

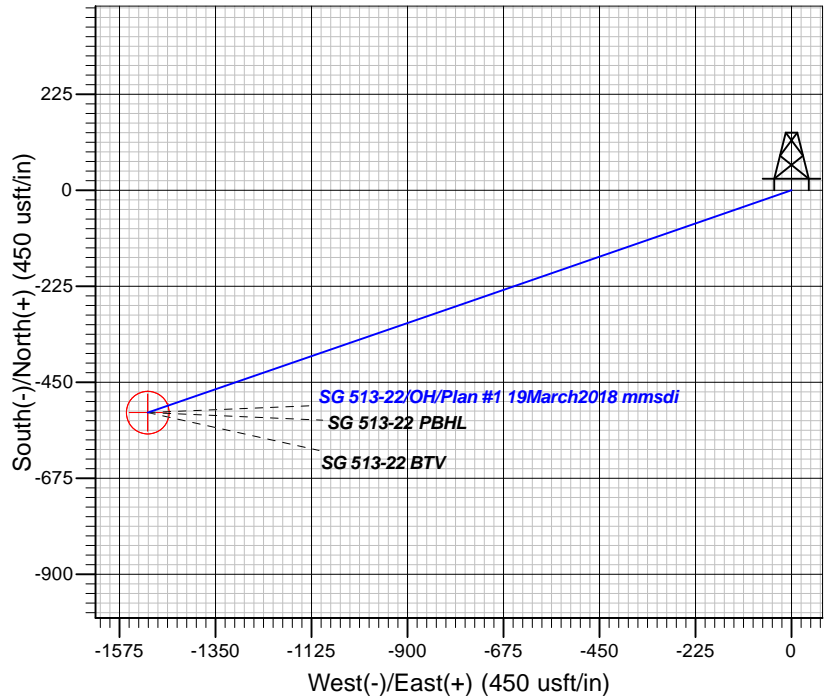
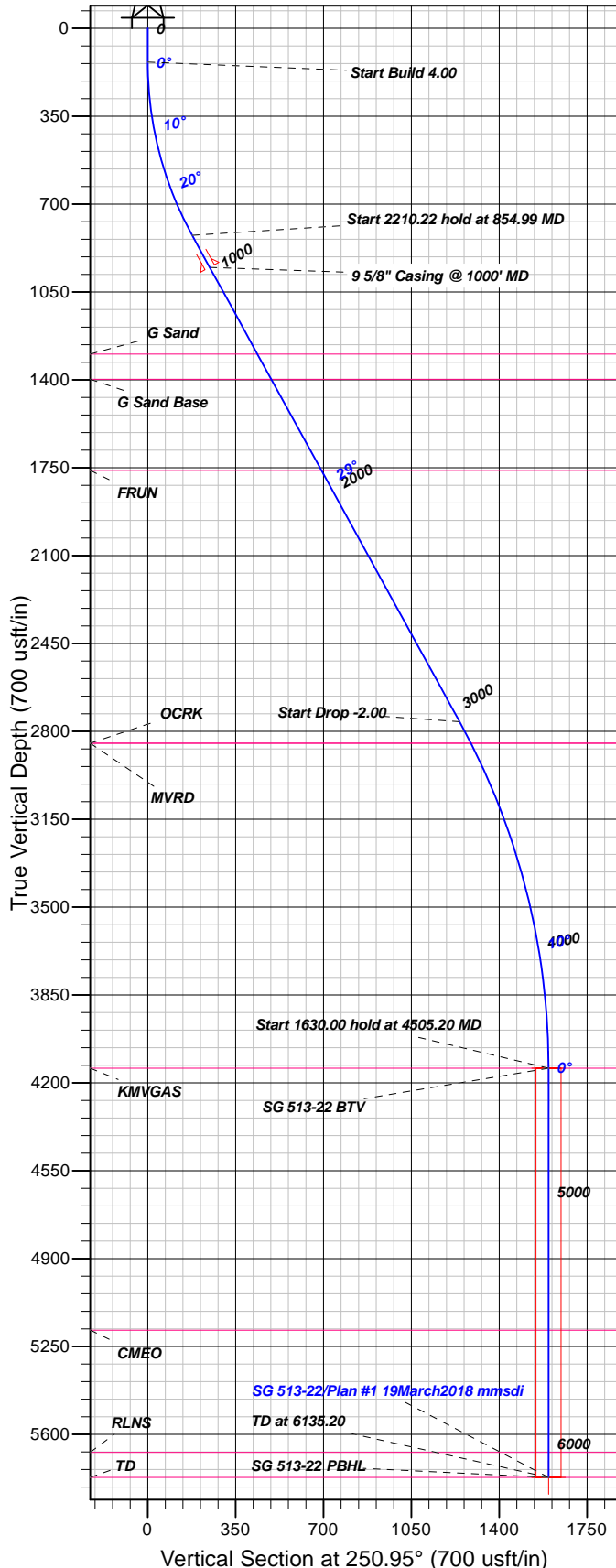


