

Sec 8, T6S, R94W
RWF 521-8
Q201006 & RM-200803
Plan #1

PROJECT DETAILS: Garfield County, CO

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Central Zone
System Datum: Mean Sea Level



Company Name: Terra Energy Partners, LLP
RWF 521-8
Garfield County, CO
Rig: KB=24' @ 6003.6usft (H&P #318)
Created by: Chase Chambers
Date: 3:58, November 08 2020

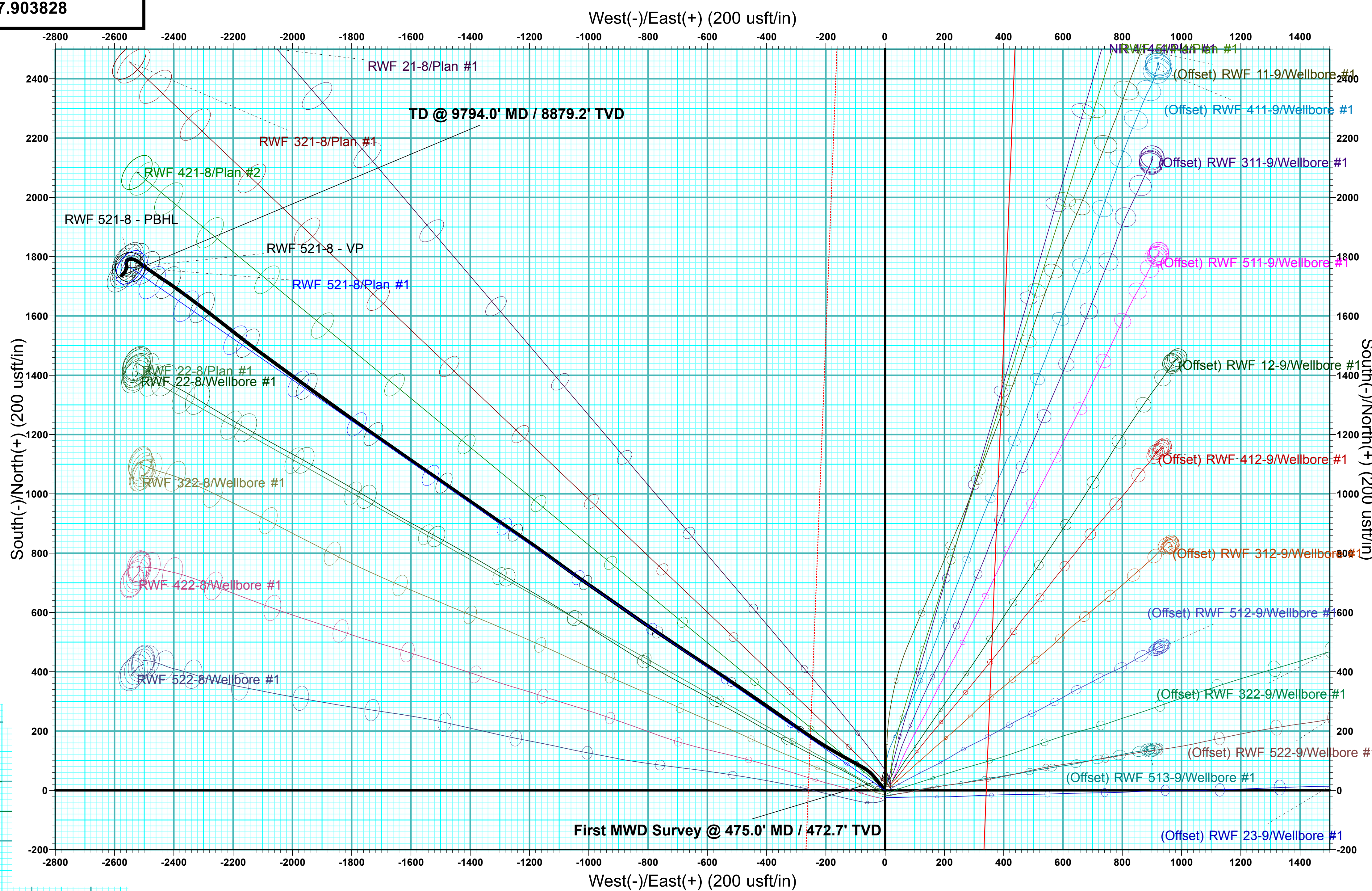
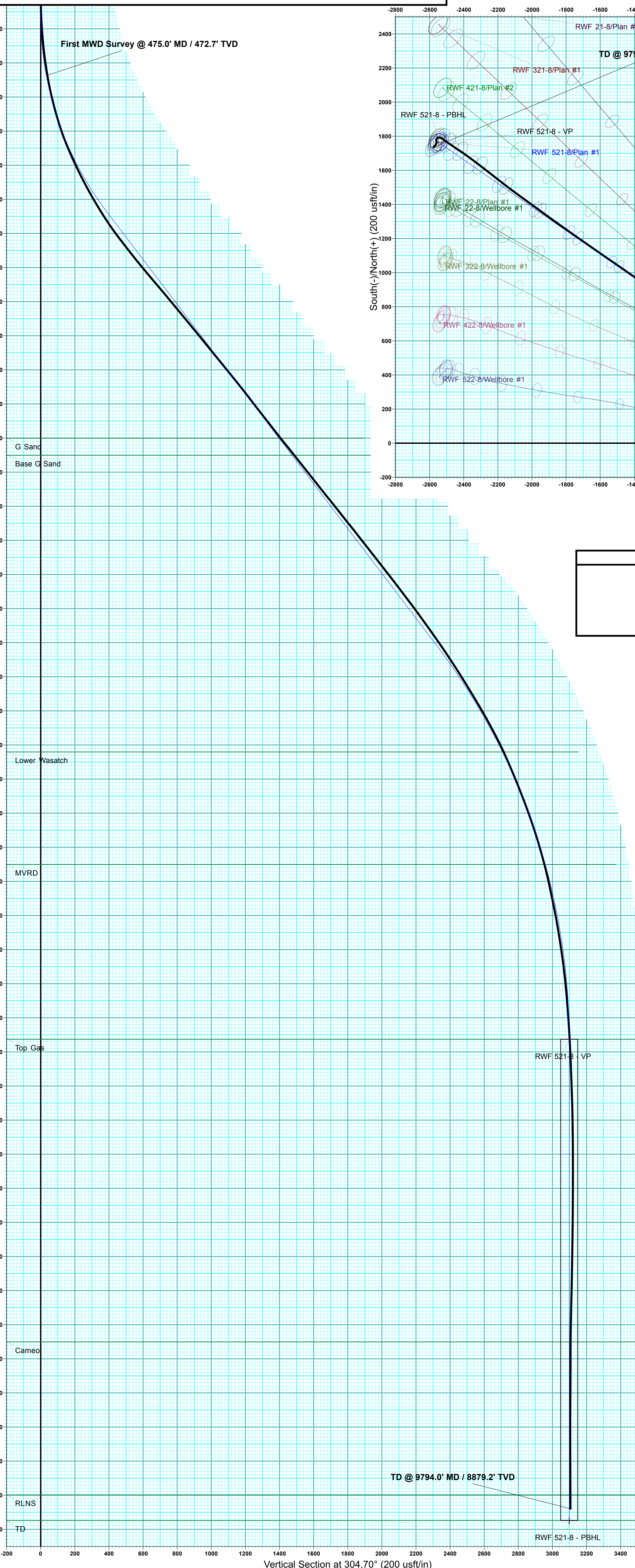
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
RWF 521-8 - VP	6126.0	1764.2	-2547.4	1632093.15	2319634.57	39.544074	-107.912861
RWF 521-8 - PBHL	8948.0	1764.2	-2547.4	1632093.15	2319634.57	39.544074	-107.912861

