

Magnetic Field Strength: 50995.7nT  
Dip Angle: 65.37°  
Date: 4/5/2023  
Model: HDGM

WELL DETAILS: WMC 514-18-793

+N/-S	+E/-W	Northing	Ground Level: Easting	8007.0 Latitude	Longitude	Slot
0.0	0.0	1591977.400	2342243.500	39.435596	-107.829069	WMC 514-18-793

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
VP	7061.0	-636.3	1529.3	1591302.120	2343756.000	39.433848	-107.823655
BHL	10331.0	-636.3	1529.3	1591302.120	2343756.000	39.433848	-107.823655

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
385.7	387.0	8.13	130.30	-17.7	20.9	26.1	27.4	First Survey @ 387' MD/ 385.7' TVD
10060.6	10270.0	2.90	231.37	-666.2	1501.3	1642.0	1739.1	PTB @ 10270' MD/ 10060.57' TVD

SLOTS

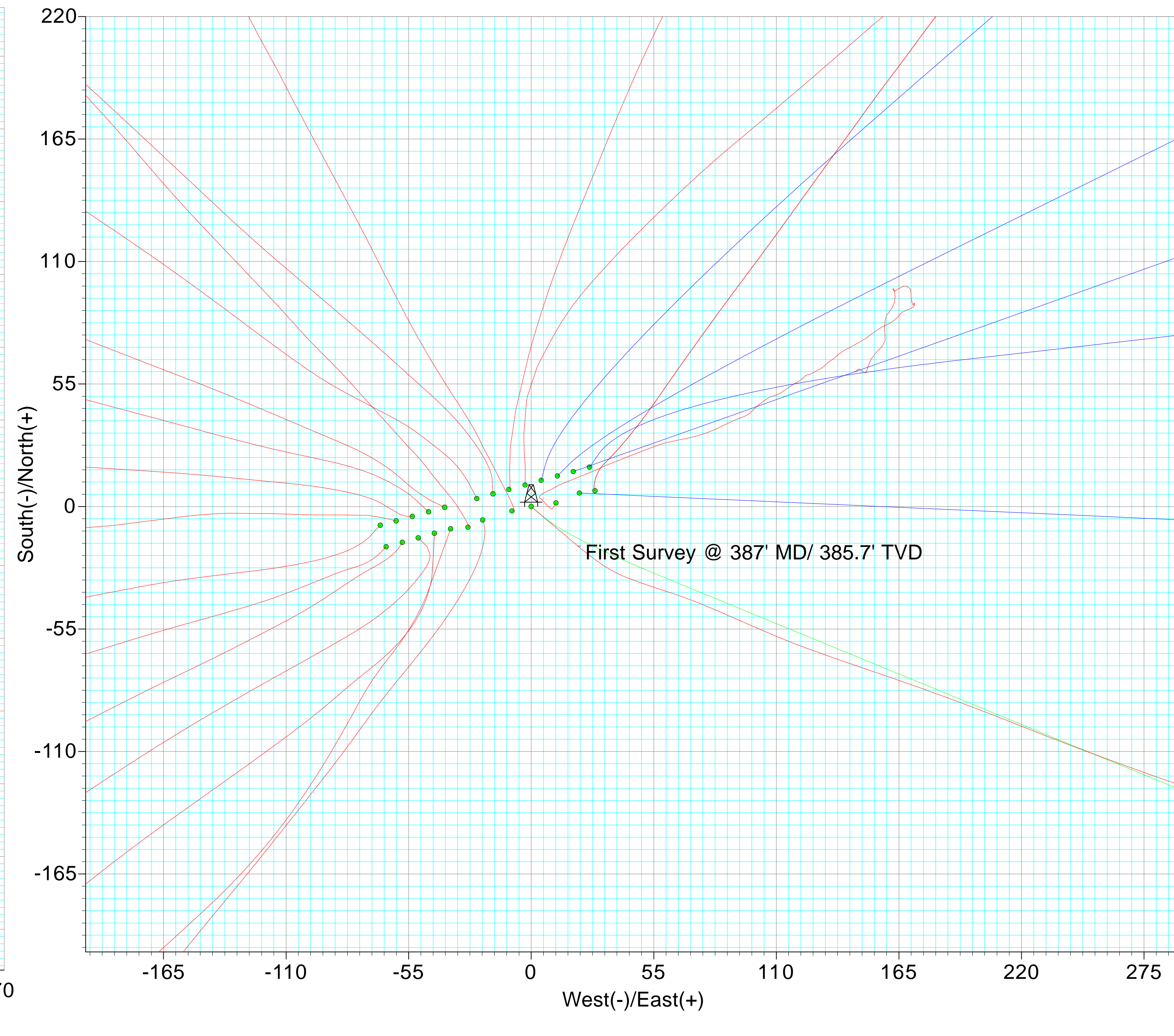
