**Schlumberger**

Company: Lamont Doherty
Well: KKGH01 Site 1 Hole A
Field: Kerala Konkan Basin
Rig: Joides Resolution
Ocean: Arabian Sea

Dual Induction/Natural Gamma Ray

| | |
|---|---|
| Rig: | Joides Resolution |
| Field: | Kerala Konkan Basin |
| Location: | Rig– Joides Resolution |
| Well: | KKGH01 Site 1 Hole A |
| Company: | Lamont Doherty |

LOCATION

| | | | |
|---|---|---|---|
| Permanent Datum: | Mean Sea Level | Elev.: 0 m | Elev.: K.B. 11.3 m; G.L. −2674.2 m; D.F. 11 m |
| Log Measured From: | Rig Floor | 11.0 m above Perm. Datum | |
| Drilling Measured From: | Rig Floor | | |
| API Serial No. | Max. Hole Devi. | Longitude 70° 54.192 E | Latitude 15° 18.366 N |

| | Run 1 | Run 2 | Run 3 | Run 4 |
|---|---|---|---|---|
| Logging Date | 9–May–2006 | | | |
| Run Number | One | | | |
| Depth Driller | 2964.2 m | | | |
| Schlumberger Depth | 2958 m | | | |
| Bottom Log Interval | 2956 m | | | |
| Top Log Interval | 2658.5 m | | | |
| Casing Driller Size @ Depth | 0.000 in @ 2758 m | @ | @ | @ |
| Casing Schlumberger | 2751 m | | | |
| Bit Size | 9.875 in | | | |
| Type Fluid In Hole | Sepiolite/Barite | | | |
| MUD Density / Viscosity | 1.26 g/cm3 | | | |
| Fluid Loss / PH | 0 cm3 | | | |
| Source Of Sample | Pit | | | |
| RM @ Measured Temperature | 0.17 ohm.m @ 23 degC | @ | @ | @ |
| RMF @ Measured Temperature | 0.000 ohm.m @ | @ | @ | @ |
| RMC @ Measured Temperature | 0.000 ohm.m @ | @ | @ | @ |
| Source RMF / RMC | | | | |
| RM @ MRT / RMF @ MRT | 0.281 @ 7 / @ 7 | @ | @ | @ |
| Maximum Recorded Temperatures | 7 degC | | | |
| Circulation Stopped / Time | 8–May–2006 | | | |
| Logger On Bottom / Time | 9–May–2006 / 16:00 / see log | | | |
| Unit Number / Location | 2082 / Webster, TX | | | |
| Recorded By | Steve Kittredge | | | |
| Witnessed By | S. Mrozewski A. Cook | | | |

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: VSI | OS1: |
| OS2: FMS,DSI | OS2: |
| OS3: | OS3: |
| OS4: | OS4: |
| OS5: | OS5: |
| REMARKS: RUN NUMBER 1 | REMARKS: RUN NUMBER 2 |
| All parameters and presentations as per IODP standards | |
| Tool ran as per tool sketch below. | |
| **Tool would not come in to pipe when logging up.** | |
| Minitron was stopped and pipe lowered from 2742 to 2758. | |
| Tool string came in to pipe after rotating pipe. | |
| HSGR pipe location different than DITE/HLDS/APS. | |
| 10.5 ppg mud with Barite used to fill hole. | |
| Go_Devil Run on bottom of tool. | |

| RUN 1 | | | RUN 2 | | |
|---|---|---|---|---|---|
| SERVICE ORDER #: | | | SERVICE ORDER #: | | |
| PROGRAM VERSION: | 12C0–301 | | PROGRAM VERSION: | | |
| FLUID LEVEL: | | | FLUID LEVEL: | | |
| LOGGED INTERVAL | START | STOP | LOGGED INTERVAL | START | STOP |

