

Sec 8, T6S, R94W
RWF 522-8
Q200945 & RM-200762
Plan #1

Company Name: Terra Energy Partners, LLP
RWF 522-8
Garfield County, CO
Rig: KB=24' @ 6003.6usft (H&P #318)
Created by: Chase Chambers
Date: 16:08, October 19 2020

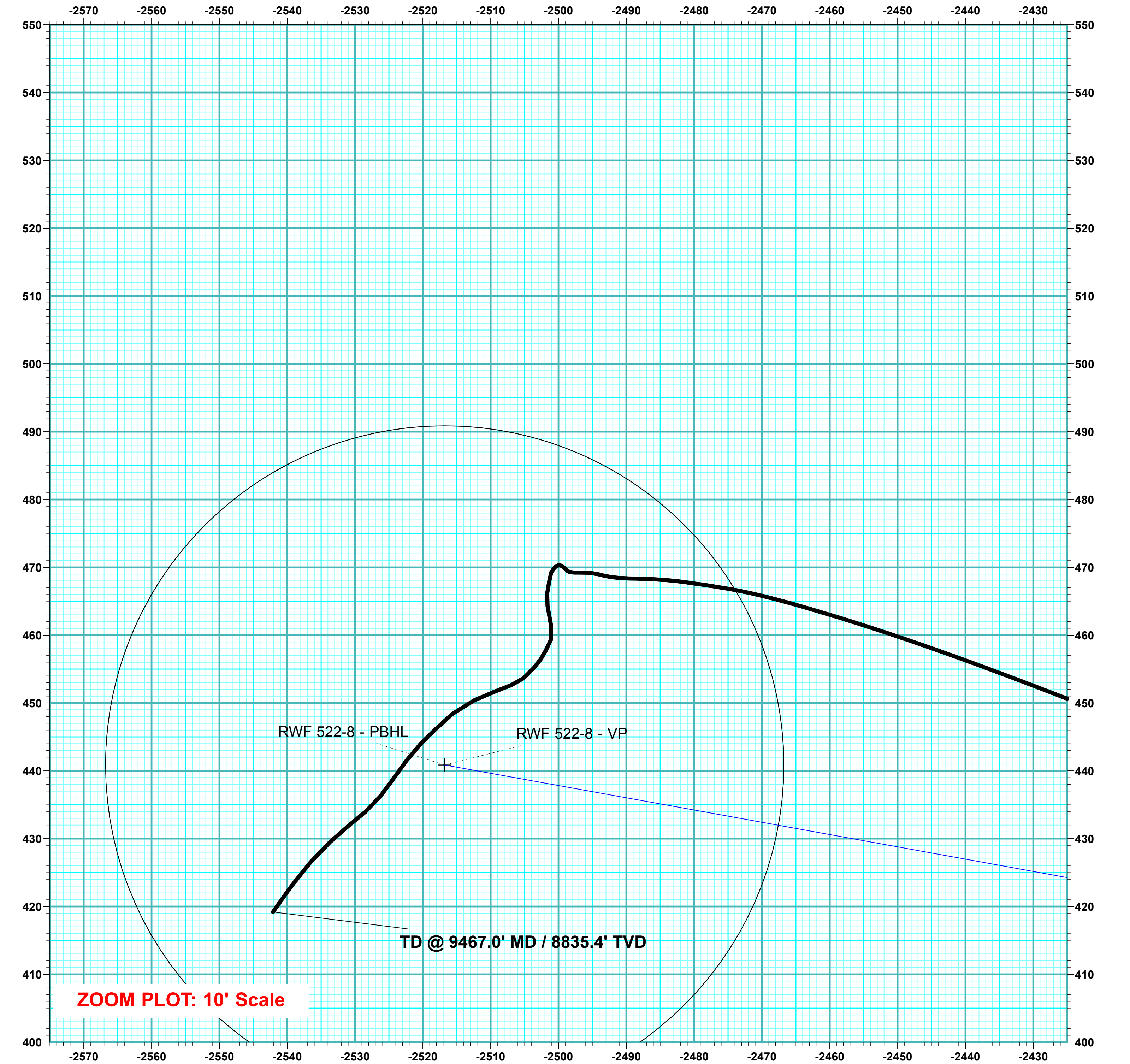
