

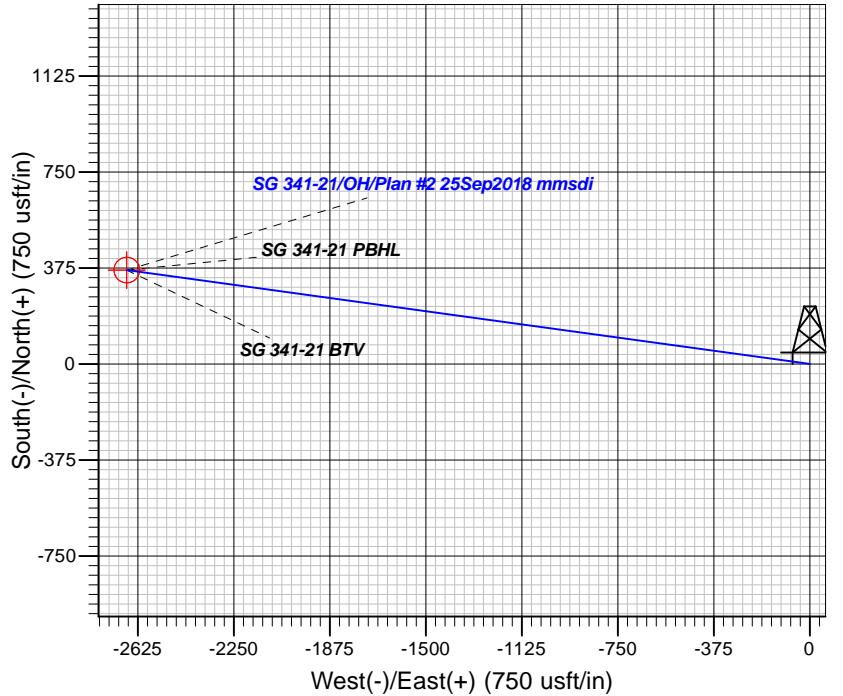
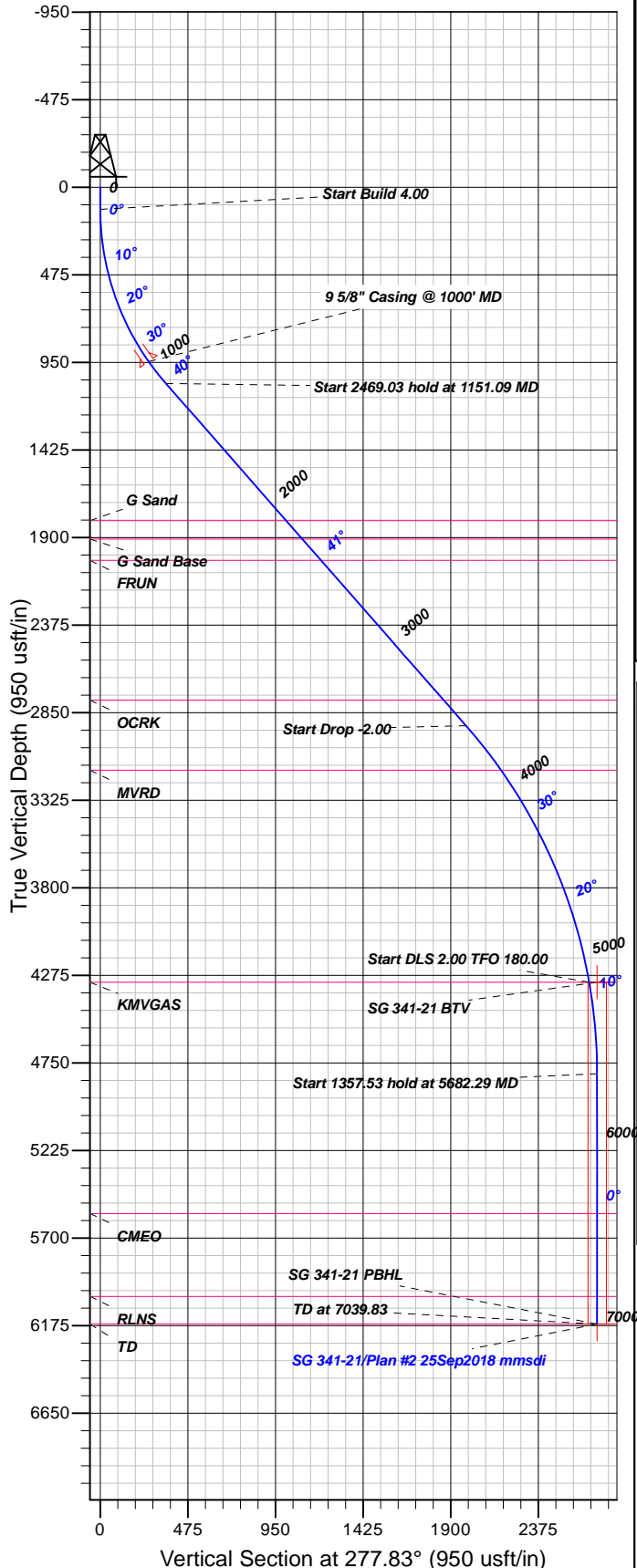


