**Schlumberger**

Company: **TexKan Exploration, LLC**

Well: **Sealy #1**
Field: **Wildcat**
County: **Kiowa** State: **Kansas**

County: Kiowa
Field: Wildcat
Location: 1280' FSL & 2310' FWL
Well: Sealy #1
Company: TexKan Exploration, LLC

Platform Express
Compensated Neutron
Lithology Density

LOCATION

1280' FSL & 2310' FWL

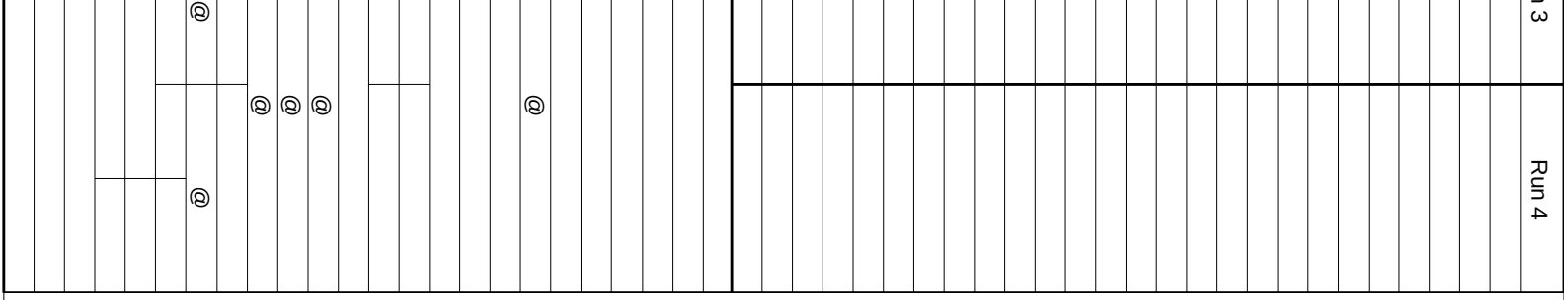
Elev.: K.B. 2184.00 ft
G.L. 2172.00 ft
D.F. 2182.00 ft

Permanent Datum: Ground Level Elev.: 2172.00 ft
Log Measured From: Kelly Bushing 12.00 ft above Perm. Datum
Drilling Measured From: Kelly Bushing

| API Serial No. | Section | Township | Range |
|---|---|---|---|
| 15-097-21696 | 25 | 30S | 18W |

| | Run 1 | Run 2 | Run |
|---|---|---|---|
| Logging Date | 8-Sep-2011 | | |
| Run Number | One | | |
| Depth Driller | 5414 ft | | |
| Schlumberger Depth | 5418 ft | | |
| Bottom Log Interval | 5418 ft | | |
| Top Log Interval | 1026 ft | | |
| Casing Driller Size @ Depth | 8.625 in @ 1026 ft | @ | @ |
| Casing Schlumberger | 1026 ft | | |
| Bit Size | 7.875 in | | |
| Type Fluid In Hole | Water-Based Mud | | |
| MUD Density / Viscosity | 9.2 lbm/gal / 57 s | | |
| MUD Fluid Loss / PH | 9.2 cm3 / 10.5 | | |
| MUD Source Of Sample | Flowline | | |
| RM @ Measured Temperature | 0.460 ohm.m @ 75 degF | @ | @ |
| RMF @ Measured Temperature | 0.391 ohm.m @ 75 degF | @ | @ |
| RMC @ Measured Temperature | 0.644 ohm.m @ 75 degF | @ | @ |
| Source RMF / RMC | Calculated / Calculated | | |
| RM @ MRT / RMF @ MRT | 0.296 @ 120 / 0.252 @ 120 | @ / @ | @ / @ |
| Maximum Recorded Temperatures | 120 degF | | |
| Circulation Stopped / Time | 7-Sep-2011 / 18:00 | | |
| Logger On Bottom / Time | 8-Sep-2011 / 01:15 | | |
| Unit Number / Location | 2367 / Elk City, OK | | |
| Recorded By | Michael Oloyede | | |
| Witnessed By | Mr. Bill Robinson | | |

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




# DEPTH SUMMARY LISTING

Date Created: 8−SEP−2011 3:01:00

## Depth System Equipment

| Depth Measuring Device | | Tension Device | | Logging Cable | |
|---|---|---|---|---|---|
| Type: | IDW−B | Type: | CMTD−B/A | Type: | 7−46A XS |
| Serial Number: | 6911 | Serial Number: | 2576 | Serial Number: | 711104 |
| Calibration Date: | 2−Mar−2011 | Calibration Date: | 14−Aug−2011 | Length: | 30170 FT |
| Calibrator Serial Number: | 33 | Calibrator Serial Number: | 1018 | | |
| Calibration Cable Type: | 7−46A XS | Number of Calibration Points: | 10 | Conveyance Method: | Wireline |
| Wheel Correction 1: | −6 | Calibration RMS: | 13 | Rig Type: | LAND |
| Wheel Correction 2: | −4 | Calibration Peak Error: | 26 | | |

## Depth Control Parameters

| | |
|---|---|
| Log Sequence: | First Log In the Well |
| Rig Up Length At Surface: | 196.50 FT |
| Rig Up Length At Bottom: | 196.10 FT |
| Rig Up Length Correction: | 0.40 FT |
| Stretch Correction: | 2.00 FT |
| Tool Zero Check At Surface: | 0.40 FT |

## Depth Control Remarks

1. All Schlumberger depth control policies and procedures followed.
2. IDW used as primary depth control device.
3. Z−chart used as secondary depth control measure.
4.
5.
6.



| OTHER SERVICES1 | OTHER SERVICES2 |
|---|---|
| OS1: Triple Combo | OS1: |
| OS2: Array Induction | OS2: |
| OS3: Computed Microlog | OS3: |
| OS4: Cement−Hole volume | OS4: |
| OS5: | OS5: |

| REMARKS: RUN NUMBER 1 | REMARKS: RUN NUMBER 2 |
|---|---|
| Toolstring ran as per tool sketch. | |
| Logs computed on a limestone matrix, MDEN = 2.71 g/cc. | |
| Main Pass acquired from TD to casing. | |
| Hi−resolution interval and Repeat Pass pulled 600' from TD. | |
| Cement and hole volume computed using density caliper(HCAL) with future casing diameter of 5.5 inches. | |
| Maximum recorded temperature obtained from head thermometers: 120 deg F. | |
| Nuclear data maybe affected by rugose borehole conditions; see caliper and HDRA(density correction curve) | |

Induction repeatability affected by tight formation.

Caliper check in casing reads: 8.1 inches.

Thank you for choosing Schlumberger of Elk City!!! 580−225−4300

Your crew today were: Michael, Buddy & Larry.

| RUN 1 | | | RUN 2 | | |
|---|---|---|---|---|---|
| SERVICE ORDER #: | | | SERVICE ORDER #: | | |
| PROGRAM VERSION: | | 18C0−147 | PROGRAM VERSION: | | |
| FLUID LEVEL: | | 0 ft | FLUID LEVEL: | | |
| LOGGED INTERVAL | START | STOP | LOGGED INTERVAL | START | STOP |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

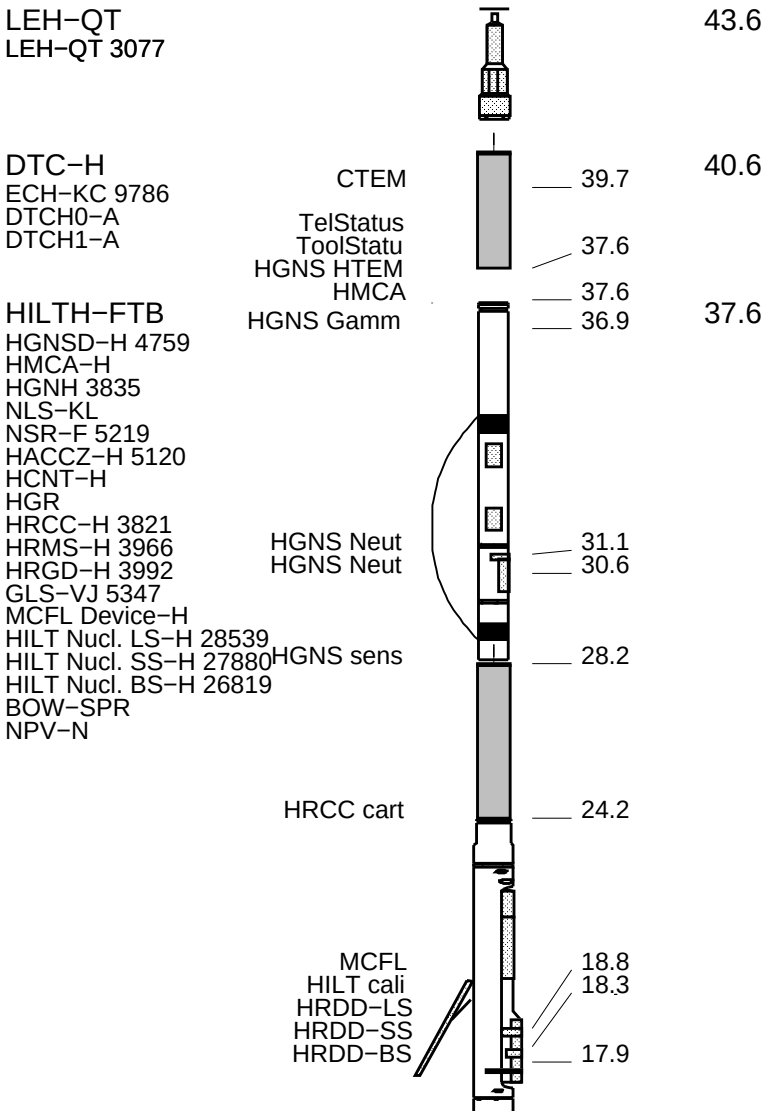
# EQUIPMENT DESCRIPTION

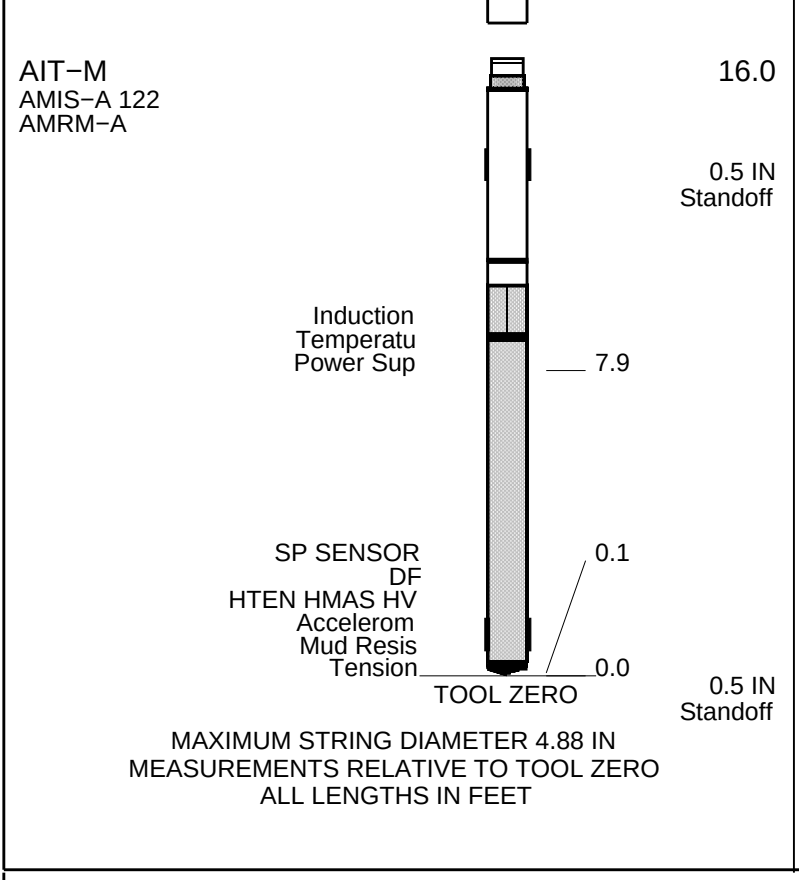
RUN 1 RUN 2

## SURFACE EQUIPMENT

GSR−U 681
NCT−B
CNB−AB
NCS−VB
WITM (DTS)−A

## DOWNHOLE EQUIPMENT






Client: TexKan Exploration, LLC
Well: Sealy #1
Field: Wildcat
State: Kansas
Country: USA

Drawing Date: 9/8/2011
API #: 15−097−21696

Rig Name: Southwind #70
Reference Datum: Ground Level
Elevation: 2172.0 ft

| Production String | (in) OD | (in) ID | (ft) MD | Well Schematic | (ft) MD | (in) OD | (in) ID | Casing String |
|---|---|---|---|---|---|---|---|---|
| | | | | | 0.0 | 8.625 | 8.097 | Casing String |
| | | | | | 1026.0 | 8.625 | 8.097 | Casing Shoe |
| | | | | | 1026.0 | 7.875 | | Borehole Segment |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 5414.0 | 7.875 | | Borehole Segment Bottom |

All depths are driller’s depths.

Schlumberger

# Main Pass 5" = 100’

MAXIS Field Log

## Output DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | AIT_TLD_MCFL_CNL_012LUP | FN:11 | PRODUCER | 08−Sep−2011 01:59 | 5422.5 FT | 813.0 FT |

## Integrated Hole/Cement Volume Summary

**Hole Volume = 3079.44 F3**

**Cement Volume = 2354.77 F3 (assuming 5.50 IN casing O.D.)**

**Computed from 5418.0 FT to 1026.0 FT using data channel(s) HCAL**

## OP System Version: 18C0−147

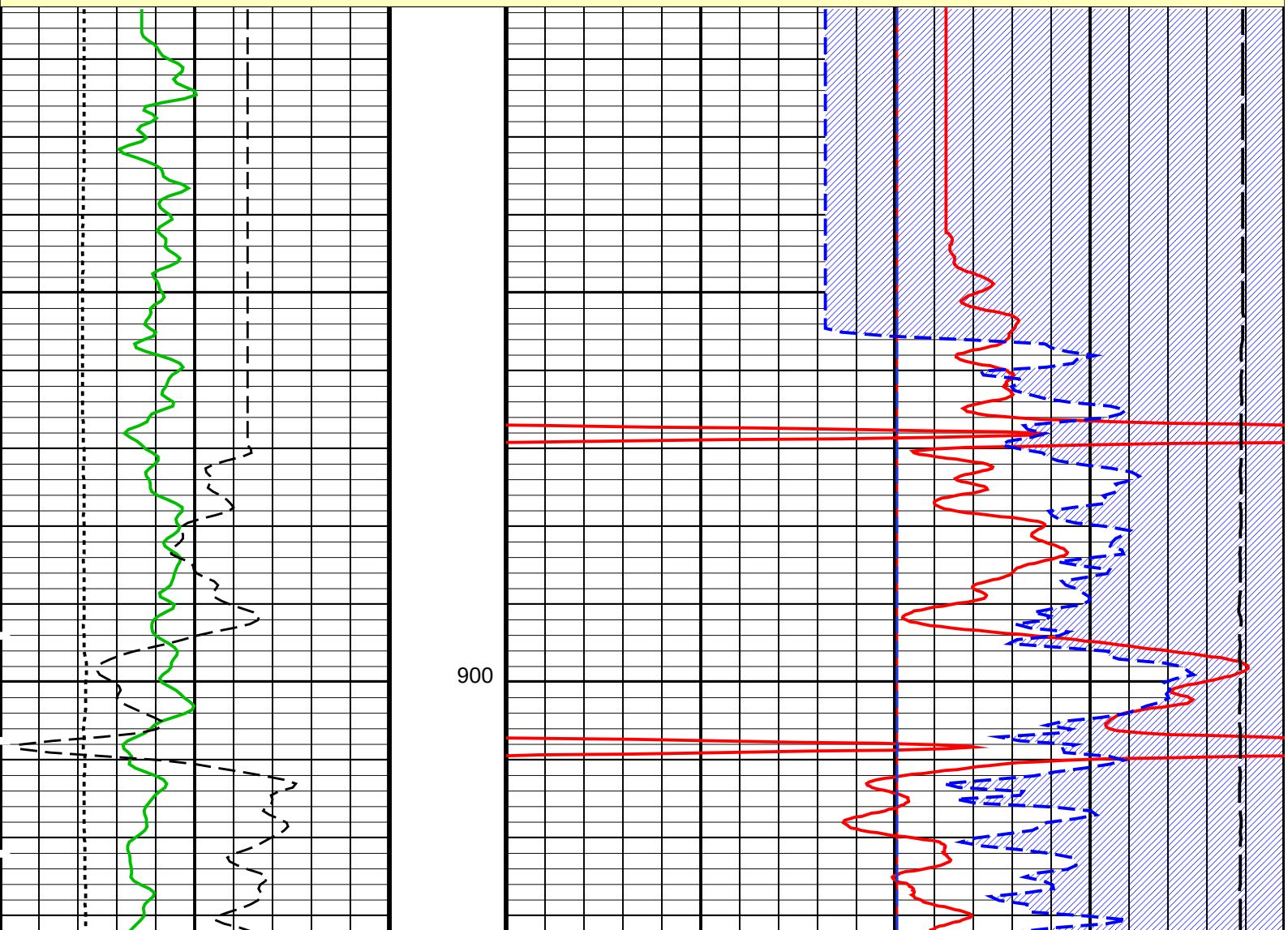
| | | | |
|---|---|---|---|
| AIT−M | 18C0−147 | HILTH−FTB | 18C0−147 |
| DTC−H | 18C0−147 | | |

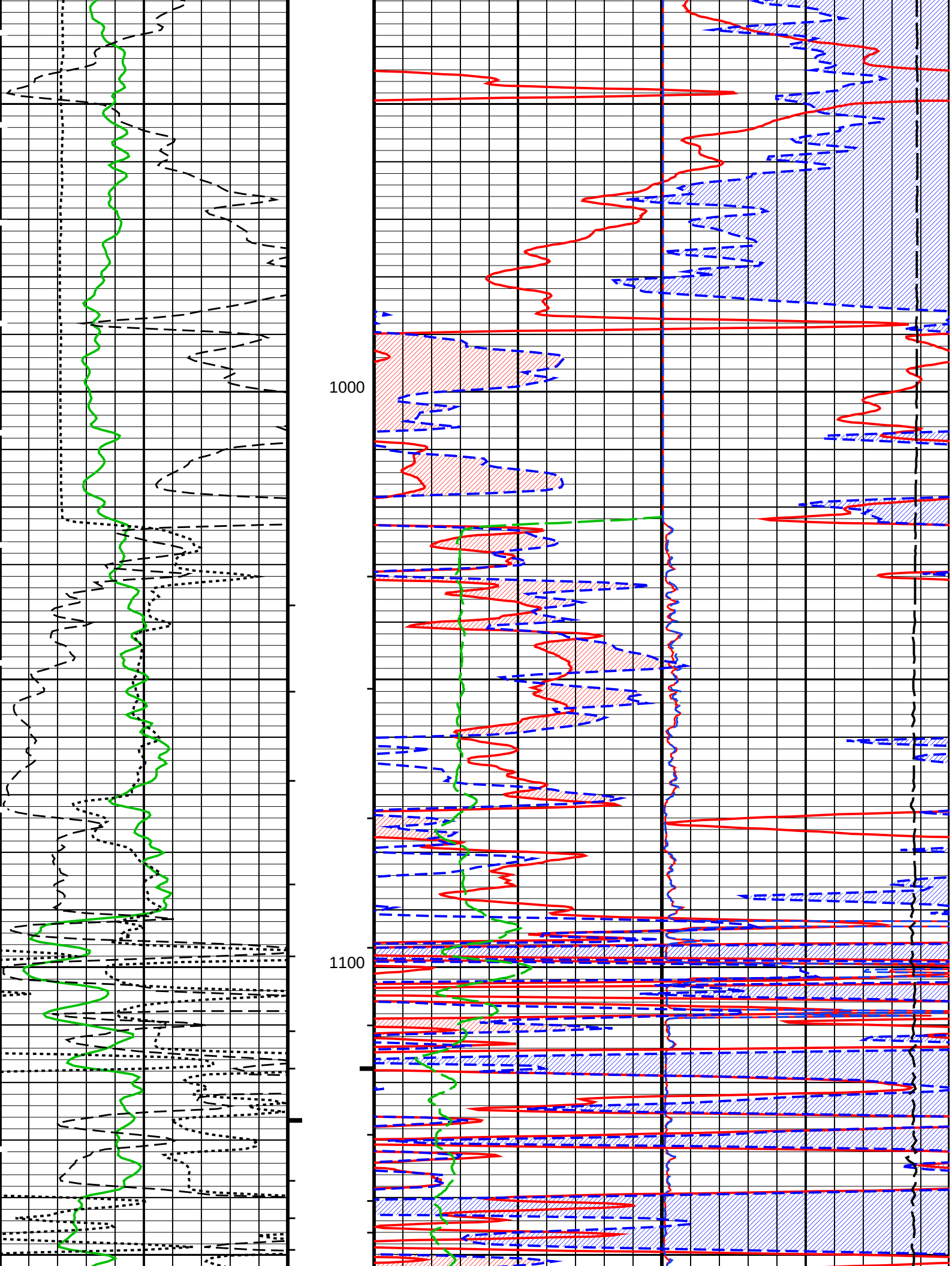
**PIP SUMMARY**

Integrated Hole Volume Minor Pip Every 10 F3
Integrated Hole Volume Major Pip Every 100 F3
Integrated Cement Volume Minor Pip Every 10 F3
Integrated Cement Volume Major Pip Every 100 F3
Time Mark Every 60 S

| | | |
|---|---|---|
| | | Tension (TENS) 10000 (LBF) 0 |
| | | Computed Micro Normal (HMNO) 0 (OHMM) 20 |
| | | PERM. |
| | | NPOR Backup |
| Caliper (HCAL) 6 (IN) 16 | | Gas Effect |
| Gamma Ray (GR) 0 (GAPI) 150 | Stuck Stretch (STIT) 0 (F) 50 | Std. Res. Formation Pe (PEFZ) 0 (---- 10 |
| | | Computed Micro Inverse (HMIN) 0 (OHMM) 20 |
| RWA (RWA) 0 (OHMM) 0.5 | Tool/Tot. Drag | Alpha Processed Neutron Porosity (NPOR) 0.3 (V/V) -0.1 |
| Gamma Ray Backup | Cable Drag | Std. Res. Density Porosity (DPHZ) 0.3 (V/V) -0.1 |

