

**Schlumberger**

Company: **Conoco Phillips Company**

Well: **State of Colorado 36-1P**

Field: **Wildcat**

County: **Adams**

State: **Colorado**

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Field: **Wildcat**  
County: **Adams**  
State: **Colorado**













Field: **Wildcat**  
County: **Adams**  
State: **Colorado**

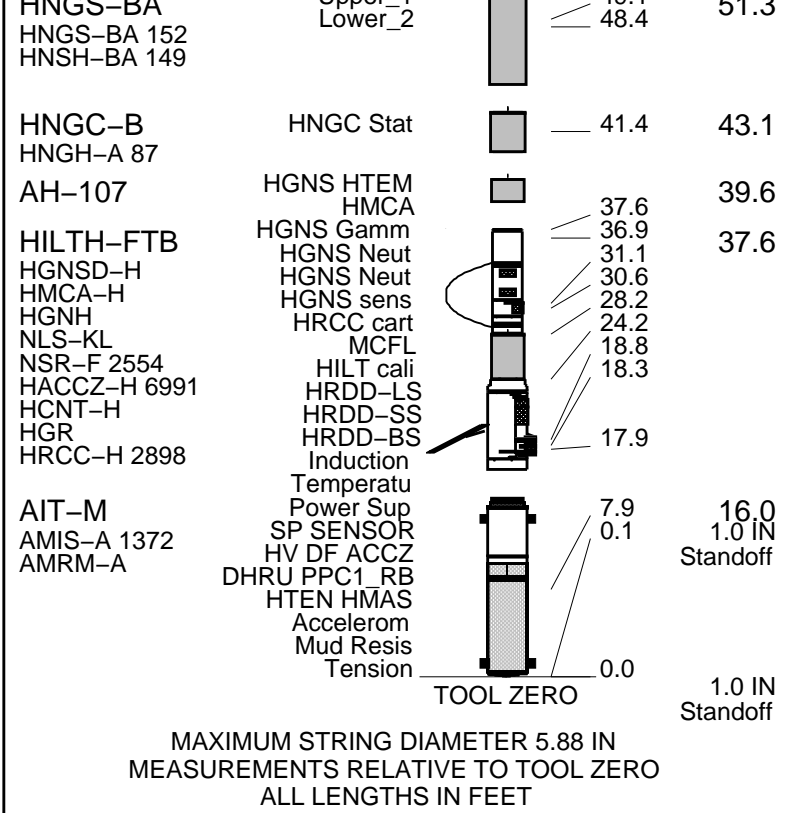
County: **Adams** State: **Colorado**

[illegible]

|                               |  |           |   |  |   |
|-------------------------------|--|-----------|---|--|---|
| 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                    |  | RMF       |   |  |   |
| RM @ MRT                      |  | RMF @ MRT | @ |  | @ |
| Maximum Recorded Temperatures |  |           |   |  |   |
| Circulation Stopped           |  | Time      |   |  |   |
| Logger On Bottom              |  | Time      |   |  |   |
| Unit Number                   |  | Location  |   |  |   |
| Recorded By                   |  |           |   |  |   |
| Witnessed By                  |  |           |   |  |   |

