

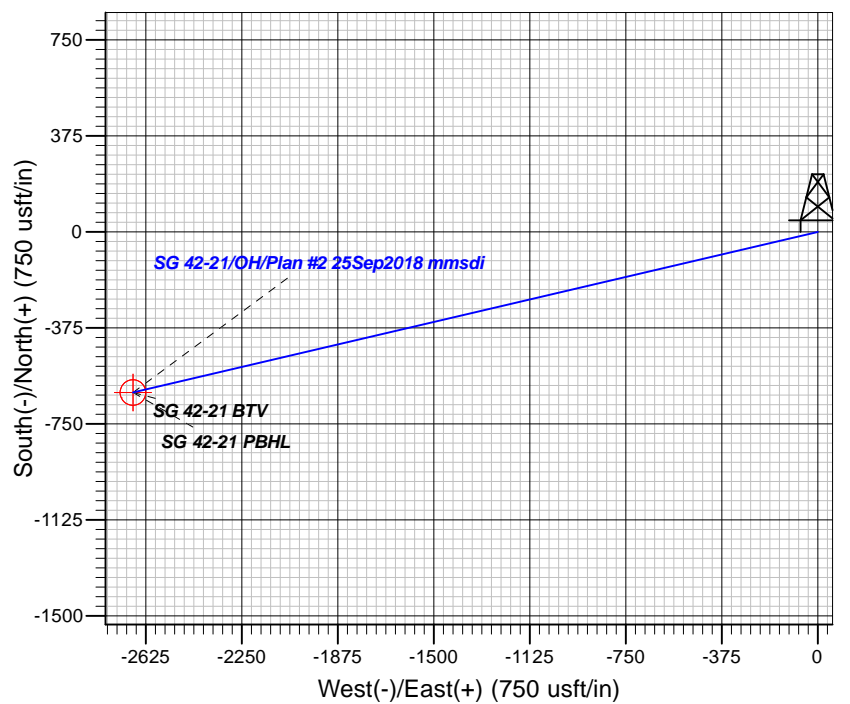
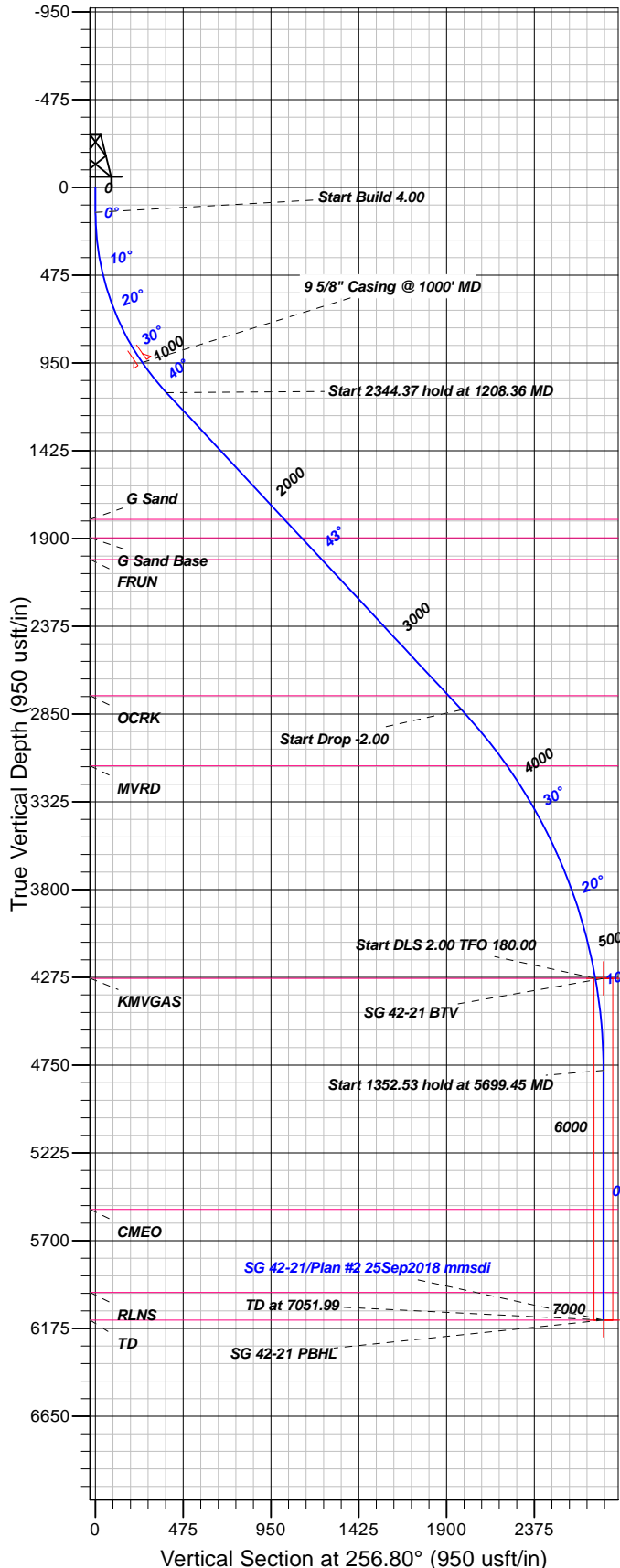


