



Company: Lamont Doherty Earth Observatory

Well: Expedition 346, Site U1427A

Field: Asian Monsoon

Rig: JOIDES Resolution Country: USA

| | | | | |
|---|--|-----------------------|--|--|
| JOIDES Resolution Asian Monsoon Latitude: N 35° 1.9996' Expedition 346, Site U1427A Company: Lamont Doherty Earth Observatory | HNGS Spectral GR | | | |
| | Latitude: N 35° 1.9996' Longitude: E 134° 47.999' | | Elev.: K.B. -337.10 m G.L. 0.00 m D.F. -337.10 m | |
| | Permanent Datum: Sea Floor | | Elev.: 0.00 m | |
| | Log Measured From: Drill Floor | | -337.10 m above Perm. Datum | |
| Drilling Measured From: Drill Floor | | | | |
| Ocean: Pacific | Max. Well Deviation 0 deg | Longitude E 134.8° | Latitude N 35.033° | |

| | | | |
|-------------------------------|-----------------|-----------------|------|
| Logging Date | 8-Sep-2013 | | |
| Run Number | 1 | | |
| Depth Driller | 548.6 m | | |
| Schlumberger Depth | 547.1 m | | |
| Bottom Log Interval | 532.5 m | | |
| Top Log Interval | 0 m | | |
| Casing Driller Size @ Depth | 5.500 in @ 83 m | | |
| Casing Schlumberger | 82.2 m | | |
| Bit Size | 11.438 in | | |
| Type Fluid In Hole | WBM | | |
| Density | Viscosity | 1.26 g/cm3 | |
| Fluid Loss | PH | | |
| Source Of Sample | N/A | | |
| RM @ Measured Temperature | @ | | |
| RMF @ Measured Temperature | @ | | |
| RMC @ Measured Temperature | @ | | |
| Source RMF | RMC | N/A | N/A |
| RM @ MRT | RMF @ MRT | @ 15 | @ 15 |
| Maximum Recorded Temperatures | 15 degC | | |
| Circulation Stopped | Time | 8-Sep-2013 5:00 | |
| Logger On Bottom | Time | 8-Sep-2013 9:45 | |
| Unit Number | Location | 625003 Houston | |
| Recorded By | C. Furman | | |
| Witnessed By | J. Lofi | | |

| | Run 1 | Run 2 | Run 3 |
|-------------------------------|-----------|-------|-------|
| Logging Date | | | |
| Run Number | | | |
| Depth Driller | | | |
| Schlumberger Depth | | | |
| Bottom Log Interval | | | |
| Top Log Interval | | | |
| Casing Driller Size @ Depth | | @ | |
| Casing Schlumberger | | | |
| Bit Size | | | |
| Type Fluid In Hole | | | |
| Density | Viscosity | | |
| Fluid Loss | PH | | |
| Source Of Sample | | | |
| RM @ Measured Temperature | | @ | |
| RMF @ Measured Temperature | | @ | |
| RMC @ Measured Temperature | | @ | |
| Source RMF | RMC | | |
| RM @ MRT | RMF @ MRT | @ | @ |
| Maximum Recorded Temperatures | | | |
| Circulation Stopped | Time | | |
| Logger On Bottom | Time | | |
| Unit Number | Location | | |
| Recorded By | | | |
| Witnessed By | | | |

DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1

- OS1: HLDS
- OS2: HRLA
- OS3: MSS
- OS4: DSI
- OS5: FMS

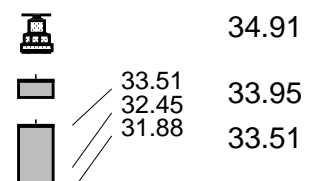
REMARKS: RUN NUMBER 1

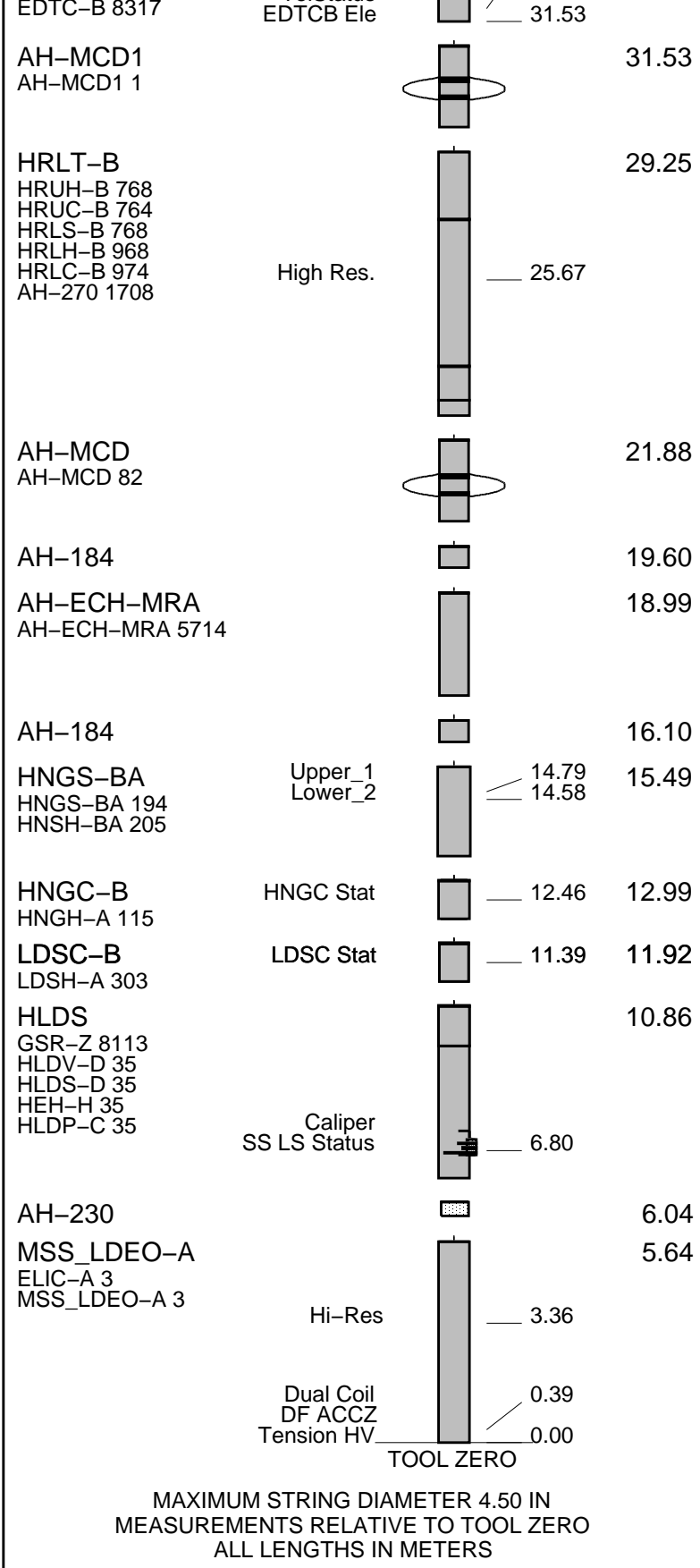
Hole drilled and cored using APC/XCB coring system.
 Modified MCD devices run above and below HRLA for centralization.
 HLDS and MSS eccentralized by caliper and bowspring with knuckled to decouple from HRLA.
 LFV Actuator (Go-Devil) run attached to bottom of MSS for LFV locking open / closed.
 Logs recorded from drill floor (337.1m above permanent datum) then shifted to zero at sea floor.
 Hole drilled with sea water and then displaced with weighted water-based mud having a density of 1.259 g/cc (10.5ppg).
 Barite corrections applied to nuclear logs.
 Caliper closed at 104.2mbsf to facilitate pipe entry; AHC not used due to very low heave.
 MSS Hi-Res sensor cover found damaged when tools reached surface; not believed to have affected data quality.

| RUN 1 | | | RUN 2 | | |
|---------------------------|-------|------|------------------|-------|------|
| SERVICE ORDER #: | | | SERVICE ORDER #: | | |
| PROGRAM VERSION: 19C0-187 | | | PROGRAM VERSION: | | |
| FLUID LEVEL: | | | FLUID LEVEL: | | |
| LOGGED INTERVAL | START | STOP | LOGGED INTERVAL | START | STOP |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

EQUIPMENT DESCRIPTION

| RUN 1 | RUN 2 |
|-------------------------------|-------|
| SURFACE EQUIPMENT | |
| GSR-U 616008 WITM (EDTS)-A | |

| RUN 1 | RUN 2 |
|---|---|
| DOWNHOLE EQUIPMENT | |
| LEH-MT 101 | 34.91 |
| LEH-MT 101 101 | |
| AH-369 EDTC-B EDTH-B 8303 | 33.51 32.45 31.88 |
| MDSB_EDTC Mud Tempe CTEM Gamma Ray EFTB DIAG TelStatus |  |



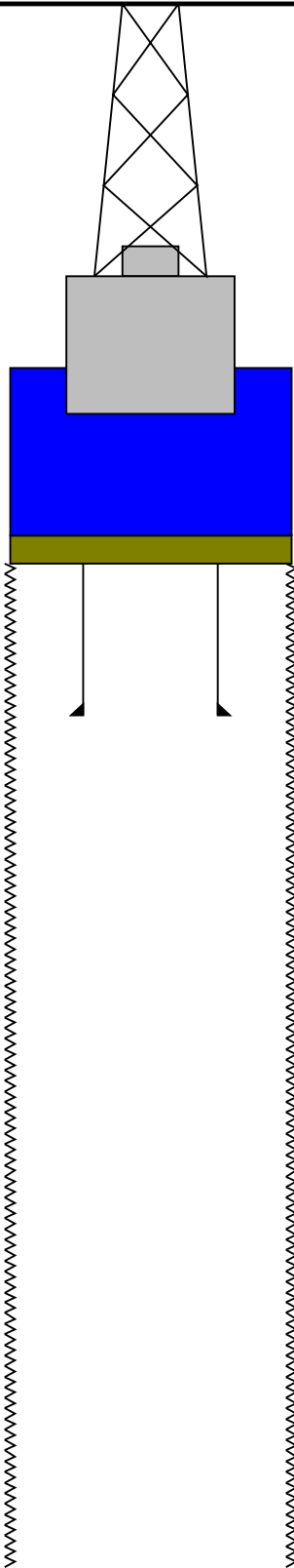
| Production String | (in) | (m) | Well Schematic | (m) | (in) | Casing String |
|-------------------|------|-----|----------------|-----|------|---------------|
| | | | | | | |

Kelly Bushing Elevation
Derrick Floor Elevation

Mean Sea Level

-348.1
-348.1

-337.1



0.0 11.438 4.000

83.0 5.500 4.000

547.1 11.438

Sea Floor

Bit

Total Depth - Driller



Downlog 1:200 Scale

MAXIS Field Log

Company: Lamont Doherty Earth Observatory

Well: Expedition 346, Site U1427A

Input DLIS Files

| | | | | | |
|---------|--------------------------|----------|-------------------|---------|---------|
| DEFAULT | Flip_MSS_LDEO_LDL_018LUP | PRODUCER | 09-Sep-2013 11:28 | 854.0 M | 292.6 M |
|---------|--------------------------|----------|-------------------|---------|---------|

Output DLIS Files

| | | | | | | |
|---------|-------------------------|-------|----------|-------------------|---------|---------|
| DEFAULT | MSS_LDEO_LDL_NGS_019PUP | FN:17 | PRODUCER | 09-Sep-2013 11:29 | 514.3 M | -14.3 M |
| CLIENT | MSS_LDEO_LDL_NGS_019PUC | FN:18 | CUSTOMER | 09-Sep-2013 11:29 | 514.3 M | -14.3 M |

OP System Version: 19C0-187

| | | | |
|------------|----------|--------|----------|
| MSS_LDEO-A | 19C0-187 | HLDS | 19C0-187 |
| LDSC-B | 19C0-187 | HNGC-B | 19C0-187 |
| HNGS-BA | 19C0-187 | HRLT-B | 19C0-187 |

PIP SUMMARY

Time Mark Every 60 S

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

Area1
 From HCGR to HSGR

HNGS Computed Gamma Ray (HCGR)
 0 (GAPI) 100

HNGS Borehole Potassium (HBHK)
 -0.01 (V/V) 0.01

HNGS Uranium (HURA)
 -5 (PPM) 5

HLDS Caliper (LCAL)
 0 (IN) 20

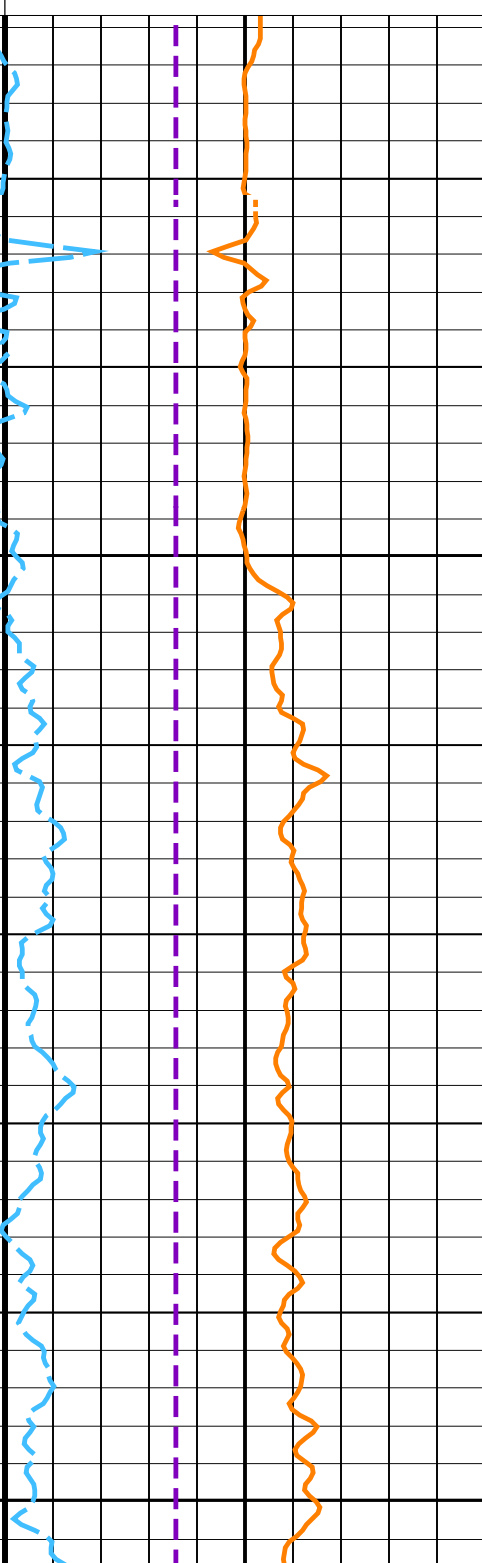
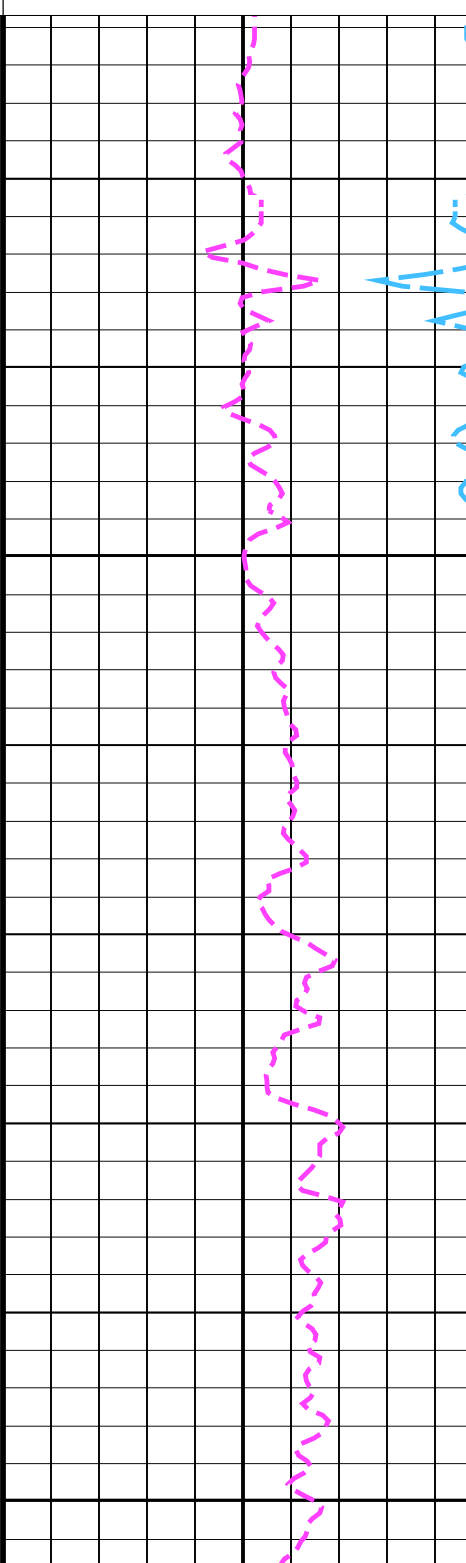
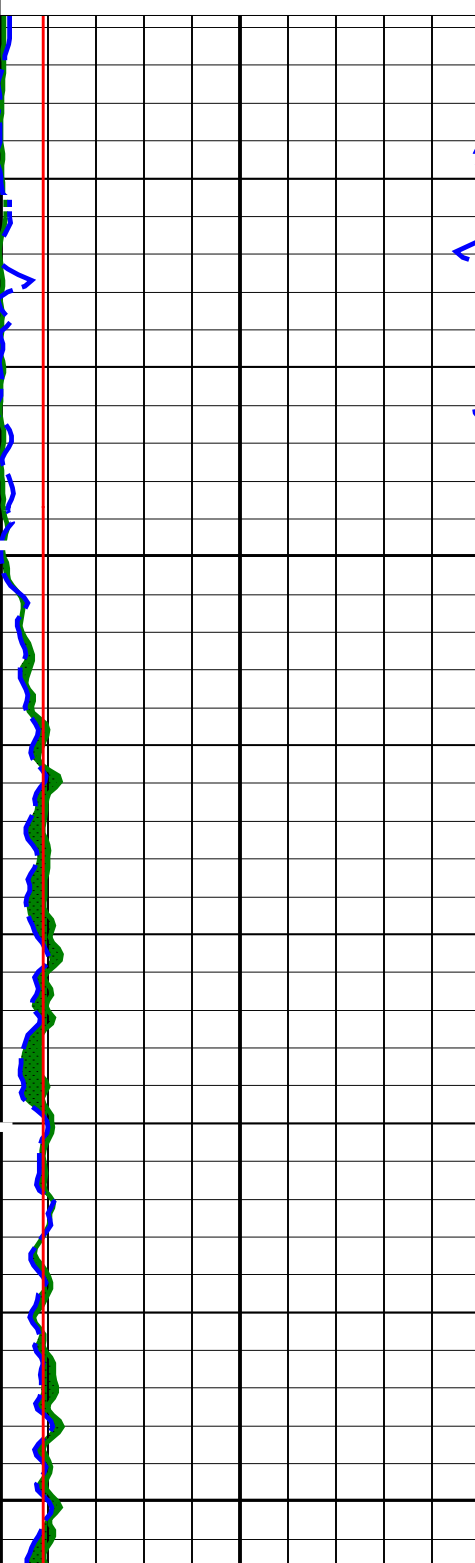
Tension (TENS) (LBF)

