

# Schlumberger

Company: **LAMONT DOHERTY EARTH OBSERVATORY**

Well: **TW #4**  
 Field: **WILDCAT**  
 County: **ROCKLAND**

State: **NEW YORK**

## BOREHOLE COMPENSATED SONIC CALIPER

County: **ROCKLAND**  
 Field: **WILDCAT**  
 Location: **41.002920 LAT**  
 Well: **TW #4**  
 Company: **LAMONT DOHERTY EARTH OBS**

LOCATION		Elev.: <b>K.B.</b>	
41.002920 LAT -73.910610 LONG		G.L. <b>389.00 ft</b>	
Permanent Datum:	<u>GROUND LEVEL</u>	Elev.: <u>389.00 ft</u>	
Log Measured From:	<u>GROUND LEVEL</u>	<u>0.00 ft</u> above Perm. Datum	
Drilling Measured From:	<u>GROUND LEVEL</u>		
API Serial No. 31-087-30000-00-01	Section 1	Township ORANGETOWN	QUAD: NYACK

Logging Date	3-Oct-2013	
Run Number	1	
Depth Driller	1802 ft	
Schlumberger Depth	1706 ft	
Bottom Log Interval	1693 ft	
Top Log Interval	700 ft	
Casing Driller Size @ Depth	4.500 in @ 750 ft	
Casing Schlumberger	750 ft	
Bit Size	3.780 in	
Type Fluid In Hole	FRESH WATER	
Density	8.3 lbm/gal	
Fluid Loss	PH	
Source Of Sample		
RM @ Measured Temperature	@	
RMF @ Measured Temperature	@	
RMC @ Measured Temperature	@	
Source RMF	RMC	
RM @ MRT	RMF @ MRT	
Maximum Recorded Temperatures		
Circulation Stopped	Time	
Logger On Bottom	Time	1:00
Unit Number	377 BRADFORD	
Recorded By	FUNKHOUSER	
Witnessed By	NICK MALKEWICZ / DAN COLLINS	

Logging Date	Run 1	Run 2	Run 3
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	Time		
Logger On Bottom	Time		
Unit Number			
Recorded By			
Witnessed By			

## DEPTH SUMMARY LISTING

Date Created: 4-OCT-2013 19:07:38

### Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-B Serial Number: 6204 Calibration Date: 27-JUN-2013 Calibrator Serial Number: 33 Calibration Cable Type: 7-39P-LXS Wheel Correction 1: 1 Wheel Correction 2: 0	Type: CMTD-B/A Serial Number: 2013 Calibration Date: 03-SEP-2013 Calibrator Serial Number: 412906 Number of Calibration Points: 10 Calibration RMS: 7 Calibration Peak Error: 16	Type: 7-39P-LXS Serial Number: 710017 Length: 5500 FT <hr/> Conveyance Method: Wireline Rig Type: LAND

### Depth Control Parameters

Log Sequence: First Log In the Well
Rig Up Length At Surface: 0.00 FT
Rig Up Length At Bottom: 0.00 FT
Rig Up Length Correction: 0.00 FT
Stretch Correction:
Tool Zero Check At Surface:

### Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH CONTROL POLICIES FOLLOWED 2. IDW USED AS PRIMARY DEPTH CONTROL 3. DRUM COUNTER USED AS SECONDARY DEPTH CONTROL 4. TOOL ZEROED AT HEAD AT GROUND LEVEL 5. ALL RUNS CORRELATED TO RUN 1(A) 6.
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OTHER SERVICES1 OS1: DENSITY OS2: NEUTRON OS3: INDUCTION OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
THANK YOU FOR USING SCHLUMBERGER	
CEMENT 60 SACKS CLASS A CEMENT 13.8# / GAL	
YIELD 1.5 CU FT / SACK WATER 7.5GAL /SACK	

CREW: BOWEN /THIMLAR / ZOTARA

RUN 1		
SERVICE ORDER #:	BXW0-00331	
PROGRAM VERSION:	19C1-222	
FLUID LEVEL:		
LOGGED INTERVAL	START	STOP

RUN 2		
SERVICE ORDER #:		
PROGRAM VERSION:		
FLUID LEVEL:		
LOGGED INTERVAL	START	STOP

## EQUIPMENT DESCRIPTION

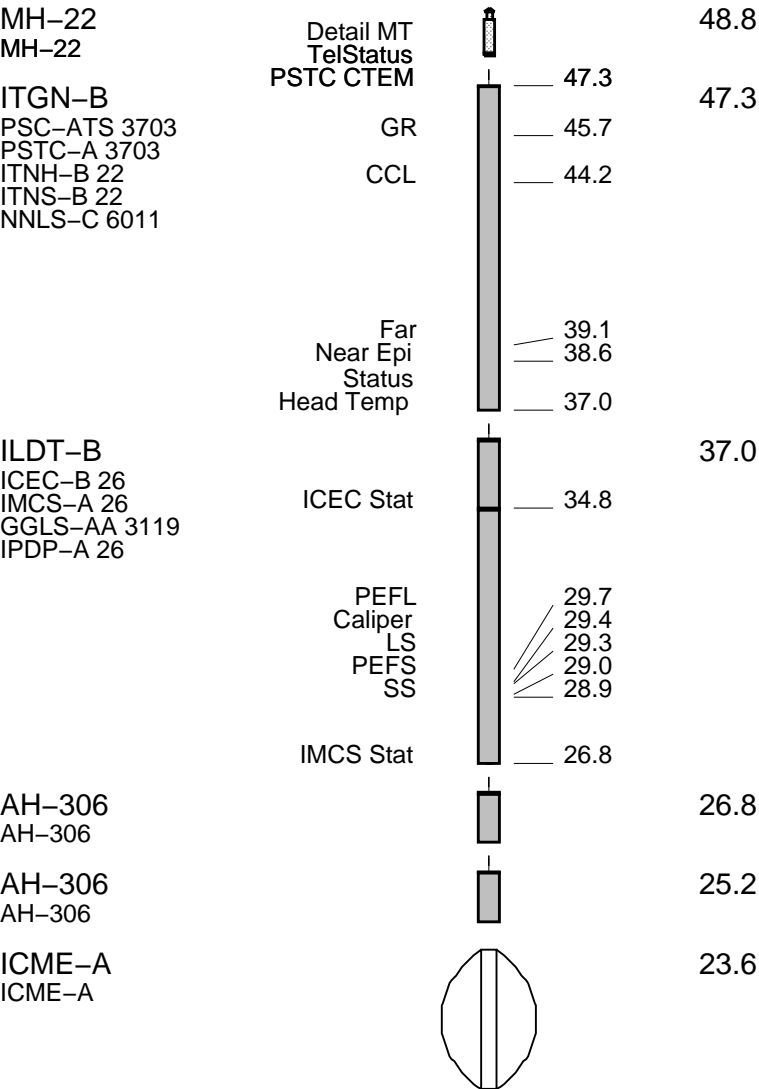
RUN 1

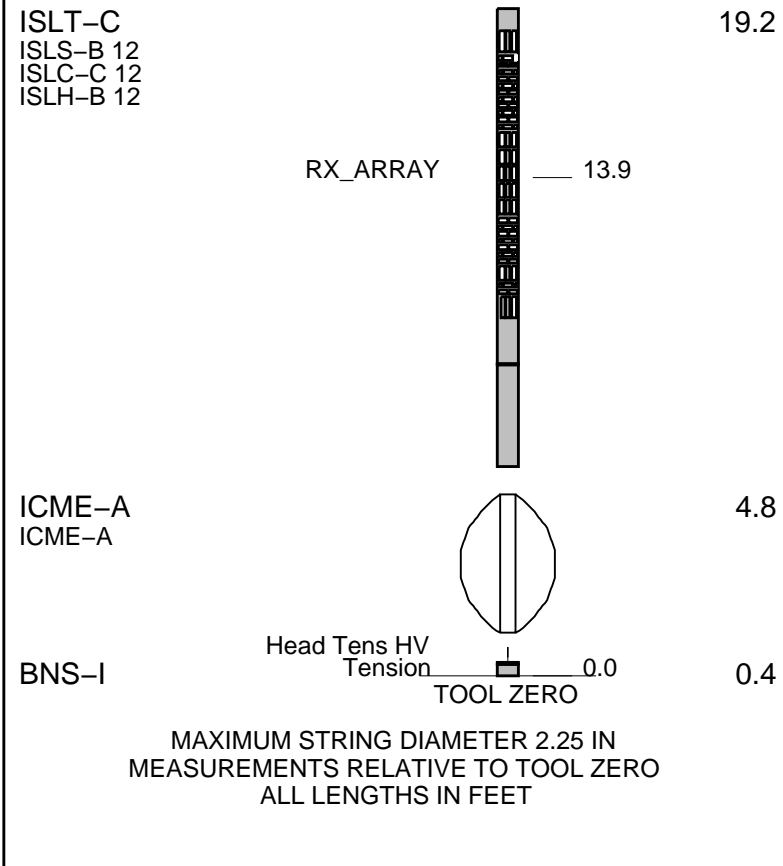
RUN 2

### SURFACE EQUIPMENT

WITM-A  
PSC\_16MHZ

### DOWNHOLE EQUIPMENT





Company: LAMONT DOHERTY EARTH OBSERVATORY Well: TW #4

### Input DLIS Files

SLT_LDL_CNL_009LUP	FN:8	03-Oct-2013 10:43	1710.0 FT	639.5 FT
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### Output DLIS Files

