

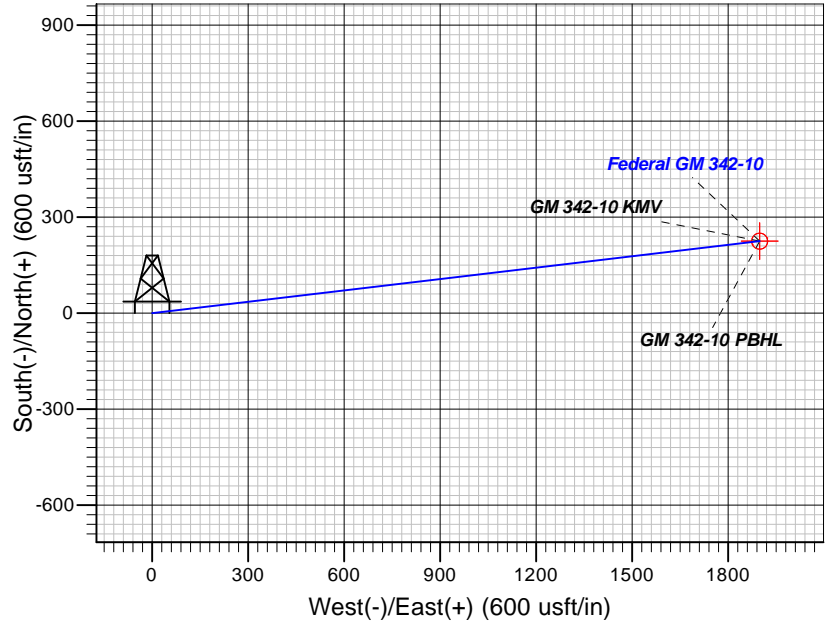
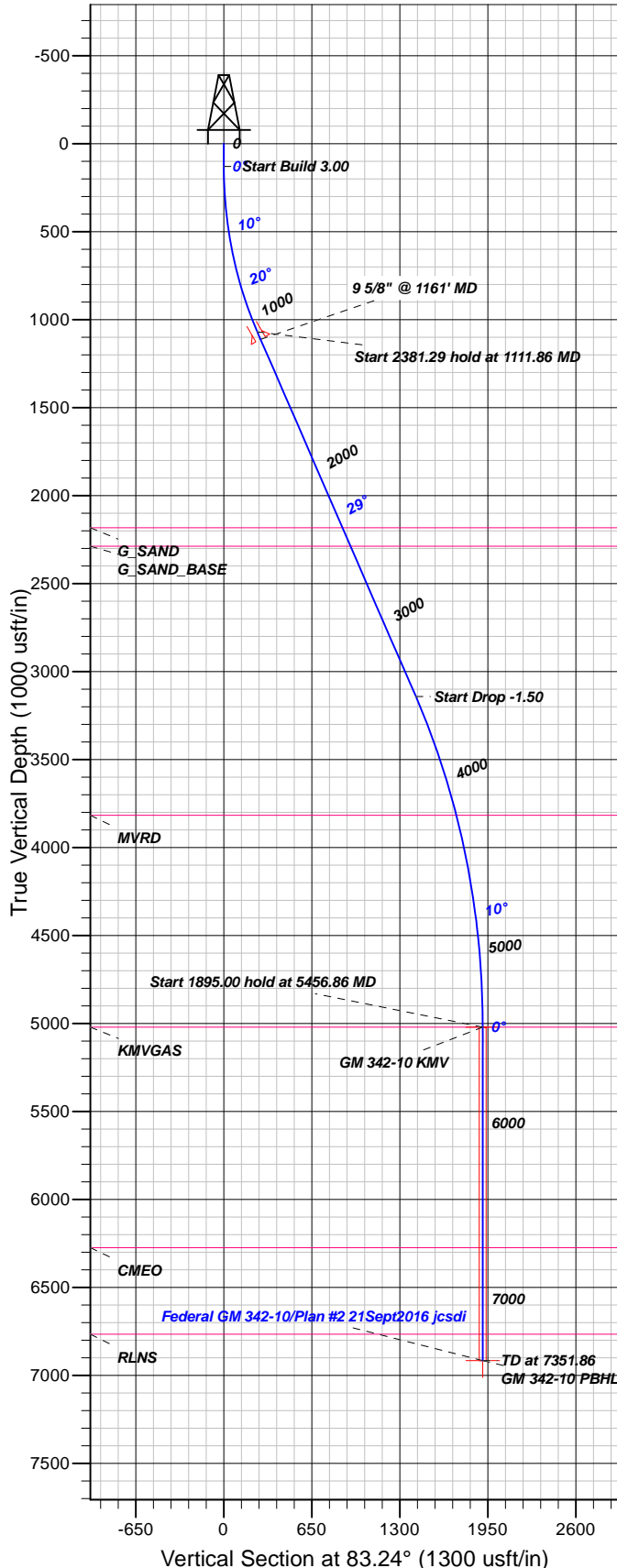
## Well Details: Federal GM 342-10

