**Schlumberger**

Company: Lamont Doherty

Well: Expedition 307 Site U1316C
Field: Porcupine Basin Carbonate Mounds
Rig: Joides Resolution Country: Ireland

Hostile Litho-Density,
Accelerator Porosity
Gamma Ray

Rig: Joides Resolution
Field: Porcupine Basin Carbonate Mou
Location: Expedition 307 Site U1306C
Well:
Company: Lamont Doherty

LOCATION

Elev.: K.B. 11.3 m
G.L. -959 m
D.F. 11 m

Permanent Datum: Mean Sea Level Elev.: 0 m
Log Measured From: Drill Floor 11.0 m above Perm. Datum
Drilling Measured From: Drill Floor

| Ocean | Max. Well Deviation | Longitude | Latitude |
|---|---|---|---|
| Atlantic | | 11* 43.09'W | 51* 22.83'N |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Logging Date | | | 8-May-2005 | | | | | | |
| Run Number | | | Two | | | | | | |
| Depth Driller | | | 1102 m | | | | | | |
| Schlumberger Depth | | | 1105 m | | | | | | |
| Bottom Log Interval | | | 1105 m | | | | | | |
| Top Log Interval | | | 959 m | | | | | | |
| Casing Driller Size @ Depth | | | 0.000 in | @ | 1017 m | | @ | | |
| Casing Schlumberger | | | 1018 m | | | | | | |
| Bit Size | | | 9.875 in | | | | | | |
| Type Fluid In Hole | | | Sepiollite | | | | | | |
| MUD | Density | Viscosity | 1.07 g/cm3 | | | | | | |
| | Fluid Loss | PH | | | | | | | |
| | Source Of Sample | | | | | | | | |
| RM @ Measured Temperature | | | 0.322 ohm.m | @ | 22 degC | | @ | | |
| RMF @ Measured Temperature | | | | @ | | | @ | | |
| RMC @ Measured Temperature | | | | @ | | | @ | | |
| Source RMF | RMC | | | | | | | | |
| RM @ MRT | RMF @ MRT | | @ | | @ | | @ | | @ |
| Maximum Recorded Temperatures | | | | | | | | | |
| Circulation Stopped | Time | | 8-May-2005 | | 4:00 | | | | |
| Logger On Bottom | Time | | 8-May-2005 | | 6:45 | | | | |
| Unit Number | Location | | 2082 | Webster, TX | | | | | |
| Recorded By | | | Javier Espinosa | | | | | | |
| Witnessed By | | | Philippe Gaillot | | | | | | |

| | 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 | | | |
| 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 | | | |

Run 3

Run 4

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: DIT, HNGS | OS1: |
| OS2: DSI | OS2: |
| OS3: FMS | OS3: |
| OS4: | OS4: |
| OS5: | OS5: |

| REMARKS: RUN NUMBER 1 | REMARKS: RUN NUMBER 2 |
|---|---|
| Hole drilled with RCB | |
| Parameters and presentations as per IODP standars | |
| Tool ran as per tool sketch below | |
| Hole flushed with sepiolite | |

RUN 1

SERVICE ORDER #:
PROGRAM VERSION: 12C0-301
FLUID LEVEL:

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

RUN 2

SERVICE ORDER #:
PROGRAM VERSION:
FLUID LEVEL:

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

# EQUIPMENT DESCRIPTION

RUN 1

## SURFACE EQUIPMENT

SFT-281 6250
SFT-178 6250
GSR-U 135
WITM (DTS)-A

## DOWNHOLE EQUIPMENT

LEH-QT
LEH-QT

28.69

DTC-H
ECH-KC

CTEM
TelStatus
ToolStatu

27.52
26.89

27.80

HNGS-BA
HNGS-BA-77

Upper_1
Lower_2

26.19
25.98

26.89

RUN 2

HNGS-BA 77
HNSH-BA

Lower_2 — 25.98

ILE-D
ILE-D — 24.39

Status
Minitron
Near TD
Near Arr
Near
Far Arr
Far
Far TD

APS-C — 21.95
APH-AC 104
APS-C 202
MNTR-F 5124

19.51
19.43
19.30
19.20

NPLC-B — 18.01
NPLC-B 79
NPH-B 82

Status — 16.78

HLDS — 15.56
GSR-Z 2326
HLDV-D 42
HLDS-D 10
HEH-H 44
HLDP-C 10

Caliper
SS LS Status — 11.51

DTA-A — 10.74
ECH-KE
DTA-A 8261

DIT-E — 9.52
DIC-EB 438
MIH-ZA
DIS-HB 442

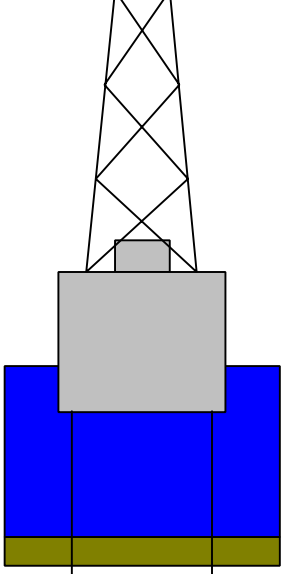
SP — 3.15
Deep Ind — 2.90
Aux Meas SFL — 1.98
Med Ind — 1.83

Status HV DF
Tension — 0.00

TOOL ZERO

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

| Production String | (in) OD | (in) ID | (m) MD | Well Schematic | (m) MD | (in) OD | (in) ID | Casing String |
|---|---|---|---|---|---|---|---|---|



| | | | | | |
|---|---|---|---|---|---|
| Kelly Bushing Elevation | 11.3 | | | | |
| Derrick Floor Elevation | 11.0 | | | | |
| Mean Sea Level | 0.0 | | | | |
| | | 11.0 | 5.000 | | Casing String |
| | | 959.0 | 9.875 | | Borehole Segment |
| | | 1017.0 | 5.000 | | Casing Shoe |

Schlumberger

# MAIN PASS

MAXIS Field Log

## Output DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | PI_LDL_APS_NGS_003LUP | FN:3 | PRODUCER | 08-May-2005 06:25 | 1106.4 M | 915.8 M |
| REDUCED | PI_LDL_APS_NGS_003LUP | FN:4 | PRODUCER | 08-May-2005 06:25 | 1106.4 M | 915.8 M |

