



|                    |                    |  |
|--------------------|--------------------|--|
| DOWNHOLE EQUIPMENT | DOWNHOLE EQUIPMENT |  |
|--------------------|--------------------|--|

## DOWNHOLE EQUIPMENT

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6-3/4" Telescope\*  
DHS: 9.2C02  
MDC: E0330  
MEC: 280  
MDI: 1888  
MVC: 256

24.45

D&I — 20.08  
MVC — 19.43

6-3/4" EcoScope\*  
SN#963  
DHS: v2.2  
BladeOD: 9-1/8"  
PNG C: 2149-41537  
Source S/N: A2585

15.93

Spectroscopy — 13.32  
Neutron Porosity — 13.17  
Ultrasonic — 11.35  
Bulk Density — 10.98  
Pressure — 9.89  
Gamma Ray — 9.73

6-3/4" Telescope\*  
DHS: 9.2C02  
MDC: FU22  
MEC: 862  
MDI: 2536  
MVC: 282

24.44

D&I — 20.07  
MVC — 19.42

6-3/4" EcoScope\*  
SN#805  
DHS: v2.2  
BladeOD: 9-1/8"  
PNG C: 2242-41221  
Source S/N: A2474

15.93

Spectroscopy — 13.29  
Neutron Porosity — 13.14  
Ultrasonic — 11.32  
Bulk Density — 10.95  
Pressure — 9.86  
Gamma Ray — 9.69

6-3/4" PowerDrive Xceed\*  
SN#241  
DHS: 37B05  
BladeOD: 9 3/8"

7.88

9-1/2" Reed Hycalog PDC Bit  
SN#218795

Maximum string diameter 9.50 in.  
All lengths in Meters

PowerDrive Xceed\*  
SN#267  
DHS: 37B05  
BladeOD: 9 3/8"

7.88

9-1/2" Red Hycalog PDC Bit  
SN#216535

Maximum string diameter 9.50 in.  
All lengths in Meters

| Variable Name   | Variable Description                                    | Run Name & Value |              |              |
|-----------------|---|------------------|--------------|--------------|
|                 | Run Number  |                  | 5            | 6            |
|                 | General Information                                     |                  |              |              |
| BHT_RM          | Bottom Hole Temperature (RM)                            | DEGC             | 90.550       | 86.000       |
| BSAL_RM         | Mud Salinity (RM)                                       | PPK              | 63.38        | 63.38        |
| BS_RM           | Bit Size (RM)   | IN               | 9.500        | 9.500        |
| COEF_M          | User Defined FEXP in Clean Sand                         | ----             | 1.650        | 1.650        |
| C_WS            | Overpressure correction to Sw and M                     | ----             | 1.000        | 1.000        |
| FEXP            | Formation Factor Exponent (RM)                          | ----             | 2.000        | 2.000        |
| FNUM            | Formation Factor Enumerator (RM)                        | ----             | 1.000        | 1.000        |
| FPHI_RM         | Formation Factor Porosity Source (RM)                   | ----             | XPLOT        | XPLOT        |
| MST_RM          | Mud Sample temperature (RM)                             | DEGC             | 20.000       | 20.000       |
| MW_RM           | Mud Weight (RM)   | LB/G             | 12.200       | 12.000       |
| OBMF_RM         | Oil Based Mud (RM)                                      | ----             | YES          | YES          |
| RHOF_RM         | Mud Filtrate Density (RM)                               | G/C3             | 1.000        | 1.000        |
| RHOM_RM         | Matrix density (RM)                                     | G/C3             | 2.710        | 2.710        |
| RMS_RM          | Resistivity of Mud Sample (RM)                          | OHMM             | 1000.000     | 1000.000     |
| RWA_COMP_M      | Rwa computation model                                   |                  |              |              |
| RWA_DEN_AD      | Rwa Density Input ADN                                   |                  |              |              |
| RWA_DEN_CD      | Rwa Density Input CDN                                   |                  |              |              |
| RWA_DEN_IN      | Rwa Density Input                                       |                  |              |              |
| RWA_FORM_M      | Rwa computation formation model                         |                  |              |              |
| RWA_RES_IN      | Rwa computation resistivity input                       |                  |              |              |
| RWS_RM          | Resistivity of Connate Water (RM)                       | OHMM             | 1.000        | 1.000        |
| SHT_RM          | Ground Level Temperature (Mud-Line When Offshore ) (RM) | DEGC             | 10.000       | 10.000       |
| TD_RM           | Total Measured Depth (RM)                               | M                | 2841.920     | 2987.000     |
| TWS_RM          | Temperature of Connate Water (RM)                       | DEGC             | 23.889       | 23.889       |
| VF_ILLI         | Fraction of illite in shales                            | ----             | 0.500        | 0.500        |
| VF_KAOL         | Fraction of kaolinite in shales                         | ----             | 0.500        | 0.500        |
| VF_MONT         | Fraction of montmorillonite in shales                   | ----             | 0.000        | 0.000        |
| XPDM_RM         | Cross plot density porosity multiplier                  | ----             | 0.675        | 0.675        |
| XPNM_RM         | Cross plot neutron porosity multiplier                  | ----             | 0.325        | 0.325        |
|                 | DVD   |                  |              |              |
| -----           | Parameters-----   | Parameters-----  | -----Sigma   | -----Sigma   |
| -----           | Parameters-----   | Parameters-----  | -----Sigma   | -----Sigma   |
| A12A            | ARC Air Cal Attenuation From T1 at 2 MHz                | DB               | 8.531        | 8.649        |
| A14A            | ARC Air Cal Attenuation From T1 at 400 KHz              | DB               | 8.520        | 8.670        |
| A22A            | ARC Air Cal Attenuation From T2 at 2 MHz                | DB               | 5.907        | 5.776        |
| A24A            | ARC Air Cal Attenuation From T2 at 400 KHz              | DB               | 5.924        | 5.766        |
| A32A            | ARC Air Cal Attenuation From T3 at 2 MHz                | DB               | 5.130        | 5.248        |
| A34A            | ARC Air Cal Attenuation From T3 at 400 KHz              | DB               | 5.109        | 5.273        |
| A42A            | ARC Air Cal Attenuation From T4 at 2 MHz                | DB               | 4.305        | 4.175        |
| A44A            | ARC Air Cal Attenuation From T4 at 400 KHz              | DB               | 4.317        | 4.159        |
| A52A            | ARC Air Cal Attenuation From T5 at 2 MHz                | DB               | 3.684        | 3.810        |
| A54A            | ARC Air Cal Attenuation From T5 at 400 KHz              | DB               | 3.683        | 3.831        |
| ABNT            | Abnormal Transmitter Indicator                          | ----             | No_Tx_Failed | No_Tx_Failed |
| ALPHA_DEN_OPT   | Density Enhanced Vertical Resolution Processing Switch  | ----             | NO           | NO           |
| AM2A            | ARC Air Cal Amplitude Offset at 2 MHz                   | ----             | -50000.000   | -50000.000   |
| ANISO_COMPUTE   | Anisotropy Computation Option                           | ----             | YES          | YES          |
| ATMP_ARC        | ARC Select Temperature Channel                          | ----             | Annulus_Temp | Annulus_Temp |
| AZMF            | Formation DIP Azimuth                                   | DEG              | 0.000        | 0.000        |
| BH_COMPUTE      | Borehole Inversion Computation Option                   | ----             | YES          | YES          |
| CDPTH_ARC       | Process Start Depth                                     | M                | 30.480       | 30.480       |
| CHI_RM          | Caliper High Limit from BS (RM)                         | IN               | 10.000       | 10.000       |
| CLO_RM          | Caliper Low Limit from BS (RM)                          | IN               | -5.000       | -5.000       |
| DIELEC_COMPUTE  | Dielectric Computation Option                           | ----             | NO           | NO           |
| DIPF            | Formation DIP Angle                                     | DEG              | 0.000        | 0.000        |
| DTMUD           | Delta-T for Mud (RM)                                    | US/F             | 204.102      | 206.800      |
| DTMUD_DH        | Delta-T for Mud Downhole (RT)                           | US/F             | 206.000      | 206.800      |
| DVDM DHS        | DVDM Down Hole Software Version                         | ----             | Karl 2       | Karl 2       |
| DVDM_DATA_LTB   | DVDM: Create An DVDM LTB Data File                      | ----             | NO           | NO           |
| DVD_DATA_FIX    | DVDM: Create A Corrected DVDM Time Data File            | ----             | NO           | NO           |
| DYN_IMAGE_OPT   | Generate Dynamic Normalized Image?                      | ----             | NO           | NO           |
| EDPTH           | Wizard Process Stop Depth                               | ----             | 50000        | 50000        |
| EN WIZARD       | Enable ARC Wizard Processing                            | ----             | NO           | NO           |
| ERRCT           | Percentage Error Cutoff                                 | ----             | 4.500        | 4.500        |
| EVRL            | EVR Process averaging number of samples (RM)            | ----             | 49           | 49           |
| FWVN            | Firmware Version Number                                 | ----             | 2.200        | 2.200        |
| GCSE            | Generalized Caliper Selection                           | ----             | BS           | BS           |
| GRSH            | GR Shale (Invasion Computation Cutoff)                  | GAPI             | 1000.000     | 1000.000     |
| GR_CF           | Gamma Ray Correction Factor                             | ----             | 1.800        | 1.800        |
| GR_O2COR_OPT    | Enable Gamma Ray Oxygen Activation Correction           | ----             | YES          | YES          |
| HIGH_BLEND      | High Resistivity Threshold for Blending                 | OHMM             | 2.000        | 2.000        |
| IDQT            | Image Derived Quality Threshold                         | ----             | 2.000        | 2.000        |
| IMAGE_MAX_DCRA  | Image Density Caliper Right Scale                       | IN               | 8.000        | 8.000        |
| IMAGE_MAX_IDDQ  | Image Density Quality Right Scale                       | ----             | 1.000        | 1.000        |
| IMAGE_MAX_SPEF  | Image PEF(Segment) Right Scale                          | ----             | 6.000        | 6.000        |
| IMAGE_MAX_SRHOB | Image RHOB(Segment) Right Scale                         | G/C3             | 2.650        | 2.650        |
| IMAGE_MIN_DCRA  | Image Density Caliper Left Scale                        | IN               | 2.000        | 2.000        |
| IMAGE_MIN_IDDQ  | Image Density Quality Left Scale                        | ----             | 0.000        | 0.000        |
| IMAGE_MIN_SPEF  | Image PEF(Segment) Left Scale                           | ----             | 2.000        | 2.000        |
| IMAGE_MIN_SRHOB | Image RHOB(Segment) Left Scale                          | G/C3             | 2.050        | 2.050        |
| INCLIN_B0       | ARC Bias Constant (mg)                                  | ----             | 0.000        | 0.000        |
| INCLIN_B1       | ARC Bias First-order Coefficient (mg/degC)              | ----             | 0.000        | 0.000        |
| INCLIN_B2       | ARC Bias Secod-order Coeeficient (mg/degC)              | ----             | 0.000        | 0.000        |
| INCLIN_B3       | ARC Bias Third-order Coeeficient (mg/degC)              | ----             | 0.000        | 0.000        |
| INCLIN_C0       | ARC Current Scale Factor Constant (mA/g)                | ----             | 1.000        | 1.000        |
| INCLIN_C1       | ARC Scale First-order Coeeficient (mA/g/degC)           | ----             | 0.000        | 0.000        |
| INCLIN_C2       | ARC Scale Second-order Coeeficient (mA/g/degC)          | ----             | 0.000        | 0.000        |

