

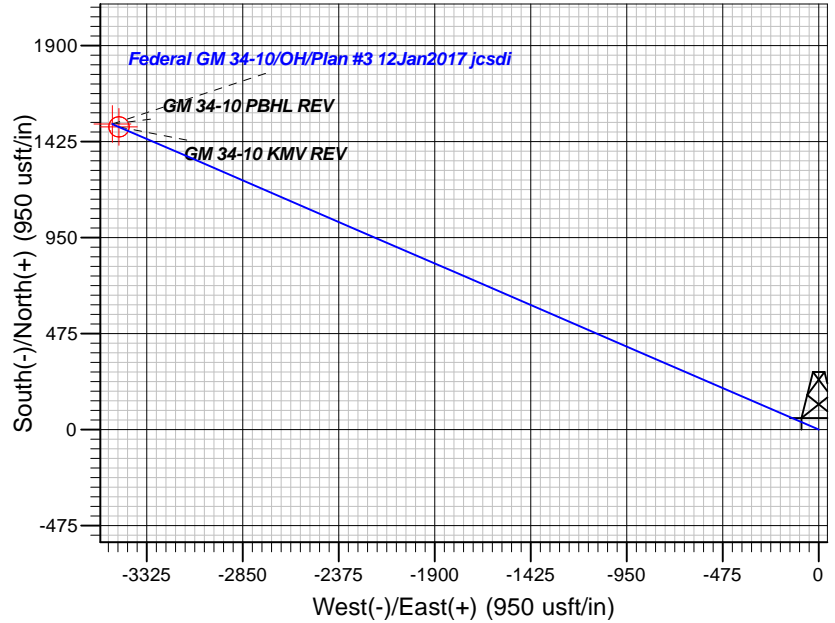
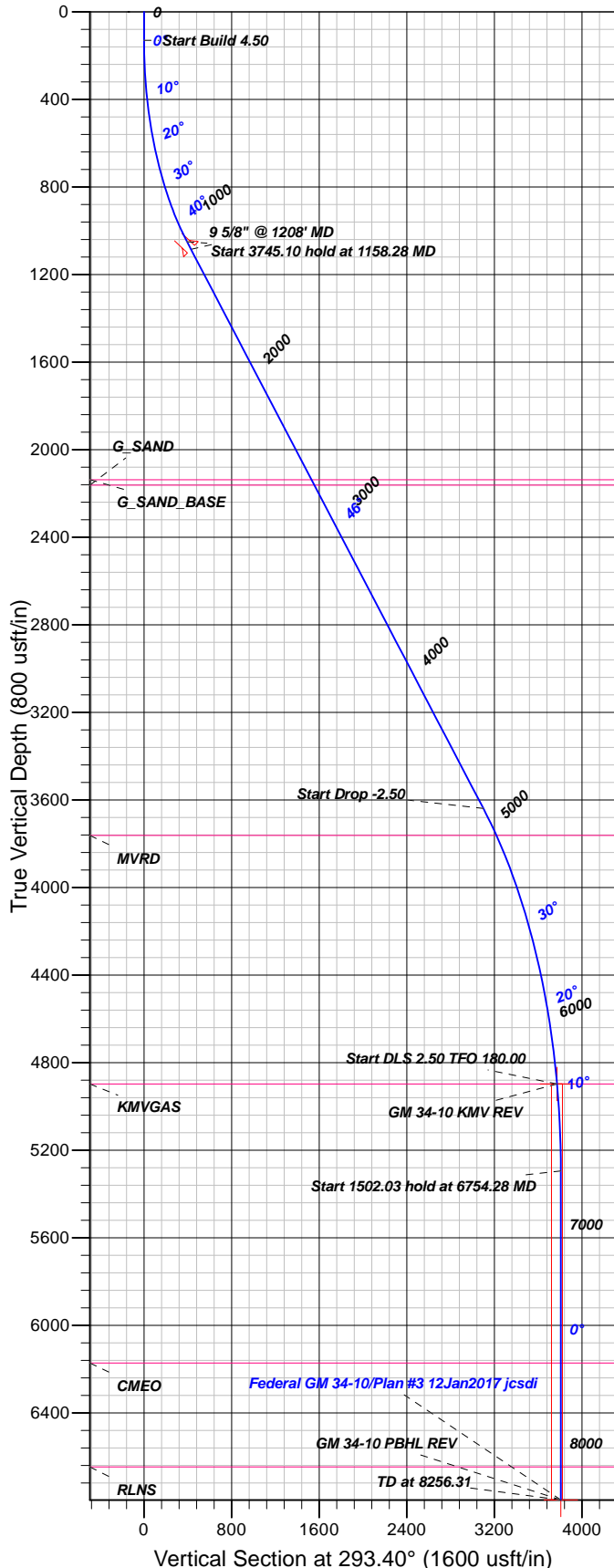
Well Details: Federal GM 34-10

