

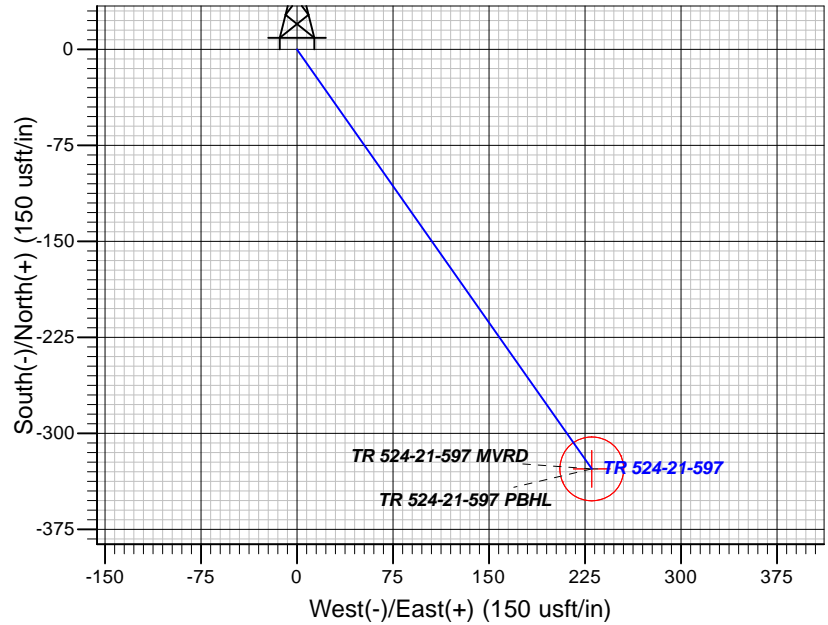
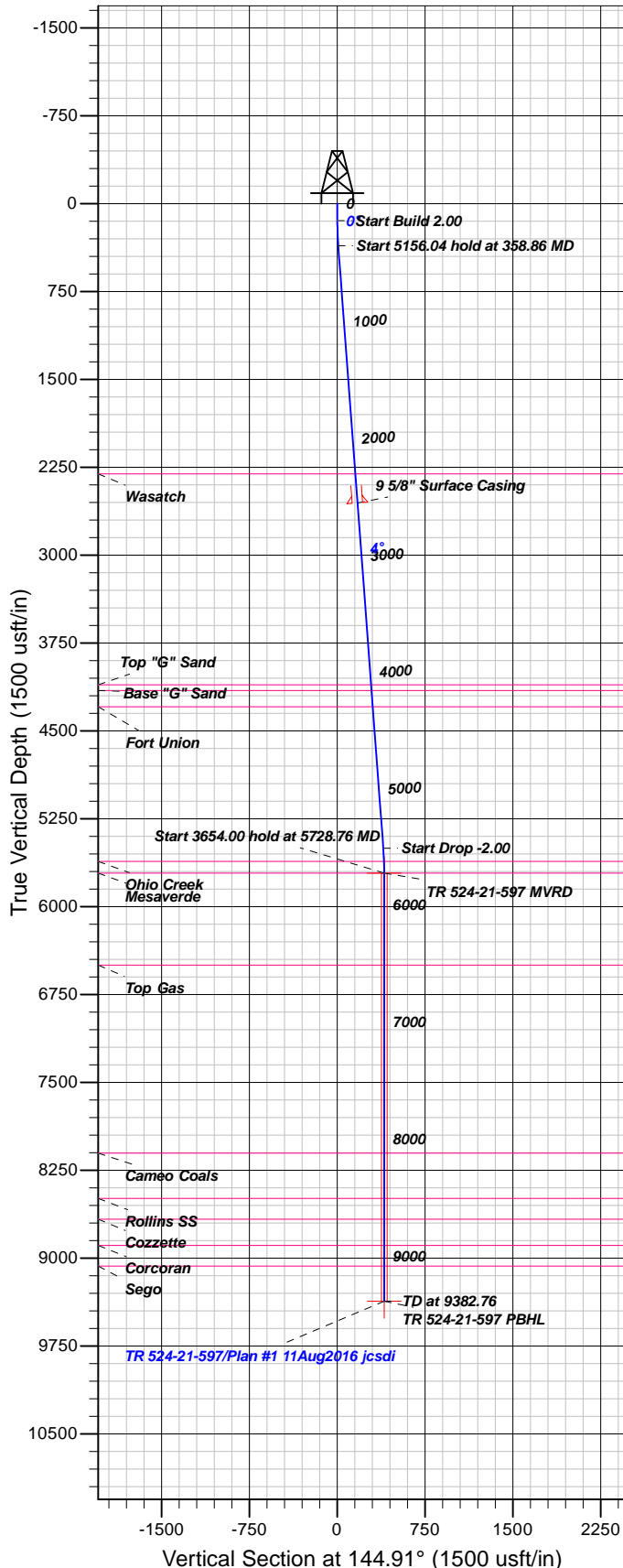
Well Details: TR 524-21-597