|  |  |
|--|--|
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|  |                                     |   |  |       |      |
|--|-------------------------------------|---|--|-------|------|
|  |                                     |   |  |       |      |
|  |                                     |   |  |       |      |
|  |                                     |   |  |       |      |
|  |                                     |   |  |       |      |
|  |                                     |   |  |       |      |
|  |                                     |   |  |       |      |
|  |                                     |   |  |       |      |
|  |                                     |   |  |       |      |
| Rig: H&P 280   |                                     |   |  |       |      |
|  |                                     |   |  |       |      |
| Crew: Ian Derry, Alonzo Carrera                      |                                     |   |  |       |      |
|  |                                     |   |  |       |      |
| RUN 1  |                                     |   | RUN 2  |       |      |
| SERVICE ORDER #:<br>PROGRAM VERSION:<br>FLUID LEVEL: |                                     |   | SERVICE ORDER #:<br>PROGRAM VERSION:<br>FLUID LEVEL: |       |      |
| BHDJ-00199<br>19C1-222                               |                                     |   |  |       |      |
| LOGGED INTERVAL                                      | START                               | STOP  | LOGGED INTERVAL                                      | START | STOP |
|  |                                     |   |  |       |      |
|  |                                     |   |  |       |      |
|  |                                     |   |  |       |      |
|  |                                     |   |  |       |      |
| EQUIPMENT DESCRIPTION                                |                                     |   |  |       |      |
| RUN 1  |                                     |   | RUN 2  |       |      |
| SURFACE EQUIPMENT                                    |                                     |   |  |       |      |
| GSR-U/Y<br>NCT-B<br>CNB-AB<br>NCS-VB                 |                                     |   |  |       |      |
| GSR-U 599<br>WITM (EDTS)-A                           |                                     |   |  |       |      |
|  |                                     |   |  |       |      |
|  |                                     |   |  |       |      |
|  |                                     |   |  |       |      |
| DOWNHOLE EQUIPMENT                                   |                                     |   |  |       |      |
| LEH-QT   | MDSB_EDTC<br>Mud Tempe              |   | 124.1<br>120.6<br>118.8                              | 127.1 |      |
| EDTC-B   | CTEM                                |   |  |       |      |
| EDTH-B   | Gamma Ray                           |  |  | 124.1 |      |
| EDTC-B   | EFTB DIAG<br>TelStatus<br>EDTCB Ele |   | 117.6  |       |      |
| MAPC-B   |                                     |  |  | 117.6 |      |
| MAPC-BA  |                                     |   |  |       |      |
| ECH-SF   |                                     |   |  |       |      |
| MAMS-BA  |                                     |   |  |       |      |
|  | MAMS-PS                             |  | 102.2  |       |      |
| MAXS-B   |                                     |   |  | 96.6  |      |
| MASS-BA  |                                     |   |  |       |      |
| MAXS-BA  |                                     |   |  |       |      |
|  | MAXS-PS                             |  | 76.4   |       |      |
| PPC1   | Calipers                            |  | 75.2   | 76.4  |      |
| PPC1-B   |                                     |   |  |       |      |
| PPC_CAL_STD  | PPC_Cartr                           |  | 69.8   |       |      |
| AH-nonmag  |                                     |  |  | 69.8  |      |
| AH-nonmag  |                                     |   |  |       |      |
| GPIT-F   |                                     |  |  | 61.8  |      |
| GPIH-B   |                                     |   |  |       |      |
| AH-nonmag  |                                     |  |  | 57.8  |      |
| AH-nonmag  |                                     |   |  |       |      |
| AH-107   |                                     |  |  | 53.3  |      |
| UNCS-BA  | Upper 1                             |  | 49.1   | 51.9  |      |



Schlumberger

COMBO LOG 5" = 100'

MAXIS Field Log

Company: Conoco Phillips Company

Well: State of Colorado 36-1P

### Input DLIS Files

DEFAULT AIT\_TLD\_MCFL\_CNL\_IS\_017PUP FN:16 PRODUCER 09-Jan-2013 03:36 7717.5 FT 1767.5 FT

### Output DLIS Files

DEFAULT AIT\_TLD\_MCFL\_CNL\_IS\_019PUP FN:18 PRODUCER 09-Jan-2013 03:46

### OP System Version: 19C1-222

|        |                      |           |                      |
|--------|----------------------|-----------|----------------------|
| AIT-M  | 19C1-222             | HILTH-FTB | 19C1-222             |
| HNGC-B | HFE-5203-OP19.1-NUCL | HNGS-BA   | HFE-5203-OP19.1-NUCL |
| GPIT-F | 19C1-222             | PPC1      | 19C1-222             |
| MAXS-B | 19C1-222             | MAPC-B    | 19C1-222             |
| EDTC-B | 19C1-222             |           |                      |