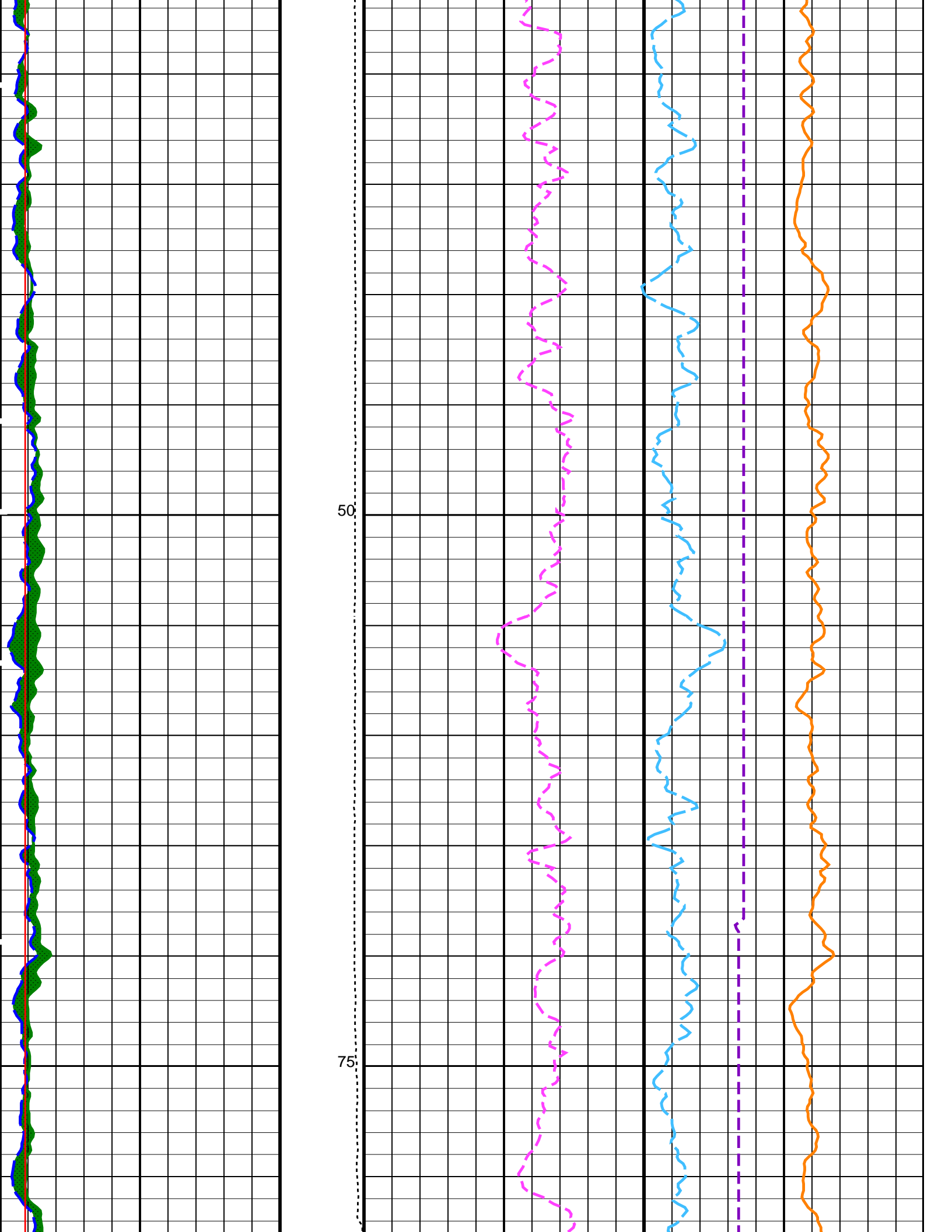
HNGS Thorium (HTHO)
 -5 (PPM) 5

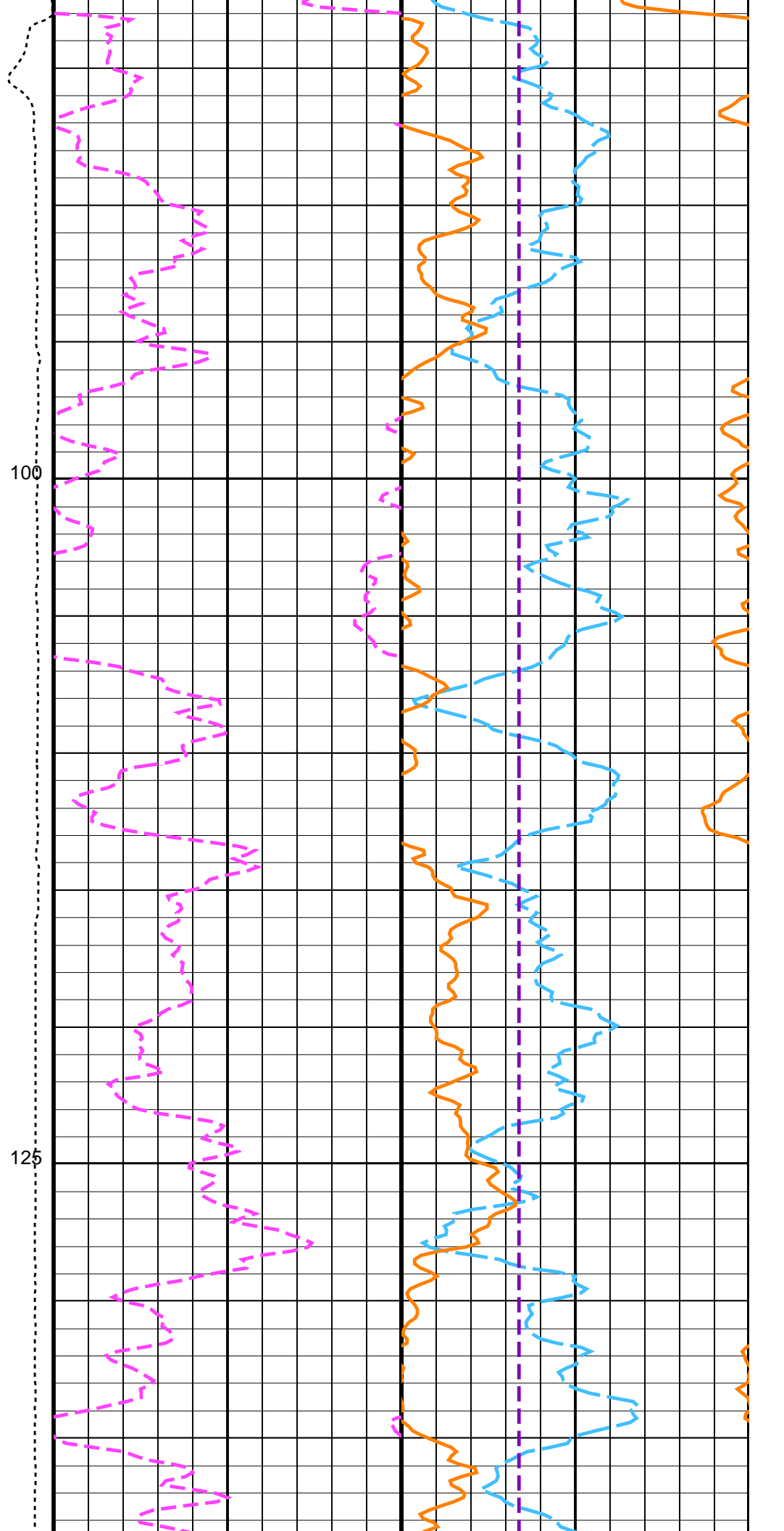
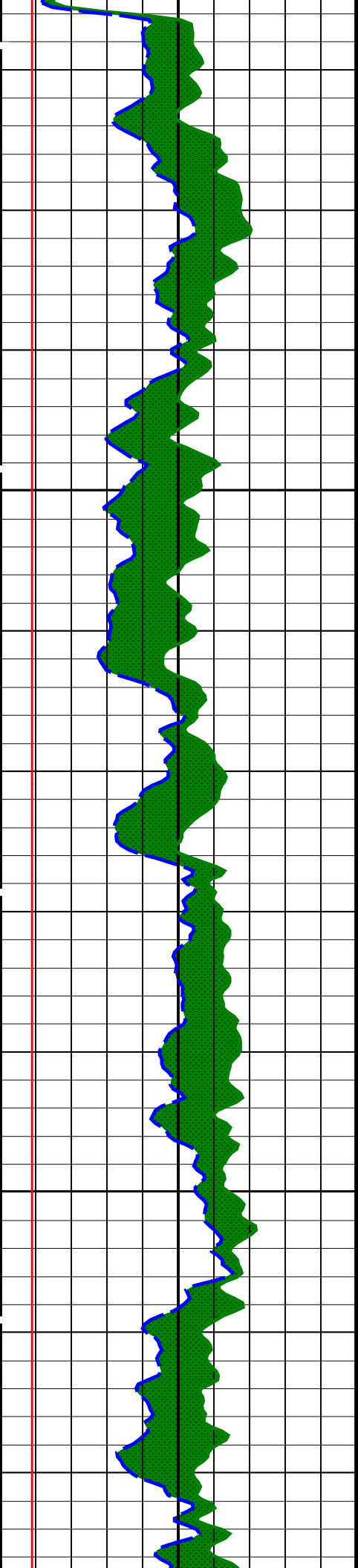
HNGS Potassium (HFK)
 -0.01 (V/V) 0.01

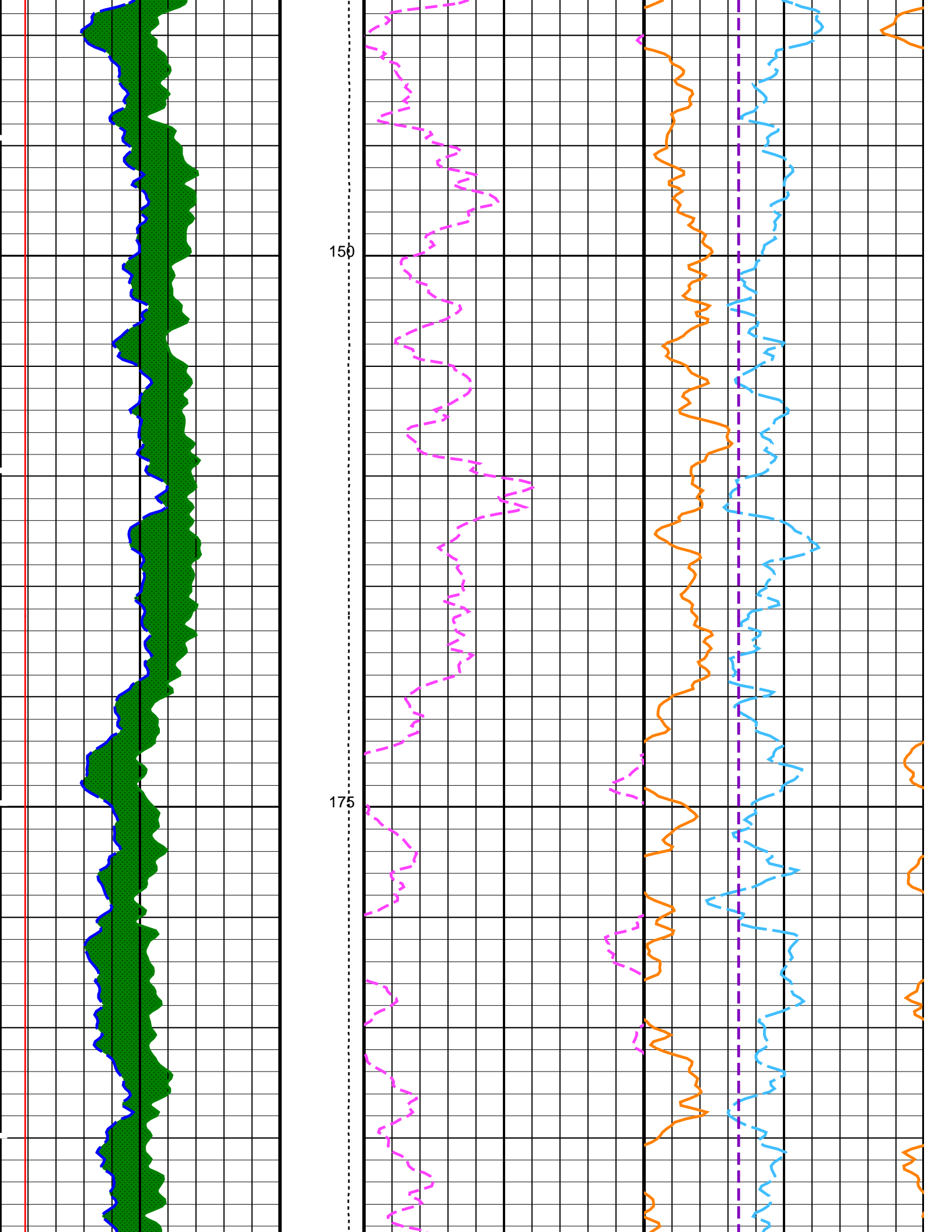
10000 0

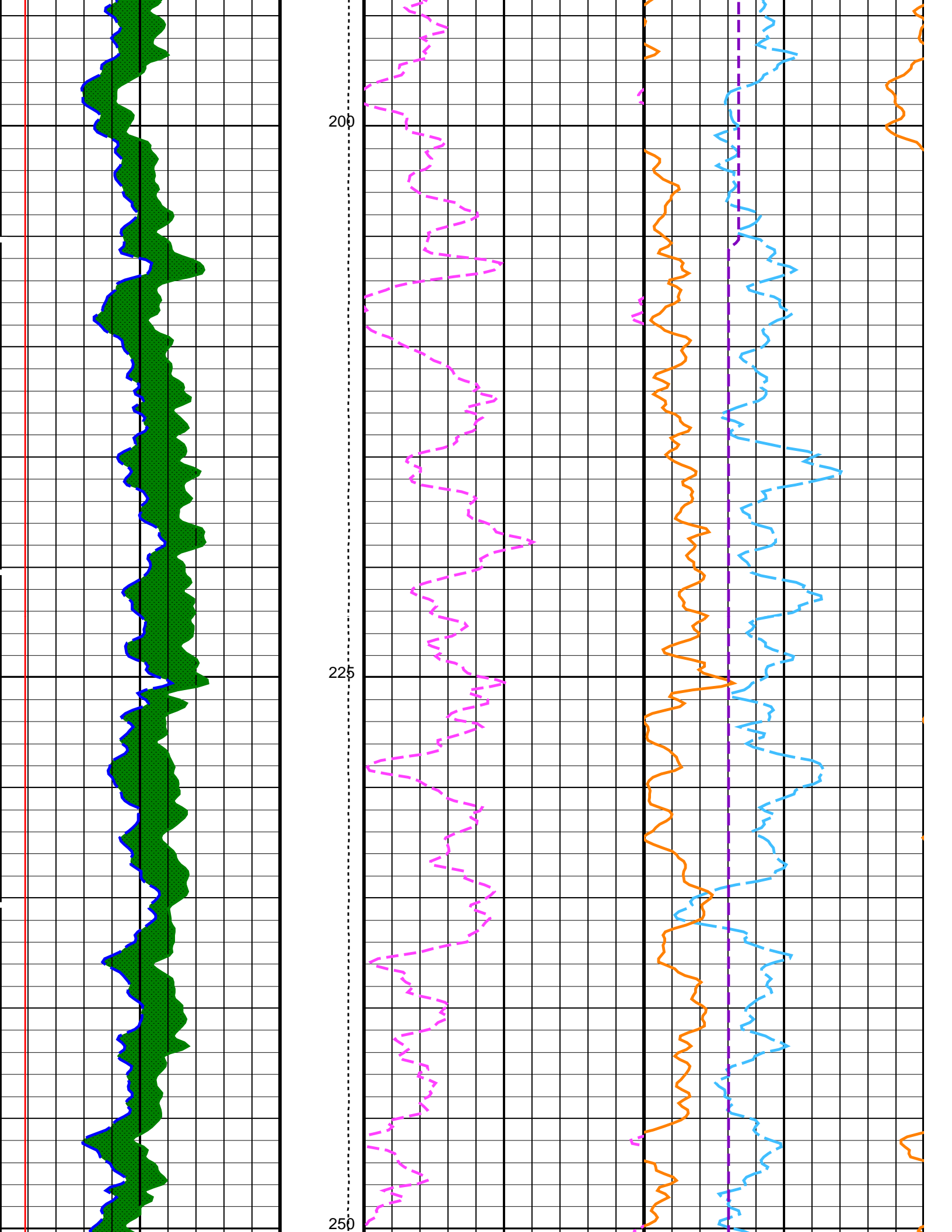
0

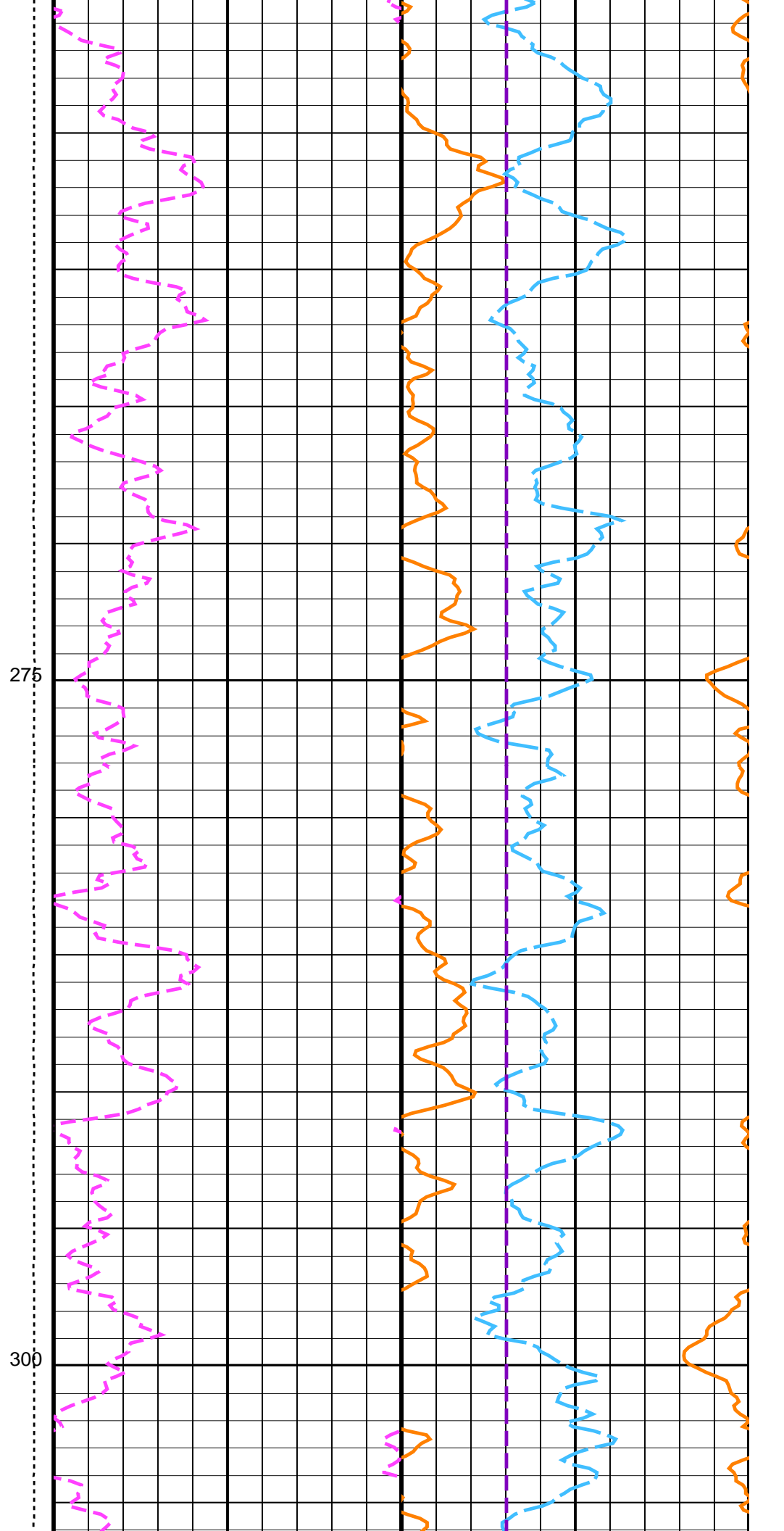
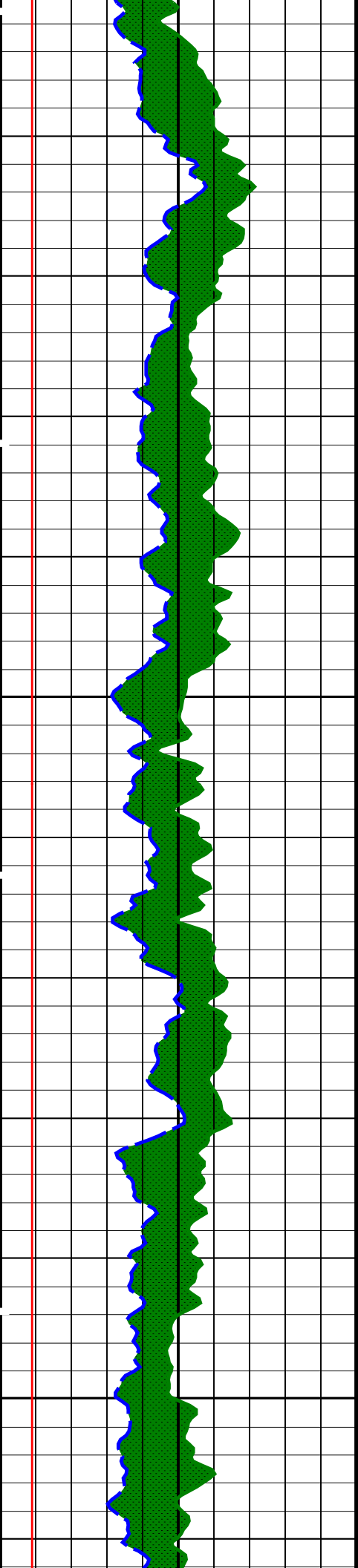


