

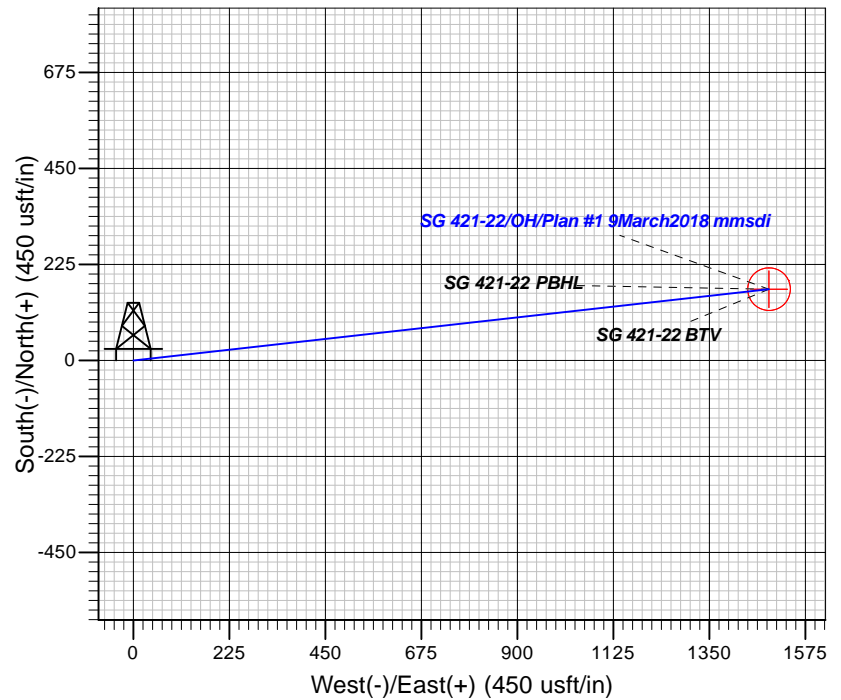
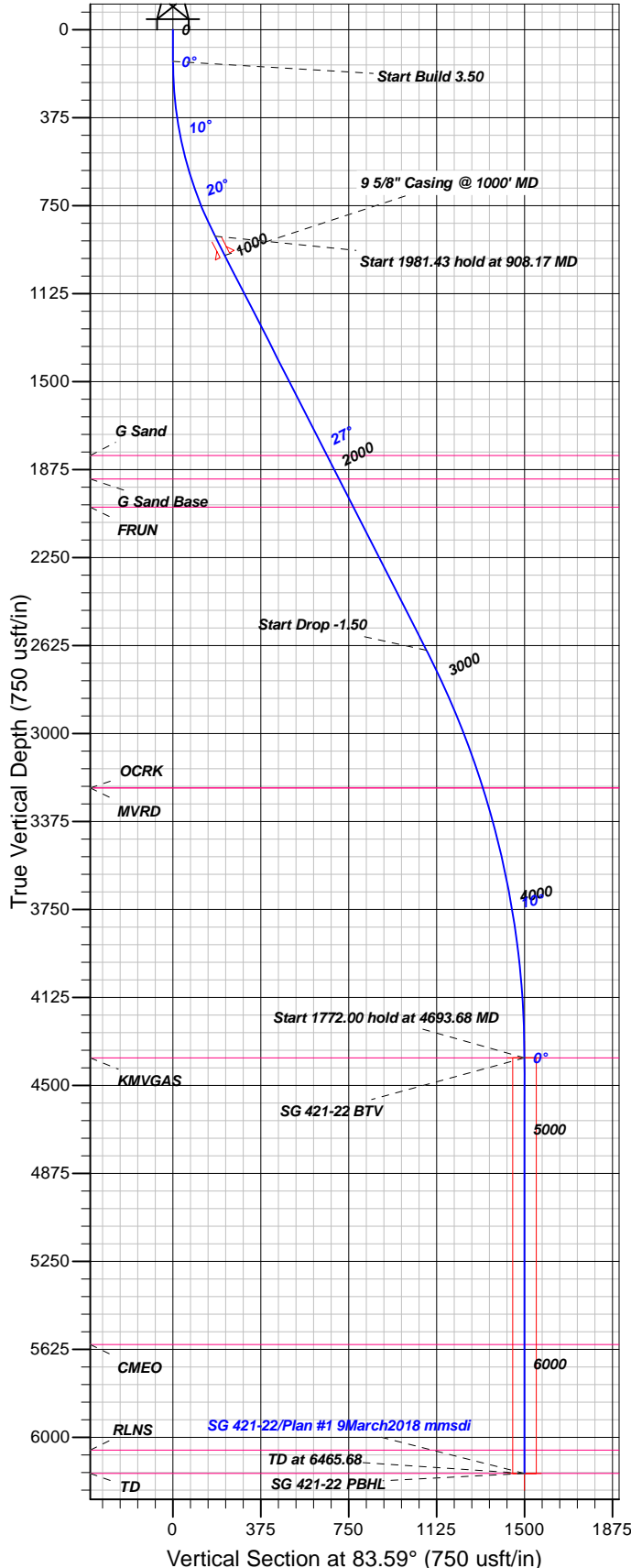