### PIP SUMMARY

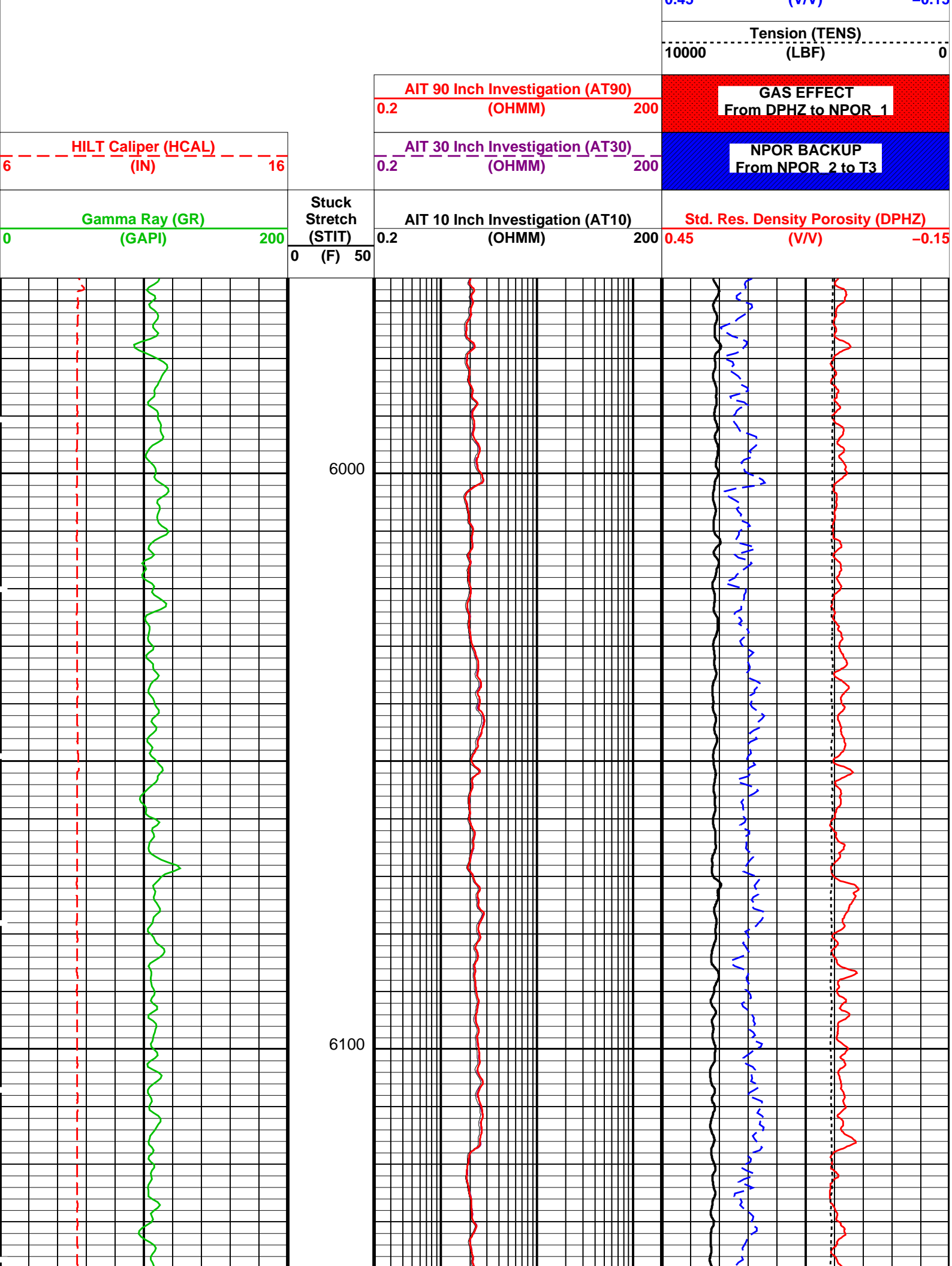
Time Mark Every 60 S

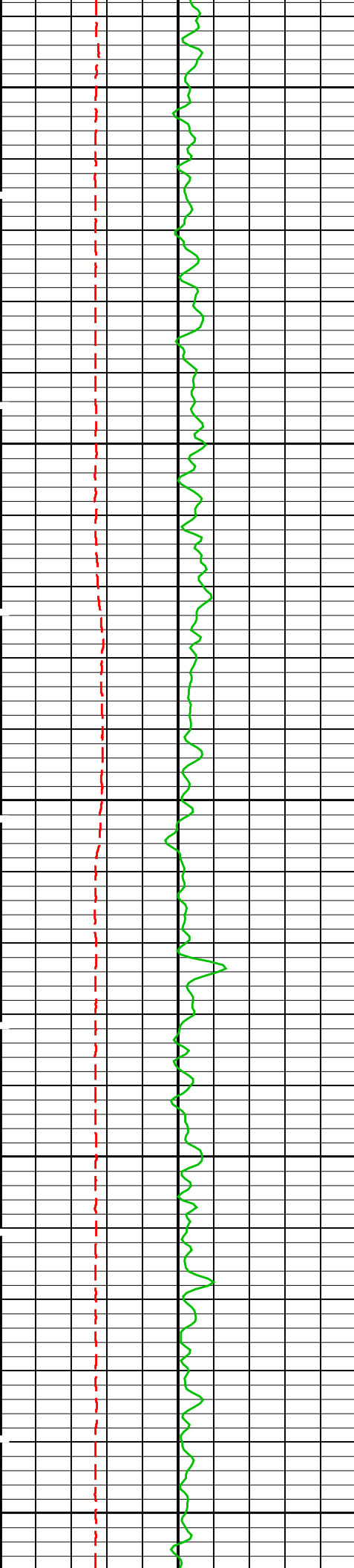