MAIN PASS: *** PLATFORM EXPRESS - NUCLEAR POROSITY ***

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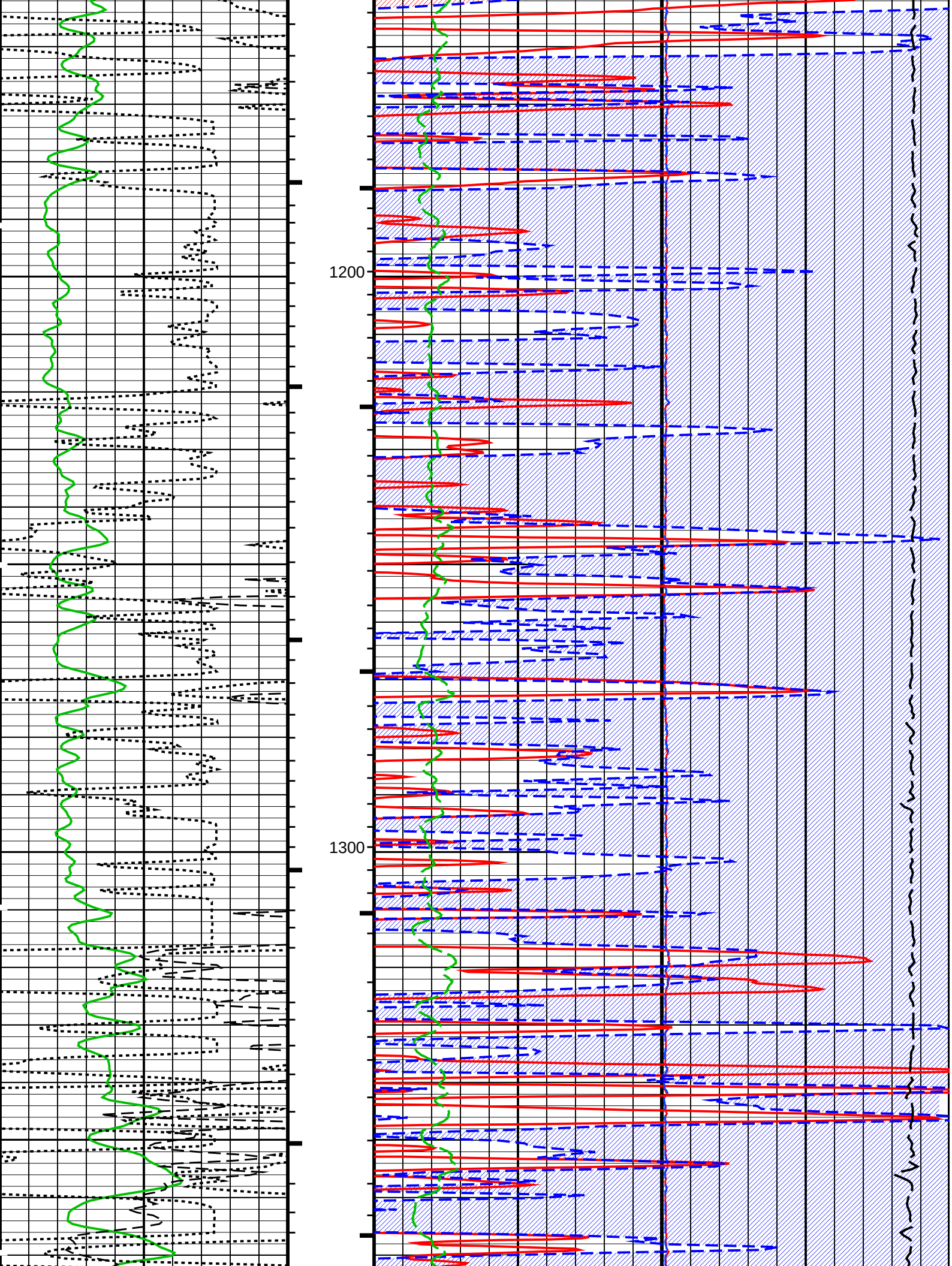
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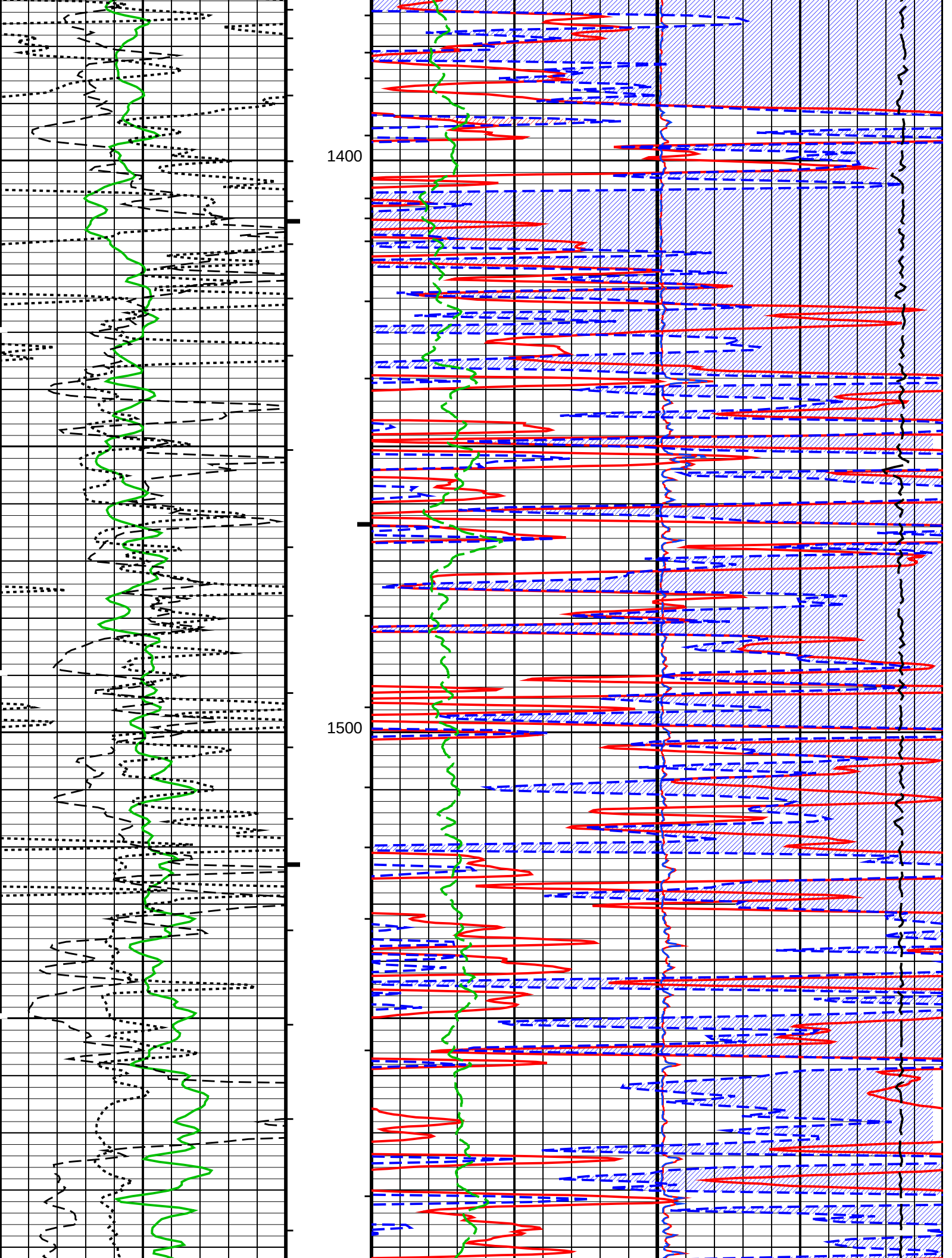
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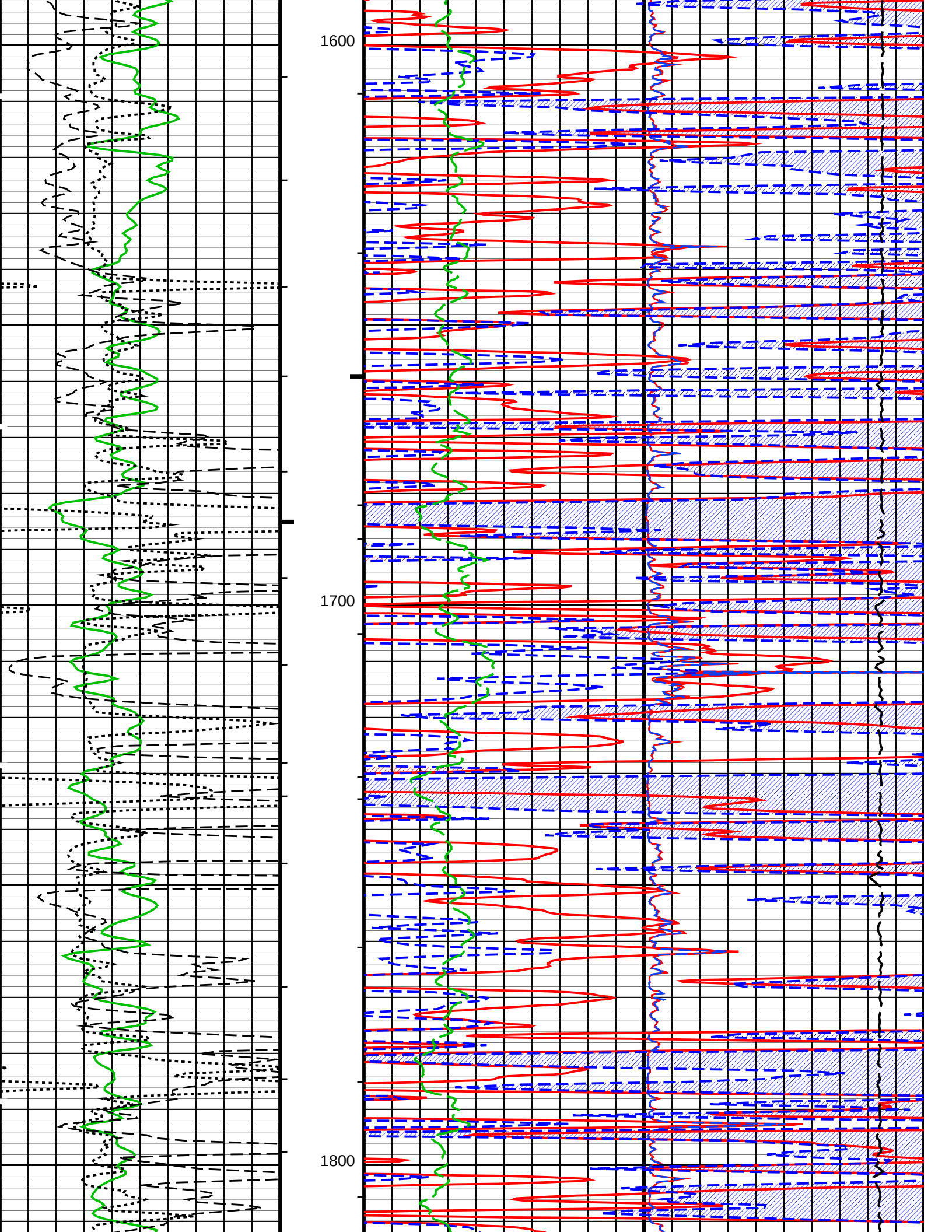
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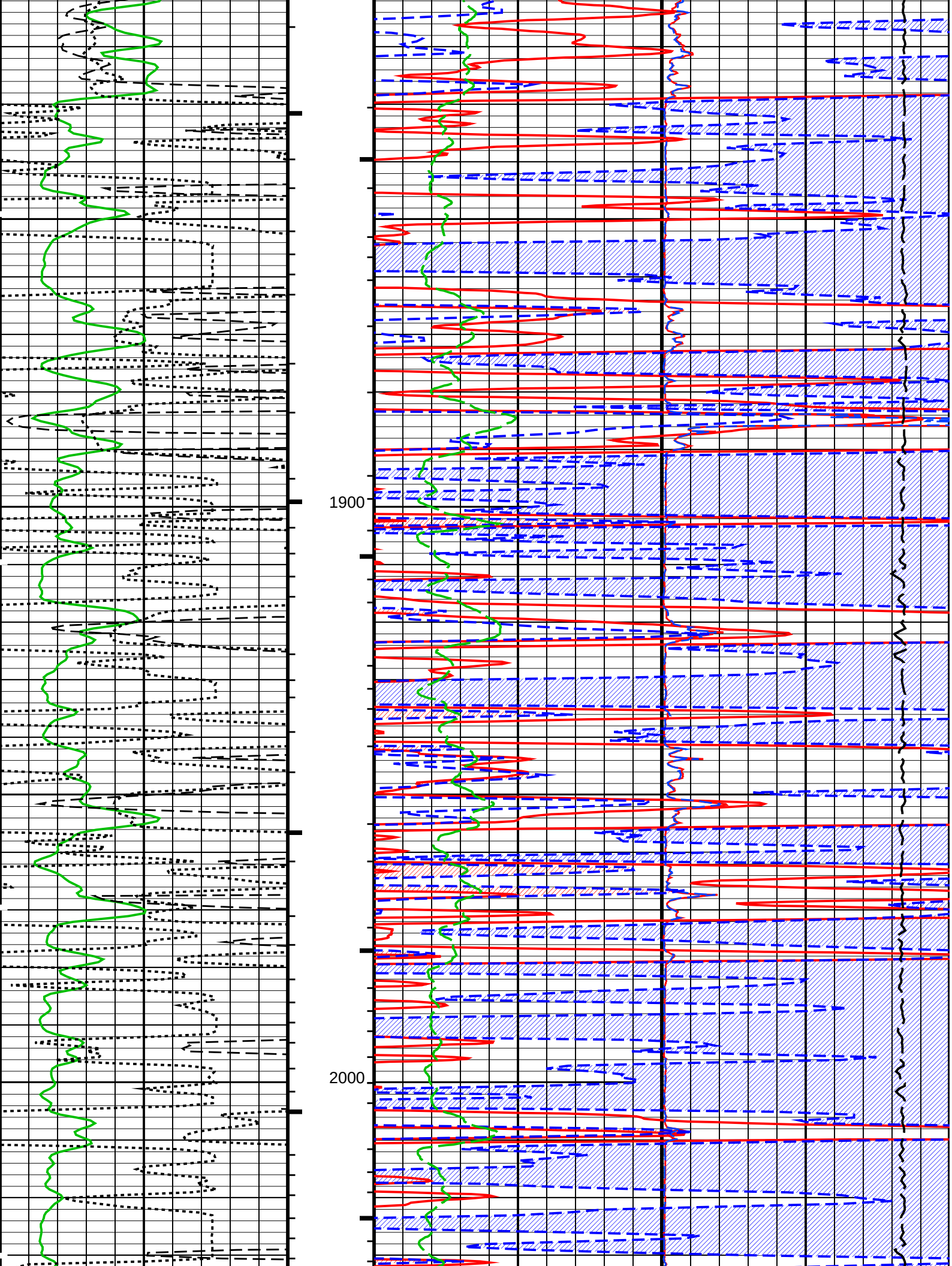
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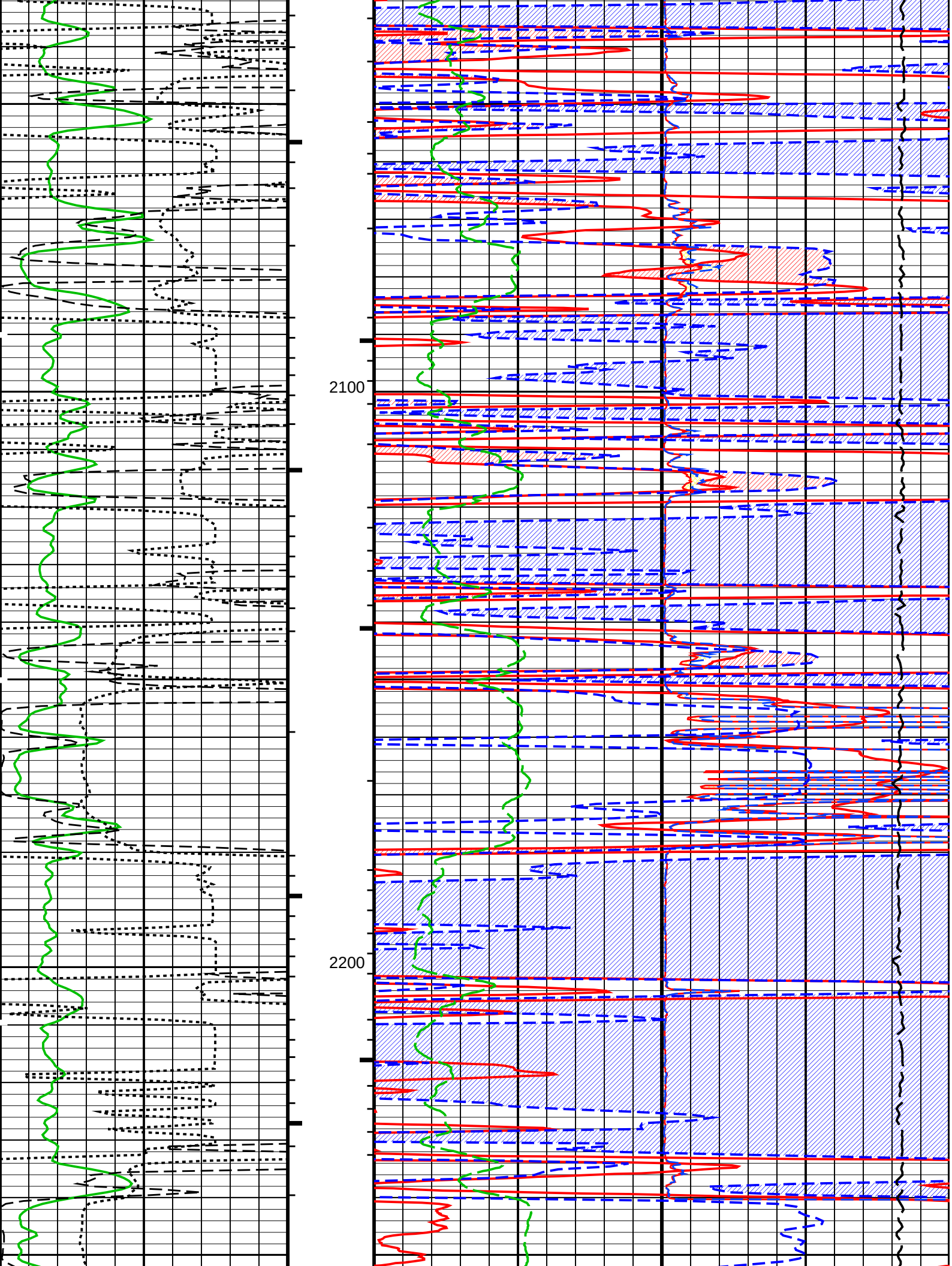
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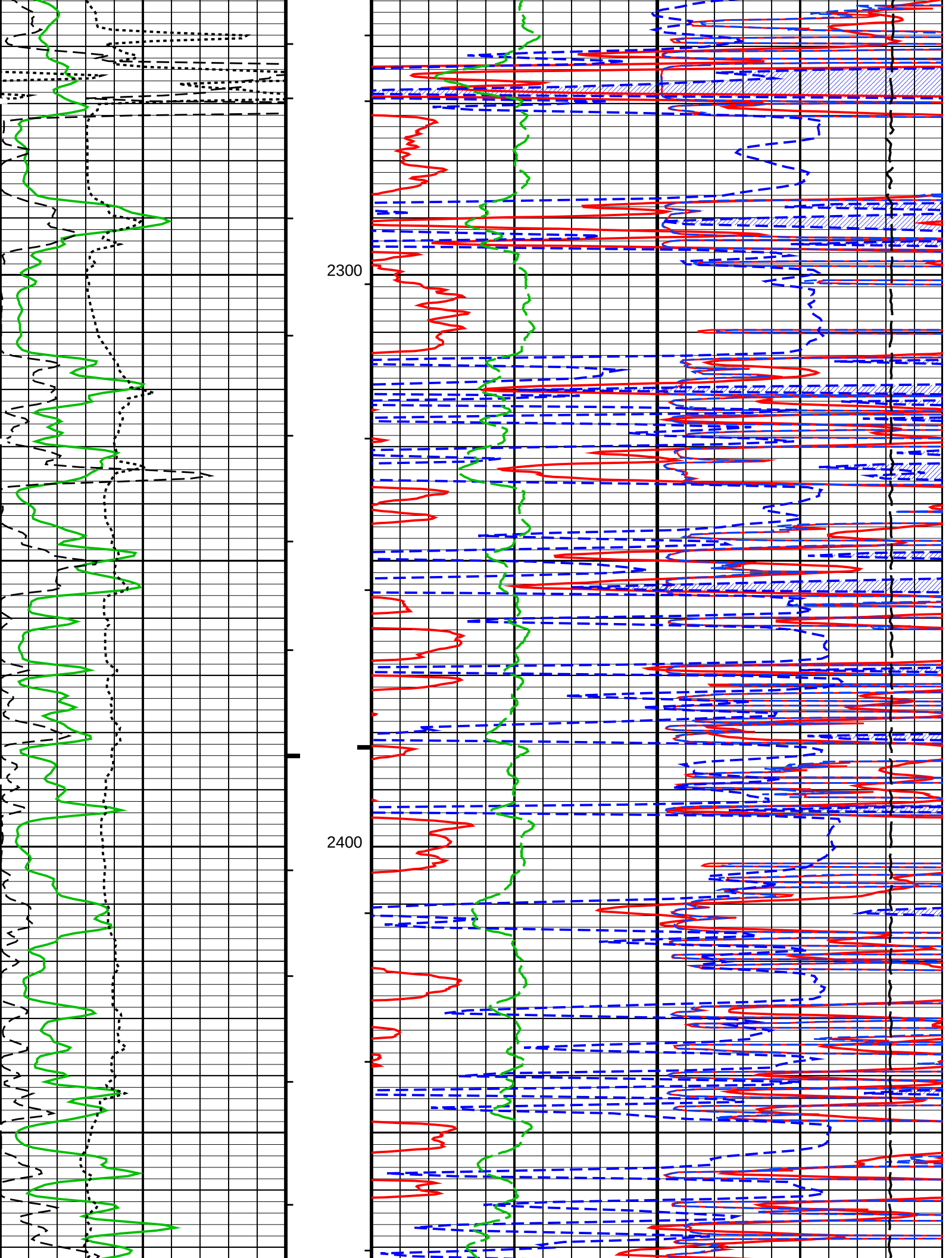
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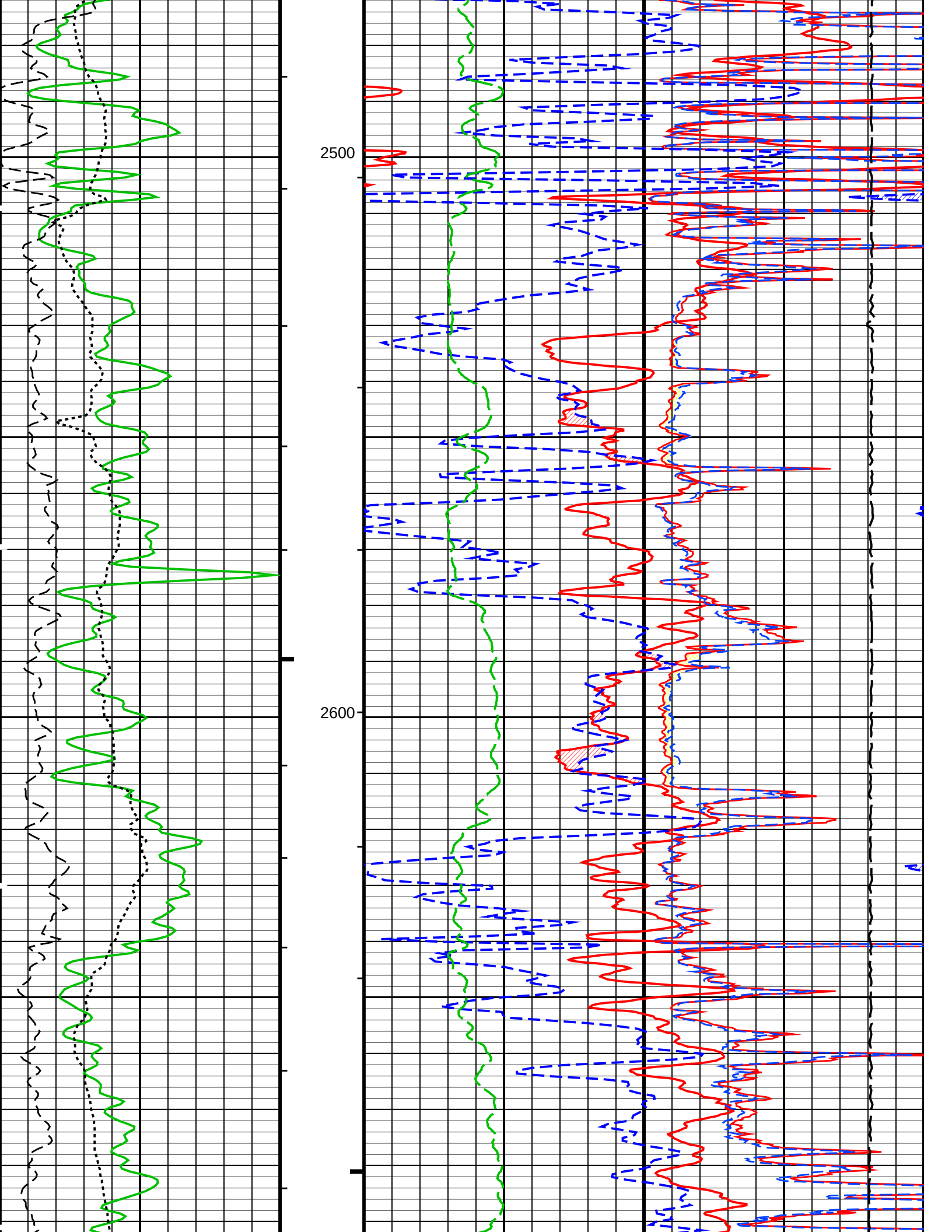
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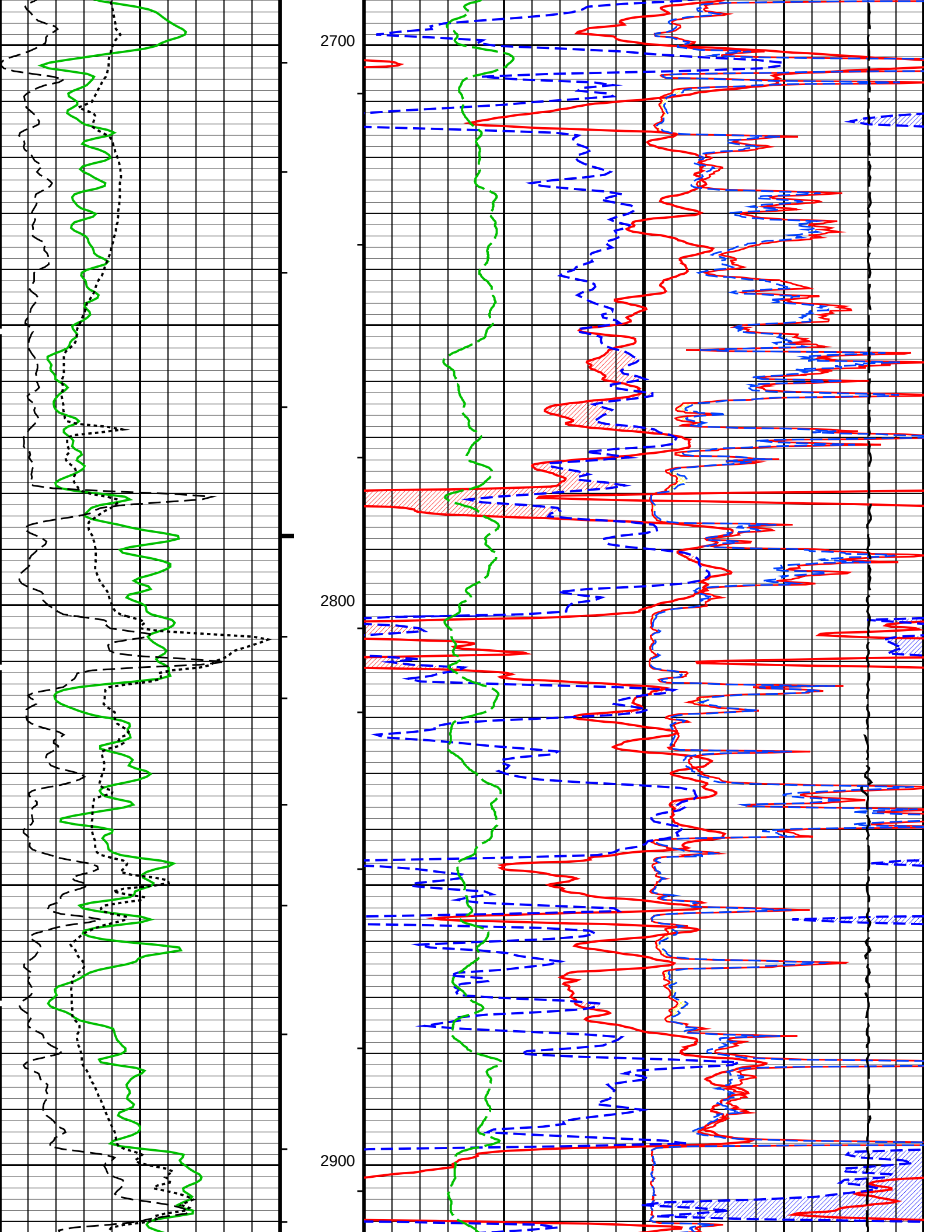
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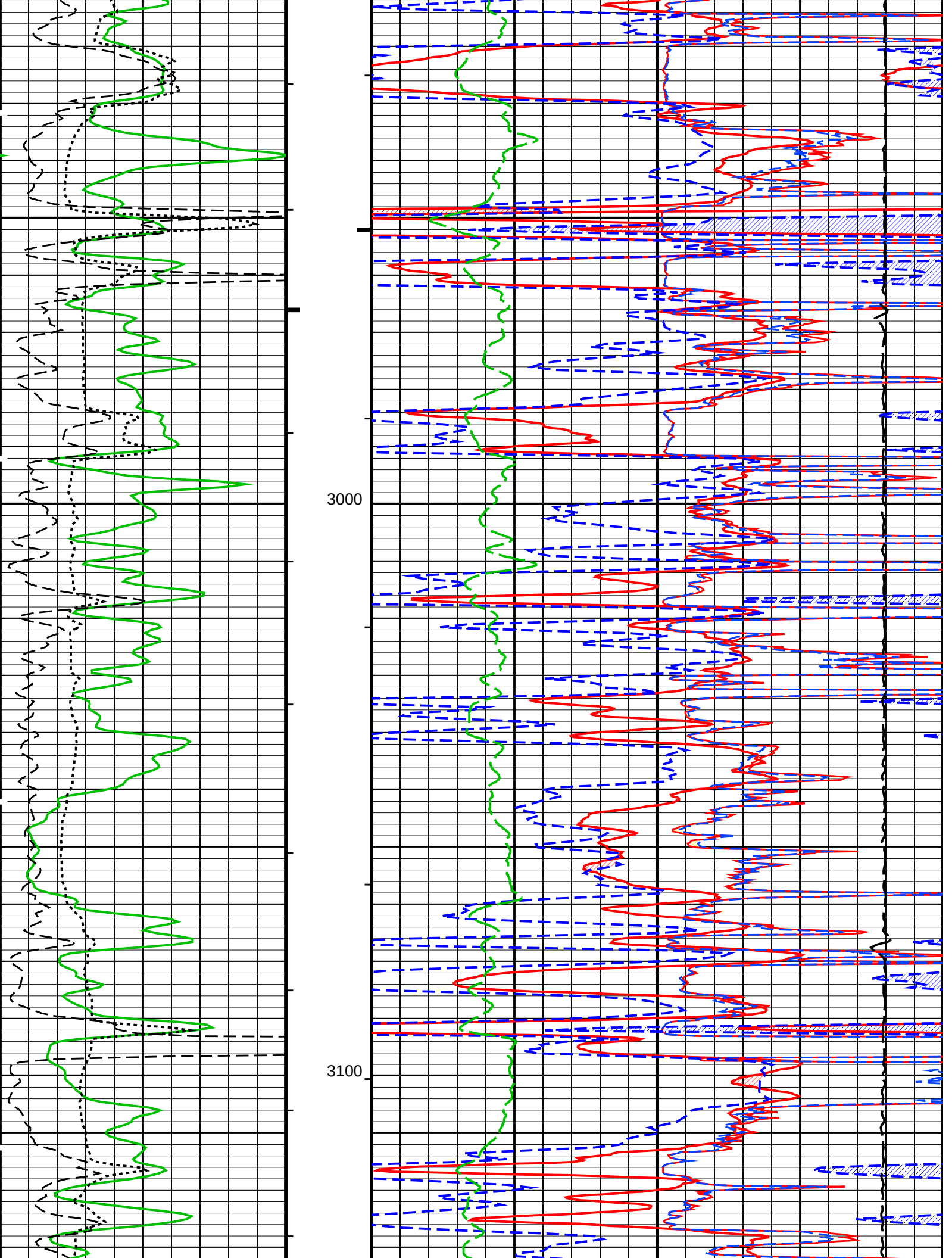
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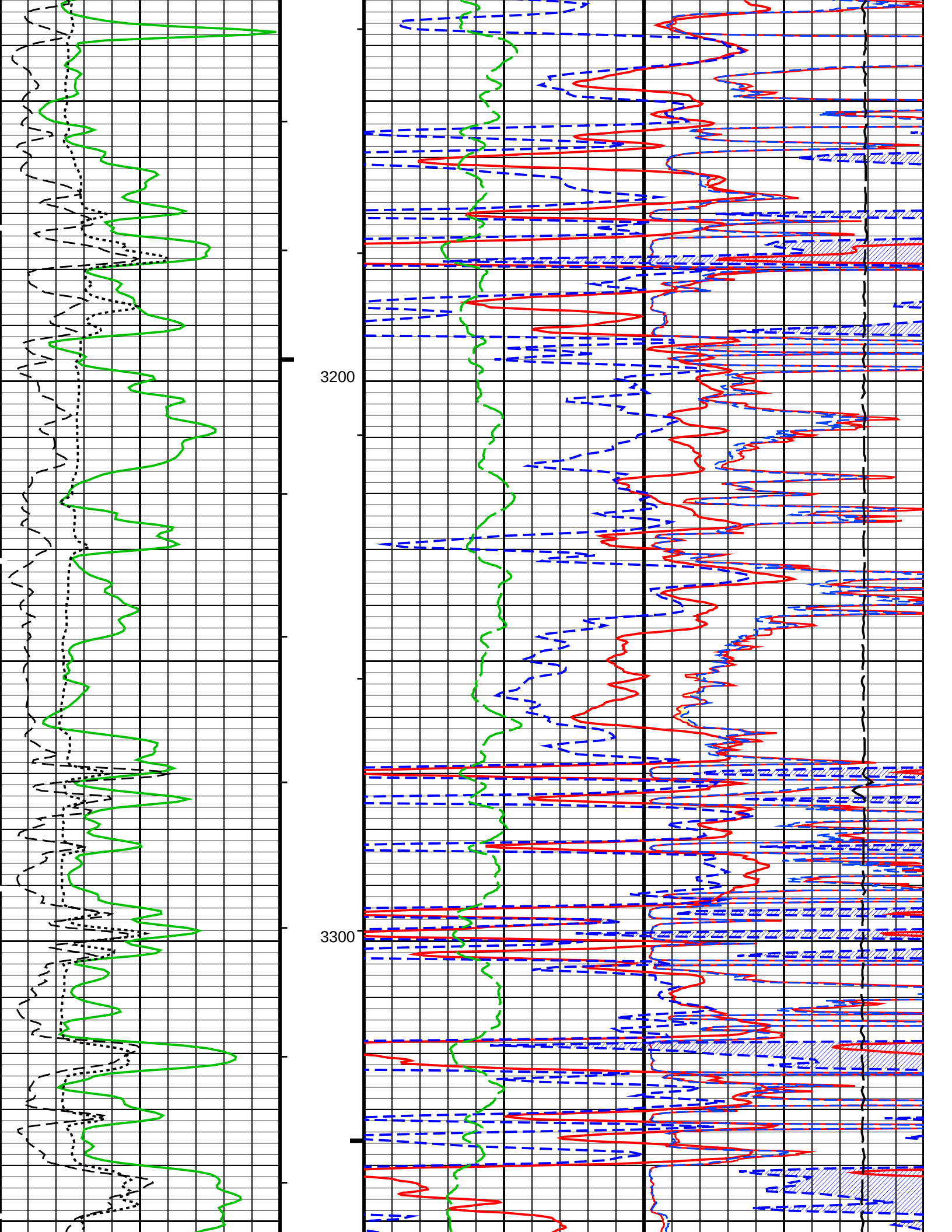
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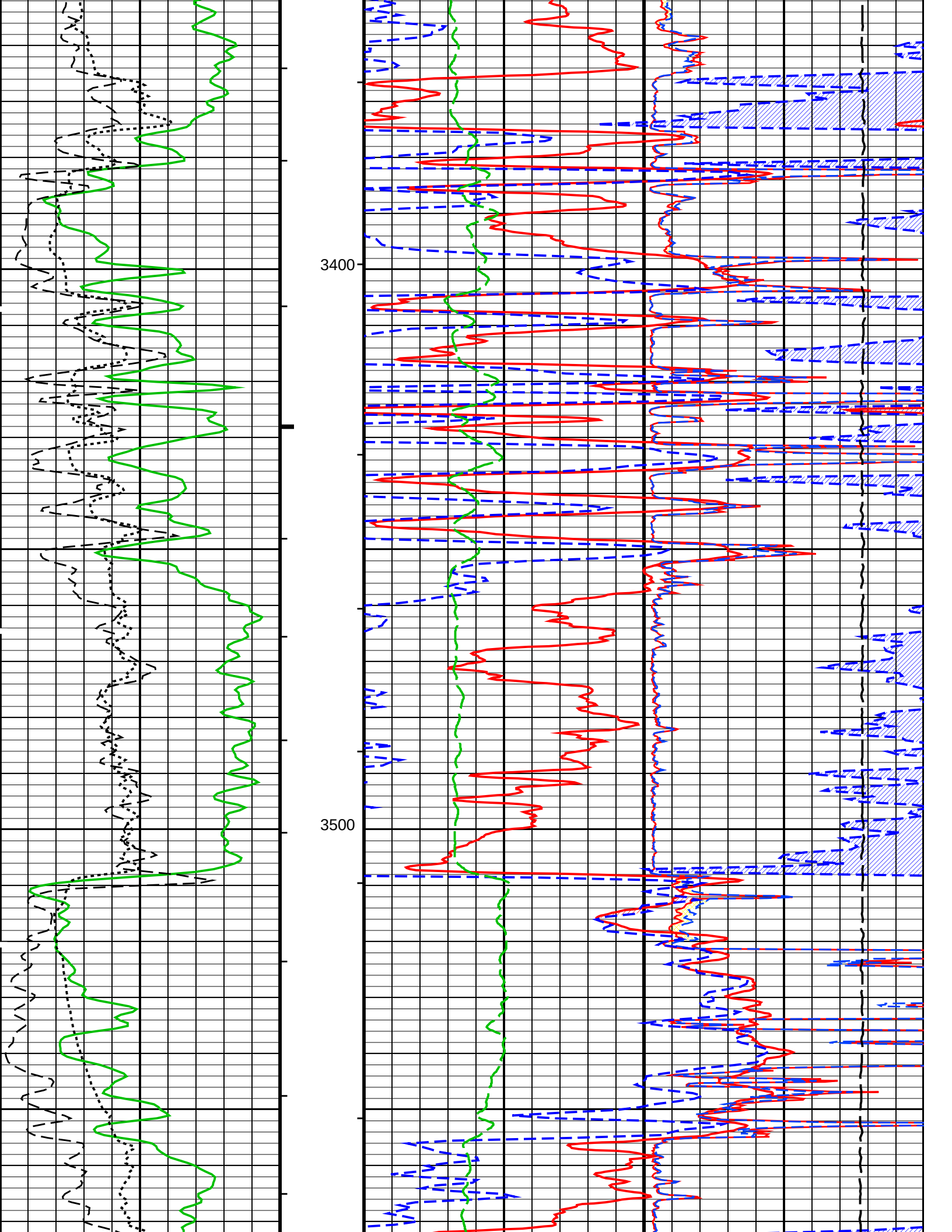
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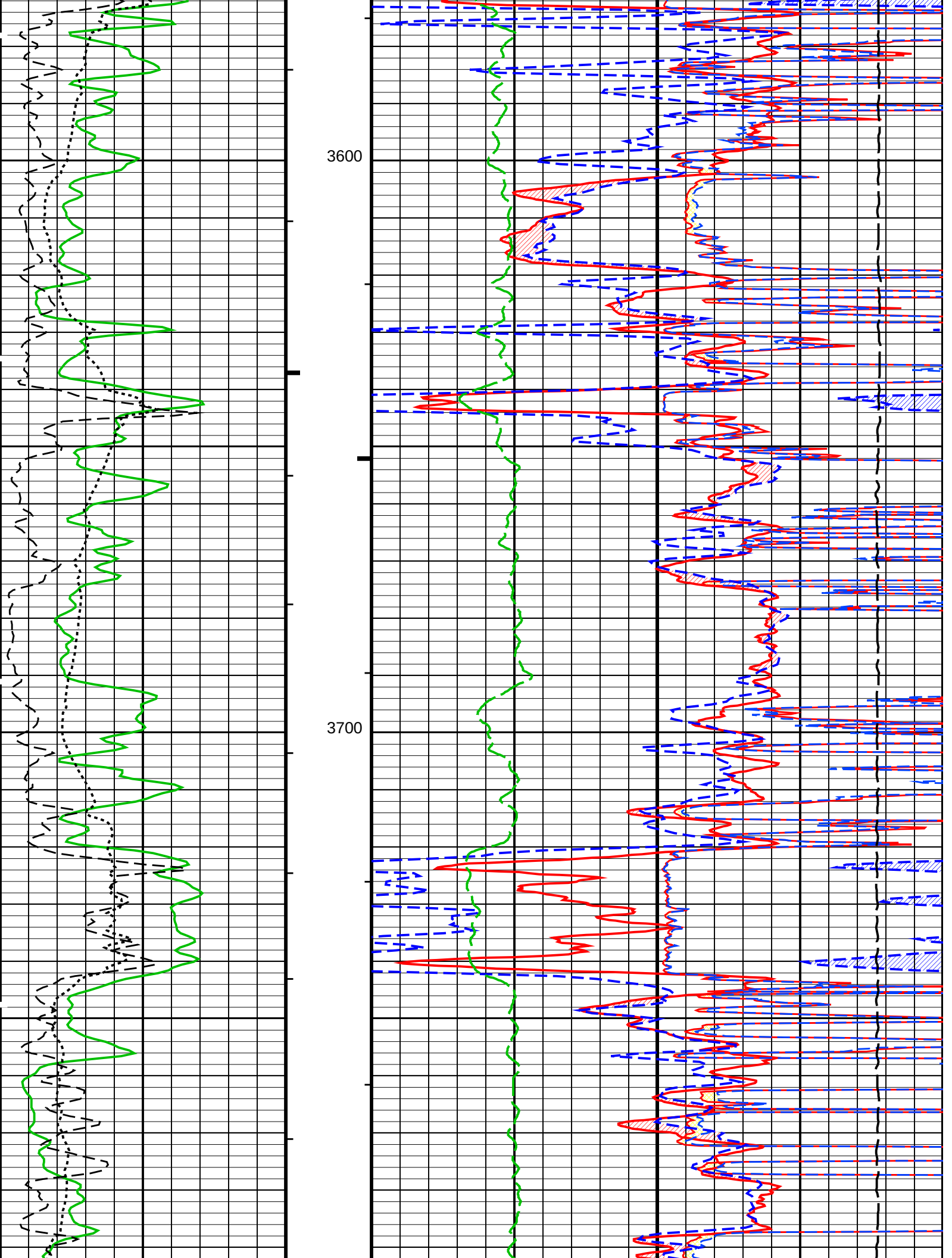
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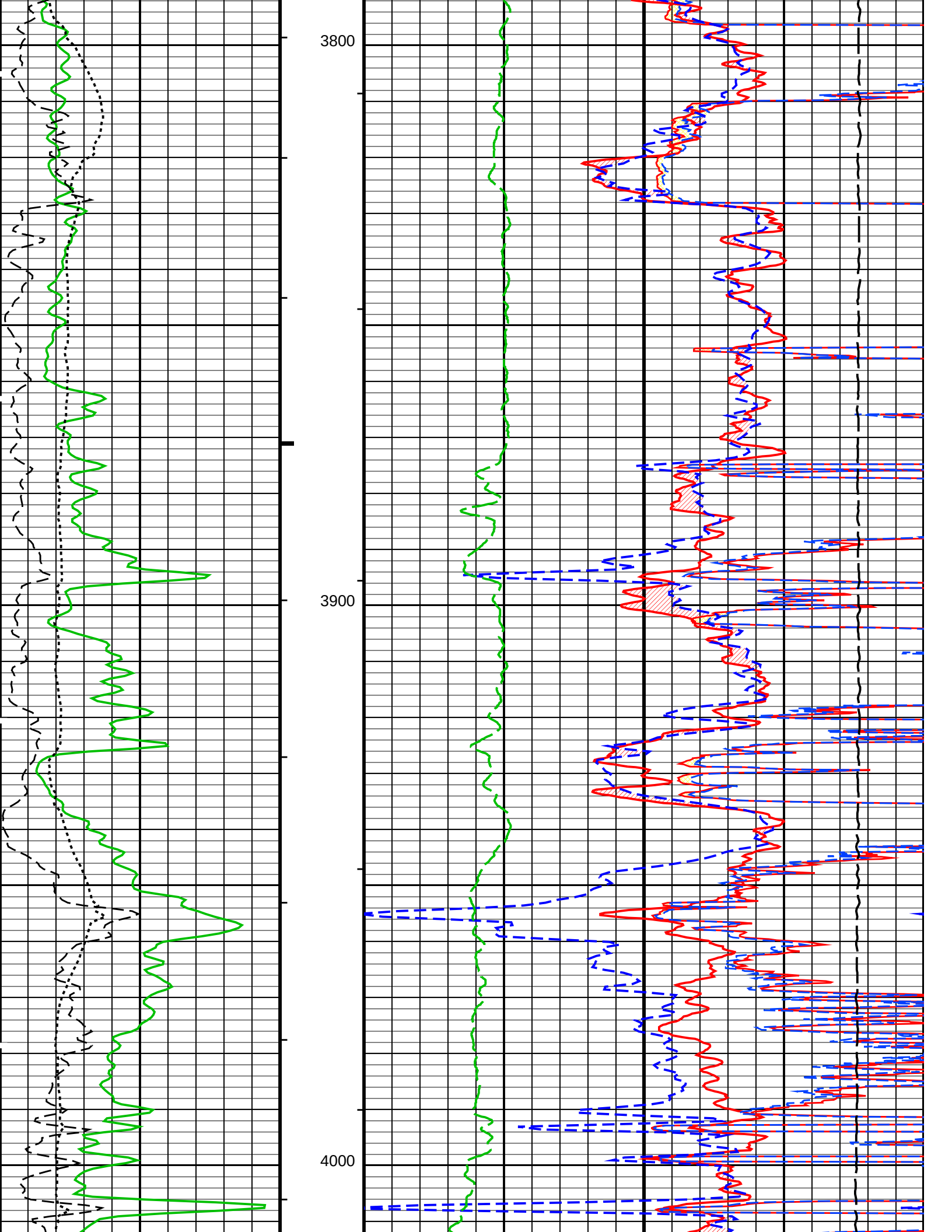
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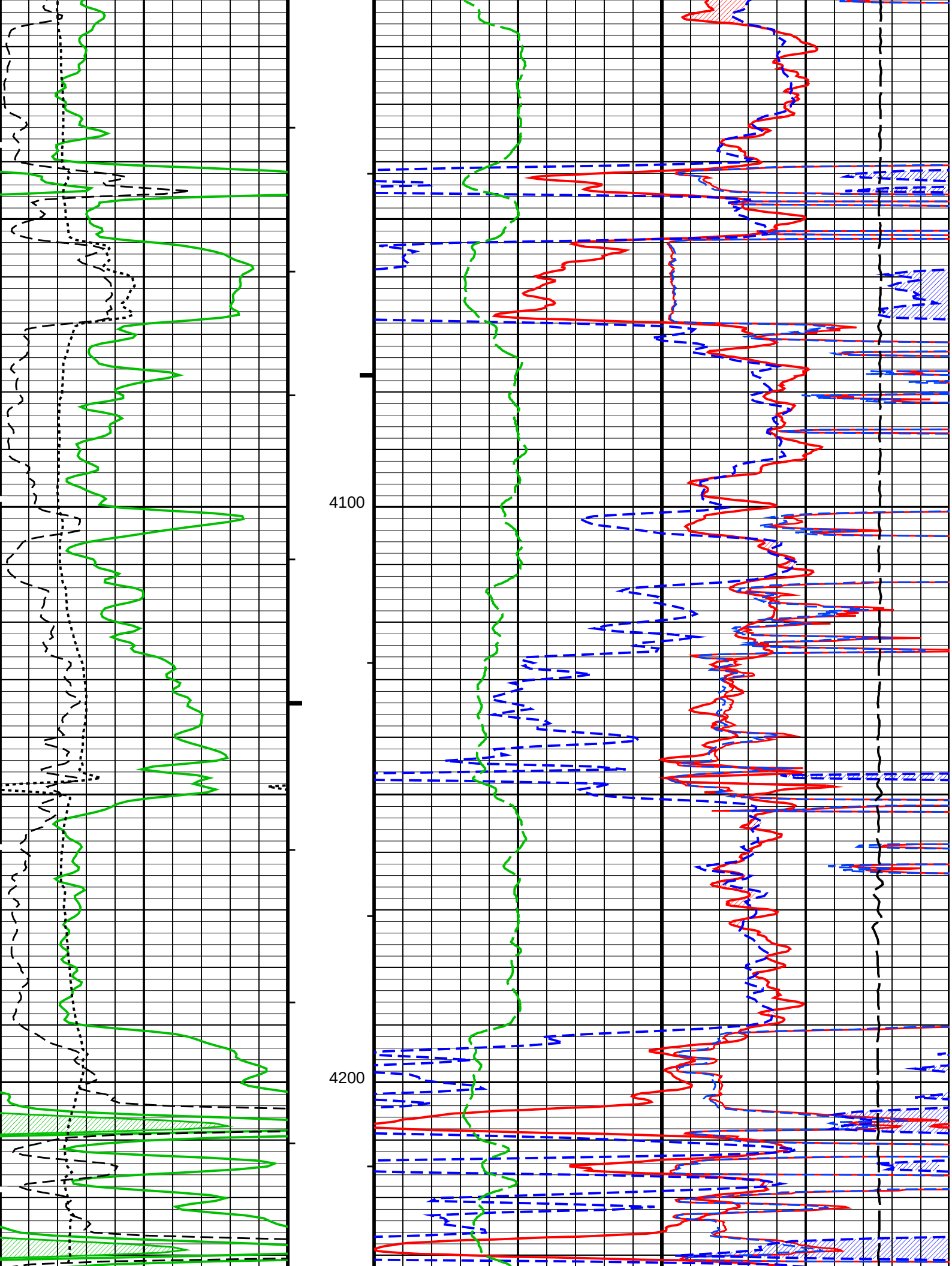
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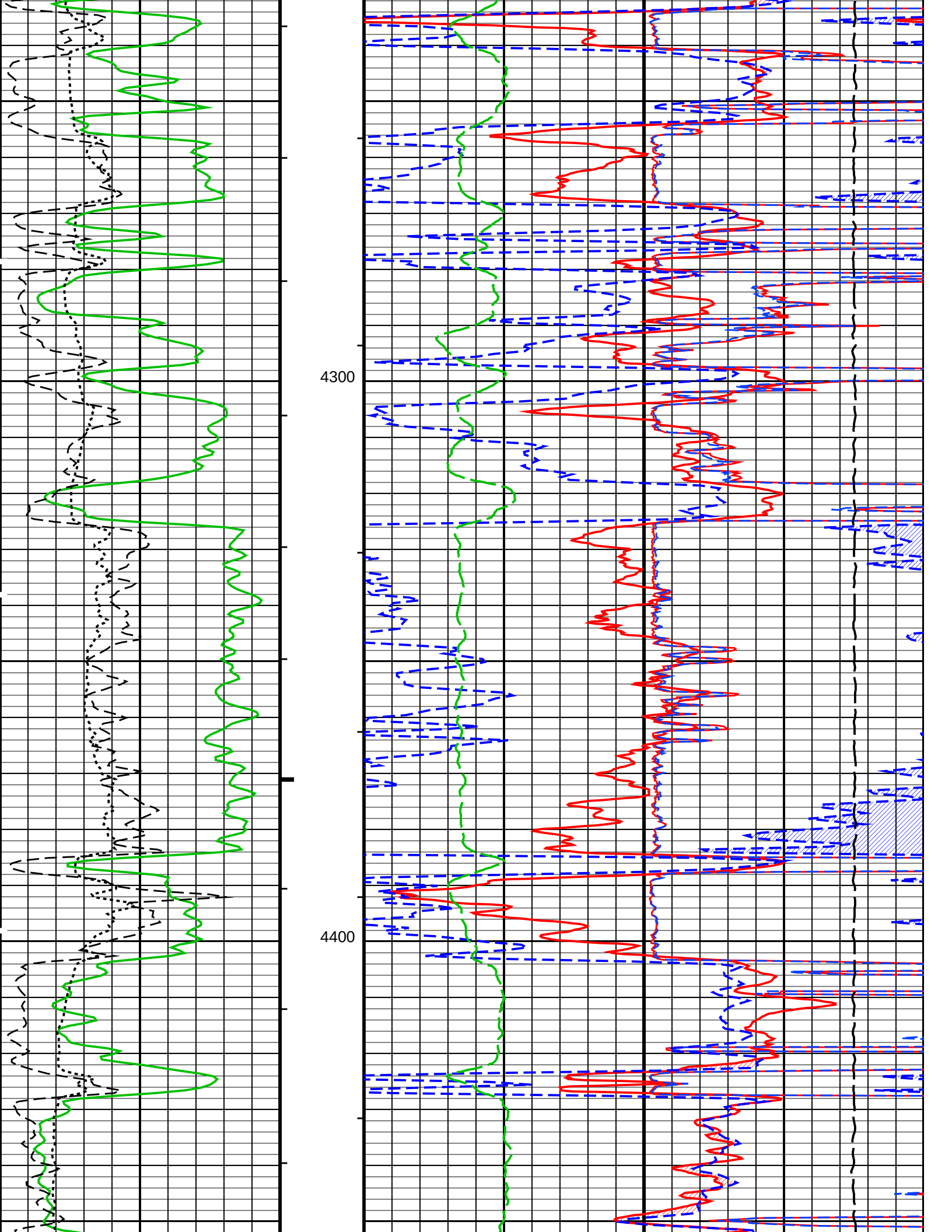
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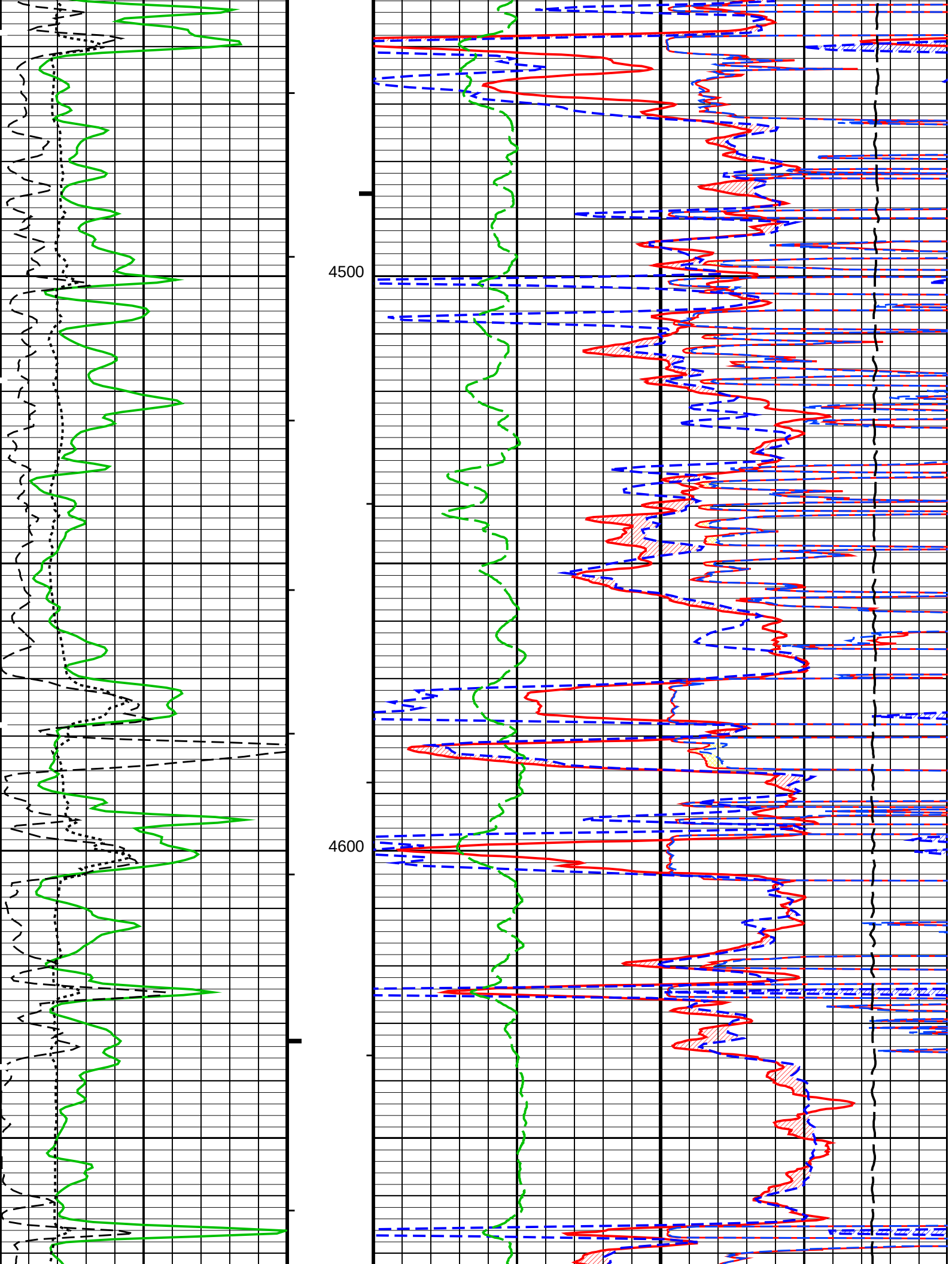
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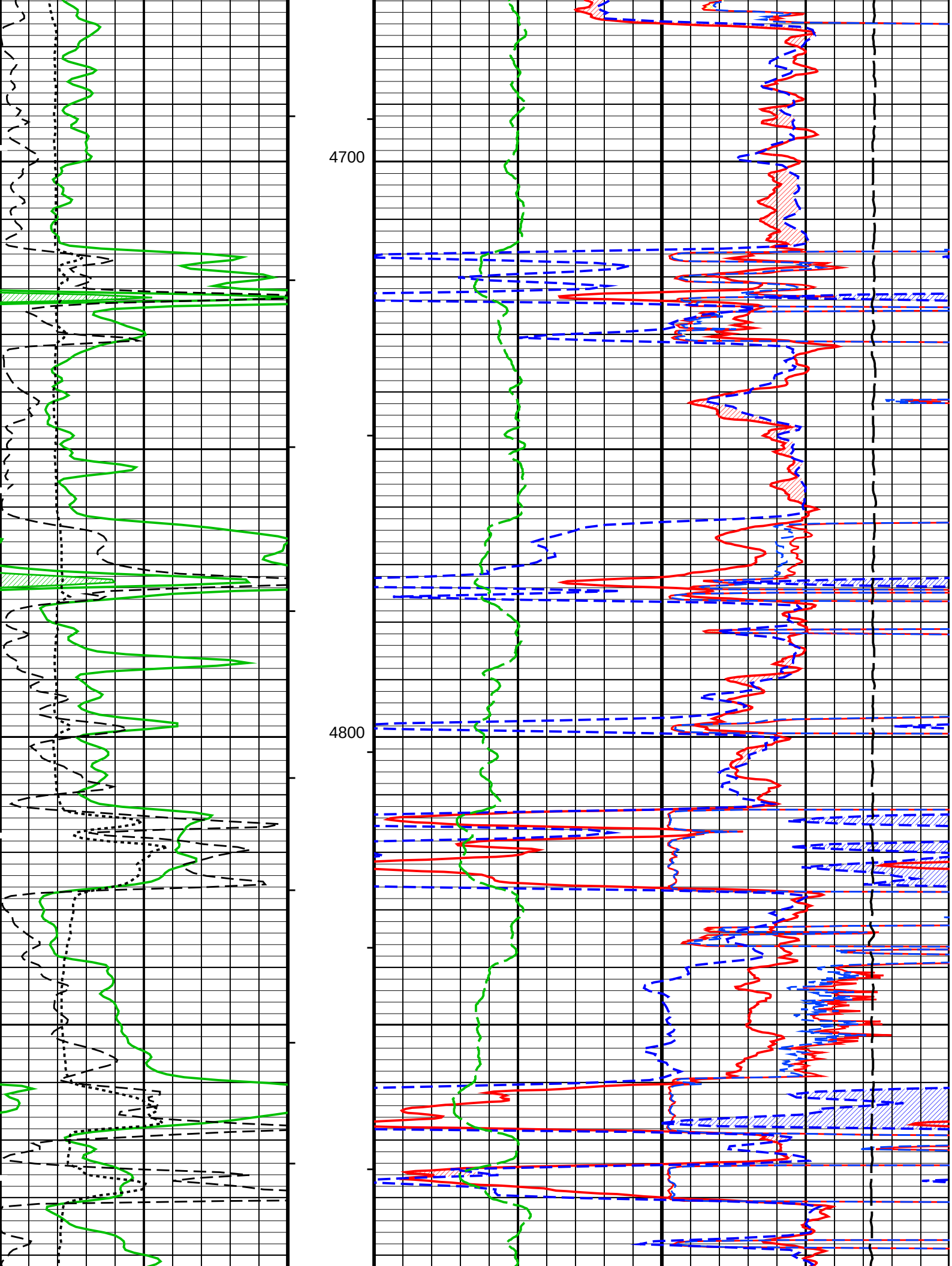
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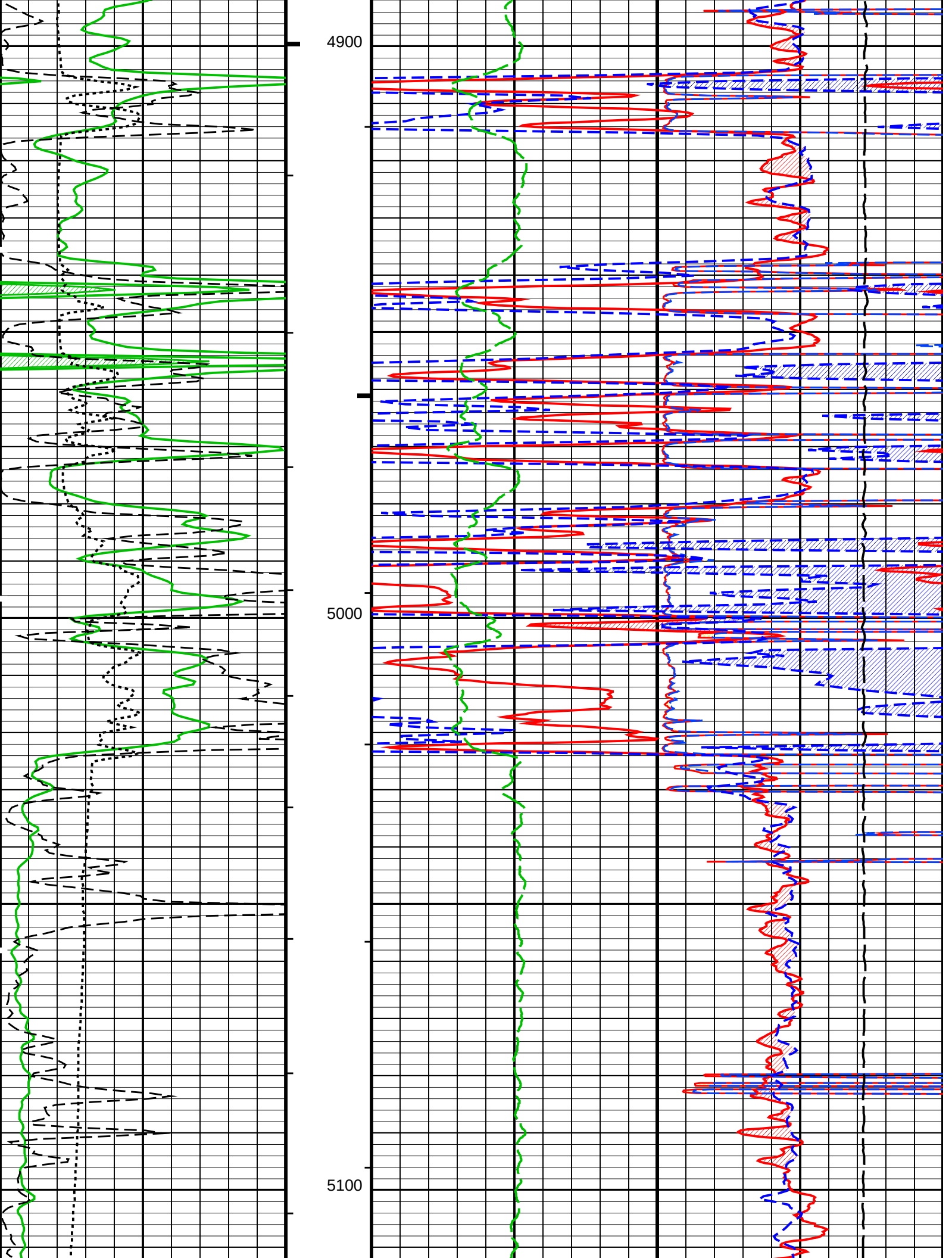
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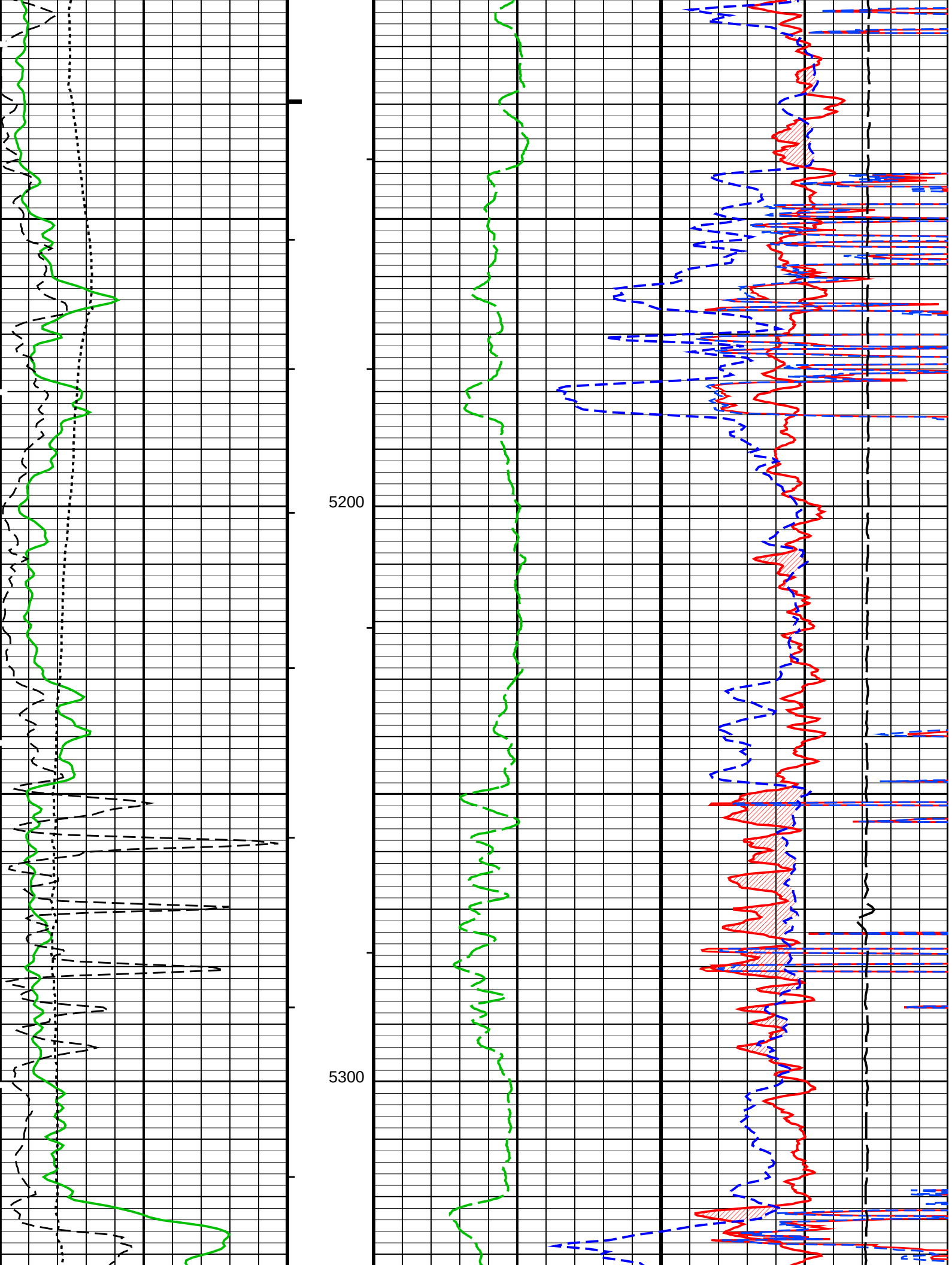
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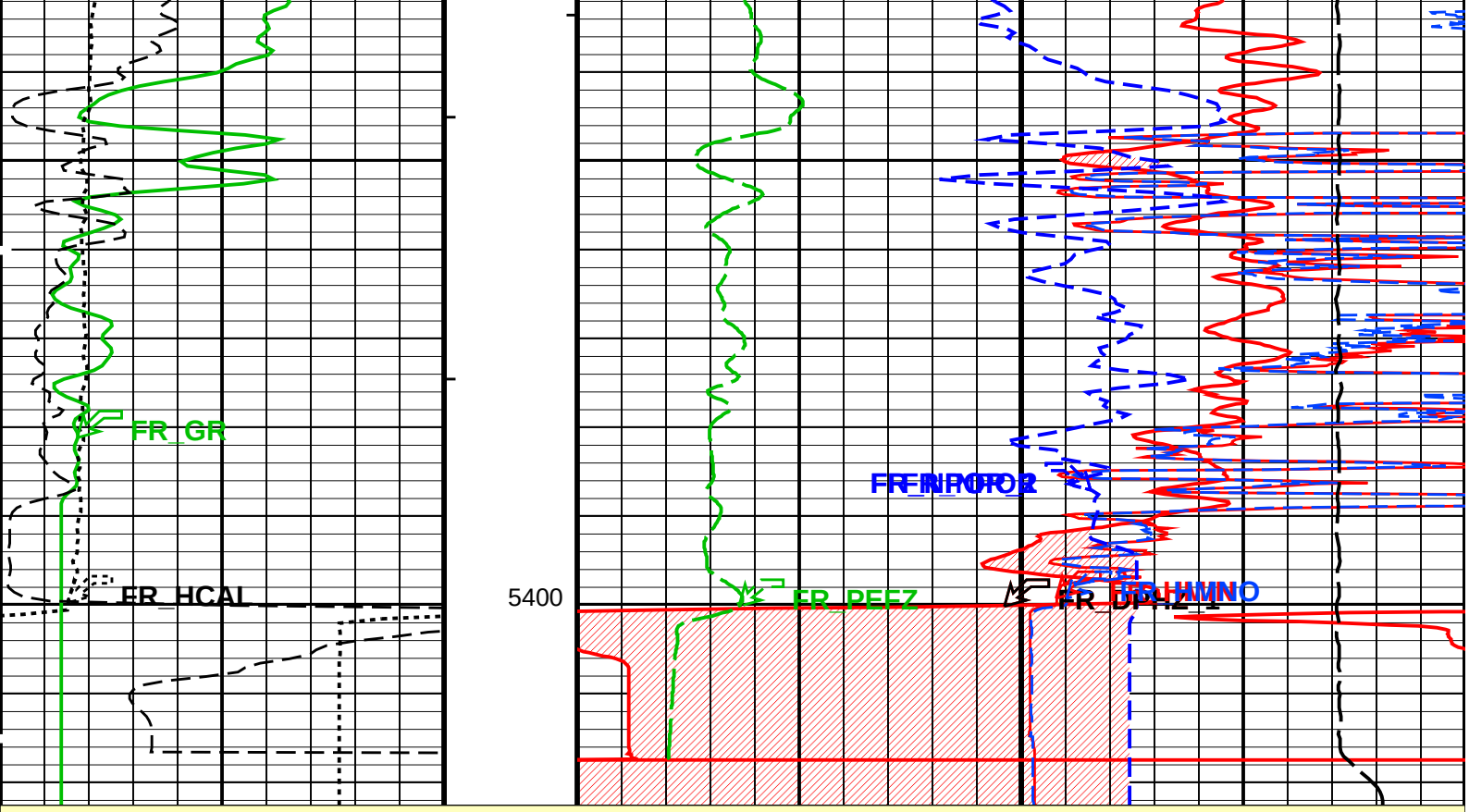



