

Tool Record Rates:
EcoScope Res, Density & Neutron @ 2 sec

Tool Software Version:
TeleScope: 9.0_C03 EcoScope: 11

Crew: L. Loh and D. Buster

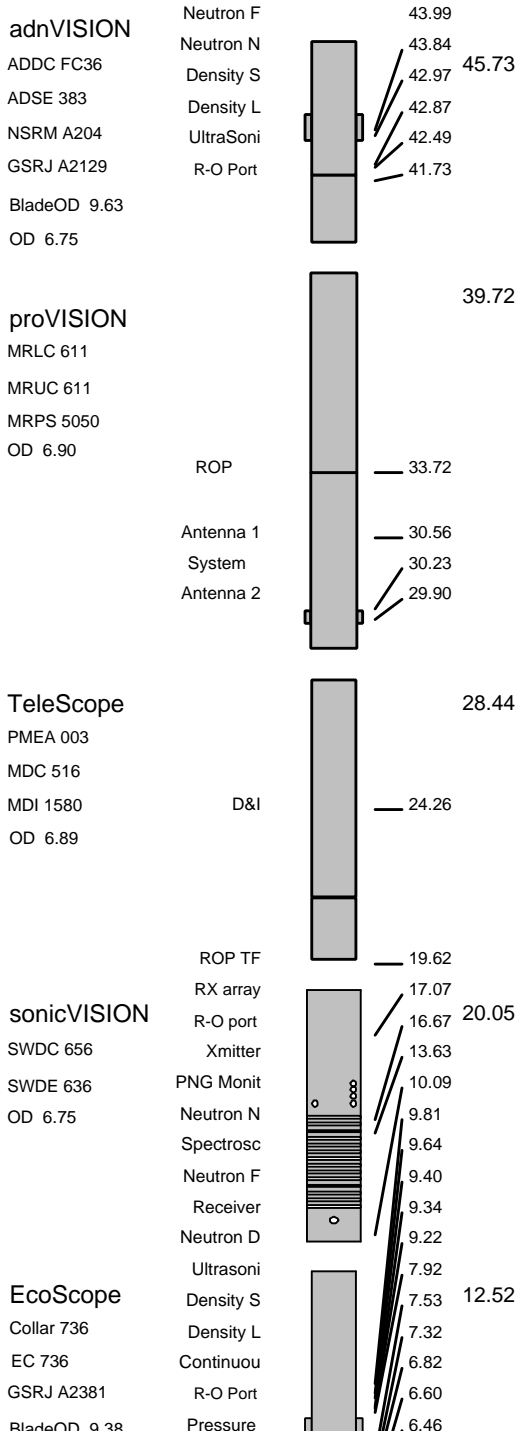
EQUIPMENT DESCRIPTION

RUN1

RUN

RUN

DOWNHOLE EQUIPMENT



| Variable Name | Variable Description | Run Name & Value |
|---------------|----------------------|------------------|
|---------------|----------------------|------------------|

Run Number

1

General Information

| | | |
|------------|--|-------------|
| BHT_RM | Bottom Hole Temperature (RM) | 41.000000 |
| BSAL_RM | Mud Salinity (RM) | 0.000000 |
| BS_RM | Bit Size (RM) | 9.875000 |
| COEF_M | User Defined FEXP in Clean Sand | 1.650000 |
| C_WS | Overpressure correction to Sw and M | 1.000000 |
| FEXP | Formation Factor Exponent(RM) | 2.000000 |
| FNUM | Formation Factor Enumerator(RM) | 1.000000 |
| FPHI_RM | Formation Factor Porosity Source (RM) | XPLOT |
| MST_RM | Mud Sample temperature (RM) | 75.000000 |
| MW_RM | Mud Weight (RM) | 8.500000 |
| OBMF_RM | Oil Based Mud (RM) | NO |
| RHOF_RM | Mud Filtrate Density (RM) | 1.000000 |
| RHOM_RM | Matrix density (RM) | 2.650000 |
| RMS_RM | Resistivity of Mud Sample (RM) | 1.000000 |
| RWA_COMP_M | Rwa computation model | BASIC |
| RWA_DEN_AD | Rwa Density Input ADN | RHOB |
| RWA_DEN_CD | Rwa Density Input CDN | RHOB |
| RWA_DEN_IN | Rwa Density Input | RHOB |
| RWA_FORM_M | Rwa computation formation model | CLASTIC |
| RWA_RES_IN | Rwa computation resistivity input | RT |
| RWS_RM | Resistivity of Connate Water (RM) | 1.000000 |
| SHT_RM | Surface Hole Temperature (RM) | 15.000000 |
| TD_RM | Total Measured Depth (RM) | 8405.509766 |
| TWS_RM | Temperature of Connate Water (RM) | 75.000000 |
| VF_ILLI | Fraction of illite in shales | 0.500000 |
| VF_KAOL | Fraction of kaolinite in shales | 0.500000 |
| VF_MONT | Fraction of montmorillonite in shales | 0.000000 |
| XPDM_RM | Cross plot density porosity multiplier | 0.675000 |
| XPNM_RM | Cross plot neutron porosity multiplier | 0.325000 |

