

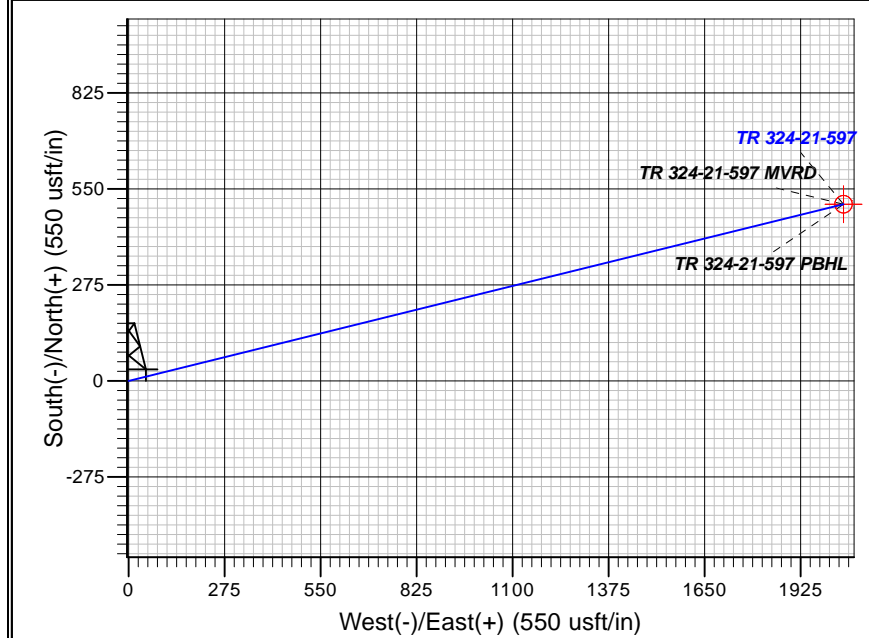
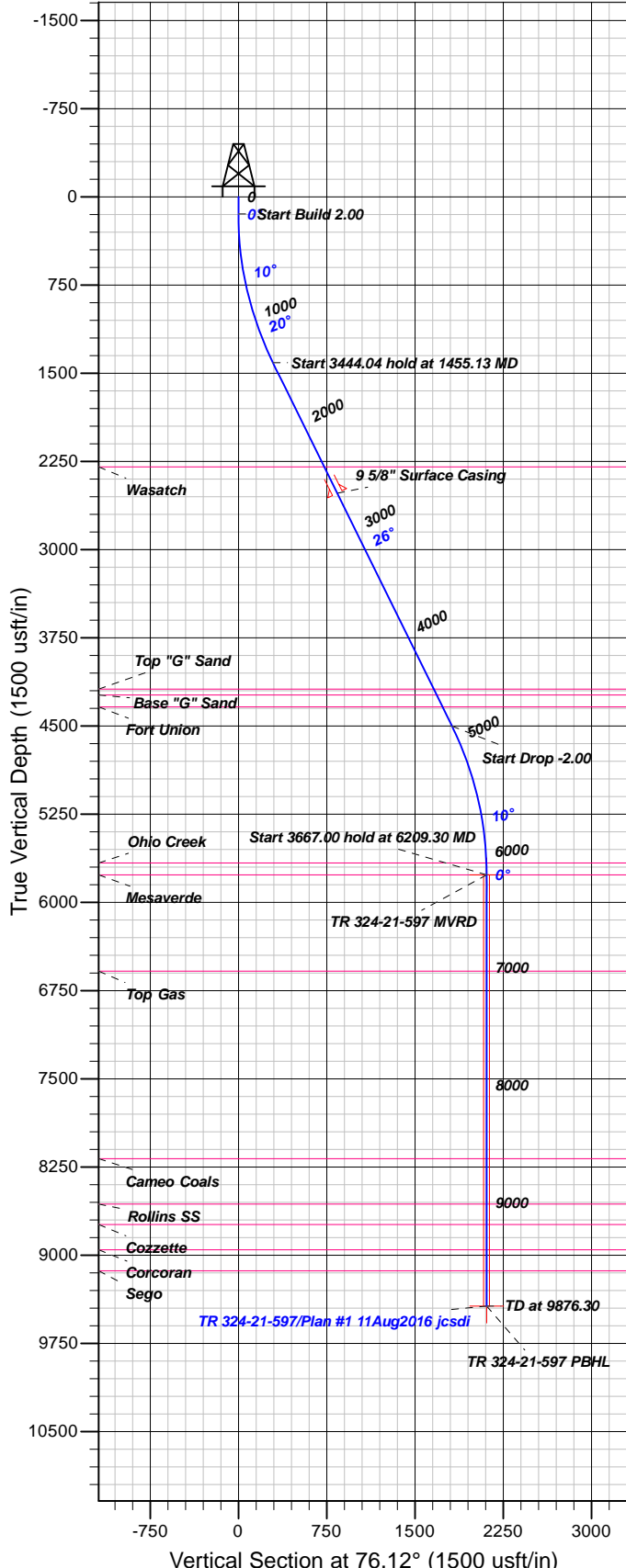
Well Details: TR 324-21-597

