

Company: SANDIA TECHNOLOGIES, LLC

Well: NYSTA TANDEM LOT 1

Field: WILDCAT

County: ROCKLAND

State: NEW YORK

DIRECTIONAL SURVEY

County: ROCKLAND Field: WILDCAT Location: LAT: 41.1039 Well: NYSTA TANDEM LOT 1 Company: SANDIA TECHNOLOGIES, LLC		DIRECTIONAL SURVEY	
LAT: 41.1039 LONG: -74.027		Elev.: K.B. 402.00 ft G.L. 386.00 ft D.F. 402.00 ft	
Permanent Datum: _____ Log Measured From: <u>KELLY BUSHING</u> Drilling Measured From: <u>KELLY BUSHING</u>		Elev.: <u>386.00 ft</u> 16.00 ft above Perm. Datum	
LOCATION		GROUND LEVEL _____ KELLY BUSHING _____ KELLY BUSHING _____	
API Serial No. <u>31-087-27016-00-00</u>		Section _____ Township <u>CLARKSTOWN</u> QUAD _____	

Logging Date	31-Aug-2011		
Run Number	1		
Depth Driller	1528 ft		
Schlumberger Depth	1500 ft		
Bottom Log Interval	1482 ft		
Top Log Interval	602 ft		
Casing Driller Size @ Depth	13.375 in @ 603 ft		
Casing Schlumberger	602 ft		
Bit Size	12.250 in		
Type Fluid In Hole	FRESH WATER BASED MUD		
Density	9.3 lbm/gal		
Fluid Loss	PH		
Source Of Sample	MEASURED		
RM @ Measured Temperature	6.690 ohm.m @ 77 degF		
RMF @ Measured Temperature	5.017 ohm.m @ 77 degF		
RMC @ Measured Temperature	10.035 ohm.m @ 77 degF		
Source RMF	CALCULATED		
RM @ MRT	7.490 @ 68 5.617 @ 68		
Maximum Recorded Temperatures	68 degF		
Circulation Stopped	Time		
Logger On Bottom	31-Aug-2011		17:00
Unit Number	3039 BRADFORD		
Recorded By	TIM ZOTARA		
Witnessed By	DAN COLLINS		

	Run 1	Run 2	Run
Logging Date			
Run Number			
Depth Driller			
Schlumberger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Driller Size @ Depth			
Casing Schlumberger			
Bit Size			
Type Fluid In Hole			
Density			
Fluid Loss			
Source Of Sample			
RM @ Measured Temperature			
RMF @ Measured Temperature			
RMC @ Measured Temperature			
Source RMF			
RM @ MRT			
Maximum Recorded Temperatures			
Circulation Stopped			
Logger On Bottom			
Unit Number			
Recorded By			
Witnessed By			

DEPTH SUMMARY LISTING

Date Created: 31-AUG-2011 1:45:23

Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-B Serial Number: 2828 Calibration Date: 1-JAN-2011 Calibrator Serial Number: 33 Calibration Cable Type: 7-39P LXS Wheel Correction 1: -5 Wheel Correction 2: -4	Type: CMTD-B/A Serial Number: 2929 Calibration Date: 2-AUG-2011 Calibrator Serial Number: 1095 Number of Calibration Points: 10 Calibration RMS: 45 Calibration Peak Error: 71	Type: 7-39P LXS Serial Number: 3039 Length: 13300 FT Conveyance Method: Wireline Rig Type: LAND

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	
Rig Up Length At Bottom:	
Rig Up Length Correction:	
Stretch Correction:	
Tool Zero Check At Surface:	0.50 FT

Depth Control Remarks

<p>1. ALL SCHLUMBERGER DEPTH CONTROL POLICIES FOLLOWED</p> <p>2. IDW USED AS PRIMARY DEPTH DEVICE</p> <p>3. Z-CHART USED AS SECONDARY DEPTH DEVICE</p> <p>4.</p> <p>5.</p> <p>6.</p>	
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DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1	OTHER SERVICES2
OS1: PEX-AIT	OS1:
OS2: CMR-ECS-HNGS	OS2:
OS3: PPC-SSCAN-FMI	OS3:
OS4: MDT-MSCT	OS4:
OS5: CBL/VDL-USIT	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2

THANK YOU FOR CHOOSING SCHLUMBERGER

TOOLS RUN AS PER TOOL SKETCH, W/BOWSPRING & STANDOFFS ON AIT
ALL WELLSITE DATA, PERMIT, MUD REPORT, SOP PROVIDED BY CLIENT

RUN1: PEX-AIT RUN2: CMR-ECS-HNGS RUN3: PPC-SSCAN-FMI
RUN4: MSCT RUN5: MDT RUN6: CBL/VDL-USIT

RUN#1: MDT RUN#2: MDT RUN#3: SDR/VDR 5011
 GEO REQUESTED MATR = SANDSTONE / MDEN = 2.65 G/CC
 3 MAX TEMP THERMOMETERS RUN IN HEAD, PER RUN, MAX TEMP FROM HTEM.
 RUN1 LOGGED AT: REPEAT & MAIN @ 1600'/HR
 CMR TUNED @ 1184'