Azimuths to True North
Magnetic North: 9.48°

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

Well Details: SG 42-21

GL 6092.4' & RKB 24' @ 6116.40usft
+N/-S 0.00 +E/-W 0.00 Northing 1591214.50 Easting 2264528.70 Latitude 39.4277094 Longitude -108.1040319 Slot SG 42-21 (B8)



FORMATION TOP DETAILS

TVDP	MD	Formation
1797.00	2145.77	G Sand
1897.00	2282.36	G Sand Base
2013.87	2441.99	FRUN
2751.00	3448.81	OCKR
3130.77	3943.93	MVRD
4281.00	5199.45	KMVGAS
5531.00	6451.99	CMEQ
5981.00	6901.99	RLNS
6131.00	7051.99	TD

Plan: Plan #2 25Sep2018 mmsdi

10:34, September 27 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

TVDP	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	1208.36	42.93	256.80	1110.69	-87.61	-373.55	4.00	256.80	383.69	
4	3552.73	42.93	256.80	2827.08	-452.23	-1928.26	0.00	0.00	1980.58	
5	5199.45	10.00	256.80	4281.00	-617.51	-2633.00	2.00	180.00	2704.44	
6	5699.45	0.00	0.00	4778.47	-627.45	-2675.37	2.00	180.00	2747.96	
7	7051.99	0.00	0.00	6131.00	-627.45	-2675.37	0.00	0.00	2747.96	SG 42-21 PBHL

DESIGN TARGET DETAILS

Name	TVDP	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SG 42-21 BTM	4281.00	-627.45	-2675.37	1590663.98	2261836.45	39.4259864	-108.1135029	Circle (Radius: 50.00)
- plan misses target center by 42.87usft at 5206.26usft MD (4287.70 TVD, -617.78 N, -2634.14 E)								
SG 42-21 PBHL	6131.00	-627.45	-2675.37	1590663.98	2261836.45	39.4259864	-108.1135029	Point
- plan misses target center by 0.01usft at 7051.99usft MD (6131.00 TVD, -627.45 N, -2675.37 E)								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

SG 11-22 Pad

SG 42-21 - Slot SG 42-21 (B8)

OH

Plan: Plan #2 25Sep2018 mmsdi

Standard Planning Report

27 September, 2018



Database:	Grand Junction District	Local Co-ordinate Reference:	Well SG 42-21 - Slot SG 42-21 (B8)
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 42-21	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 42-21 - Slot SG 42-21 (B8)					
Well Position	+N/-S	-25.06 usft	Northing:	1,591,214.50 usft	Latitude:	39.4277095
	+E/-W	-19.29 usft	Easting:	2,264,528.70 usft	Longitude:	-108.1040320
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	256.80