Std. Res. Formation  
Pe (PEFZ)

0 (---- 10

Alpha Processed Neutron Porosity  
(NPOR)

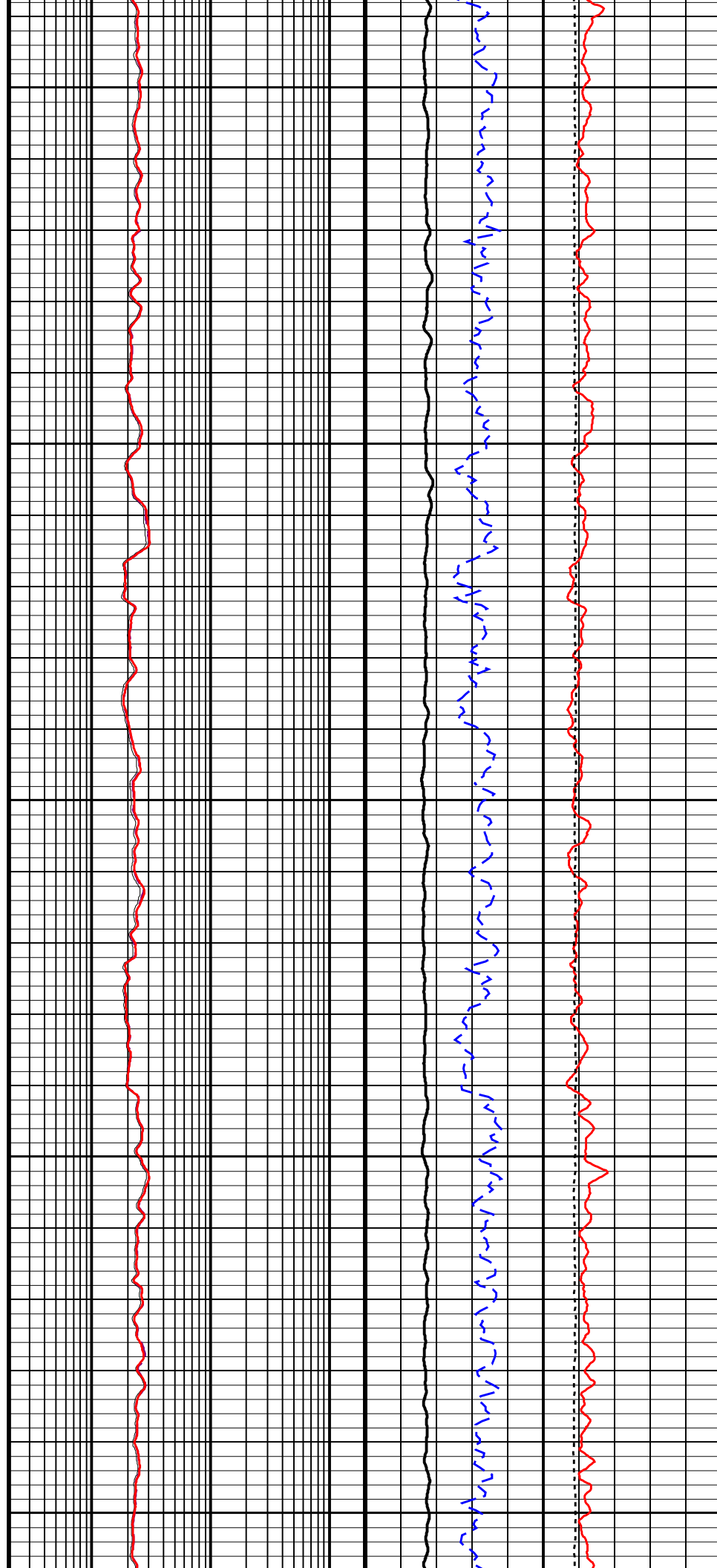