WELL DETAILS: RWF 521-8

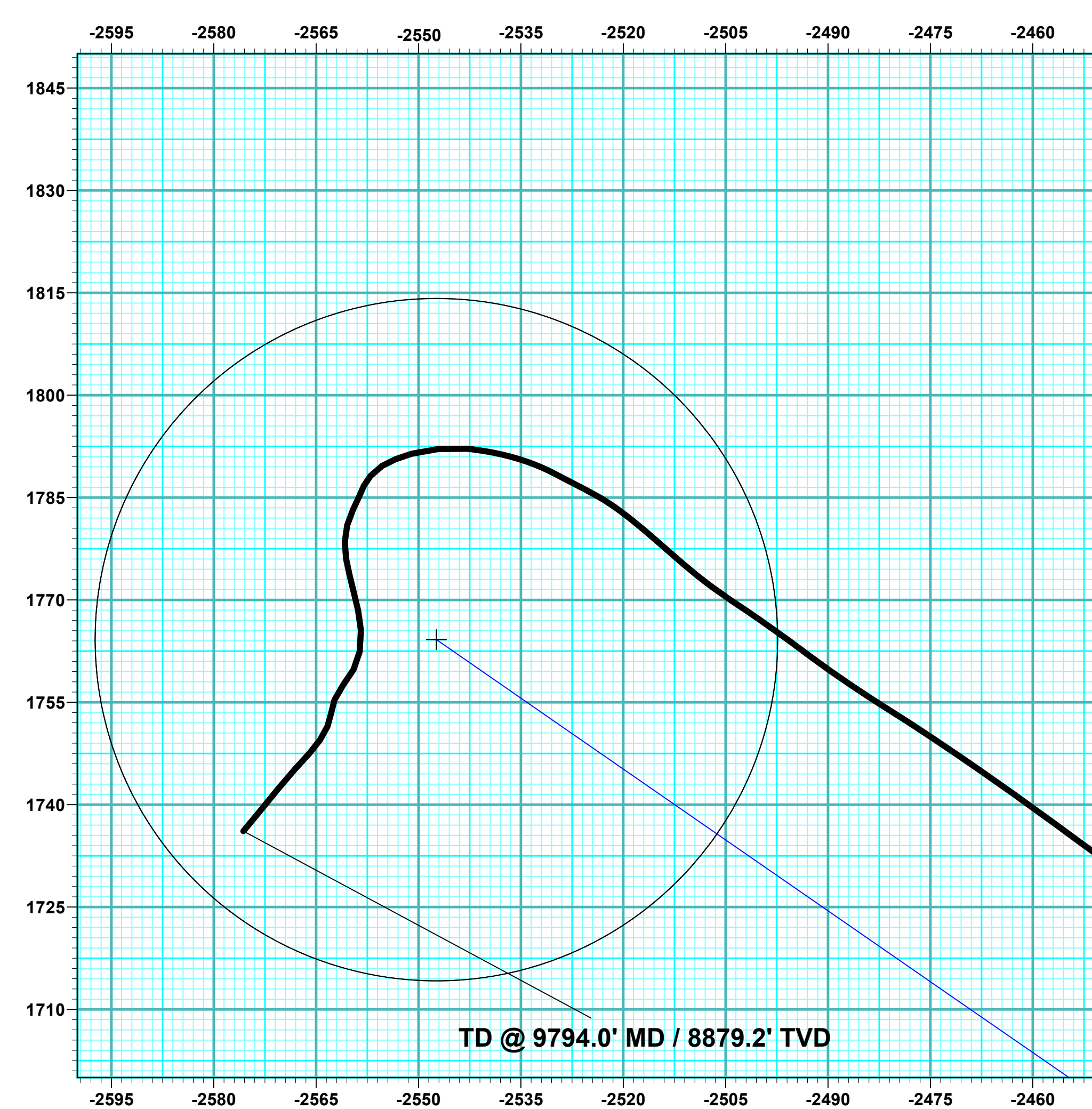
Ground Elevation: 5979.6

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1630262.20	2322134.37	39.539231	-107.903828