MAIN PASS: *** PLATFORM EXPRESS − NUCLEAR POROSITY ***

| | | |
|---|---|---|
| Gamma Ray Backup | Cable Drag | Std. Res. Density Porosity (DPHZ) 0.3 (V/V) −0.1 |
| RWA (RWA) 0 (OHMM) 0.5 | Tool/Tot. Drag | Alpha Processed Neutron Porosity (NPOR) 0.3 (V/V) −0.1 |
| Gamma Ray (GR) 0 (GAPI) 150 | Stuck Stretch (STIT) 0 (F) 50 | Std. Res. Formation Pe (PEFZ) 0 (−−−− 10 / Computed Micro Inverse (HMIN) 0 (OHMM) 20 |
| Caliper (HCAL) 6 (IN) 16 | | Gas Effect / NPOR Backup |
| | | PERM. / Computed Micro Normal (HMNO) 0 (OHMM) 20 / Tension (TENS) 10000 (LBF) 0 |

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 10 F3
- Integrated Hole Volume Major Pip Every 100 F3
- Integrated Cement Volume Minor Pip Every 10 F3
- Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

## Parameters

| DLIS Name | Description | Value |
|---|---|---|
| | AIT−M: Array Induction Tool − M | |
| ARTS | AIT Rt Selection (for ALLRES computation) | AITM_TwoResA60 |
| BHS | Borehole Status | OPEN |
| FEXP | Form Factor Exponent | 2 |

| | | | |
|---|---|---|---|
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | PXND_HILT | |
| GCSE | Generalized Caliper Selection | HCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| RTCO | RTCO − Rt Invasion Correction | YES | |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| HILTH−FTB: High resolution Integrated Logging Tool−DTS | | | |
| BHFL | Borehole Fluid Type | WATER | |
| BHFL_TLD | HILT Nuclear Mud Base | WATER | |
| BHS | Borehole Status | OPEN | |
| BSCO | Borehole Salinity Correction Option | NO | |
| CCCO | Casing & Cement Thickness Correction Option | NO | |
| DHC | Density Hole Correction | BS | |
| FD | Fluid Density | 1 | G/C3 |
| FEXP | Form Factor Exponent | 2 | |
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | PXND_HILT | |
| FSAL | Formation Salinity | −50000 | PPM |
| FSCO | Formation Salinity Correction Option | NO | |
| GCLF | Germany Coal−like Formation Option | NO | |
| GCSE | Generalized Caliper Selection | HCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| HSCO | Hole Size Correction Option | YES | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| MCCO | Mud Cake Correction Option | NO | |
| MCOR | Mud Correction | NATU | |
| MDEN | Matrix Density | 2.71 | G/C3 |
| MPOF | MCFL Processing Operation Mode | ON | |
| MWCO | Mud Weight Correction Option | NO | |
| NAAC | HRDD APS Activation Correction | OFF | |
| NMT | HILT Nuclear Mud Type | NOBARITE | |
| NPRM | HRDD Processing Mode | HiRes | |
| NSAR | HRDD Depth Sampling Rate | 1 | IN |
| PTCO | Pressure/Temperature Correction Option | NO | |
| SDAT | Standoff Data Source | SOCN | |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| SOCN | Standoff Distance | 0.125 | IN |
| SOCO | Standoff Correction Option | YES | |
| STI: Stuck Tool Indicator | | | |
| LBFR | Trigger for MAXIS First Reading Label | TDL | |
| STKT | STI Stuck Threshold | 2.5 | FT |
| TDD | Total Depth − Driller | 5414.00 | FT |
| TDL | Total Depth − Logger | 5418.00 | FT |
| PERT: Preliminary Evaluation − Real Time | | | |
| ARTS | AIT Rt Selection (for ALLRES computation) | AITM_TwoResA60 | |
| BHS | Borehole Status | OPEN | |
| FEXP | Form Factor Exponent | 2 | |
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | PXND_HILT | |
| GCSE | Generalized Caliper Selection | HCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| RTCO | RTCO − Rt Invasion Correction | YES | |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| HOLEV: Integrated Hole/Cement Volume | | | |
| BHS | Borehole Status | OPEN | |
| FCD | Future Casing (Outer) Diameter | 5.5 | IN |
| GCSE | Generalized Caliper Selection | HCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| HVCS | Integrated Hole Volume Caliper Selection | AUTOMATIC | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| FEQL: Formation Evaluation Quick Look | | | |
| FEXP | Form Factor Exponent | 2 | |
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | PXND_HILT | |
| ALLRES: Basic Resistivity Transforms | | | |
| ARTS | AIT Rt Selection (for ALLRES computation) | AITM_TwoResA60 | |
| RTCO | RTCO − Rt Invasion Correction | YES | |
| RWA: Apparent Water Resistivity | | | |
| ARTS | AIT Rt Selection (for ALLRES computation) | AITM_TwoResA60 | |
| FEXP | Form Factor Exponent | 2 | |
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | PXND_HILT | |
| RTCO | RTCO − Rt Invasion Correction | YES | |
| System and Miscellaneous | | | |
| BS | Bit Size | 7.875 | IN |
| BSAL | Borehole Salinity | 8500.00 | PPM |
| CSIZ | Current Casing Size | 8.625 | IN |
| CWEI | Casing Weight | 24.00 | LB/F |

| | | | |
|---|---|---|---|
| CWEI | Casing Weight | 24.00 | LB/F |
| DFD | Drilling Fluid Density | 9.20 | LB/G |
| DORL | Depth Offset for Repeat Analysis | 0.0 | FT |
| MST | Mud Sample Temperature | 74.80 | DEGF |
| RMFS | Resistivity of Mud Filtrate Sample | 0.3910 | OHMM |
| RW | Resistivity of Connate Water | 1.0000 | OHMM |
| TD | Total Depth | 5418 | FT |
| TWS | Temperature of Connate Water Sample | 100.00 | DEGF |

Format: PORO  Vertical Scale: 5" per 100'  Graphics File Created: 08−Sep−2011 01:59

## OP System Version: 18C0−147

| | | | |
|---|---|---|---|
| AIT−M | 18C0−147 | HILTH−FTB | 18C0−147 |
| DTC−H | 18C0−147 | | |

## Output DLIS Files

DEFAULT  AIT_TLD_MCFL_CNL_012LUP  FN:11  PRODUCER  08−Sep−2011 01:59

Schlumberger

# Repeat Section 5" = 100'

MAXIS Field Log

## Input DLIS Files

DEFAULT  AIT_TLD_MCFL_CNL_008LUP  FN:7  PRODUCER  08−Sep−2011 01:11  5421.0 FT  4377.5 FT

## Output DLIS Files

DEFAULT  AIT_TLD_MCFL_CNL_010PUP  FN:9  PRODUCER  08−Sep−2011 01:48  5422.5 FT  4510.0 FT

## Integrated Hole/Cement Volume Summary

Hole Volume = 333.37 F3

Cement Volume = 190.09 F3 (assuming 5.50 IN casing O.D.)