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1600333.00	2266846.00	39.4529160	-108.0967543	A4

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	2730.71	G_SAND_BASE
2162.00	2766.88	G_SAND
3762.00	5075.04	MVRD
4897.00	6354.28	KMVGAS
6172.00	7631.31	CMEO
6647.00	8106.31	RLNS

Plan: Plan #3 12Jan2017 jcsdi

13:05, 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
1084.46	1208.00	9 5/8" @ 1208' MD	9.62

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	130.00	0.00	0.00	130.00	0.00	0.00	0.00	0.00	0.00	
3	1158.28	46.27	293.40	1050.09	156.11	-360.82	4.50	293.40	393.14	
4	4903.38	46.27	293.40	3638.81	1230.75	-2844.66	0.00	0.00	0.00	
5	6354.28	10.00	293.40	4897.00	1497.92	-3462.17	2.50	180.00	3772.32	GM 34-10 KMV REV
6	6754.28	0.00	0.00	5294.97	1511.75	-3494.13	2.50	180.00	3807.14	
7	8256.31	0.00	0.00	6797.00	1511.75	-3494.13	0.00	0.00	3807.14	GM 34-10 PBHL REV

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 34-10 KMV REV	4897.00	1497.92	-3462.17	1601929.26	2263428.06	39.4570278	-108.1090160	Circle (Radius: 50.00)
- plan hits target center								
GM 34-10 PBHL REV	6797.00	1511.75	-3494.13	1601944.00	2263396.50	39.4570658	-108.1091292	Point
- plan misses target center by 0.01usft at 8256.31usft MD (6797.00 TVD, 1511.75 N, -3494.13 E)								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

MV 5-10 Pad

Federal GM 34-10 - Slot A4

OH

Plan: Plan #3 12Jan2017 jcsdi

Standard Planning Report

12 January, 2017



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 34-10 - Slot A4
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 34-10	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 34-10 - Slot A4			
Well Position	+N/-S	-12.72 usft	Northing:	1,600,333.00 usft
	+E/-W	-35.35 usft	Easting:	2,266,846.00 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	293.40

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	
130.00	0.00	0.00	130.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,158.28	46.27	293.40	1,050.09	156.11	-360.82	4.50	4.50	0.00	293.40	
4,903.38	46.27	293.40	3,638.81	1,230.75	-2,844.66	0.00	0.00	0.00	0.00	
6,354.28	10.00	293.40	4,897.00	1,497.92	-3,462.17	2.50	-2.50	0.00	180.00	GM 34-10 KMV REV
6,754.28	0.00	0.00	5,294.97	1,511.75	-3,494.13	2.50	-2.50	16.65	180.00	
8,256.31	0.00	0.00	6,797.00	1,511.75	-3,494.13	0.00	0.00	0.00	0.00	GM 34-10 PBHL REV

