

WELL DETAILS: WMC 411-19-793

+N/-S	+E/-W	Northing	Ground Level: Easting	8563.0 Latitude	Longitude	Slot
0.0	0.0	1588615.291	2343993.400	39.426491	-107.822572	WMC 411-19-793

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
VP	7588.0	1167.0	-276.4	1589789.000	2343746.900	39.429695	-107.823550
PBHL	10863.0	1167.0	-276.4	1589789.000	2343746.900	39.429695	-107.823550

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	V/Sect	Departure	Annotation
10608.5	10713.0	0.88	325.78	1204.5	-282.1	1233.1	1290.7	PTB @ 10713 MD/ 10608.5 TVD

SLOTS

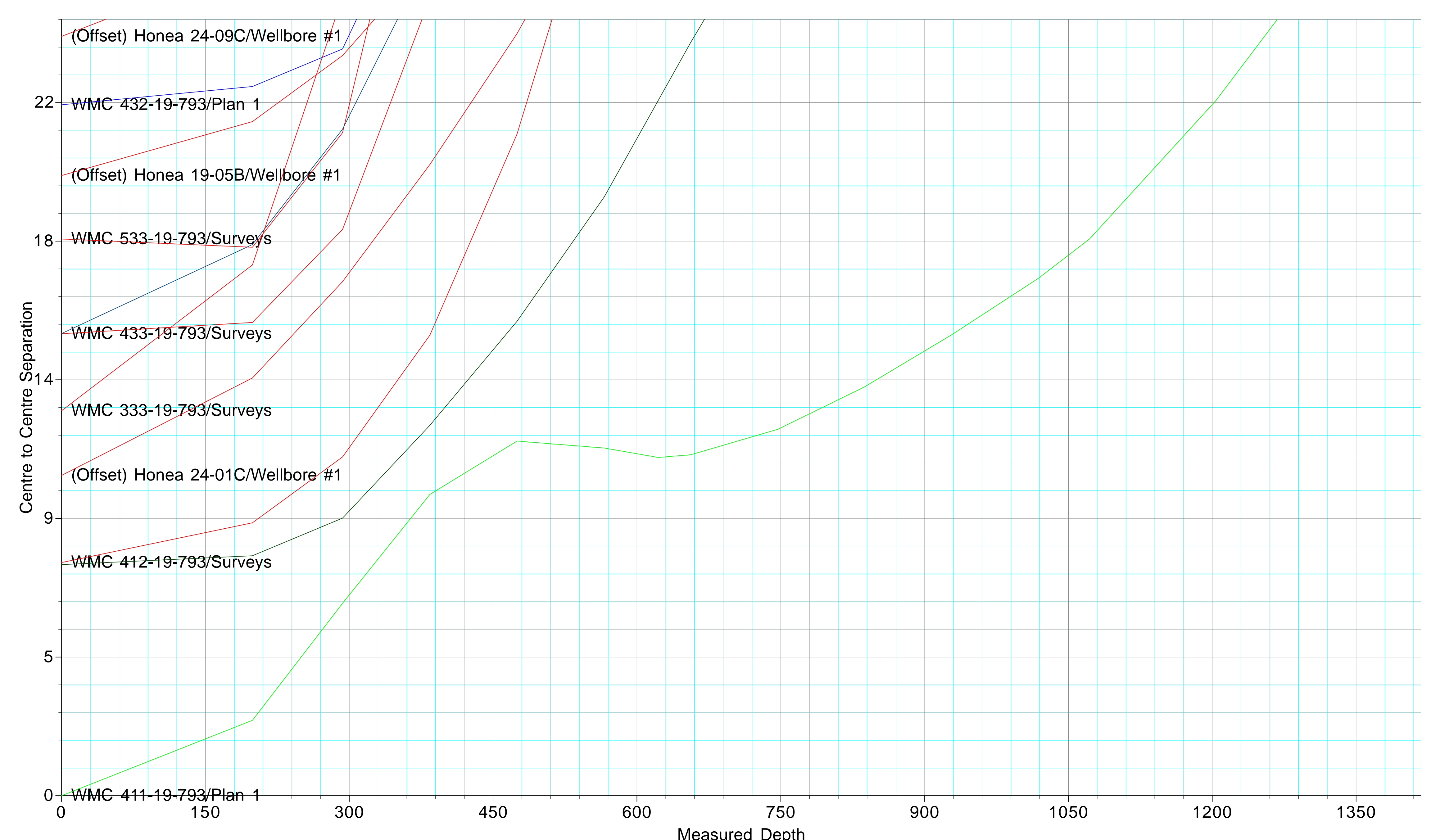
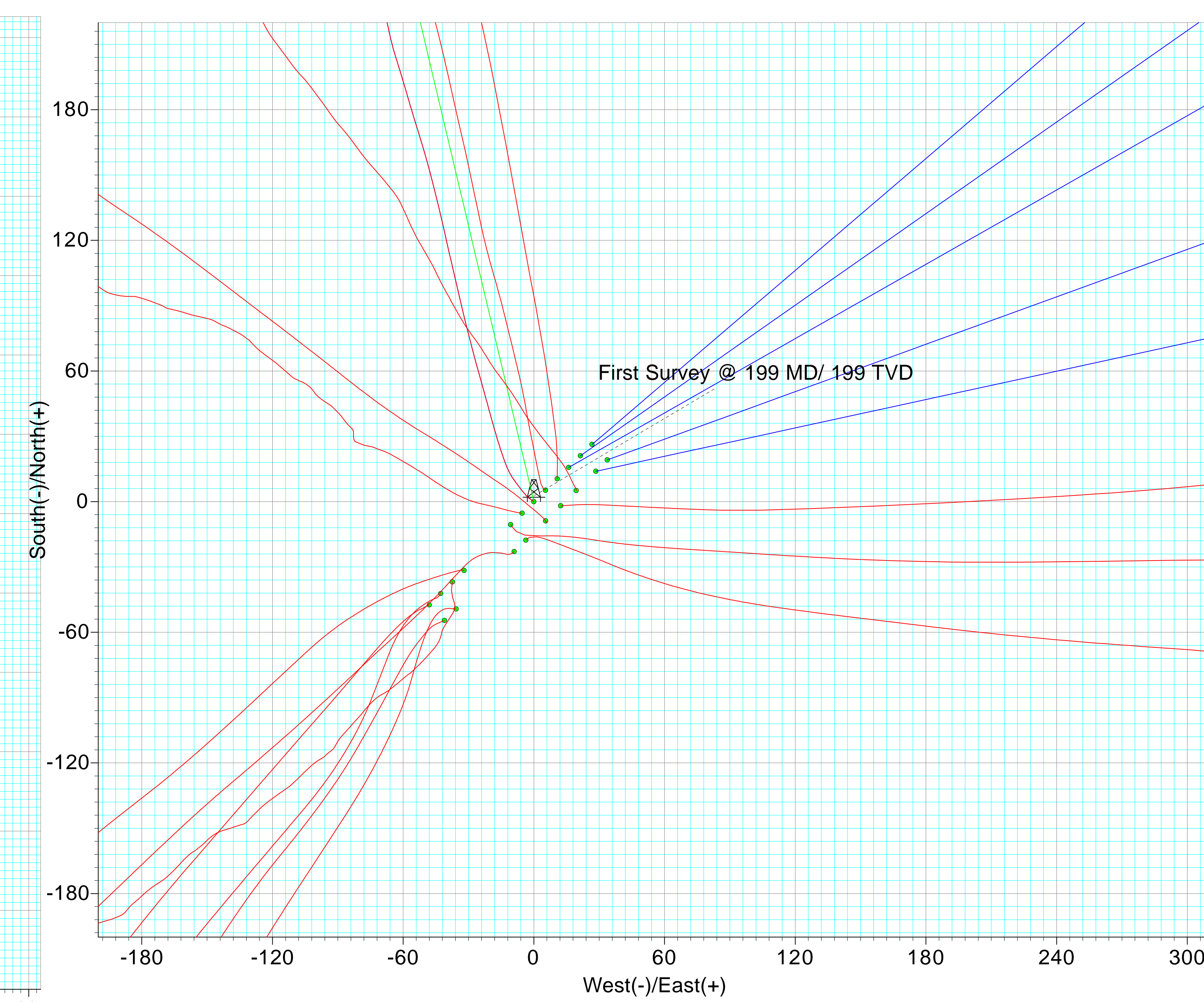
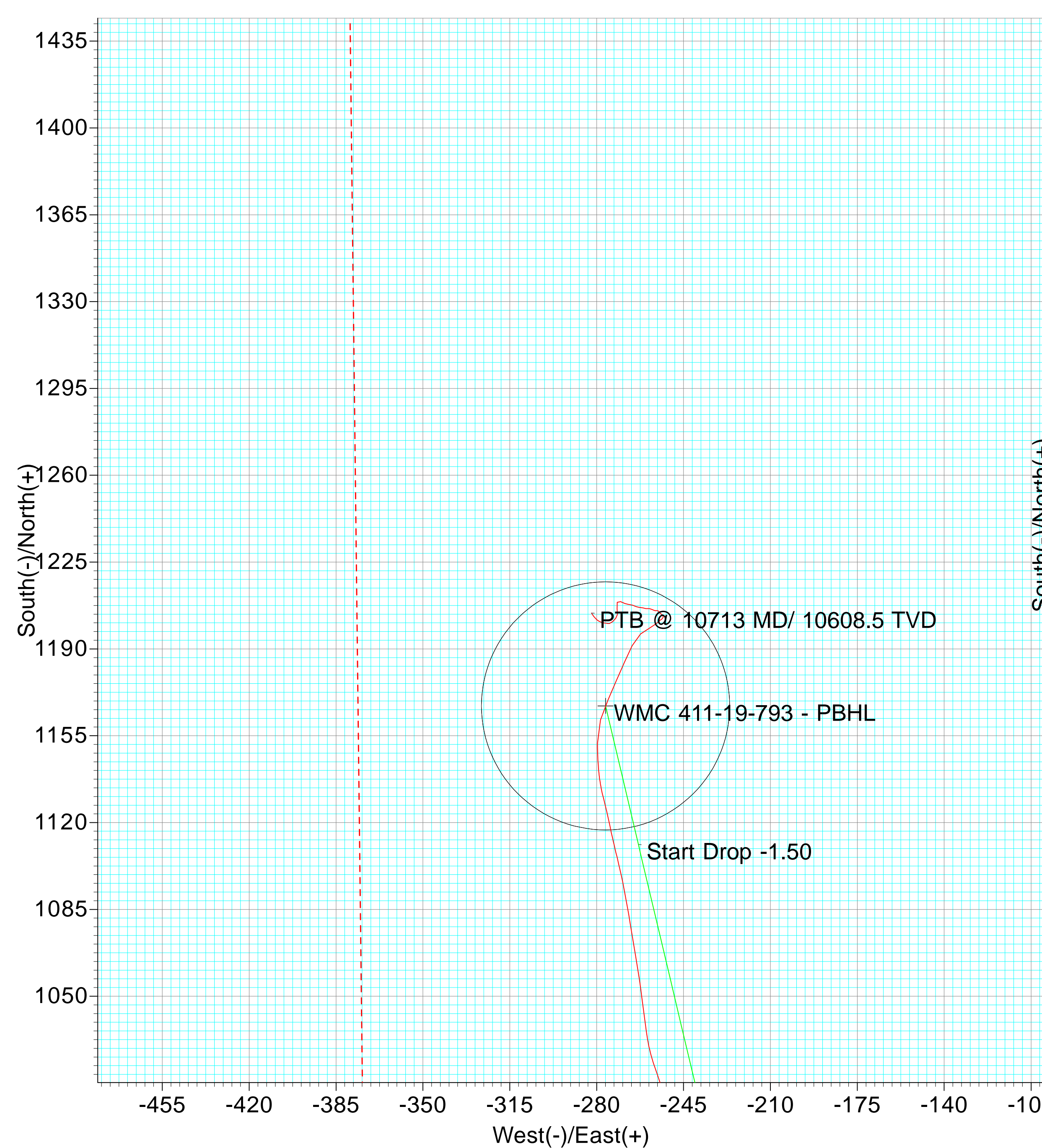
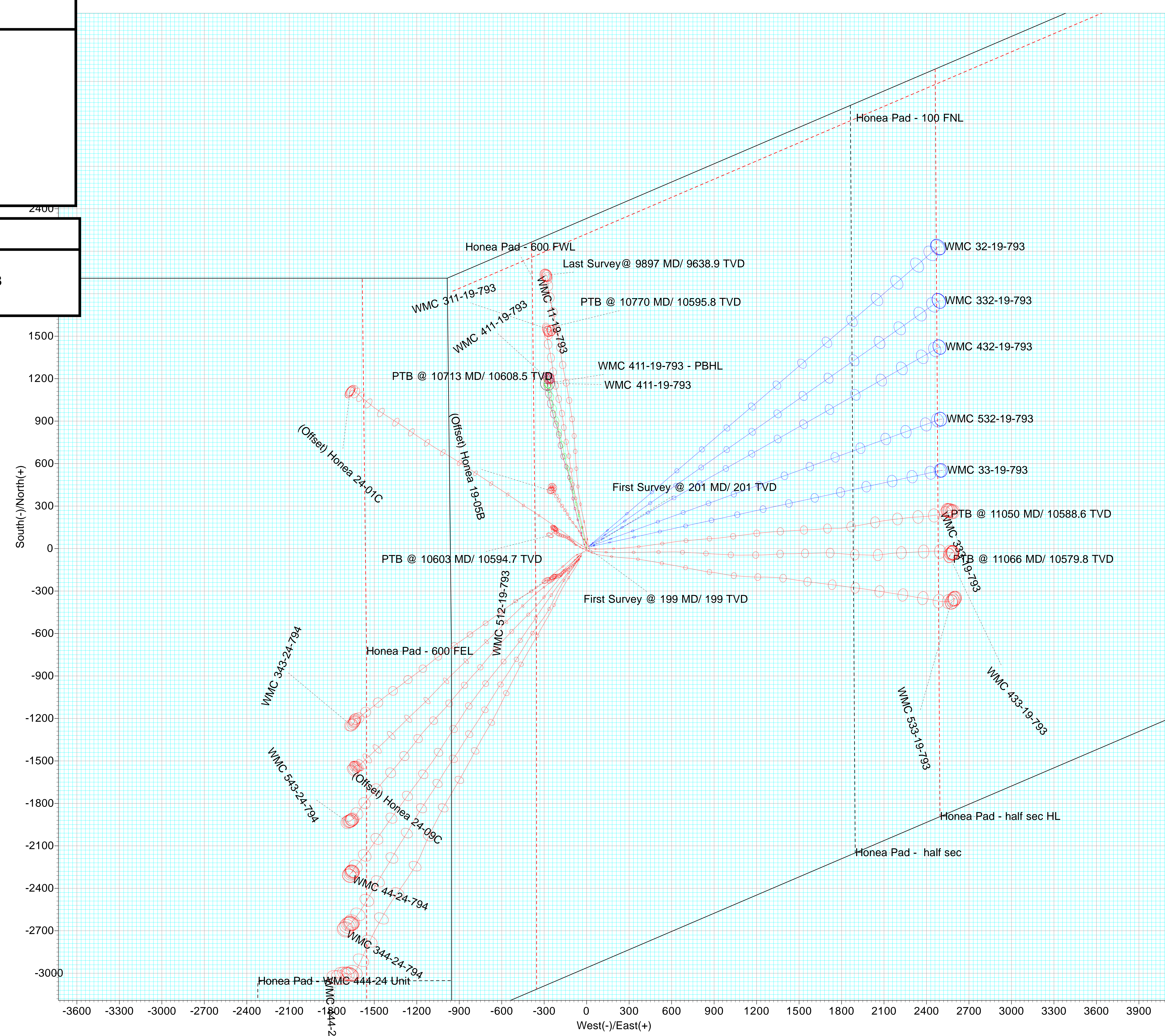
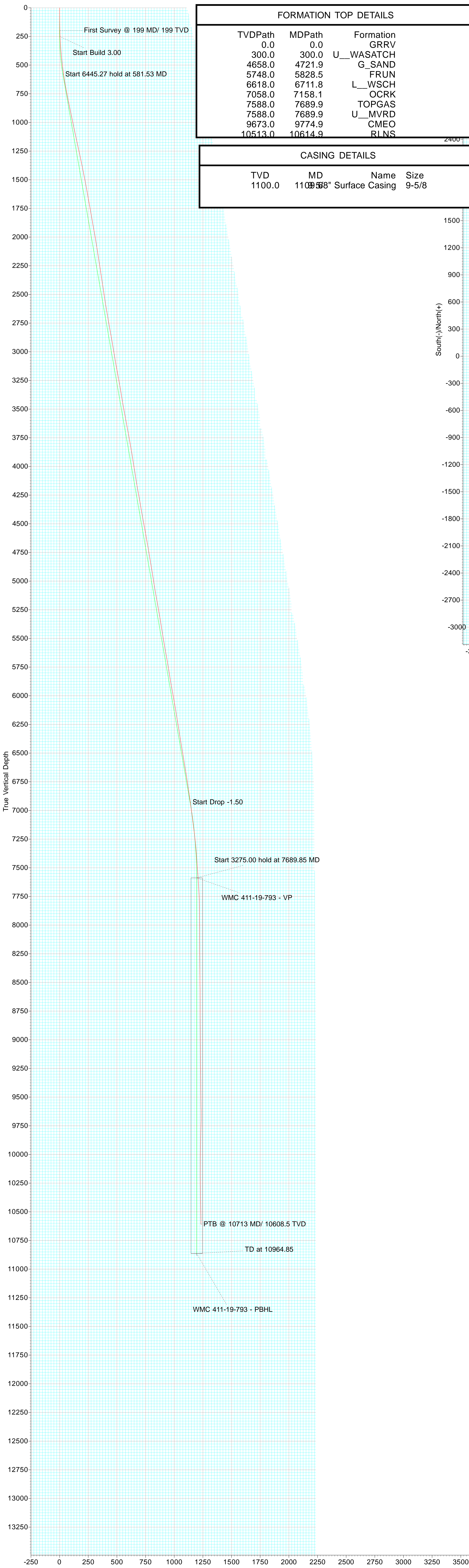
Slot Name	+N/-S	+E/-W	Northing	Easting
HONEA 19-05B	5.1	19.5	1588619.891	2344013.000
Honea 24-01C	-8.9	5.4	1588606.291	2343998.600