## EQUIPMENT DESCRIPTION

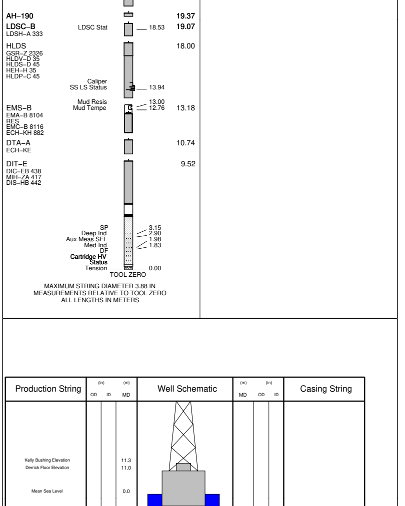
RUN 1 — RUN 2

SURFACE EQUIPMENT
SFT–281 6250
SFT–178 6250
GSR–U 135
WITM (DTS)–A

DOWNHOLE EQUIPMENT

| Tool | Sensors | Measure point | Length |
|---|---|---|---|
| LEH–QT (LEH–QT 1726) | | | 31.43 |
| DTC–H (ECH–KC 9841) | CTEM 30.26; TelStatus, ToolStatu 29.63 | | 30.54 |
| HNGS–BA (HNGS–BA 194, HNSH–BA 205) | Upper_1 28.92; Lower_2 28.71 | | 29.63 |
| HNGC–B (HNGH–A 115) | HNGC Stat 26.59 | | 27.13 |
| AH–191 | | | 26.06 |
| ILE–D (ILE–D) | | | 25.75 |
| APS–C (APH–AC 22, APS–C 22, MNTR–F 4185) | Status, Minitron, Near TD, Near Arr, Near, Far Arr, Far, Far TD: 20.87, 20.79, 20.67, 20.57 | | 23.32 |
| AH–190 | | | 19.37 |
| LDSC–B (LDSH–A 333) | LDSC Stat 18.53 | | 19.07 |
| HLDS (GSR–Z 2326, HLDV–D 35, HLDS–D 45, HEH–H 35, HLDP–C 45) | Caliper, SS LS Status 13.94 | | 18.00 |
| EMS–B (EMA–B 8104, RES, EMC–B 8116, ECH–KH 882) | Mud Resis 13.00; Mud Tempe 12.76 | | 13.18 |
| DTA–A (ECH–KE) | | | 10.74 |
| DIT–E (DIC–EB 438, MIH–ZA 417, DIS–HB 442) | SP 3.15; Deep Ind 2.90; Aux Meas SFL 1.98; Med Ind 1.83; DF; Cartridge HV; Status; Tension 0.00 | | 9.52 |

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




**Schlumberger** — Main Up Log
MAXIS Field Log

Input DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | PI_EMS_LDL_APS_NGS_033PUP | FN:32 | PRODUCER | 09–May–2006 10:04 | 2958.1 M | 2658.8 M |

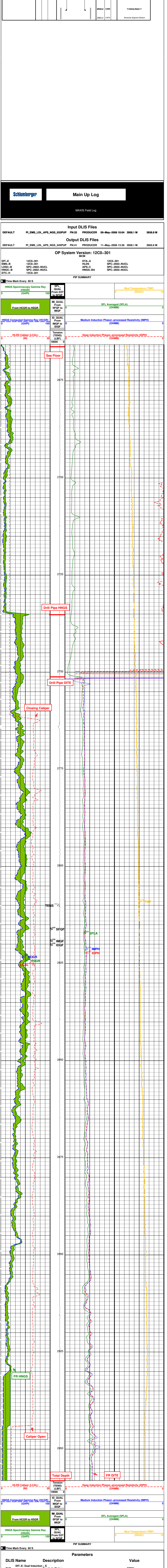
Output DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | PI_EMS_LDL_APS_NGS_045PUP | FN:41 | PRODUCER | 11–May–2006 13:36 | 2958.1 M | 2665.6 M |

OP System Version: 12C0–301
MCM

| | | | |
|---|---|---|---|
| DIT–E | 12C0–301 | DTA–A | 12C0–301 |
| EMS–B | 12C0–301 | HLDS | SPC–2602–NUCL |
| LDSC–B | SPC–2602–NUCL | APS–C | SPC–2602–NUCL |
| HNGC–B | SPC–2602–NUCL | HNGS–BA | SPC–2602–NUCL |
| DTC–H | 12C0–301 | | |

PIP SUMMARY
Time Mark Every 60 S




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) | 20 | DEGF |
| DGF2 | Deep 20 kHz Gain Factor | 0.983571 | |
| DPH2 | Deep 20 kHz Phase Shift | 0.502414 | DEG |
| DRE2 | Deep Real 20 kHz Sonde Error Correction | 16.6574 | MM/M |
| DSR2 | Deep Sigma Reference (20 kHz) | 1843 | MM/M |
| DXE2 | Deep Quad 20 kHz Sonde Error Correction | 62.4339 | MM/M |
| GCSE | Generalized Caliper Selection | LCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| 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 | |
| MGF2 | Medium 20 kHz Gain Factor | 1.012 | |
| MPH2 | Medium 20 kHz Phase Shift | −0.218007 | DEG |
| MRE2 | Medium Real 20 kHz Sonde Error Correction | −2.10597 | MM/M |
| MSR2 | Medium Sigma Reference (20 kHz) | 3250 | MM/M |
| MXE2 | Medium Quad 20 kHz Sonde Error Correction | −30.3702 | MM/M |
| SFCR | SFL Channel Ratio | 1000 | |
| SHT | Surface Hole Temperature | 68 | DEGF |
| | EMS–B: Environment Measurement Sonde | | |
| BHS | Borehole Status | OPEN | |
| BHT | Bottom Hole Temperature (used in calculations) | 20 | DEGF |
| GCSE | Generalized Caliper Selection | LCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GTSE | Generalized Temperature Selection | LINEAR_ESTIMATE | |
| SHT | Surface Hole Temperature | 68 | DEGF |
| | APS–C: Accelerator–Porosity Tool | | |
| BHS | Borehole Status | OPEN | |
| BHT | Bottom Hole Temperature (used in calculations) | 20 | DEGF |
| GCSE | Generalized Caliper Selection | LCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GTSE | Generalized Temperature Selection | LINEAR_ESTIMATE | |
| 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) | 20 | 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 | LCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| 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 | −0.00686837 | |
| HALF | HNGS Alpha Filter Length | 60 | IN |
| HCRB | HNGS Apply Borehole Potassium Correction | NONE | |
| HMWM | Mud Weighting Material | BARI | |
| HNPE | HNGS Processing Enable | YES | |
| 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 | 0.926486 | |
| VBA2 | HNGS Detector 2 Variable Barite Factor Running Average | 0.950932 | |
| | System and Miscellaneous | | |
| BS | Bit Size | 9.875 | IN |
| DFD | Drilling Fluid Density | 1.26 | G/C3 |
| DO | Depth Offset for Playback | 0.0 | M |
| PP | Playback Processing | NORMAL | |
| TD | Total Depth | 2964.2 | M |