SLB CREW: THIMLAR / CANNON

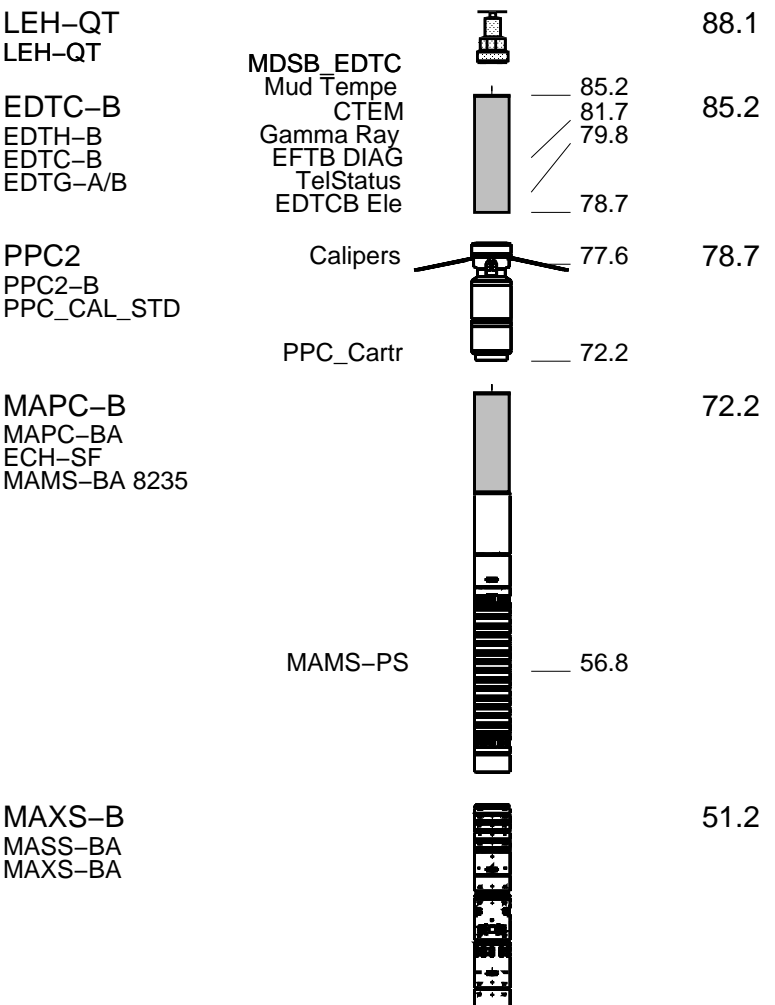
RUN 1			RUN 2		
SERVICE ORDER #:		AXPS-00185	SERVICE ORDER #:		
PROGRAM VERSION:		19C0-187	PROGRAM VERSION:		
FLUID LEVEL:		0 ft	FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