Computed from 5418.0 FT to 4550.0 FT using data channel(s) HCAL

## OP System Version: 18C0−147

| | | | |
|---|---|---|---|
| AIT−M | 18C0−147 | HILTH−FTB | 18C0−147 |
| DTC−H | 18C0−147 | | |

**PIP SUMMARY**

Integrated Hole Volume Minor Pip Every 10 F3

Integrated Hole Volume Major Pip Every 100 F3

Integrated Cement Volume Minor Pip Every 10 F3

Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

NPOR Backup

Gas Effect

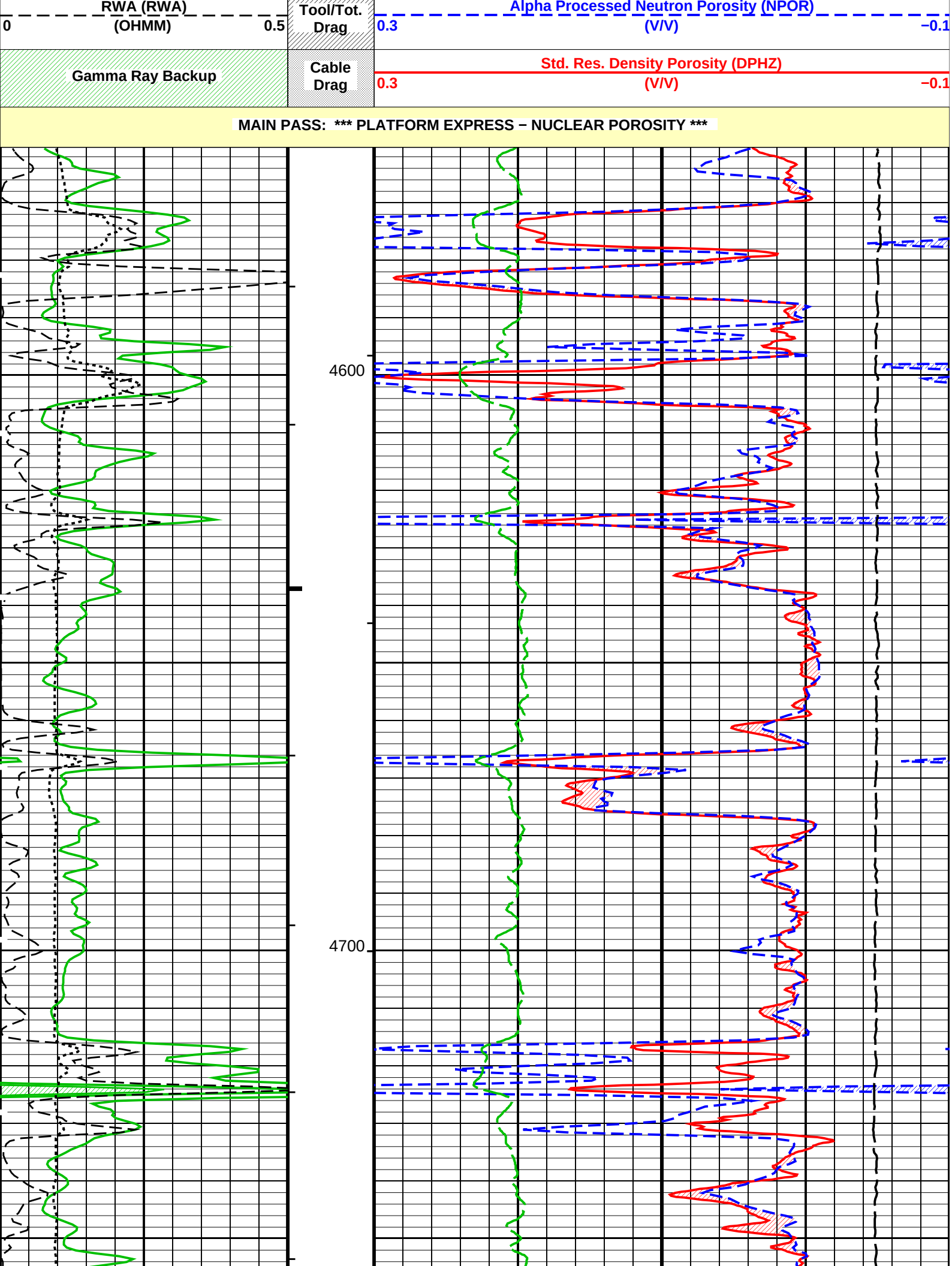
Caliper (HCAL)
6 (IN) 16

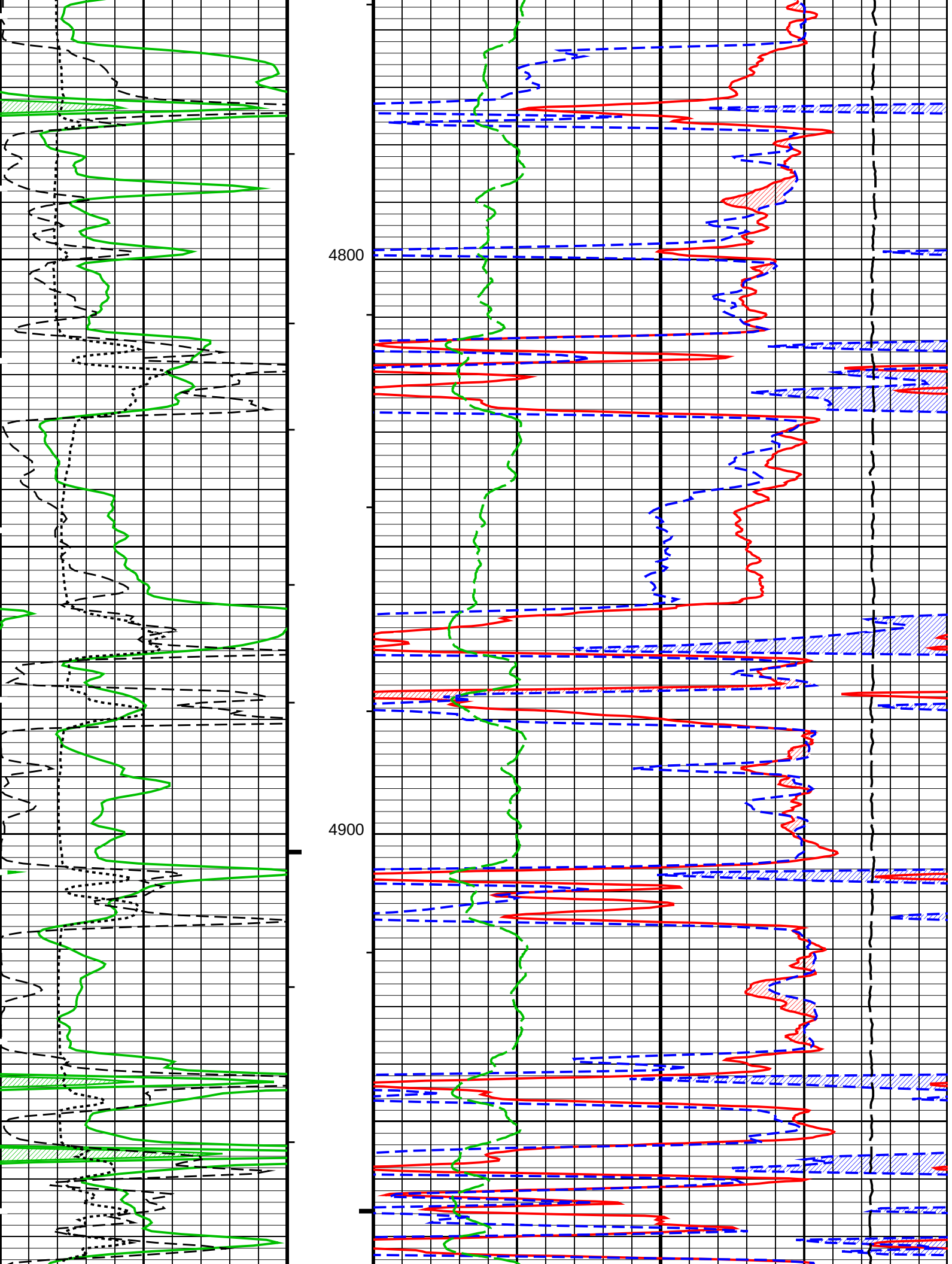
Gamma Ray (GR)
0 (GAPI) 150

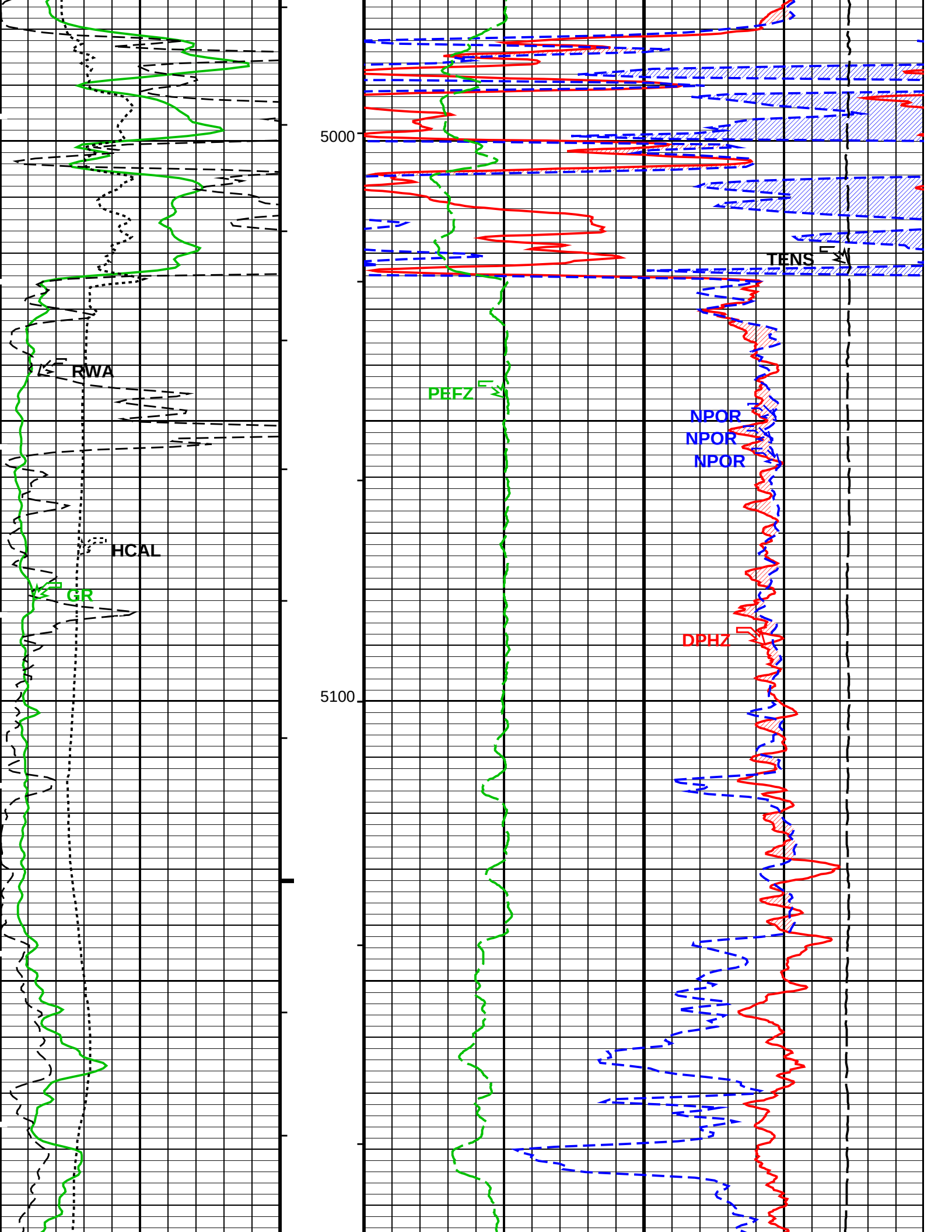
Stuck Stretch (STIT)
0 (F) 50

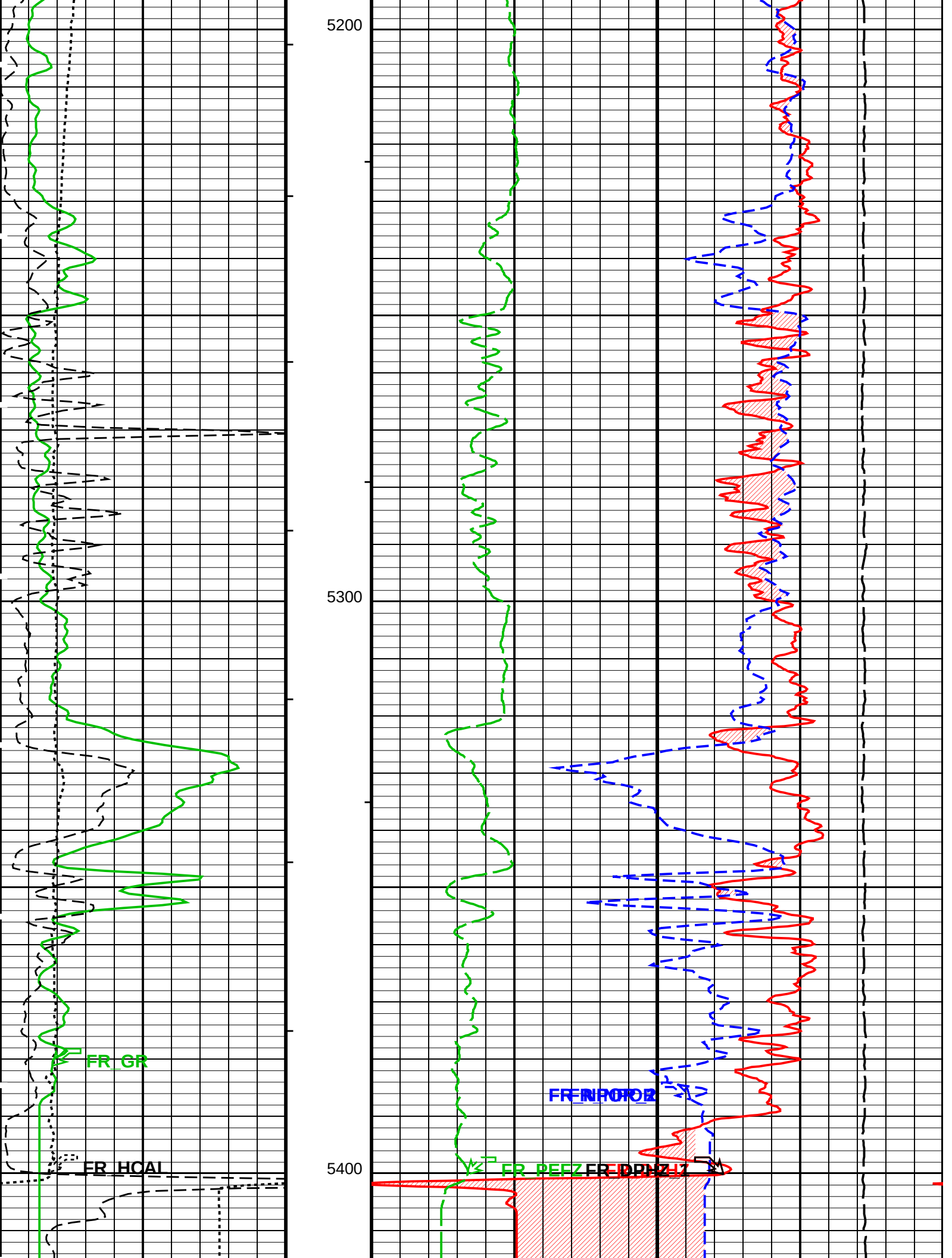
Std. Res. Formation Pe (PEFZ)
0 (−−−− 10

Tension (TENS)
10000 (LBF) 0


RWA (RWA)
0
(OHMM)
0.5
Tool/Tot. Drag
Alpha Processed Neutron Porosity (NPOR)
0.3
(V/V)
−0.1
Gamma Ray Backup
Cable Drag
Std. Res. Density Porosity (DPHZ)
0.3
(V/V)
−0.1
MAIN PASS: *** PLATFORM EXPRESS − NUCLEAR POROSITY ***
4600
4700


4800
4900


5000
5100
TENS
RWA
HCAL
GR
PEFZ
NPOR
NPOR
NPOR
DPHZ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5300
5400
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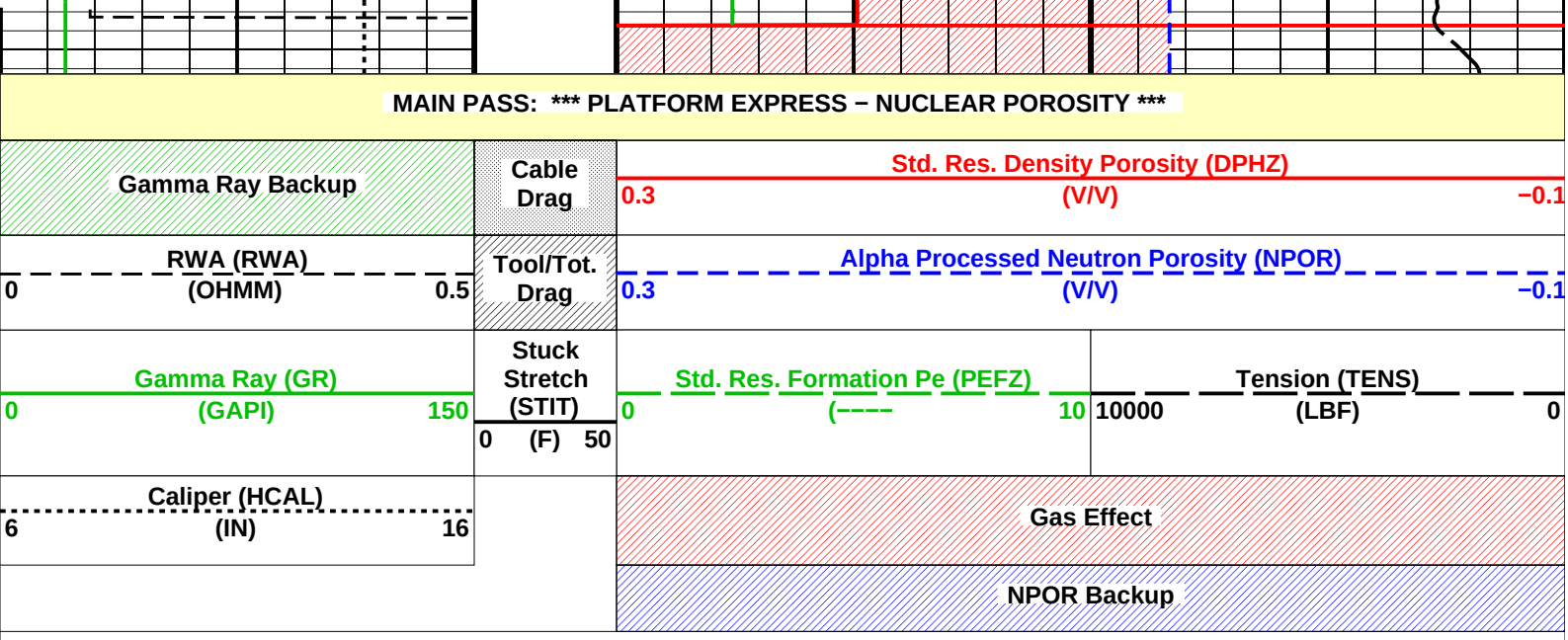
FR_HCAL
FR_PEFZ
FR_DPHZ_1




## Parameters

| DLIS Name | Description | Value | |
|---|---|---|---|
| | **AIT−M: Array Induction Tool − M** | | |
| ARTS | AIT Rt Selection (for ALLRES computation) | AITM_TwoResA60 | |
| BHS | Borehole Status | OPEN | |
| FEXP | Form Factor Exponent | 2 | |
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | PXND_HILT | |
| GCSE | Generalized Caliper Selection | HCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| RTCO | RTCO − Rt Invasion Correction | YES | |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| | **HILTH−FTB: High resolution Integrated Logging Tool−DTS** | | |
| BHFL | Borehole Fluid Type | WATER | |
| BHFL_TLD | HILT Nuclear Mud Base | WATER | |
| BHS | Borehole Status | OPEN | |
| BSCO | Borehole Salinity Correction Option | NO | |
| CCCO | Casing & Cement Thickness Correction Option | NO | |
| DHC | Density Hole Correction | BS | |
| FD | Fluid Density | 1 | G/C3 |
| FEXP | Form Factor Exponent | 2 | |
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | PXND_HILT | |
| FSAL | Formation Salinity | −50000 | PPM |
| FSCO | Formation Salinity Correction Option | NO | |
| GCLF | Germany Coal−like Formation Option | NO | |
| GCSE | Generalized Caliper Selection | HCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| HSCO | Hole Size Correction Option | YES | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| MCCO | Mud Cake Correction Option | NO | |
| MCOR | Mud Correction | NATU | |
| MDEN | Matrix Density | 2.71 | G/C3 |
| MWCO | Mud Weight Correction Option | NO | |
| NAAC | HRDD APS Activation Correction | OFF | |
| NMT | HILT Nuclear Mud Type | NOBARITE | |
| NPRM | HRDD Processing Mode | HiRes | |
| NSAR | HRDD Depth Sampling Rate | 1 | IN |
| PTCO | Pressure/Temperature Correction Option | NO | |
| SDAT | Standoff Data Source | SOCN | |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| SOCN | Standoff Distance | 0.125 | IN |
| SOCO | Standoff Correction Option | YES | |
| | **STI: Stuck Tool Indicator** | | |
| LBFR | Trigger for MAXIS First Reading Label | TDL | |

| | | | |
|---|---|---|---|
| EBFR | Trigger for MAXIS First Reading Label | TDL | |
| STKT | STI Stuck Threshold | 2.5 | FT |
| TDD | Total Depth − Driller | 5414.00 | FT |
| TDL | Total Depth − Logger | 5418.00 | FT |
| | PERT: Preliminary Evaluation − Real Time | | |
| ARTS | AIT Rt Selection (for ALLRES computation) | AITM_TwoResA60 | |
| BHS | Borehole Status | OPEN | |
| FEXP | Form Factor Exponent | 2 | |
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | PXND_HILT | |
| GCSE | Generalized Caliper Selection | HCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| RTCO | RTCO − Rt Invasion Correction | YES | |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| | HOLEV: Integrated Hole/Cement Volume | | |
| BHS | Borehole Status | OPEN | |
| FCD | Future Casing (Outer) Diameter | 5.5 | IN |
| GCSE | Generalized Caliper Selection | HCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| HVCS | Integrated Hole Volume Caliper Selection | AUTOMATIC | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| | FEQL: Formation Evaluation Quick Look | | |
| FEXP | Form Factor Exponent | 2 | |
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | PXND_HILT | |
| | ALLRES: Basic Resistivity Transforms | | |
| ARTS | AIT Rt Selection (for ALLRES computation) | AITM_TwoResA60 | |
| RTCO | RTCO − Rt Invasion Correction | YES | |
| | RWA: Apparent Water Resistivity | | |
| ARTS | AIT Rt Selection (for ALLRES computation) | AITM_TwoResA60 | |
| FEXP | Form Factor Exponent | 2 | |
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | PXND_HILT | |
| RTCO | RTCO − Rt Invasion Correction | YES | |
| | System and Miscellaneous | | |
| BS | Bit Size | 7.875 | IN |
| BSAL | Borehole Salinity | 8500.00 | PPM |
| CSIZ | Current Casing Size | 8.625 | IN |
| CWEI | Casing Weight | 24.00 | LB/F |
| DFD | Drilling Fluid Density | 9.20 | LB/G |
| DO | Depth Offset for Playback | 2.0 | FT |
| MST | Mud Sample Temperature | 74.80 | DEGF |
| PP | Playback Processing | NORMAL | |
| RMFS | Resistivity of Mud Filtrate Sample | 0.3910 | OHMM |
| RW | Resistivity of Connate Water | 1.0000 | OHMM |
| TD | Total Depth | 5418 | FT |
| TWS | Temperature of Connate Water Sample | 100.00 | DEGF |

Format: PORO Vertical Scale: 5" per 100’ Graphics File Created: 08−Sep−2011 01:48

## OP System Version: 18C0−147

| | | | |
|---|---|---|---|
| AIT−M | 18C0−147 | HILTH−FTB | 18C0−147 |
| DTC−H | 18C0−147 | | |

## Input DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | AIT_TLD_MCFL_CNL_008LUP | FN:7 | PRODUCER | 08−Sep−2011 01:11 | 5421.0 FT | 4377.5 FT |

## Output DLIS Files

| | | | | |
|---|---|---|---|---|
| DEFAULT | AIT_TLD_MCFL_CNL_010PUP | FN:9 | PRODUCER | 08−Sep−2011 01:48 |

Schlumberger

# Repeat Analysis 5" = 100’

MAXIS Field Log

## Input DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | AIT_TLD_MCFL_CNL_010PUP | FN:9 | PRODUCER | 08−Sep−2011 01:48 | 5422.5 FT | 4510.0 FT |

## Output DLIS Files

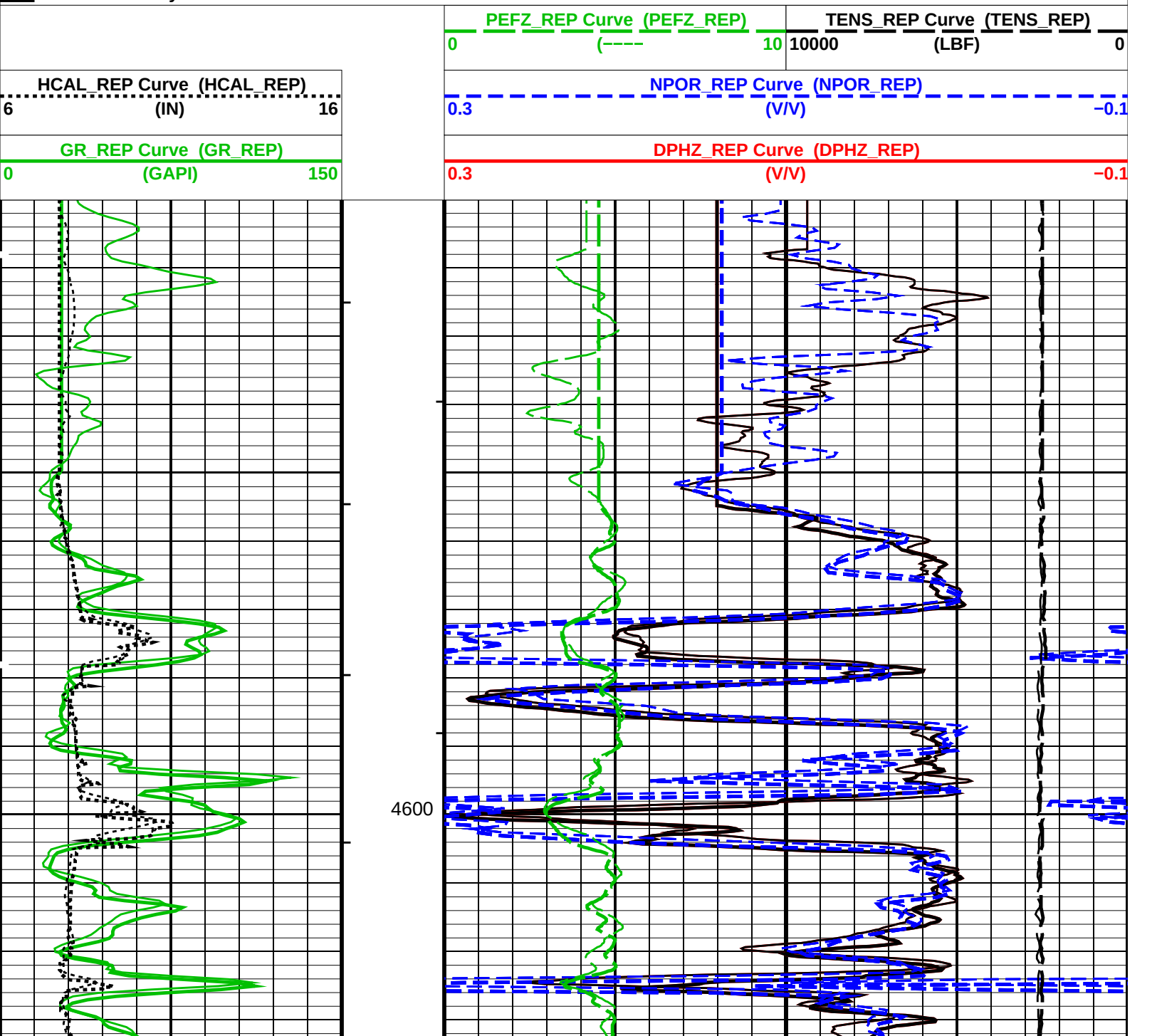
| | | | | |
|---|---|---|---|---|
| DEFAULT | AIT_TLD_MCFL_CNL_012LUP | FN:11 | PRODUCER | 08−Sep−2011 01:59 |

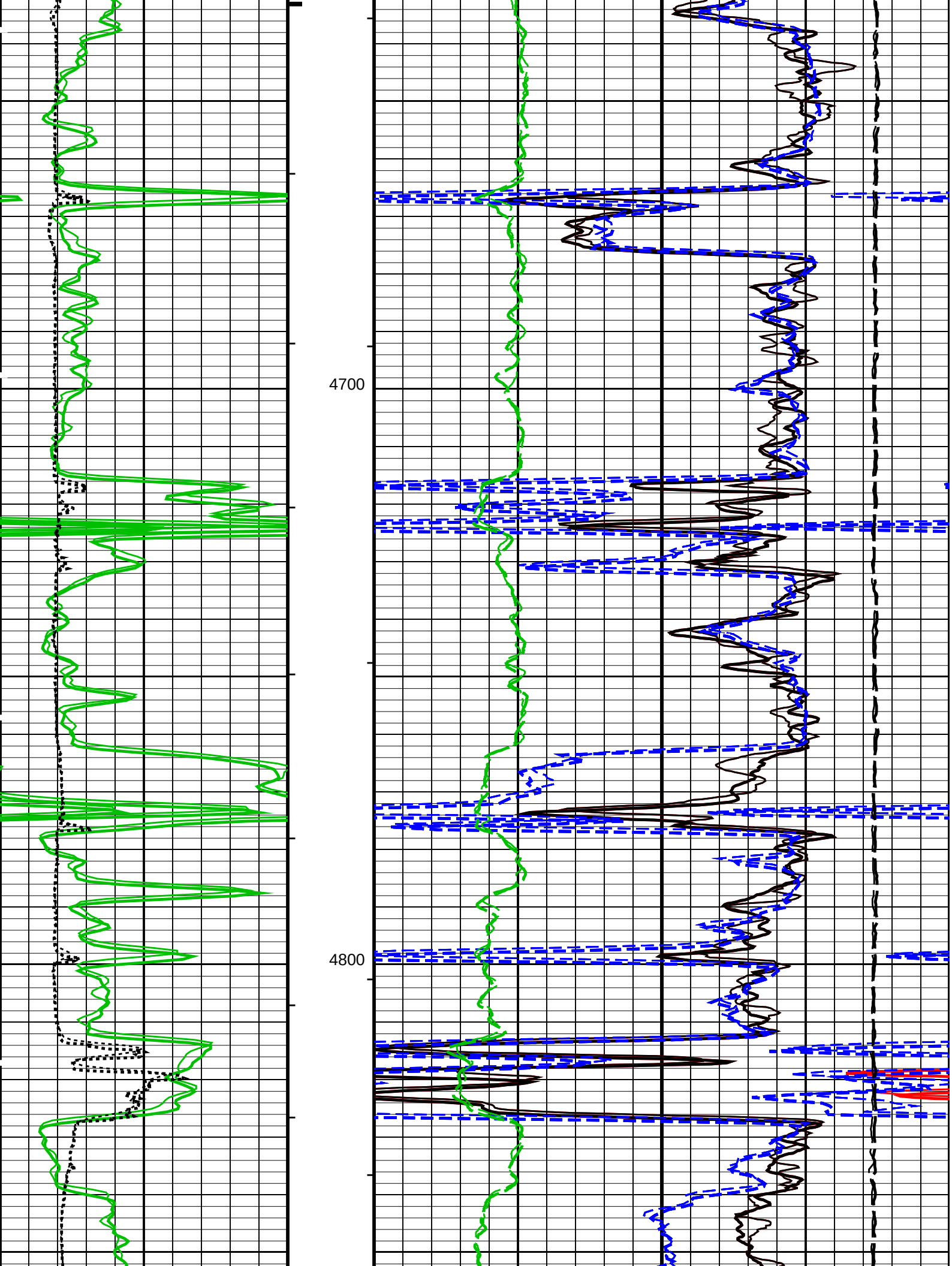
## OP System Version: 18C0−147

| | | | |
|---|---|---|---|
| AIT−M | 18C0−147 | HILTH−FTB | 18C0−147 |
| DTC−H | 18C0−147 | | |

**PIP SUMMARY**

- Integrated Hole Volume Minor Pip Every 10 F3
- Integrated Hole Volume Major Pip Every 100 F3
- Integrated Cement Volume Minor Pip Every 10 F3
- Integrated Cement Volume Major Pip Every 100 F3
- Time Mark Every 60 S