|                 |  |      |               |               |
|-----------------|--|------|---------------|---------------|
| INCLIN_C3       | ARC Scale Third-order Coefficient (mA/g/degC)                | ---- | 0.000         | 0.000         |
| INVAS_COMPUTE   | Invasion Computation Option                                  | ---- | YES           | YES           |
| JSD             | Acquisition start date                                       | ---- | 25-Jul-08     | 28-Jul-08     |
| JSD_ARC         | ARC Acquisition start date                                   | ---- | 25-Jul-08     | 28-Jul-08     |
| LOW_BLEND       | Low Resistivity Threshold for Blending                       | OHMM | 1.000         | 1.000         |
| MATR            | Rock Matrix for Neutron Porosity Corrections                 | ---- | LIMESTONE     | LIMESTONE     |
| MSWS            | ARC Wizard Model Switch Window                               | M    | 1.524         | 1.524         |
| MULTIEFFECT_COM | Multi Effect Option  | ---- | YES           | YES           |
| NEU_DCOR_OPT    | Density Correction Source for Neutron Processing             | ---- | Bottom        | Bottom        |
| NEU_FTUBE_OPT   | Far Thermal Tube Selection                                   | ---- | Both          | Both          |
| NEU_PRESCOR_OPT | Pressure Correction Source for Neutron Processing            | ---- | Annulus_Press | Annulus_Press |
| NEU_TEMPOR_OPT  | Temperature Correction Source for Neutron Processing         | ---- | Tool_Temp     | Tool_Temp     |
| NTIK_SEL        | Neutron Tick Channel Name                                    | ---- | FAZ1          | FAZ1          |
| OACF            | Oxygen Activation Correction Factor (RM)                     | ---- | 8.000         | 8.000         |
| P11AC_RM        | ARC: Air Calibration For Phase T1 to R1                      | DEG  | -999.250      | -999.250      |
| P12A            | ARC Air Cal Phase-Shift From T1 at 2 MHz                     | DEG  | 2.418         | 1.772         |
| P14A            | ARC Air Cal Phase-Shift From T1 at 400 KHz                   | DEG  | -0.531        | -0.307        |
| P22A            | ARC Air Cal Phase-Shift From T2 at 2 MHz                     | DEG  | -2.506        | -1.850        |
| P24A            | ARC Air Cal Phase-Shift From T2 at 400 KHz                   | DEG  | 0.588         | 0.296         |
| P32A            | ARC Air Cal Phase-Shift From T3 at 2 MHz                     | DEG  | 2.402         | 1.739         |
| P34A            | ARC Air Cal Phase-Shift From T3 at 400 KHz                   | DEG  | -0.525        | -0.429        |
| P42A            | ARC Air Cal Phase-Shift From T4 at 2 MHz                     | DEG  | -2.492        | -1.839        |
| P44A            | ARC Air Cal Phase-Shift From T4 at 400 KHz                   | DEG  | 0.709         | 0.278         |
| P52A            | ARC Air Cal Phase-Shift From T5 at 2 MHz                     | DEG  | 2.413         | 1.769         |
| P54A            | ARC Air Cal Phase-Shift From T5 at 400 KHz                   | DEG  | -0.553        | -0.256        |
| PMUD            | Potassium Concentration in Mud                               | ---- | 0.000         | 0.000         |
| PRTD            | Preferred Resistivity Log for Rt Display while Multi-Effects | ---- | P34B          | P34B          |
| PSOF_ADJ_T1     | ARC: User Input Phase offset                                 | DEG  | 0.000         | 0.000         |
| RESTIK          | ARC resistivity tick source                                  | ---- | Phase         | Phase         |
| RSD             | LWD run start date dd-mmm-yy                                 | ---- | 25-Jul-08     | 28-Jul-08     |
| RUN_DURATION_OP | Run Duration Type ?  | ---- | Normal        | Normal        |
| RWA_COMP_MOD    | Rwa computation model  | ---- | BASIC         | BASIC         |
| RWA_DEN_ADN     | Rwa Density Input  | ---- | RHOB          | RHOB          |
| RWA_DEN_CDN     | Rwa Density Input  | ---- | RHOB          | RHOB          |
| RWA_DEN_INPUT   | Rwa Density Input  | ---- | RHOB          | RHOB          |
| RWA_FORM_MOD    | Rwa computation formation model                              | ---- | CLASTIC       | CLASTIC       |
| RWA_RES_INPUT   | Rwa computation resistivity input                            | ---- | RT            | RT            |
| SDPTH           | Wizard Process Start Depth                                   | ---- | 100           | 100           |
| SIG_PCOR_OPT    | Porosity Correction Source for Sigma Processing              | ---- | Best          | Best          |
| SPEC_CSG_DEPTH  | Casing Depth for Spectroscopy Processing                     | M    | 30.480        | 30.480        |
| SPEC_K_OPT      | Potassium standard used during acquisition?                  | ---- | NO            | YES           |
| SPL_CLAY_MODEL  | SpectroLith Clay Model                                       | ---- | SUBARKOSE     | SUBARKOSE     |
| SPL_MG_OPT      | Magnesium Flag Switch ?                                      | ---- | OFF           | OFF           |
| SPL_SULFUR_MIN  | SpectroLith Sulfur Mineral Option                            | ---- | PYRITE        | PYRITE        |
| STAB_SIZE       | Stabilizer Size  | IN   | 9.125         | 9.125         |
| STOH            | Top of Hole Sector   | ---- | SECTOR_0      | SECTOR_0      |
| TRNO            | Tool Run Number  | ---- | 5             | 6             |
| TSIZ_ARC        | ARC Tool Size  | IN   | 6.750         | 6.750         |
| TSNO            | Tool Serial Number   | ---- | VA86          | 763           |
| UNIFORM_COMPUTE | Uniform Rock Option  | ---- | YES           | YES           |
| VERS_ARC        | ARC Down hole software version Number                        | ---- | 2.200         | 2.200         |
| WPPV            | Water Phase as Percent of Total Volume in OBM                | ---- | 24.000        | 24.000        |
| WPSL            | Salinity of the Water Phase Emulsified within the OBM        | PPK  | 63.380        | 63.380        |
| WRK             | to Report Potassium Concentration                            | ---- | K_by_Wgt_%    | K_by_Wgt_%    |
| WSDI            | Window Size of Dynamic Normalization Image                   | M    | 4.572         | 4.572         |

Schlumberger Drilling & Measurements

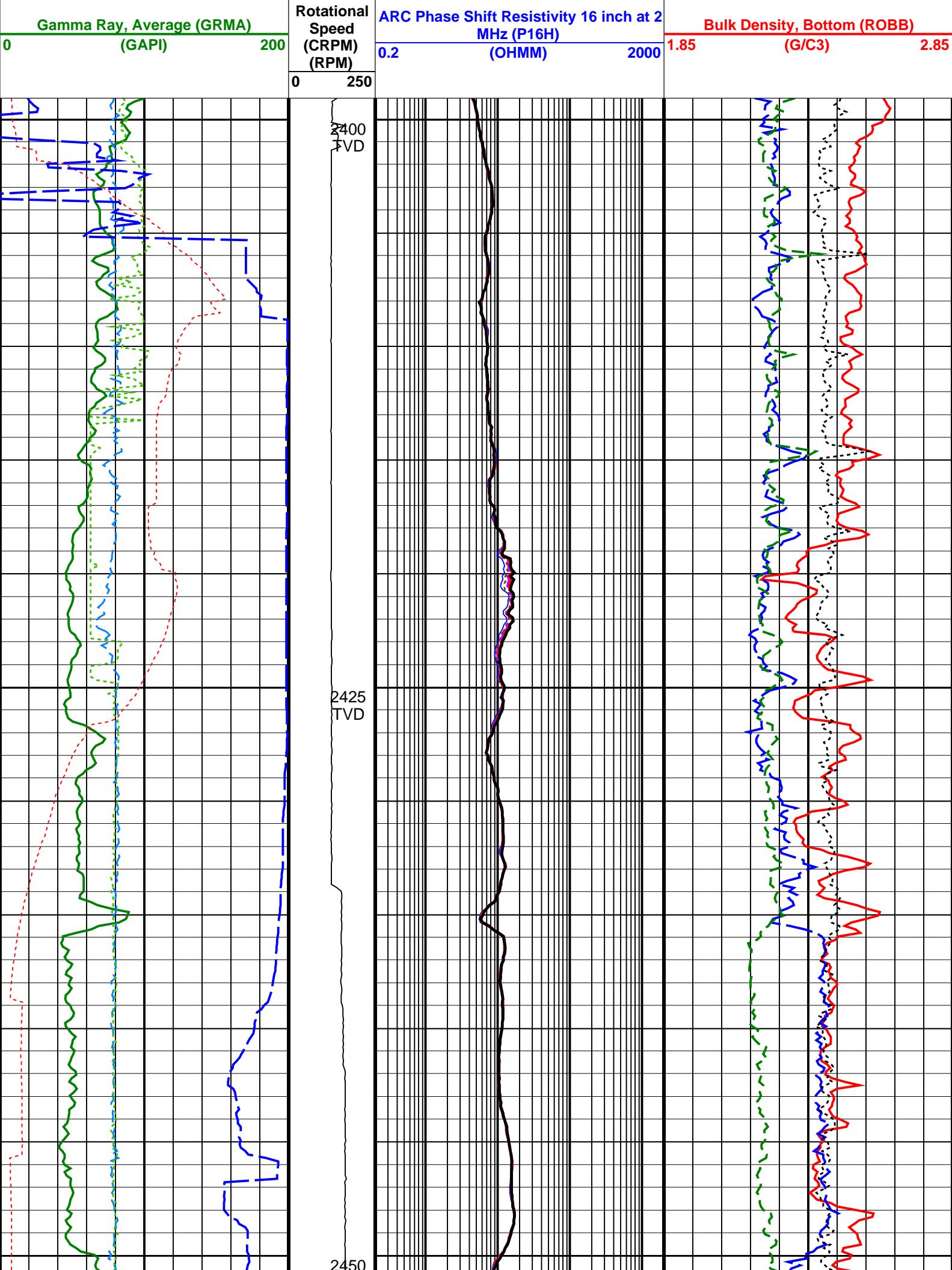
ID13 Parameter Insert Header Software version 3.0c

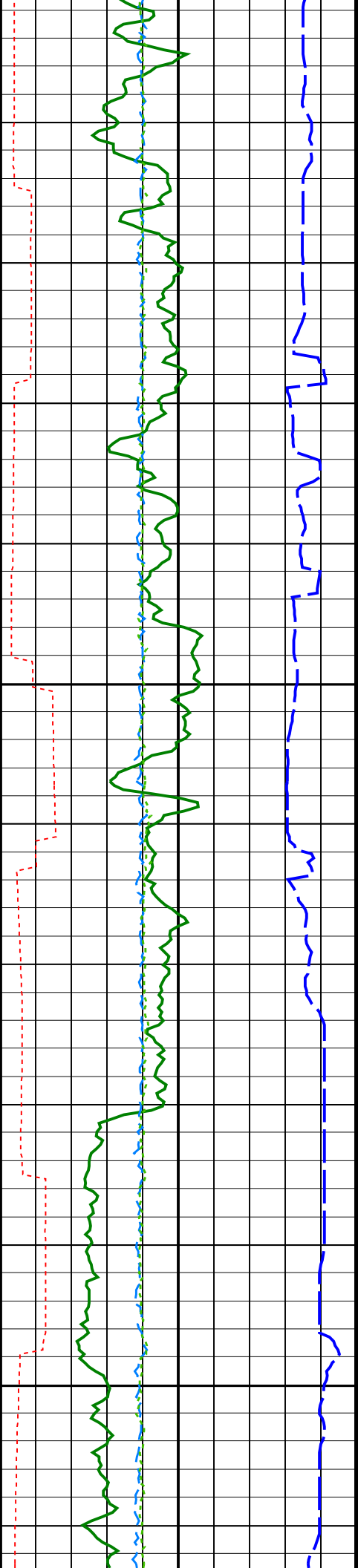
## True Vertical Depth Log

### Longtom-4 H RM 200TVD

Format: EcoScope RM Log TVD      Vertical Scale: 1:200      Graphics File Created: 14-Aug-2008 16:34

|  |        |  |   |
|--|--------|--|---|
| Rate of Penetration, Averaged over Last<br>5ft (ROP5_RM)       |        | ARC Phase Shift Resistivity 40 inch at 2<br>MHz (P40H) |   |
| 200  | (M/HR) | 0  |   |
| Ultrasonic Caliper, Vertical Diameter<br>(UCVE)                |        | ARC Phase Shift Resistivity 34 inch at 2<br>MHz (P34H) |   |
| 6  | (IN)   | 16   | Photoelectric Factor, Bottom (PEB)                                      |
| Ultrasonic Caliper, Horizontal Diameter<br>(UCHO)              |        | ARC Phase Shift Resistivity 28 inch at 2<br>MHz (P28H) |   |
| 6  | (IN)   | 16   | Bulk Density Correction, Bottom<br>(DRHB)                               |
| Time after BIT (between drilling and<br>measurement) (TAB_DEN) |        | ARC Phase Shift Resistivity 22 inch at 2<br>MHz (P22H) |   |
| 0  | (HR)   | 10   | Thermal Neutron Porosity (Ratio<br>Method) in Selected Lithology (TNPH) |
| Collar   |        |  |   |