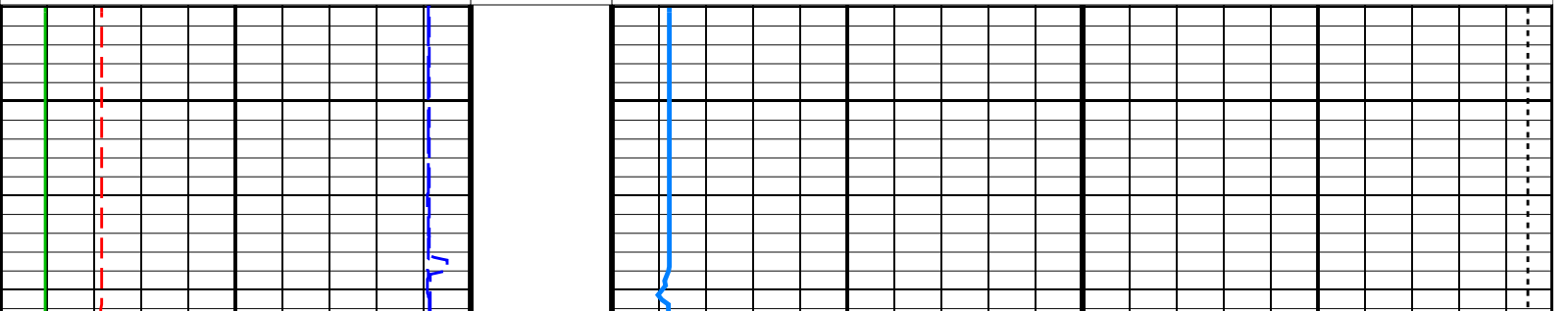
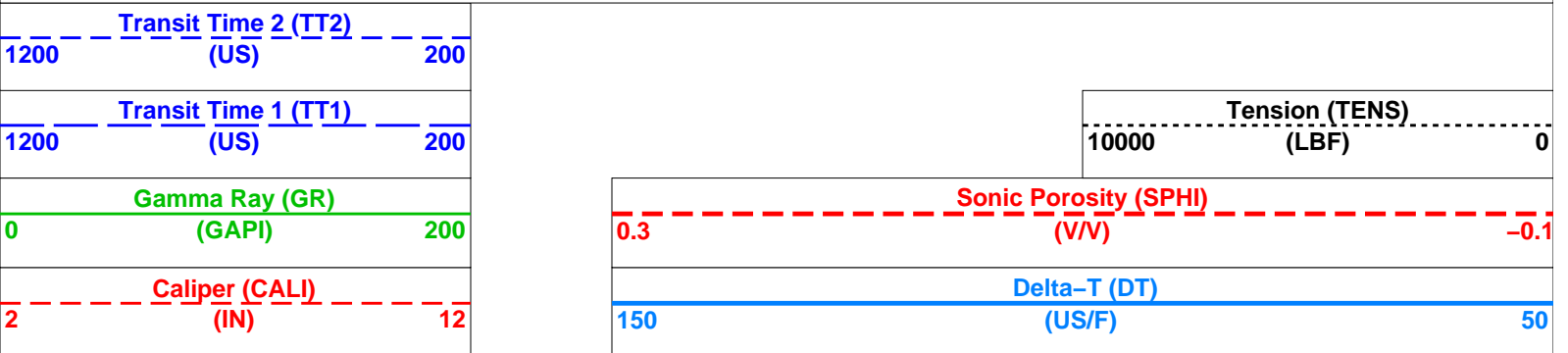
DEFAULT	SLT_LDL_CNL_005PUP	FN:4	PRODUCER	04-Oct-2013 19:16	1710.0 FT	639.5 FT
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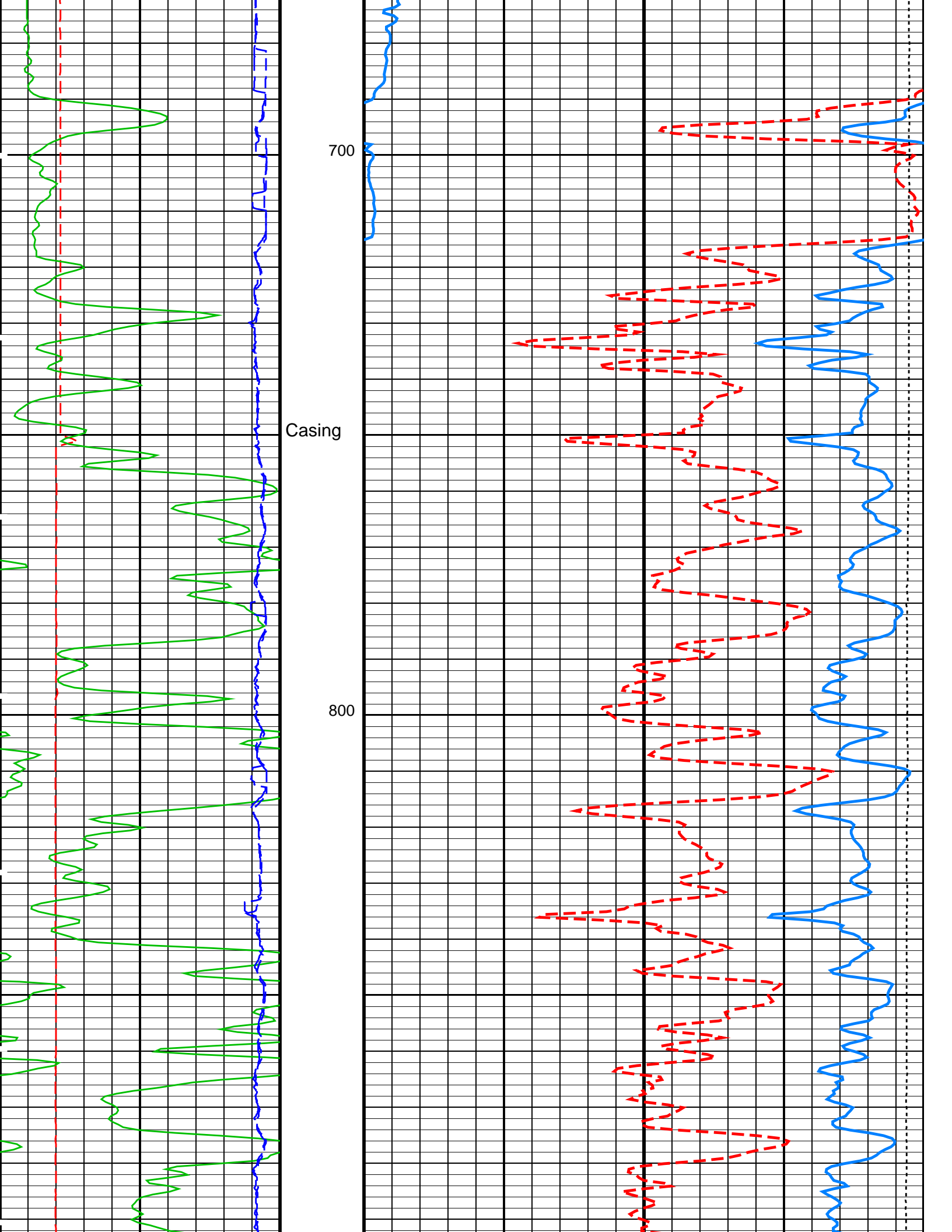
## OP System Version: 19C1-222

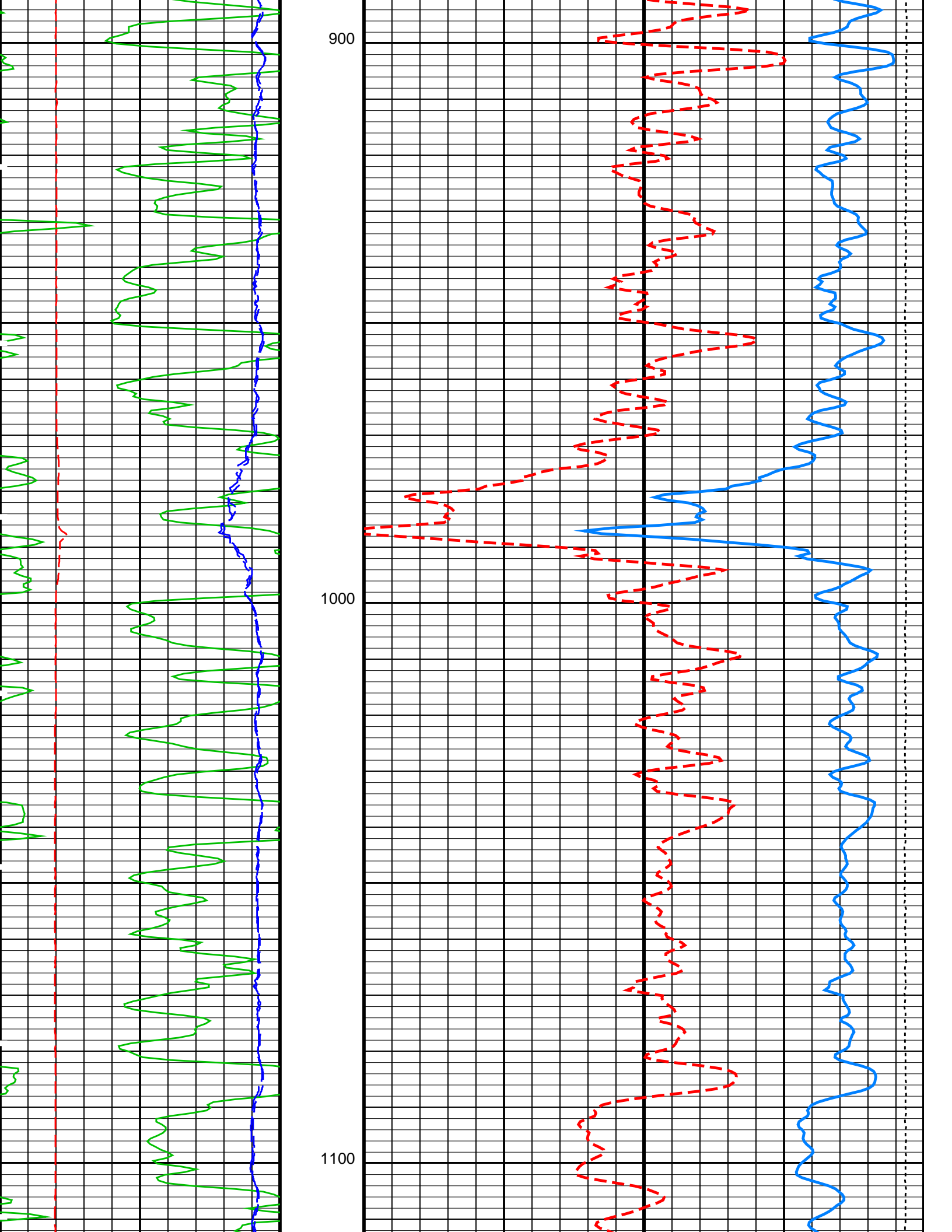
ISLT-C	19C1-222	ILDT-B	19C1-222
ITGN-B	19C1-222		