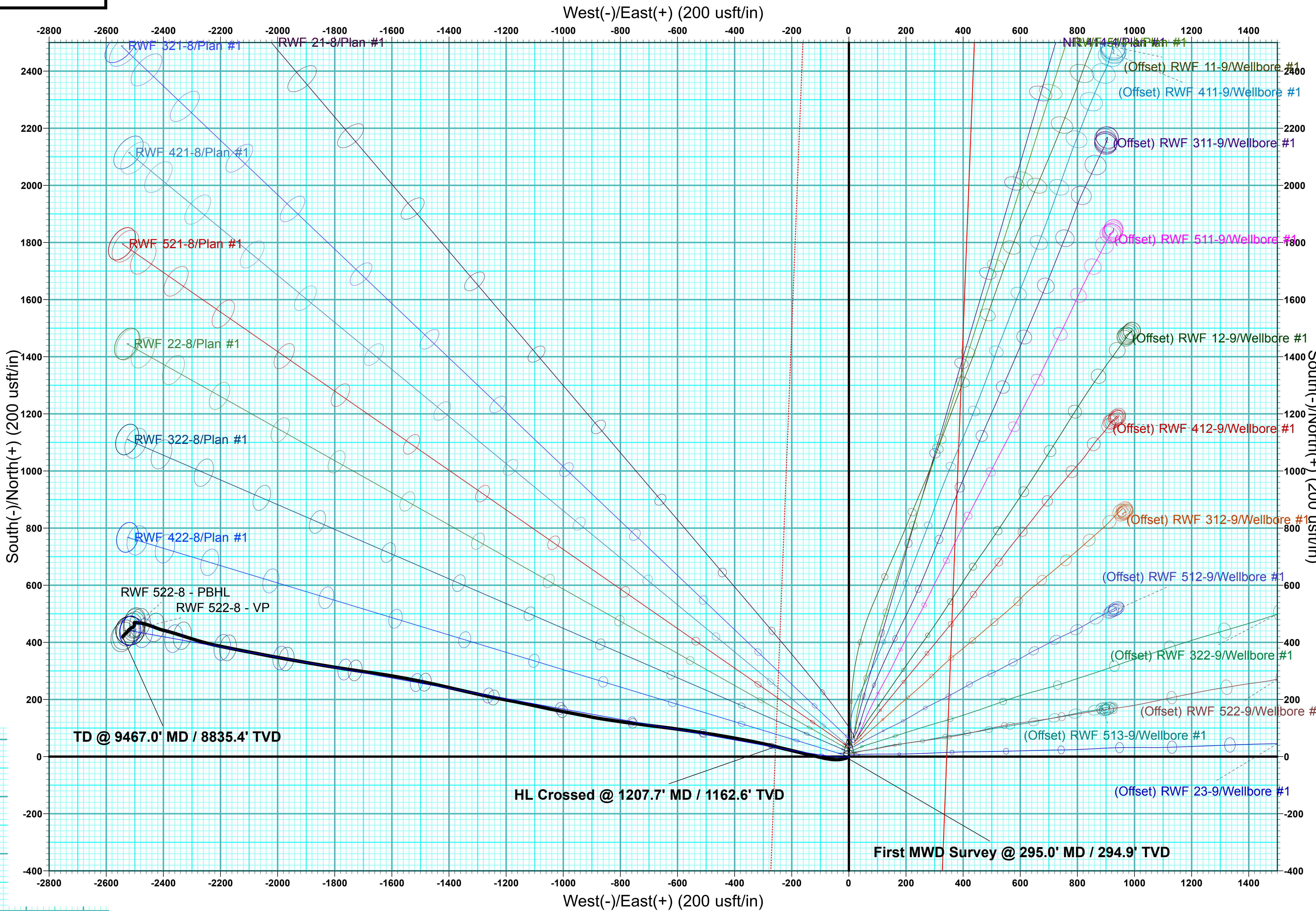
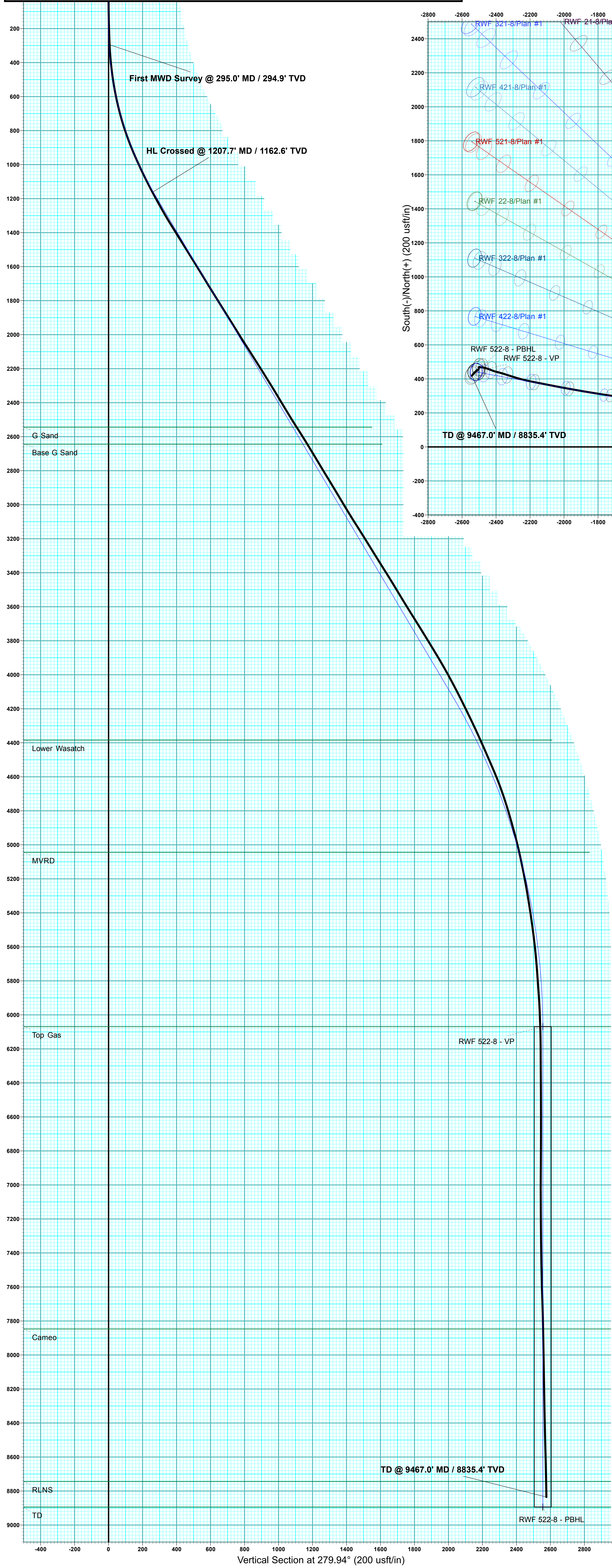
PROJECT DETAILS: Garfield County, CO