HONEA 24-09C	-22.9	-9.0	1588592.591	2343983.800
WMC 11-19-793	10.5	10.7	1588625.491	2344004.400
WMC 311-19-793	5.2	5.4	1588620.391	2343998.900
WMC 32-19-793	26.3	26.7	1588640.891	2344020.800
WMC 33-19-793	13.9	28.5	1588628.491	2344022.200
WMC 332-19-79321.1		21.4	1588635.791	2344015.300
WMC 333-19-793	-1.9	12.4	1588613.091	2344005.700
WMC 343-24-79431.6		-32.0	1588584.491	2343960.600
WMC 344-24-79454.6		-41.0	1588561.791	2343951.000
WMC 411-19-793	0.0	0.0	1588615.291	2343993.400
WMC 412-19-793	-5.3	-5.4	1588610.091	2343987.900
WMC 432-19-79315.7		16.0	1588630.591	2344009.800
WMC 433-19-79310.6		-10.6	1588604.991	2343982.500
WMC 44-24-794	-42.2	-42.7	1588574.191	2343949.600
WMC 444-24-79449.3		-35.7	1588566.891	2343956.500
WMC 512-19-79336.9		-37.4	1588579.391	2343955.100
WMC 532-19-79319.2		33.7	1588633.591	2344027.600
WMC 533-19-79317.7		-3.6	1588597.691	2343989.300
WMC 543-24-79447.4		-48.0	1588569.091	2343944.200

FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
0.0	0.0	GRRV
300.0	300.0	U_WASATCH
4658.0	4721.9	G_SAND
5748.0	5828.5	FRUN
6618.0	6711.8	L_WSCH
7058.0	7158.1	OCRK
7588.0	7689.9	TOPGAS
7588.0	7689.9	U_MVRD
9673.0	9774.9	CME0
10513.0	10614.9	RLNS

CASING DETAILS

TVD	MD	NAME	SIZE
1100.0	1109.58	Surface Casing	9-5/8





Directional Survey Certification

Survey Company: Native Navigation Survey Company Job #: 23032715

Well Name: WMC 411-19-793 A.P.I.# 05-045-24538 Operator Terra Energy Partners

Latitude: 40.217433 Longitude: -107.822572 County, State: Garfield County, CO

Legal Description (S,TS,R): Sec 19, T7S, R93W

Final Report 3/27/2023 Date of First Survey 3/8/2023 Date of Last Survey: 3/12/2023

Datum: NAD83 Survey MD From: 199.00 To: 10654 FT. Tool Type: MWD + HRGM

Bit to Sensor: 59 FT. Rig (Company & Number): HP 329 RKB Height: 30.00 FT.

Ground Elevation: 8563.00 Northings: 1588615.291 Eastings: 2343993.4

Surveyor Kyle Temple Depth of Final Projection: 10713 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

3/27/23
Date



Terra Energy Partners, LLP

Garfield County, CO (Nad 83)

Honea 19-05 Pad

WMC 411-19-793 - Slot WMC 411-19-793

Wellbore #1

Survey: Surveys

Survey Certification Report

27 March, 2023



Company:	Terra Energy Partners, LLP	Local Co-ordinate Reference:	Well WMC 411-19-793 - Slot WMC 411-19-793
Project:	Garfield County, CO (Nad 83)	TVD Reference:	KB @ 8593.0ft
Site:	Honea 19-05 Pad	MD Reference:	KB @ 8593.0ft
Well:	WMC 411-19-793	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	NN

