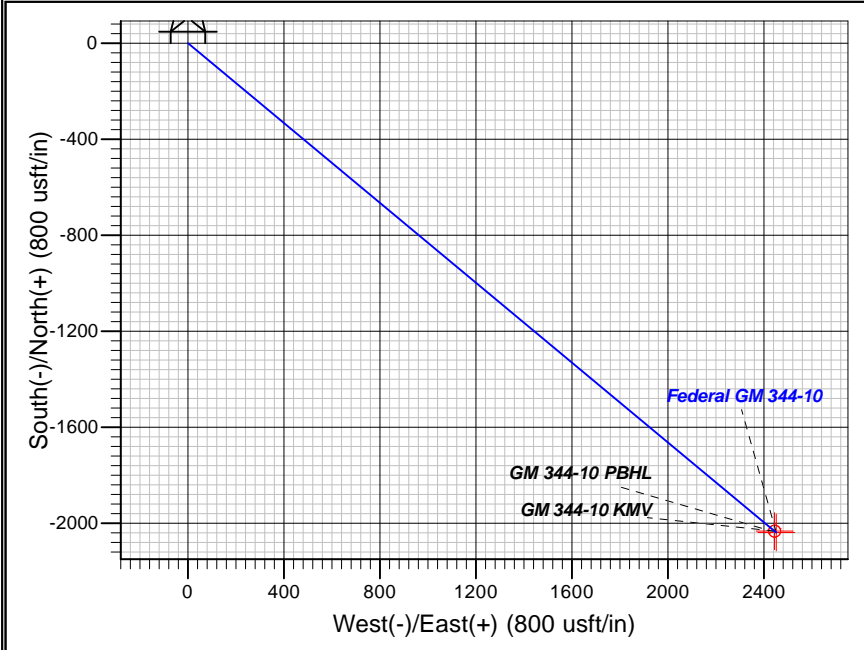
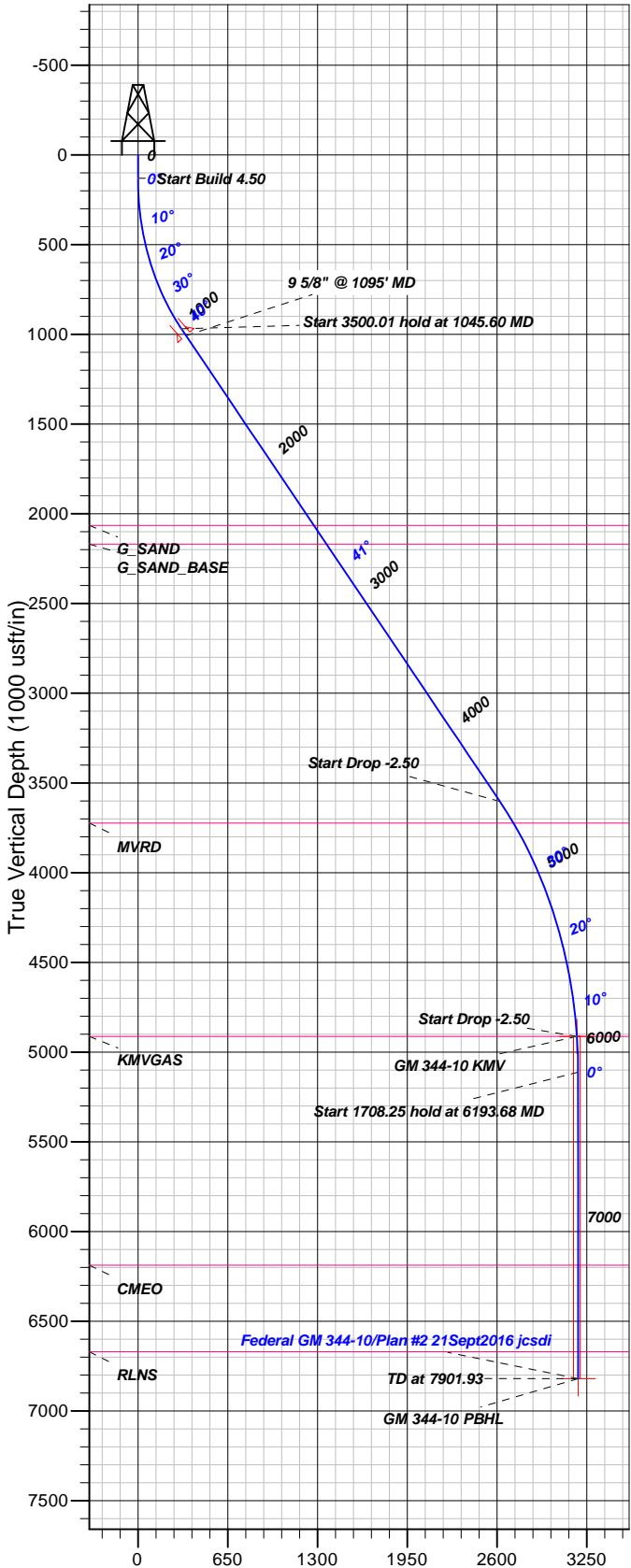