GL 8292' & RKB 24' @ 8316.00usft (H&P 318)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1653181.00	2215041.70	39.5937297	-108.2858670	A11

T M Azimuths to True North
 Magnetic North: 9.83°

Magnetic Field
 Strength: 51638.3snT
 Dip Angle: 65.67°
 Date: 8/11/2016
 Model: BGGM2016



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2306.00	2311.64	Wasatch
4106.00	4116.66	Top "G" Sand
4156.00	4166.80	Base "G" Sand
4293.00	4304.19	Fort Union
5614.00	5628.74	Ohio Creek
5714.00	5728.76	Mesaverde
6498.00	6512.76	Top Gas
8103.00	8117.76	Cameo Coals
8490.00	8504.76	Rollins SS
8667.00	8681.76	Cozzette
8890.00	8904.76	Corcoran
9068.00	9082.76	Sego

Plan: Plan #1 11Aug2016 jcsdi

10:20, August 19 2016
 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
2554.67	2561.09	5/8" Surface Casing	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	145.00	0.00	0.00	145.00	0.00	0.00	0.00	0.00	0.00	
3	358.86	4.28	144.91	358.66	-6.53	4.59	2.00	144.91	7.98	
4	5514.90	4.28	144.91	5500.34	-321.18	225.64	0.00	0.00	392.52	
5	5728.76	0.00	0.00	5714.00	-327.71	230.23	2.00	180.00	400.50	TR 524-21-597 MVRD
6	9382.76	0.00	0.00	9368.00	-327.71	230.23	0.00	0.00	400.50	TR 524-21-597 PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
TR 524-21-597 MVRD	5714.00	-327.71	230.23	1652846.38	2215261.77	39.5928300	-108.2850500	Circle (Radius: 25.00)
- plan hits target center								
TR 524-21-597 PBHL	9368.00	-327.71	230.23	1652846.38	2215261.77	39.5928300	-108.2850500	Point
- plan hits target center								



Terra Energy Partners

Garfield County, CO NAD83

TR 24-21-597 Pad

TR 524-21-597 - Slot A11

OH

Plan: Plan #1 11Aug2016 jcsdi

Standard Planning Report

19 August, 2016



www.scientificdrilling.com



Database:	Grand Junction District	Local Co-ordinate Reference:	Well TR 524-21-597 - Slot A11
Company:	Terra Energy Partners	TVD Reference:	GL 8292' & RKB 24' @ 8316.00usft (H&P 318)
Project:	Garfield County, CO NAD83	MD Reference:	GL 8292' & RKB 24' @ 8316.00usft (H&P 318)
Site:	TR 24-21-597 Pad	North Reference:	True
Well:	TR 524-21-597	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 11Aug2016 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 24-21-597 Pad			
Site Position:		Northing:	1,653,248.80 usft	Latitude: 39.5939185
From: Map		Easting:	2,215,073.70 usft	Longitude: -108.2857609
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence: -1.76 °

Well	TR 524-21-597 - Slot A11			
Well Position	+N/-S	-68.75 usft	Northing:	1,653,181.00 usft
	+E/-W	-29.91 usft	Easting:	2,215,041.70 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	0.00 usft
			Ground Level:	8,292.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2016	8/11/2016	9.83	65.67	51,638