ANNOTATIONS

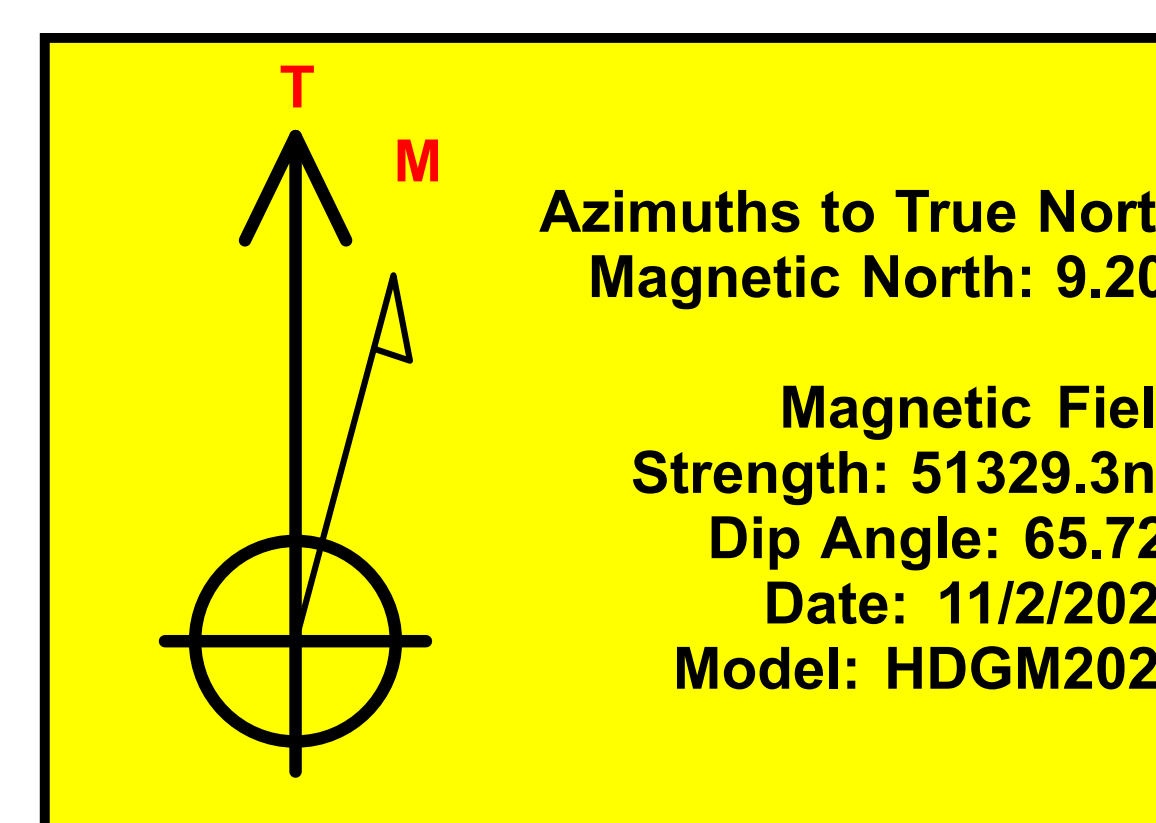
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSecDeparture	Annotation
475.0	9.78	320.85	472.7	31.4	-25.5	38.8 40.4	First MWD Survey @ 475.0' MD / 472.7' TVD
9794.0	2.77	219.61	8879.2	1736.1	-2575.7	3105.9 3190.2	TD @ 9794.0' MD / 8879.2' TVD