## OP System Version: 12C0-301

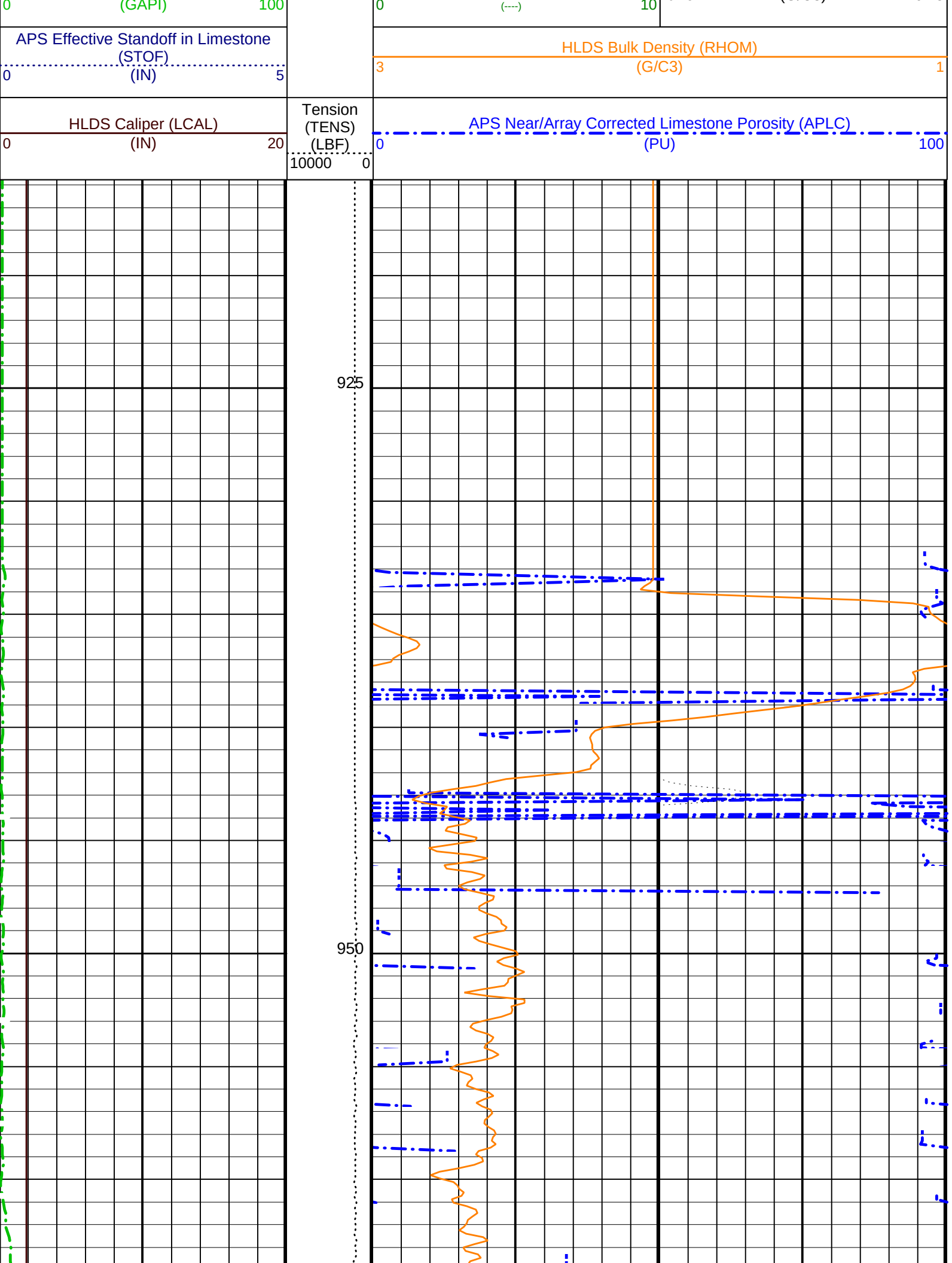
MCM

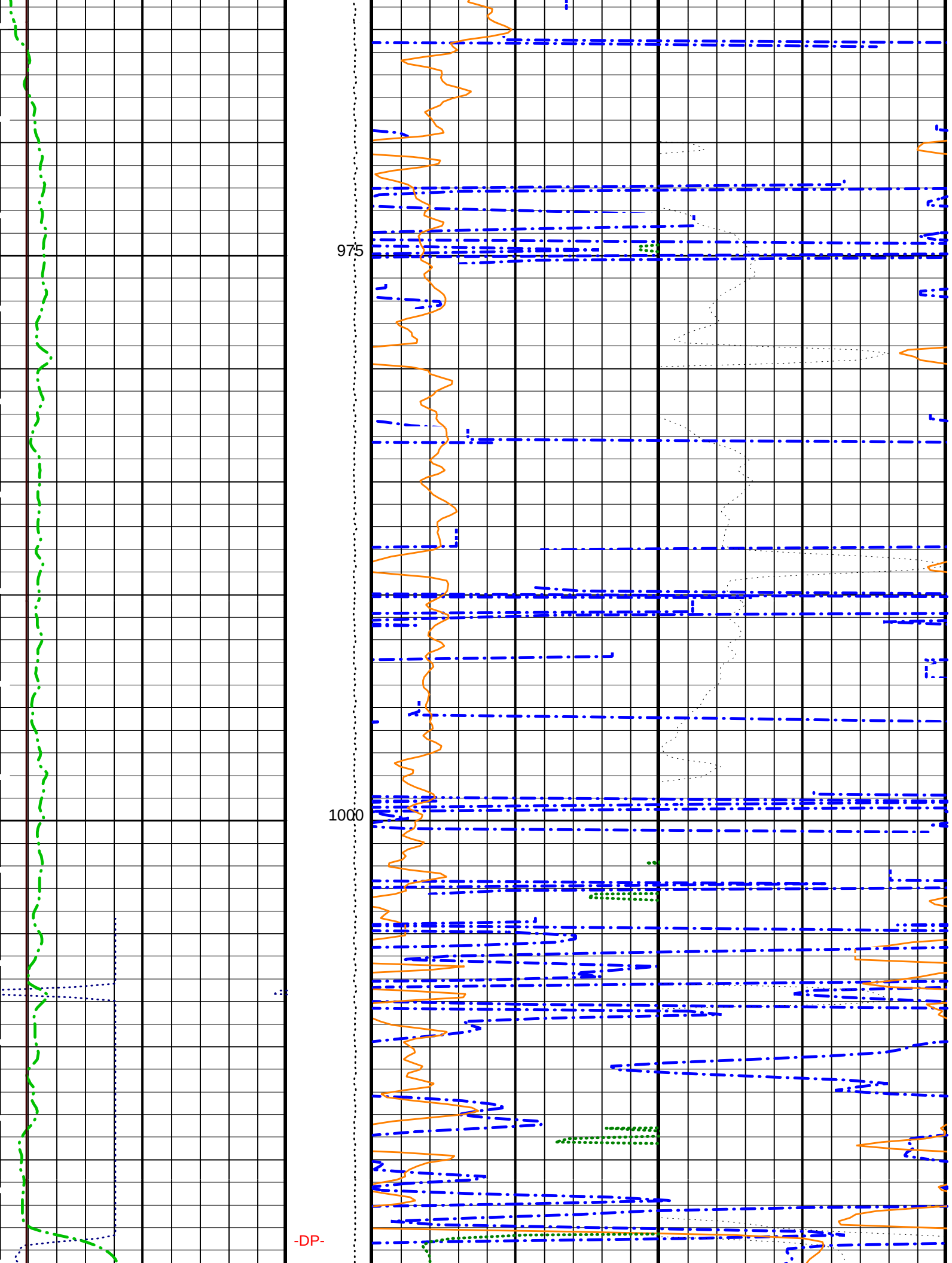
| | | | |
|---|---|---|---|
| DIT-E | 12C0-301 | DTA-A | 12C0-301 |
| HLDS | 12C0-301 | NPLC-B | 12C0-301 |
| APS-C | 12C0-301 | HNGS-BA | 12C0-301 |
| DTC-H | 12C0-301 | | |