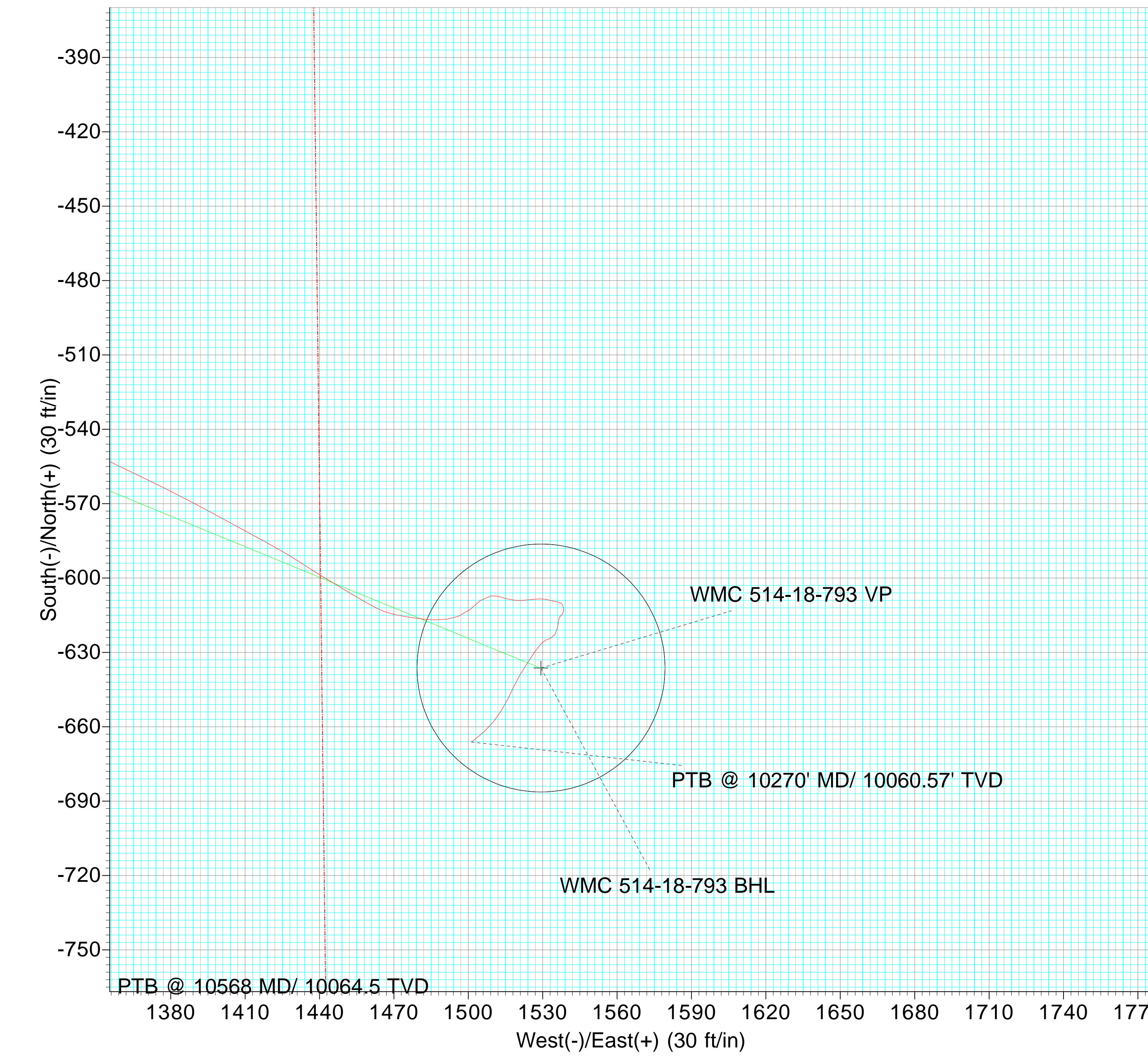
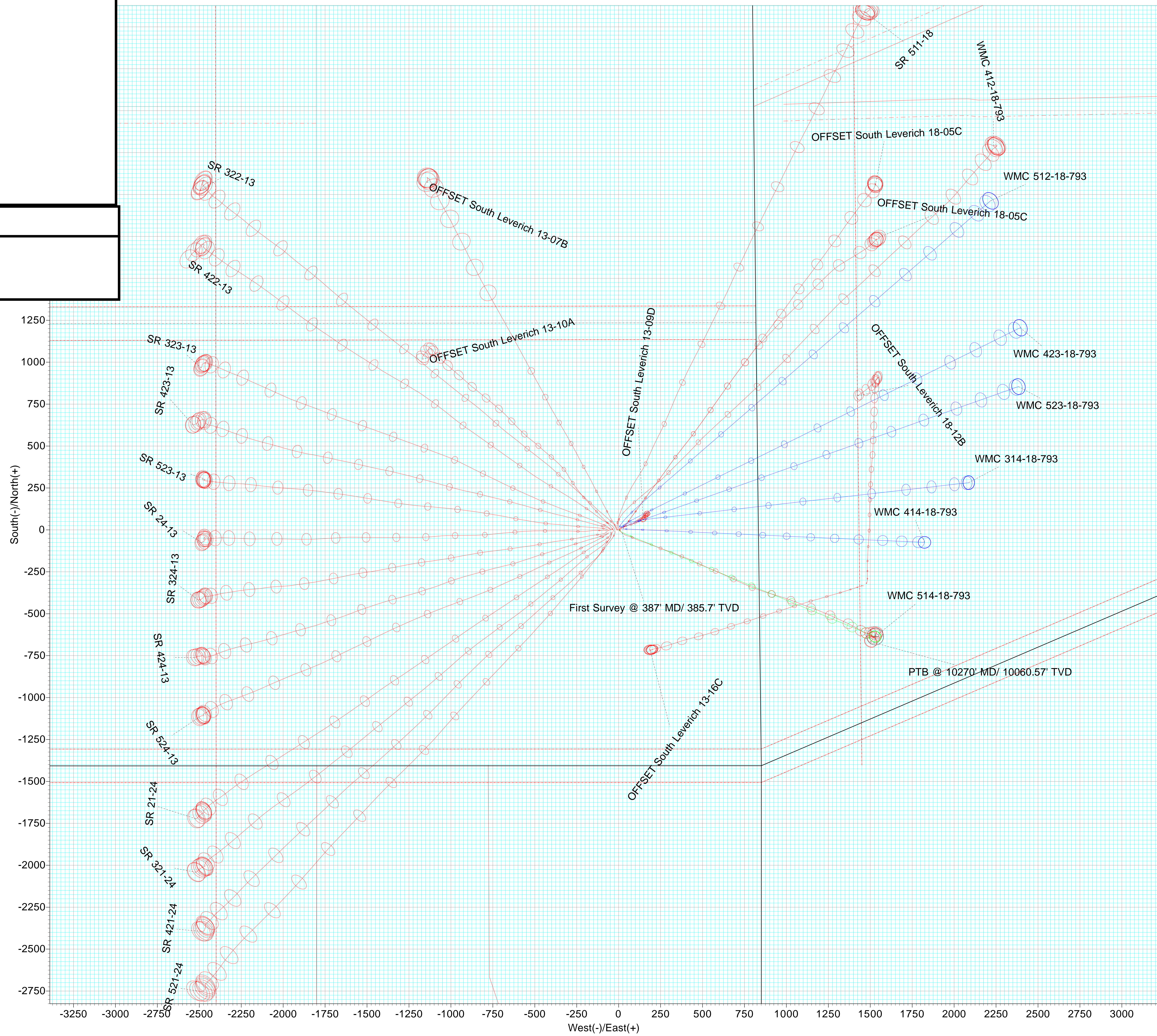
Slot Name	+N/-S	+E/-W	Northing	Easting
OFFSET South Leverich 13-07B	-2.0	-8.6	1591975.598	2342234.824
OFFSET South Leverich 13-09D	1.6	11.1	1591978.733	2342254.682
OFFSET South Leverich 13-10A	-9.3	-28.4	1591968.823	2342214.873
OFFSET South Leverich 13-16C	-333.4	1460.1	1591606.646	2343694.566
OFFSET South Leverich 18-05C	7.1	28.7	1591983.730	2342272.330
OFFSET South Leverich 18-12B	-318.9	1474.2	1591620.850	2343709.057
SR 21-24	-14.1	-50.7	1591964.600	2342192.500
SR 24-13	-6.5	-60.6	1591972.500	2342182.800
SR 321-24	-12.0	-43.4	1591966.500	2342199.800
SR 322-13	5.7	-17.2	1591983.500	2342226.500
SR 323-13	-0.4	-38.8	1591978.000	2342204.700
SR 324-13	-8.4	-67.7	1591970.700	2342175.600
SR 421-24	-10.0	-36.2	1591968.300	2342207.100
SR 422-13	3.6	-24.4	1591981.600	2342219.200
SR 423-13	-2.4	-46.1	1591976.200	2342197.400
SR 424-13	-18.1	-65.1	1591961.000	2342178.000
SR 511-18	7.6	-10.0	1591985.300	2342233.700
SR 521-24	-6.1	-21.8	1591971.900	2342221.600
SR 523-13	-4.5	-53.3	1591974.300	2342190.100
SR 524-13	-16.1	-57.8	1591962.800	2342185.300
WMC 314-18-793	17.7	26.2	1591994.400	2342270.100
WMC 412-18-793	9.6	-2.7	1591987.100	2342241.000
WMC 414-18-793	6.1	21.7	1591982.900	2342265.300
WMC 423-18-793	13.7	11.8	1591990.800	2342255.600
WMC 512-18-793	11.7	4.5	1591989.000	2342248.300
WMC 514-18-793	0.0	0.0	1591977.400	2342243.500
WMC 523-18-793	15.7	18.9	1591992.600	2342262.800