Well Details: Federal GM 344-10

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1600347.00	2266888.80	39.4529578	-108.0966042	A10

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
2064.00	2501.35	G_SAND
2169.00	2640.90	G_SAND_BASE
3723.00	4701.78	MVRD
4912.00	5993.68	KMGAS
6187.00	7268.93	CMEO
6670.00	7751.93	RLNS

Plan: Plan #2 21Sept2016 jcsdi

10:13, September 23 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
1006.32	1095.60	9 5/8" @ 1095' 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	1045.60	41.20	129.75	968.70	-201.59	242.39	4.50	129.75	315.26	
4	4545.61	41.20	129.75	3602.09	-1675.81	2014.96	0.00	0.00	0.00	
5	5993.68	5.00	129.75	4912.00	-2033.10	2444.55	2.50	180.00	3179.52	GM 344-10 KMV
6	6193.68	0.00	0.00	5111.75	-2038.68	2451.26	2.50	180.00	3188.24	
7	7901.93	0.00	0.00	6820.00	-2038.68	2451.26	0.00	0.00	3188.24	GM 344-10 PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 344-10 KMV	4912.00	-2033.10	2444.55	1598244.87	2269274.25	39.4473756	-108.0879477	Circle (Radius: 25.00)
- plan hits target center								
GM 344-10 PBHL	6820.00	-2038.68	2451.26	1598239.10	2269280.80	39.4473603	-108.0879239	Point
- plan misses target center by 0.01usft at 7901.93usft MD (6820.00 TVD, -2038.68 N, 2451.26 E)								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

MV 5-10 Pad

Federal GM 344-10 - Slot A10

OH

Plan: Plan #2 21Sept2016 jcsdi

Standard Planning Report

23 September, 2016



www.scientificdrilling.com



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 344-10 - Slot A10
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 344-10	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 344-10 - Slot A10					
Well Position	+N/-S	2.50 usft	Northing:	1,600,347.00 usft	Latitude:	39.4529578
	+E/-W	7.03 usft	Easting:	2,266,888.80 usft	Longitude:	-108.0966042
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	129.75

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	
1,045.60	41.20	129.75	968.70	-201.59	242.39	4.50	4.50	0.00	129.75	
4,545.61	41.20	129.75	3,602.09	-1,675.81	2,014.96	0.00	0.00	0.00	0.00	
5,993.68	5.00	129.75	4,912.00	-2,033.10	2,444.55	2.50	-2.50	0.00	180.00	GM 344-10 KMV
6,193.68	0.00	0.00	5,111.75	-2,038.68	2,451.26	2.50	-2.50	0.00	180.00	
7,901.93	0.00	0.00	6,820.00	-2,038.68	2,451.26	0.00	0.00	0.00	0.00	GM 344-10 PBHL