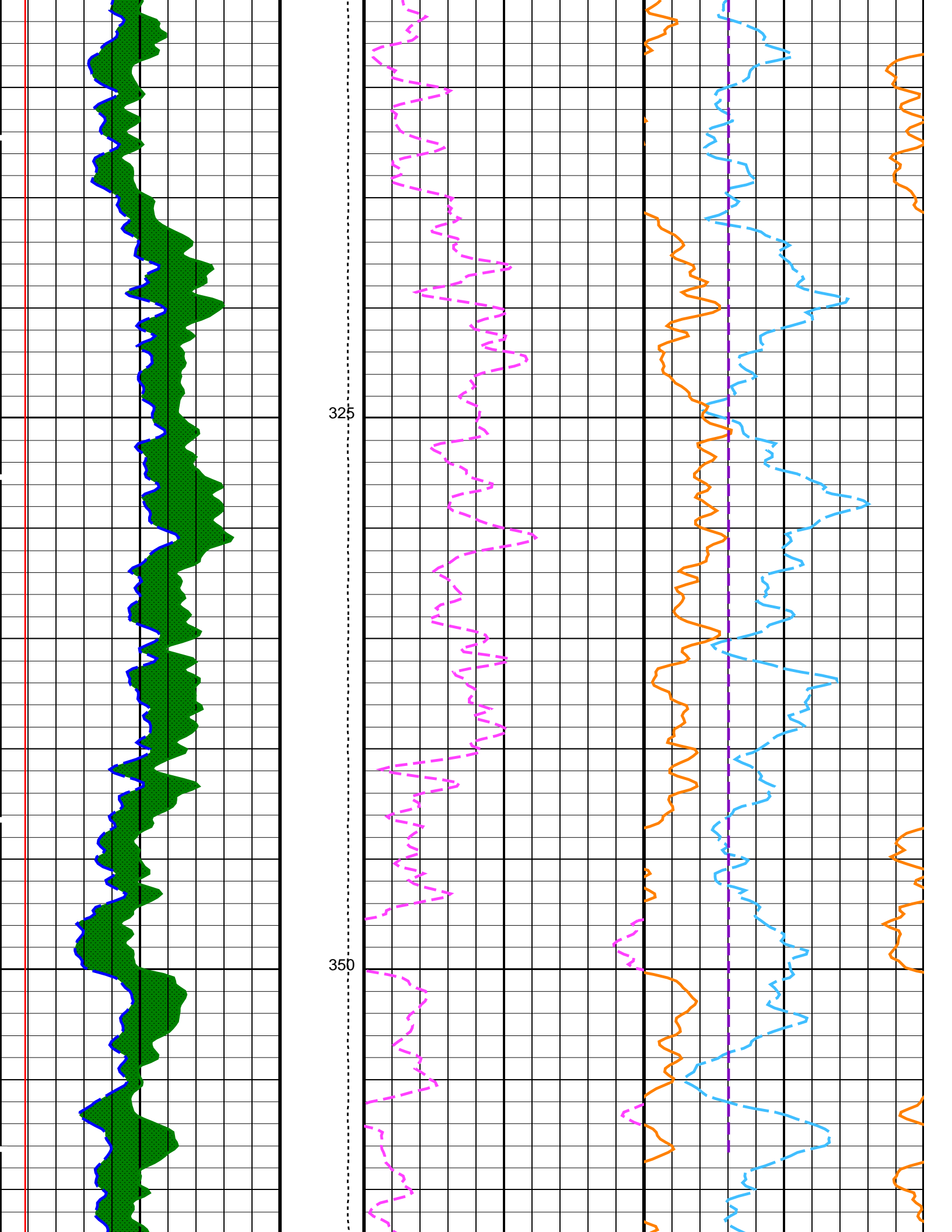


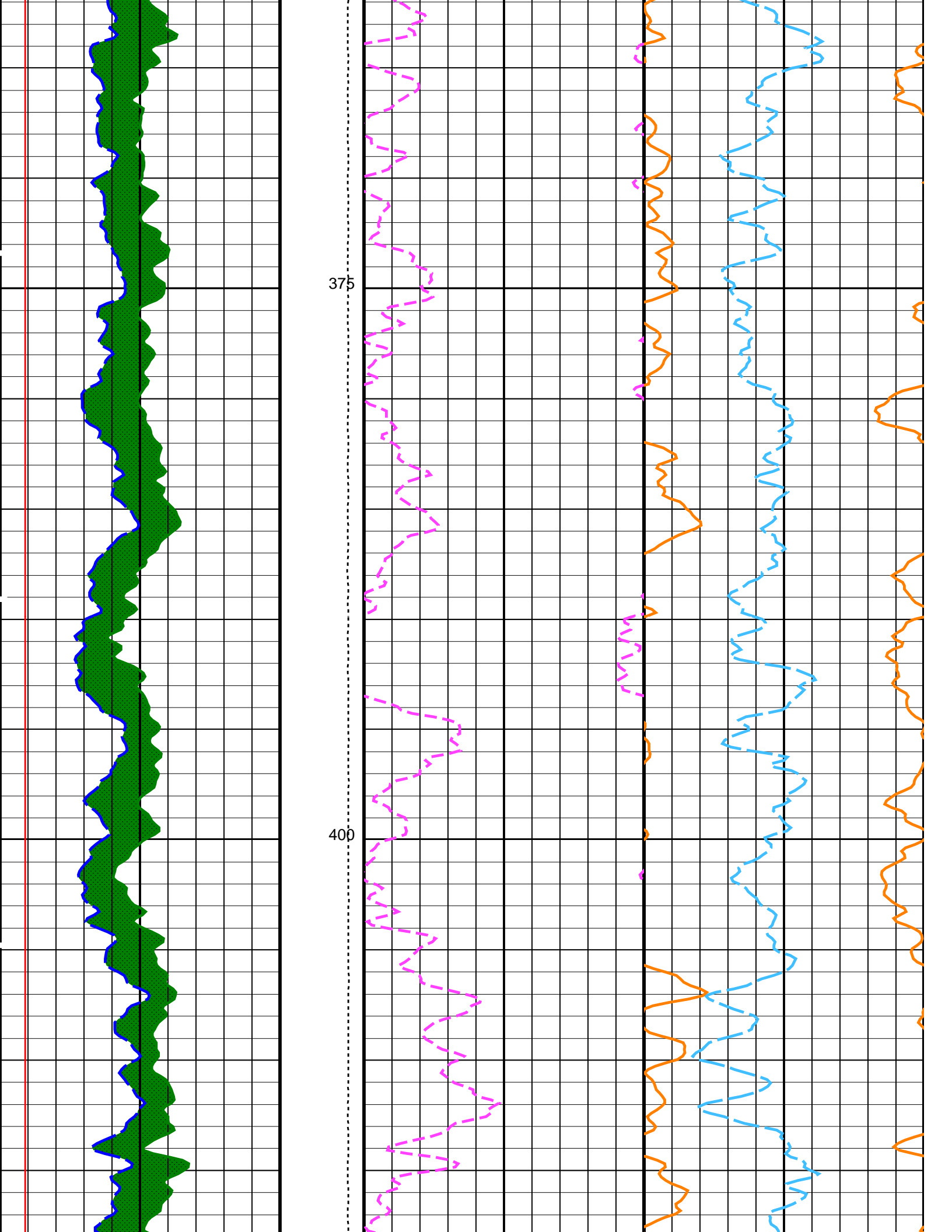


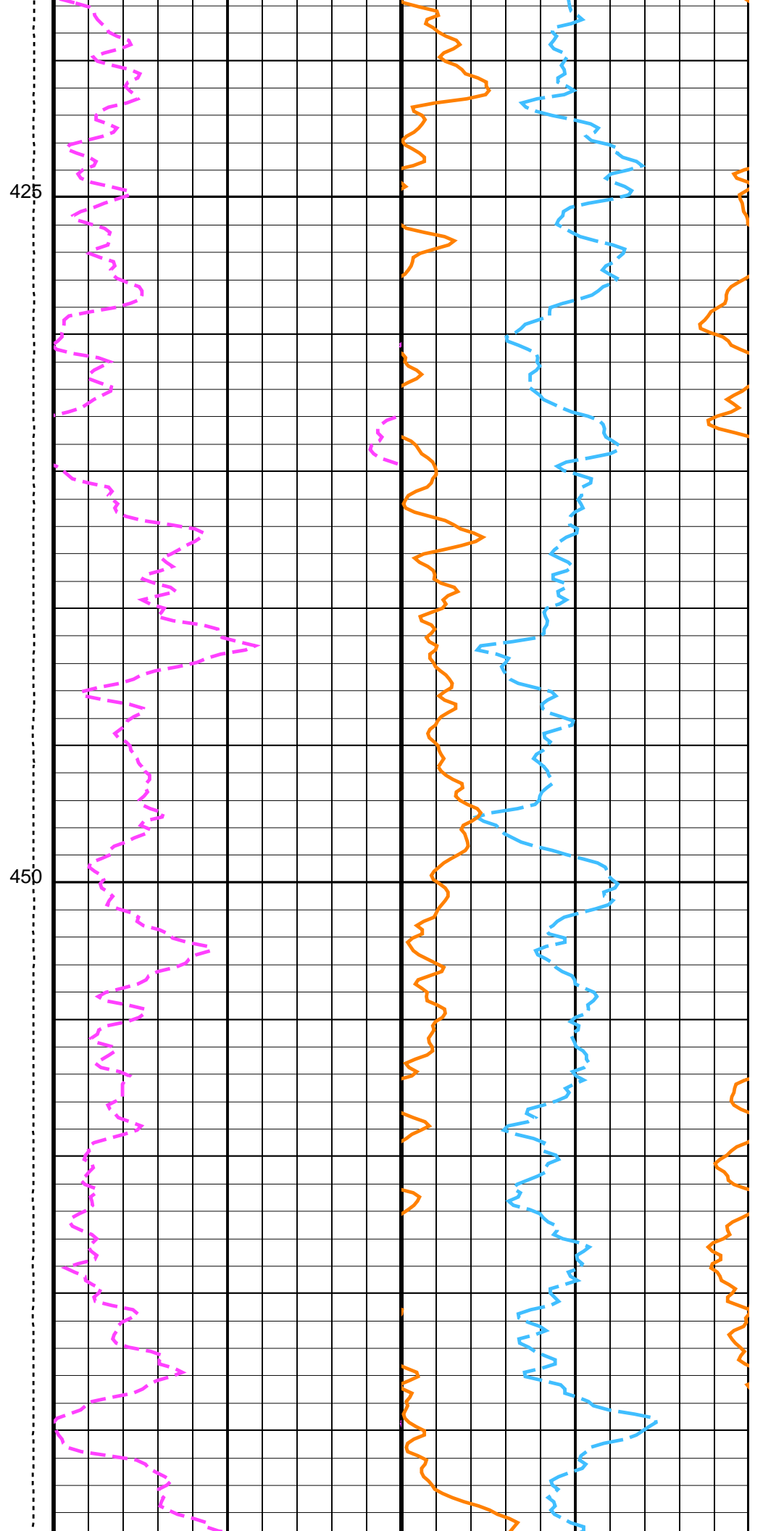
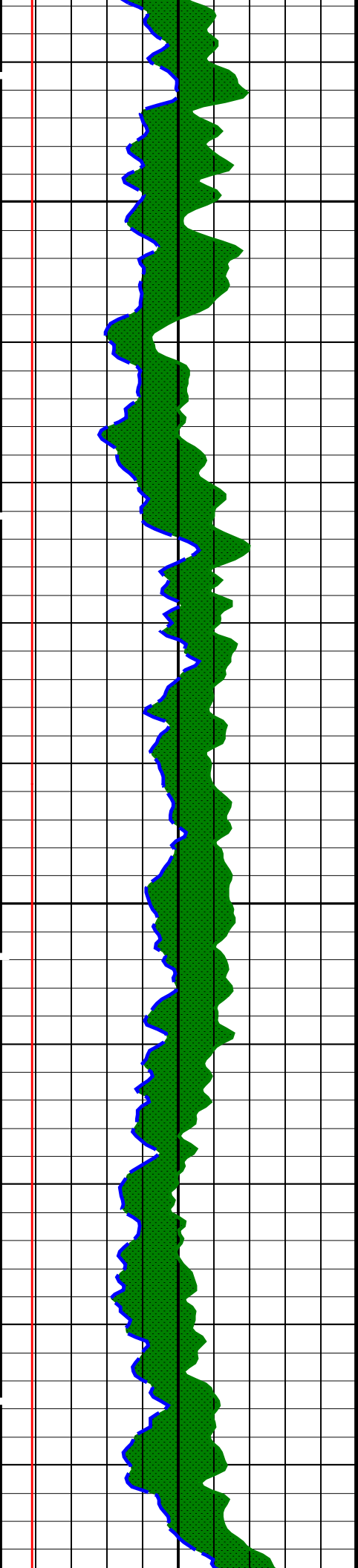


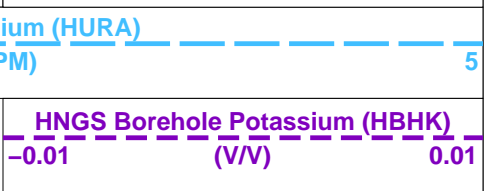
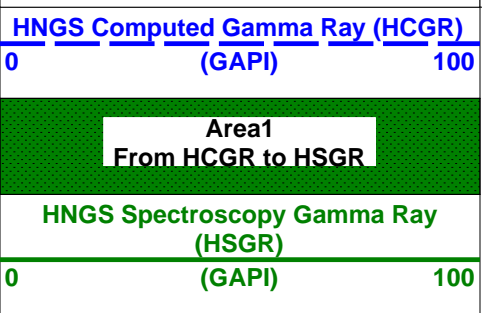
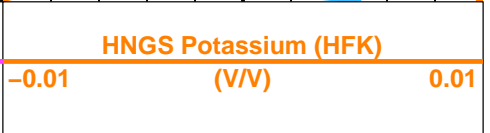
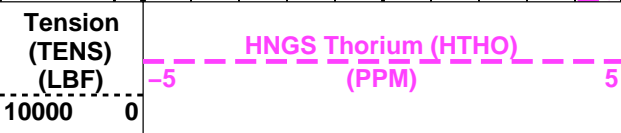
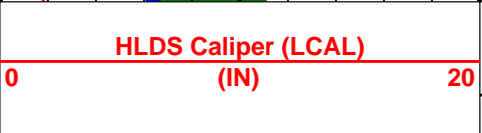
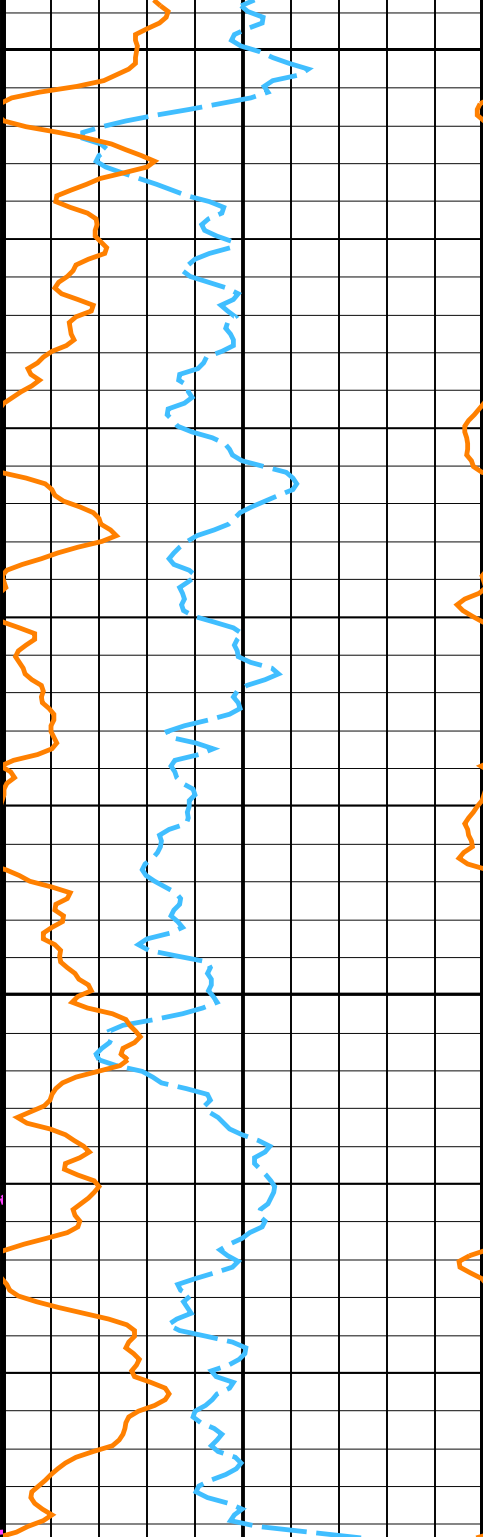
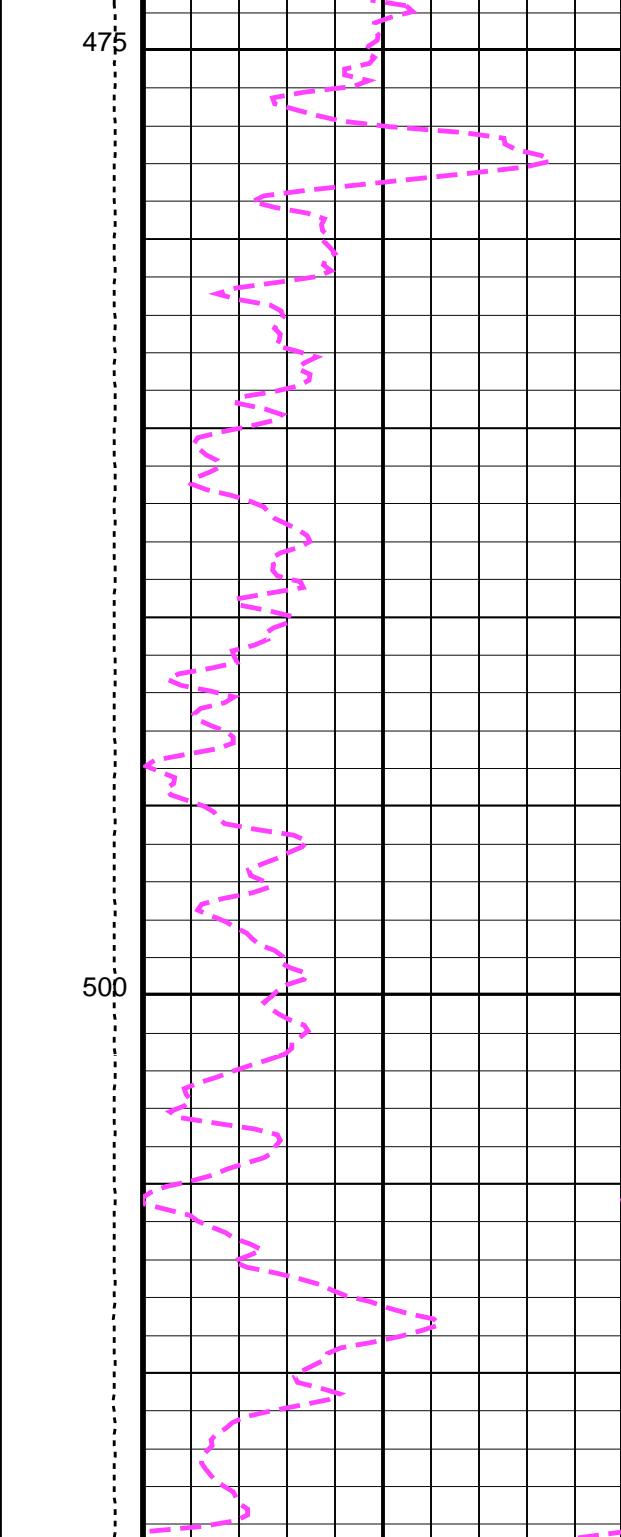
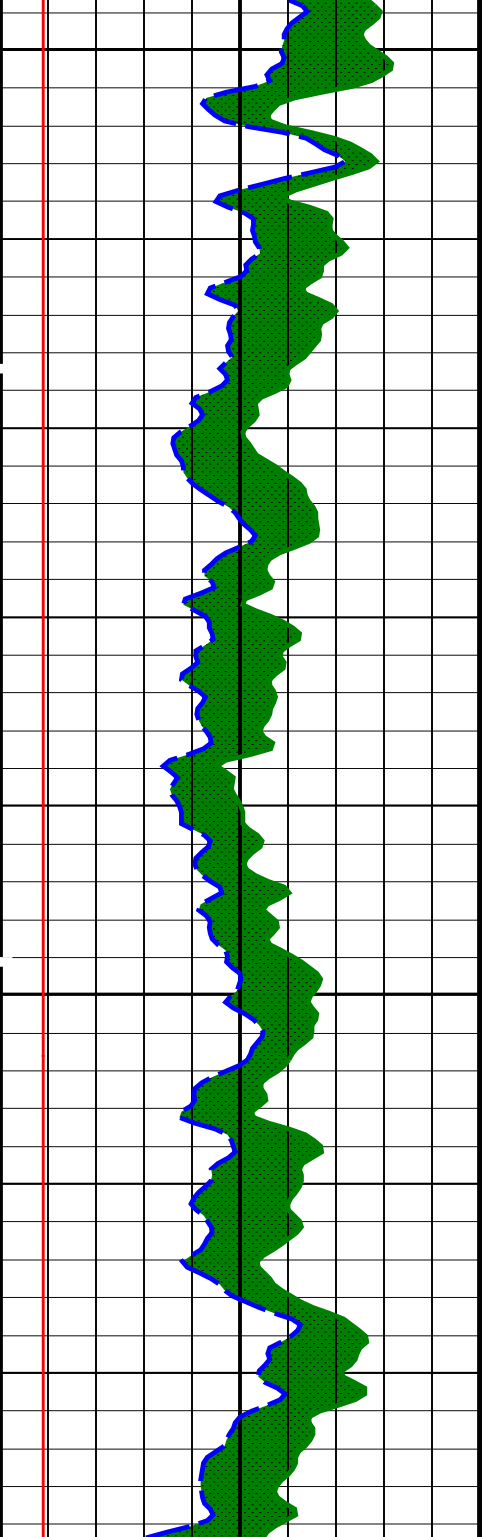












PIP SUMMARY

Time Mark Every 60 S

Parameters

| DLIS Name | Description | Value | |
|--|--|-------------|------|
| HNGS-BA: Hostile Natural Gamma Ray Sonde | | | |
| BAR1 | HNGS Detector 1 Barite Constant | 1 | |
| BAR2 | HNGS Detector 2 Barite Constant | 1 | |
| BHK | HNGS Borehole Potassium Correction Concentration | 0 | |
| BHS | Borehole Status | OPEN | |
| CSD1 | Inner Casing Outer Diameter | 0 | IN |
| CSD2 | Outer Casing Outer Diameter | 0 | IN |
| CSW1 | Inner Casing Weight | 0 | LB/F |
| CSW2 | Outer Casing Weight | 0 | LB/F |
| DBCC | HNGS Barite Constant Correction Flag | NONE | |
| GCSE | Generalized Caliper Selection | BS | |
| H1P | HNGS Detector 1 Allow/Disallow In Processing | ALLOW | |
| H2P | HNGS Detector 2 Allow/Disallow In Processing | ALLOW | |
| HABK | HNGS Borehole Potassium Running Average | -0.00762735 | |
| HALF | HNGS Alpha Filter Length | 60 | IN |
| HCRB | HNGS Apply Borehole Potassium Correction | NONE | |
| HMWM | Mud Weighting Material | BARI | |
| HNPE | HNGS Processing Enable | YES | |
| S1BI | HNGS Detector 1 Calibration Bismuth Count Rate | 1.3 | CPS |
| S2BI | HNGS Detector 2 Calibration Bismuth Count Rate | 1.3 | CPS |
| SGRC | HNGS Standard Gamma-Ray Correction Flag | YES | |
| TPOS | Tool Position | ECCE | |
| VBA1 | HNGS Detector 1 Variable Barite Factor Running Average | 0.968028 | |
| VBA2 | HNGS Detector 2 Variable Barite Factor Running Average | 0.969634 | |
| HRLT-B: High Resolution Laterolog Array - B | | | |
| BHS | Borehole Status | OPEN | |
| GCSE | Generalized Caliper Selection | BS | |
| EDTC-B: Enhanced DTS Cartridge | | | |
| BHS | Borehole Status | OPEN | |
| GCSE | Generalized Caliper Selection | BS | |
| System and Miscellaneous | | | |
| BS | Bit Size | 11.438 | IN |
| DFD | Drilling Fluid Density | 1.26 | G/C3 |
| DO | Depth Offset for Playback | -339.6 | M |
| PP | Playback Processing | RECOMPUTE | |

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 09-Sep-2013 11:29

OP System Version: 19C0-187

| | | | |
|------------|----------------|--------|----------|
| MSS_LDEO-A | 19C0-187 | HLDS | 19C0-187 |
| LDSC-B | 19C0-187 | HNGC-B | 19C0-187 |
| HNGS-BA | 19C0-187 | HRLT-B | 19C0-187 |
| EDTC-B | SKK-5169-EDTCB | | |

Input DLIS Files

| | | | | | |
|---------|--------------------------|----------|-------------------|---------|---------|
| DEFAULT | Flip_MSS_LDEO_LDL_018LUP | PRODUCER | 09-Sep-2013 11:28 | 854.0 M | 292.6 M |
|---------|--------------------------|----------|-------------------|---------|---------|

Output DLIS Files

| | | | | |
|---------|-------------------------|-------|----------|-------------------|
| DEFAULT | MSS_LDEO_LDL_NGS_019PUP | FN:17 | PRODUCER | 09-Sep-2013 11:29 |
| CLIENT | MSS_LDEO_LDL_NGS_019PUC | FN:18 | CUSTOMER | 09-Sep-2013 11:29 |



**Repeat Pass
1:200 Scale**

MAXIS Field Log

Company: Lamont Doherty Earth Observatory Well: Expedition 346, Site U1427A

Input DLIS Files

| | | | | | | |
|---------|-------------------------|------|----------|-------------------|---------|---------|
| DEFAULT | MSS_LDEO_LDL_NGS_007LUP | FN:6 | PRODUCER | 08-Sep-2013 00:35 | 887.0 M | 800.1 M |
|---------|-------------------------|------|----------|-------------------|---------|---------|