Design	Plan #1 11Aug2016 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	144.91

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	
145.00	0.00	0.00	145.00	0.00	0.00	0.00	0.00	0.00	0.00	
358.86	4.28	144.91	358.66	-6.53	4.59	2.00	2.00	0.00	144.91	
5,514.90	4.28	144.91	5,500.34	-321.18	225.64	0.00	0.00	0.00	0.00	
5,728.76	0.00	0.00	5,714.00	-327.71	230.23	2.00	-2.00	0.00	180.00	TR 524-21-597 MVR
9,382.76	0.00	0.00	9,368.00	-327.71	230.23	0.00	0.00	0.00	0.00	TR 524-21-597 PBHL

Database:	Grand Junction District	Local Co-ordinate Reference:	Well TR 524-21-597 - Slot A11
Company:	Terra Energy Partners	TVD Reference:	GL 8292' & RKB 24' @ 8316.00usft (H&P 318)
Project:	Garfield County, CO NAD83	MD Reference:	GL 8292' & RKB 24' @ 8316.00usft (H&P 318)
Site:	TR 24-21-597 Pad	North Reference:	True
Well:	TR 524-21-597	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 11Aug2016 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	
145.00	0.00	0.00	145.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	1.10	144.91	200.00	-0.43	0.30	0.53	2.00	2.00	0.00	
300.00	3.10	144.91	299.92	-3.43	2.41	4.19	2.00	2.00	0.00	
358.86	4.28	144.91	358.66	-6.53	4.59	7.98	2.00	2.00	0.00	
400.00	4.28	144.91	399.69	-9.04	6.35	11.05	0.00	0.00	0.00	
500.00	4.28	144.91	499.41	-15.14	10.64	18.51	0.00	0.00	0.00	
600.00	4.28	144.91	599.13	-21.24	14.92	25.96	0.00	0.00	0.00	
700.00	4.28	144.91	698.85	-27.35	19.21	33.42	0.00	0.00	0.00	
800.00	4.28	144.91	798.57	-33.45	23.50	40.88	0.00	0.00	0.00	
900.00	4.28	144.91	898.29	-39.55	27.79	48.34	0.00	0.00	0.00	
1,000.00	4.28	144.91	998.02	-45.66	32.07	55.80	0.00	0.00	0.00	
1,100.00	4.28	144.91	1,097.74	-51.76	36.36	63.25	0.00	0.00	0.00	
1,200.00	4.28	144.91	1,197.46	-57.86	40.65	70.71	0.00	0.00	0.00	
1,300.00	4.28	144.91	1,297.18	-63.96	44.94	78.17	0.00	0.00	0.00	
1,400.00	4.28	144.91	1,396.90	-70.07	49.22	85.63	0.00	0.00	0.00	
1,500.00	4.28	144.91	1,496.62	-76.17	53.51	93.09	0.00	0.00	0.00	
1,600.00	4.28	144.91	1,596.34	-82.27	57.80	100.54	0.00	0.00	0.00	
1,700.00	4.28	144.91	1,696.07	-88.37	62.08	108.00	0.00	0.00	0.00	
1,800.00	4.28	144.91	1,795.79	-94.48	66.37	115.46	0.00	0.00	0.00	
1,900.00	4.28	144.91	1,895.51	-100.58	70.66	122.92	0.00	0.00	0.00	
2,000.00	4.28	144.91	1,995.23	-106.68	74.95	130.38	0.00	0.00	0.00	
2,100.00	4.28	144.91	2,094.95	-112.78	79.23	137.83	0.00	0.00	0.00	
2,200.00	4.28	144.91	2,194.67	-118.89	83.52	145.29	0.00	0.00	0.00	
2,300.00	4.28	144.91	2,294.40	-124.99	87.81	152.75	0.00	0.00	0.00	
2,311.64	4.28	144.91	2,306.00	-125.70	88.31	153.62	0.00	0.00	0.00	
Wasatch										
2,400.00	4.28	144.91	2,394.12	-131.09	92.10	160.21	0.00	0.00	0.00	
2,500.00	4.28	144.91	2,493.84	-137.19	96.38	167.67	0.00	0.00	0.00	
2,561.00	4.28	144.91	2,554.67	-140.92	99.00	172.22	0.00	0.00	0.00	
9 5/8" Surface Casing										
2,600.00	4.28	144.91	2,593.56	-143.30	100.67	175.12	0.00	0.00	0.00	
2,700.00	4.28	144.91	2,693.28	-149.40	104.96	182.58	0.00	0.00	0.00	
2,800.00	4.28	144.91	2,793.00	-155.50	109.24	190.04	0.00	0.00	0.00	
2,900.00	4.28	144.91	2,892.72	-161.61	113.53	197.50	0.00	0.00	0.00	
3,000.00	4.28	144.91	2,992.45	-167.71	117.82	204.96	0.00	0.00	0.00	
3,100.00	4.28	144.91	3,092.17	-173.81	122.11	212.41	0.00	0.00	0.00	
3,200.00	4.28	144.91	3,191.89	-179.91	126.39	219.87	0.00	0.00	0.00	
3,300.00	4.28	144.91	3,291.61	-186.02	130.68	227.33	0.00	0.00	0.00	
3,400.00	4.28	144.91	3,391.33	-192.12	134.97	234.79	0.00	0.00	0.00	
3,500.00	4.28	144.91	3,491.05	-198.22	139.26	242.25	0.00	0.00	0.00	
3,600.00	4.28	144.91	3,590.77	-204.32	143.54	249.71	0.00	0.00	0.00	
3,700.00	4.28	144.91	3,690.50	-210.43	147.83	257.16	0.00	0.00	0.00	
3,800.00	4.28	144.91	3,790.22	-216.53	152.12	264.62	0.00	0.00	0.00	
3,900.00	4.28	144.91	3,889.94	-222.63	156.40	272.08	0.00	0.00	0.00	
4,000.00	4.28	144.91	3,989.66	-228.73	160.69	279.54	0.00	0.00	0.00	
4,100.00	4.28	144.91	4,089.38	-234.84	164.98	287.00	0.00	0.00	0.00	
4,116.66	4.28	144.91	4,106.00	-235.85	165.69	288.24	0.00	0.00	0.00	
Top "G" Sand										
4,166.80	4.28	144.91	4,156.00	-238.91	167.84	291.98	0.00	0.00	0.00	
Base "G" Sand										