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	
1,208.36	42.93	256.80	1,110.69	-87.61	-373.55	4.00	4.00	0.00	256.80	
3,552.73	42.93	256.80	2,827.08	-452.23	-1,928.26	0.00	0.00	0.00	0.00	
5,199.45	10.00	256.80	4,281.00	-617.51	-2,633.00	2.00	-2.00	0.00	180.00	
5,699.45	0.00	0.00	4,778.47	-627.45	-2,675.37	2.00	-2.00	20.64	180.00	
7,051.99	0.00	0.00	6,131.00	-627.45	-2,675.37	0.00	0.00	0.00	0.00	SG 42-21 PBHL

Database:	Grand Junction District	Local Co-ordinate Reference:	Well SG 42-21 - Slot SG 42-21 (B8)
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 42-21	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	256.80	199.98	-0.34	-1.44	1.47	4.00	4.00	0.00
300.00	6.60	256.80	299.64	-2.17	-9.24	9.49	4.00	4.00	0.00
400.00	10.60	256.80	398.49	-5.58	-23.80	24.44	4.00	4.00	0.00
500.00	14.60	256.80	496.06	-10.56	-45.03	46.25	4.00	4.00	0.00
600.00	18.60	256.80	591.88	-17.08	-72.84	74.82	4.00	4.00	0.00
700.00	22.60	256.80	685.46	-25.11	-107.09	109.99	4.00	4.00	0.00
800.00	26.60	256.80	776.37	-34.62	-147.61	151.61	4.00	4.00	0.00
900.00	30.60	256.80	864.15	-45.55	-194.20	199.47	4.00	4.00	0.00
1,000.00	34.60	256.80	948.38	-57.85	-246.65	253.34	4.00	4.00	0.00
9 5/8" Casing @ 1000' MD									
1,100.00	38.60	256.80	1,028.64	-71.46	-304.68	312.95	4.00	4.00	0.00
1,200.00	42.60	256.80	1,104.55	-86.31	-368.03	378.01	4.00	4.00	0.00
1,208.36	42.93	256.80	1,110.69	-87.61	-373.55	383.69	4.00	4.00	0.00
Start 2344.37 hold at 1208.36 MD									
1,300.00	42.93	256.80	1,177.78	-101.86	-434.33	446.11	0.00	0.00	0.00
1,400.00	42.93	256.80	1,251.00	-117.41	-500.64	514.23	0.00	0.00	0.00
1,500.00	42.93	256.80	1,324.21	-132.97	-566.96	582.34	0.00	0.00	0.00
1,600.00	42.93	256.80	1,397.42	-148.52	-633.28	650.46	0.00	0.00	0.00
1,700.00	42.93	256.80	1,470.64	-164.07	-699.59	718.58	0.00	0.00	0.00
1,800.00	42.93	256.80	1,543.85	-179.63	-765.91	786.69	0.00	0.00	0.00
1,900.00	42.93	256.80	1,617.06	-195.18	-832.23	854.81	0.00	0.00	0.00
2,000.00	42.93	256.80	1,690.28	-210.73	-898.54	922.92	0.00	0.00	0.00
2,100.00	42.93	256.80	1,763.49	-226.29	-964.86	991.04	0.00	0.00	0.00
2,145.77	42.93	256.80	1,797.00	-233.40	-995.21	1,022.22	0.00	0.00	0.00
G Sand									
2,200.00	42.93	256.80	1,836.70	-241.84	-1,031.18	1,059.16	0.00	0.00	0.00
2,282.36	42.93	256.80	1,897.00	-254.65	-1,085.79	1,115.26	0.00	0.00	0.00
G Sand Base									
2,300.00	42.93	256.80	1,909.92	-257.39	-1,097.49	1,127.27	0.00	0.00	0.00
2,400.00	42.93	256.80	1,983.13	-272.95	-1,163.81	1,195.39	0.00	0.00	0.00
2,441.99	42.93	256.80	2,013.87	-279.48	-1,191.65	1,223.99	0.00	0.00	0.00
FRUN									
2,500.00	42.93	256.80	2,056.34	-288.50	-1,230.13	1,263.50	0.00	0.00	0.00
2,600.00	42.93	256.80	2,129.56	-304.05	-1,296.44	1,331.62	0.00	0.00	0.00
2,700.00	42.93	256.80	2,202.77	-319.60	-1,362.76	1,399.74	0.00	0.00	0.00
2,800.00	42.93	256.80	2,275.98	-335.16	-1,429.08	1,467.85	0.00	0.00	0.00
2,900.00	42.93	256.80	2,349.20	-350.71	-1,495.39	1,535.97	0.00	0.00	0.00
3,000.00	42.93	256.80	2,422.41	-366.26	-1,561.71	1,604.09	0.00	0.00	0.00
3,100.00	42.93	256.80	2,495.62	-381.82	-1,628.03	1,672.20	0.00	0.00	0.00
3,200.00	42.93	256.80	2,568.84	-397.37	-1,694.34	1,740.32	0.00	0.00	0.00
3,300.00	42.93	256.80	2,642.05	-412.92	-1,760.66	1,808.43	0.00	0.00	0.00
3,400.00	42.93	256.80	2,715.26	-428.48	-1,826.98	1,876.55	0.00	0.00	0.00
3,448.81	42.93	256.80	2,751.00	-436.07	-1,859.35	1,909.80	0.00	0.00	0.00
OCRK									
3,500.00	42.93	256.80	2,788.48	-444.03	-1,893.29	1,944.67	0.00	0.00	0.00
3,552.73	42.93	256.80	2,827.08	-452.23	-1,928.26	1,980.58	0.00	0.00	0.00
Start Drop -2.00									
3,600.00	41.99	256.80	2,861.95	-459.52	-1,959.33	2,012.50	2.00	-2.00	0.00
3,700.00	39.99	256.80	2,937.43	-474.49	-2,023.19	2,078.08	2.00	-2.00	0.00