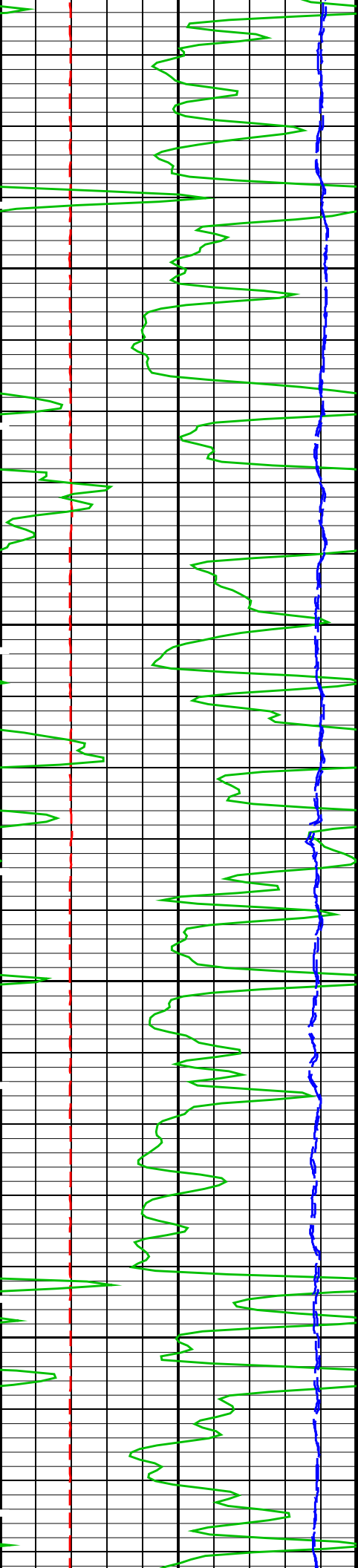
### PIP SUMMARY

Time Mark Every 60 S



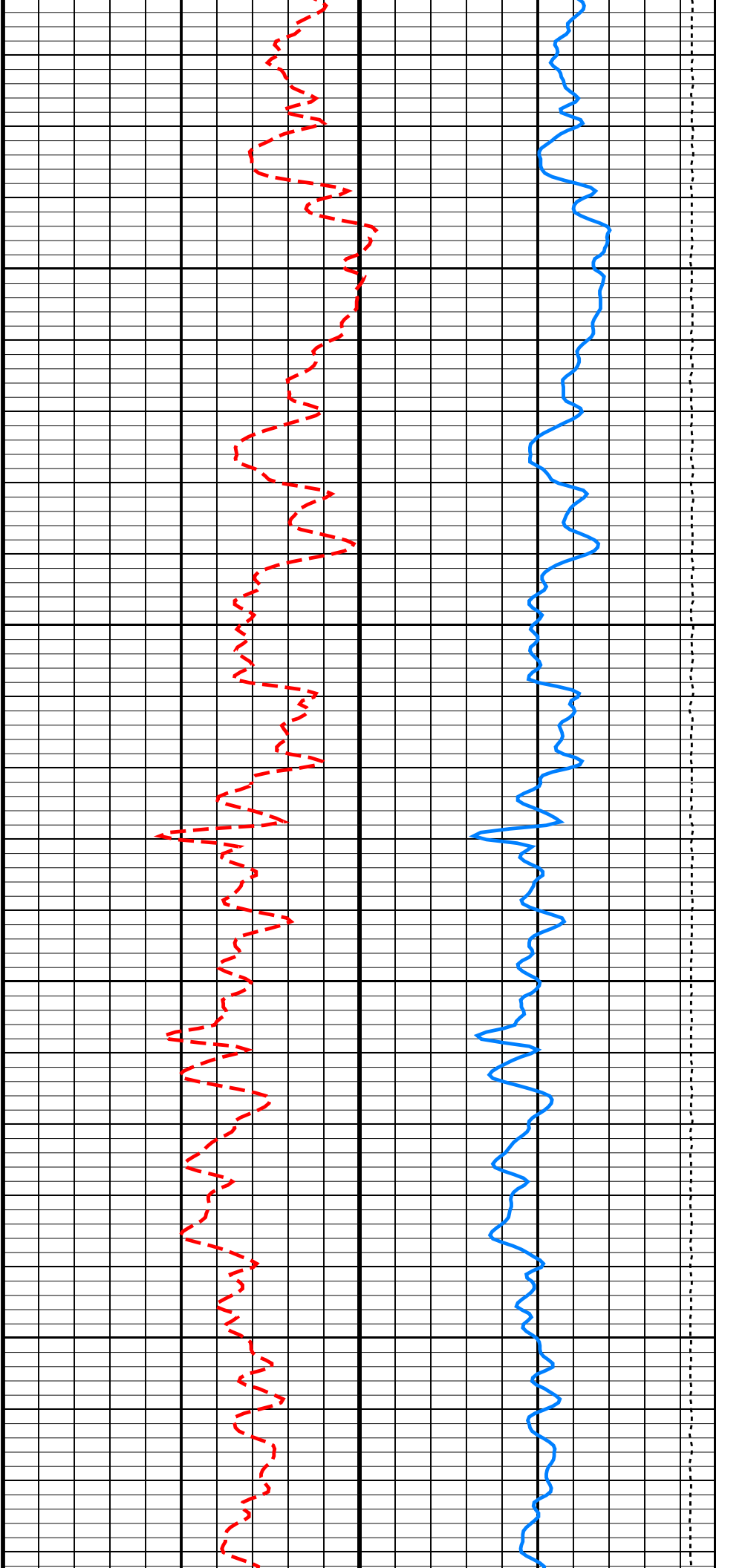


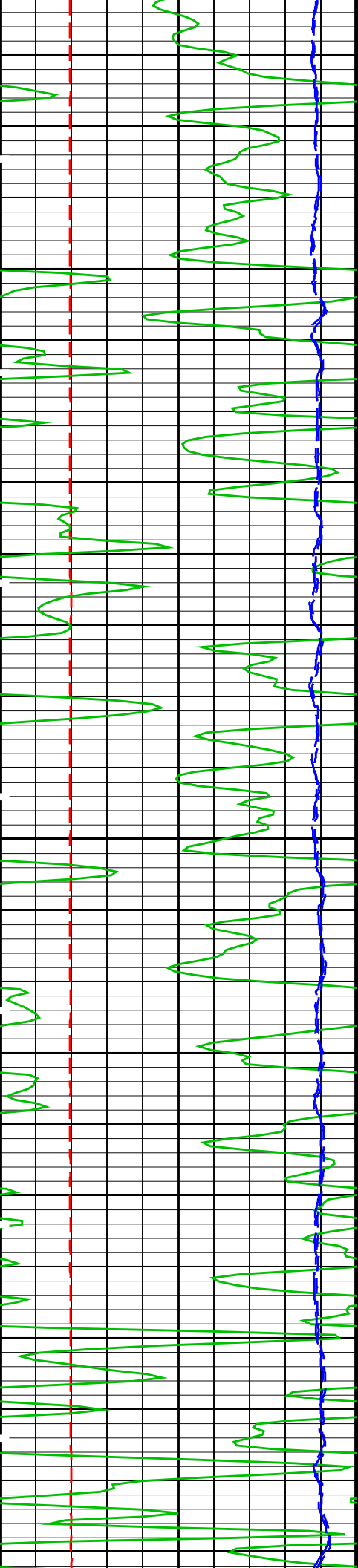




1200

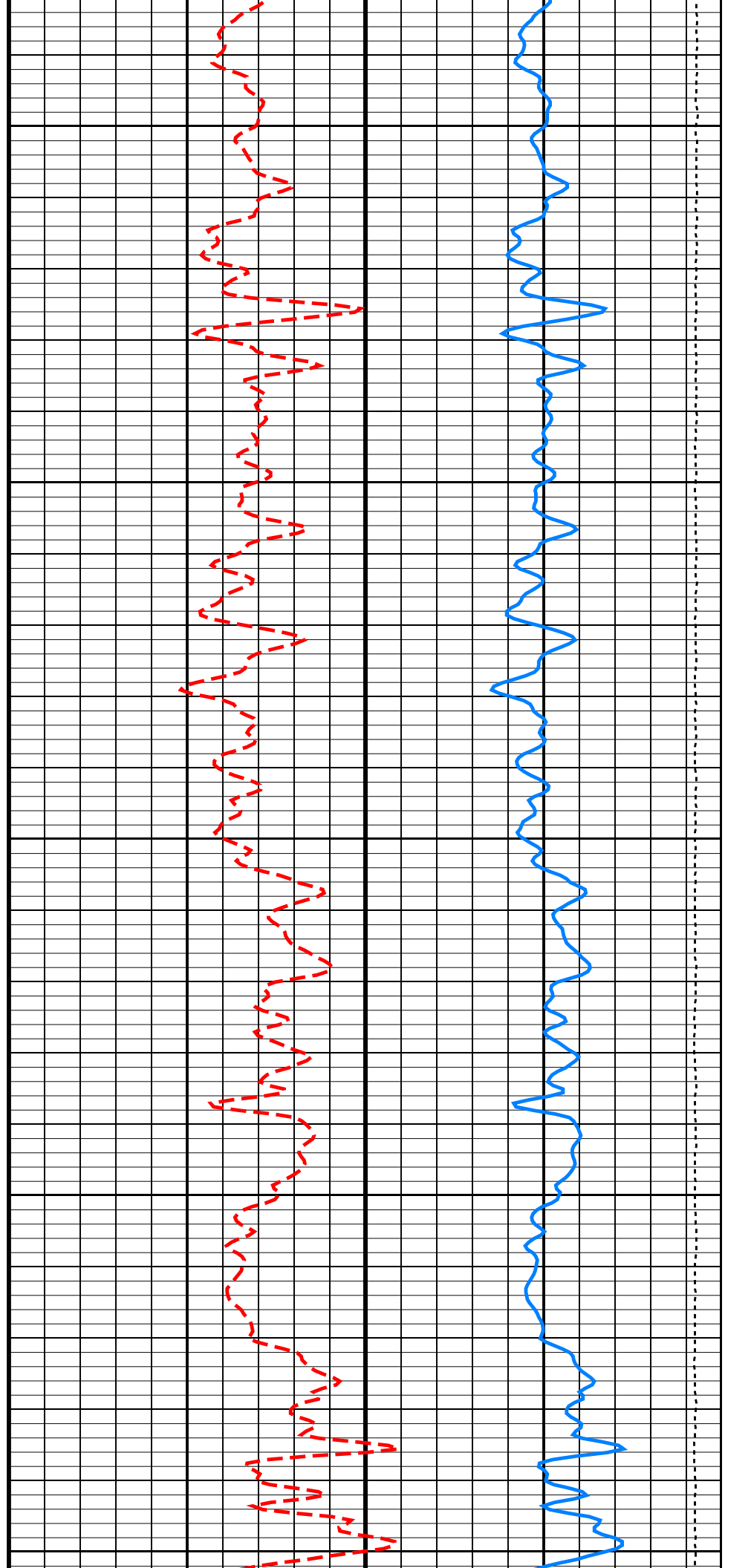
1300



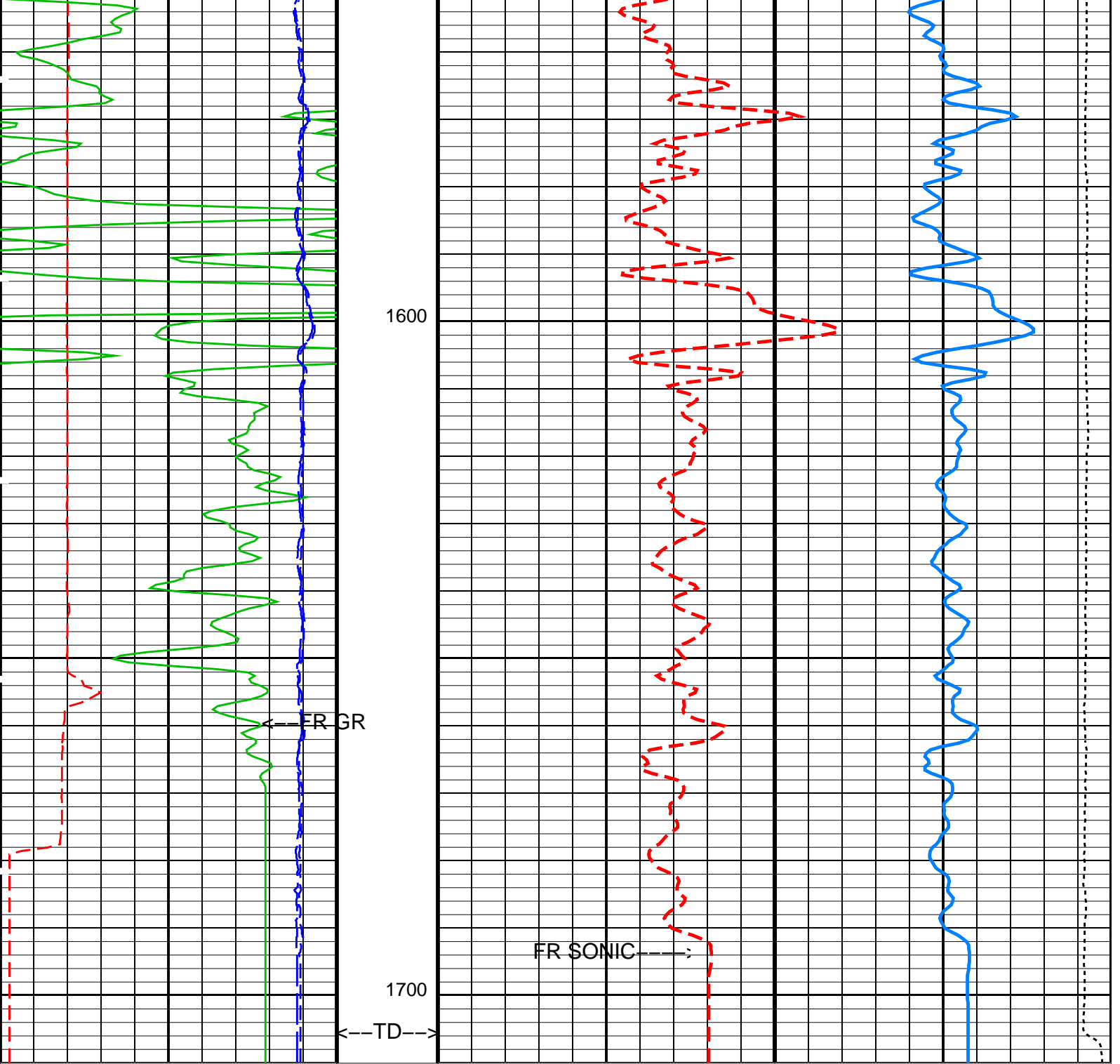


1400

1500







2	Caliper (CALI) (IN)	12	150	Delta-T (DT) (US/F)	50
0	Gamma Ray (GR) (GAPI)	200	0.3	Sonic Porosity (SPHI) (V/V)	-0.1
1200	Transit Time 1 (TT1) (US)	200	10000	Tension (TENS) (LBF)	0
1200	Transit Time 2 (TT2) (US)	200			

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
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CBLG	CBL Gate Width	50	US
CDTS	C-Delta-T Shale	100	US/F
DDE1	Digitizing Delay 1 - Upper Tx	40	US
DDE2	Digitizing Delay 2 - Lower Tx	40	US
DETE	Detection Peak	E2	
DFAD	DFAD Computation Control	DSP	
DFAD_INTERVAL_MODE	Detection Interval Mode for first arrival	TRACK	
DFT_IFLEX	Drilling Fluid Type	WATER	
DLSR	Depth Log Sampling Rate	TT1.5_WF6	
DSIN	Digitizing Sample Interval	10	US
DTCM	Delta-T Computation Mode	FULL	
DTF	Delta-T Fluid	189	US/F
DTM	Delta-T Matrix	55.5	US/F
DWCO	Digitizing Word Count	256	
GAI1	Gain Control 1 - Upper Tx	HIGH	
GAI2	Gain Control 2 - Lower Tx	HIGH	
GCSE	Generalized Caliper Selection	BS	
MAHTR	Manual High Threshold Reference	40	
MNHTR	Minimum High Threshold Reference	30	
MODE	Sonic Firing Mode	STC_BHC_DT_256WF_1800FPH	
NMSG	Near Minimum Sliding Gate	250	US
NUMP	Number of Detection Passes	2	
NWI	Number of Waveform Items	6	
RATE	Sonic Firing Rate	12.5	HZ
SGAD	Sliding Gate Allow/Disallow	ON	
