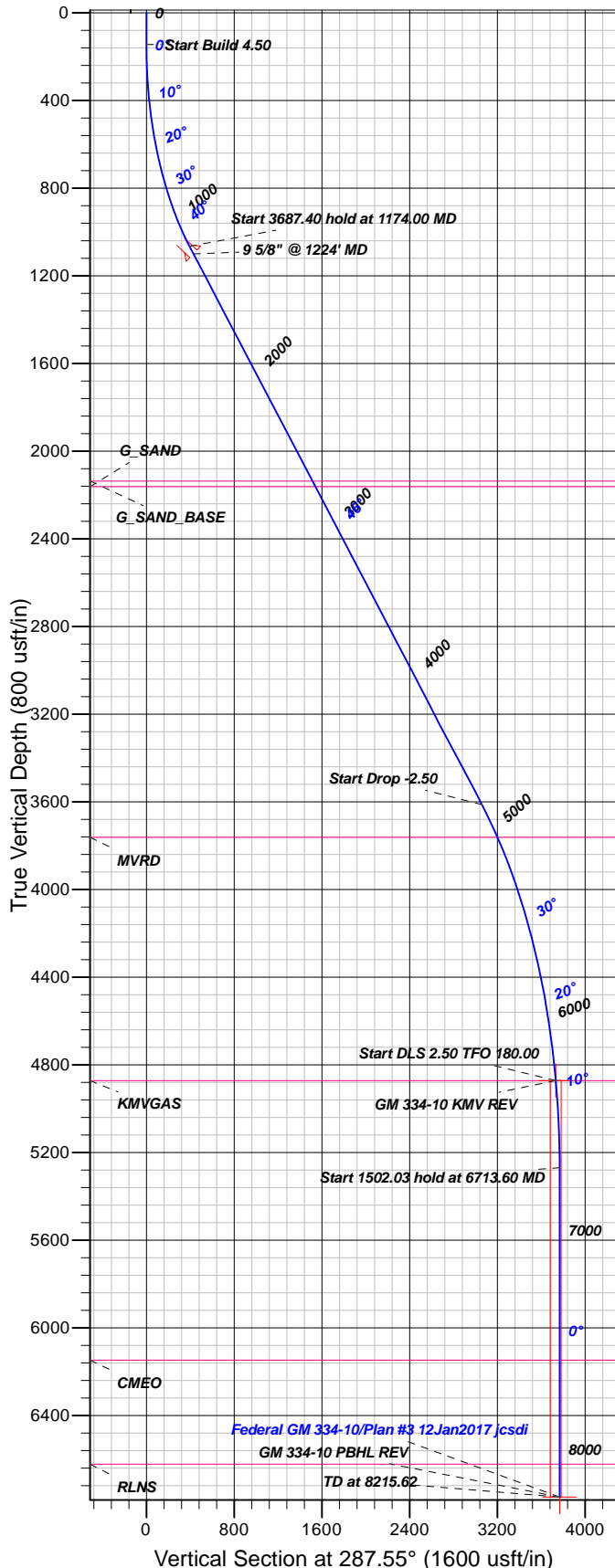
Well Details: Federal GM 334-10

GL 6148' & RKB 24' @ 6172.00usft (H&P 318)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1600330.70	2266838.90	39.4529091	-108.0967792	A3

T M Azimuths to True North
Magnetic North: 9.71°

Magnetic Field
Strength: 51587.4snT
Dip Angle: 65.58°
Date: 9/13/2016
Model: BGGM2016



FORMATION TOP DETAILS

TVDPth	MDPath	Formation
2137.00	2724.93	G_SAND_BASE
2162.00	2761.12	G_SAND
3762.00	5067.77	MVRD
4872.00	6313.60	KMVGAS
6147.00	7590.62	CMEQ
6622.00	8065.62	RLNS

Plan: Plan #3 12Jan2017 jcsdi

12:52, January 12 2017
Created By: Janie Collins

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
1100.13	1224.00	9 5/8" @ 1224' MD	9.62

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	145.00	0.00	0.00	145.00	0.00	0.00	0.00	0.00	0.00	
3	1174.00	46.30	287.55	1065.59	118.73	-375.33	4.50	287.55	393.66	
4	4861.40	46.30	287.55	3612.92	922.86	-2917.26	0.00	0.003059.75		
5	6313.60	10.00	287.55	4872.00	1126.08	-3559.65	2.50	180.003733.52		GM 334-10 KMV REV
6	6713.60	0.00	0.00	5269.97	1136.58	-3592.85	2.50	180.003768.34		
7	8215.62	0.00	0.00	6772.00	1136.58	-3592.85	0.00	0.003768.34		GM 334-10 PBHL REV