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 34-10 - Slot A4
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 34-10	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	
130.00	0.00	0.00	130.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	3.15	293.40	199.96	0.76	-1.77	1.92	4.50	4.50	0.00	
300.00	7.65	293.40	299.50	4.50	-10.40	11.33	4.50	4.50	0.00	
400.00	12.15	293.40	397.98	11.33	-26.18	28.52	4.50	4.50	0.00	
500.00	16.65	293.40	494.81	21.20	-48.99	53.38	4.50	4.50	0.00	
600.00	21.15	293.40	589.40	34.06	-78.72	85.77	4.50	4.50	0.00	
700.00	25.65	293.40	681.15	49.82	-115.16	125.47	4.50	4.50	0.00	
800.00	30.15	293.40	769.50	68.40	-158.09	172.25	4.50	4.50	0.00	
900.00	34.65	293.40	853.92	89.67	-207.25	225.82	4.50	4.50	0.00	
1,000.00	39.15	293.40	933.86	113.50	-262.35	285.85	4.50	4.50	0.00	
1,100.00	43.65	293.40	1,008.86	139.76	-323.02	351.96	4.50	4.50	0.00	
1,158.28	46.27	293.40	1,050.09	156.11	-360.82	393.14	4.50	4.50	0.00	
1,200.00	46.27	293.40	1,078.93	168.08	-388.49	423.29	0.00	0.00	0.00	
1,208.00	46.27	293.40	1,084.46	170.38	-393.79	429.07	0.00	0.00	0.00	
9 5/8" @ 1208' MD										
1,300.00	46.27	293.40	1,148.05	196.78	-454.81	495.55	0.00	0.00	0.00	
1,400.00	46.27	293.40	1,217.17	225.47	-521.13	567.82	0.00	0.00	0.00	
1,500.00	46.27	293.40	1,286.30	254.16	-587.45	640.08	0.00	0.00	0.00	
1,600.00	46.27	293.40	1,355.42	282.86	-653.78	712.34	0.00	0.00	0.00	
1,700.00	46.27	293.40	1,424.54	311.55	-720.10	784.61	0.00	0.00	0.00	
1,800.00	46.27	293.40	1,493.67	340.25	-786.42	856.87	0.00	0.00	0.00	
1,900.00	46.27	293.40	1,562.79	368.94	-852.74	929.13	0.00	0.00	0.00	
2,000.00	46.27	293.40	1,631.91	397.64	-919.07	1,001.40	0.00	0.00	0.00	
2,100.00	46.27	293.40	1,701.03	426.33	-985.39	1,073.66	0.00	0.00	0.00	
2,200.00	46.27	293.40	1,770.16	455.03	-1,051.71	1,145.92	0.00	0.00	0.00	
2,300.00	46.27	293.40	1,839.28	483.72	-1,118.03	1,218.19	0.00	0.00	0.00	
2,308.17	46.27	293.40	1,844.93	486.07	-1,123.45	1,224.09	0.00	0.00	0.00	
GM 34-10 KMV										
2,400.00	46.27	293.40	1,908.40	512.42	-1,184.35	1,290.45	0.00	0.00	0.00	
2,500.00	46.27	293.40	1,977.53	541.11	-1,250.68	1,362.72	0.00	0.00	0.00	
2,600.00	46.27	293.40	2,046.65	569.80	-1,317.00	1,434.98	0.00	0.00	0.00	
2,700.00	46.27	293.40	2,115.77	598.50	-1,383.32	1,507.24	0.00	0.00	0.00	
2,730.71	46.27	293.40	2,137.00	607.31	-1,403.69	1,529.44	0.00	0.00	0.00	
G_SAND_BASE										
2,766.88	46.27	293.40	2,162.00	617.69	-1,427.68	1,555.57	0.00	0.00	0.00	
G_SAND										
2,800.00	46.27	293.40	2,184.89	627.19	-1,449.64	1,579.51	0.00	0.00	0.00	
2,900.00	46.27	293.40	2,254.02	655.89	-1,515.97	1,651.77	0.00	0.00	0.00	
3,000.00	46.27	293.40	2,323.14	684.58	-1,582.29	1,724.03	0.00	0.00	0.00	
3,100.00	46.27	293.40	2,392.26	713.28	-1,648.61	1,796.30	0.00	0.00	0.00	