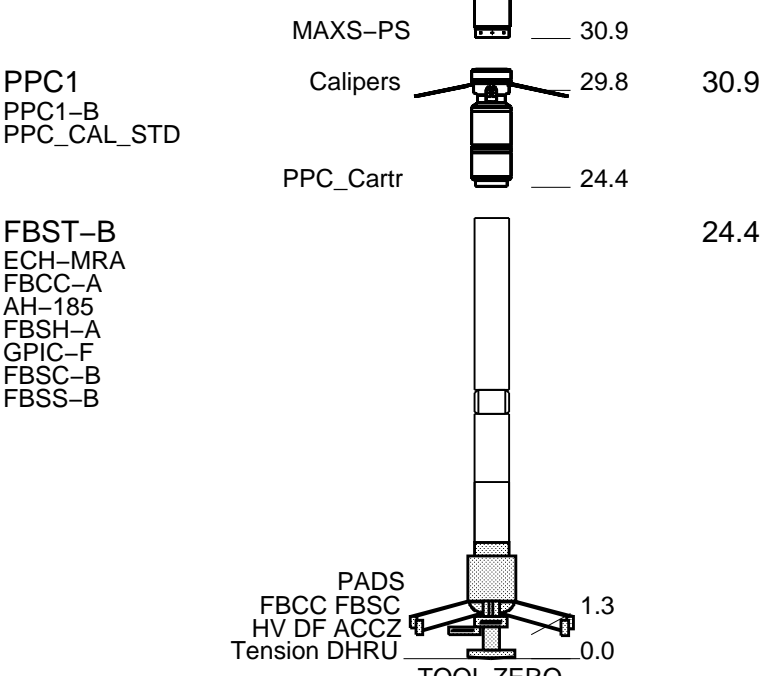
RUN 1 RUN 2

SURFACE EQUIPMENT
 WITM (EDTS)-A

DOWNHOLE EQUIPMENT



RUN 2

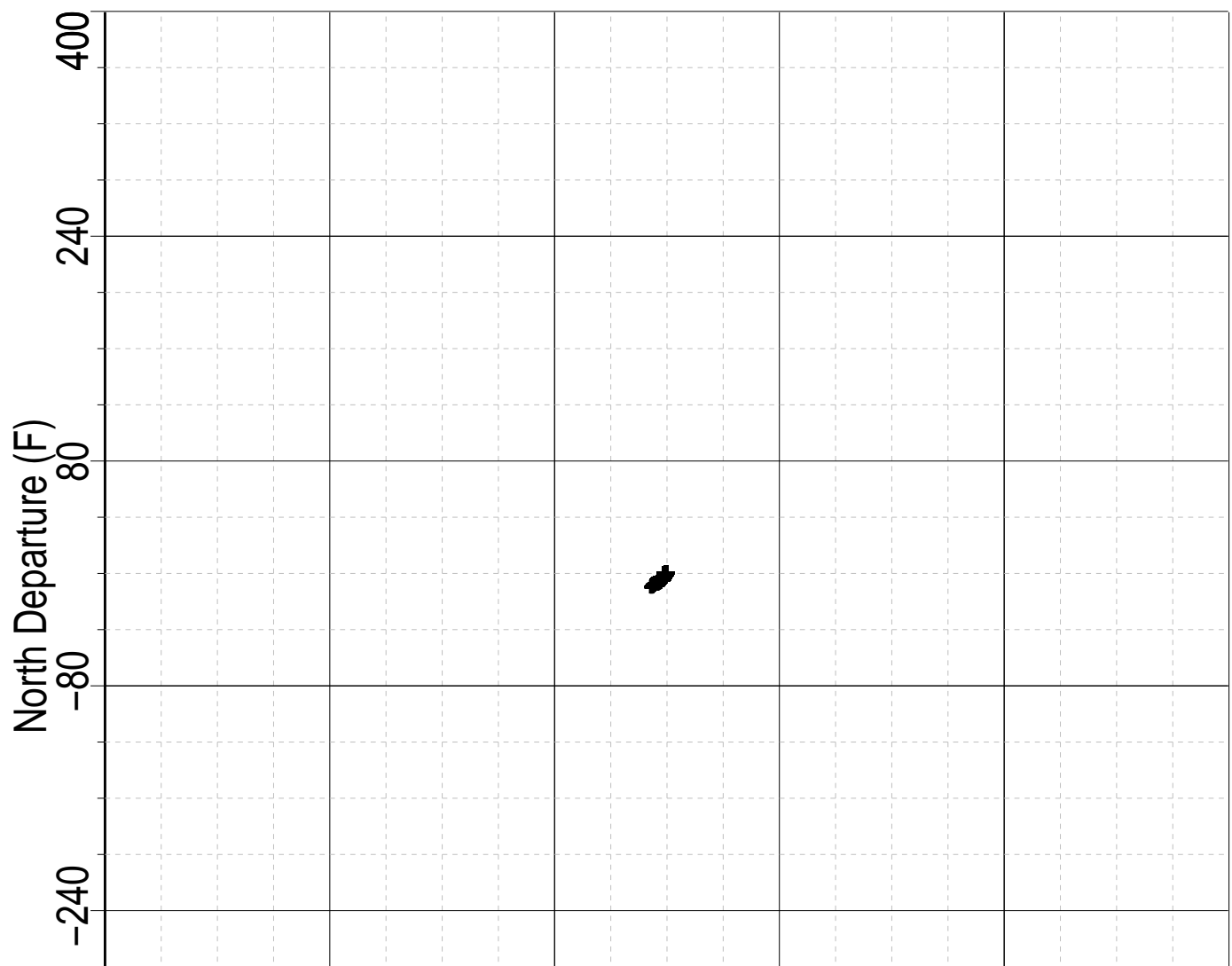


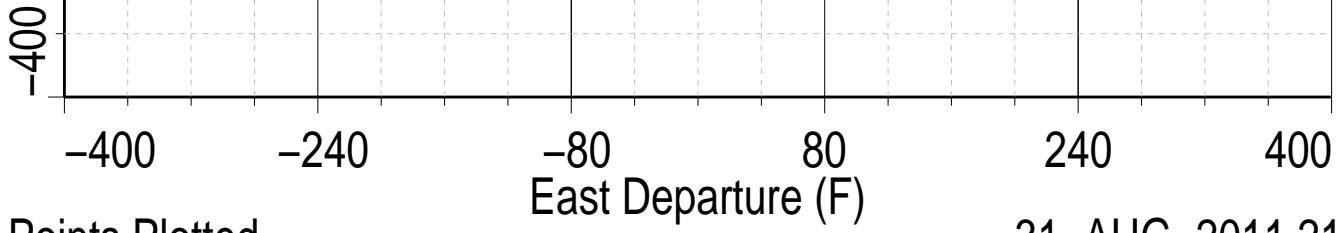
PPC1
 PPC1-B
 PPC_CAL_STD

FBST-B
 ECH-MRA
 FBCC-A
 AH-185
 FBSH-A
 GPIC-F
 FBSC-B
 FBSS-B

MAXIMUM STRING DIAMETER 5.00 IN
 MEASUREMENTS RELATIVE TO TOOL ZERO
 ALL LENGTHS IN FEET

Index: 1500.0 – 82.5 FT

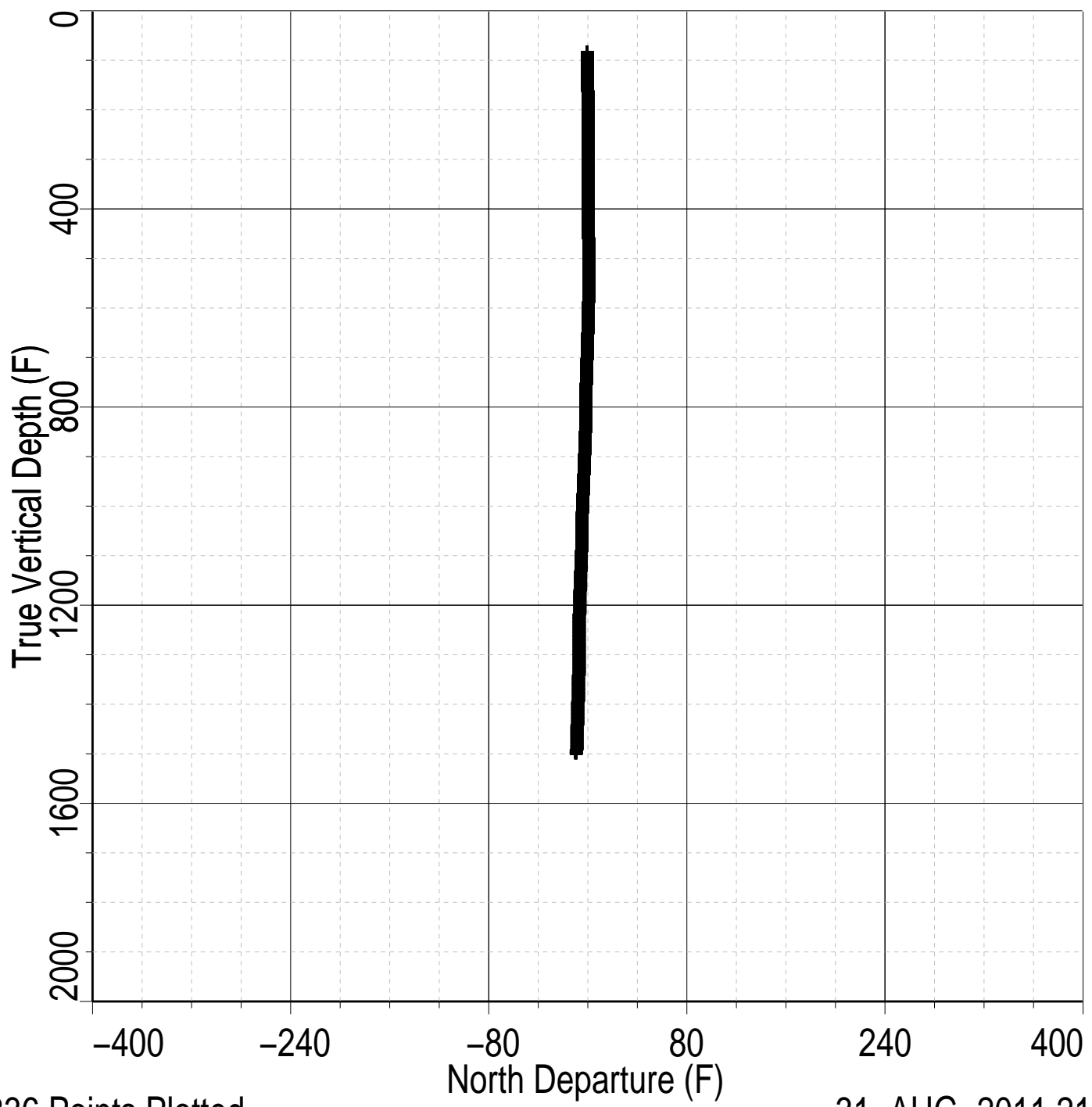




2836 Points Plotted

31-AUG-2011 21:49

Index: 1500.0 - 82.5 FT

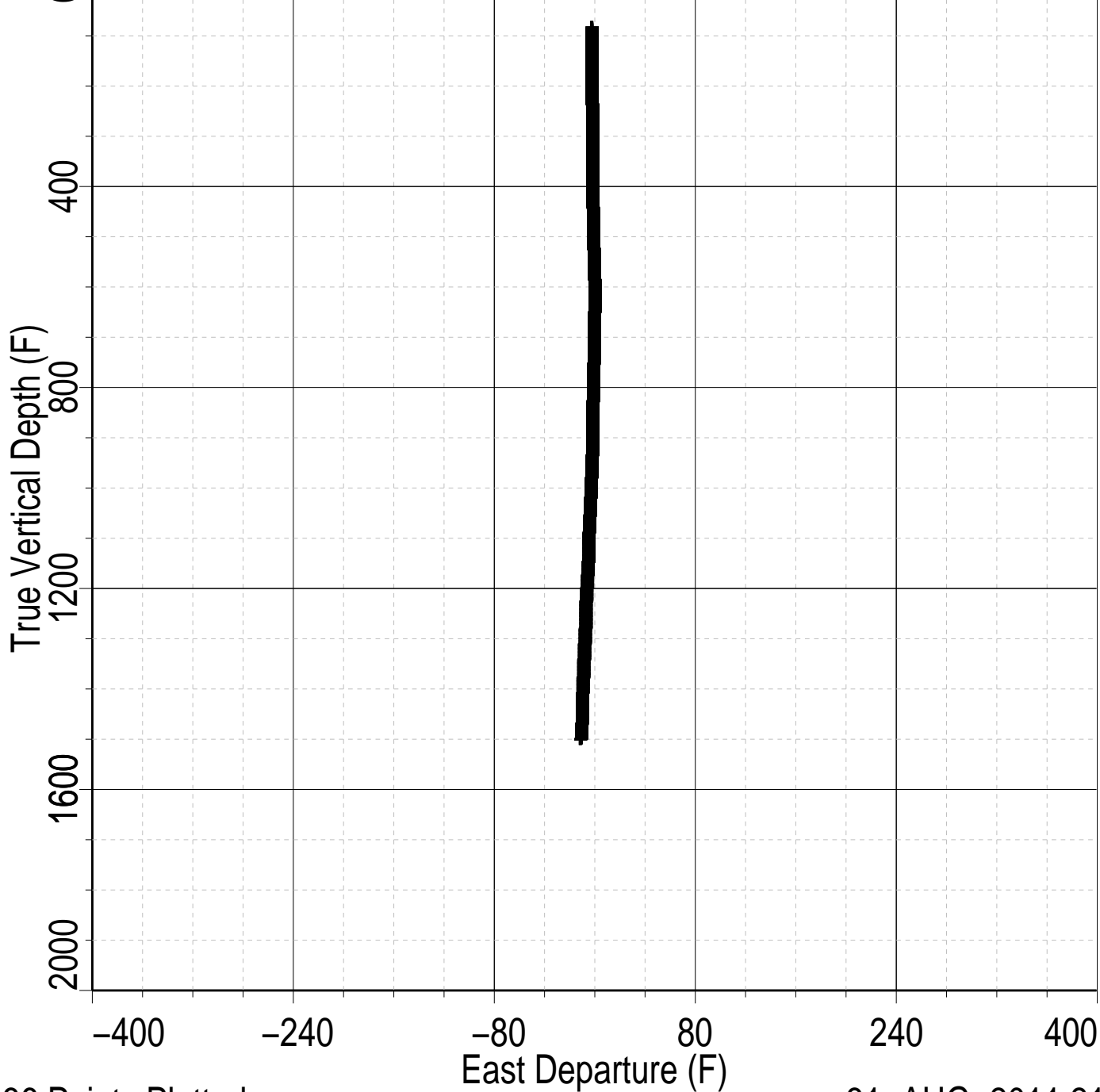


2836 Points Plotted

31-AUG-2011 21:49

Index: 1500.0 - 82.5 FT

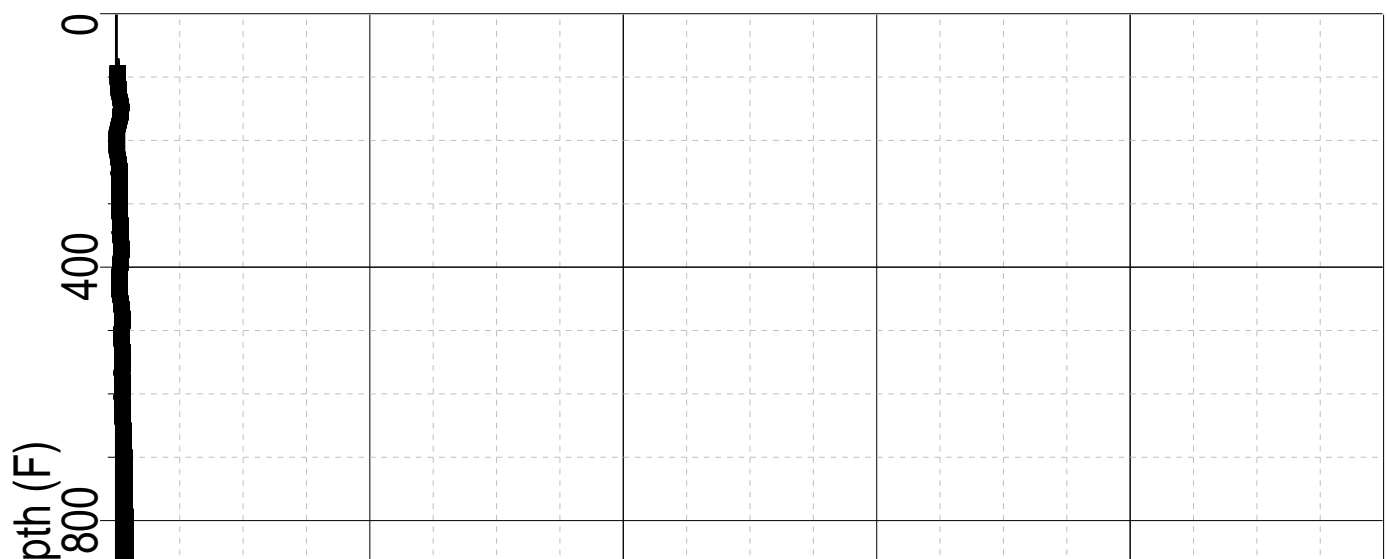


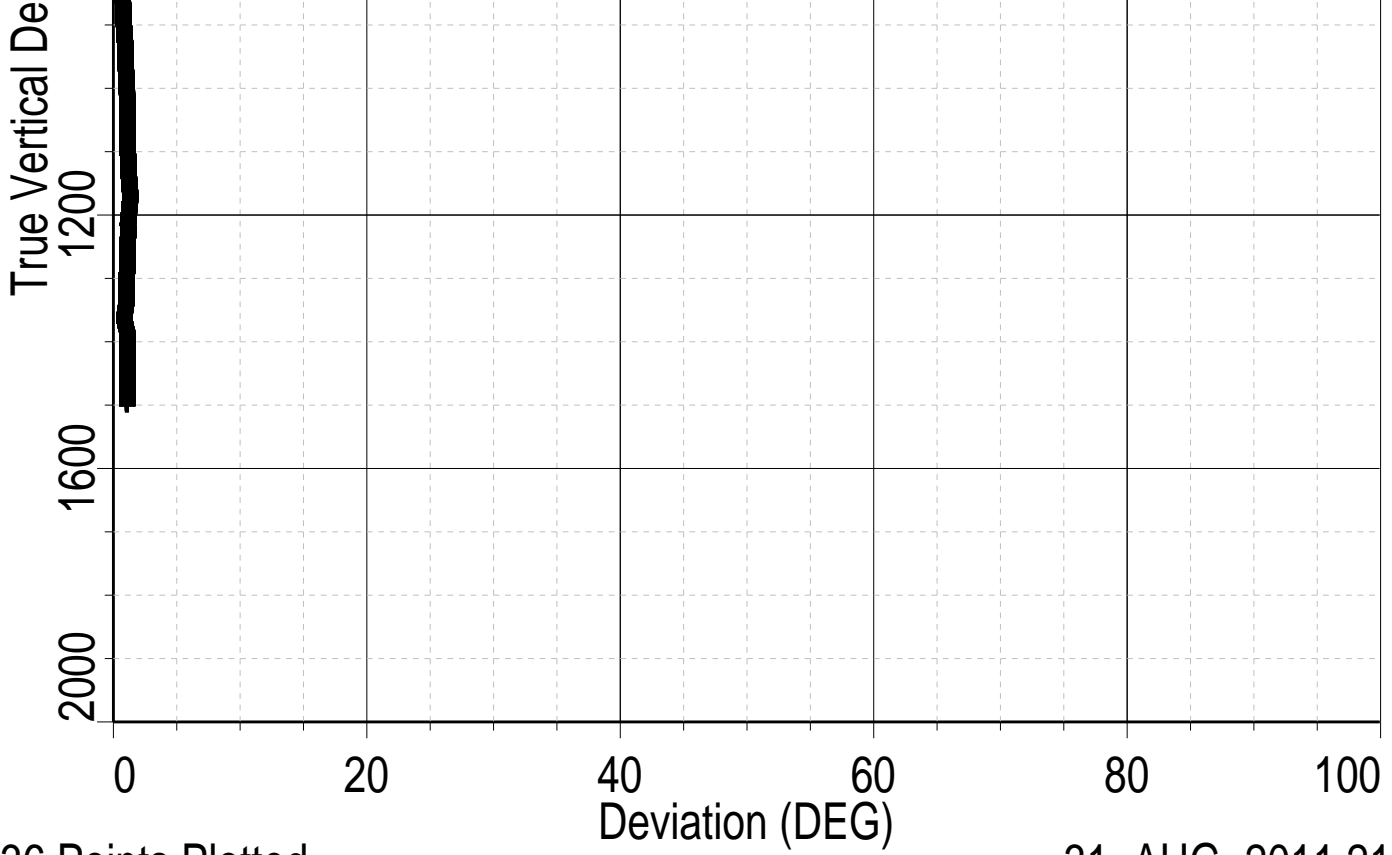


2836 Points Plotted

31-AUG-2011 21:49