Output DLIS Files

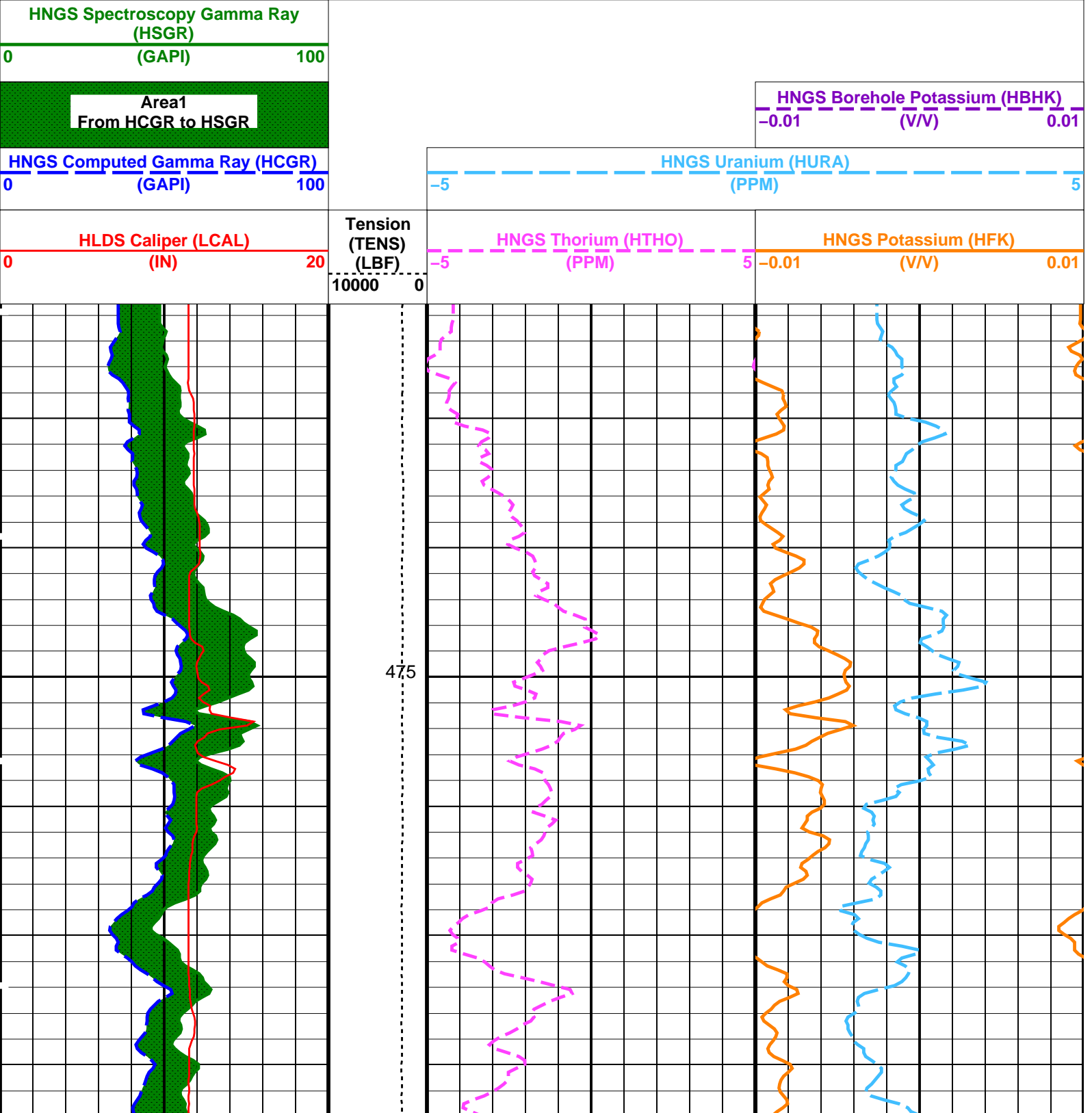
| | | | | | | |
|---------|-------------------------|-------|----------|-------------------|---------|---------|
| DEFAULT | MSS_LDEO_LDL_NGS_020PUP | FN:19 | PRODUCER | 09-Sep-2013 11:33 | 547.1 M | 460.6 M |
| CLIENT | MSS_LDEO_LDL_NGS_020PUC | FN:20 | CUSTOMER | 09-Sep-2013 11:33 | 547.1 M | 460.6 M |

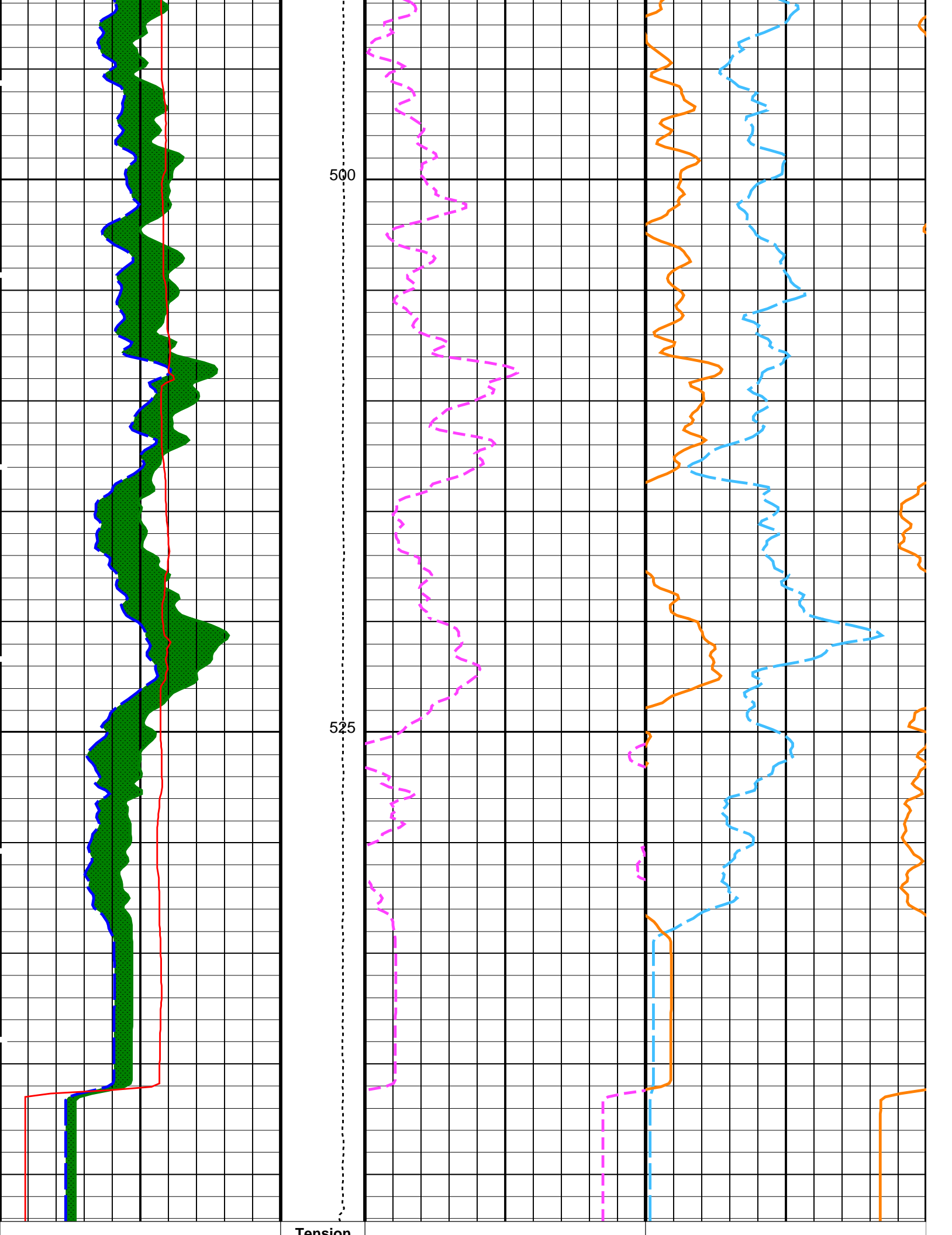
OP System Version: 19C0-187

| | | | |
|------------|----------------|--------|----------|
| MSS_LDEO-A | 19C0-187 | HLDS | 19C0-187 |
| LDSC-B | 19C0-187 | HNGC-B | 19C0-187 |
| HNGS-BA | 19C0-187 | HRLT-B | 19C0-187 |
| EDTC-B | SKK-5169-EDTCB | | |

PIP SUMMARY

Time Mark Every 60 S





| | | | | | | | |
|---|--------|-----------------------|-------|---------------------------------------|-------|-----------------------------|-------------|
| HLDS Caliper (LCAL) | | Tension (TENS) | | HNGS Thorium (HTHO) | | HNGS Potassium (HFK) | |
| 0 | (IN) | 20 | (LBF) | -5 | (PPM) | 5 | -0.01 (V/V) |
| | | 10000 | 0 | | | | 0.01 |
| HNGS Computed Gamma Ray (HCGR) | | | | HNGS Uranium (HURA) | | | |
| 0 | (GAPI) | 100 | | -5 | (PPM) | 5 | |
| Area1 From HCGR to HSGR | | | | HNGS Borehole Potassium (HBHK) | | | |
| | | | | -0.01 | (V/V) | 0.01 | |
| HNGS Spectroscopy Gamma Ray (HSGR) | | | | | | | |
| 0 | (GAPI) | 100 | | | | | |

PIP SUMMARY

Time Mark Every 60 S

Parameters

| DLIS Name | Description | Value | |
|--|--|-------------|------|
| HNGS-BA: Hostile Natural Gamma Ray Sonde | | | |
| BAR1 | HNGS Detector 1 Barite Constant | 1 | |
| BAR2 | HNGS Detector 2 Barite Constant | 1 | |
| BHK | HNGS Borehole Potassium Correction Concentration | 0 | |
| BHS | Borehole Status | OPEN | |
| CSD1 | Inner Casing Outer Diameter | 0 | IN |
| CSD2 | Outer Casing Outer Diameter | 0 | IN |
| CSW1 | Inner Casing Weight | 0 | LB/F |
| CSW2 | Outer Casing Weight | 0 | LB/F |
| DBCC | HNGS Barite Constant Correction Flag | NONE | |
| GCSE | Generalized Caliper Selection | LCAL | |
| H1P | HNGS Detector 1 Allow/Disallow In Processing | ALLOW | |
| H2P | HNGS Detector 2 Allow/Disallow In Processing | ALLOW | |
| HABK | HNGS Borehole Potassium Running Average | -0.00353669 | |
| HALF | HNGS Alpha Filter Length | 60 | IN |
| HCRB | HNGS Apply Borehole Potassium Correction | NONE | |
| HMWM | Mud Weighting Material | BARI | |
| HNPE | HNGS Processing Enable | YES | |
| S1BI | HNGS Detector 1 Calibration Bismuth Count Rate | 1.3 | CPS |
| S2BI | HNGS Detector 2 Calibration Bismuth Count Rate | 1.3 | CPS |
| SGRC | HNGS Standard Gamma-Ray Correction Flag | YES | |
| TPOS | Tool Position | ECCE | |
| VBA1 | HNGS Detector 1 Variable Barite Factor Running Average | 0.936615 | |
| VBA2 | HNGS Detector 2 Variable Barite Factor Running Average | -0.988183 | |
| HRLT-B: High Resolution Laterolog Array - B | | | |
| BHS | Borehole Status | OPEN | |
| GCSE | Generalized Caliper Selection | LCAL | |
| EDTC-B: Enhanced DTS Cartridge | | | |
| BHS | Borehole Status | OPEN | |
| GCSE | Generalized Caliper Selection | LCAL | |
| System and Miscellaneous | | | |
| BS | Bit Size | 11.438 | IN |
| DFD | Drilling Fluid Density | 1.26 | G/C3 |
| DO | Depth Offset for Playback | -339.6 | M |
| PP | Playback Processing | RECOMPUTE | |

Format: HNGSYields

Vertical Scale: 1:200

Graphics File Created: 09-Sep-2013 11:33

OP System Version: 19C0-187

| | | | |
|------------|----------------|--------|----------|
| MSS_LDEO-A | 19C0-187 | HLDS | 19C0-187 |
| LDSC-B | 19C0-187 | HNGC-B | 19C0-187 |
| HNGS-BA | 19C0-187 | HRLT-B | 19C0-187 |
| EDTC-B | SKK-5169-EDTCB | | |

Input DLIS Files

| | | | | | | |
|---------|-------------------------|------|----------|-------------------|---------|---------|
| DEFAULT | MSS_LDEO_LDL_NGS_007LUP | FN:6 | PRODUCER | 08-Sep-2013 00:35 | 887.0 M | 800.1 M |
|---------|-------------------------|------|----------|-------------------|---------|---------|

Output DLIS Files

| | | | | |
|---------|-------------------------|-------|----------|-------------------|
| DEFAULT | MSS_LDEO_LDL_NGS_020PUP | FN:19 | PRODUCER | 09-Sep-2013 11:33 |
| CLIENT | MSS_LDEO_LDL_NGS_020PUC | FN:20 | CUSTOMER | 09-Sep-2013 11:33 |

Company: Lamont Doherty Earth Observatory Well: Expedition 346, Site U1427A

Input DLIS Files

| | | | | | | |
|---------|-------------------------|------|----------|-------------------|---------|---------|
| DEFAULT | MSS_LDEO_LDL_NGS_008LUP | FN:7 | PRODUCER | 08-Sep-2013 00:57 | 887.0 M | 329.6 M |
|---------|-------------------------|------|----------|-------------------|---------|---------|

Output DLIS Files

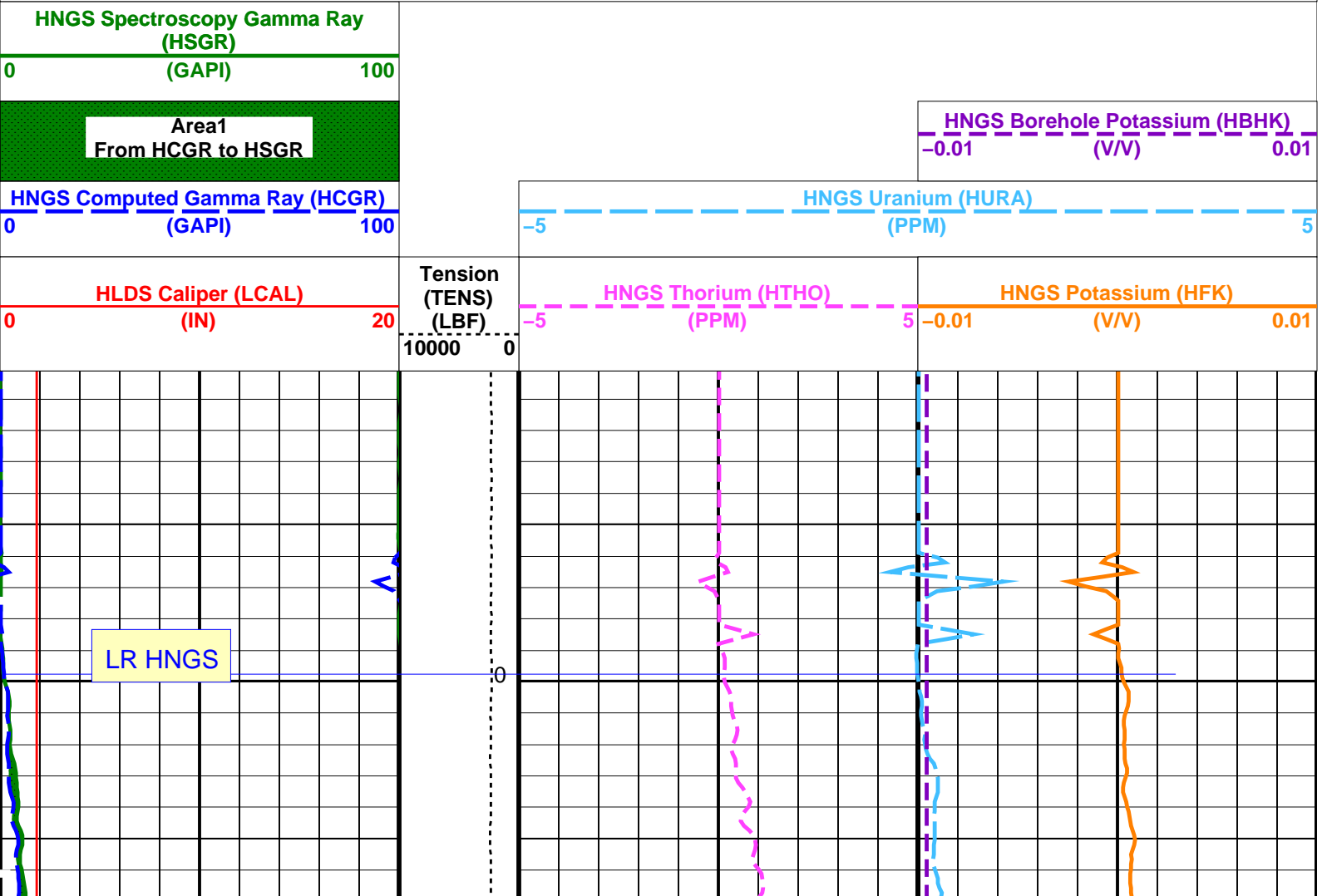
| | | | | | | |
|---------|-------------------------|-------|----------|-------------------|---------|--------|
| DEFAULT | MSS_LDEO_LDL_NGS_021PUP | FN:21 | PRODUCER | 09-Sep-2013 11:34 | 547.1 M | -9.9 M |
| CLIENT | MSS_LDEO_LDL_NGS_021PUC | FN:22 | CUSTOMER | 09-Sep-2013 11:34 | 547.1 M | -9.9 M |

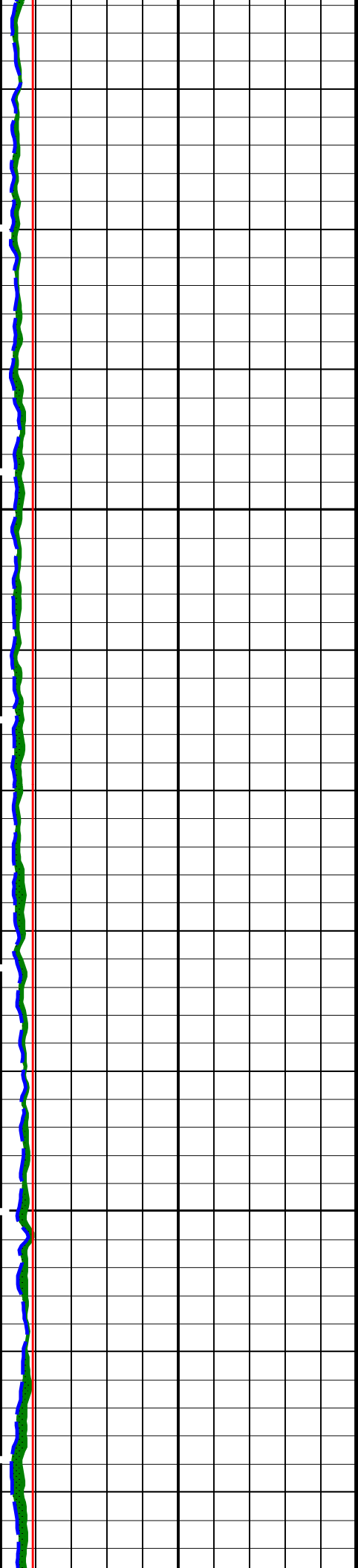
OP System Version: 19C0-187

| | | | |
|------------|----------------|--------|----------|
| MSS_LDEO-A | 19C0-187 | HLDS | 19C0-187 |
| LDSC-B | 19C0-187 | HNGC-B | 19C0-187 |
| HNGS-BA | 19C0-187 | HRLT-B | 19C0-187 |
| EDTC-B | SKK-5169-EDTCB | | |