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 344-10 - Slot A10
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 344-10	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	0.00
100.00	0.00	0.00	100.00	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	0.00
200.00	3.15	129.75	199.96	-1.23	1.48	1.92	4.50	4.50	0.00	0.00
300.00	7.65	129.75	299.50	-7.25	8.71	11.33	4.50	4.50	0.00	0.00
400.00	12.15	129.75	397.98	-18.24	21.93	28.52	4.50	4.50	0.00	0.00
500.00	16.65	129.75	494.81	-34.14	41.04	53.38	4.50	4.50	0.00	0.00
600.00	21.15	129.75	589.40	-54.84	65.94	85.77	4.50	4.50	0.00	0.00
700.00	25.65	129.75	681.15	-80.23	96.47	125.47	4.50	4.50	0.00	0.00
800.00	30.15	129.75	769.50	-110.14	132.43	172.25	4.50	4.50	0.00	0.00
900.00	34.65	129.75	853.92	-144.40	173.62	225.82	4.50	4.50	0.00	0.00
1,000.00	39.15	129.75	933.86	-182.78	219.77	285.85	4.50	4.50	0.00	0.00
1,045.60	41.20	129.75	968.70	-201.59	242.39	315.26	4.50	4.50	0.00	0.00
1,095.60	41.20	129.75	1,006.32	-222.65	267.71	348.20	0.00	0.00	0.00	0.00
9 5/8" @ 1095' MD										
1,100.00	41.20	129.75	1,009.63	-224.51	269.94	351.10	0.00	0.00	0.00	0.00
1,200.00	41.20	129.75	1,084.87	-266.63	320.58	416.97	0.00	0.00	0.00	0.00
1,300.00	41.20	129.75	1,160.11	-308.75	371.23	482.84	0.00	0.00	0.00	0.00
1,400.00	41.20	129.75	1,235.35	-350.87	421.87	548.71	0.00	0.00	0.00	0.00
1,500.00	41.20	129.75	1,310.59	-392.99	472.52	614.58	0.00	0.00	0.00	0.00
1,600.00	41.20	129.75	1,385.83	-435.11	523.16	680.46	0.00	0.00	0.00	0.00
1,700.00	41.20	129.75	1,461.07	-477.23	573.81	746.33	0.00	0.00	0.00	0.00
1,800.00	41.20	129.75	1,536.31	-519.35	624.45	812.20	0.00	0.00	0.00	0.00
1,900.00	41.20	129.75	1,611.55	-561.47	675.10	878.07	0.00	0.00	0.00	0.00
2,000.00	41.20	129.75	1,686.79	-603.59	725.74	943.94	0.00	0.00	0.00	0.00
2,100.00	41.20	129.75	1,762.03	-645.71	776.39	1,009.81	0.00	0.00	0.00	0.00