SGCW	Sliding Gate Closing Width	33	US
SGDT	Sliding Gate Delta-T	40	US/F
SGW	Sliding Gate Width	80	US
SLEV	Signal Level for Threshold Control	5000	
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPSO	Sonic Porosity Source	DTCO	
WPS1	Waveform Plot Selection 1	R1	
WPS2	Waveform Plot Selection 2	R5	
	ILDT-B: iFlex Litho Density Tool		
DFT_IFLEX	Drilling Fluid Type	WATER	
GCSE	Generalized Caliper Selection	BS	
PVN_ICEC	ICEC Computation Version	1.000	
	ITGN-B: iFlex Telemetry Gamma Neutron Tool		
BARI_ITGN	Barite Mud Presence Flag	NO	
DFT_IFLEX	Drilling Fluid Type	WATER	
GCSE	Generalized Caliper Selection	BS	
NICO	Neutron Interference Correction Option	YES	
PVN_ITGN	ITGN Computation Version	1.005	
SDAT	Standoff Data Source	SOCN	
SOCN	Standoff Distance	0	IN
TBHDS	Tool Borehole Diameter Source	CALI	
TBHTS	Tool Borehole Temperature Source	GTSE	
	HOLEV: Integrated Hole/Cement Volume		
GCSE	Generalized Caliper Selection	BS	
	System and Miscellaneous		
BS	Bit Size	3.780	IN
DFD	Drilling Fluid Density	8.30	LB/G
DO	Depth Offset for Playback	0.0	FT
PP	Playback Processing	OFF	

Format: SONI Vertical Scale: 5" per 100' Graphics File Created: 04-Oct-2013 19:16

### OP System Version: 19C1-222

ISLT-C	19C1-222	ILDT-B	19C1-222
ITGN-B	19C1-222		

### Input DLIS Files

SLT\_LDL\_CNL\_009LUP FN:8 03-Oct-2013 10:43 1710.0 FT 639.5 FT

### Output DLIS Files

DEFAULT	SLT_LDL_CNL_005PUP	FN:4	PRODUCER	04-Oct-2013 19:16
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Company: LAMONT DOHERTY EARTH OBSERVATORY Well: TW #4