PIP SUMMARY

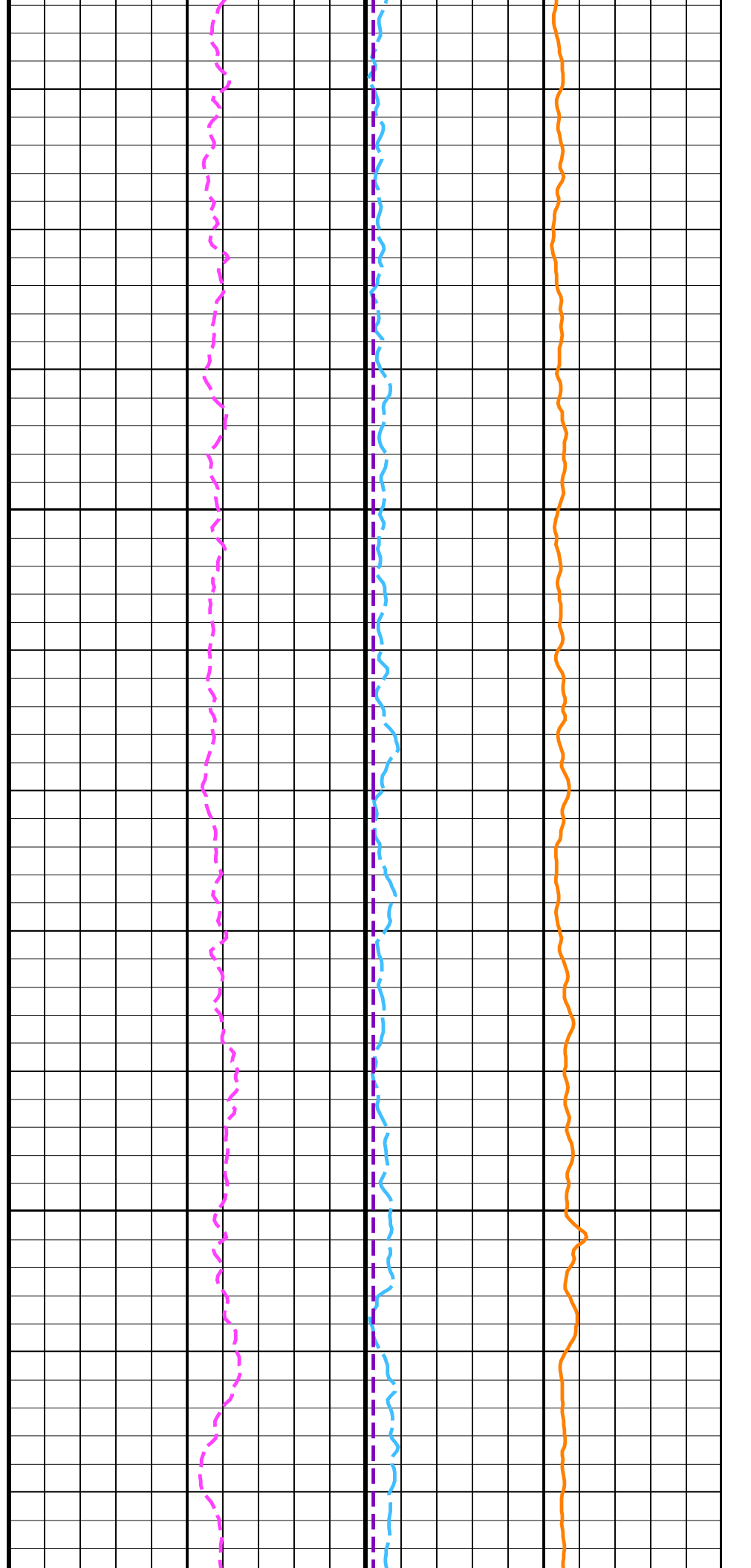
Time Mark Every 60 S

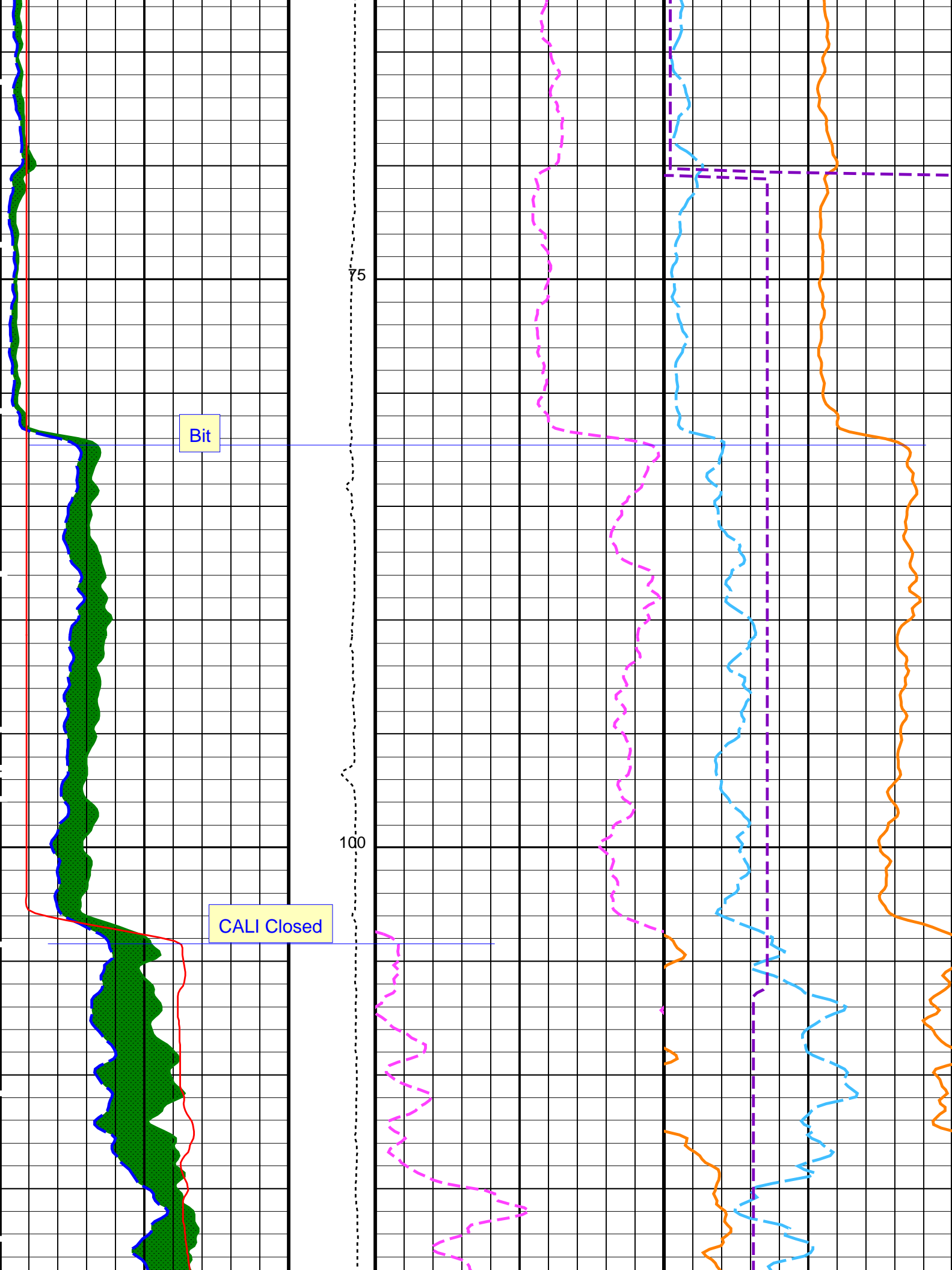




25

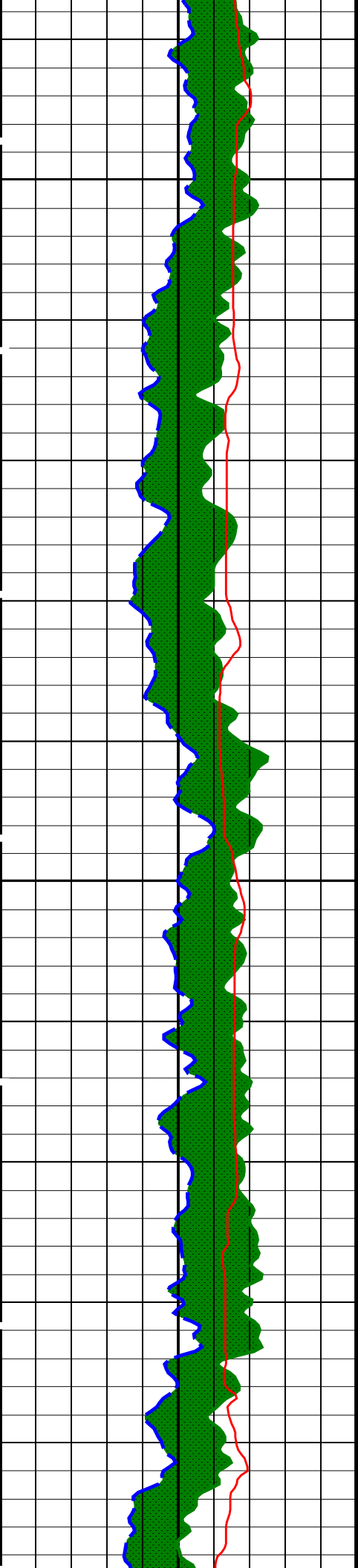
50





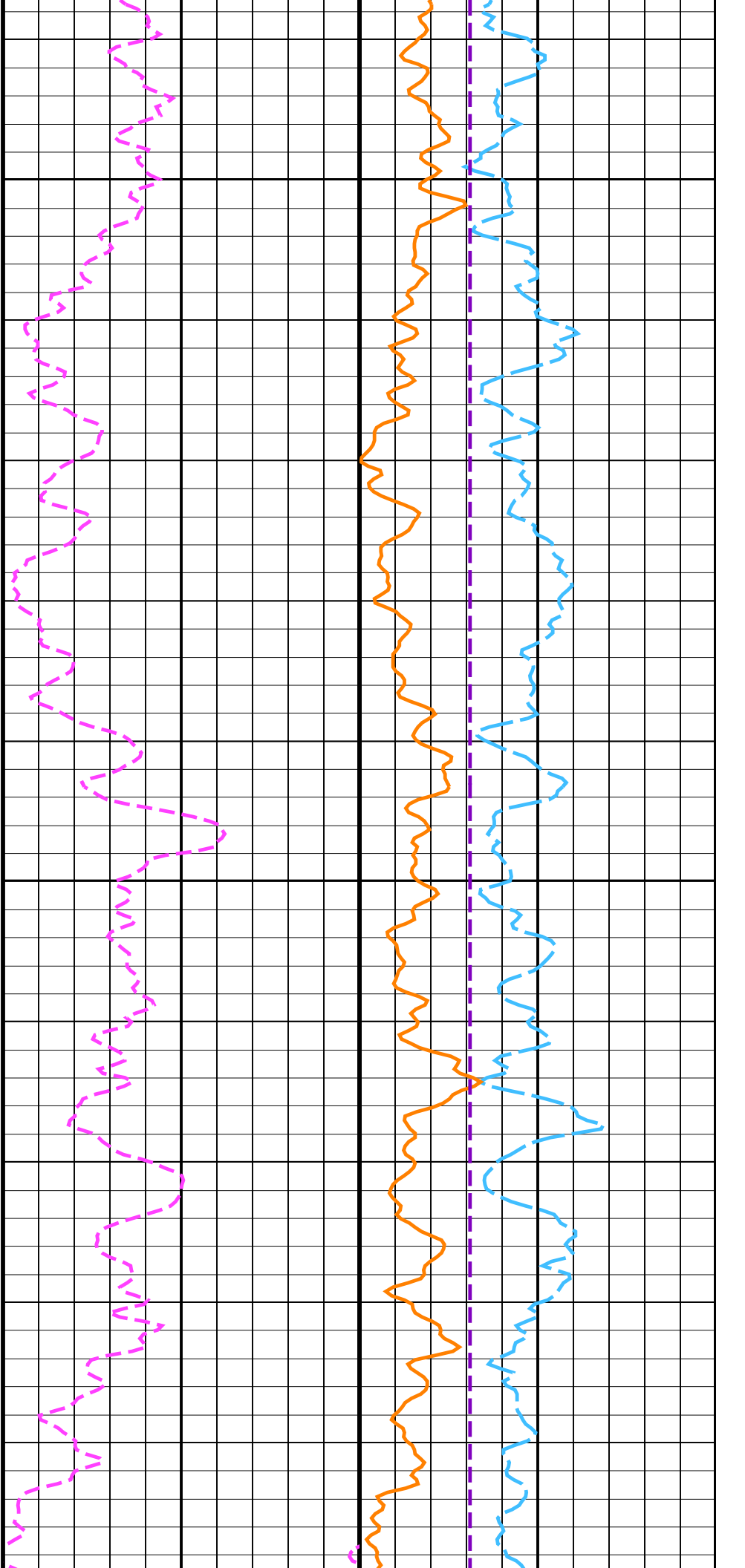
Bit

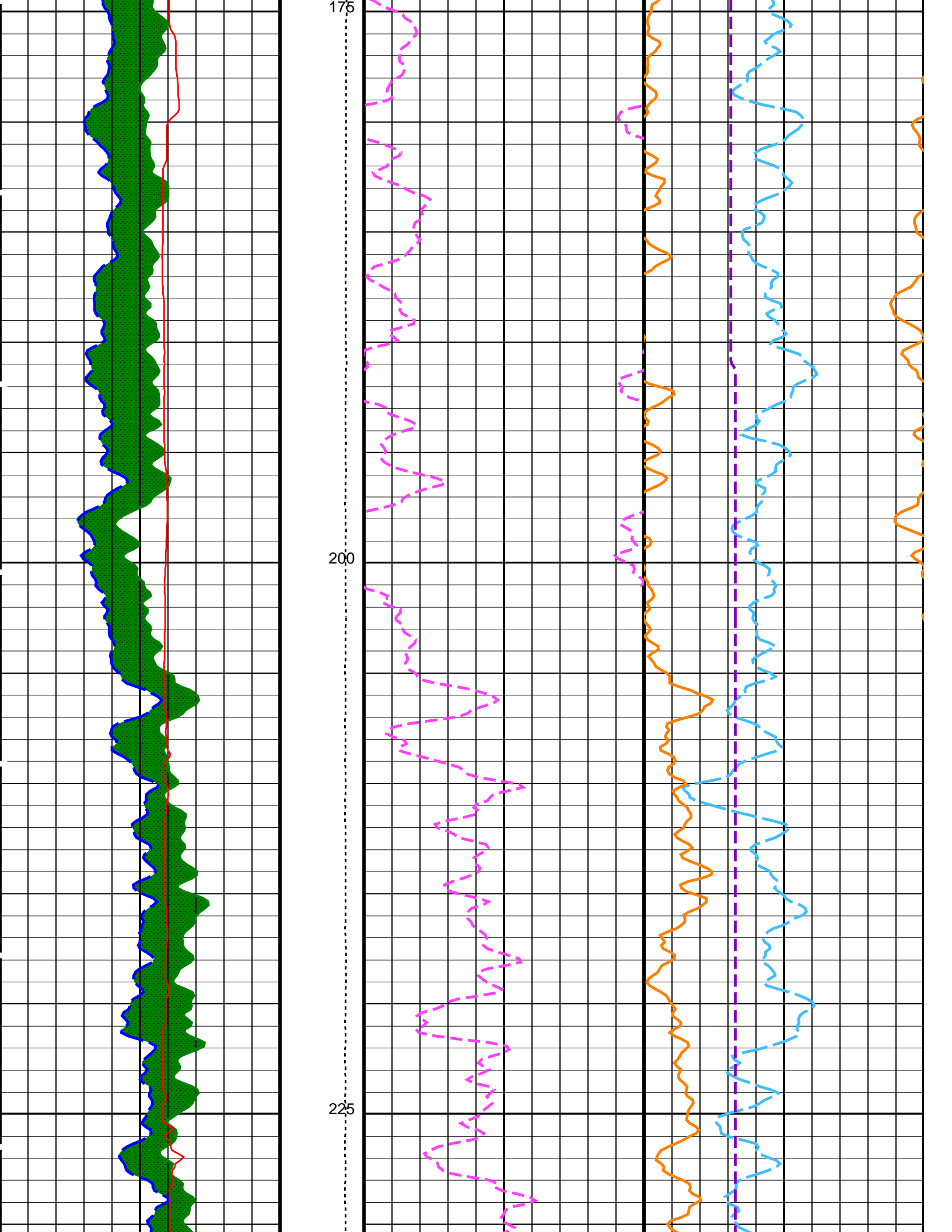
CALI Closed

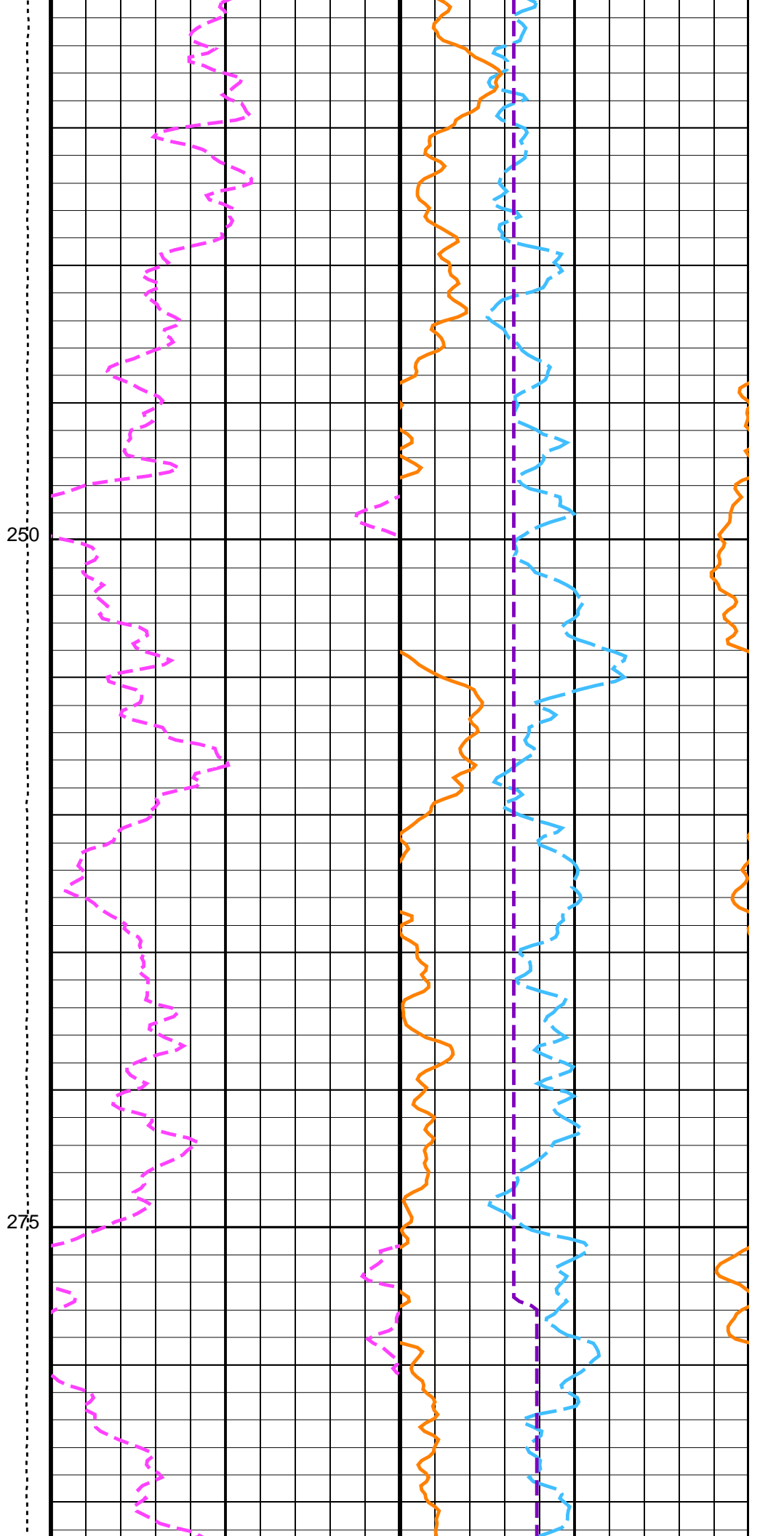
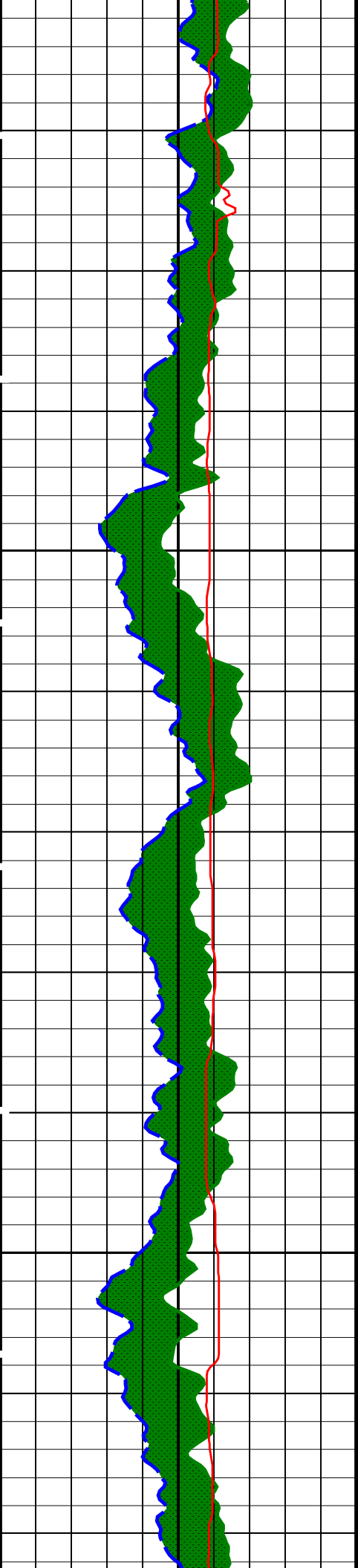


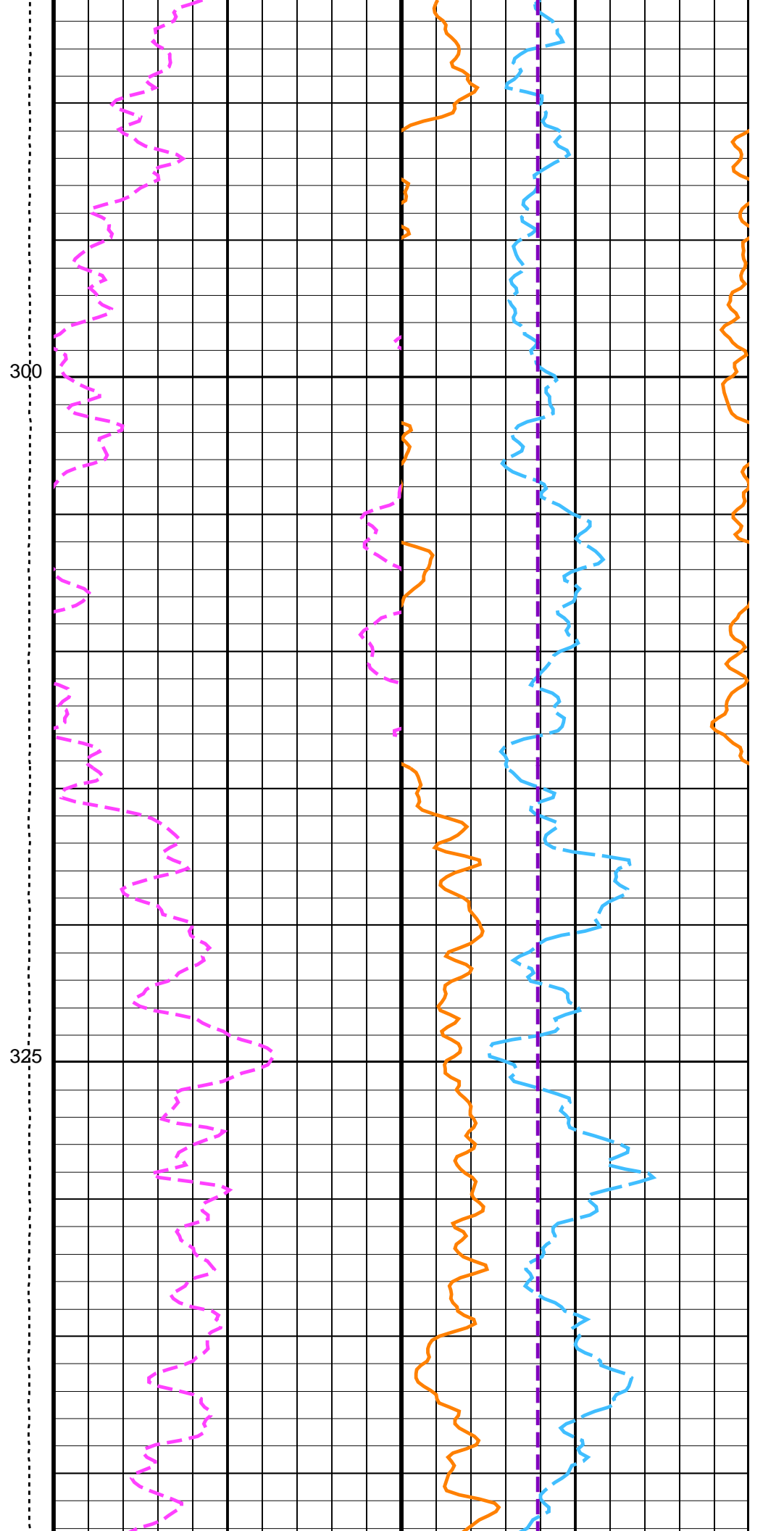
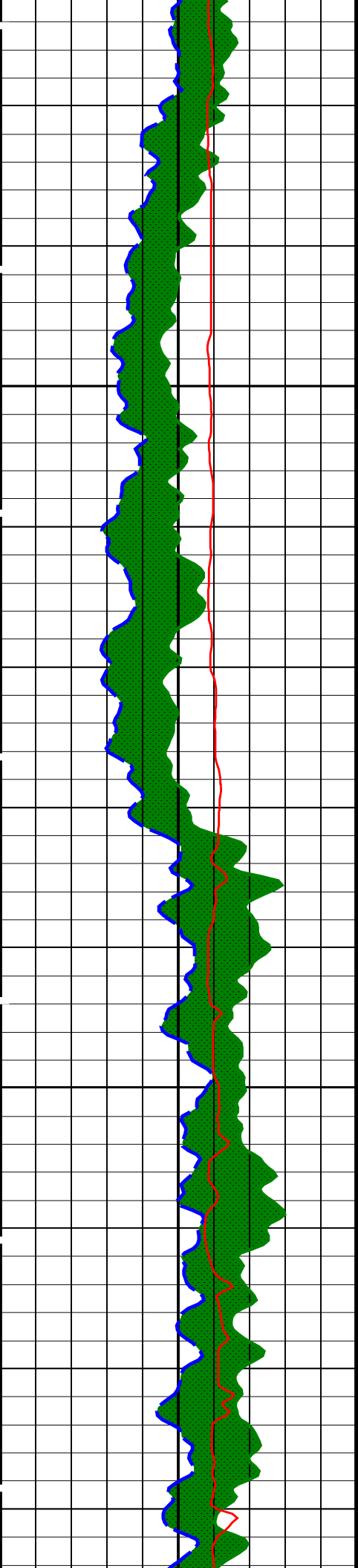
125

