

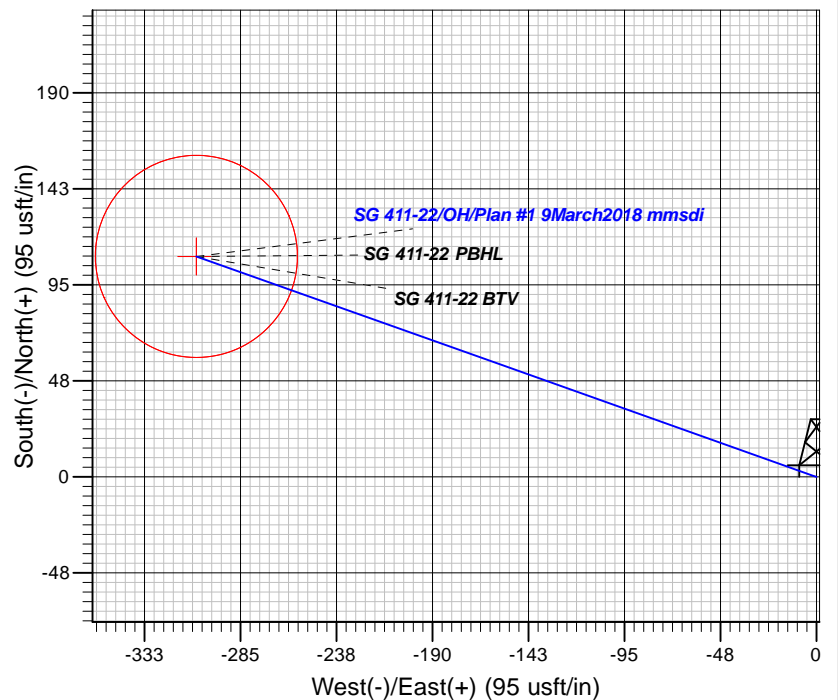
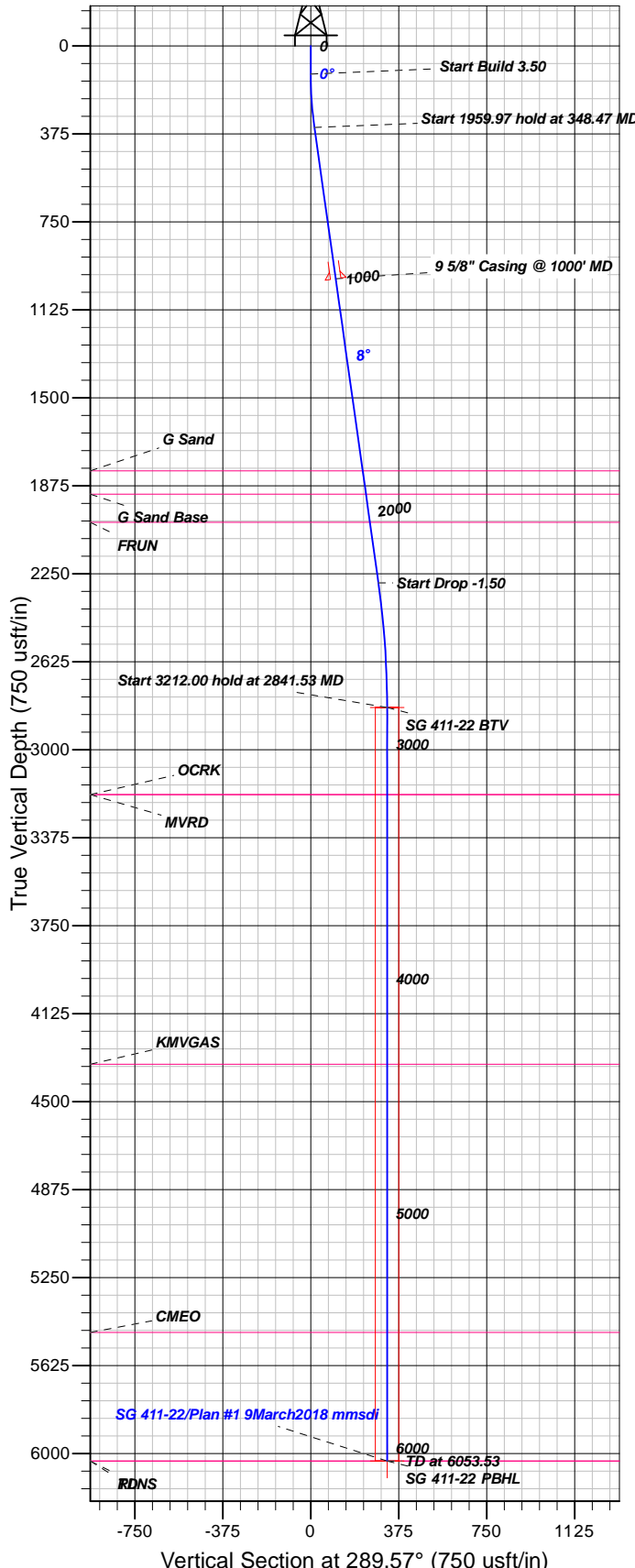


