

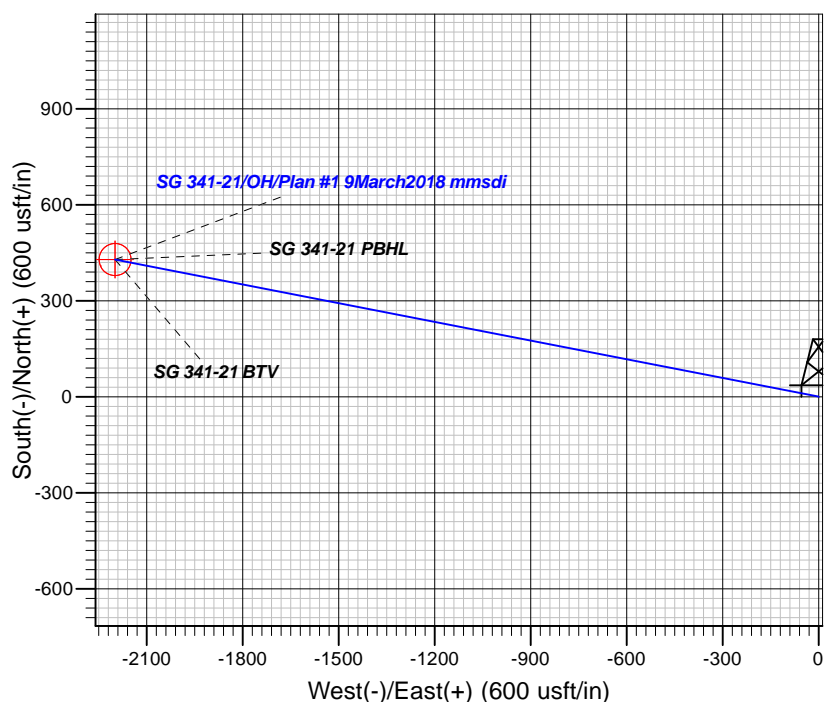
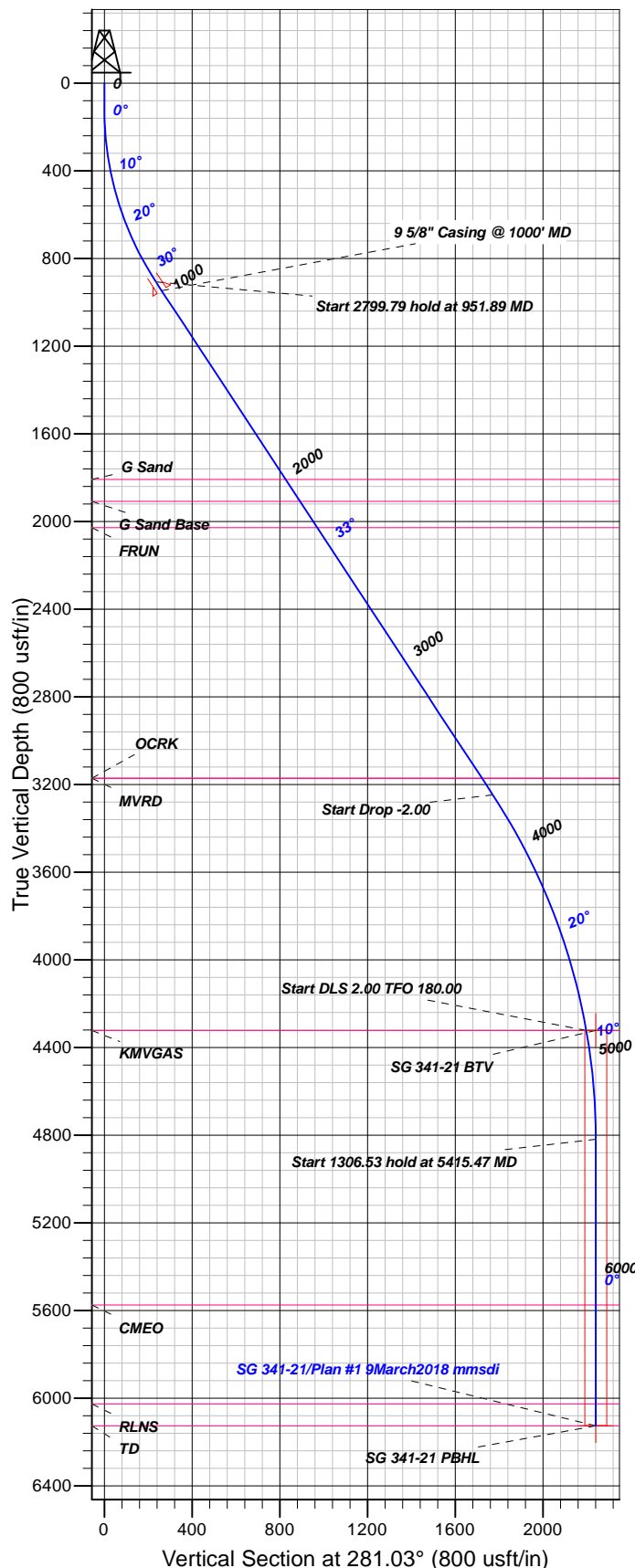