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1653235.30	2215067.30	39.5938808	-108.2857821	A3

T M Azimuths to True North
Magnetic North: 9.83°

Magnetic Field
Strength: 51638.4snT
Dip Angle: 65.67°
Date: 8/11/2016
Model: BGGM2016



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2296.00	2442.67	Wasatch
4186.00	4549.14	Top "G" Sand
4236.00	4604.86	Base "G" Sand
4338.00	4718.55	Fort Union
5665.00	6109.28	Ohio Creek
5765.00	6209.30	Mesaverde
6584.00	7028.30	Top Gas
8179.00	8623.30	Cameo Coals
8565.00	9009.30	Rollins SS
8739.00	9183.30	Cozzette
8954.00	9398.30	Corcoran
9132.00	9576.30	Sego

Plan: Plan #1 11Aug2016 jcsdi

9:16, 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
2519.71	2692.09	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	1455.13	26.20	76.12	1409.94	70.63	285.79	2.00	76.12	294.39	
4	4899.17	26.20	76.12	4500.06	435.45	1762.09	0.00	0.00	1815.09	
5	6209.30	0.00	0.00	5765.00	506.08	2047.88	2.00	180.00	2109.48	TR 324-21-597 MVRD
6	9876.30	0.00	0.00	9432.00	506.08	2047.88	0.00	0.00	2109.48	TR 324-21-597 PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
TR 324-21-597 MVRD	5765.00	506.08	2047.88	1653678.36	2217129.73	39.5952700	-108.2785150	Circle (Radius: 25.00)
- plan hits target center								
TR 324-21-597 PBHL	9432.00	506.08	2047.88	1653678.36	2217129.73	39.5952700	-108.2785150	Point
- plan hits target center								



Terra Energy Partners

Garfield County, CO NAD83

TR 24-21-597 Pad

TR 324-21-597 - Slot A3

OH

Plan: Plan #1 11Aug2016 jcsdi

Standard Planning Report

19 August, 2016



Database:	Grand Junction District	Local Co-ordinate Reference:	Well TR 324-21-597 - Slot A3
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 324-21-597	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 324-21-597 - Slot A3			
Well Position	+N/-S	-13.69 usft	Northing:	1,653,235.30 usft
	+E/-W	-5.99 usft	Easting:	2,215,067.30 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	76.12

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	
1,455.13	26.20	76.12	1,409.94	70.63	285.79	2.00	2.00	0.00	76.12	
4,899.17	26.20	76.12	4,500.06	435.45	1,762.09	0.00	0.00	0.00	0.00	
6,209.30	0.00	0.00	5,765.00	506.08	2,047.88	2.00	-2.00	0.00	180.00	TR 324-21-597 MVRI
9,876.30	0.00	0.00	9,432.00	506.08	2,047.88	0.00	0.00	0.00	0.00	TR 324-21-597 PBHL

