

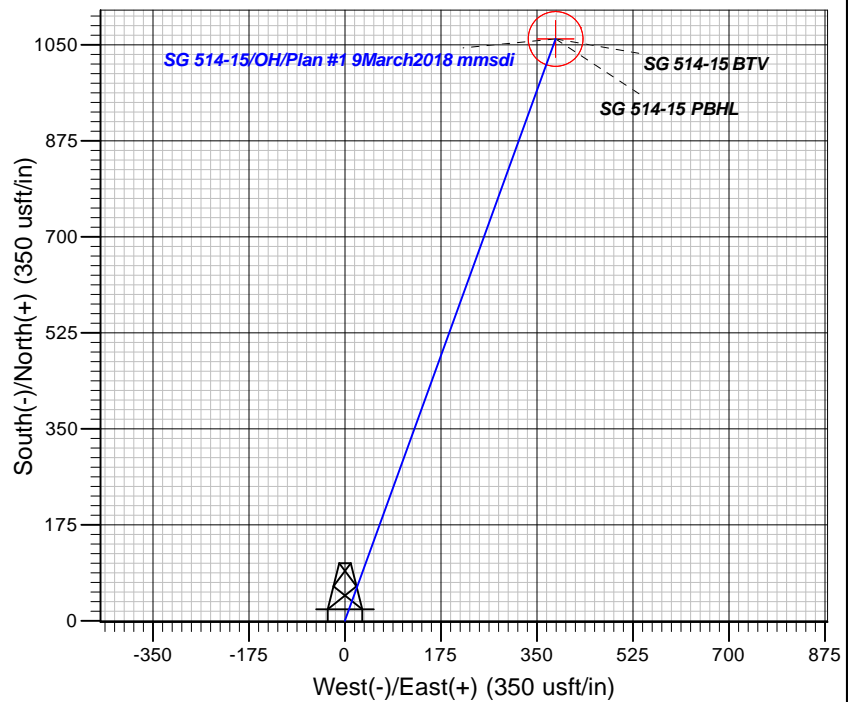
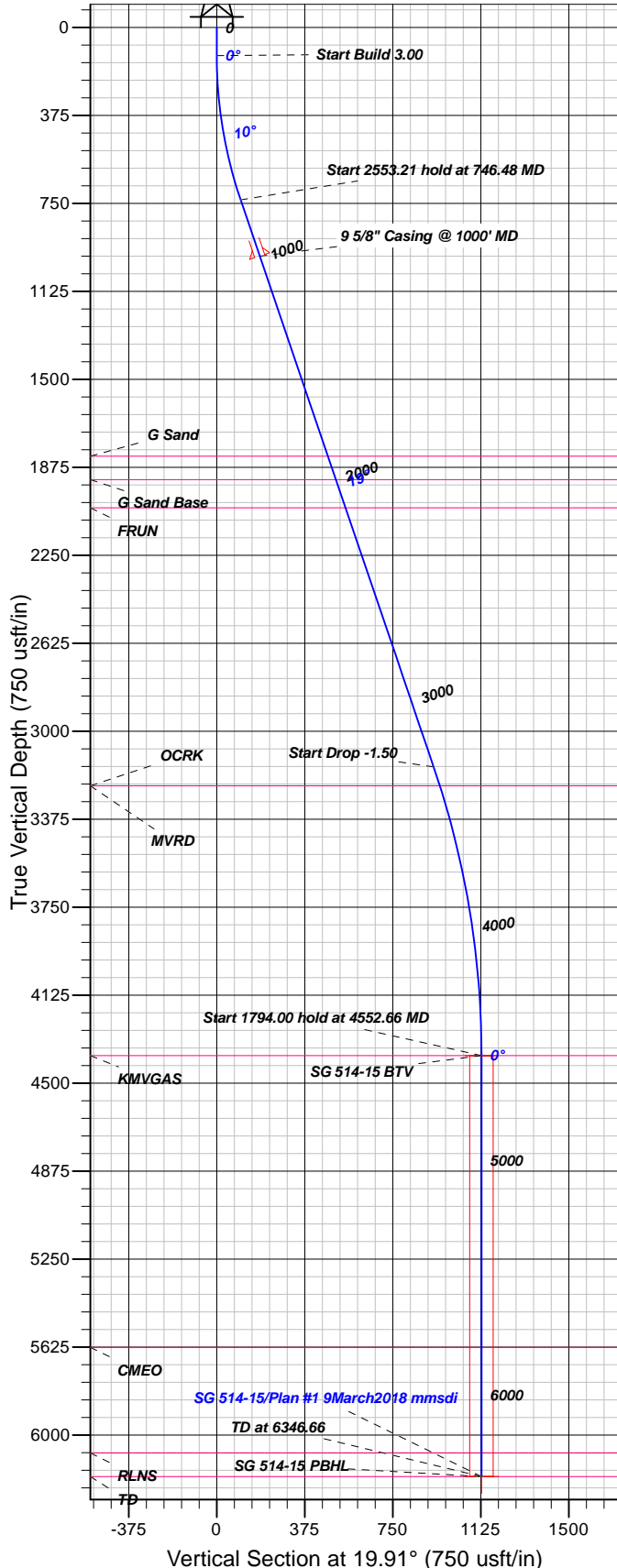