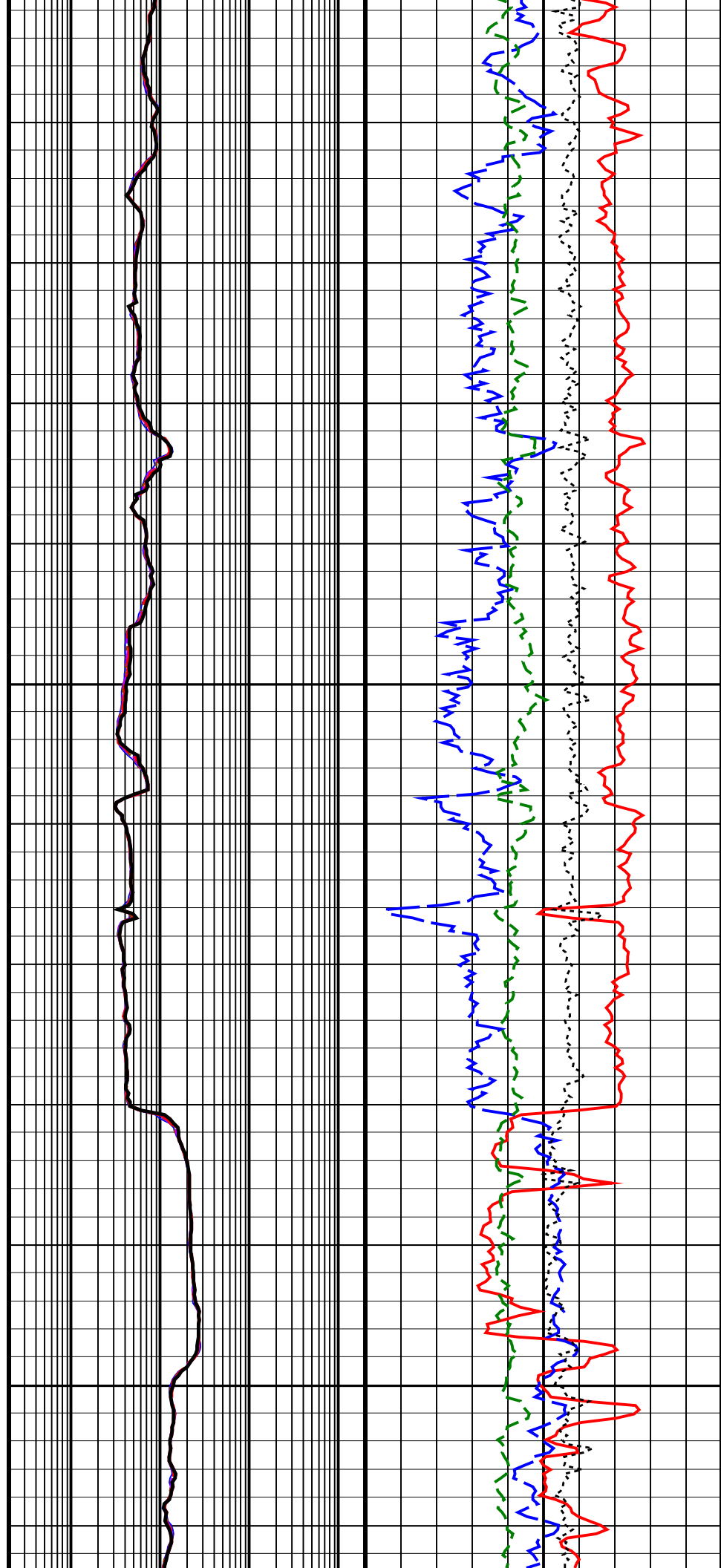


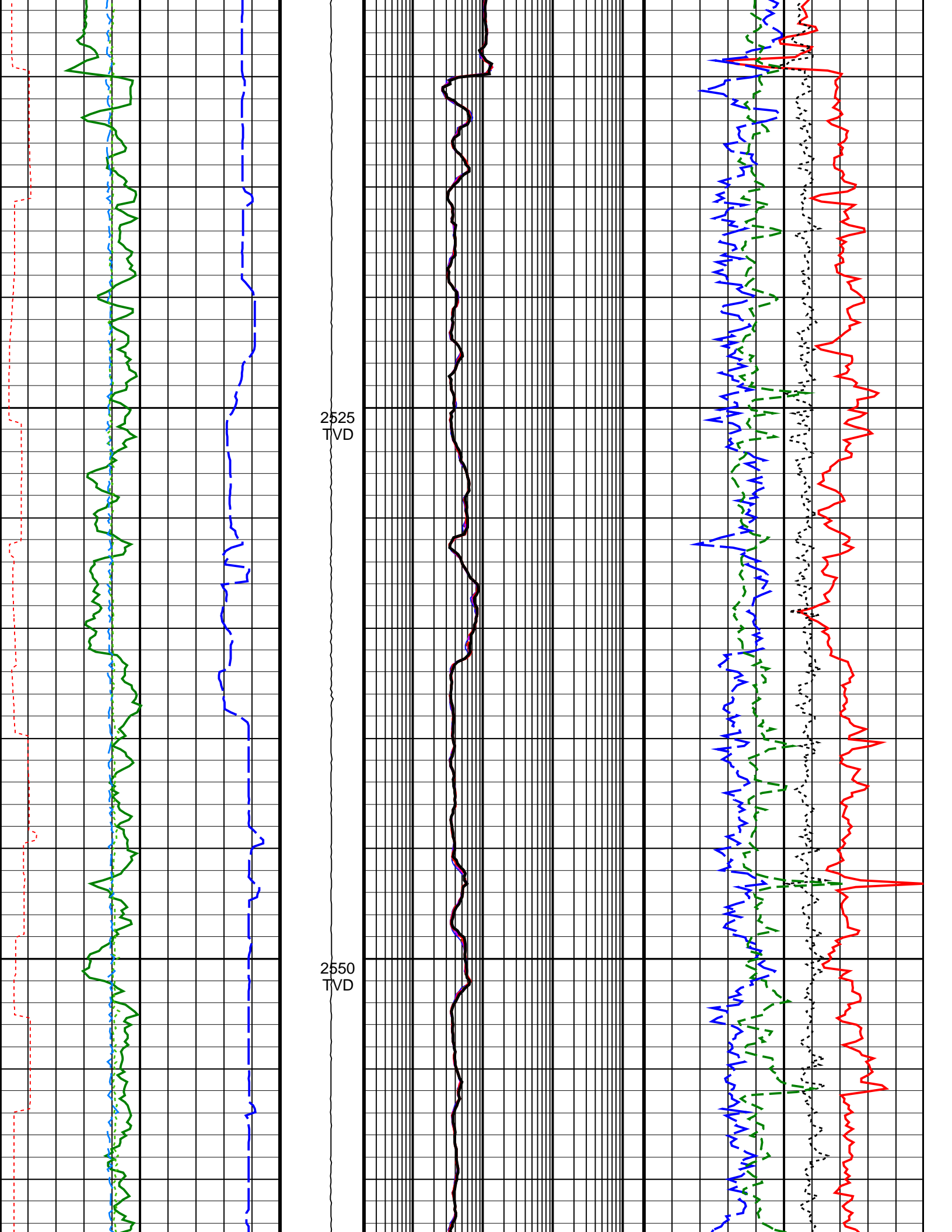


TVD

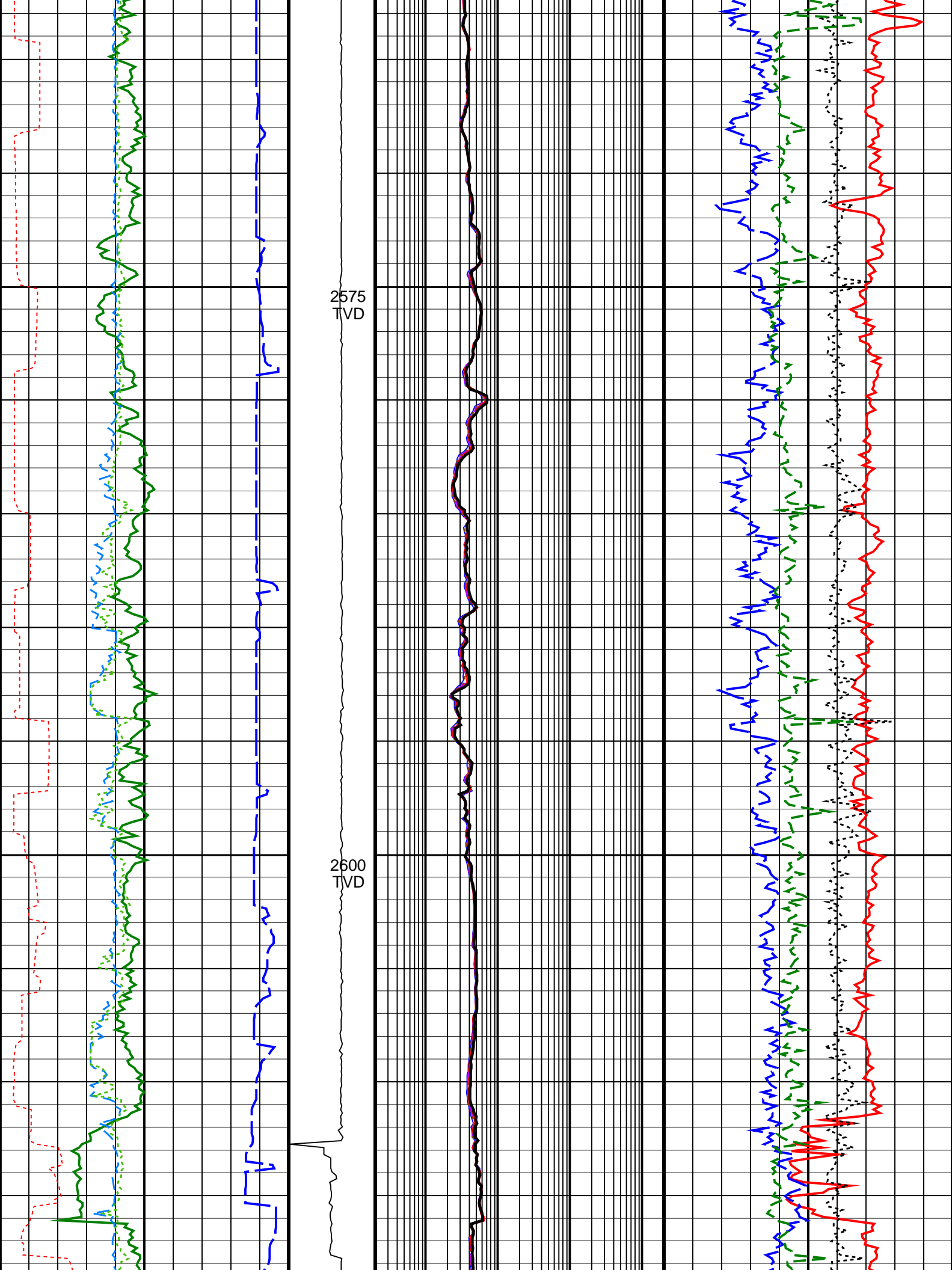
2475  
TVD

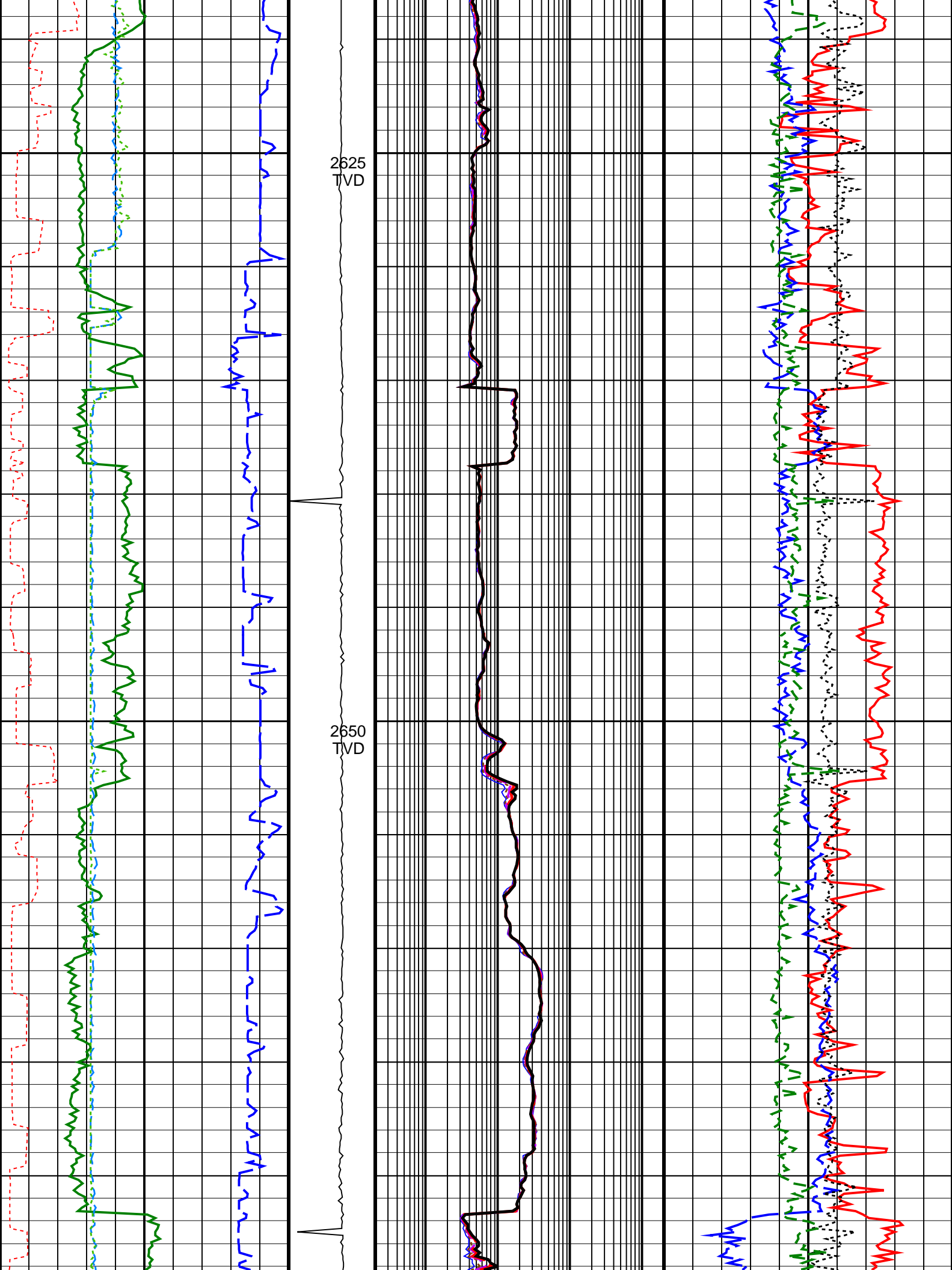
2500  
TVD

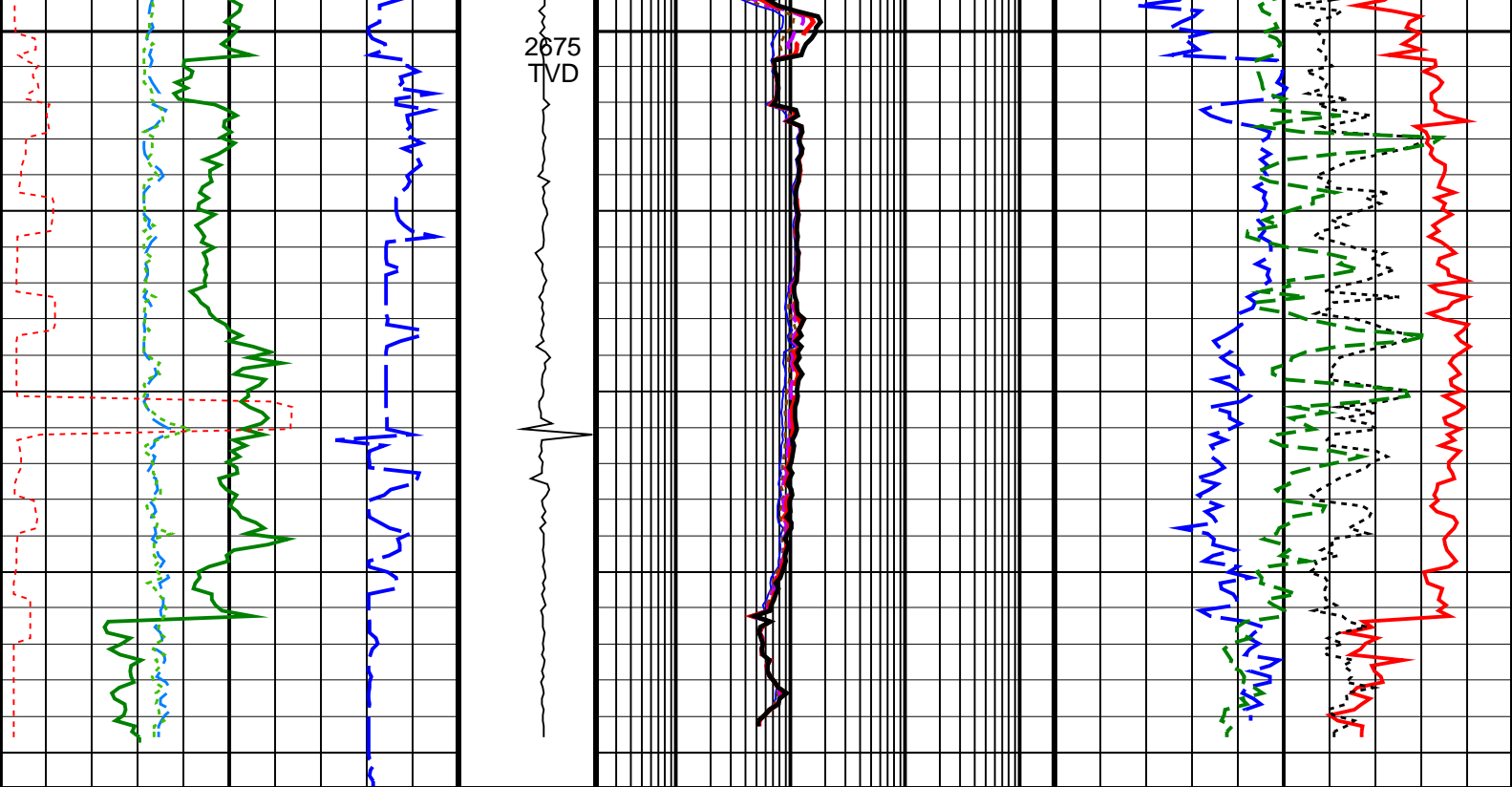












|   |   |   |  |
|---|---|---|--|
| <div>Gamma Ray, Average (GRMA)<br/>(GAPI)</div> <div>0200</div>                                       | <div>Collar Rotational Speed (CRPM) (RPM)</div> <div>0250</div> | <div>ARC Phase Shift Resistivity 16 inch at 2 MHz (P16H)</div> <div>0.22000</div> <div>(OHMM)</div> | <div>Bulk Density, Bottom (ROBB)</div> <div>1.852.85</div> <div>(G/C3)</div>                                     |
|   |   | <div>ARC Phase Shift Resistivity 22 inch at 2 MHz (P22H)</div> <div>0.22000</div> <div>(OHMM)</div> | <div>Thermal Neutron Porosity (Ratio Method) in Selected Lithology (TNPH)</div> <div>45-15</div> <div>(PU)</div> |
|   |   | <div>ARC Phase Shift Resistivity 28 inch at 2 MHz (P28H)</div> <div>0.22000</div> <div>(OHMM)</div> | <div>Bulk Density Correction, Bottom (DRHB)</div> <div>-0.250.25</div> <div>(G/C3)</div>                         |
|   |   | <div>ARC Phase Shift Resistivity 34 inch at 2 MHz (P34H)</div> <div>0.22000</div> <div>(OHMM)</div> | <div>Photoelectric Factor, Bottom (PEB)</div> <div>010</div> <div>(-----)</div>                                  |
|   |   | <div>ARC Phase Shift Resistivity 40 inch at 2 MHz (P40H)</div> <div>0.22000</div> <div>(OHMM)</div> |  |
| <div>Time after BIT (between drilling and measurement) (TAB_DEN)</div> <div>010</div> <div>(HR)</div> |   |   |  |
| <div>Ultrasonic Caliper, Horizontal Diameter (UCHO)</div> <div>616</div> <div>(IN)</div>              |   |   |  |
| <div>Ultrasonic Caliper, Vertical Diameter (UCVE)</div> <div>616</div> <div>(IN)</div>                |   |   |  |
| <div>Rate of Penetration, Averaged over Last 5ft (ROP5_RM)</div> <div>2000</div> <div>(M/HR)</div>    |   |   |  |

