

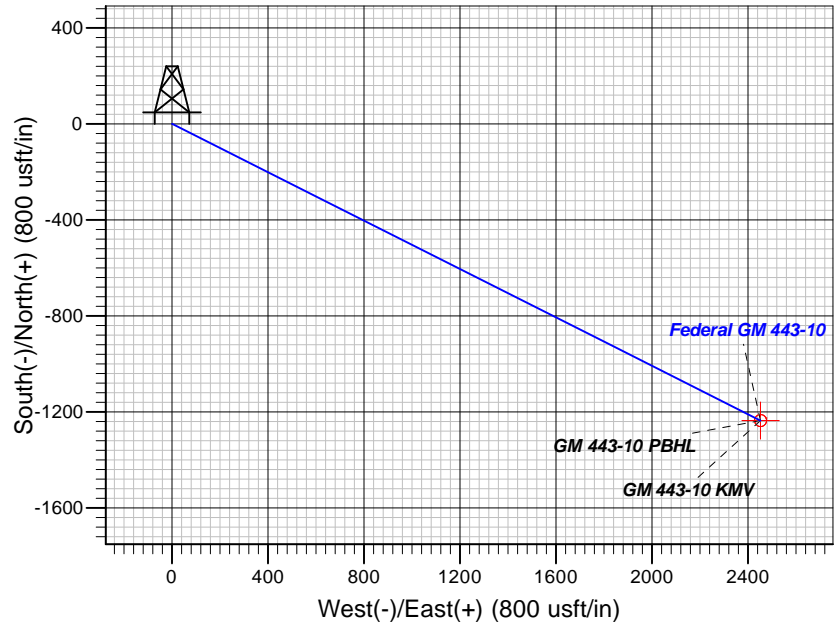
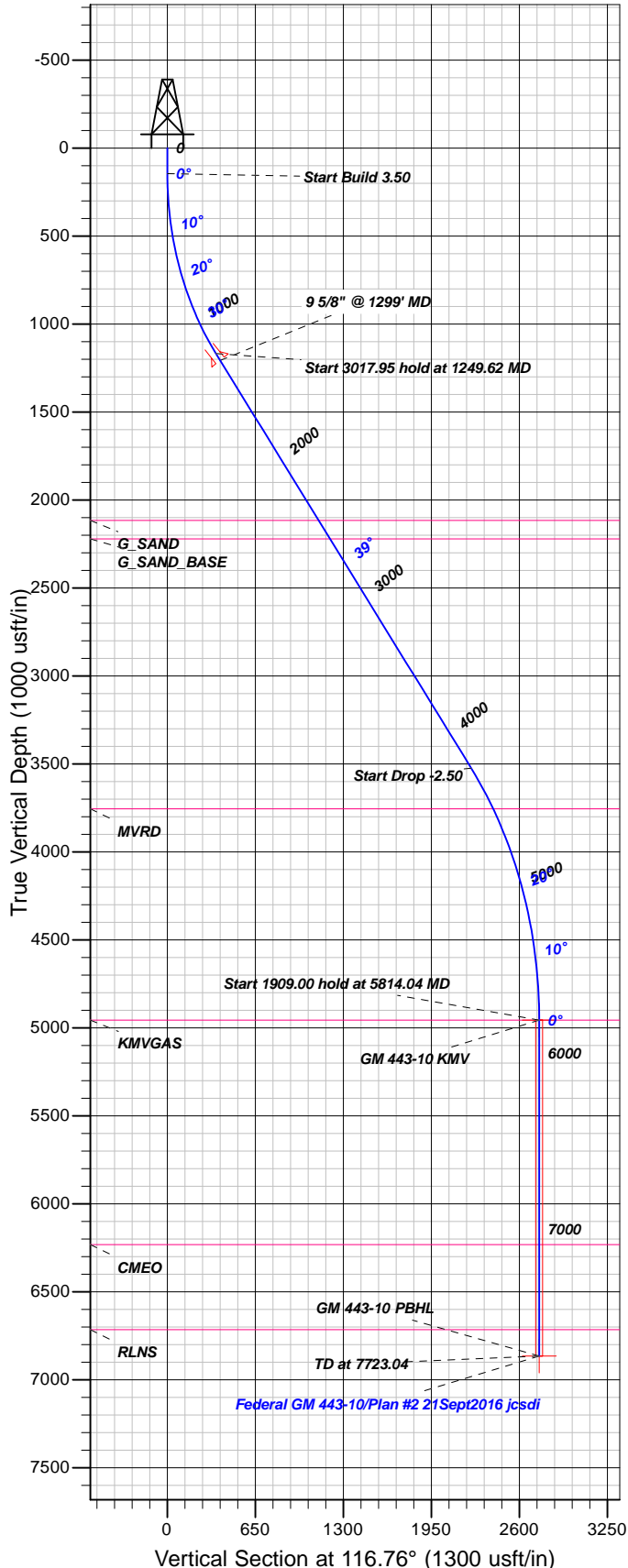
Well Details: Federal GM 443-10

