**Schlumberger**

Company: Lamont Doherty

Well: ODP Leg 201, Site 1230A PRU-4A
Field: Peru Margin
Rig: JOIDES Resolution Ocean: Pacific

HLDT/APS Porosity
Natural Gamma Ray

Rig: JOIDES Resolution
Field: Peru Margin
Location: 9 Deg 06.7529' S Latitude
Well: ODP Leg 201, Site 1230A PRU-4
Company: Lamont Doherty

LOCATION

9 Deg 06.7529' S Latitude
80 Deg 35.01' W Longitude

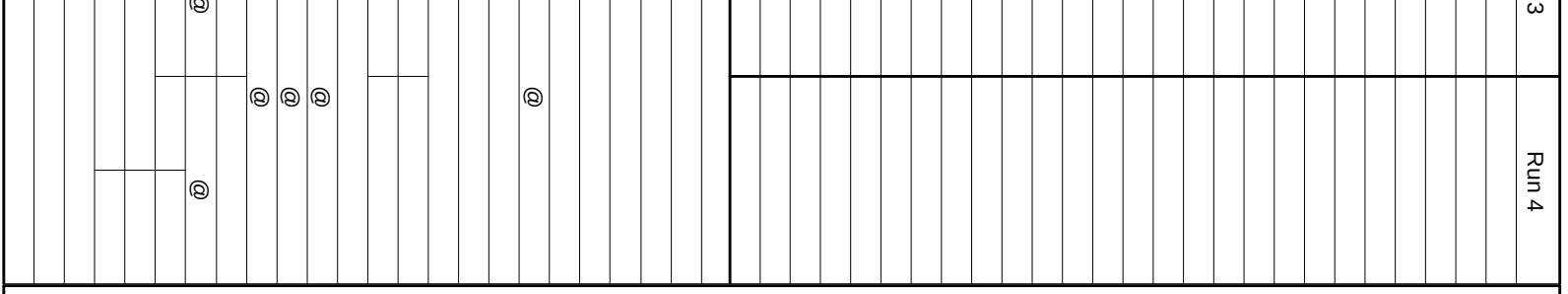
Elev.: K.B. 11.3 m
G.L. -5097 m
D.F. 11 m

Permanent Datum: MSL — Elev.: 0 m
Log Measured From: RKB — 11.3 m above Perm. Datum
Drilling Measured From: RKB

| API Serial No. | Max. Hole Devi. 0 deg | Longitude | Latitude |
|---|---|---|---|
| | | | |

| | Run 1 | Run 2 | Run 3 |
|---|---|---|---|
| Logging Date | 16-Mar-2002 | | |
| Run Number | 1 | | |
| Depth Driller | 5375 m | | |
| Schlumberger Depth | 5379 m | | |
| Bottom Log Interval | 5373 m | | |
| Top Log Interval | 5099 m | | |
| Casing Driller Size @ Depth | 0.000 in @ 5178 m | @ | @ |
| Casing Schlumberger | 5179 m | | |
| Bit Size | 11.438 in | | |
| Type Fluid In Hole | Sepiolite/Saltwater | | |
| MUD Density / Viscosity | 1.07 g/cm3 | | |
| MUD Fluid Loss / PH | | | |
| MUD Source Of Sample | mudpit | | |
| RM @ Measured Temperature | 0.235 ohm.m @ 33 degC | @ | @ |
| RMF @ Measured Temperature | @ | @ | @ |
| RMC @ Measured Temperature | @ | @ | @ |
| Source RMF / RMC | none / none | | |
| RM @ MRT / RMF @ MRT | 0.421 @ 9 / @ 9 | @ / @ | @ / @ |
| Maximum Recorded Temperatures | 9 degC | | |
| Circulation Stopped / Time | 16-Mar-2002 / 3:00 | | |
| Logger On Bottom / Time | 16-Mar-2002 / 8:45 | | |
| Unit Number / Location | 99 / Houston ODP | | |
| Recorded By | K. Swain | | |
| Witnessed By | Gilles Guerin | | |

| | Run 1 | Run 2 | Run 3 |
|---|---|---|---|
| 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 | | | |
| MUD Density / Viscosity | | | |
| MUD Fluid Loss / PH | | | |
| MUD 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 | | | |
| Unit Number / Location | | | |
| Recorded By | | | |
| Witnessed By | | | |




DISCLAIMER

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| OTHER SERVICES1 | OTHER SERVICES2 |
|---|---|
| OS1: DITE | OS1: |
| OS2: MEST/DSST | OS2: |
| OS3: | OS3: |
| OS4: | OS4: |
| OS5: | OS5: |

| REMARKS: RUN NUMBER 1 | REMARKS: RUN NUMBER 2 |
|---|---|
| Hole cored with APC, XCB | |
| Log presented in meters below rig floor. | |
| Lamont Temperature tool (TAP) was run on Triple Combo. | |
| Wireline Heave Compensator (WHC) was used on all descents. | |
| Sepliolite mud was used to displace the hole during the wiper trip. | |
| Drillers TD 5375 mbrf, Driller pipe depth: 5178 mbrf, Sea Floor: 5097 mbrf. | |
| | |
| Drill Pipe Schlumberger 5179 mbrf. | |
| Sea Floor Schlumberger 5099 mbrf. | |
| | |
| Software bug shows APS calibration not done for part of master calibration. | |
| Low background countrate on HNGS master calibration signifies a weak internal | |
| source used for check of detector and not used in calibration. | |

| RUN 1 | | RUN 2 | |
|---|---|---|---|
| SERVICE ORDER #: | | SERVICE ORDER #: | |
| PROGRAM VERSION: | 10C0-306 | PROGRAM VERSION: | |
| FLUID LEVEL: | | FLUID LEVEL: | |

| LOGGED INTERVAL | START | STOP | LOGGED INTERVAL | START | STOP |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

# EQUIPMENT DESCRIPTION

RUN 1 RUN 2

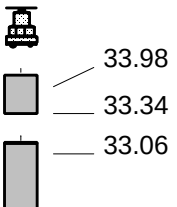
## SURFACE EQUIPMENT

SFT-281 24
SFT-178 4722
GSR-U 135
GSR-U/Y
WITM (DTS)-A 2

## DOWNHOLE EQUIPMENT

LEH-QT
LEH-QT 1726
DTC-H
ECH-KC 9343
SGT-N
SGH-K 2448
SGC-TR 9582

CTEM
TelStatus
ToolStatu
Gamma Ray




35.14
34.25
33.34

SGC-TB 9582

HNGS-BA 31.66
HNGS-BA 77
HNSH-BA 79
Upper_1 30.96
Lower_2 30.75

ILE-D 29.16
ILE-D 25
Status
Minitron
Near TD

APS-BA 26.73
APS-BA 22
APH-AC 22
MNTR-F 4185
Near Arr
Near 24.28
Far Arr 24.20
Far 24.08
Far TD 23.98

NPLC-B 22.78
NPLC-B 79
NPH-B 82
Status 21.56

DTA-A 20.34
ECH-KE 8231

HLDT-A 19.12
GSR-Z 1846
HLDC-AA 11
HLDV-A 10
HLDS-B 10
HLDP-B 10
HEH-G 11
HEH-H 12
LS 13.17
SS 13.05
Caliper 13.00

DIT-E 12.24
DIC-EB 438
MIH-ZA 417
DIS-HB 442
SP 5.86
Deep Ind 5.61
Aux Meas SFL 4.69
Med Ind 4.54
Status 2.71

AH-TAP 2.71
AH-TAP
DF
Tension HV 0.00

TOOL ZERO

MAXIMUM STRING DIAMETER 3.88 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

## Input DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | PI_LDL_APS_NGS_006LUP | FN:8 | PRODUCER | 16-Mar-2002 08:47 | 5383.5 M | 5079.3 M |

## Output DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | PI_LDL_APS_NGS_021PUP | FN:32 | PRODUCER | 17-Mar-2002 13:54 | 5383.5 M | 5084.2 M |
| TCOM | PI_LDL_APS_NGS_021PUP | FN:33 | PRODUCER | 17-Mar-2002 13:54 | 5383.5 M | 5084.2 M |

## OP System Version: 10C0-306

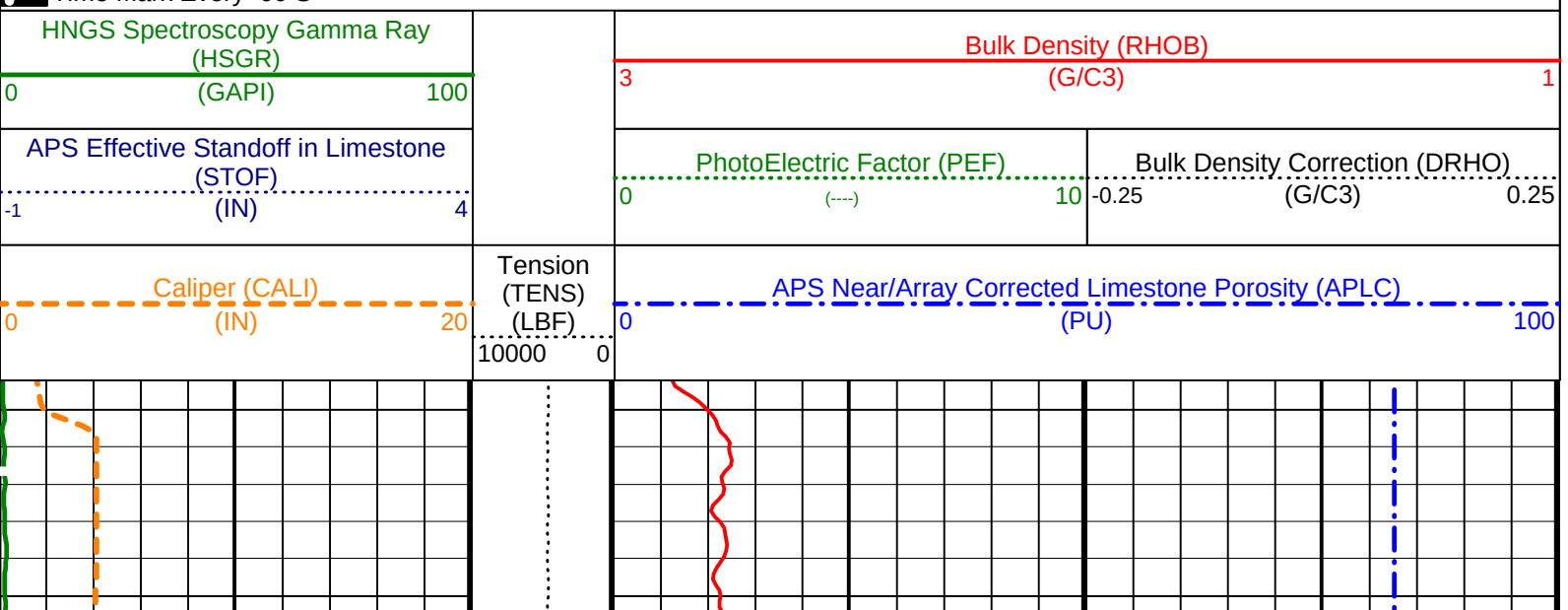
MCM

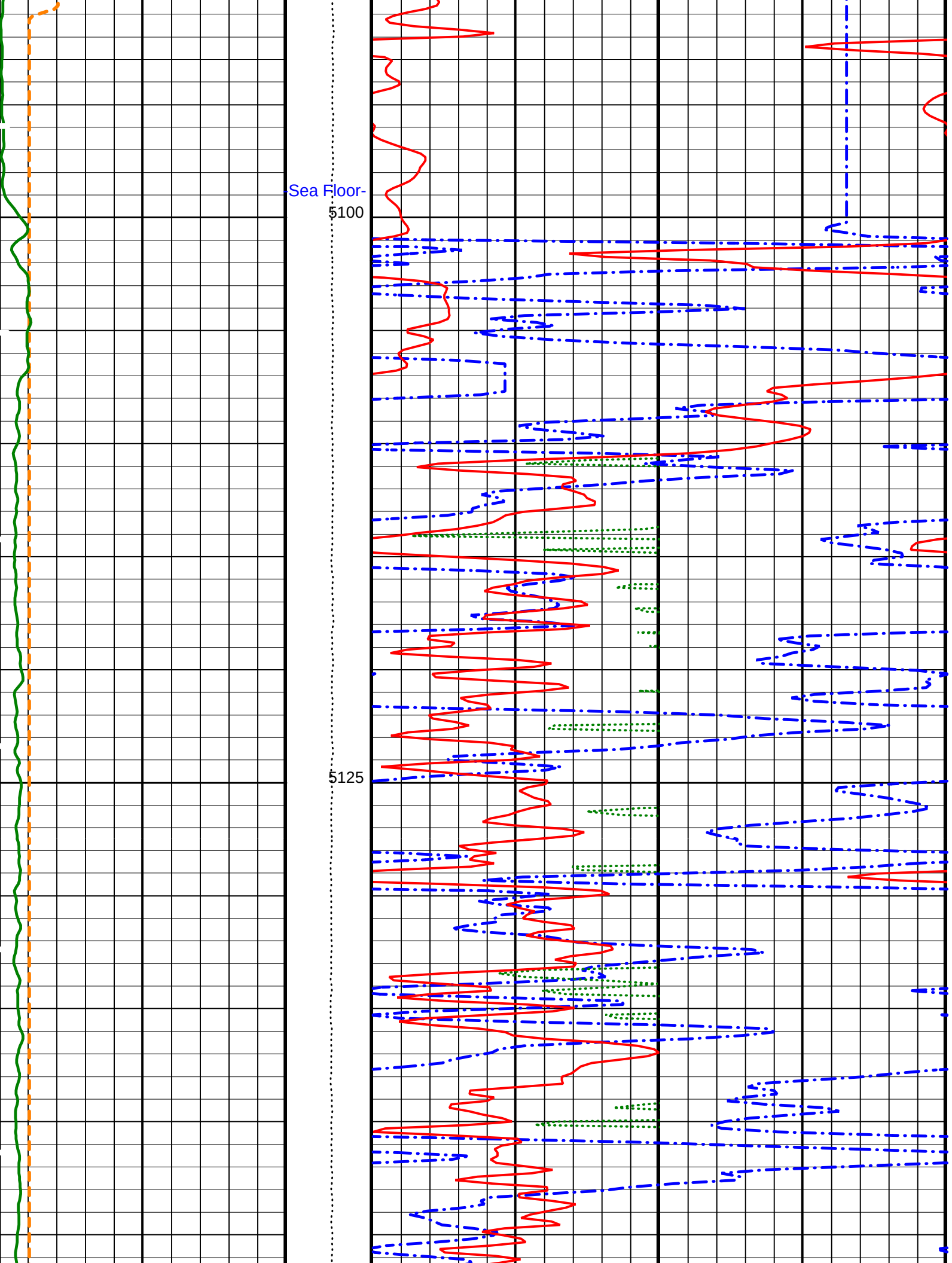
| | | | |
|---|---|---|---|
| DIT-E | 10C0-306 | HLDT-A | 10C0-306 |
| DTA-A | 10C0-306 | NPLC-B | 10C0-306 |
| APS-BA | 10C0-306 | HNGS-BA | 10C0-306 |
| SGT-N | 10C0-306 | DTC-H | 10C0-306 |