IDEAL Version: ID13\_0C\_08  
IDF

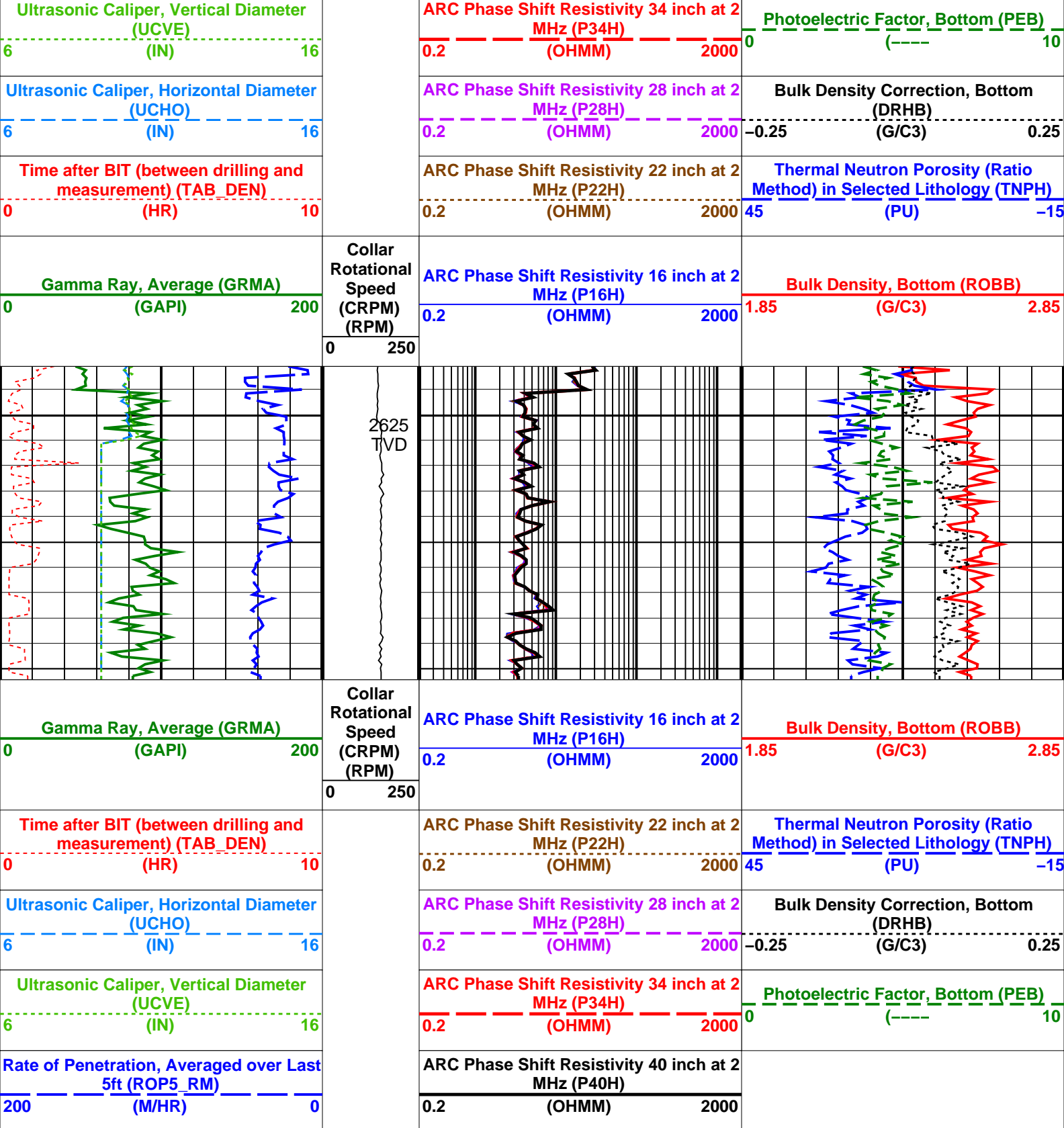
True Vertical Depth Log

True Vertical Depth Log

Longtom-4 H RM 200TVD

Format: EcoScope RM Log TVD      Vertical Scale: 1:200      Graphics File Created: 14-Aug-2008 16:00

|  |   |  |
|--|---|--|
| <div>Rate of Penetration, Averaged over Last 5ft (ROP5_RM)</div> <div>2000</div> <div>(M/HR)</div> | <div>ARC Phase Shift Resistivity 40 inch at 2 MHz (P40H)</div> <div>0.22000</div> <div>(OHMM)</div> |  |
|--|---|--|



IDEAL Version: ID13\_0C\_08  
IDF

## True Vertical Depth Log




EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch / Equipment Identification



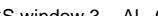
Primary Equipment:  
Tool Name and Serial Number  
Calibration Status  
Neutron Logging Source  
Density Logging Source




ECO – 675  
Valid  
PNG – C  
GSR – J/Z  
957  
2149-4153  
A2585



|   |                     |                    |                    |       |        |                     |                |                    |       |
|---|---------------------|--------------------|--------------------|-------|--------|---------------------|----------------|--------------------|-------|
| Master: 29-Jul-2008 23:39   |                     |                    |                    |       |        |                     |                |                    |       |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration |                     |                    |                    |       |        |                     |                |                    |       |
| SSn LSn : Water Tank  |                     |                    |                    |       |        |                     |                |                    |       |
| Phase   | SSn Gain ----       |                    |                    | Value | Phase  | SSn Offset ----     |                |                    | Value |
| Master  |                     |                    |                    | 1.113 | Master |                     |                |                    | 0     |
|   | 0.6000<br>(Minimum) | 1.000<br>(Nominal) | 1.400<br>(Maximum) |       |        | -3.000<br>(Minimum) | 0<br>(Nominal) | 3.000<br>(Maximum) |       |
| Phase   | LSn Gain ----       |                    |                    | Value | Phase  | LSn Offset ----     |                |                    | Value |
| Master  |                     |                    |                    | 1.000 | Master |                     |                |                    | 0     |
|   | 0.6000<br>(Minimum) | 1.000<br>(Nominal) | 1.400<br>(Maximum) |       |        | -3.000<br>(Minimum) | 0<br>(Nominal) | 3.000<br>(Maximum) |       |











|   |                           |                    |                    |        |        |                             |                |                    |       |
|---|---------------------------|--------------------|--------------------|--------|--------|-----------------------------|----------------|--------------------|-------|
| Master: 29-Jul-2008 23:39   |                           |                    |                    |        |        |                             |                |                    |       |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration |                           |                    |                    |        |        |                             |                |                    |       |
| Neutron: Water Tank   |                           |                    |                    |        |        |                             |                |                    |       |
| Phase   | Far 2 Gain ----           |                    |                    | Value  | Phase  | Far 2 Offset ----           |                |                    | Value |
| Master  |                           |                    |                    | 0.9685 | Master |                             |                |                    | 2.055 |
|   | 0.7000<br>(Minimum)       | 1.000<br>(Nominal) | 1.300<br>(Maximum) |        |        | -3.000<br>(Minimum)         | 0<br>(Nominal) | 3.000<br>(Maximum) |       |
| Phase   | Far 1 Gain ----           |                    |                    | Value  | Phase  | Far 1 Offset ----           |                |                    | Value |
| Master  |                           |                    |                    | 1.012  | Master |                             |                |                    | 1.318 |
|   | 0.7000<br>(Minimum)       | 1.000<br>(Nominal) | 1.300<br>(Maximum) |        |        | -3.000<br>(Minimum)         | 0<br>(Nominal) | 3.000<br>(Maximum) |       |
| Phase   | Thermal Near gain ----    |                    |                    | Value  | Phase  | Thermal Near offset ----    |                |                    | Value |
| Master  |                           |                    |                    | 1.040  | Master |                             |                |                    | 98.49 |
|   | 0.7000<br>(Minimum)       | 1.000<br>(Nominal) | 1.300<br>(Maximum) |        |        | -500.0<br>(Minimum)         | 0<br>(Nominal) | 500.0<br>(Maximum) |       |
| Phase   | Epithermal Near gain ---- |                    |                    | Value  | Phase  | Epithermal Near offset ---- |                |                    | Value |
| Master  |                           |                    |                    | 1.062  | Master |                             |                |                    | 100.3 |
|   | 0.7000<br>(Minimum)       | 1.000<br>(Nominal) | 1.300<br>(Maximum) |        |        | -300.0<br>(Minimum)         | 0<br>(Nominal) | 300.0<br>(Maximum) |       |











|   |   |                   |                   |       |                   |   |                   |  |       |                   |   |                    |  |       |
|---|---|-------------------|-------------------|-------|-------------------|---|-------------------|--|-------|-------------------|---|--------------------|--|-------|
| Master: 30-Jul-2008 2:33  |   |                   |                   |       |                   |   |                   |  |       |                   |   |                    |  |       |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration |   |                   |                   |       |                   |   |                   |  |       |                   |   |                    |  |       |
| Gamma Density: Magnesium Block  |   |                   |                   |       |                   |   |                   |  |       |                   |   |                    |  |       |
| Phase   | LS window 3 – Mg CPS  |                   |                   | Value | Phase             | SS window 1 – Mg CPS  |                   |  | Value | Phase             | SS window 3 – Mg CPS  |                    |  | Value |
| Master  |  |                   |                   | 2473  | Master            |  |                   |  | 5868  | Master            |  |                    |  | 12980 |
|   | 1000<br>(Minimum)   | 2000<br>(Nominal) | 3000<br>(Maximum) |       | 2500<br>(Minimum) | 5250<br>(Nominal)   | 8000<br>(Maximum) |  |       | 6000<br>(Minimum) | 12000<br>(Nominal)  | 18000<br>(Maximum) |  |       |

|   |   |                    |                    |       |                   |   |                   |  |                   |                   |   |  |  |       |
|---|---|--------------------|--------------------|-------|-------------------|---|-------------------|--|-------------------|-------------------|---|--|--|-------|
| Master: 30-Jul-2008 2:33  |   |                    |                    |       |                   |   |                   |  |                   |                   |   |  |  |       |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration |   |                    |                    |       |                   |   |                   |  |                   |                   |   |  |  |       |
| Gamma Density: Aluminum Block   |   |                    |                    |       |                   |   |                   |  |                   |                   |   |  |  |       |
| Phase   | LS window 3 – Al CPS  |                    |                    | Value | Phase             | SS window 1 – Al CPS  |                   |  | Value             | Phase             | SS window 3 – Al CPS  |  |  | Value |
| Master  |  |                    |                    | 445.1 | Master            |  |                   |  | 3038              | Master            |  |  |  | 9411  |
|   | 200.0<br>(Minimum)  | 400.0<br>(Nominal) | 600.0<br>(Maximum) |       | 1500<br>(Minimum) | 3000<br>(Nominal)   | 4500<br>(Maximum) |  | 4000<br>(Minimum) | 8500<br>(Nominal) | 13000<br>(Maximum)  |  |  |       |

|   |   |                    |                    |       |        |   |                    |                    |       |        |   |                    |                    |       |
|---|---|--------------------|--------------------|-------|--------|---|--------------------|--------------------|-------|--------|---|--------------------|--------------------|-------|
| Master: 30-Jul-2008 2:33  |   |                    |                    |       |        |   |                    |                    |       |        |   |                    |                    |       |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration |   |                    |                    |       |        |   |                    |                    |       |        |   |                    |                    |       |
| Gamma Density: Background   |   |                    |                    |       |        |   |                    |                    |       |        |   |                    |                    |       |
| Phase   | LS window 3 – Background CPS  |                    |                    | Value | Phase  | SS window 1 – Background CPS  |                    |                    | Value | Phase  | SS window 3 – Background CPS  |                    |                    | Value |
| Master  |  |                    |                    | 67.38 | Master |  |                    |                    | 80.21 | Master |  |                    |                    | 382.8 |
|   | 50.00<br>(Minimum)  | 70.00<br>(Nominal) | 90.00<br>(Maximum) |       |        | 50.00<br>(Minimum)  | 75.00<br>(Nominal) | 100.0<br>(Maximum) |       |        | 270.0<br>(Minimum)  | 370.0<br>(Nominal) | 470.0<br>(Maximum) |       |

|   |   |       |       |        |   |       |       |
|---|---|-------|-------|--------|---|-------|-------|
| Master: 30-Jul-2008 2:33  |   |       |       |        |   |       |       |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration |   |       |       |        |   |       |       |
| Gamma Density: Water Block Check  |   |       |       |        |   |       |       |
| Phase   | Long spacing water density G/C3   |       | Value | Phase  | Short spacing water density G/C3  |       | Value |
| Master  |  |       | 1.038 | Master |  |       | 1.285 |
|   | 0.9000  | 1.150 | 1.400 |        | 0.9000  | 1.150 | 1.400 |