### Input DLIS Files

SLT\_LDL\_CNL\_008LUP FN:7 03-Oct-2013 10:43 1710.0 FT 1486.5 FT

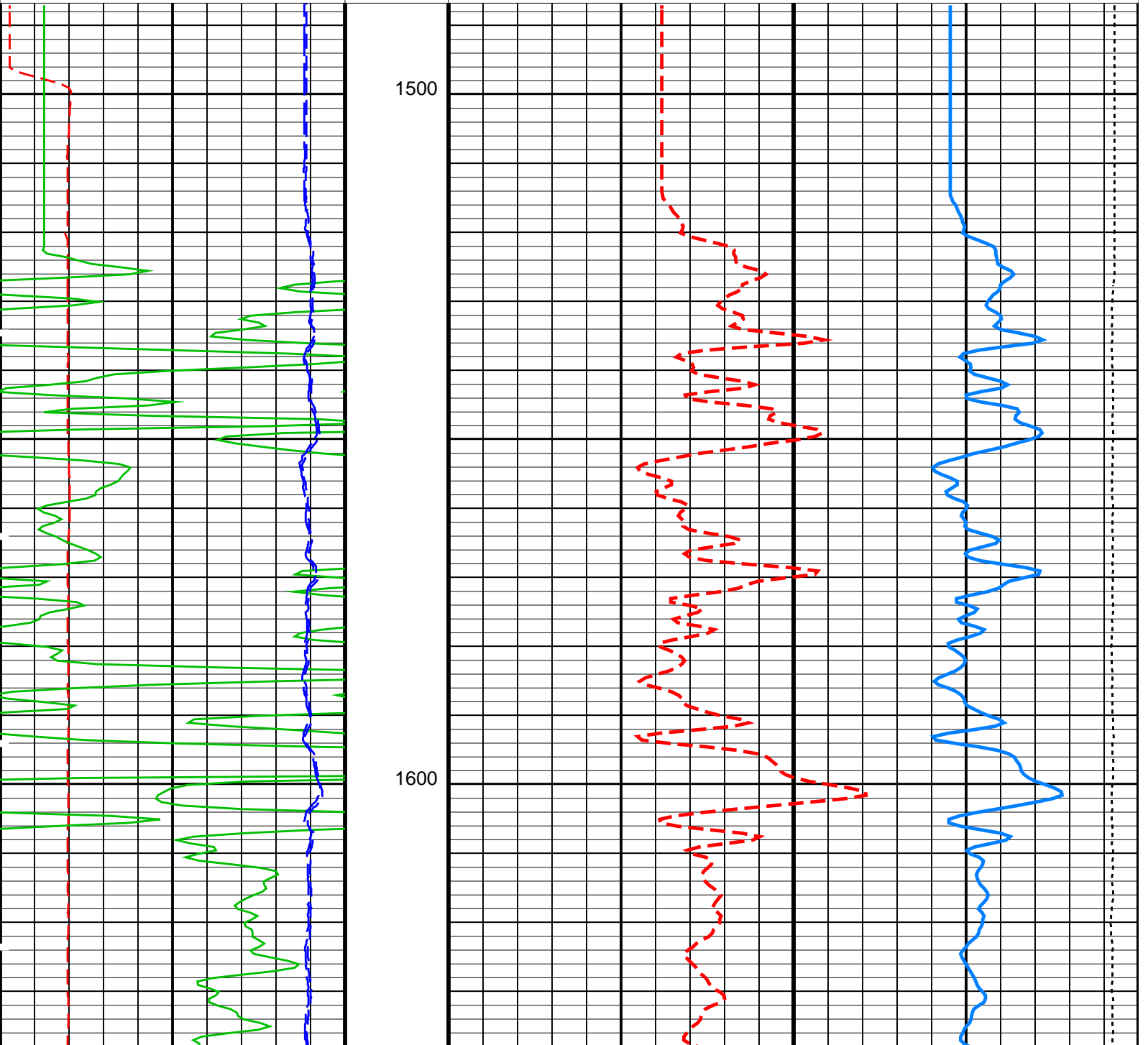
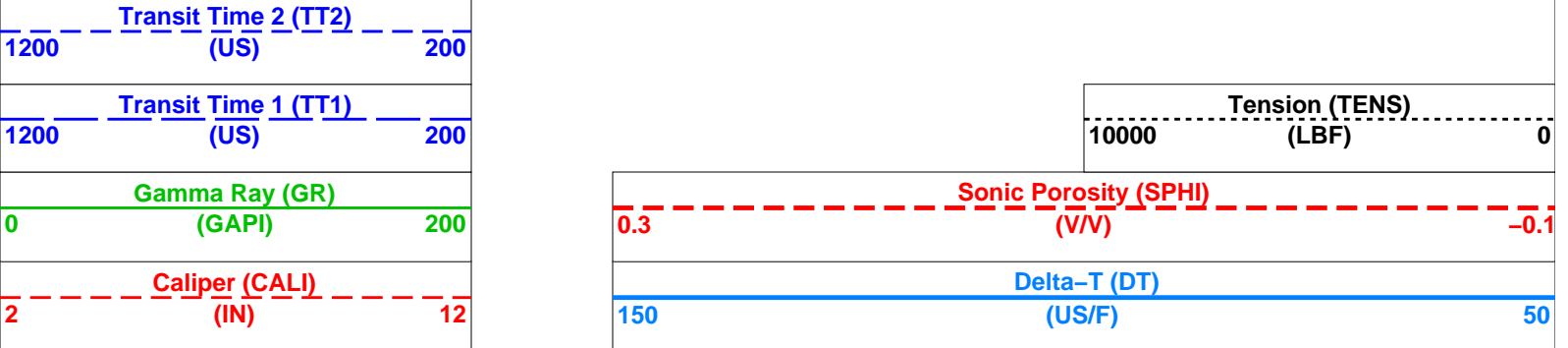
### Output DLIS Files

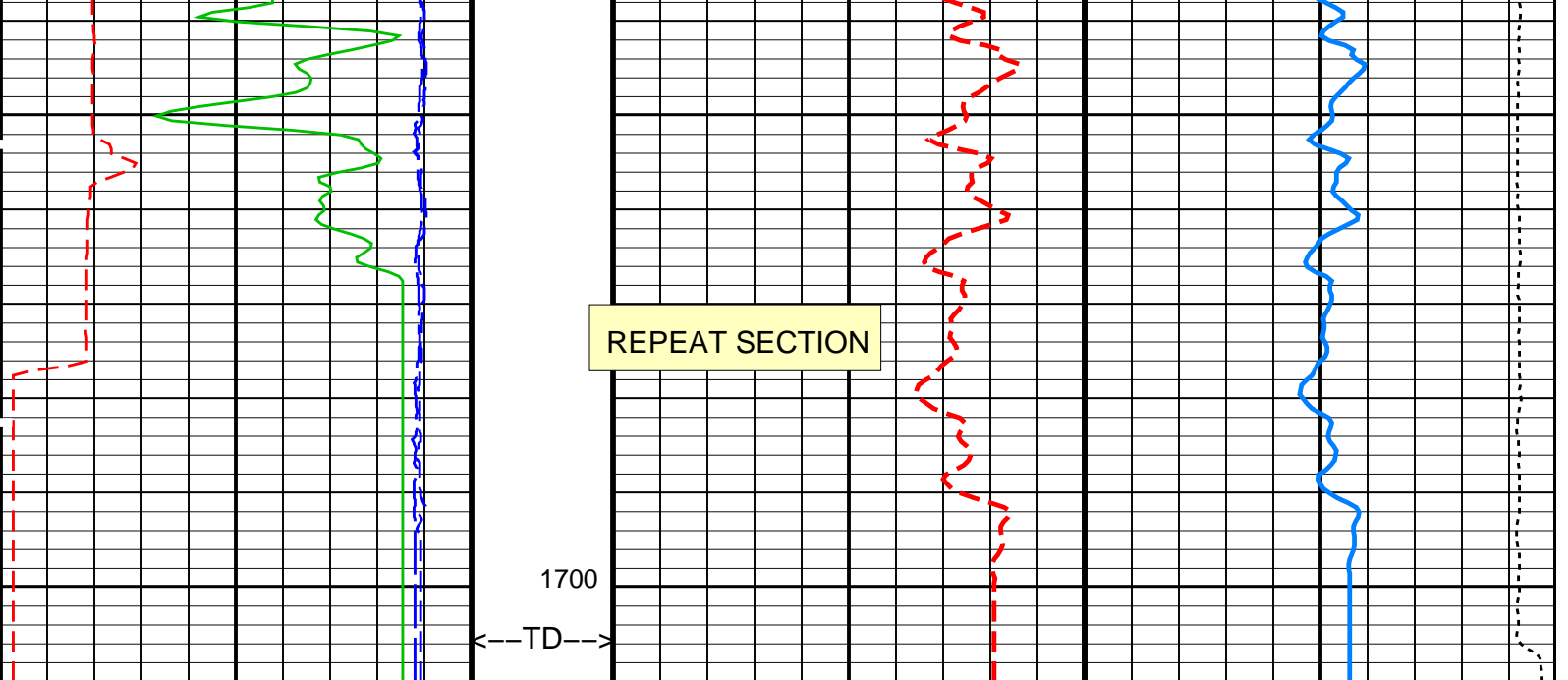
# OP System Version: 19C1-222

ISLT-C 19C1-222 ILDT-B 19C1-222  
 ITGN-B 19C1-222

## PIP SUMMARY

Time Mark Every 60 S





Caliper (CALI) (IN)	2	12	Delta-T (DT) (US/F)	150	50
Gamma Ray (GR) (GAPI)	0	200	Sonic Porosity (SPHI) (V/V)	0.3	-0.1
Transit Time 1 (TT1) (US)	1200	200	Tension (TENS) (LBF)	10000	0
Transit Time 2 (TT2) (US)	1200	200			

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
ISLT-C: iFlex Sonic Logging Tool			
CBLG	CBL Gate Width	50	US
CDTS	C-Delta-T Shale	100	US/F
DDE1	Digitizing Delay 1 - Upper Tx	40	US
DDE2	Digitizing Delay 2 - Lower Tx	40	US
DETE	Detection Peak	E2	
DFAD	DFAD Computation Control	DSP	
DFAD_INTERVAL_MODE	Detection Interval Mode for first arrival	TRACK	
DFT_IFLEX	Drilling Fluid Type	WATER	
DLSR	Depth Log Sampling Rate	TT1.5_WF6	
DSIN	Digitizing Sample Interval	10	US
DTCM	Delta-T Computation Mode	FULL	
DTF	Delta-T Fluid	189	US/F
DTM	Delta-T Matrix	55.5	US/F
DWCO	Digitizing Word Count	256	
GAI1	Gain Control 1 - Upper Tx	HIGH	
GAI2	Gain Control 2 - Lower Tx	HIGH	
GCSE	Generalized Caliper Selection	BS	
MAHTR	Manual High Threshold Reference	40	
MNHTR	Minimum High Threshold Reference	30	
MODE	Sonic Firing Mode	STC_BHC_DT_256WF_1800FPH	
NMSG	Near Minimum Sliding Gate	250	US
NUMP	Number of Detection Passes	2	
NWI	Number of Waveform Items	6	
RATE	Sonic Firing Rate	12.5	HZ
SGAD	Sliding Gate Allow/Disallow	ON	
SGCW	Sliding Gate Closing Width	33	US
SGDT	Sliding Gate Delta-T	40	US/F
SGW	Sliding Gate Width	80	US
SLEV	Signal Level for Threshold Control	5000	
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPSO	Sonic Porosity Source	DTCO	
WPS1	Waveform Plot Selection 1	R1	
WPS2	Waveform Plot Selection 2	R5	

WT_02	ILDT-B: iFlex Litho Density Tool	WATER	RS
DFT_IFLEX	Drilling Fluid Type	BS	
GCSE	Generalized Caliper Selection	1.000	
PVN_ICEC	ICEC Computation Version	NO	
	ITGN-B: iFlex Telemetry Gamma Neutron Tool	WATER	
BARI_ITGN	Barite Mud Presence Flag	BS	
DFT_IFLEX	Drilling Fluid Type	YES	
GCSE	Generalized Caliper Selection	1.005	
NICO	Neutron Interference Correction Option	SOCN	
PVN_ITGN	ITGN Computation Version	0	IN
SDAT	Standoff Data Source	CALI	
SOCN	Standoff Distance	GTSE	
TBHDS	Tool Borehole Diameter Source	BS	
TBHTS	Tool Borehole Temperature Source	3.780	IN
	HOLEV: Integrated Hole/Cement Volume	8.30	LB/G
GCSE	Generalized Caliper Selection	0.0	FT
	System and Miscellaneous	OFF	
BS	Bit Size		
DFD	Drilling Fluid Density		
DO	Depth Offset for Playback		
PP	Playback Processing		