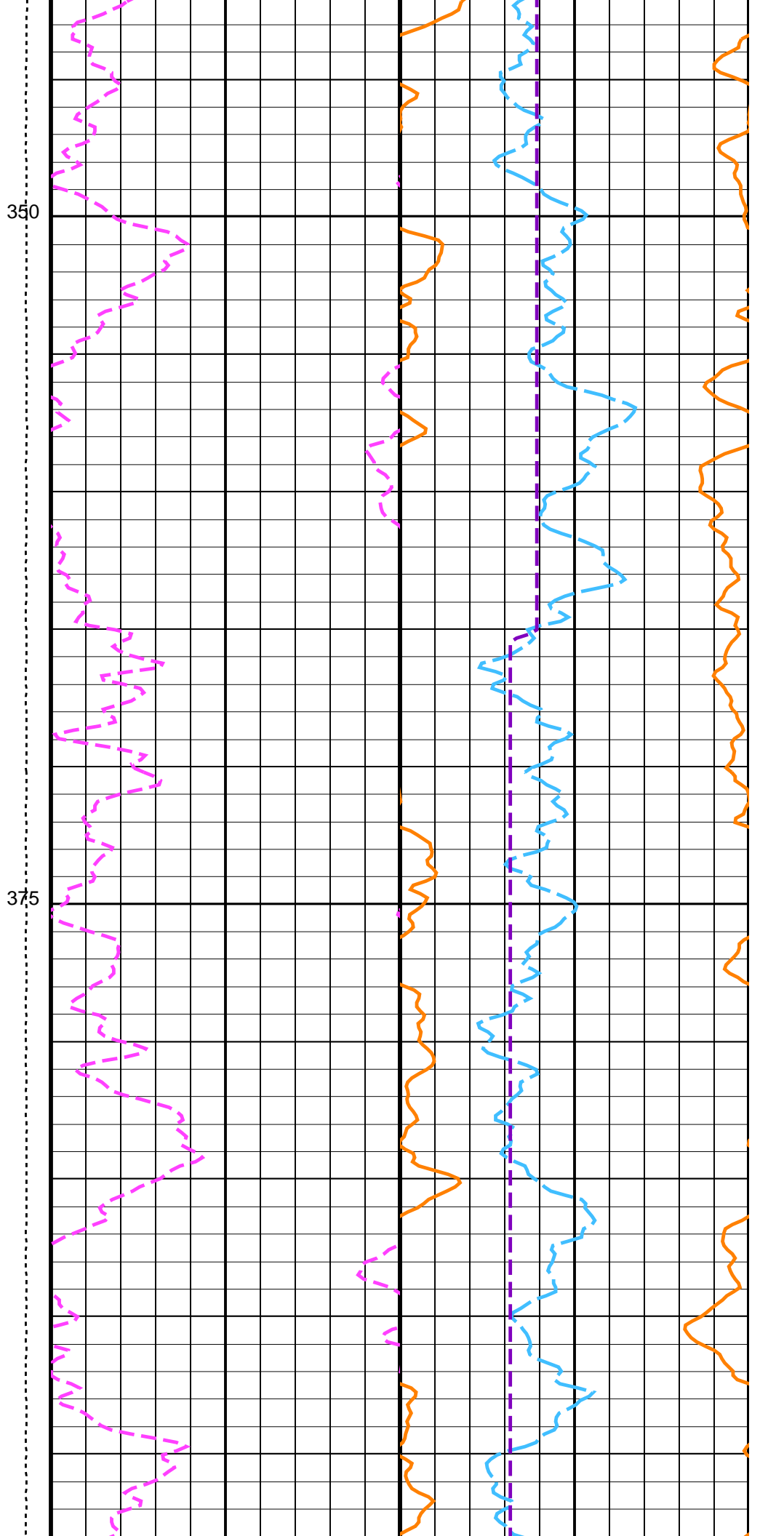
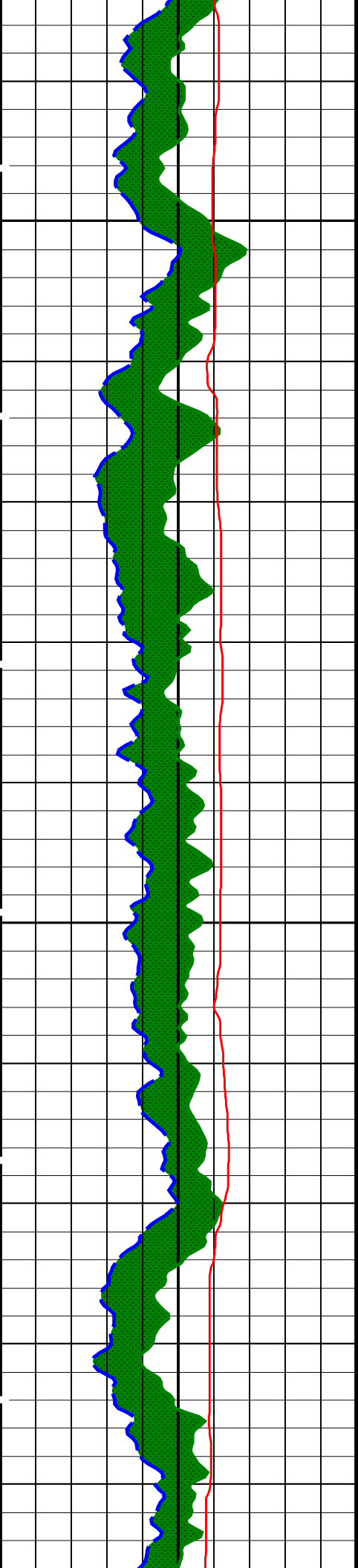
150

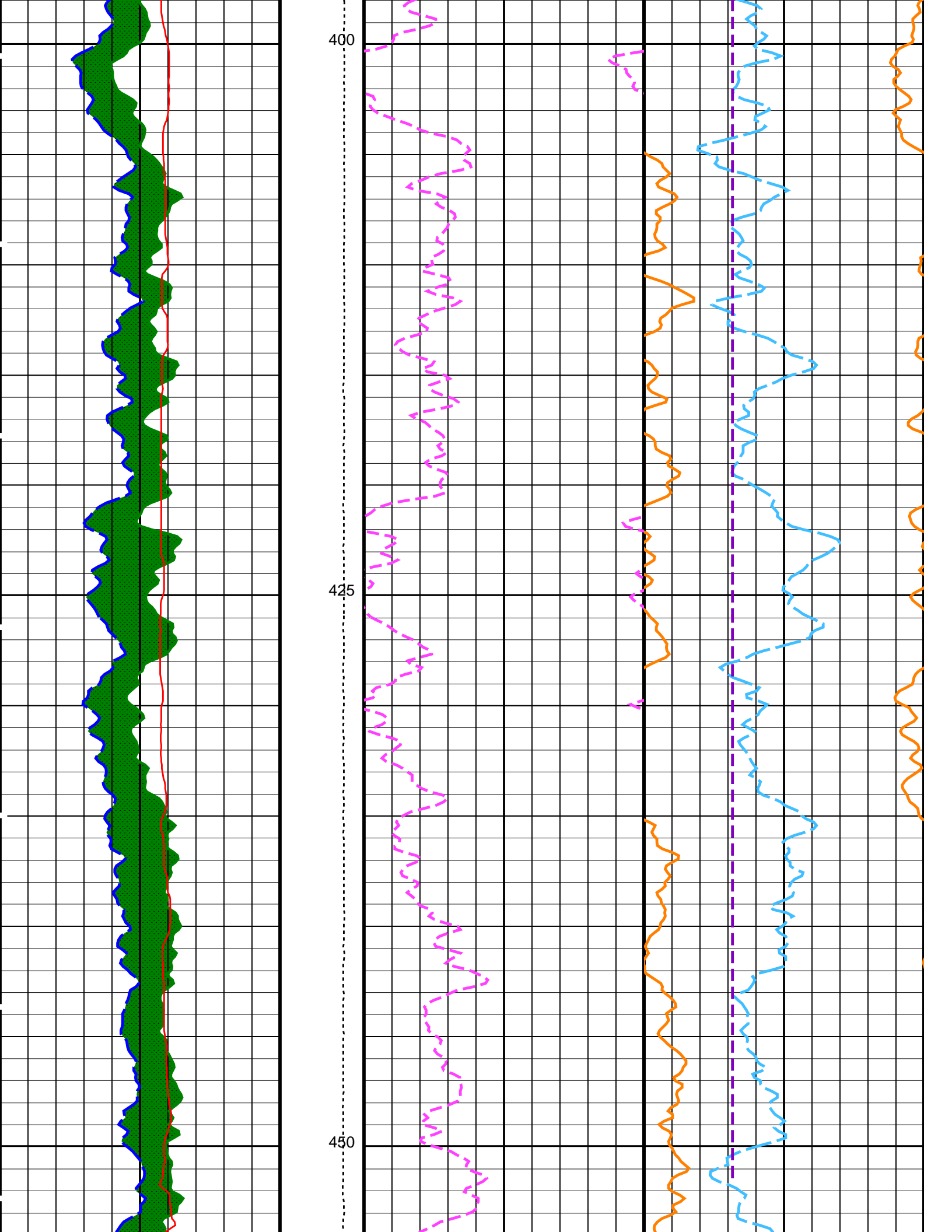


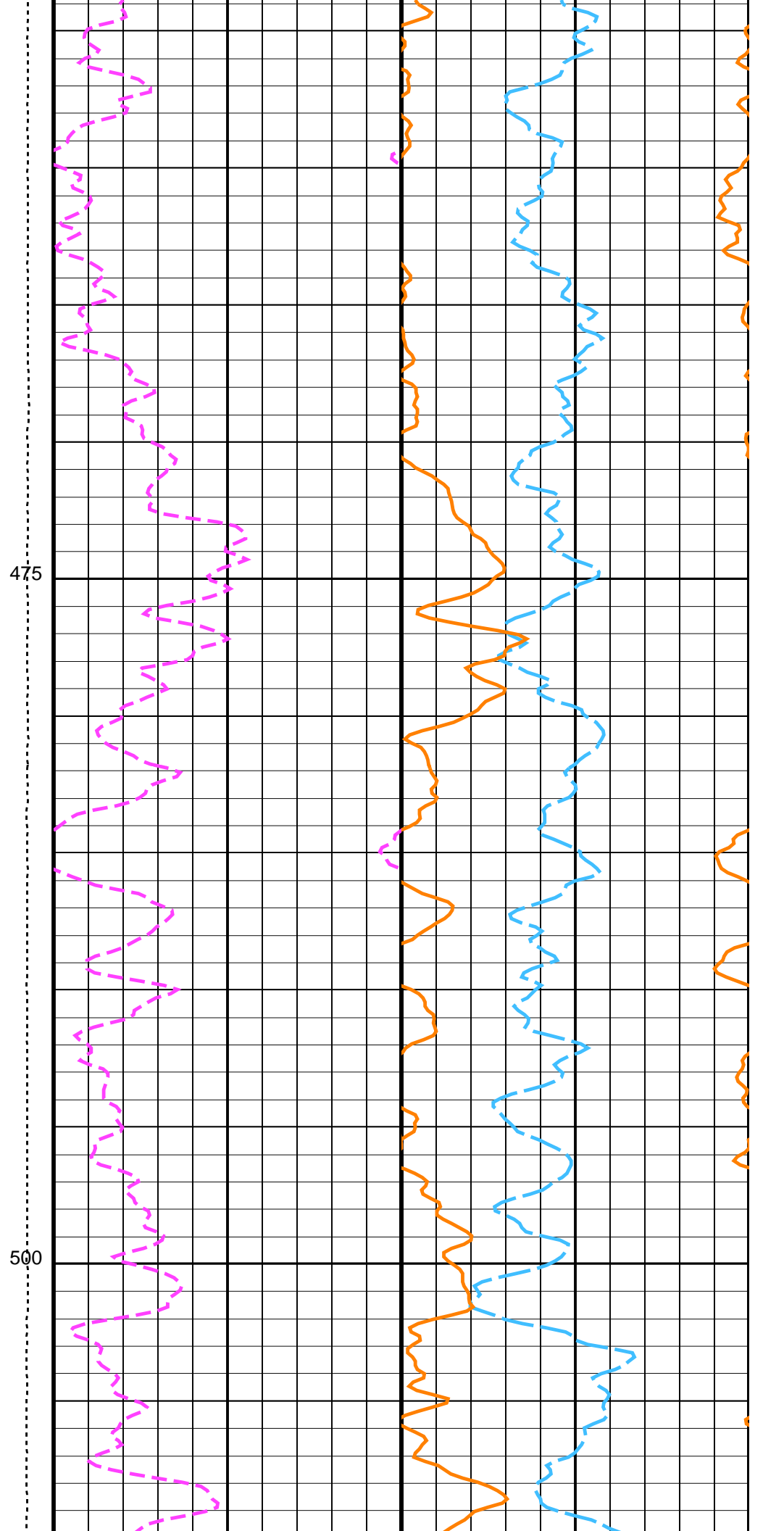
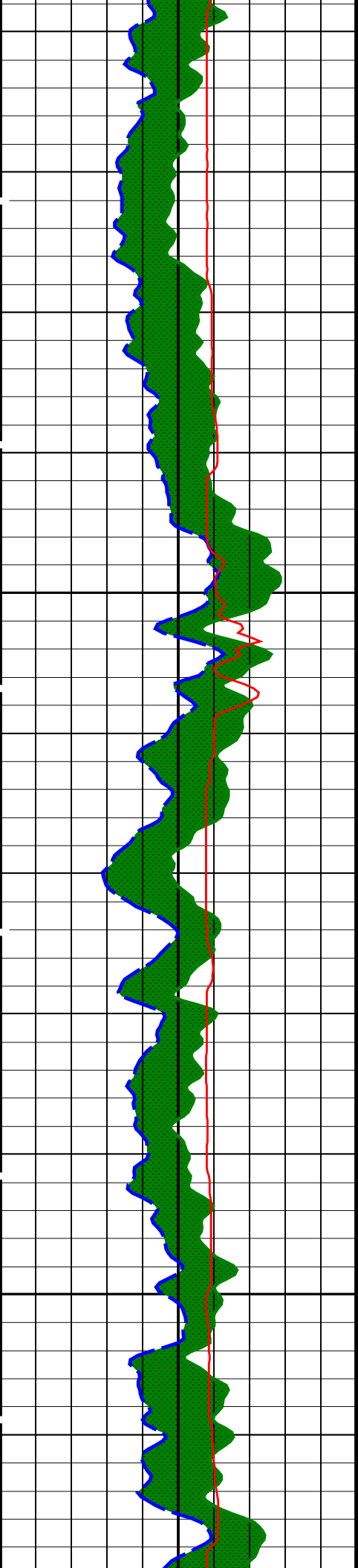


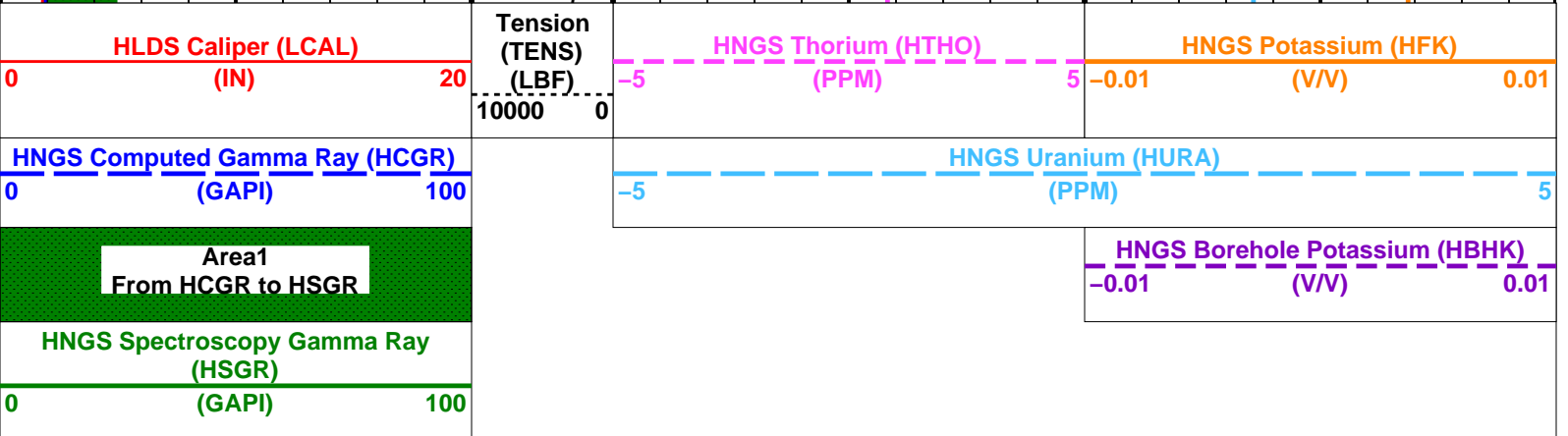
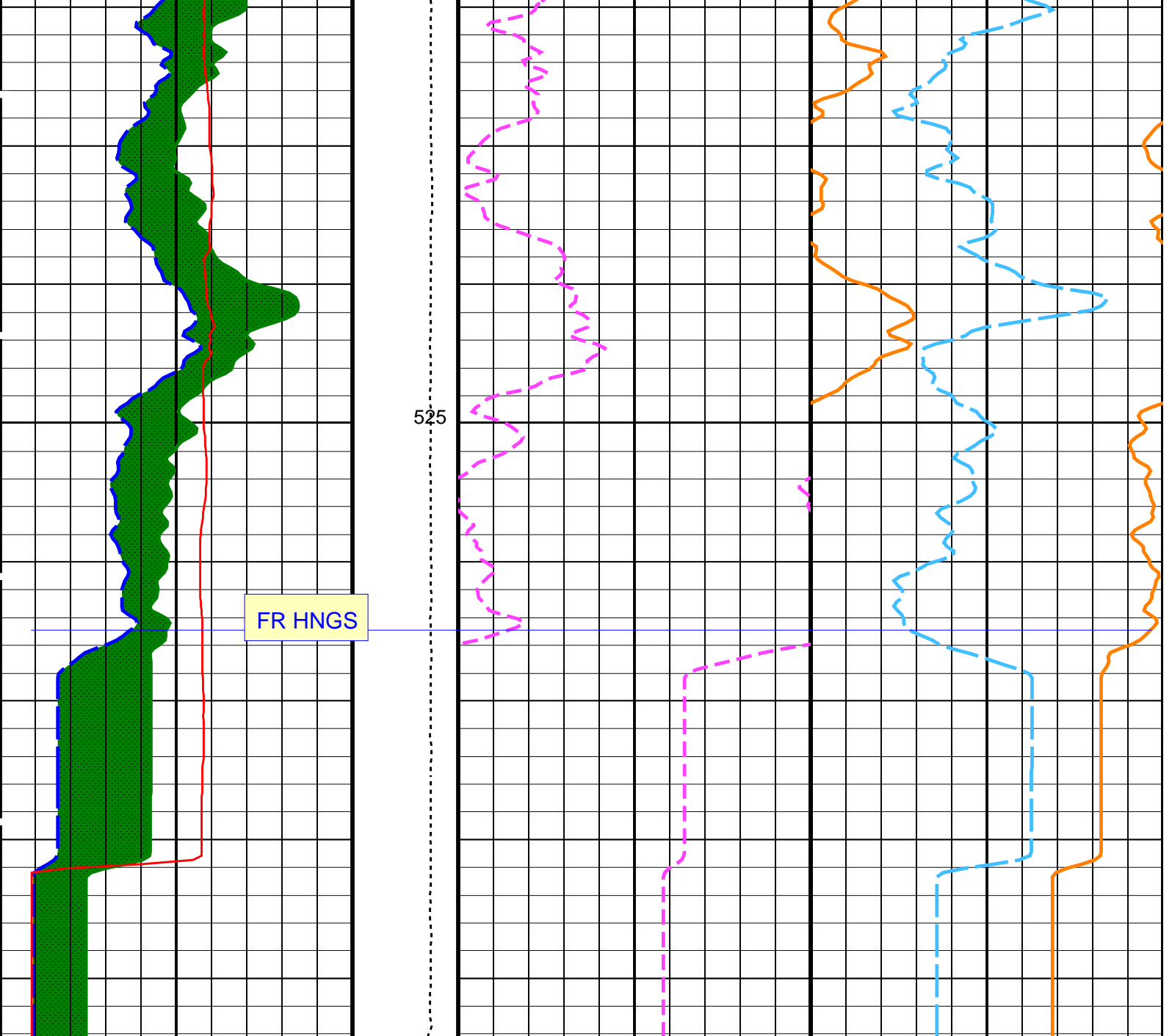












PIP SUMMARY

Time Mark Every 60 S

Parameters

| DLIS Name | Description | Value |
|--|-------------|-------|
| HNGS-BA: Hostile Natural Gamma Ray Sonde | | |
| HNGS Detector 1 Perite Constant | | |

| | | | |
|--|--|-------------|------|
| BAR1 | HNGS Detector 1 Barite Constant | 1 | |
| BAR2 | HNGS Detector 2 Barite Constant | 0 | |
| BHK | HNGS Borehole Potassium Correction Concentration | 0 | |
| BHS | Borehole Status | OPEN | |
| CSD1 | Inner Casing Outer Diameter | 0 | IN |
| CSD2 | Outer Casing Outer Diameter | 0 | IN |
| CSW1 | Inner Casing Weight | 0 | LB/F |
| CSW2 | Outer Casing Weight | 0 | LB/F |
| DBCC | HNGS Barite Constant Correction Flag | NONE | |
| GCSE | Generalized Caliper Selection | LCAL | |
| H1P | HNGS Detector 1 Allow/Disallow In Processing | ALLOW | |
| H2P | HNGS Detector 2 Allow/Disallow In Processing | ALLOW | |
| HABK | HNGS Borehole Potassium Running Average | -0.00353669 | |
| HALF | HNGS Alpha Filter Length | 60 | IN |
| HCRB | HNGS Apply Borehole Potassium Correction | NONE | |
| HMWM | Mud Weighting Material | BARI | |
| HNPE | HNGS Processing Enable | YES | |
| S1BI | HNGS Detector 1 Calibration Bismuth Count Rate | 1.3 | CPS |
| S2BI | HNGS Detector 2 Calibration Bismuth Count Rate | 1.3 | CPS |
| SGRC | HNGS Standard Gamma-Ray Correction Flag | YES | |
| TPOS | Tool Position | ECCE | |
| VBA1 | HNGS Detector 1 Variable Barite Factor Running Average | 0.936615 | |
| VBA2 | HNGS Detector 2 Variable Barite Factor Running Average | -0.988183 | |
| HRLT-B: High Resolution Laterolog Array - B | | | |
| BHS | Borehole Status | OPEN | |
| GCSE | Generalized Caliper Selection | LCAL | |
| EDTC-B: Enhanced DTS Cartridge | | | |
| BHS | Borehole Status | OPEN | |
| GCSE | Generalized Caliper Selection | LCAL | |
| System and Miscellaneous | | | |
| BS | Bit Size | 11.438 | IN |
| DFD | Drilling Fluid Density | 1.26 | G/C3 |
| DO | Depth Offset for Playback | -339.6 | M |
| PP | Playback Processing | RECOMPUTE | |

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 09-Sep-2013 11:34

OP System Version: 19C0-187

| | | | |
|------------|----------------|--------|----------|
| MSS_LDEO-A | 19C0-187 | HLDS | 19C0-187 |
| LDSC-B | 19C0-187 | HNGC-B | 19C0-187 |
| HNGS-BA | 19C0-187 | HRLT-B | 19C0-187 |
| EDTC-B | SKK-5169-EDTCB | | |

Input DLIS Files

| | | | | | | |
|---------|-------------------------|------|----------|-------------------|---------|---------|
| DEFAULT | MSS_LDEO_LDL_NGS_008LUP | FN:7 | PRODUCER | 08-Sep-2013 00:57 | 887.0 M | 329.6 M |
|---------|-------------------------|------|----------|-------------------|---------|---------|