Database:	Grand Junction District	Local Co-ordinate Reference:	Well TR 324-21-597 - Slot A3
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 324-21-597	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	76.12	200.00	0.13	0.51	0.53	2.00	2.00	0.00	
300.00	3.10	76.12	299.92	1.01	4.07	4.19	2.00	2.00	0.00	
400.00	5.10	76.12	399.66	2.72	11.01	11.34	2.00	2.00	0.00	
500.00	7.10	76.12	499.09	5.27	21.33	21.97	2.00	2.00	0.00	
600.00	9.10	76.12	598.09	8.65	35.00	36.06	2.00	2.00	0.00	
700.00	11.10	76.12	696.53	12.86	52.03	53.59	2.00	2.00	0.00	
800.00	13.10	76.12	794.31	17.89	72.38	74.55	2.00	2.00	0.00	
900.00	15.10	76.12	891.29	23.73	96.02	98.91	2.00	2.00	0.00	
1,000.00	17.10	76.12	987.36	30.38	122.95	126.64	2.00	2.00	0.00	
1,100.00	19.10	76.12	1,082.41	37.84	153.10	157.71	2.00	2.00	0.00	
1,200.00	21.10	76.12	1,176.31	46.08	186.46	192.07	2.00	2.00	0.00	
1,300.00	23.10	76.12	1,268.96	55.11	222.99	229.69	2.00	2.00	0.00	
1,400.00	25.10	76.12	1,360.24	64.90	262.62	270.53	2.00	2.00	0.00	
1,455.13	26.20	76.12	1,409.94	70.63	285.79	294.39	2.00	2.00	0.00	
1,500.00	26.20	76.12	1,450.20	75.38	305.03	314.20	0.00	0.00	0.00	
1,600.00	26.20	76.12	1,539.92	85.97	347.89	358.36	0.00	0.00	0.00	
1,700.00	26.20	76.12	1,629.64	96.57	390.76	402.51	0.00	0.00	0.00	
1,800.00	26.20	76.12	1,719.37	107.16	433.62	446.67	0.00	0.00	0.00	
1,900.00	26.20	76.12	1,809.09	117.75	476.49	490.82	0.00	0.00	0.00	
2,000.00	26.20	76.12	1,898.82	128.34	519.35	534.98	0.00	0.00	0.00	
2,100.00	26.20	76.12	1,988.54	138.94	562.22	579.13	0.00	0.00	0.00	
2,200.00	26.20	76.12	2,078.26	149.53	605.08	623.29	0.00	0.00	0.00	
2,300.00	26.20	76.12	2,167.99	160.12	647.95	667.44	0.00	0.00	0.00	
2,400.00	26.20	76.12	2,257.71	170.72	690.81	711.59	0.00	0.00	0.00	
2,442.67	26.20	76.12	2,296.00	175.24	709.11	730.44	0.00	0.00	0.00	
Wasatch										
2,500.00	26.20	76.12	2,347.44	181.31	733.68	755.75	0.00	0.00	0.00	
2,600.00	26.20	76.12	2,437.16	191.90	776.54	799.90	0.00	0.00	0.00	
2,692.00	26.20	76.12	2,519.71	201.65	815.98	840.53	0.00	0.00	0.00	
9 5/8" Surface Casing										
2,700.00	26.20	76.12	2,526.88	202.50	819.41	844.06	0.00	0.00	0.00	
2,800.00	26.20	76.12	2,616.61	213.09	862.27	888.21	0.00	0.00	0.00	
2,900.00	26.20	76.12	2,706.33	223.68	905.14	932.37	0.00	0.00	0.00	
3,000.00	26.20	76.12	2,796.05	234.28	948.00	976.52	0.00	0.00	0.00	
3,100.00	26.20	76.12	2,885.78	244.87	990.87	1,020.68	0.00	0.00	0.00	
3,200.00	26.20	76.12	2,975.50	255.46	1,033.73	1,064.83	0.00	0.00	0.00	
3,300.00	26.20	76.12	3,065.23	266.05	1,076.60	1,108.99	0.00	0.00	0.00	
3,400.00	26.20	76.12	3,154.95	276.65	1,119.46	1,153.14	0.00	0.00	0.00	
3,500.00	26.20	76.12	3,244.67	287.24	1,162.33	1,197.30	0.00	0.00	0.00	
3,600.00	26.20	76.12	3,334.40	297.83	1,205.19	1,241.45	0.00	0.00	0.00	
3,700.00	26.20	76.12	3,424.12	308.43	1,248.06	1,285.60	0.00	0.00	0.00	
3,800.00	26.20	76.12	3,513.85	319.02	1,290.92	1,329.76	0.00	0.00	0.00	
3,900.00	26.20	76.12	3,603.57	329.61	1,333.79	1,373.91	0.00	0.00	0.00	
4,000.00	26.20	76.12	3,693.29	340.21	1,376.65	1,418.07	0.00	0.00	0.00	
4,100.00	26.20	76.12	3,783.02	350.80	1,419.52	1,462.22	0.00	0.00	0.00	
4,200.00	26.20	76.12	3,872.74	361.39	1,462.39	1,506.38	0.00	0.00	0.00	
4,300.00	26.20	76.12	3,962.46	371.98	1,505.25	1,550.53	0.00	0.00	0.00	
4,400.00	26.20	76.12	4,052.19	382.58	1,548.12	1,594.69	0.00	0.00	0.00	
4,500.00	26.20	76.12	4,141.91	393.17	1,590.98	1,638.84	0.00	0.00	0.00	

