

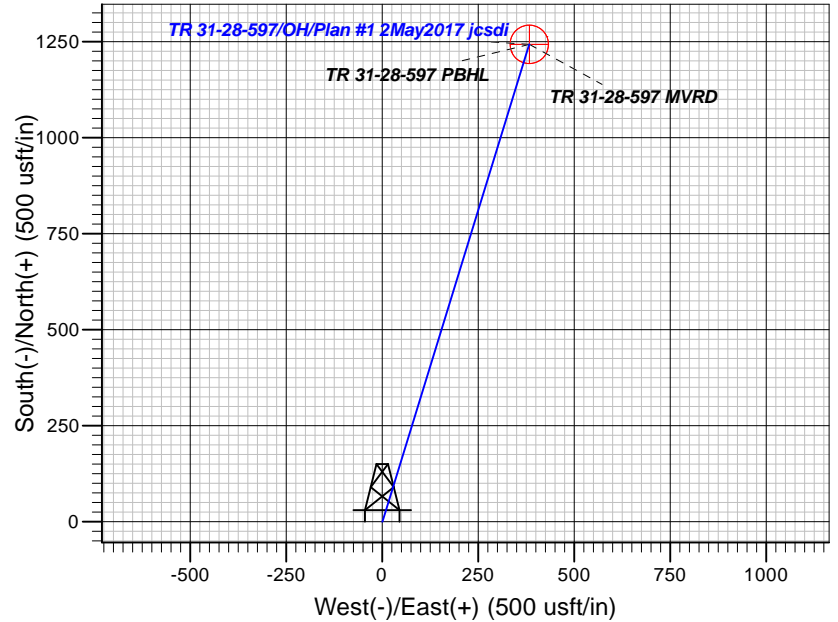
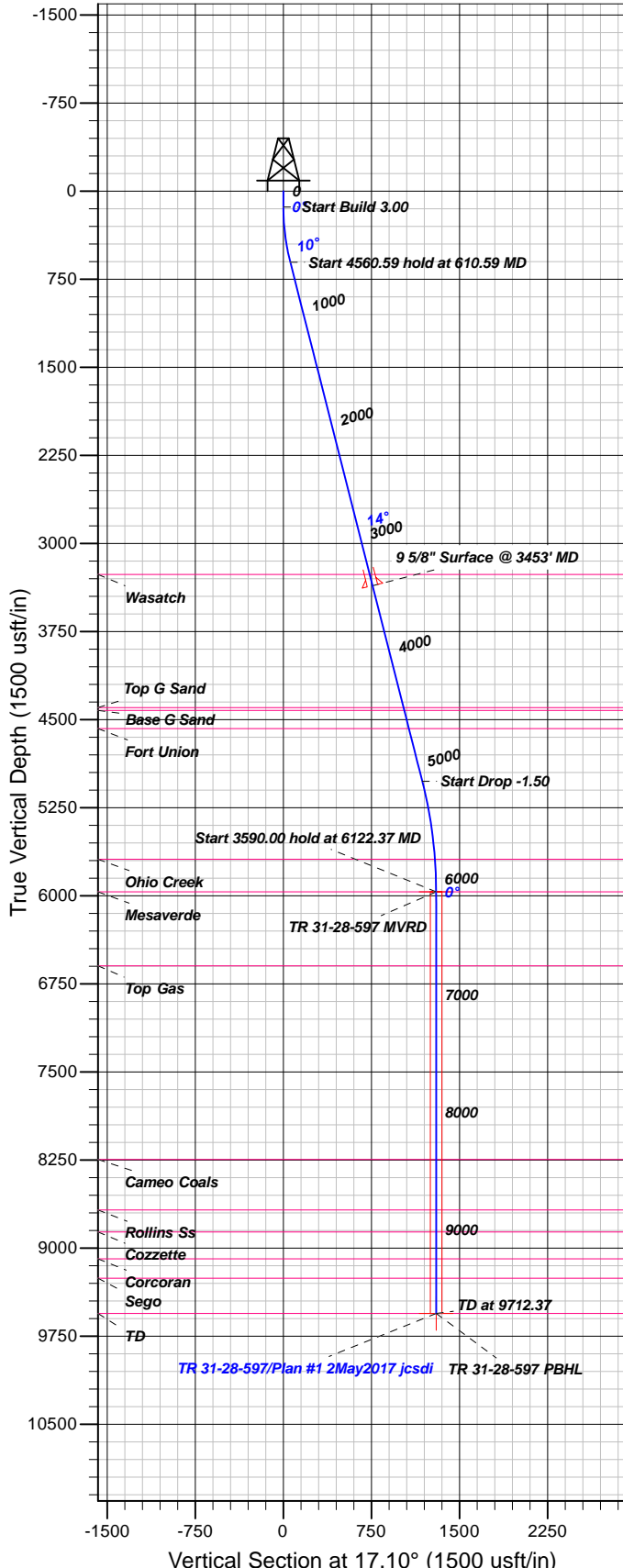
Well Details: TR 31-28-597