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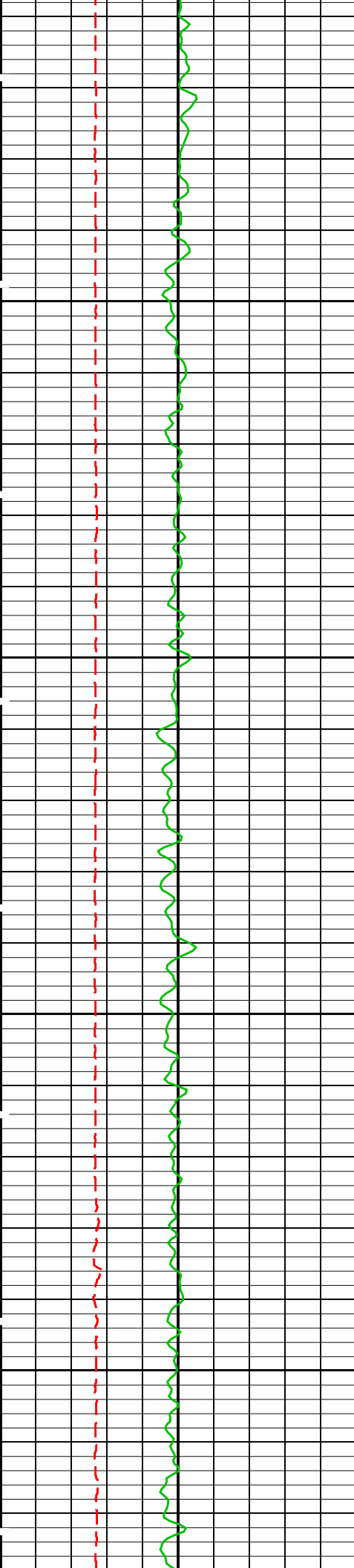