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

Site	Honea 19-05 Pad				
Site Position:		Northing:	1,588,561.791 usft	Latitude:	39.426341
From:	Map	Easting:	2,343,951.000 usft	Longitude:	-107.822717
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16"	Grid Convergence:	-1.46 °

Well	WMC 411-19-793 - Slot WMC 411-19-793					
Well Position	+N/-S	0.0 ft	Northing:	1,588,615.291 usft	Latitude:	39.426491
	+E/-W	0.0 ft	Easting:	2,343,993.400 usft	Longitude:	-107.822572
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	8,563.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/23/2022	8.85	65.35	51,015

Design	Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:		Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
		0.0	0.0	0.0	342.24

Survey Program	Date	3/11/2023			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
199.0	10,713.0	Surveys (Wellbore #1)	OWSG (REV5) MWD HDGM	OWSG MWD - Standard	

Survey									
MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)		
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.00	
199.0	1.41	304.51	199.0	1.4	-2.0	2.4	304.51		
First Survey @ 199 MD/ 199 TVD									
293.0	3.78	320.95	292.9	4.4	-4.9	6.6	312.11		
384.0	5.10	324.29	383.6	10.1	-9.2	13.6	317.65		
475.0	6.46	339.93	474.1	18.2	-13.3	22.5	323.79		
566.0	7.69	343.27	564.4	28.8	-16.8	33.3	329.74		
656.0	9.93	344.86	653.4	42.1	-20.6	46.8	333.94		
747.0	10.85	344.24	742.9	57.9	-24.9	63.0	336.69		
837.0	11.60	345.65	831.2	74.8	-29.5	80.4	338.49		
928.0	11.78	346.88	920.3	92.7	-33.9	98.7	339.94		
1,019.0	11.60	346.88	1,009.4	110.7	-38.0	117.0	341.03		

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Site:	Honea 19-05 Pad	MD Reference:	KB @ 8593.0ft
Well:	WMC 411-19-793	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	NN

Survey								
MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)	
1,072.0	12.13	347.49	1,061.3	121.3	-40.5	127.9	341.55	
1,204.0	12.48	345.65	1,190.2	148.6	-47.0	155.9	342.45	
1,294.0	12.26	342.66	1,278.1	167.2	-52.3	175.2	342.64	
1,385.0	11.34	343.80	1,367.2	185.0	-57.6	193.8	342.70	
1,476.0	11.56	342.57	1,456.4	202.3	-62.9	211.8	342.74	
1,568.0	10.46	349.16	1,546.7	219.3	-67.2	229.4	342.96	
1,659.0	10.20	346.97	1,636.2	235.3	-70.6	245.6	343.30	
1,749.0	10.24	347.23	1,724.8	250.8	-74.1	261.5	343.54	
1,840.0	9.80	344.50	1,814.4	266.2	-78.0	277.4	343.67	
1,931.0	10.20	345.47	1,904.0	281.4	-82.1	293.2	343.74	
2,021.0	9.93	344.33	1,992.7	296.6	-86.2	308.9	343.80	
2,112.0	8.88	349.16	2,082.4	311.1	-89.6	323.7	343.93	
2,203.0	9.05	349.34	2,172.3	325.0	-92.3	337.8	344.15	
2,294.0	9.01	350.22	2,262.2	339.1	-94.8	352.1	344.38	
2,384.0	8.88	354.61	2,351.1	352.9	-96.6	365.9	344.69	
2,474.0	8.79	355.23	2,440.0	366.7	-97.9	379.5	345.06	
2,565.0	8.57	355.75	2,530.0	380.4	-98.9	393.0	345.42	
2,656.0	10.06	351.62	2,619.8	395.0	-100.6	407.6	345.71	
2,746.0	9.67	353.12	2,708.5	410.3	-102.7	422.9	345.95	
2,837.0	10.33	347.14	2,798.1	425.8	-105.4	438.7	346.10	
2,927.0	10.02	346.26	2,886.7	441.3	-109.0	454.6	346.12	
3,018.0	9.62	344.68	2,976.3	456.3	-112.9	470.1	346.10	
3,108.0	9.32	345.03	3,065.1	470.6	-116.8	484.9	346.06	
3,199.0	10.72	347.84	3,154.7	486.0	-120.5	500.7	346.08	
3,290.0	10.24	347.76	3,244.2	502.2	-124.0	517.3	346.13	
3,380.0	9.67	347.76	3,332.8	517.4	-127.3	532.8	346.18	
3,471.0	9.49	349.60	3,422.6	532.2	-130.3	547.9	346.25	
3,561.0	10.68	342.13	3,511.2	547.5	-134.2	563.7	346.23	
3,652.0	10.50	340.55	3,600.6	563.3	-139.5	580.3	346.09	
3,742.0	10.55	340.46	3,689.1	578.8	-145.0	596.7	345.94	
3,832.0	9.98	340.02	3,777.7	593.9	-150.4	612.7	345.79	
3,923.0	9.71	339.76	3,867.3	608.5	-155.8	628.1	345.64	
4,013.0	8.88	340.20	3,956.2	622.2	-160.7	642.6	345.51	
4,104.0	9.23	343.80	4,046.0	635.8	-165.2	656.9	345.44	
4,194.0	8.96	344.33	4,134.9	649.5	-169.1	671.1	345.41	
4,285.0	10.68	347.67	4,224.6	664.5	-172.8	686.6	345.43	
4,375.0	9.80	347.40	4,313.1	680.2	-176.2	702.6	345.47	
4,466.0	9.71	346.53	4,402.8	695.2	-179.7	718.0	345.51	
4,556.0	10.94	349.87	4,491.3	711.0	-183.0	734.1	345.57	
4,647.0	10.20	350.39	4,580.8	727.4	-185.8	750.8	345.67	
4,737.0	10.15	352.85	4,669.4	743.1	-188.2	766.6	345.79	
4,828.0	9.76	351.45	4,759.0	758.7	-190.3	782.2	345.92	
4,918.0	9.45	352.68	4,847.8	773.6	-192.4	797.2	346.03	
5,009.0	9.45	351.45	4,937.5	788.4	-194.4	812.0	346.15	

