

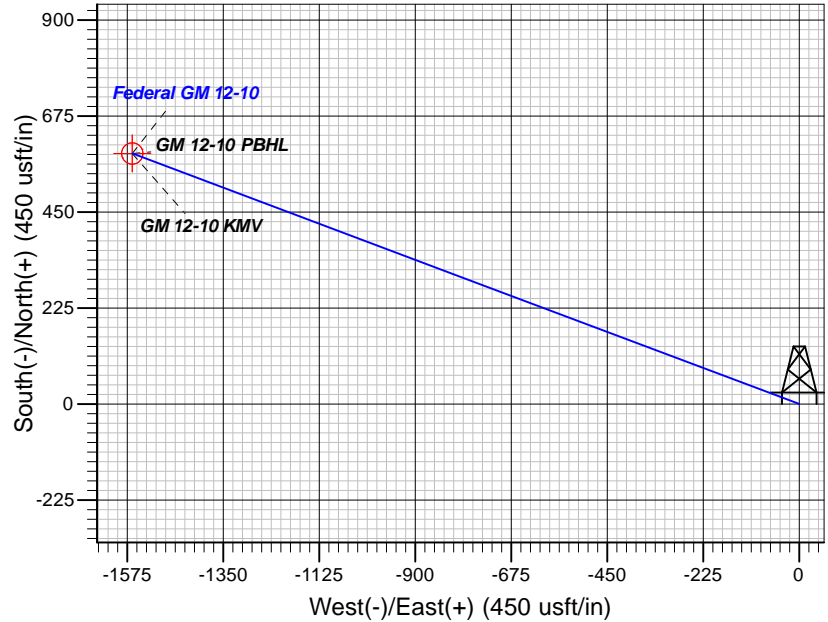
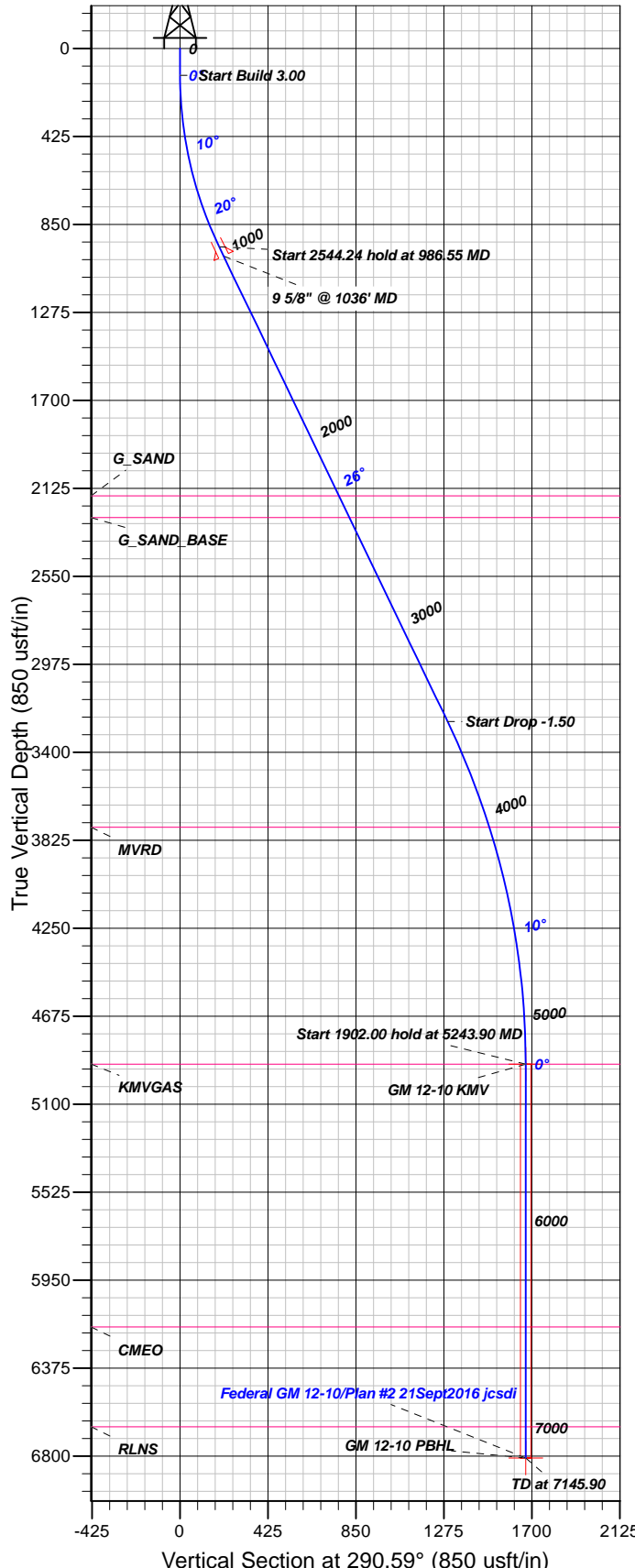
Well Details: Federal GM 12-10