Azimuths to True North  
Magnetic North: 9.48°

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

## Well Details: SG 514-15

GL 6092.4' & RKB 24' @ 6116.40usft  
+N/-S 0.00 +E/-W 0.00 Northing 1591251.00 Easting 2264567.70 Latitude 39.4278127 Longitude -108.1038976 Slot SG 514-15 (A1)



### FORMATION TOP DETAILS

TVDP	MD	Formation
1828.00	1900.72	G Sand
1928.00	2006.35	G Sand Base
2048.00	2133.11	FRUN
3233.00	3384.54	MVRD
3233.00	3384.54	OCRK
4383.00	4552.66	KMVGAS
5627.00	5796.66	CMEO
6077.00	6246.66	RLNS
6177.00	6346.66	TD

Plan: Plan #1 9March2018 mmsdi

16:57, 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
975.31	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	120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	
3	746.48	18.79	19.91	735.31	95.75	34.68	3.00	19.91	101.83	
4	3299.70	18.79	19.91	3152.39	869.16	314.80	0.00	0.00	924.41	
5	4552.66	0.00	0.00	4383.00	1060.65	384.15	1.50	180.00	1128.08	SG 514-15 BTV
6	6346.66	0.00	0.00	6177.00	1060.65	384.15	0.00	0.00	1128.08	SG 514-15 PBHL

### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SG 514-15 BTV	4383.00	1060.65	384.15	1592300.21	2264982.09	39.4307247	-108.1025376	Circle (Radius: 50.00)
- plan hits target center								
SG 514-15 PBHL	6177.00	1060.65	384.15	1592300.21	2264982.09	39.4307247	-108.1025376	Point
- plan hits target center								



# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**SG 11-22 Pad**

**SG 514-15 - Slot SG 514-15 (A1)**

**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 514-15 - Slot SG 514-15 (A1)
<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 514-15	<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 514-15 - Slot SG 514-15 (A1)			
<b>Well Position</b>	<b>+N/-S</b>	12.54 usft	<b>Northing:</b>	1,591,251.00 usft
	<b>+E/-W</b>	18.65 usft	<b>Easting:</b>	2,264,567.70 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	19.91

<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	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	
746.48	18.79	19.91	735.31	95.75	34.68	3.00	3.00	0.00	19.91	
3,299.70	18.79	19.91	3,152.39	869.16	314.80	0.00	0.00	0.00	0.00	
4,552.66	0.00	0.00	4,383.00	1,060.65	384.15	1.50	-1.50	0.00	180.00	SG 514-15 BTV
6,346.66	0.00	0.00	6,177.00	1,060.65	384.15	0.00	0.00	0.00	0.00	SG 514-15 PBHL