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Site:	Honea 19-05 Pad	MD Reference:	KB @ 8593.0ft
Well:	WMC 411-19-793	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	NN

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)
5,099.0	8.88	352.06	5,026.4	802.6	-196.5	826.3	346.24
5,190.0	10.33	347.49	5,116.1	817.5	-199.2	841.4	346.30
5,281.0	10.11	345.73	5,205.6	833.2	-203.0	857.6	346.31
5,371.0	9.62	342.57	5,294.3	848.0	-207.2	873.0	346.27
5,462.0	9.32	341.69	5,384.1	862.3	-211.8	887.9	346.20
5,552.0	8.88	340.46	5,472.9	875.8	-216.4	902.1	346.12
5,643.0	10.20	343.80	5,562.7	890.1	-221.0	917.1	346.06
5,733.0	10.02	346.26	5,651.3	905.4	-225.1	932.9	346.04
5,824.0	9.67	344.68	5,740.9	920.4	-229.0	948.5	346.03
5,915.0	8.96	342.66	5,830.7	934.6	-233.1	963.2	346.00
6,005.0	10.33	347.14	5,919.5	949.1	-237.0	978.3	345.98
6,096.0	10.20	346.44	6,009.0	964.9	-240.7	994.5	345.99
6,185.0	9.54	345.38	6,096.7	979.7	-244.4	1,009.7	345.99
6,276.0	9.27	344.15	6,186.5	994.1	-248.3	1,024.6	345.98
6,367.0	9.32	343.71	6,276.3	1,008.2	-252.4	1,039.3	345.95
6,457.0	8.88	340.73	6,365.1	1,021.7	-256.7	1,053.5	345.90
6,547.0	9.71	352.50	6,454.0	1,035.8	-260.0	1,067.9	345.91
6,638.0	9.49	352.41	6,543.7	1,050.9	-262.0	1,083.0	346.00
6,729.0	9.76	350.48	6,633.4	1,065.9	-264.2	1,098.2	346.08
6,819.0	8.70	350.48	6,722.3	1,080.1	-266.6	1,112.6	346.13
6,910.0	8.35	349.07	6,812.2	1,093.4	-269.0	1,126.0	346.18
7,000.0	8.26	346.17	6,901.3	1,106.1	-271.8	1,139.0	346.19
7,091.0	7.56	348.11	6,991.4	1,118.3	-274.6	1,151.5	346.20
7,181.0	7.73	345.82	7,080.6	1,130.0	-277.3	1,163.5	346.21
7,272.0	6.90	355.49	7,170.9	1,141.4	-279.2	1,175.0	346.25
7,362.0	6.68	359.89	7,260.3	1,152.0	-279.7	1,185.4	346.35
7,453.0	5.32	16.58	7,350.8	1,161.3	-278.5	1,194.2	346.52
7,544.0	5.54	24.41	7,441.4	1,169.4	-275.5	1,201.4	346.75
7,634.0	5.27	21.95	7,531.0	1,177.2	-272.1	1,208.2	346.98
7,725.0	4.88	25.64	7,621.6	1,184.5	-268.9	1,214.7	347.21
7,815.0	4.66	24.67	7,711.3	1,191.3	-265.7	1,220.6	347.43
7,906.0	2.86	52.97	7,802.1	1,196.0	-262.3	1,224.5	347.63
7,997.0	2.33	62.29	7,893.0	1,198.2	-258.9	1,225.9	347.81
8,087.0	2.02	48.31	7,982.9	1,200.2	-256.1	1,227.2	347.96
8,178.0	0.66	52.97	8,073.9	1,201.5	-254.5	1,228.2	348.04
8,268.0	0.48	62.11	8,163.9	1,202.0	-253.7	1,228.5	348.08
8,359.0	0.66	14.21	8,254.9	1,202.7	-253.3	1,229.1	348.11
8,449.0	0.35	326.93	8,344.9	1,203.4	-253.3	1,229.8	348.11
8,540.0	0.70	301.79	8,435.9	1,204.0	-253.9	1,230.4	348.09
8,631.0	0.70	321.56	8,526.9	1,204.7	-254.7	1,231.3	348.06
8,722.0	0.22	316.64	8,617.9	1,205.3	-255.2	1,232.0	348.05
8,813.0	0.44	278.85	8,708.9	1,205.4	-255.7	1,232.3	348.03
8,903.0	0.31	252.31	8,798.9	1,205.4	-256.2	1,232.3	348.00
8,993.0	0.79	296.08	8,888.9	1,205.6	-257.0	1,232.7	347.97
9,084.0	0.88	288.87	8,979.9	1,206.1	-258.2	1,233.5	347.92