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 334-10 KMV REV 4872.00	1126.08	-3559.65	1601558.06	2263312.89	39.4560001	-108.1093859	Circle (Radius: 50.00)	
- plan hits target center								
GM 334-10 PBHL REV 6772.00	1136.58	-3592.85	1601569.50	2263280.00	39.4560289	-108.1095035	Point	
- plan misses target center by 0.01usft at 8215.62usft MD (6772.00 TVD, 1136.58 N -3592.85 E)								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

MV 5-10 Pad

Federal GM 334-10 - Slot A3

OH

Plan: Plan #3 12Jan2017 jcsdi

Standard Planning Report

12 January, 2017



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 334-10 - Slot A3
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
Project:	Garfield County, CO NAD83	MD Reference:	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
Site:	MV 5-10 Pad	North Reference:	True
Well:	Federal GM 334-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 12Jan2017 jcsdi		

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	MV 5-10 Pad			
Site Position:		Northing:	1,600,344.70 usft	Latitude: 39.4529509
From: Map		Easting:	2,266,881.70 usft	Longitude: -108.0966291
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence: -1.64 °

Well	Federal GM 334-10 - Slot A3			
Well Position	+N/-S	-15.22 usft	Northing:	1,600,330.70 usft
	+E/-W	-42.38 usft	Easting:	2,266,838.90 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	0.00 usft
			Ground Level:	6,148.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2016	9/13/2016	9.72	65.58	51,587

Design	Plan #3 12Jan2017 jcsdi			
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	287.55

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	
145.00	0.00	0.00	145.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,174.00	46.30	287.55	1,065.59	118.73	-375.33	4.50	4.50	0.00	287.55	
4,861.40	46.30	287.55	3,612.92	922.86	-2,917.26	0.00	0.00	0.00	0.00	
6,313.60	10.00	287.55	4,872.00	1,126.08	-3,559.65	2.50	-2.50	0.00	180.00	GM 334-10 KMV REV
6,713.60	0.00	0.00	5,269.97	1,136.58	-3,592.85	2.50	-2.50	18.11	180.00	
8,215.62	0.00	0.00	6,772.00	1,136.58	-3,592.85	0.00	0.00	0.00	0.00	GM 334-10 PBHL RE

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 334-10 - Slot A3
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
Project:	Garfield County, CO NAD83	MD Reference:	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
Site:	MV 5-10 Pad	North Reference:	True
Well:	Federal GM 334-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 12Jan2017 jcsdi		