Format: DITE_LinPhasor_1 Vertical Scale: 1:200 Graphics File Created: 11–May–2006 13:36

OP System Version: 12C0–301
MCM

| | | | |
|---|---|---|---|
| DIT–E | 12C0–301 | DTA–A | 12C0–301 |
| EMS–B | 12C0–301 | HLDS | SPC–2602–NUCL |
| LDSC–B | SPC–2602–NUCL | APS–C | SPC–2602–NUCL |
| HNGC–B | SPC–2602–NUCL | HNGS–BA | SPC–2602–NUCL |
| DTC–H | 12C0–301 | | |

Input DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | PI_EMS_LDL_APS_NGS_033PUP | FN:32 | PRODUCER | 09–May–2006 10:04 | 2958.1 M | 2658.8 M |

Output DLIS Files

| | | | | |
|---|---|---|---|---|
| DEFAULT | PI_EMS_LDL_APS_NGS_045PUP | FN:41 | PRODUCER | 11–May–2006 13:36 |

**Schlumberger** — Repeat_Down_Log
MAXIS Field Log

Input DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | Flip_PI_EMS_LDL_APS_049LUP | | PRODUCER | 11–May–2006 15:16 | 2929.4 M | 2642.6 M |

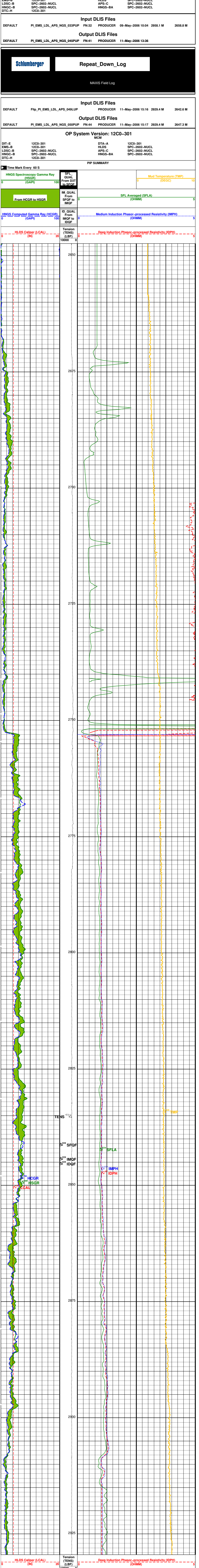
Output DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | PI_EMS_LDL_APS_NGS_050PUP | FN:44 | PRODUCER | 11–May–2006 15:17 | 2929.4 M | 2647.3 M |

OP System Version: 12C0–301
MCM

| | | | |
|---|---|---|---|
| DIT–E | 12C0–301 | DTA–A | 12C0–301 |
| EMS–B | 12C0–301 | HLDS | SPC–2602–NUCL |
| LDSC–B | SPC–2602–NUCL | APS–C | SPC–2602–NUCL |
| HNGC–B | SPC–2602–NUCL | HNGS–BA | SPC–2602–NUCL |
| DTC–H | 12C0–301 | | |

PIP SUMMARY
Time Mark Every 60 S




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) | 20 | DEGF |
| DGF2 | Deep 20 kHz Gain Factor | 0.983571 | |
| DPH2 | Deep 20 kHz Phase Shift | 0.502414 | DEG |
| DRE2 | Deep Real 20 kHz Sonde Error Correction | 16.6574 | MM/M |
| DSR2 | Deep Sigma Reference (20 kHz) | 1843 | MM/M |
| DXE2 | Deep Quad 20 kHz Sonde Error Correction | 62.4339 | MM/M |
| GCSE | Generalized Caliper Selection | LCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| 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 | |
| MGF2 | Medium 20 kHz Gain Factor | 1.012 | |
| MPH2 | Medium 20 kHz Phase Shift | −0.218007 | DEG |
| MRE2 | Medium Real 20 kHz Sonde Error Correction | −2.10597 | MM/M |
| MSR2 | Medium Sigma Reference (20 kHz) | 3250 | MM/M |
| MXE2 | Medium Quad 20 kHz Sonde Error Correction | −30.3702 | MM/M |
| SFCR | SFL Channel Ratio | 1000 | |
| SHT | Surface Hole Temperature | 68 | DEGF |
| | EMS–B: Environment Measurement Sonde | | |
| BHS | Borehole Status | OPEN | |
| BHT | Bottom Hole Temperature (used in calculations) | 20 | DEGF |
| GCSE | Generalized Caliper Selection | LCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GTSE | Generalized Temperature Selection | LINEAR_ESTIMATE | |
| SHT | Surface Hole Temperature | 68 | DEGF |
| | APS–C: Accelerator–Porosity Tool | | |
| BHS | Borehole Status | OPEN | |
| BHT | Bottom Hole Temperature (used in calculations) | 20 | DEGF |
| GCSE | Generalized Caliper Selection | LCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GTSE | Generalized Temperature Selection | LINEAR_ESTIMATE | |
| 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) | 20 | 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 | LCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| 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 | 0.0280571 | |
| HALF | HNGS Alpha Filter Length | 60 | IN |
| HCRB | HNGS Apply Borehole Potassium Correction | NONE | |
| HMWM | Mud Weighting Material | BARI | |
| HNPE | HNGS Processing Enable | YES | |
| 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 | 0.918222 | |
| VBA2 | HNGS Detector 2 Variable Barite Factor Running Average | 1.87146 | |
| | System and Miscellaneous | | |
| BS | Bit Size | 9.875 | IN |
| DFD | Drilling Fluid Density | 1.26 | G/C3 |
| DO | Depth Offset for Playback | 0.0 | M |
| PP | Playback Processing | NORMAL | |
| TD | Total Depth | 2964.2 | M |