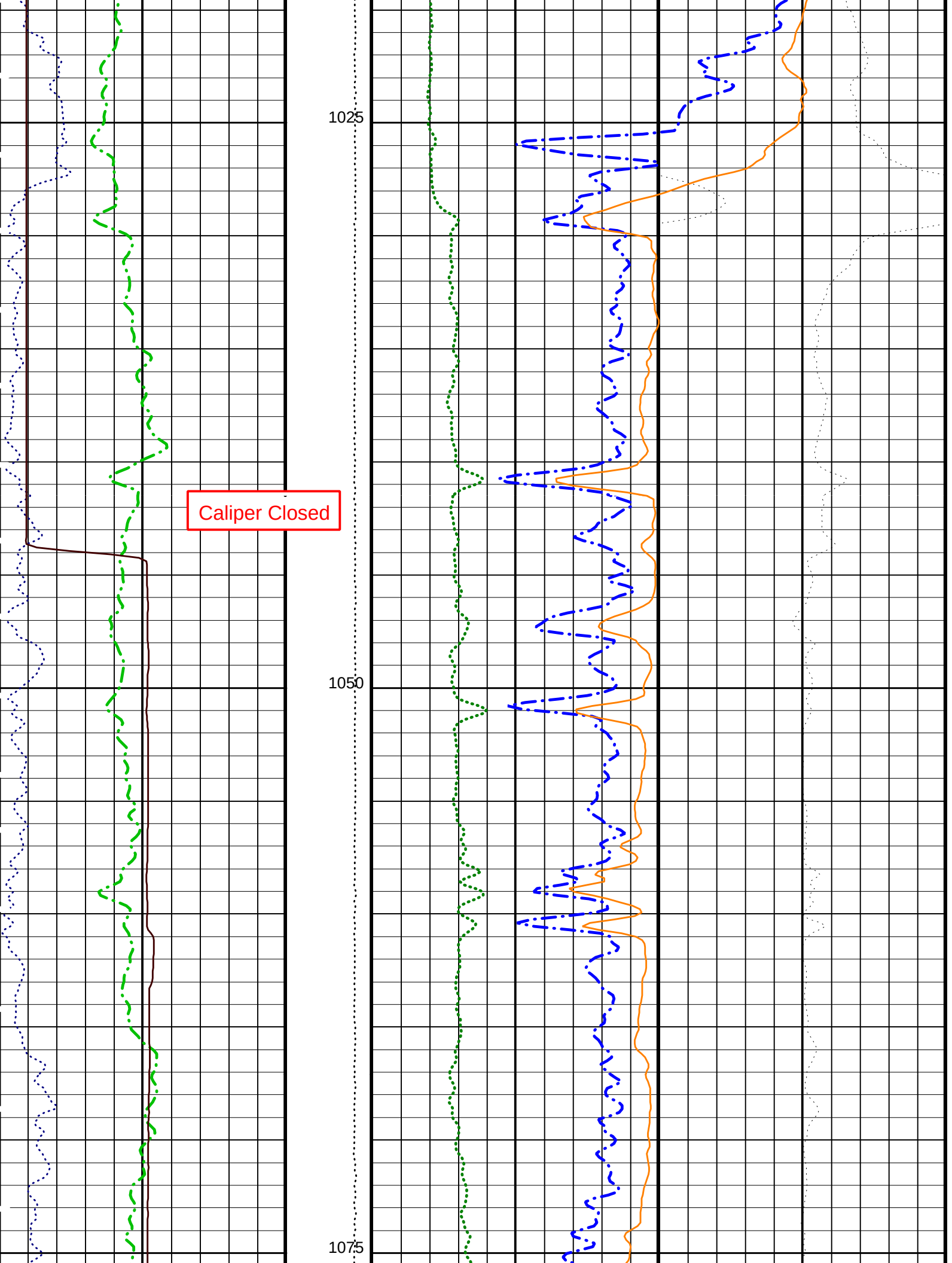
PIP SUMMARY

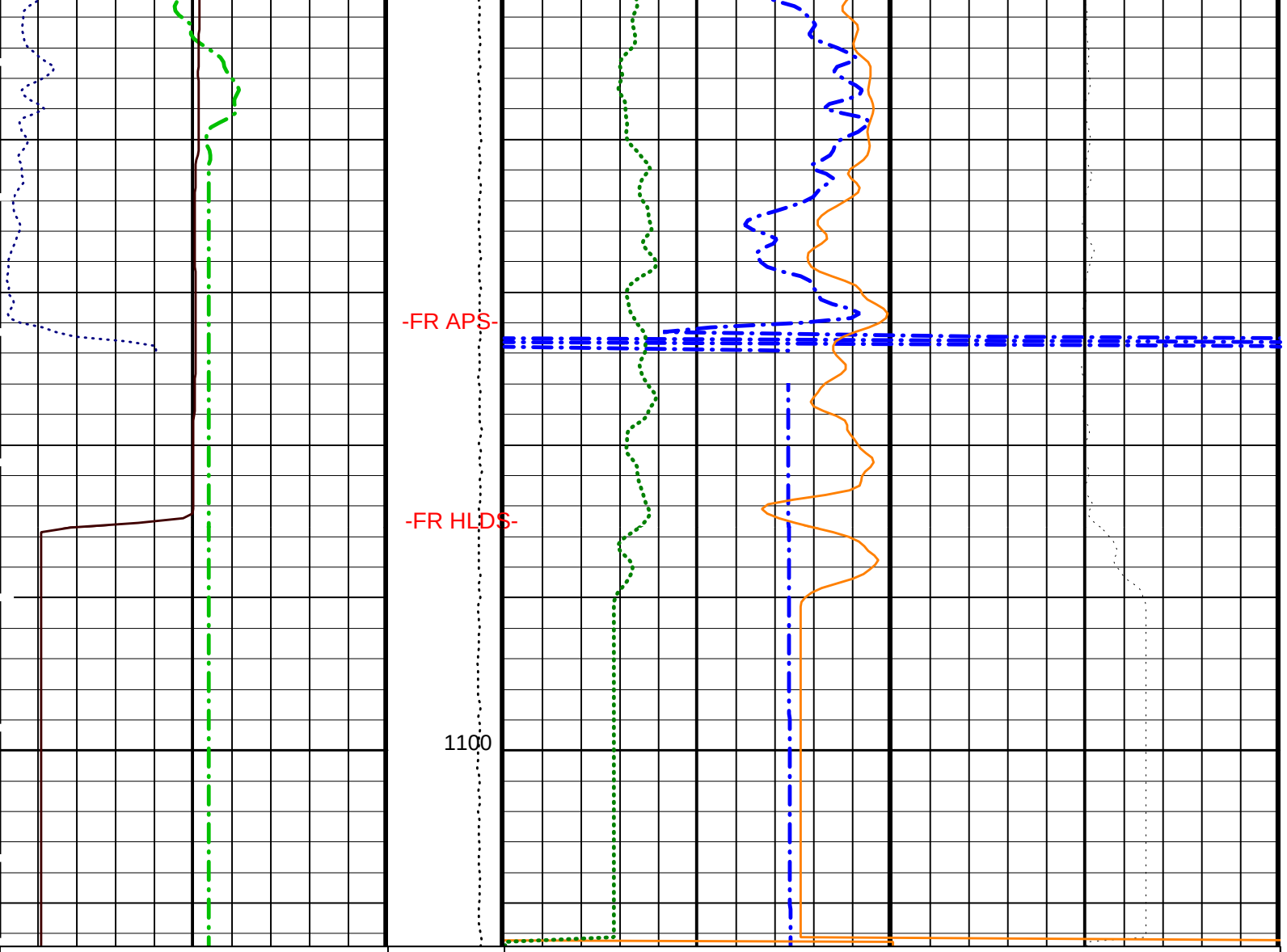
Time Mark Every 60 S

| HNGS Spectroscopy Gamma Ray (HSGR) | | HLDS Long Spaced Photoelectric Effect (PEFL) | HLDS Bulk Density Correction (DRH) | | |
|---|---|---|---|---|---|
| | | | -0.25 | (G/C3) | 0.25 |


0
(GAPI)
100
0
(----)
10
APS Effective Standoff in Limestone (STOF)
0
(IN)
5
HLDS Bulk Density (RHOM)
3
(G/C3)
1
HLDS Caliper (LCAL)
0
(IN)
20
Tension (TENS) (LBF)
10000
0
APS Near/Array Corrected Limestone Porosity (APLC)
0
(PU)
100
925
950


975
1000
-DP-


1025
Caliper Closed
1050
1075




HLDS Caliper (LCAL)
0 (IN) 20

Tension (TENS) (LBF)
10000 0

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

APS Effective Standoff in Limestone (STOF)
0 (IN) 5

HLDS Bulk Density (RHOM)
3 (G/C3) 1

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

HLDS Long Spaced Photoelectric Effect (PEFL)
0 (----) 10

HLDS Bulk Density Correction (DRH)
-0.25 (G/C3) 0.25

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) | 100 | DEGC |
| DGF1 | Deep 10 kHz Gain Factor | 1.00923 | |
| DGF2 | Deep 20 kHz Gain Factor | 1.02064 | |
| DGF4 | Deep 40 kHz Gain Factor | 1.03784 | |
| DPH1 | Deep 10 kHz Phase Shift | 0.0126663 | DEG |
| DPH2 | Deep 20 kHz Phase Shift | -0.243728 | DEG |
| DPH4 | Deep 40 kHz Phase Shift | -1.52668 | DEG |
| DRE1 | Deep Real 10 kHz Sonde Error Correction | 48.2521 | MM/M |
| DRE2 | Deep Real 20 kHz Sonde Error Correction | 16.6208 | MM/M |
| DRE4 | Deep Real 40 kHz Sonde Error Correction | 4.70037 | 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 | 104.988 | MM/M |
| DXE2 | Deep Quad 20 kHz Sonde Error Correction | 64.8082 | MM/M |
| DXE4 | Deep Quad 40 kHz Sonde Error Correction | 46.3308 | MM/M |
| GCSE | Generalized Caliper Selection | BS | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.018227 | DC/M |
| 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 | |
| MGF2 | Medium 20 kHz Gain Factor | 1 | |
| MGF4 | Medium 40 kHz Gain Factor | 1 | |
| MPH1 | Medium 10 kHz Phase Shift | 0 | DEG |
| MPH2 | Medium 20 kHz Phase Shift | 0 | DEG |
| MPH4 | Medium 40 kHz Phase Shift | 0 | DEG |
| MRE1 | Medium Real 10 kHz Sonde Error Correction | 17.0736 | MM/M |
| MRE2 | Medium Real 20 kHz Sonde Error Correction | -2.31932 | MM/M |
| MRE4 | Medium Real 40 kHz Sonde Error Correction | -9.4448 | 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 | -95.4629 | MM/M |
| MXE2 | Medium Quad 20 kHz Sonde Error Correction | -31.8992 | MM/M |
| MXE4 | Medium Quad 40 kHz Sonde Error Correction | 11.6212 | MM/M |
| SBR | Shoulder Bed Resistivity Factor | 1 | OHMM |
| SFCR | SFL Channel Ratio | 1000 | |
| SFLE | SFL Enable | ENABLE | |
| SHT | Surface Hole Temperature | 20 | DEGC |
| SPAE | DIT-E SPARC Processing Enable | ENABLE | |
| SPNV | SP Next Value | 0 | MV |
| HLDS: Hostile Litho-Density Sonde | | | |
| CLCL | HLDS LS Control Loop Controller Mode | AUTO_DEFAULT | |
| CLCS | HLDS SS Control Loop Controller Mode | AUTO_DEFAULT | |
| CLLS | HLDS Mode Loop Long Spacing | AUTO | |
| CLSS | HLDS Mode Loop Short Spacing | AUTO | |
| DHC | Density Hole Correction | BS | |
| DPPM | Density Porosity Processing Mode | HIRS | |
| FD | Fluid Density | 1 | G/C3 |
| LATC | HLDS Activation Correction | ON | |
| LLDL | HLDS LS Low Level Discriminator DAC | 14000 | |
| LLDS | HLDS SS Low Level Discriminator DAC | 14000 | |
| LLML | HLDS LS Low Level Discriminator Mode | AUTO | |
| LLMS | HLDS SS Low Level Discriminator Mode | AUTO | |
| MDEN | Matrix Density | 2.71 | G/C3 |
| PHVL | HLDS Long Spacing High Voltage Setting | 1000 | V |
| PHVS | HLDS Short Spacing High Voltage Setting | 1000 | V |
| PSDL | HLDS LS Pulse Shape Compensation DAC | 16000 | |
| PSDS | HLDS SS Pulse Shape Compensation DAC | 16000 | |
| PSML | HLDS LS Pulse Shape Compensation Mode | AUTO | |
| PSMS | HLDS SS Pulse Shape Compensation Mode | AUTO | |
| NPLC-B: Nuclear Porosity Lithology Cartridge - B | | | |
| NOTS | NPLC Old Temperature Sensor | NO | |
| APS-C: Accelerator-Porosity Tool | | | |
| | APS Software Version | 5 | |
| AASD | APS Thermal and Array Detectors High Voltage Setting | 1972.6 | V |
| ADSO | APS Array Detectors Data Source Switch | Both | |
| AFSD | APS Far Detector High Voltage Setting | 2081.84 | V |
| AHCS | APS Holesize Correction Source | BS | |
| AHSS | APS Holesize Correction Switch | ON | |
| AMTY | APS Environmental Corrections Mud Type | WaterBaseBarite | |
| ANSD | APS Near Detector High Voltage Setting | 1741.14 | V |
| ASOS | APS Standoff Correction Switch | ON | |
| ATSS | APS Temperature-Pressure-Salinity Correction Switch | ON | |
| BHS | Borehole Status | OPEN | |
| BHT | Bottom Hole Temperature (used in calculations) | 100 | DEGC |
| DPPM | Density Porosity Processing Mode | HIRS | |
| FSAL | Formation Salinity | -50000 | PPM |
| GCSE | Generalized Caliper Selection | BS | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.018227 | DC/M |
| 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 | 0.991434 | |
| NFRC | APS Near/Far Calibration Ratio | 0.962525 | |
| SHT | Surface Hole Temperature | 20 | DEGC |
| HNGS-BA: Hostile Natural Gamma Ray Sonde | | | |
| BAR1 | HNGS Detector 1 Barite Constant | 1 | |