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	
145.00	0.00	0.00	145.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	2.48	287.55	199.98	0.36	-1.13	1.19	4.50	4.50	0.00	
300.00	6.98	287.55	299.62	2.84	-8.98	9.42	4.50	4.50	0.00	
400.00	11.48	287.55	398.30	7.68	-24.26	25.45	4.50	4.50	0.00	
500.00	15.98	287.55	495.42	14.83	-46.88	49.17	4.50	4.50	0.00	
600.00	20.48	287.55	590.38	24.26	-76.69	80.44	4.50	4.50	0.00	
700.00	24.98	287.55	682.59	35.91	-113.51	119.06	4.50	4.50	0.00	
800.00	29.48	287.55	771.49	49.70	-157.12	164.79	4.50	4.50	0.00	
900.00	33.98	287.55	856.53	65.56	-207.24	217.37	4.50	4.50	0.00	
1,000.00	38.48	287.55	937.18	83.38	-263.57	276.45	4.50	4.50	0.00	
1,100.00	42.98	287.55	1,012.94	103.05	-325.76	341.67	4.50	4.50	0.00	
1,174.00	46.30	287.55	1,065.59	118.73	-375.33	393.66	4.50	4.50	0.00	
1,200.00	46.30	287.55	1,083.55	124.40	-393.25	412.46	0.00	0.00	0.00	
1,224.00	46.30	287.55	1,100.13	129.64	-409.80	429.81	0.00	0.00	0.00	
9 5/8" @ 1224' MD										
1,300.00	46.30	287.55	1,152.63	146.21	-462.19	484.76	0.00	0.00	0.00	
1,400.00	46.30	287.55	1,221.71	168.02	-531.12	557.07	0.00	0.00	0.00	
1,500.00	46.30	287.55	1,290.79	189.83	-600.06	629.37	0.00	0.00	0.00	
1,600.00	46.30	287.55	1,359.88	211.63	-668.99	701.67	0.00	0.00	0.00	
1,700.00	46.30	287.55	1,428.96	233.44	-737.93	773.97	0.00	0.00	0.00	
1,800.00	46.30	287.55	1,498.04	255.25	-806.86	846.28	0.00	0.00	0.00	
1,900.00	46.30	287.55	1,567.12	277.06	-875.80	918.58	0.00	0.00	0.00	
2,000.00	46.30	287.55	1,636.20	298.86	-944.74	990.88	0.00	0.00	0.00	
2,100.00	46.30	287.55	1,705.29	320.67	-1,013.67	1,063.18	0.00	0.00	0.00	
2,200.00	46.30	287.55	1,774.37	342.48	-1,082.61	1,135.49	0.00	0.00	0.00	
2,300.00	46.30	287.55	1,843.45	364.29	-1,151.54	1,207.79	0.00	0.00	0.00	
2,313.18	46.30	287.55	1,852.56	367.16	-1,160.63	1,217.32	0.00	0.00	0.00	
GM 334-10 KMV										
2,400.00	46.30	287.55	1,912.53	386.09	-1,220.48	1,280.09	0.00	0.00	0.00	
2,500.00	46.30	287.55	1,981.61	407.90	-1,289.41	1,352.39	0.00	0.00	0.00	
2,600.00	46.30	287.55	2,050.70	429.71	-1,358.35	1,424.70	0.00	0.00	0.00	
2,700.00	46.30	287.55	2,119.78	451.52	-1,427.28	1,497.00	0.00	0.00	0.00	
2,724.93	46.30	287.55	2,137.00	456.95	-1,444.47	1,515.02	0.00	0.00	0.00	
G_SAND_BASE										
2,761.12	46.30	287.55	2,162.00	464.84	-1,469.42	1,541.19	0.00	0.00	0.00	
G_SAND										
2,800.00	46.30	287.55	2,188.86	473.32	-1,496.22	1,569.30	0.00	0.00	0.00	
2,900.00	46.30	287.55	2,257.94	495.13	-1,565.16	1,641.60	0.00	0.00	0.00	
3,000.00	46.30	287.55	2,327.02	516.94	-1,634.09	1,713.91	0.00	0.00	0.00	
3,100.00	46.30	287.55	2,396.11	538.75	-1,703.03	1,786.21	0.00	0.00	0.00	
3,200.00	46.30	287.55	2,465.19	560.55	-1,771.96	1,858.51	0.00	0.00	0.00	
3,300.00	46.30	287.55	2,534.27	582.36	-1,840.90	1,930.82	0.00	0.00	0.00	
3,400.00	46.30	287.55	2,603.35	604.17	-1,909.83	2,003.12	0.00	0.00	0.00	
3,500.00	46.30	287.55	2,672.43	625.98	-1,978.77	2,075.42	0.00	0.00	0.00	
3,600.00	46.30	287.55	2,741.52	647.78	-2,047.70	2,147.72	0.00	0.00	0.00	
3,700.00	46.30	287.55	2,810.60	669.59	-2,116.64	2,220.03	0.00	0.00	0.00	
3,800.00	46.30	287.55	2,879.68	691.40	-2,185.58	2,292.33	0.00	0.00	0.00	
3,900.00	46.30	287.55	2,948.76	713.20	-2,254.51	2,364.63	0.00	0.00	0.00	
4,000.00	46.30	287.55	3,017.85	735.01	-2,323.45	2,436.93	0.00	0.00	0.00	
4,100.00	46.30	287.55	3,086.93	756.82	-2,392.38	2,509.24	0.00	0.00	0.00	

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Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
Project:	Garfield County, CO NAD83	MD Reference:	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
Site:	MV 5-10 Pad	North Reference:	True
Well:	Federal GM 334-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 12Jan2017 jcsdi		