Azimuths to True North  
Magnetic North: 9.48°

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

## Well Details: SG 341-21

GL 6092.4' & RKB 24' @ 6116.40usft  
+N/-S 0.00 +E/-W 0.00 Northing 1591218.90 Easting 2264517.00 Latitude 39.4277206 Longitude -108.1040738 Slot SG 341-21 (A9)



## FORMATION TOP DETAILS

TVDPth	MDPath	Formation
1808.00	2140.13	G Sand
1908.00	2273.13	G Sand Base
2023.98	2427.37	FRUN
2782.00	3435.49	OCRK
3162.18	3927.27	MVRD
4312.00	5182.29	KMGAS
5567.00	6439.83	CMEO
6017.00	6889.83	RLNS
6167.00	7039.82	TD

Plan: Plan #2 25Sep2018 mmsdi

9:47, 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

TVD	MD	Name	Size
945.68	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	120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	
3	1151.09	41.24	277.83	1064.32	48.39	-352.04	4.00	277.83	355.36	
4	3620.12	41.24	277.83	2920.82	270.05	-1964.62	0.00	0.00	1983.09	
5	5182.29	10.00	277.83	4312.00	360.91	-2625.59	2.00	180.00	2650.28	
6	5682.29	0.00	0.00	4809.47	366.84	-2668.71	2.00	180.00	2693.80	
7	7039.83	0.00	0.00	6167.00	366.84	-2668.71	0.00	0.00	2693.80	SG 341-21 PBHL

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SG 341-21 BTv	4312.00	366.84	-2668.71	1591662.08	2261859.90	39.4287274	-108.1135215	Circle (Radius: 50.00)
- plan misses target center by 42.88usft at 5189.72usft MD (4319.31 TVD, 361.08 N, -2626.86 E)								
SG 341-21 PBHL	6167.00	366.84	-2668.71	1591662.08	2261859.90	39.4287274	-108.1135215	Point
- plan misses target center by 0.01usft at 7039.83usft MD (6167.00 TVD, 366.84 N, -2668.71 E)								



# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**SG 11-22 Pad**

**SG 341-21 - Slot SG 341-21 (A9)**

**OH**

**Plan: Plan #2 25Sep2018 mmsdi**

## **Standard Planning Report**

**27 September, 2018**



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SG 341-21 - Slot SG 341-21 (A9)
<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 341-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2 25Sep2018 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		

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 341-21 - Slot SG 341-21 (A9)					
Well Position	+N/-S	-21.00 usft	Northing:	1,591,218.90 usft	Latitude:	39.4277206
	+E/-W	-31.11 usft	Easting:	2,264,517.00 usft	Longitude:	-108.1040738
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	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 #2 25Sep2018 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	277.83