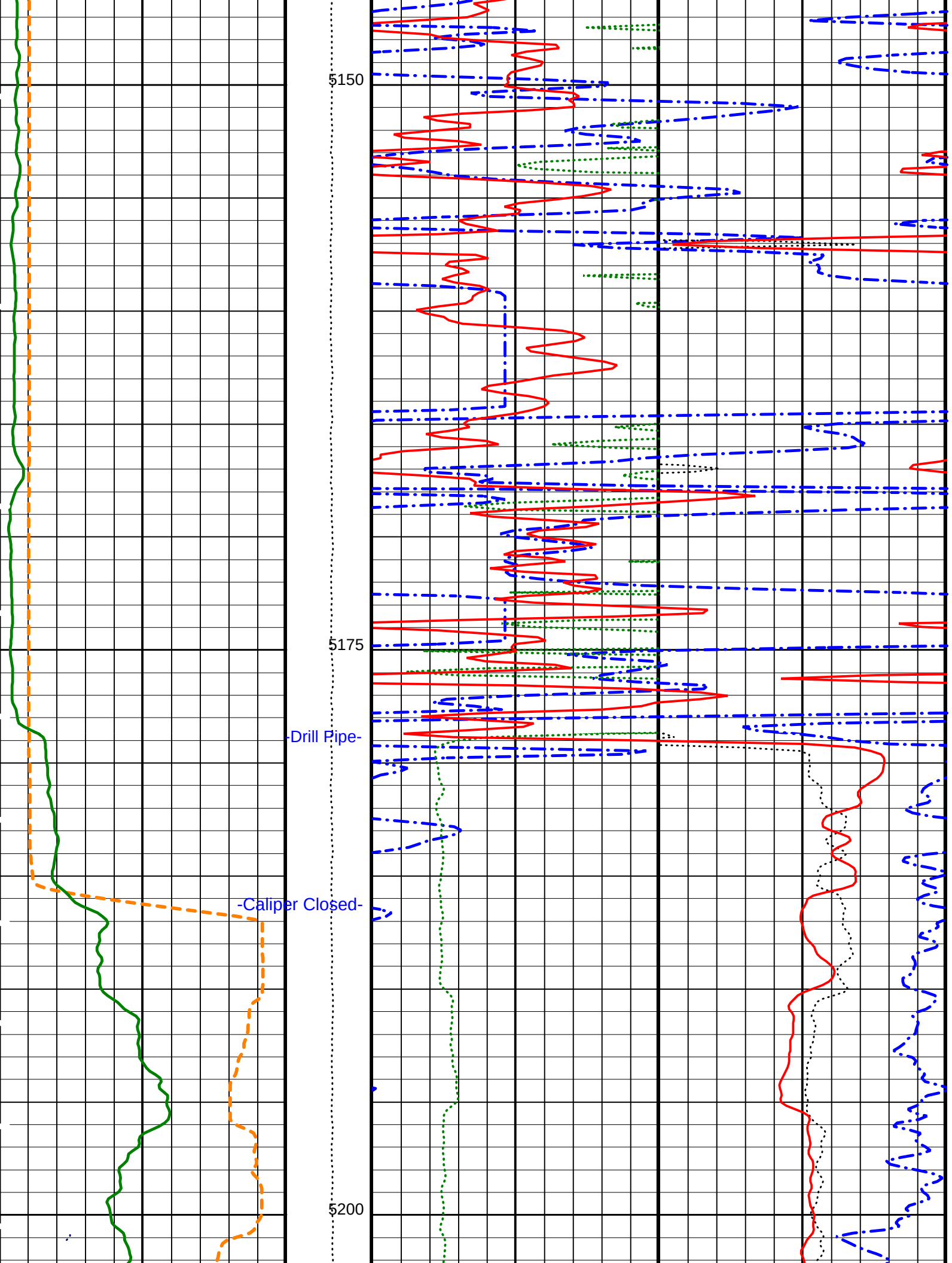
Main Pass

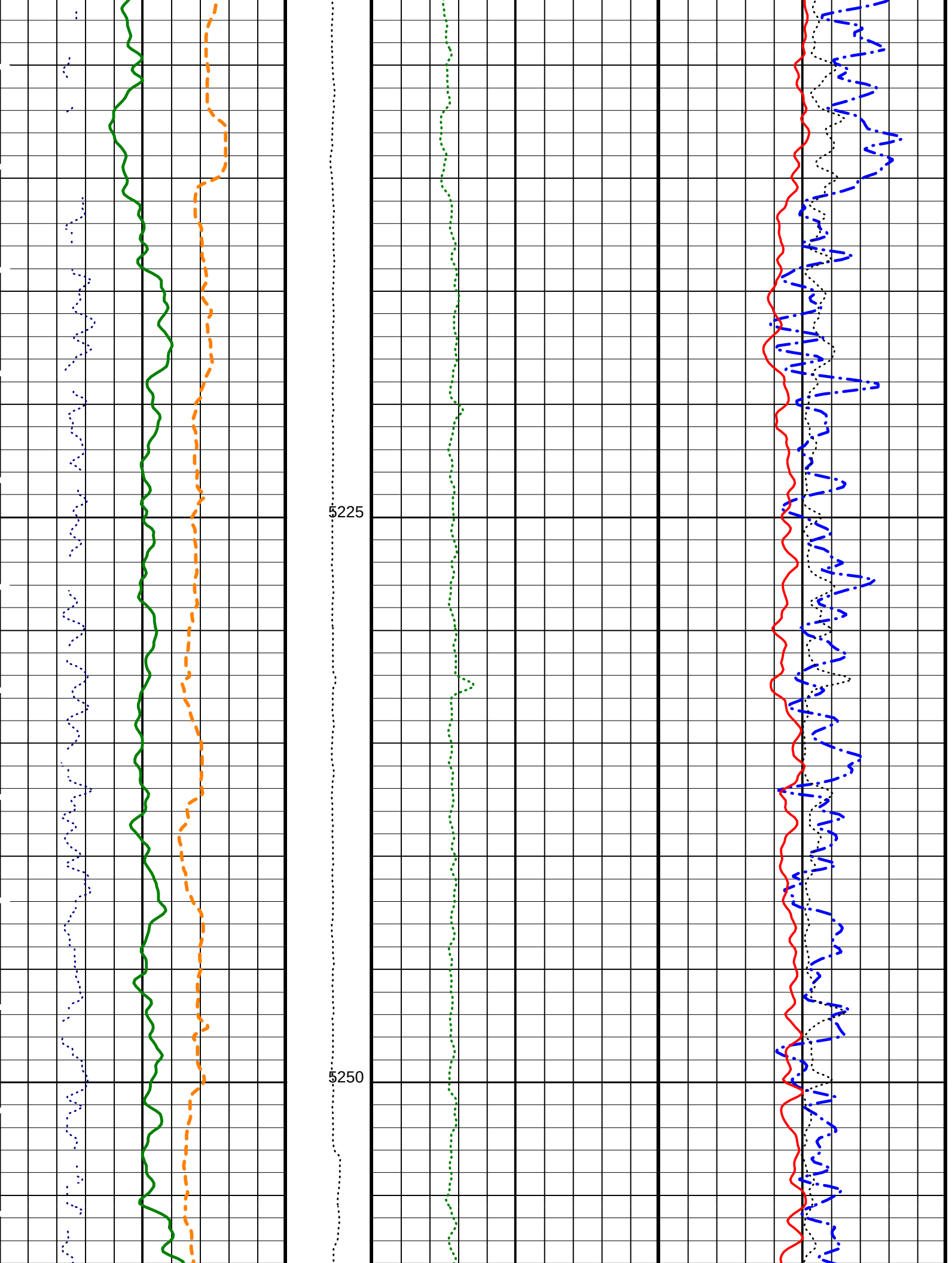
PIP SUMMARY

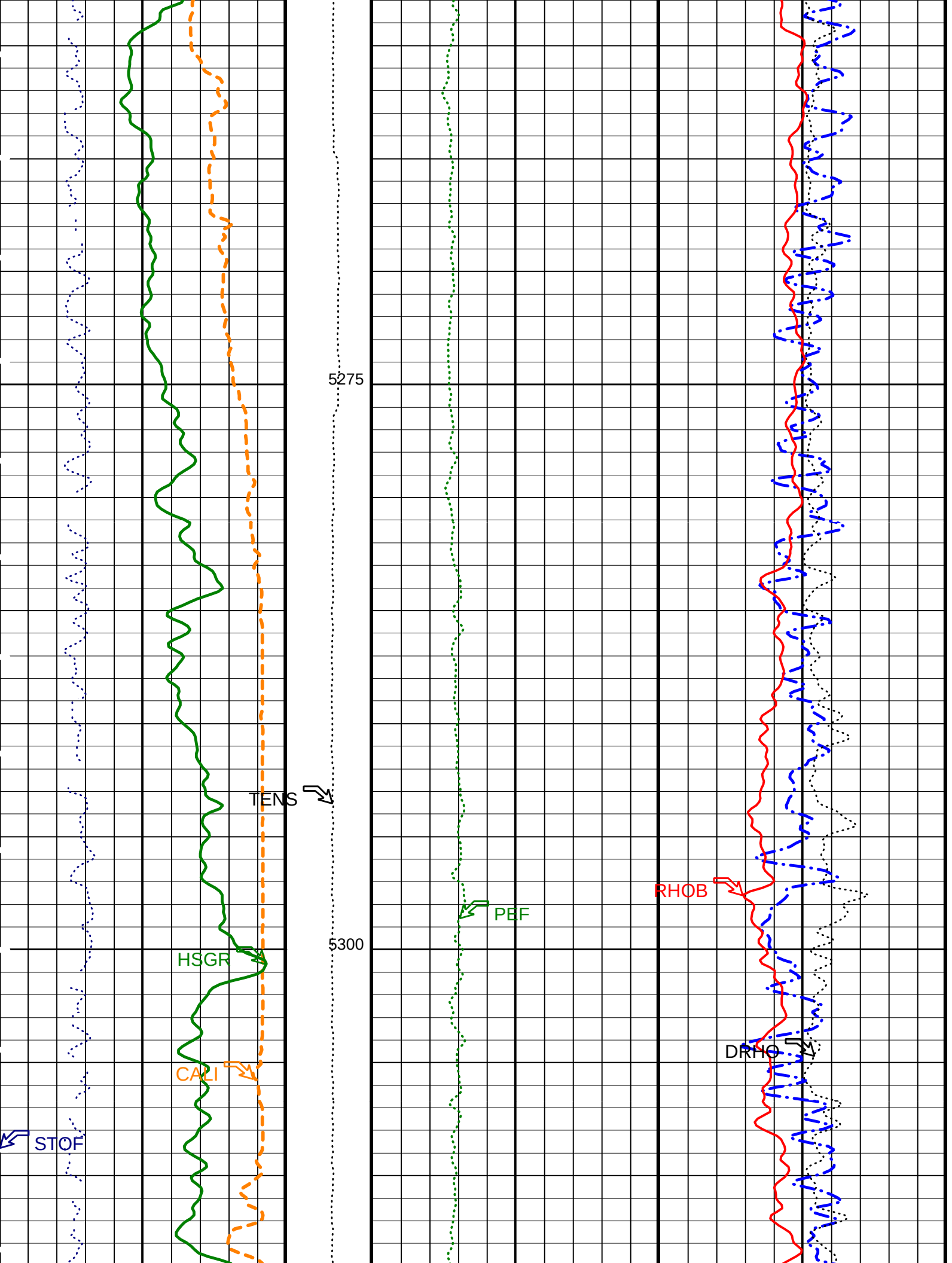
Time Mark Every 60 S

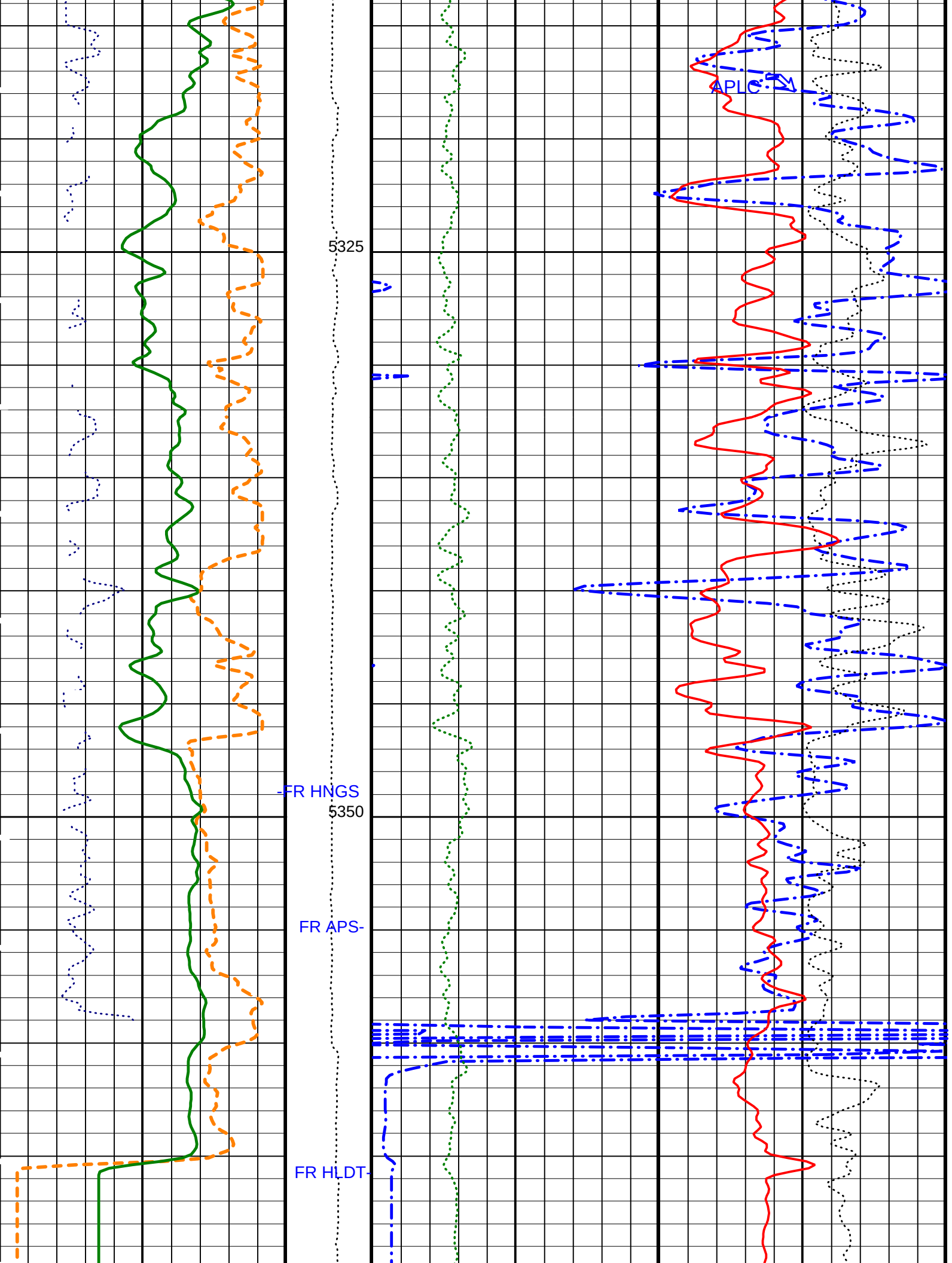


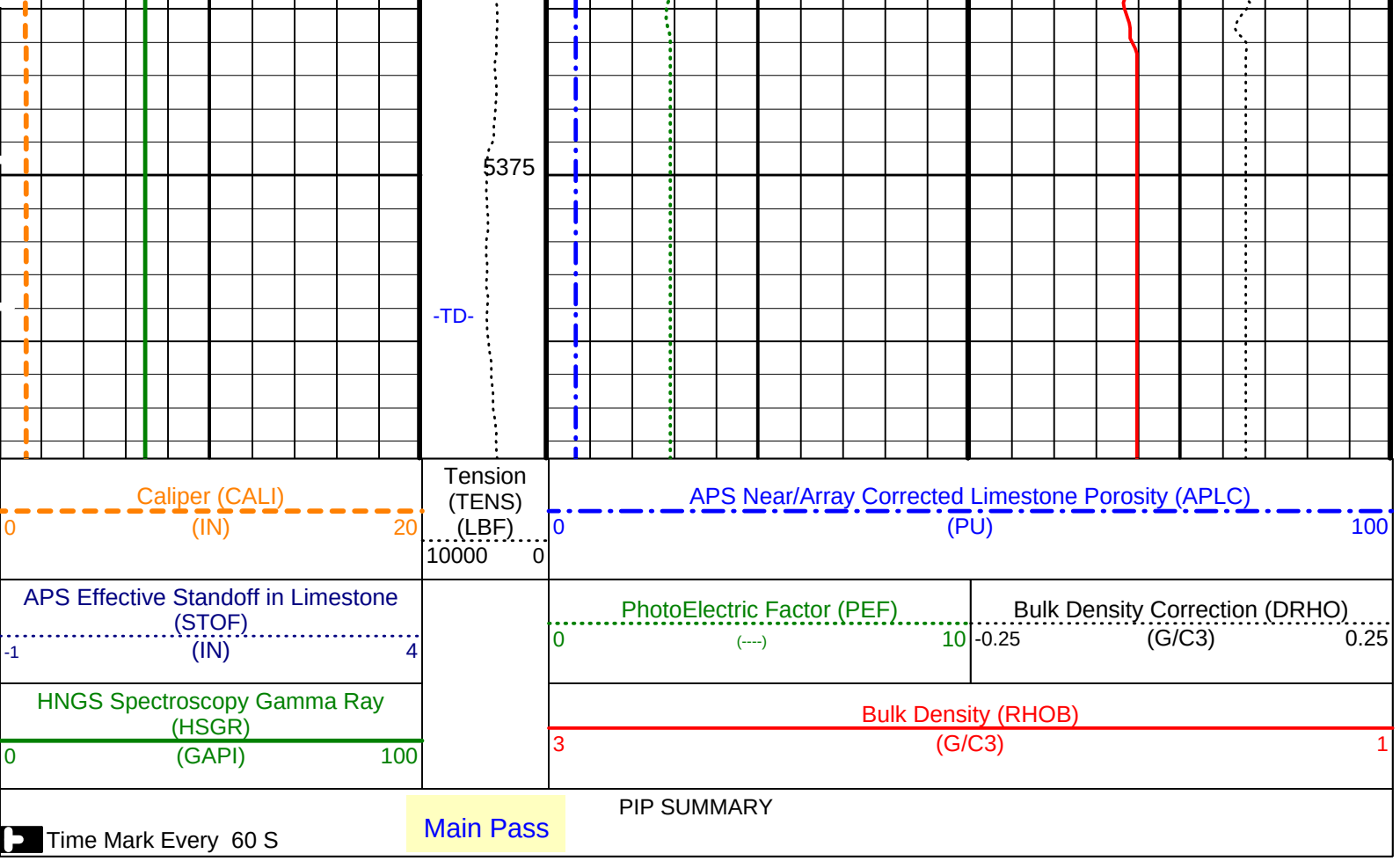

Sea Floor-
5100
5125


5150
5175
-Drill Pipe-
-Caliper Closed-
5200


5225
5250


5275
5300
TENS
HSGR
CALI
STOF
PEF
RHOB
DRHO


APLC
5325
-FR HNGS
5350
FR APS-
FR HLDT-




# Parameters

| DLIS Name | Description | Value | |
|---|---|---|---|
| | DIT-E: Dual Induction - E | | |
| BHS | Borehole Status | OPEN | |
| BHT | Bottom Hole Temperature (used in calculations) | 40 | DEGF |
| DGF1 | Deep 10 kHz Gain Factor | 0.995593 | |
| DGF2 | Deep 20 kHz Gain Factor | 1.00789 | |
| DGF4 | Deep 40 kHz Gain Factor | 1.02614 | |
| DPH1 | Deep 10 kHz Phase Shift | 0.114289 | DEG |
| DPH2 | Deep 20 kHz Phase Shift | -0.152394 | DEG |
| DPH4 | Deep 40 kHz Phase Shift | -1.42629 | DEG |
| DRE1 | Deep Real 10 kHz Sonde Error Correction | 44.9501 | MM/M |
| DRE2 | Deep Real 20 kHz Sonde Error Correction | 16.357 | MM/M |
| DRE4 | Deep Real 40 kHz Sonde Error Correction | 4.69026 | MM/M |
| DRIM | DIT-E Radial Invasion Mode | Rxo>Rt | |
| DSR1 | Deep Sigma Reference (10 kHz) | 7637 | MM/M |
| DSR2 | Deep Sigma Reference (20 kHz) | 1843 | MM/M |
| DSR4 | Deep Sigma Reference (40 kHz) | 405 | MM/M |