| | | | |
|---|---|---|---|
| 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) | 100 | DEGC |
| 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 | BS | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.018227 | DC/M |
| 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 | -0.00268983 | |
| 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 | 20 | DEGC |
| TPOS | Tool Position | ECCE | |
| VBA1 | HNGS Detector 1 Variable Barite Factor Running Average | 0.940817 | |
| VBA2 | HNGS Detector 2 Variable Barite Factor Running Average | 0.917494 | |

System and Miscellaneous

| | | | |
|---|---|---|---|
| ALTDPCHAN | Name of alternate depth channel | SpeedCorrectedDepth | |
| BS | Bit Size | 9.875 | 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 |
| MST | Mud Sample Temperature | 22.00 | DEGC |
| PBVSADP | Use alternate depth channel for playback | NO | |
| RMFS | Resistivity of Mud Filtrate Sample | -50000.0000 | OHMM |
| RW | Resistivity of Connate Water | 1.0000 | OHMM |
| TD | Total Depth | 1102 | M |
| TDD | Total Depth - Driller | 1102.00 | M |
| TDL | Total Depth - Logger | 1102.00 | M |
| TWS | Temperature of Connate Water Sample | 37.78 | DEGC |

Format: APS_HLDS_PORO Vertical Scale: 1:200 Graphics File Created: 08-May-2005 06:25

## OP System Version: 12C0-301

MCM

| | | | |
|---|---|---|---|
| DIT-E | 12C0-301 | DTA-A | 12C0-301 |
| HLDS | 12C0-301 | NPLC-B | 12C0-301 |
| APS-C | 12C0-301 | HNGS-BA | 12C0-301 |
| DTC-H | 12C0-301 | | |

## Output DLIS Files

| | | | | |
|---|---|---|---|---|
| DEFAULT | PI_LDL_APS_NGS_003LUP | FN:3 | PRODUCER | 08-May-2005 06:25 |
| REDUCED | PI_LDL_APS_NGS_003LUP | FN:4 | PRODUCER | 08-May-2005 06:25 |

Schlumberger

# CALIBRATIONS

MAXIS Field Log

Calibration and Check Summary

| Measurement | Nominal | Master | Before | After | Change | Limit | Units |
|---|---|---|---|---|---|---|---|
| Hostile Litho-Density Sonde Wellsite Calibration - Background Measurement | | | | | | | |
| Master: 13-Apr-2005 14:57 Before: 4-May-2005 10:16 | | | | | | | |
| SS Cs Resolution Bkg | 9.000 | 8.327 | 8.278 | N/A | N/A | 1.800 | % |
| LS Cs Resolution Bkg | 9.000 | 8.844 | 8.838 | N/A | N/A | 1.800 | % |
| LSW1 Background | 100.0 | 85.93 | 84.50 | N/A | N/A | 3.000 | CPS |
| LSW2 Background | 100.0 | 79.37 | 78.34 | N/A | N/A | 3.000 | CPS |
| LSW3 Background | 200.0 | 173.9 | 172.4 | N/A | N/A | 6.000 | CPS |
| LSW4 Background | 250.0 | 212.7 | 211.2 | N/A | N/A | 7.500 | CPS |
| LSW5 Background | 600.0 | 496.4 | 493.5 | N/A | N/A | 18.00 | CPS |
| SSW1 Background | 100.0 | 84.01 | 84.96 | N/A | N/A | 3.000 | CPS |
| SSW2 Background | 200.0 | 151.0 | 153.7 | N/A | N/A | 6.000 | CPS |
| SSW3 Background | 500.0 | 416.8 | 414.9 | N/A | N/A | 15.00 | CPS |
| SSW4 Background | 270.0 | 219.0 | 219.7 | N/A | N/A | 8.100 | CPS |
| SSW5 Background | 200.0 | 159.0 | 158.9 | N/A | N/A | 6.000 | CPS |
| Hostile Litho-Density Sonde Wellsite Calibration - Aluminum Measurement | | | | | | | |
| Master: 13-Apr-2005 15:41 | | | | | | | |
| LSW1 Aluminum | 600.0 | 631.9 | N/A | N/A | N/A | N/A | CPS |
| LSW2 Aluminum | 900.0 | 923.0 | N/A | N/A | N/A | N/A | CPS |
| LSW3 Aluminum | 1100 | 1128 | N/A | N/A | N/A | N/A | CPS |
| LSW4 Aluminum | 580.0 | 571.2 | N/A | N/A | N/A | N/A | CPS |
| LSW5 Aluminum | 570.0 | 531.9 | N/A | N/A | N/A | N/A | CPS |
| SSW1 Aluminum | 2800 | 3024 | N/A | N/A | N/A | N/A | CPS |
| SSW2 Aluminum | 8000 | 8390 | N/A | N/A | N/A | N/A | CPS |
| SSW3 Aluminum | 11600 | 11660 | N/A | N/A | N/A | N/A | CPS |
| SSW4 Aluminum | 5000 | 4884 | N/A | N/A | N/A | N/A | CPS |
| SSW5 Aluminum | 660.0 | 644.8 | N/A | N/A | N/A | N/A | CPS |
| Hostile Litho-Density Sonde Wellsite Calibration - Lithology Measurement | | | | | | | |
| Master: 13-Apr-2005 15:35 | | | | | | | |
| LSW1 Iron | 400.0 | 430.0 | N/A | N/A | N/A | N/A | CPS |
| LSW2 Iron | 730.0 | 733.6 | N/A | N/A | N/A | N/A | CPS |
| LSW3 Iron | 1000 | 986.9 | N/A | N/A | N/A | N/A | CPS |
| LSW4 Iron | 520.0 | 515.9 | N/A | N/A | N/A | N/A | CPS |
| LSW5 Iron | 470.0 | 489.1 | N/A | N/A | N/A | N/A | CPS |
| SSW1 Iron | 2100 | 2212 | N/A | N/A | N/A | N/A | CPS |
| SSW2 Iron | 6800 | 6952 | N/A | N/A | N/A | N/A | CPS |
| SSW3 Iron | 10800 | 10570 | N/A | N/A | N/A | N/A | CPS |
| SSW4 Iron | 4600 | 4424 | N/A | N/A | N/A | N/A | CPS |
| SSW5 Iron | 580.0 | 563.2 | N/A | N/A | N/A | N/A | CPS |
| Hostile Litho-Density Sonde Wellsite Calibration - Caliper Calibration | | | | | | | |
| Before: 4-May-2005 10:20 | | | | | | | |
| HLDS Caliper Small Ring | 8.000 | N/A | 10.61 | N/A | N/A | N/A | IN |
| HLDS Caliper Large Ring | 12.00 | N/A | 14.67 | N/A | N/A | N/A | IN |
| Accelerator-Porosity Tool Wellsite Calibration - Detector Background | | | | | | | |
| Master: 22-Mar-2005 20:56 Before: 4-May-2005 10:17 | | | | | | | |
| Near Det Bkg Cntrate | 30.00 | 25.38 | 25.71 | N/A | N/A | N/A | CPS |
| Far Det Bkg Cntrate | 30.00 | 25.40 | 26.37 | N/A | N/A | N/A | CPS |
| Array-1 Det Bkg Cntrate | 30.00 | 28.70 | 26.09 | N/A | N/A | N/A | CPS |
| Array-2 Det Bkg Cntrate | 30.00 | 25.69 | 27.22 | N/A | N/A | N/A | CPS |
| Array Therm Det Bkg Cntrate | 30.00 | 25.67 | 24.20 | N/A | N/A | N/A | CPS |
| Accelerator-Porosity Tool Wellsite Calibration - Calibration Ratios | | | | | | | |
| Master: 22-Mar-2005 20:56 | | | | | | | |
| Near/Far Calibration Ratio | 0.9250 | 0.9625 | N/A | N/A | N/A | N/A | |
| Near/Array Calibration Ratio | 1.030 | 0.9914 | N/A | N/A | N/A | N/A | |
| Near/Array Cal Ratio Up/Down | 1.000 | 0.9985 | N/A | N/A | N/A | N/A | |
| Accelerator-Porosity Tool Wellsite Calibration - Tank Check | | | | | | | |
| Master: 22-Mar-2005 20:56 | | | | | | | |
| Array-1 Standoff Porosity | 11.75 | 11.97 | N/A | N/A | N/A | N/A | PU |
| Array-2 Standoff Porosity | 11.75 | 11.85 | N/A | N/A | N/A | N/A | PU |
| Average Slowing Down Time | 6.000 | 5.825 | N/A | N/A | N/A | N/A | US |
| Array-1 SDT Ratio Up/Down | 1.000 | 0.9952 | N/A | N/A | N/A | N/A | |
| Array-2 SDT Ratio Up/Down | 1.000 | 1.006 | N/A | N/A | N/A | N/A | |
| Sigma Formation | 27.50 | 27.53 | N/A | N/A | N/A | N/A | CU |
| Accelerator-Porosity Tool Wellsite Calibration - CCR7 signal boxes | | | | | | | |
| Master: 22-Mar-2005 20:56 | | | | | | | |
| Near Detector Plateau Setting | 1650 | 1741 | N/A | N/A | N/A | N/A | V |
| Far Detector Plateau Setting | 2000 | 2082 | N/A | N/A | N/A | N/A | V |
| Array Detector Plateau Setting | 2000 | 1973 | N/A | N/A | N/A | N/A | V |
| Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 1 Check | | | | | | | |
| Master: 4-May-2005 10:11 Before: 4-May-2005 10:17 | | | | | | | |
| Na 511 Peak Loc | 40.00 | 40.62 | 40.84 | N/A | N/A | 1.000 | |
| Na 511 Peak Res | 15.50 | 16.96 | 15.95 | N/A | N/A | 2.000 | % |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| High Voltage | 1150 | 1255 | 1255 | N/A | N/A | N/A | V |
| Na 1785 Peak Loc | 142.6 | 144.8 | 144.7 | N/A | N/A | 7.000 | |
| Na 1785 Peak Res | 8.500 | 9.982 | 9.411 | N/A | N/A | 2.000 | % |
| Temperature | 15.50 | 18.00 | 18.01 | N/A | N/A | N/A | DEGC |
| Na Count Rate | 45.00 | 42.26 | 42.82 | N/A | N/A | 8.000 | CPS |