Format: SONI    Vertical Scale: 5" per 100'    Graphics File Created: 04-Oct-2013 19:14

### OP System Version: 19C1-222

ISLT-C	19C1-222	ILDT-B	19C1-222
ITGN-B	19C1-222		

#### Input DLIS Files

SLT_LDL_CNL_008LUP	FN:7	03-Oct-2013 10:43	1710.0 FT	1486.5 FT
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#### Output DLIS Files

DEFAULT	SLT_LDL_CNL_004PUP	FN:3	PRODUCER	04-Oct-2013 19:14
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Company: LAMONT DOHERTY EARTH OBSERVATORY    Well: TW #4

#### Input DLIS Files

SLT_LDL_CNL_011LUP	FN:10	03-Oct-2013 10:43	910.0 FT	674.5 FT
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#### Output DLIS Files

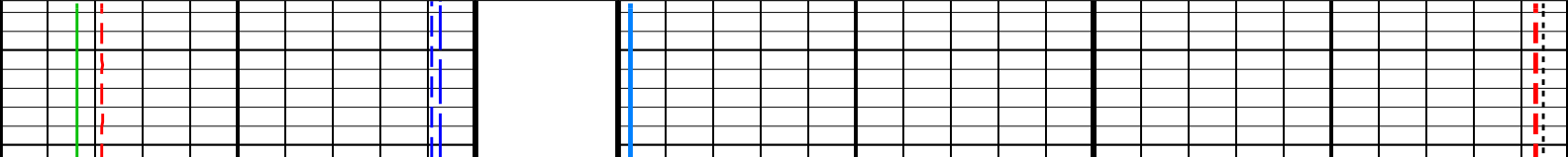
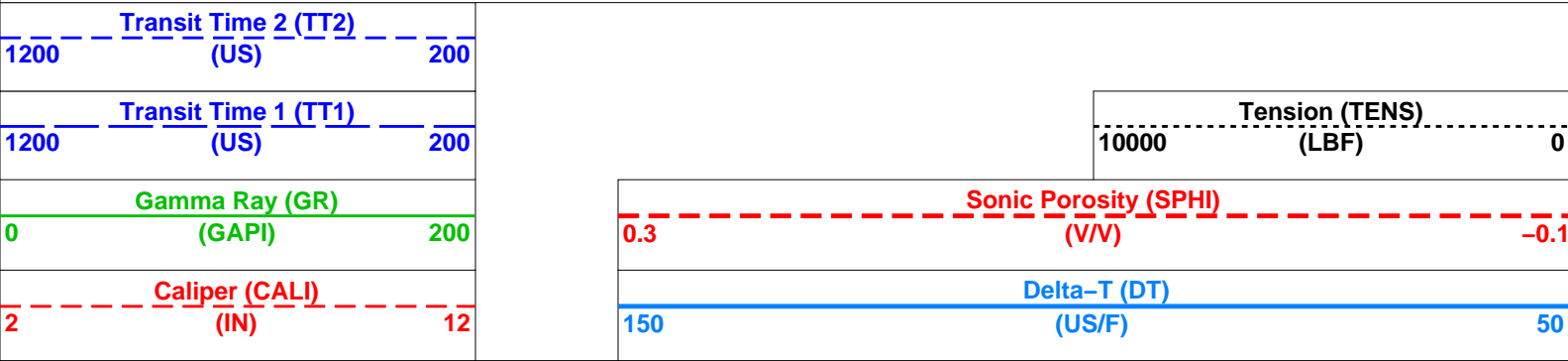
DEFAULT	SLT_LDL_CNL_006PUP	FN:5	PRODUCER	04-Oct-2013 19:20	910.0 FT	674.5 FT
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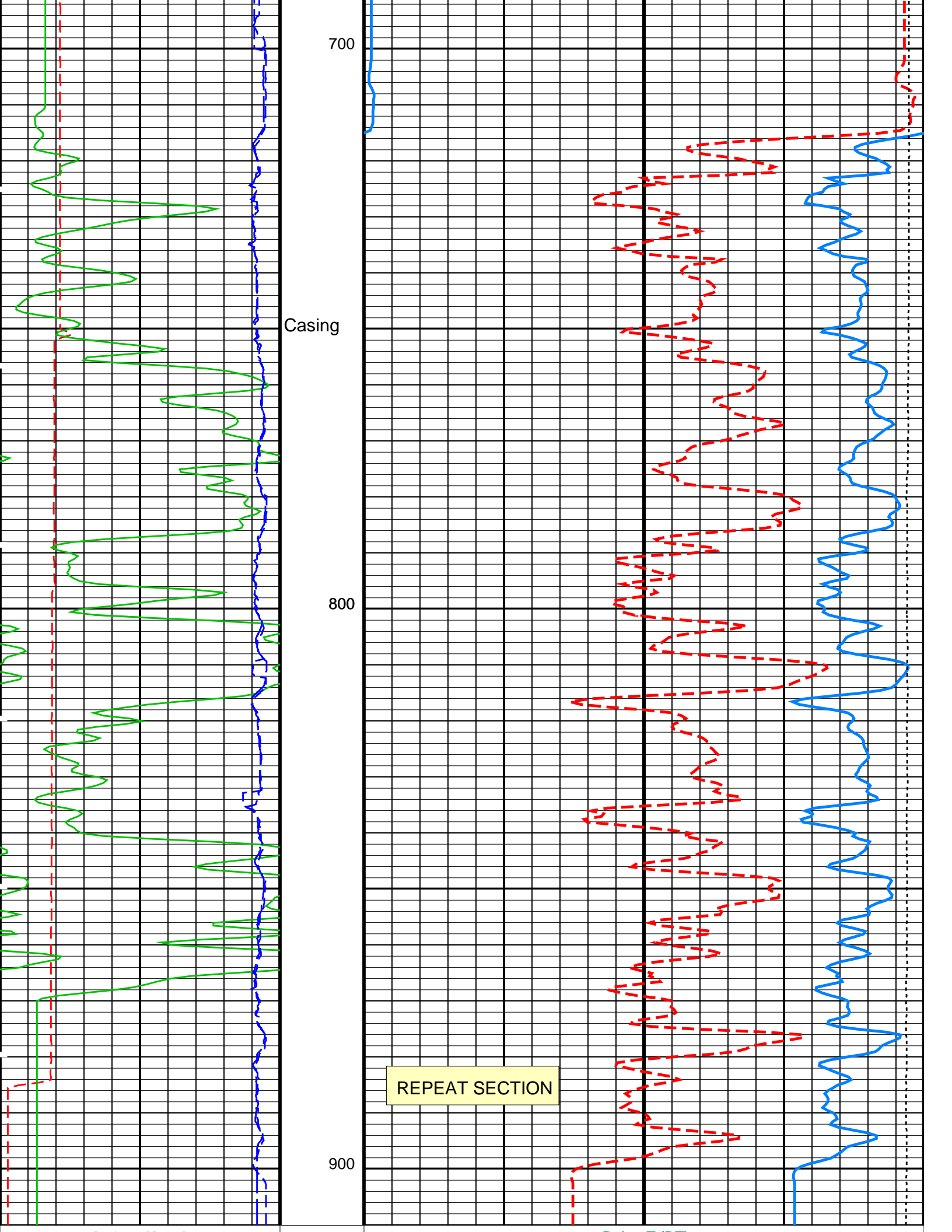
### OP System Version: 19C1-222

ISLT-C	19C1-222	ILDT-B	19C1-222
ITGN-B	19C1-222		

#### PIP SUMMARY

Time Mark Every 60 S





<b>Caliper (CALI)</b>		<b>Delta-T (DT)</b>	
2	(IN)	12	
<b>Gamma Ray (GR)</b>		<b>Sonic Porosity (SPHI)</b>	
0	(GAPI)	200	
<b>Transit Time 1 (TT1)</b>		<b>Tension (TENS)</b>	
1200	(US)	200	
<b>Transit Time 2 (TT2)</b>		<b>(LBF)</b>	
1200	(US)	200	0

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
<b>ISLT-C: iFlex Sonic Logging Tool</b>			
CBLG	CBL Gate Width	50	US
CDTS	C-Delta-T Shale	100	US/F
DDE1	Digitizing Delay 1 - Upper Tx	40	US
DDE2	Digitizing Delay 2 - Lower Tx	40	US
DETE	Detection Peak	E2	
DFAD	DFAD Computation Control	DSP	
DFAD_INTERVAL_MODE	Detection Interval Mode for first arrival	TRACK	
DFT_IFLEX	Drilling Fluid Type	WATER	
DLSR	Depth Log Sampling Rate	TT1.5_WF6	
DSIN	Digitizing Sample Interval	10	US
DTCM	Delta-T Computation Mode	FULL	
DTF	Delta-T Fluid	189	US/F
DTM	Delta-T Matrix	55.5	US/F
DWCO	Digitizing Word Count	256	
GAI1	Gain Control 1 - Upper Tx	HIGH	
GAI2	Gain Control 2 - Lower Tx	HIGH	
GCSE	Generalized Caliper Selection	BS	
MAHTR	Manual High Threshold Reference	40	
MNHTR	Minimum High Threshold Reference	30	
MODE	Sonic Firing Mode	STC_BHC_DT_256WF_1800FPH	
NMSG	Near Minimum Sliding Gate	250	US
NUMP	Number of Detection Passes	2	
NWI	Number of Waveform Items	6	
RATE	Sonic Firing Rate	12.5	HZ
SGAD	Sliding Gate Allow/Disallow	ON	
SGCW	Sliding Gate Closing Width	33	US
SGDT	Sliding Gate Delta-T	40	US/F
SGW	Sliding Gate Width	80	US
SLEV	Signal Level for Threshold Control	5000	
SPFS	Sonic Porosity Formula	RAYMER_HUNT	
SPSO	Sonic Porosity Source	DTCO	
WPS1	Waveform Plot Selection 1	R1	
WPS2	Waveform Plot Selection 2	R5	
<b>ILD-T-B: iFlex Litho Density Tool</b>			
DFT_IFLEX	Drilling Fluid Type	WATER	
GCSE	Generalized Caliper Selection	BS	
PVN_ICEC	ICEC Computation Version	1.000	
<b>ITGN-B: iFlex Telemetry Gamma Neutron Tool</b>			
BARI_ITGN	Barite Mud Presence Flag	NO	
DFT_IFLEX	Drilling Fluid Type	WATER	
GCSE	Generalized Caliper Selection	BS	
NICO	Neutron Interference Correction Option	YES	
PVN_ITGN	ITGN Computation Version	1.005	
SDAT	Standoff Data Source	SOCN	
SOCN	Standoff Distance	0	IN
TBHDS	Tool Borehole Diameter Source	CALI	
TBHTS	Tool Borehole Temperature Source	GTSE	
<b>HOLEV: Integrated Hole/Cement Volume</b>			
GCSE	Generalized Caliper Selection	BS	
<b>System and Miscellaneous</b>			
BS	Bit Size	3.780	IN
DFD	Drilling Fluid Density	8.30	LB/G
DO	Depth Offset for Playback	0.0	FT
PP	Playback Processing	OFF	

