

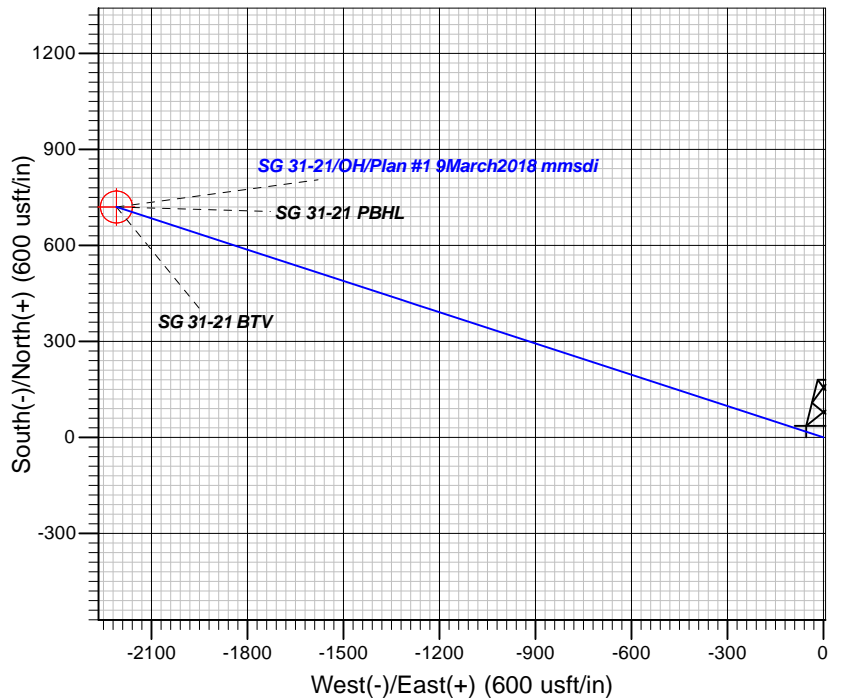
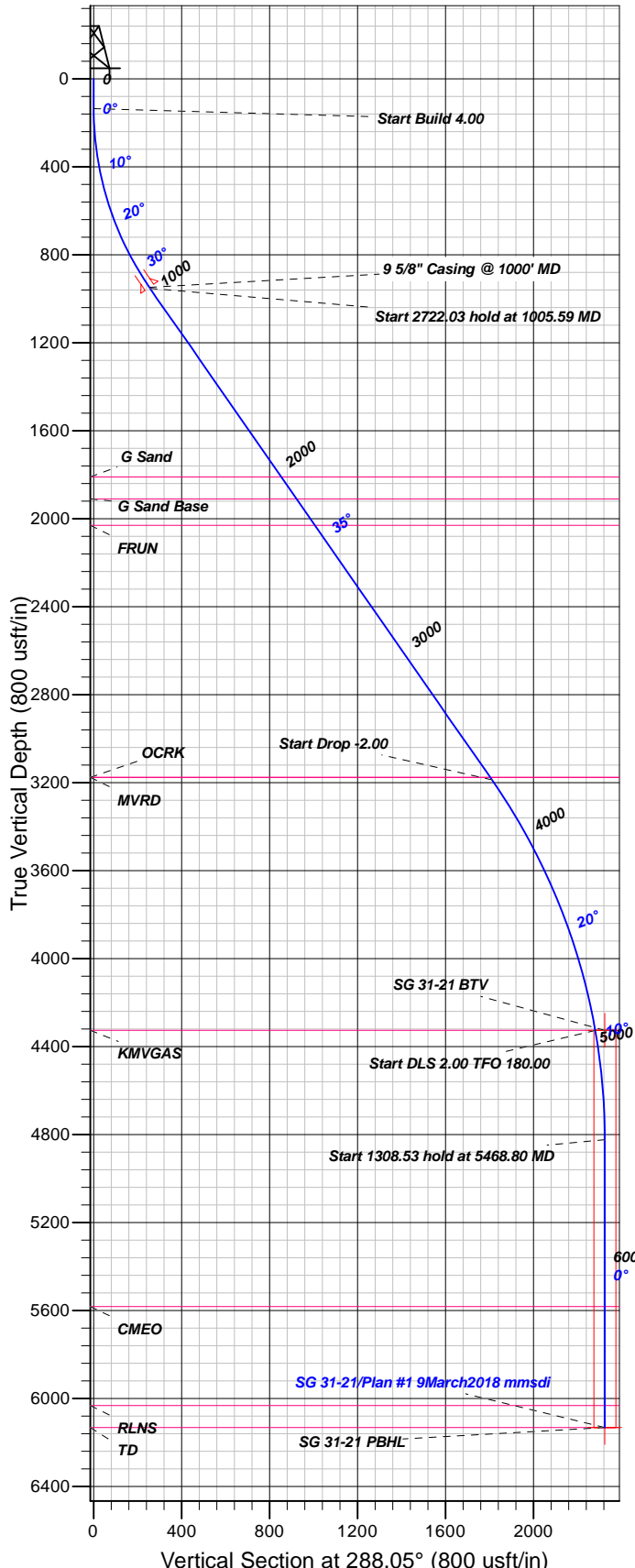