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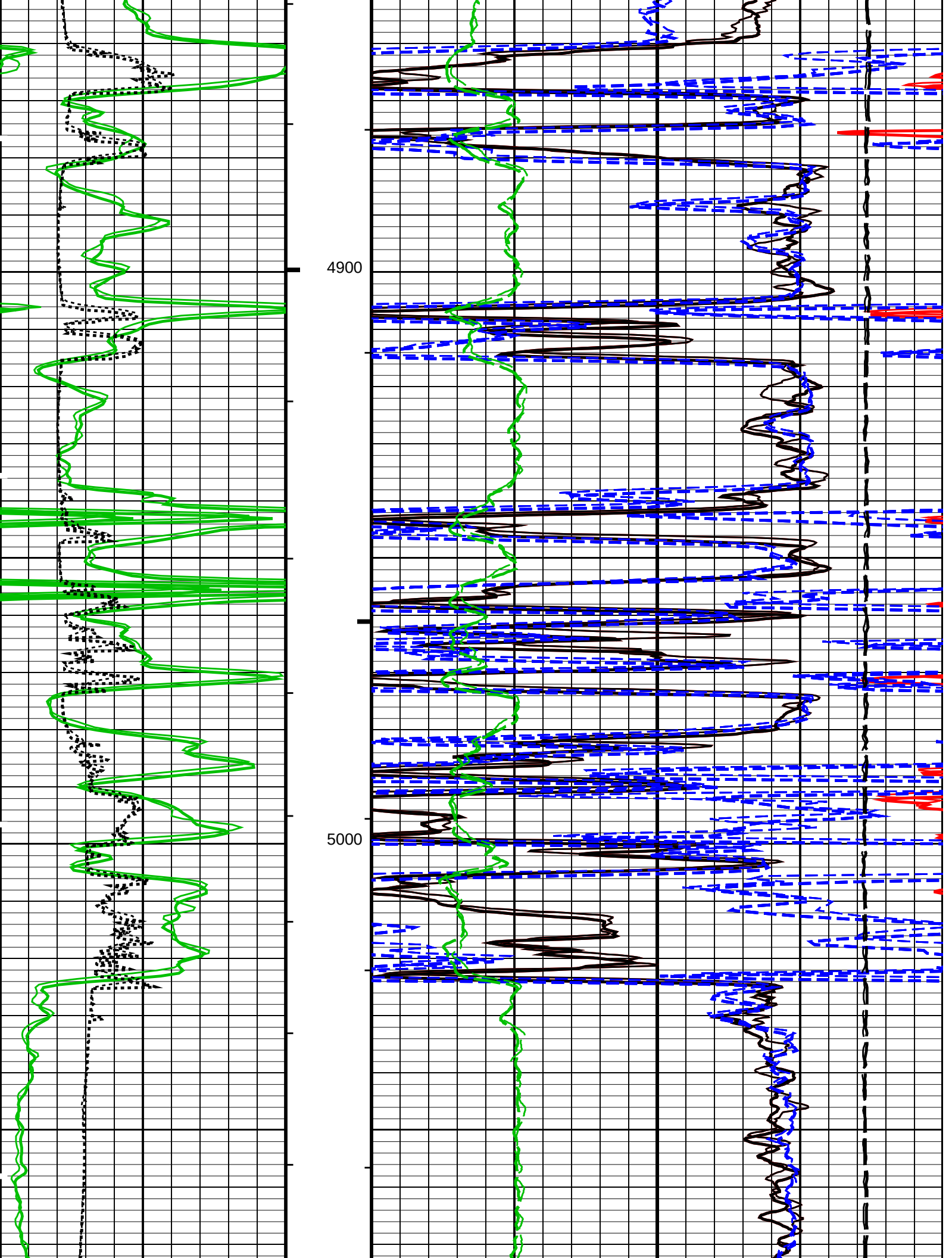
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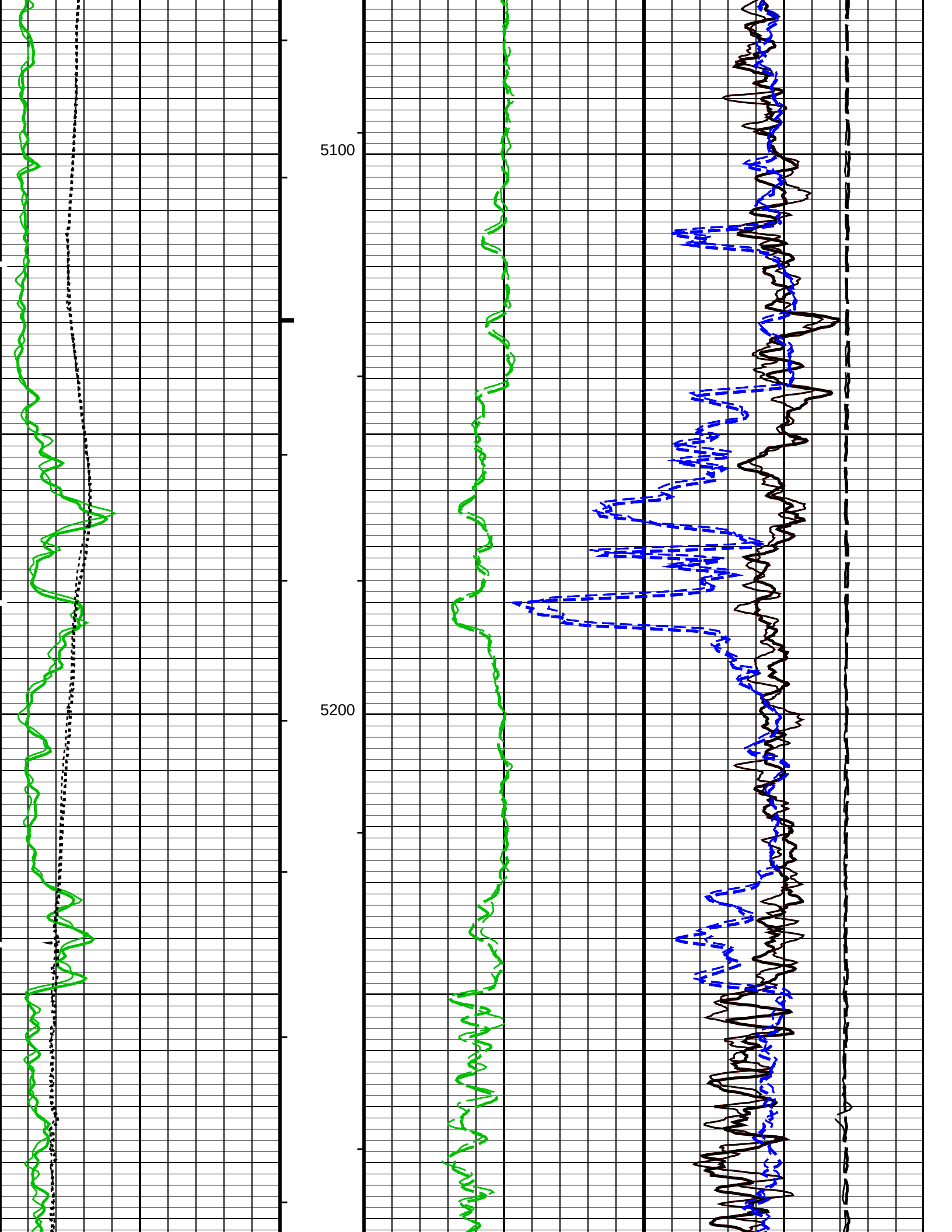
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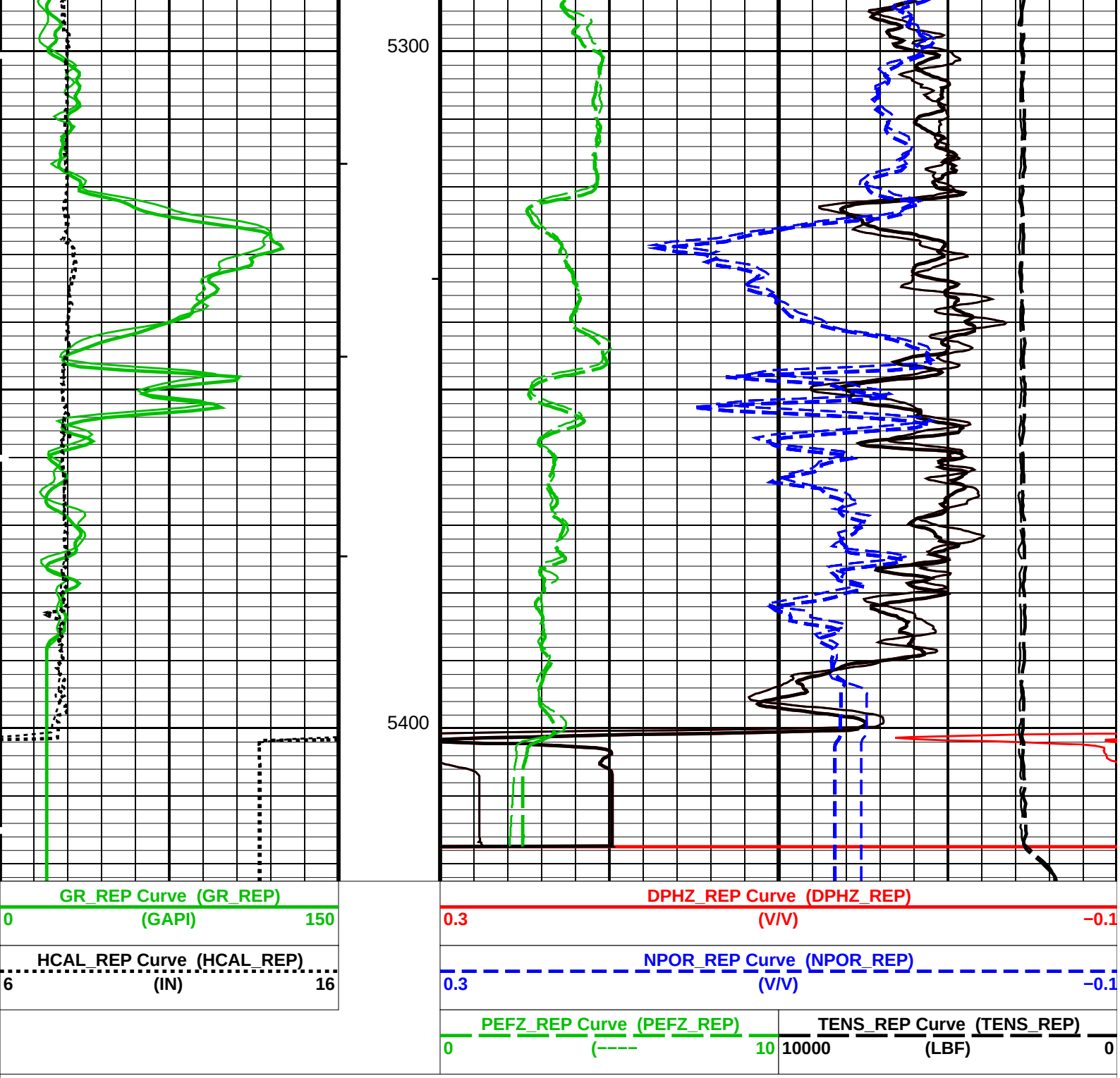
5200




**PIP SUMMARY**

- Integrated Hole Volume Minor Pip Every 10 F3
- Integrated Hole Volume Major Pip Every 100 F3
- Integrated Cement Volume Minor Pip Every 10 F3
- Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

## Parameters

| DLIS Name | Description | Value | |
|---|---|---|---|
| | AIT−M: Array Induction Tool − M | | |
| BHS | Borehole Status | OPEN | |
| GCSE | Generalized Caliper Selection | HCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| | HILTH−FTB: High resolution Integrated Logging Tool−DTS | | |
| BHFL | Borehole Fluid Type | WATER | |
| BHFL_TLD | HILT Nuclear Mud Base | WATER | |

| | | | |
|---|---|---|---|
| BHS | Borehole Status | OPEN | |
| BSCO | Borehole Salinity Correction Option | NO | |
| CCCO | Casing & Cement Thickness Correction Option | NO | |
| DHC | Density Hole Correction | BS | |
| FD | Fluid Density | 1 | G/C3 |
| FSAL | Formation Salinity | −50000 | PPM |
| FSCO | Formation Salinity Correction Option | NO | |
| GCLF | Germany Coal−like Formation Option | NO | |
| GCSE | Generalized Caliper Selection | HCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| HSCO | Hole Size Correction Option | YES | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| MCCO | Mud Cake Correction Option | NO | |
| MCOR | Mud Correction | NATU | |
| MDEN | Matrix Density | 2.71 | G/C3 |
| MWCO | Mud Weight Correction Option | NO | |
| NAAC | HRDD APS Activation Correction | OFF | |
| NMT | HILT Nuclear Mud Type | NOBARITE | |
| NPRM | HRDD Processing Mode | HiRes | |
| NSAR | HRDD Depth Sampling Rate | 1 | IN |
| PTCO | Pressure/Temperature Correction Option | NO | |
| SDAT | Standoff Data Source | SOCN | |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| SOCN | Standoff Distance | 0.125 | IN |
| SOCO | Standoff Correction Option | YES | |
| STI: Stuck Tool Indicator | | | |
| TDL | Total Depth − Logger | 5418.00 | FT |
| PERT: Preliminary Evaluation − Real Time | | | |
| BHS | Borehole Status | OPEN | |
| GCSE | Generalized Caliper Selection | HCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| HOLEV: Integrated Hole/Cement Volume | | | |
| BHS | Borehole Status | OPEN | |
| FCD | Future Casing (Outer) Diameter | 5.5 | IN |
| GCSE | Generalized Caliper Selection | HCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| HVCS | Integrated Hole Volume Caliper Selection | AUTOMATIC | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| System and Miscellaneous | | | |
| BS | Bit Size | 7.875 | IN |
| BSAL | Borehole Salinity | 8500.00 | PPM |
| CSIZ | Current Casing Size | 8.625 | IN |
| CWEI | Casing Weight | 24.00 | LB/F |
| DFD | Drilling Fluid Density | 9.20 | LB/G |
| DORL | Depth Offset for Repeat Analysis | 0.0 | FT |
| MST | Mud Sample Temperature | 74.80 | DEGF |
| RMFS | Resistivity of Mud Filtrate Sample | 0.3910 | OHMM |
| TD | Total Depth | 5418 | FT |

Format: PORO_REP Vertical Scale: 5" per 100’ Graphics File Created: 08−Sep−2011 01:59

## OP System Version: 18C0−147

| | | | |
|---|---|---|---|
| AIT−M | 18C0−147 | HILTH−FTB | 18C0−147 |
| DTC−H | 18C0−147 | | |

## Input DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | AIT_TLD_MCFL_CNL_010PUP | FN:9 | PRODUCER | 08−Sep−2011 01:48 | 5422.5 FT | 4510.0 FT |

## Output DLIS Files

| | | | | |
|---|---|---|---|---|
| DEFAULT | AIT_TLD_MCFL_CNL_012LUP | FN:11 | PRODUCER | 08−Sep−2011 01:59 |

Schlumberger

## Main Pass 5" = 100’

## Output DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | AIT_TLD_MCFL_CNL_012LUP | FN:11 | PRODUCER | 08−Sep−2011 01:59 | 5422.5 FT | 813.0 FT |

## OP System Version: 18C0−147

| | | | |
|---|---|---|---|
| AIT−M | 18C0−147 | HILTH−FTB | 18C0−147 |
| DTC−H | 18C0−147 | | |

## Changed Parameter Summary

| DLIS Name | New Value | Previous Value | Depth & Time |
|---|---|---|---|
| BHT | 120 DEGF | 212 DEGF | 1777.6 03:01:56 |

PIP SUMMARY

Time Mark Every 60 S

Caliper (HCAL) 6 (IN) 16

Gamma Ray (GR) 0 (GAPI) 200

RWA (RWA) 0 (OHMM) 0.5

SHALE

SAND

LIME

Tension (TENS) 10000 (LBF) 0

Std. Res. Formation Density (RHOZ) 2 (G/C3) 3

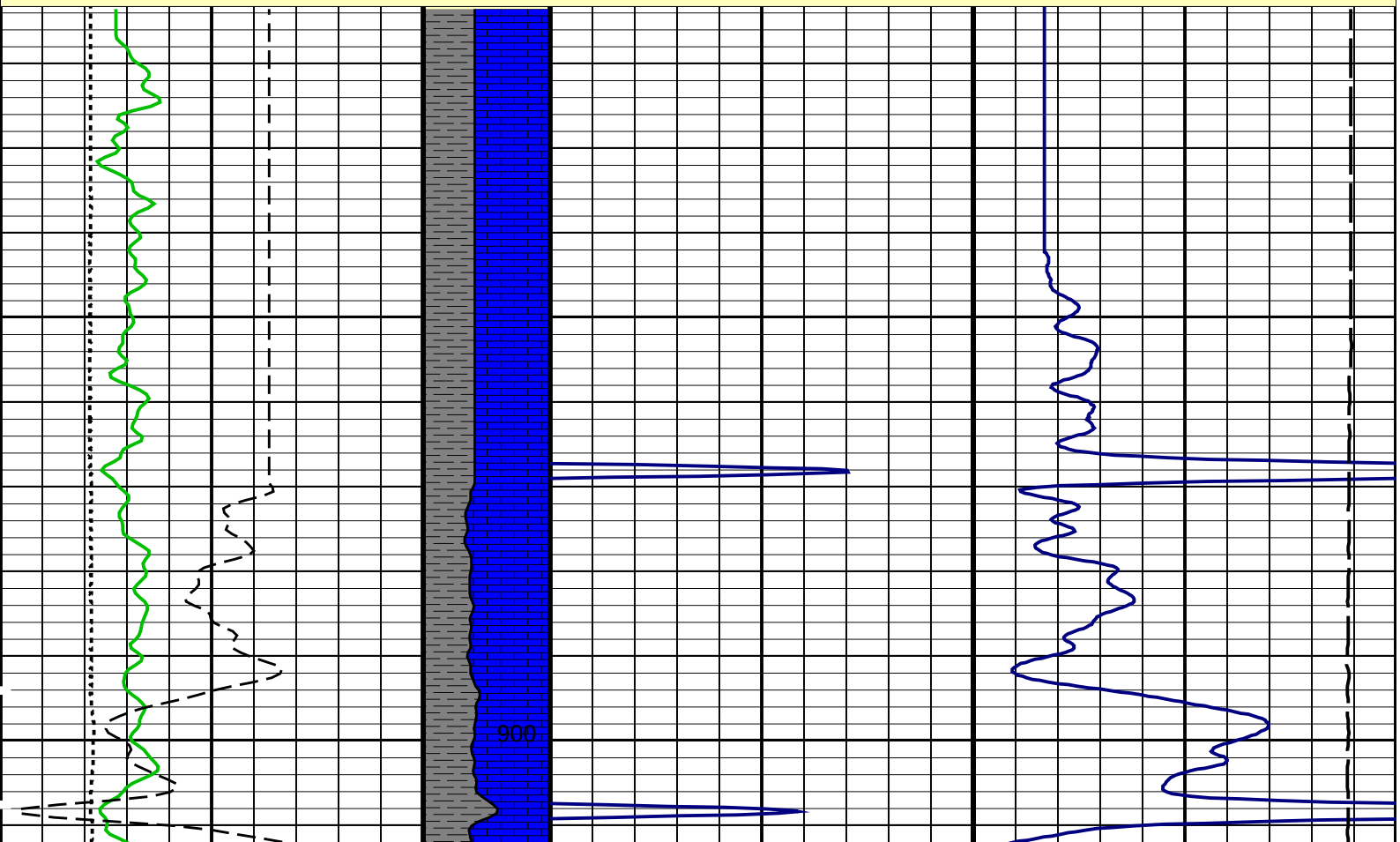
Gamma Ray Backup

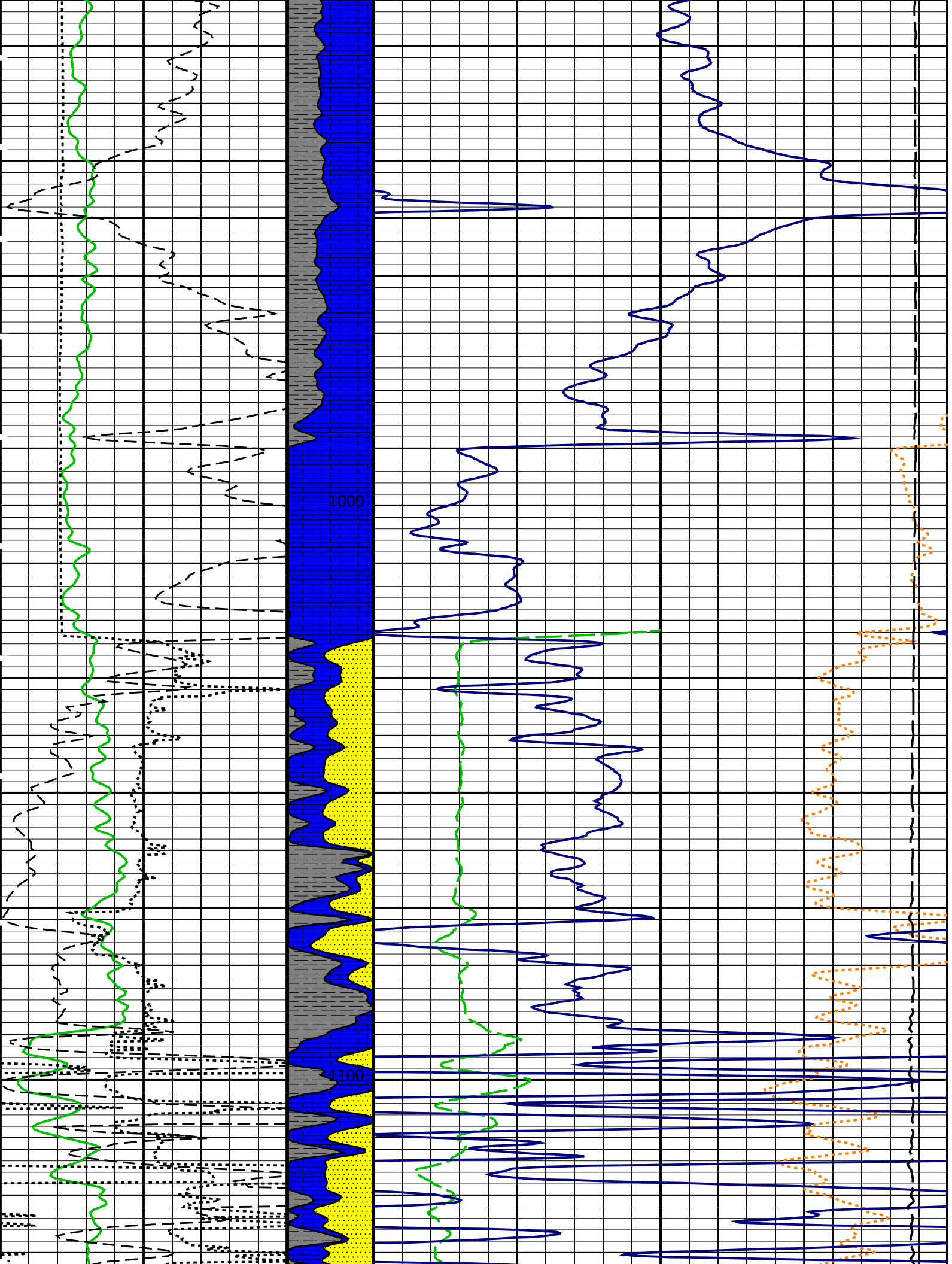
Stuck Stretch (STIT) 0 (F) 50

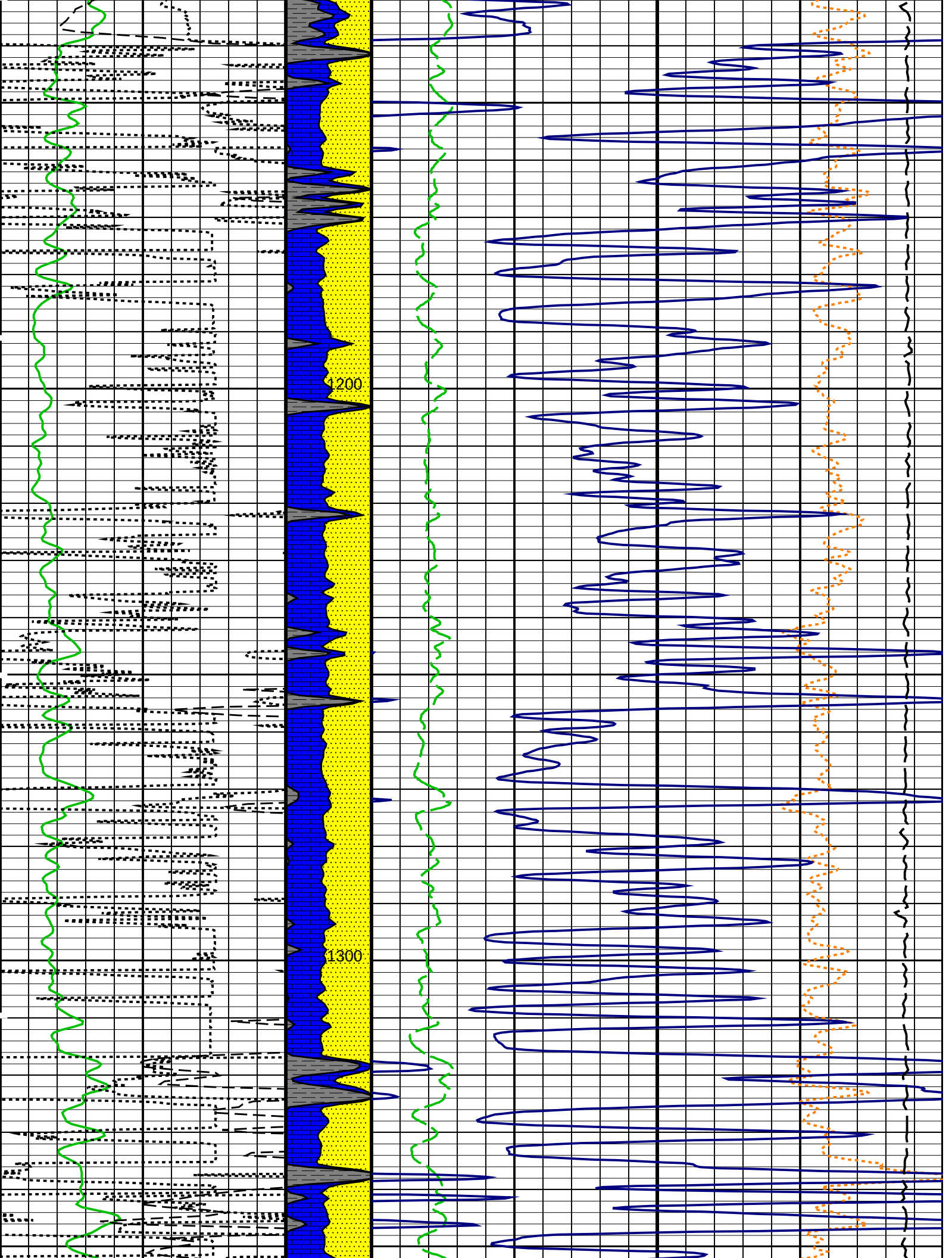
Std. Res. Formation Pe (PEFZ) 0 (−−−− 10