ZOOM PLOT: 15' Scale

DESIGN ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSecDeparture	Annotation
120.0	0.00	0.00	120.0	0.0	0.0	0.0 0.0	Start Build 3.00
1361.6	37.25	304.70	1276.0	221.8	-320.3	389.6 389.6	EOB @ 37.25° Inc / 304.70° Azm
4550.0	37.25	304.70	3814.0	1320.6	-1906.8	2319.5 2319.5	Start Drop -1.50
7033.3	0.00	0.00	6126.0	1764.2	-2547.4	3098.6 3098.6	EOD @ Vertical
9855.3	0.00	0.00	8948.0	1764.2	-2547.4	3098.6 3098.6	TD @ 9855.3' MD / 8948.0' TVD





Terra Energy Partners, LLP

Garfield County, CO

Sec 8, T6S, R94W

RWF 521-8

Wellbore #1

Design: Wellbore #1

QES Survey Report

08 November, 2020



Company:	Terra Energy Partners, LLP	Local Co-ordinate Reference:	Well RWF 521-8
Project:	Garfield County, CO	TVD Reference:	KB=24' @ 6003.6usft (H&P #318)
Site:	Sec 8, T6S, R94W	MD Reference:	KB=24' @ 6003.6usft (H&P #318)
Well:	RWF 521-8	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Garfield County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	Sec 8, T6S, R94W				
Site Position:		Northing:	1,630,278.47 usft	Latitude:	39.539277
From:	Lat/Long	Easting:	2,322,152.86 usft	Longitude:	-107.903764
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.52 °

Well	RWF 521-8					
Well Position	+N/-S	0.0 usft	Northing:	1,630,262.19 usft	Latitude:	39.539231
	+E/-W	0.0 usft	Easting:	2,322,134.38 usft	Longitude:	-107.903828
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	5,979.6 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2020	11/2/2020	9.20	65.72	51,329.30000000

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	304.70	

Survey Program	Date	11/8/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
475.0	9,794.0	QES MWD Surveys (Wellbore #1)	OWSG (REV5) MWD HDGM	OWSG MWD - Standard	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
First MWD Survey @ 475.0' MD / 472.7' TVD										
475.0	9.78	320.85	472.7	31.4	-25.5	38.8	2.06	2.06	0.00	
566.0	12.90	321.42	561.9	45.3	-36.7	56.0	3.43	3.43	0.63	
657.0	14.70	311.72	650.3	60.9	-51.7	77.2	3.21	1.98	-10.66	
747.0	16.76	300.95	736.9	75.2	-71.4	101.5	3.96	2.29	-11.97	
837.0	20.11	298.01	822.3	89.1	-96.2	129.8	3.86	3.72	-3.27	
928.0	23.05	298.96	906.9	105.1	-125.6	163.1	3.25	3.23	1.04	
980.0	24.35	298.97	954.5	115.2	-143.9	183.9	2.50	2.50	0.02	
1,148.0	27.82	301.88	1,105.4	152.7	-207.5	257.5	2.20	2.07	1.73	
1,242.0	29.75	303.63	1,187.8	177.2	-245.5	302.7	2.24	2.05	1.86	

Company:	Terra Energy Partners, LLP	Local Co-ordinate Reference:	Well RWF 521-8
Project:	Garfield County, CO	TVD Reference:	KB=24' @ 6003.6usft (H&P #318)
Site:	Sec 8, T6S, R94W	MD Reference:	KB=24' @ 6003.6usft (H&P #318)
Well:	RWF 521-8	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