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Site:	Honea 19-05 Pad	MD Reference:	KB @ 8593.0ft
Well:	WMC 411-19-793	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	NN

Survey								
MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)	
9,174.0	0.83	264.44	9,069.9	1,206.3	-259.5	1,233.9	347.86	
9,265.0	0.97	284.48	9,160.9	1,206.4	-260.9	1,234.3	347.80	
9,355.0	1.41	277.71	9,250.8	1,206.7	-262.8	1,235.0	347.72	
9,446.0	0.97	297.31	9,341.8	1,207.3	-264.6	1,235.9	347.64	
9,537.0	1.05	278.85	9,432.8	1,207.7	-266.1	1,236.7	347.58	
9,627.0	1.45	283.77	9,522.8	1,208.1	-268.0	1,237.5	347.49	
9,718.0	1.71	298.71	9,613.7	1,209.1	-270.3	1,238.9	347.40	
9,808.0	1.23	193.77	9,703.7	1,208.8	-271.7	1,238.9	347.33	
9,899.0	1.98	173.03	9,794.7	1,206.3	-271.8	1,236.5	347.30	
9,989.0	1.10	186.56	9,884.7	1,203.9	-271.7	1,234.1	347.28	
10,080.0	1.05	221.02	9,975.6	1,202.4	-272.3	1,232.8	347.24	
10,170.0	1.32	224.89	10,065.6	1,201.0	-273.6	1,231.8	347.17	
10,261.0	0.70	268.39	10,156.6	1,200.2	-274.9	1,231.3	347.10	
10,351.0	1.45	278.85	10,246.6	1,200.4	-276.6	1,231.8	347.03	
10,442.0	1.05	291.68	10,337.6	1,200.9	-278.5	1,232.8	346.94	
10,533.0	1.19	311.28	10,428.6	1,201.8	-280.0	1,234.0	346.89	
10,623.0	1.27	323.23	10,518.5	1,203.2	-281.3	1,235.7	346.84	
10,654.0	0.88	325.78	10,549.5	1,203.7	-281.6	1,236.2	346.83	
10,713.0	0.88	325.78	10,608.5	1,204.5	-282.1	1,237.1	346.82	
PTB @ 10713 MD/ 10608.5 TVD								

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
199.0	199.0	1.4	-2.0	First Survey @ 199 MD/ 199 TVD
10,713.0	10,608.5	1,204.5	-282.1	PTB @ 10713 MD/ 10608.5 TVD

Checked By: _____ Approved By: _____ Date: _____