Format: DITE_LinPhasor_1 Vertical Scale: 1:200 Graphics File Created: 11–May–2006 15:18

OP System Version: 12C0–301
MCM

| | | | |
|---|---|---|---|
| DIT–E | 12C0–301 | DTA–A | 12C0–301 |
| EMS–B | 12C0–301 | HLDS | SPC–2602–NUCL |
| LDSC–B | SPC–2602–NUCL | APS–C | SPC–2602–NUCL |
| HNGC–B | SPC–2602–NUCL | HNGS–BA | SPC–2602–NUCL |
| DTC–H | 12C0–301 | | |

Input DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | Flip_PI_EMS_LDL_APS_049LUP | | PRODUCER | 11–May–2006 15:16 | 2929.4 M | 2642.6 M |

Output DLIS Files

| | | | | |
|---|---|---|---|---|
| DEFAULT | PI_EMS_LDL_APS_NGS_050PUP | FN:44 | PRODUCER | 11–May–2006 15:17 |

**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: 3–May–2006 2:58 Before: 3–May–2006 4:15 After: 9–May–2006 4:11 | | | | | | | |
| SS Cs Resolution Bkg | 9.000 | 8.106 | 8.014 | 7.997 | −0.01711 | 1.800 | % |
| LS Cs Resolution Bkg | 9.000 | 8.164 | 8.205 | 8.114 | −0.09099 | 1.800 | % |
| LSW1 Background | 100.0 | 82.95 | 82.91 | 82.04 | −0.8656 | 3.000 | CPS |
| LSW2 Background | 100.0 | 76.66 | 75.57 | 75.57 | 0.008987 | 3.000 | CPS |
| **LSW3 Background** | **200.0** | **169.1** | **168.8** | **168.2** | **−0.6511** | **6.000** | **CPS** |
| LSW4 Background | 250.0 | 204.5 | 206.3 | 203.2 | −3.147 | 7.500 | CPS |
| LSW5 Background | 600.0 | 468.2 | 467.6 | 467.3 | −0.3361 | 18.00 | CPS |
| SSW1 Background | 100.0 | 90.52 | 91.22 | 91.53 | 0.3133 | 3.000 | CPS |
| SSW2 Background | 200.0 | 163.0 | 165.1 | 162.6 | −2.442 | 6.000 | CPS |
| SSW3 Background | 500.0 | 444.3 | 445.3 | 443.7 | −1.542 | 15.00 | CPS |
| SSW4 Background | 270.0 | 226.1 | 225.0 | 225.8 | 0.7572 | 8.100 | CPS |
| SSW5 Background | 200.0 | 163.6 | 164.4 | 164.7 | 0.3899 | 6.000 | CPS |
| Hostile Litho–Density Sonde Wellsite Calibration – Aluminum Measurement | | | | | | | |
| Master: 3–May–2006 3:33 | | | | | | | |
| LSW1 Aluminum | 600.0 | 623.6 | N/A | N/A | N/A | N/A | CPS |
| LSW2 Aluminum | 900.0 | 884.1 | N/A | N/A | N/A | N/A | CPS |
| LSW3 Aluminum | 1100 | 1041 | N/A | N/A | N/A | N/A | CPS |
| LSW4 Aluminum | 580.0 | 519.7 | N/A | N/A | N/A | N/A | CPS |
| LSW5 Aluminum | 570.0 | 469.9 | N/A | N/A | N/A | N/A | CPS |
| SSW1 Aluminum | 2800 | 2803 | N/A | N/A | N/A | N/A | CPS |
| SSW2 Aluminum | 8000 | 7520 | N/A | N/A | N/A | N/A | CPS |
| SSW3 Aluminum | 11600 | 10430 | N/A | N/A | N/A | N/A | CPS |
| SSW4 Aluminum | 5000 | 4204 | N/A | N/A | N/A | N/A | CPS |
| SSW5 Aluminum | 660.0 | 520.4 | N/A | N/A | N/A | N/A | CPS |
| Hostile Litho–Density Sonde Wellsite Calibration – Lithology Measurement | | | | | | | |
| Master: 3–May–2006 3:22 | | | | | | | |
| LSW1 Iron | 400.0 | 412.9 | N/A | N/A | N/A | N/A | CPS |
| LSW2 Iron | 730.0 | 698.8 | N/A | N/A | N/A | N/A | CPS |
| LSW3 Iron | 1000 | 909.2 | N/A | N/A | N/A | N/A | CPS |
| LSW4 Iron | 520.0 | 471.1 | N/A | N/A | N/A | N/A | CPS |
| LSW5 Iron | 470.0 | 432.9 | N/A | N/A | N/A | N/A | CPS |
| SSW1 Iron | 2100 | 2033 | N/A | N/A | N/A | N/A | CPS |
| SSW2 Iron | 6800 | 6281 | N/A | N/A | N/A | N/A | CPS |
| SSW3 Iron | 10800 | 9567 | N/A | N/A | N/A | N/A | CPS |
| SSW4 Iron | 4600 | 3857 | N/A | N/A | N/A | N/A | CPS |
| SSW5 Iron | 580.0 | 458.9 | N/A | N/A | N/A | N/A | CPS |
| Hostile Litho–Density Sonde Wellsite Calibration – Caliper Calibration | | | | | | | |
| Before: 3–May–2006 4:09 | | | | | | | |
| **HLDS Caliper Small Ring** | **3.500** | **N/A** | **2.065** | **N/A** | **N/A** | **N/A** | **IN** |
| HLDS Caliper Large Ring | 19.25 | N/A | 21.05 | N/A | N/A | N/A | IN |