Density Correction (HDRA) −0.25 (G/C3) 0.25

MAIN PASS: *** PLATFORM EXPRESS − LITHOLOGY DENSITY ***




1000
1100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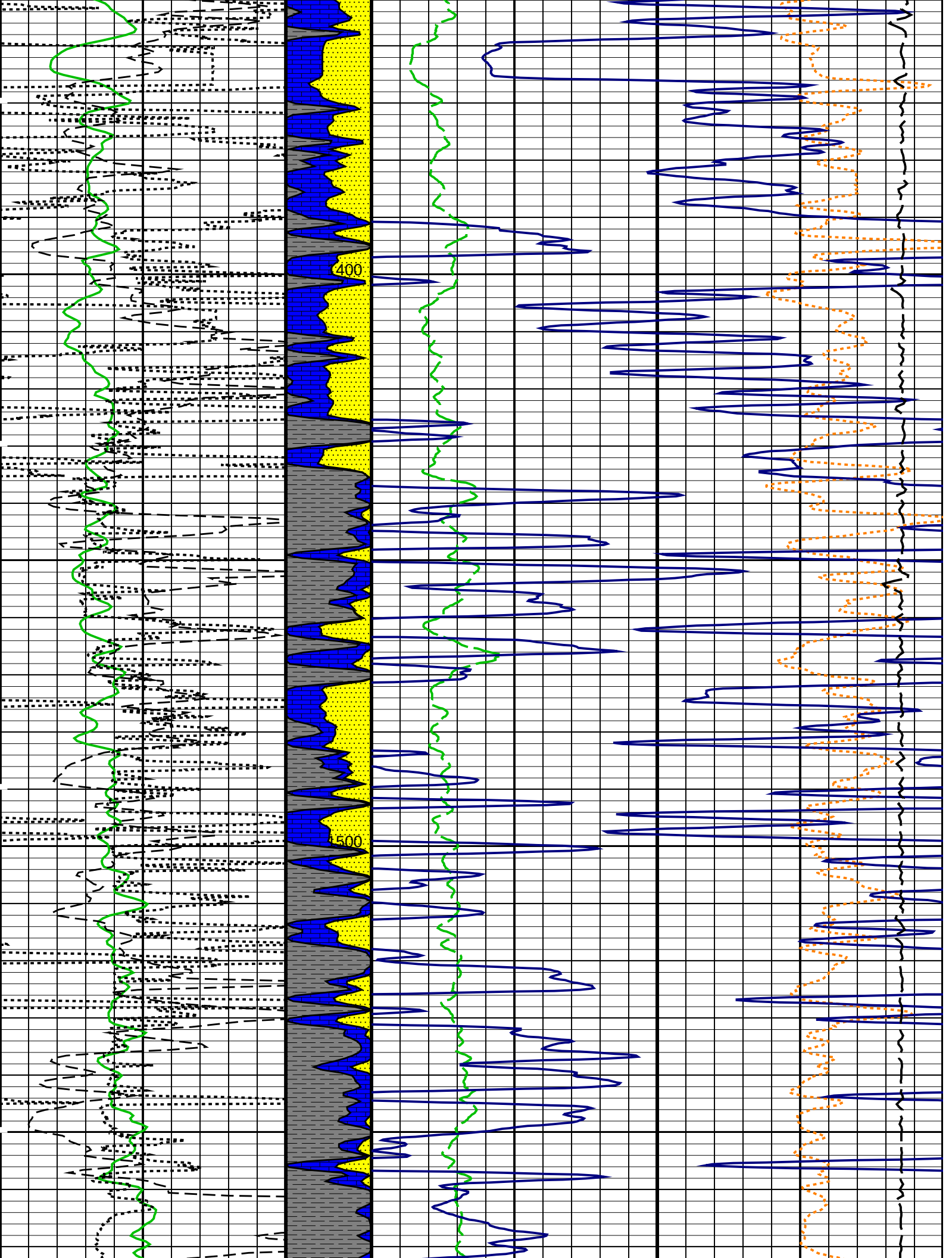
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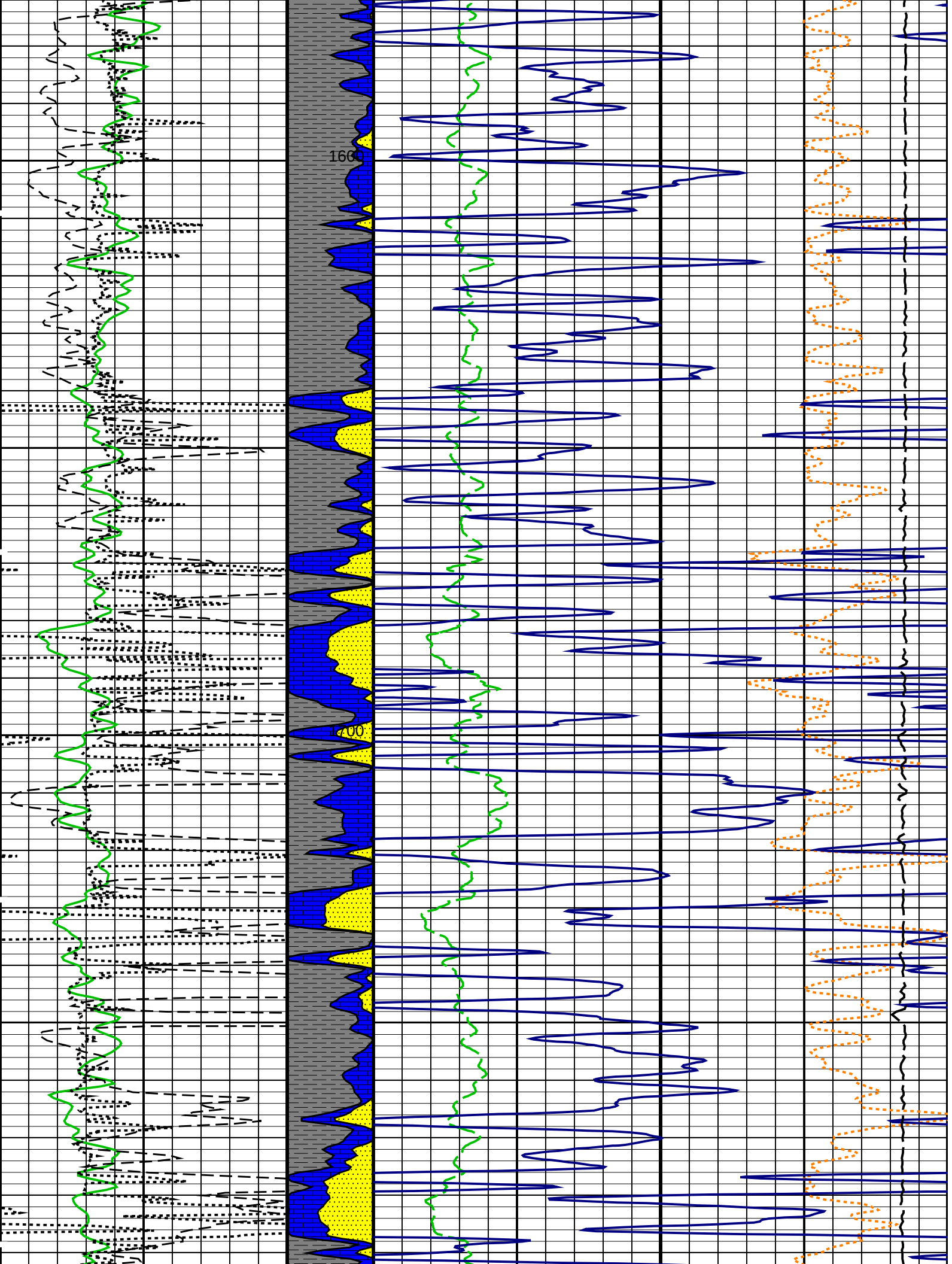
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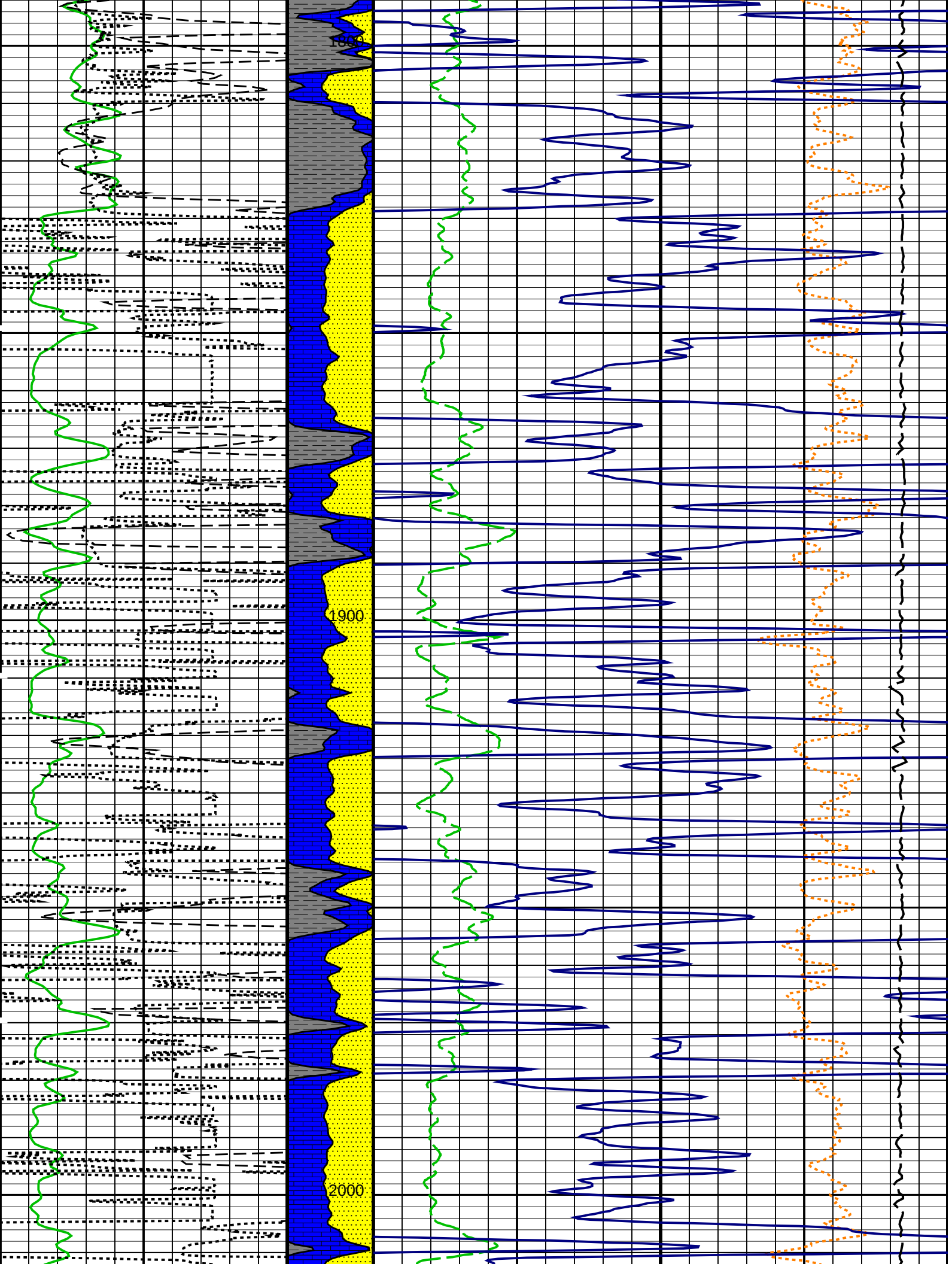
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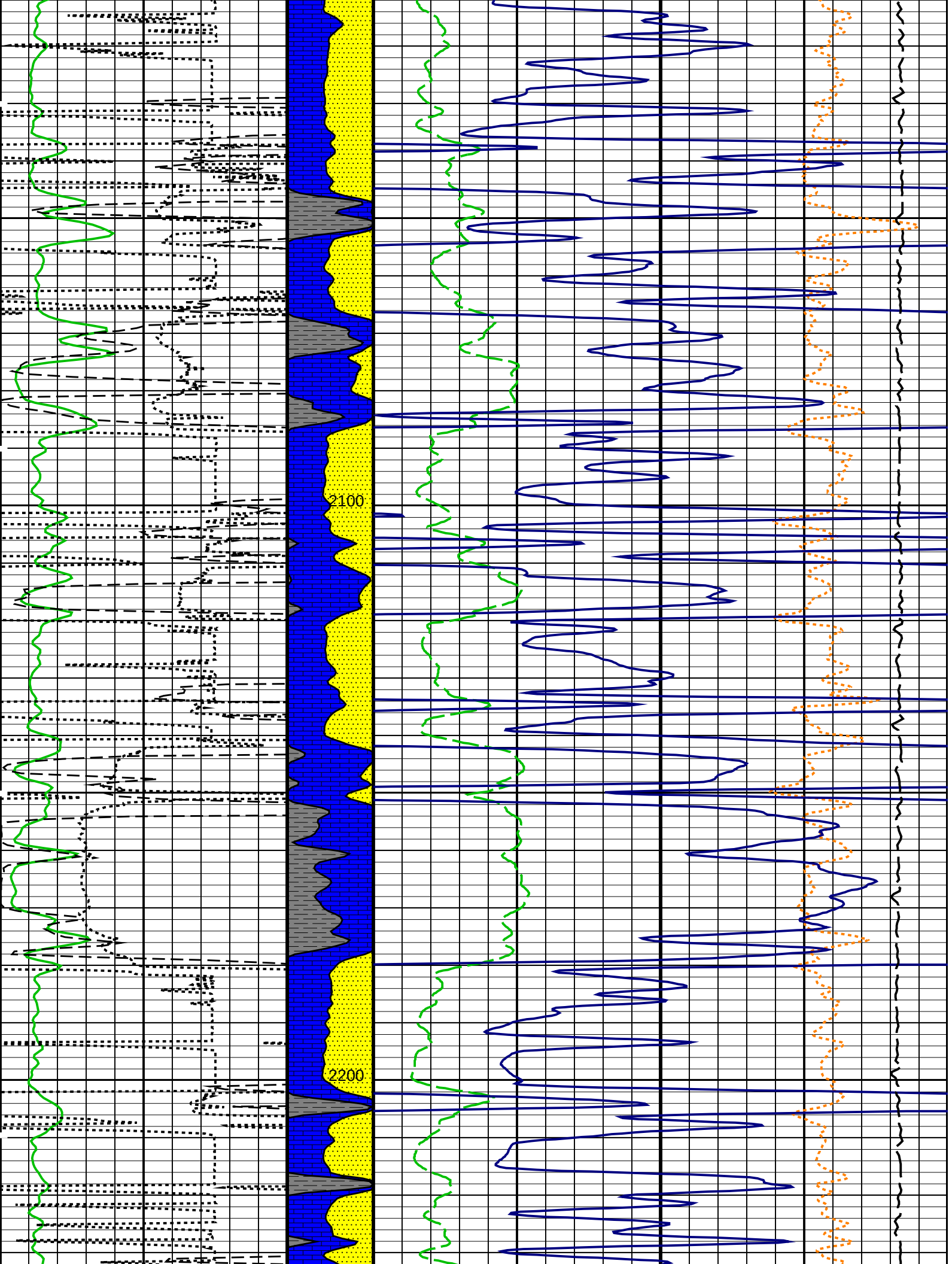
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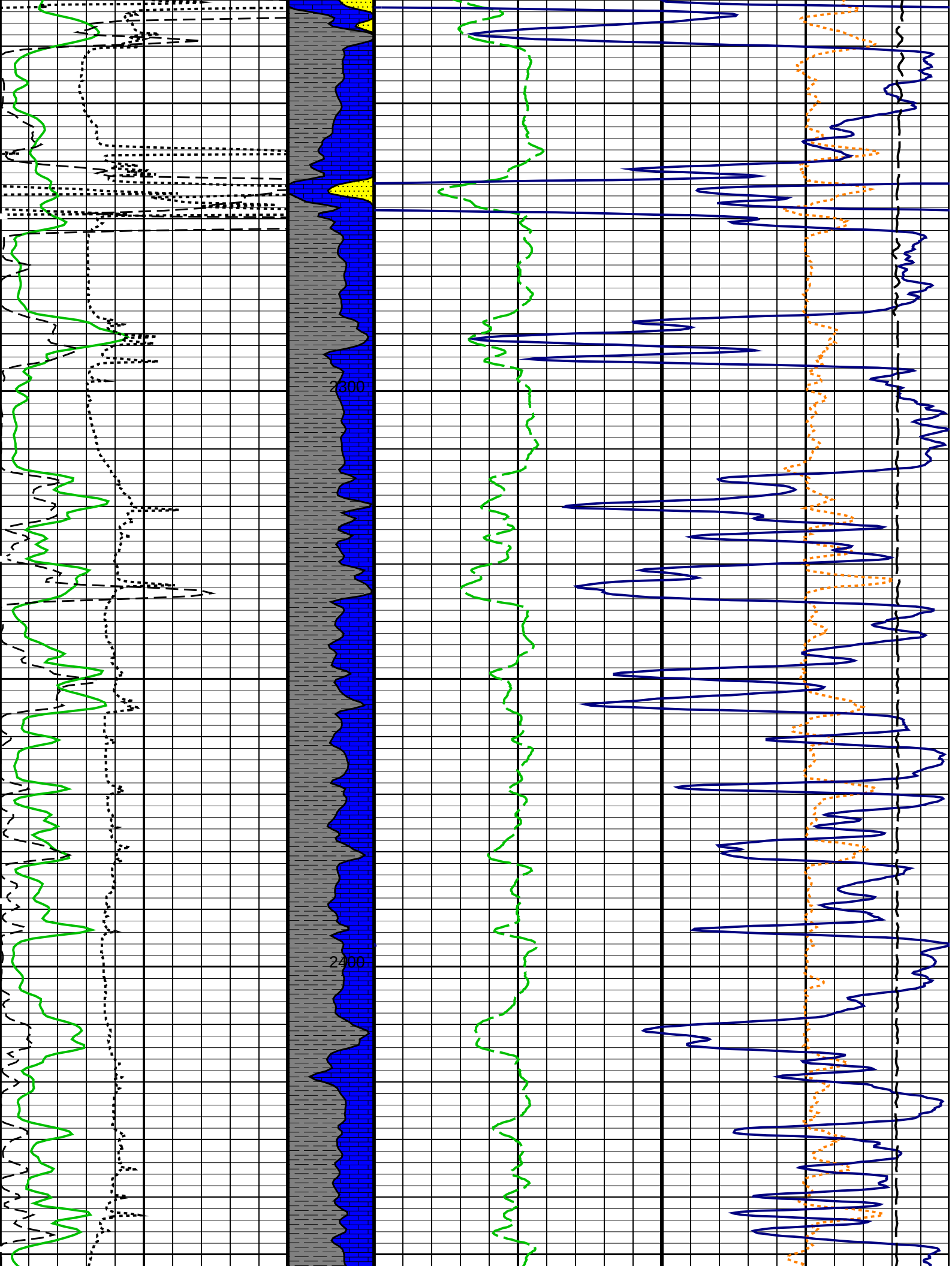
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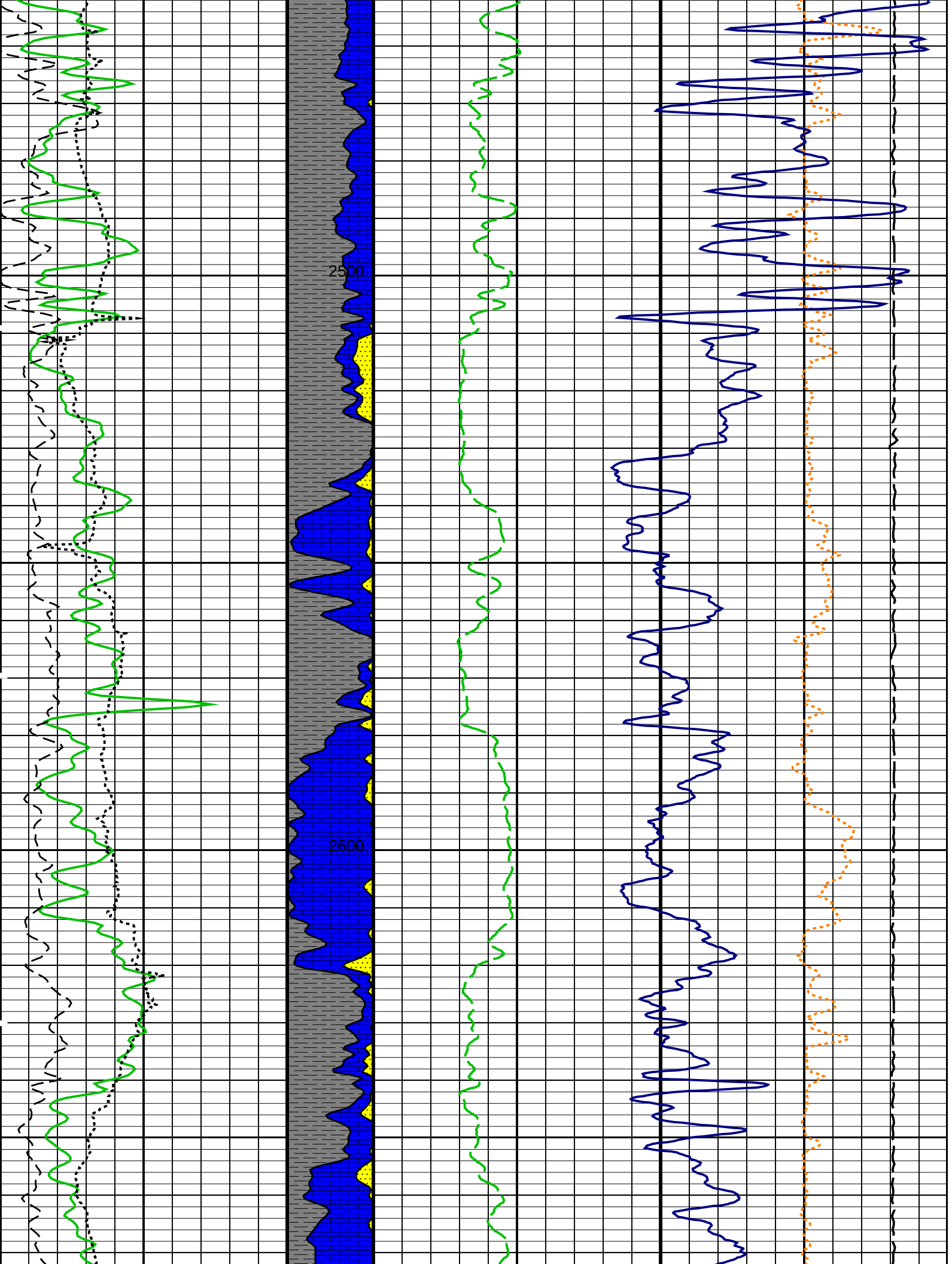
2400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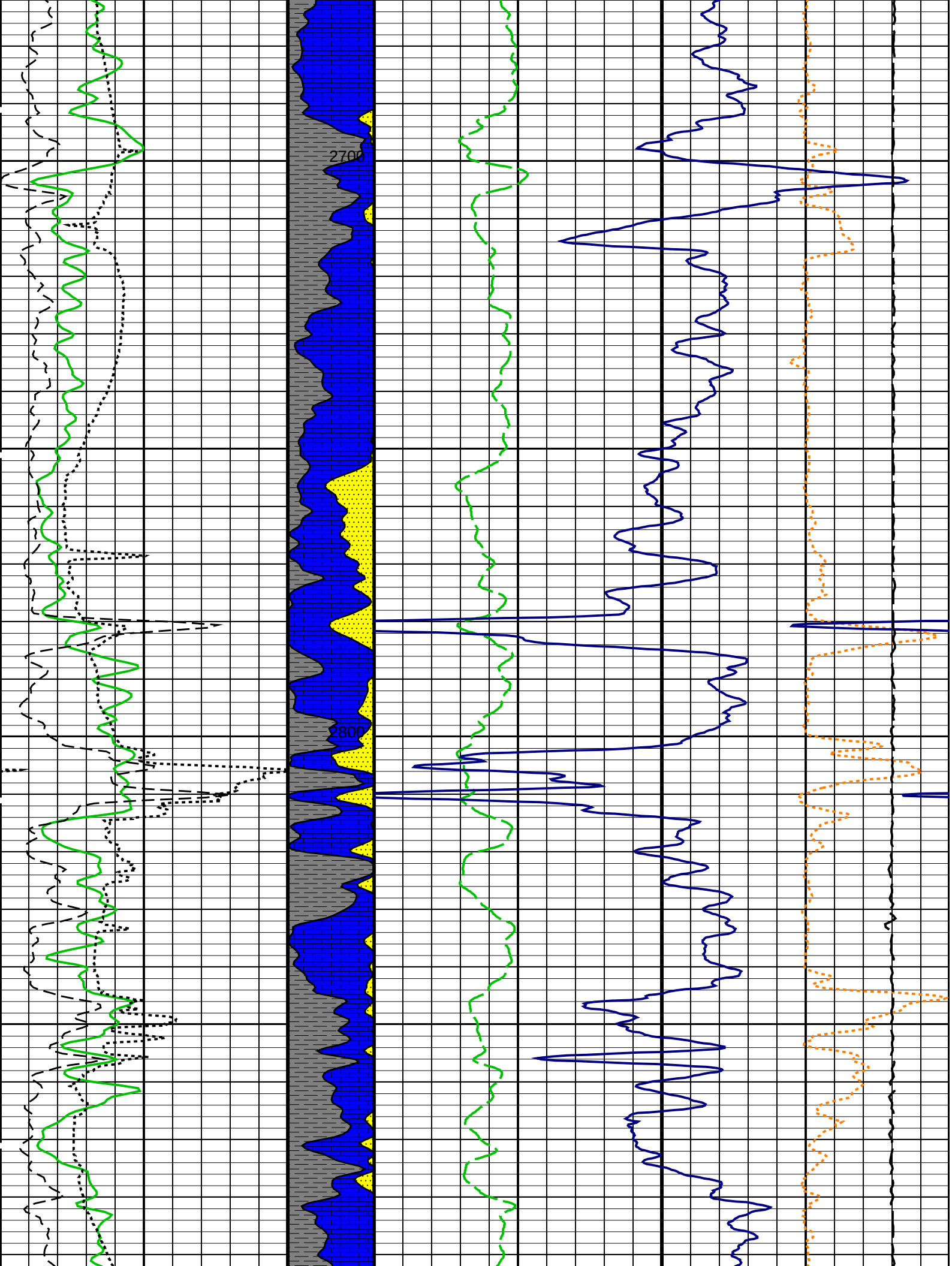
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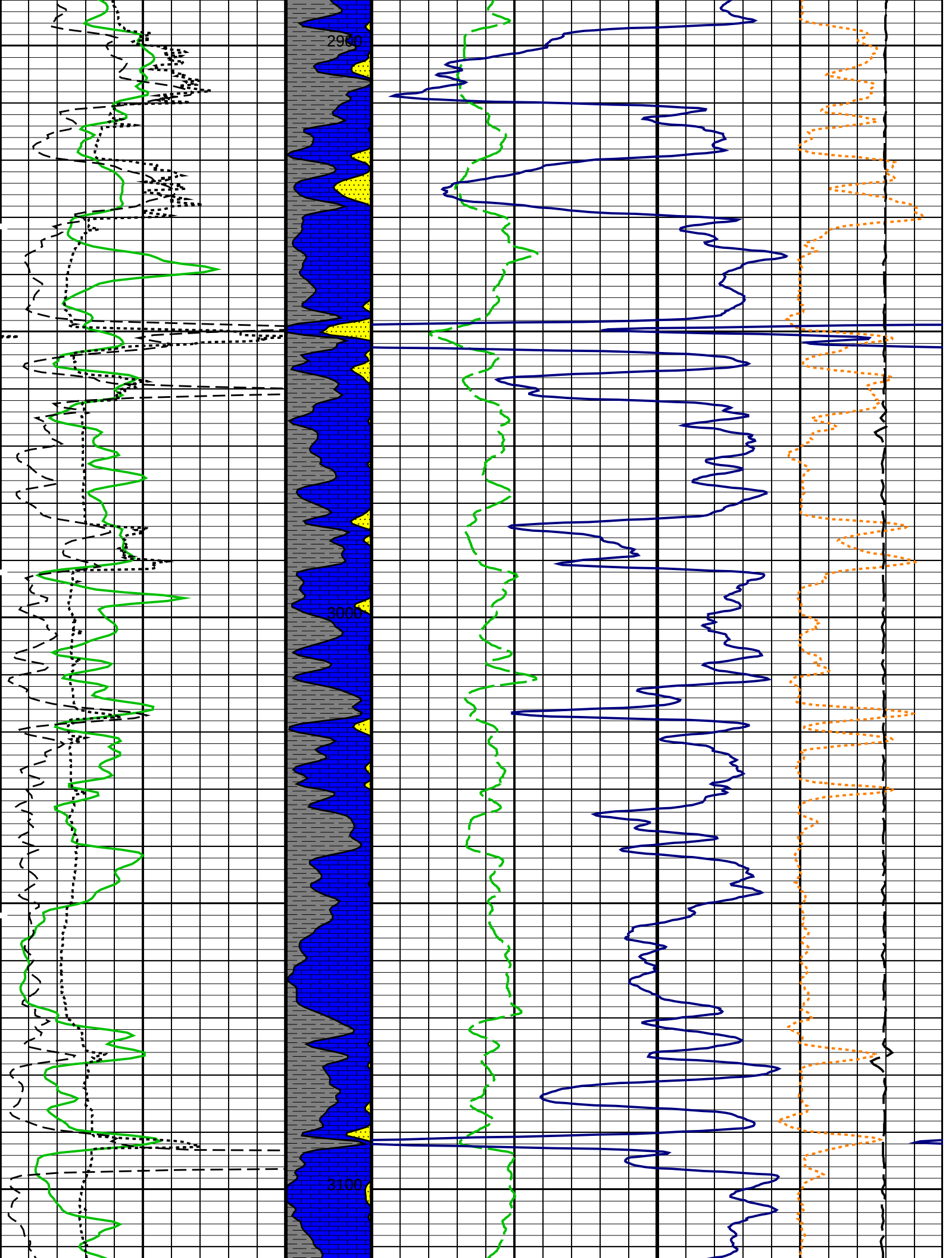
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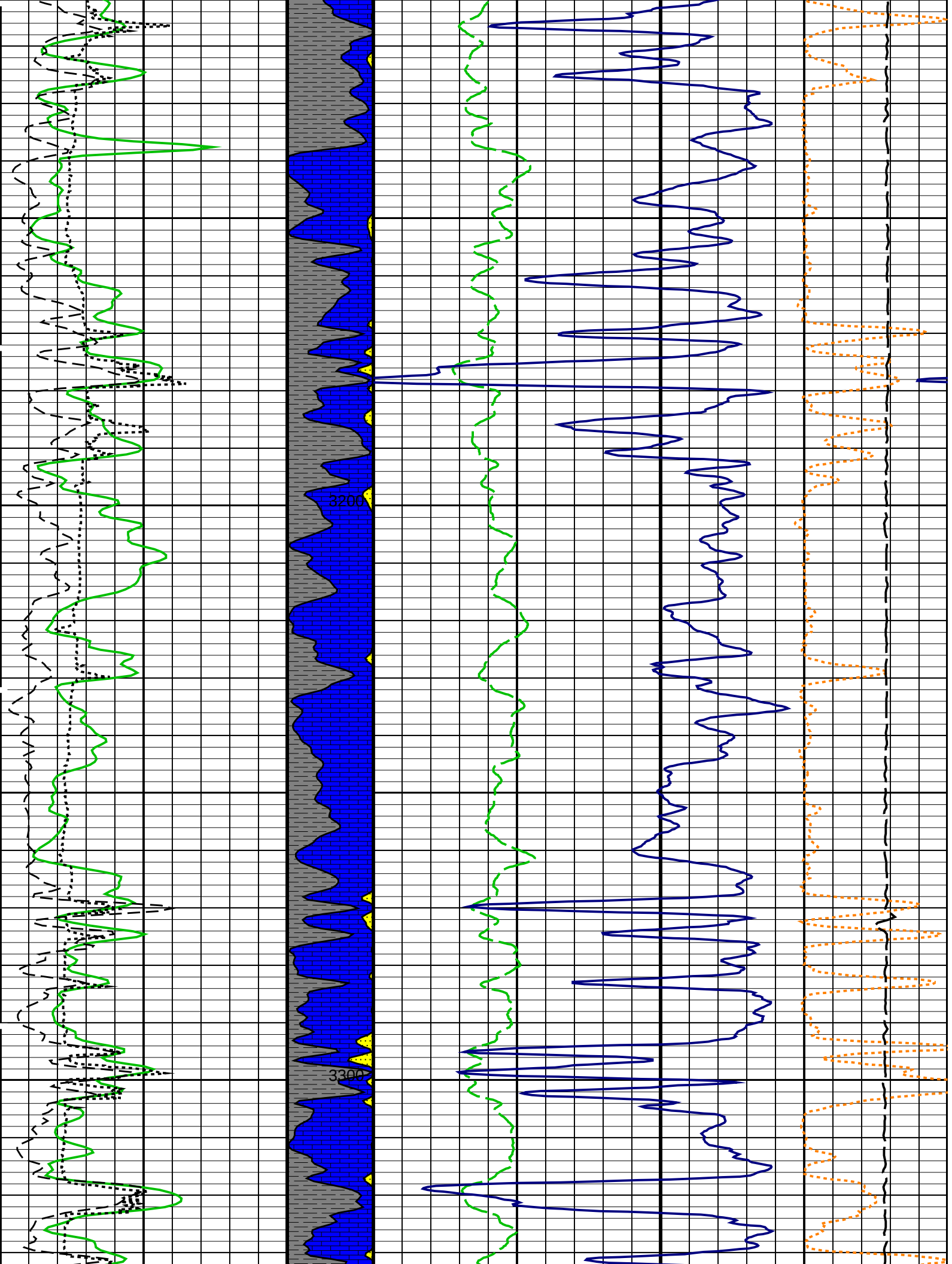
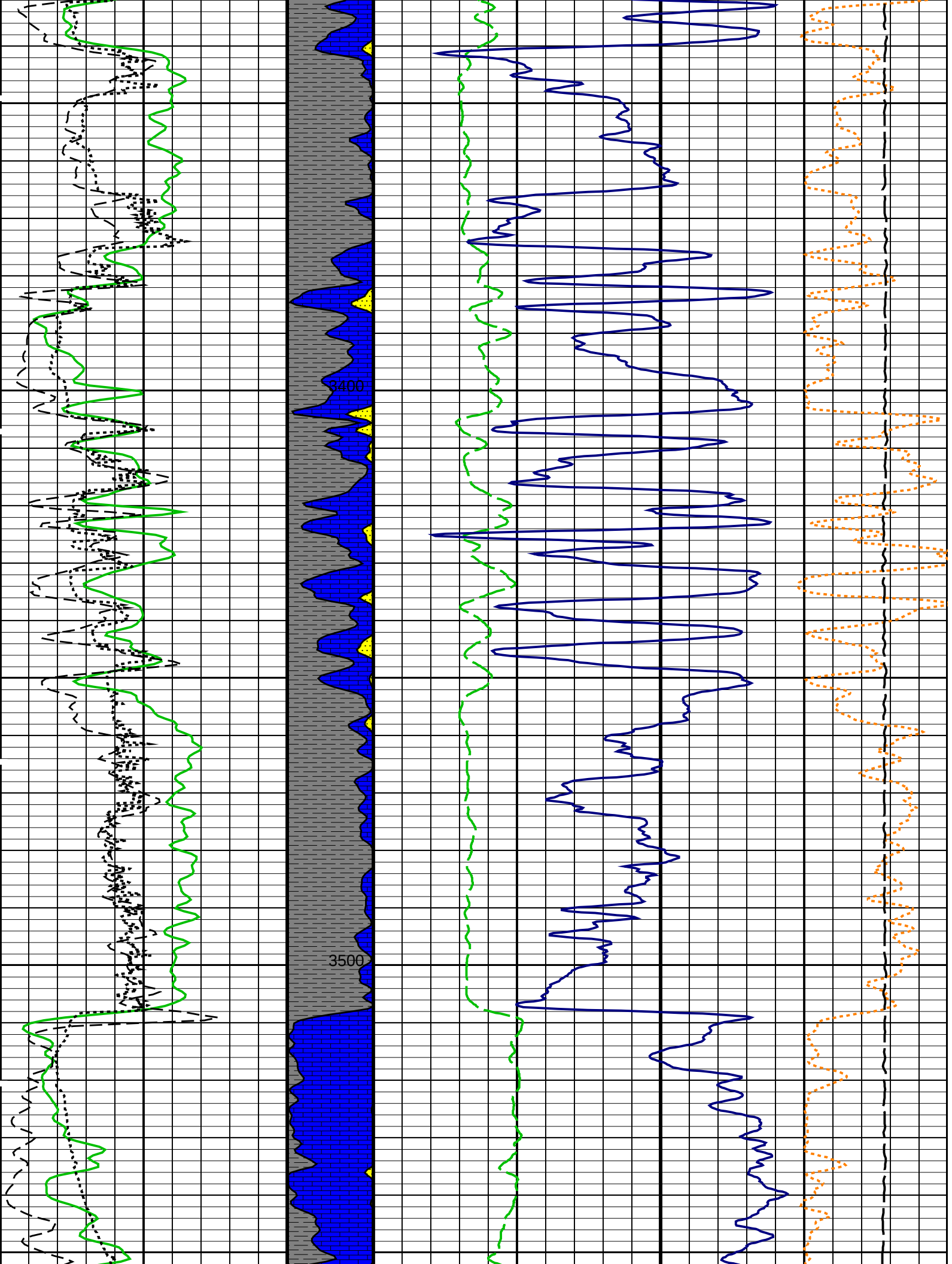
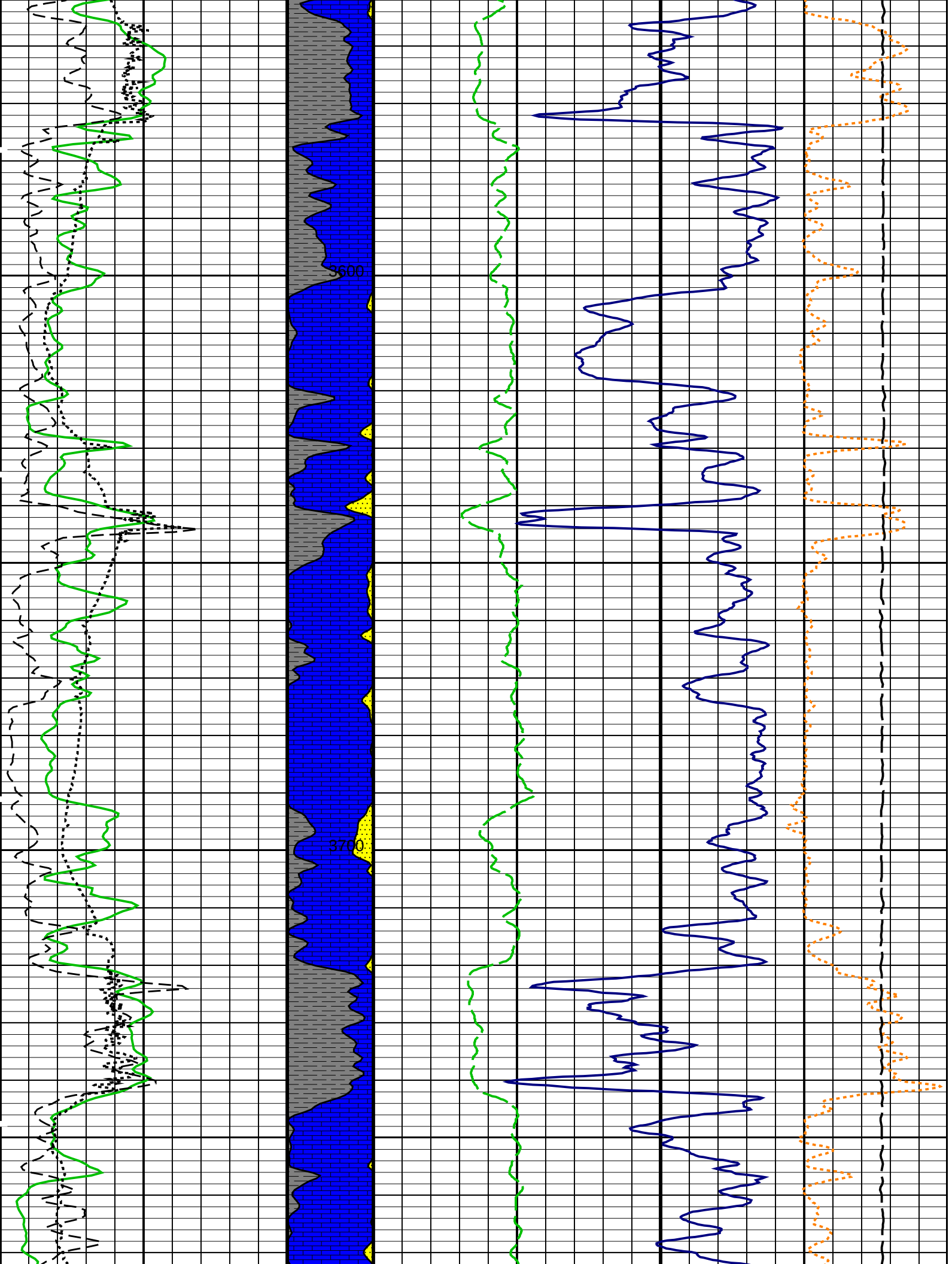
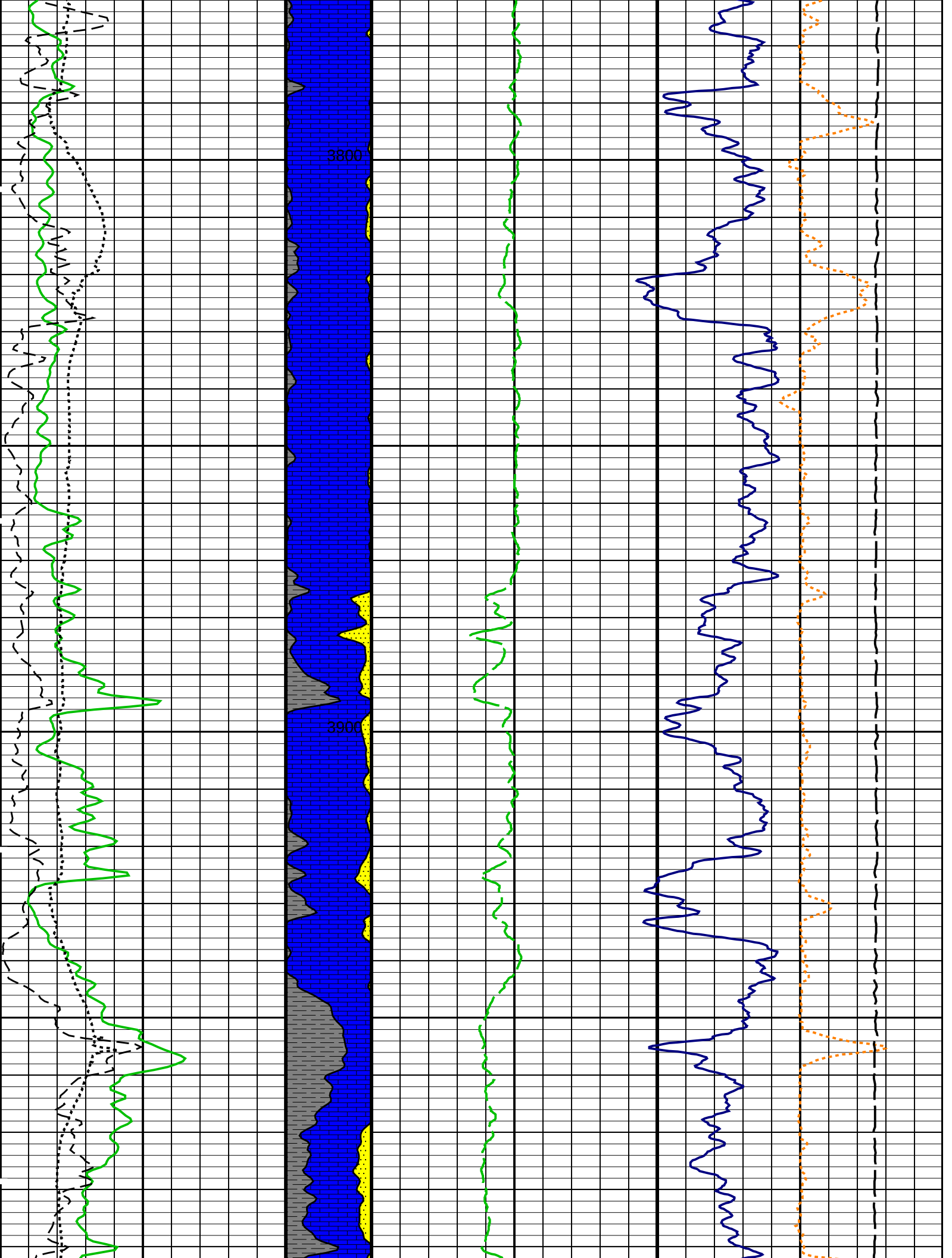
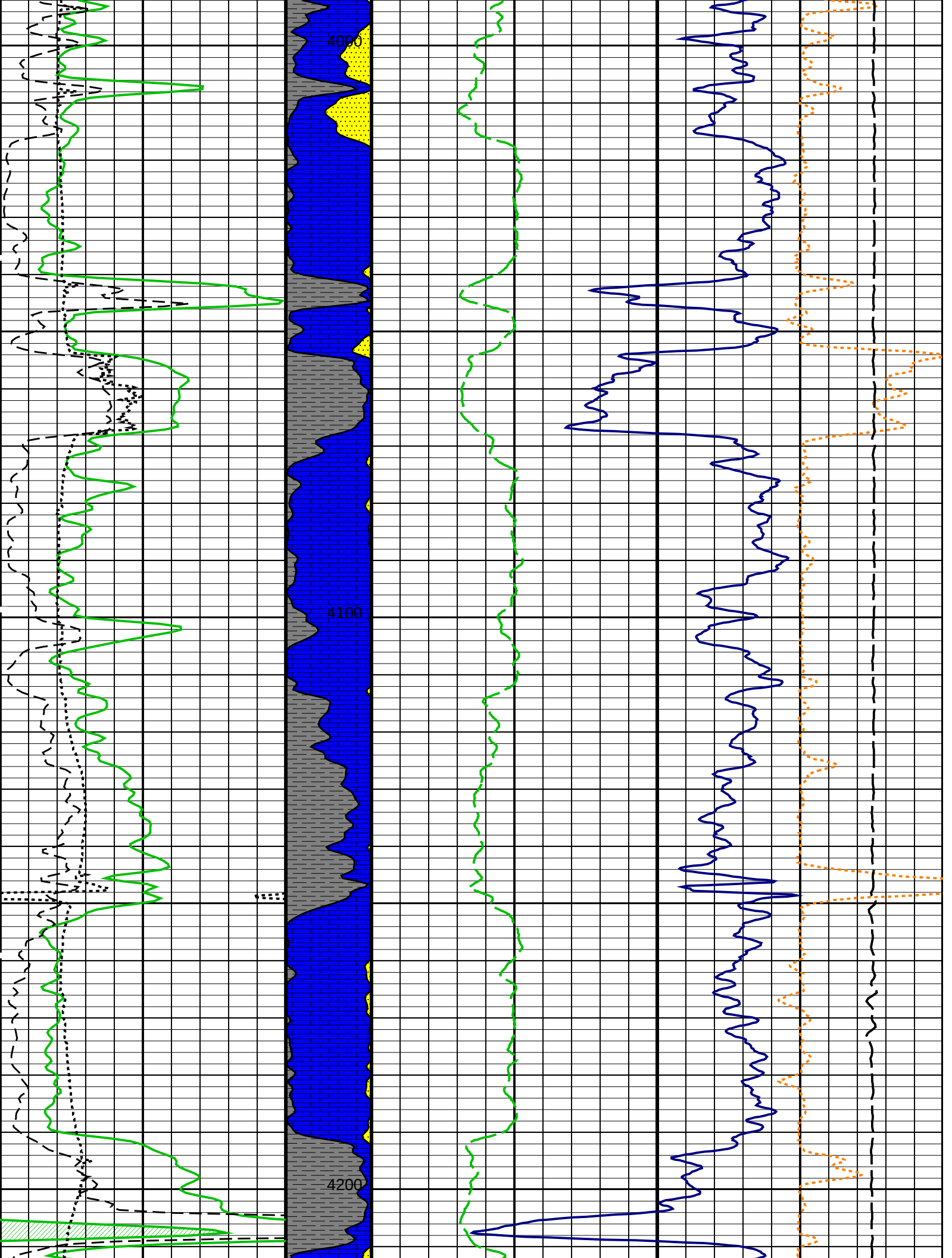
3100