Azimuths to True North  
Magnetic North: 9.47°

Magnetic Field  
Strength: 51729.5snT  
Dip Angle: 65.62°  
Date: 3/19/2018  
Model: HDGM

## Well Details: SG 513-22

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1588882.40	2265662.70	39.4213984	-108.0997828	SG 513-22 (A11)



## FORMATION TOP DETAILS

TVDPth	MDPath	Formation
1298.00	1394.69	G Sand
1398.00	1508.81	G Sand Base
1761.00	1923.05	FRUN
2848.00	3162.59	MVRD
2848.00	3162.59	OCRK
4142.00	4505.20	KMGAS
5186.00	5549.20	CMEO
5672.00	6035.20	RLNS
5772.00	6135.20	TD

Plan: Plan #1 19March2018 mmsdi

17:01, March 20 2018  
Created By: Mel Mireles

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
952.13	1000.00	5/8" Casing @ 1000' 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	135.00	0.00	0.00	135.00	0.00	0.00	0.00	0.00	0.00	
3	854.99	28.80	250.95	825.06	-57.84	-167.47	4.00	250.95	177.17	
4	3065.21	28.80	250.95	2761.89	-405.45	-1173.90	0.00	0.00	0.00	
5	4505.20	0.00	0.00	4142.00	-521.13	-1508.84	2.00	180.00	1596.30	SG 513-22 BTV
6	6135.20	0.00	0.00	5772.00	-521.13	-1508.84	0.00	0.00	1596.30	SG 513-22 PBHL

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SG 513-22 BTV	4142.00	-521.13	-1508.84	1588404.66	2264139.57	39.4199675	-108.1051237	Circle (Radius: 50.00)
- plan hits target center								
SG 513-22 PBHL	5772.00	-521.13	-1508.84	1588404.66	2264139.57	39.4199675	-108.1051237	Point
- plan hits target center								



# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**SG 23-22 Pad**

**SG 513-22 - Slot SG 513-22 (A11)**

**OH**

**Plan: Plan #1 19March2018 mmsdi**

## **Standard Planning Report**

**20 March, 2018**



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SG 513-22 - Slot SG 513-22 (A11)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 5665' & RKB 24' @ 5689.00usft
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 5665' & RKB 24' @ 5689.00usft
<b>Site:</b>	SG 23-22 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SG 513-22	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 19March2018 mmsdi		

<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		SG 23-22 Pad			
Site Position:		Northing:	1,588,957.40 usft	Latitude:	39.4216042
From:	Map	Easting:	2,265,662.20 usft	Longitude:	-108.0997922
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.64 °

Well	SG 513-22 - Slot SG 513-22 (A11)					
Well Position	+N/-S	-74.95 usft	Northing:	1,588,882.40 usft	Latitude:	39.4213985
	+E/-W	2.65 usft	Easting:	2,265,662.70 usft	Longitude:	-108.0997828
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,665.00 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>
	HDGM	3/19/2018	9.47	65.62	51,730

<b>Design</b>	Plan #1 19March2018 mmsdi			
<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	250.95

<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	
135.00	0.00	0.00	135.00	0.00	0.00	0.00	0.00	0.00	0.00	
854.99	28.80	250.95	825.06	-57.84	-167.47	4.00	4.00	0.00	250.95	
3,065.21	28.80	250.95	2,761.89	-405.45	-1,173.90	0.00	0.00	0.00	0.00	
4,505.20	0.00	0.00	4,142.00	-521.13	-1,508.84	2.00	-2.00	0.00	180.00	SG 513-22 BTV
6,135.20	0.00	0.00	5,772.00	-521.13	-1,508.84	0.00	0.00	0.00	0.00	SG 513-22 PBHL

Database: Grand Junction District  
Company: TEP Rocky Mountain LLC  
Project: Garfield County, CO NAD83  
Site: SG 23-22 Pad  
Well: SG 513-22  
Wellbore: OH  
Design: Plan #1 19March2018 mmsdi

Local Co-ordinate Reference:  
TVD Reference:  
MD Reference:  
North Reference:  
Survey Calculation Method:

Well SG 513-22 - Slot SG 513-22 (A11)  
GL 5665' & RKB 24' @ 5689.00usft  
GL 5665' & RKB 24' @ 5689.00usft  
True  
Minimum Curvature