Output DLIS Files

| | | | | | | |
|---------|-------------------------|-------|----------|-------------------|--|--|
| DEFAULT | MSS_LDEO_LDL_NGS_021PUP | FN:21 | PRODUCER | 09-Sep-2013 11:34 | | |
| CLIENT | MSS_LDEO_LDL_NGS_021PUC | FN:22 | CUSTOMER | 09-Sep-2013 11:34 | | |



Calibrations

MAXIS Field Log

Calibration and Check Summary

| Measurement | Nominal | Master | Before | After | Change | Limit | Units |
|---|---------|--------|--------|-------|----------|-------|-------|
| Hostile Litho-Density Sonde Wellsite Calibration - Background Measurement | | | | | | | |
| Master: 29-Jul-2013 0:00 Before: 30-Aug-2013 3:41 After: 30-Aug-2013 9:51 | | | | | | | |
| SS Cs Resolution Bkg | 9.000 | 7.700 | 7.783 | 7.764 | -0.01816 | 1.800 | % |

| | | | | | | | |
|----------------------|-------|-------|-------|-------|---------|-------|-----|
| LS Cs Resolution Bkg | 9.000 | 7.975 | 7.975 | 8.029 | 0.05400 | 1.800 | % |
| LSW1 Background | 100.0 | 84.57 | 83.11 | 83.96 | 0.8545 | 3.000 | CPS |
| LSW2 Background | 100.0 | 75.61 | 77.52 | 76.63 | -0.8845 | 3.000 | CPS |
| LSW3 Background | 200.0 | 173.3 | 175.9 | 175.3 | -0.5827 | 6.000 | CPS |
| LSW4 Background | 250.0 | 214.7 | 215.5 | 214.7 | -0.7667 | 7.500 | CPS |
| LSW5 Background | 600.0 | 499.6 | 502.4 | 499.4 | -3.075 | 18.00 | CPS |
| SSW1 Background | 100.0 | 82.62 | 82.00 | 81.38 | -0.6195 | 3.000 | CPS |
| SSW2 Background | 200.0 | 142.8 | 140.6 | 140.8 | 0.1943 | 6.000 | CPS |
| SSW3 Background | 500.0 | 395.0 | 396.4 | 390.7 | -5.691 | 15.00 | CPS |
| SSW4 Background | 270.0 | 213.9 | 212.3 | 213.3 | 1.054 | 8.100 | CPS |
| SSW5 Background | 200.0 | 151.4 | 153.3 | 152.2 | -1.028 | 6.000 | CPS |

Hostile Litho-Density Sonde Wellsite Calibration – Aluminum Measurement

Master: 29-Jul-2013 3:09

| | | | | | | | |
|---------------|-------|-------|-----|-----|-----|-----|-----|
| LSW1 Aluminum | 600.0 | 491.6 | N/A | N/A | N/A | N/A | CPS |
| LSW2 Aluminum | 900.0 | 715.0 | N/A | N/A | N/A | N/A | CPS |
| LSW3 Aluminum | 1100 | 869.1 | N/A | N/A | N/A | N/A | CPS |
| LSW4 Aluminum | 580.0 | 437.9 | N/A | N/A | N/A | N/A | CPS |
| LSW5 Aluminum | 570.0 | 399.4 | N/A | N/A | N/A | N/A | CPS |
| SSW1 Aluminum | 2800 | 2277 | N/A | N/A | N/A | N/A | CPS |
| SSW2 Aluminum | 8000 | 6290 | N/A | N/A | N/A | N/A | CPS |
| SSW3 Aluminum | 11600 | 8825 | N/A | N/A | N/A | N/A | CPS |
| SSW4 Aluminum | 5000 | 3653 | N/A | N/A | N/A | N/A | CPS |
| SSW5 Aluminum | 660.0 | 439.8 | N/A | N/A | N/A | N/A | CPS |

Hostile Litho-Density Sonde Wellsite Calibration – Lithology Measurement

Master: 29-Jul-2013 3:02

| | | | | | | | |
|-----------|-------|-------|-----|-----|-----|-----|-----|
| LSW1 Iron | 400.0 | 337.2 | N/A | N/A | N/A | N/A | CPS |
| LSW2 Iron | 730.0 | 576.3 | N/A | N/A | N/A | N/A | CPS |
| LSW3 Iron | 1000 | 764.7 | N/A | N/A | N/A | N/A | CPS |
| LSW4 Iron | 520.0 | 394.4 | N/A | N/A | N/A | N/A | CPS |
| LSW5 Iron | 470.0 | 366.6 | N/A | N/A | N/A | N/A | CPS |
| SSW1 Iron | 2100 | 1667 | N/A | N/A | N/A | N/A | CPS |
| SSW2 Iron | 6800 | 5226 | N/A | N/A | N/A | N/A | CPS |
| SSW3 Iron | 10800 | 8022 | N/A | N/A | N/A | N/A | CPS |
| SSW4 Iron | 4600 | 3308 | N/A | N/A | N/A | N/A | CPS |
| SSW5 Iron | 580.0 | 389.3 | N/A | N/A | N/A | N/A | CPS |

Hostile Litho-Density Sonde Wellsite Calibration – Caliper Calibration

Before: 29-Jul-2013 5:20

| | | | | | | | |
|-------------------------|-------|-----|-------|-----|-----|-----|----|
| HLDS Caliper Small Ring | 12.00 | N/A | 14.88 | N/A | N/A | N/A | IN |
| HLDS Caliper Large Ring | 15.19 | N/A | 18.44 | N/A | N/A | N/A | IN |

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check

Master: 29-Jul-2013 20:46 Before: 30-Aug-2013 3:43 After: 30-Aug-2013 9:52

| | | | | | | | |
|------------------|-------|-------|-------|-------|-----------|-------|------|
| Na 511 Peak Loc | 40.00 | 39.74 | 39.66 | 39.66 | -0.001842 | 1.000 | |
| Na 511 Peak Res | 15.50 | 15.31 | 14.99 | 15.59 | 0.6071 | 2.000 | % |
| High Voltage | 1150 | 1168 | 1175 | 1177 | 1.875 | N/A | V |
| Na 1785 Peak Loc | 142.6 | 142.6 | 141.1 | 143.1 | 1.995 | 7.000 | |
| Na 1785 Peak Res | 8.500 | 9.002 | 8.739 | 8.350 | -0.3891 | 2.000 | % |
| Temperature | 15.50 | 21.46 | 30.66 | 29.21 | -1.452 | N/A | DEGC |
| Na Count Rate | 45.00 | 15.10 | 12.22 | 12.96 | 0.7358 | 8.000 | CPS |

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check

Master: 29-Jul-2013 20:46 Before: 30-Aug-2013 3:43 After: 30-Aug-2013 9:52

| | | | | | | | |
|------------------|-------|-------|-------|-------|---------|-------|------|
| Na 511 Peak Loc | 40.00 | 39.58 | 39.50 | 39.79 | 0.2864 | 1.000 | |
| Na 511 Peak Res | 15.50 | 16.04 | 16.51 | 15.30 | -1.204 | 2.000 | % |
| High Voltage | 1150 | 1093 | 1109 | 1110 | 1.251 | N/A | V |
| Na 1785 Peak Loc | 142.6 | 141.7 | 143.1 | 142.4 | -0.7710 | 7.000 | |
| Na 1785 Peak Res | 8.500 | 9.499 | 8.731 | 9.377 | 0.6464 | 2.000 | % |
| Temperature | 15.50 | 21.65 | 30.81 | 30.84 | 0.03577 | N/A | DEGC |
| Na Count Rate | 45.00 | 14.93 | 12.29 | 12.87 | 0.5788 | 8.000 | CPS |

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

Master: 29-Jul-2013 20:46 Before: 30-Aug-2013 3:43 After: 30-Aug-2013 9:52

| | | | | | | | |
|------------------------------|-------|-------|--------|-------|---------|---------|--|
| Coincidence Count Rate Ratio | 1.000 | 1.015 | 0.9928 | 1.007 | 0.01398 | 0.05000 | |
|------------------------------|-------|-------|--------|-------|---------|---------|--|

High Resolution Laterolog Array – B Wellsite Calibration – HRLT M01

Before: 30-Aug-2013 7:33 After: 30-Aug-2013 9:47

| | | | | | | | |
|-----------------------------|---|-----|--------|--------|----------|-------|----|
| HRLT M0-M1 Voltage Plus – 0 | 0 | N/A | -319.0 | -319.1 | -0.07172 | 9.681 | UV |
| HRLT M0-M1 Voltage Plus – 1 | 0 | N/A | -331.5 | -333.7 | -2.138 | 9.681 | UV |
| HRLT M0-M1 Voltage Plus – 2 | 0 | N/A | -333.5 | -334.4 | -0.8674 | 9.681 | UV |
| HRLT M0-M1 Voltage Plus – 3 | 0 | N/A | -337.2 | -338.2 | -1.027 | 9.681 | UV |
| HRLT M0-M1 Voltage Plus – 4 | 0 | N/A | -325.8 | -326.4 | -0.5795 | 9.681 | UV |
| HRLT M0-M1 Voltage Plus – 5 | 0 | N/A | -322.1 | -322.6 | -0.4591 | 9.681 | UV |
| HRLT M0-M1 Voltage Plus – 6 | 0 | N/A | 322.3 | 325.5 | 3.187 | 9.681 | UV |
| HRLT M0-M1 Voltage Plus – 7 | 0 | N/A | -322.7 | -322.7 | 0 | 9.681 | UV |

High Resolution Laterolog Array – B Wellsite Calibration – HRLT M12

Before: 30-Aug-2013 7:33 After: 30-Aug-2013 9:47

| | | | | | | | |
|-----------------------------|---|-----|------|------|--------|-------|----|
| HRLT M1-M2 Voltage Plus – 0 | 0 | N/A | 1755 | 1755 | 0.3450 | 53.42 | UV |
| HRLT M1-M2 Voltage Plus – 1 | 0 | N/A | 1688 | 1688 | 0.0000 | 53.42 | UV |

| | | | | | | | |
|-----------------------------|---|-----|-------|-------|--------|-------|----|
| HRLT M1-M2 Voltage Plus - 1 | 0 | N/A | 1826 | 1838 | 12.58 | 53.42 | UV |
| HRLT M1-M2 Voltage Plus - 2 | 0 | N/A | 1830 | 1836 | 5.231 | 53.42 | UV |
| HRLT M1-M2 Voltage Plus - 3 | 0 | N/A | 1849 | 1855 | 5.777 | 53.42 | UV |
| HRLT M1-M2 Voltage Plus - 4 | 0 | N/A | 1787 | 1789 | 2.735 | 53.42 | UV |
| HRLT M1-M2 Voltage Plus - 5 | 0 | N/A | 1767 | 1769 | 2.053 | 53.42 | UV |
| HRLT M1-M2 Voltage Plus - 6 | 0 | N/A | -1784 | -1802 | -18.73 | 53.42 | UV |
| HRLT M1-M2 Voltage Plus - 7 | 0 | N/A | 1781 | 1781 | 0 | 53.42 | UV |

High Resolution Laterolog Array - B Wellsite Calibration - HRLT M23

Before: 30-Aug-2013 7:33 After: 30-Aug-2013 9:47

| | | | | | | | |
|-----------------------------|---|-----|-------|-------|--------|-------|----|
| HRLT M2-M3 Voltage Plus - 0 | 0 | N/A | 1740 | 1740 | 0.2959 | 53.42 | UV |
| HRLT M2-M3 Voltage Plus - 1 | 0 | N/A | 1824 | 1836 | 12.62 | 53.42 | UV |
| HRLT M2-M3 Voltage Plus - 2 | 0 | N/A | 1829 | 1835 | 5.386 | 53.42 | UV |
| HRLT M2-M3 Voltage Plus - 3 | 0 | N/A | 1851 | 1857 | 5.774 | 53.42 | UV |
| HRLT M2-M3 Voltage Plus - 4 | 0 | N/A | 1783 | 1785 | 2.794 | 53.42 | UV |
| HRLT M2-M3 Voltage Plus - 5 | 0 | N/A | 1764 | 1766 | 2.189 | 53.42 | UV |
| HRLT M2-M3 Voltage Plus - 6 | 0 | N/A | -1770 | -1789 | -18.34 | 53.42 | UV |
| HRLT M2-M3 Voltage Plus - 7 | 0 | N/A | 1781 | 1781 | 0 | 53.42 | UV |

High Resolution Laterolog Array - B Wellsite Calibration - HRLT V34

Before: 30-Aug-2013 7:33 After: 30-Aug-2013 9:47

| | | | | | | | |
|-----------------------------|---|-----|--------|--------|--------|------|----|
| HRLT A3-A4 Voltage Plus - 0 | 0 | N/A | 68410 | 68450 | 42.02 | 2100 | UV |
| HRLT A3-A4 Voltage Plus - 1 | 0 | N/A | 71490 | 71990 | 499.2 | 2100 | UV |
| HRLT A3-A4 Voltage Plus - 2 | 0 | N/A | 72020 | 72220 | 198.0 | 2100 | UV |
| HRLT A3-A4 Voltage Plus - 3 | 0 | N/A | 73160 | 73390 | 230.0 | 2100 | UV |
| HRLT A3-A4 Voltage Plus - 4 | 0 | N/A | 70400 | 70520 | 126.3 | 2100 | UV |
| HRLT A3-A4 Voltage Plus - 5 | 0 | N/A | 69660 | 69760 | 94.50 | 2100 | UV |
| HRLT A3-A4 Voltage Plus - 6 | 0 | N/A | -68410 | -69140 | -733.3 | 2100 | UV |
| HRLT A3-A4 Voltage Plus - 7 | 0 | N/A | 70000 | 70000 | 0 | 2100 | UV |

High Resolution Laterolog Array - B Wellsite Calibration - HRLT V45

Before: 30-Aug-2013 7:33 After: 30-Aug-2013 9:47

| | | | | | | | |
|-----------------------------|---|-----|--------|--------|--------|------|----|
| HRLT A4-A5 Voltage Plus - 0 | 0 | N/A | 68690 | 68730 | 43.28 | 2100 | UV |
| HRLT A4-A5 Voltage Plus - 1 | 0 | N/A | 71870 | 72390 | 516.6 | 2100 | UV |
| HRLT A4-A5 Voltage Plus - 2 | 0 | N/A | 72360 | 72590 | 225.9 | 2100 | UV |
| HRLT A4-A5 Voltage Plus - 3 | 0 | N/A | 73510 | 73740 | 236.8 | 2100 | UV |
| HRLT A4-A5 Voltage Plus - 4 | 0 | N/A | 70700 | 70830 | 121.7 | 2100 | UV |
| HRLT A4-A5 Voltage Plus - 5 | 0 | N/A | 69940 | 70050 | 101.0 | 2100 | UV |
| HRLT A4-A5 Voltage Plus - 6 | 0 | N/A | -68800 | -69510 | -717.7 | 2100 | UV |
| HRLT A4-A5 Voltage Plus - 7 | 0 | N/A | 70000 | 70000 | 0 | 2100 | UV |

High Resolution Laterolog Array - B Wellsite Calibration - HRLT V56

Before: 30-Aug-2013 7:33 After: 30-Aug-2013 9:47

| | | | | | | | |
|-----------------------------|---|-----|--------|--------|--------|------|----|
| HRLT A5-A6 Voltage Plus - 0 | 0 | N/A | 68590 | 68630 | 38.88 | 2100 | UV |
| HRLT A5-A6 Voltage Plus - 1 | 0 | N/A | 71600 | 72120 | 511.1 | 2100 | UV |
| HRLT A5-A6 Voltage Plus - 2 | 0 | N/A | 72140 | 72340 | 203.8 | 2100 | UV |
| HRLT A5-A6 Voltage Plus - 3 | 0 | N/A | 73310 | 73550 | 240.6 | 2100 | UV |
| HRLT A5-A6 Voltage Plus - 4 | 0 | N/A | 70560 | 70690 | 125.7 | 2100 | UV |
| HRLT A5-A6 Voltage Plus - 5 | 0 | N/A | 69840 | 69930 | 86.73 | 2100 | UV |
| HRLT A5-A6 Voltage Plus - 6 | 0 | N/A | -68510 | -69240 | -728.1 | 2100 | UV |
| HRLT A5-A6 Voltage Plus - 7 | 0 | N/A | 70000 | 70000 | 0 | 2100 | UV |

High Resolution Laterolog Array - B Wellsite Calibration - HRLT VTP

Before: 30-Aug-2013 7:33 After: 30-Aug-2013 9:47

| | | | | | | | |
|-----------------------------|---|-----|--------|--------|--------|------|----|
| HRLT Torpedo-M0 Voltage - 0 | 0 | N/A | -68280 | -68300 | -14.98 | 2100 | UV |
| HRLT Torpedo-M0 Voltage - 1 | 0 | N/A | -71920 | -72430 | -503.3 | 2100 | UV |
| HRLT Torpedo-M0 Voltage - 2 | 0 | N/A | -72430 | -72650 | -219.8 | 2100 | UV |
| HRLT Torpedo-M0 Voltage - 3 | 0 | N/A | -73590 | -73840 | -247.4 | 2100 | UV |
| HRLT Torpedo-M0 Voltage - 4 | 0 | N/A | -70760 | -70880 | -124.5 | 2100 | UV |
| HRLT Torpedo-M0 Voltage - 5 | 0 | N/A | -69990 | -70080 | -87.16 | 2100 | UV |
| HRLT Torpedo-M0 Voltage - 6 | 0 | N/A | 68780 | 69520 | 744.6 | 2100 | UV |
| HRLT Torpedo-M0 Voltage - 7 | 0 | N/A | -70000 | -70000 | 0 | 2100 | UV |

High Resolution Laterolog Array - B Wellsite Calibration - HRLT VBD

Before: 30-Aug-2013 7:33 After: 30-Aug-2013 9:47

| | | | | | | | |
|------------------------------|---|-----|--------|--------|--------|------|----|
| HRLT Bridle#9-M0 Voltage - 0 | 0 | N/A | -68270 | -68290 | -22.77 | 2100 | UV |
| HRLT Bridle#9-M0 Voltage - 1 | 0 | N/A | -71890 | -72420 | -523.3 | 2100 | UV |
| HRLT Bridle#9-M0 Voltage - 2 | 0 | N/A | -72400 | -72630 | -223.7 | 2100 | UV |
| HRLT Bridle#9-M0 Voltage - 3 | 0 | N/A | -73570 | -73820 | -249.5 | 2100 | UV |
| HRLT Bridle#9-M0 Voltage - 4 | 0 | N/A | -70760 | -70880 | -120.6 | 2100 | UV |
| HRLT Bridle#9-M0 Voltage - 5 | 0 | N/A | -69990 | -70080 | -95.20 | 2100 | UV |
| HRLT Bridle#9-M0 Voltage - 6 | 0 | N/A | 68740 | 69510 | 764.4 | 2100 | UV |
| HRLT Bridle#9-M0 Voltage - 7 | 0 | N/A | -70000 | -70000 | 0 | 2100 | UV |

High Resolution Laterolog Array - B Wellsite Calibration - HRLT ISO

Before: 30-Aug-2013 7:33 After: 30-Aug-2013 9:47

| | | | | | | | |
|------------------------------|---|-----|-------|-------|--------|-------|----|
| HRLT Source Current Plus - 0 | 0 | N/A | 284.7 | 284.8 | 0.1392 | 8.520 | UA |
| HRLT Source Current Plus - 1 | 0 | N/A | 281.1 | 281.1 | 0 | 8.520 | UA |
| HRLT Source Current Plus - 2 | 0 | N/A | 281.1 | 281.1 | 0 | 8.520 | UA |
| HRLT Source Current Plus - 3 | 0 | N/A | 281.1 | 281.1 | 0 | 8.520 | UA |
| HRLT Source Current Plus - 4 | 0 | N/A | 281.1 | 281.1 | 0 | 8.520 | UA |
| HRLT Source Current Plus - 5 | 0 | N/A | 281.1 | 281.1 | 0 | 8.520 | UA |

| | | | | | | | |
|------------------------------|---|-----|-------|-------|---|-------|----|
| HRLT Source Current Plus - 6 | 0 | N/A | 281.1 | 281.1 | 0 | 8.520 | UA |
| HRLT Source Current Plus - 7 | 0 | N/A | 281.1 | 281.1 | 0 | 8.520 | UA |

High Resolution Laterolog Array - B Wellsite Calibration - HRLT MV

Before: 30-Aug-2013 7:33 After: 30-Aug-2013 9:47

| | | | | | | | |
|------------------------------|---|-----|--------|--------|---------|-------|----|
| HRLT Vertical Voltage PI - 0 | 0 | N/A | -321.4 | -321.5 | -0.1179 | 9.681 | UV |
| HRLT Vertical Voltage PI - 1 | 0 | N/A | -326.5 | -328.8 | -2.307 | 9.681 | UV |
| HRLT Vertical Voltage PI - 2 | 0 | N/A | -327.4 | -328.4 | -0.9877 | 9.681 | UV |
| HRLT Vertical Voltage PI - 3 | 0 | N/A | -329.0 | -330.1 | -1.059 | 9.681 | UV |
| HRLT Vertical Voltage PI - 4 | 0 | N/A | -315.1 | -315.6 | -0.5397 | 9.681 | UV |
| HRLT Vertical Voltage PI - 5 | 0 | N/A | -326.3 | -326.8 | -0.4777 | 9.681 | UV |
| HRLT Vertical Voltage PI - 6 | 0 | N/A | 330.3 | 333.8 | 3.475 | 9.681 | UV |
| HRLT Vertical Voltage PI - 7 | 0 | N/A | -322.7 | -322.7 | 0 | 9.681 | UV |

Enhanced DTS Cartridge Wellsite Calibration - EDTC Accelerometer Calibration

Before: 30-Aug-2013 3:44

| | | | | | | | |
|--------------------------|-------|-----|-------|-----|-----|-----|------|
| EDTC Z-Axis Acceleration | 9.810 | N/A | 9.794 | N/A | N/A | N/A | M/S2 |
|--------------------------|-------|-----|-------|-----|-----|-----|------|

Enhanced DTS Cartridge Wellsite Calibration - Detector Calibration

Before: 30-Aug-2013 3:38

| | | | | | | | |
|------------------------|-------|-----|-------|-----|-----|-------|------|
| Gamma Ray (Jig - Bkg) | 204.1 | N/A | 204.1 | N/A | N/A | 18.55 | GAPI |
| Gamma Ray (Calibrated) | 165.0 | N/A | 165.0 | N/A | N/A | 15.00 | GAPI |

Hostile Litho-Density Sonde / Equipment Identification

Primary Equipment:

| | | |
|------------------------------------|----------|------|
| Hostile Litho Density Sonde | HLDS - D | 35 |
| Hostile Litho Density High Voltage | HLDV - D | 35 |
| Gamma Source Radioactive | GSR - Z | 8113 |

Auxiliary Equipment:

| | | |
|--|----------|----|
| Hostile Litho Density Pad | HLDP - C | 35 |
| Hostile Litho Density High Voltage Housi | HEH - H | 35 |