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1600365.70	2266945.80	39.4530136	-108.0964043	A18

**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
2183.00	2391.03	G_SAND
2288.00	2511.62	G_SAND_BASE
3817.00	4231.98	MVRD
5021.00	5456.86	KMGAS
6274.00	6709.86	CMEQ
6766.00	7201.86	RLNS

Plan: Plan #2 21Sept2016 jcsdi

10:37, 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
1112.71	1161.86	9 5/8" @ 1161' MD	9.62

### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	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	1111.86	29.46	83.24	1069.17	29.05	245.16	3.00	83.24	246.88	
4	3493.15	29.46	83.24	3142.65	166.84	1408.03	0.00	0.00	1417.88	
5	5456.86	0.00	0.00	5021.00	224.94	1898.35	1.50	180.00	1911.63	GM 342-10 KMG
6	7351.86	0.00	0.00	6916.00	224.94	1898.35	0.00	0.00	1911.63	GM 342-10 PBHL

### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GM 342-10 KMG	5021.00	224.94	1898.35	1600536.30	2268849.80	39.4536309	-108.0896814	Circle (Radius: 25.00)
- plan hits target center								
GM 342-10 PBHL	6916.00	224.94	1898.35	1600536.30	2268849.80	39.4536309	-108.0896814	Point
- plan hits target center								



# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**MV 5-10 Pad**

**Federal GM 342-10 - Slot A18**

**OH**

**Plan: Plan #2 21Sept2016 jcsdi**

## **Standard Planning Report**

**23 September, 2016**



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 342-10 - Slot A18
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
<b>Site:</b>	MV 5-10 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Federal GM 342-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2 21Sept2016 jcsdi		

<b>Project</b>	Garfield County, CO NAD83		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 342-10 - Slot A18					
Well Position	+N/-S	22.82 usft	Northing:	1,600,365.70 usft	Latitude:	39.4530136
	+E/-W	63.47 usft	Easting:	2,266,945.80 usft	Longitude:	-108.0964043
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,148.00 usft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2016	9/13/2016	9.72	65.58	51,587

<b>Design</b>	Plan #2 21Sept2016 jcsdi			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	83.24

<b>Plan Sections</b>										
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	
1,111.86	29.46	83.24	1,069.17	29.05	245.16	3.00	3.00	0.00	83.24	
3,493.15	29.46	83.24	3,142.65	166.84	1,408.03	0.00	0.00	0.00	0.00	
5,456.86	0.00	0.00	5,021.00	224.94	1,898.35	1.50	-1.50	0.00	180.00	GM 342-10 KMV
7,351.86	0.00	0.00	6,916.00	224.94	1,898.35	0.00	0.00	0.00	0.00	GM 342-10 PBHL