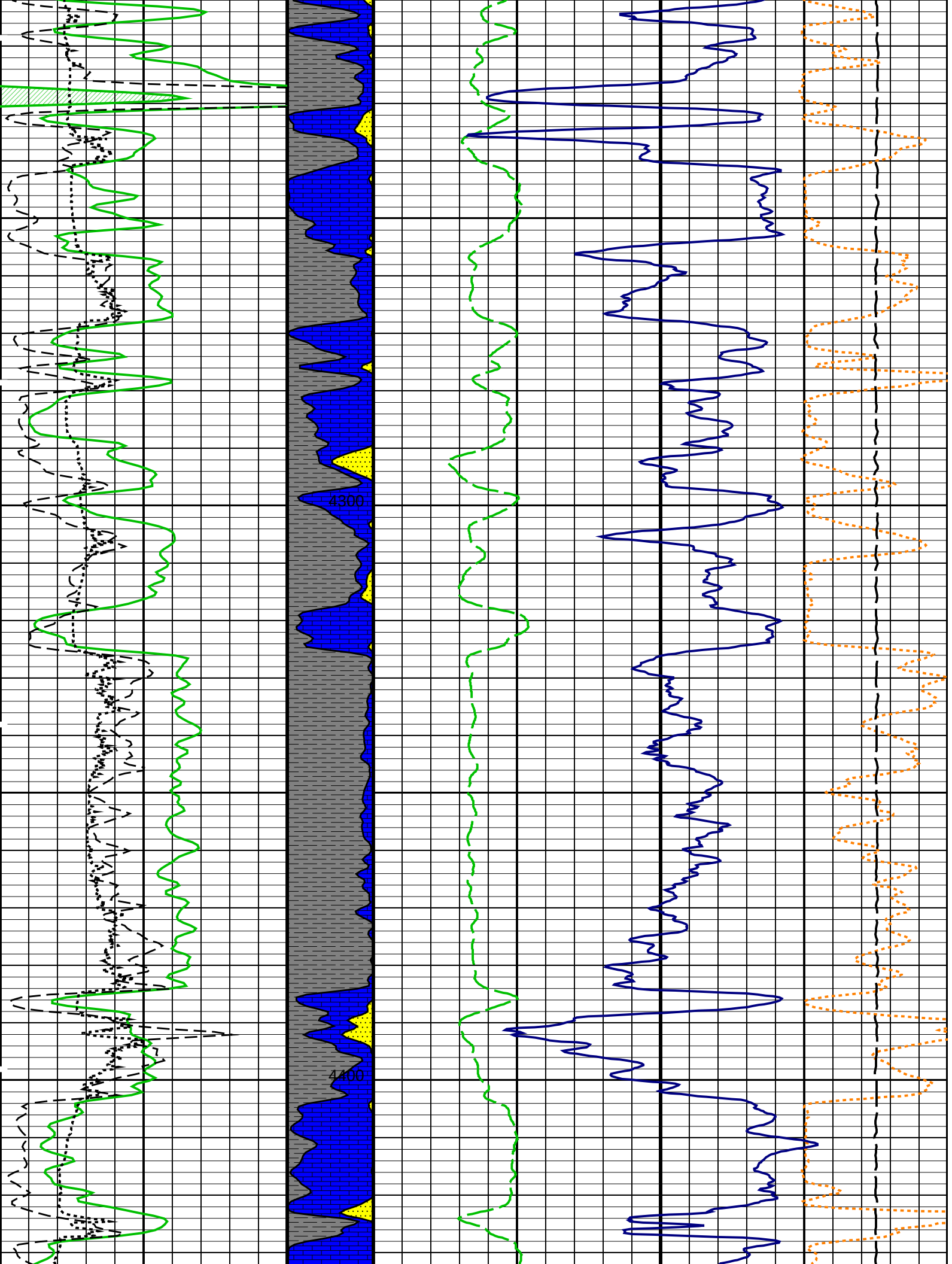

3200
3300

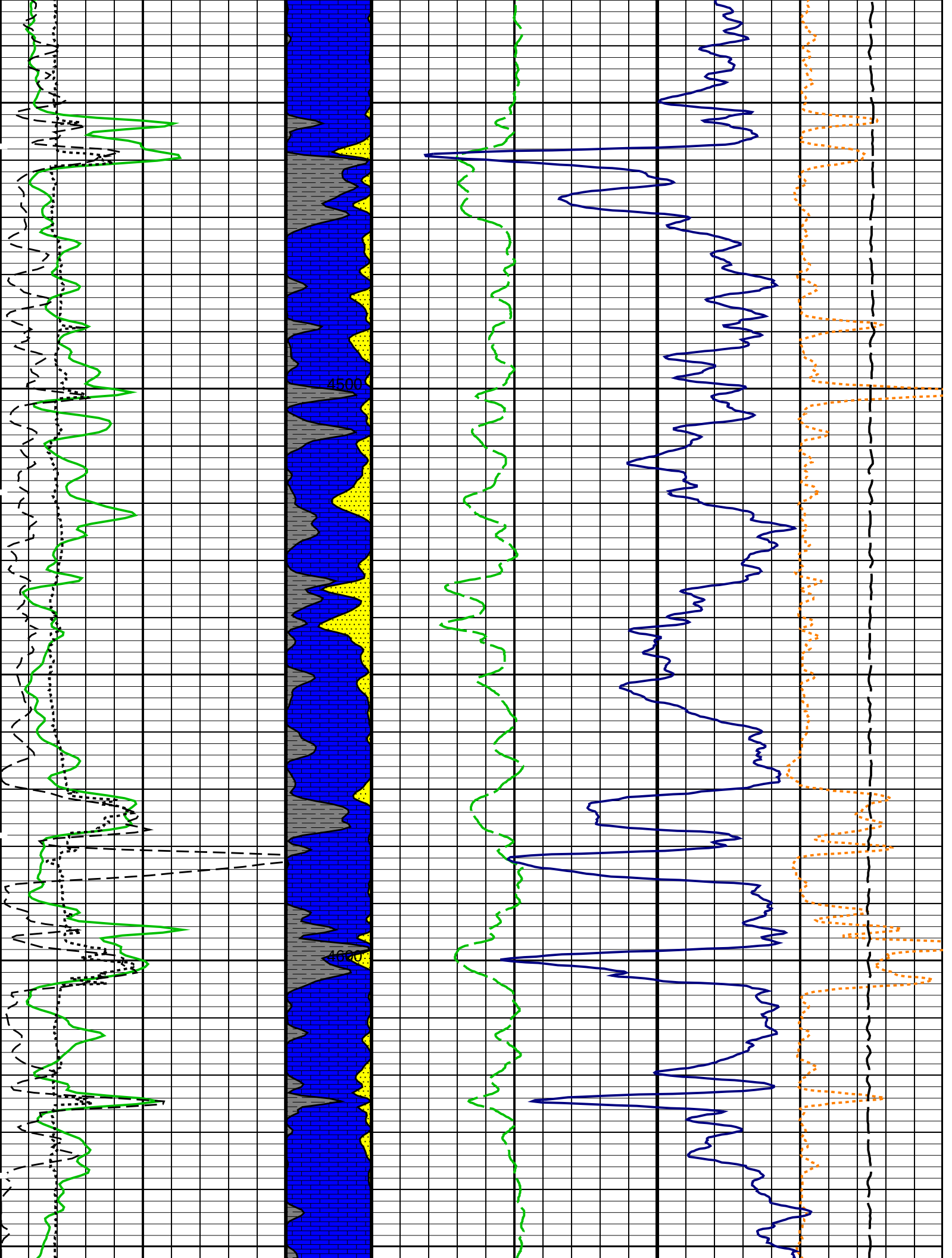

3400
3500

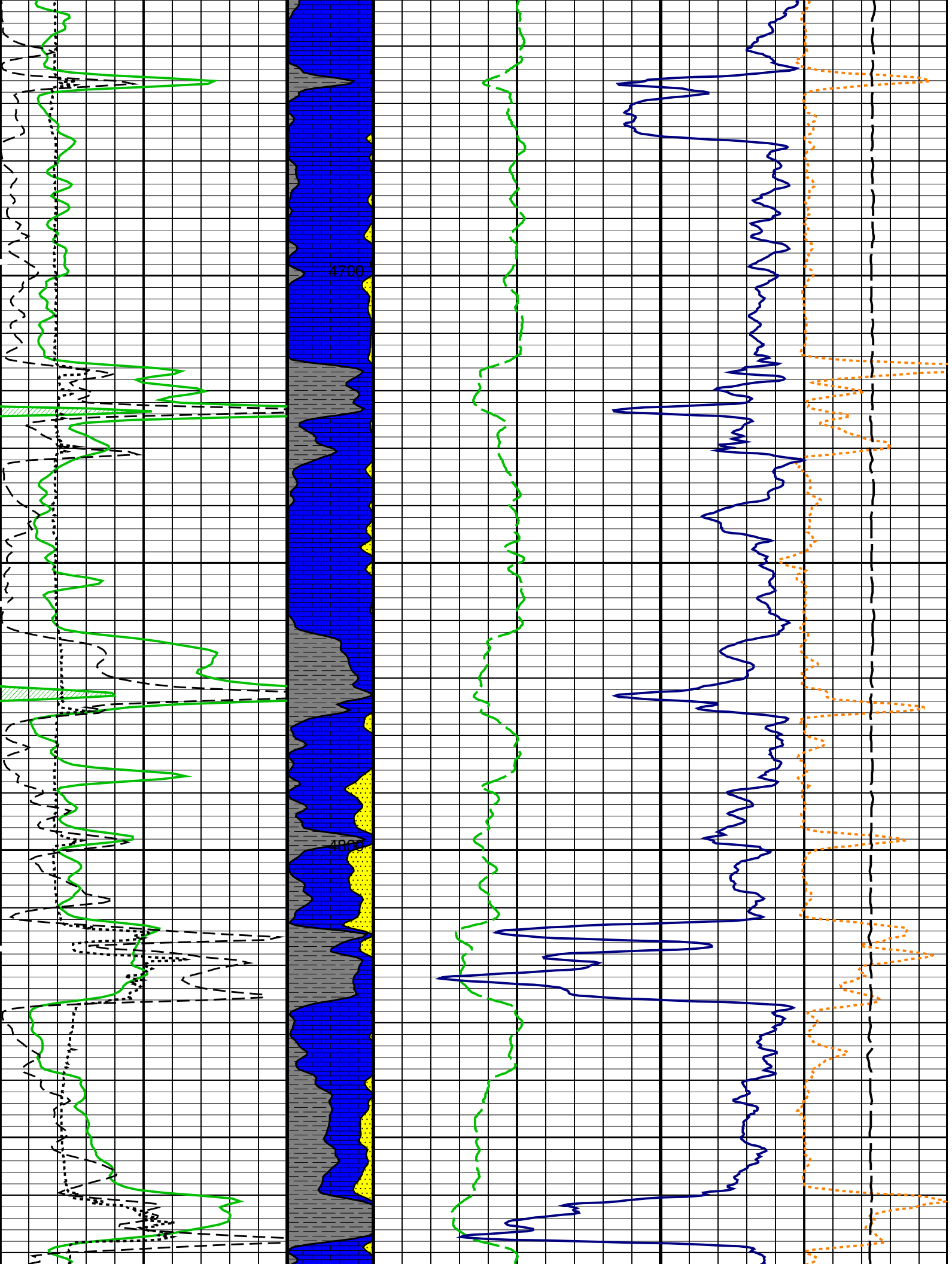

3600
3700

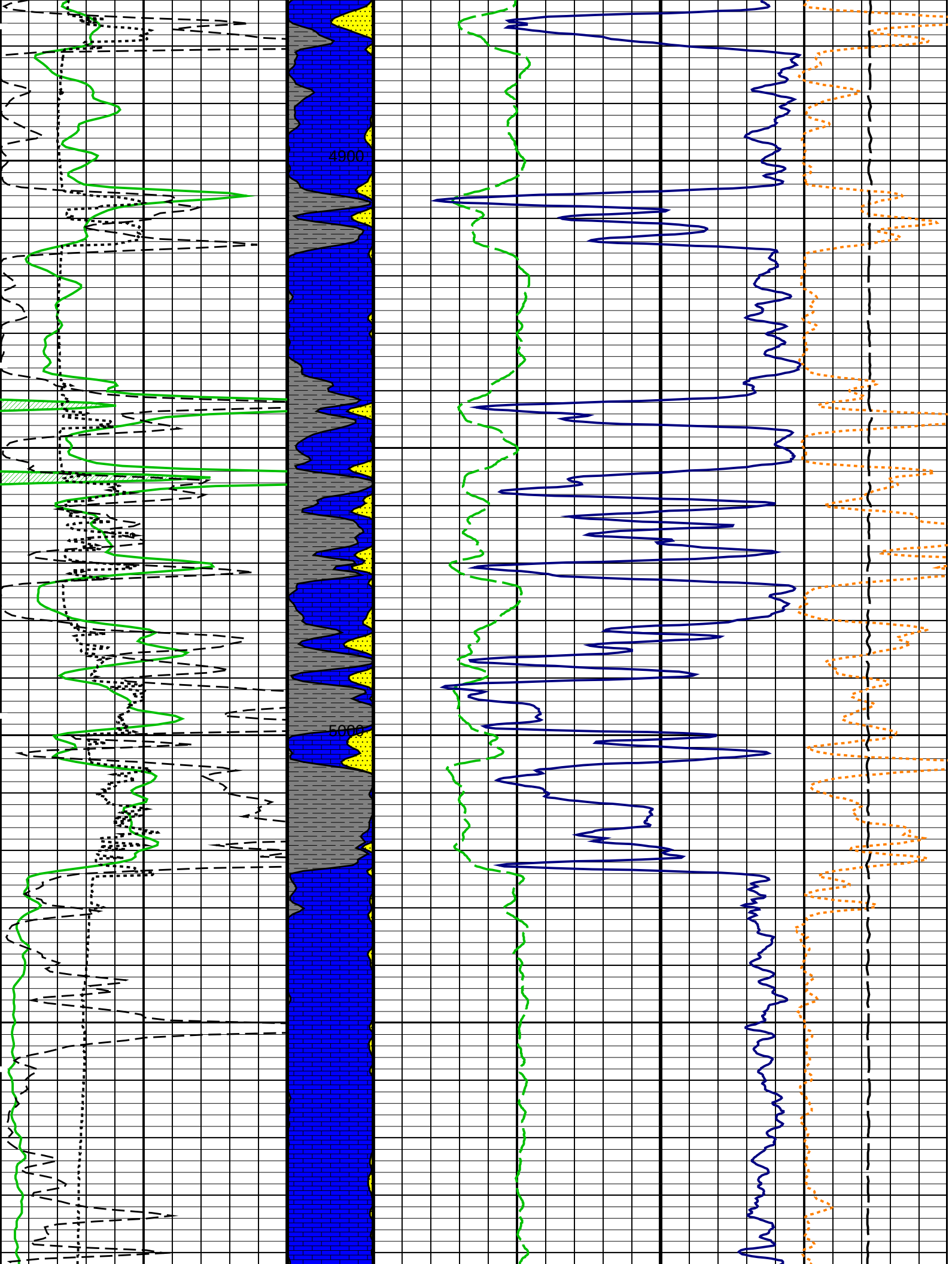

3800
3900

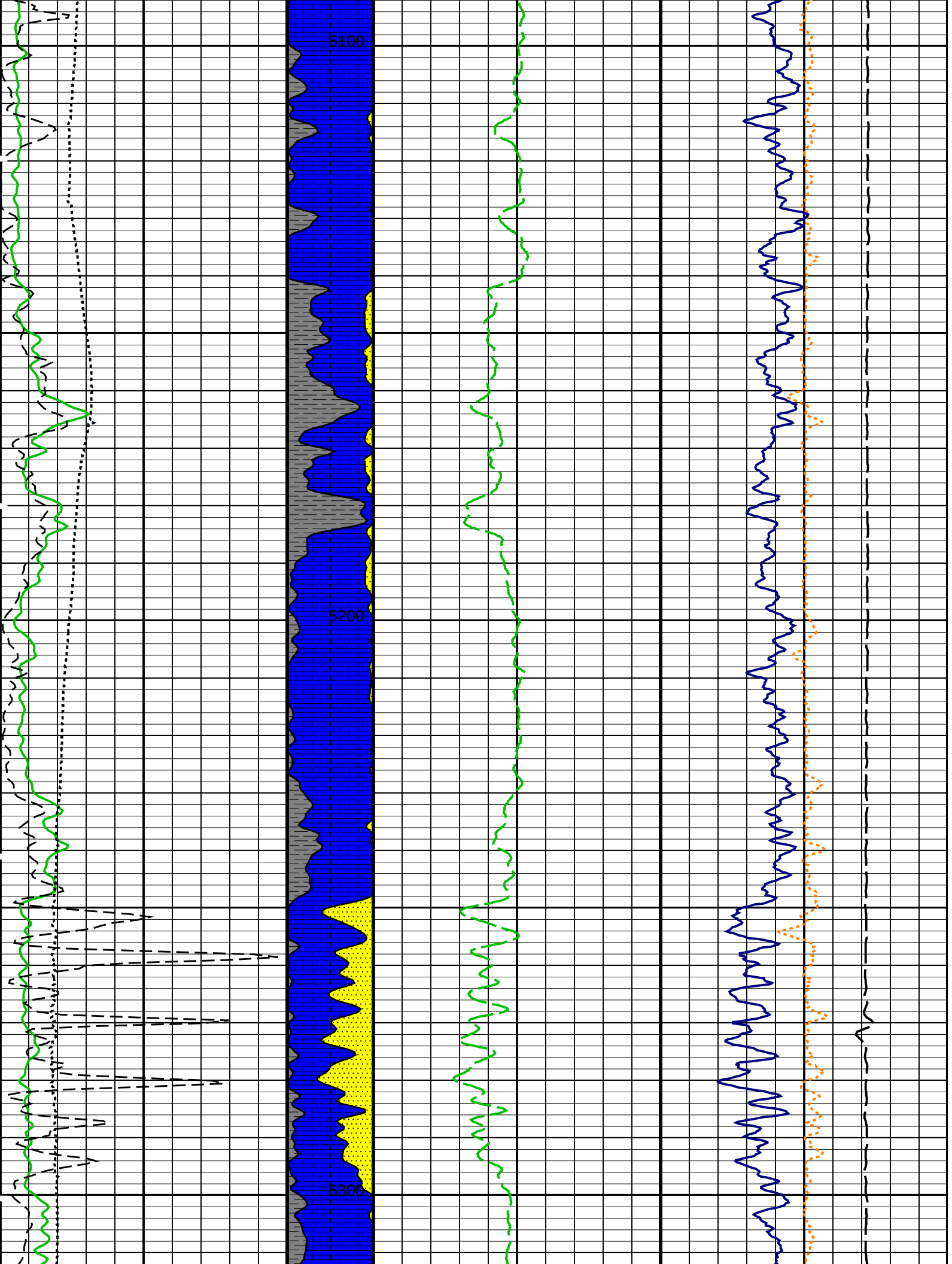

4000
4100
4200

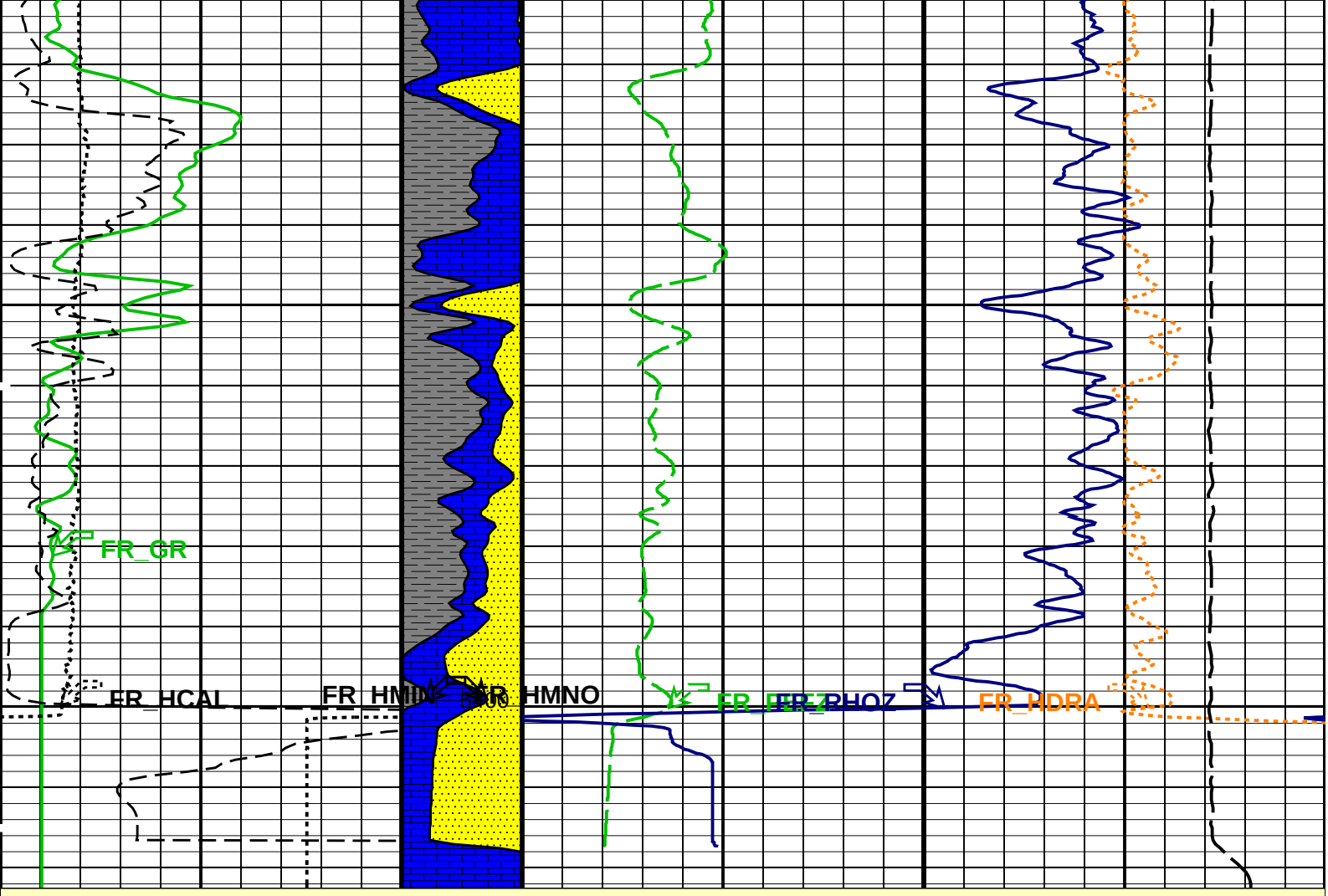

4300
4400


4500
4600


4700
4800


4900
5000


5100
5200
5300




MAIN PASS: *** PLATFORM EXPRESS − LITHOLOGY DENSITY ***

| | | |
|---|---|---|
| Gamma Ray Backup | Stuck Stretch (STIT) 0 (F) 50 | Std. Res. Formation Pe (PEFZ) 0 (−−−− 10 |
| RWA (RWA) 0 (OHMM) 0.5 | LIME | Std. Res. Formation Density (RHOZ) 2 (G/C3) 3 |
| Gamma Ray (GR) 0 (GAPI) 200 | SAND | Tension (TENS) 10000 (LBF) 0 |
| Caliper (HCAL) 6 (IN) 16 | SHALE | Density Correction (HDRA) −0.25 (G/C3) 0.25 |

PIP SUMMARY

Time Mark Every 60 S

## Parameters

| DLIS Name | Description | Value | |
|---|---|---|---|
| | AIT−M: Array Induction Tool − M | | |
| ARTS | AIT Rt Selection (for ALLRES computation) | AITM_TwoResA60 | |
| BHT | Bottom Hole Temperature (used in calculations) | 212 | DEGF |
| FEXP | Form Factor Exponent | 2 | |
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | PXND_HILT | |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GTSE | Generalized Temperature Selection | HSTS_HTEM | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| RTCO | RTCO − Rt Invasion Correction | YES | |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| | HILTH−FTB: High resolution Integrated Logging Tool−DTS | | |
| BHFL_TLD | HILT Nuclear Mud Base | WATER | |
| BHT | Bottom Hole Temperature (used in calculations) | 212 | DEGF |

| | | | |
|---|---|---|---|
| DHC | Density Hole Correction | BS | |
| FD | Fluid Density | 1 | G/C3 |
| FEXP | Form Factor Exponent | 2 | |
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | PXND_HILT | |
| GCLF | Germany Coal−like Formation Option | NO | |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GTSE | Generalized Temperature Selection | HSTS_HTEM | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| NAAC | HRDD APS Activation Correction | OFF | |
| NMT | HILT Nuclear Mud Type | NOBARITE | |
| NPRM | HRDD Processing Mode | HiRes | |
| NSAR | HRDD Depth Sampling Rate | 1 | IN |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| STI: Stuck Tool Indicator | | | |
| LBFR | Trigger for MAXIS First Reading Label | TDL | |
| STKT | STI Stuck Threshold | 2.5 | FT |
| TDD | Total Depth − Driller | 5414.00 | FT |
| TDL | Total Depth − Logger | 5418.00 | FT |
| PERT: Preliminary Evaluation − Real Time | | | |
| ARTS | AIT Rt Selection (for ALLRES computation) | AITM_TwoResA60 | |
| BDPS | Bulk Density Processing Selector | Standard | |
| BHT | Bottom Hole Temperature (used in calculations) | 212 | DEGF |
| CLIM | Caliper Limit for Bad Hole | 999 | IN |
| CNPS | Corrected Neutron Porosity Selector | NPHI | |
| DRUL | DRHO Upper Limit | 999 | G/C3 |
| FCAL | Caliper Presence Flag | PRESENT | |
| FCGR | CGR Presence Flag | PRESENT | |
| FEXP | Form Factor Exponent | 2 | |
| FLDT | Bulk Density Presence Flag | PRESENT | |
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | PXND_HILT | |
| FSON | Sonic Presence Flag | ABSENT | |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GTSE | Generalized Temperature Selection | HSTS_HTEM | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| PMAX | PHI Maximum | 0.5 | CFCF |
| POUT | Porosity Output Lithology | LIMESTONE | |
| RG21 | RHO Grain (2−Mineral Model, Min−1) | 2.71 | G/C3 |
| RG22 | RHO Grain (2−Mineral Model, Min−2) | 2.644 | G/C3 |
| RG23 | RHO Grain (2−Mineral Model, Min−3) | 2.877 | G/C3 |
| RG31 | RHO Grain (3−Mineral Model, Min−1) | 2.71 | G/C3 |
| RG32 | RHO Grain (3−Mineral Model, Min−2) | 2.644 | G/C3 |
| RG33 | RHO Grain (3−Mineral Model, Min−3) | 2.877 | G/C3 |
| RTCO | RTCO − Rt Invasion Correction | YES | |
| RTLF | RT Limit Flag | NO_LIMIT | |
| RWF | Resistivity of Free Water | 0.02 | OHMM |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| UF | U Fluid | 0.398 | |
| UM21 | U Matrix (2−Mineral Model, Min−1) | 13.77 | |
| UM22 | U Matrix (2−Mineral Model, Min−2) | 4.779 | |
| UM23 | U Matrix (2−Mineral Model, Min−3) | 8.997 | |
| UM31 | U Matrix (3−Mineral Model, Min−1) | 13.77 | |
| UM32 | U Matrix (3−Mineral Model, Min−2) | 4.779 | |
| UM33 | U Matrix (3−Mineral Model, Min−3) | 8.997 | |
| HOLEV: Integrated Hole/Cement Volume | | | |
| BHT | Bottom Hole Temperature (used in calculations) | 212 | DEGF |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| GTSE | Generalized Temperature Selection | HSTS_HTEM | |
| MATR | Rock Matrix for Neutron Porosity Corrections | LIMESTONE | |
| SHT | Surface Hole Temperature | 74.8 | DEGF |
| FEQL: Formation Evaluation Quick Look | | | |
| FEXP | Form Factor Exponent | 2 | |
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | PXND_HILT | |
| ALLRES: Basic Resistivity Transforms | | | |
| ARTS | AIT Rt Selection (for ALLRES computation) | AITM_TwoResA60 | |
| RTCO | RTCO − Rt Invasion Correction | YES | |
| RWA: Apparent Water Resistivity | | | |
| ARTS | AIT Rt Selection (for ALLRES computation) | AITM_TwoResA60 | |
| FEXP | Form Factor Exponent | 2 | |
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | PXND_HILT | |
| RTCO | RTCO − Rt Invasion Correction | YES | |
| System and Miscellaneous | | | |
| BS | Bit Size | 7.875 | IN |
| DFD | Drilling Fluid Density | 9.20 | LB/G |
| DORL | Depth Offset for Repeat Analysis | 0.0 | FT |
| MST | Mud Sample Temperature | 74.80 | DEGF |
| RMFS | Resistivity of Mud Filtrate Sample | 0.3910 | OHMM |
| RW | Resistivity of Connate Water | 1.0000 | OHMM |
| TD | Total Depth | 5418 | FT |
| TWS | Temperature of Connate Water Sample | 100.00 | DEGF |