Database:	Grand Junction District	Local Co-ordinate Reference:	Well TR 524-21-597 - Slot A11
Company:	Terra Energy Partners	TVD Reference:	GL 8292' & RKB 24' @ 8316.00usft (H&P 318)
Project:	Garfield County, CO NAD83	MD Reference:	GL 8292' & RKB 24' @ 8316.00usft (H&P 318)
Site:	TR 24-21-597 Pad	North Reference:	True
Well:	TR 524-21-597	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 11Aug2016 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)
4,200.00	4.28	144.91	4,189.10	-240.94	169.27	294.45	0.00	0.00	0.00
4,300.00	4.28	144.91	4,288.83	-247.04	173.55	301.91	0.00	0.00	0.00
4,304.19	4.28	144.91	4,293.00	-247.30	173.73	302.22	0.00	0.00	0.00
Fort Union									
4,400.00	4.28	144.91	4,388.55	-253.14	177.84	309.37	0.00	0.00	0.00
4,500.00	4.28	144.91	4,488.27	-259.25	182.13	316.83	0.00	0.00	0.00
4,600.00	4.28	144.91	4,587.99	-265.35	186.42	324.29	0.00	0.00	0.00
4,700.00	4.28	144.91	4,687.71	-271.45	190.70	331.74	0.00	0.00	0.00
4,800.00	4.28	144.91	4,787.43	-277.56	194.99	339.20	0.00	0.00	0.00
4,900.00	4.28	144.91	4,887.15	-283.66	199.28	346.66	0.00	0.00	0.00
5,000.00	4.28	144.91	4,986.88	-289.76	203.56	354.12	0.00	0.00	0.00
5,100.00	4.28	144.91	5,086.60	-295.86	207.85	361.58	0.00	0.00	0.00
5,200.00	4.28	144.91	5,186.32	-301.97	212.14	369.03	0.00	0.00	0.00
5,300.00	4.28	144.91	5,286.04	-308.07	216.43	376.49	0.00	0.00	0.00
5,400.00	4.28	144.91	5,385.76	-314.17	220.71	383.95	0.00	0.00	0.00
5,500.00	4.28	144.91	5,485.48	-320.27	225.00	391.41	0.00	0.00	0.00
5,514.90	4.28	144.91	5,500.34	-321.18	225.64	392.52	0.00	0.00	0.00
5,600.00	2.58	144.91	5,585.29	-325.34	228.56	397.61	2.00	-2.00	0.00
5,628.74	2.00	144.91	5,614.00	-326.28	229.22	398.75	2.00	-2.00	0.00
Ohio Creek									
5,700.00	0.58	144.91	5,685.24	-327.59	230.14	400.35	2.00	-2.00	0.00
5,728.76	0.00	0.00	5,714.00	-327.71	230.23	400.50	2.00	-2.00	0.00
Mesaverde - TR 524-21-597 MVRD									
5,800.00	0.00	0.00	5,785.24	-327.71	230.23	400.50	0.00	0.00	0.00
5,900.00	0.00	0.00	5,885.24	-327.71	230.23	400.50	0.00	0.00	0.00
6,000.00	0.00	0.00	5,985.24	-327.71	230.23	400.50	0.00	0.00	0.00
6,100.00	0.00	0.00	6,085.24	-327.71	230.23	400.50	0.00	0.00	0.00
6,200.00	0.00	0.00	6,185.24	-327.71	230.23	400.50	0.00	0.00	0.00
6,300.00	0.00	0.00	6,285.24	-327.71	230.23	400.50	0.00	0.00	0.00
6,400.00	0.00	0.00	6,385.24	-327.71	230.23	400.50	0.00	0.00	0.00
6,500.00	0.00	0.00	6,485.24	-327.71	230.23	400.50	0.00	0.00	0.00
6,512.76	0.00	0.00	6,498.00	-327.71	230.23	400.50	0.00	0.00	0.00
Top Gas									
6,600.00	0.00	0.00	6,585.24	-327.71	230.23	400.50	0.00	0.00	0.00
6,700.00	0.00	0.00	6,685.24	-327.71	230.23	400.50	0.00	0.00	0.00
6,800.00	0.00	0.00	6,785.24	-327.71	230.23	400.50	0.00	0.00	0.00
6,900.00	0.00	0.00	6,885.24	-327.71	230.23	400.50	0.00	0.00	0.00
7,000.00	0.00	0.00	6,985.24	-327.71	230.23	400.50	0.00	0.00	0.00
7,100.00	0.00	0.00	7,085.24	-327.71	230.23	400.50	0.00	0.00	0.00
7,200.00	0.00	0.00	7,185.24	-327.71	230.23	400.50	0.00	0.00	0.00
7,300.00	0.00	0.00	7,285.24	-327.71	230.23	400.50	0.00	0.00	0.00
7,400.00	0.00	0.00	7,385.24	-327.71	230.23	400.50	0.00	0.00	0.00
7,500.00	0.00	0.00	7,485.24	-327.71	230.23	400.50	0.00	0.00	0.00
7,600.00	0.00	0.00	7,585.24	-327.71	230.23	400.50	0.00	0.00	0.00
7,700.00	0.00	0.00	7,685.24	-327.71	230.23	400.50	0.00	0.00	0.00
7,800.00	0.00	0.00	7,785.24	-327.71	230.23	400.50	0.00	0.00	0.00
7,900.00	0.00	0.00	7,885.24	-327.71	230.23	400.50	0.00	0.00	0.00
8,000.00	0.00	0.00	7,985.24	-327.71	230.23	400.50	0.00	0.00	0.00
8,100.00	0.00	0.00	8,085.24	-327.71	230.23	400.50	0.00	0.00	0.00
8,117.76	0.00	0.00	8,103.00	-327.71	230.23	400.50	0.00	0.00	0.00
Cameo Coals									