Database:	Grand Junction District	Local Co-ordinate Reference:	Well SG 42-21 - Slot SG 42-21 (B8)
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 42-21	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	37.99	256.80	3,015.16	-488.86	-2,084.44	2,141.00	2.00	-2.00	0.00
3,900.00	35.99	256.80	3,095.03	-502.59	-2,143.01	2,201.16	2.00	-2.00	0.00
3,943.93	35.11	256.80	3,130.77	-508.43	-2,167.88	2,226.70	2.00	-2.00	0.00
MVRD									
4,000.00	33.99	256.80	3,176.95	-515.69	-2,198.84	2,258.50	2.00	-2.00	0.00
4,100.00	31.99	256.80	3,260.82	-528.12	-2,251.84	2,312.94	2.00	-2.00	0.00
4,200.00	29.99	256.80	3,346.55	-539.87	-2,301.97	2,364.43	2.00	-2.00	0.00
4,300.00	27.99	256.80	3,434.01	-550.94	-2,349.15	2,412.89	2.00	-2.00	0.00
4,400.00	25.99	256.80	3,523.12	-561.30	-2,393.33	2,458.27	2.00	-2.00	0.00
4,500.00	23.99	256.80	3,613.75	-570.95	-2,434.46	2,500.51	2.00	-2.00	0.00
4,600.00	21.99	256.80	3,705.80	-579.86	-2,472.48	2,539.57	2.00	-2.00	0.00
4,700.00	19.99	256.80	3,799.16	-588.04	-2,507.35	2,575.38	2.00	-2.00	0.00
4,800.00	17.99	256.80	3,893.72	-595.47	-2,539.03	2,607.92	2.00	-2.00	0.00
4,900.00	15.99	256.80	3,989.35	-602.14	-2,567.47	2,637.14	2.00	-2.00	0.00
5,000.00	13.99	256.80	4,085.94	-608.05	-2,592.65	2,663.00	2.00	-2.00	0.00
5,100.00	11.99	256.80	4,183.38	-613.18	-2,614.53	2,685.48	2.00	-2.00	0.00
5,199.45	10.00	256.80	4,281.00	-617.51	-2,633.00	2,704.44	2.00	-2.00	0.00
Start DLS 2.00 TFO 180.00 - KMGAS									
5,200.00	9.99	256.80	4,281.54	-617.53	-2,633.09	2,704.54	2.00	-2.00	0.00
5,206.25	9.86	256.80	4,287.70	-617.78	-2,634.14	2,705.62	2.00	-2.00	0.00
SG 42-21 BTV									
5,300.00	7.99	256.80	4,380.31	-621.10	-2,648.30	2,720.16	2.00	-2.00	0.00
5,400.00	5.99	256.80	4,479.56	-623.88	-2,660.15	2,732.33	2.00	-2.00	0.00
5,500.00	3.99	256.80	4,579.17	-625.86	-2,668.62	2,741.02	2.00	-2.00	0.00
5,600.00	1.99	256.80	4,679.03	-627.05	-2,673.69	2,746.24	2.00	-2.00	0.00
5,699.45	0.00	0.00	4,778.47	-627.45	-2,675.37	2,747.96	2.00	-2.00	103.77
Start 1352.53 hold at 5699.45 MD									
5,700.00	0.00	0.00	4,779.01	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
5,800.00	0.00	0.00	4,879.01	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
5,900.00	0.00	0.00	4,979.01	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
6,000.00	0.00	0.00	5,079.01	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
6,100.00	0.00	0.00	5,179.01	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
6,200.00	0.00	0.00	5,279.01	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
6,300.00	0.00	0.00	5,379.01	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
6,400.00	0.00	0.00	5,479.01	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
6,451.99	0.00	0.00	5,531.00	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
CMEO									
6,500.00	0.00	0.00	5,579.01	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
6,600.00	0.00	0.00	5,679.01	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
6,700.00	0.00	0.00	5,779.01	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
6,800.00	0.00	0.00	5,879.01	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
6,900.00	0.00	0.00	5,979.01	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
6,901.99	0.00	0.00	5,981.00	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
RLNS									
7,000.00	0.00	0.00	6,079.01	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
7,051.99	0.00	0.00	6,131.00	-627.45	-2,675.37	2,747.96	0.00	0.00	0.00
TD at 7051.99 - TD - SG 42-21 PBHL									