<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	
1,151.09	41.24	277.83	1,064.32	48.39	-352.04	4.00	4.00	0.00	277.83	
3,620.12	41.24	277.83	2,920.83	270.05	-1,964.62	0.00	0.00	0.00	0.00	
5,182.29	10.00	277.83	4,312.00	360.91	-2,625.59	2.00	-2.00	0.00	180.00	
5,682.29	0.00	0.00	4,809.47	366.84	-2,668.71	2.00	-2.00	16.43	180.00	
7,039.83	0.00	0.00	6,167.00	366.84	-2,668.71	0.00	0.00	0.00	0.00	SG 341-21 PBHL

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SG 341-21 - Slot SG 341-21 (A9)
<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 341-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 4.00</b>									
200.00	3.20	277.83	199.96	0.30	-2.21	2.23	4.00	4.00	0.00
300.00	7.20	277.83	299.53	1.54	-11.19	11.29	4.00	4.00	0.00
400.00	11.20	277.83	398.22	3.71	-27.03	27.28	4.00	4.00	0.00
500.00	15.20	277.83	495.56	6.82	-49.64	50.11	4.00	4.00	0.00
600.00	19.20	277.83	591.07	10.85	-78.93	79.67	4.00	4.00	0.00
700.00	23.20	277.83	684.28	15.77	-114.75	115.83	4.00	4.00	0.00
800.00	27.20	277.83	774.74	21.57	-156.92	158.40	4.00	4.00	0.00
900.00	31.20	277.83	862.02	28.21	-205.25	207.18	4.00	4.00	0.00
1,000.00	35.20	277.83	945.68	35.67	-259.48	261.92	4.00	4.00	0.00
<b>9 5/8" Casing @ 1000' MD</b>									
1,100.00	39.20	277.83	1,025.32	43.90	-319.37	322.37	4.00	4.00	0.00
1,151.09	41.24	277.83	1,064.32	48.39	-352.04	355.36	4.00	4.00	0.00
<b>Start 2469.03 hold at 1151.09 MD</b>									
1,200.00	41.24	277.83	1,101.10	52.78	-383.99	387.60	0.00	0.00	0.00
1,300.00	41.24	277.83	1,176.29	61.76	-449.30	453.53	0.00	0.00	0.00
1,400.00	41.24	277.83	1,251.48	70.74	-514.62	519.45	0.00	0.00	0.00
1,500.00	41.24	277.83	1,326.67	79.72	-579.93	585.38	0.00	0.00	0.00
1,600.00	41.24	277.83	1,401.87	88.69	-645.24	651.31	0.00	0.00	0.00
1,700.00	41.24	277.83	1,477.06	97.67	-710.55	717.23	0.00	0.00	0.00
1,800.00	41.24	277.83	1,552.25	106.65	-775.86	783.16	0.00	0.00	0.00
1,900.00	41.24	277.83	1,627.44	115.63	-841.17	849.08	0.00	0.00	0.00
2,000.00	41.24	277.83	1,702.63	124.60	-906.49	915.01	0.00	0.00	0.00
2,100.00	41.24	277.83	1,777.82	133.58	-971.80	980.94	0.00	0.00	0.00
2,140.13	41.24	277.83	1,808.00	137.19	-998.01	1,007.39	0.00	0.00	0.00
<b>G Sand</b>									
2,200.00	41.24	277.83	1,853.01	142.56	-1,037.11	1,046.86	0.00	0.00	0.00
2,273.13	41.24	277.83	1,908.00	149.12	-1,084.87	1,095.07	0.00	0.00	0.00
<b>G Sand Base</b>									
2,300.00	41.24	277.83	1,928.21	151.54	-1,102.42	1,112.79	0.00	0.00	0.00
2,400.00	41.24	277.83	2,003.40	160.52	-1,167.73	1,178.71	0.00	0.00	0.00
2,427.37	41.24	277.83	2,023.98	162.97	-1,185.61	1,196.76	0.00	0.00	0.00
<b>FRUN</b>									
2,500.00	41.24	277.83	2,078.59	169.49	-1,233.05	1,244.64	0.00	0.00	0.00
2,600.00	41.24	277.83	2,153.78	178.47	-1,298.36	1,310.57	0.00	0.00	0.00
2,700.00	41.24	277.83	2,228.97	187.45	-1,363.67	1,376.49	0.00	0.00	0.00
2,800.00	41.24	277.83	2,304.16	196.43	-1,428.98	1,442.42	0.00	0.00	0.00
2,900.00	41.24	277.83	2,379.36	205.40	-1,494.29	1,508.34	0.00	0.00	0.00
3,000.00	41.24	277.83	2,454.55	214.38	-1,559.60	1,574.27	0.00	0.00	0.00
3,100.00	41.24	277.83	2,529.74	223.36	-1,624.92	1,640.20	0.00	0.00	0.00
3,200.00	41.24	277.83	2,604.93	232.34	-1,690.23	1,706.12	0.00	0.00	0.00
3,300.00	41.24	277.83	2,680.12	241.31	-1,755.54	1,772.05	0.00	0.00	0.00
3,400.00	41.24	277.83	2,755.31	250.29	-1,820.85	1,837.97	0.00	0.00	0.00
3,435.49	41.24	277.83	2,782.00	253.48	-1,844.03	1,861.37	0.00	0.00	0.00
<b>OCRK</b>									
3,500.00	41.24	277.83	2,830.50	259.27	-1,886.16	1,903.90	0.00	0.00	0.00
3,600.00	41.24	277.83	2,905.70	268.25	-1,951.48	1,969.83	0.00	0.00	0.00
3,620.12	41.24	277.83	2,920.83	270.05	-1,964.62	1,983.09	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
3,700.00	39.65	277.83	2,981.61	277.11	-2,015.95	2,034.91	2.00	-2.00	0.00