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)	
1,336.0	31.73	304.60	1,268.6	204.2	-285.3	350.8	2.17	2.11	1.03	
1,431.0	34.23	305.48	1,348.3	233.9	-327.6	402.5	2.68	2.63	0.93	
1,525.0	37.44	305.22	1,424.5	265.7	-372.5	457.5	3.42	3.41	-0.28	
1,619.0	37.92	304.25	1,498.9	298.5	-419.7	515.0	0.81	0.51	-1.03	
1,714.0	39.02	304.25	1,573.2	331.7	-468.6	574.1	1.16	1.16	0.00	
1,808.0	40.30	304.16	1,645.6	365.5	-518.2	634.1	1.36	1.36	-0.10	
1,902.0	40.30	304.07	1,717.3	399.5	-568.5	694.9	0.06	0.00	-0.10	
1,996.0	39.55	303.02	1,789.4	432.9	-618.8	755.2	1.07	-0.80	-1.12	
2,090.0	39.55	303.90	1,861.9	465.9	-668.7	815.0	0.60	0.00	0.94	
2,184.0	39.55	304.16	1,934.3	499.4	-718.3	874.9	0.18	0.00	0.28	
2,278.0	38.94	303.46	2,007.1	532.5	-767.7	934.3	0.80	-0.65	-0.74	
2,372.0	39.51	305.04	2,080.0	565.9	-816.9	993.8	1.22	0.61	1.68	
2,467.0	38.80	304.95	2,153.6	600.3	-866.0	1,053.7	0.75	-0.75	-0.09	
2,561.0	39.11	305.04	2,226.7	634.2	-914.4	1,112.8	0.34	0.33	0.10	
2,655.0	38.54	304.69	2,299.9	667.9	-962.8	1,171.8	0.65	-0.61	-0.37	
2,749.0	37.31	304.78	2,374.1	700.8	-1,010.2	1,229.5	1.31	-1.31	0.10	
2,843.0	38.01	305.74	2,448.5	734.0	-1,057.1	1,287.0	0.97	0.74	1.02	
2,937.0	38.06	306.09	2,522.5	768.0	-1,104.0	1,344.9	0.24	0.05	0.37	
3,031.0	38.14	305.83	2,596.5	802.0	-1,151.0	1,402.9	0.19	0.09	-0.28	
3,125.0	39.20	304.86	2,669.9	836.0	-1,198.9	1,461.6	1.30	1.13	-1.03	
3,219.0	38.01	304.07	2,743.4	869.2	-1,247.3	1,520.2	1.37	-1.27	-0.84	
3,314.0	38.62	304.78	2,817.9	902.5	-1,295.8	1,579.1	0.79	0.64	0.75	
3,408.0	38.10	304.78	2,891.6	935.8	-1,343.8	1,637.5	0.55	-0.55	0.00	
3,502.0	39.16	304.95	2,965.0	969.3	-1,391.9	1,696.2	1.13	1.13	0.18	
3,596.0	37.88	304.86	3,038.6	1,002.8	-1,439.9	1,754.7	1.36	-1.36	-0.10	
3,691.0	39.02	304.68	3,113.0	1,036.5	-1,488.4	1,813.8	1.21	1.20	-0.19	
3,785.0	37.62	304.51	3,186.7	1,069.6	-1,536.4	1,872.0	1.49	-1.49	-0.18	
3,879.0	38.50	304.69	3,260.7	1,102.5	-1,584.1	1,930.0	0.94	0.94	0.19	
3,974.0	37.62	304.95	3,335.5	1,135.9	-1,632.2	1,988.6	0.94	-0.93	0.27	
4,068.0	38.23	304.95	3,409.7	1,169.0	-1,679.5	2,046.3	0.65	0.65	0.00	
4,162.0	36.87	304.60	3,484.2	1,201.7	-1,726.6	2,103.6	1.46	-1.45	-0.37	
4,256.0	37.44	305.57	3,559.1	1,234.3	-1,773.1	2,160.4	0.87	0.61	1.03	
4,350.0	35.82	305.39	3,634.6	1,266.9	-1,818.7	2,216.5	1.73	-1.72	-0.19	
4,445.0	35.77	306.01	3,711.6	1,299.3	-1,863.8	2,272.0	0.39	-0.05	0.65	
4,539.0	34.89	305.92	3,788.3	1,331.2	-1,907.8	2,326.4	0.94	-0.94	-0.10	
4,634.0	33.75	305.83	3,866.8	1,362.6	-1,951.2	2,379.9	1.20	-1.20	-0.09	
4,728.0	32.96	306.09	3,945.3	1,393.0	-1,993.1	2,431.6	0.85	-0.84	0.28	
4,823.0	31.77	305.92	4,025.5	1,422.9	-2,034.2	2,482.4	1.26	-1.25	-0.18	
4,917.0	31.03	306.18	4,105.8	1,451.7	-2,073.8	2,531.4	0.80	-0.79	0.28	
5,012.0	30.67	306.36	4,187.3	1,480.5	-2,113.1	2,580.1	0.39	-0.38	0.19	
5,106.0	28.39	307.59	4,269.1	1,508.4	-2,150.1	2,626.4	2.51	-2.43	1.31	
5,201.0	27.82	307.94	4,352.9	1,535.8	-2,185.5	2,671.1	0.62	-0.60	0.37	
5,295.0	24.43	308.20	4,437.3	1,561.3	-2,218.1	2,712.4	3.61	-3.61	0.28	