|   |   |                |                    |         |                     |   |                    |  |                     |                |   |  |                     |                    |
|---|---|----------------|--------------------|---------|---------------------|---|--------------------|--|---------------------|----------------|---|--|---------------------|--------------------|
| Master: 29-Jul-2008 19:14   |   |                |                    |         |                     |   |                    |  |                     |                |   |  |                     |                    |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration |   |                |                    |         |                     |   |                    |  |                     |                |   |  |                     |                    |
| Resistivity: Air  |   |                |                    |         |                     |   |                    |  |                     |                |   |  |                     |                    |
| Phase   | Phase-Shift T1  |                |                    | Value   | Phase               | Phase-Shift T2  |                    |  | Value               | Phase          | Phase-Shift T3  |  |                     | Value              |
| Master  |  |                |                    | -0.7470 | Master              |  |                    |  | 0.6630              | Master         |  |  |                     | -0.7830            |
|   | -4.000<br>(Minimum)   | 0<br>(Nominal) | 4.000<br>(Maximum) |         | -4.000<br>(Minimum) | 0<br>(Nominal)  | 4.000<br>(Maximum) |  | -4.000<br>(Minimum) | 0<br>(Nominal) | 4.000<br>(Maximum)  |  | -4.000<br>(Minimum) | 4.000<br>(Maximum) |
| Phase   | Phase-Shift T4  |                |                    | Value   | Phase               | Phase-Shift T5  |                    |  | Value               | Phase          | Phase-Shift T1 at 400KHz  |  |                     | Value              |
| Master  |  |                |                    | 0.6920  | Master              |  |                    |  | -0.7550             | Master         |  |  |                     | 1.521              |
|   | -4.000<br>(Minimum)   | 0<br>(Nominal) | 4.000<br>(Maximum) |         | -4.000<br>(Minimum) | 0<br>(Nominal)  | 4.000<br>(Maximum) |  | -4.000<br>(Minimum) | 0<br>(Nominal) | 4.000<br>(Maximum)  |  | -4.000<br>(Minimum) | 4.000<br>(Maximum) |
| Phase   | Phase-Shift T2 at 400KHz  |                |                    | Value   | Phase               | Phase-Shift T3 at 400KHz  |                    |  | Value               | Phase          | Phase-Shift T4 at 400KHz  |  |                     | Value              |
| Master  |  |                |                    | -1.522  | Master              |  |                    |  | 1.515               | Master         |  |  |                     | -1.514             |
|   | -4.000<br>(Minimum)   | 0<br>(Nominal) | 4.000<br>(Maximum) |         | -4.000<br>(Minimum) | 0<br>(Nominal)  | 4.000<br>(Maximum) |  | -4.000<br>(Minimum) | 0<br>(Nominal) | 4.000<br>(Maximum)  |  | -4.000<br>(Minimum) | 4.000<br>(Maximum) |
| Phase   | Phase-Shift T5 at 400KHz  |                |                    | Value   |                     |   |                    |  |                     |                |   |  |                     |                    |
| Master  |  |                |                    | 1.607   |                     |   |                    |  |                     |                |   |  |                     |                    |
|   | -4.000<br>(Minimum)   | 0<br>(Nominal) | 4.000<br>(Maximum) |         |                     |   |                    |  |                     |                |   |  |                     |                    |

|   |   |  |  |                    |                    |   |  |  |                    |                    |   |  |  |                    |                    |
|---|---|--|--|--------------------|--------------------|---|--|--|--------------------|--------------------|---|--|--|--------------------|--------------------|
| Master: 29-Jul-2008 19:14   |   |  |  |                    |                    |   |  |  |                    |                    |   |  |  |                    |                    |
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration |   |  |  |                    |                    |   |  |  |                    |                    |   |  |  |                    |                    |
| Resistivity: Air  |   |  |  |                    |                    |   |  |  |                    |                    |   |  |  |                    |                    |
| Phase   | Attenuation T1  |  |  | Value              | Phase              | Attenuation T2  |  |  | Value              | Phase              | Attenuation T3  |  |  | Value              |                    |
| Master  |    |  |  | 8.136              | Master             |    |  |  | 6.271              | Master             |    |  |  | 4.743              |                    |
| 7.000<br>(Minimum)  |   |  |  | 9.000<br>(Nominal) | 4.000<br>(Minimum) |   |  |  | 6.000<br>(Nominal) | 3.500<br>(Minimum) |   |  |  | 5.500<br>(Nominal) | 7.500<br>(Maximum) |
| Phase   | Attenuation T4  |  |  | Value              | Phase              | Attenuation T5  |  |  | Value              | Phase              | Attenuation T1 at 400KHz  |  |  | Value              |                    |
| Master  |    |  |  | 4.675              | Master             |    |  |  | 3.302              | Master             |    |  |  | 8.152              |                    |
| 2.500<br>(Minimum)  |   |  |  | 4.500<br>(Nominal) | 2.000<br>(Minimum) |   |  |  | 4.000<br>(Nominal) | 7.000<br>(Minimum) |   |  |  | 9.000<br>(Nominal) | 11.00<br>(Maximum) |
| Phase   | Attenuation T2 at 400KHz  |  |  | Value              | Phase              | Attenuation T3 at 400KHz  |  |  | Value              | Phase              | Attenuation T4 at 400KHz  |  |  | Value              |                    |
| Master  |  |  |  | 6.273              | Master             |  |  |  | 4.751              | Master             |  |  |  | 4.675              |                    |
| 4.000<br>(Minimum)  |   |  |  | 6.000<br>(Nominal) | 3.500<br>(Minimum) |   |  |  | 5.500<br>(Nominal) | 2.500<br>(Minimum) |   |  |  | 4.500<br>(Nominal) | 6.500<br>(Maximum) |
| Phase   | Attenuation T5 at 400KHz  |  |  | Value              |                    |   |  |  |                    |                    |   |  |  |                    |                    |
| Master  |  |  |  | 3.323              |                    |   |  |  |                    |                    |   |  |  |                    |                    |
| 2.000<br>(Minimum)  |   |  |  | 4.000<br>(Nominal) |                    |   |  |  |                    |                    |   |  |  |                    |                    |

## EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch / Equipment Identification

Primary Equipment:

Tool Name and Serial Number

### Calibration Status

### Neutron Logging Source

### Density Logging Source

### Stabilizer Size

ECO – 675

799

Valid

PNG - C

GSR – J/Z  
0.105 – 1.000









9.125 – in.

2242-4122




A2474

|   |                     |                    |                    |       |        |                     |                |                    |       |
|---|---------------------|--------------------|--------------------|-------|--------|---------------------|----------------|--------------------|-------|
| Master: 4–Aug–2008 2:21   |                     |                    |                    |       |        |                     |                |                    |       |
| EcoScope Integrated Logging–While–Drilling Tool – 6.75 inch Calibration |                     |                    |                    |       |        |                     |                |                    |       |
| SSn LSn : Water Tank  |                     |                    |                    |       |        |                     |                |                    |       |
| Phase   | SSn Gain ----       |                    |                    | Value | Phase  | SSn Offset ----     |                |                    | Value |
| Master  |                     |                    |                    | 1.094 | Master |                     |                |                    | 0     |
|   | 0.6000<br>(Minimum) | 1.000<br>(Nominal) | 1.400<br>(Maximum) |       |        | -3.000<br>(Minimum) | 0<br>(Nominal) | 3.000<br>(Maximum) |       |
| Phase   | LSn Gain ----       |                    |                    | Value | Phase  | LSn Offset ----     |                |                    | Value |
| Master  |                     |                    |                    | 1.073 | Master |                     |                |                    | 0     |
|   | 0.6000<br>(Minimum) | 1.000<br>(Nominal) | 1.400<br>(Maximum) |       |        | -3.000<br>(Minimum) | 0<br>(Nominal) | 3.000<br>(Maximum) |       |




Master: 4-Aug-2008 2:21

| Neutron: Water Tank |  |   |  |                    |  |                     |  |   |  |                    |  |
|---------------------|--|---|--|--------------------|--|---------------------|--|---|--|--------------------|--|
| Phase               |  | Far 2 Gain  |  | Value              |  | Phase               |  | Far 2 Offset  |  | Value              |  |
| Master              |  |   |  | 0.9877             |  | Master              |  |   |  | 2.073              |  |
| 0.7000<br>(Minimum) |  | 1.000<br>(Nominal)  |  | 1.300<br>(Maximum) |  | -3.000<br>(Minimum) |  | 0<br>(Nominal)  |  | 3.000<br>(Maximum) |  |
| Phase               |  | Far 1 Gain  |  | Value              |  | Phase               |  | Far 1 Offset  |  | Value              |  |
| Master              |  |  |  | 0.9962             |  | Master              |  |  |  | 2.225              |  |
| 0.7000<br>(Minimum) |  | 1.000<br>(Nominal)  |  | 1.300<br>(Maximum) |  | -3.000<br>(Minimum) |  | 0<br>(Nominal)  |  | 3.000<br>(Maximum) |  |
| Phase               |  | Thermal Near gain   |  | Value              |  | Phase               |  | Thermal Near offset   |  | Value              |  |
| Master              |  |  |  | 1.031              |  | Master              |  |  |  | 204.4              |  |
| 0.7000<br>(Minimum) |  | 1.000<br>(Nominal)  |  | 1.300<br>(Maximum) |  | -500.0<br>(Minimum) |  | 0<br>(Nominal)  |  | 500.0<br>(Maximum) |  |
| Phase               |  | Epithermal Near gain  |  | Value              |  | Phase               |  | Epithermal Near offset  |  | Value              |  |
| Master              |  |  |  | 1.062              |  | Master              |  |  |  | 134.3              |  |
| 0.7000<br>(Minimum) |  | 1.000<br>(Nominal)  |  | 1.300<br>(Maximum) |  | -300.0<br>(Minimum) |  | 0<br>(Nominal)  |  | 300.0<br>(Maximum) |  |




Master: 4-Aug-2008 3:57

| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration |   |                   |                   |        |   |                   |                   |        |   |                    |                    |
|---|---|-------------------|-------------------|--------|---|-------------------|-------------------|--------|---|--------------------|--------------------|
| Gamma Density: Magnesium Block  |   |                   |                   |        |   |                   |                   |        |   |                    |                    |
| Phase   | LS window 3 – Mg CPS  |                   | Value             | Phase  | SS window 1 – Mg CPS  |                   | Value             | Phase  | SS window 3 – Mg CPS  |                    | Value              |
| Master  |  |                   | 2322              | Master |  |                   | 5729              | Master |  |                    | 12870              |
|   | 1000<br>(Minimum)   | 2000<br>(Nominal) | 3000<br>(Maximum) |        | 2500<br>(Minimum)   | 5250<br>(Nominal) | 8000<br>(Maximum) |        | 6000<br>(Minimum)   | 12000<br>(Nominal) | 18000<br>(Maximum) |



Master: 4-Aug-2008 3:57

| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration |  |                    |                    |       |        |  |                   |                   |       |        |  |                   |                    |       |
|---|--|--------------------|--------------------|-------|--------|--|-------------------|-------------------|-------|--------|--|-------------------|--------------------|-------|
| Gamma Density: Aluminum Block   |  |                    |                    |       |        |  |                   |                   |       |        |  |                   |                    |       |
| Phase   | LS window 3 – Al CPS   |                    |                    | Value | Phase  | SS window 1 – Al CPS   |                   |                   | Value | Phase  | SS window 3 – Al CPS   |                   |                    | Value |
| Master  |  |                    |                    | 432.2 | Master |  |                   |                   | 3037  | Master |  |                   |                    | 9556  |
|   | 200.0<br>(Minimum)   | 400.0<br>(Nominal) | 600.0<br>(Maximum) |       |        | 1500<br>(Minimum)  | 3000<br>(Nominal) | 4500<br>(Maximum) |       |        | 4000<br>(Minimum)  | 8500<br>(Nominal) | 13000<br>(Maximum) |       |










Master: 4-Aug-2008 3:57


| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration |   |                    |                    |       |        |   |                    |                    |       |        |   |                    |                    |       |
|---|---|--------------------|--------------------|-------|--------|---|--------------------|--------------------|-------|--------|---|--------------------|--------------------|-------|
| Gamma Density: Background   |   |                    |                    |       |        |   |                    |                    |       |        |   |                    |                    |       |
| Phase   | LS window 3 – Background  |                    | CPS                | Value | Phase  | SS window 1 – Background  |                    | CPS                | Value | Phase  | SS window 3 – Background  |                    | CPS                | Value |
| Master  |  |                    |                    | 61.92 | Master |  |                    |                    | 83.35 | Master |  |                    |                    | 398.4 |
|   | 50.00<br>(Minimum)  | 70.00<br>(Nominal) | 90.00<br>(Maximum) |       |        | 50.00<br>(Minimum)  | 75.00<br>(Nominal) | 100.0<br>(Maximum) |       |        | 270.0<br>(Minimum)  | 370.0<br>(Nominal) | 470.0<br>(Maximum) |       |

Master: 4-Aug-2008 3:57











| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration |   |                    |                    |        |   |                    |                    |
|---|---|--------------------|--------------------|--------|---|--------------------|--------------------|
| Gamma Density: Water Block Check  |   |                    |                    |        |   |                    |                    |
| Phase   | Long spacing water density G/C3   |                    | Value              | Phase  | Short spacing water density G/C3  |                    | Value              |
| Master  |  |                    | 1.029              | Master |  |                    | 1.286              |
|   | 0.9000<br>(Minimum)   | 1.150<br>(Nominal) | 1.400<br>(Maximum) |        | 0.9000<br>(Minimum)   | 1.150<br>(Nominal) | 1.400<br>(Maximum) |

