

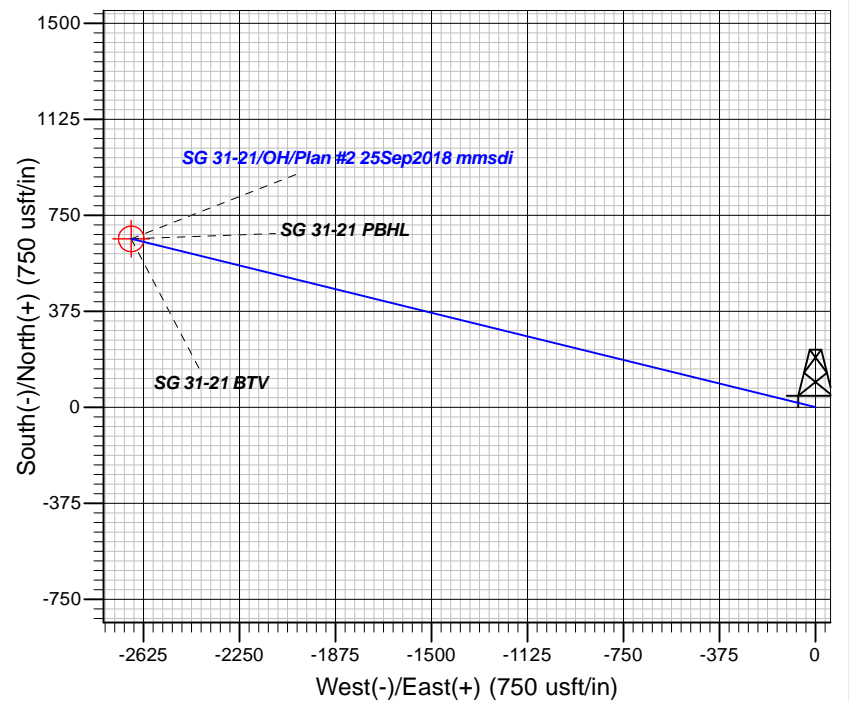
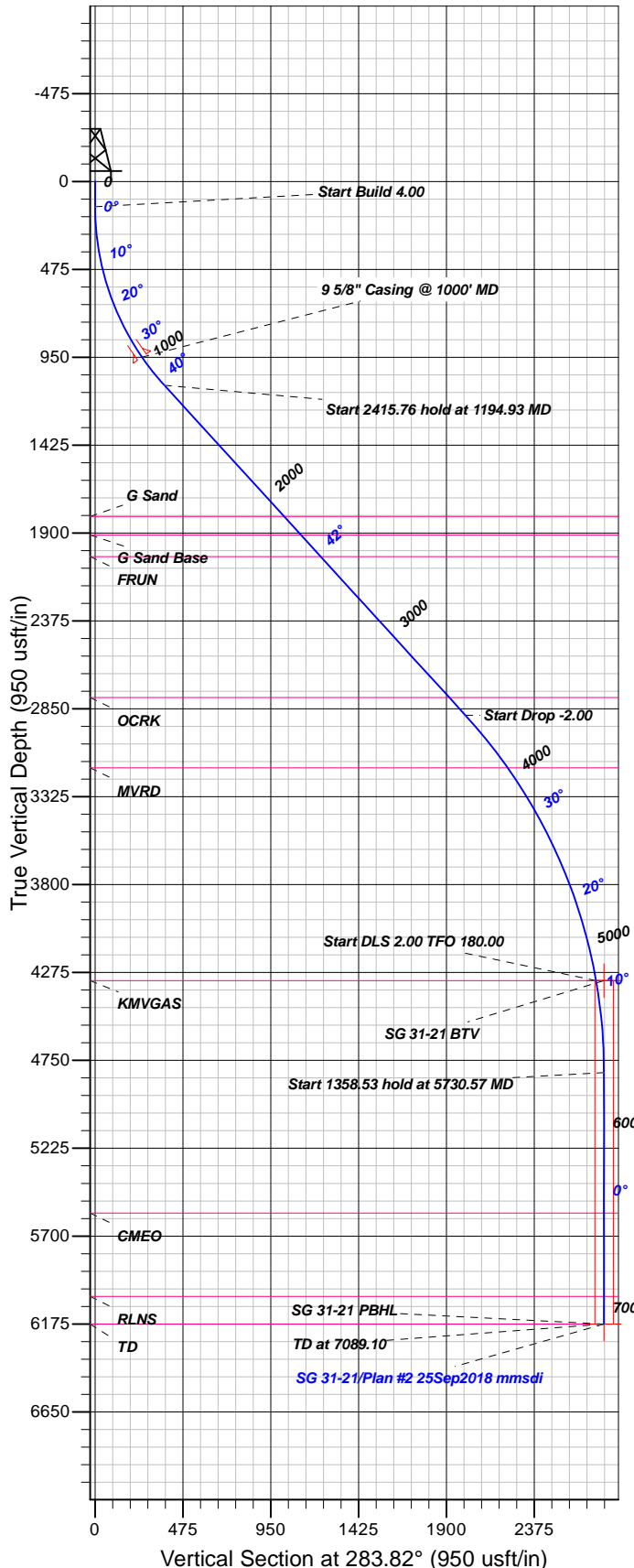