| DSTA | DIT-E Transversal Standoff | 0 | IN |
| DXE1 | Deep Quad 10 kHz Sonde Error Correction | 108.903 | MM/M |
| DXE2 | Deep Quad 20 kHz Sonde Error Correction | 64.6326 | MM/M |
| DXE4 | Deep Quad 40 kHz Sonde Error Correction | 46.096 | MM/M |
| GCSE | Generalized Caliper Selection | CALI | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GRSE | Generalized Mud Resistivity Selection | CHART_GEN_9 | |
| GTSE | Generalized Temperature Selection | LINEAR_ESTIMATE | |
| IFRS | DIT-E Induction Frequency Selector | 20 | |
| IPHA | DIT-E Phasor Processing Mode | ALL | |
| IPRO | DIT-E Induction Processing Selector | PHASOR | |
| ITEN | DIT-E Temperature Enable | ENABLE | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| MGF1 | Medium 10 kHz Gain Factor | 1.02182 | |
| MGF2 | Medium 20 kHz Gain Factor | 1.02964 | |
| MGF4 | Medium 40 kHz Gain Factor | 1.06122 | |
| MPH1 | Medium 10 kHz Phase Shift | -0.255819 | DEG |
| MPH2 | Medium 20 kHz Phase Shift | -0.933067 | DEG |
| MPH4 | Medium 40 kHz Phase Shift | -2.46117 | DEG |
| MRE1 | Medium Real 10 kHz Sonde Error Correction | 20.7292 | MM/M |
| MRE2 | Medium Real 20 kHz Sonde Error Correction | -1.78642 | MM/M |
| MRE4 | Medium Real 40 kHz Sonde Error Correction | -10.4594 | MM/M |
| MSR1 | Medium Sigma Reference (10 kHz) | 13520 | MM/M |