FORMATION TOP DETAILS

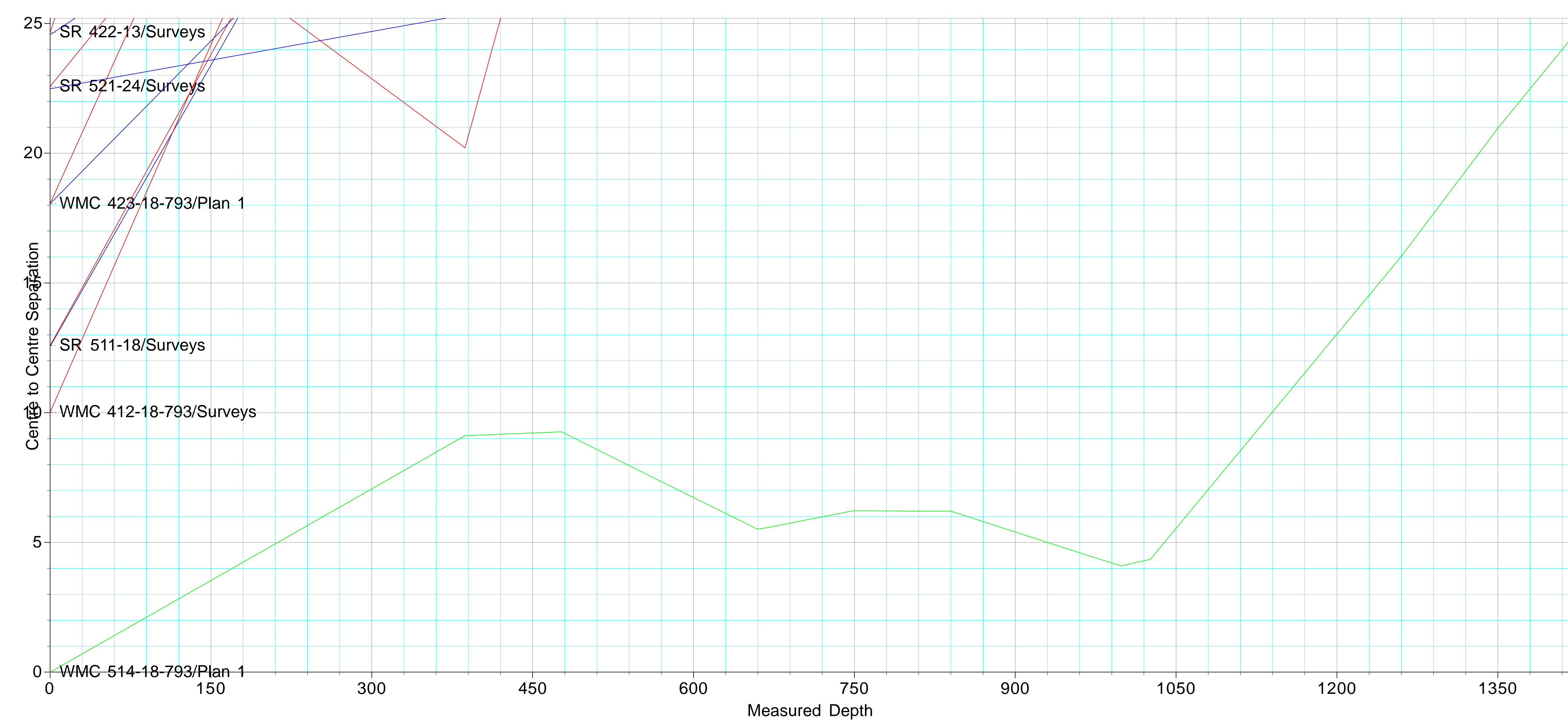
TVDP	MD	Formation
4026.0	4151.9	G_SAND
4526.0	4669.6	FRUN
6031.0	6227.8	L_WSCH
6461.0	6668.1	OCRK
7061.0	7270.6	TGAS
7061.0	7270.6	U_MVRD
9117.0	9326.6	CME0
9981.0	10190.6	RLNS