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 2 Check
Master: 4-May-2005 10:11 Before: 4-May-2005 10:17

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Na 511 Peak Loc | 40.00 | 40.54 | 40.56 | N/A | N/A | 1.000 | |
| Na 511 Peak Res | 15.50 | 16.66 | 16.93 | N/A | N/A | 2.000 | % |
| High Voltage | 1150 | 1274 | 1275 | N/A | N/A | N/A | V |
| Na 1785 Peak Loc | 142.6 | 144.2 | 144.8 | N/A | N/A | 7.000 | |
| Na 1785 Peak Res | 8.500 | 9.777 | 9.984 | N/A | N/A | 2.000 | % |
| Temperature | 15.50 | 17.18 | 17.20 | N/A | N/A | N/A | DEGC |
| Na Count Rate | 45.00 | 42.45 | 43.34 | N/A | N/A | 8.000 | CPS |

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Ratio Of Detector 1 To Detector 2
Master: 4-May-2005 10:11 Before: 4-May-2005 10:17

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Coincidence Count Rate Ratio | 1.000 | 0.9936 | 0.9895 | N/A | N/A | 0.05000 | |

Hostile Natural Gamma Ray Sonde Master Calibration - Detector 1 Calibration
Master: 4-May-2005 10:06

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Na 511 Peak Set Point | 40.00 | 41.00 | -- | -- | -- | -- | |
| Th Peak Loc | 209.6 | 208.9 | -- | -- | -- | -- | |
| Th Peak Res | 7.000 | 8.099 | -- | -- | -- | -- | % |
| Background Count Rate | 142.5 | 21.35 | -- | -- | -- | -- | CPS |
| Gain Ratio | 1.000 | 0.9786 | -- | -- | -- | -- | |

Hostile Natural Gamma Ray Sonde Master Calibration - Detector 2 Calibration
Master: 4-May-2005 10:06

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Na 511 Peak Set Point | 40.00 | 41.00 | -- | -- | -- | -- | |
| Th Peak Loc | 209.6 | 207.3 | -- | -- | -- | -- | |
| Th Peak Res | 7.000 | 8.237 | -- | -- | -- | -- | % |
| Background Count Rate | 142.5 | 22.15 | -- | -- | -- | -- | CPS |
| Gain Ratio | 1.000 | 0.9731 | -- | -- | -- | -- | |

Accelerator-Porosity Tool - Detector Plateau Settings :

Near Detector Plateau Setting 1741 V
Far Detector Plateau Setting 2082 V
Array Detector Plateau Setting 1973 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 | |

Dual Induction - E Wellsite Calibration

Induction Electronics (10 kHz)

| Phase | ID Elect Real Offset 10 kHz MM/M | Value |
|---|---|---|
| Before | | 39.56 |
| -260.8 (Minimum) | 39.24 (Nominal) | 339.2 (Maximum) |

| Phase | ID Elect Real Gain 10 kHz | Value |
|---|---|---|
| Before | | 1.015 |
| 0.8596 (Minimum) | 1.010 (Nominal) | 1.214 (Maximum) |

| Phase | ID Elect Phase 10 kHz DEG | Value |
|---|---|---|
| Before | | 8.777 |
| -0.7861 (Minimum) | 9.214 (Nominal) | 19.21 (Maximum) |

| Phase | ID Elect Quad Offset 10 kHz MM/M | Value |
|---|---|---|
| Before | | 24.27 |
| -276.2 (Minimum) | 23.78 (Nominal) | 323.8 (Maximum) |

| Phase | ID Elect Quad Gain 10 kHz | Value |
|---|---|---|
| Before | | 1.003 |
| 0.8494 (Minimum) | 0.9994 (Nominal) | 1.199 (Maximum) |

| Phase | IM Elect Phase 10 kHz DEG | Value |
|---|---|---|
| Before | | 13.38 |
| 3.832 (Minimum) | 13.83 (Nominal) | 23.83 (Maximum) |

| Phase | IM Elect Real Offset 10 kHz MM/M | Value |
|---|---|---|
| Before | | 98.11 |
| -453.1 (Minimum) | 96.90 (Nominal) | 646.9 (Maximum) |

| Phase | IM Elect Real Gain 10 kHz | Value |
|---|---|---|
| Before | | 0.9546 |
| 0.8089 (Minimum) | 0.9589 (Nominal) | 1.142 (Maximum) |

| Phase | IM Elect Quad Offset 10 kHz MM/M | Value |
|---|---|---|
| Before | | 96.48 |
| -454.8 (Minimum) | 95.22 (Nominal) | 645.2 (Maximum) |

| Phase | IM Elect Quad Gain 10 kHz | Value |
|---|---|---|
| Before | | 0.9518 |
| 0.8065 (Minimum) | 0.9565 (Nominal) | 1.139 (Maximum) |

Before: 4-May-2005 10:14

## Dual Induction - E Wellsite Calibration

### Induction Electronics (20 kHz)

| Phase | ID Elect Real Offset 20 kHz MM/M | Value |
|---|---|---|
| Before | | 15.30 |
| | -109.9 (Minimum) 15.07 (Nominal) 140.1 (Maximum) | |

| Phase | ID Elect Real Gain 20 kHz | Value |
|---|---|---|
| Before | | 1.020 |
| | 0.8601 (Minimum) 1.010 (Nominal) 1.214 (Maximum) | |

| Phase | ID Elect Phase 20 kHz DEG | Value |
|---|---|---|
| Before | | 7.291 |
| | -7.449 (Minimum) 7.551 (Nominal) 22.55 (Maximum) | |

| Phase | ID Elect Quad Offset 20 kHz MM/M | Value |
|---|---|---|
| Before | | 9.570 |
| | -115.6 (Minimum) 9.373 (Nominal) 134.4 (Maximum) | |

| Phase | ID Elect Quad Gain 20 kHz | Value |
|---|---|---|
| Before | | 1.008 |
| | 0.8497 (Minimum) 0.9997 (Nominal) 1.200 (Maximum) | |

| Phase | IM Elect Phase 20 kHz DEG | Value |
|---|---|---|
| Before | | 12.09 |
| | -2.658 (Minimum) 12.34 (Nominal) 27.34 (Maximum) | |

| Phase | IM Elect Real Offset 20 kHz MM/M | Value |
|---|---|---|
| Before | | 40.87 |
| | -184.8 (Minimum) 40.18 (Nominal) 265.2 (Maximum) | |

| Phase | IM Elect Real Gain 20 kHz | Value |
|---|---|---|
| Before | | 1.012 |
| | 0.8536 (Minimum) 1.004 (Nominal) 1.205 (Maximum) | |

| Phase | IM Elect Quad Offset 20 kHz MM/M | Value |
|---|---|---|
| Before | | 40.29 |
| | -185.4 (Minimum) 39.62 (Nominal) 264.6 (Maximum) | |

| Phase | IM Elect Quad Gain 20 kHz | Value |
|---|---|---|
| Before | | 1.009 |
| | 0.8510 (Minimum) 1.001 (Nominal) 1.201 (Maximum) | |