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1600354.00	2266910.20	39.4529786	-108.0965291	A13

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
2116.00	2464.09	G_SAND
2221.00	2598.56	G_SAND_BASE
3755.00	4549.91	MVRD
4956.00	5814.04	KMVGAS
6232.00	7090.04	CMEQ
6715.00	7573.04	RLNS

Plan: Plan #2 21Sept2016 jcsdi

17:44, 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
1206.72	1299.62	9 5/8" @ 1299' 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	1249.62	38.66	116.76	1167.68	-161.51	320.34	3.50	116.76	358.76	
4	4267.57	38.66	116.76	3524.24	-1010.31	2003.85	0.00	0.002244.14		
5	5814.04	0.00	0.00	4956.00	-1236.42	2452.34	2.50	180.002746.40		GM 443-10 KMV
6	7723.04	0.00	0.00	6865.00	-1236.42	2452.34	0.00	0.002746.40		GM 443-10 PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 443-10 KMV	4956.00	-1236.42	2452.34	1599048.00	2269326.20	39.4495838	-108.0878448	Circle (Radius: 25.00)
- plan hits target center								
GM 443-10 PBHL	6865.00	-1236.42	2452.34	1599048.00	2269326.20	39.4495838	-108.0878448	Point
- plan hits target center								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

MV 5-10 Pad

Federal GM 443-10 - Slot A13

OH

Plan: Plan #2 21Sept2016 jcsdi

Standard Planning Report

22 September, 2016



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 443-10 - Slot A13
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 443-10	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 443-10 - Slot A13			
Well Position	+N/-S	10.11 usft	Northing:	1,600,354.00 usft
	+E/-W	28.22 usft	Easting:	2,266,910.20 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	116.76

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	
1,249.62	38.66	116.76	1,167.68	-161.51	320.34	3.50	3.50	0.00	116.76	
4,267.57	38.66	116.76	3,524.24	-1,010.31	2,003.85	0.00	0.00	0.00	0.00	
5,814.04	0.00	0.00	4,956.00	-1,236.42	2,452.34	2.50	-2.50	0.00	180.00	GM 443-10 KMV
7,723.04	0.00	0.00	6,865.00	-1,236.42	2,452.34	0.00	0.00	0.00	0.00	GM 443-10 PBHL