DVD

| LWD_RM/STATION_FILE/PARAMETER | Station Time-frame file name | Station |
|-------------------------------|---|---------------------|
| ----- | -----Density Parameter----- | -----Density |
| ----- | -----Neutron Parameter----- | -----Neutron |
| ----- | -----Interpretation Parameter----- | -----Interpretation |
| ----- | -----Sigma Parameter----- | -----Sigma |
| A12A | ARC Air Cal Attenuation From T1 at 2 MHz | 8.096470 |
| A14A | ARC Air Cal Attenuation From T1 at 400 KHz | 8.154540 |
| A22A | ARC Air Cal Attenuation From T2 at 2 MHz | 6.357980 |
| A24A | ARC Air Cal Attenuation From T2 at 400 KHz | 6.313930 |
| A32A | ARC Air Cal Attenuation From T3 at 2 MHz | 4.697780 |
| A34A | ARC Air Cal Attenuation From T3 at 400 KHz | 4.754960 |
| A42A | ARC Air Cal Attenuation From T4 at 2 MHz | 4.759350 |
| A44A | ARC Air Cal Attenuation From T4 at 400 KHz | 4.713040 |
| A52A | ARC Air Cal Attenuation From T5 at 2 MHz | 3.258230 |
| A54A | ARC Air Cal Attenuation From T5 at 400 KHz | 3.315620 |
| ABNT | Abnormal Transmitter Indicator | No_Tx_Failed |
| ALPHA_DEN | Density Enhanced Vertical Resolution Processing Switch | YES |
| ANISO_COMP | Anisotropy Computation Option | YES |
| ATMP_ARC | ARC Select Temperature Channel | Annulus_Temp |
| AZMF | Formation DIP Azimuth | 0.000000 |
| BH_COMPUTE | Borehole Inversion Computation Option | YES |
| CALG | DVDM Gamma Ray Cal Gain Factor | -1.000000 |
| CDPTH_ARC | Process Start Depth | 100.000000 |
| DEVI | Well Section Deviation | 0.100000 |
| DIELEC_COM | Dielectric Computation Option | YES |
| DIPF | Formation DIP Angle | 0.000000 |
| DVDM DHS | DVDM Down Hole Software Version | 0.000000 |
| DYN_IMAGE | Generate Dynamic Normalized Image? | YES |
| EDPTH | Wizard Process Stop Depth | 50000 |
| EN_WIZARD | Enable ARC Wizard Processing | NO |
| ERRCT | Percentage Error Cutoff | 4.500000 |
| EVRL | EVR Process averaging number of samples (RM) | 49 |
| FVVN | Firmware Version Number | 1.100000 |
| GCSE | Generalized Caliper Selection | BS |
| GRBC | RM: DVDM Gamma Ray Blanket (CPS) | 75.000000 |
| GRSH | GR Shale (Invasion Computation Cutoff) | 1000.000000 |
| GR_CF | Gamma Ray Correction Factor | 2.250000 |
| HIGH_BLEND | High Resistivity Threshold for Blending | 2.000000 |
| IDQT | Image Derived Quality Threshold | 1.000000 |
| IMAGE_MAX | Image Density Caliper Right Scale | 8.000000 |
| IMAGE_MAX | Image Density Quality Right Scale | 1.000000 |
| IMAGE_MAX | Image PEF(Segment) Right Scale | 6.000000 |
| IMAGE_MAX | Image RHOB(Segment) Right Scale | 2.650000 |
| IMAGE_MIN | Image Density Caliper Left Scale | 2.000000 |
| IMAGE_MIN | Image Density Quality Left Scale | 0.000000 |
| IMAGE_MIN | Image PEF(Segment) Left Scale | 2.000000 |
| IMAGE_MIN | Image RHOB(Segment) Left Scale | 2.050000 |
| IMAGE_ORIE | Image Orientation Options, e.g. Top of Hole or True North | NORTH |
| INCLIN_B0 | ARC Bias Constant (mg) | 0.000000 |
| INCLIN_B1 | ARC Bias First-order Coefficient (mg/degC) | 0.000000 |
| INCLIN_B2 | ARC Bias Second-order Coefficient (mg/degC) | 0.000000 |
| INCLIN_B3 | ARC Bias Third-order Coefficient (mg/degC) | 0.000000 |
| INCLIN_C0 | ARC Current Scale Factor Constant (mA/g) | 1.000000 |
| INCLIN_C1 | ARC Scale First-order Coefficient (mA/g/degC) | 0.000000 |
| INCLIN_C2 | ARC Scale Second-order Coefficient (mA/g/degC) | 0.000000 |
| INCLIN_C3 | ARC Scale Third-order Coefficient (mA/g/degC) | 0.000000 |

| | | | |
|------------|--|--|-------------|
| INVAS_COMP | Invasion Correction Option | | YES |
| JSD | Acquisition start date | | YES |
| JSD_ARC | ARC Acquisition start date | | YES |
| LOW_BLEND | Low Resistivity Threshold for Blending | | 1.000000 |
| MATR | Rock Matrix for Neutron Porosity Corrections | | SANDSTONE |
| MSWS | ARC Wizard Model Switch Window | | 5.000000 |
| MULTIEFFEC | Multi Effect Option | | YES |
| NEU_DCOR_O | Density Correction Source for Neutron Processing | | Average |
| NEU_FTUBE_ | Far Thermal Tube Selection | | Both |
| NTIK_SEL | Neutron Tick Channel Name | | FAZ1 |
| OACF | O2 Activation Correction Factor (RM) | | 0.000000 |
| P12A | ARC Air Cal Phase-Shift From T1 at 2 MHz | | 1.143270 |
| P14A | ARC Air Cal Phase-Shift From T1 at 400 KHz | | 1.838910 |
| P22A | ARC Air Cal Phase-Shift From T2 at 2 MHz | | -1.152680 |
| P24A | ARC Air Cal Phase-Shift From T2 at 400 KHz | | -1.826430 |
| P32A | ARC Air Cal Phase-Shift From T3 at 2 MHz | | 1.064520 |
| P34A | ARC Air Cal Phase-Shift From T3 at 400 KHz | | 1.835500 |
| P42A | ARC Air Cal Phase-Shift From T4 at 2 MHz | | -1.202580 |
| P44A | ARC Air Cal Phase-Shift From T4 at 400 KHz | | -1.845070 |
| P52A | ARC Air Cal Phase-Shift From T5 at 2 MHz | | 1.092880 |
| P54A | ARC Air Cal Phase-Shift From T5 at 400 KHz | | 1.844270 |
| PMUD | Potassium Concentration in Mud | | 0.000000 |
| POFFSET | Pressure Offset | | 0.000000 |
| PRTD | Preferred Resistivity Log for Rt Display while Multi-Effects | | P34B |
| PSOF_ADJ_T | ARC: User Input Phase offset | | 0.000000 |
| RESTIK | ARC resistivity tick source | | Phase |
| SDPTH | Wizard Process Start Depth | | 100 |
| SIG_PCOR_O | Porosity Correction Source for Sigma Processing | | Best |
| SPEC_CSG_D | Casing Depth for Spectroscopy Processing | | 100.000000 |
| SPL_CLAY_M | SpectroLith Clay Model | | ARENITE |
| SPL_COAL_O | SpectroLith Coal Processing Option | | NONE |
| SPL_SULFUR | SpectroLith Sulfur Mineral Option | | ANHYDRITE |
| STAB_SIZE | Stabilizer Size | | 9.375000 |
| STOH | Density Top of Hole Sector (Left Boundary) | | SECTOR_0 |
| TRNO | Tool Run Number | | 8405.509766 |
| TSIZ_ARC | ARC Tool Size | | 6.900000 |
| TSNO | Tool Serial Number | | 6.900000 |
| UNIFORM_CO | Uniform Rock Option | | YES |
| VERS_ARC | ARC Down hole software version Number | | 1.100000 |
| WRK | Way to Report Potassium Concentration | | K_by_Wgt_% |
| WSDI | Window Size of Dynamic Normalization Image | | 50.000000 |