| Accelerator–Porosity Tool Wellsite Calibration – Detector Background | | | | | | | |
| Master: 2–May–2006 10:19 Before: 2–May–2006 10:26 After: 9–May–2006 4:12 | | | | | | | |
| Near Det Bkg Cntrate | 30.00 | 31.75 | 32.20 | 31.32 | −0.8822 | N/A | CPS |
| Far Det Bkg Cntrate | 30.00 | 32.74 | 32.76 | 33.97 | 1.207 | N/A | CPS |
| Array–1 Det Bkg Cntrate | 30.00 | 30.56 | 29.50 | 29.57 | 0.07069 | N/A | CPS |
| Array–2 Det Bkg Cntrate | 30.00 | 30.26 | 29.96 | 29.39 | −0.5644 | N/A | CPS |
| Array Therm Det Bkg Cntrate | 30.00 | 33.53 | 32.25 | 31.43 | −0.8211 | N/A | CPS |
| Accelerator–Porosity Tool Wellsite Calibration – Calibration Ratios | | | | | | | |
| Master: 2–May–2006 10:19 | | | | | | | |
| Near/Far Calibration Ratio | 0.9250 | 0.8849 | N/A | N/A | N/A | N/A | |
| Near/Array Calibration Ratio | 1.030 | 1.056 | N/A | N/A | N/A | N/A | |
| Near/Array Cal Ratio Up/Down | 1.000 | 1.005 | N/A | N/A | N/A | N/A | |
| Accelerator–Porosity Tool Wellsite Calibration – Tank Check | | | | | | | |
| Master: 2–May–2006 10:19 | | | | | | | |
| Array–1 Standoff Porosity | 11.75 | 11.48 | N/A | N/A | N/A | N/A | PU |
| Array–2 Standoff Porosity | 11.75 | 11.75 | N/A | N/A | N/A | N/A | PU |
| Average Slowing Down Time | 6.000 | 5.866 | N/A | N/A | N/A | N/A | US |
| Array–1 SDT Ratio Up/Down | 1.000 | 0.9981 | N/A | N/A | N/A | N/A | |
| Array–2 SDT Ratio Up/Down | 1.000 | 0.9906 | N/A | N/A | N/A | N/A | |
| Sigma Formation | 27.50 | 27.45 | N/A | N/A | N/A | N/A | CU |
| Accelerator–Porosity Tool Wellsite Calibration – CCR7 signal boxes | | | | | | | |
| Master: Calibration out of date 15–Aug–2005 20:08 | | | | | | | |
| Near Detector Plateau Setting | 1650 | 1732 | N/A | N/A | N/A | N/A | V |
| Far Detector Plateau Setting | 2000 | 2099 | N/A | N/A | N/A | N/A | V |
| Array Detector Plateau Setting | 2000 | 1966 | N/A | N/A | N/A | N/A | V |
| Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check | | | | | | | |
| Master: 2–May–2006 2:30 Before: 2–May–2006 2:38 After: 9–May–2006 4:13 | | | | | | | |
| Na 511 Peak Loc | 40.00 | 39.56 | 39.54 | 39.60 | 0.06268 | 1.000 | |
| Na 511 Peak Res | 15.50 | 16.25 | 16.58 | 16.55 | −0.03341 | 2.000 | % |
| High Voltage | 1150 | 1127 | 1127 | 1128 | 0.7601 | N/A | V |
| **Na 1785 Peak Loc** | **142.6** | **142.0** | **142.2** | **142.0** | **−0.1802** | **7.000** | |
| Na 1785 Peak Res | 8.500 | 8.216 | 8.344 | 8.973 | 0.6298 | 2.000 | % |
| Temperature | 15.50 | 38.29 | 38.31 | 37.19 | −1.125 | N/A | DEGC |
| Na Count Rate | 45.00 | 38.65 | 39.35 | 38.69 | −0.6641 | 8.000 | CPS |
| Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check | | | | | | | |
| Master: 2–May–2006 2:30 Before: 2–May–2006 2:38 After: 9–May–2006 4:13 | | | | | | | |
| Na 511 Peak Loc | 40.00 | 39.68 | 39.61 | 39.54 | −0.07631 | 1.000 | |
| Na 511 Peak Res | 15.50 | 15.77 | 16.64 | 16.75 | 0.1102 | 2.000 | % |
| High Voltage | 1150 | 1208 | 1209 | 1210 | 0.7435 | N/A | V |
| Na 1785 Peak Loc | 142.6 | 142.4 | 142.0 | 142.0 | 0.005127 | 7.000 | |
| Na 1785 Peak Res | 8.500 | 8.851 | 8.650 | 8.948 | 0.2974 | 2.000 | % |
| Temperature | 15.50 | 37.09 | 37.07 | 37.86 | 0.7836 | N/A | DEGC |
| Na Count Rate | 45.00 | 38.15 | 38.97 | 38.28 | −0.6967 | 8.000 | CPS |
| Hostile Natural Gamma Ray Sonde Wellsite Calibration – Ratio Of Detector 1 To Detector 2 | | | | | | | |
| Master: 2–May–2006 2:30 Before: 2–May–2006 2:38 After: 9–May–2006 4:13 | | | | | | | |
| Coincidence Count Rate Ratio | 1.000 | 1.012 | 1.010 | 1.013 | 0.002728 | 0.05000 | |