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1600344.90	2266850.00	39.4529490	-108.0967413	B5

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
2161.00	2321.45	G_SAND
2266.00	2437.97	G_SAND_BASE
3762.00	4081.02	MVRD
4907.00	5243.90	KMVGAS
6176.00	6512.90	CMEO
6659.00	6995.90	RLNS

Plan: Plan #2 21Sept2016 jcsdi

17:00, September 22 2016
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
1003.18	1036.55	9 5/8" @ 1036' 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	130.00	0.00	0.00	130.00	0.00	0.00	0.00	0.00	0.00	
3	986.55	25.70	290.59	958.13	66.44	-176.81	3.00	290.59	188.88	
4	3530.79	25.70	290.59	3250.75	454.49	-1209.51	0.00	0.00	1292.08	
5	5243.90	0.00	0.00	4907.00	587.37	-1563.13	1.50	180.00	1669.84	GM 12-10 KMV
6	7145.90	0.00	0.00	6809.00	587.37	-1563.13	0.00	0.00	1669.84	GM 12-10 PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 12-10 KMV	4907.00	587.37	-1563.13	1600976.70	2265304.30	39.4545614	-108.1022771	Circle (Radius: 25.00)
- plan hits target center								
GM 12-10 PBHL	6809.00	587.37	-1563.13	1600976.70	2265304.30	39.4545614	-108.1022771	Point
- plan hits target center								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

MV 5-10 Pad

Federal GM 12-10 - Slot B5

OH

Plan: Plan #2 21Sept2016 jcsdi

Standard Planning Report

22 September, 2016



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 12-10 - Slot B5
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 12-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 21Sept2016 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 12-10 - Slot B5			
Well Position	+N/-S	-0.71 usft	Northing:	1,600,344.90 usft
	+E/-W	-31.69 usft	Easting:	2,266,850.00 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 #2 21Sept2016 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	290.59

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	
986.55	25.70	290.59	958.13	66.44	-176.81	3.00	3.00	0.00	290.59	
3,530.79	25.70	290.59	3,250.75	454.49	-1,209.51	0.00	0.00	0.00	0.00	
5,243.90	0.00	0.00	4,907.00	587.37	-1,563.13	1.50	-1.50	0.00	180.00	GM 12-10 KMV
7,145.90	0.00	0.00	6,809.00	587.37	-1,563.13	0.00	0.00	0.00	0.00	GM 12-10 PBHL