| | | | |
|---|---|---|---|
| MSR2 | Medium Sigma Reference (20 kHz) | 3250 | MM/M |
| MSR4 | Medium Sigma Reference (40 kHz) | 685 | MM/M |
| MXE1 | Medium Quad 10 kHz Sonde Error Correction | -105.752 | MM/M |
| MXE2 | Medium Quad 20 kHz Sonde Error Correction | -34.2041 | MM/M |
| MXE4 | Medium Quad 40 kHz Sonde Error Correction | 11.4521 | MM/M |
| SBR | Shoulder Bed Resistivity Factor | 1 | OHMM |
| SFCR | SFL Channel Ratio | 1000 | |
| SFLE | SFL Enable | ENABLE | |
| SHT | Surface Hole Temperature | 68 | DEGF |
| SPAE | DIT-E SPARC Processing Enable | ENABLE | |
| SPNV | SP Next Value | 0 | MV |
| HLDT-A: Hostile Environment Litho Density - A | | | |
| BFM | Borehole Fluid Medium | LIQUID | |
| DHC | Density Hole Correction | BS | |
| DPPM | Density Porosity Processing Mode | HIRS | |
| FD | Fluid Density | 1 | G/C3 |
| LSHC | LS Hardware Loop Control | DISALLOW | |
| MDEN | Matrix Density | 2.71 | G/C3 |
| QPPS | Quicklook Processing Pe Select | PEFL | |
| SSHC | SS Hardware Loop Control | DISALLOW | |
| WMUD | Mud Weight | 1.07 | G/C3 |
| NPLC-B: Nuclear Porosity Lithology Cartridge - B | | | |
| NOTS | NPLC Old Temperature Sensor | NO | |
| APS-BA: Accelerator-Porosity Tool | | | |
| | APS Software Version | 5 | |
| AASD | APS Thermal and Array Detectors High Voltage Setting | 1968.98 | V |
| ABOS | APS Neutron Burst-Off Background Subtraction Switch | ON | |
| ADSO | APS Array Detectors Data Source Switch | Both | |
| AFSD | APS Far Detector High Voltage Setting | 2052.03 | V |
| AHCS | APS Holesize Correction Source | GCSE | |
| AHSS | APS Holesize Correction Switch | ON | |
| AMTY | APS Environmental Corrections Mud Type | WaterBaseBarite | |
| ANSD | APS Near Detector High Voltage Setting | 1748.3 | V |
| AOTS | APS Old Temperature Sensor Switch | NO | |
| ASOS | APS Standoff Correction Switch | ON | |
| ATSS | APS Temperature-Pressure-Salinity Correction Switch | OFF | |
| BHS | Borehole Status | OPEN | |
| BHT | Bottom Hole Temperature (used in calculations) | 40 | DEGF |
| DPPM | Density Porosity Processing Mode | HIRS | |
| FSAL | Formation Salinity | -50000 | PPM |
| GCSE | Generalized Caliper Selection | CALI | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GRSE | Generalized Mud Resistivity Selection | CHART_GEN_9 | |
| GTSE | Generalized Temperature Selection | LINEAR_ESTIMATE | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| NARC | APS Near/Array Calibration Ratio | 1.0631 | |
| NFRC | APS Near/Far Calibration Ratio | 0.902243 | |
| SHT | Surface Hole Temperature | 68 | DEGF |
| HNGS-BA: Hostile Natural Gamma Ray Sonde | | | |
| BAR1 | HNGS Detector 1 Barite Constant | 1 | |
| BAR2 | HNGS Detector 2 Barite Constant | 1 | |
| BHK | HNGS Borehole Potassium Correction Concentration | 0 | |
| BHS | Borehole Status | OPEN | |
| BHT | Bottom Hole Temperature (used in calculations) | 40 | DEGF |
| CSD1 | Inner Casing Outer Diameter | 0 | IN |
| CSD2 | Outer Casing Outer Diameter | 0 | IN |
| CSW1 | Inner Casing Weight | 0 | LB/F |
| CSW2 | Outer Casing Weight | 0 | LB/F |
| DBCC | HNGS Barite Constant Correction Flag | NONE | |
| GCSE | Generalized Caliper Selection | CALI | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GRSE | Generalized Mud Resistivity Selection | CHART_GEN_9 | |
| GTSE | Generalized Temperature Selection | LINEAR_ESTIMATE | |
| H1P | HNGS Detector 1 Allow/Disallow In Processing | ALLOW | |
| H2P | HNGS Detector 2 Allow/Disallow In Processing | ALLOW | |
| HABK | HNGS Borehole Potassium Running Average | 0.000145375 | |
| HALF | HNGS Alpha Filter Length | 60 | IN |
| HCRB | HNGS Apply Borehole Potassium Correction | NONE | |
| HMWM | Mud Weighting Material | NATU | |
| HNPE | HNGS Processing Enable | YES | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| S1BI | HNGS Detector 1 Calibration Bismuth Count Rate | 1.3 | CPS |
| S2BI | HNGS Detector 2 Calibration Bismuth Count Rate | 1.3 | CPS |
| SGRC | HNGS Standard Gamma-Ray Correction Flag | YES | |
| SHT | Surface Hole Temperature | 68 | DEGF |
| TPOS | Tool Position | ECCE | |
| VBA1 | HNGS Detector 1 Variable Barite Factor Running Average | 0.973008 | |
| VBA2 | HNGS Detector 2 Variable Barite Factor Running Average | 0.974631 | |
| SGT-N: Scintillation Gamma-Ray - N | | | |
| BHS | Borehole Status | OPEN | |
| BHT | Bottom Hole Temperature (used in calculations) | 40 | DEGF |
| DPPM | Density Porosity Processing Mode | HIRS | |
| GCSE | Generalized Caliper Selection | CALI | |

| | | | |
|---|---|---|---|
| GCSE | Generalized Caliper Selection | CALI | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GRSE | Generalized Mud Resistivity Selection | CHART_GEN_9 | |
| GTSE | Generalized Temperature Selection | LINEAR_ESTIMATE | |
| ISSBAR | SGT Nuclear Mud Type | NOBARITE | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| SHT | Surface Hole Temperature | 68 | DEGF |
| SOGR | SGT Standoff Distance | 0 | IN |
| HOLEV: Integrated Hole/Cement Volume | | | |
| BHS | Borehole Status | OPEN | |
| BHT | Bottom Hole Temperature (used in calculations) | 40 | DEGF |
| FCD | Future Casing (Outer) Diameter | 0 | IN |
| GCSE | Generalized Caliper Selection | CALI | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GRSE | Generalized Mud Resistivity Selection | CHART_GEN_9 | |
| GTSE | Generalized Temperature Selection | LINEAR_ESTIMATE | |
| HVCS | Integrated Hole Volume Caliper Selection | AUTOMATIC | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| SHT | Surface Hole Temperature | 68 | DEGF |
| System and Miscellaneous | | | |
| ALTDPCHAN | Name of alternate depth channel | SpeedCorrectedDepth | |
| BS | Bit Size | 11.438 | IN |
| BSAL | Borehole Salinity | -50000.00 | PPM |
| CSIZ | Current Casing Size | 0.000 | IN |
| CWEI | Casing Weight | 0.00 | LB/F |
| DFD | Drilling Fluid Density | 1.07 | G/C3 |
| DO | Depth Offset for Playback | 0.0 | M |
| MST | Mud Sample Temperature | 33.00 | DEGC |
| PBVSADP | Use alternate depth channel for playback | NO | |
| PP | Playback Processing | RECOMPUTE | |
| RMFS | Resistivity of Mud Filtrate Sample | -50000.0000 | OHMM |
| RW | Resistivity of Connate Water | 1.0000 | OHMM |
| TD | Total Depth | 17647.6 | FT |
| TDD | Total Depth - Driller | 5377.00 | M |
| TDL | Total Depth - Logger | 5377.00 | M |
| TWS | Temperature of Connate Water Sample | 37.78 | DEGC |

Format: APSLiquidPorosity_1 Vertical Scale: 1:200 Graphics File Created: 17-Mar-2002 13:54

## OP System Version: 10C0-306

MCM

| | | | |
|---|---|---|---|
| DIT-E | 10C0-306 | HLDT-A | 10C0-306 |
| DTA-A | 10C0-306 | NPLC-B | 10C0-306 |
| APS-BA | 10C0-306 | HNGS-BA | 10C0-306 |
| SGT-N | 10C0-306 | DTC-H | 10C0-306 |

## Input DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | PI_LDL_APS_NGS_006LUP | FN:8 | PRODUCER | 16-Mar-2002 08:47 | 5383.5 M | 5079.3 M |

## Output DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | PI_LDL_APS_NGS_021PUP | FN:32 | PRODUCER | 17-Mar-2002 13:54 | | |
| TCOM | PI_LDL_APS_NGS_021PUP | FN:33 | PRODUCER | 17-Mar-2002 13:54 | | |

## Input DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | PI_LDL_APS_NGS_008LUP | FN:11 | PRODUCER | 16-Mar-2002 09:52 | 5383.5 M | 5202.5 M |

## Output DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | PI_LDL_APS_NGS_023PUP | FN:35 | PRODUCER | 17-Mar-2002 14:07 | 5383.5 M | 5207.7 M |
| TCOM | PI_LDL_APS_NGS_023PUP | FN:36 | PRODUCER | 17-Mar-2002 14:07 | 5383.5 M | 5207.7 M |

## OP System Version: 10C0-306

MCM

| | | | |
|---|---|---|---|
| DIT-E | 10C0-306 | HLDT-A | 10C0-306 |
| DTA-A | 10C0-306 | NPLC-B | 10C0-306 |
| APS-BA | 10C0-306 | HNGS-BA | 10C0-306 |
| SGT-N | 10C0-306 | DTC-H | 10C0-306 |

PIP SUMMARY

Time Mark Every 60 S

HNGS Spectroscopy Gamma Ray (HSGR)
0 (GAPI) 100

APS Effective Standoff in Limestone (STOF)
-1 (IN) 4

Caliper (CALI)
0 (IN) 20

Tension (TENS) (LBF)
10000 0

Bulk Density (RHOB)
3 (G/C3) 1

PhotoElectric Factor (PEF)
0 (----) 10

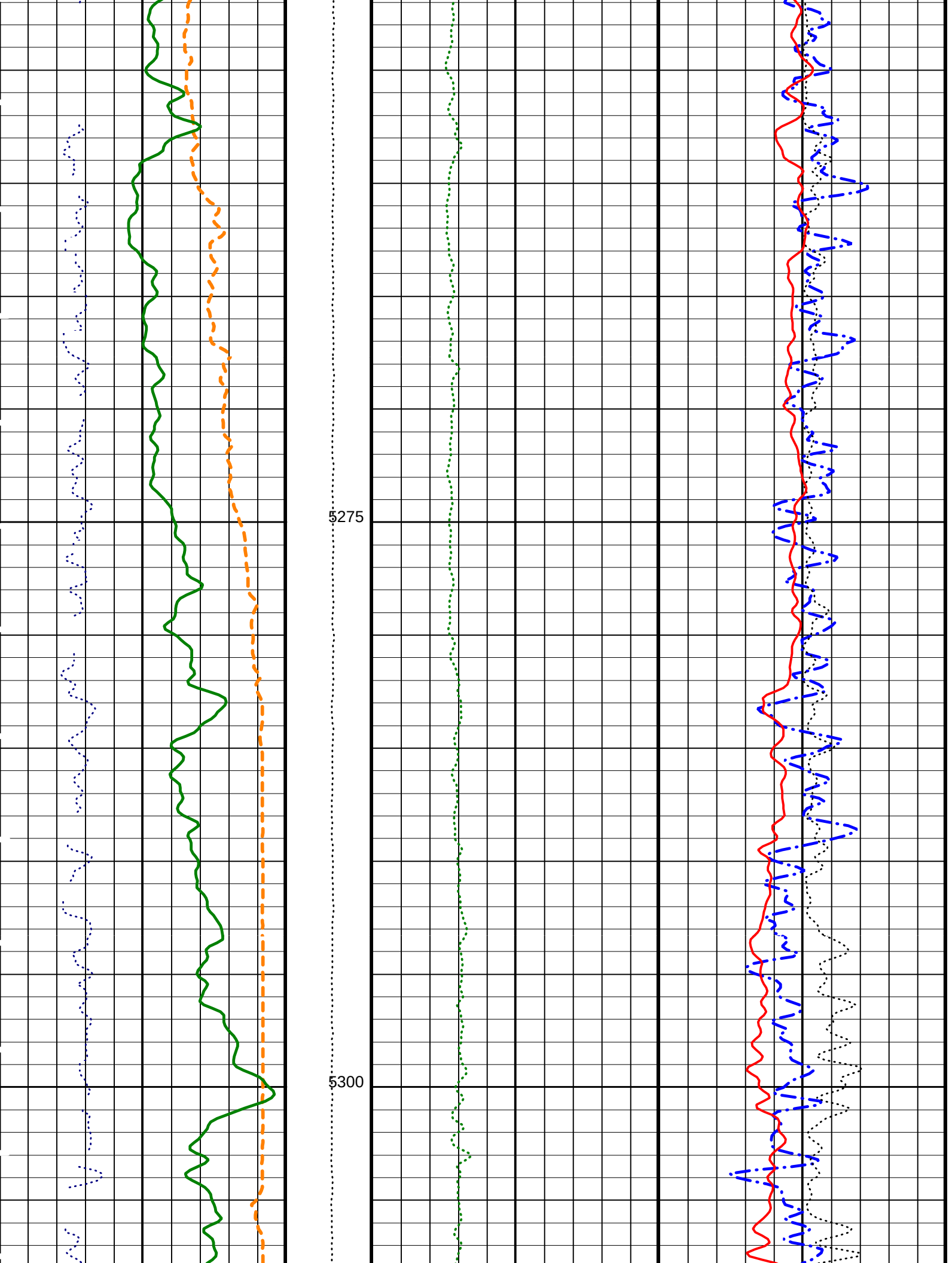
Bulk Density Correction (DRHO)
-0.25 (G/C3) 0.25

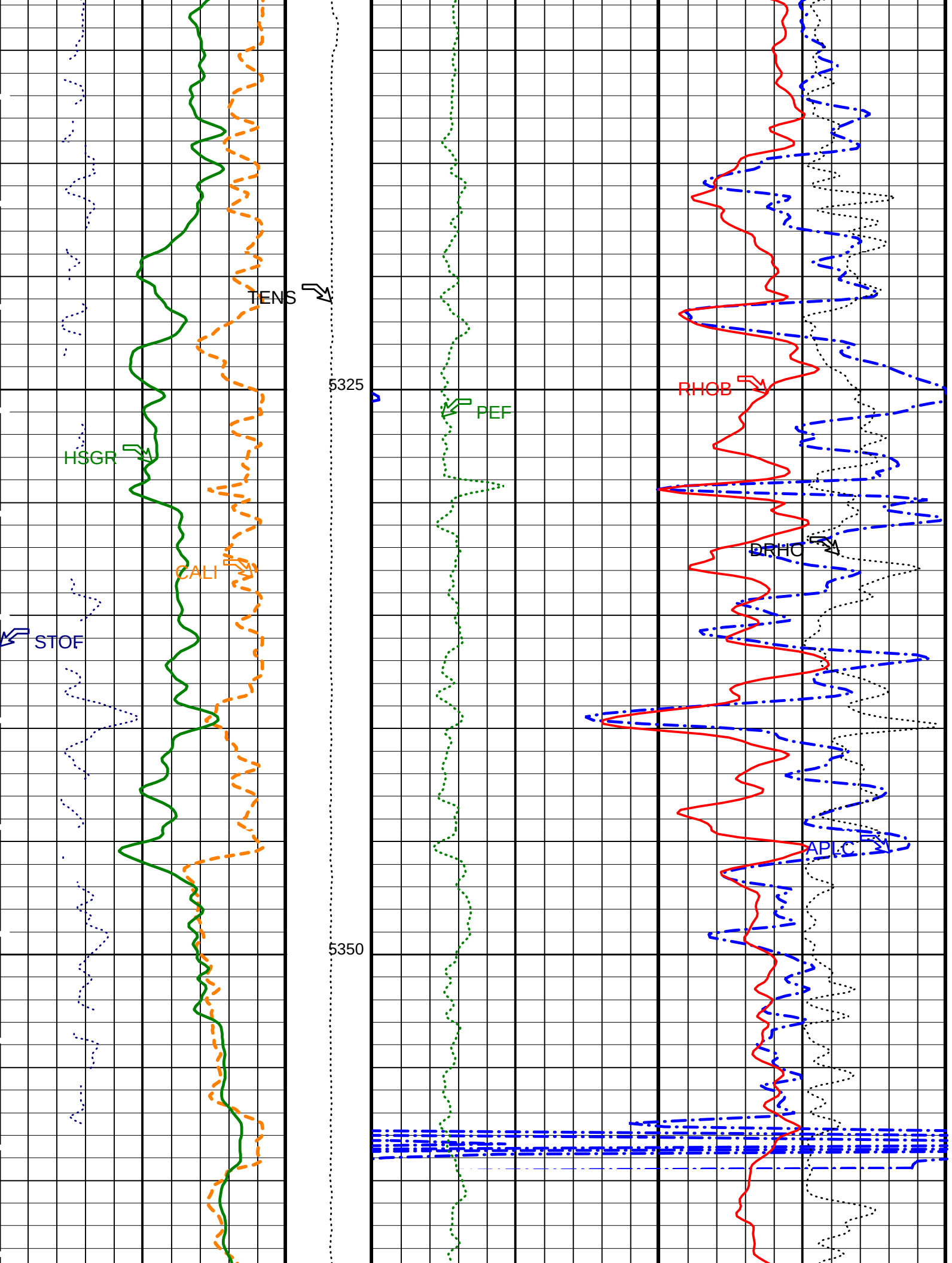
APS Near/Array Corrected Limestone Porosity (APLC)
0 (PU) 100