Index: 1500.0 - 82.5 FT

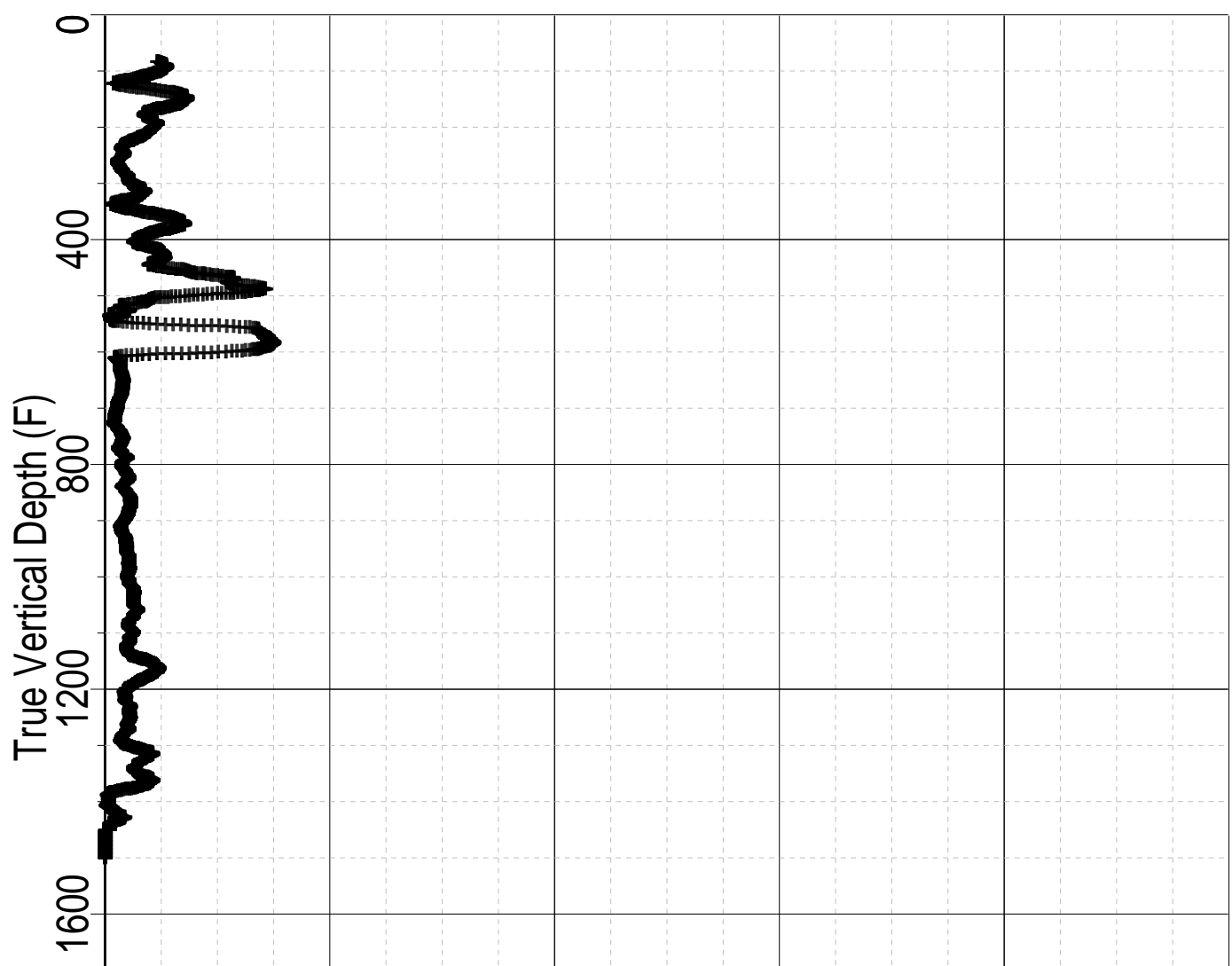


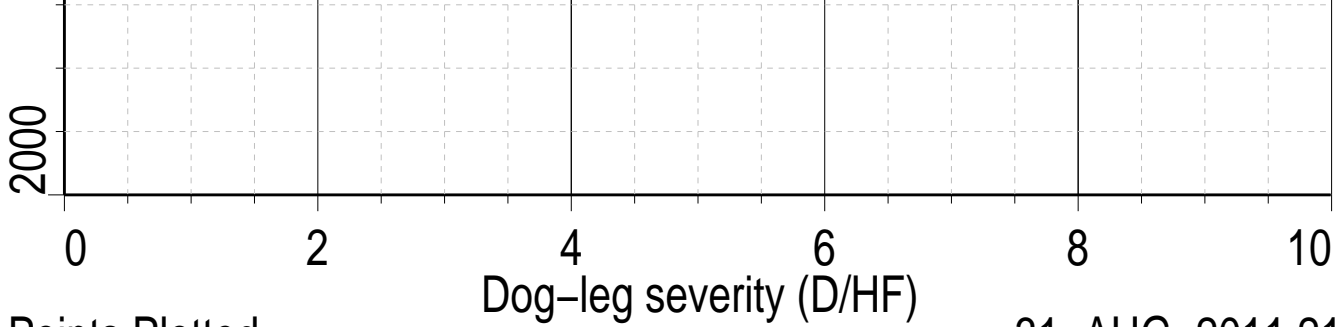


2836 Points Plotted

31-AUG-2011 21:49

Index: 1500.0 - 82.5 FT





2836 Points Plotted

31-AUG-2011 21:49

Client: SANDIA TECHNOLOGIES, LLC
 Field: WILDCAT
 Well: NYSTA TANDEM LOT 1
 Run date:

Tool: GPIT-F
 Sub Type: ----
 Computation: Post Job Check

--- Inclinometry Data ---

Latitude: 41.10 deg
 Longitude: -74.03 deg
 Earth Gravity: 9.8027 m/s²
 Mag Intensity: 52589 nT
 Mag Inclination: 67.40 deg
 Mag Declination: -13.20 deg

Data selected for calculation: 1656 levels from 132.625 to 1500.000 FT

--- Recommended Action ---

Post-log sensor offset estimation is successful in reducing misfit with model parameters to an acceptable level.