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 12-10 - Slot B5
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 12-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 21Sept2016 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	2.10	290.59	199.98	0.45	-1.20	1.28	3.00	3.00	0.00	
300.00	5.10	290.59	299.78	2.66	-7.08	7.56	3.00	3.00	0.00	
400.00	8.10	290.59	399.10	6.70	-17.84	19.05	3.00	3.00	0.00	
500.00	11.10	290.59	497.69	12.57	-33.45	35.73	3.00	3.00	0.00	
600.00	14.10	290.59	595.27	20.24	-53.86	57.54	3.00	3.00	0.00	
700.00	17.10	290.59	691.58	29.70	-79.03	84.43	3.00	3.00	0.00	
800.00	20.10	290.59	786.34	40.92	-108.89	116.32	3.00	3.00	0.00	
900.00	23.10	290.59	879.31	53.86	-143.34	153.13	3.00	3.00	0.00	
986.55	25.70	290.59	958.13	66.44	-176.81	188.88	3.00	3.00	0.00	
1,000.00	25.70	290.59	970.24	68.49	-182.27	194.71	0.00	0.00	0.00	
1,036.55	25.70	290.59	1,003.18	74.06	-197.10	210.56	0.00	0.00	0.00	
9 5/8" @ 1036' MD										
1,100.00	25.70	290.59	1,060.35	83.74	-222.86	238.07	0.00	0.00	0.00	
1,200.00	25.70	290.59	1,150.46	98.99	-263.45	281.43	0.00	0.00	0.00	
1,300.00	25.70	290.59	1,240.57	114.25	-304.04	324.79	0.00	0.00	0.00	
1,400.00	25.70	290.59	1,330.68	129.50	-344.63	368.15	0.00	0.00	0.00	
1,500.00	25.70	290.59	1,420.79	144.75	-385.22	411.51	0.00	0.00	0.00	
1,600.00	25.70	290.59	1,510.90	160.00	-425.80	454.87	0.00	0.00	0.00	
1,700.00	25.70	290.59	1,601.01	175.25	-466.39	498.23	0.00	0.00	0.00	
1,800.00	25.70	290.59	1,691.12	190.51	-506.98	541.60	0.00	0.00	0.00	
1,900.00	25.70	290.59	1,781.23	205.76	-547.57	584.96	0.00	0.00	0.00	
2,000.00	25.70	290.59	1,871.35	221.01	-588.16	628.32	0.00	0.00	0.00	
2,100.00	25.70	290.59	1,961.46	236.26	-628.75	671.68	0.00	0.00	0.00	
2,200.00	25.70	290.59	2,051.57	251.51	-669.34	715.04	0.00	0.00	0.00	
2,300.00	25.70	290.59	2,141.68	266.77	-709.93	758.40	0.00	0.00	0.00	
2,321.45	25.70	290.59	2,161.00	270.04	-718.64	767.70	0.00	0.00	0.00	
G_SAND										
2,400.00	25.70	290.59	2,231.79	282.02	-750.52	801.76	0.00	0.00	0.00	
2,437.97	25.70	290.59	2,266.00	287.81	-765.93	818.22	0.00	0.00	0.00	
G_SAND_BASE										
2,500.00	25.70	290.59	2,321.90	297.27	-791.11	845.12	0.00	0.00	0.00	
2,600.00	25.70	290.59	2,412.01	312.52	-831.70	888.48	0.00	0.00	0.00	
2,700.00	25.70	290.59	2,502.12	327.78	-872.29	931.84	0.00	0.00	0.00	
2,800.00	25.70	290.59	2,592.23	343.03	-912.88	975.20	0.00	0.00	0.00	
2,900.00	25.70	290.59	2,682.34	358.28	-953.47	1,018.56	0.00	0.00	0.00	
3,000.00	25.70	290.59	2,772.45	373.53	-994.06	1,061.92	0.00	0.00	0.00	
3,100.00	25.70	290.59	2,862.56	388.78	-1,034.65	1,105.28	0.00	0.00	0.00	
3,200.00	25.70	290.59	2,952.67	404.04	-1,075.24	1,148.64	0.00	0.00	0.00	
3,300.00	25.70	290.59	3,042.78	419.29	-1,115.83	1,192.00	0.00	0.00	0.00	
3,400.00	25.70	290.59	3,132.89	434.54	-1,156.42	1,235.36	0.00	0.00	0.00	
3,500.00	25.70	290.59	3,223.00	449.79	-1,197.01	1,278.73	0.00	0.00	0.00	
3,530.79	25.70	290.59	3,250.75	454.49	-1,209.51	1,292.08	0.00	0.00	0.00	
3,600.00	24.66	290.59	3,313.38	464.84	-1,237.07	1,321.52	1.50	-1.50	0.00	
3,700.00	23.16	290.59	3,404.79	479.10	-1,275.00	1,362.05	1.50	-1.50	0.00	
3,800.00	21.66	290.59	3,497.24	492.51	-1,310.69	1,400.17	1.50	-1.50	0.00	
3,900.00	20.16	290.59	3,590.65	505.06	-1,344.09	1,435.85	1.50	-1.50	0.00	
4,000.00	18.66	290.59	3,684.97	516.75	-1,375.20	1,469.08	1.50	-1.50	0.00	
4,081.02	17.44	290.59	3,762.00	525.58	-1,398.70	1,494.19	1.50	-1.50	0.00	
MVRD										