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 443-10 - Slot A13
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 443-10	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	
145.00	0.00	0.00	145.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	1.93	116.76	199.99	-0.42	0.82	0.92	3.50	3.50	0.00	
300.00	5.43	116.76	299.77	-3.30	6.55	7.33	3.50	3.50	0.00	
400.00	8.93	116.76	398.97	-8.92	17.70	19.82	3.50	3.50	0.00	
500.00	12.43	116.76	497.22	-17.26	34.24	38.34	3.50	3.50	0.00	
600.00	15.93	116.76	594.16	-28.28	56.10	62.83	3.50	3.50	0.00	
700.00	19.43	116.76	689.43	-41.95	83.21	93.18	3.50	3.50	0.00	
800.00	22.93	116.76	782.66	-58.21	115.46	129.30	3.50	3.50	0.00	
900.00	26.43	116.76	873.52	-77.00	152.73	171.04	3.50	3.50	0.00	
1,000.00	29.93	116.76	961.65	-98.26	194.88	218.25	3.50	3.50	0.00	
1,100.00	33.43	116.76	1,046.75	-121.89	241.76	270.75	3.50	3.50	0.00	
1,200.00	36.93	116.76	1,128.47	-147.82	293.19	328.35	3.50	3.50	0.00	
1,249.62	38.66	116.76	1,167.68	-161.51	320.34	358.76	3.50	3.50	0.00	
1,299.62	38.66	116.76	1,206.72	-175.57	348.24	389.99	0.00	0.00	0.00	
9 5/8" @ 1299' MD										
1,300.00	38.66	116.76	1,207.02	-175.68	348.45	390.23	0.00	0.00	0.00	
1,400.00	38.66	116.76	1,285.11	-203.81	404.23	452.70	0.00	0.00	0.00	
1,500.00	38.66	116.76	1,363.19	-231.93	460.01	515.17	0.00	0.00	0.00	
1,600.00	38.66	116.76	1,441.28	-260.06	515.80	577.65	0.00	0.00	0.00	
1,700.00	38.66	116.76	1,519.36	-288.18	571.58	640.12	0.00	0.00	0.00	
1,800.00	38.66	116.76	1,597.44	-316.31	627.36	702.59	0.00	0.00	0.00	
1,900.00	38.66	116.76	1,675.53	-344.43	683.15	765.06	0.00	0.00	0.00	
2,000.00	38.66	116.76	1,753.61	-372.55	738.93	827.53	0.00	0.00	0.00	
2,100.00	38.66	116.76	1,831.70	-400.68	794.71	890.01	0.00	0.00	0.00	
2,200.00	38.66	116.76	1,909.78	-428.80	850.50	952.48	0.00	0.00	0.00	
2,300.00	38.66	116.76	1,987.87	-456.93	906.28	1,014.95	0.00	0.00	0.00	
2,400.00	38.66	116.76	2,065.95	-485.05	962.06	1,077.42	0.00	0.00	0.00	
2,464.09	38.66	116.76	2,116.00	-503.08	997.81	1,117.46	0.00	0.00	0.00	
G_SAND										
2,500.00	38.66	116.76	2,144.04	-513.18	1,017.85	1,139.90	0.00	0.00	0.00	
2,598.56	38.66	116.76	2,221.00	-540.90	1,072.83	1,201.47	0.00	0.00	0.00	
G_SAND_BASE										
2,600.00	38.66	116.76	2,222.12	-541.30	1,073.63	1,202.37	0.00	0.00	0.00	
2,700.00	38.66	116.76	2,300.21	-569.43	1,129.41	1,264.84	0.00	0.00	0.00	
2,800.00	38.66	116.76	2,378.29	-597.55	1,185.19	1,327.31	0.00	0.00	0.00	
2,900.00	38.66	116.76	2,456.38	-625.68	1,240.98	1,389.78	0.00	0.00	0.00	
3,000.00	38.66	116.76	2,534.46	-653.80	1,296.76	1,452.26	0.00	0.00	0.00	
3,100.00	38.66	116.76	2,612.55	-681.93	1,352.54	1,514.73	0.00	0.00	0.00	
3,200.00	38.66	116.76	2,690.63	-710.05	1,408.33	1,577.20	0.00	0.00	0.00	
3,300.00	38.66	116.76	2,768.72	-738.18	1,464.11	1,639.67	0.00	0.00	0.00	
3,400.00	38.66	116.76	2,846.80	-766.30	1,519.89	1,702.14	0.00	0.00	0.00	
3,500.00	38.66	116.76	2,924.89	-794.43	1,575.68	1,764.62	0.00	0.00	0.00	
3,600.00	38.66	116.76	3,002.97	-822.55	1,631.46	1,827.09	0.00	0.00	0.00	
3,700.00	38.66	116.76	3,081.06	-850.68	1,687.24	1,889.56	0.00	0.00	0.00	
3,800.00	38.66	116.76	3,159.14	-878.80	1,743.03	1,952.03	0.00	0.00	0.00	
3,900.00	38.66	116.76	3,237.23	-906.93	1,798.81	2,014.51	0.00	0.00	0.00	
4,000.00	38.66	116.76	3,315.31	-935.05	1,854.59	2,076.98	0.00	0.00	0.00	
4,100.00	38.66	116.76	3,393.39	-963.18	1,910.38	2,139.45	0.00	0.00	0.00	
4,200.00	38.66	116.76	3,471.48	-991.30	1,966.16	2,201.92	0.00	0.00	0.00	
4,267.57	38.66	116.76	3,524.24	-1,010.31	2,003.85	2,244.14	0.00	0.00	0.00	