Azimuths to True North
Magnetic North: 9.48°

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

Well Details: SG 31-21

GL 6092.4' & RKB 24' @ 6116.40usft
+N/-S 0.00 +E/-W 0.00 Northing 1591222.90 Easting 2264523.40 Latitude 39.4277321 Longitude -108.1040515 Slot SG 31-21 (A8)



FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
1810.00	2049.58	G Sand
1910.00	2171.40	G Sand Base
2030.00	2317.58	FRUN
3176.00	3713.58	MVRD
3176.00	3713.58	OCRK
4326.00	4968.80	KMVGAS
5582.00	6227.33	CMEQ
6032.00	6677.33	RLNS
6132.00	6777.33	TD

Plan: Plan #1 9March2018 mmsdi

13:38, 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
948.38	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	1005.59	34.82	288.05	952.97	79.47	-243.90	4.00	288.05	256.52	
4	3727.62	34.82	288.05	3187.52	561.02	-1721.85	0.00	0.00	1810.94	
5	4968.80	10.00	288.05	4326.00	706.47	-2168.27	2.00	180.00	2280.46	
6	5468.80	0.00	0.00	4823.47	719.95	-2209.65	2.00	180.00	2323.98	
7	6777.33	0.00	0.00	6132.00	719.95	-2209.65	0.00	0.00	2323.98	SG 31-21 PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SG 31-21 BTV	4326.00	719.95	-2209.65	1592005.88	2262335.29	39.4297084	-108.1118742	Circle (Radius: 50.00)
- plan misses target center by 42.87usft at 4976.12usft MD (4333.21 TVD, 706.86 N, -2169.47 E)								
SG 31-21 PBHL	6132.00	719.95	-2209.65	1592005.88	2262335.29	39.4297084	-108.1118742	Point
- plan misses target center by 0.01usft at 6777.33usft MD (6132.00 TVD, 719.95 N, -2209.65 E)								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

SG 11-22 Pad

SG 31-21 - Slot SG 31-21 (A8)

OH

Plan: Plan #1 9March2018 mmsdi

Standard Planning Report

12 March, 2018



Database:	Grand Junction District	Local Co-ordinate Reference:	Well SG 31-21 - Slot SG 31-21 (A8)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6092.4' & RKB 24' @ 6116.40usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 6092.4' & RKB 24' @ 6116.40usft
Site:	SG 11-22 Pad	North Reference:	True
Well:	SG 31-21	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 9March2018 mmsdi		

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

Well	SG 31-21 - Slot SG 31-21 (A8)					
Well Position	+N/-S	-16.82 usft	Northing:	1,591,222.90 usft	Latitude:	39.4277321
	+E/-W	-24.83 usft	Easting:	2,264,523.40 usft	Longitude:	-108.1040516
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,092.40 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/9/2018	9.48	65.63	51,725

Design	Plan #1 9March2018 mmsdi			
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	288.05