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SG 341-21 - Slot SG 341-21 (A9)
<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 341-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	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	37.65	277.83	3,059.71	285.61	-2,077.82	2,097.36	2.00	-2.00	0.00	
3,900.00	35.65	277.83	3,139.94	293.74	-2,136.94	2,157.04	2.00	-2.00	0.00	
3,927.27	35.10	277.83	3,162.18	295.89	-2,152.59	2,172.83	2.00	-2.00	0.00	
<b>MVRD</b>										
4,000.00	33.65	277.83	3,222.21	301.48	-2,193.26	2,213.89	2.00	-2.00	0.00	
4,100.00	31.65	277.83	3,306.40	308.83	-2,246.70	2,267.83	2.00	-2.00	0.00	
4,200.00	29.65	277.83	3,392.43	315.77	-2,297.20	2,318.80	2.00	-2.00	0.00	
4,300.00	27.65	277.83	3,480.19	322.30	-2,344.69	2,366.74	2.00	-2.00	0.00	
4,400.00	25.65	277.83	3,569.56	328.40	-2,389.12	2,411.58	2.00	-2.00	0.00	
4,500.00	23.65	277.83	3,660.45	334.08	-2,430.43	2,453.28	2.00	-2.00	0.00	
4,600.00	21.65	277.83	3,752.73	339.33	-2,468.57	2,491.78	2.00	-2.00	0.00	
4,700.00	19.65	277.83	3,846.31	344.13	-2,503.50	2,527.04	2.00	-2.00	0.00	
4,800.00	17.65	277.83	3,941.05	348.48	-2,535.17	2,559.01	2.00	-2.00	0.00	
4,900.00	15.65	277.83	4,036.86	352.38	-2,563.55	2,587.65	2.00	-2.00	0.00	
5,000.00	13.65	277.83	4,133.60	355.82	-2,588.59	2,612.94	2.00	-2.00	0.00	
5,100.00	11.65	277.83	4,231.17	358.81	-2,610.28	2,634.83	2.00	-2.00	0.00	
5,182.29	10.00	277.83	4,312.00	360.91	-2,625.59	2,650.28	2.00	-2.00	0.00	
<b>Start DLS 2.00 TFO 180.00 - KMGAS</b>										
5,189.72	9.85	277.83	4,319.31	361.08	-2,626.86	2,651.56	2.00	-2.00	0.00	
<b>SG 341-21 BTW</b>										
5,200.00	9.65	277.83	4,329.45	361.32	-2,628.58	2,653.30	2.00	-2.00	0.00	
5,300.00	7.65	277.83	4,428.31	363.37	-2,643.47	2,668.33	2.00	-2.00	0.00	
5,400.00	5.65	277.83	4,527.63	364.94	-2,654.94	2,679.90	2.00	-2.00	0.00	
5,500.00	3.65	277.83	4,627.29	366.05	-2,662.96	2,688.00	2.00	-2.00	0.00	
5,600.00	1.65	277.83	4,727.18	366.68	-2,667.54	2,692.62	2.00	-2.00	0.00	
5,682.29	0.00	0.00	4,809.47	366.84	-2,668.71	2,693.80	2.00	-2.00	99.85	
<b>Start 1357.53 hold at 5682.29 MD</b>										
5,700.00	0.00	0.00	4,827.17	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
5,800.00	0.00	0.00	4,927.17	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,027.17	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,127.17	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
6,100.00	0.00	0.00	5,227.17	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
6,200.00	0.00	0.00	5,327.17	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
6,300.00	0.00	0.00	5,427.17	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
6,400.00	0.00	0.00	5,527.17	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
6,439.83	0.00	0.00	5,567.00	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
<b>CMEO</b>										
6,500.00	0.00	0.00	5,627.17	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
6,600.00	0.00	0.00	5,727.17	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
6,700.00	0.00	0.00	5,827.17	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
6,800.00	0.00	0.00	5,927.17	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
6,889.83	0.00	0.00	6,017.00	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
<b>RLNS</b>										
6,900.00	0.00	0.00	6,027.17	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,127.17	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
7,039.82	0.00	0.00	6,167.00	366.84	-2,668.71	2,693.80	0.00	0.00	0.00	
<b>TD at 7039.83 - TD - SG 341-21 PBHL</b>										