Azimuths to True North
Magnetic North: 9.48°

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

Well Details: SG 411-22

GL 6092.4' & RKB 24' @ 6116.40usft
+N/-S 0.00 +E/-W 0.00 Northing 1591226.90 Easting 2264529.70 Latitude 39.4277435 Longitude -108.1040296 Slot SG 411-22 (A7)



FORMATION TOP DETAILS

TVDPth	MDPath	Formation
1811.00	1826.11	G Sand
1911.00	1927.09	G Sand Base
2031.00	2048.27	FRUN
3191.00	3212.53	MVRD
3191.00	3212.53	OCRK
4341.00	4362.53	KMVGAS
5484.00	5505.53	CMEO
6032.00	6053.53	RLNS
6032.00	6053.53	TD

Plan: Plan #1 9March2018 mmsdi

16:27, 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
992.92	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	348.47	8.00	289.57	347.72	5.33	-15.00	3.50	289.57	15.92	
4	2308.44	8.00	289.57	2288.64	96.68	-271.89	0.00	0.00	288.57	
5	2841.53	0.00	0.00	2820.00	109.12	-306.88	1.50	180.00	325.71	
6	6053.53	0.00	0.00	6032.00	109.12	-306.88	0.00	0.00	325.71	SG 411-22 PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SG 411-22 BTV	2820.00	109.12	-306.88	1591344.77	2264226.07	39.4280431	-108.1051161	Circle (Radius: 50.00)
- plan hits target center								
SG 411-22 PBHL	6032.00	109.12	-306.88	1591344.77	2264226.07	39.4280431	-108.1051161	Point
- plan hits target center								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

SG 11-22 Pad

SG 411-22 - Slot SG 411-22 (A7)

OH

Plan: Plan #1 9March2018 mmsdi

Standard Planning Report

12 March, 2018



Database:	Grand Junction District	Local Co-ordinate Reference:	Well SG 411-22 - Slot SG 411-22 (A7)
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 411-22	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 411-22 - Slot SG 411-22 (A7)			
Well Position	+N/-S	-12.64 usft	Northing:	1,591,226.90 usft
	+E/-W	-18.65 usft	Easting:	2,264,529.70 usft
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	289.57

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	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	
348.47	8.00	289.57	347.72	5.33	-15.00	3.50	3.50	0.00	289.57	
2,308.44	8.00	289.57	2,288.64	96.68	-271.89	0.00	0.00	0.00	0.00	
2,841.53	0.00	0.00	2,820.00	109.12	-306.88	1.50	-1.50	0.00	180.00	
6,053.53	0.00	0.00	6,032.00	109.12	-306.88	0.00	0.00	0.00	0.00	SG 411-22 PBHL