Azimuths to True North
Magnetic North: 9.48°

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

Well Details: SG 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

TVDPth	MDPath	Formation
1810.00	2155.25	G Sand
1910.00	2290.66	G Sand Base
2027.14	2449.29	FRUN
2789.00	3480.94	OCRK
3168.53	3974.75	MVRD
4319.00	5230.57	KMGAS
5575.00	6489.10	CMEQ
6025.00	6939.10	RLNS
6175.00	7089.10	TD

Plan: Plan #2 25Sep2018 mmsdi

17:55, September 26 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	1194.93	42.40	283.82	1100.82	89.45	-363.75	4.00	283.82	374.59	
4	3610.70	42.40	283.82	2884.83	478.42	-1945.51	0.00	0.00	0.00	
5	5230.57	10.00	283.82	4319.00	646.93	-2630.75	2.00	180.00	2709.13	
6	5730.57	0.00	0.00	4816.47	657.32	-2673.01	2.00	180.00	2752.65	
7	7089.10	0.00	0.00	6175.00	657.32	-2673.01	0.00	0.00	2752.65	SG 31-21 PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SG 31-21 BTV	4319.00	657.32	-2673.01	1591956.56	2261870.33	39.4295363	-108.1135146	Circle (Radius: 50.00)
- plan misses target center by 42.87usft at 5237.61usft MD (4325.93 TVD, 647.22 N, -2631.93 E)								
SG 31-21 PBHL	6175.00	657.32	-2673.01	1591956.56	2261870.33	39.4295363	-108.1135146	Point
- plan misses target center by 0.01usft at 7089.10usft MD (6175.00 TVD, 657.32 N, -2673.01 E)								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

SG 11-22 Pad

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

OH

Plan: Plan #2 25Sep2018 mmsdi

Standard Planning Report

26 September, 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 #2 25Sep2018 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 #2 25Sep2018 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	283.82