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SG 341-21 - Slot SG 341-21 (A9)
<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 341-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #2 25Sep2018 mmsdi		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SG 341-21 BTV	0.00	0.00	4,312.00	366.84	-2,668.71	1,591,662.08	2,261,859.90	39.4287274	-108.1135216
- hit/miss target									
- Shape									
- plan misses target center by 42.88usft at 5189.72usft MD (4319.31 TVD, 361.08 N, -2626.86 E)									
- Circle (radius 50.00)									
SG 341-21 PBHL	0.00	0.00	6,167.00	366.84	-2,668.71	1,591,662.08	2,261,859.90	39.4287274	-108.1135216
- plan misses target center by 0.01usft at 7039.82usft MD (6167.00 TVD, 366.84 N, -2668.71 E)									
- Point									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,000.00	945.68	9 5/8" Casing @ 1000' MD	9.62	13.50

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,140.13	1,808.00	G Sand		0.00	0.00
2,273.13	1,908.00	G Sand Base		0.00	0.00
2,427.37	2,023.98	FRUN		0.00	0.00
3,435.49	2,782.00	OCRK		0.00	0.00
3,927.27	3,162.18	MVRD		0.00	0.00
5,182.29	4,312.00	KMVGAS		0.00	0.00
6,439.83	5,567.00	CME0		0.00	0.00
6,889.83	6,017.00	RLNS		0.00	0.00
7,039.82	6,167.00	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 4.00
1,151.09	1,064.32	48.39	-352.04	Start 2469.03 hold at 1151.09 MD
3,620.12	2,920.83	270.05	-1,964.62	Start Drop -2.00
5,182.29	4,312.00	360.91	-2,625.59	Start DLS 2.00 TFO 180.00
5,682.29	4,809.47	366.84	-2,668.71	Start 1357.53 hold at 5682.29 MD
7,039.83	6,167.00	366.84	-2,668.71	TD at 7039.83