Database:	Grand Junction District	Local Co-ordinate Reference:	Well SG 411-22 - Slot SG 411-22 (A7)
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 411-22	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
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 3.50									
200.00	2.80	289.57	199.97	0.65	-1.84	1.95	3.50	3.50	0.00
300.00	6.30	289.57	299.64	3.31	-9.31	9.89	3.50	3.50	0.00
348.47	8.00	289.57	347.72	5.33	-15.00	15.92	3.50	3.50	0.00
Start 1959.97 hold at 348.47 MD									
400.00	8.00	289.57	398.76	7.73	-21.75	23.09	0.00	0.00	0.00
500.00	8.00	289.57	497.79	12.39	-34.86	37.00	0.00	0.00	0.00
600.00	8.00	289.57	596.81	17.06	-47.97	50.91	0.00	0.00	0.00
700.00	8.00	289.57	695.84	21.72	-61.07	64.82	0.00	0.00	0.00
800.00	8.00	289.57	794.87	26.38	-74.18	78.73	0.00	0.00	0.00
900.00	8.00	289.57	893.90	31.04	-87.29	92.64	0.00	0.00	0.00
1,000.00	8.00	289.57	992.92	35.70	-100.39	106.55	0.00	0.00	0.00
9 5/8" Casing @ 1000' MD									
1,100.00	8.00	289.57	1,091.95	40.36	-113.50	120.46	0.00	0.00	0.00
1,200.00	8.00	289.57	1,190.98	45.02	-126.61	134.37	0.00	0.00	0.00
1,300.00	8.00	289.57	1,290.01	49.68	-139.71	148.28	0.00	0.00	0.00
1,400.00	8.00	289.57	1,389.04	54.34	-152.82	162.19	0.00	0.00	0.00
1,500.00	8.00	289.57	1,488.06	59.00	-165.93	176.11	0.00	0.00	0.00
1,600.00	8.00	289.57	1,587.09	63.66	-179.04	190.02	0.00	0.00	0.00
1,700.00	8.00	289.57	1,686.12	68.32	-192.14	203.93	0.00	0.00	0.00
1,800.00	8.00	289.57	1,785.15	72.98	-205.25	217.84	0.00	0.00	0.00
1,826.11	8.00	289.57	1,811.00	74.20	-208.67	221.47	0.00	0.00	0.00
G Sand									
1,900.00	8.00	289.57	1,884.17	77.64	-218.36	231.75	0.00	0.00	0.00
1,927.09	8.00	289.57	1,911.00	78.90	-221.91	235.52	0.00	0.00	0.00
G Sand Base									
2,000.00	8.00	289.57	1,983.20	82.30	-231.46	245.66	0.00	0.00	0.00
2,048.27	8.00	289.57	2,031.00	84.55	-237.79	252.37	0.00	0.00	0.00
FRUN									
2,100.00	8.00	289.57	2,082.23	86.96	-244.57	259.57	0.00	0.00	0.00
2,200.00	8.00	289.57	2,181.26	91.62	-257.68	273.48	0.00	0.00	0.00
2,300.00	8.00	289.57	2,280.28	96.28	-270.78	287.39	0.00	0.00	0.00
2,308.44	8.00	289.57	2,288.64	96.68	-271.89	288.57	0.00	0.00	0.00
Start Drop -1.50									
2,400.00	6.62	289.57	2,379.46	100.58	-282.87	300.22	1.50	-1.50	0.00
2,500.00	5.12	289.57	2,478.93	104.01	-292.51	310.45	1.50	-1.50	0.00
2,600.00	3.62	289.57	2,578.63	106.56	-299.69	318.07	1.50	-1.50	0.00
2,700.00	2.12	289.57	2,678.51	108.24	-304.41	323.08	1.50	-1.50	0.00
2,800.00	0.62	289.57	2,778.47	109.04	-306.67	325.48	1.50	-1.50	0.00
2,841.53	0.00	0.00	2,820.00	109.12	-306.88	325.71	1.50	-1.50	0.00
Start 3212.00 hold at 2841.53 MD - SG 411-22 BTV									
2,900.00	0.00	0.00	2,878.47	109.12	-306.88	325.71	0.00	0.00	0.00
3,000.00	0.00	0.00	2,978.47	109.12	-306.88	325.71	0.00	0.00	0.00
3,100.00	0.00	0.00	3,078.47	109.12	-306.88	325.71	0.00	0.00	0.00
3,200.00	0.00	0.00	3,178.47	109.12	-306.88	325.71	0.00	0.00	0.00
3,212.53	0.00	0.00	3,191.00	109.12	-306.88	325.71	0.00	0.00	0.00
OCRK - MVRD									
3,300.00	0.00	0.00	3,278.47	109.12	-306.88	325.71	0.00	0.00	0.00
3,400.00	0.00	0.00	3,378.47	109.12	-306.88	325.71	0.00	0.00	0.00
3,500.00	0.00	0.00	3,478.47	109.12	-306.88	325.71	0.00	0.00	0.00