CASING DETAILS

No casing data is available



Centr to Centre Segregation





## Directional Survey Certification

Survey Company: Native Navigation Survey Company Job #: 23092834

Well Name: WMC 514-18-793 A.P.I.# 05-045-24559 Operator Terra Energy Partners

Latitude: 40.217433 Longitude: -107.829069 County, State: Garfield County, CO

Legal Description (S,TS,R): Sec 13, T7S, R94W

Final Report 9/29/2023 Date of First Survey 9/7/2023 Date of Last Survey: 9/13/2023

Datum: NAD83 Survey MD From: 387.00 To: 10207 FT. Tool Type: MWD + HRGM

Bit to Sensor: 63 FT. Rig (Company & Number): HP 329 RKB Height: 30.00 FT.

Ground Elevation: 8007.00 Northings: 1591977.4 Eastings: 2342243.5

Surveyor Kyle Temple Depth of Final Projection: 10270 FT.

The data and calculations for this survey have been checked by me and conform to the calibration standards and operational procedures set forth by Native Navigation. I am authorized and qualified to review the data, calculations and this report, and that the report represents a true and correct Directional Survey of this well, based on the original data corrected to True North and obtained at the well site. Wellbore coordinates are calculated using the minimum curvature method.

  
Signature

Well Planner  
Title

Native Navigation  
Company

9/29/23  
Date



## **Terra Energy Partners, LLP**

**Garfield County, CO (Nad 83)**

**S. Leverich 13-09 Pad**

**WMC 514-18-793 - Slot WMC 514-18-793**

**OWB**

**Design: Surveys**

## **Survey Certification Report**

**13 September, 2023**



<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well WMC 514-18-793 - Slot WMC 514-18-793
<b>Project:</b>	Garfield County, CO (Nad 83)	<b>TVD Reference:</b>	RKB @ 30' @ 8037.0ft
<b>Site:</b>	S. Leverich 13-09 Pad	<b>MD Reference:</b>	RKB @ 30' @ 8037.0ft
<b>Well:</b>	WMC 514-18-793	<b>North Reference:</b>	True
<b>Wellbore:</b>	OWB	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	NN

<b>Project</b>	Garfield County, CO (Nad 83)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

<b>Site</b>	S. Leverich 13-09 Pad				
<b>Site Position:</b>		<b>Northing:</b>	1,591,962.800 usft	<b>Latitude:</b>	39.435551
<b>From:</b>	Map	<b>Easting:</b>	2,342,185.300 usft	<b>Longitude:</b>	-107.829274
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13-3/16"	<b>Grid Convergence:</b>	-1.47 °

<b>Well</b>	WMC 514-18-793 - Slot WMC 514-18-793					
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,591,977.400 usft	<b>Latitude:</b>	39.435596
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	2,342,243.500 usft	<b>Longitude:</b>	-107.829069
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	8,037.0 ft	<b>Ground Level:</b>	8,007.0 ft