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

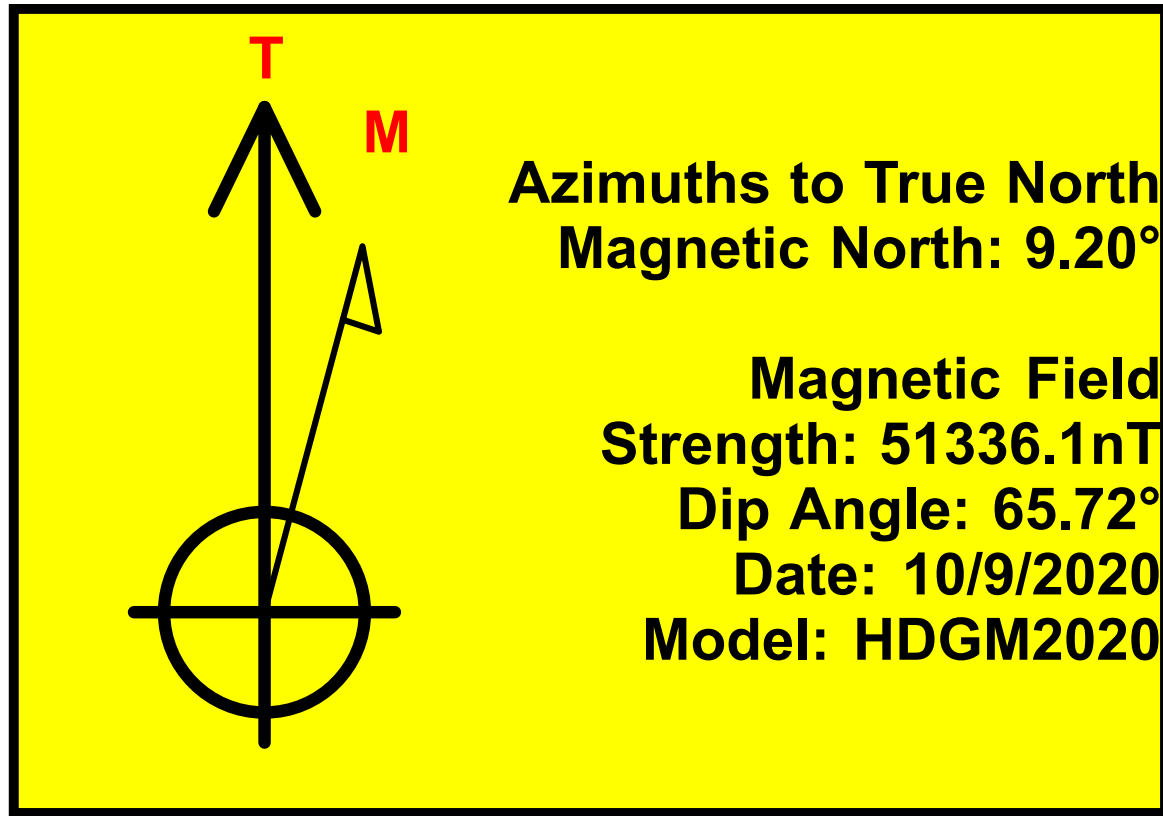


DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
RWF 522-8 - VP	6069.0	440.9	-2516.8	1630738.25	2319626.78	39.540355	-107.912761
RWF 522-8 - PBHL	8894.0	440.9	-2516.8	1630738.25	2319626.78	39.540355	-107.912761

WELL DETAILS: RWF 522-8						
Ground Elevation: 5979.6						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.0	0.0	1630230.95	2322131.01	39.539145	-107.903837	



ANNOTATIONS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSecDeparture	Annotation		
295.0	3.05	241.09	294.9	-3.8	-6.9	6.1	7.8	First MWD Survey @ 295.0' MD / 294.9' TVD	
1207.7	28.00	283.56	1162.6	35.0	-256.4	258.6	263.8	HL Crossed @ 1207.7' MD / 1162.6' TVD	
9467.0	2.29	215.30	8835.4	419.2	-2542.1	2576.3	2622.4	TD @ 9467.0' MD / 8835.4' TVD	



DESIGN ANNOTATIONS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSecDeparture	Annotation		
180.0	0.00	0.00	180.0	0.0	0.0	0.0	0.0	Start Build 3.00	
280.0	3.00	250.00	280.0	-0.9	-2.5	2.3	2.6	EOB @ 3.00° Inc / 250.00° Azm - Build 3°/100'	
1218.3	30.70	280.25	1169.8	34.0	-266.6	268.5	269.7	EOB @ 30.70° Inc / 280.25° Azm	
4647.9	30.70	280.25	4118.6	345.6	-1989.8	2019.6	2020.9	Start Drop -1.50	
6694.8	0.00	0.00	6069.0	440.9	-2516.8	2555.1	2556.4	EOD @ Vertical	
9519.8	0.00	0.00	8894.0	440.9	-2516.8	2555.1	2556.4	TD @ 9519.8' MD / 8894.0' TVD	



Terra Energy Partners, LLP

Garfield County, CO

Sec 8, T6S, R94W

RWF 522-8

Wellbore #1

Design: Wellbore #1

QES Survey Report

19 October, 2020



Company:	Terra Energy Partners, LLP	Local Co-ordinate Reference:	Well RWF 522-8
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 522-8	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 522-8					
Well Position	+N/-S	0.0 usft	Northing:	1,630,230.95 usft	Latitude:	39.539145
	+E/-W	0.0 usft	Easting:	2,322,131.01 usft	Longitude:	-107.903837
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	10/9/2020	9.20	65.72	51,336.10000000