3,200.00	46.27	293.40	2,461.39	741.97	-1,714.93	1,868.56	0.00	0.00	0.00	
3,300.00	46.27	293.40	2,530.51	770.67	-1,781.26	1,940.82	0.00	0.00	0.00	
3,400.00	46.27	293.40	2,599.63	799.36	-1,847.58	2,013.09	0.00	0.00	0.00	
3,500.00	46.27	293.40	2,668.75	828.06	-1,913.90	2,085.35	0.00	0.00	0.00	
3,600.00	46.27	293.40	2,737.88	856.75	-1,980.22	2,157.61	0.00	0.00	0.00	
3,700.00	46.27	293.40	2,807.00	885.44	-2,046.54	2,229.88	0.00	0.00	0.00	
3,800.00	46.27	293.40	2,876.12	914.14	-2,112.87	2,302.14	0.00	0.00	0.00	
3,900.00	46.27	293.40	2,945.25	942.83	-2,179.19	2,374.41	0.00	0.00	0.00	
4,000.00	46.27	293.40	3,014.37	971.53	-2,245.51	2,446.67	0.00	0.00	0.00	
4,100.00	46.27	293.40	3,083.49	1,000.22	-2,311.83	2,518.93	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 34-10	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	46.27	293.40	3,152.61	1,028.92	-2,378.16	2,591.20	0.00	0.00	0.00
4,300.00	46.27	293.40	3,221.74	1,057.61	-2,444.48	2,663.46	0.00	0.00	0.00
4,400.00	46.27	293.40	3,290.86	1,086.31	-2,510.80	2,735.72	0.00	0.00	0.00
4,500.00	46.27	293.40	3,359.98	1,115.00	-2,577.12	2,807.99	0.00	0.00	0.00
4,600.00	46.27	293.40	3,429.11	1,143.70	-2,643.45	2,880.25	0.00	0.00	0.00
4,700.00	46.27	293.40	3,498.23	1,172.39	-2,709.77	2,952.51	0.00	0.00	0.00
4,800.00	46.27	293.40	3,567.35	1,201.09	-2,776.09	3,024.78	0.00	0.00	0.00
4,900.00	46.27	293.40	3,636.48	1,229.78	-2,842.41	3,097.04	0.00	0.00	0.00
4,903.38	46.27	293.40	3,638.81	1,230.75	-2,844.66	3,099.49	0.00	0.00	0.00
5,000.00	43.86	293.40	3,707.05	1,257.91	-2,907.42	3,167.88	2.50	-2.50	0.00
5,075.04	41.98	293.40	3,762.00	1,278.20	-2,954.32	3,218.97	2.50	-2.50	0.00
MVRD									
5,100.00	41.36	293.40	3,780.65	1,284.79	-2,969.55	3,235.57	2.50	-2.50	0.00
5,200.00	38.86	293.40	3,857.12	1,310.36	-3,028.67	3,299.98	2.50	-2.50	0.00
5,300.00	36.36	293.40	3,936.34	1,334.59	-3,084.67	3,361.00	2.50	-2.50	0.00
5,400.00	33.86	293.40	4,018.14	1,357.43	-3,137.45	3,418.51	2.50	-2.50	0.00
5,500.00	31.36	293.40	4,102.37	1,378.83	-3,186.90	3,472.39	2.50	-2.50	0.00
5,600.00	28.86	293.40	4,188.87	1,398.74	-3,232.94	3,522.55	2.50	-2.50	0.00
5,700.00	26.36	293.40	4,277.48	1,417.14	-3,275.47	3,568.89	2.50	-2.50	0.00
5,800.00	23.86	293.40	4,368.03	1,433.99	-3,314.40	3,611.32	2.50	-2.50	0.00
5,900.00	21.36	293.40	4,460.33	1,449.25	-3,349.68	3,649.75	2.50	-2.50	0.00
6,000.00	18.86	293.40	4,554.23	1,462.90	-3,381.23	3,684.13	2.50	-2.50	0.00
6,100.00	16.36	293.40	4,649.54	1,474.91	-3,408.99	3,714.38	2.50	-2.50	0.00
6,200.00	13.86	293.40	4,746.08	1,485.26	-3,432.91	3,740.44	2.50	-2.50	0.00
6,300.00	11.36	293.40	4,843.66	1,493.93	-3,452.94	3,762.26	2.50	-2.50	0.00
6,354.28	10.00	293.40	4,897.00	1,497.92	-3,462.17	3,772.32	2.50	-2.50	0.00
KMVGAS - GM 34-10 KMV REV									