GL 8481.4' & RKB 24' @ 8505.40usft

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1650738.60	2216041.30	39.5871116	-108.2820562	B10

T M Azimuths to True North
Magnetic North: 9.80°

Magnetic Field
Strength: 51635.9snT
Dip Angle: 65.90°
Date: 5/2/2017
Model: HDGM



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3264.00	3353.51	Wasatch
4398.00	4523.60	Top G Sand
4422.00	4548.36	Base G Sand
4577.00	4708.30	Fort Union
5690.00	5845.13	Ohio Creek
5967.00	6122.37	Mesaverde
6597.00	6752.37	Top Gas
8246.00	8401.37	Cameo Coals
8676.00	8831.37	Rollins Ss
8863.00	9018.37	Cozzette
9091.00	9246.37	Corcoran
9257.00	9412.37	Sego
9557.00	9712.37	TD

Plan: Plan #1 2May2017 jcsdi

21:24, May 03 2017
Created By: Janie Collins

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
3360.42	3453.90	9 5/8" Surface @ 3453' 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	610.59	14.27	17.10	605.69	56.31	17.32	3.00	17.10	58.91	
4	5171.19	14.27	17.10	5025.61	1130.58	347.86	0.00	0.00	1182.89	
5	6122.37	0.00	0.00	5967.00	1243.20	382.51	1.50	180.00	1300.71	TR 31-28-597 MVRD
6	9712.37	0.00	0.00	9557.00	1243.20	382.51	0.00	0.00	1300.71	TR 31-28-597 PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
TR 31-28-597 MVRD	5967.00	1243.20	382.51	1651969.50	2216461.70	39.5905246	-108.2806989	Circle (Radius: 50.00)
- plan hits target center								
TR 31-28-597 PBHL	9557.00	1243.20	382.51	1651969.50	2216461.70	39.5905246	-108.2806989	Point
- plan hits target center								



TEP Rocky Mountain LLC

Garfield County, CO NAD83

TR 32-28-597 Pad

TR 31-28-597 - Slot B10

OH

Plan: Plan #1 2May2017 jcsdi

Standard Planning Report

03 May, 2017



Database:	Grand Junction District	Local Co-ordinate Reference:	Well TR 31-28-597 - Slot B10
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 8481.4' & RKB 24' @ 8505.40usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 8481.4' & RKB 24' @ 8505.40usft
Site:	TR 32-28-597 Pad	North Reference:	True
Well:	TR 31-28-597	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 2May2017 jcsdi		

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	TR 32-28-597 Pad			
Site Position:		Northing:	1,650,686.80 usft	Latitude: 39.5869706
From:	Map	Easting:	2,216,054.60 usft	Longitude: -108.2820034
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence: -1.75 °

Well	TR 31-28-597 - Slot B10			
Well Position	+N/-S	51.37 usft	Northing:	1,650,738.60 usft
	+E/-W	-14.88 usft	Easting:	2,216,041.30 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	0.00 usft
			Ground Level:	8,481.40 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/2/2017	9.80	65.90	51,636

Design	Plan #1 2May2017 jcsdi			
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	17.10

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	
610.59	14.27	17.10	605.69	56.31	17.32	3.00	3.00	0.00	17.10	
5,171.19	14.27	17.10	5,025.61	1,130.58	347.86	0.00	0.00	0.00	0.00	
6,122.38	0.00	0.00	5,967.00	1,243.20	382.51	1.50	-1.50	0.00	180.00	TR 31-28-597 MVRD
9,712.38	0.00	0.00	9,557.00	1,243.20	382.51	0.00	0.00	0.00	0.00	TR 31-28-597 PBHL