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	279.94	

Survey Program	Date	10/19/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
295.0	9,467.0	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 @ 295.0' MD / 294.9' TVD									
295.0	3.05	241.09	294.9	-3.8	-6.9	6.1	1.03	1.03	0.00
385.0	5.83	254.64	384.6	-6.2	-13.4	12.1	3.28	3.09	15.06
475.0	8.33	257.31	473.9	-8.8	-24.1	22.3	2.80	2.78	2.97
566.0	10.80	267.37	563.6	-10.6	-39.1	36.7	3.27	2.71	11.05
657.0	13.38	275.12	652.6	-10.1	-58.1	55.5	3.34	2.84	8.52
747.0	16.30	281.44	739.6	-6.7	-80.9	78.5	3.71	3.24	7.02
837.0	19.46	283.61	825.2	-0.6	-107.8	106.1	3.59	3.51	2.41
931.0	22.79	282.87	912.9	7.1	-140.8	139.9	3.55	3.54	-0.79
1,147.0	27.00	283.99	1,108.8	28.3	-229.2	230.6	1.96	1.95	0.52

Company:	Terra Energy Partners, LLP	Local Co-ordinate Reference:	Well RWF 522-8
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 522-8	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)
HL Crossed @ 1207.7' MD / 1162.6' TVD									
1,207.7	28.00	283.56	1,162.6	35.0	-256.4	258.6	1.68	1.65	-0.70
1,241.0	28.55	283.34	1,192.0	38.6	-271.8	274.3	1.68	1.65	-0.67
1,335.0	29.73	281.79	1,274.1	48.6	-316.4	320.1	1.49	1.26	-1.65
1,430.0	31.67	280.42	1,355.8	57.9	-364.0	368.6	2.17	2.04	-1.44
1,524.0	32.10	280.47	1,435.6	66.9	-412.9	418.2	0.46	0.46	0.05
1,618.0	31.84	279.26	1,515.3	75.4	-461.9	468.0	0.74	-0.28	-1.29
1,713.0	31.74	278.61	1,596.1	83.2	-511.3	518.0	0.38	-0.11	-0.68
1,807.0	31.24	278.37	1,676.2	90.5	-559.9	567.1	0.55	-0.53	-0.26
1,901.0	32.10	278.02	1,756.2	97.5	-608.7	616.4	0.94	0.91	-0.37
1,995.0	31.75	276.63	1,836.0	103.8	-658.0	666.1	0.87	-0.37	-1.48
2,089.0	32.21	277.89	1,915.7	110.1	-707.4	715.8	0.86	0.49	1.34
2,183.0	31.86	277.04	1,995.4	116.6	-756.9	765.6	0.61	-0.37	-0.90
2,277.0	32.81	278.59	2,074.8	123.5	-806.7	815.9	1.34	1.01	1.65
2,371.0	32.30	278.50	2,154.1	131.0	-856.7	866.4	0.54	-0.54	-0.10
2,466.0	32.02	281.32	2,234.5	139.7	-906.5	917.0	1.61	-0.29	2.97
2,560.0	31.56	281.05	2,314.4	149.3	-955.1	966.5	0.51	-0.49	-0.29
2,654.0	30.80	280.30	2,394.8	158.3	-1,002.9	1,015.2	0.91	-0.81	-0.80
2,748.0	31.45	281.87	2,475.3	167.6	-1,050.6	1,063.7	1.11	0.69	1.67
2,842.0	32.73	282.33	2,554.9	178.1	-1,099.4	1,113.6	1.39	1.36	0.49
2,936.0	31.77	281.37	2,634.4	188.4	-1,148.5	1,163.8	1.16	-1.02	-1.02
3,030.0	30.69	280.78	2,714.8	197.8	-1,196.3	1,212.5	1.19	-1.15	-0.63
3,124.0	31.14	281.19	2,795.5	207.0	-1,243.7	1,260.8	0.53	0.48	0.44
3,218.0	31.65	282.78	2,875.7	217.2	-1,291.6	1,309.7	1.03	0.54	1.69
3,313.0	30.54	282.54	2,957.0	227.9	-1,339.5	1,358.7	1.18	-1.17	-0.25
3,407.0	31.29	283.12	3,037.7	238.6	-1,386.6	1,406.9	0.86	0.80	0.62
3,501.0	32.75	282.55	3,117.4	249.7	-1,435.2	1,456.7	1.59	1.55	-0.61
3,595.0	31.66	282.43	3,196.9	260.5	-1,484.1	1,506.8	1.16	-1.16	-0.13
3,690.0	32.02	280.56	3,277.6	270.5	-1,533.2	1,556.9	1.11	0.38	-1.97
3,784.0	31.87	279.92	3,357.4	279.4	-1,582.1	1,606.6	0.39	-0.16	-0.68
3,878.0	32.10	279.07	3,437.1	287.6	-1,631.2	1,656.4	0.54	0.24	-0.90
3,973.0	30.74	278.05	3,518.2	295.0	-1,680.2	1,705.9	1.54	-1.43	-1.07
4,067.0	31.76	278.25	3,598.5	301.9	-1,728.5	1,754.6	1.09	1.09	0.21
4,161.0	32.39	278.95	3,678.2	309.3	-1,777.8	1,804.5	0.78	0.67	0.74
4,255.0	31.30	279.13	3,758.0	317.1	-1,826.8	1,854.1	1.16	-1.16	0.19
4,349.0	31.66	279.77	3,838.2	325.2	-1,875.2	1,903.2	0.52	0.38	0.68
4,444.0	30.31	280.07	3,919.7	333.6	-1,923.4	1,952.1	1.43	-1.42	0.32
4,538.0	28.89	280.21	4,001.4	341.8	-1,969.1	1,998.5	1.51	-1.51	0.15
4,633.0	27.35	280.02	4,085.2	349.6	-2,013.2	2,043.3	1.62	-1.62	-0.20
4,727.0	26.52	281.26	4,169.0	357.5	-2,055.0	2,085.9	1.07	-0.88	1.32
4,822.0	25.74	281.10	4,254.3	365.6	-2,096.1	2,127.7	0.82	-0.82	-0.17
4,916.0	24.75	281.15	4,339.3	373.3	-2,135.4	2,167.8	1.05	-1.05	0.05
5,011.0	23.56	280.75	4,426.0	380.7	-2,173.6	2,206.7	1.26	-1.25	-0.42