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	
135.00	0.00	0.00	135.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,005.59	34.82	288.05	952.97	79.47	-243.90	4.00	4.00	0.00	288.05	
3,727.62	34.82	288.05	3,187.52	561.02	-1,721.85	0.00	0.00	0.00	0.00	
4,968.80	10.00	288.05	4,326.00	706.47	-2,168.27	2.00	-2.00	0.00	180.00	
5,468.80	0.00	0.00	4,823.47	719.95	-2,209.65	2.00	-2.00	14.39	180.00	
6,777.33	0.00	0.00	6,132.00	719.95	-2,209.65	0.00	0.00	0.00	0.00	SG 31-21 PBHL

Database:	Grand Junction District	Local Co-ordinate Reference:	Well SG 31-21 - Slot SG 31-21 (A8)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6092.4' & RKB 24' @ 6116.40usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 6092.4' & RKB 24' @ 6116.40usft
Site:	SG 11-22 Pad	North Reference:	True
Well:	SG 31-21	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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
Start Build 4.00									
200.00	2.60	288.05	199.98	0.46	-1.40	1.47	4.00	4.00	0.00
300.00	6.60	288.05	299.64	2.94	-9.03	9.49	4.00	4.00	0.00
400.00	10.60	288.05	398.49	7.57	-23.24	24.44	4.00	4.00	0.00
500.00	14.60	288.05	496.06	14.33	-43.98	46.25	4.00	4.00	0.00
600.00	18.60	288.05	591.88	23.18	-71.14	74.82	4.00	4.00	0.00
700.00	22.60	288.05	685.46	34.08	-104.58	109.99	4.00	4.00	0.00
800.00	26.60	288.05	776.37	46.97	-144.15	151.61	4.00	4.00	0.00
900.00	30.60	288.05	864.15	61.80	-189.66	199.47	4.00	4.00	0.00
1,000.00	34.60	288.05	948.38	78.48	-240.88	253.34	4.00	4.00	0.00
9 5/8" Casing @ 1000' MD									
1,005.59	34.82	288.05	952.97	79.47	-243.90	256.52	4.00	4.00	0.00
Start 2722.03 hold at 1005.59 MD									
1,100.00	34.82	288.05	1,030.47	96.17	-295.16	310.43	0.00	0.00	0.00
1,200.00	34.82	288.05	1,112.57	113.86	-349.46	367.54	0.00	0.00	0.00
1,300.00	34.82	288.05	1,194.66	131.55	-403.75	424.64	0.00	0.00	0.00
1,400.00	34.82	288.05	1,276.75	149.24	-458.05	481.75	0.00	0.00	0.00
1,500.00	34.82	288.05	1,358.84	166.93	-512.35	538.86	0.00	0.00	0.00
1,600.00	34.82	288.05	1,440.93	184.62	-566.64	595.96	0.00	0.00	0.00
1,700.00	34.82	288.05	1,523.02	202.31	-620.94	653.07	0.00	0.00	0.00
1,800.00	34.82	288.05	1,605.11	220.01	-675.23	710.17	0.00	0.00	0.00
1,900.00	34.82	288.05	1,687.21	237.70	-729.53	767.28	0.00	0.00	0.00
2,000.00	34.82	288.05	1,769.30	255.39	-783.82	824.38	0.00	0.00	0.00
2,049.58	34.82	288.05	1,810.00	264.16	-810.75	852.69	0.00	0.00	0.00
G Sand									
2,100.00	34.82	288.05	1,851.39	273.08	-838.12	881.49	0.00	0.00	0.00
2,171.40	34.82	288.05	1,910.00	285.71	-876.89	922.26	0.00	0.00	0.00
G Sand Base									
2,200.00	34.82	288.05	1,933.48	290.77	-892.42	938.59	0.00	0.00	0.00
2,300.00	34.82	288.05	2,015.57	308.46	-946.71	995.70	0.00	0.00	0.00
2,317.58	34.82	288.05	2,030.00	311.57	-956.26	1,005.73	0.00	0.00	0.00
FRUN									
2,400.00	34.82	288.05	2,097.66	326.15	-1,001.01	1,052.80	0.00	0.00	0.00
2,500.00	34.82	288.05	2,179.75	343.84	-1,055.30	1,109.91	0.00	0.00	0.00
2,600.00	34.82	288.05	2,261.85	361.53	-1,109.60	1,167.01	0.00	0.00	0.00
2,700.00	34.82	288.05	2,343.94	379.22	-1,163.90	1,224.12	0.00	0.00	0.00
2,800.00	34.82	288.05	2,426.03	396.91	-1,218.19	1,281.22	0.00	0.00	0.00
2,900.00	34.82	288.05	2,508.12	414.60	-1,272.49	1,338.33	0.00	0.00	0.00
3,000.00	34.82	288.05	2,590.21	432.29	-1,326.78	1,395.43	0.00	0.00	0.00
3,100.00	34.82	288.05	2,672.30	449.99	-1,381.08	1,452.54	0.00	0.00	0.00
3,200.00	34.82	288.05	2,754.39	467.68	-1,435.37	1,509.64	0.00	0.00	0.00
3,300.00	34.82	288.05	2,836.49	485.37	-1,489.67	1,566.75	0.00	0.00	0.00
3,400.00	34.82	288.05	2,918.58	503.06	-1,543.97	1,623.85	0.00	0.00	0.00
3,500.00	34.82	288.05	3,000.67	520.75	-1,598.26	1,680.96	0.00	0.00	0.00
3,600.00	34.82	288.05	3,082.76	538.44	-1,652.56	1,738.06	0.00	0.00	0.00
3,700.00	34.82	288.05	3,164.85	556.13	-1,706.85	1,795.17	0.00	0.00	0.00
3,713.58	34.82	288.05	3,176.00	558.53	-1,714.23	1,802.92	0.00	0.00	0.00
OCRK - MVRD									
3,727.62	34.82	288.05	3,187.52	561.02	-1,721.85	1,810.94	0.00	0.00	0.00
Start Drop -2.00									