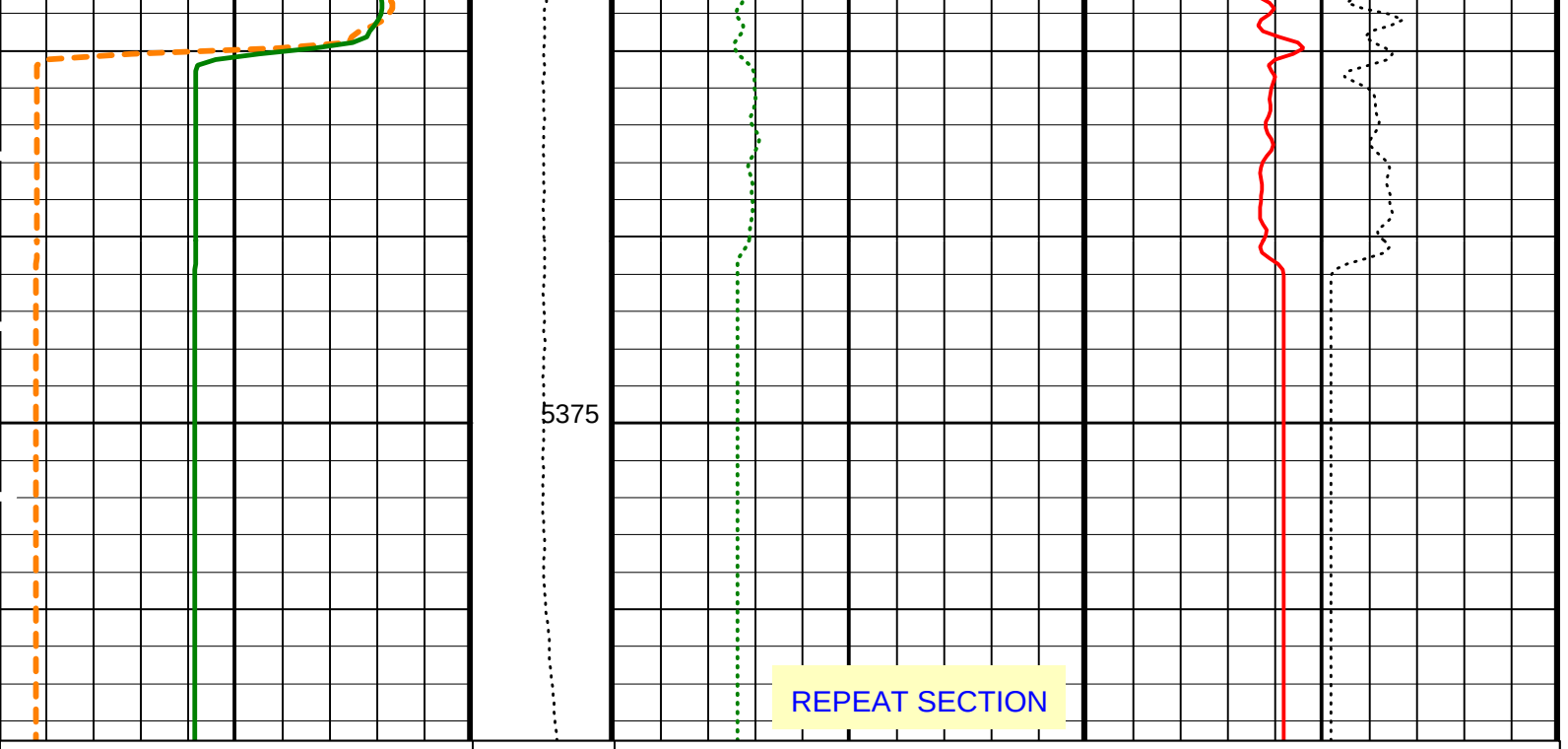
REPEAT SECTION

5225

5250


5275
5300


TENS
5325
PEF
RHOB
HSGR
DRHO
CALI
STOF
APLC
5350




PIP SUMMARY

Time Mark Every 60 S

# Parameters

| DLIS Name | Description | Value | |
|---|---|---|---|
| | DIT-E: Dual Induction - E | | |
| BHS | Borehole Status | OPEN | |
| BHT | Bottom Hole Temperature (used in calculations) | 40 | DEGF |
| DGF1 | Deep 10 kHz Gain Factor | 0.995593 | |
| DGF2 | Deep 20 kHz Gain Factor | 1.00789 | |
| DGF4 | Deep 40 kHz Gain Factor | 1.02614 | |
| DPH1 | Deep 10 kHz Phase Shift | 0.114289 | DEG |
| DPH2 | Deep 20 kHz Phase Shift | -0.152394 | DEG |
| DPH4 | Deep 40 kHz Phase Shift | -1.42629 | DEG |
| DRE1 | Deep Real 10 kHz Sonde Error Correction | 44.9501 | MM/M |
| DRE2 | Deep Real 20 kHz Sonde Error Correction | 16.357 | MM/M |
| DRE4 | Deep Real 40 kHz Sonde Error Correction | 4.69026 | MM/M |
| DRIM | DIT-E Radial Invasion Mode | Rxo>Rt | |
| DSR1 | Deep Sigma Reference (10 kHz) | 7637 | MM/M |
| DSR2 | Deep Sigma Reference (20 kHz) | 1843 | MM/M |
| DSR4 | Deep Sigma Reference (40 kHz) | 405 | MM/M |
| DSTA | DIT-E Transversal Standoff | 0 | IN |
| DXE1 | Deep Quad 10 kHz Sonde Error Correction | 108.903 | MM/M |
| DXE2 | Deep Quad 20 kHz Sonde Error Correction | 64.6326 | MM/M |
| DXE4 | Deep Quad 40 kHz Sonde Error Correction | 46.096 | MM/M |
| GCSE | Generalized Caliper Selection | CALI | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GRSE | Generalized Mud Resistivity Selection | CHART_GEN_9 | |
| GTSE | Generalized Temperature Selection | LINEAR_ESTIMATE | |
| IFRS | DIT-E Induction Frequency Selector | 20 | |
| IPHA | DIT-E Phasor Processing Mode | ALL | |
| IPRO | DIT-E Induction Processing Selector | PHASOR | |
| ITEN | DIT-E Temperature Enable | ENABLE | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| MGF1 | Medium 10 kHz Gain Factor | 1.02182 | |

| | | | |
|---|---|---|---|
| MGF2 | Medium 20 kHz Gain Factor | 1.02964 | |
| MGF4 | Medium 40 kHz Gain Factor | 1.06122 | |
| MPH1 | Medium 10 kHz Phase Shift | -0.255819 | DEG |
| MPH2 | Medium 20 kHz Phase Shift | -0.933067 | DEG |
| MPH4 | Medium 40 kHz Phase Shift | -2.46117 | DEG |
| MRE1 | Medium Real 10 kHz Sonde Error Correction | 20.7292 | MM/M |
| MRE2 | Medium Real 20 kHz Sonde Error Correction | -1.78642 | MM/M |
| MRE4 | Medium Real 40 kHz Sonde Error Correction | -10.4594 | MM/M |
| MSR1 | Medium Sigma Reference (10 kHz) | 13520 | MM/M |
| MSR2 | Medium Sigma Reference (20 kHz) | 3250 | MM/M |
| MSR4 | Medium Sigma Reference (40 kHz) | 685 | MM/M |
| MXE1 | Medium Quad 10 kHz Sonde Error Correction | -105.752 | MM/M |
| MXE2 | Medium Quad 20 kHz Sonde Error Correction | -34.2041 | MM/M |
| MXE4 | Medium Quad 40 kHz Sonde Error Correction | 11.4521 | MM/M |
| SBR | Shoulder Bed Resistivity Factor | 1 | OHMM |
| SFCR | SFL Channel Ratio | 1000 | |
| SFLE | SFL Enable | ENABLE | |
| SHT | Surface Hole Temperature | 68 | DEGF |
| SPAE | DIT-E SPARC Processing Enable | ENABLE | |
| SPNV | SP Next Value | 0 | MV |
| HLDT-A: Hostile Environment Litho Density - A | | | |
| BFM | Borehole Fluid Medium | LIQUID | |
| DHC | Density Hole Correction | BS | |
| DPPM | Density Porosity Processing Mode | HIRS | |
| FD | Fluid Density | 1 | G/C3 |
| LSHC | LS Hardware Loop Control | DISALLOW | |
| MDEN | Matrix Density | 2.71 | G/C3 |
| QPPS | Quicklook Processing Pe Select | PEFL | |
| SSHC | SS Hardware Loop Control | DISALLOW | |
| WMUD | Mud Weight | 1.07 | G/C3 |
| NPLC-B: Nuclear Porosity Lithology Cartridge - B | | | |
| NOTS | NPLC Old Temperature Sensor | NO | |
| APS-BA: Accelerator-Porosity Tool | | | |
| | APS Software Version | 5 | |
| AASD | APS Thermal and Array Detectors High Voltage Setting | 1968.98 | V |
| ABOS | APS Neutron Burst-Off Background Subtraction Switch | ON | |
| ADSO | APS Array Detectors Data Source Switch | Both | |
| AFSD | APS Far Detector High Voltage Setting | 2052.03 | V |
| AHCS | APS Holesize Correction Source | GCSE | |
| AHSS | APS Holesize Correction Switch | ON | |
| AMTY | APS Environmental Corrections Mud Type | WaterBaseBarite | |
| ANSD | APS Near Detector High Voltage Setting | 1748.3 | V |
| AOTS | APS Old Temperature Sensor Switch | NO | |
| ASOS | APS Standoff Correction Switch | ON | |
| ATSS | APS Temperature-Pressure-Salinity Correction Switch | OFF | |
| BHS | Borehole Status | OPEN | |
| BHT | Bottom Hole Temperature (used in calculations) | 40 | DEGF |
| DPPM | Density Porosity Processing Mode | HIRS | |
| FSAL | Formation Salinity | -50000 | PPM |
| GCSE | Generalized Caliper Selection | CALI | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GRSE | Generalized Mud Resistivity Selection | CHART_GEN_9 | |
| GTSE | Generalized Temperature Selection | LINEAR_ESTIMATE | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| NARC | APS Near/Array Calibration Ratio | 1.0631 | |
| NFRC | APS Near/Far Calibration Ratio | 0.902243 | |
| SHT | Surface Hole Temperature | 68 | DEGF |
| HNGS-BA: Hostile Natural Gamma Ray Sonde | | | |
| BAR1 | HNGS Detector 1 Barite Constant | 1 | |
| BAR2 | HNGS Detector 2 Barite Constant | 1 | |
| BHK | HNGS Borehole Potassium Correction Concentration | 0 | |
| BHS | Borehole Status | OPEN | |
| BHT | Bottom Hole Temperature (used in calculations) | 40 | DEGF |
| CSD1 | Inner Casing Outer Diameter | 0 | IN |
| CSD2 | Outer Casing Outer Diameter | 0 | IN |
| CSW1 | Inner Casing Weight | 0 | LB/F |
| CSW2 | Outer Casing Weight | 0 | LB/F |
| DBCC | HNGS Barite Constant Correction Flag | NONE | |
| GCSE | Generalized Caliper Selection | CALI | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GRSE | Generalized Mud Resistivity Selection | CHART_GEN_9 | |
| GTSE | Generalized Temperature Selection | LINEAR_ESTIMATE | |
| H1P | HNGS Detector 1 Allow/Disallow In Processing | ALLOW | |
| H2P | HNGS Detector 2 Allow/Disallow In Processing | ALLOW | |
| HABK | HNGS Borehole Potassium Running Average | 0.000145375 | |
| HALF | HNGS Alpha Filter Length | 60 | IN |
| HCRB | HNGS Apply Borehole Potassium Correction | NONE | |
| HMWM | Mud Weighting Material | NATU | |
| HNPE | HNGS Processing Enable | YES | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| S1BI | HNGS Detector 1 Calibration Bismuth Count Rate | 1.3 | CPS |
| S2BI | HNGS Detector 2 Calibration Bismuth Count Rate | 1.3 | CPS |