6200

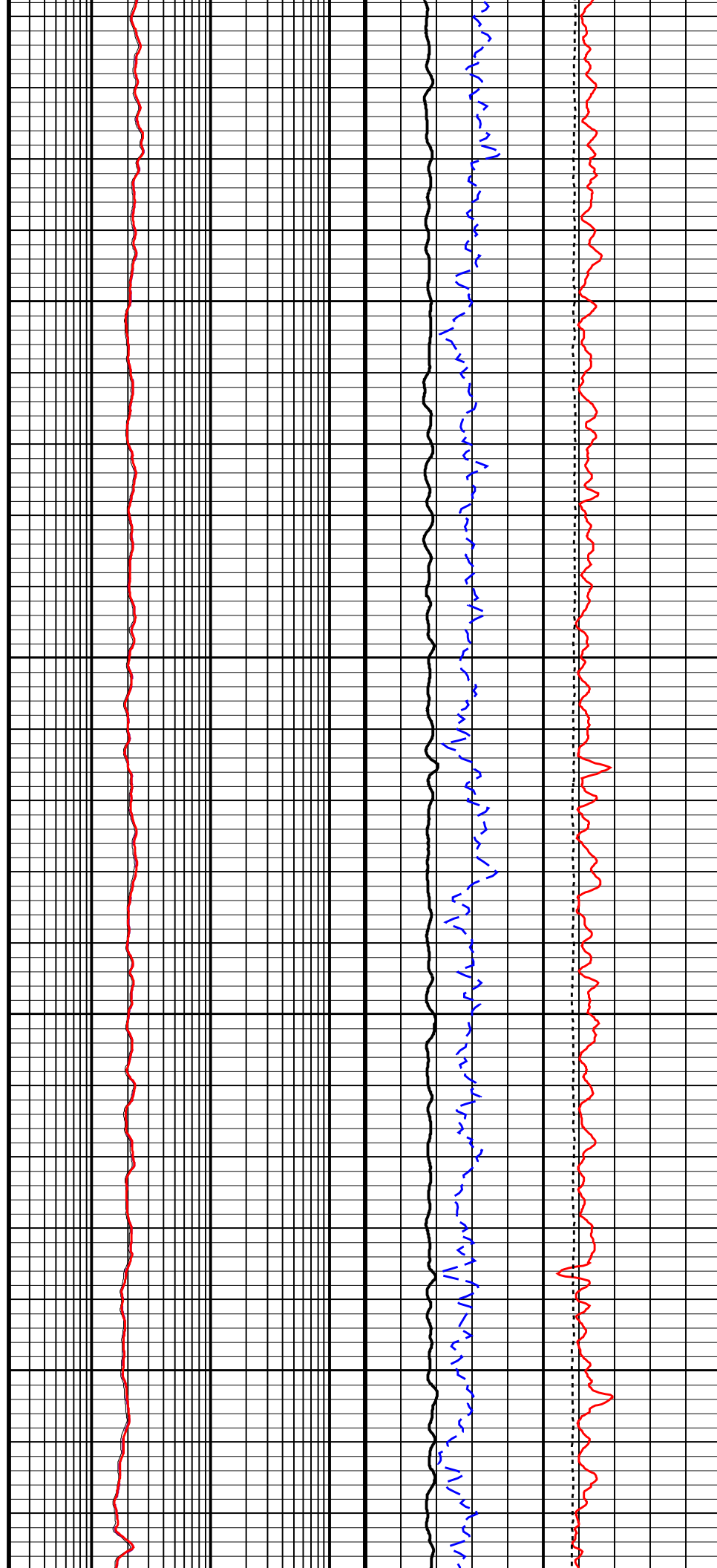
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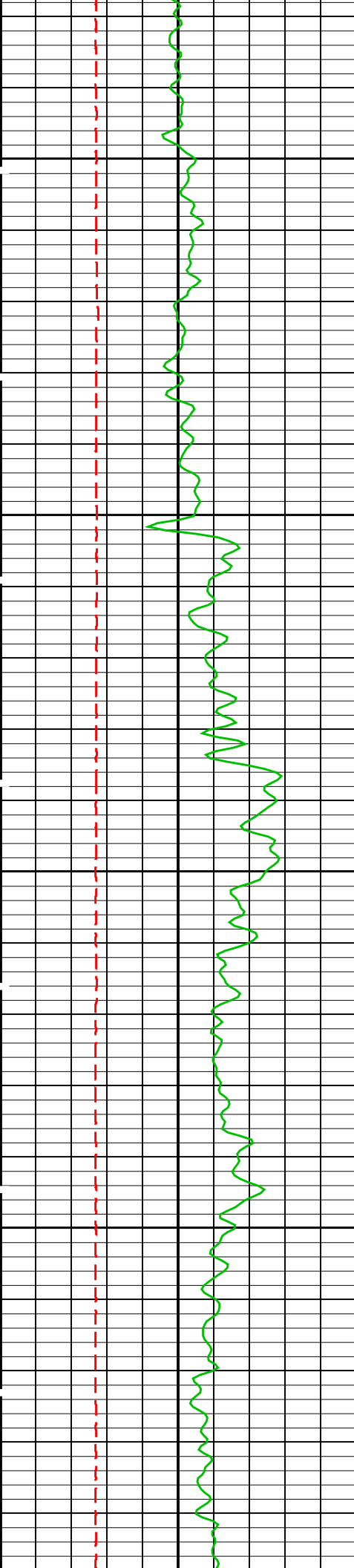