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
135.00	0.00	0.00	135.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 4.00</b>									
200.00	2.60	250.95	199.98	-0.48	-1.39	1.47	4.00	4.00	0.00
300.00	6.60	250.95	299.64	-3.10	-8.97	9.49	4.00	4.00	0.00
400.00	10.60	250.95	398.49	-7.98	-23.10	24.44	4.00	4.00	0.00
500.00	14.60	250.95	496.06	-15.10	-43.72	46.25	4.00	4.00	0.00
600.00	18.60	250.95	591.88	-24.42	-70.72	74.82	4.00	4.00	0.00
700.00	22.60	250.95	685.46	-35.91	-103.97	109.99	4.00	4.00	0.00
800.00	26.60	250.95	776.37	-49.50	-143.31	151.61	4.00	4.00	0.00
854.99	28.80	250.95	825.06	-57.84	-167.47	177.17	4.00	4.00	0.00
<b>Start 2210.22 hold at 854.99 MD</b>									
900.00	28.80	250.95	864.50	-64.92	-187.96	198.86	0.00	0.00	0.00
1,000.00	28.80	250.95	952.13	-80.65	-233.50	247.03	0.00	0.00	0.00
<b>9 5/8" Casing @ 1000' MD</b>									
1,100.00	28.80	250.95	1,039.76	-96.37	-279.03	295.21	0.00	0.00	0.00
1,200.00	28.80	250.95	1,127.39	-112.10	-324.57	343.38	0.00	0.00	0.00
1,300.00	28.80	250.95	1,215.02	-127.83	-370.10	391.56	0.00	0.00	0.00
1,394.69	28.80	250.95	1,298.00	-142.72	-413.22	437.18	0.00	0.00	0.00
<b>G Sand</b>									
1,400.00	28.80	250.95	1,302.65	-143.55	-415.64	439.73	0.00	0.00	0.00
1,500.00	28.80	250.95	1,390.28	-159.28	-461.17	487.91	0.00	0.00	0.00
1,508.81	28.80	250.95	1,398.00	-160.67	-465.19	492.15	0.00	0.00	0.00
<b>G Sand Base</b>									
1,600.00	28.80	250.95	1,477.91	-175.01	-506.71	536.08	0.00	0.00	0.00
1,700.00	28.80	250.95	1,565.54	-190.74	-552.25	584.26	0.00	0.00	0.00
1,800.00	28.80	250.95	1,653.17	-206.46	-597.78	632.43	0.00	0.00	0.00
1,900.00	28.80	250.95	1,740.80	-222.19	-643.32	680.61	0.00	0.00	0.00
1,923.05	28.80	250.95	1,761.00	-225.82	-653.81	691.71	0.00	0.00	0.00
<b>FRUN</b>									
2,000.00	28.80	250.95	1,828.43	-237.92	-688.85	728.78	0.00	0.00	0.00
2,100.00	28.80	250.95	1,916.07	-253.65	-734.39	776.96	0.00	0.00	0.00
2,200.00	28.80	250.95	2,003.70	-269.37	-779.92	825.13	0.00	0.00	0.00
2,300.00	28.80	250.95	2,091.33	-285.10	-825.46	873.31	0.00	0.00	0.00
2,400.00	28.80	250.95	2,178.96	-300.83	-870.99	921.48	0.00	0.00	0.00
2,500.00	28.80	250.95	2,266.59	-316.55	-916.53	969.66	0.00	0.00	0.00
2,600.00	28.80	250.95	2,354.22	-332.28	-962.07	1,017.83	0.00	0.00	0.00
2,700.00	28.80	250.95	2,441.85	-348.01	-1,007.60	1,066.01	0.00	0.00	0.00
2,800.00	28.80	250.95	2,529.48	-363.74	-1,053.14	1,114.18	0.00	0.00	0.00
2,900.00	28.80	250.95	2,617.11	-379.46	-1,098.67	1,162.36	0.00	0.00	0.00
3,000.00	28.80	250.95	2,704.74	-395.19	-1,144.21	1,210.53	0.00	0.00	0.00
3,065.21	28.80	250.95	2,761.89	-405.45	-1,173.90	1,241.95	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
3,100.00	28.10	250.95	2,792.48	-410.86	-1,189.57	1,258.52	2.00	-2.00	0.00
3,162.59	26.85	250.95	2,848.00	-420.28	-1,216.86	1,287.40	2.00	-2.00	0.00
<b>OCRK - MVRD</b>									
3,200.00	26.10	250.95	2,881.49	-425.73	-1,232.63	1,304.08	2.00	-2.00	0.00
3,300.00	24.10	250.95	2,972.04	-439.58	-1,272.73	1,346.50	2.00	-2.00	0.00
3,400.00	22.10	250.95	3,064.01	-452.39	-1,309.82	1,385.74	2.00	-2.00	0.00
3,500.00	20.10	250.95	3,157.30	-464.14	-1,343.85	1,421.75	2.00	-2.00	0.00
3,600.00	18.10	250.95	3,251.79	-474.83	-1,374.78	1,454.47	2.00	-2.00	0.00
3,700.00	16.10	250.95	3,347.36	-484.43	-1,402.58	1,483.88	2.00	-2.00	0.00