Master: 3-Aug-2008 13:35

| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration |   |                |                    |         |                     |   |                    |  |         |                     |   |                    |  |         |
|---|---|----------------|--------------------|---------|---------------------|---|--------------------|--|---------|---------------------|---|--------------------|--|---------|
| Resistivity: Air  |   |                |                    |         |                     |   |                    |  |         |                     |   |                    |  |         |
| Phase   | Phase-Shift T1  |                |                    | Value   | Phase               | Phase-Shift T2  |                    |  | Value   | Phase               | Phase-Shift T3  |                    |  | Value   |
| Master  |  |                |                    | 0.7927  | Master              |  |                    |  | -0.8818 | Master              |  |                    |  | 0.7569  |
|   | -4.000<br>(Minimum)   | 0<br>(Nominal) | 4.000<br>(Maximum) |         | -4.000<br>(Minimum) | 0<br>(Nominal)  | 4.000<br>(Maximum) |  |         | -4.000<br>(Minimum) | 0<br>(Nominal)  | 4.000<br>(Maximum) |  |         |
| Phase   | Phase-Shift T4  |                |                    | Value   | Phase               | Phase-Shift T5  |                    |  | Value   | Phase               | Phase-Shift T1 at 400KHz  |                    |  | Value   |
| Master  |  |                |                    | -0.8984 | Master              |  |                    |  | 0.7688  | Master              |  |                    |  | 0.9056  |
|   | -4.000<br>(Minimum)   | 0<br>(Nominal) | 4.000<br>(Maximum) |         | -4.000<br>(Minimum) | 0<br>(Nominal)  | 4.000<br>(Maximum) |  |         | -4.000<br>(Minimum) | 0<br>(Nominal)  | 4.000<br>(Maximum) |  |         |
| Phase   | Phase-Shift T2 at 400KHz  |                |                    | Value   | Phase               | Phase-Shift T3 at 400KHz  |                    |  | Value   | Phase               | Phase-Shift T4 at 400KHz  |                    |  | Value   |
| Master  |  |                |                    | -0.9300 | Master              |  |                    |  | 0.9110  | Master              |  |                    |  | -0.9467 |
|   | -4.000<br>(Minimum)   | 0<br>(Nominal) | 4.000<br>(Maximum) |         | -4.000<br>(Minimum) | 0<br>(Nominal)  | 4.000<br>(Maximum) |  |         | -4.000<br>(Minimum) | 0<br>(Nominal)  | 4.000<br>(Maximum) |  |         |

|           |  |                |                    |           |           |           |           |           |
|-----------|--|----------------|--------------------|-----------|-----------|-----------|-----------|-----------|
| (Minimum) | (Nominal)  | (Maximum)      | (Minimum)          | (Nominal) | (Maximum) | (Minimum) | (Nominal) | (Maximum) |
| Phase     | Phase-Shift T5 at 400KHz   |                | Value              |           |           |           |           |           |
| Master    |  |                | 0.9285             |           |           |           |           |           |
|           | -4.000<br>(Minimum)  | 0<br>(Nominal) | 4.000<br>(Maximum) |           |           |           |           |           |

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|   |   |                    |                    |  |        |   |                    |                    |  |        |   |                    |                    |  |
|---|---|--------------------|--------------------|--|--------|---|--------------------|--------------------|--|--------|---|--------------------|--------------------|--|
| EcoScope Integrated Logging-While-Drilling Tool – 6.75 inch Calibration |   |                    |                    |  |        |   |                    |                    |  |        |   |                    |                    |  |
| Resistivity: Air  |   |                    |                    |  |        |   |                    |                    |  |        |   |                    |                    |  |
| Phase   | Attenuation T1  |                    | Value              |  | Phase  | Attenuation T2  |                    | Value              |  | Phase  | Attenuation T3  |                    | Value              |  |
| Master  |  |                    | 8.376              |  | Master |  |                    | 6.057              |  | Master |  |                    | 4.976              |  |
|   | 7.000<br>(Minimum)  | 9.000<br>(Nominal) | 11.00<br>(Maximum) |  |        | 4.000<br>(Minimum)  | 6.000<br>(Nominal) | 8.000<br>(Maximum) |  |        | 3.500<br>(Minimum)  | 5.500<br>(Nominal) | 7.500<br>(Maximum) |  |
| Phase   | Attenuation T4  |                    | Value              |  | Phase  | Attenuation T5  |                    | Value              |  | Phase  | Attenuation T1 at 400KHz  |                    | Value              |  |
| Master  |  |                    | 4.460              |  | Master |  |                    | 3.534              |  | Master |  |                    | 8.316              |  |
|   | 2.500<br>(Minimum)  | 4.500<br>(Nominal) | 6.500<br>(Maximum) |  |        | 2.000<br>(Minimum)  | 4.000<br>(Nominal) | 6.000<br>(Maximum) |  |        | 7.000<br>(Minimum)  | 9.000<br>(Nominal) | 11.00<br>(Maximum) |  |
| Phase   | Attenuation T2 at 400KHz  |                    | Value              |  | Phase  | Attenuation T3 at 400KHz  |                    | Value              |  | Phase  | Attenuation T4 at 400KHz  |                    | Value              |  |
| Master  |  |                    | 6.129              |  | Master |  |                    | 4.914              |  | Master |  |                    | 4.521              |  |
|   | 4.000<br>(Minimum)  | 6.000<br>(Nominal) | 8.000<br>(Maximum) |  |        | 3.500<br>(Minimum)  | 5.500<br>(Nominal) | 7.500<br>(Maximum) |  |        | 2.500<br>(Minimum)  | 4.500<br>(Nominal) | 6.500<br>(Maximum) |  |
| Phase   | Attenuation T5 at 400KHz  |                    | Value              |  |        |   |                    |                    |  |        |   |                    |                    |  |
| Master  |  |                    | 3.473              |  |        |   |                    |                    |  |        |   |                    |                    |  |
|   | 2.000<br>(Minimum)  | 4.000<br>(Nominal) | 6.000<br>(Maximum) |  |        |   |                    |                    |  |        |   |                    |                    |  |

# SCHLUMBERGER

Survey report 10-Aug-2008 05:11:28

Client.....: Nexus Energy Ltd  
Field.....: Longtom

Well.....: Longtom-4 H  
API number.....: 08ASQ0007  
Engineer.....: MVK/ML/STDA

Australia.....: West Triton  
STATE.....: Victoria

Spud date.....: 21-June-08  
Last survey date.....: 10-Aug-08  
Total accepted surveys...: 147  
MD of first survey.....: 0.00 m  
MD of last survey.....: 4648.00 m

## ----- Survey calculation methods-----

Method for positions.....: Minimum curvature  
Method for DLS.....: Mason & Taylor

## ----- Depth reference -----

Permanent datum.....: Least Astronomical Tide  
Depth reference.....: Driller's Depth  
GL above permanent.....: -55.96 m  
KB above permanent.....: Top Drive  
DF above permanent.....: 41.06 m

## ----- Vertical section origin-----

Latitude (+N/S-).....: 0.00 m  
Departure (+E/W-).....: 0.00 m

## ----- Platform reference point-----

Latitude (+N/S-).....:  
Departure (+E/W-).....:

Azimuth from Vsect Origin to target: 183.55 degrees

## ----- Geomagnetic data -----

Magnetic model.....: BGGM version 2007  
Magnetic date.....: 29-Jun-2008  
Magnetic field strength...: 1195.93 HCNT  
Magnetic dec (+E/W-).....: 13.10 degrees  
Magnetic dip.....: -68.59 degrees

## ----- MWD survey Reference Criteria -----

Reference G.....: 1000.02 mGal  
Reference H.....: 1195.93 HCNT  
Reference Dip.....: -68.59 degrees  
Tolerance of G.....: (+/-) 2.50 mGal  
Tolerance of H.....: (+/-) 6.00 HCNT  
Tolerance of Dip.....: (+/-) 0.45 degrees

## ----- Corrections -----

Magnetic dec (+E/W-).....: 13.10 degrees  
Grid convergence (+E/W-)..: -0.82 degrees  
Total az corr (+E/W-).....: 13.92 degrees  
(Total az corr = magnetic dec - grid conv)  
Survey Correction Type ...:  
I=Sag Corrected Inclination  
M=Schlumberger Magnetic Correction  
S=Shell Magnetic Correction  
F=Failed Axis Correction  
R=Magnetic Resonance Tool Correction  
D=Dmag Magnetic Correction

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| Seq # | Measured depth (m) | Incl angle (deg) | Azimuth angle (deg) | Course length (m) | TVD depth (m) | Vertical section (m) | Displ +N/S- (m) | Displ +E/W- (m) | Total displ (m) | At Azim (deg) | DLS (deg/100f) | Srvy tool type | Tool Corr (deg) |
|-------|--------------------|------------------|---------------------|-------------------|---------------|----------------------|-----------------|-----------------|-----------------|---------------|----------------|----------------|-----------------|
| 1     | 0.00               | 0.00             | 0.00                | 0.00              | 0.00          | 0.00                 | 0.00            | 0.00            | 0.00            | 0.00          | 0.00           | TIP            | None            |
| 2     | 97.03              | 0.00             | 0.00                | 97.03             | 97.03         | 0.00                 | 0.00            | 0.00            | 0.00            | 0.00          | 0.00           | MWD            | None            |
| 3     | 116.15             | 0.69             | 328.34              | 19.12             | 116.15        | -0.09                | 0.10            | -0.06           | 0.12            | 328.34        | 1.10           | MWD            | None            |
| 4     | 124.06             | 0.56             | 358.29              | 7.91              | 124.06        | -0.17                | 0.18            | -0.09           | 0.20            | 333.96        | 1.34           | MWD            | None            |
| 5     | 147.44             | 0.36             | 43.93               | 23.38             | 147.44        | -0.34                | 0.34            | -0.04           | 0.35            | 353.53        | 0.52           | MWD            | None            |
| 6     | 204.75             | 0.52             | 335.69              | 57.31             | 204.75        | -0.71                | 0.71            | -0.02           | 0.71            | 358.29        | 0.27           | MWD            | None            |
| 7     | 324.05             | 0.78             | 189.14              | 119.30            | 324.04        | -0.38                | 0.40            | -0.37           | 0.55            | 317.18        | 0.32           | MWD            | None            |



|    |         |       |        |       |         |        |         |       |        |        |      |     |      |
|----|---------|-------|--------|-------|---------|--------|---------|-------|--------|--------|------|-----|------|
| 8  | 412.91  | 0.23  | 326.5  | 58.86 | 382.90  | -0.07  | 0.11    | -0.50 | 0.51   | 281.89 | 0.50 | MWD | None |
| 9  | 412.77  | 0.34  | 250.06 | 29.86 | 412.76  | -0.09  | 0.13    | -0.62 | 0.63   | 281.47 | 0.37 | MWD | None |
| 10 | 442.90  | 0.19  | 118.87 | 30.13 | 442.89  | -0.03  | 0.07    | -0.66 | 0.66   | 276.14 | 0.49 | MWD | None |
| 11 | 531.83  | 0.85  | 328.15 | 88.93 | 531.82  | -0.50  | 0.56    | -0.88 | 1.04   | 302.55 | 0.35 | MWD | None |
| 12 | 563.30  | 0.97  | 289.41 | 31.47 | 563.29  | -0.77  | 0.85    | -1.25 | 1.51   | 304.08 | 0.59 | MWD | None |
| 13 | 651.66  | 0.44  | 355.43 | 88.36 | 651.64  | -1.31  | 1.43    | -1.98 | 2.45   | 305.85 | 0.31 | MWD | None |
| 14 | 741.14  | 0.59  | 334.49 | 89.48 | 741.12  | -2.05  | 2.19    | -2.21 | 3.11   | 314.76 | 0.08 | MWD | None |
| 15 | 750.39  | 0.71  | 327.45 | 9.25  | 750.37  | -2.14  | 2.28    | -2.26 | 3.21   | 315.27 | 0.47 | MWD | None |
| 16 | 783.28  | 0.52  | 304.12 | 32.89 | 783.25  | -2.38  | 2.54    | -2.49 | 3.56   | 315.50 | 0.29 | PUP | None |
| 17 | 812.94  | 2.32  | 203.29 | 29.66 | 812.91  | -1.88  | 2.06    | -2.84 | 3.51   | 305.96 | 2.54 | PUP | None |
| 18 | 842.62  | 5.16  | 197.90 | 29.68 | 842.52  | -0.02  | 0.24    | -3.49 | 3.50   | 273.94 | 2.94 | PUP | None |
| 19 | 872.25  | 7.16  | 192.11 | 29.63 | 871.98  | 3.09   | -2.83   | -4.29 | 5.14   | 236.55 | 2.15 | PUP | None |
| 20 | 901.94  | 8.22  | 183.91 | 29.69 | 901.40  | 7.05   | -6.76   | -4.82 | 8.30   | 215.50 | 1.56 | PUP | None |
| 21 | 931.42  | 10.19 | 179.91 | 29.48 | 930.50  | 11.76  | -11.47  | -4.96 | 12.50  | 203.39 | 2.14 | PUP | None |
| 22 | 960.94  | 13.95 | 179.75 | 29.52 | 959.36  | 17.91  | -17.64  | -4.94 | 18.32  | 195.65 | 3.88 | PUP | None |
| 23 | 990.68  | 17.52 | 178.95 | 29.74 | 987.98  | 25.96  | -25.71  | -4.84 | 26.16  | 190.67 | 3.67 | PUP | None |
| 24 | 1020.40 | 20.88 | 177.48 | 29.72 | 1016.05 | 35.68  | -35.47  | -4.53 | 35.76  | 187.28 | 3.48 | PUP | None |
| 25 | 1050.08 | 24.28 | 176.64 | 29.68 | 1043.45 | 47.01  | -46.85  | -3.94 | 47.02  | 184.80 | 3.51 | PUP | None |
| 26 | 1078.64 | 25.70 | 178.42 | 28.56 | 1069.33 | 59.00  | -58.90  | -3.42 | 59.00  | 183.33 | 1.71 | PUP | None |
| 27 | 1108.28 | 26.85 | 180.79 | 29.64 | 1095.91 | 72.09  | -72.02  | -3.34 | 72.10  | 182.65 | 1.60 | PUP | None |
| 28 | 1137.39 | 27.64 | 182.43 | 29.11 | 1121.79 | 85.41  | -85.34  | -3.72 | 85.42  | 182.49 | 1.14 | PUP | None |
| 29 | 1166.97 | 28.48 | 183.83 | 29.58 | 1147.89 | 99.32  | -99.23  | -4.48 | 99.34  | 182.58 | 1.10 | PUP | None |
| 30 | 1196.40 | 29.46 | 184.58 | 29.43 | 1173.64 | 113.57 | -113.45 | -5.52 | 113.58 | 182.79 | 1.08 | PUP | None |