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	
1,194.93	42.40	283.82	1,100.82	89.45	-363.75	4.00	4.00	0.00	283.82	
3,610.70	42.40	283.82	2,884.83	478.42	-1,945.51	0.00	0.00	0.00	0.00	
5,230.57	10.00	283.82	4,319.00	646.93	-2,630.75	2.00	-2.00	0.00	180.00	
5,730.57	0.00	0.00	4,816.47	657.32	-2,673.01	2.00	-2.00	15.24	180.00	
7,089.10	0.00	0.00	6,175.00	657.32	-2,673.01	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 #2 25Sep2018 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	283.82	199.98	0.35	-1.43	1.47	4.00	4.00	0.00
300.00	6.60	283.82	299.64	2.27	-9.22	9.49	4.00	4.00	0.00
400.00	10.60	283.82	398.49	5.84	-23.74	24.44	4.00	4.00	0.00
500.00	14.60	283.82	496.06	11.05	-44.92	46.25	4.00	4.00	0.00
600.00	18.60	283.82	591.88	17.87	-72.65	74.82	4.00	4.00	0.00
700.00	22.60	283.82	685.46	26.27	-106.81	109.99	4.00	4.00	0.00
800.00	26.60	283.82	776.37	36.20	-147.23	151.61	4.00	4.00	0.00
900.00	30.60	283.82	864.15	47.63	-193.70	199.47	4.00	4.00	0.00
1,000.00	34.60	283.82	948.38	60.50	-246.01	253.34	4.00	4.00	0.00
9 5/8" Casing @ 1000' MD									
1,100.00	38.60	283.82	1,028.64	74.73	-303.90	312.95	4.00	4.00	0.00
1,194.93	42.40	283.82	1,100.82	89.45	-363.75	374.59	4.00	4.00	0.00
Start 2415.76 hold at 1194.93 MD									
1,200.00	42.40	283.82	1,104.56	90.27	-367.07	378.01	0.00	0.00	0.00
1,300.00	42.40	283.82	1,178.41	106.37	-432.55	445.43	0.00	0.00	0.00
1,400.00	42.40	283.82	1,252.26	122.47	-498.02	512.86	0.00	0.00	0.00
1,500.00	42.40	283.82	1,326.11	138.57	-563.50	580.29	0.00	0.00	0.00
1,600.00	42.40	283.82	1,399.95	154.67	-628.98	647.71	0.00	0.00	0.00
1,700.00	42.40	283.82	1,473.80	170.77	-694.45	715.14	0.00	0.00	0.00
1,800.00	42.40	283.82	1,547.65	186.87	-759.93	782.57	0.00	0.00	0.00
1,900.00	42.40	283.82	1,621.50	202.98	-825.40	849.99	0.00	0.00	0.00
2,000.00	42.40	283.82	1,695.35	219.08	-890.88	917.42	0.00	0.00	0.00
2,100.00	42.40	283.82	1,769.20	235.18	-956.36	984.85	0.00	0.00	0.00
2,155.25	42.40	283.82	1,810.00	244.07	-992.53	1,022.10	0.00	0.00	0.00
G Sand									
2,200.00	42.40	283.82	1,843.05	251.28	-1,021.83	1,052.28	0.00	0.00	0.00
2,290.66	42.40	283.82	1,910.00	265.88	-1,081.20	1,113.41	0.00	0.00	0.00
G Sand Base									
2,300.00	42.40	283.82	1,916.89	267.38	-1,087.31	1,119.70	0.00	0.00	0.00
2,400.00	42.40	283.82	1,990.74	283.48	-1,152.78	1,187.13	0.00	0.00	0.00
2,449.29	42.40	283.82	2,027.14	291.42	-1,185.06	1,220.36	0.00	0.00	0.00
FRUN									
2,500.00	42.40	283.82	2,064.59	299.58	-1,218.26	1,254.56	0.00	0.00	0.00
2,600.00	42.40	283.82	2,138.44	315.68	-1,283.74	1,321.98	0.00	0.00	0.00
2,700.00	42.40	283.82	2,212.29	331.79	-1,349.21	1,389.41	0.00	0.00	0.00
2,800.00	42.40	283.82	2,286.14	347.89	-1,414.69	1,456.84	0.00	0.00	0.00
2,900.00	42.40	283.82	2,359.99	363.99	-1,480.17	1,524.26	0.00	0.00	0.00
3,000.00	42.40	283.82	2,433.83	380.09	-1,545.64	1,591.69	0.00	0.00	0.00
3,100.00	42.40	283.82	2,507.68	396.19	-1,611.12	1,659.12	0.00	0.00	0.00
3,200.00	42.40	283.82	2,581.53	412.29	-1,676.59	1,726.54	0.00	0.00	0.00
3,300.00	42.40	283.82	2,655.38	428.39	-1,742.07	1,793.97	0.00	0.00	0.00
3,400.00	42.40	283.82	2,729.23	444.50	-1,807.55	1,861.40	0.00	0.00	0.00
3,480.94	42.40	283.82	2,789.00	457.53	-1,860.54	1,915.97	0.00	0.00	0.00
OCRK									
3,500.00	42.40	283.82	2,803.08	460.60	-1,873.02	1,928.82	0.00	0.00	0.00
3,600.00	42.40	283.82	2,876.93	476.70	-1,938.50	1,996.25	0.00	0.00	0.00
3,610.70	42.40	283.82	2,884.83	478.42	-1,945.51	2,003.47	0.00	0.00	0.00
Start Drop -2.00									
3,700.00	40.61	283.82	2,951.70	492.55	-2,002.97	2,062.64	2.00	-2.00	0.00