Azimuths to True North  
Magnetic North: 9.48°

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

## Well Details: SG 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

TVDPPath	MDPath	Formation
1808.00	2030.90	G Sand
1908.00	2150.51	G Sand Base
2028.00	2294.04	FRUN
3171.00	3661.20	MVRD
3171.00	3661.20	OCRK
4321.00	4915.47	KMVGAS
5574.00	6171.00	CMEQ
6025.00	6622.00	RLNS
6125.00	6722.00	TD

Plan: Plan #1 9March2018 mmsdi

16:22, 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
946.13	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	951.89	33.28	281.03	905.91	44.95	-230.52	4.00	281.03	234.86	
4	3751.68	33.28	281.03	3246.64	338.94	-1738.28	0.00	0.00	1771.01	
5	4915.47	10.00	281.03	4321.00	420.50	-2156.59	2.00	180.00	2197.20	
6	5415.47	0.00	0.00	4818.47	428.83	-2199.31	2.00	180.00	2240.73	
7	6722.00	0.00	0.00	6125.00	428.83	-2199.31	0.00	0.00	2240.73	SG 341-21 PBHL

### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SG 341-21 BTV	4321.00	428.83	-2199.31	1591710.59	2262330.88	39.4288977	-108.1118598	Circle (Radius: 50.00)
- plan misses target center by 42.88usft at 4922.40usft MD (4327.82 TVD, 420.73 N, -2157.76 E)								
SG 341-21 PBHL	6125.00	428.83	-2199.31	1591710.59	2262330.88	39.4288977	-108.1118598	Point
- plan misses target center by 0.01usft at 6722.00usft MD (6125.00 TVD, 428.83 N, -2199.31 E)								



# **TEP Rocky Mountain LLC**

**Garfield County, CO NAD83**

**SG 11-22 Pad**

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

**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 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 #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 341-21 - Slot SG 341-21 (A9)			
<b>Well Position</b>	<b>+N/-S</b>	-21.00 usft	<b>Northing:</b>	1,591,218.90 usft
	<b>+E/-W</b>	-31.11 usft	<b>Easting:</b>	2,264,517.00 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	281.03