Format: SONI Vertical Scale: 5" per 100'

Graphics File Created: 04-Oct-2013 19:20

OP System Version: 19C1-222

### Input DLIS Files

SLT\_LDL\_CNL\_011LUP FN:10 03-Oct-2013 10:43 910.0 FT 674.5 FT

### Output DLIS Files

DEFAULT SLT\_LDL\_CNL\_006PUP FN:5 PRODUCER 04-Oct-2013 19:20

#### Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
<b>iFlex Litho Density Tool Wellsite Calibration – Detector Calibration</b>							
Master: 31-Jul-2013 10:06 Before: 30-Sep-2013 5:01							
SS Window 1 Count Rate Master	1140	1084	1081	N/A	N/A	N/A	CPS
SS Window 2 Count Rate Master	1470	1391	1388	N/A	N/A	N/A	CPS
SS Window 3 Count Rate Master	760.0	718.0	712.5	N/A	N/A	N/A	CPS
SS Window 4 Count Rate Master	770.0	734.5	729.9	N/A	N/A	N/A	CPS
LS Window 1 Count Rate Master	79.00	74.28	86.00	N/A	N/A	N/A	CPS
LS Window 2 Count Rate Master	94.00	88.50	88.19	N/A	N/A	N/A	CPS
LS Window 3 Count Rate Master	280.0	255.0	254.8	N/A	N/A	N/A	CPS
LS Window 4 Count Rate Master	146.0	135.7	134.1	N/A	N/A	N/A	CPS
<b>iFlex Litho Density Tool Wellsite Calibration – Detector Calibration</b>							
Master: 31-Jul-2013 10:06							
SS Window 1 Count Rate Water L	27000	26760	N/A	N/A	N/A	N/A	CPS
SS Window 2 Count Rate Water L	23000	21470	N/A	N/A	N/A	N/A	CPS
SS Window 3 Count Rate Water L	13400	12480	N/A	N/A	N/A	N/A	CPS
SS Window 4 Count Rate Water L	11800	10900	N/A	N/A	N/A	N/A	CPS
LS Window 1 Count Rate Water L	1210	1177	N/A	N/A	N/A	N/A	CPS
LS Window 2 Count Rate Water L	1600	1454	N/A	N/A	N/A	N/A	CPS
LS Window 3 Count Rate Water L	2100	1928	N/A	N/A	N/A	N/A	CPS
LS Window 4 Count Rate Water L	530.0	490.5	N/A	N/A	N/A	N/A	CPS
<b>iFlex Litho Density Tool Wellsite Calibration – Detector Calibration</b>							
Master: 31-Jul-2013 10:06							
SS Window 1 Count Rate Water H	23000	18430	N/A	N/A	N/A	N/A	CPS
SS Window 2 Count Rate Water H	22000	18750	N/A	N/A	N/A	N/A	CPS
SS Window 3 Count Rate Water H	12800	11020	N/A	N/A	N/A	N/A	CPS
SS Window 4 Count Rate Water H	11300	9673	N/A	N/A	N/A	N/A	CPS
LS Window 1 Count Rate Water H	950.0	789.9	N/A	N/A	N/A	N/A	CPS
LS Window 2 Count Rate Water H	1380	1187	N/A	N/A	N/A	N/A	CPS
LS Window 3 Count Rate Water H	2000	1729	N/A	N/A	N/A	N/A	CPS
LS Window 4 Count Rate Water H	500.0	452.5	N/A	N/A	N/A	N/A	CPS
<b>iFlex Litho Density Tool Wellsite Calibration – Detector Calibration</b>							
Master: 31-Jul-2013 10:06							
SS Window 1 Count Rate Magnesi	28000	27660	N/A	N/A	N/A	N/A	CPS
SS Window 2 Count Rate Magnesi	24000	23000	N/A	N/A	N/A	N/A	CPS
SS Window 3 Count Rate Magnesi	13500	12590	N/A	N/A	N/A	N/A	CPS
SS Window 4 Count Rate Magnesi	11000	10130	N/A	N/A	N/A	N/A	CPS
LS Window 1 Count Rate Magnesi	5400	5063	N/A	N/A	N/A	N/A	CPS
LS Window 2 Count Rate Magnesi	6900	6285	N/A	N/A	N/A	N/A	CPS
LS Window 3 Count Rate Magnesi	8500	7735	N/A	N/A	N/A	N/A	CPS
LS Window 4 Count Rate Magnesi	1500	1384	N/A	N/A	N/A	N/A	CPS
<b>iFlex Telemetry Gamma Neutron Tool Wellsite Calibration – Background</b>							
Master: 27-Aug-2013 10:57 Before: 30-Sep-2013 5:03							
Near Thermal Count Rate Master	27.00	27.47	27.64	N/A	N/A	N/A	CPS
Far Thermal Count Rate Master	10.00	10.10	10.62	N/A	N/A	N/A	CPS
Epithermal Count Rate Master B	27.00	27.99	27.12	N/A	N/A	N/A	CPS
<b>iFlex Telemetry Gamma Neutron Tool Wellsite Calibration – Tank Measurement</b>							
Master: 27-Aug-2013 10:57							
Near Thermal Count Rate Tank M	7978	7858	N/A	N/A	N/A	N/A	CPS
Far Thermal Count Rate Tank Me	2847	2734	N/A	N/A	N/A	N/A	CPS
Epithermal Count Rate Tank Mea	813.0	797.5	N/A	N/A	N/A	N/A	CPS



Primary Equipment:

Mechanical Control Sonde  
 Gamma Gamma Logging Source  
 Powered Density Pad  
 Caliper Electronics Cartridge

IMCS – A 26  
 GGLS – AA 3119  
 IPDP – A 26  
 ICEC – B 26

Auxiliary Equipment:

iFlex Litho Density Tool Wellsite Calibration											
Detector Calibration											
Phase	Window 1 Count Rate	Master Bkgd	CPS Value	Phase	Window 2 Count Rate	Master Bkgd	CPS Value	Phase	Window 3 Count Rate	Master Bkgd	CPS Value
Master			1084	Master			1391	Master			718.0
Before			1081	Before			1388	Before			712.5
	730.0 (Minimum)	1140 (Nominal)	1370 (Maximum)		990.0 (Minimum)	1470 (Nominal)	1720 (Maximum)		490.0 (Minimum)	760.0 (Nominal)	900.0 (Maximum)
Phase	Window 4 Count Rate	Master Bkgd	CPS Value	Phase	Window 1 Count Rate	Master Bkgd	CPS Value	Phase	Window 2 Count Rate	Master Bkgd	CPS Value
Master			734.5	Master			74.28	Master			88.50
Before			729.9	Before			86.00	Before			88.19
	480.0 (Minimum)	770.0 (Nominal)	940.0 (Maximum)		47.00 (Minimum)	79.00 (Nominal)	99.00 (Maximum)		54.00 (Minimum)	94.00 (Nominal)	121.0 (Maximum)
Phase	Window 3 Count Rate	Master Bkgd	CPS Value	Phase	Window 4 Count Rate	Master Bkgd	CPS Value				
Master			255.0	Master			135.7				
Before			254.8	Before			134.1				
	150.0 (Minimum)	280.0 (Nominal)	360.0 (Maximum)		83.00 (Minimum)	146.0 (Nominal)	190.0 (Maximum)				
Master: 31-Jul-2013 10:06				Before: 30-Sep-2013 5:01							

iFlex Litho Density Tool Wellsite Calibration											
Detector Calibration											
Phase	Window 1 Count Rate	Water Low PE Insert	CPS Value	Phase	Window 2 Count Rate	Water Low PE Insert	CPS Value	Phase	Window 3 Count Rate	Water Low PE Insert	CPS Value
Master			26760	Master			21470	Master			12480
	18000 (Minimum)	27000 (Nominal)	30000 (Maximum)		16000 (Minimum)	23000 (Nominal)	25000 (Maximum)		9800 (Minimum)	13400 (Nominal)	14500 (Maximum)
Phase	Window 4 Count Rate	Water Low PE Insert	CPS Value	Phase	Window 1 Count Rate	Water Low PE Insert	CPS Value	Phase	Window 2 Count Rate	Water Low PE Insert	CPS Value
Master			10900	Master			1177	Master			1454
	8600 (Minimum)	11800 (Nominal)	12900 (Maximum)		820.0 (Minimum)	1210 (Nominal)	1400 (Maximum)		1050 (Minimum)	1600 (Nominal)	1800 (Maximum)
Phase	Window 3 Count Rate	Water Low PE Insert	CPS Value	Phase	Window 4 Count Rate	Water Low PE Insert	CPS Value				
Master			1928	Master			490.5				
	1450 (Minimum)	2100 (Nominal)	2400 (Maximum)		380.0 (Minimum)	530.0 (Nominal)	580.0 (Maximum)				
Master: 31-Jul-2013 10:06											

iFlex Litho Density Tool Wellsite Calibration											
Detector Calibration											
Phase	Window 1 Count Rate	Water High PE Insert	CPS Value	Phase	Window 2 Count Rate	Water High PE Insert	CPS Value	Phase	Window 3 Count Rate	Water High PE Insert	CPS Value
Master			18430	Master			18750	Master			11020
	16000 (Minimum)	23000 (Nominal)	26000 (Maximum)		15000 (Minimum)	22000 (Nominal)	24000 (Maximum)		9300 (Minimum)	12800 (Nominal)	13900 (Maximum)
Phase	Window 4 Count Rate	Water High PE Insert	CPS Value	Phase	Window 1 Count Rate	Water High PE Insert	CPS Value	Phase	Window 2 Count Rate	Water High PE Insert	CPS Value
Master			9673	Master			789.9	Master			1187
	8200 (Minimum)	11300 (Nominal)	12400 (Maximum)		640.0 (Minimum)	950.0 (Nominal)	1100 (Maximum)		930.0 (Minimum)	1380 (Nominal)	1600 (Maximum)
Phase	Window 3 Count Rate	Water High PE Insert	CPS Value	Phase	Window 4 Count Rate	Water High PE Insert	CPS Value				
Master			1729	Master			452.5				
	1350 (Minimum)	2000 (Nominal)	2300 (Maximum)		360.0 (Minimum)	500.0 (Nominal)	550.0 (Maximum)				
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iFlex Litho Density Tool Wellsite Calibration											
Detector Calibration											
Phase	Window 1 Count Rate	Magnesium Low PE Insert	CPS Value	Phase	Window 2 Count Rate	Magnesium Low PE Insert	CPS Value	Phase	Window 3 Count Rate	Magnesium Low PE Insert	CPS Value
Master			27660	Master			23000	Master			12590