<b>Wellbore</b>	OWB				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	4/5/2023	8.83	65.37	50,996

<b>Design</b>	Surveys				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>		<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
		0.0	0.0	0.0	112.59

<b>Survey Program</b>	<b>Date</b>	9/13/2023			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
387.0	10,270.0	Surveys (OWB)	OWSG (REV5) MWD HDGM	OWSG MWD - Standard	

<b>Survey</b>									
<b>MD (ft)</b>	<b>Inc (°)</b>	<b>Azi (azimuth) (°)</b>	<b>TVD (ft)</b>	<b>N/S (ft)</b>	<b>E/W (ft)</b>	<b>Closure Distance (ft)</b>	<b>Closure Azimuth (°)</b>		
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.00	
387.0	8.13	130.30	385.7	-17.7	20.9	27.4	130.30		
<b>First Survey @ 387' MD/ 385.7' TVD</b>									
477.0	9.14	124.67	474.7	-25.9	31.6	40.9	129.32		
568.0	10.20	110.08	564.4	-32.8	45.2	55.8	125.99		
659.0	12.22	107.79	653.7	-38.5	61.9	72.9	121.88		
749.0	14.72	113.33	741.2	-45.9	81.5	93.5	119.42		
840.0	16.13	113.60	828.9	-55.6	103.7	117.6	118.20		
931.0	16.79	109.73	916.2	-65.1	127.6	143.3	117.02		
1,026.0	18.02	108.76	1,006.8	-74.4	154.5	171.5	115.73		
1,260.0	18.50	111.84	1,229.0	-99.9	223.2	244.5	114.11		
1,351.0	17.84	110.43	1,315.5	-110.1	249.6	272.9	113.80		

<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well WMC 514-18-793 - Slot WMC 514-18-793
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<b>Site:</b>	S. Leverich 13-09 Pad	<b>MD Reference:</b>	RKB @ 30' @ 8037.0ft
<b>Well:</b>	WMC 514-18-793	<b>North Reference:</b>	True
<b>Wellbore:</b>	OWB	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	NN