Schlumberger Drilling & Measurements

Parameter Insert Header Software version 2.0c

IDEAL Version: ID10_2B_08

IDF

ADN id10_2c_01

Format: 5 MD ADN/ARC Vertical Scale: 1:240

Graphics File Created: 03-Oct-2005 07:53

PIP SUMMARY

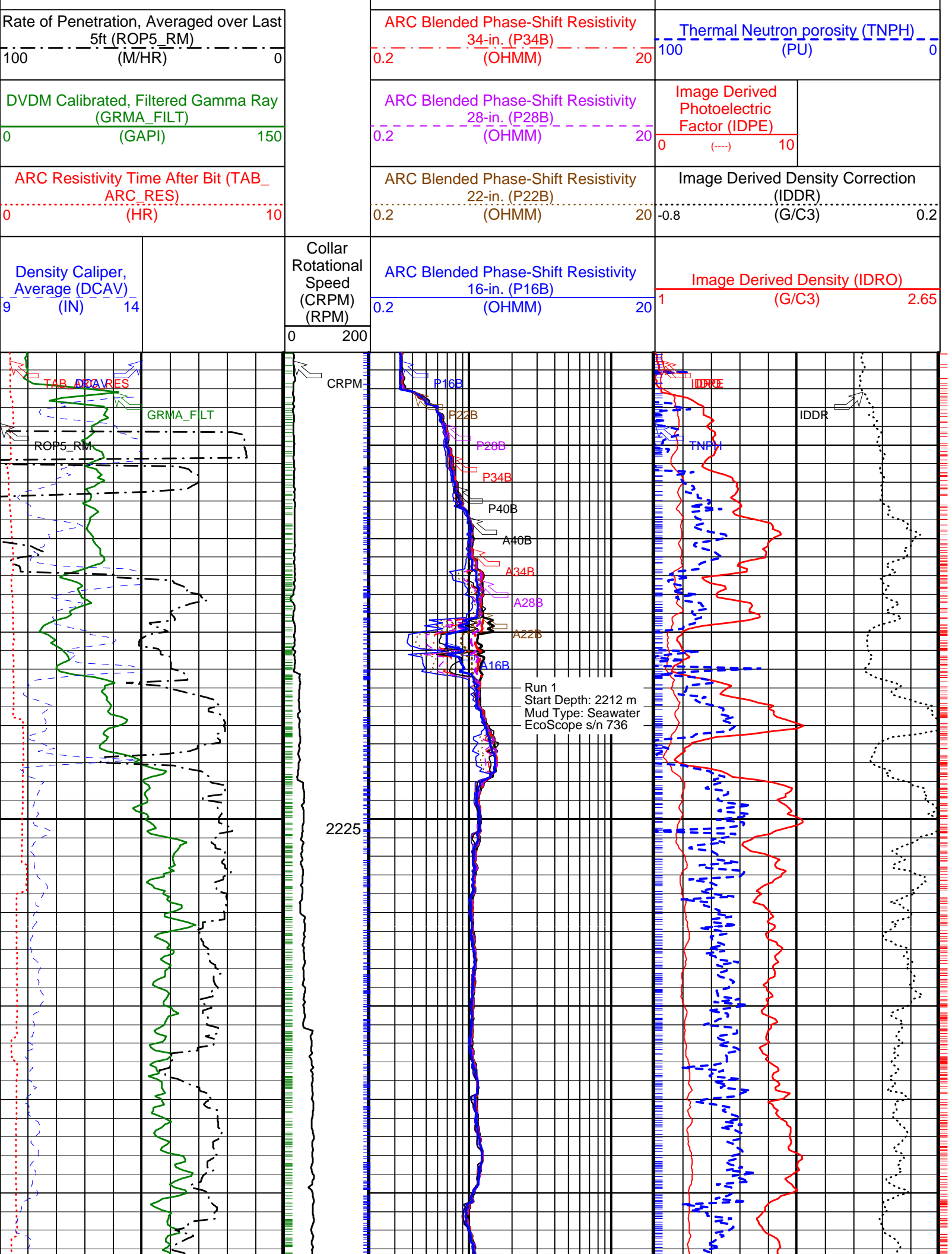
Density Ticks, 0.1-ft

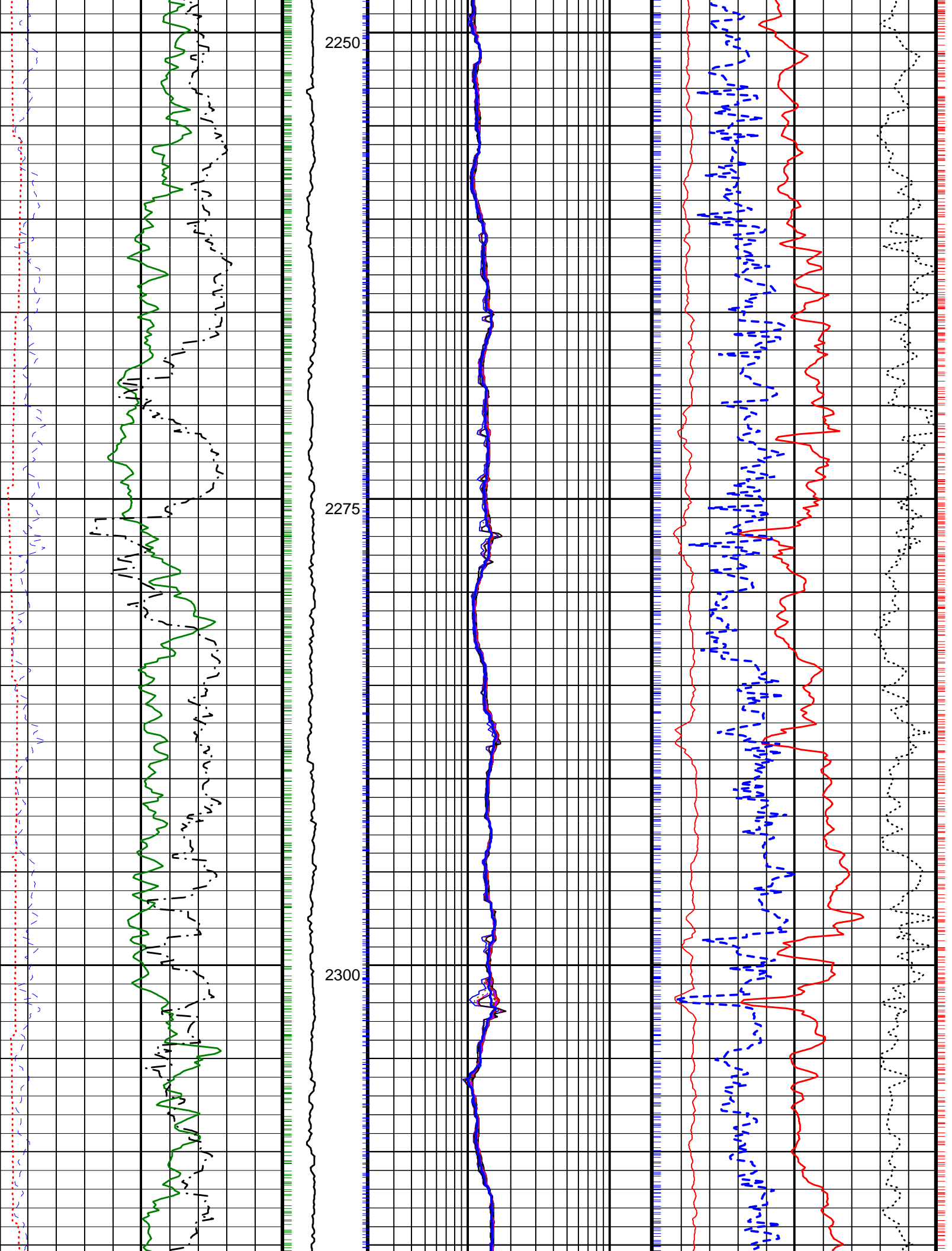
+ ARC Resistivity Samples