Database:	Grand Junction District	Local Co-ordinate Reference:	Well SG 42-21 - Slot SG 42-21 (B8)
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 42-21	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 42-21 BTV	0.00	0.00	4,281.00	-627.45	-2,675.37	1,590,663.98	2,261,836.45	39.4259864	-108.1135029
- plan misses target center by 42.87usft at 5206.25usft MD (4287.70 TVD, -617.78 N, -2634.14 E)									
- Circle (radius 50.00)									
SG 42-21 PBHL	0.00	0.00	6,131.00	-627.45	-2,675.37	1,590,663.98	2,261,836.45	39.4259864	-108.1135029
- plan misses target center by 0.01usft at 7051.99usft MD (6131.00 TVD, -627.45 N, -2675.37 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 (°)
2,145.77	1,797.00	G Sand		0.00	0.00
2,282.36	1,897.00	G Sand Base		0.00	0.00
2,441.99	2,013.87	FRUN		0.00	0.00
3,448.81	2,751.00	OCRK		0.00	0.00
3,943.93	3,130.77	MVRD		0.00	0.00
5,199.45	4,281.00	KMVGAS		0.00	0.00
6,451.99	5,531.00	CME0		0.00	0.00
6,901.99	5,981.00	RLNS		0.00	0.00
7,051.99	6,131.00	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
1,208.36	1,110.69	-87.61	-373.55	Start 2344.37 hold at 1208.36 MD
3,552.73	2,827.08	-452.23	-1,928.26	Start Drop -2.00
5,199.45	4,281.00	-617.51	-2,633.00	Start DLS 2.00 TFO 180.00
5,699.45	4,778.47	-627.45	-2,675.37	Start 1352.53 hold at 5699.45 MD
7,051.99	6,131.00	-627.45	-2,675.37	TD at 7051.99