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Federal GM 342-10 - Slot A18
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
<b>Site:</b>	MV 5-10 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Federal GM 342-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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	83.24	199.98	0.15	1.27	1.28	3.00	3.00	0.00	
300.00	5.10	83.24	299.78	0.89	7.51	7.56	3.00	3.00	0.00	
400.00	8.10	83.24	399.10	2.24	18.92	19.05	3.00	3.00	0.00	
500.00	11.10	83.24	497.69	4.20	35.48	35.73	3.00	3.00	0.00	
600.00	14.10	83.24	595.27	6.77	57.14	57.54	3.00	3.00	0.00	
700.00	17.10	83.24	691.58	9.93	83.84	84.43	3.00	3.00	0.00	
800.00	20.10	83.24	786.34	13.69	115.51	116.32	3.00	3.00	0.00	
900.00	23.10	83.24	879.31	18.02	152.07	153.13	3.00	3.00	0.00	
1,000.00	26.10	83.24	970.22	22.92	193.40	194.75	3.00	3.00	0.00	
1,100.00	29.10	83.24	1,058.83	28.37	239.40	241.08	3.00	3.00	0.00	
1,111.86	29.46	83.24	1,069.17	29.05	245.16	246.88	3.00	3.00	0.00	
1,161.86	29.46	83.24	1,112.71	31.94	269.58	271.46	0.00	0.00	0.00	
9 5/8" @ 1161' MD										
1,200.00	29.46	83.24	1,145.92	34.15	288.20	290.22	0.00	0.00	0.00	
1,300.00	29.46	83.24	1,233.00	39.94	337.04	339.40	0.00	0.00	0.00	
1,400.00	29.46	83.24	1,320.07	45.72	385.87	388.57	0.00	0.00	0.00	
1,500.00	29.46	83.24	1,407.14	51.51	434.70	437.75	0.00	0.00	0.00	
1,600.00	29.46	83.24	1,494.22	57.30	483.54	486.92	0.00	0.00	0.00	
1,700.00	29.46	83.24	1,581.29	63.08	532.37	536.10	0.00	0.00	0.00	
1,800.00	29.46	83.24	1,668.37	68.87	581.20	585.27	0.00	0.00	0.00	
1,900.00	29.46	83.24	1,755.44	74.65	630.04	634.45	0.00	0.00	0.00	
2,000.00	29.46	83.24	1,842.51	80.44	678.87	683.62	0.00	0.00	0.00	
2,100.00	29.46	83.24	1,929.59	86.23	727.70	732.80	0.00	0.00	0.00	
2,200.00	29.46	83.24	2,016.66	92.01	776.54	781.97	0.00	0.00	0.00	
2,300.00	29.46	83.24	2,103.73	97.80	825.37	831.15	0.00	0.00	0.00	
2,391.03	29.46	83.24	2,183.00	103.07	869.83	875.91	0.00	0.00	0.00	
G_SAND										
2,400.00	29.46	83.24	2,190.81	103.59	874.20	880.32	0.00	0.00	0.00	
2,500.00	29.46	83.24	2,277.88	109.37	923.04	929.50	0.00	0.00	0.00	
2,511.62	29.46	83.24	2,288.00	110.05	928.71	935.21	0.00	0.00	0.00	
G_SAND_BASE										
2,600.00	29.46	83.24	2,364.95	115.16	971.87	978.67	0.00	0.00	0.00	
2,700.00	29.46	83.24	2,452.03	120.95	1,020.70	1,027.85	0.00	0.00	0.00	
2,800.00	29.46	83.24	2,539.10	126.73	1,069.54	1,077.02	0.00	0.00	0.00	
2,900.00	29.46	83.24	2,626.18	132.52	1,118.37	1,126.20	0.00	0.00	0.00	
3,000.00	29.46	83.24	2,713.25	138.30	1,167.20	1,175.37	0.00	0.00	0.00	
3,100.00	29.46	83.24	2,800.32	144.09	1,216.04	1,224.55	0.00	0.00	0.00	
3,200.00	29.46	83.24	2,887.40	149.88	1,264.87	1,273.72	0.00	0.00	0.00	
3,300.00	29.46	83.24	2,974.47	155.66	1,313.71	1,322.90	0.00	0.00	0.00	
3,400.00	29.46	83.24	3,061.54	161.45	1,362.54	1,372.07	0.00	0.00	0.00	
3,493.15	29.46	83.24	3,142.65	166.84	1,408.03	1,417.88	0.00	0.00	0.00	
3,500.00	29.35	83.24	3,148.62	167.24	1,411.37	1,421.24	1.50	-1.50	0.00	
3,600.00	27.85	83.24	3,236.41	172.87	1,458.91	1,469.11	1.50	-1.50	0.00	
3,700.00	26.35	83.24	3,325.43	178.23	1,504.15	1,514.67	1.50	-1.50	0.00	
3,800.00	24.85	83.24	3,415.61	183.31	1,547.06	1,557.88	1.50	-1.50	0.00	
3,900.00	23.35	83.24	3,506.89	188.12	1,587.61	1,598.72	1.50	-1.50	0.00	
4,000.00	21.85	83.24	3,599.20	192.64	1,625.78	1,637.15	1.50	-1.50	0.00	
4,100.00	20.35	83.24	3,692.49	196.88	1,661.53	1,673.16	1.50	-1.50	0.00	
4,200.00	18.85	83.24	3,786.70	200.83	1,694.85	1,706.70	1.50	-1.50	0.00	