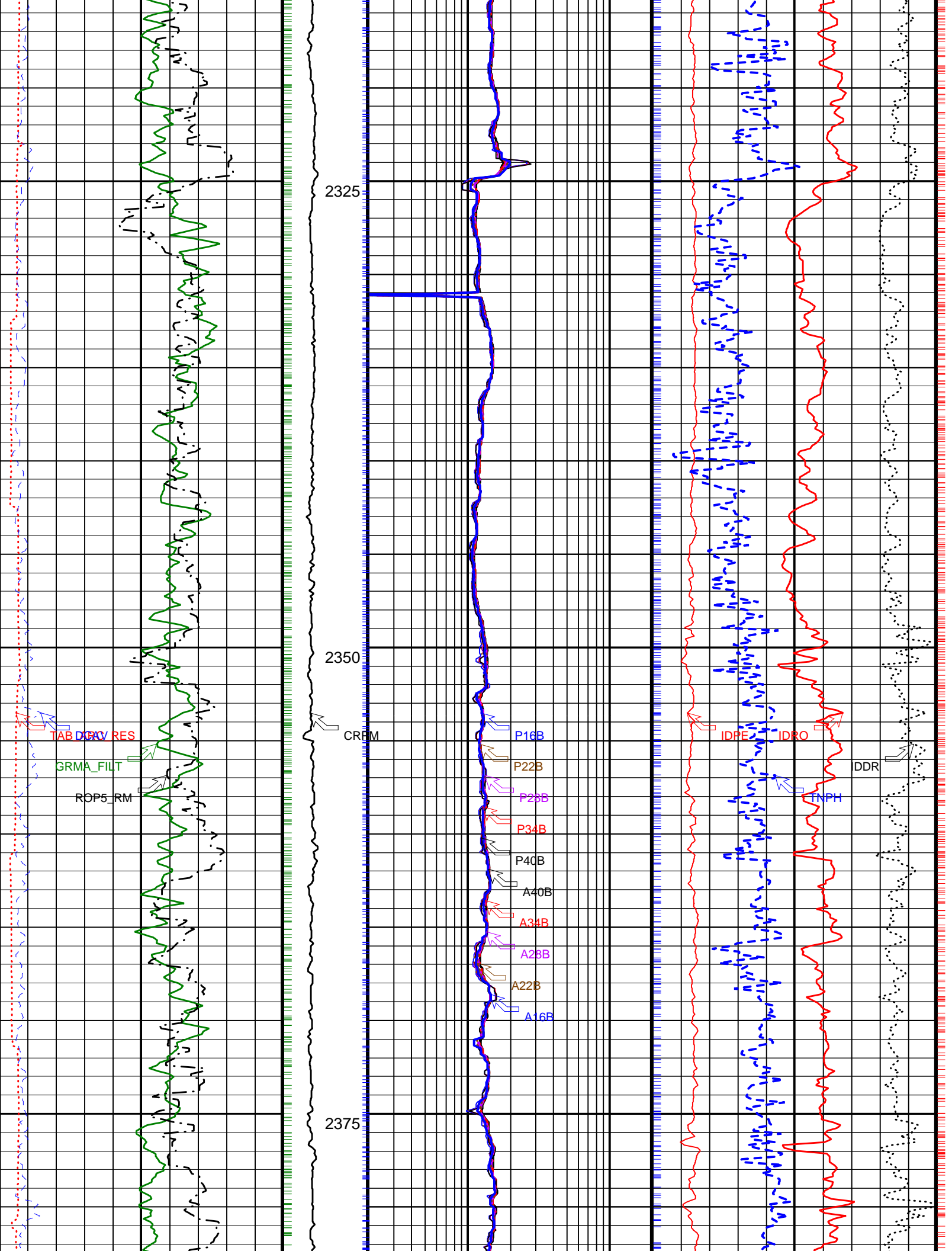
Neutron Ticks, 0.1 ft

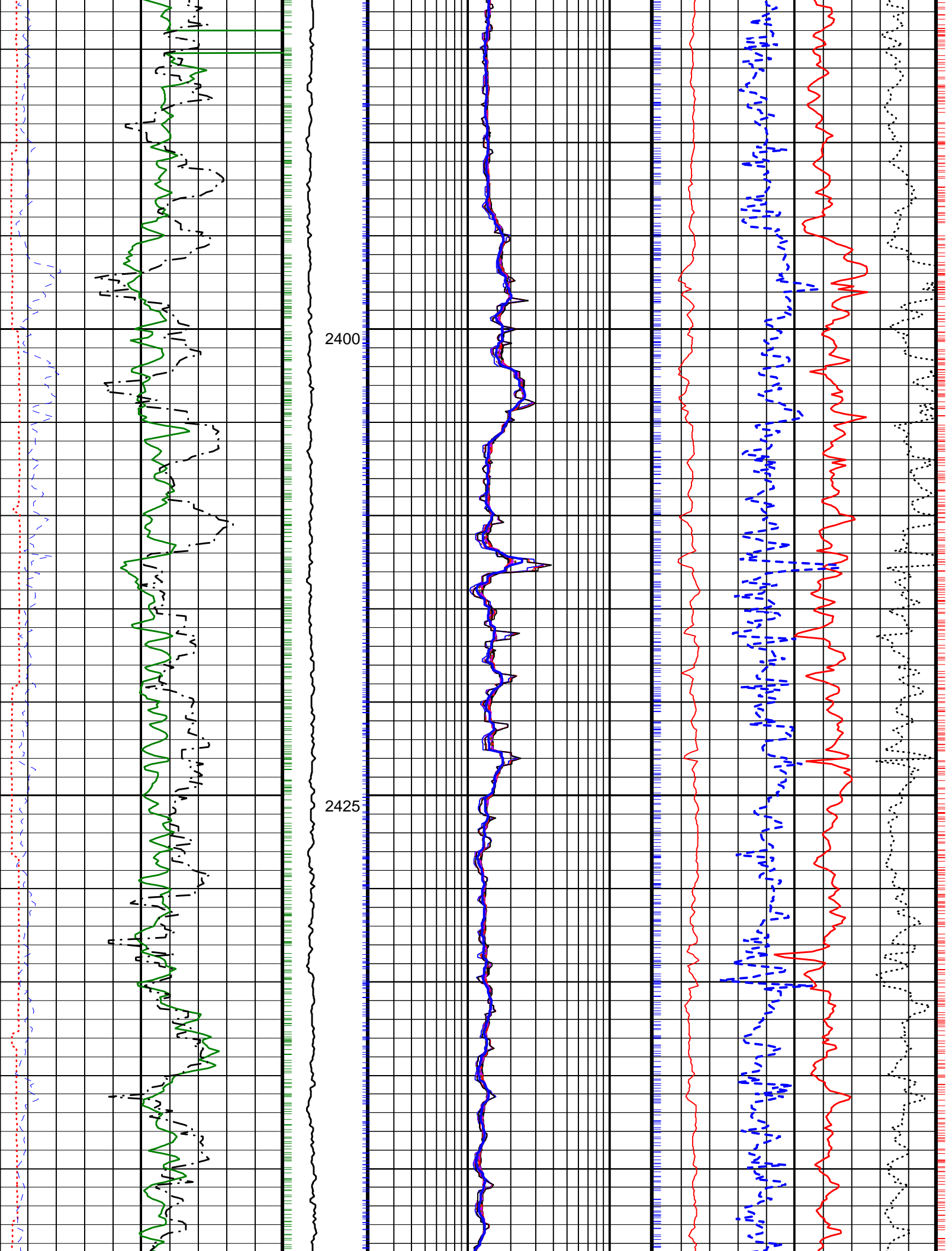
+ DVDM Gamma Ray Samples

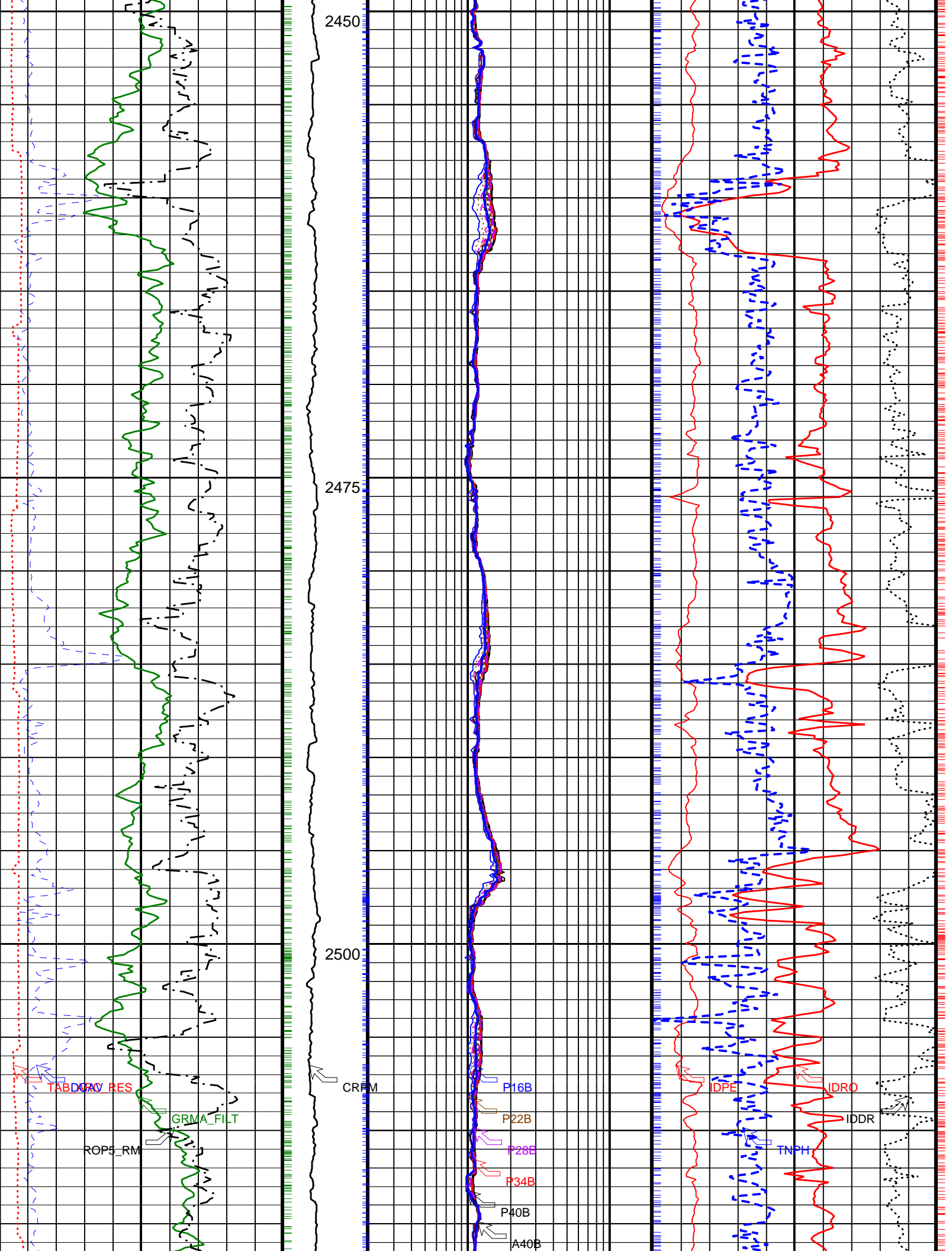
| | | |
|-------------------------------------|--------|----|
| ARC Blended Attenuation Resistivity | | |
| 16-in. (A16B) | | |
| 0.2 | (OHMM) | 20 |
| ARC Blended Attenuation Resistivity | | |
| 22-in. (A22B) | | |
| 0.2 | (OHMM) | 20 |
| ARC Blended Attenuation Resistivity | | |
| 28-in. (A28B) | | |
| 0.2 | (OHMM) | 20 |
| ARC Blended Attenuation Resistivity | | |
| 34-in. (A34B) | | |
| 0.2 | (OHMM) | 20 |
| ARC Blended Attenuation Resistivity | | |
| 40-in. (A40B) | | |
| 0.2 | (OHMM) | 20 |
| ARC Blended Phase-Shift Resistivity | | |
| 40-in. (P40B) | | |
| 0.2 | (OHMM) | 20 |