Azimuths to True North  
Magnetic North: 9.48°

Magnetic Field  
Strength: 51724.5snT  
Dip Angle: 65.63°  
Date: 3/9/2018  
Model: HDGM

## Well Details: SG 421-22

GL 6092.4' & RKB 24' @ 6116.40usft  
+N/-S 0.00 +E/-W 0.00 Northing 1591230.60 Easting 2264554.00 Latitude 39.4277556 Longitude -108.1039440 Slot SG 421-22 (B4)



## FORMATION TOP DETAILS

TVDPth	MDPath	Formation
1815.00	1958.40	G Sand
1915.00	2070.70	G Sand Base
2035.00	2205.45	FRUN
3232.00	3525.56	MVRD
3232.00	3525.56	OCRK
4382.00	4693.68	KMVGAS
5604.00	5915.68	CMEO
6054.00	6365.68	RLNS
6154.00	6465.68	TD

Plan: Plan #1 9March2018 mmsdi

16:40, March 13 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
961.52	1000.00	5/8" Casing @ 1000' 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	135.00	0.00	0.00	135.00	0.00	0.00	0.00	0.00	0.00	
3	908.17	27.06	83.59	879.75	20.01	178.10	3.50	83.59	179.22	
4	2889.61	27.06	83.59	2644.26	120.66	1073.89	0.00	0.001080.65		
5	4693.68	0.00	0.00	4382.00	167.35	1489.46	1.50	180.001498.83	SG 421-22 BTV	
6	6465.68	0.00	0.00	6154.00	167.35	1489.46	0.00	0.001498.83	SG 421-22 PBHL	

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SG 421-22 BTV	4382.00	167.35	1489.46	1591355.19	2266047.64	39.4282149	-108.0986711	Circle (Radius: 50.00)
- plan hits target center								
SG 421-22 PBHL	6154.00	167.35	1489.46	1591355.19	2266047.64	39.4282149	-108.0986711	Point
- plan hits target center								



## **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**SG 11-22 Pad**

**SG 421-22 - Slot SG 421-22 (B4)**

**OH**

**Plan: Plan #1 9March2018 mmsdi**

## **Standard Planning Report**

**12 March, 2018**



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SG 421-22 - Slot SG 421-22 (B4)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 6092.4' & RKB 24' @ 6116.40usft
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6092.4' & RKB 24' @ 6116.40usft
<b>Site:</b>	SG 11-22 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SG 421-22	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 9March2018 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		