Database:	Grand Junction District	Local Co-ordinate Reference:	Well SG 411-22 - Slot SG 411-22 (A7)
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 411-22	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)
3,600.00	0.00	0.00	3,578.47	109.12	-306.88	325.71	0.00	0.00	0.00
3,700.00	0.00	0.00	3,678.47	109.12	-306.88	325.71	0.00	0.00	0.00
3,800.00	0.00	0.00	3,778.47	109.12	-306.88	325.71	0.00	0.00	0.00
3,900.00	0.00	0.00	3,878.47	109.12	-306.88	325.71	0.00	0.00	0.00
4,000.00	0.00	0.00	3,978.47	109.12	-306.88	325.71	0.00	0.00	0.00
4,100.00	0.00	0.00	4,078.47	109.12	-306.88	325.71	0.00	0.00	0.00
4,200.00	0.00	0.00	4,178.47	109.12	-306.88	325.71	0.00	0.00	0.00
4,300.00	0.00	0.00	4,278.47	109.12	-306.88	325.71	0.00	0.00	0.00
4,362.53	0.00	0.00	4,341.00	109.12	-306.88	325.71	0.00	0.00	0.00
KMVGAS									
4,400.00	0.00	0.00	4,378.47	109.12	-306.88	325.71	0.00	0.00	0.00
4,500.00	0.00	0.00	4,478.47	109.12	-306.88	325.71	0.00	0.00	0.00
4,600.00	0.00	0.00	4,578.47	109.12	-306.88	325.71	0.00	0.00	0.00
4,700.00	0.00	0.00	4,678.47	109.12	-306.88	325.71	0.00	0.00	0.00
4,800.00	0.00	0.00	4,778.47	109.12	-306.88	325.71	0.00	0.00	0.00
4,900.00	0.00	0.00	4,878.47	109.12	-306.88	325.71	0.00	0.00	0.00
5,000.00	0.00	0.00	4,978.47	109.12	-306.88	325.71	0.00	0.00	0.00
5,100.00	0.00	0.00	5,078.47	109.12	-306.88	325.71	0.00	0.00	0.00
5,200.00	0.00	0.00	5,178.47	109.12	-306.88	325.71	0.00	0.00	0.00
5,300.00	0.00	0.00	5,278.47	109.12	-306.88	325.71	0.00	0.00	0.00
5,400.00	0.00	0.00	5,378.47	109.12	-306.88	325.71	0.00	0.00	0.00
5,500.00	0.00	0.00	5,478.47	109.12	-306.88	325.71	0.00	0.00	0.00
5,505.53	0.00	0.00	5,484.00	109.12	-306.88	325.71	0.00	0.00	0.00
CMEO									
5,600.00	0.00	0.00	5,578.47	109.12	-306.88	325.71	0.00	0.00	0.00
5,700.00	0.00	0.00	5,678.47	109.12	-306.88	325.71	0.00	0.00	0.00
5,800.00	0.00	0.00	5,778.47	109.12	-306.88	325.71	0.00	0.00	0.00
5,900.00	0.00	0.00	5,878.47	109.12	-306.88	325.71	0.00	0.00	0.00
6,000.00	0.00	0.00	5,978.47	109.12	-306.88	325.71	0.00	0.00	0.00
6,053.53	0.00	0.00	6,032.00	109.12	-306.88	325.71	0.00	0.00	0.00
TD at 6053.53 - RLNS - TD - SG 411-22 PBHL									

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		Longitude
SG 411-22 BTV - hit/miss target - Shape	0.00	0.00	2,820.00	109.12	-306.88	1,591,344.77	2,264,226.07	39.4280431		-108.1051161
SG 411-22 PBHL - plan hits target center - Point	0.00	0.00	6,032.00	109.12	-306.88	1,591,344.77	2,264,226.07	39.4280431		-108.1051161

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (in)	Hole Diameter (in)
1,000.00	992.92	9 5/8" Casing @ 1000' MD		9.62	13.50

Database:	Grand Junction District	Local Co-ordinate Reference:	Well SG 411-22 - Slot SG 411-22 (A7)
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 411-22	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 9March2018 mmsdi		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,826.11	1,811.00	G Sand		0.00		
1,927.09	1,911.00	G Sand Base		0.00	0.00	
2,048.27	2,031.00	FRUN		0.00	0.00	
3,212.53	3,191.00	OCRK		0.00	0.00	
3,212.53	3,191.00	MVRD		0.00	0.00	
4,362.53	4,341.00	KMVGAS		0.00	0.00	
5,505.53	5,484.00	CMEO		0.00	0.00	
6,053.53	6,032.00	RLNS		0.00	0.00	
6,053.53	6,032.00	TD		0.00	0.00	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
120.00	120.00	0.00	0.00	Start Build 3.50	
348.47	347.72	5.33	-15.00	Start 1959.97 hold at 348.47 MD	
2,308.44	2,288.64	96.68	-271.89	Start Drop -1.50	
2,841.53	2,820.00	109.12	-306.88	Start 3212.00 hold at 2841.53 MD	
6,053.53	6,032.00	109.12	-306.88	TD at 6053.53	