Database:	Grand Junction District	Local Co-ordinate Reference:	Well SG 31-21 - Slot SG 31-21 (A8)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6092.4' & RKB 24' @ 6116.40usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 6092.4' & RKB 24' @ 6116.40usft
Site:	SG 11-22 Pad	North Reference:	True
Well:	SG 31-21	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	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	33.38	288.05	3,247.46	573.59	-1,760.43	1,851.52	2.00	-2.00	0.00
3,900.00	31.38	288.05	3,331.91	590.17	-1,811.34	1,905.06	2.00	-2.00	0.00
4,000.00	29.38	288.05	3,418.18	605.84	-1,859.42	1,955.63	2.00	-2.00	0.00
4,100.00	27.38	288.05	3,506.16	620.56	-1,904.60	2,003.15	2.00	-2.00	0.00
4,200.00	25.38	288.05	3,595.74	634.32	-1,946.84	2,047.57	2.00	-2.00	0.00
4,300.00	23.38	288.05	3,686.82	647.11	-1,986.08	2,088.84	2.00	-2.00	0.00
4,400.00	21.38	288.05	3,779.29	658.90	-2,022.27	2,126.91	2.00	-2.00	0.00
4,500.00	19.38	288.05	3,873.03	669.69	-2,055.38	2,161.73	2.00	-2.00	0.00
4,600.00	17.38	288.05	3,967.92	679.45	-2,085.35	2,193.25	2.00	-2.00	0.00
4,700.00	15.38	288.05	4,063.86	688.19	-2,112.16	2,221.44	2.00	-2.00	0.00
4,800.00	13.38	288.05	4,160.73	695.88	-2,135.76	2,246.27	2.00	-2.00	0.00
4,900.00	11.38	288.05	4,258.40	702.52	-2,156.14	2,267.70	2.00	-2.00	0.00
4,968.80	10.00	288.05	4,326.00	706.47	-2,168.27	2,280.46	2.00	-2.00	0.00
Start DLS 2.00 TFO 180.00 - KMGAS									
4,976.12	9.85	288.05	4,333.21	706.86	-2,169.47	2,281.72	2.00	-2.00	0.00
SG 31-21 BTV									
5,000.00	9.38	288.05	4,356.76	708.10	-2,173.26	2,285.71	2.00	-2.00	0.00
5,100.00	7.38	288.05	4,455.69	712.61	-2,187.11	2,300.28	2.00	-2.00	0.00
5,200.00	5.38	288.05	4,555.06	716.05	-2,197.67	2,311.38	2.00	-2.00	0.00
5,300.00	3.38	288.05	4,654.77	718.41	-2,204.92	2,319.01	2.00	-2.00	0.00
5,400.00	1.38	288.05	4,754.68	719.70	-2,208.87	2,323.16	2.00	-2.00	0.00
5,468.80	0.00	0.00	4,823.47	719.95	-2,209.65	2,323.98	2.00	-2.00	104.59
Start 1308.53 hold at 5468.80 MD									
5,500.00	0.00	0.00	4,854.67	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
5,600.00	0.00	0.00	4,954.67	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
5,700.00	0.00	0.00	5,054.67	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
5,800.00	0.00	0.00	5,154.67	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
5,900.00	0.00	0.00	5,254.67	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
6,000.00	0.00	0.00	5,354.67	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
6,100.00	0.00	0.00	5,454.67	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
6,200.00	0.00	0.00	5,554.67	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
6,227.33	0.00	0.00	5,582.00	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
CME0									
6,300.00	0.00	0.00	5,654.67	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
6,400.00	0.00	0.00	5,754.67	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
6,500.00	0.00	0.00	5,854.67	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
6,600.00	0.00	0.00	5,954.67	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
6,677.33	0.00	0.00	6,032.00	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
RLNS									
6,700.00	0.00	0.00	6,054.67	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
6,777.33	0.00	0.00	6,132.00	719.95	-2,209.65	2,323.98	0.00	0.00	0.00
TD at 6777.33 - TD - SG 31-21 PBHL									