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| Seq<br>#<br>- | Measured<br>depth<br>(m) | Incl<br>angle<br>(deg) | Azimuth<br>angle<br>(deg) | Course<br>length<br>(m) | TVD<br>depth<br>(m) | Vertical<br>section<br>(m) | Displ<br>+N/S-<br>(m) | Displ<br>+E/W-<br>(m) | Total<br>displ<br>(m) | At<br>Azim<br>(deg) | DLS<br>(deg/<br>100f) | Srvy<br>tool<br>type | Tool<br>Corr<br>(deg) |
|---------------|--------------------------|------------------------|---------------------------|-------------------------|---------------------|----------------------------|-----------------------|-----------------------|-----------------------|---------------------|-----------------------|----------------------|-----------------------|
| 31            | 1225.95                  | 30.16                  | 185.46                    | 29.55                   | 1199.28             | 128.26                     | -128.08               | -6.81                 | 128.26                | 183.04              | 0.85                  | PUP                  | None                  |
| 32            | 1255.99                  | 29.83                  | 185.82                    | 30.04                   | 1225.30             | 143.27                     | -143.03               | -8.29                 | 143.27                | 183.32              | 0.38                  | PUP                  | None                  |
| 33            | 1285.37                  | 30.03                  | 186.70                    | 29.38                   | 1250.76             | 157.91                     | -157.60               | -9.88                 | 157.91                | 183.59              | 0.50                  | PUP                  | None                  |
| 34            | 1315.16                  | 31.09                  | 187.90                    | 29.79                   | 1276.41             | 173.02                     | -172.62               | -11.81                | 173.03                | 183.91              | 1.25                  | PUP                  | None                  |
| 35            | 1344.99                  | 31.21                  | 187.53                    | 29.83                   | 1301.94             | 188.41                     | -187.91               | -13.88                | 188.42                | 184.23              | 0.23                  | PUP                  | None                  |
| 36            | 1374.68                  | 30.42                  | 184.92                    | 29.69                   | 1327.44             | 203.60                     | -203.03               | -15.54                | 203.62                | 184.38              | 1.59                  | PUP                  | None                  |
| 37            | 1404.59                  | 30.04                  | 183.00                    | 29.91                   | 1353.28             | 218.66                     | -218.05               | -16.58                | 218.68                | 184.35              | 1.06                  | PUP                  | None                  |
| 38            | 1433.94                  | 31.67                  | 182.29                    | 29.35                   | 1378.48             | 233.71                     | -233.09               | -17.27                | 233.72                | 184.24              | 1.73                  | PUP                  | None                  |
| 39            | 1463.79                  | 30.65                  | 181.20                    | 29.85                   | 1404.02             | 249.14                     | -248.52               | -17.74                | 249.16                | 184.08              | 1.19                  | PUP                  | None                  |
| 40            | 1493.62                  | 30.04                  | 180.72                    | 29.83                   | 1429.76             | 264.20                     | -263.59               | -18.00                | 264.20                | 183.91              | 0.67                  | PUP                  | None                  |
| 41            | 1523.35                  | 30.08                  | 180.58                    | 29.73                   | 1455.50             | 279.07                     | -278.48               | -18.16                | 279.07                | 183.73              | 0.08                  | PUP                  | None                  |
| 42            | 1553.11                  | 30.38                  | 181.81                    | 29.76                   | 1481.21             | 294.04                     | -293.46               | -18.48                | 294.04                | 183.60              | 0.70                  | PUP                  | None                  |
| 43            | 1583.05                  | 30.31                  | 183.44                    | 29.94                   | 1507.05             | 309.16                     | -308.57               | -19.17                | 309.16                | 183.55              | 0.84                  | PUP                  | None                  |
| 44            | 1612.84                  | 30.34                  | 184.08                    | 29.79                   | 1532.76             | 324.21                     | -323.58               | -20.16                | 324.21                | 183.56              | 0.33                  | PUP                  | None                  |
| 45            | 1642.12                  | 30.48                  | 183.53                    | 29.28                   | 1558.01             | 339.03                     | -338.37               | -21.14                | 339.03                | 183.57              | 0.32                  | PUP                  | None                  |
| 46            | 1671.81                  | 30.16                  | 182.75                    | 29.69                   | 1583.64             | 354.01                     | -353.33               | -21.96                | 354.01                | 183.56              | 0.52                  | PUP                  | None                  |
| 47            | 1701.38                  | 29.96                  | 181.97                    | 29.57                   | 1609.24             | 368.82                     | -368.13               | -22.57                | 368.82                | 183.51              | 0.45                  | PUP                  | None                  |
| 48            | 1730.84                  | 30.49                  | 182.20                    | 29.46                   | 1634.69             | 383.65                     | -382.95               | -23.11                | 383.65                | 183.45              | 0.56                  | PUP                  | None                  |
| 49            | 1760.64                  | 30.44                  | 183.16                    | 29.80                   | 1660.38             | 398.75                     | -398.04               | -23.82                | 398.76                | 183.42              | 0.50                  | PUP                  | None                  |
| 50            | 1790.34                  | 29.76                  | 183.49                    | 29.70                   | 1686.07             | 413.65                     | -412.91               | -24.68                | 413.65                | 183.42              | 0.72                  | PUP                  | None                  |
| 51            | 1820.04                  | 29.12                  | 183.26                    | 29.70                   | 1711.94             | 428.25                     | -427.49               | -25.54                | 428.25                | 183.42              | 0.67                  | PUP                  | None                  |
| 52            | 1849.86                  | 28.05                  | 182.80                    | 29.82                   | 1738.12             | 442.51                     | -441.73               | -26.30                | 442.51                | 183.41              | 1.12                  | PUP                  | None                  |
| 53            | 1879.39                  | 28.44                  | 182.54                    | 29.53                   | 1764.14             | 456.49                     | -455.69               | -26.95                | 456.49                | 183.38              | 0.42                  | PUP                  | None                  |
| 54            | 1909.08                  | 29.18                  | 181.91                    | 29.69                   | 1790.15             | 470.79                     | -469.99               | -27.50                | 470.79                | 183.35              | 0.82                  | PUP                  | None                  |
| 55            | 1938.97                  | 29.25                  | 182.37                    | 29.89                   | 1816.24             | 485.37                     | -484.57               | -28.05                | 485.38                | 183.31              | 0.24                  | PUP                  | None                  |
| 56            | 1968.51                  | 27.81                  | 181.63                    | 29.54                   | 1842.19             | 499.48                     | -498.67               | -28.54                | 499.48                | 183.28              | 1.53                  | PUP                  | None                  |
| 57            | 1998.05                  | 27.26                  | 181.66                    | 29.54                   | 1868.38             | 513.13                     | -512.32               | -28.93                | 513.13                | 183.23              | 0.57                  | PUP                  | None                  |
| 58            | 2028.03                  | 26.98                  | 181.70                    | 29.98                   | 1895.07             | 526.79                     | -525.98               | -29.33                | 526.80                | 183.19              | 0.29                  | PUP                  | None                  |
| 59            | 2057.68                  | 29.01                  | 184.81                    | 29.65                   | 1921.25             | 540.70                     | -539.87               | -30.14                | 540.71                | 183.19              | 2.57                  | PUP                  | None                  |
| 60            | 2087.27                  | 29.58                  | 188.03                    | 29.59                   | 1947.06             | 555.15                     | -554.25               | -31.76                | 555.16                | 183.28              | 1.73                  | PUP                  | None                  |

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| Seq<br>#<br>- | Measured<br>depth<br>(m) | Incl<br>angle<br>(deg) | Azimuth<br>angle<br>(deg) | Course<br>length<br>(m) | TVD<br>depth<br>(m) | Vertical<br>section<br>(m) | Displ<br>+N/S-<br>(m) | Displ<br>+E/W-<br>(m) | Total<br>displ<br>(m) | At<br>Azim<br>(deg) | DLS<br>(deg/<br>100f) | Srvy<br>tool<br>type | Tool<br>Corr<br>(deg) |
|---------------|--------------------------|------------------------|---------------------------|-------------------------|---------------------|----------------------------|-----------------------|-----------------------|-----------------------|---------------------|-----------------------|----------------------|-----------------------|
| 61            | 2116.78                  | 29.55                  | 188.02                    | 29.51                   | 1972.72             | 569.67                     | -568.67               | -33.79                | 569.67                | 183.40              | 0.03                  | PUP                  | None                  |
| 62            | 2146.82                  | 30.97                  | 187.12                    | 30.04                   | 1998.67             | 584.77                     | -583.67               | -35.78                | 584.77                | 183.51              | 1.51                  | PUP                  | None                  |
| 63            | 2176.36                  | 31.76                  | 185.57                    | 29.54                   | 2023.89             | 600.13                     | -598.95               | -37.48                | 600.13                | 183.58              | 1.17                  | PUP                  | None                  |
| 64            | 2206.21                  | 31.48                  | 183.82                    | 29.85                   | 2049.31             | 615.77                     | -614.55               | -38.76                | 615.77                | 183.61              | 0.98                  | PUP                  | None                  |
| 65            | 2235.88                  | 31.35                  | 183.41                    | 29.67                   | 2074.63             | 631.24                     | -629.98               | -39.74                | 631.24                | 183.61              | 0.26                  | PUP                  | None                  |
| 66            | 2265.38                  | 32.11                  | 184.62                    | 29.50                   | 2099.72             | 646.75                     | -645.46               | -40.82                | 646.75                | 183.62              | 1.02                  | PUP                  | None                  |
| 67            | 2295.13                  | 31.69                  | 185.04                    | 29.75                   | 2124.98             | 662.47                     | -661.12               | -42.15                | 662.47                | 183.65              | 0.49                  | PUP                  | None                  |
| 68            | 2325.11                  | 33.21                  | 184.84                    | 29.98                   | 2150.28             | 678.55                     | -677.15               | -43.53                | 678.55                | 183.68              | 1.55                  | PUP                  | None                  |
| 69            | 2355.31                  | 35.92                  | 185.28                    | 30.20                   | 2175.15             | 695.67                     | -694.22               | -45.04                | 695.68                | 183.71              | 2.75                  | PUP                  | None                  |
| 70            | 2385.09                  | 36.82                  | 184.07                    | 29.78                   | 2199.13             | 713.33                     | -711.82               | -46.48                | 713.33                | 183.74              | 1.18                  | PUP                  | None                  |
| 71            | 2413.59                  | 37.70                  | 183.21                    | 28.50                   | 2221.81             | 730.58                     | -729.03               | -47.58                | 730.59                | 183.73              | 1.09                  | PUP                  | None                  |
| 72            | 2472.44                  | 42.55                  | 182.99                    | 58.85                   | 2266.79             | 768.50                     | -766.89               | -49.62                | 768.50                | 183.70              | 2.51                  | PUP                  | None                  |
| 73            | 2502.19                  | 45.34                  | 182.77                    | 29.75                   | 2288.21             | 789.14                     | -787.51               | -50.66                | 789.14                | 183.68              | 2.86                  | PUP                  | None                  |
| 74            | 2531.76                  | 48.61                  | 183.24                    | 29.57                   | 2308.39             | 810.75                     | -809.10               | -51.79                | 810.75                | 183.66              | 3.39                  | PUP                  | None                  |
| 75            | 2561.19                  | 50.89                  | 182.57                    | 29.43                   | 2327.40             | 833.21                     | -831.53               | -52.93                | 833.21                | 183.64              | 2.42                  | PUP                  | None                  |
| 76            | 2578.22                  | 52.52                  | 183.03                    | 17.03                   | 2337.95             | 846.57                     | -844.88               | -53.58                | 846.57                | 183.63              | 2.99                  | PUP                  | None                  |
| 77            | 2621.57                  | 53.72                  | 182.84                    | 43.35                   | 2363.97             | 881.25                     | -879.51               | -55.36                | 881.25                | 183.60              | 0.85                  | PUP                  | None                  |
| 78            | 2651.00                  | 53.37                  | 183.55                    | 29.73                   | 2381.63             | 905.16                     | -903.38               | -56.69                | 905.16                | 183.59              | 0.69                  | PUP                  | None                  |
| 79            | 2681.00                  | 52.50                  | 184.22                    | 29.70                   | 2399.54             | 928.86                     | -927.03               | -58.30                | 928.86                | 183.60              | 1.05                  | PUP                  | None                  |
| 80            | 2704.04                  | 51.56                  | 184.69                    | 23.04                   | 2413.71             | 947.02                     | -945.13               | -59.71                | 947.02                | 183.61              | 1.34                  | PUP                  | None                  |

|    |         |       |        |       |         |         |          |        |         |        |      |     |      |
|----|---------|-------|--------|-------|---------|---------|----------|--------|---------|--------|------|-----|------|
| 81 | 2733.77 | 49.85 | 181.8  | 29.73 | 2432.54 | 970.02  | -968.10  | -61.03 | 970.02  | 183.61 | 2.84 | PUP | None |
| 82 | 2763.58 | 51.38 | 177.62 | 29.81 | 2451.46 | 993.00  | -991.13  | -60.92 | 993.00  | 183.52 | 3.70 | PUP | None |
| 83 | 2792.31 | 53.01 | 176.31 | 28.73 | 2469.07 | 1015.55 | -1013.79 | -59.71 | 1015.55 | 183.37 | 2.05 | PUP | None |
| 84 | 2820.01 | 54.07 | 176.82 | 27.70 | 2485.53 | 1037.66 | -1036.03 | -58.38 | 1037.68 | 183.23 | 1.25 | PUP | None |
| 85 | 2850.81 | 54.91 | 179.97 | 30.80 | 2503.42 | 1062.62 | -1061.09 | -57.68 | 1062.65 | 183.11 | 2.67 | PUP | None |

|    |         |       |        |       |         |         |          |        |         |        |      |       |      |
|----|---------|-------|--------|-------|---------|---------|----------|--------|---------|--------|------|-------|------|
| 86 | 2881.69 | 57.25 | 185.74 | 30.88 | 2520.67 | 1088.23 | -1086.66 | -58.97 | 1088.26 | 183.11 | 5.26 | PUP   | None |
| 87 | 2911.49 | 62.80 | 188.17 | 29.80 | 2535.55 | 1113.98 | -1112.27 | -62.11 | 1114.00 | 183.20 | 6.07 | PUP   | None |
| 88 | 2941.41 | 65.11 | 188.76 | 29.92 | 2548.69 | 1140.76 | -1138.86 | -66.07 | 1140.77 | 183.32 | 2.41 | PUP   | None |
| 89 | 2957.37 | 66.49 | 189.09 | 15.96 | 2555.23 | 1155.26 | -1153.24 | -68.33 | 1155.26 | 183.39 | 2.70 | Xceed | None |
| 90 | 2987.28 | 68.43 | 190.05 | 29.91 | 2566.69 | 1182.73 | -1180.48 | -72.92 | 1182.73 | 183.53 | 2.17 | Xceed | None |