 Despite some out-of-spec offsets, inclinometry channels are OK.
 No further action required before data delivery.

--- Post Job Check Results ---

Offsets have been estimated for the GPIT sensors assuming that the sensors are working correctly except for moderate offsets

Estimated accelerometer and magnetometer offsets:

	Offset	Specification	Offset	Specification
AX	0.000 m/s ²	0 +/- 0.02 m/s ²	FX -350 nT	0 +/- 400 nT
AY	0.000 m/s ²	0 +/- 0.02 m/s ²	FY 50 nT	0 +/- 400 nT
AZ	0.000 m/s ²	0 +/- 0.02 m/s ²	FZ -750 nT	0 +/- 400 nT

Agreement with Geomagnetic model values before and after offset removal:

	G	MFIN	MINC
Before	0.01%	1.09%	0.41%
After	0.01%	0.31%	0.06% (expected fit < 1%)

Difference in inclinometry channels before and after offset removal:

	RMS	Allowed difference
delta-SDEV	0.00 deg	< 0.2 deg
delta-HAZI	---	< 2.0 deg for SDEV > 5 deg
delta-RB	---	< 2.0 deg for SDEV > 5 deg
delta-P1NO	0.4 deg	< 2.0 deg for SDEV < 85 deg

Sonde deviation (SDEV): 0.02 to 1.33 (deg)

--- No meaningful data for these channels due to well deviation.

~VERSION INFORMATION

VERS. 2.0 :CWLS Log ASCII Standard - VERSION 2.0
 WRAP. NO :One Line per depth step
 PROD. Schlumberger :LAS Producer
 PROG. DLIS to ASCII 19C0-187 :LAS Program name
 CREA. 2011/08/31 22:07 :LAS Creation date
 MM/DD hh:mm}
 DLIS_CREA. 2011-Aug-31 21:42 :DLIS Creation date
 ime {YYYY-MMM-DD hh:mm}
 SOURCE. FMI_CAL_MAXS_MAPC_078PUP.DLIS :DLIS File Name
 FILE-ID. FMI_CAL_MAXS_MAPC_078PUP :File Identifier