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Project:	Garfield County, CO NAD83	MD Reference:	GL 8292' & RKB 24' @ 8316.00usft (H&P 318)
Site:	TR 24-21-597 Pad	North Reference:	True
Well:	TR 524-21-597	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 11Aug2016 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)	
8,200.00	0.00	0.00	8,185.24	-327.71	230.23	400.50	0.00	0.00	0.00	
8,300.00	0.00	0.00	8,285.24	-327.71	230.23	400.50	0.00	0.00	0.00	
8,400.00	0.00	0.00	8,385.24	-327.71	230.23	400.50	0.00	0.00	0.00	
8,500.00	0.00	0.00	8,485.24	-327.71	230.23	400.50	0.00	0.00	0.00	
8,504.76	0.00	0.00	8,490.00	-327.71	230.23	400.50	0.00	0.00	0.00	
Rollins SS										
8,600.00	0.00	0.00	8,585.24	-327.71	230.23	400.50	0.00	0.00	0.00	
8,681.76	0.00	0.00	8,667.00	-327.71	230.23	400.50	0.00	0.00	0.00	
Cozzette										
8,700.00	0.00	0.00	8,685.24	-327.71	230.23	400.50	0.00	0.00	0.00	
8,800.00	0.00	0.00	8,785.24	-327.71	230.23	400.50	0.00	0.00	0.00	
8,900.00	0.00	0.00	8,885.24	-327.71	230.23	400.50	0.00	0.00	0.00	
8,904.76	0.00	0.00	8,890.00	-327.71	230.23	400.50	0.00	0.00	0.00	
Corcoran										
9,000.00	0.00	0.00	8,985.24	-327.71	230.23	400.50	0.00	0.00	0.00	
9,082.76	0.00	0.00	9,068.00	-327.71	230.23	400.50	0.00	0.00	0.00	
Sego										
9,100.00	0.00	0.00	9,085.24	-327.71	230.23	400.50	0.00	0.00	0.00	
9,200.00	0.00	0.00	9,185.24	-327.71	230.23	400.50	0.00	0.00	0.00	
9,300.00	0.00	0.00	9,285.24	-327.71	230.23	400.50	0.00	0.00	0.00	
9,382.76	0.00	0.00	9,368.00	-327.71	230.23	400.50	0.00	0.00	0.00	
TR 524-21-597 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 524-21-597 MVRD	0.00	0.00	5,714.00	-327.71	230.23	1,652,846.38	2,215,261.77	39.5928300	-108.2850500	
- plan hits target center										
- Circle (radius 25.00)										
TR 524-21-597 PBHL	0.00	0.00	9,368.00	-327.71	230.23	1,652,846.38	2,215,261.77	39.5928300	-108.2850500	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,561.00	2,554.67	9 5/8" Surface Casing	9.62	13.50	