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SCHLUMBERGER Survey Report

10-Aug-2008 05:11:28

| Seq<br># | Measured<br>depth<br>(m) | Incl<br>angle<br>(deg) | Azimuth<br>angle<br>(deg) | Course<br>length<br>(m) | TVD<br>depth<br>(m) | Vertical<br>section<br>(m) | Displ<br>+N/S-<br>(m) | Displ<br>+E/W-<br>(m) | Total<br>displ<br>(m) | At<br>Azim<br>(deg) | DLS<br>(deg/<br>100f) | Srvy<br>tool<br>type | Tool<br>Corr<br>(deg) |
|----------|--------------------------|------------------------|---------------------------|-------------------------|---------------------|----------------------------|-----------------------|-----------------------|-----------------------|---------------------|-----------------------|----------------------|-----------------------|
| 91       | 3016.23                  | 69.92                  | 189.15                    | 28.95                   | 2576.99             | 1209.63                    | -1207.16              | -77.44                | 1209.64               | 183.67              | 1.80                  | Xceed                | None                  |
| 92       | 3046.70                  | 71.87                  | 185.88                    | 30.47                   | 2586.96             | 1238.35                    | -1235.69              | -81.20                | 1238.36               | 183.76              | 3.65                  | Xceed                | None                  |
| 93       | 3076.34                  | 72.83                  | 185.30                    | 29.64                   | 2595.95             | 1266.58                    | -1263.80              | -83.95                | 1266.59               | 183.80              | 1.14                  | Xceed                | None                  |
| 94       | 3106.22                  | 72.92                  | 185.49                    | 29.88                   | 2604.75             | 1295.12                    | -1292.23              | -86.63                | 1295.13               | 183.84              | 0.21                  | Xceed                | None                  |
| 95       | 3136.04                  | 75.98                  | 186.22                    | 29.82                   | 2612.74             | 1323.82                    | -1320.81              | -89.56                | 1323.84               | 183.88              | 3.21                  | Xceed                | None                  |
| 96       | 3164.24                  | 80.13                  | 185.24                    | 28.20                   | 2618.57             | 1351.38                    | -1348.25              | -92.31                | 1351.41               | 183.92              | 4.60                  | Xceed                | None                  |
| 97       | 3194.93                  | 79.46                  | 185.98                    | 30.69                   | 2624.01             | 1381.57                    | -1378.31              | -95.27                | 1381.60               | 183.95              | 0.98                  | Xceed                | None                  |
| 98       | 3224.35                  | 81.52                  | 184.32                    | 29.42                   | 2628.87             | 1410.57                    | -1407.21              | -97.87                | 1410.61               | 183.98              | 2.73                  | Xceed                | None                  |
| 99       | 3254.13                  | 84.39                  | 184.05                    | 29.78                   | 2632.52             | 1440.12                    | -1436.68              | -100.03               | 1440.16               | 183.98              | 2.95                  | Xceed                | None                  |
| 100      | 3283.78                  | 87.22                  | 180.52                    | 29.65                   | 2634.69             | 1469.67                    | -1466.22              | -101.20               | 1469.71               | 183.95              | 4.64                  | Xceed                | None                  |
| 101      | 3313.51                  | 90.41                  | 179.55                    | 29.73                   | 2635.31             | 1499.34                    | -1495.94              | -101.22               | 1499.36               | 183.87              | 3.42                  | Xceed                | None                  |
| 102      | 3343.47                  | 93.13                  | 182.41                    | 29.96                   | 2634.38             | 1529.25                    | -1525.88              | -101.73               | 1529.26               | 183.81              | 4.01                  | Xceed                | None                  |
| 103      | 3373.36                  | 94.02                  | 181.60                    | 29.89                   | 2632.52             | 1559.07                    | -1555.69              | -102.78               | 1559.08               | 183.78              | 1.23                  | Xceed                | None                  |
| 104      | 3402.75                  | 93.92                  | 178.26                    | 29.39                   | 2630.48             | 1588.32                    | -1585.00              | -102.74               | 1588.33               | 183.71              | 3.46                  | Xceed                | None                  |
| 105      | 3431.88                  | 91.13                  | 178.07                    | 29.13                   | 2629.20             | 1617.30                    | -1614.09              | -101.81               | 1617.30               | 183.61              | 2.93                  | Xceed                | None                  |
| 106      | 3461.34                  | 91.68                  | 178.76                    | 29.46                   | 2628.48             | 1646.63                    | -1643.53              | -100.99               | 1646.63               | 183.52              | 0.91                  | Xceed                | None                  |
| 107      | 3492.03                  | 91.51                  | 180.60                    | 30.69                   | 2627.62             | 1677.23                    | -1674.20              | -100.82               | 1677.24               | 183.45              | 1.83                  | Xceed                | None                  |
| 108      | 3521.63                  | 91.27                  | 178.88                    | 29.60                   | 2626.91             | 1706.76                    | -1703.79              | -100.69               | 1706.77               | 183.38              | 1.79                  | Xceed                | None                  |
| 109      | 3551.39                  | 91.44                  | 180.83                    | 29.76                   | 2626.20             | 1736.45                    | -1733.54              | -100.61               | 1736.46               | 183.32              | 2.00                  | Xceed                | None                  |
| 110      | 3564.74                  | 91.37                  | 180.85                    | 13.35                   | 2625.88             | 1749.78                    | -1746.89              | -100.81               | 1749.80               | 183.30              | 0.17                  | PUP                  | None                  |
| 111      | 3594.59                  | 91.46                  | 180.97                    | 29.85                   | 2625.14             | 1779.59                    | -1776.73              | -101.28               | 1779.61               | 183.26              | 0.15                  | PUP                  | None                  |
| 112      | 3624.29                  | 91.46                  | 182.60                    | 29.70                   | 2624.38             | 1809.26                    | -1806.40              | -102.21               | 1809.29               | 183.24              | 1.67                  | PUP                  | None                  |
| 113      | 3653.86                  | 91.66                  | 184.27                    | 29.57                   | 2623.58             | 1838.82                    | -1835.91              | -103.98               | 1838.85               | 183.24              | 1.73                  | PUP                  | None                  |
| 114      | 3684.08                  | 90.29                  | 183.77                    | 30.22                   | 2623.06             | 1869.04                    | -1866.05              | -106.10               | 1869.06               | 183.25              | 1.47                  | PUP                  | None                  |
| 115      | 3711.90                  | 89.74                  | 185.04                    | 27.82                   | 2623.05             | 1896.85                    | -1893.78              | -108.23               | 1896.87               | 183.27              | 1.52                  | PUP                  | None                  |
| 116      | 3740.99                  | 88.54                  | 184.85                    | 29.09                   | 2623.49             | 1925.93                    | -1922.76              | -110.74               | 1925.95               | 183.30              | 1.27                  | PUP                  | None                  |
| 117      | 3770.39                  | 85.50                  | 184.63                    | 29.40                   | 2625.02             | 1955.28                    | -1952.02              | -113.17               | 1955.30               | 183.32              | 3.16                  | PUP                  | None                  |
| 118      | 3799.79                  | 83.81                  | 184.62                    | 29.40                   | 2627.76             | 1984.55                    | -1981.19              | -115.53               | 1984.56               | 183.34              | 1.75                  | PUP                  | None                  |
| 119      | 3829.12                  | 82.94                  | 183.90                    | 29.33                   | 2631.14             | 2013.68                    | -2010.25              | -117.69               | 2013.69               | 183.35              | 1.17                  | PUP                  | None                  |
| 120      | 3859.22                  | 84.01                  | 183.23                    | 30.10                   | 2634.56             | 2043.58                    | -2040.09              | -119.55               | 2043.59               | 183.35              | 1.28                  | PUP                  | None                  |

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SCHLUMBERGER Survey Report

10-Aug-2008 05:11:28

| Seq<br># | Measured<br>depth<br>(m) | Incl<br>angle<br>(deg) | Azimuth<br>angle<br>(deg) | Course<br>length<br>(m) | TVD<br>depth<br>(m) | Vertical<br>section<br>(m) | Displ<br>+N/S-<br>(m) | Displ<br>+E/W-<br>(m) | Total<br>displ<br>(m) | At<br>Azim<br>(deg) | DLS<br>(deg/<br>100f) | Srvy<br>tool<br>type | Tool<br>Corr<br>(deg) |
|----------|--------------------------|------------------------|---------------------------|-------------------------|---------------------|----------------------------|-----------------------|-----------------------|-----------------------|---------------------|-----------------------|----------------------|-----------------------|
| 121      | 3888.65                  | 86.13                  | 183.06                    | 29.43                   | 2637.09             | 2072.90                    | -2069.37              | -121.16               | 2072.91               | 183.35              | 2.20                  | PUP                  | None                  |
| 122      | 3918.67                  | 88.74                  | 185.50                    | 30.02                   | 2638.44             | 2102.88                    | -2099.27              | -123.40               | 2102.89               | 183.36              | 3.63                  | PUP                  | None                  |
| 123      | 3948.20                  | 89.63                  | 186.27                    | 29.53                   | 2638.86             | 2132.38                    | -2128.64              | -126.43               | 2132.39               | 183.40              | 1.21                  | PUP                  | None                  |
| 124      | 3977.71                  | 86.96                  | 185.58                    | 29.51                   | 2639.73             | 2161.85                    | -2157.98              | -129.47               | 2161.86               | 183.43              | 2.85                  | PUP                  | None                  |
| 125      | 4006.54                  | 83.81                  | 184.14                    | 28.83                   | 2642.05             | 2190.58                    | -2186.61              | -131.90               | 2190.58               | 183.45              | 3.66                  | PUP                  | None                  |
| 126      | 4035.61                  | 82.10                  | 183.23                    | 29.07                   | 2645.62             | 2219.43                    | -2215.40              | -133.76               | 2219.43               | 183.46              | 2.03                  | PUP                  | None                  |
| 127      | 4065.35                  | 82.21                  | 183.76                    | 29.74                   | 2649.68             | 2248.89                    | -2244.80              | -135.56               | 2248.89               | 183.46              | 0.55                  | PUP                  | None                  |
| 128      | 4094.84                  | 79.90                  | 183.49                    | 29.49                   | 2654.26             | 2278.02                    | -2273.87              | -137.40               | 2278.02               | 183.46              | 2.40                  | PUP                  | None                  |
| 129      | 4124.38                  | 77.56                  | 183.62                    | 29.54                   | 2660.04             | 2306.99                    | -2302.79              | -139.19               | 2306.99               | 183.46              | 2.42                  | PUP                  | None                  |
| 130      | 4153.91                  | 78.91                  | 185.00                    | 29.53                   | 2666.06             | 2335.89                    | -2331.61              | -141.37               | 2335.89               | 183.47              | 1.97                  | PUP                  | None                  |
| 131      | 4183.07                  | 81.41                  | 187.28                    | 29.16                   | 2671.04             | 2364.59                    | -2360.17              | -144.44               | 2364.59               | 183.50              | 3.51                  | PUP                  | None                  |
| 132      | 4212.97                  | 85.21                  | 190.62                    | 29.90                   | 2674.52             | 2394.14                    | -2389.50              | -149.06               | 2394.14               | 183.57              | 5.14                  | PUP                  | None                  |
| 133      | 4242.27                  | 89.94                  | 193.94                    | 29.30                   | 2675.76             | 2423.07                    | -2418.09              | -155.29               | 2423.07               | 183.67              | 6.01                  | PUP                  | None                  |
| 134      | 4270.99                  | 92.69                  | 195.73                    | 28.72                   | 2675.10             | 2451.22                    | -2445.84              | -162.64               | 2451.24               | 183.80              | 3.48                  | PUP                  | None                  |
| 135      | 4301.34                  | 92.03                  | 195.79                    | 30.35                   | 2673.86             | 2480.86                    | -2475.03              | -170.87               | 2480.92               | 183.95              | 0.67                  | PUP                  | None                  |
| 136      | 4331.01                  | 92.98                  | 195.62                    | 29.67                   | 2672.56             | 2509.83                    | -2503.56              | -178.90               | 2509.94               | 184.09              | 0.99                  | PUP                  | None                  |
| 137      | 4360.69                  | 90.97                  | 195.41                    | 29.68                   | 2671.54             | 2538.85                    | -2532.14              | -186.83               | 2539.02               | 184.22              | 2.08                  | PUP                  | None                  |
| 138      | 4390.61                  | 87.74                  | 193.25                    | 29.92                   | 2671.87             | 2568.23                    | -2561.12              | -194.24               | 2568.48               | 184.34              | 3.96                  | PUP                  | None                  |
| 139      | 4419.25                  | 84.58                  | 189.93                    | 28.64                   | 2673.79             | 2596.52                    | -2589.11              | -199.98               | 2596.82               | 184.42              | 4.87                  | PUP                  | None                  |
| 140      | 4448.12                  | 85.64                  | 190.34                    | 28.87                   | 2676.25             | 2625.10                    | -2617.42              | -205.04               | 2625.44               | 184.48              | 1.20                  | PUP                  | None                  |
| 141      | 4478.07                  | 84.87                  | 191.52                    | 29.95                   | 2678.73             | 2654.70                    | -2646.73              | -210.70               | 2655.10               | 184.55              | 1.43                  | PUP                  | None                  |
| 142      | 4507.60                  | 84.61                  | 193.02                    | 29.53                   | 2681.44             | 2683.76                    | -2675.46              | -216.95               | 2684.24               | 184.64              | 1.56                  | PUP                  | None                  |
| 143      | 4538.99                  | 84.55                  | 192.67                    | 31.39                   | 2684.40             | 2714.60                    | -2705.93              | -223.89               | 2715.18               | 184.73              | 0.34                  | PUP                  | None                  |
| 144      | 4568.77                  | 84.96                  | 189.40                    | 29.78                   | 2687.12             | 2744.00                    | -2735.03              | -229.57               | 2744.65               | 184.80              | 3.36                  | PUP                  | None                  |
| 145      | 4598.48                  | 84.84                  | 186.02                    | 29.71                   | 2689.77             | 2773.51                    | -2764.35              | -233.54               | 2774.20               | 184.83              | 3.46                  | PUP                  | None                  |
| 146      | 4627.92                  | 82.10                  | 185.79                    | 29.44                   | 2693.11             | 2802.73                    | -2793.44              | -236.55               | 2803.44               | 184.84              | 2.85                  | PUP                  | None                  |
| 147      | 4648.00                  | 82.10                  | 185.79                    | 20.08                   | 2695.87             | 2822.60                    | -2813.23              | -238.55               | 2823.33               | 184.85              | 0.00                  | Projection to TD     |                       |

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|                           |                  |                     |                |
|---------------------------|------------------|---------------------|----------------|
| Company:                  | Nexus Energy Ltd | <b>Schlumberger</b> |                |
| Well:                     | Longtom–4 H      |                     |                |
| Field:                    | Longtom          |                     |                |
| Rig:                      | West Triton      |                     | 9.5 in Section |
| State:                    | Victoria         |                     |                |
| EcoScope* Service         |                  |                     |                |
| 1:200 True Vertical Depth |                  |                     |                |
| Recorded Mode Log         |                  |                     |                |