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 443-10 - Slot A13
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 443-10	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)
4,300.00	37.85	116.76	3,549.71	-1,019.35	2,021.78	2,264.21	2.50	-2.50	0.00
4,400.00	35.35	116.76	3,629.98	-1,046.19	2,075.02	2,323.83	2.50	-2.50	0.00
4,500.00	32.85	116.76	3,712.78	-1,071.42	2,125.08	2,379.89	2.50	-2.50	0.00
4,549.91	31.60	116.76	3,755.00	-1,083.41	2,148.84	2,406.51	2.50	-2.50	0.00
MVRD									
4,600.00	30.35	116.76	3,797.94	-1,095.01	2,171.86	2,432.29	2.50	-2.50	0.00
4,700.00	27.85	116.76	3,885.31	-1,116.91	2,215.29	2,480.92	2.50	-2.50	0.00
4,800.00	25.35	116.76	3,974.72	-1,137.06	2,255.27	2,525.70	2.50	-2.50	0.00
4,900.00	22.85	116.76	4,066.00	-1,155.45	2,291.73	2,566.53	2.50	-2.50	0.00
5,000.00	20.35	116.76	4,158.97	-1,172.02	2,324.60	2,603.34	2.50	-2.50	0.00
5,100.00	17.85	116.76	4,253.45	-1,186.75	2,353.81	2,636.06	2.50	-2.50	0.00
5,200.00	15.35	116.76	4,349.28	-1,199.61	2,379.32	2,664.63	2.50	-2.50	0.00
5,300.00	12.85	116.76	4,446.26	-1,210.58	2,401.08	2,688.99	2.50	-2.50	0.00
5,400.00	10.35	116.76	4,544.21	-1,219.63	2,419.03	2,709.10	2.50	-2.50	0.00
5,500.00	7.85	116.76	4,642.94	-1,226.75	2,433.15	2,724.91	2.50	-2.50	0.00
5,600.00	5.35	116.76	4,742.27	-1,231.93	2,443.42	2,736.41	2.50	-2.50	0.00
5,700.00	2.85	116.76	4,842.00	-1,235.15	2,449.80	2,743.56	2.50	-2.50	0.00
5,800.00	0.35	116.76	4,941.96	-1,236.40	2,452.30	2,746.35	2.50	-2.50	0.00
5,814.04	0.00	0.00	4,956.00	-1,236.42	2,452.34	2,746.40	2.50	-2.50	-831.43
KMVGAS - GM 443-10 KMV									
5,900.00	0.00	0.00	5,041.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
6,000.00	0.00	0.00	5,141.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
6,100.00	0.00	0.00	5,241.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
6,200.00	0.00	0.00	5,341.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
6,300.00	0.00	0.00	5,441.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
6,400.00	0.00	0.00	5,541.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
6,500.00	0.00	0.00	5,641.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
6,600.00	0.00	0.00	5,741.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
6,700.00	0.00	0.00	5,841.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
6,800.00	0.00	0.00	5,941.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
6,900.00	0.00	0.00	6,041.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
7,000.00	0.00	0.00	6,141.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
7,090.04	0.00	0.00	6,232.00	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
CMEO									
7,100.00	0.00	0.00	6,241.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
7,200.00	0.00	0.00	6,341.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
7,300.00	0.00	0.00	6,441.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
7,400.00	0.00	0.00	6,541.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
7,500.00	0.00	0.00	6,641.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
7,573.04	0.00	0.00	6,715.00	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
RLNS									
7,600.00	0.00	0.00	6,741.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
7,700.00	0.00	0.00	6,841.96	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
7,723.04	0.00	0.00	6,865.00	-1,236.42	2,452.34	2,746.40	0.00	0.00	0.00
GM 443-10 PBHL									

Database:	Grand Junction District	Local Co-ordinate Reference:	Well Federal GM 443-10 - Slot A13
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 443-10	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 443-10 KMV - plan hits target center - Circle (radius 25.00)	0.00	0.00	4,956.00	-1,236.42	2,452.34	1,599,048.00	2,269,326.20	39.4495838	-108.0878449
GM 443-10 PBHL - plan hits target center - Point	0.00	0.00	6,865.00	-1,236.42	2,452.34	1,599,048.00	2,269,326.20	39.4495838	-108.0878449

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,299.62	1,206.72	9 5/8" @ 1299' MD	9.62	9.62	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,464.09	2,116.00	G_SAND		0.00	0.00	
2,598.56	2,221.00	G_SAND_BASE		0.00	0.00	
4,549.91	3,755.00	MVRD		0.00	0.00	
5,814.04	4,956.00	KMVGAS		0.00	0.00	
7,090.04	6,232.00	CME0		0.00	0.00	
7,573.04	6,715.00	RLNS		0.00	0.00	