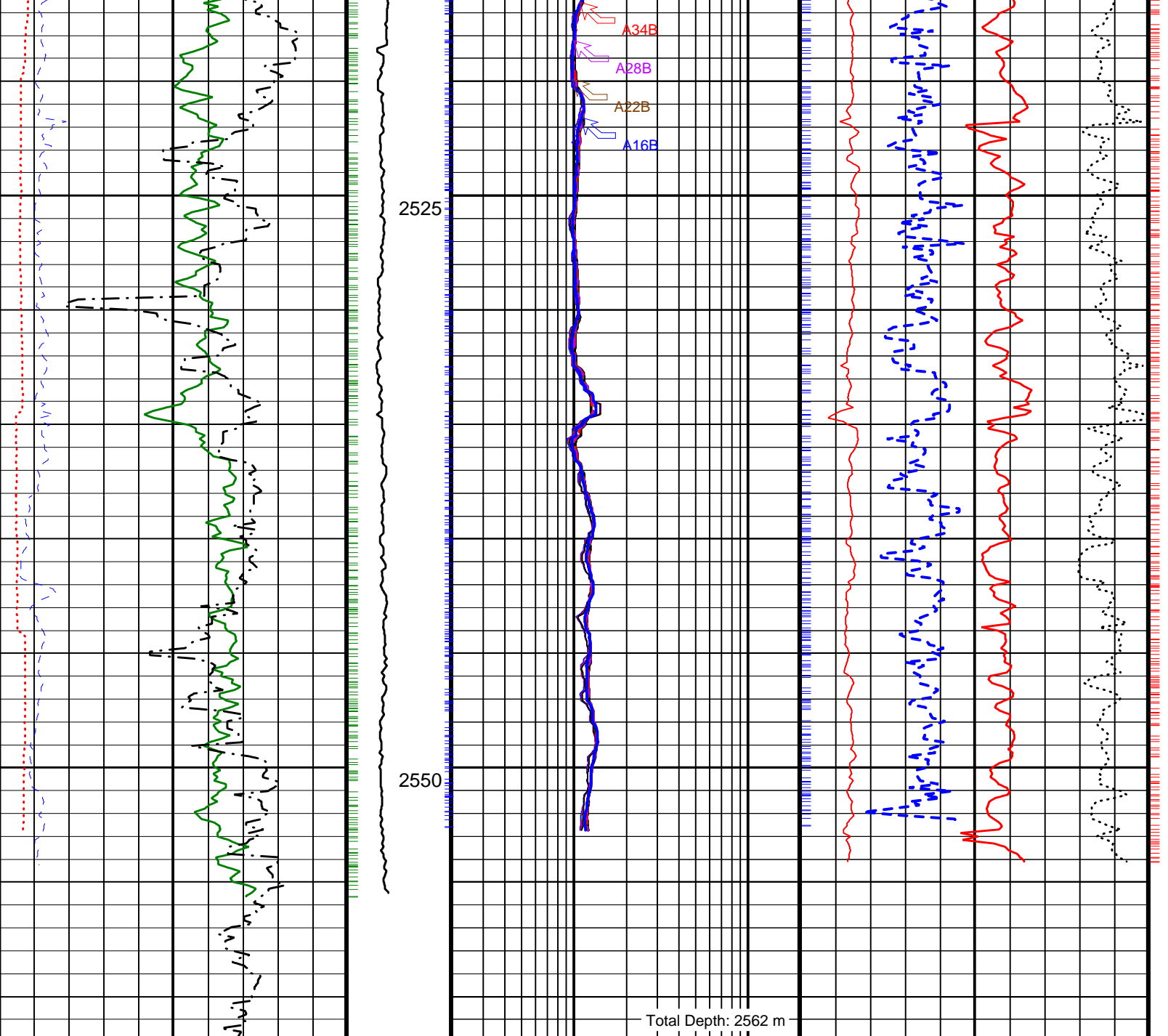












Total Depth: 2562 m

| | | | | |
|--|--|--|---|---|
| Density Caliper, Average (DCAV) (IN) 9 14 | | Collar Rotational Speed (CRPM) (RPM) 0 200 | ARC Blended Phase-Shift Resistivity 16-in. (P16B) (OHMM) 0.2 20 | Image Derived Density (IDRO) (G/C3) 1 2.65 |
| ARC Resistivity Time After Bit (TAB_ARC_RES) (HR) 0 10 | | | ARC Blended Phase-Shift Resistivity 22-in. (P22B) (OHMM) 0.2 20 | Image Derived Density Correction (IDDR) (G/C3) -0.8 0.2 |
| DVDM Calibrated, Filtered Gamma Ray (GRMA_FILT) (GAPI) 0 150 | | | ARC Blended Phase-Shift Resistivity 28-in. (P28B) (OHMM) 0.2 20 | Image Derived Photoelectric Factor (IDPE) (----) 0 10 |
| Rate of Penetration, Averaged over Last 5ft (ROP5_RM) (M/HR) 100 0 | | | ARC Blended Phase-Shift Resistivity 34-in. (P34B) (OHMM) 0.2 20 | Thermal Neutron porosity (TNPH) (PU) 100 0 |
| | | | ARC Blended Phase-Shift Resistivity 40-in. (P40B) (OHMM) 0.2 20 | |

| | | |
|--|--------|----|
| ARC Blended Attenuation Resistivity 40-in. (A40B) | | |
| 0.2 | (OHMM) | 20 |
| ARC Blended Attenuation Resistivity 34-in. (A34B) | | |
| 0.2 | (OHMM) | 20 |
| ARC Blended Attenuation Resistivity 28-in. (A28B) | | |
| 0.2 | (OHMM) | 20 |
| ARC Blended Attenuation Resistivity 22-in. (A22B) | | |
| 0.2 | (OHMM) | 20 |
| ARC Blended Attenuation Resistivity 16-in. (A16B) | | |
| 0.2 | (OHMM) | 20 |

PIP SUMMARY

Density Ticks, 0.1-ft

+ ARC Resistivity Samples

Neutron Ticks, 0.1 ft

+ DVDM Gamma Ray Samples

IDEAL Version: ID10_2B_08
IDF

ADN

id10_2c_01

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

Primary Equipment:
Tool Name and Serial Number
Calibration Status
Collar Type and Serial Number
Chassis Type and Serial Number
Stabilizer Type and Serial Number
Neutron Logging Source
Density Logging Source
Stabilizer Size

ECO - 675 736
ADDC - AA
ADSE - EA
ADCS - CA
NSR - M
GSR - J/Z
9.38 - in.

Master: 22-Jul-2005 12:37

EcoScope Integrated Logging-While-Drilling Tool - 6.75 inch Calibration

SSn LSn : Water Tank

| Phase | SSn Gain | Value | Phase | SSn Offset | Value |
|--------|--|-------|--------|--|-------|
| Master | | 1.000 | Master | | 0 |
| | 0.6000 (Minimum) 1.000 (Nominal) 1.400 (Maximum) | | | -3.000 (Minimum) 0 (Nominal) 3.000 (Maximum) | |
| Phase | LSn Gain | Value | Phase | LSn Offset | Value |
| Master | | 1.000 | Master | | 0 |
| | 0.6000 (Minimum) 1.000 (Nominal) 1.400 (Maximum) | | | -3.000 (Minimum) 0 (Nominal) 3.000 (Maximum) | |

Master: 22-Jul-2005 12:37

EcoScope Integrated Logging-While-Drilling Tool - 6.75 inch Calibration

Neutron: Water Tank

| Phase | Far 2 Gain | Value | Phase | Far 2 Offset | Value |
|--------|--|-------|--------|--|---------|
| Master | | 1.056 | Master | | -0.7620 |
| | 0.7000 (Minimum) 1.000 (Nominal) 1.300 (Maximum) | | | -3.000 (Minimum) 0 (Nominal) 3.000 (Maximum) | |
| Phase | Far 1 Gain | Value | Phase | Far 1 Offset | Value |
| Master | | 1.055 | Master | | -0.4690 |
| | 0.7000 (Minimum) 1.000 (Nominal) 1.300 (Maximum) | | | -3.000 (Minimum) 0 (Nominal) 3.000 (Maximum) | |
| Phase | Thermal Near gain | Value | Phase | Thermal Near offset | Value |
| Master | | 1.155 | Master | | -137.6 |
| | 0.7000 (Minimum) 1.000 (Nominal) 1.300 (Maximum) | | | -500.0 (Minimum) 0 (Nominal) 500.0 (Maximum) | |