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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 324-21-597	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)
4,549.14	26.20	76.12	4,186.00	398.38	1,612.04	1,660.54	0.00	0.00	0.00
Top "G" Sand									
4,600.00	26.20	76.12	4,231.64	403.76	1,633.85	1,683.00	0.00	0.00	0.00
4,604.86	26.20	76.12	4,236.00	404.28	1,635.93	1,685.14	0.00	0.00	0.00
Base "G" Sand									
4,700.00	26.20	76.12	4,321.36	414.36	1,676.71	1,727.15	0.00	0.00	0.00
4,718.55	26.20	76.12	4,338.00	416.32	1,684.66	1,735.34	0.00	0.00	0.00
Fort Union									
4,800.00	26.20	76.12	4,411.08	424.95	1,719.58	1,771.31	0.00	0.00	0.00
4,899.17	26.20	76.12	4,500.06	435.45	1,762.09	1,815.09	0.00	0.00	0.00
4,900.00	26.19	76.12	4,500.81	435.54	1,762.44	1,815.46	2.00	-2.00	0.00
5,000.00	24.19	76.12	4,591.30	445.75	1,803.75	1,858.01	2.00	-2.00	0.00
5,100.00	22.19	76.12	4,683.21	455.20	1,841.97	1,897.38	2.00	-2.00	0.00
5,200.00	20.19	76.12	4,776.45	463.87	1,877.05	1,933.52	2.00	-2.00	0.00
5,300.00	18.19	76.12	4,870.89	471.75	1,908.96	1,966.38	2.00	-2.00	0.00
5,400.00	16.19	76.12	4,966.42	478.84	1,937.64	1,995.93	2.00	-2.00	0.00
5,500.00	14.19	76.12	5,062.93	485.12	1,963.07	2,022.12	2.00	-2.00	0.00
5,600.00	12.19	76.12	5,160.28	490.59	1,985.21	2,044.93	2.00	-2.00	0.00
5,700.00	10.19	76.12	5,258.38	495.25	2,004.04	2,064.33	2.00	-2.00	0.00
5,800.00	8.19	76.12	5,357.09	499.08	2,019.54	2,080.30	2.00	-2.00	0.00
5,900.00	6.19	76.12	5,456.30	502.08	2,031.68	2,092.80	2.00	-2.00	0.00
6,000.00	4.19	76.12	5,555.89	504.25	2,040.46	2,101.84	2.00	-2.00	0.00
6,100.00	2.19	76.12	5,655.73	505.58	2,045.85	2,107.40	2.00	-2.00	0.00
6,109.28	2.00	76.12	5,665.00	505.66	2,046.18	2,107.74	2.00	-2.00	0.00
Ohio Creek									
6,200.00	0.19	76.12	5,755.70	506.08	2,047.86	2,109.47	2.00	-2.00	0.00
6,209.30	0.00	0.00	5,765.00	506.08	2,047.88	2,109.48	2.00	-2.00	-818.54
Mesaverde - TR 324-21-597 MVRD									
6,300.00	0.00	0.00	5,855.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
6,400.00	0.00	0.00	5,955.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
6,500.00	0.00	0.00	6,055.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
6,600.00	0.00	0.00	6,155.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
6,700.00	0.00	0.00	6,255.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
6,800.00	0.00	0.00	6,355.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
6,900.00	0.00	0.00	6,455.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
7,000.00	0.00	0.00	6,555.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
7,028.30	0.00	0.00	6,584.00	506.08	2,047.88	2,109.48	0.00	0.00	0.00
Top Gas									
7,100.00	0.00	0.00	6,655.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
7,200.00	0.00	0.00	6,755.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
7,300.00	0.00	0.00	6,855.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
7,400.00	0.00	0.00	6,955.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
7,500.00	0.00	0.00	7,055.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
7,600.00	0.00	0.00	7,155.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
7,700.00	0.00	0.00	7,255.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
7,800.00	0.00	0.00	7,355.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
7,900.00	0.00	0.00	7,455.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
8,000.00	0.00	0.00	7,555.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
8,100.00	0.00	0.00	7,655.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
8,200.00	0.00	0.00	7,755.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00
8,300.00	0.00	0.00	7,855.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00