Company:	Terra Energy Partners, LLP	Local Co-ordinate Reference:	Well RWF 521-8
Project:	Garfield County, CO	TVD Reference:	KB=24' @ 6003.6usft (H&P #318)
Site:	Sec 8, T6S, R94W	MD Reference:	KB=24' @ 6003.6usft (H&P #318)
Well:	RWF 521-8	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

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)	
5,389.0	23.33	307.59	4,523.2	1,584.7	-2,248.1	2,750.4	1.20	-1.17	-0.65	
5,484.0	22.37	308.12	4,610.8	1,607.3	-2,277.2	2,787.2	1.03	-1.01	0.56	
5,578.0	21.09	307.24	4,698.1	1,628.6	-2,304.8	2,822.0	1.41	-1.36	-0.94	
5,672.0	20.08	307.15	4,786.1	1,648.6	-2,331.1	2,855.0	1.07	-1.07	-0.10	
5,766.0	18.63	306.36	4,874.8	1,667.2	-2,356.0	2,886.1	1.57	-1.54	-0.84	
5,860.0	16.88	305.74	4,964.3	1,684.1	-2,379.2	2,914.8	1.87	-1.86	-0.66	
5,955.0	15.34	304.95	5,055.6	1,699.3	-2,400.7	2,941.1	1.64	-1.62	-0.83	
6,049.0	13.58	303.90	5,146.6	1,712.6	-2,420.1	2,964.6	1.89	-1.87	-1.12	
6,143.0	11.82	301.88	5,238.3	1,723.9	-2,437.4	2,985.2	1.93	-1.87	-2.15	
6,237.0	11.95	306.45	5,330.3	1,734.7	-2,453.4	3,004.6	1.01	0.14	4.86	
6,331.0	10.24	304.78	5,422.5	1,745.3	-2,468.1	3,022.7	1.85	-1.82	-1.78	
6,425.0	9.27	302.23	5,515.2	1,754.1	-2,481.4	3,038.6	1.13	-1.03	-2.71	
6,519.0	8.39	306.71	5,608.0	1,762.2	-2,493.3	3,053.0	1.19	-0.94	4.77	
6,613.0	6.86	303.63	5,701.2	1,769.4	-2,503.4	3,065.5	1.68	-1.63	-3.28	
6,707.0	5.98	311.28	5,794.6	1,775.8	-2,511.8	3,076.0	1.30	-0.94	8.14	
6,801.0	4.75	309.87	5,888.2	1,781.5	-2,518.5	3,084.7	1.32	-1.31	-1.50	
6,895.0	4.26	297.83	5,981.9	1,785.6	-2,524.5	3,092.0	1.13	-0.52	-12.81	
6,990.0	3.30	297.22	6,076.7	1,788.5	-2,530.1	3,098.3	1.01	-1.01	-0.64	
7,084.0	2.90	287.63	6,170.6	1,790.5	-2,534.8	3,103.2	0.70	-0.43	-10.20	
7,178.0	2.55	280.87	6,264.5	1,791.6	-2,539.1	3,107.4	0.50	-0.37	-7.19	
7,272.0	2.20	274.98	6,358.4	1,792.1	-2,542.9	3,110.9	0.45	-0.37	-6.27	
7,367.0	2.90	265.14	6,453.3	1,792.1	-2,547.1	3,114.3	0.87	0.74	-10.36	
7,461.0	1.89	252.48	6,547.2	1,791.4	-2,551.0	3,117.1	1.21	-1.07	-13.47	
7,555.0	1.19	248.97	6,641.2	1,790.6	-2,553.4	3,118.6	0.75	-0.74	-3.73	
7,649.0	1.49	239.56	6,735.1	1,789.6	-2,555.3	3,119.7	0.39	0.32	-10.01	