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<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6148' & RKB 24' @ 6172.00usft (H&P 318)
<b>Site:</b>	MV 5-10 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Federal GM 342-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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)
4,231.98	18.37	83.24	3,817.00	202.03	1,704.98	1,716.91	1.50	-1.50	0.00
<b>MVRD</b>									
4,300.00	17.35	83.24	3,881.74	204.48	1,725.70	1,737.78	1.50	-1.50	0.00
4,400.00	15.85	83.24	3,977.57	207.84	1,754.08	1,766.35	1.50	-1.50	0.00
4,500.00	14.35	83.24	4,074.11	210.91	1,779.95	1,792.40	1.50	-1.50	0.00
4,600.00	12.85	83.24	4,171.31	213.68	1,803.31	1,815.92	1.50	-1.50	0.00
4,700.00	11.35	83.24	4,269.08	216.15	1,824.13	1,836.89	1.50	-1.50	0.00
4,800.00	9.85	83.24	4,367.37	218.31	1,842.40	1,855.29	1.50	-1.50	0.00
4,900.00	8.35	83.24	4,466.11	220.17	1,858.11	1,871.11	1.50	-1.50	0.00
5,000.00	6.85	83.24	4,565.23	221.73	1,871.25	1,884.34	1.50	-1.50	0.00
5,100.00	5.35	83.24	4,664.66	222.98	1,881.81	1,894.97	1.50	-1.50	0.00
5,200.00	3.85	83.24	4,764.33	223.92	1,889.77	1,902.99	1.50	-1.50	0.00
5,300.00	2.35	83.24	4,864.18	224.56	1,895.15	1,908.41	1.50	-1.50	0.00
5,400.00	0.85	83.24	4,964.14	224.89	1,897.93	1,911.20	1.50	-1.50	0.00
5,456.86	0.00	0.00	5,021.00	224.94	1,898.35	1,911.63	1.50	-1.50	-146.39
<b>KMVGAS - GM 342-10 KMW</b>									
5,500.00	0.00	0.00	5,064.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
5,600.00	0.00	0.00	5,164.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
5,700.00	0.00	0.00	5,264.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
5,800.00	0.00	0.00	5,364.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
5,900.00	0.00	0.00	5,464.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
6,000.00	0.00	0.00	5,564.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
6,100.00	0.00	0.00	5,664.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
6,200.00	0.00	0.00	5,764.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
6,300.00	0.00	0.00	5,864.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
6,400.00	0.00	0.00	5,964.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
6,500.00	0.00	0.00	6,064.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
6,600.00	0.00	0.00	6,164.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
6,700.00	0.00	0.00	6,264.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
6,709.86	0.00	0.00	6,274.00	224.94	1,898.35	1,911.63	0.00	0.00	0.00
<b>CMEQ</b>									
6,800.00	0.00	0.00	6,364.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
6,900.00	0.00	0.00	6,464.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
7,000.00	0.00	0.00	6,564.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
7,100.00	0.00	0.00	6,664.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
7,200.00	0.00	0.00	6,764.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
7,201.86	0.00	0.00	6,766.00	224.94	1,898.35	1,911.63	0.00	0.00	0.00
<b>RLNS</b>									
7,300.00	0.00	0.00	6,864.14	224.94	1,898.35	1,911.63	0.00	0.00	0.00
7,351.86	0.00	0.00	6,916.00	224.94	1,898.35	1,911.63	0.00	0.00	0.00
<b>GM 342-10 PBHL</b>									

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<b>Site:</b>	MV 5-10 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Federal GM 342-10	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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 342-10 KMV - plan hits target center - Circle (radius 25.00)	0.00	0.00	5,021.00	224.94	1,898.35	1,600,536.30	2,268,849.80	39.4536310	-108.0896814
GM 342-10 PBHL - plan hits target center - Point	0.00	0.00	6,916.00	224.94	1,898.35	1,600,536.30	2,268,849.80	39.4536310	-108.0896814

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,161.86	1,112.71	9 5/8" @ 1161' MD	9.62	9.62	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,391.03	2,183.00	G_SAND		0.00	0.00
2,511.62	2,288.00	G_SAND_BASE		0.00	0.00
4,231.98	3,817.00	MVRD		0.00	0.00
5,456.86	5,021.00	KMVGAS		0.00	0.00
6,709.86	6,274.00	CME0		0.00	0.00
7,201.86	6,766.00	RLNS		0.00	0.00