Database:	Grand Junction District	Local Co-ordinate Reference:	Well TR 31-28-597 - Slot B10
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 8481.4' & RKB 24' @ 8505.40usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 8481.4' & RKB 24' @ 8505.40usft
Site:	TR 32-28-597 Pad	North Reference:	True
Well:	TR 31-28-597	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 2May2017 jcsdi		

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
200.00	1.95	17.10	199.99	1.06	0.33	1.11	3.00	3.00	0.00
300.00	4.95	17.10	299.79	6.81	2.09	7.12	3.00	3.00	0.00
400.00	7.95	17.10	399.15	17.54	5.40	18.36	3.00	3.00	0.00
500.00	10.95	17.10	497.78	33.23	10.23	34.77	3.00	3.00	0.00
600.00	13.95	17.10	595.42	53.84	16.57	56.33	3.00	3.00	0.00
610.59	14.27	17.10	605.69	56.31	17.32	58.91	3.00	3.00	0.00
700.00	14.27	17.10	692.34	77.37	23.80	80.95	0.00	0.00	0.00
800.00	14.27	17.10	789.26	100.92	31.05	105.59	0.00	0.00	0.00
900.00	14.27	17.10	886.17	124.48	38.30	130.24	0.00	0.00	0.00
1,000.00	14.27	17.10	983.09	148.03	45.55	154.88	0.00	0.00	0.00
1,100.00	14.27	17.10	1,080.00	171.59	52.80	179.53	0.00	0.00	0.00
1,200.00	14.27	17.10	1,176.92	195.14	60.04	204.17	0.00	0.00	0.00
1,300.00	14.27	17.10	1,273.83	218.70	67.29	228.82	0.00	0.00	0.00
1,400.00	14.27	17.10	1,370.75	242.26	74.54	253.46	0.00	0.00	0.00
1,500.00	14.27	17.10	1,467.67	265.81	81.79	278.11	0.00	0.00	0.00
1,600.00	14.27	17.10	1,564.58	289.37	89.03	302.75	0.00	0.00	0.00
1,700.00	14.27	17.10	1,661.50	312.92	96.28	327.40	0.00	0.00	0.00
1,800.00	14.27	17.10	1,758.41	336.48	103.53	352.05	0.00	0.00	0.00
1,900.00	14.27	17.10	1,855.33	360.03	110.78	376.69	0.00	0.00	0.00
2,000.00	14.27	17.10	1,952.24	383.59	118.03	401.34	0.00	0.00	0.00
2,100.00	14.27	17.10	2,049.16	407.15	125.27	425.98	0.00	0.00	0.00
2,200.00	14.27	17.10	2,146.07	430.70	132.52	450.63	0.00	0.00	0.00
2,300.00	14.27	17.10	2,242.99	454.26	139.77	475.27	0.00	0.00	0.00
2,400.00	14.27	17.10	2,339.90	477.81	147.02	499.92	0.00	0.00	0.00
2,500.00	14.27	17.10	2,436.82	501.37	154.26	524.56	0.00	0.00	0.00
2,600.00	14.27	17.10	2,533.74	524.92	161.51	549.21	0.00	0.00	0.00
2,700.00	14.27	17.10	2,630.65	548.48	168.76	573.85	0.00	0.00	0.00
2,800.00	14.27	17.10	2,727.57	572.03	176.01	598.50	0.00	0.00	0.00
2,900.00	14.27	17.10	2,824.48	595.59	183.25	623.15	0.00	0.00	0.00
3,000.00	14.27	17.10	2,921.40	619.15	190.50	647.79	0.00	0.00	0.00
3,100.00	14.27	17.10	3,018.31	642.70	197.75	672.44	0.00	0.00	0.00
3,200.00	14.27	17.10	3,115.23	666.26	205.00	697.08	0.00	0.00	0.00
3,300.00	14.27	17.10	3,212.14	689.81	212.25	721.73	0.00	0.00	0.00
3,353.51	14.27	17.10	3,264.00	702.42	216.12	734.91	0.00	0.00	0.00
Wasatch									
3,400.00	14.27	17.10	3,309.06	713.37	219.49	746.37	0.00	0.00	0.00
3,453.00	14.27	17.10	3,360.42	725.85	223.33	759.43	0.00	0.00	0.00
9 5/8" Surface @ 3453' MD									
3,500.00	14.27	17.10	3,405.97	736.92	226.74	771.02	0.00	0.00	0.00
3,600.00	14.27	17.10	3,502.89	760.48	233.99	795.66	0.00	0.00	0.00
3,700.00	14.27	17.10	3,599.81	784.04	241.24	820.31	0.00	0.00	0.00
3,800.00	14.27	17.10	3,696.72	807.59	248.48	844.95	0.00	0.00	0.00
3,900.00	14.27	17.10	3,793.64	831.15	255.73	869.60	0.00	0.00	0.00
4,000.00	14.27	17.10	3,890.55	854.70	262.98	894.25	0.00	0.00	0.00
4,100.00	14.27	17.10	3,987.47	878.26	270.23	918.89	0.00	0.00	0.00
4,200.00	14.27	17.10	4,084.38	901.81	277.48	943.54	0.00	0.00	0.00
4,300.00	14.27	17.10	4,181.30	925.37	284.72	968.18	0.00	0.00	0.00
4,400.00	14.27	17.10	4,278.21	948.93	291.97	992.83	0.00	0.00	0.00
4,500.00	14.27	17.10	4,375.13	972.48	299.22	1,017.47	0.00	0.00	0.00
4,523.60	14.27	17.10	4,398.00	978.04	300.93	1,023.29	0.00	0.00	0.00