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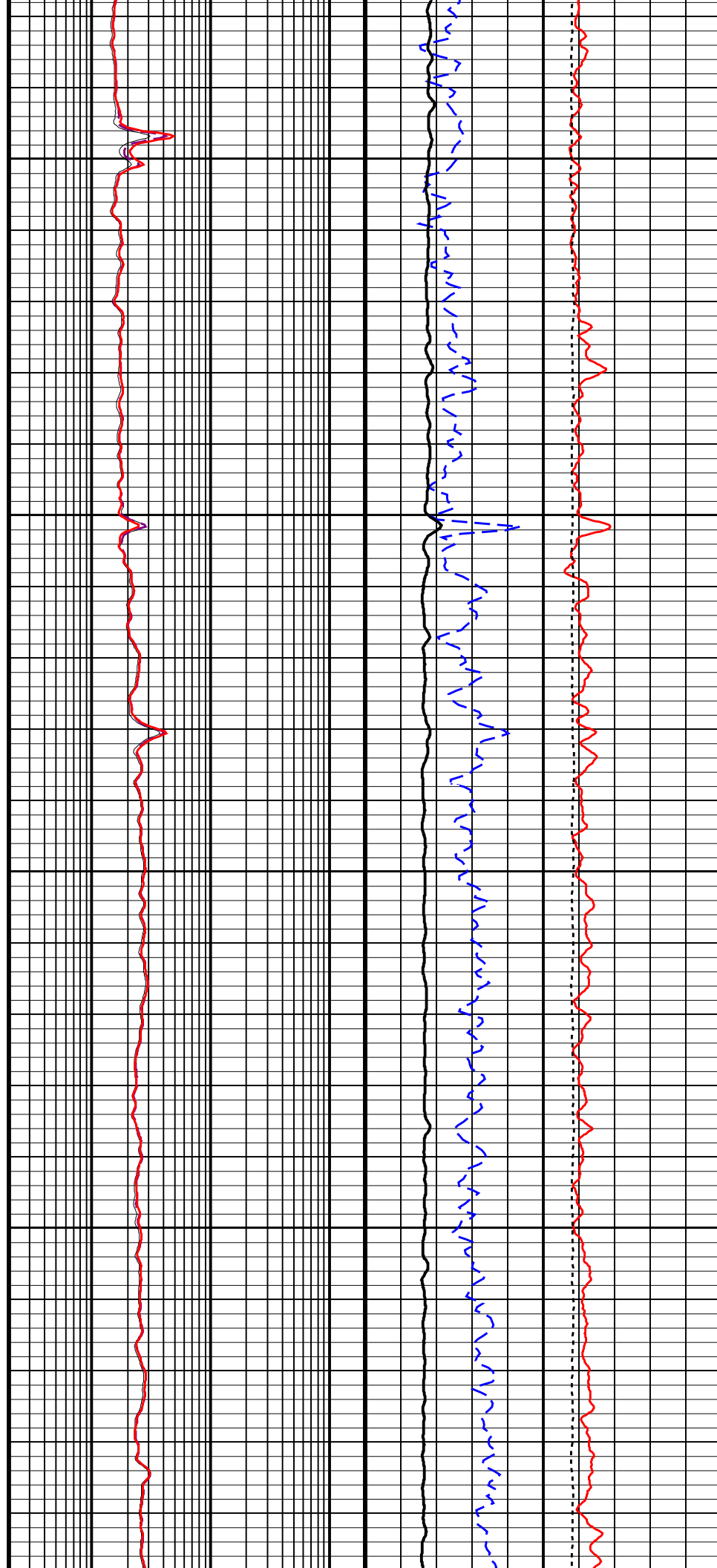
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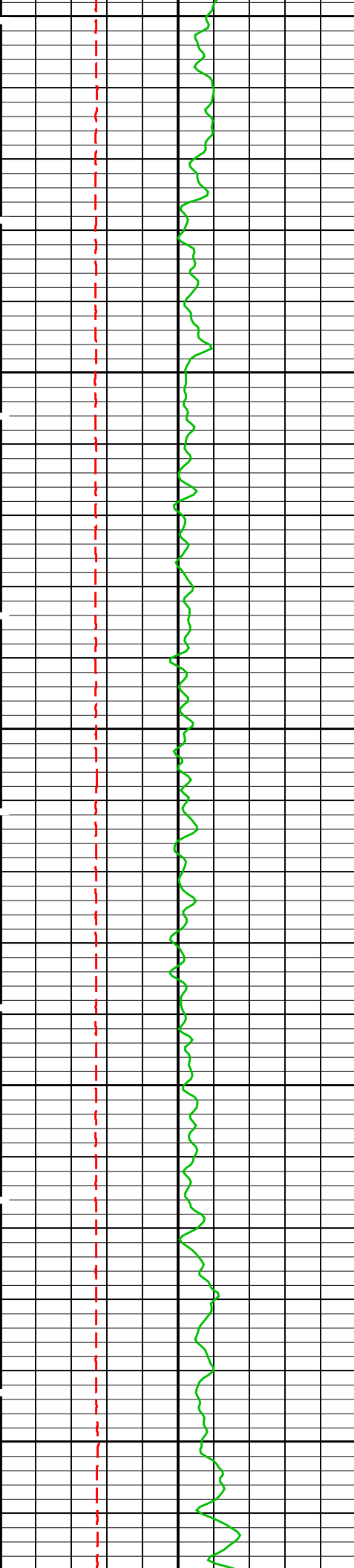