<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	
951.89	33.28	281.03	905.91	44.95	-230.52	4.00	4.00	0.00	281.03	
3,751.68	33.28	281.03	3,246.64	338.94	-1,738.28	0.00	0.00	0.00	0.00	
4,915.47	10.00	281.03	4,321.00	420.50	-2,156.59	2.00	-2.00	0.00	180.00	
5,415.47	0.00	0.00	4,818.47	428.83	-2,199.31	2.00	-2.00	15.79	180.00	
6,722.00	0.00	0.00	6,125.00	428.83	-2,199.31	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 #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 4.00</b>									
200.00	3.20	281.03	199.96	0.43	-2.19	2.23	4.00	4.00	0.00
300.00	7.20	281.03	299.53	2.16	-11.09	11.29	4.00	4.00	0.00
400.00	11.20	281.03	398.22	5.22	-26.78	27.28	4.00	4.00	0.00
500.00	15.20	281.03	495.56	9.59	-49.18	50.11	4.00	4.00	0.00
600.00	19.20	281.03	591.07	15.25	-78.20	79.67	4.00	4.00	0.00
700.00	23.20	281.03	684.28	22.17	-113.69	115.83	4.00	4.00	0.00
800.00	27.20	281.03	774.74	30.31	-155.47	158.40	4.00	4.00	0.00
900.00	31.20	281.03	862.02	39.65	-203.35	207.18	4.00	4.00	0.00
951.89	33.28	281.03	905.91	44.95	-230.52	234.86	4.00	4.00	0.00
<b>Start 2799.79 hold at 951.89 MD</b>									
1,000.00	33.28	281.03	946.13	50.00	-256.42	261.25	0.00	0.00	0.00
<b>9 5/8" Casing @ 1000' MD</b>									
1,100.00	33.28	281.03	1,029.73	60.50	-310.27	316.12	0.00	0.00	0.00
1,200.00	33.28	281.03	1,113.34	71.00	-364.13	370.98	0.00	0.00	0.00
1,300.00	33.28	281.03	1,196.94	81.50	-417.98	425.85	0.00	0.00	0.00
1,400.00	33.28	281.03	1,280.55	92.00	-471.83	480.72	0.00	0.00	0.00
1,500.00	33.28	281.03	1,364.15	102.50	-525.69	535.58	0.00	0.00	0.00
1,600.00	33.28	281.03	1,447.75	113.00	-579.54	590.45	0.00	0.00	0.00
1,700.00	33.28	281.03	1,531.36	123.50	-633.39	645.32	0.00	0.00	0.00
1,800.00	33.28	281.03	1,614.96	134.00	-687.24	700.19	0.00	0.00	0.00
1,900.00	33.28	281.03	1,698.56	144.50	-741.10	755.05	0.00	0.00	0.00
2,000.00	33.28	281.03	1,782.17	155.00	-794.95	809.92	0.00	0.00	0.00
2,030.90	33.28	281.03	1,808.00	158.25	-811.59	826.87	0.00	0.00	0.00
<b>G Sand</b>									
2,100.00	33.28	281.03	1,865.77	165.50	-848.80	864.79	0.00	0.00	0.00
2,150.51	33.28	281.03	1,908.00	170.81	-876.00	892.50	0.00	0.00	0.00
<b>G Sand Base</b>									
2,200.00	33.28	281.03	1,949.38	176.00	-902.65	919.65	0.00	0.00	0.00
2,294.04	33.28	281.03	2,028.00	185.88	-953.30	971.25	0.00	0.00	0.00
<b>FRUN</b>									
2,300.00	33.28	281.03	2,032.98	186.50	-956.51	974.52	0.00	0.00	0.00
2,400.00	33.28	281.03	2,116.58	197.00	-1,010.36	1,029.39	0.00	0.00	0.00
2,500.00	33.28	281.03	2,200.19	207.50	-1,064.21	1,084.25	0.00	0.00	0.00
2,600.00	33.28	281.03	2,283.79	218.00	-1,118.07	1,139.12	0.00	0.00	0.00
2,700.00	33.28	281.03	2,367.40	228.51	-1,171.92	1,193.99	0.00	0.00	0.00
2,800.00	33.28	281.03	2,451.00	239.01	-1,225.77	1,248.85	0.00	0.00	0.00
2,900.00	33.28	281.03	2,534.60	249.51	-1,279.62	1,303.72	0.00	0.00	0.00
3,000.00	33.28	281.03	2,618.21	260.01	-1,333.48	1,358.59	0.00	0.00	0.00
3,100.00	33.28	281.03	2,701.81	270.51	-1,387.33	1,413.46	0.00	0.00	0.00
3,200.00	33.28	281.03	2,785.42	281.01	-1,441.18	1,468.32	0.00	0.00	0.00
3,300.00	33.28	281.03	2,869.02	291.51	-1,495.04	1,523.19	0.00	0.00	0.00
3,400.00	33.28	281.03	2,952.62	302.01	-1,548.89	1,578.06	0.00	0.00	0.00
3,500.00	33.28	281.03	3,036.23	312.51	-1,602.74	1,632.92	0.00	0.00	0.00
3,600.00	33.28	281.03	3,119.83	323.01	-1,656.59	1,687.79	0.00	0.00	0.00
3,661.20	33.28	281.03	3,171.00	329.44	-1,689.55	1,721.37	0.00	0.00	0.00
<b>OCRK - MVRD</b>									
3,700.00	33.28	281.03	3,203.44	333.51	-1,710.45	1,742.66	0.00	0.00	0.00
3,751.68	33.28	281.03	3,246.64	338.94	-1,738.28	1,771.01	0.00	0.00	0.00
<b>Start Drop -2.00</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 #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	32.31	281.03	3,287.26	343.94	-1,763.96	1,797.18	2.00	-2.00	0.00	
3,900.00	30.31	281.03	3,372.69	353.89	-1,814.97	1,849.15	2.00	-2.00	0.00	
4,000.00	28.31	281.03	3,459.89	363.26	-1,863.01	1,898.10	2.00	-2.00	0.00	