Database:	Grand Junction District	Local Co-ordinate Reference:	Well TR 31-28-597 - Slot B10
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 8481.4' & RKB 24' @ 8505.40usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 8481.4' & RKB 24' @ 8505.40usft
Site:	TR 32-28-597 Pad	North Reference:	True
Well:	TR 31-28-597	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 2May2017 jcsdi		

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)
Top G Sand									
4,548.36	14.27	17.10	4,422.00	983.87	302.72	1,029.39	0.00	0.00	0.00
Base G Sand									
4,600.00	14.27	17.10	4,472.04	996.04	306.47	1,042.12	0.00	0.00	0.00
4,700.00	14.27	17.10	4,568.96	1,019.59	313.71	1,066.76	0.00	0.00	0.00
4,708.30	14.27	17.10	4,577.00	1,021.55	314.32	1,068.81	0.00	0.00	0.00
Fort Union									
4,800.00	14.27	17.10	4,665.88	1,043.15	320.96	1,091.41	0.00	0.00	0.00
4,900.00	14.27	17.10	4,762.79	1,066.70	328.21	1,116.05	0.00	0.00	0.00
5,000.00	14.27	17.10	4,859.71	1,090.26	335.46	1,140.70	0.00	0.00	0.00
5,100.00	14.27	17.10	4,956.62	1,113.81	342.71	1,165.35	0.00	0.00	0.00
5,171.19	14.27	17.10	5,025.61	1,130.58	347.86	1,182.89	0.00	0.00	0.00
5,200.00	13.84	17.10	5,053.56	1,137.27	349.92	1,189.89	1.50	-1.50	0.00
5,300.00	12.34	17.10	5,150.96	1,158.91	356.58	1,212.53	1.50	-1.50	0.00
5,400.00	10.84	17.10	5,248.92	1,178.10	362.49	1,232.61	1.50	-1.50	0.00
5,500.00	9.34	17.10	5,347.38	1,194.84	367.64	1,250.12	1.50	-1.50	0.00
5,600.00	7.84	17.10	5,446.25	1,209.11	372.03	1,265.05	1.50	-1.50	0.00
5,700.00	6.34	17.10	5,545.49	1,220.90	375.65	1,277.38	1.50	-1.50	0.00
5,800.00	4.84	17.10	5,645.01	1,230.20	378.52	1,287.12	1.50	-1.50	0.00
5,845.13	4.16	17.10	5,690.00	1,233.58	379.56	1,290.65	1.50	-1.50	0.00
Ohio Creek									
5,900.00	3.34	17.10	5,744.75	1,237.01	380.61	1,294.24	1.50	-1.50	0.00
6,000.00	1.84	17.10	5,844.65	1,241.32	381.94	1,298.75	1.50	-1.50	0.00
6,100.00	0.34	17.10	5,944.63	1,243.13	382.49	1,300.65	1.50	-1.50	0.00
6,122.38	0.00	0.00	5,967.00	1,243.20	382.51	1,300.71	1.50	-1.50	-76.44
Mesaverde - TR 31-28-597 MVRD									
6,200.00	0.00	0.00	6,044.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
6,300.00	0.00	0.00	6,144.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
6,400.00	0.00	0.00	6,244.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
6,500.00	0.00	0.00	6,344.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
6,600.00	0.00	0.00	6,444.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
6,700.00	0.00	0.00	6,544.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
6,752.38	0.00	0.00	6,597.00	1,243.20	382.51	1,300.71	0.00	0.00	0.00
Top Gas									
6,800.00	0.00	0.00	6,644.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
6,900.00	0.00	0.00	6,744.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
7,000.00	0.00	0.00	6,844.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
7,100.00	0.00	0.00	6,944.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
7,200.00	0.00	0.00	7,044.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
7,300.00	0.00	0.00	7,144.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
7,400.00	0.00	0.00	7,244.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
7,500.00	0.00	0.00	7,344.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
7,600.00	0.00	0.00	7,444.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
7,700.00	0.00	0.00	7,544.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
7,800.00	0.00	0.00	7,644.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
7,900.00	0.00	0.00	7,744.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
8,000.00	0.00	0.00	7,844.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
8,100.00	0.00	0.00	7,944.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
8,200.00	0.00	0.00	8,044.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
8,300.00	0.00	0.00	8,144.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
8,400.00	0.00	0.00	8,244.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00
8,401.38	0.00	0.00	8,246.00	1,243.20	382.51	1,300.71	0.00	0.00	0.00
Cameo Coals									