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)
4,200.00	46.30	287.55	3,156.01	778.63	-2,461.32	2,581.54	0.00	0.00	0.00
4,300.00	46.30	287.55	3,225.09	800.43	-2,530.25	2,653.84	0.00	0.00	0.00
4,400.00	46.30	287.55	3,294.17	822.24	-2,599.19	2,726.14	0.00	0.00	0.00
4,500.00	46.30	287.55	3,363.26	844.05	-2,668.12	2,798.45	0.00	0.00	0.00
4,600.00	46.30	287.55	3,432.34	865.86	-2,737.06	2,870.75	0.00	0.00	0.00
4,700.00	46.30	287.55	3,501.42	887.66	-2,806.00	2,943.05	0.00	0.00	0.00
4,800.00	46.30	287.55	3,570.50	909.47	-2,874.93	3,015.36	0.00	0.00	0.00
4,861.40	46.30	287.55	3,612.92	922.86	-2,917.26	3,059.75	0.00	0.00	0.00
4,900.00	45.34	287.55	3,639.82	931.21	-2,943.65	3,087.43	2.50	-2.50	0.00
5,000.00	42.84	287.55	3,711.64	952.20	-3,009.98	3,157.01	2.50	-2.50	0.00
5,067.77	41.15	287.55	3,762.00	965.87	-3,053.21	3,202.34	2.50	-2.50	0.00
MVRD									
5,100.00	40.34	287.55	3,786.42	972.22	-3,073.27	3,223.38	2.50	-2.50	0.00
5,200.00	37.84	287.55	3,864.03	991.23	-3,133.38	3,286.43	2.50	-2.50	0.00
5,300.00	35.34	287.55	3,944.32	1,009.21	-3,190.21	3,346.03	2.50	-2.50	0.00
5,400.00	32.84	287.55	4,027.13	1,026.11	-3,243.64	3,402.08	2.50	-2.50	0.00
5,500.00	30.34	287.55	4,112.30	1,041.91	-3,293.58	3,454.46	2.50	-2.50	0.00
5,600.00	27.84	287.55	4,199.68	1,056.57	-3,339.93	3,503.07	2.50	-2.50	0.00
5,700.00	25.34	287.55	4,289.10	1,070.07	-3,382.61	3,547.83	2.50	-2.50	0.00
5,800.00	22.84	287.55	4,380.38	1,082.38	-3,421.52	3,588.64	2.50	-2.50	0.00
5,900.00	20.34	287.55	4,473.36	1,093.48	-3,456.60	3,625.43	2.50	-2.50	0.00
6,000.00	17.84	287.55	4,567.85	1,103.34	-3,487.78	3,658.14	2.50	-2.50	0.00
6,100.00	15.34	287.55	4,663.68	1,111.95	-3,515.00	3,686.69	2.50	-2.50	0.00
6,200.00	12.84	287.55	4,760.66	1,119.30	-3,538.21	3,711.03	2.50	-2.50	0.00
6,300.00	10.34	287.55	4,858.62	1,125.36	-3,557.36	3,731.12	2.50	-2.50	0.00
6,313.60	10.00	287.55	4,872.00	1,126.08	-3,559.65	3,733.52	2.50	-2.50	0.00
KMVGAS - GM 334-10 KMV REV									
6,400.00	7.84	287.55	4,957.35	1,130.12	-3,572.42	3,746.92	2.50	-2.50	0.00
6,500.00	5.34	287.55	5,056.68	1,133.58	-3,583.36	3,758.39	2.50	-2.50	0.00
6,600.00	2.84	287.55	5,156.42	1,135.73	-3,590.16	3,765.52	2.50	-2.50	0.00
6,700.00	0.34	287.55	5,256.38	1,136.57	-3,592.81	3,768.30	2.50	-2.50	0.00
6,713.60	0.00	0.00	5,269.97	1,136.58	-3,592.85	3,768.34	2.50	-2.50	532.80
6,800.00	0.00	0.00	5,356.38	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
6,900.00	0.00	0.00	5,456.38	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
7,000.00	0.00	0.00	5,556.38	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
7,100.00	0.00	0.00	5,656.38	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
7,200.00	0.00	0.00	5,756.38	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
7,300.00	0.00	0.00	5,856.38	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
7,400.00	0.00	0.00	5,956.38	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
7,500.00	0.00	0.00	6,056.38	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
7,590.62	0.00	0.00	6,147.00	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
CME0									
7,600.00	0.00	0.00	6,156.38	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
7,700.00	0.00	0.00	6,256.38	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
7,800.00	0.00	0.00	6,356.38	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
7,900.00	0.00	0.00	6,456.38	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
8,000.00	0.00	0.00	6,556.38	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
8,065.62	0.00	0.00	6,622.00	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
RLNS									
8,100.00	0.00	0.00	6,656.38	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
8,183.62	0.00	0.00	6,740.00	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00

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Project:	Garfield County, CO NAD83	MD Reference:	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
Site:	MV 5-10 Pad	North Reference:	True
Well:	Federal GM 334-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 12Jan2017 jcsdi		

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)
GM 334-10 PBHL									
8,200.00	0.00	0.00	6,756.38	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
8,215.62	0.00	0.00	6,772.00	1,136.58	-3,592.85	3,768.34	0.00	0.00	0.00
GM 334-10 PBHL REV									

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 334-10 KMV REV - plan hits target center - Circle (radius 50.00)	0.00	0.00	4,872.00	1,126.08	-3,559.65	1,601,558.05	2,263,312.89	39.4560001	-108.1093860
GM 334-10 PBHL REV - plan misses target center by 0.01usft at 8215.62usft MD (6772.00 TVD, 1136.58 N, -3592.85 E) - Point	0.00	0.00	6,772.00	1,136.58	-3,592.85	1,601,569.50	2,263,280.00	39.4560289	-108.1095036

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,224.00	1,100.13	9 5/8" @ 1224' MD	9.62	9.62	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,724.93	2,137.00	G_SAND_BASE		0.00	0.00
2,761.12	2,162.00	G_SAND		0.00	0.00
5,067.77	3,762.00	MVRD		0.00	0.00
6,313.60	4,872.00	KMVGAS		0.00	0.00
7,590.62	6,147.00	CMEQ		0.00	0.00
8,065.62	6,622.00	RLNS		0.00	0.00