Survey									
MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)		
1,441.0	17.97	109.73	1,401.1	-119.6	275.6	300.5	113.46		
1,532.0	17.75	108.23	1,487.8	-128.7	302.0	328.3	113.08		
1,622.0	17.58	113.77	1,573.5	-138.5	327.5	355.6	112.92		
1,713.0	17.62	112.45	1,660.3	-149.3	352.8	383.1	112.93		
1,803.0	15.51	109.73	1,746.5	-158.5	376.7	408.7	112.82		
1,894.0	15.16	109.20	1,834.3	-166.6	399.4	432.7	112.64		
1,984.0	14.90	115.09	1,921.2	-175.3	421.0	456.1	112.61		
2,074.0	15.29	114.47	2,008.1	-185.2	442.3	479.5	112.72		
2,164.0	13.36	114.56	2,095.3	-194.4	462.5	501.7	112.80		
2,256.0	13.27	114.21	2,184.8	-203.1	481.8	522.9	112.86		
2,348.0	13.01	114.12	2,274.4	-211.7	500.9	543.8	112.91		
2,440.0	13.84	114.56	2,363.9	-220.5	520.4	565.2	112.96		
2,531.0	13.80	114.47	2,452.3	-229.5	540.2	586.9	113.02		
2,623.0	12.30	112.19	2,541.9	-237.8	559.2	607.7	113.03		
2,714.0	13.67	112.19	2,630.6	-245.5	578.2	628.1	113.01		
2,806.0	14.41	115.18	2,719.8	-254.5	598.6	650.4	113.03		
2,898.0	13.97	113.86	2,809.0	-263.8	619.1	673.0	113.08		
2,989.0	15.95	114.83	2,896.9	-273.5	640.5	696.5	113.13		
3,081.0	15.47	115.00	2,985.5	-284.0	663.1	721.4	113.19		
3,173.0	14.77	114.91	3,074.3	-294.2	684.8	745.3	113.24		
3,265.0	16.35	114.65	3,162.9	-304.5	707.3	770.0	113.29		
3,357.0	15.64	113.77	3,251.4	-314.9	730.4	795.4	113.32		
3,450.0	14.94	113.77	3,341.1	-324.8	752.8	819.9	113.34		
3,540.0	14.63	114.30	3,428.1	-334.1	773.8	842.8	113.36		
3,632.0	15.38	110.08	3,517.0	-343.1	795.8	866.6	113.32		
3,725.0	14.63	110.08	3,606.8	-351.4	818.5	890.7	113.23		
3,817.0	14.15	109.46	3,695.9	-359.1	840.0	913.5	113.15		
3,909.0	16.44	107.36	3,784.6	-366.7	863.0	937.7	113.02		
4,000.0	16.13	107.36	3,872.0	-374.3	887.4	963.1	112.87		
4,092.0	15.51	107.62	3,960.5	-381.9	911.3	988.1	112.74		
4,185.0	14.77	106.92	4,050.3	-389.1	934.5	1,012.2	112.61		
4,277.0	14.46	107.09	4,139.3	-395.9	956.7	1,035.3	112.48		
4,368.0	16.34	108.23	4,227.0	-403.2	979.7	1,059.4	112.37		
4,460.0	15.68	108.58	4,315.5	-411.2	1,003.8	1,084.7	112.28		
4,554.0	15.12	109.38	4,406.1	-419.4	1,027.4	1,109.7	112.20		
4,649.0	14.59	109.90	4,497.9	-427.5	1,050.3	1,134.0	112.15		
4,744.0	16.44	111.31	4,589.4	-436.5	1,074.1	1,159.4	112.12		
4,846.0	15.91	111.22	4,687.4	-446.8	1,100.6	1,187.8	112.10		
4,940.0	15.38	110.61	4,777.9	-455.9	1,124.2	1,213.1	112.07		
5,035.0	14.81	109.38	4,869.6	-464.3	1,147.5	1,237.9	112.03		
5,131.0	14.28	109.46	4,962.6	-472.3	1,170.2	1,262.0	111.98		
5,226.0	15.69	112.80	5,054.3	-481.2	1,193.1	1,286.5	111.97		
5,321.0	15.12	112.01	5,145.9	-490.8	1,216.4	1,311.7	111.97		
5,415.0	14.02	111.93	5,236.9	-499.7	1,238.4	1,335.4	111.97		

<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well WMC 514-18-793 - Slot WMC 514-18-793
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<b>Site:</b>	S. Leverich 13-09 Pad	<b>RKB Reference:</b>	RKB @ 30' @ 8037.0ft
<b>Well:</b>	WMC 514-18-793	<b>North Reference:</b>	True
<b>Wellbore:</b>	OWB	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	NN