#-----

~WELL INFORMATION

#MNEM	UNIT	DATA	DESCRIPTION
STRT	.F	100.0	:START DEPTH
STOP	.F	1500.0	:STOP DEPTH
STEP	.F	50.0	:STEP
NULL	.	-999.25	:NULL VALUE
COMP	.	SANDIA TECHNOLOGIES, LLC	:COMPANY
WELL	.	NYSTA TANDEM LOT 1	:WELL
FLD	.	WILDCAT	:FIELD
LOC	.		:LOCATION
CNTY	.	ROCKLAND	:COUNTY
STAT	.	NEW YORK	:STATE
CTRY	.		:COUNTRY
API	.		:API NUMBER
UWI	.		:UNIQUE WELL ID
DATE	.		:LOG DATE
SRVC	.	Schlumberger	:SERVICE COMPANY
LATI	.DEG		:LATITUDE
LONG	.DEG		:LONGITUDE
GDAT	.		:GeoDetic Datum

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~PARAMETER INFORMATION

#MNEM	UNIT	VALUE	DESCRIPTION
RUN	.	1	:RUN NUMBER
PDAT	.	GROUND LEVEL	:Permanent Datum
EPD	.		:Elevation of Permanent Datum n Sea Level
LMF	.		:Logging Measured From (Name of