Accelerator–Porosity Tool – Detector Plateau Settings :
Near Detector Plateau Setting 1732 V
Far Detector Plateau Setting 2099 V
Array Detector Plateau Setting 1966 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 |

Dual Induction – E Wellsite Calibration — Induction Electronics (10 kHz)

| Phase | Measurement | Value | (Minimum / Nominal / Maximum) |
|---|---|---|---|
| Before | ID Elect Real Offset 10 kHz MM/M | 39.24 | −260.7 / 39.34 / 339.5 |
| Before | ID Elect Gain 10 kHz | 1.018 | 0.8604 / 1.010 / 1.215 |
| Before | ID Elect Phase 10 kHz DEG | 8.571 | −1.288 / 8.712 / 18.71 |
| Before | ID Elect Quad Offset 10 kHz MM/M | 23.47 | −275.8 / 24.21 / 324.2 |
| Before | ID Elect Quad Gain 10 kHz | 1.006 | 0.8501 / 1.000 / 1.200 |
| Before | IM Elect Phase 10 kHz DEG | 13.13 | 3.261 / 13.26 / 23.26 |
| Before | IM Elect Real Offset 10 kHz MM/M | 96.80 | −452.6 / 97.43 / 647.4 |
| Before | IM Elect Gain 10 kHz | 0.9558 | 0.8092 / 0.9592 / 1.142 |
| Before | IM Elect Quad Offset 10 kHz MM/M | 94.33 | −453.9 / 96.15 / 646.1 |
| Before | IM Elect Quad Gain 10 kHz | 0.9523 | 0.8068 / 0.9568 / 1.139 |

Before: 9–May–2006 1:14

Dual Induction – E Wellsite Calibration — Induction Electronics (20 kHz)

| Phase | Measurement | Value | (Minimum / Nominal / Maximum) |
|---|---|---|---|
| Before | ID Elect Real Offset 20 kHz MM/M | 15.21 | −109.8 / 15.21 / 140.2 |
| Before | ID Elect Gain 20 kHz | 1.024 | 0.8646 / 1.015 / 1.221 |
| Before | ID Elect Phase 20 kHz DEG | 6.806 | −7.721 / 7.279 / 22.28 |
| Before | ID Elect Quad Offset 20 kHz MM/M | 9.218 | −115.5 / 9.513 / 134.5 |
| Before | ID Elect Quad Gain 20 kHz | 1.012 | 0.8541 / 1.004 / 1.206 |
| Before | IM Elect Phase 20 kHz DEG | 11.57 | −2.925 / 12.07 / 27.07 |
| Before | IM Elect Real Offset 20 kHz MM/M | 40.33 | −184.5 / 40.52 / 265.5 |
| Before | IM Elect Gain 20 kHz | 1.015 | 0.8577 / 1.008 / 1.211 |
| Before | IM Elect Quad Offset 20 kHz MM/M | 39.43 | −184.9 / 40.11 / 265.1 |
| Before | IM Elect Quad Gain 20 kHz | 1.011 | 0.8550 / 1.005 / 1.207 |

Before: 9–May–2006 1:15

Dual Induction – E Wellsite Calibration — Induction Electronics (40 kHz)

| Phase | Measurement | Value | (Minimum / Nominal / Maximum) |
|---|---|---|---|
| Before | ID Elect Real Offset 40 kHz MM/M | 9.838 | −75.19 / 9.806 / 94.81 |
| Before | ID Elect Gain 40 kHz | 0.9969 | 0.8388 / 0.9886 / 1.184 |
| Before | ID Elect Phase 40 kHz DEG | 25.36 | 6.874 / 26.87 / 46.87 |
| Before | ID Elect Quad Offset 40 kHz MM/M | 5.989 | −78.85 / 6.151 / 91.15 |
| Before | ID Elect Quad Gain 40 kHz | 0.9834 | 0.8277 / 0.9777 / 1.169 |
| Before | IM Elect Phase 40 kHz DEG | 29.94 | 11.55 / 31.55 / 51.55 |
| Before | IM Elect Real Offset 40 kHz MM/M | 26.30 | −103.6 / 26.36 / 156.4 |
| Before | IM Elect Gain 40 kHz | 1.030 | 0.8680 / 1.018 / 1.225 |
| Before | IM Elect Quad Offset 40 kHz MM/M | 25.77 | −103.9 / 26.13 / 156.1 |
| Before | IM Elect Quad Gain 40 kHz | 1.025 | 0.8649 / 1.015 / 1.221 |