Database:	Grand Junction District	Local Co-ordinate Reference:	Well TR 524-21-597 - Slot A11
Company:	Terra Energy Partners	TVD Reference:	GL 8292' & RKB 24' @ 8316.00usft (H&P 318)
Project:	Garfield County, CO NAD83	MD Reference:	GL 8292' & RKB 24' @ 8316.00usft (H&P 318)
Site:	TR 24-21-597 Pad	North Reference:	True
Well:	TR 524-21-597	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 11Aug2016 jcsdi		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,311.64	2,306.00	Wasatch		0.00	0.00
4,116.66	4,106.00	Top "G" Sand		0.00	0.00
4,166.80	4,156.00	Base "G" Sand		0.00	0.00
4,304.19	4,293.00	Fort Union		0.00	0.00
5,628.74	5,614.00	Ohio Creek		0.00	0.00
5,728.76	5,714.00	Mesaverde		0.00	0.00
6,512.76	6,498.00	Top Gas		0.00	0.00
8,117.76	8,103.00	Cameo Coals		0.00	0.00
8,504.76	8,490.00	Rollins SS		0.00	0.00
8,681.76	8,667.00	Cozzette		0.00	0.00
8,904.76	8,890.00	Corcoran		0.00	0.00
9,082.76	9,068.00	Sego		0.00	0.00