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SG 514-15 - Slot SG 514-15 (A1)
<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 514-15	<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
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 3.00</b>									
200.00	2.40	19.91	199.98	1.58	0.57	1.68	3.00	3.00	0.00
300.00	5.40	19.91	299.73	7.97	2.89	8.48	3.00	3.00	0.00
400.00	8.40	19.91	399.00	19.26	6.98	20.49	3.00	3.00	0.00
500.00	11.40	19.91	497.50	35.43	12.83	37.68	3.00	3.00	0.00
600.00	14.40	19.91	594.96	56.42	20.43	60.00	3.00	3.00	0.00
700.00	17.40	19.91	691.13	82.17	29.76	87.39	3.00	3.00	0.00
746.48	18.79	19.91	735.31	95.75	34.68	101.83	3.00	3.00	0.00
<b>Start 2553.21 hold at 746.48 MD</b>									
800.00	18.79	19.91	785.97	111.96	40.55	119.08	0.00	0.00	0.00
900.00	18.79	19.91	880.64	142.25	51.52	151.29	0.00	0.00	0.00
1,000.00	18.79	19.91	975.31	172.54	62.49	183.51	0.00	0.00	0.00
<b>9 5/8" Casing @ 1000' MD</b>									
1,100.00	18.79	19.91	1,069.98	202.83	73.46	215.73	0.00	0.00	0.00
1,200.00	18.79	19.91	1,164.64	233.13	84.43	247.94	0.00	0.00	0.00
1,300.00	18.79	19.91	1,259.31	263.42	95.41	280.16	0.00	0.00	0.00
1,400.00	18.79	19.91	1,353.98	293.71	106.38	312.38	0.00	0.00	0.00
1,500.00	18.79	19.91	1,448.65	324.00	117.35	344.60	0.00	0.00	0.00
1,600.00	18.79	19.91	1,543.32	354.29	128.32	376.81	0.00	0.00	0.00
1,700.00	18.79	19.91	1,637.98	384.58	139.29	409.03	0.00	0.00	0.00
1,800.00	18.79	19.91	1,732.65	414.88	150.26	441.25	0.00	0.00	0.00
1,900.00	18.79	19.91	1,827.32	445.17	161.23	473.47	0.00	0.00	0.00
1,900.72	18.79	19.91	1,828.00	445.39	161.31	473.70	0.00	0.00	0.00
<b>G Sand</b>									
2,000.00	18.79	19.91	1,921.99	475.46	172.20	505.68	0.00	0.00	0.00
2,006.35	18.79	19.91	1,928.00	477.38	172.90	507.73	0.00	0.00	0.00
<b>G Sand Base</b>									
2,100.00	18.79	19.91	2,016.66	505.75	183.17	537.90	0.00	0.00	0.00
2,133.11	18.79	19.91	2,048.00	515.78	186.81	548.57	0.00	0.00	0.00
<b>FRUN</b>									
2,200.00	18.79	19.91	2,111.32	536.04	194.15	570.12	0.00	0.00	0.00
2,300.00	18.79	19.91	2,205.99	566.34	205.12	602.34	0.00	0.00	0.00
2,400.00	18.79	19.91	2,300.66	596.63	216.09	634.55	0.00	0.00	0.00
2,500.00	18.79	19.91	2,395.33	626.92	227.06	666.77	0.00	0.00	0.00
2,600.00	18.79	19.91	2,490.00	657.21	238.03	698.99	0.00	0.00	0.00
2,700.00	18.79	19.91	2,584.66	687.50	249.00	731.21	0.00	0.00	0.00
2,800.00	18.79	19.91	2,679.33	717.79	259.97	763.42	0.00	0.00	0.00
2,900.00	18.79	19.91	2,774.00	748.09	270.94	795.64	0.00	0.00	0.00
3,000.00	18.79	19.91	2,868.67	778.38	281.92	827.86	0.00	0.00	0.00
3,100.00	18.79	19.91	2,963.34	808.67	292.89	860.08	0.00	0.00	0.00
3,200.00	18.79	19.91	3,058.00	838.96	303.86	892.29	0.00	0.00	0.00
3,299.70	18.79	19.91	3,152.39	869.16	314.80	924.41	0.00	0.00	0.00
<b>Start Drop -1.50</b>									
3,300.00	18.79	19.91	3,152.67	869.25	314.83	924.51	1.50	-1.50	0.00
3,384.54	17.52	19.91	3,233.00	894.02	323.80	950.85	1.50	-1.50	0.00
<b>OCRK - MVRD</b>									
3,400.00	17.29	19.91	3,247.75	898.37	325.37	955.48	1.50	-1.50	0.00
3,500.00	15.79	19.91	3,343.61	925.14	335.07	983.94	1.50	-1.50	0.00
3,600.00	14.29	19.91	3,440.19	949.53	343.90	1,009.89	1.50	-1.50	0.00
3,700.00	12.79	19.91	3,537.40	971.55	351.88	1,033.30	1.50	-1.50	0.00