# OP System Version: 18C0−147

| | | | |
|---|---|---|---|
| **AIT−M** | **18C0−147** | **HILTH−FTB** | **18C0−147** |
| **DTC−H** | **18C0−147** | | |

## Output DLIS Files

**DEFAULT** **AIT_TLD_MCFL_CNL_012LUP** **FN:11** **PRODUCER** **08−Sep−2011 01:59**

Schlumberger

# CALIBRATIONS

MAXIS Field Log

Calibration and Check Summary

| Measurement | Nominal | Master | Before | After | Change | Limit | Units |
|---|---|---|---|---|---|---|---|
| Array Induction Tool − M Wellsite Calibration − Electronics Calibration Check − Thru Cal Mag. & Phase | | | | | | | |
| Master: 6−Jul−2011 9:41 Before: 6−Sep−2011 13:54 | | | | | | | |
| Thru Cal Magnitude − 0 | 0 | 0.6060 | 0.6061 | N/A | N/A | N/A | V |
| Thru Cal Magnitude − 1 | 0 | 1.241 | 1.241 | N/A | N/A | N/A | V |
| Thru Cal Magnitude − 2 | 0 | 0.6163 | 0.6168 | N/A | N/A | N/A | V |
| Thru Cal Magnitude − 3 | 0 | 0.6966 | 0.6971 | N/A | N/A | N/A | V |
| Thru Cal Magnitude − 4 | 0 | 1.303 | 1.304 | N/A | N/A | N/A | V |
| Thru Cal Magnitude − 5 | 0 | 1.897 | 1.898 | N/A | N/A | N/A | V |
| Thru Cal Magnitude − 6 | 0 | 1.896 | 1.896 | N/A | N/A | N/A | V |
| Thru Cal Magnitude − 7 | 0 | 1.364 | 1.366 | N/A | N/A | N/A | V |
| Thru Cal Phase − 0 | 0 | 184.8 | 190.6 | N/A | N/A | N/A | DEG |
| Thru Cal Phase − 1 | 0 | 183.7 | 189.5 | N/A | N/A | N/A | DEG |
| Thru Cal Phase − 2 | 0 | 180.2 | 186.0 | N/A | N/A | N/A | DEG |
| Thru Cal Phase − 3 | 0 | 179.5 | 185.2 | N/A | N/A | N/A | DEG |
| Thru Cal Phase − 4 | 0 | 173.3 | 179.1 | N/A | N/A | N/A | DEG |
| Thru Cal Phase − 5 | 0 | 171.7 | 177.5 | N/A | N/A | N/A | DEG |
| Thru Cal Phase − 6 | 0 | 171.7 | 177.5 | N/A | N/A | N/A | DEG |
| Thru Cal Phase − 7 | 0 | 170.8 | 176.7 | N/A | N/A | N/A | DEG |
| Array Induction Tool − M Wellsite Calibration − Electronics Calibration Check − Auxiliary | | | | | | | |
| Master: 6−Jul−2011 9:41 Before: 6−Sep−2011 13:54 | | | | | | | |
| Array Induction SPA Plus | 991.0 | 989.8 | 989.8 | N/A | N/A | N/A | MV |
| Array Induction SPA Zero | 0 | 0.07082 | 0.09175 | N/A | N/A | N/A | MV |
| Array Induction Temperature Pl | 0.9170 | 0.9168 | 0.9168 | N/A | N/A | N/A | V |
| Array Induction Temperature Ze | 0 | 0.00006774 | 0.00005419 | N/A | N/A | N/A | V |
| Array Induction Tool − M Wellsite Calibration − Test Loop Gain Correction | | | | | | | |
| Master: 6−Jul−2011 9:41 | | | | | | | |
| Test Loop Gain Correctio − 0 | 0 | 1.021 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio − 1 | 0 | 1.023 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio − 2 | 0 | 1.023 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio − 3 | 0 | 1.016 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio − 4 | 0 | 1.003 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio − 5 | 0 | 0.9993 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio − 6 | 0 | 1.008 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio − 7 | 0 | 1.021 | N/A | N/A | N/A | N/A | V |
| Test Loop Gain Correctio − 0 | 0 | 0.2435 | N/A | N/A | N/A | N/A | DEG |
| Test Loop Gain Correctio − 1 | 0 | 0.2776 | N/A | N/A | N/A | N/A | DEG |
| Test Loop Gain Correctio − 2 | 0 | −1.257 | N/A | N/A | N/A | N/A | DEG |
| Test Loop Gain Correctio − 3 | 0 | −0.4514 | N/A | N/A | N/A | N/A | DEG |
| Test Loop Gain Correctio − 4 | 0 | −0.4727 | N/A | N/A | N/A | N/A | DEG |
| Test Loop Gain Correctio − 5 | 0 | −0.2222 | N/A | N/A | N/A | N/A | DEG |
| Test Loop Gain Correctio − 6 | 0 | 0.03087 | N/A | N/A | N/A | N/A | DEG |
| Test Loop Gain Correctio − 7 | 0 | 0.2918 | N/A | N/A | N/A | N/A | DEG |

Array Induction Tool − M Wellsite Calibration − Sonde Error Correction
Master: 6−Jul−2011 9:41

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| R Sonde Error Correction − 0 | 0 | −52.66 | N/A | N/A | N/A | N/A | MM/M |
| R Sonde Error Correction − 1 | 0 | 164.8 | N/A | N/A | N/A | N/A | MM/M |
| R Sonde Error Correction − 2 | 0 | 101.0 | N/A | N/A | N/A | N/A | MM/M |
| R Sonde Error Correction − 3 | 0 | 59.12 | N/A | N/A | N/A | N/A | MM/M |
| R Sonde Error Correction − 4 | 0 | 24.07 | N/A | N/A | N/A | N/A | MM/M |
| R Sonde Error Correction − 5 | 0 | 11.17 | N/A | N/A | N/A | N/A | MM/M |
| R Sonde Error Correction − 6 | 0 | 9.246 | N/A | N/A | N/A | N/A | MM/M |
| R Sonde Error Correction − 7 | 0 | −1.833 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction − 0 | 0 | 117.1 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction − 1 | 0 | 160.9 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction − 2 | 0 | 83.26 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction − 3 | 0 | −46.47 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction − 4 | 0 | 5.405 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction − 5 | 0 | 0.9452 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction − 6 | 0 | 5.317 | N/A | N/A | N/A | N/A | MM/M |
| X Sonde Error Correction − 7 | 0 | 10.34 | N/A | N/A | N/A | N/A | MM/M |

Array Induction Tool − M Wellsite Calibration − Mud Gain Correction
Master: 6−Jul−2011 9:41

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Coarse − Mag, Real, Imag − 0 | 0 | 0.8125 | N/A | N/A | N/A | N/A | |
| Coarse − Mag, Real, Imag − 1 | 0 | 0.8125 | N/A | N/A | N/A | N/A | |
| Coarse − Mag, Real, Imag − 2 | 0 | 0.8125 | N/A | N/A | N/A | N/A | |
| Fine − Mag, Real, Imag − 0 | 0 | 0.8254 | N/A | N/A | N/A | N/A | |
| Fine − Mag, Real, Imag − 1 | 0 | 0.8254 | N/A | N/A | N/A | N/A | |
| Fine − Mag, Real, Imag − 2 | 0 | 0.8254 | N/A | N/A | N/A | N/A | |

High resolution Integrated Logging Tool−DTS Wellsite Calibration − Stab Measurement Summary
Before: 6−Sep−2011 14:00

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| BS Window Ratio | 0.7515 | N/A | 0.7522 | N/A | N/A | N/A | |
| BS Window Sum | 28930 | N/A | 28960 | N/A | N/A | N/A | CPS |
| SS Window Ratio | 0.4883 | N/A | 0.4882 | N/A | N/A | N/A | |
| SS Window Sum | 11530 | N/A | 11540 | N/A | N/A | N/A | CPS |
| LS Window Ratio | 0.3035 | N/A | 0.3032 | N/A | N/A | N/A | |
| LS Window Sum | 1346 | N/A | 1345 | N/A | N/A | N/A | CPS |

High resolution Integrated Logging Tool−DTS Wellsite Calibration − Photo−multiplier High Voltages Calibrations
Before: 6−Sep−2011 14:00

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| BS PM High Voltage (Command) | 1394 | N/A | 1416 | N/A | N/A | N/A | V |
| SS PM High Voltage (Command) | 1699 | N/A | 1732 | N/A | N/A | N/A | V |
| LS PM High Voltage (Command) | 1516 | N/A | 1525 | N/A | N/A | N/A | V |

High resolution Integrated Logging Tool−DTS Wellsite Calibration − Crystal Quality Resolutions Calibration
Before: 6−Sep−2011 14:00

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| BS Crystal Resolution | 10.34 | N/A | 10.39 | N/A | N/A | N/A | % |
| SS Crystal Resolution | 9.154 | N/A | 9.305 | N/A | N/A | N/A | % |
| LS Crystal Resolution | 9.094 | N/A | 9.022 | N/A | N/A | N/A | % |

High resolution Integrated Logging Tool−DTS Wellsite Calibration − MCFL Calibration
Before: 6−Sep−2011 14:01

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Raw B0 Resistivity | 3875 | N/A | 3855 | N/A | N/A | N/A | OHMM |
| Raw B1 Resistivity | 3830 | N/A | 3808 | N/A | N/A | N/A | OHMM |
| Raw B2 Resistivity | 3830 | N/A | 3823 | N/A | N/A | N/A | OHMM |

High resolution Integrated Logging Tool−DTS Wellsite Calibration − HILT Caliper Calibration
Before: 6−Sep−2011 13:53

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| HILT Caliper Zero Measurement | 8.000 | N/A | 8.311 | N/A | N/A | N/A | IN |
| HILT Caliper Plus Measurement | 12.00 | N/A | 12.61 | N/A | N/A | N/A | IN |

High resolution Integrated Logging Tool−DTS Wellsite Calibration − Detector Calibration
Before: 6−Sep−2011 13:53

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Gamma Ray Background | 30.00 | N/A | 22.40 | N/A | N/A | N/A | GAPI |
| Gamma Ray (Jig − Bkgd) | 160.0 | N/A | 167.4 | N/A | N/A | 14.55 | GAPI |

High resolution Integrated Logging Tool−DTS Wellsite Calibration − Zero Measurement
Master: 7−Aug−2011 12:14 Before: 6−Sep−2011 14:00

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| CNTC Background | 26.97 | 26.97 | 25.87 | N/A | N/A | 4.046 | CPS |
| CFTC Background | 27.99 | 27.99 | 28.21 | N/A | N/A | 4.199 | CPS |

High resolution Integrated Logging Tool−DTS Wellsite Calibration − Ratio Measurement
Master: 7−Aug−2011 12:14

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Thermal Near Corr. (Tank) | 5800 | 4733 | N/A | N/A | N/A | N/A | CPS |
| Thermal Far Corr. (Tank) | 2400 | 1984 | N/A | N/A | N/A | N/A | CPS |
| CNTC/CFTC (Tank) | 2.159 | 2.386 | N/A | N/A | N/A | N/A | |

High resolution Integrated Logging Tool−DTS Wellsite Calibration − Accelerometer Calibration
Before: 8−Sep−2011 0:22

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Z−Axis Acceleration | 32.19 | N/A | 32.08 | N/A | N/A | N/A | F/S2 |

High resolution Integrated Logging Tool−DTS Master Calibration − Inversion results
Master: 6−Sep−2011 13:11

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Rho Aluminum | 2.596 | 2.599 | -- | -- | -- | -- | G/C3 |
| Rho Magnesium | 1.686 | 1.687 | -- | -- | -- | -- | G/C3 |
| Pe Aluminum | 2.570 | 2.579 | -- | -- | -- | -- | |
| Pe Magnesium | 2.650 | 2.628 | -- | -- | -- | -- | |

High resolution Integrated Logging Tool−DTS Master Calibration − Deviation Summary
Master: 6−Sep−2011 13:11

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| BS Average Deviation | 0 | 0.2416 | -- | -- | -- | -- | % |
| BS Max Deviation | 0 | 0.4586 | -- | -- | -- | -- | % |
| SS Average Deviation | 0 | 0.3323 | -- | -- | -- | -- | % |
| SS Max Deviation | 0 | 0.7844 | -- | -- | -- | -- | % |
| LS Average Deviation | 0 | 0.5800 | -- | -- | -- | -- | % |
| LS Max Deviation | 0 | 1.588 | -- | -- | -- | -- | % |

The GLS−VJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters :

NCT−B Water Temperature 83.6 DEGF.
Thermal Housing Size 3.375 IN.
NSR−F serial number 5219

Array Induction Tool − M / Equipment Identification

Primary Equipment:

| | | |
|---|---|---|
| Rm/SP Bottom Nose | AMRM − A | |
| Array Induction Sonde | AMIS − A | 122 |

Auxiliary Equipment:

Array Induction Tool − M Wellsite Calibration
Electronics Calibration Check − Thru Cal Mag. & Phase

| Idx | Phase | Value | Thru Cal Magnitude V | Nominal | Value | Thru Cal Phase DEG | Nominal |
|---|---|---|---|---|---|---|---|
| 0 | Master | 0.6060 | | 0.6100 | 184.8 | | 197.0 |
| | Before | 0.6061 | | | 190.6 | | |
| 1 | Master | 1.241 | | 1.270 | 183.7 | | 196.0 |
| | Before | 1.241 | | | 189.5 | | |
| 2 | Master | 0.6163 | | 0.6200 | 180.2 | | 192.0 |
| | Before | 0.6168 | | | 186.0 | | |
| 3 | Master | 0.6966 | | 0.7000 | 179.5 | | 191.0 |
| | Before | 0.6971 | | | 185.2 | | |
| 4 | Master | 1.303 | | 1.340 | 173.3 | | 185.0 |
| | Before | 1.304 | | | 179.1 | | |
| 5 | Master | 1.897 | | 1.960 | 171.7 | | 182.0 |
| | Before | 1.898 | | | 177.5 | | |
| 6 | Master | 1.896 | | 1.960 | 171.7 | | 181.0 |
| | Before | 1.896 | | | 177.5 | | |
| 7 | Master | 1.364 | | 1.410 | 170.8 | | 175.0 |
| | Before | 1.366 | | | 176.7 | | |
| | | 60.00 % (Minimum) | (Nominal) | 140.0 % (Maximum) | Nom −60.00 (Minimum) | (Nominal) | Nom + 60.00 (Maximum) |

Master: 6−Jul−2011 9:41 Before: 6−Sep−2011 13:54

Array Induction Tool − M Wellsite Calibration
Electronics Calibration Check − Auxiliary

| Phase | Array Induction SPA Plus MV | Value | Phase | Array Induction SPA Zero MV | Value |
|---|---|---|---|---|---|
| | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Master | | | 989.8 | Master | | | 0.07082 |
| Before | | | 989.8 | Before | | | 0.09175 |
| 941.0 (Minimum) | 991.0 (Nominal) | 1040 (Maximum) | | −50.00 (Minimum) | 0 (Nominal) | 50.00 (Maximum) | |

| Phase Array Induction Temperature Plus V | | | Value | Phase Array Induction Temperature Zero V | | | Value |
|---|---|---|---|---|---|---|---|
| Master | | | 0.9168 | Master | | | 6.774E−00 |
| Before | | | 0.9168 | Before | | | 5.419E−00 |
| 0.8710 (Minimum) | 0.9170 (Nominal) | 0.9630 (Maximum) | | −0.05000 (Minimum) | 0 (Nominal) | 0.05000 (Maximum) | |

Master: 6−Jul−2011 9:41 Before: 6−Sep−2011 13:54

Array Induction Tool − M Wellsite Calibration

Test Loop Gain Correction

| Idx | Value | Test Loop Gain Correction Magnitude V | | | Value | Test Loop Gain Correction Phase DEG | | |
|---|---|---|---|---|---|---|---|---|
| 0 | 1.021 | | | | 0.2435 | | | |
| | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | −3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) | |
| 1 | 1.023 | | | | 0.2776 | | | |
| | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | −3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) | |
| 2 | 1.023 | | | | −1.257 | | | |
| | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | −3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) | |
| 3 | 1.016 | | | | −0.4514 | | | |
| | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | −3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) | |
| 4 | 1.003 | | | | −0.4727 | | | |
| | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | −3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) | |
| 5 | 0.9993 | | | | −0.2222 | | | |
| | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | −3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) | |
| 6 | 1.008 | | | | 0.03087 | | | |
| | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | −3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) | |
| 7 | 1.021 | | | | 0.2918 | | | |
| | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | −3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) | |

Master: 6−Jul−2011 9:41

Array Induction Tool − M Wellsite Calibration

Sonde Error Correction

| Idx | Value | R Sonde Error Correction MM/M | | | Value | X Sonde Error Correction MM/M | | |
|---|---|---|---|---|---|---|---|---|
| 0 | −52.66 | | | | 117.1 | | | |
| | −231.0 (Minimum) | −56.00 (Nominal) | 119.0 (Maximum) | | −2250 (Minimum) | 0 (Nominal) | 2250 (Maximum) | |
| 1 | 164.8 | | | | 160.9 | | | |
| | 114.0 (Minimum) | 159.0 (Nominal) | 204.0 (Maximum) | | −625.0 (Minimum) | 0 (Nominal) | 625.0 (Maximum) | |
| 2 | 101.0 | | | | 83.26 | | | |
| | 66.00 (Minimum) | 111.0 (Nominal) | 156.0 (Maximum) | | −350.0 (Minimum) | 0 (Nominal) | 350.0 (Maximum) | |
| 3 | 59.12 | | | | −46.47 | | | |
| | 39.00 (Minimum) | 64.00 (Nominal) | 89.30 (Maximum) | | −250.0 (Minimum) | 0 (Nominal) | 250.0 (Maximum) | |
| 4 | 24.07 | | | | 5.405 | | | |
| | 15.00 (Minimum) | 25.00 (Nominal) | 35.00 (Maximum) | | −63.00 (Minimum) | 0 (Nominal) | 63.00 (Maximum) | |
| 5 | 11.17 | | | | 0.9452 | | | |
| | 4.000 (Minimum) | 14.00 (Nominal) | 24.00 (Maximum) | | −50.00 (Minimum) | 0 (Nominal) | 50.00 (Maximum) | |
| 6 | 9.246 | | | | 5.317 | | | |
| | 5.000 (Minimum) | 10.00 (Nominal) | 15.00 (Maximum) | | −30.00 (Minimum) | 0 (Nominal) | 30.00 (Maximum) | |
| 7 | −1.833 | | | | 10.34 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | −5.000 (Minimum) | 0 (Nominal) | 5.000 (Maximum) | | −30.00 (Minimum) | 0 (Nominal) | 30.00 (Maximum) |

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## Array Induction Tool − M Wellsite Calibration

### Mud Gain Correction

| Idx | Value | Coarse − Mag, Real, Imag | | | Value | Fine − Mag, Real, Imag | | |
|---|---|---|---|---|---|---|---|---|
| 0 | 0.8125 | | | | 0.8254 | | | |
| | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) |
| 1 | 0.8125 | | | | 0.8254 | | | |
| | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) |
| 2 | 0.8125 | | | | 0.8254 | | | |
| | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) |

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## Array Induction Tool − M Master Calibration

### Electronics Calibration Check − Thru Cal Mag. & Phase

| Idx | Phase | Value | Thru Cal Magnitude V | Nominal | Value | Thru Cal Phase DEG | Nominal |
|---|---|---|---|---|---|---|---|
| 0 | Master | 0.6060 | | 0.6100 | 184.8 | | 197.0 |
| 1 | Master | 1.241 | | 1.270 | 183.7 | | 196.0 |
| 2 | Master | 0.6163 | | 0.6200 | 180.2 | | 192.0 |
| 3 | Master | 0.6966 | | 0.7000 | 179.5 | | 191.0 |
| 4 | Master | 1.303 | | 1.340 | 173.3 | | 185.0 |
| 5 | Master | 1.897 | | 1.960 | 171.7 | | 182.0 |
| 6 | Master | 1.896 | | 1.960 | 171.7 | | 181.0 |
| 7 | Master | 1.364 | | 1.410 | 170.8 | | 175.0 |
| | | 60.00 % (Minimum) | (Nominal) | 140.0 % (Maximum) | | Nom −60.00 (Minimum) | (Nominal) | Nom + 60.00 (Maximum) |

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## Array Induction Tool − M Master Calibration

### Electronics Calibration Check − Auxiliary

| Phase | Array Induction SPA Plus MV | Value | Phase | Array Induction SPA Zero MV | Value |
|---|---|---|---|---|---|
| Master | | 989.8 | Master | | 0.07082 |
| | 941.0 (Minimum) 991.0 (Nominal) 1040 (Maximum) | | | −50.00 (Minimum) 0 (Nominal) 50.00 (Maximum) | |
| Phase | Array Induction Temperature Plus V | Value | Phase | Array Induction Temperature Zero V | Value |
| Master | | 0.9168 | Master | | 6.774E−00 |
| | 0.8710 (Minimum) 0.9170 (Nominal) 0.9630 (Maximum) | | | −0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum) | |

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## Array Induction Tool − M Master Calibration

### Test Loop Gain Correction

| Idx | Value | Test Loop Gain Correction Magnitude V | | | Value | Test Loop Gain Correction Phase DEG | | |
|---|---|---|---|---|---|---|---|---|
| 0 | 1.021 | | | | 0.2435 | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | −3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 1 | 1.023 | | | | 0.2776 | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | −3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 2 | 1.023 | | | | −1.257 | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | −3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 3 | 1.016 | | | | −0.4514 | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | −3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 4 | 1.003 | | | | −0.4727 | | | |
| | | 0.9500 | 1.000 | 1.050 | | −3.000 | 0 | 3.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | (Minimum) | (Nominal) | (Maximum) | | (Minimum) | (Nominal) | (Maximum) |
| 5 | 0.9993 | | | | −0.2222 | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | −3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 6 | 1.008 | | | | 0.03087 | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | −3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |
| 7 | 1.021 | | | | 0.2918 | | | |
| | | 0.9500 (Minimum) | 1.000 (Nominal) | 1.050 (Maximum) | | −3.000 (Minimum) | 0 (Nominal) | 3.000 (Maximum) |

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Array Induction Tool − M Master Calibration

Sonde Error Correction

| Idx | Value | R Sonde Error Correction MM/M | | | Value | X Sonde Error Correction MM/M | | |
|---|---|---|---|---|---|---|---|---|
| 0 | −52.66 | | | | 117.1 | | | |
| | | −231.0 (Minimum) | −56.00 (Nominal) | 119.0 (Maximum) | | −2250 (Minimum) | 0 (Nominal) | 2250 (Maximum) |
| 1 | 164.8 | | | | 160.9 | | | |
| | | 114.0 (Minimum) | 159.0 (Nominal) | 204.0 (Maximum) | | −625.0 (Minimum) | 0 (Nominal) | 625.0 (Maximum) |
| 2 | 101.0 | | | | 83.26 | | | |
| | | 66.00 (Minimum) | 111.0 (Nominal) | 156.0 (Maximum) | | −350.0 (Minimum) | 0 (Nominal) | 350.0 (Maximum) |
| 3 | 59.12 | | | | −46.47 | | | |
| | | 39.00 (Minimum) | 64.00 (Nominal) | 89.30 (Maximum) | | −250.0 (Minimum) | 0 (Nominal) | 250.0 (Maximum) |
| 4 | 24.07 | | | | 5.405 | | | |
| | | 15.00 (Minimum) | 25.00 (Nominal) | 35.00 (Maximum) | | −63.00 (Minimum) | 0 (Nominal) | 63.00 (Maximum) |
| 5 | 11.17 | | | | 0.9452 | | | |
| | | 4.000 (Minimum) | 14.00 (Nominal) | 24.00 (Maximum) | | −50.00 (Minimum) | 0 (Nominal) | 50.00 (Maximum) |
| **6** | **9.246** | | | | **5.317** | | | |
| | | 5.000 (Minimum) | 10.00 (Nominal) | 15.00 (Maximum) | | −30.00 (Minimum) | 0 (Nominal) | 30.00 (Maximum) |
| 7 | −1.833 | | | | 10.34 | | | |
| | | −5.000 (Minimum) | 0 (Nominal) | 5.000 (Maximum) | | −30.00 (Minimum) | 0 (Nominal) | 30.00 (Maximum) |

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Array Induction Tool − M Master Calibration

Mud Gain Correction

| Idx | Value | Coarse − Mag, Real, Imag | | | Value | Fine − Mag, Real, Imag | | |
|---|---|---|---|---|---|---|---|---|
| 0 | 0.8125 | | | | 0.8254 | | | |
| | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) |
| 1 | 0.8125 | | | | 0.8254 | | | |
| | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) |
| 2 | 0.8125 | | | | 0.8254 | | | |
| | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) | | 0.8000 (Minimum) | 1.000 (Nominal) | 1.200 (Maximum) |

Master: 6−Jul−2011 9:41

High resolution Integrated Logging Tool−DTS / Equipment Identification

Primary Equipment:

| | | |
|---|---|---|
| HILT high−Resolution Mechanical Sonde | HRMS − H | |
| HILT Rxo Gamma−ray Device | HRGD − H | |
| HILT Micro Cylindrically Focused Log Dev | MCFL − H | |
| GR Logging Source | GLS − VJ | 5347 |
| HILT High Res. Control Cartridge | HRCC − H | |
| HILT Gamma−Ray Neutron Sonde−DTS | HGNS − H | |
| HGNS Gamma−Ray Device | HGR − | |
| HGNS Neutron Detector with Alpha Source | HCNT − H | |

| | |
|---|---|
| Auxiliary Equipment: | |
| Neutron Calibration Tank | NCT − B |
| Gamma Source Radioactive | GSR − U/Y |
| HGNS Housing | HGNH − |

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Stab Measurement Summary

| Phase | BS Window Ratio | Value | Phase | SS Window Ratio | Value | Phase | LS Window Ratio | Value |
|---|---|---|---|---|---|---|---|---|
| Before | | 0.7522 | Before | | 0.4882 | Before | | 0.3032 |
| | 0.7139 (Minimum) 0.7515 (Nominal) 0.7891 (Maximum) | | | 0.4639 (Minimum) 0.4883 (Nominal) 0.5127 (Maximum) | | | 0.2883 (Minimum) 0.3035 (Nominal) 0.3187 (Maximum) | |
| Phase | BS Window Sum CPS | Value | Phase | SS Window Sum CPS | Value | Phase | LS Window Sum CPS | Value |
| Before | | 28960 | Before | | 11540 | Before | | 1345 |
| | 27480 (Minimum) 28930 (Nominal) 30380 (Maximum) | | | 10960 (Minimum) 11530 (Nominal) 12110 (Maximum) | | | 1278 (Minimum) 1346 (Nominal) 1413 (Maximum) | |

Before: 6−Sep−2011 14:00

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Photo−multiplier High Voltages Calibrations

| Phase | BS PM High Voltage (Command) V | Value | Phase | SS PM High Voltage (Command) V | Value | Phase | LS PM High Voltage (Command) V | Value |
|---|---|---|---|---|---|---|---|---|
| Before | | 1416 | Before | | 1732 | Before | | 1525 |
| | 1294 (Minimum) 1394 (Nominal) 1494 (Maximum) | | | 1599 (Minimum) 1699 (Nominal) 1799 (Maximum) | | | 1416 (Minimum) 1516 (Nominal) 1616 (Maximum) | |

Before: 6−Sep−2011 14:00

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Crystal Quality Resolutions Calibration

| Phase | BS Crystal Resolution % | Value | Phase | SS Crystal Resolution % | Value | Phase | LS Crystal Resolution % | Value |
|---|---|---|---|---|---|---|---|---|
| Before | | 10.39 | Before | | 9.305 | Before | | 9.022 |
| | 9.342 (Minimum) 10.34 (Nominal) 11.34 (Maximum) | | | 8.154 (Minimum) 9.154 (Nominal) 10.15 (Maximum) | | | 8.094 (Minimum) 9.094 (Nominal) 10.09 (Maximum) | |

Before: 6−Sep−2011 14:00

High resolution Integrated Logging Tool−DTS Wellsite Calibration

MCFL Calibration

| Phase | Raw B0 Resistivity OHMM | Value | Phase | Raw B1 Resistivity OHMM | Value | Phase | Raw B2 Resistivity OHMM | Value |
|---|---|---|---|---|---|---|---|---|
| Before | | 3855 | Before | | 3808 | Before | | 3823 |
| | 3565 (Minimum) 3875 (Nominal) 4185 (Maximum) | | | 3524 (Minimum) 3830 (Nominal) 4136 (Maximum) | | | 3524 (Minimum) 3830 (Nominal) 4136 (Maximum) | |

Before: 6−Sep−2011 14:01

High resolution Integrated Logging Tool−DTS Wellsite Calibration

HILT Caliper Calibration

| Phase | HILT Caliper Zero Measurement IN | Value | Phase | HILT Caliper Plus Measurement IN | Value |
|---|---|---|---|---|---|
| Before | | 8.311 | Before | | 12.61 |
| | 6.000 (Minimum) 8.000 (Nominal) 10.00 (Maximum) | | | 9.000 (Minimum) 12.00 (Nominal) 15.00 (Maximum) | |

Before: 6−Sep−2011 13:53

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Detector Calibration

| Phase | Gamma Ray Background GAPI | Value | Phase | Gamma Ray (Jig − Bkgd) GAPI | Value |
|---|---|---|---|---|---|
| Before | | 22.40 | Before | | 167.4 |
| | 0 (Minimum) 30.00 (Nominal) 120.0 (Maximum) | | | 152.3 (Minimum) 160.0 (Nominal) 200.0 (Maximum) | |

Before: 6−Sep−2011 13:53

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Zero Measurement

| Phase | CNTC Background CPS | Value | Phase | CFTC Background CPS | Value |
|---|---|---|---|---|---|
| Master | | 26.97 | Master | | 27.99 |
| Before | | 25.87 | Before | | 28.21 |
| | 5.000 (Minimum) 26.97 (Nominal) 40.00 (Maximum) | | | 5.000 (Minimum) 27.99 (Nominal) 40.00 (Maximum) | |

Master: 7−Aug−2011 13:14 Before: 6−Sep−2011 14:00

Master: 7−Aug−2011 12:14 Before: 6−Sep−2011 14:00

| High resolution Integrated Logging Tool−DTS Wellsite Calibration | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Ratio Measurement | | | | | | | | |
| Phase | Thermal Near Corr. (Tank) CPS | Value | Phase | Thermal Far Corr. (Tank) CPS | Value | Phase | CNTC/CFTC (Tank) | Value |
| Master | | 4733 | Master | | 1984 | Master | | 2.386 |
| 4700 (Minimum) | 5800 (Nominal) 6900 (Maximum) | | 1900 (Minimum) | 2400 (Nominal) 2900 (Maximum) | | 2.120 (Minimum) | 2.159 (Nominal) 2.540 (Maximum) | |
| Master: 7−Aug−2011 12:14 | | | | | | | | |

| High resolution Integrated Logging Tool−DTS Wellsite Calibration | | |
|---|---|---|
| Accelerometer Calibration | | |
| Phase | Z−Axis Acceleration F/S2 | Value |
| Before | | 32.08 |
| 31.53 (Minimum) | 32.19 (Nominal) 32.84 (Maximum) | |
| Before: 8−Sep−2011 0:22 | | |

| High resolution Integrated Logging Tool−DTS Master Calibration | | | | | |
|---|---|---|---|---|---|
| Inversion results | | | | | |
| Phase | Rho Aluminum G/C3 | Value | Phase | Rho Magnesium G/C3 | Value |
| Master | | 2.599 | Master | | 1.687 |
| 2.586 (Minimum) | 2.596 (Nominal) 2.606 (Maximum) | | 1.676 (Minimum) | 1.686 (Nominal) 1.696 (Maximum) | |
| Phase | Pe Aluminum | Value | Phase | Pe Magnesium | Value |
| Master | | 2.579 | Master | | 2.628 |
| 2.470 (Minimum) | 2.570 (Nominal) 2.670 (Maximum) | | 2.550 (Minimum) | 2.650 (Nominal) 2.750 (Maximum) | |
| Master: 6−Sep−2011 13:11 | | | | | |

| High resolution Integrated Logging Tool−DTS Master Calibration | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Deviation Summary | | | | | | | | |
| Phase | BS Average Deviation % | Value | Phase | SS Average Deviation % | Value | Phase | LS Average Deviation % | Value |
| Master | | 0.2416 | Master | | 0.3323 | Master | | 0.5800 |
| −0.6000 (Minimum) | 0 (Nominal) 0.6000 (Maximum) | | −1.000 (Minimum) | 0 (Nominal) 1.000 (Maximum) | | −1.500 (Minimum) | 0 (Nominal) 1.500 (Maximum) | |
| Phase | BS Max Deviation % | Value | Phase | SS Max Deviation % | Value | Phase | LS Max Deviation % | Value |
| Master | | 0.4586 | Master | | 0.7844 | Master | | 1.588 |
| −1.600 (Minimum) | 0 (Nominal) 1.600 (Maximum) | | −2.500 (Minimum) | 0 (Nominal) 2.500 (Maximum) | | −3.500 (Minimum) | 0 (Nominal) 3.500 (Maximum) | |
| Master: 6−Sep−2011 13:11 | | | | | | | | |

| High resolution Integrated Logging Tool−DTS Master Calibration | | | | | |
|---|---|---|---|---|---|
| Zero Measurement | | | | | |
| Phase | CNTC Background CPS | Value | Phase | CFTC Background CPS | Value |
| Master | | 26.97 | Master | | 27.99 |
| 5.000 (Minimum) | 26.97 (Nominal) 40.00 (Maximum) | | 5.000 (Minimum) | 27.99 (Nominal) 40.00 (Maximum) | |
| Master: 7−Aug−2011 12:14 | | | | | |

| High resolution Integrated Logging Tool−DTS Master Calibration | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Tank Measurement | | | | | | | | |
| Phase | Thermal Near Corr. (Tank) CPS | Value | Phase | Thermal Far Corr. (Tank) CPS | Value | Phase | CNTC/CFTC (Tank) | Value |
| Master | | 4733 | Master | | 1984 | Master | | 2.386 |
| 4700 (Minimum) | 5800 (Nominal) 6900 (Maximum) | | 1900 (Minimum) | 2400 (Nominal) 2900 (Maximum) | | 2.120 (Minimum) | 2.159 (Nominal) 2.540 (Maximum) | |
| Master: 7−Aug−2011 12:14 | | | | | | | | |

DTS Telemetry Tool / Equipment Identification

Primary Equipment:

| | |
|---|---|
| DTC−H Auxiliary Cartridge | DTCH − A |
| DTC−H Telemetry Cartridge | DTCH − A |

Auxiliary Equipment:

| | |
|---|---|
| Auxiliary Equipment: | |
| DTCH Telemetry Cartridge Housing | ECH − KC |

| | |
|---|---|
| Company: | **TexKan Exploration, LLC** |
| Well: | **Sealy #1** |
| Field: | **Wildcat** |
| County: | **Kiowa** |
| State: | **Kansas** |

Schlumberger

Platform Express
Compensated Neutron
Lithology Density