<b>Site</b>	SG 11-22 Pad			
<b>Site Position:</b>		<b>Northing:</b>	1,591,239.00 usft	<b>Latitude:</b> 39.4277783
<b>From:</b> Map		<b>Easting:</b>	2,264,548.70 usft	<b>Longitude:</b> -108.1039637
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.20 in	<b>Grid Convergence:</b> -1.64 °

<b>Well</b>	SG 421-22 - Slot SG 421-22 (B4)			
<b>Well Position</b>	<b>+N/-S</b>	-8.24 usft	<b>Northing:</b>	1,591,230.60 usft
	<b>+E/-W</b>	5.54 usft	<b>Easting:</b>	2,264,554.00 usft
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	0.00 usft
			<b>Ground Level:</b>	6,092.40 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	3/9/2018	9.48	65.63	51,725

<b>Design</b>	Plan #1 9March2018 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	83.59

<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	
908.17	27.06	83.59	879.75	20.01	178.10	3.50	3.50	0.00	83.59	
2,889.61	27.06	83.59	2,644.26	120.66	1,073.89	0.00	0.00	0.00	0.00	
4,693.68	0.00	0.00	4,382.00	167.35	1,489.46	1.50	-1.50	0.00	180.00	SG 421-22 BTV
6,465.68	0.00	0.00	6,154.00	167.35	1,489.46	0.00	0.00	0.00	0.00	SG 421-22 PBHL