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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 324-21-597	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)	
8,400.00	0.00	0.00	7,955.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
8,500.00	0.00	0.00	8,055.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
8,600.00	0.00	0.00	8,155.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
8,623.30	0.00	0.00	8,179.00	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
Cameo Coals										
8,700.00	0.00	0.00	8,255.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
8,800.00	0.00	0.00	8,355.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
8,900.00	0.00	0.00	8,455.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
9,000.00	0.00	0.00	8,555.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
9,009.30	0.00	0.00	8,565.00	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
Rollins SS										
9,100.00	0.00	0.00	8,655.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
9,183.30	0.00	0.00	8,739.00	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
Cozzette										
9,200.00	0.00	0.00	8,755.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
9,300.00	0.00	0.00	8,855.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
9,398.30	0.00	0.00	8,954.00	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
Corcoran										
9,400.00	0.00	0.00	8,955.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
9,500.00	0.00	0.00	9,055.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
9,576.30	0.00	0.00	9,132.00	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
Sego										
9,600.00	0.00	0.00	9,155.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
9,700.00	0.00	0.00	9,255.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
9,800.00	0.00	0.00	9,355.70	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
9,876.30	0.00	0.00	9,432.00	506.08	2,047.88	2,109.48	0.00	0.00	0.00	
TR 324-21-597 PBHL										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
TR 324-21-597 MVRD	0.00	0.00	5,765.00	506.08	2,047.88	1,653,678.35	2,217,129.73	39.5952700	-108.2785150
- hit/miss target									
- Shape									
- plan hits target center									
- Circle (radius 25.00)									
TR 324-21-597 PBHL	0.00	0.00	9,432.00	506.08	2,047.88	1,653,678.35	2,217,129.73	39.5952700	-108.2785150
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
2,692.00	2,519.71	9 5/8" Surface Casing	9.62	13.50	

Database:	Grand Junction District	Local Co-ordinate Reference:	Well TR 324-21-597 - Slot A3
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 324-21-597	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 11Aug2016 jcsdi		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,442.67	2,296.00	Wasatch		0.00	0.00
4,549.14	4,186.00	Top "G" Sand		0.00	0.00
4,604.86	4,236.00	Base "G" Sand		0.00	0.00
4,718.55	4,338.00	Fort Union		0.00	0.00
6,109.28	5,665.00	Ohio Creek		0.00	0.00
6,209.30	5,765.00	Mesaverde		0.00	0.00
7,028.30	6,584.00	Top Gas		0.00	0.00
8,623.30	8,179.00	Cameo Coals		0.00	0.00
9,009.30	8,565.00	Rollins SS		0.00	0.00
9,183.30	8,739.00	Cozzette		0.00	0.00
9,398.30	8,954.00	Corcoran		0.00	0.00
9,576.30	9,132.00	Sego		0.00	0.00