Database:	Grand Junction District	Local Co-ordinate Reference:	Well SG 31-21 - Slot SG 31-21 (A8)
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 6092.4' & RKB 24' @ 6116.40usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 6092.4' & RKB 24' @ 6116.40usft
Site:	SG 11-22 Pad	North Reference:	True
Well:	SG 31-21	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 9March2018 mmsdi		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
SG 31-21 BTV	0.00	0.00	4,326.00	719.95	-2,209.65	1,592,005.88	2,262,335.29	39.4297084	-108.1118743
- plan misses target center by 42.87usft at 4976.12usft MD (4333.21 TVD, 706.86 N, -2169.47 E)									
- Circle (radius 50.00)									
SG 31-21 PBHL	0.00	0.00	6,132.00	719.95	-2,209.65	1,592,005.88	2,262,335.29	39.4297084	-108.1118743
- plan misses target center by 0.01usft at 6777.33usft MD (6132.00 TVD, 719.95 N, -2209.65 E)									
- Point									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,000.00	948.38	9 5/8" Casing @ 1000' MD	9.62	13.50

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,049.58	1,810.00	G Sand		0.00	0.00
2,171.40	1,910.00	G Sand Base		0.00	0.00
2,317.58	2,030.00	FRUN		0.00	0.00
3,713.58	3,176.00	OCRK		0.00	0.00
3,713.58	3,176.00	MVRD		0.00	0.00
4,968.80	4,326.00	KMVGAS		0.00	0.00
6,227.33	5,582.00	CME0		0.00	0.00
6,677.33	6,032.00	RLNS		0.00	0.00
6,777.33	6,132.00	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 4.00
1,005.59	952.97	79.47	-243.90	Start 2722.03 hold at 1005.59 MD
3,727.62	3,187.52	561.02	-1,721.85	Start Drop -2.00
4,968.80	4,326.00	706.47	-2,168.27	Start DLS 2.00 TFO 180.00
5,468.80	4,823.47	719.95	-2,209.65	Start 1308.53 hold at 5468.80 MD
6,777.33	6,132.00	719.95	-2,209.65	TD at 6777.33