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SG 421-22 - Slot SG 421-22 (B4)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 6092.4' & RKB 24' @ 6116.40usft
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6092.4' & RKB 24' @ 6116.40usft
<b>Site:</b>	SG 11-22 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SG 421-22	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 9March2018 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)
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 3.50</b>									
200.00	2.28	83.59	199.98	0.14	1.28	1.29	3.50	3.50	0.00
300.00	5.78	83.59	299.72	0.93	8.26	8.31	3.50	3.50	0.00
400.00	9.28	83.59	398.84	2.39	21.27	21.40	3.50	3.50	0.00
500.00	12.78	83.59	496.98	4.52	40.27	40.52	3.50	3.50	0.00
600.00	16.28	83.59	593.77	7.32	65.19	65.60	3.50	3.50	0.00
700.00	19.78	83.59	688.85	10.78	95.93	96.54	3.50	3.50	0.00
800.00	23.28	83.59	781.86	14.87	132.39	133.22	3.50	3.50	0.00
900.00	26.78	83.59	872.46	19.60	174.42	175.52	3.50	3.50	0.00
908.17	27.06	83.59	879.75	20.01	178.10	179.22	3.50	3.50	0.00
<b>Start 1981.43 hold at 908.17 MD</b>									
1,000.00	27.06	83.59	961.52	24.67	219.61	220.99	0.00	0.00	0.00
<b>9 5/8" Casing @ 1000' MD</b>									
1,100.00	27.06	83.59	1,050.57	29.75	264.82	266.49	0.00	0.00	0.00
1,200.00	27.06	83.59	1,139.62	34.83	310.03	311.98	0.00	0.00	0.00
1,300.00	27.06	83.59	1,228.68	39.91	355.24	357.48	0.00	0.00	0.00
1,400.00	27.06	83.59	1,317.73	44.99	400.45	402.97	0.00	0.00	0.00
1,500.00	27.06	83.59	1,406.78	50.07	445.66	448.46	0.00	0.00	0.00
1,600.00	27.06	83.59	1,495.83	55.15	490.87	493.96	0.00	0.00	0.00
1,700.00	27.06	83.59	1,584.89	60.23	536.08	539.45	0.00	0.00	0.00
1,800.00	27.06	83.59	1,673.94	65.31	581.29	584.95	0.00	0.00	0.00
1,900.00	27.06	83.59	1,762.99	70.39	626.50	630.44	0.00	0.00	0.00
1,958.40	27.06	83.59	1,815.00	73.36	652.90	657.01	0.00	0.00	0.00
<b>G Sand</b>									
2,000.00	27.06	83.59	1,852.04	75.47	671.71	675.93	0.00	0.00	0.00
2,070.70	27.06	83.59	1,915.00	79.06	703.67	708.10	0.00	0.00	0.00
<b>G Sand Base</b>									
2,100.00	27.06	83.59	1,941.09	80.55	716.92	721.43	0.00	0.00	0.00
2,200.00	27.06	83.59	2,030.15	85.63	762.13	766.92	0.00	0.00	0.00
2,205.45	27.06	83.59	2,035.00	85.90	764.59	769.40	0.00	0.00	0.00
<b>FRUN</b>									
2,300.00	27.06	83.59	2,119.20	90.71	807.34	812.42	0.00	0.00	0.00
2,400.00	27.06	83.59	2,208.25	95.79	852.55	857.91	0.00	0.00	0.00
2,500.00	27.06	83.59	2,297.30	100.87	897.76	903.40	0.00	0.00	0.00
2,600.00	27.06	83.59	2,386.36	105.95	942.97	948.90	0.00	0.00	0.00
2,700.00	27.06	83.59	2,475.41	111.02	988.17	994.39	0.00	0.00	0.00
2,800.00	27.06	83.59	2,564.46	116.10	1,033.38	1,039.89	0.00	0.00	0.00
2,889.61	27.06	83.59	2,644.26	120.66	1,073.89	1,080.65	0.00	0.00	0.00
<b>Start Drop -1.50</b>									
2,900.00	26.91	83.59	2,653.52	121.18	1,078.58	1,085.37	1.50	-1.50	0.00
3,000.00	25.41	83.59	2,743.28	126.10	1,122.39	1,129.45	1.50	-1.50	0.00
3,100.00	23.91	83.59	2,834.16	130.76	1,163.84	1,171.16	1.50	-1.50	0.00
3,200.00	22.41	83.59	2,926.10	135.15	1,202.91	1,210.48	1.50	-1.50	0.00
3,300.00	20.91	83.59	3,019.04	139.27	1,239.58	1,247.38	1.50	-1.50	0.00
3,400.00	19.41	83.59	3,112.91	143.12	1,273.82	1,281.84	1.50	-1.50	0.00
3,500.00	17.91	83.59	3,207.66	146.69	1,305.61	1,313.83	1.50	-1.50	0.00
3,525.56	17.52	83.59	3,232.00	147.56	1,313.34	1,321.60	1.50	-1.50	0.00
<b>OCRK - MVRD</b>									
3,600.00	16.41	83.59	3,303.20	149.98	1,334.92	1,343.32	1.50	-1.50	0.00
3,700.00	14.91	83.59	3,399.49	153.00	1,361.74	1,370.30	1.50	-1.50	0.00