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SG 514-15 - Slot SG 514-15 (A1)
<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 514-15	<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	11.29	19.91	3,635.20	991.16	358.98	1,054.16	1.50	-1.50	0.00
3,900.00	9.79	19.91	3,733.51	1,008.36	365.21	1,072.46	1.50	-1.50	0.00
4,000.00	8.29	19.91	3,832.27	1,023.13	370.56	1,088.17	1.50	-1.50	0.00
4,100.00	6.79	19.91	3,931.40	1,035.47	375.03	1,101.29	1.50	-1.50	0.00
4,200.00	5.29	19.91	4,030.84	1,045.36	378.61	1,111.81	1.50	-1.50	0.00
4,300.00	3.79	19.91	4,130.52	1,052.80	381.31	1,119.73	1.50	-1.50	0.00
4,400.00	2.29	19.91	4,230.38	1,057.79	383.11	1,125.03	1.50	-1.50	0.00
4,500.00	0.79	19.91	4,330.34	1,060.31	384.03	1,127.72	1.50	-1.50	0.00
4,552.66	0.00	0.00	4,383.00	1,060.65	384.15	1,128.08	1.50	-1.50	0.00
Start 1794.00 hold at 4552.66 MD - KMGAS - SG 514-15 BTV									
4,600.00	0.00	0.00	4,430.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
4,700.00	0.00	0.00	4,530.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
4,800.00	0.00	0.00	4,630.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
4,900.00	0.00	0.00	4,730.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
5,000.00	0.00	0.00	4,830.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
5,100.00	0.00	0.00	4,930.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
5,200.00	0.00	0.00	5,030.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
5,300.00	0.00	0.00	5,130.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
5,400.00	0.00	0.00	5,230.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
5,500.00	0.00	0.00	5,330.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
5,600.00	0.00	0.00	5,430.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
5,700.00	0.00	0.00	5,530.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
5,796.66	0.00	0.00	5,627.00	1,060.65	384.15	1,128.08	0.00	0.00	0.00
CMEO									
5,800.00	0.00	0.00	5,630.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
5,900.00	0.00	0.00	5,730.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
6,000.00	0.00	0.00	5,830.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
6,100.00	0.00	0.00	5,930.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
6,200.00	0.00	0.00	6,030.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
6,246.66	0.00	0.00	6,077.00	1,060.65	384.15	1,128.08	0.00	0.00	0.00
RLNS									
6,300.00	0.00	0.00	6,130.34	1,060.65	384.15	1,128.08	0.00	0.00	0.00
6,346.66	0.00	0.00	6,177.00	1,060.65	384.15	1,128.08	0.00	0.00	0.00
TD at 6346.66 - TD - SG 514-15 PBHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SG 514-15 BTV	0.00	0.00	4,383.00	1,060.65	384.15	1,592,300.21	2,264,982.09	39.4307247	-108.1025376
- plan hits target center									
- Circle (radius 50.00)									
SG 514-15 PBHL	0.00	0.00	6,177.00	1,060.65	384.15	1,592,300.21	2,264,982.09	39.4307247	-108.1025376
- plan hits target center									
- Point									

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SG 514-15 - Slot SG 514-15 (A1)
<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 514-15	<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	975.31	9 5/8" Casing @ 1000' MD	9.62	13.50

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,900.72	1,828.00	G Sand		0.00	0.00
2,006.35	1,928.00	G Sand Base		0.00	0.00
2,133.11	2,048.00	FRUN		0.00	0.00
3,384.54	3,233.00	OCRK		0.00	0.00
3,384.54	3,233.00	MVRD		0.00	0.00
4,552.66	4,383.00	KMVGAS		0.00	0.00
5,796.66	5,627.00	CMEO		0.00	0.00
6,246.66	6,077.00	RLNS		0.00	0.00
6,346.66	6,177.00	TD		0.00	0.00

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
120.00	120.00	0.00	0.00	Start Build 3.00
746.48	735.31	95.75	34.68	Start 2553.21 hold at 746.48 MD
3,299.70	3,152.39	869.16	314.80	Start Drop -1.50
4,552.66	4,383.00	1,060.65	384.15	Start 1794.00 hold at 4552.66 MD
6,346.66	6,177.00	1,060.65	384.15	TD at 6346.66