Before: 9–May–2006 1:16

Dual Induction – E Wellsite Calibration — SFL Electronics

| Phase | Measurement | Value | (Minimum / Nominal / Maximum) |
|---|---|---|---|
| Before | SFL Voltage Offset MV | 1.176 | −15.00 / 0 / 15.00 |
| Before | SFL Voltage Gain | 1.014 | 0.8500 / 1.000 / 1.200 |
| Before | SFL Current Offset MA | 0.007844 | −0.6000 / 0 / 0.6000 |
| Before | SFL Current Gain | 0.9923 | 0.8500 / 1.000 / 1.200 |

Before: 9–May–2006 1:17

Dual Induction – E Wellsite Calibration — Electronics Calibration Changes Files/Depth Intervals:

| Phase | Measurement | Value | (Minimum / Nominal / Maximum) |
|---|---|---|---|
| After | ID (R > 27 OHM–M) MM/M | 0 | 0 / 0 / 0.7500 |
| After | ID (R < 27 OHM–M) % | 0.0001902 | 0 / 0 / 2.000 |
| After | SFL (R < 1 OHM–M) OHMM | 0.0006118 | 0 / 0 / 0.02000 |
| After | IM (R > 27 OHM–M) MM/M | 0 | 0 / 0 / 0.7500 |
| After | IM (R < 27 OHM–M) % | 0.0001439 | 0 / 0 / 2.000 |
| After | SFL (R > 27 OHM–M) MM/M | 0 | 0 / 0 / 0.7500 |
| After | SFL (R < 27 OHM–M) % | 0.0006449 | 0 / 0 / 2.000 |

After: 9–May–2006 3:01

Hostile Litho–Density Sonde / Equipment Identification

| | | |
|---|---|---|
| Primary Equipment: | | |
| Hostile Litho Density Sonde | HLDS – D | 45 |
| Hostile Litho Density High Voltage | HLDV – D | 35 |
| Gamma Source Radioactive | GSR – Z | 2326 |
| Auxiliary Equipment: | | |
| Hostile Litho Density Pad | HLDP – C | 45 |
| Hostile Litho Density High Voltage Housi | HEH – H | 35 |

Hostile Litho–Density Sonde Wellsite Calibration — Background Measurement

| Measurement | Master | Before | After | (Minimum / Nominal / Maximum) |
|---|---|---|---|---|
| SS Cs Resolution Bkg % | 8.106 | 8.014 | 7.997 | 7.000 / 9.000 / 11.00 |
| LS Cs Resolution Bkg % | 8.164 | 8.205 | 8.114 | 7.000 / 9.000 / 11.00 |
| LSW1 Background CPS | 82.95 | 82.91 | 82.04 | 55.00 / 100.0 / 150.0 |
| LSW2 Background CPS | 76.66 | 75.57 | 75.57 | 50.00 / 100.0 / 140.0 |
| LSW3 Background CPS | 169.1 | 168.8 | 168.2 | 110.0 / 200.0 / 290.0 |
| LSW4 Background CPS | 204.5 | 206.3 | 203.2 | 140.0 / 250.0 / 360.0 |
| LSW5 Background CPS | 468.2 | 467.6 | 467.3 | 330.0 / 600.0 / 830.0 |
| SSW1 Background CPS | 90.52 | 91.22 | 91.53 | 55.00 / 100.0 / 150.0 |
| SSW2 Background CPS | 163.0 | 165.1 | 162.6 | 100.0 / 200.0 / 260.0 |
| SSW3 Background CPS | 444.3 | 445.3 | 443.7 | 280.0 / 500.0 / 700.0 |
| SSW4 Background CPS | 226.1 | 225.0 | 225.8 | 150.0 / 270.0 / 380.0 |
| SSW5 Background CPS | 163.6 | 164.4 | 164.7 | 110.0 / 200.0 / 270.0 |

Master: 3–May–2006 2:58 Before: 3–May–2006 4:15 After: 9–May–2006 4:11

Litho–Density Spectroscopy Cartridge – B / Equipment Identification

| | | |
|---|---|---|
| Primary Equipment: | | |
| LDSC Cartridge | LDSC – B | 366 |
| Auxiliary Equipment: | | |
| LDSC Housing | LDSH – A | 333 |

Accelerator–Porosity Tool / Equipment Identification

| | | |
|---|---|---|
| Primary Equipment: | | |
| Accelerator–Porosity Sonde | APS – C | 22 |
| APS Minitron | MNTR – F | 4185 |
| Auxiliary Equipment: | | |
| Accelerator–Porosity Housing | APH – AC | 22 |
| APS Calibration Water Tank | SFT – 178 | 6250 |
| APS Aluminum Calibrator Sleeve | SFT – 281 | 6250 |

Accelerator–Porosity Tool Wellsite Calibration — Detector Background

| Measurement | Master | Before | After | (Minimum / Nominal / Maximum) |
|---|---|---|---|---|
| Near Det Bkg Cntrate CPS | 31.75 | 32.20 | 31.32 | 1.000 / 30.00 / 50.00 |
| Far Det Bkg Cntrate CPS | 32.74 | 32.76 | 33.97 | 1.000 / 30.00 / 50.00 |
| Array–1 Det Bkg Cntrate CPS | 30.56 | 29.50 | 29.57 | 1.000 / 30.00 / 50.00 |
| Array–2 Det Bkg Cntrate CPS | 30.26 | 29.96 | 29.39 | 1.000 / 30.00 / 50.00 |
| Array Therm Det Bkg Cntrate CPS | 33.53 | 32.25 | 31.43 | 1.000 / 30.00 / 50.00 |