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 #2 25Sep2018 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	38.61	283.82	3,028.74	507.78	-2,064.88	2,126.40	2.00	-2.00	0.00
3,900.00	36.61	283.82	3,107.95	522.35	-2,124.14	2,187.42	2.00	-2.00	0.00
3,974.75	35.12	283.82	3,168.53	532.81	-2,166.67	2,231.22	2.00	-2.00	0.00
MVRD									
4,000.00	34.61	283.82	3,189.24	536.25	-2,180.68	2,245.65	2.00	-2.00	0.00
4,100.00	32.61	283.82	3,272.52	549.47	-2,234.43	2,301.00	2.00	-2.00	0.00
4,200.00	30.61	283.82	3,357.68	561.99	-2,285.33	2,353.41	2.00	-2.00	0.00
4,300.00	28.61	283.82	3,444.61	573.79	-2,333.31	2,402.82	2.00	-2.00	0.00
4,400.00	26.61	283.82	3,533.22	584.85	-2,378.31	2,449.17	2.00	-2.00	0.00
4,500.00	24.61	283.82	3,623.39	595.17	-2,420.29	2,492.39	2.00	-2.00	0.00
4,600.00	22.61	283.82	3,715.01	604.74	-2,459.18	2,532.44	2.00	-2.00	0.00
4,700.00	20.61	283.82	3,807.98	613.53	-2,494.94	2,569.27	2.00	-2.00	0.00
4,800.00	18.61	283.82	3,902.17	621.55	-2,527.53	2,602.83	2.00	-2.00	0.00
4,900.00	16.61	283.82	3,997.48	628.77	-2,556.91	2,633.09	2.00	-2.00	0.00
5,000.00	14.61	283.82	4,093.79	635.20	-2,583.04	2,660.00	2.00	-2.00	0.00
5,100.00	12.61	283.82	4,190.98	640.82	-2,605.90	2,683.53	2.00	-2.00	0.00
5,200.00	10.61	283.82	4,288.92	645.62	-2,625.44	2,703.66	2.00	-2.00	0.00
5,230.57	10.00	283.82	4,319.00	646.93	-2,630.75	2,709.13	2.00	-2.00	0.00
Start DLS 2.00 TFO 180.00 - KMGAS									
5,237.61	9.86	283.82	4,325.93	647.22	-2,631.93	2,710.34	2.00	-2.00	0.00
SG 31-21 BTV									
5,300.00	8.61	283.82	4,387.52	649.61	-2,641.65	2,720.35	2.00	-2.00	0.00
5,400.00	6.61	283.82	4,486.63	652.77	-2,654.51	2,733.60	2.00	-2.00	0.00
5,500.00	4.61	283.82	4,586.14	655.11	-2,664.01	2,743.38	2.00	-2.00	0.00
5,600.00	2.61	283.82	4,685.94	656.61	-2,670.12	2,749.67	2.00	-2.00	0.00
5,700.00	0.61	283.82	4,785.90	657.28	-2,672.86	2,752.49	2.00	-2.00	0.00
5,730.57	0.00	0.00	4,816.47	657.32	-2,673.01	2,752.65	2.00	-2.00	249.22
Start 1358.53 hold at 5730.57 MD									
5,800.00	0.00	0.00	4,885.90	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
5,900.00	0.00	0.00	4,985.90	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
6,000.00	0.00	0.00	5,085.90	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
6,100.00	0.00	0.00	5,185.90	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
6,200.00	0.00	0.00	5,285.90	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
6,300.00	0.00	0.00	5,385.90	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
6,400.00	0.00	0.00	5,485.90	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
6,489.10	0.00	0.00	5,575.00	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
CMEO									
6,500.00	0.00	0.00	5,585.90	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
6,600.00	0.00	0.00	5,685.90	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
6,700.00	0.00	0.00	5,785.90	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
6,800.00	0.00	0.00	5,885.90	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
6,900.00	0.00	0.00	5,985.90	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
6,939.10	0.00	0.00	6,025.00	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
RLNS									
7,000.00	0.00	0.00	6,085.90	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
7,089.10	0.00	0.00	6,175.00	657.32	-2,673.01	2,752.65	0.00	0.00	0.00
TD at 7089.10 - 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 #2 25Sep2018 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	4,319.00	657.32	-2,673.01	1,591,956.56	2,261,870.33	39.4295364	-108.1135146
- plan misses target center by 42.87usft at 5237.61usft MD (4325.93 TVD, 647.22 N, -2631.93 E)									
- Circle (radius 50.00)									
SG 31-21 PBHL	0.00	0.00	6,175.00	657.32	-2,673.01	1,591,956.56	2,261,870.33	39.4295364	-108.1135146
- plan misses target center by 0.01usft at 7089.10usft MD (6175.00 TVD, 657.32 N, -2673.01 E)									
- Point									

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

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)			(°)	(°)
2,155.25	1,810.00	G Sand		0.00	0.00
2,290.66	1,910.00	G Sand Base		0.00	0.00
2,449.29	2,027.14	FRUN		0.00	0.00
3,480.94	2,789.00	OCRK		0.00	0.00
3,974.75	3,168.53	MVRD		0.00	0.00
5,230.57	4,319.00	KMVGAS		0.00	0.00
6,489.10	5,575.00	CME0		0.00	0.00
6,939.10	6,025.00	RLNS		0.00	0.00
7,089.10	6,175.00	TD		0.00	0.00

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
135.00	135.00	0.00	0.00	Start Build 4.00
1,194.93	1,100.82	89.45	-363.75	Start 2415.76 hold at 1194.93 MD
3,610.70	2,884.83	478.42	-1,945.51	Start Drop -2.00
5,230.57	4,319.00	646.93	-2,630.75	Start DLS 2.00 TFO 180.00
5,730.57	4,816.47	657.32	-2,673.01	Start 1358.53 hold at 5730.57 MD
7,089.10	6,175.00	657.32	-2,673.01	TD at 7089.10