Company:	Terra Energy Partners, LLP	Local Co-ordinate Reference:	Well RWF 522-8
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 522-8	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)	
5,105.0	23.77	282.28	4,512.1	388.3	-2,210.5	2,244.4	0.69	0.22	1.63	
5,202.0	22.14	284.47	4,601.4	397.0	-2,247.3	2,282.1	1.90	-1.68	2.26	
5,296.0	19.55	287.02	4,689.2	406.0	-2,279.5	2,315.4	2.92	-2.76	2.71	
5,391.0	17.09	287.55	4,779.4	414.9	-2,308.0	2,345.0	2.60	-2.59	0.56	
5,485.0	15.95	288.16	4,869.5	423.1	-2,333.5	2,371.5	1.23	-1.21	0.65	
5,579.0	14.63	286.93	4,960.2	430.6	-2,357.1	2,396.1	1.45	-1.40	-1.31	
5,673.0	12.70	285.61	5,051.5	436.8	-2,378.4	2,418.1	2.08	-2.05	-1.40	
5,768.0	11.38	282.71	5,144.4	441.7	-2,397.6	2,437.9	1.53	-1.39	-3.05	
5,862.0	10.28	290.62	5,236.8	446.7	-2,414.5	2,455.4	1.96	-1.17	8.41	
5,956.0	9.44	291.06	5,329.4	452.4	-2,429.6	2,471.2	0.90	-0.89	0.47	
6,050.0	8.56	289.57	5,422.2	457.5	-2,443.4	2,485.7	0.97	-0.94	-1.59	
6,144.0	7.29	287.63	5,515.3	461.7	-2,455.6	2,498.5	1.38	-1.35	-2.06	
6,238.0	6.19	285.52	5,608.7	464.8	-2,466.2	2,509.4	1.20	-1.17	-2.24	
6,333.0	4.56	279.72	5,703.2	466.8	-2,474.9	2,518.3	1.81	-1.72	-6.11	
6,426.0	4.13	277.26	5,796.0	467.9	-2,481.8	2,525.3	0.50	-0.46	-2.65	
6,520.0	4.04	270.67	5,889.7	468.3	-2,488.5	2,532.0	0.51	-0.10	-7.01	
6,614.0	2.15	284.73	5,983.6	468.8	-2,493.5	2,537.0	2.15	-2.01	14.96	
6,709.0	1.93	268.21	6,078.5	469.2	-2,496.8	2,540.4	0.66	-0.23	-17.39	
6,803.0	0.57	318.31	6,172.5	469.5	-2,498.7	2,542.3	1.73	-1.45	53.30	
6,897.0	0.44	305.30	6,266.5	470.1	-2,499.3	2,543.0	0.18	-0.14	-13.84	
6,991.0	0.35	279.20	6,360.5	470.3	-2,499.9	2,543.6	0.21	-0.10	-27.77	
7,085.0	0.62	223.39	6,454.5	470.0	-2,500.5	2,544.1	0.55	0.29	-59.37	
7,179.0	0.53	202.91	6,548.5	469.2	-2,501.1	2,544.5	0.24	-0.10	-21.79	
7,274.0	1.27	188.41	6,643.5	467.8	-2,501.4	2,544.6	0.81	0.78	-15.26	
7,368.0	0.75	190.43	6,737.5	466.2	-2,501.7	2,544.6	0.55	-0.55	2.15	