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 12-10 - Slot B5
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 12-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 21Sept2016 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)
4,100.00	17.16	290.59	3,780.12	527.57	-1,403.98	1,499.83	1.50	-1.50	0.00
4,200.00	15.66	290.59	3,876.04	537.50	-1,430.42	1,528.08	1.50	-1.50	0.00
4,300.00	14.16	290.59	3,972.68	546.55	-1,454.51	1,553.81	1.50	-1.50	0.00
4,400.00	12.66	290.59	4,069.95	554.71	-1,476.21	1,576.99	1.50	-1.50	0.00
4,500.00	11.16	290.59	4,167.79	561.97	-1,495.53	1,597.63	1.50	-1.50	0.00
4,600.00	9.66	290.59	4,266.14	568.32	-1,512.44	1,615.69	1.50	-1.50	0.00
4,700.00	8.16	290.59	4,364.93	573.77	-1,526.94	1,631.18	1.50	-1.50	0.00
4,800.00	6.66	290.59	4,464.10	578.30	-1,539.01	1,644.07	1.50	-1.50	0.00
4,900.00	5.16	290.59	4,563.56	581.92	-1,548.64	1,654.37	1.50	-1.50	0.00
5,000.00	3.66	290.59	4,663.26	584.63	-1,555.84	1,662.05	1.50	-1.50	0.00
5,100.00	2.16	290.59	4,763.13	586.41	-1,560.59	1,667.13	1.50	-1.50	0.00
5,200.00	0.66	290.59	4,863.10	587.28	-1,562.89	1,669.59	1.50	-1.50	0.00
5,243.90	0.00	0.00	4,907.00	587.37	-1,563.13	1,669.84	1.50	-1.50	158.09
KMVGAS - GM 12-10 KMV									
5,300.00	0.00	0.00	4,963.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
5,400.00	0.00	0.00	5,063.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
5,500.00	0.00	0.00	5,163.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
5,600.00	0.00	0.00	5,263.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
5,700.00	0.00	0.00	5,363.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
5,800.00	0.00	0.00	5,463.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
5,900.00	0.00	0.00	5,563.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
6,000.00	0.00	0.00	5,663.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
6,100.00	0.00	0.00	5,763.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
6,200.00	0.00	0.00	5,863.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
6,300.00	0.00	0.00	5,963.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
6,400.00	0.00	0.00	6,063.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
6,500.00	0.00	0.00	6,163.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
6,512.90	0.00	0.00	6,176.00	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
CME0									
6,600.00	0.00	0.00	6,263.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
6,700.00	0.00	0.00	6,363.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
6,800.00	0.00	0.00	6,463.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
6,900.00	0.00	0.00	6,563.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
6,995.90	0.00	0.00	6,659.00	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
RLNS									
7,000.00	0.00	0.00	6,663.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
7,100.00	0.00	0.00	6,763.10	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
7,145.90	0.00	0.00	6,809.00	587.37	-1,563.13	1,669.84	0.00	0.00	0.00
GM 12-10 PBHL									

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 12-10 - Slot B5
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 12-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 21Sept2016 jcsdi		

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 12-10 KMV - plan hits target center - Circle (radius 25.00)	0.00	0.00	4,907.00	587.37	-1,563.13	1,600,976.70	2,265,304.30	39.4545615	-108.1022772
GM 12-10 PBHL - plan hits target center - Point	0.00	0.00	6,809.00	587.37	-1,563.13	1,600,976.70	2,265,304.30	39.4545615	-108.1022772

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,036.55	1,003.18	9 5/8" @ 1036' MD	9.62	9.62	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,321.45	2,161.00	G_SAND		0.00	0.00	
2,437.97	2,266.00	G_SAND_BASE		0.00	0.00	
4,081.02	3,762.00	MVRD		0.00	0.00	
5,243.90	4,907.00	KMVGAS		0.00	0.00	
6,512.90	6,176.00	CME0		0.00	0.00	
6,995.90	6,659.00	RLNS		0.00	0.00	