| | | | |
|---|---|---|---|
| SGRC | HNGS Standard Gamma-Ray Correction Flag | YES | |
| SHT | Surface Hole Temperature | 68 | DEGF |
| TPOS | Tool Position | ECCE | |
| VBA1 | HNGS Detector 1 Variable Barite Factor Running Average | 0.973008 | |
| VBA2 | HNGS Detector 2 Variable Barite Factor Running Average | 0.974631 | |
| SGT-N: Scintillation Gamma-Ray - N | | | |
| BHS | Borehole Status | OPEN | |
| BHT | Bottom Hole Temperature (used in calculations) | 40 | DEGF |
| DPPM | Density Porosity Processing Mode | HIRS | |
| GCSE | Generalized Caliper Selection | CALI | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GRSE | Generalized Mud Resistivity Selection | CHART_GEN_9 | |
| GTSE | Generalized Temperature Selection | LINEAR_ESTIMATE | |
| ISSBAR | SGT Nuclear Mud Type | NOBARITE | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| SHT | Surface Hole Temperature | 68 | DEGF |
| SOGR | SGT Standoff Distance | 0 | IN |
| HOLEV: Integrated Hole/Cement Volume | | | |
| BHS | Borehole Status | OPEN | |
| BHT | Bottom Hole Temperature (used in calculations) | 40 | DEGF |
| FCD | Future Casing (Outer) Diameter | 0 | IN |
| GCSE | Generalized Caliper Selection | CALI | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GRSE | Generalized Mud Resistivity Selection | CHART_GEN_9 | |
| GTSE | Generalized Temperature Selection | LINEAR_ESTIMATE | |
| HVCS | Integrated Hole Volume Caliper Selection | AUTOMATIC | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| SHT | Surface Hole Temperature | 68 | DEGF |
| System and Miscellaneous | | | |
| ALTDPCHAN | Name of alternate depth channel | SpeedCorrectedDepth | |
| BS | Bit Size | 11.438 | IN |
| BSAL | Borehole Salinity | -50000.00 | PPM |
| CSIZ | Current Casing Size | 0.000 | IN |
| CWEI | Casing Weight | 0.00 | LB/F |
| DFD | Drilling Fluid Density | 1.07 | G/C3 |
| DO | Depth Offset for Playback | 0.0 | M |
| MST | Mud Sample Temperature | 33.00 | DEGC |
| PBVSADP | Use alternate depth channel for playback | NO | |
| PP | Playback Processing | RECOMPUTE | |
| RMFS | Resistivity of Mud Filtrate Sample | -50000.0000 | OHMM |
| RW | Resistivity of Connate Water | 1.0000 | OHMM |
| TD | Total Depth | 17647.6 | FT |
| TDD | Total Depth - Driller | 5377.00 | M |
| TDL | Total Depth - Logger | 5377.00 | M |
| TWS | Temperature of Connate Water Sample | 37.78 | DEGC |

Format: APSLiquidPorosity_1 Vertical Scale: 1:200 Graphics File Created: 17-Mar-2002 14:07

## OP System Version: 10C0-306

MCM

| | | | |
|---|---|---|---|
| DIT-E | 10C0-306 | HLDT-A | 10C0-306 |
| DTA-A | 10C0-306 | NPLC-B | 10C0-306 |
| APS-BA | 10C0-306 | HNGS-BA | 10C0-306 |
| SGT-N | 10C0-306 | DTC-H | 10C0-306 |

## Input DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | PI_LDL_APS_NGS_008LUP | FN:11 | PRODUCER | 16-Mar-2002 09:52 | 5383.5 M | 5202.5 M |

## Output DLIS Files

| | | | | |
|---|---|---|---|---|
| DEFAULT | PI_LDL_APS_NGS_023PUP | FN:35 | PRODUCER | 17-Mar-2002 14:07 |
| TCOM | PI_LDL_APS_NGS_023PUP | FN:36 | PRODUCER | 17-Mar-2002 14:07 |

Calibration and Check Summary

| Measurement | Nominal | Master | Before | After | Change | Limit | Units |
|---|---|---|---|---|---|---|---|
| Hostile Environment Litho Density - A Wellsite Calibration - Background Measurement | | | | | | | |
| Master: 25-Jan-2002 14:22 Before: 21-Feb-2002 4:36 After: 16-Mar-2002 13:35 | | | | | | | |
| LSW1 Background | 100.0 | 89.06 | 86.19 | 87.21 | 1.019 | 3.000 | CPS |
| LSW2 Background | 105.0 | 93.23 | 91.94 | 91.16 | -0.7827 | 3.150 | CPS |
| LSW3 Background | 210.0 | 180.0 | 177.0 | 178.4 | 1.486 | 6.300 | CPS |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| LSW3 Background | 210.0 | 180.0 | 177.0 | 178.4 | 1.486 | 6.300 | CPS |
| LSW4 Background | 290.0 | 237.9 | 235.4 | 237.0 | 1.540 | 8.700 | CPS |
| LSW5 Background | 610.0 | 529.6 | 525.7 | 526.2 | 0.5357 | 18.30 | CPS |
| SSW1 Background | 100.0 | 85.18 | 85.99 | 85.89 | -0.09821 | 3.000 | CPS |
| SSW2 Background | 200.0 | 166.8 | 165.6 | 167.1 | 1.530 | 6.000 | CPS |
| SSW3 Background | 530.0 | 446.5 | 445.9 | 441.3 | -4.582 | 15.90 | CPS |
| SSW4 Background | 280.0 | 235.8 | 234.2 | 233.3 | -0.9212 | 8.400 | CPS |
| SSW5 Background | 205.0 | 176.3 | 175.5 | 177.7 | 2.273 | 6.150 | CPS |

Hostile Environment Litho Density - A Wellsite Calibration - Tool Quality Control Information High Voltage
Master: 25-Jan-2002 14:22 Before: 21-Feb-2002 4:36 After: 16-Mar-2002 13:35

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| LS Bkg. High Voltage | 1129 | 1129 | 1134 | 1135 | 0.8025 | N/A | V |
| SS Bkg. High Voltage | 1173 | 1173 | 1180 | 1178 | -2.820 | N/A | V |

Hostile Environment Litho Density - A Wellsite Calibration - Detectors Resolution From BKG Measurments
Master: 25-Jan-2002 14:22 Before: 21-Feb-2002 4:36 After: 16-Mar-2002 13:35

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| LS Background Resolution | 1.000 | 1.042 | 1.032 | 1.052 | 0.01986 | N/A | |
| SS Background Resolution | 1.000 | 0.9530 | 0.9479 | 0.9570 | 0.009117 | N/A | |

Hostile Environment Litho Density - A Wellsite Calibration - Caliper Calibration
Before: 7-Feb-2002 1:47

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Caliper Small Ring | 12.00 | N/A | 16.99 | N/A | N/A | N/A | IN |
| Caliper Large Ring | 18.25 | N/A | 23.87 | N/A | N/A | N/A | IN |

Hostile Environment Litho Density - A Master Calibration - Aluminum Measurement
Master: 25-Jan-2002 15:58

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| LSW1 Aluminum | 648.4 | 632.3 | -- | -- | -- | -- | CPS |
| LSW2 Aluminum | 1018 | 998.4 | -- | -- | -- | -- | CPS |
| LSW3 Aluminum | 1105 | 1037 | -- | -- | -- | -- | CPS |
| LSW4 Aluminum | 609.5 | 564.9 | -- | -- | -- | -- | CPS |
| LSW5 Aluminum | 533.8 | 497.5 | -- | -- | -- | -- | CPS |
| SSW1 Aluminum | 2664 | 2526 | -- | -- | -- | -- | CPS |
| SSW2 Aluminum | 7731 | 7417 | -- | -- | -- | -- | CPS |
| SSW3 Aluminum | 10380 | 9945 | -- | -- | -- | -- | CPS |
| SSW4 Aluminum | 4574 | 4376 | -- | -- | -- | -- | CPS |
| SSW5 Aluminum | 745.2 | 731.3 | -- | -- | -- | -- | CPS |

Hostile Environment Litho Density - A Master Calibration - Tool Quality Control Information: High Voltage
Master: 25-Jan-2002 15:58

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| LS Alum. High Voltage | 1129 | 1130 | -- | -- | -- | -- | V |
| SS Alum. High Voltage | 1173 | 1161 | -- | -- | -- | -- | V |

Hostile Environment Litho Density - A Master Calibration - Detectors Resolution From Aluminum Measurment
Master: 25-Jan-2002 15:58

| | | | | | | |
|---|---|---|---|---|---|---|
| LS Aluminum Resolution | 1.000 | 1.032 | -- | -- | -- | -- |
| SS Aluminum Resolution | 1.000 | 1.050 | -- | -- | -- | -- |

Hostile Environment Litho Density - A Master Calibration - Aluminum Measurement (Window Ratios)
Master: 25-Jan-2002 15:58

| | | | | | | |
|---|---|---|---|---|---|---|
| LSW1/(LSW4 + LSW5) Calc. | 0.5400 | 0.5952 | -- | -- | -- | -- |
| LSW3/(LSW4 + LSW5) Calc. | 0.9600 | 0.9762 | -- | -- | -- | -- |
| SSW1/(SSW4 + SSW5) Calc. | 0.4600 | 0.4946 | -- | -- | -- | -- |
| SSW3/(SSW4 + SSW5) Calc. | 1.900 | 1.947 | -- | -- | -- | -- |

Hostile Environment Litho Density - A Master Calibration - Litholog Measurement
Master: 25-Jan-2002 15:52

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| LSW1 Iron | 410.0 | 450.3 | -- | -- | -- | -- | CPS |
| LSW2 Iron | 870.0 | 861.2 | -- | -- | -- | -- | CPS |
| LSW3 Iron | 1030 | 996.5 | -- | -- | -- | -- | CPS |
| LSW4 Iron | 590.0 | 556.0 | -- | -- | -- | -- | CPS |
| LSW5 Iron | 530.0 | 490.9 | -- | -- | -- | -- | CPS |
| SSW1 Iron | 1850 | 1931 | -- | -- | -- | -- | CPS |
| SSW2 Iron | 6500 | 6497 | -- | -- | -- | -- | CPS |
| SSW3 Iron | 10000 | 9541 | -- | -- | -- | -- | CPS |
| SSW4 Iron | 4500 | 4223 | -- | -- | -- | -- | CPS |
| SSW5 Iron | 750.0 | 684.9 | -- | -- | -- | -- | CPS |

Hostile Environment Litho Density - A Master Calibration - Tool Quality Control Information: High Voltage
Master: 25-Jan-2002 15:52

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| LS Lith High Voltage | 1129 | 1130 | -- | -- | -- | -- | V |
| SS Lith High Voltage | 1173 | 1163 | -- | -- | -- | -- | V |

Hostile Environment Litho Density - A Master Calibration - Detectors Resolution From Litholog Measurment
Master: 25-Jan-2002 15:52

| | | | | | | |
|---|---|---|---|---|---|---|
| LS Lith Resolution | 1.000 | 1.033 | -- | -- | -- | -- |
| SS Lith Resolution | 1.000 | 1.016 | -- | -- | -- | -- |

Accelerator-Porosity Tool Wellsite Calibration - Detector Background
Master: 25-Jan-2002 18:34 Before: 16-Mar-2002 6:13 After: 16-Mar-2002 11:12

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Near Det Bkg Cntrate | 30.00 | 32.90 | 31.64 | 32.59 | 0.9511 | N/A | CPS |
| Far Det Bkg Cntrate | 30.00 | 34.46 | 32.77 | 32.64 | -0.1335 | N/A | CPS |
| Array-1 Det Bkg Cntrate | 30.00 | 28.56 | 29.11 | 29.15 | 0.03336 | N/A | CPS |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Array-2 Det Bkg Cntrate | 30.00 | 30.78 | 28.66 | 29.48 | 0.8174 | N/A | CPS |
| Array Therm Det Bkg Cntrate | 30.00 | 32.89 | 34.90 | 31.52 | -3.376 | N/A | CPS |

Accelerator-Porosity Tool Wellsite Calibration - Calibration Ratios
Master: 25-Jan-2002 18:35

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Near/Far Calibration Ratio | 0.9250 | 0.9022 | N/A | N/A | N/A | N/A | |
| Near/Array Calibration Ratio | 1.030 | 1.063 | N/A | N/A | N/A | N/A | |
| Near/Array Cal Ratio Up/Down | 1.000 | 1.007 | N/A | N/A | N/A | N/A | |

Accelerator-Porosity Tool Wellsite Calibration - Tank Check
Master: Calibration not done

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Array-1 Standoff Porosity | 11.10 | 11.94 | N/A | N/A | N/A | N/A | PU |
| Array-2 Standoff Porosity | 11.10 | 11.71 | N/A | N/A | N/A | N/A | PU |
| Average Slowing Down Time | 6.000 | N/A | N/A | N/A | N/A | N/A | US |
| Array-1 SDT Ratio Up/Down | 1.000 | N/A | N/A | N/A | N/A | N/A | |
| Array-1 SDT Ratio Up/Down | 1.000 | N/A | N/A | N/A | N/A | N/A | |
| Sigma Formation | 27.50 | 27.64 | N/A | N/A | N/A | N/A | CU |

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 1 Check
Master: 23-Jan-2002 11:37 Before: 7-Feb-2002 1:13 After: 16-Mar-2002 13:31

