

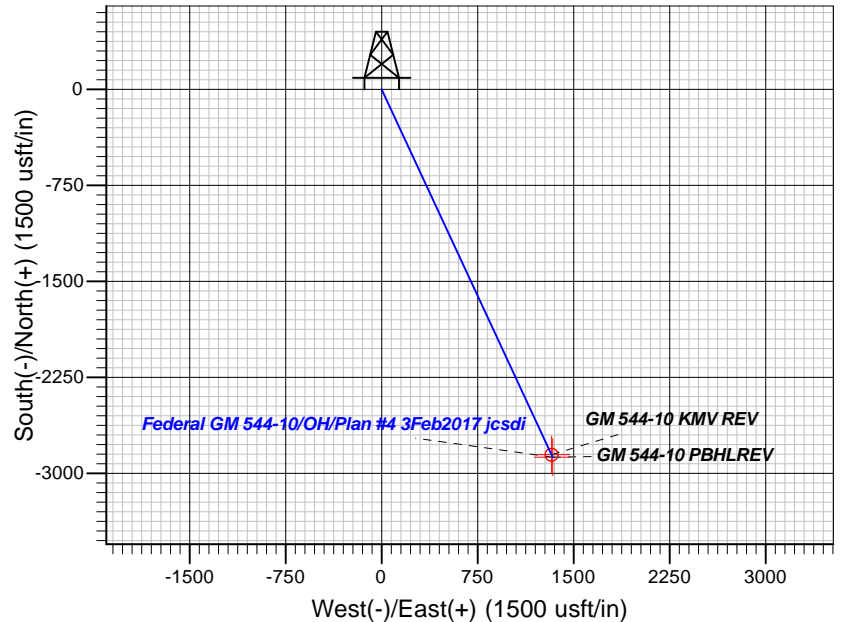
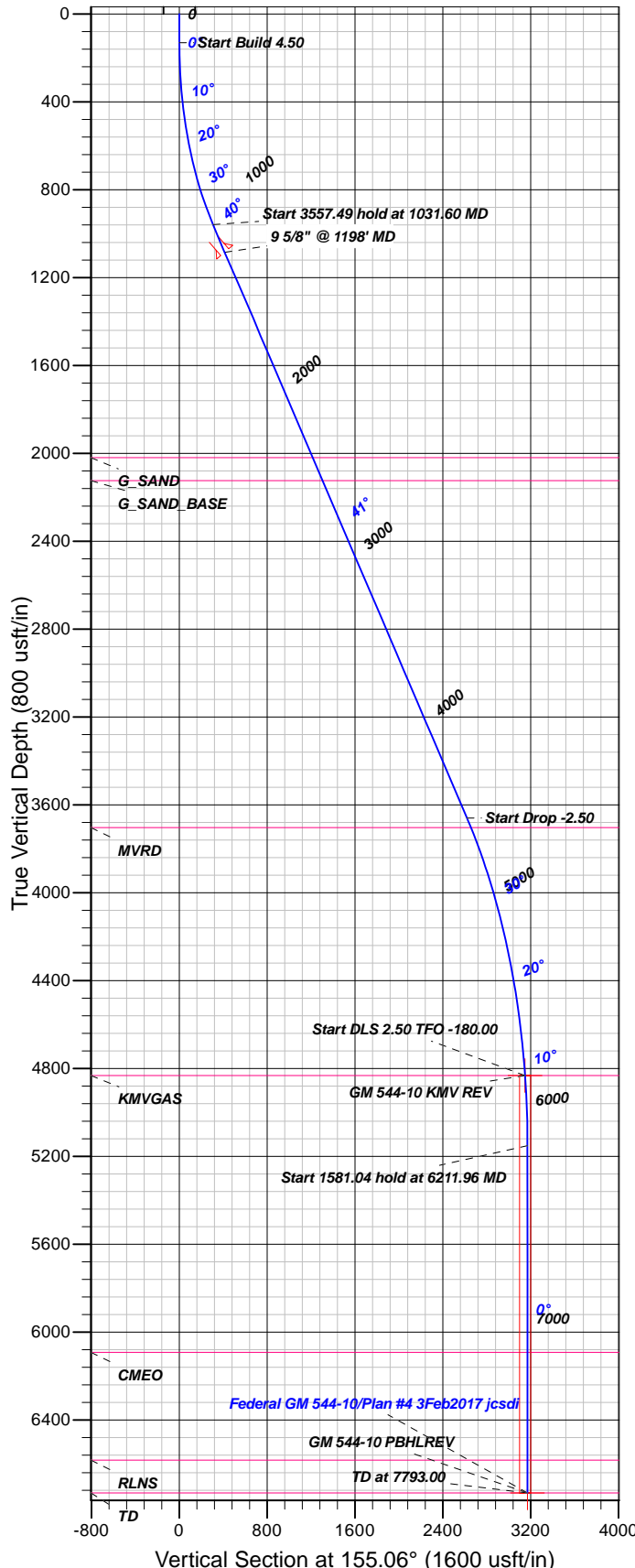
Well Details: Federal GM 544-10