Hostile Litho-Density Sonde Wellsite Calibration

Background Measurement

| Phase | SS Cs Resolution Bkg % | Value | Phase | LS Cs Resolution Bkg % | Value | Phase | LSW1 Background CPS | Value | |
|-----------------|------------------------|-----------------|-----------------|------------------------|-----------------|-----------------|---------------------|-----------------|-----------------|
| Master | | 7.700 | Master | | 7.970 | Master | | 84.57 | |
| Before | | 7.783 | Before | | 7.975 | Before | | 83.11 | |
| After | | 7.764 | After | | 8.029 | After | | 83.96 | |
| 7.000 (Minimum) | | 9.000 (Nominal) | 7.000 (Minimum) | | 9.000 (Nominal) | 55.00 (Minimum) | | 100.0 (Nominal) | 150.0 (Maximum) |
| Phase | LSW2 Background CPS | Value | Phase | LSW3 Background CPS | Value | Phase | LSW4 Background CPS | Value | |
| Master | | 75.61 | Master | | 173.3 | Master | | 214.7 | |
| Before | | 77.52 | Before | | 175.9 | Before | | 215.5 | |
| After | | 76.63 | After | | 175.3 | After | | 214.7 | |
| 50.00 (Minimum) | | 100.0 (Nominal) | 110.0 (Minimum) | | 200.0 (Nominal) | 140.0 (Minimum) | | 250.0 (Nominal) | 360.0 (Maximum) |
| Phase | LSW5 Background CPS | Value | Phase | SSW1 Background CPS | Value | Phase | SSW2 Background CPS | Value | |
| Master | | 499.6 | Master | | 82.62 | Master | | 142.8 | |
| Before | | 502.4 | Before | | 82.00 | Before | | 140.6 | |
| After | | 499.4 | After | | 81.38 | After | | 140.8 | |
| 330.0 (Minimum) | | 600.0 (Nominal) | 55.00 (Minimum) | | 100.0 (Nominal) | 100.0 (Minimum) | | 200.0 (Nominal) | 260.0 (Maximum) |
| Phase | SSW3 Background CPS | Value | Phase | SSW4 Background CPS | Value | Phase | SSW5 Background CPS | Value | |
| Master | | 395.0 | Master | | 213.9 | Master | | 151.4 | |
| Before | | 396.4 | Before | | 212.3 | Before | | 153.3 | |
| After | | 390.7 | After | | 213.3 | After | | 152.2 | |
| 280.0 (Minimum) | | 500.0 (Nominal) | 150.0 (Minimum) | | 270.0 (Nominal) | 110.0 (Minimum) | | 200.0 (Nominal) | 270.0 (Maximum) |

Master: 29-Jul-2013 0:00

Before: 30-Aug-2013 3:41

After: 30-Aug-2013 9:51

Litho-Density Spectroscopy Cartridge - B / Equipment Identification

| | | |
|--------------------------------------|----------|-----|
| Primary Equipment: LDSC Cartridge | LDSC - B | 326 |
| Auxiliary Equipment: LDSC Housing | LDSH - A | 303 |

Hostile Natural Gamma Ray Cartridge - B / Equipment Identification

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

Hostile Natural Gamma Ray Sonde / Equipment Identification

| | | |
|--|----------------------|---------------|
| Primary Equipment: HNGS Sonde | HNGS - BA | 194 |
| Auxiliary Equipment: HNGS Sonde Housing Gamma Source Radioactive | HNSH - BA GSR - U | 205 616008 |

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 1 Check

| Phase | Na 511 Peak Loc | Value | Phase | Na 511 Peak Res % | Value | Phase | High Voltage V | Value |
|---------------------------|---|-------|--------------------------|---|-------|-------------------------|--|-------|
| Master | | 39.74 | Master | | 15.31 | Master | | 1168 |
| Before | | 39.66 | Before | | 14.99 | Before | | 1175 |
| After | | 39.66 | After | | 15.59 | After | | 1177 |
| | 37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum) | | | 12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum) | | | 900.0 (Minimum) 1150 (Nominal) 1600 (Maximum) | |
| Phase | Na 1785 Peak Loc | Value | Phase | Na 1785 Peak Res % | Value | Phase | Temperature DEGC | Value |
| Master | | 142.6 | Master | | 9.002 | Master | | 21.46 |
| Before | | 141.1 | Before | | 8.739 | Before | | 30.66 |
| After | | 143.1 | After | | 8.350 | After | | 29.21 |
| | 135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum) | | | 7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum) | | | -28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum) | |
| Phase | Na Count Rate CPS | Value | | | | | | |
| Master | | 15.10 | | | | | | |
| Before | | 12.22 | | | | | | |
| After | | 12.96 | | | | | | |
| | 10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum) | | | | | | | |
| Master: 29-Jul-2013 20:46 | | | Before: 30-Aug-2013 3:43 | | | After: 30-Aug-2013 9:52 | | |

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 2 Check

| Phase | Na 511 Peak Loc | Value | Phase | Na 511 Peak Res % | Value | Phase | High Voltage V | Value |
|--------|---|-------|--------|---|-------|--------|--|-------|
| Master | | 39.58 | Master | | 16.04 | Master | | 1093 |
| Before | | 39.50 | Before | | 16.51 | Before | | 1109 |
| After | | 39.79 | After | | 15.30 | After | | 1110 |
| | 37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum) | | | 12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum) | | | 900.0 (Minimum) 1150 (Nominal) 1600 (Maximum) | |
| Phase | Na 1785 Peak Loc | Value | Phase | Na 1785 Peak Res % | Value | Phase | Temperature DEGC | Value |
| Master | | 141.7 | Master | | 9.499 | Master | | 21.65 |
| Before | | 143.1 | Before | | 8.731 | Before | | 30.81 |
| After | | 142.4 | After | | 9.377 | After | | 30.84 |
| | 135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum) | | | 7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum) | | | -28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum) | |

| Phase | Na Count Rate CPS | | | Value |
|--------|--------------------|--------------------|--------------------|-------|
| Master | | | | 14.93 |
| Before | | | | 12.29 |
| After | | | | 12.87 |
| | 10.00 (Minimum) | 45.00 (Nominal) | 100.0 (Maximum) | |

Master: 29-Jul-2013 20:46 Before: 30-Aug-2013 3:43 After: 30-Aug-2013 9:52

| Hostile Natural Gamma Ray Sonde Wellsite Calibration | | |
|--|------------------------------|--------------------|
| Ratio Of Detector 1 To Detector 2 | | |
| Phase | Coincidence Count Rate Ratio | Value |
| Master | | 1.015 |
| Before | | 0.9928 |
| After | | 1.007 |
| | 0.9500 (Minimum) | 1.000 (Nominal) |
| | | 1.050 (Maximum) |

Master: 29-Jul-2013 20:46
Before: 30-Aug-2013 3:43
After: 30-Aug-2013 9:52

High Resolution Laterolog Array - B / Equipment Identification

| | | |
|----------------------|----------|-----|
| Primary Equipment: | | |
| HRLT Sonde | HRLS - B | 768 |
| Auxiliary Equipment: | | |
| HRLT lower Housing | HRLH - B | 968 |
| HRLT Lower Cartridge | HRLC - B | 974 |
| HRLT upper Housing | HRUH - B | 768 |
| HRLT Upper Cartridge | HRUC - B | 764 |

| High Resolution Laterolog Array - B Wellsite Calibration | | | | | | | |
|--|--------|---|--------|---------|---------|---------|--|
| HRLT M01 | | | | | | | |
| Idx | Phase | HRLT M0-M1 Voltage Plus UV | Value | Nominal | Maximum | Minimum | |
| 0 | Before | | -319.0 | -322.7 | -280.7 | -379.7 | |
| | After | | -319.1 | | | | |
| 1 | Before | | -331.5 | -322.7 | -280.7 | -379.7 | |
| | After | | -333.7 | | | | |
| 2 | Before | | -333.5 | -322.7 | -280.7 | -379.7 | |
| | After | | -334.4 | | | | |
| 3 | Before | | -337.2 | -322.7 | -280.7 | -379.7 | |
| | After | | -338.2 | | | | |
| 4 | Before | | -325.8 | -322.7 | -280.7 | -379.7 | |
| | After | | -326.4 | | | | |
| 5 | Before | | -322.1 | -322.7 | -280.7 | -379.7 | |
| | After | | -322.6 | | | | |
| 6 | Before | | 322.3 | 322.7 | 379.7 | 280.7 | |
| | After | | 325.5 | | | | |
| 7 | Before | | -322.7 | -322.7 | -280.7 | -379.7 | |
| | After | | -322.7 | | | | |
| | | (Minimum) (Nominal) (Maximum) | | | | | |

Before: 30-Aug-2013 7:33
After: 30-Aug-2013 9:47

High Resolution Laterolog Array – B Wellsite Calibration

HRLT M12

| Idx | Phase | HRLT M1–M2 Voltage Plus UV | Value | Nominal | Maximum | Minimum |
|---|--------|----------------------------|-------|---------|---------|---------|
| 0 | Before | | 1755 | 1781 | 2095 | 1549 |
| | After | | 1755 | | | |
| 1 | Before | | 1826 | 1781 | 2095 | 1549 |
| | After | | 1838 | | | |
| 2 | Before | | 1830 | 1781 | 2095 | 1549 |
| | After | | 1836 | | | |
| 3 | Before | | 1849 | 1781 | 2095 | 1549 |
| | After | | 1855 | | | |
| 4 | Before | | 1787 | 1781 | 2095 | 1549 |
| | After | | 1789 | | | |
| 5 | Before | | 1767 | 1781 | 2095 | 1549 |
| | After | | 1769 | | | |
| 6 | Before | | -1784 | -1781 | -1549 | -2095 |
| | After | | -1802 | | | |
| 7 | Before | | 1781 | 1781 | 2095 | 1549 |
| | After | | 1781 | | | |
| (Minimum) (Nominal) (Maximum) | | | | | | |

Before: 30-Aug-2013 7:33

After: 30-Aug-2013 9:47

High Resolution Laterolog Array – B Wellsite Calibration

HRLT M23

| Idx | Phase | HRLT M2–M3 Voltage Plus UV | Value | Nominal | Maximum | Minimum |
|---|--------|----------------------------|-------|---------|---------|---------|
| 0 | Before | | 1740 | 1781 | 2095 | 1549 |
| | After | | 1740 | | | |
| 1 | Before | | 1824 | 1781 | 2095 | 1549 |
| | After | | 1836 | | | |
| 2 | Before | | 1829 | 1781 | 2095 | 1549 |
| | After | | 1835 | | | |
| 3 | Before | | 1851 | 1781 | 2095 | 1549 |
| | After | | 1857 | | | |
| 4 | Before | | 1783 | 1781 | 2095 | 1549 |
| | After | | 1785 | | | |
| 5 | Before | | 1764 | 1781 | 2095 | 1549 |
| | After | | 1766 | | | |
| 6 | Before | | -1770 | -1781 | -1549 | -2095 |
| | After | | -1789 | | | |
| 7 | Before | | 1781 | 1781 | 2095 | 1549 |
| | After | | 1781 | | | |
| (Minimum) (Nominal) (Maximum) | | | | | | |

Before: 30-Aug-2013 7:33

After: 30-Aug-2013 9:47

High Resolution Laterolog Array – B Wellsite Calibration

HRLT V34

| Idx | Phase | HRLT A3–A4 Voltage Plus UV | Value | Nominal | Maximum | Minimum |
|-----|-------|----------------------------|-------|---------|---------|---------|
|-----|-------|----------------------------|-------|---------|---------|---------|

| Idx | Phase | HRLT A4--A5 Voltage Plus UV | Value | Nominal | Maximum | Minimum |
|--------------------------|--------|-----------------------------|-----------|-----------|-----------|---------|
| 0 | Before | | 68410 | 70000 | 82360 | 60900 |
| | After | | 68450 | | | |
| 1 | Before | | 71490 | 70000 | 82360 | 60900 |
| | After | | 71990 | | | |
| 2 | Before | | 72020 | 70000 | 82360 | 60900 |
| | After | | 72220 | | | |
| 3 | Before | | 73160 | 70000 | 82360 | 60900 |
| | After | | 73390 | | | |
| 4 | Before | | 70400 | 70000 | 82360 | 60900 |
| | After | | 70520 | | | |
| 5 | Before | | 69660 | 70000 | 82360 | 60900 |
| | After | | 69760 | | | |
| 6 | Before | | -68410 | -70000 | -60900 | -82360 |
| | After | | -69140 | | | |
| 7 | Before | | 70000 | 70000 | 82360 | 60900 |
| | After | | 70000 | | | |
| | | | (Minimum) | (Nominal) | (Maximum) | |
| Before: 30-Aug-2013 7:33 | | | | | | |
| After: 30-Aug-2013 9:47 | | | | | | |

| High Resolution Laterolog Array – B Wellsite Calibration | | | | | | |
|--|--------|-----------------------------|-----------|-----------|-----------|---------|
| HRLT V45 | | | | | | |
| Idx | Phase | HRLT A4--A5 Voltage Plus UV | Value | Nominal | Maximum | Minimum |
| 0 | Before | | 68690 | 70000 | 82360 | 60900 |
| | After | | 68730 | | | |
| 1 | Before | | 71870 | 70000 | 82360 | 60900 |
| | After | | 72390 | | | |
| 2 | Before | | 72360 | 70000 | 82360 | 60900 |
| | After | | 72590 | | | |
| 3 | Before | | 73510 | 70000 | 82360 | 60900 |
| | After | | 73740 | | | |
| 4 | Before | | 70700 | 70000 | 82360 | 60900 |
| | After | | 70830 | | | |
| 5 | Before | | 69940 | 70000 | 82360 | 60900 |
| | After | | 70050 | | | |
| 6 | Before | | -68800 | -70000 | -60900 | -82360 |
| | After | | -69510 | | | |
| 7 | Before | | 70000 | 70000 | 82360 | 60900 |
| | After | | 70000 | | | |
| | | | (Minimum) | (Nominal) | (Maximum) | |
| Before: 30-Aug-2013 7:33 | | | | | | |
| After: 30-Aug-2013 9:47 | | | | | | |

| High Resolution Laterolog Array – B Wellsite Calibration | | | | | | |
|--|--------|-----------------------------|-------|---------|---------|---------|
| HRLT V56 | | | | | | |
| Idx | Phase | HRLT A5--A6 Voltage Plus UV | Value | Nominal | Maximum | Minimum |
| 0 | Before | | 68590 | 70000 | 82360 | 60900 |
| | After | | 68630 | | | |

| | | | | | | |
|---|--------|--|-----------|-----------|-----------|--------|
| 1 | Before | | 71600 | 70000 | 82360 | 60900 |
| | After | | 72120 | | | |
| 2 | Before | | 72140 | 70000 | 82360 | 60900 |
| | After | | 72340 | | | |
| 3 | Before | | 73310 | 70000 | 82360 | 60900 |
| | After | | 73550 | | | |
| 4 | Before | | 70560 | 70000 | 82360 | 60900 |
| | After | | 70690 | | | |
| 5 | Before | | 69840 | 70000 | 82360 | 60900 |
| | After | | 69930 | | | |
| 6 | Before | | -68510 | -70000 | -60900 | -82360 |
| | After | | -69240 | | | |
| 7 | Before | | 70000 | 70000 | 82360 | 60900 |
| | After | | 70000 | | | |
| | | | (Minimum) | (Nominal) | (Maximum) | |

Before: 30-Aug-2013 7:33

After: 30-Aug-2013 9:47

| High Resolution Laterolog Array – B Wellsite Calibration | | | | | | | |
|--|--------|---------------------------------|-----------|-----------|-----------|---------|--|
| HRLT VTP | | | | | | | |
| Idx | Phase | HRLT Torpedo-M0 Voltage Plus UV | Value | Nominal | Maximum | Minimum | |
| 0 | Before | | -68280 | -70000 | -60900 | -82360 | |
| | After | | -68300 | | | | |
| 1 | Before | | -71920 | -70000 | -60900 | -82360 | |
| | After | | -72430 | | | | |
| 2 | Before | | -72430 | -70000 | -60900 | -82360 | |
| | After | | -72650 | | | | |
| 3 | Before | | -73590 | -70000 | -60900 | -82360 | |
| | After | | -73840 | | | | |
| 4 | Before | | -70760 | -70000 | -60900 | -82360 | |
| | After | | -70880 | | | | |
| 5 | Before | | -69990 | -70000 | -60900 | -82360 | |
| | After | | -70080 | | | | |
| 6 | Before | | 68780 | 70000 | 82360 | 60900 | |
| | After | | 69520 | | | | |
| 7 | Before | | -70000 | -70000 | -60900 | -82360 | |
| | After | | -70000 | | | | |
| | | | (Minimum) | (Nominal) | (Maximum) | | |

Before: 30-Aug-2013 7:33

After: 30-Aug-2013 9:47

| High Resolution Laterolog Array – B Wellsite Calibration | | | | | | | |
|--|--------|----------------------------------|--------|---------|---------|---------|--|
| HRLT VBD | | | | | | | |
| Idx | Phase | HRLT Bridle#9-M0 Voltage Plus UV | Value | Nominal | Maximum | Minimum | |
| 0 | Before | | -68270 | -70000 | -60900 | -82360 | |
| | After | | -68290 | | | | |
| 1 | Before | | -71890 | -70000 | -60900 | -82360 | |
| | After | | -72420 | | | | |

| | | | | | | |
|--------------------------|--------|--|-----------|-----------|-----------|--------|
| 2 | Before | | -72400 | -70000 | -60900 | -82360 |
| | After | | -72630 | -70000 | -60900 | -82360 |
| 3 | Before | | -73570 | -70000 | -60900 | -82360 |
| | After | | -73820 | -70000 | -60900 | -82360 |
| 4 | Before | | -70760 | -70000 | -60900 | -82360 |
| | After | | -70880 | -70000 | -60900 | -82360 |
| 5 | Before | | -69990 | -70000 | -60900 | -82360 |
| | After | | -70080 | -70000 | -60900 | -82360 |
| 6 | Before | | 68740 | 70000 | 82360 | 60900 |
| | After | | 69510 | 70000 | 82360 | 60900 |
| 7 | Before | | -70000 | -70000 | -60900 | -82360 |
| | After | | -70000 | -70000 | -60900 | -82360 |
| | | | (Minimum) | (Nominal) | (Maximum) | |
| Before: 30-Aug-2013 7:33 | | | | | | |
| After: 30-Aug-2013 9:47 | | | | | | |

| High Resolution Laterolog Array – B Wellsite Calibration | | | | | | |
|--|--------|-----------------------------|-----------|-----------|-----------|---------|
| HRLT ISO | | | | | | |
| Idx | Phase | HRLT Source Current Plus UA | Value | Nominal | Maximum | Minimum |
| 0 | Before | | 284.7 | 284.0 | 334.1 | 247.0 |
| | After | | 284.8 | 284.0 | 334.1 | 247.0 |
| 1 | Before | | 281.1 | 281.1 | 330.7 | 244.4 |
| | After | | 281.1 | 281.1 | 330.7 | 244.4 |
| 2 | Before | | 281.1 | 281.1 | 330.7 | 244.4 |
| | After | | 281.1 | 281.1 | 330.7 | 244.4 |
| 3 | Before | | 281.1 | 281.1 | 330.7 | 244.4 |
| | After | | 281.1 | 281.1 | 330.7 | 244.4 |
| 4 | Before | | 281.1 | 281.1 | 330.7 | 244.4 |
| | After | | 281.1 | 281.1 | 330.7 | 244.4 |
| 5 | Before | | 281.1 | 281.1 | 330.7 | 244.4 |
| | After | | 281.1 | 281.1 | 330.7 | 244.4 |
| 6 | Before | | 281.1 | 281.1 | 330.7 | 244.4 |
| | After | | 281.1 | 281.1 | 330.7 | 244.4 |
| 7 | Before | | 281.1 | 281.1 | 330.7 | 244.4 |
| | After | | 281.1 | 281.1 | 330.7 | 244.4 |
| | | | (Minimum) | (Nominal) | (Maximum) | |
| Before: 30-Aug-2013 7:33 | | | | | | |
| After: 30-Aug-2013 9:47 | | | | | | |

| High Resolution Laterolog Array – B Wellsite Calibration | | | | | | |
|--|--------|-------------------------------|--------|---------|---------|---------|
| HRLT MV | | | | | | |
| Idx | Phase | HRLT Vertical Voltage Plus UV | Value | Nominal | Maximum | Minimum |
| 0 | Before | | -321.4 | -322.7 | -280.7 | -379.7 |
| | After | | -321.5 | -322.7 | -280.7 | -379.7 |
| 1 | Before | | -326.5 | -322.7 | -280.7 | -379.7 |
| | After | | -328.8 | -322.7 | -280.7 | -379.7 |
| 2 | Before | | -327.4 | -322.7 | -280.7 | -379.7 |
| | After | | -328.4 | -322.7 | -280.7 | -379.7 |

| | | | | | | |
|--------------------------|--------|--|-----------|-----------|-----------|--------|
| 3 | Before | | -329.0 | -322.7 | -280.7 | -379.7 |
| | After | | -330.1 | | | |
| 4 | Before | | -315.1 | -322.7 | -280.7 | -379.7 |
| | After | | -315.6 | | | |
| 5 | Before | | -326.3 | -322.7 | -280.7 | -379.7 |
| | After | | -326.8 | | | |
| 6 | Before | | 330.3 | 322.7 | 379.7 | 280.7 |
| | After | | 333.8 | | | |
| 7 | Before | | -322.7 | -322.7 | -280.7 | -379.7 |
| | After | | -322.7 | | | |
| | | | (Minimum) | (Nominal) | (Maximum) | |
| Before: 30-Aug-2013 7:33 | | | | | | |
| After: 30-Aug-2013 9:47 | | | | | | |

Enhanced DTS Cartridge / Equipment Identification

Primary Equipment:

EDTC Gamma Ray Detector
Enhanced DTS Cartridge

EDTG - A/B 8305
EDTC - B 8317

Auxiliary Equipment:

EDTC Housing

EDTH - B 8303

| Enhanced DTS Cartridge Wellsite Calibration | | |
|---|---|-------|
| EDTC Accelerometer Calibration | | |
| Phase | EDTC Z-Axis Acceleration M/S2 | Value |
| Before | | 9.794 |
| | 9.610 (Minimum) 9.810 (Nominal) 10.01 (Maximum) | |
| Before: 30-Aug-2013 3:44 | | |

| Enhanced DTS Cartridge Wellsite Calibration | | | | | | | | | |
|---|---|-------|--------|---|-------|--------|---|-------|--|
| Detector Calibration | | | | | | | | | |
| Phase | Gamma Ray Background GAPI | Value | Phase | Gamma Ray (Jig - Bkg) GAPI | Value | Phase | Gamma Ray (Calibrated) GAPI | Value | |
| Before | | 1.864 | Before | | 204.1 | Before | | 165.0 | |
| | 0 (Minimum) 30.00 (Nominal) 120.0 (Maximum) | | | 185.5 (Minimum) 204.1 (Nominal) 222.7 (Maximum) | | | 150.0 (Minimum) 165.0 (Nominal) 180.0 (Maximum) | | |
| Before: 30-Aug-2013 3:38 | | | | | | | | | |

Company: **Lamont Doherty Earth Observatory**

Schlumberger

Well: **Expedition 346, Site U1427A**

Field: **Asian Monsoon**

Rig: **JOIDES Resolution**

Country: **USA**

HNGS Spectral GR