| Phase | Epithermal Near gain | | | Value | Phase | Epithermal Near offset | | | Value |
|--------|----------------------|--------------------|--------------------|-------|--------|------------------------|----------------|--------------------|--------|
| Master | | | | 1.221 | Master | | | | -13.57 |
| | 0.7000 (Minimum) | 1.000 (Nominal) | 1.300 (Maximum) | | | -300.0 (Minimum) | 0 (Nominal) | 300.0 (Maximum) | |

| Master: Calibration out of date 11-Apr-2005 19:14 | | | | | | | | | | | | | | |
|---|----------------------|-------------------|-------------------|-------|--------|----------------------|-------------------|-------------------|-------|--------|----------------------|--------------------|--------------------|-------|
| 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 | | | | 2041 | Master | | | | 5077 | Master | | | | 11910 |
| | 1000 (Minimum) | 2000 (Nominal) | 3000 (Maximum) | | | 2500 (Minimum) | 5250 (Nominal) | 8000 (Maximum) | | | 6000 (Minimum) | 12000 (Nominal) | 18000 (Maximum) | |

| Master: Calibration out of date 11-Apr-2005 19:14 | | | | | | | | | | | | | | |
|---|----------------------|--------------------|--------------------|-------|--------|----------------------|-------------------|-------------------|-------|--------|----------------------|-------------------|--------------------|-------|
| 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 | | | | 372.3 | Master | | | | 2692 | Master | | | | 8750 |
| | 200.0 (Minimum) | 400.0 (Nominal) | 600.0 (Maximum) | | | 1500 (Minimum) | 3000 (Nominal) | 4500 (Maximum) | | | 4000 (Minimum) | 8500 (Nominal) | 13000 (Maximum) | |

| Master: Calibration date not found | | | | | | | | | | | | | | |
|---|------------------------------|--------------------|--------------------|-------|--------|------------------------------|--------------------|--------------------|-------|--------|------------------------------|--------------------|--------------------|-------|
| 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 | | | | 57.82 | Master | | | | 85.68 | Master | | | | 413.0 |
| | 50.00 (Minimum) | 70.00 (Nominal) | 90.00 (Maximum) | | | 50.00 (Minimum) | 75.00 (Nominal) | 100.0 (Maximum) | | | 270.0 (Minimum) | 370.0 (Nominal) | 470.0 (Maximum) | |

| Master: Calibration date not found | | | | | | | | | |
|---|---------------------------------|--------------------|--------------------|-------|--------|----------------------------------|--------------------|--------------------|-------|
| 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 | | | | 1.047 | Master | | | | 1.262 |
| | 0.9000 (Minimum) | 1.000 (Nominal) | 1.150 (Maximum) | | | 0.9000 (Minimum) | 1.150 (Nominal) | 1.400 (Maximum) | |

| Master: Calibration date not found | | | | | | | | | | | | | | |
|---|--------------------------|----------------|--------------------|--------|--------|--------------------------|----------------|--------------------|--------|--------|--------------------------|----------------|--------------------|--------|
| 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 | | | | 1.143 | Master | | | | -1.153 | Master | | | | 1.065 |
| | -4.000 (Minimum) | 0 (Nominal) | 4.000 (Maximum) | | | -4.000 (Minimum) | 0 (Nominal) | 4.000 (Maximum) | | | -4.000 (Minimum) | 0 (Nominal) | 4.000 (Maximum) | |
| Phase | Phase-Shift T4 | | | Value | Phase | Phase-Shift T5 | | | Value | Phase | Phase-Shift T1 at 400KHz | | | Value |
| Master | | | | -1.203 | Master | | | | 1.093 | Master | | | | 1.839 |
| | -4.000 (Minimum) | 0 (Nominal) | 4.000 (Maximum) | | | -4.000 (Minimum) | 0 (Nominal) | 4.000 (Maximum) | | | -4.000 (Minimum) | 0 (Nominal) | 4.000 (Maximum) | |
| Phase | Phase-Shift T2 at 400KHz | | | Value | Phase | Phase-Shift T3 at 400KHz | | | Value | Phase | Phase-Shift T4 at 400KHz | | | Value |
| Master | | | | -1.826 | Master | | | | 1.836 | Master | | | | -1.845 |
| | -4.000 (Minimum) | 0 (Nominal) | 4.000 (Maximum) | | | -4.000 (Minimum) | 0 (Nominal) | 4.000 (Maximum) | | | -4.000 (Minimum) | 0 (Nominal) | 4.000 (Maximum) | |
| Phase | Phase-Shift T5 at 400KHz | | | Value | | | | | | | | | | |
| Master | | | | 1.844 | | | | | | | | | | |
| | -4.000 (Minimum) | 0 (Nominal) | 4.000 (Maximum) | | | | | | | | | | | |

| Master: Calibration date not found | | | | | | | | | | | | | | |
|---|--------------------|--------------------|--------------------|-------|--------|--------------------|--------------------|--------------------|-------|--------|--------------------------|--------------------|--------------------|-------|
| 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 | | | | 8.096 | Master | | | | 6.358 | Master | | | | 4.698 |
| | 7.000 (Minimum) | 9.000 (Nominal) | 11.00 (Maximum) | | | 4.000 (Minimum) | 6.000 (Nominal) | 8.000 (Maximum) | | | 3.500 (Minimum) | 5.500 (Nominal) | 7.500 (Maximum) | |
| Phase | Attenuation T4 | | | Value | Phase | Attenuation T5 | | | Value | Phase | Attenuation T1 at 400KHz | | | Value |
| Master | | | | 8.096 | Master | | | | 6.358 | Master | | | | 4.698 |
| | 7.000 (Minimum) | 9.000 (Nominal) | 11.00 (Maximum) | | | 4.000 (Minimum) | 6.000 (Nominal) | 8.000 (Maximum) | | | 3.500 (Minimum) | 5.500 (Nominal) | 7.500 (Maximum) | |

| | | | | | | | | | | | |
|--------|---|-------|--------|---|--------------------------|--------|---|-------|--------------------------|--|-------|
| Master | | 4.759 | Master | | 3.258 | Master | | 8.155 | | | |
| | 2.500 (Minimum) 4.500 (Nominal) 6.500 (Maximum) | | | 2.000 (Minimum) 4.000 (Nominal) 6.000 (Maximum) | | | 7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum) | | | | |
| Phase | Attenuation T2 at 400KHz | | Value | Phase | Attenuation T3 at 400KHz | | Value | Phase | Attenuation T4 at 400KHz | | Value |
| Master | | 6.314 | Master | | 4.755 | Master | | 4.713 | | | |
| | 4.000 (Minimum) 6.000 (Nominal) 8.000 (Maximum) | | | 3.500 (Minimum) 5.500 (Nominal) 7.500 (Maximum) | | | 2.500 (Minimum) 4.500 (Nominal) 6.500 (Maximum) | | | | |
| Phase | Attenuation T5 at 400KHz | | Value | | | | | | | | |
| Master | | 3.316 | | | | | | | | | |
| | 2.000 (Minimum) 4.000 (Nominal) 6.000 (Maximum) | | | | | | | | | | |

| | | |
|---|---|-------|
| Master: Calibration date not found | | |
| EcoScope Integrated Logging-While-Drilling Tool - 6.75 inch | | |
| Calibration | | |
| Gamma Ray: Blanket | | |
| Phase | Gamma ray factor | Value |
| Master | | 2.250 |
| | 2.000 (Minimum) 2.500 (Nominal) 3.000 (Maximum) | |