2,200.00	41.20	129.75	1,837.27	-687.83	827.03	1,075.68	0.00	0.00	0.00	0.00
2,300.00	41.20	129.75	1,912.51	-729.95	877.68	1,141.55	0.00	0.00	0.00	0.00
2,400.00	41.20	129.75	1,987.75	-772.07	928.32	1,207.43	0.00	0.00	0.00	0.00
2,500.00	41.20	129.75	2,062.98	-814.19	978.97	1,273.30	0.00	0.00	0.00	0.00
2,501.35	41.20	129.75	2,064.00	-814.76	979.65	1,274.19	0.00	0.00	0.00	0.00
G_SAND										
2,600.00	41.20	129.75	2,138.22	-856.31	1,029.61	1,339.17	0.00	0.00	0.00	0.00
2,640.90	41.20	129.75	2,169.00	-873.54	1,050.33	1,366.11	0.00	0.00	0.00	0.00
G_SAND_BASE										
2,700.00	41.20	129.75	2,213.46	-898.43	1,080.26	1,405.04	0.00	0.00	0.00	0.00
2,800.00	41.20	129.75	2,288.70	-940.56	1,130.90	1,470.91	0.00	0.00	0.00	0.00
2,900.00	41.20	129.75	2,363.94	-982.68	1,181.55	1,536.78	0.00	0.00	0.00	0.00
3,000.00	41.20	129.75	2,439.18	-1,024.80	1,232.19	1,602.65	0.00	0.00	0.00	0.00
3,100.00	41.20	129.75	2,514.42	-1,066.92	1,282.83	1,668.53	0.00	0.00	0.00	0.00
3,200.00	41.20	129.75	2,589.66	-1,109.04	1,333.48	1,734.40	0.00	0.00	0.00	0.00
3,300.00	41.20	129.75	2,664.90	-1,151.16	1,384.12	1,800.27	0.00	0.00	0.00	0.00
3,400.00	41.20	129.75	2,740.14	-1,193.28	1,434.77	1,866.14	0.00	0.00	0.00	0.00
3,500.00	41.20	129.75	2,815.38	-1,235.40	1,485.41	1,932.01	0.00	0.00	0.00	0.00
3,600.00	41.20	129.75	2,890.62	-1,277.52	1,536.06	1,997.88	0.00	0.00	0.00	0.00
3,700.00	41.20	129.75	2,965.86	-1,319.64	1,586.70	2,063.75	0.00	0.00	0.00	0.00
3,800.00	41.20	129.75	3,041.10	-1,361.76	1,637.35	2,129.62	0.00	0.00	0.00	0.00
3,900.00	41.20	129.75	3,116.34	-1,403.88	1,687.99	2,195.50	0.00	0.00	0.00	0.00
4,000.00	41.20	129.75	3,191.58	-1,446.00	1,738.64	2,261.37	0.00	0.00	0.00	0.00
4,100.00	41.20	129.75	3,266.81	-1,488.12	1,789.28	2,327.24	0.00	0.00	0.00	0.00
4,200.00	41.20	129.75	3,342.05	-1,530.24	1,839.93	2,393.11	0.00	0.00	0.00	0.00
4,300.00	41.20	129.75	3,417.29	-1,572.36	1,890.57	2,458.98	0.00	0.00	0.00	0.00