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1600337.70	2266860.30	39.4529300	-108.0967041	A6

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

TVDPATH	MDPATH	FORMATION
2019.00	2428.25	G_SAND
2124.00	2566.48	G_SAND_BASE
3703.00	4644.67	MVRD
4832.00	5891.96	KMVGAS
6092.00	7153.00	CMEO
6582.00	7643.00	RLNS
6732.00	7793.00	TD

Plan: Plan #4 3Feb2017 jcsdi

13:12, February 03 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

TVDPATH	MDPATH	Name	Size
1084.62	1198.14	9 5/8" @ 1198' 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	1031.60	40.57	155.06	958.12	-277.55	129.08	4.50	155.06	306.10	
4	4589.09	40.57	155.06	3660.35	-2375.58	1104.77	0.00	0.00	2619.90	
5	5891.96	8.00	155.06	4832.00	-2854.95	1327.70	2.50	180.00	3148.58	GM 544-10 KMV REV
6	6211.96	0.00	0.00	5150.96	-2875.17	1337.11	2.50	-180.00	3170.88	
7	7793.00	0.00	0.00	6732.00	-2875.17	1337.11	0.00	0.00	3170.88	GM 544-10 PBHLREV

DESIGN TARGET DETAILS

Name	TVDPATH	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 544-10 KMV REV 4832.00	-2854.95	1327.70	1597445.97	2268105.86	39.4450917	-108.0920027		Circle (Radius: 50.00)
- plan hits target center								
GM 544-10 PBHLREV 6732.00	-2875.17	1337.11	1597425.49	2268114.70	39.4450362	-108.0919694		Point
- plan misses target center by 0.01usft at 7793.00usft MD (6732.00 TVDP, -2875.17 N, 1337.11 E)								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

MV 5-10 Pad

Federal GM 544-10 - Slot A6

OH

Plan: Plan #4 3Feb2017 jcsdi

Standard Planning Report

03 February, 2017



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 544-10 - Slot A6
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 544-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #4 3Feb2017 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 544-10 - Slot A6			
Well Position	+N/-S	-7.61 usft	Northing:	1,600,337.70 usft
	+E/-W	-21.19 usft	Easting:	2,266,860.30 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 #4 3Feb2017 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	155.06

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	
1,031.60	40.57	155.06	958.12	-277.55	129.08	4.50	4.50	0.00	155.06	
4,589.09	40.57	155.06	3,660.35	-2,375.58	1,104.77	0.00	0.00	0.00	0.00	
5,891.96	8.00	155.06	4,832.00	-2,854.95	1,327.70	2.50	-2.50	0.00	180.00	GM 544-10 KMV REV
6,211.97	0.00	0.00	5,150.96	-2,875.17	1,337.11	2.50	-2.50	-48.46	-180.00	
7,793.00	0.00	0.00	6,732.00	-2,875.17	1,337.11	0.00	0.00	0.00	0.00	GM 544-10 PBHLREV