7,462.0	1.54	172.59	6,831.5	464.3	-2,501.6	2,544.2	0.91	0.84	-18.98	
7,556.0	1.85	167.84	6,925.4	461.6	-2,501.1	2,543.2	0.36	0.33	-5.05	
7,650.0	1.01	201.86	7,019.4	459.3	-2,501.1	2,542.9	1.23	-0.89	36.19	
7,745.0	1.14	209.24	7,114.4	457.7	-2,501.9	2,543.3	0.20	0.14	7.77	
7,838.0	0.66	211.09	7,207.4	456.5	-2,502.6	2,543.8	0.52	-0.52	1.99	
7,932.0	1.36	222.51	7,301.3	455.2	-2,503.6	2,544.6	0.77	0.74	12.15	
8,027.0	1.23	227.35	7,396.3	453.6	-2,505.2	2,545.9	0.18	-0.14	5.09	
8,120.0	1.41	252.31	7,489.3	452.6	-2,507.0	2,547.5	0.64	0.19	26.84	
8,215.0	1.67	245.45	7,584.3	451.7	-2,509.4	2,549.7	0.34	0.27	-7.22	
8,309.0	2.41	248.17	7,678.2	450.4	-2,512.4	2,552.5	0.79	0.79	2.89	
8,403.0	2.33	227.61	7,772.1	448.4	-2,515.7	2,555.3	0.90	-0.09	-21.87	
8,497.0	1.71	227.16	7,866.1	446.1	-2,518.1	2,557.3	0.66	-0.66	-0.48	
8,591.0	2.02	224.44	7,960.0	444.0	-2,520.3	2,559.1	0.34	0.33	-2.89	
8,685.0	2.02	216.09	8,054.0	441.5	-2,522.4	2,560.8	0.31	0.00	-8.88	
8,779.0	1.93	215.47	8,147.9	438.8	-2,524.3	2,562.2	0.10	-0.10	-0.66	
8,873.0	2.02	217.76	8,241.8	436.2	-2,526.3	2,563.6	0.13	0.10	2.44	
8,968.0	1.84	230.59	8,336.8	433.9	-2,528.5	2,565.4	0.49	-0.19	13.51	
9,062.0	2.02	230.33	8,430.7	431.9	-2,530.9	2,567.5	0.19	0.19	-0.28	

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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)	
9,156.0	2.46	227.52	8,524.7	429.5	-2,533.7	2,569.8	0.48	0.47	-2.99	
9,250.0	2.63	220.58	8,618.6	426.5	-2,536.6	2,572.1	0.37	0.18	-7.38	
9,345.0	2.46	216.71	8,713.5	423.2	-2,539.2	2,574.1	0.25	-0.18	-4.07	
9,395.0	2.29	215.30	8,763.4	421.5	-2,540.4	2,575.1	0.36	-0.34	-2.82	
TD @ 9467.0' MD / 8835.4' TVD										
9,467.0	2.29	215.30	8,835.4	419.2	-2,542.1	2,576.3	0.00	0.00	0.00	

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
295.0	294.9	-3.8	-6.9	First MWD Survey @ 295.0' MD / 294.9' TVD	
1,207.7	1,162.6	35.0	-256.4	HL Crossed @ 1207.7' MD / 1162.6' TVD	
9,467.0	8,835.4	419.2	-2,542.1	TD @ 9467.0' MD / 8835.4' TVD	