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SG 421-22 - Slot SG 421-22 (B4)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 6092.4' & RKB 24' @ 6116.40usft
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6092.4' & RKB 24' @ 6116.40usft
<b>Site:</b>	SG 11-22 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SG 421-22	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 9March2018 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	13.41	83.59	3,496.45	155.73	1,386.04	1,394.76	1.50	-1.50	0.00
3,900.00	11.91	83.59	3,594.02	158.17	1,407.81	1,416.67	1.50	-1.50	0.00
4,000.00	10.41	83.59	3,692.13	160.33	1,427.03	1,436.01	1.50	-1.50	0.00
4,100.00	8.91	83.59	3,790.71	162.20	1,443.70	1,452.78	1.50	-1.50	0.00
4,200.00	7.41	83.59	3,889.69	163.79	1,457.80	1,466.97	1.50	-1.50	0.00
4,300.00	5.91	83.59	3,989.02	165.08	1,469.31	1,478.56	1.50	-1.50	0.00
4,400.00	4.41	83.59	4,088.61	166.09	1,478.24	1,487.54	1.50	-1.50	0.00
4,500.00	2.91	83.59	4,188.40	166.80	1,484.58	1,493.92	1.50	-1.50	0.00
4,600.00	1.41	83.59	4,288.33	167.22	1,488.31	1,497.68	1.50	-1.50	0.00
4,693.68	0.00	0.00	4,382.00	167.35	1,489.46	1,498.83	1.50	-1.50	-89.23
Start 1772.00 hold at 4693.68 MD - KMGAS - SG 421-22 BTV									
4,700.00	0.00	0.00	4,388.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
4,800.00	0.00	0.00	4,488.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
4,900.00	0.00	0.00	4,588.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
5,000.00	0.00	0.00	4,688.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
5,100.00	0.00	0.00	4,788.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
5,200.00	0.00	0.00	4,888.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
5,300.00	0.00	0.00	4,988.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
5,400.00	0.00	0.00	5,088.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
5,500.00	0.00	0.00	5,188.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
5,600.00	0.00	0.00	5,288.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
5,700.00	0.00	0.00	5,388.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
5,800.00	0.00	0.00	5,488.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
5,900.00	0.00	0.00	5,588.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
5,915.68	0.00	0.00	5,604.00	167.35	1,489.46	1,498.83	0.00	0.00	0.00
CMEO									
6,000.00	0.00	0.00	5,688.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
6,100.00	0.00	0.00	5,788.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
6,200.00	0.00	0.00	5,888.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
6,300.00	0.00	0.00	5,988.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
6,365.68	0.00	0.00	6,054.00	167.35	1,489.46	1,498.83	0.00	0.00	0.00
RLNS									
6,400.00	0.00	0.00	6,088.32	167.35	1,489.46	1,498.83	0.00	0.00	0.00
6,465.68	0.00	0.00	6,154.00	167.35	1,489.46	1,498.83	0.00	0.00	0.00
TD at 6465.68 - TD - SG 421-22 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 421-22 BTV	0.00	0.00	4,382.00	167.35	1,489.46	1,591,355.19	2,266,047.64	39.4282150	-108.0986711
- plan hits target center									
- Circle (radius 50.00)									
SG 421-22 PBHL	0.00	0.00	6,154.00	167.35	1,489.46	1,591,355.19	2,266,047.64	39.4282150	-108.0986711
- plan hits target center									
- Point									

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SG 421-22 - Slot SG 421-22 (B4)
<b>Company:</b>	TEP Rocky Mountain LLC	<b>TVD Reference:</b>	GL 6092.4' & RKB 24' @ 6116.40usft
<b>Project:</b>	Garfield County, CO NAD83	<b>MD Reference:</b>	GL 6092.4' & RKB 24' @ 6116.40usft
<b>Site:</b>	SG 11-22 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SG 421-22	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1 9March2018 mmsdi		

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,000.00	961.52	9 5/8" Casing @ 1000' MD	9.62	13.50

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,958.40	1,815.00	G Sand		0.00	0.00
2,070.70	1,915.00	G Sand Base		0.00	0.00
2,205.45	2,035.00	FRUN		0.00	0.00
3,525.56	3,232.00	OCRK		0.00	0.00
3,525.56	3,232.00	MVRD		0.00	0.00
4,693.68	4,382.00	KMVGAS		0.00	0.00
5,915.68	5,604.00	CME0		0.00	0.00
6,365.68	6,054.00	RLNS		0.00	0.00
6,465.68	6,154.00	TD		0.00	0.00

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
135.00	135.00	0.00	0.00	Start Build 3.50
908.17	879.75	20.01	178.10	Start 1981.43 hold at 908.17 MD
2,889.61	2,644.26	120.66	1,073.89	Start Drop -1.50
4,693.68	4,382.00	167.35	1,489.46	Start 1772.00 hold at 4693.68 MD
6,465.68	6,154.00	167.35	1,489.46	TD at 6465.68