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 544-10 - Slot A6
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 544-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #4 3Feb2017 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	155.06	199.96	-1.74	0.81	1.92	4.50	4.50	0.00	
300.00	7.65	155.06	299.50	-10.28	4.78	11.33	4.50	4.50	0.00	
400.00	12.15	155.06	397.98	-25.86	12.03	28.52	4.50	4.50	0.00	
500.00	16.65	155.06	494.81	-48.40	22.51	53.38	4.50	4.50	0.00	
600.00	21.15	155.06	589.40	-77.77	36.17	85.77	4.50	4.50	0.00	
700.00	25.65	155.06	681.15	-113.77	52.91	125.47	4.50	4.50	0.00	
800.00	30.15	155.06	769.50	-156.19	72.64	172.25	4.50	4.50	0.00	
900.00	34.65	155.06	853.92	-204.76	95.22	225.82	4.50	4.50	0.00	
1,000.00	39.15	155.06	933.86	-259.19	120.54	285.85	4.50	4.50	0.00	
1,031.60	40.57	155.06	958.12	-277.55	129.08	306.10	4.50	4.50	0.00	
1,100.00	40.57	155.06	1,010.07	-317.89	147.84	350.59	0.00	0.00	0.00	
1,198.14	40.57	155.06	1,084.62	-375.77	174.75	414.42	0.00	0.00	0.00	
9 5/8" @ 1198' MD										
1,200.00	40.57	155.06	1,086.03	-376.87	175.26	415.63	0.00	0.00	0.00	
1,300.00	40.57	155.06	1,161.99	-435.84	202.69	480.67	0.00	0.00	0.00	
1,400.00	40.57	155.06	1,237.95	-494.82	230.12	545.71	0.00	0.00	0.00	
1,500.00	40.57	155.06	1,313.91	-553.79	257.54	610.75	0.00	0.00	0.00	
1,600.00	40.57	155.06	1,389.87	-612.77	284.97	675.79	0.00	0.00	0.00	
1,700.00	40.57	155.06	1,465.83	-671.74	312.40	740.83	0.00	0.00	0.00	
1,800.00	40.57	155.06	1,541.79	-730.72	339.82	805.87	0.00	0.00	0.00	
1,900.00	40.57	155.06	1,617.75	-789.69	367.25	870.91	0.00	0.00	0.00	
2,000.00	40.57	155.06	1,693.71	-848.67	394.67	935.95	0.00	0.00	0.00	
2,100.00	40.57	155.06	1,769.66	-907.64	422.10	1,000.99	0.00	0.00	0.00	
2,200.00	40.57	155.06	1,845.62	-966.62	449.53	1,066.03	0.00	0.00	0.00	
2,300.00	40.57	155.06	1,921.58	-1,025.59	476.95	1,131.07	0.00	0.00	0.00	
2,400.00	40.57	155.06	1,997.54	-1,084.57	504.38	1,196.11	0.00	0.00	0.00	
2,428.25	40.57	155.06	2,019.00	-1,101.23	512.13	1,214.49	0.00	0.00	0.00	
G_SAND										
2,500.00	40.57	155.06	2,073.50	-1,143.54	531.81	1,261.15	0.00	0.00	0.00	
2,566.48	40.57	155.06	2,124.00	-1,182.75	550.04	1,304.39	0.00	0.00	0.00	
G_SAND_BASE										
2,600.00	40.57	155.06	2,149.46	-1,202.52	559.23	1,326.19	0.00	0.00	0.00	
2,700.00	40.57	155.06	2,225.42	-1,261.49	586.66	1,391.23	0.00	0.00	0.00	
2,800.00	40.57	155.06	2,301.38	-1,320.47	614.09	1,456.27	0.00	0.00	0.00	
2,900.00	40.57	155.06	2,377.34	-1,379.44	641.51	1,521.31	0.00	0.00	0.00	
3,000.00	40.57	155.06	2,453.30	-1,438.42	668.94	1,586.35	0.00	0.00	0.00	
3,100.00	40.57	155.06	2,529.25	-1,497.39	696.36	1,651.39	0.00	0.00	0.00	
3,200.00	40.57	155.06	2,605.21	-1,556.37	723.79	1,716.43	0.00	0.00	0.00	
3,300.00	40.57	155.06	2,681.17	-1,615.34	751.22	1,781.47	0.00	0.00	0.00	
3,400.00	40.57	155.06	2,757.13	-1,674.31	778.64	1,846.51	0.00	0.00	0.00	
3,500.00	40.57	155.06	2,833.09	-1,733.29	806.07	1,911.55	0.00	0.00	0.00	
3,600.00	40.57	155.06	2,909.05	-1,792.26	833.50	1,976.59	0.00	0.00	0.00	
3,700.00	40.57	155.06	2,985.01	-1,851.24	860.92	2,041.64	0.00	0.00	0.00	
3,800.00	40.57	155.06	3,060.97	-1,910.21	888.35	2,106.68	0.00	0.00	0.00	
3,900.00	40.57	155.06	3,136.93	-1,969.19	915.78	2,171.72	0.00	0.00	0.00	
4,000.00	40.57	155.06	3,212.88	-2,028.16	943.20	2,236.76	0.00	0.00	0.00	
4,100.00	40.57	155.06	3,288.84	-2,087.14	970.63	2,301.80	0.00	0.00	0.00	
4,200.00	40.57	155.06	3,364.80	-2,146.11	998.05	2,366.84	0.00	0.00	0.00	
4,300.00	40.57	155.06	3,440.76	-2,205.09	1,025.48	2,431.88	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 544-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #4 3Feb2017 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)	
4,400.00	40.57	155.06	3,516.72	-2,264.06	1,052.91	2,496.92	0.00	0.00	0.00	
4,500.00	40.57	155.06	3,592.68	-2,323.04	1,080.33	2,561.96	0.00	0.00	0.00	
4,589.09	40.57	155.06	3,660.35	-2,375.58	1,104.77	2,619.90	0.00	0.00	0.00	
4,600.00	40.30	155.06	3,668.66	-2,382.00	1,107.75	2,626.98	2.50	-2.50	0.00	
4,644.67	39.18	155.06	3,703.00	-2,407.89	1,119.79	2,655.53	2.50	-2.50	0.00	