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 344-10 - Slot A10
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 344-10	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)
4,400.00	41.20	129.75	3,492.53	-1,614.48	1,941.22	2,524.85	0.00	0.00	0.00
4,500.00	41.20	129.75	3,567.77	-1,656.60	1,991.86	2,590.72	0.00	0.00	0.00
4,545.61	41.20	129.75	3,602.09	-1,675.81	2,014.96	2,620.77	0.00	0.00	0.00
4,600.00	39.84	129.75	3,643.43	-1,698.41	2,042.13	2,656.11	2.50	-2.50	0.00
4,700.00	37.34	129.75	3,721.59	-1,738.30	2,090.08	2,718.48	2.50	-2.50	0.00
4,701.78	37.30	129.75	3,723.00	-1,738.98	2,090.91	2,719.56	2.50	-2.50	0.00
MVRD									
4,800.00	34.84	129.75	3,802.39	-1,775.96	2,135.37	2,777.38	2.50	-2.50	0.00
4,900.00	32.34	129.75	3,885.68	-1,811.34	2,177.91	2,832.71	2.50	-2.50	0.00
5,000.00	29.84	129.75	3,971.31	-1,844.36	2,217.61	2,884.34	2.50	-2.50	0.00
5,100.00	27.34	129.75	4,059.11	-1,874.95	2,254.40	2,932.20	2.50	-2.50	0.00
5,200.00	24.84	129.75	4,148.91	-1,903.08	2,288.21	2,976.17	2.50	-2.50	0.00
5,300.00	22.34	129.75	4,240.54	-1,928.67	2,318.98	3,016.19	2.50	-2.50	0.00
5,400.00	19.84	129.75	4,333.84	-1,951.67	2,346.65	3,052.18	2.50	-2.50	0.00
5,500.00	17.34	129.75	4,428.61	-1,972.06	2,371.16	3,084.06	2.50	-2.50	0.00
5,600.00	14.84	129.75	4,524.68	-1,989.78	2,392.47	3,111.77	2.50	-2.50	0.00
5,700.00	12.34	129.75	4,621.88	-2,004.81	2,410.53	3,135.27	2.50	-2.50	0.00
5,800.00	9.84	129.75	4,720.00	-2,017.11	2,425.32	3,154.51	2.50	-2.50	0.00
5,900.00	7.34	129.75	4,818.87	-2,026.66	2,436.81	3,169.45	2.50	-2.50	0.00
5,993.68	5.00	129.75	4,912.00	-2,033.10	2,444.55	3,179.52	2.50	-2.50	0.00
KMVGAS - GM 344-10 KMV									
6,000.00	4.84	129.75	4,918.30	-2,033.45	2,444.97	3,180.06	2.50	-2.50	0.00
6,100.00	2.34	129.75	5,018.09	-2,037.45	2,449.78	3,186.32	2.50	-2.50	0.00
6,193.68	0.00	0.00	5,111.75	-2,038.68	2,451.26	3,188.24	2.50	-2.50	0.00
6,200.00	0.00	0.00	5,118.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
6,300.00	0.00	0.00	5,218.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
6,400.00	0.00	0.00	5,318.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
6,500.00	0.00	0.00	5,418.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
6,600.00	0.00	0.00	5,518.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
6,700.00	0.00	0.00	5,618.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
6,800.00	0.00	0.00	5,718.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
6,900.00	0.00	0.00	5,818.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
7,000.00	0.00	0.00	5,918.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
7,100.00	0.00	0.00	6,018.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
7,200.00	0.00	0.00	6,118.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
7,268.93	0.00	0.00	6,187.00	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
CMEO									
7,300.00	0.00	0.00	6,218.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
7,400.00	0.00	0.00	6,318.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
7,500.00	0.00	0.00	6,418.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
7,600.00	0.00	0.00	6,518.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
7,700.00	0.00	0.00	6,618.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
7,751.93	0.00	0.00	6,670.00	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
RLNS									
7,800.00	0.00	0.00	6,718.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
7,900.00	0.00	0.00	6,818.07	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
7,901.93	0.00	0.00	6,820.00	-2,038.68	2,451.26	3,188.24	0.00	0.00	0.00
GM 344-10 PBHL									

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 344-10 - Slot A10
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 344-10	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 21Sept2016 jcsdi		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
GM 344-10 KMV - plan hits target center - Circle (radius 25.00)	0.00	0.00	4,912.00	-2,033.10	2,444.55	1,598,244.86	2,269,274.25	39.4473756	-108.0879478
GM 344-10 PBHL - plan misses target center by 0.01usft at 7901.93usft MD (6820.00 TVD, -2038.68 N, 2451.26 E) - Point	0.00	0.00	6,820.00	-2,038.68	2,451.26	1,598,239.10	2,269,280.80	39.4473603	-108.0879240

Casing Points					
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter	
(usft)	(usft)		(in)	(in)	
1,095.60	1,006.32	9 5/8" @ 1095' MD	9.62	9.62	

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)			(°)	(°)
2,501.35	2,064.00	G_SAND		0.00	0.00
2,640.90	2,169.00	G_SAND_BASE		0.00	0.00
4,701.78	3,723.00	MVRD		0.00	0.00
5,993.68	4,912.00	KMVGAS		0.00	0.00
7,268.93	6,187.00	CME0		0.00	0.00
7,751.93	6,670.00	RLNS		0.00	0.00