Survey								
MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)	
5,510.0	15.82	114.74	5,328.7	-509.4	1,260.8	1,359.8	112.00	
5,604.0	15.42	114.74	5,419.2	-520.0	1,283.8	1,385.1	112.05	
5,698.0	14.68	114.21	5,510.0	-530.1	1,306.0	1,409.5	112.09	
5,792.0	14.24	114.65	5,601.0	-539.8	1,327.4	1,433.0	112.13	
5,887.0	13.93	115.62	5,693.2	-549.6	1,348.3	1,456.0	112.18	
5,981.0	13.67	115.71	5,784.4	-559.3	1,368.5	1,478.4	112.23	
6,075.0	12.48	117.64	5,876.0	-568.9	1,387.5	1,499.6	112.29	
6,170.0	10.85	118.78	5,969.0	-577.9	1,404.5	1,518.7	112.37	
6,264.0	10.24	118.61	6,061.5	-586.2	1,419.6	1,535.8	112.44	
6,358.0	8.48	123.00	6,154.2	-594.0	1,432.7	1,550.9	112.52	
6,452.0	6.90	120.98	6,247.4	-600.7	1,443.4	1,563.4	112.60	
6,547.0	6.72	121.07	6,341.7	-606.5	1,453.0	1,574.5	112.66	
6,641.0	5.19	117.99	6,435.2	-611.3	1,461.5	1,584.2	112.70	
6,736.0	2.99	105.51	6,529.9	-614.0	1,467.7	1,590.9	112.70	
6,830.0	2.50	101.38	6,623.8	-615.0	1,472.0	1,595.4	112.68	
6,924.0	3.16	98.83	6,717.7	-615.8	1,476.6	1,599.9	112.64	
7,018.0	3.16	96.46	6,811.6	-616.5	1,481.7	1,604.9	112.59	
7,113.0	2.85	90.92	6,906.4	-616.9	1,486.7	1,609.6	112.53	
7,207.0	2.86	82.13	7,000.3	-616.6	1,491.4	1,613.8	112.46	
7,301.0	2.94	70.09	7,094.2	-615.4	1,495.9	1,617.6	112.36	
7,395.0	3.69	51.54	7,188.0	-612.7	1,500.6	1,620.9	112.21	
7,490.0	3.08	46.45	7,282.9	-609.1	1,504.8	1,623.4	112.04	
7,584.0	2.94	87.49	7,376.8	-607.2	1,509.1	1,626.7	111.92	
7,678.0	2.72	107.53	7,470.6	-607.8	1,513.6	1,631.1	111.88	
7,773.0	2.42	98.83	7,565.5	-608.8	1,517.7	1,635.3	111.86	
7,867.0	2.37	88.11	7,659.5	-609.0	1,521.6	1,639.0	111.81	
7,962.0	2.20	79.49	7,754.4	-608.6	1,525.4	1,642.3	111.75	
8,056.0	2.24	92.68	7,848.3	-608.4	1,529.0	1,645.6	111.70	
8,151.0	1.89	102.87	7,943.3	-608.8	1,532.4	1,648.9	111.67	
8,245.0	1.41	102.70	8,037.2	-609.4	1,535.0	1,651.6	111.65	
8,339.0	0.92	113.33	8,131.2	-610.0	1,536.8	1,653.5	111.65	
8,434.0	0.79	146.73	8,226.2	-610.8	1,537.9	1,654.8	111.66	
8,528.0	0.88	174.06	8,320.2	-612.1	1,538.3	1,655.6	111.70	
8,622.0	1.01	186.02	8,414.2	-613.6	1,538.3	1,656.2	111.75	
8,716.0	0.75	233.04	8,508.2	-614.8	1,537.7	1,656.1	111.79	
8,811.0	0.62	223.90	8,603.1	-615.6	1,536.9	1,655.6	111.83	
8,905.0	1.36	187.25	8,697.1	-617.0	1,536.4	1,655.7	111.88	
8,999.0	1.93	187.60	8,791.1	-619.7	1,536.0	1,656.3	111.97	
9,093.0	2.02	211.86	8,885.0	-622.7	1,535.0	1,656.5	112.08	
9,188.0	1.23	255.10	8,980.0	-624.4	1,533.1	1,655.4	112.16	
9,282.0	0.92	247.89	9,074.0	-624.9	1,531.4	1,654.0	112.20	
9,376.0	1.98	227.24	9,168.0	-626.3	1,529.5	1,652.8	112.27	
9,470.0	2.86	213.26	9,261.9	-629.4	1,527.0	1,651.7	112.40	
9,565.0	3.52	213.44	9,356.7	-633.8	1,524.1	1,650.7	112.58	
9,660.0	3.69	211.68	9,451.5	-638.8	1,520.9	1,649.6	112.78	

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<b>Site:</b>	S. Leverich 13-09 Pad	<b>MD Reference:</b>	RKB @ 30' @ 8037.0ft
<b>Well:</b>	WMC 514-18-793	<b>North Reference:</b>	True
<b>Wellbore:</b>	OWB	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	NN

Survey								
MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)	
9,754.0	3.56	203.16	9,545.4	-644.1	1,518.2	1,649.2	112.99	
9,848.0	3.34	208.17	9,639.2	-649.2	1,515.7	1,648.9	113.18	
9,943.0	3.25	211.07	9,734.0	-653.9	1,513.1	1,648.3	113.37	
10,037.0	3.12	220.29	9,827.9	-658.2	1,510.0	1,647.2	113.55	
10,133.0	2.86	227.59	9,923.7	-661.8	1,506.6	1,645.5	113.71	
10,207.0	2.90	231.37	9,997.7	-664.2	1,503.7	1,643.9	113.83	
10,270.0	2.90	231.37	10,060.6	-666.2	1,501.3	1,642.4	113.93	
<b>PTB @ 10270' MD/ 10060.57' TVD</b>								

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
387.0	385.7	-17.7	20.9	First Survey @ 387' MD/ 385.7' TVD	
10,270.0	10,060.6	-666.2	1,501.3	PTB @ 10270' MD/ 10060.57' TVD	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_