Before: 4-May-2005 10:15

## Dual Induction - E Wellsite Calibration

### Induction Electronics (40 kHz)

| Phase | ID Elect Real Offset 40 kHz MM/M | Value |
|---|---|---|
| Before | | 9.904 |
| | -75.27 (Minimum) 9.729 (Nominal) 94.73 (Maximum) | |

| Phase | ID Elect Real Gain 40 kHz | Value |
|---|---|---|
| Before | | 0.9918 |
| | 0.8369 (Minimum) 0.9869 (Nominal) 1.182 (Maximum) | |

| Phase | ID Elect Phase 40 kHz DEG | Value |
|---|---|---|
| Before | | 27.05 |
| | 7.238 (Minimum) 27.24 (Nominal) 47.24 (Maximum) | |

| Phase | ID Elect Quad Offset 40 kHz MM/M | Value |
|---|---|---|
| Before | | 6.161 |
| | -78.94 (Minimum) 6.062 (Nominal) 91.06 (Maximum) | |

| Phase | ID Elect Quad Gain 40 kHz | Value |
|---|---|---|
| Before | | 0.9789 |
| | 0.8259 (Minimum) 0.9759 (Nominal) 1.166 (Maximum) | |

| Phase | IM Elect Phase 40 kHz DEG | Value |
|---|---|---|
| Before | | 31.69 |
| | 11.87 (Minimum) 31.87 (Nominal) 51.87 (Maximum) | |

| Phase | IM Elect Real Offset 40 kHz MM/M | Value |
|---|---|---|
| Before | | 26.63 |
| | -103.8 (Minimum) 26.23 (Nominal) 156.2 (Maximum) | |

| Phase | IM Elect Real Gain 40 kHz | Value |
|---|---|---|
| Before | | 1.026 |
| | 0.8659 (Minimum) 1.016 (Nominal) 1.222 (Maximum) | |

| Phase | IM Elect Quad Offset 40 kHz MM/M | Value |
|---|---|---|
| Before | | 26.34 |
| | -104.1 (Minimum) 25.93 (Nominal) 155.9 (Maximum) | |

| Phase | IM Elect Quad Gain 40 kHz | Value |
|---|---|---|
| Before | | 1.023 |
| | 0.8629 (Minimum) 1.013 (Nominal) 1.218 (Maximum) | |

Before: 4-May-2005 10:16

## Dual Induction - E Wellsite Calibration

### SFL Electronics

| Phase | SFL Voltage Offset MV | Value |
|---|---|---|
| Before | | 1.275 |
| | -15.00 (Minimum) 0 (Nominal) 15.00 (Maximum) | |

| Phase | SFL Voltage Gain | Value |
|---|---|---|
| Before | | 1.018 |
| | 0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum) | |

| Phase | SFL Current Offset MA | Value |
|---|---|---|
| Before | | 0.007354 |
| | -0.6000 (Minimum) 0 (Nominal) 0.6000 (Maximum) | |

| Phase | SFL Current Gain | Value |
|---|---|---|
| Before | | 0.9952 |
| | 0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum) | |

Before: 4-May-2005 10:16

## Dual Induction - E Master Calibration

### Test Loop Calibration: Calibration of Internal Reference to Test Loop Standard

| Phase | Deep 10 kHz Gain Factor | Value |
|---|---|---|
| Master | | 1.009 |
| | 0.9000 (Minimum) 1.000 (Nominal) 1.100 (Maximum) | |

| Phase | Deep 20 kHz Gain Factor | Value |
|---|---|---|
| Master | | 1.021 |
| | 0.9000 (Minimum) 1.000 (Nominal) 1.100 (Maximum) | |

| Phase | Deep 40 kHz Gain Factor | Value |
|---|---|---|
| Master | | 1.038 |
| | 0.9000 (Minimum) 1.000 (Nominal) 1.100 (Maximum) | |

| Phase | Medium 10 kHz Gain Factor | Value |
|---|---|---|
| Master | | 1.000 |
| | 0.9000 (Minimum) 1.000 (Nominal) 1.100 (Maximum) | |

| Phase | Medium 20 kHz Gain Factor | Value |
|---|---|---|
| Master | | 1.000 |
| | 0.9000 (Minimum) 1.000 (Nominal) 1.100 (Maximum) | |

| Phase | Medium 40 kHz Gain Factor | Value |
|---|---|---|
| Master | | 1.000 |
| | 0.9000 (Minimum) 1.000 (Nominal) 1.100 (Maximum) | |

| Phase | Deep 10 kHz Phase Shift | Value |
|---|---|---|

| Phase | Deep 20 kHz Phase Shift | Value |
|---|---|---|

| Phase | Deep 40 kHz Phase Shift | Value |
|---|---|---|

| Phase | Medium 10 kHz Phase Shift | Value |
|---|---|---|
| Master | | 0.01267 |
| | -1.500 (Minimum) 0 (Nominal) 1.500 (Maximum) | |

| Phase | Medium 20 kHz Phase Shift | Value |
|---|---|---|
| Master | | -0.2437 |
| | -2.000 (Minimum) 0 (Nominal) 2.000 (Maximum) | |

| Phase | Medium 40 kHz Phase Shift | Value |
|---|---|---|
| Master | | -1.527 |
| | -4.000 (Minimum) -1.000 (Nominal) 2.000 (Maximum) | |

| Phase | Medium 10 kHz Phase Shift | Value |
|---|---|---|
| Master | | 0 |
| | -1.500 (Minimum) 0 (Nominal) 1.500 (Maximum) | |

| Phase | Medium 20 kHz Phase Shift | Value |
|---|---|---|
| Master | | 0 |
| | -3.000 (Minimum) -1.000 (Nominal) 1.000 (Maximum) | |

| Phase | Medium 40 kHz Phase Shift | Value |
|---|---|---|
| Master | | 0 |
| | -5.000 (Minimum) -2.000 (Nominal) 1.000 (Maximum) | |

Master: Calibration out of date 8-Apr-2004 10:16

## Dual Induction - E Master Calibration

Sonde Error Corrections: Correction for sonde response in zero conductivity environment. (Normalized to 25C).

| Phase | Real Deep 10 kHz S.E. Corr. | Value |
|---|---|---|
| Master | | 48.25 |
| | -50.00 (Minimum) 0 (Nominal) 125.0 (Maximum) | |

| Phase | Real Deep 20 kHz S.E. Corr. | Value |
|---|---|---|
| Master | | 16.62 |
| | -30.00 (Minimum) 0 (Nominal) 30.00 (Maximum) | |

| Phase | Real Deep 40 kHz S.E. Corr. | Value |
|---|---|---|
| Master | | 4.700 |
| | -15.00 (Minimum) 0 (Nominal) 15.00 (Maximum) | |

| Phase | Quad Deep 10 kHz S.E. Corr. | Value |
|---|---|---|
| Master | | 105.0 |
| | -250.0 (Minimum) 0 (Nominal) 350.0 (Maximum) | |

| Phase | Quad Deep 20 kHz S.E. Corr. | Value |
|---|---|---|
| Master | | 64.81 |
| | -125.0 (Minimum) 0 (Nominal) 200.0 (Maximum) | |

| Phase | Quad Deep 40 kHz S.E. Corr. | Value |
|---|---|---|
| Master | | 46.33 |
| | -75.00 (Minimum) 0 (Nominal) 125.0 (Maximum) | |

| Phase | Real Medium 10 kHz S.E. Corr. | Value |
|---|---|---|
| Master | | 17.07 |
| | -50.00 (Minimum) 0 (Nominal) 140.0 (Maximum) | |

| Phase | Real Medium 20 kHz S.E. Corr. | Value |
|---|---|---|
| Master | | -2.319 |
| | -50.00 (Minimum) 0 (Nominal) 50.00 (Maximum) | |

| Phase | Real Medium 40 kHz S.E. Corr. | Value |
|---|---|---|
| Master | | -9.445 |
| | -30.00 (Minimum) 0 (Nominal) 30.00 (Maximum) | |

| Phase | Quad Medium 10 kHz S.E. Corr. | Value |
|---|---|---|
| Master | | -95.46 |
| | -1300 (Minimum) 0 (Nominal) 1300 (Maximum) | |

| Phase | Quad Medium 20 kHz S.E. Corr. | Value |
|---|---|---|
| Master | | -31.90 |
| | -650.0 (Minimum) 0 (Nominal) 650.0 (Maximum) | |

| Phase | Quad Medium 40 kHz S.E. Corr. | Value |
|---|---|---|
| Master | | 11.62 |
| | -350.0 (Minimum) 0 (Nominal) 350.0 (Maximum) | |

Master: Calibration out of date 8-Apr-2004 10:25

## Hostile Litho-Density Sonde / Equipment Identification

| | | |
|---|---|---|
| Primary Equipment: | | |
| Hostile Litho Density Sonde | HLDS - D | 10 |
| Hostile Litho Density High Voltage | HLDV - D | 42 |
| Gamma Source Radioactive | GSR - Z | 2326 |
| Auxiliary Equipment: | | |
| Hostile Litho Density Pad | HLDP - C | 10 |
| Hostile Litho Density High Voltage Housi | HEH - H | 44 |