6,400.00	8.86	293.40	4,942.10	1,500.89	-3,469.04	3,779.81	2.50	-2.50	0.00
6,500.00	6.36	293.40	5,041.21	1,506.15	-3,481.19	3,793.04	2.50	-2.50	0.00
6,600.00	3.86	293.40	5,140.81	1,509.68	-3,489.36	3,801.95	2.50	-2.50	0.00
6,700.00	1.36	293.40	5,240.69	1,511.49	-3,493.54	3,806.49	2.50	-2.50	0.00
6,754.28	0.00	0.00	5,294.97	1,511.75	-3,494.13	3,807.14	2.50	-2.50	122.70
6,800.00	0.00	0.00	5,340.69	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
6,900.00	0.00	0.00	5,440.69	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
7,000.00	0.00	0.00	5,540.69	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
7,100.00	0.00	0.00	5,640.69	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
7,200.00	0.00	0.00	5,740.69	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
7,300.00	0.00	0.00	5,840.69	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
7,400.00	0.00	0.00	5,940.69	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
7,500.00	0.00	0.00	6,040.69	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
7,600.00	0.00	0.00	6,140.69	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
7,631.31	0.00	0.00	6,172.00	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
CME0									
7,700.00	0.00	0.00	6,240.69	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
7,800.00	0.00	0.00	6,340.69	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
7,900.00	0.00	0.00	6,440.69	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
8,000.00	0.00	0.00	6,540.69	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
8,100.00	0.00	0.00	6,640.69	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
8,106.31	0.00	0.00	6,647.00	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
RLNS									
8,200.00	0.00	0.00	6,740.69	1,511.75	-3,494.13	3,807.14	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 34-10	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 34-10 PBHL									
8,256.31	0.00	0.00	6,797.00	1,511.75	-3,494.13	3,807.14	0.00	0.00	0.00
GM 34-10 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 34-10 KMV REV - plan hits target center - Circle (radius 50.00)	0.00	0.00	4,897.00	1,497.92	-3,462.17	1,601,929.25	2,263,428.06	39.4570279	-108.1090160
GM 34-10 PBHL REV - plan misses target center by 0.01usft at 8256.31usft MD (6797.00 TVD, 1511.75 N, -3494.13 E) - Point	0.00	0.00	6,797.00	1,511.75	-3,494.13	1,601,944.00	2,263,396.50	39.4570659	-108.1091292

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,208.00	1,084.46	9 5/8" @ 1208' MD	9.62	9.62	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,730.71	2,137.00	G_SAND_BASE		0.00	0.00
2,766.88	2,162.00	G_SAND		0.00	0.00
5,075.04	3,762.00	MVRD		0.00	0.00
6,354.28	4,897.00	KMVGAS		0.00	0.00
7,631.31	6,172.00	CME0		0.00	0.00
8,106.31	6,647.00	RLNS		0.00	0.00