Elevation Reference)

APD .
ve Permanent Datum

:Elevation of Depth Reference

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~CURVE INFORMATION
#MNEM.UNIT    API CODE                                DESCRIPTION
#-----
DEPT .F                                              :DEPTH (BOREHOLE
CLOS .F                                              :Closure {F13.4}
ED .F                                               :East Departure
HAZI .DEG                                           :Hole Azimuth {F
HAZIM.DEG                                           :Hole Azimuth {F
ND .F                                               :North Departure
RB .DEG                                             :Relative Bearing
SDEV .DEG                                           :Sonde Deviation
SDEVM.DEG                                           :Sonde Deviation
TENS .LBF                                           :Cable Tension {
TVDE .F                                             :True Vertical D
.4}
#-----
#
#
#      DEPT      CLOS      ED      HAZI      HAZIM      NI
#      RB      SDEV      SDEVM      TENS      TVDE
#
~A

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#	DEPT	CLOS	ED	HAZI	HAZIM	NI
#	RB	SDEV	SDEVM	TENS	TVDE	
100.0	2.2336	-2.2173	59.0887	52.3029	-0.0	
333.0487	0.1727	0.1803	1986.0000	100.0132		
150.0	2.1280	-2.1269	12.0452	12.8353	-0.0	
9.8552	0.3443	0.3779	1751.0000	150.0126		
200.0	2.0781	-2.0755	4.0238	81.3532	0.0	
27.6308	0.0869	0.0290	1734.0000	200.0122		
250.0	1.9549	-1.9484	54.3403	54.5507	0.0	
337.7268	0.2513	0.2506	1751.0000	250.0119		
300.0	1.7460	-1.7260	63.8511	73.7879	0.0	
328.1655	0.3048	0.2689	1710.0000	300.0113		
350.0	1.4980	-1.4659	82.8762	93.1230	0.0	
309.1368	0.3223	0.3185	1774.0000	350.0106		
400.0	1.1857	-1.1484	84.8656	68.5826	0.0	
307.1478	0.3476	0.3262	1716.0000	400.0096		
450.0	1.0720	-0.9676	44.2095	43.7495	0.0	
347.8337	0.2761	0.3427	1775.0000	450.0089		
500.0	1.0331	-0.6897	38.8724	69.4812	0.0	
353.1146	0.5328	0.4773	1791.0000	500.0072		
550.0	0.7047	-0.2772	119.6190	123.9858	0.0	
352.7346	0.5507	0.5341	1851.0000	550.0052		
600.0	0.4501	0.1236	117.6194	131.4888	0.0	
344.9062	0.5496	0.5489	1869.0000	600.0031		
650.0	0.0027	-0.0021	202.8547	202.6197	0.0	
350.4513	0.5555	0.5651	1847.0000	650.0009		
700.0	0.5196	-0.2180	205.7533	206.2554	-0.0	
349.6481	0.6210	0.6365	1683.0000	699.9982		
750.0	1.0872	-0.4905	210.0496	209.7708	-0.0	
349.2772	0.6636	0.6753	1809.0000	749.9950		
800.0	1.6861	-0.8072	213.7238	214.1339	-1.0	
349.4689	0.7013	0.7286	1720.0000	799.9914		
850.0	2.3314	-1.1903	219.9368	217.5738	-2.0	
347.1380	0.7642	0.7929	1805.0000	849.9872		
900.0	3.0481	-1.6412	219.9958	220.5480	-2.0	
343.4970	0.8462	0.8729	1740.0000	899.9819		
950.0	3.8526	-2.1707	221.2398	220.9967	-3.0	
343.3083	0.9505	0.9623	1750.0000	949.9753		

1000.0	4.7276	-2.7598	223.0348	223.0257	-3.0
345.5549	1.0377	1.0544	1815.0000	999.9676	
1050.0	5.6734	-3.4380	227.0117	227.5466	-4.0
337.5267	1.1241	1.1092	1912.0000	1049.9584	
1100.0	6.6357	-4.2055	233.2504	232.8570	-5.0
333.3561	1.1584	1.1753	1844.0000	1099.9487	
1150.0	7.6735	-5.0799	235.8925	236.0918	-5.0
337.0793	1.2456	1.2838	1859.0000	1149.9371	
1200.0	8.7636	-6.0380	240.2690	244.1661	-6.0
320.1637	1.2888	1.2303	1849.0000	1199.9243	
1250.0	9.7356	-6.9783	245.1715	246.3779	-6.0
321.5319	1.1820	1.1393	2016.0000	1249.9136	
1300.0	10.6383	-7.8513	243.9025	244.0755	-7.0
311.0180	1.0723	1.0326	1970.0000	1299.9044	
1350.0	11.4949	-8.6435	241.6188	240.8557	-7.0
298.3495	1.0109	0.9614	2108.0000	1349.8966	
1400.0	12.3638	-9.3714	236.2906	238.1607	-8.0
299.4399	1.0988	1.0927	1826.0000	1399.8888	
1450.0	13.3288	-10.1923	236.1145	238.6714	-8.0
299.4243	1.1109	1.1054	2044.0000	1449.8794	
1500.0	14.2853	-11.0200	237.6159	237.6159	-9.0
297.6015	1.0990	1.0990	2246.0000	1499.8700	

Company: **SANDIA TECHNOLOGIES, LLC**

Schlumberger

Well: **NYSTA TANDEM LOT 1**

Field: **WILDCAT**

County: **ROCKLAND**

State: **NEW YORK**

DIRECTIONAL SURVEY