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Project:	Garfield County, CO NAD83	MD Reference:	GL 8481.4' & RKB 24' @ 8505.40usft
Site:	TR 32-28-597 Pad	North Reference:	True
Well:	TR 31-28-597	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 2May2017 jcsdi		

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)	
8,500.00	0.00	0.00	8,344.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
8,600.00	0.00	0.00	8,444.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
8,700.00	0.00	0.00	8,544.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
8,800.00	0.00	0.00	8,644.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
8,831.38	0.00	0.00	8,676.00	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
Rollins Ss										
8,900.00	0.00	0.00	8,744.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
9,000.00	0.00	0.00	8,844.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
9,018.38	0.00	0.00	8,863.00	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
Cozzette										
9,100.00	0.00	0.00	8,944.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
9,200.00	0.00	0.00	9,044.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
9,246.38	0.00	0.00	9,091.00	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
Corcoran										
9,300.00	0.00	0.00	9,144.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
9,400.00	0.00	0.00	9,244.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
9,412.38	0.00	0.00	9,257.00	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
Sego										
9,500.00	0.00	0.00	9,344.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
9,600.00	0.00	0.00	9,444.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
9,700.00	0.00	0.00	9,544.63	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
9,712.38	0.00	0.00	9,557.00	1,243.20	382.51	1,300.71	0.00	0.00	0.00	
TD - TR 31-28-597 PBHL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
TR 31-28-597 MVRD	0.00	0.00	5,967.00	1,243.20	382.51	1,651,969.50	2,216,461.70	39.5905247	-108.2806989	
- plan hits target center										
- Circle (radius 50.00)										
TR 31-28-597 PBHL	0.00	0.00	9,557.00	1,243.20	382.51	1,651,969.50	2,216,461.70	39.5905247	-108.2806989	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
3,453.00	3,360.42	9 5/8" Surface @ 3453' MD	9.62	9.62	

Database:	Grand Junction District	Local Co-ordinate Reference:	Well TR 31-28-597 - Slot B10
Company:	TEP Rocky Mountain LLC	TVD Reference:	GL 8481.4' & RKB 24' @ 8505.40usft
Project:	Garfield County, CO NAD83	MD Reference:	GL 8481.4' & RKB 24' @ 8505.40usft
Site:	TR 32-28-597 Pad	North Reference:	True
Well:	TR 31-28-597	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 2May2017 jcsdi		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,353.51	3,264.00	Wasatch		0.00	0.00	
4,523.60	4,398.00	Top G Sand		0.00	0.00	
4,548.36	4,422.00	Base G Sand		0.00	0.00	
4,708.30	4,577.00	Fort Union		0.00	0.00	
5,845.13	5,690.00	Ohio Creek		0.00	0.00	
6,122.38	5,967.00	Mesaverde		0.00	0.00	
6,752.38	6,597.00	Top Gas		0.00	0.00	
8,401.38	8,246.00	Cameo Coals		0.00	0.00	
8,831.38	8,676.00	Rollins Ss		0.00	0.00	
9,018.38	8,863.00	Cozzette		0.00	0.00	
9,246.38	9,091.00	Corcoran		0.00	0.00	
9,412.38	9,257.00	Sego		0.00	0.00	
9,712.38	9,557.00	TD		0.00	0.00	