MVRD										
4,700.00	37.80	155.06	3,746.31	-2,439.11	1,134.31	2,689.97	2.50	-2.50	0.00	
4,800.00	35.30	155.06	3,826.64	-2,493.11	1,159.42	2,749.52	2.50	-2.50	0.00	
4,900.00	32.80	155.06	3,909.49	-2,543.87	1,183.03	2,805.50	2.50	-2.50	0.00	
5,000.00	30.30	155.06	3,994.70	-2,591.31	1,205.09	2,857.82	2.50	-2.50	0.00	
5,100.00	27.80	155.06	4,082.11	-2,635.34	1,225.57	2,906.37	2.50	-2.50	0.00	
5,200.00	25.30	155.06	4,171.56	-2,675.86	1,244.41	2,951.07	2.50	-2.50	0.00	
5,300.00	22.80	155.06	4,262.87	-2,712.81	1,261.60	2,991.82	2.50	-2.50	0.00	
5,400.00	20.30	155.06	4,355.88	-2,746.11	1,277.08	3,028.54	2.50	-2.50	0.00	
5,500.00	17.80	155.06	4,450.39	-2,775.70	1,290.85	3,061.18	2.50	-2.50	0.00	
5,600.00	15.30	155.06	4,546.24	-2,801.53	1,302.86	3,089.66	2.50	-2.50	0.00	
5,700.00	12.80	155.06	4,643.24	-2,823.54	1,313.09	3,113.93	2.50	-2.50	0.00	
5,800.00	10.30	155.06	4,741.21	-2,841.69	1,321.53	3,133.95	2.50	-2.50	0.00	
5,891.96	8.00	155.06	4,832.00	-2,854.95	1,327.70	3,148.58	2.50	-2.50	0.00	
KMVGAS - GM 544-10 KMV REV										
5,900.00	7.80	155.06	4,839.96	-2,855.95	1,328.17	3,149.68	2.50	-2.50	0.00	
5,987.37	5.61	155.06	4,926.72	-2,865.20	1,332.47	3,159.88	2.50	-2.50	0.00	
GM 544-10 KMV										
6,000.00	5.30	155.06	4,939.30	-2,866.29	1,332.97	3,161.08	2.50	-2.50	0.00	
6,100.00	2.80	155.06	5,039.04	-2,872.69	1,335.95	3,168.14	2.50	-2.50	0.00	
6,200.00	0.30	155.06	5,139.00	-2,875.15	1,337.09	3,170.85	2.50	-2.50	0.00	
6,211.97	0.00	0.00	5,150.96	-2,875.17	1,337.11	3,170.88	2.50	-2.50	-1,295.95	
6,300.00	0.00	0.00	5,239.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
6,400.00	0.00	0.00	5,339.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
6,500.00	0.00	0.00	5,439.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
6,600.00	0.00	0.00	5,539.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
6,700.00	0.00	0.00	5,639.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
6,800.00	0.00	0.00	5,739.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
6,900.00	0.00	0.00	5,839.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
7,000.00	0.00	0.00	5,939.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
7,100.00	0.00	0.00	6,039.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
7,153.00	0.00	0.00	6,092.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
CME0										
7,200.00	0.00	0.00	6,139.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
7,300.00	0.00	0.00	6,239.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
7,400.00	0.00	0.00	6,339.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
7,500.00	0.00	0.00	6,439.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
7,600.00	0.00	0.00	6,539.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
7,643.00	0.00	0.00	6,582.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
RLNS										
7,700.00	0.00	0.00	6,639.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
7,793.00	0.00	0.00	6,732.00	-2,875.17	1,337.11	3,170.88	0.00	0.00	0.00	
TD - GM 544-10 PBHL - GM 544-10 PBHLREV										

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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 544-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #4 3Feb2017 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 544-10 KMH REV - plan hits target center - Circle (radius 50.00)	0.00	0.00	4,832.00	-2,854.95	1,327.70	1,597,445.97	2,268,105.86	39.4450917	-108.0920028
GM 544-10 PBHLREV - plan misses target center by 0.01usft at 7793.00usft MD (6732.00 TVD, -2875.17 N, 1337.11 E) - Point	0.00	0.00	6,732.00	-2,875.17	1,337.11	1,597,425.49	2,268,114.70	39.4450362	-108.0919694

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,198.14	1,084.62	9 5/8" @ 1198' MD	9.62	9.62	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,428.25	2,019.00	G_SAND		0.00	0.00
2,566.48	2,124.00	G_SAND_BASE		0.00	0.00
4,644.67	3,703.00	MVRD		0.00	0.00
5,891.96	4,832.00	KMVGAS		0.00	0.00
7,153.00	6,092.00	CMEQ		0.00	0.00
7,643.00	6,582.00	RLNS		0.00	0.00
7,793.00	6,732.00	TD		0.00	0.00