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Na 511 Peak Loc | 40.00 | 40.51 | 40.71 | 40.60 | -0.1139 | 1.000 | |
| Na 511 Peak Res | 15.50 | 15.75 | 17.24 | 16.36 | -0.8792 | 2.000 | % |
| High Voltage | 1150 | 1203 | 1207 | 1211 | 4.461 | 30.00 | V |
| Na 1785 Peak Loc | 142.6 | 144.6 | 146.2 | 145.3 | -0.8852 | 7.000 | |
| Na 1785 Peak Res | 8.500 | 9.254 | 9.073 | 9.056 | -0.01723 | 2.000 | % |
| Temperature | 15.50 | 21.86 | 29.34 | 29.05 | -0.2867 | N/A | DEGC |
| Na Count Rate | 45.00 | 39.29 | 40.56 | 38.30 | -2.263 | 8.000 | CPS |

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 2 Check
Master: 23-Jan-2002 11:37 Before: 7-Feb-2002 1:13 After: 16-Mar-2002 13:31

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Na 511 Peak Loc | 40.00 | 40.54 | 40.54 | 40.49 | -0.04351 | 1.000 | |
| Na 511 Peak Res | 15.50 | 16.19 | 16.67 | 16.83 | 0.1667 | 2.000 | % |
| High Voltage | 1150 | 1233 | 1236 | 1241 | 4.679 | 30.00 | V |
| Na 1785 Peak Loc | 142.6 | 143.9 | 144.1 | 144.7 | 0.6076 | 7.000 | |
| Na 1785 Peak Res | 8.500 | 9.453 | 8.968 | 9.504 | 0.5361 | 2.000 | % |
| Temperature | 15.50 | 21.24 | 29.04 | 29.75 | 0.7097 | N/A | DEGC |
| Na Count Rate | 45.00 | 39.11 | 40.36 | 38.11 | -2.251 | 8.000 | CPS |

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Ratio Of Detector 1 To Detector 2
Master: 23-Jan-2002 11:37 Before: 7-Feb-2002 1:13 After: 16-Mar-2002 13:31

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Coincidence Count Rate Ratio | 1.000 | 1.004 | 1.005 | 1.005 | -0.0001048 | 0.05000 | |

Hostile Natural Gamma Ray Sonde Master Calibration - Detector 1 Calibration
Master: 23-Jan-2002 11:31

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Na 511 Peak Set Point | 40.00 | 41.00 | -- | -- | -- | -- | |
| Th Peak Loc | 209.6 | 209.7 | -- | -- | -- | -- | |
| Th Peak Res | 7.000 | 7.364 | -- | -- | -- | -- | % |
| Background Count Rate | 142.5 | 19.66 | -- | -- | -- | -- | CPS |
| Gain Ratio | 1.000 | 0.9848 | -- | -- | -- | -- | |

Hostile Natural Gamma Ray Sonde Master Calibration - Detector 2 Calibration
Master: 23-Jan-2002 11:31

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Na 511 Peak Set Point | 40.00 | 41.00 | -- | -- | -- | -- | |
| Th Peak Loc | 209.6 | 208.7 | -- | -- | -- | -- | |
| Th Peak Res | 7.000 | 7.834 | -- | -- | -- | -- | % |
| Background Count Rate | 142.5 | 17.61 | -- | -- | -- | -- | CPS |
| Gain Ratio | 1.000 | 0.9795 | -- | -- | -- | -- | |

Scintillation Gamma-Ray - N Wellsite Calibration - Detector Calibration
Before: Calibration out of date 7-Feb-2002 1:09 After: Calibration not done

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Gamma Ray (Jig - Bkg) | 167.5 | N/A | 167.5 | N/A | N/A | 0.09091 | GAPI |
| Gamma Ray (Calibrated) | 165.0 | N/A | 165.0 | N/A | N/A | 15.00 | GAPI |

Accelerator-Porosity Tool - Detector Plateau Settings :

Near Detector Plateau Setting 1748 V
Far Detector Plateau Setting 2052 V
Array Detector Plateau Setting 1969 V

Dual Induction - E / Equipment Identification

Primary Equipment:

| | | |
|---|---|---|
| Dual Induction Sonde | DIS - HB | 442 |
| Dual Induction Cartridge | DIC - EB | 438 |

Auxiliary Equipment:

| | | |
|---|---|---|
| Mass Isolated Housing | MIH - ZA | 417 |

## Hostile Environment Litho Density - A / Equipment Identification

Primary Equipment:

| | | |
|---|---|---|
| HOSTILE ENVIRONMENT LITHO DENSITY HIGH V | HLDV - A | 10 |
| HOSTILE ENVIRONMENT LITHO DENSITY CARTRI | HLDC - AA | 11 |
| Gamma Source Radioactive | GSR - Z | 1846 |

Auxiliary Equipment:

| | | |
|---|---|---|
| HOSTILE ENVIRONMENT LITHO DENSITY SONDE | HLDS - B | 10 |
| HOSTILE ENVIRONMENT ELECTRONICS CARTRIDG | HEH - H | 12 |
| HOSTILE ENVIRONMENT ELECTRONICS CARTRIDG | HEH - G | 11 |
| HOSTILE ENVIRONMENT LITHO DENSITY PAD | HLDP - B | 10 |

## Hostile Environment Litho Density - A Wellsite Calibration

### Background Measurement

| Phase | LSW1 Background CPS | Value |
|---|---|---|
| Master | | 89.06 |
| Before | | 86.19 |
| After | | 87.21 |

65.00 (Minimum) 100.0 (Nominal) 125.0 (Maximum)

| Phase | LSW2 Background CPS | Value |
|---|---|---|
| Master | | 93.23 |
| Before | | 91.94 |
| After | | 91.16 |

70.00 (Minimum) 105.0 (Nominal) 130.0 (Maximum)

| Phase | LSW3 Background CPS | Value |
|---|---|---|
| Master | | 180.0 |
| Before | | 177.0 |
| After | | 178.4 |

150.0 (Minimum) 210.0 (Nominal) 250.0 (Maximum)

| Phase | LSW4 Background CPS | Value |
|---|---|---|
| Master | | 237.9 |
| Before | | 235.4 |
| After | | 237.0 |

220.0 (Minimum) 290.0 (Nominal) 330.0 (Maximum)

| Phase | LSW5 Background CPS | Value |
|---|---|---|
| Master | | 529.6 |
| Before | | 525.7 |
| After | | 526.2 |

430.0 (Minimum) 610.0 (Nominal) 730.0 (Maximum)

| Phase | SSW1 Background CPS | Value |
|---|---|---|
| Master | | 85.18 |
| Before | | 85.99 |
| After | | 85.89 |

70.00 (Minimum) 100.0 (Nominal) 120.0 (Maximum)

| Phase | SSW2 Background CPS | Value |
|---|---|---|
| Master | | 166.8 |
| Before | | 165.6 |
| After | | 167.1 |

140.0 (Minimum) 200.0 (Nominal) 240.0 (Maximum)

| Phase | SSW3 Background CPS | Value |
|---|---|---|
| Master | | 446.5 |
| Before | | 445.9 |
| After | | 441.3 |

380.0 (Minimum) 530.0 (Nominal) 630.0 (Maximum)

| Phase | SSW4 Background CPS | Value |
|---|---|---|
| Master | | 235.8 |
| Before | | 234.2 |
| After | | 233.3 |

190.0 (Minimum) 280.0 (Nominal) 340.0 (Maximum)

| Phase | SSW5 Background CPS | Value |
|---|---|---|
| Master | | 176.3 |
| Before | | 175.5 |
| After | | 177.7 |

140.0 (Minimum) 205.0 (Nominal) 250.0 (Maximum)

Master: 25-Jan-2002 14:22 Before: 21-Feb-2002 4:36 After: 16-Mar-2002 13:35

## Hostile Environment Litho Density - A Wellsite Calibration

### Detectors Resolution From BKG Measurments

| Phase | LS Background Resolution | Value |
|---|---|---|
| Master | | 1.042 |
| Before | | 1.032 |
| After | | 1.052 |

0.7000 (Minimum) 1.000 (Nominal) 1.111 (Maximum)

| Phase | SS Background Resolution | Value |
|---|---|---|
| Master | | 0.9530 |
| Before | | 0.9479 |
| After | | 0.9570 |

0.7000 (Minimum) 1.000 (Nominal) 1.111 (Maximum)

Master: 25-Jan-2002 14:22 Before: 21-Feb-2002 4:36

After: 16-Mar-2002 13:35

## Hostile Environment Litho Density - A Master Calibration

### Aluminum Measurement

| Phase | LSW1 Aluminum CPS | Value |
|---|---|---|
| Master | | 632.3 |

440.0 (Minimum) 648.4 (Nominal) 840.0 (Maximum)

| Phase | LSW2 Aluminum CPS | Value |
|---|---|---|
| Master | | 998.4 |

840.0 (Minimum) 1018 (Nominal) 1200 (Maximum)

| Phase | LSW3 Aluminum CPS | Value |
|---|---|---|
| Master | | 1037 |

920.0 (Minimum) 1105 (Nominal) 1280 (Maximum)

| Phase | LSW4 Aluminum CPS | Value |
|---|---|---|
| Master | | 564.9 |
| 520.0 (Minimum) | 609.5 (Nominal) | 720.0 (Maximum) |

| Phase | LSW5 Aluminum CPS | Value |
|---|---|---|
| Master | | 497.5 |
| 450.0 (Minimum) | 533.8 (Nominal) | 670.0 (Maximum) |

| Phase | SSW1 Aluminum CPS | Value |
|---|---|---|
| Master | | 2526 |
| 1850 (Minimum) | 2664 (Nominal) | 2900 (Maximum) |

| Phase | SSW2 Aluminum CPS | Value |
|---|---|---|
| Master | | 7417 |
| 6200 (Minimum) | 7731 (Nominal) | 8500 (Maximum) |

| Phase | SSW3 Aluminum CPS | Value |
|---|---|---|
| Master | | 9945 |
| 8750 (Minimum) | 10380 (Nominal) | 11750 (Maximum) |

| Phase | SSW4 Aluminum CPS | Value |
|---|---|---|
| Master | | 4376 |
| 4000 (Minimum) | 4574 (Nominal) | 5400 (Maximum) |

| Phase | SSW5 Aluminum CPS | Value |
|---|---|---|
| Master | | 731.3 |
| 570.0 (Minimum) | 745.2 (Nominal) | 1110 (Maximum) |

Master: 25-Jan-2002 15:58

Hostile Environment Litho Density - A Master Calibration

Detectors Resolution From Aluminum Measurment

| Phase | LS Aluminum Resolution | Value |
|---|---|---|
| Master | | 1.032 |
| 0.7000 (Minimum) | 1.000 (Nominal) | 1.111 (Maximum) |

| Phase | SS Aluminum Resolution | Value |
|---|---|---|
| Master | | 1.050 |
| 0.7000 (Minimum) | 1.000 (Nominal) | 1.111 (Maximum) |

Master: 25-Jan-2002 15:58

Hostile Environment Litho Density - A Master Calibration

Aluminum Measurement (Window Ratios)

| Phase | LSW1/(LSW4 + LSW5) Calc. | Value |
|---|---|---|
| Master | | 0.5952 |
| 0.3400 (Minimum) | 0.5400 (Nominal) | 0.7400 (Maximum) |

| Phase | LSW3/(LSW4 + LSW5) Calc. | Value |
|---|---|---|
| Master | | 0.9762 |
| 0.7600 (Minimum) | 0.9600 (Nominal) | 1.160 (Maximum) |

| Phase | SSW1/(SSW4 + SSW5) Calc. | Value |
|---|---|---|
| Master | | 0.4946 |
| 0.3600 (Minimum) | 0.4600 (Nominal) | 0.5600 (Maximum) |

| Phase | SSW3/(SSW4 + SSW5) Calc. | Value |
|---|---|---|
| Master | | 1.947 |
| 1.700 (Minimum) | 1.900 (Nominal) | 2.100 (Maximum) |

Master: 25-Jan-2002 15:58

Hostile Environment Litho Density - A Master Calibration

Litholog Measurement

| Phase | LSW1 Iron CPS | Value |
|---|---|---|
| Master | | 450.3 |
| 310.0 (Minimum) | 410.0 (Nominal) | 510.0 (Maximum) |

| Phase | LSW2 Iron CPS | Value |
|---|---|---|
| Master | | 861.2 |
| 660.0 (Minimum) | 870.0 (Nominal) | 980.0 (Maximum) |

| Phase | LSW3 Iron CPS | Value |
|---|---|---|
| Master | | 996.5 |
| 810.0 (Minimum) | 1030 (Nominal) | 1170 (Maximum) |

| Phase | LSW4 Iron CPS | Value |
|---|---|---|
| Master | | 556.0 |
| 470.0 (Minimum) | 590.0 (Nominal) | 670.0 (Maximum) |

| Phase | LSW5 Iron CPS | Value |
|---|---|---|
| Master | | 490.9 |
| 400.0 (Minimum) | 530.0 (Nominal) | 620.0 (Maximum) |

| Phase | SSW1 Iron CPS | Value |
|---|---|---|
| Master | | 1931 |
| 1400 (Minimum) | 1850 (Nominal) | 2120 (Maximum) |

| Phase | SSW2 Iron CPS | Value |
|---|---|---|
| Master | | 6497 |
| 5170 (Minimum) | 6500 (Nominal) | 7270 (Maximum) |

| Phase | SSW3 Iron CPS | Value |
|---|---|---|
| Master | | 9541 |
| 8100 (Minimum) | 10000 (Nominal) | 11000 (Maximum) |

| Phase | SSW4 Iron CPS | Value |
|---|---|---|
| Master | | 4223 |
| 3620 (Minimum) | 4500 (Nominal) | 5020 (Maximum) |

| Phase | SSW5 Iron CPS | Value |
|---|---|---|
| Master | | 684.9 |
| 470.0 (Minimum) | 750.0 (Nominal) | 10100 (Maximum) |