4,100.00	26.31	281.03	3,548.74	372.04	-1,908.04	1,943.97	2.00	-2.00	0.00	
4,200.00	24.31	281.03	3,639.14	380.22	-1,950.00	1,986.72	2.00	-2.00	0.00	
4,300.00	22.31	281.03	3,730.97	387.79	-1,988.84	2,026.29	2.00	-2.00	0.00	
4,400.00	20.31	281.03	3,824.13	394.74	-2,024.50	2,062.63	2.00	-2.00	0.00	
4,500.00	18.31	281.03	3,918.50	401.07	-2,056.96	2,095.69	2.00	-2.00	0.00	
4,600.00	16.31	281.03	4,013.96	406.77	-2,086.16	2,125.44	2.00	-2.00	0.00	
4,700.00	14.31	281.03	4,110.41	411.82	-2,112.07	2,151.85	2.00	-2.00	0.00	
4,800.00	12.31	281.03	4,207.72	416.23	-2,134.67	2,174.87	2.00	-2.00	0.00	
4,900.00	10.31	281.03	4,305.77	419.98	-2,153.91	2,194.48	2.00	-2.00	0.00	
4,915.47	10.00	281.03	4,321.00	420.50	-2,156.59	2,197.20	2.00	-2.00	0.00	
Start DLS 2.00 TFO 180.00 - KMGAS										
4,922.40	9.86	281.03	4,327.82	420.73	-2,157.76	2,198.40	2.00	-2.00	0.00	
SG 341-21 BTV										
5,000.00	8.31	281.03	4,404.45	423.07	-2,169.79	2,210.65	2.00	-2.00	0.00	
5,100.00	6.31	281.03	4,503.63	425.51	-2,182.28	2,223.37	2.00	-2.00	0.00	
5,200.00	4.31	281.03	4,603.20	427.28	-2,191.36	2,232.63	2.00	-2.00	0.00	
5,300.00	2.31	281.03	4,703.03	428.38	-2,197.02	2,238.40	2.00	-2.00	0.00	
5,400.00	0.31	281.03	4,803.00	428.82	-2,199.27	2,240.68	2.00	-2.00	0.00	
5,415.47	0.00	0.00	4,818.47	428.83	-2,199.31	2,240.73	2.00	-2.00	510.45	
Start 1306.53 hold at 5415.47 MD										
5,500.00	0.00	0.00	4,903.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,003.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,103.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,203.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,303.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,403.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
6,100.00	0.00	0.00	5,503.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
6,171.00	0.00	0.00	5,574.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
CME0										
6,200.00	0.00	0.00	5,603.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
6,300.00	0.00	0.00	5,703.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
6,400.00	0.00	0.00	5,803.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
6,500.00	0.00	0.00	5,903.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,003.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
6,622.00	0.00	0.00	6,025.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
RLNS										
6,700.00	0.00	0.00	6,103.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
6,722.00	0.00	0.00	6,125.00	428.83	-2,199.31	2,240.73	0.00	0.00	0.00	
TD at 6722.00 - TD - 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 #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 341-21 BTV	0.00	0.00	4,321.00	428.83	-2,199.31	1,591,710.59	2,262,330.88	39.4288977	-108.1118598
- plan misses target center by 42.88usft at 4922.40usft MD (4327.82 TVD, 420.73 N, -2157.76 E)									
- Circle (radius 50.00)									
SG 341-21 PBHL	0.00	0.00	6,125.00	428.83	-2,199.31	1,591,710.59	2,262,330.88	39.4288977	-108.1118598
- plan misses target center by 0.01usft at 6722.00usft MD (6125.00 TVD, 428.83 N, -2199.31 E)									
- Point									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,000.00	946.13	9 5/8" Casing @ 1000' MD	9.62	13.50

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,030.90	1,808.00	G Sand		0.00	0.00
2,150.51	1,908.00	G Sand Base		0.00	0.00
2,294.04	2,028.00	FRUN		0.00	0.00
3,661.20	3,171.00	OCRK		0.00	0.00
3,661.20	3,171.00	MVRD		0.00	0.00
4,915.47	4,321.00	KMVGAS		0.00	0.00
6,171.00	5,574.00	CME0		0.00	0.00
6,622.00	6,025.00	RLNS		0.00	0.00
6,722.00	6,125.00	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
951.89	905.91	44.95	-230.52	Start 2799.79 hold at 951.89 MD
3,751.68	3,246.64	338.94	-1,738.28	Start Drop -2.00
4,915.47	4,321.00	420.50	-2,156.59	Start DLS 2.00 TFO 180.00
5,415.47	4,818.47	428.83	-2,199.31	Start 1306.53 hold at 5415.47 MD
6,722.00	6,125.00	428.83	-2,199.31	TD at 6722.00