Phase	Window 4 Count Rate Magnesium Low PE Insert	CPS Value	Phase	Window 1 Count Rate Magnesium Low PE Insert	CPS Value	Phase	Window 2 Count Rate Magnesium Low PE Insert	CPS Value
Master		10130	Master		5063	Master		6285
	8000 (Minimum) 11000 (Nominal) 12000 (Maximum)			3600 (Minimum) 5400 (Nominal) 6200 (Maximum)			4600 (Minimum) 6900 (Nominal) 8000 (Maximum)	
Phase	Window 3 Count Rate Magnesium Low PE Insert	CPS Value	Phase	Window 4 Count Rate Magnesium Low PE Insert	CPS Value			
Master		7735	Master		1384			
	5700 (Minimum) 8500 (Nominal) 9900 (Maximum)			1030 (Minimum) 1500 (Nominal) 1800 (Maximum)				

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iFlex Litho Density Tool Master Calibration										
Detector Calibration										
Phase	Window 1 Count Rate Master Bkgd	CPS Value	Phase	Window 2 Count Rate Master Bkgd	CPS Value	Phase	Window 3 Count Rate Master Bkgd	CPS Value		
Master		1084	Master		1391	Master		718.0		
	730.0 (Minimum) 1140 (Nominal) 1370 (Maximum)			990.0 (Minimum) 1470 (Nominal) 1720 (Maximum)			490.0 (Minimum) 760.0 (Nominal) 900.0 (Maximum)			
Phase	Window 4 Count Rate Master Bkgd	CPS Value	Phase	Window 1 Count Rate Master Bkgd	CPS Value	Phase	Window 2 Count Rate Master Bkgd	CPS Value		
Master		734.5	Master		74.28	Master		88.50		
	480.0 (Minimum) 770.0 (Nominal) 940.0 (Maximum)			47.00 (Minimum) 79.00 (Nominal) 99.00 (Maximum)			54.00 (Minimum) 94.00 (Nominal) 121.0 (Maximum)			
Phase	Window 3 Count Rate Master Bkgd	CPS Value	Phase	Window 4 Count Rate Master Bkgd	CPS Value					
Master		255.0	Master		135.7					
	150.0 (Minimum) 280.0 (Nominal) 360.0 (Maximum)			83.00 (Minimum) 146.0 (Nominal) 190.0 (Maximum)						

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iFlex Litho Density Tool Master Calibration										
Detector Calibration										
Phase	Window 1 Count Rate Water Low PE Insert	CPS Value	Phase	Window 2 Count Rate Water Low PE Insert	CPS Value	Phase	Window 3 Count Rate Water Low PE Insert	CPS Value		
Master		26760	Master		21470	Master		12480		
	18000 (Minimum) 27000 (Nominal) 30000 (Maximum)			16000 (Minimum) 23000 (Nominal) 25000 (Maximum)			9800 (Minimum) 13400 (Nominal) 14500 (Maximum)			
Phase	Window 4 Count Rate Water Low PE Insert	CPS Value	Phase	Window 1 Count Rate Water Low PE Insert	CPS Value	Phase	Window 2 Count Rate Water Low PE Insert	CPS Value		
Master		10900	Master		1177	Master		1454		
	8600 (Minimum) 11800 (Nominal) 12900 (Maximum)			820.0 (Minimum) 1210 (Nominal) 1400 (Maximum)			1050 (Minimum) 1600 (Nominal) 1800 (Maximum)			
Phase	Window 3 Count Rate Water Low PE Insert	CPS Value	Phase	Window 4 Count Rate Water Low PE Insert	CPS Value					
Master		1928	Master		490.5					
	1450 (Minimum) 2100 (Nominal) 2400 (Maximum)			380.0 (Minimum) 530.0 (Nominal) 580.0 (Maximum)						

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iFlex Litho Density Tool Master Calibration										
Detector Calibration										
Phase	Window 1 Count Rate Water High PE Insert	CPS Value	Phase	Window 2 Count Rate Water High PE Insert	CPS Value	Phase	Window 3 Count Rate Water High PE Insert	CPS Value		
Master		18430	Master		18750	Master		11020		
	16000 (Minimum) 23000 (Nominal) 26000 (Maximum)			15000 (Minimum) 22000 (Nominal) 24000 (Maximum)			9300 (Minimum) 12800 (Nominal) 13900 (Maximum)			
Phase	Window 4 Count Rate Water High PE Insert	CPS Value	Phase	Window 1 Count Rate Water High PE Insert	CPS Value	Phase	Window 2 Count Rate Water High PE Insert	CPS Value		
Master		9673	Master		789.9	Master		1187		
	8200 (Minimum) 11300 (Nominal) 12400 (Maximum)			640.0 (Minimum) 950.0 (Nominal) 1100 (Maximum)			930.0 (Minimum) 1380 (Nominal) 1600 (Maximum)			
Phase	Window 3 Count Rate Water High PE Insert	CPS Value	Phase	Window 4 Count Rate Water High PE Insert	CPS Value					
Master		1729	Master		452.5					
	1350 (Minimum) 2000 (Nominal) 2300 (Maximum)			360.0 (Minimum) 500.0 (Nominal) 550.0 (Maximum)						

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iFlex Litho Density Tool Master Calibration										
Detector Calibration										
Phase	Window 1 Count Rate Magnesium Low PE Insert	CPS Value	Phase	Window 2 Count Rate Magnesium Low PE Insert	CPS Value	Phase	Window 3 Count Rate Magnesium Low PE Insert	CPS Value		
Master		27660	Master		23000	Master		12590		

Phase	Near	Thermal Count Rate	Master Bkgd	CPS Value	Phase	Far	Thermal Count Rate	Master Bkgd	CPS Value	Phase	Epithermal Count Rate	Master Bkgd	CPS Value	
Master				10130	Master				5063	Master				6285
		8000 (Minimum)	11000 (Nominal)	12000 (Maximum)			3600 (Minimum)	5400 (Nominal)	6200 (Maximum)			4600 (Minimum)	6900 (Nominal)	8000 (Maximum)
Master				7735	Master				1384					
		5700 (Minimum)	8500 (Nominal)	9900 (Maximum)			1030 (Minimum)	1500 (Nominal)	1800 (Maximum)					

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iFlex Telemetry Gamma Neutron Tool / Equipment Identification

Primary Equipment:

Telemetry Gamma Neutron Sonde	ITNS - B	22
Neutron Neutron Logging Source - contain	NNLS - C	6011
Telemetry Gamma Neutron Housing	ITNH - B	22
PSP Supply and Telemetry Cartridge	PSTC - A	3703
PSP Telemetry Cartridge	PSC - ATS	3703
PSC 16.384MHz oscillator	PSC_ -	

Auxiliary Equipment:

iFlex Telemetry Gamma Neutron Tool Wellsite Calibration

Background

Phase	Near	Thermal Count Rate	Master Bkgd	CPS Value	Phase	Far	Thermal Count Rate	Master Bkgd	CPS Value	Phase	Epithermal Count Rate	Master Bkgd	CPS Value	
Master				27.47	Master				10.10	Master				27.99
		20.00 (Minimum)	27.00 (Nominal)	40.00 (Maximum)			7.000 (Minimum)	10.00 (Nominal)	17.00 (Maximum)			20.00 (Minimum)	27.00 (Nominal)	40.00 (Maximum)
Before				27.64	Before				10.62	Before				27.12

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Before: 30-Sep-2013 5:03

iFlex Telemetry Gamma Neutron Tool Wellsite Calibration

Tank Measurement

Phase	Near	Thermal Count Rate	Tank Meas	CPS Value	Phase	Far	Thermal Count Rate	Tank Meas	CPS Value	Phase	Epithermal Count Rate	Tank Meas	CPS Value	
Master				7858	Master				2734	Master				797.5
		7322 (Minimum)	7978 (Nominal)	8580 (Maximum)			2578 (Minimum)	2847 (Nominal)	3106 (Maximum)			746.0 (Minimum)	813.0 (Nominal)	881.0 (Maximum)

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iFlex Telemetry Gamma Neutron Tool Master Calibration

Tank Measurement

Phase	Near	Thermal Count Rate	Tank Meas	CPS Value	Phase	Far	Thermal Count Rate	Tank Meas	CPS Value	Phase	Epithermal Count Rate	Tank Meas	CPS Value	
Master				7858	Master				2734	Master				797.5
		7322 (Minimum)	7978 (Nominal)	8580 (Maximum)			2578 (Minimum)	2847 (Nominal)	3106 (Maximum)			746.0 (Minimum)	813.0 (Nominal)	881.0 (Maximum)

Master: 27-Aug-2013 10:57

Company: LAMONT DOHERTY EARTH OBSERVATORY



Well: TW #4  
 Field: WILDCAT  
 County: ROCKLAND  
 State: NEW YORK

State:

NEW YORK

BOREHOLE  
COMPENSATED SONIC  
CALIPER