Master: 25-Jan-2002 15:52

Hostile Environment Litho Density - A Master Calibration

Detectors Resolution From Litholog Measurment

| Phase | LS Lith Resolution | Value |
|---|---|---|
| Master | | 1.033 |
| 0.7000 (Minimum) | 1.000 (Nominal) | 1.111 (Maximum) |

| Phase | SS Lith Resolution | Value |
|---|---|---|
| Master | | 1.016 |
| 0.7000 (Minimum) | 1.000 (Nominal) | 1.111 (Maximum) |

Master: 25-Jan-2002 15:52

Nuclear Porosity Lithology Cartridge - B / Equipment Identification

| | | |
|---|---|---|
| Primary Equipment: | | |
| NPLC Cartridge | NPLC - B | 79 |
| Auxiliary Equipment: | | |
| NPLC Housing | NPH - B | 82 |

Accelerator-Porosity Tool / Equipment Identification

| | | |
|---|---|---|
| Primary Equipment: | | |
| Accelerator-Porosity Sonde | APS - BA | 22 |
| APS Minitron | MNTR - F | 4185 |
| Auxiliary Equipment: | | |
| Accelerator-Porosity Housing | APH - AC | 22 |
| APS Calibration Water Tank | SFT - 178 | 4722 |
| APS Aluminium Calibrator Sleeve | SFT - 281 | 24 |

Accelerator-Porosity Tool Wellsite Calibration

Detector Background

| Phase | Near Det Bkg Cntrate CPS | Value |
|---|---|---|
| Master | | 32.90 |
| Before | | 31.64 |
| After | | 32.59 |
| | 0 (Minimum) 30.00 (Nominal) 50.00 (Maximum) | |

| Phase | Far Det Bkg Cntrate CPS | Value |
|---|---|---|
| Master | | 34.46 |
| Before | | 32.77 |
| After | | 32.64 |
| | 0 (Minimum) 30.00 (Nominal) 50.00 (Maximum) | |

| Phase | Array-1 Det Bkg Cntrate CPS | Value |
|---|---|---|
| Master | | 28.56 |
| Before | | 29.11 |
| After | | 29.15 |
| | 0 (Minimum) 30.00 (Nominal) 50.00 (Maximum) | |

| Phase | Array-2 Det Bkg Cntrate CPS | Value |
|---|---|---|
| Master | | 30.78 |
| Before | | 28.66 |
| After | | 29.48 |
| | 0 (Minimum) 30.00 (Nominal) 50.00 (Maximum) | |

| Phase | Array Therm Det Bkg Cntrate CPS | Value |
|---|---|---|
| Master | | 32.89 |
| Before | | 34.90 |
| After | | 31.52 |
| | 0 (Minimum) 30.00 (Nominal) 50.00 (Maximum) | |

Master: 25-Jan-2002 18:34 Before: 16-Mar-2002 6:13 After: 16-Mar-2002 11:12

Accelerator-Porosity Tool Wellsite Calibration

Calibration Ratios

| Phase | Near/Far Calibration Ratio | Value |
|---|---|---|
| Master | | 0.9022 |
| | 0.8000 (Minimum) 0.9250 (Nominal) 1.050 (Maximum) | |

| Phase | Near/Array Calibration Ratio | Value |
|---|---|---|
| Master | | 1.063 |
| | 0.9000 (Minimum) 1.030 (Nominal) 1.170 (Maximum) | |

| Phase | Near/Array Cal Ratio Up/Down | Value |
|---|---|---|
| Master | | 1.007 |
| | 0.9700 (Minimum) 1.000 (Nominal) 1.030 (Maximum) | |

Master: 25-Jan-2002 18:35

Accelerator-Porosity Tool Wellsite Calibration

Tank Check

| Phase | Array-1 Standoff Porosity PU | Value |
|---|---|---|
| Master | | 11.94 |
| | 9.900 (Minimum) 11.10 (Nominal) 12.30 (Maximum) | |

| Phase | Array-2 Standoff Porosity PU | Value |
|---|---|---|
| Master | | 11.71 |
| | 9.900 (Minimum) 11.10 (Nominal) 12.30 (Maximum) | |

| Phase | Average Slowing Down Time US | Value |
|---|---|---|
| Master | NOT DONE | N/A |
| | 5.750 (Minimum) 6.000 (Nominal) 6.250 (Maximum) | |

| Phase | Array-1 SDT Ratio Up/Down | Value |
|---|---|---|
| Master | NOT DONE | N/A |
| | 0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum) | |

| Phase | Array-1 SDT Ratio Up/Down | Value |
|---|---|---|
| Master | NOT DONE | N/A |
| | 0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum) | |

| Phase | Sigma Formation CU | Value |
|---|---|---|
| Master | | 27.64 |
| | 20.00 (Minimum) 27.50 (Nominal) 35.00 (Maximum) | |

Master: Calibration not done

See Remarks

Accelerator-Porosity Tool Master Calibration

Detector Calibration

| Phase | Near/Far Calibration Ratio | Value |
|---|---|---|
| Master | | 0.9022 |
| | 0.8000 (Minimum) 0.9250 (Nominal) 1.050 (Maximum) | |

| Phase | Near/Array Calibration Ratio | Value |
|---|---|---|
| Master | | 1.063 |
| | 0.9000 (Minimum) 1.030 (Nominal) 1.170 (Maximum) | |

| Phase | Near/Array Cal Ratio Up/Down | Value |
|---|---|---|
| Master | | 1.007 |
| | 0.9700 (Minimum) 1.000 (Nominal) 1.030 (Maximum) | |

Master: 25-Jan-2002 18:35

Accelerator-Porosity Tool Master Calibration

Tank Check

Tank Check

| Phase | Array-1 Standoff Porosity PU | Value |
|---|---|---|
| Master | | 11.94 |
| | 9.900 (Minimum) 11.10 (Nominal) 12.30 (Maximum) | |

| Phase | Array-2 Standoff Porosity PU | Value |
|---|---|---|
| Master | | 11.71 |
| | 9.900 (Minimum) 11.10 (Nominal) 12.30 (Maximum) | |

| Phase | Average Slowing Down Time US | Value |
|---|---|---|
| Master | NOT DONE | N/A |
| | 5.750 (Minimum) 6.000 (Nominal) 6.250 (Maximum) | |

| Phase | Array-1 SDT Ratio Up/Down | Value |
|---|---|---|
| Master | NOT DONE | N/A |
| | 0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum) | |

| Phase | Array-1 SDT Ratio Up/Down | Value |
|---|---|---|
| Master | NOT DONE | N/A |
| | 0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum) | |

| Phase | Sigma Formation CU | Value |
|---|---|---|
| Master | | 27.64 |
| | 20.00 (Minimum) 27.50 (Nominal) 35.00 (Maximum) | |

Master: Calibration not done

See Remarks

## Hostile Natural Gamma Ray Sonde / Equipment Identification

| | | |
|---|---|---|
| Primary Equipment: | | |
| HNGS Sonde | HNGS - BA | 77 |
| Auxiliary Equipment: | | |
| HNGS Sonde Housing | HNSH - BA | 79 |
| Gamma Source Radioactive | GSR - U | 135 |

## Hostile Natural Gamma Ray Sonde Wellsite Calibration

### Detector 1 Check

| Phase | Na 511 Peak Loc | Value |
|---|---|---|
| Master | | 40.51 |
| Before | | 40.71 |
| After | | 40.60 |
| | 37.50 (Minimum) 40.00 (Nominal) 42.50 (Maximum) | |

| Phase | Na 511 Peak Res % | Value |
|---|---|---|
| Master | | 15.75 |
| Before | | 17.24 |
| After | | 16.36 |
| | 12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum) | |

| Phase | High Voltage V | Value |
|---|---|---|
| Master | | 1203 |
| Before | | 1207 |
| After | | 1211 |
| | 900.0 (Minimum) 1150 (Nominal) 1600 (Maximum) | |

| Phase | Na 1785 Peak Loc | Value |
|---|---|---|
| Master | | 144.6 |
| Before | | 146.2 |
| After | | 145.3 |
| | 135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum) | |

| Phase | Na 1785 Peak Res % | Value |
|---|---|---|
| Master | | 9.254 |
| Before | | 9.073 |
| After | | 9.056 |
| | 7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum) | |

| Phase | Temperature DEGC | Value |
|---|---|---|
| Master | | 21.86 |
| Before | | 29.34 |
| After | | 29.05 |
| | -28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum) | |

| Phase | Na Count Rate CPS | Value |
|---|---|---|
| Master | | 39.29 |
| Before | | 40.56 |
| After | | 38.30 |
| | 15.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum) | |

Master: 23-Jan-2002 11:37 Before: 7-Feb-2002 1:13 After: 16-Mar-2002 13:31

## Hostile Natural Gamma Ray Sonde Wellsite Calibration

### Detector 2 Check

| Phase | Na 511 Peak Loc | Value |
|---|---|---|
| Master | | 40.54 |
| Before | | 40.54 |
| After | | 40.49 |
| | 37.50 (Minimum) 40.00 (Nominal) 42.50 (Maximum) | |

| Phase | Na 511 Peak Res % | Value |
|---|---|---|
| Master | | 16.19 |
| Before | | 16.67 |
| After | | 16.83 |
| | 12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum) | |

| Phase | High Voltage V | Value |
|---|---|---|
| Master | | 1233 |
| Before | | 1236 |
| After | | 1241 |
| | 900.0 (Minimum) 1150 (Nominal) 1600 (Maximum) | |

| Phase | Na 1785 Peak Loc | Value |
|---|---|---|
| Master | | 143.9 |
| Before | | 144.1 |
| After | | 144.7 |
| | 135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum) | |

| Phase | Na 1785 Peak Res % | Value |
|---|---|---|
| Master | | 9.453 |
| Before | | 8.968 |
| After | | 9.504 |
| | 7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum) | |

| Phase | Temperature DEGC | Value |
|---|---|---|
| Master | | 21.24 |
| Before | | 29.04 |
| After | | 29.75 |
| | -28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum) | |

| Phase | Na Count Rate CPS | Value |
|---|---|---|
| Master | | 39.11 |
| Before | | 40.36 |

| Phase | Value |
|---|---|
| After | 38.11 |

15.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)

Master: 23-Jan-2002 11:37 Before: 7-Feb-2002 1:13 After: 16-Mar-2002 13:31

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Ratio Of Detector 1 To Detector 2

| Phase | Coincidence Count Rate Ratio | Value |
|---|---|---|
| Master | | 1.004 |
| Before | | 1.005 |
| After | | 1.005 |

0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)

Master: 23-Jan-2002 11:37

Before: 7-Feb-2002 1:13

After: 16-Mar-2002 13:31

Hostile Natural Gamma Ray Sonde Master Calibration

Detector 1 Calibration

| Phase | Na 511 Peak Set Point | Value |
|---|---|---|
| Master | | 41.00 |

38.00 (Minimum) 40.00 (Nominal) 42.00 (Maximum)

| Phase | Th Peak Loc | Value |
|---|---|---|
| Master | | 209.7 |

201.0 (Minimum) 209.6 (Nominal) 218.3 (Maximum)

| Phase | Th Peak Res % | Value |
|---|---|---|
| Master | | 7.364 |

5.000 (Minimum) 7.000 (Nominal) 9.000 (Maximum)

| Phase | Background Count Rate CPS | Value |
|---|---|---|
| Master | EXCEEDS LIMIT | 19.66 |

20.00 (Minimum) 142.5 (Nominal) 265.0 (Maximum)

| Phase | Gain Ratio | Value |
|---|---|---|
| Master | | 0.9848 |

0.9400 (Minimum) 1.000 (Nominal) 1.060 (Maximum)

See Remarks

Master: 23-Jan-2002 11:31

Hostile Natural Gamma Ray Sonde Master Calibration

Detector 2 Calibration

| Phase | Na 511 Peak Set Point | Value |
|---|---|---|
| Master | | 41.00 |

38.00 (Minimum) 40.00 (Nominal) 42.00 (Maximum)

| Phase | Th Peak Loc | Value |
|---|---|---|
| Master | | 208.7 |

201.0 (Minimum) 209.6 (Nominal) 218.3 (Maximum)

| Phase | Th Peak Res % | Value |
|---|---|---|
| Master | | 7.834 |

5.000 (Minimum) 7.000 (Nominal) 9.000 (Maximum)

| Phase | Background Count Rate CPS | Value |
|---|---|---|
| Master | EXCEEDS LIMIT | 17.61 |

20.00 (Minimum) 142.5 (Nominal) 265.0 (Maximum)

| Phase | Gain Ratio | Value |
|---|---|---|
| Master | | 0.9795 |

0.9400 (Minimum) 1.000 (Nominal) 1.060 (Maximum)

See Remarks

Master: 23-Jan-2002 11:31

Scintillation Gamma-Ray - N / Equipment Identification

| | | |
|---|---|---|
| Primary Equipment: | | |
| Scintillation Gamma Cartridge | SGC - TB | 9582 |
| Scintillation Gamma Detector | SGD - TAA | |
| Auxiliary Equipment: | | |
| Scintillation Gamma Housing | SGH - K | 2448 |
| Gamma Source Radioactive | GSR - U/Y | |

Field: Peru Margin
Rig: JOIDES Resolution
Ocean: Pacific

HLDT/APS Porosity
Natural Gamma Ray