Company: Lamont-Doherty Borehole Research

Well: IODP Expedition 311 CAS-02C

Field: Cascadia Margin

Rig: JOIDES Resolution

State: Pacific Ocean

EcoScope Service
1:240 Measured Depth
Recorded Mode Log



| | |
|--|--------|
| Geomarket | NGC |
| Job Date | 20-SEP |
| Rig | JOIDES |
| Engineer | Lake L |
| Description of Well Header, user of trace sensor to toolface a | |
| Equipment and Soft | |
| Tool sketch, equipm | |
| Processing Tracea | |
| Acquisition environ | |
| remarks | |
| Annotations, Prese | |
| Documentred splice | |
| selection | |
| Calibration / Before | |
| Validity, completen | |
| Depth Control | |
| Comparison with dril | |
| listing | |
| Logging speed and | |
| As recommended in | |
| Data Comparison | |
| Between runs and p | |
| Operating Anomalie | |
| Absence of noise ar | |
| Digital Products | |
| Labeled, verification | |
| hard copy. | |
| Job Q | |
| Nurn | |
| Irregular Operation | |
| Excessive ROP or s | |
| Borehole Geometry | |
| Shape (caves, etc) | |
| Borehole Fluid | |
| Barite, KCl, salinity, | |
| Interferences | |
| External noise, near | |
| Operation Outside | |
| Geomarket tempera | |
| value of parameter | |
| ENVIR | |
| N | |

Data Quality Report

Type of Measurement

| | |
|----------------|----------------------------------|
| Location | Vancouver Island |
| Customer | Lanont-Doherty Borehole Research |
| Job Resolution | Cascadia Margin/CAS-02C |
| Job Number | 40012416 |

| | | | | |
|-----|----|-----|-----|------|
| Res | GR | Neu | Den | APWD |
|-----|----|-----|-----|------|

When data does not meet standards, put a number in the column corresponding to the measurement with a corresponding number and remark below. Use additional pages for remarks. Positive remarks are welcome; do not append them with a number.

Remarks

| | |
|--|--|
| Operation | <p>Names, Geometry, Services, Location and References: General Content</p> <p>Remarks, directional data, well plot, order of components, spelling and style, units</p> <p>angle recorded</p> |
| Presentation | |
| ware Description | |
| ware numbers, software versions, data rates, filtering weights | |
| bility and Environment Description | |
| rent, parameters and key constants for each run or zone, complete and relevant | |
| nted Formats, QC Curves, Print Quality | |
| points, data gap explanations, mud changes, movement indicator, color | |

| | | | | |
|---|--|---|--|--|
| | | | | |
| | | | | |
| 1 | | 3 | | |

1. Correcting the resistivity data by assuming mud resistivity as 1 ohmm @ 75 degF.

2. Depth is not compensated for heave. The heave cause the spikes of ROP and this eventually cause the low data density and distortion on the image. The heave also cause the curves (gamma ray, resistivity, density and neutron porosity) do not correlate to each other very well and cause the resistivity curves blocky.

3. Correcting the Neutron Porosity data by assuming borehole salinity as 0 ppk

| | |
|-------------------------------|---|
| Calibration and Verifications | <p>survey verification / After survey verification</p> <p>ness (Includes equipment number), timeliness, unedited, discrepancy explained</p> |
|-------------------------------|---|

| | | | | |
|--|--|--|--|--|
| | | | | |
|--|--|--|--|--|

| | |
|----------------------|--|
| Operating Procedures | <p>ler's depth, other logs, other bit runs, between RT and RM. Depth summary</p> <p>sampling rates</p> <p>reference manual or job planner. No loss of data or spatial resolution</p> |
|----------------------|--|

| | | | | |
|---|---|---|---|--|
| 2 | 2 | 2 | 2 | |
|---|---|---|---|--|

| | |
|--|--|
| assess, with data from nearby wells, other conveyance, mud log and markers | |
| Failure/Missing Data/Sensor Orientation/Transmission Losses | |
| and spurious variations, anomaly repeated, corrected, reported or explained. | |

| | | | | |
|--|--|--|--|--|
| | | | | |
|--|--|--|--|--|

Digital Delivery

| | |
|---|--|
| listing with complete digital record, backup for archival, record matches | |
| Quality Rating (QJR) | |
| Number of boxes without number X 10 | |

| | | | | |
|----|----|----|----|-----|
| 80 | 90 | 80 | 90 | 100 |
|----|----|----|----|-----|

Environmental effects

| | |
|---|--|
| speed, high deviation, shocks, vibrations, sticking conditions | |
| roughly, spiralled hole, mud induced fractures. Casing, tubing conditions | |
| additives, gas cut, unstable | |

| | | | | |
|---|---|---|---|---|
| 1 | 1 | 1 | 1 | 1 |
| 2 | | 2 | 2 | |

1. Excessive ROP is causing low data density.

2. Borehole washouts cause the resistivity curves separation. EcoScope Neutron Porosity is only corrected for bit size. Large borehole washouts cause low density readings.

3. Low RPM during the early stage of the well reduce the image's resolution.

Tool Specifications

| | |
|--|--|
| by casing or drillpipe, debris, unusual formation composition | |
| ature, pressure, hole size, hole deviation, dog-leg severity, flow rate, rpm, solids | |
| ommental Quality Rating (EQR) | |
| Number of boxes without number X 20 | |

| | | | | |
|----|----|----|----|----|
| 60 | 80 | 60 | 40 | 80 |
|----|----|----|----|----|

Cell Manager: Lake Loh FSM: Vijay Moras

| | |
|-----------|--------|
| Geomarket | NGC |
| Job Date | 20-SEP |
| Rig | JOIDE |
| Engineer | Lake L |

| | |
|--|--|
| Description of Well Header, user of tractor sensor to toolface a | |
| Equipment and Software | |
| Tool sketch, equipm | |
| Processing Tracea Acquisition environm | |
| remarks | |
| Annotations, Preses | |
| Documented splice | |
| selection | |

| | |
|----------------------|--|
| Calibration / Before | |
| Validity, complemen | |

| | |
|--|--|
| Depth Control Comparison with drilling listing | |
| Logging speed and | |
| As recommended in | |
| Data Comparison | |
| Between runs and p | |
| Operating Anomalie | |
| Absence of noise ar | |

| | |
|------------------------|--|
| Digital Products | |
| Labelled, verification | |
| hard copy. | |
| Job QI | |
| Num | |

| | |
|------------------------|--|
| Irregular Operation | |
| Excessive ROP or s | |
| Borehole Geometry | |
| Shape (caves, etc.) | |
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