Master: 2–May–2006 10:19 Before: 2–May–2006 10:26 After: 9–May–2006 4:12

Accelerator–Porosity Tool Wellsite Calibration — Calibration Ratios

| Measurement | Master | (Minimum / Nominal / Maximum) |
|---|---|---|
| Near/Far Calibration Ratio | 0.8849 | 0.8000 / 0.9250 / 1.050 |
| Near/Array Calibration Ratio | 1.056 | 0.9000 / 1.030 / 1.170 |
| Near/Array Cal Ratio Up/Down | 1.005 | 0.9700 / 1.000 / 1.030 |

Master: 2–May–2006 10:19

Accelerator–Porosity Tool Wellsite Calibration — Tank Check

| Measurement | Master | (Minimum / Nominal / Maximum) |
|---|---|---|
| Array–1 Standoff Porosity PU | 11.48 | 9.900 / 11.75 / 13.60 |
| Array–2 Standoff Porosity PU | 11.75 | 9.900 / 11.75 / 13.60 |
| Average Slowing Down Time US | 5.866 | 5.500 / 6.000 / 6.250 |
| Array–1 SDT Ratio Up/Down | 0.9981 | 0.9500 / 1.000 / 1.050 |
| Array–2 SDT Ratio Up/Down | 0.9906 | 0.9500 / 1.000 / 1.050 |
| Sigma Formation CU | 27.45 | 20.00 / 27.50 / 35.00 |

Master: 2–May–2006 10:19

Hostile Natural Gamma Ray Cartridge – B / Equipment Identification

| | | |
|---|---|---|
| Primary Equipment: | | |
| HNGC Cartridge | HNGC – B | 300 |
| Auxiliary Equipment: | | |
| HNGC Housing | HNGH – A | 115 |

Hostile Natural Gamma Ray Sonde / Equipment Identification

| | | |
|---|---|---|
| Primary Equipment: | | |
| HNGS Sonde | HNGS – BA | 194 |
| Auxiliary Equipment: | | |
| HNGS Sonde Housing | HNSH – BA | 205 |
| Gamma Source Radioactive | GSR – U | 135 |

Hostile Natural Gamma Ray Sonde Wellsite Calibration — Detector 1 Check

| Measurement | Master | Before | After | (Minimum / Nominal / Maximum) |
|---|---|---|---|---|
| Na 511 Peak Loc | 39.56 | 39.54 | 39.60 | 37.50 / 40.00 / 42.50 |
| Na 511 Peak Res % | 16.25 | 16.58 | 16.55 | 12.00 / 15.50 / 19.00 |
| High Voltage V | 1127 | 1127 | 1128 | 900.0 / 1150 / 1600 |
| Na 1785 Peak Loc | 142.0 | 142.2 | 142.0 | 135.0 / 142.6 / 150.3 |
| Na 1785 Peak Res % | 8.216 | 8.344 | 8.973 | 7.000 / 8.500 / 11.00 |
| Temperature DEGC | 38.29 | 38.31 | 37.19 | −28.89 / 15.50 / 60.00 |
| Na Count Rate CPS | 38.65 | 39.35 | 38.69 | 10.00 / 45.00 / 100.0 |

Master: 2–May–2006 2:30 Before: 2–May–2006 2:38 After: 9–May–2006 4:13

Hostile Natural Gamma Ray Sonde Wellsite Calibration — Detector 2 Check

| Measurement | Master | Before | After | (Minimum / Nominal / Maximum) |
|---|---|---|---|---|
| Na 511 Peak Loc | 39.68 | 39.61 | 39.54 | 37.50 / 40.00 / 42.50 |
| Na 511 Peak Res % | 15.77 | 16.64 | 16.75 | 12.00 / 15.50 / 19.00 |
| High Voltage V | 1208 | 1209 | 1210 | 900.0 / 1150 / 1600 |
| Na 1785 Peak Loc | 142.4 | 142.0 | 142.0 | 135.0 / 142.6 / 150.3 |
| Na 1785 Peak Res % | 8.851 | 8.650 | 8.948 | 7.000 / 8.500 / 11.00 |
| Temperature DEGC | 37.09 | 37.07 | 37.86 | −28.89 / 15.50 / 60.00 |
| Na Count Rate CPS | 38.15 | 38.97 | 38.28 | 10.00 / 45.00 / 100.0 |

Master: 2–May–2006 2:30 Before: 2–May–2006 2:38 After: 9–May–2006 4:13

Hostile Natural Gamma Ray Sonde Wellsite Calibration — Ratio Of Detector 1 To Detector 2

| Measurement | Master | Before | After | (Minimum / Nominal / Maximum) |
|---|---|---|---|---|
| Coincidence Count Rate Ratio | 1.012 | 1.010 | 1.013 | 0.9500 / 1.000 / 1.050 |

Master: 2–May–2006 2:30
Before: 2–May–2006 2:38
After: 9–May–2006 4:13


Company: Lamont Doherty
Well: KKGH01 Site 1 Hole A
Field: Kerala Konkan Basin
Rig: Joides Resolution
Ocean: Arabian Sea
Dual Induction/Natural Gamma Ray