7,743.0	1.32	216.97	6,829.1	1,788.1	-2,557.0	3,120.2	0.61	-0.18	-24.03	
7,837.0	0.79	208.18	6,923.1	1,786.7	-2,558.0	3,120.2	0.59	-0.56	-9.35	
7,931.0	1.27	201.33	7,017.1	1,785.2	-2,558.7	3,119.9	0.53	0.51	-7.29	
8,025.0	1.45	208.01	7,111.1	1,783.1	-2,559.6	3,119.5	0.25	0.19	7.11	
8,119.0	1.45	192.72	7,205.0	1,780.9	-2,560.4	3,118.9	0.41	0.00	-16.27	
8,213.0	1.58	184.10	7,299.0	1,778.5	-2,560.8	3,117.8	0.28	0.14	-9.17	
8,308.0	1.45	166.61	7,394.0	1,776.0	-2,560.6	3,116.2	0.50	-0.14	-18.41	
8,402.0	1.49	168.81	7,487.9	1,773.7	-2,560.1	3,114.5	0.07	0.04	2.34	
8,496.0	1.71	164.68	7,581.9	1,771.1	-2,559.5	3,112.5	0.26	0.23	-4.39	
8,590.0	1.63	167.84	7,675.9	1,768.4	-2,558.8	3,110.5	0.13	-0.09	3.36	
8,684.0	1.98	175.93	7,769.8	1,765.5	-2,558.4	3,108.5	0.46	0.37	8.61	
8,778.0	1.85	190.78	7,863.8	1,762.4	-2,558.6	3,106.9	0.54	-0.14	15.80	
8,872.0	1.58	208.98	7,957.7	1,759.8	-2,559.5	3,106.1	0.64	-0.29	19.36	
8,966.0	1.67	218.82	8,051.7	1,757.6	-2,561.0	3,106.1	0.31	0.10	10.47	
9,061.0	1.45	200.54	8,146.6	1,755.4	-2,562.3	3,105.9	0.57	-0.23	-19.24	
9,155.0	1.10	185.95	8,240.6	1,753.4	-2,562.8	3,105.2	0.51	-0.37	-15.52	
9,249.0	1.32	202.74	8,334.6	1,751.5	-2,563.3	3,104.5	0.44	0.23	17.86	
9,343.0	1.49	214.78	8,428.6	1,749.5	-2,564.4	3,104.3	0.36	0.18	12.81	

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Site:	Sec 8, T6S, R94W	MD Reference:	KB=24' @ 6003.6usft (H&P #318)
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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

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)	
9,438.0	1.58	222.07	8,523.5	1,747.5	-2,566.0	3,104.4	0.23	0.09	7.67	
9,532.0	2.24	222.33	8,617.5	1,745.2	-2,568.1	3,104.9	0.70	0.70	0.28	
9,627.0	2.50	218.82	8,712.4	1,742.2	-2,570.7	3,105.3	0.31	0.27	-3.69	
9,722.0	2.77	219.61	8,807.3	1,738.8	-2,573.4	3,105.6	0.29	0.28	0.83	
TD @ 9794.0' MD / 8879.2' TVD										
9,794.0	2.77	219.61	8,879.2	1,736.1	-2,575.7	3,105.9	0.00	0.00	0.00	

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
475.0	472.7	31.4	-25.5	First MWD Survey @ 475.0' MD / 472.7' TVD	
9,794.0	8,879.2	1,736.1	-2,575.7	TD @ 9794.0' MD / 8879.2' TVD	