## Hostile Litho-Density Sonde Wellsite Calibration

Background Measurement

| Phase | SS Cs Resolution Bkg % | Value |
|---|---|---|
| Master | | 8.327 |
| Before | | 8.278 |
| | 7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum) | |

| Phase | LS Cs Resolution Bkg % | Value |
|---|---|---|
| Master | | 8.844 |
| Before | | 8.838 |
| | 7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum) | |

| Phase | LSW1 Background CPS | Value |
|---|---|---|
| Master | | 85.93 |
| Before | | 84.50 |
| | 55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum) | |

| Phase | LSW2 Background CPS | Value |
|---|---|---|
| Master | | 79.37 |
| Before | | 78.34 |
| | 50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum) | |

| Phase | LSW3 Background CPS | Value |
|---|---|---|
| Master | | 173.9 |
| Before | | 172.4 |
| | 110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum) | |

| Phase | LSW4 Background CPS | Value |
|---|---|---|
| Master | | 212.7 |
| Before | | 211.2 |
| | 140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum) | |

| Phase | LSW5 Background CPS | Value |
|---|---|---|
| Master | | 496.4 |
| Before | | 493.5 |
| | 330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum) | |

| Phase | SSW1 Background CPS | Value |
|---|---|---|
| Master | | 84.01 |
| Before | | 84.96 |
| | 55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum) | |

| Phase | SSW2 Background CPS | Value |
|---|---|---|
| Master | | 151.0 |
| Before | | 153.7 |
| | 100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum) | |

| Phase | SSW3 Background CPS | Value |
|---|---|---|
| Master | | 416.8 |
| Before | | 414.9 |
| | 280.0 (Minimum) 500.0 (Nominal) 700.0 (Maximum) | |

| Phase | SSW4 Background CPS | Value |
|---|---|---|
| Master | | 219.0 |
| Before | | 219.7 |
| | 150.0 (Minimum) 270.0 (Nominal) 380.0 (Maximum) | |

| Phase | SSW5 Background CPS | Value |
|---|---|---|
| Master | | 159.0 |
| Before | | 158.9 |
| | 110.0 (Minimum) 200.0 (Nominal) 270.0 (Maximum) | |

Master: 13-Apr-2005 14:57 Before: 4-May-2005 10:16

## Hostile Litho-Density Sonde Master Calibration

### Detector Background Measurement

| Phase | LSW1 Background CPS | Value | Phase | LSW2 Background CPS | Value | Phase | LSW3 Background CPS | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 85.93 | Master | | 79.37 | Master | | 173.9 |
| | 55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum) | | | 50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum) | | | 110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum) | |

| Phase | LSW4 Background CPS | Value | Phase | LSW5 Background CPS | Value | Phase | LS Cs Resolution Bkg % | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 212.7 | Master | | 496.4 | Master | | 8.844 |
| | 140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum) | | | 330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum) | | | 7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum) | |

| Phase | SSW1 Background CPS | Value | Phase | SSW2 Background CPS | Value | Phase | SSW3 Background CPS | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 84.01 | Master | | 151.0 | Master | | 416.8 |
| | 55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum) | | | 100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum) | | | 280.0 (Minimum) 500.0 (Nominal) 700.0 (Maximum) | |

| Phase | SSW4 Background CPS | Value | Phase | SSW5 Background CPS | Value | Phase | SS Cs Resolution Bkg % | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 219.0 | Master | | 159.0 | Master | | 8.327 |
| | 150.0 (Minimum) 270.0 (Nominal) 380.0 (Maximum) | | | 110.0 (Minimum) 200.0 (Nominal) 270.0 (Maximum) | | | 7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum) | |

Master: 13-Apr-2005 14:57

## Hostile Litho-Density Sonde Master Calibration

### Detector Aluminum Measurement (bkgd-subtracted)

| Phase | LSW1 Aluminum CPS | Value | Phase | LSW2 Aluminum CPS | Value | Phase | LSW3 Aluminum CPS | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 631.9 | Master | | 923.0 | Master | | 1128 |
| | 420.0 (Minimum) 600.0 (Nominal) 700.0 (Maximum) | | | 650.0 (Minimum) 900.0 (Nominal) 1050 (Maximum) | | | 800.0 (Minimum) 1100 (Nominal) 1300 (Maximum) | |

| Phase | LSW4 Aluminum CPS | Value | Phase | LSW5 Aluminum CPS | Value | Phase | SSW1 Aluminum CPS | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 571.2 | Master | | 531.9 | Master | | 3024 |
| | 410.0 (Minimum) 580.0 (Nominal) 670.0 (Maximum) | | | 410.0 (Minimum) 570.0 (Nominal) 660.0 (Maximum) | | | 2000 (Minimum) 2800 (Nominal) 3200 (Maximum) | |

| Phase | SSW2 Aluminum CPS | Value | Phase | SSW3 Aluminum CPS | Value | Phase | SSW4 Aluminum CPS | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 8390 | Master | | 11660 | Master | | 4884 |
| | 5800 (Minimum) 8000 (Nominal) 9300 (Maximum) | | | 8300 (Minimum) 11600 (Nominal) 13500 (Maximum) | | | 3500 (Minimum) 5000 (Nominal) 5800 (Maximum) | |

| Phase | SSW5 Aluminum CPS | Value |
|---|---|---|
| Master | | 644.8 |
| | 470.0 (Minimum) 660.0 (Nominal) 770.0 (Maximum) | |

Master: 13-Apr-2005 15:41

## Hostile Litho-Density Sonde Master Calibration

### Detector Litholog Measurement (bkgd-subtracted)

| Phase | LSW1 Iron CPS | Value | Phase | LSW2 Iron CPS | Value | Phase | LSW3 Iron CPS | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 430.0 | Master | | 733.6 | Master | | 986.9 |
| | 290.0 (Minimum) 400.0 (Nominal) 470.0 (Maximum) | | | 520.0 (Minimum) 730.0 (Nominal) 850.0 (Maximum) | | | 720.0 (Minimum) 1000 (Nominal) 1160 (Maximum) | |

| Phase | LSW4 Iron CPS | Value | Phase | LSW5 Iron CPS | Value | Phase | SSW1 Iron CPS | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 515.9 | Master | | 489.1 | Master | | 2212 |
| | 370.0 (Minimum) 520.0 (Nominal) 600.0 (Maximum) | | | 340.0 (Minimum) 470.0 (Nominal) 550.0 (Maximum) | | | 1500 (Minimum) 2100 (Nominal) 2400 (Maximum) | |

| Phase | SSW2 Iron CPS | Value | Phase | SSW3 Iron CPS | Value | Phase | SSW4 Iron CPS | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 6952 | Master | | 10570 | Master | | 4424 |
| | 4900 (Minimum) 6800 (Nominal) 7900 (Maximum) | | | 7800 (Minimum) 10800 (Nominal) 12600 (Maximum) | | | 3300 (Minimum) 4600 (Nominal) 5400 (Maximum) | |

| Phase | SSW5 Iron CPS | Value |
|---|---|---|
| Master | | 563.2 |
| | 420.0 (Minimum) 580.0 (Nominal) 680.0 (Maximum) | |

Master: 13-Apr-2005 15:35

## Hostile Litho-Density Sonde Master Calibration

### Quality Ratios

| Phase | AL CALIBRATION RATIO 1 | Value | Phase | AL CALIBRATION RATIO 2 | Value | Phase | AL CALIBRATION RATIO 3 | Value |
|---|---|---|---|---|---|---|---|---|

| Phase | | Value |
|---|---|---|
| Master | | 1.023 |
| | 0.9000 (Minimum) 1.000 (Nominal) 1.100 (Maximum) | |

| Phase | | Value |
|---|---|---|
| Master | | 2.109 |
| | 1.900 (Minimum) 2.100 (Nominal) 2.300 (Maximum) | |

| Phase | | Value |
|---|---|---|
| Master | | 0.5728 |
| | 0.4500 (Minimum) 0.5500 (Nominal) 0.6500 (Maximum) | |

| Phase | AL CALIBRATION RATIO 4 | Value |
|---|---|---|
| Master | | 0.5470 |
| | 0.4500 (Minimum) 0.5500 (Nominal) 0.6500 (Maximum) | |

| Phase | Pad-Wear SS Ratio | Value |
|---|---|---|
| Master | | 0.9845 |
| | 0.9800 (Minimum) 0.9880 (Nominal) 0.9960 (Maximum) | |

| Phase | Pad-Wear LS Ratio | Value |
|---|---|---|
| Master | | 0.9807 |
| | 0.9800 (Minimum) 0.9880 (Nominal) 0.9960 (Maximum) | |

| Phase | Pad-Position SS Ratio | Value |
|---|---|---|
| Master | | 1.006 |
| | 0.9900 (Minimum) 0.9940 (Nominal) 1.015 (Maximum) | |

| Phase | Pad-Position LS Ratio | Value |
|---|---|---|
| Master | | 0.9882 |
| | 0.9850 (Minimum) 0.9940 (Nominal) 1.010 (Maximum) | |

Master: 13-Apr-2005 15:22

## 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 - C | 202 |
| APS Minitron | MNTR - F | 5124 |
| Auxiliary Equipment: | | |
| Accelerator-Porosity Housing | APH - AC | 104 |
| APS Calibration Water Tank | SFT - 178 | 6250 |
| APS Aluminum Calibrator Sleeve | SFT - 281 | 6250 |