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SG 513-22 - Slot SG 513-22 (A11)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 5665' & RKB 24' @ 5689.00usft
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 5665' & RKB 24' @ 5689.00usft
<b>Site:</b>	SG 23-22 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SG 513-22	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 19March2018 mmsdi		

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)
3,800.00	14.10	250.95	3,443.90	-492.93	-1,427.21	1,509.94	2.00	-2.00	0.00
3,900.00	12.10	250.95	3,541.29	-500.33	-1,448.64	1,532.61	2.00	-2.00	0.00
4,000.00	10.10	250.95	3,639.42	-506.62	-1,466.84	1,551.87	2.00	-2.00	0.00
4,100.00	8.10	250.95	3,738.15	-511.79	-1,481.80	1,567.69	2.00	-2.00	0.00
4,200.00	6.10	250.95	3,837.38	-515.82	-1,493.48	1,580.05	2.00	-2.00	0.00
4,300.00	4.10	250.95	3,936.98	-518.73	-1,501.89	1,588.95	2.00	-2.00	0.00
4,400.00	2.10	250.95	4,036.83	-520.50	-1,507.01	1,594.36	2.00	-2.00	0.00
4,500.00	0.10	250.95	4,136.80	-521.12	-1,508.83	1,596.29	2.00	-2.00	0.00
4,505.20	0.00	0.00	4,142.00	-521.13	-1,508.84	1,596.30	2.00	-2.00	0.00
Start 1630.00 hold at 4505.20 MD - KMGAS - SG 513-22 BTV									
4,600.00	0.00	0.00	4,236.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
4,700.00	0.00	0.00	4,336.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
4,800.00	0.00	0.00	4,436.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
4,900.00	0.00	0.00	4,536.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
5,000.00	0.00	0.00	4,636.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
5,100.00	0.00	0.00	4,736.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
5,200.00	0.00	0.00	4,836.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
5,300.00	0.00	0.00	4,936.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
5,400.00	0.00	0.00	5,036.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
5,500.00	0.00	0.00	5,136.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
5,549.20	0.00	0.00	5,186.00	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
CME0									
5,600.00	0.00	0.00	5,236.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
5,700.00	0.00	0.00	5,336.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
5,800.00	0.00	0.00	5,436.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
5,900.00	0.00	0.00	5,536.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
6,000.00	0.00	0.00	5,636.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
6,035.20	0.00	0.00	5,672.00	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
RLNS									
6,100.00	0.00	0.00	5,736.80	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
6,135.20	0.00	0.00	5,772.00	-521.13	-1,508.84	1,596.30	0.00	0.00	0.00
TD at 6135.20 - TD - SG 513-22 PBHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SG 513-22 BTV	0.00	0.00	4,142.00	-521.13	-1,508.84	1,588,404.66	2,264,139.57	39.4199676	-108.1051238
- plan hits target center									
- Circle (radius 50.00)									
SG 513-22 PBHL	0.00	0.00	5,772.00	-521.13	-1,508.84	1,588,404.66	2,264,139.57	39.4199676	-108.1051238
- plan hits target center									
- Point									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,000.00	952.13	9 5/8" Casing @ 1000' MD	9.62	13.50

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SG 513-22 - Slot SG 513-22 (A11)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 5665' & RKB 24' @ 5689.00usft
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 5665' & RKB 24' @ 5689.00usft
<b>Site:</b>	SG 23-22 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SG 513-22	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 19March2018 mmsdi		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,394.69	1,298.00	G Sand		0.00	0.00	
1,508.81	1,398.00	G Sand Base		0.00	0.00	
1,923.05	1,761.00	FRUN		0.00	0.00	
3,162.59	2,848.00	OCRK		0.00	0.00	
3,162.59	2,848.00	MVRD		0.00	0.00	
4,505.20	4,142.00	KMVGAS		0.00	0.00	
5,549.20	5,186.00	CME0		0.00	0.00	
6,035.20	5,672.00	RLNS		0.00	0.00	
6,135.20	5,772.00	TD		0.00	0.00	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
135.00	135.00	0.00	0.00	Start Build 4.00	
854.99	825.06	-57.84	-167.47	Start 2210.22 hold at 854.99 MD	
3,065.21	2,761.89	-405.45	-1,173.90	Start Drop -2.00	
4,505.20	4,142.00	-521.13	-1,508.84	Start 1630.00 hold at 4505.20 MD	
6,135.20	5,772.00	-521.13	-1,508.84	TD at 6135.20	