## Accelerator-Porosity Tool Wellsite Calibration

### Detector Background

| Phase | Near Det Bkg Cntrate CPS | Value |
|---|---|---|
| Master | | 25.38 |
| Before | | 25.71 |
| | 1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum) | |

| Phase | Far Det Bkg Cntrate CPS | Value |
|---|---|---|
| Master | | 25.40 |
| Before | | 26.37 |
| | 1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum) | |

| Phase | Array-1 Det Bkg Cntrate CPS | Value |
|---|---|---|
| Master | | 28.70 |
| Before | | 26.09 |
| | 1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum) | |

| Phase | Array-2 Det Bkg Cntrate CPS | Value |
|---|---|---|
| Master | | 25.69 |
| Before | | 27.22 |
| | 1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum) | |

| Phase | Array Therm Det Bkg Cntrate CPS | Value |
|---|---|---|
| Master | | 25.67 |
| Before | | 24.20 |
| | 1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum) | |

Master: 22-Mar-2005 20:56 Before: 4-May-2005 10:17

## Accelerator-Porosity Tool Wellsite Calibration

### Calibration Ratios

| Phase | Near/Far Calibration Ratio | Value |
|---|---|---|
| Master | | 0.9625 |
| | 0.8000 (Minimum) 0.9250 (Nominal) 1.050 (Maximum) | |

| Phase | Near/Array Calibration Ratio | Value |
|---|---|---|
| Master | | 0.9914 |
| | 0.9000 (Minimum) 1.030 (Nominal) 1.170 (Maximum) | |

| Phase | Near/Array Cal Ratio Up/Down | Value |
|---|---|---|
| Master | | 0.9985 |
| | 0.9700 (Minimum) 1.000 (Nominal) 1.030 (Maximum) | |

Master: 22-Mar-2005 20:56

## Accelerator-Porosity Tool Wellsite Calibration

### Tank Check

| Phase | Array-1 Standoff Porosity PU | Value |
|---|---|---|
| Master | | 11.97 |
| | 9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum) | |

| Phase | Array-2 Standoff Porosity PU | Value |
|---|---|---|
| Master | | 11.85 |
| | 9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum) | |

| Phase | Average Slowing Down Time US | Value |
|---|---|---|
| Master | | 5.825 |
| | 5.500 (Minimum) 6.000 (Nominal) 6.250 (Maximum) | |

| Phase | Array-1 SDT Ratio Up/Down | Value |
|---|---|---|
| Master | | 0.9952 |
| | 0.9500 1.000 1.050 | |

| Phase | Array-2 SDT Ratio Up/Down | Value |
|---|---|---|
| Master | | 1.006 |
| | 0.9500 1.000 1.050 | |

| Phase | Sigma Formation CU | Value |
|---|---|---|
| Master | | 27.53 |
| | 20.00 27.50 35.00 | |

| (Minimum) | (Nominal) | (Maximum) | (Minimum) | (Nominal) | (Maximum) | (Minimum) | (Nominal) | (Maximum) |
|---|---|---|---|---|---|---|---|---|

Master: 22-Mar-2005 20:56

## Accelerator-Porosity Tool Master Calibration

### Detector Calibration

| Phase | Near/Far Calibration Ratio | Value | Phase | Near/Array Calibration Ratio | Value | Phase | Near/Array Cal Ratio Up/Down | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 0.9625 | Master | | 0.9914 | Master | | 0.9985 |
| | 0.8000 (Minimum) 0.9250 (Nominal) 1.050 (Maximum) | | | 0.9000 (Minimum) 1.030 (Nominal) 1.170 (Maximum) | | | 0.9700 (Minimum) 1.000 (Nominal) 1.030 (Maximum) | |

Master: 22-Mar-2005 20:56

## Accelerator-Porosity Tool Master Calibration

### Tank Check

| Phase | Array-1 Standoff Porosity PU | Value | Phase | Array-2 Standoff Porosity PU | Value | Phase | Average Slowing Down Time US | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 11.97 | Master | | 11.85 | Master | | 5.825 |
| | 9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum) | | | 9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum) | | | 5.500 (Minimum) 6.000 (Nominal) 6.250 (Maximum) | |

| Phase | Array-1 SDT Ratio Up/Down | Value | Phase | Array-2 SDT Ratio Up/Down | Value | Phase | Sigma Formation CU | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 0.9952 | Master | | 1.006 | Master | | 27.53 |
| | 0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum) | | | 0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum) | | | 20.00 (Minimum) 27.50 (Nominal) 35.00 (Maximum) | |

Master: 22-Mar-2005 20:56

## Hostile Natural Gamma Ray Sonde / Equipment Identification

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

## Hostile Natural Gamma Ray Sonde Wellsite Calibration

### Detector 1 Check

| Phase | Na 511 Peak Loc | Value | Phase | Na 511 Peak Res % | Value | Phase | High Voltage V | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 40.62 | Master | | 16.96 | Master | | 1255 |
| Before | | 40.84 | Before | | 15.95 | Before | | 1255 |
| | 37.50 (Minimum) 40.00 (Nominal) 42.50 (Maximum) | | | 12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum) | | | 900.0 (Minimum) 1150 (Nominal) 1600 (Maximum) | |

| Phase | Na 1785 Peak Loc | Value | Phase | Na 1785 Peak Res % | Value | Phase | Temperature DEGC | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 144.8 | Master | | 9.982 | Master | | 18.00 |
| Before | | 144.7 | Before | | 9.411 | Before | | 18.01 |
| | 135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum) | | | 7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum) | | | -28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum) | |

| Phase | Na Count Rate CPS | Value |
|---|---|---|
| Master | | 42.26 |
| Before | | 42.82 |
| | 10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum) | |

Master: 4-May-2005 10:11 Before: 4-May-2005 10:17

## Hostile Natural Gamma Ray Sonde Wellsite Calibration

### Detector 2 Check

| Phase | Na 511 Peak Loc | Value | Phase | Na 511 Peak Res % | Value | Phase | High Voltage V | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 40.54 | Master | | 16.66 | Master | | 1274 |
| Before | | 40.56 | Before | | 16.93 | Before | | 1275 |
| | 37.50 (Minimum) 40.00 (Nominal) 42.50 (Maximum) | | | 12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum) | | | 900.0 (Minimum) 1150 (Nominal) 1600 (Maximum) | |

| Phase | Na 1785 Peak Loc | Value | Phase | Na 1785 Peak Res % | Value | Phase | Temperature DEGC | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 144.2 | Master | | 9.777 | Master | | 17.18 |
| Before | | 144.8 | Before | | 9.984 | Before | | 17.20 |
| | 135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum) | | | 7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum) | | | -28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum) | |

| (Minimum) | (Nominal) | (Maximum) | (Minimum) | (Nominal) | (Maximum) | (Minimum) | (Nominal) | (Maximum) |
|---|---|---|---|---|---|---|---|---|

| Phase | Na Count Rate CPS | Value |
|---|---|---|
| Master | | 42.45 |
| Before | | 43.34 |
| 10.00 (Minimum) | 45.00 (Nominal) | 100.0 (Maximum) |

Master: 4-May-2005 10:11 Before: 4-May-2005 10:17

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Ratio Of Detector 1 To Detector 2

| Phase | Coincidence Count Rate Ratio | Value |
|---|---|---|
| Master | | 0.9936 |
| Before | | 0.9895 |
| 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) |

Master: 4-May-2005 10:11

Before: 4-May-2005 10:17

Hostile Natural Gamma Ray Sonde Master Calibration

Detector 1 Calibration

| Phase | Na 511 Peak Set Point | Value | Phase | Th Peak Loc | Value | Phase | Th Peak Res % | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 41.00 | Master | | 208.9 | Master | | 8.099 |
| 38.00 (Minimum) | 40.00 (Nominal) | 42.00 (Maximum) | 201.0 (Minimum) | 209.6 (Nominal) | 218.3 (Maximum) | 5.000 (Minimum) | 7.000 (Nominal) | 9.000 (Maximum) |

| Phase | Background Count Rate CPS | Value | Phase | Gain Ratio | Value |
|---|---|---|---|---|---|
| Master | | 21.35 | Master | | 0.9786 |
| 20.00 (Minimum) | 142.5 (Nominal) | 265.0 (Maximum) | 0.9400 (Minimum) | 1.000 (Nominal) | 1.060 (Maximum) |

Master: 4-May-2005 10:06

Hostile Natural Gamma Ray Sonde Master Calibration

Detector 2 Calibration

| Phase | Na 511 Peak Set Point | Value | Phase | Th Peak Loc | Value | Phase | Th Peak Res % | Value |
|---|---|---|---|---|---|---|---|---|
| Master | | 41.00 | Master | | 207.3 | Master | | 8.237 |
| 38.00 (Minimum) | 40.00 (Nominal) | 42.00 (Maximum) | 201.0 (Minimum) | 209.6 (Nominal) | 218.3 (Maximum) | 5.000 (Minimum) | 7.000 (Nominal) | 9.000 (Maximum) |

| Phase | Background Count Rate CPS | Value | Phase | Gain Ratio | Value |
|---|---|---|---|---|---|
| Master | | 22.15 | Master | | 0.9731 |
| 20.00 (Minimum) | 142.5 (Nominal) | 265.0 (Maximum) | 0.9400 (Minimum) | 1.000 (Nominal) | 1.060 (Maximum) |

Master: 4-May-2005 10:06

Company: Lamont Doherty

Schlumberger

Well: Expedition 307 Site U1316C
Field: Porcupine Basin Carbonate Mounds
Rig: Joides Resolution
Country: Ireland

Hostile Litho-Density,
Accelerator Porosity
Gamma Ray