6600

6700



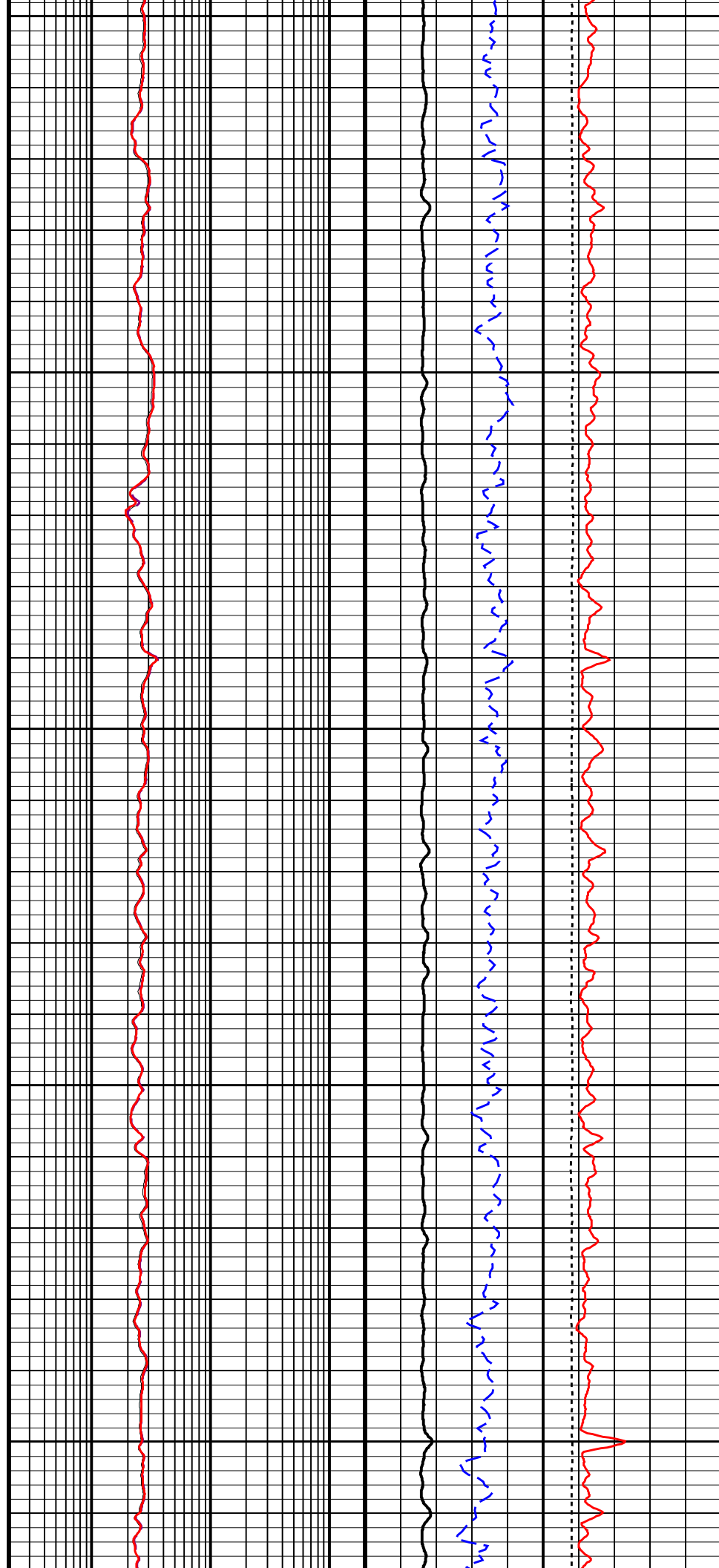


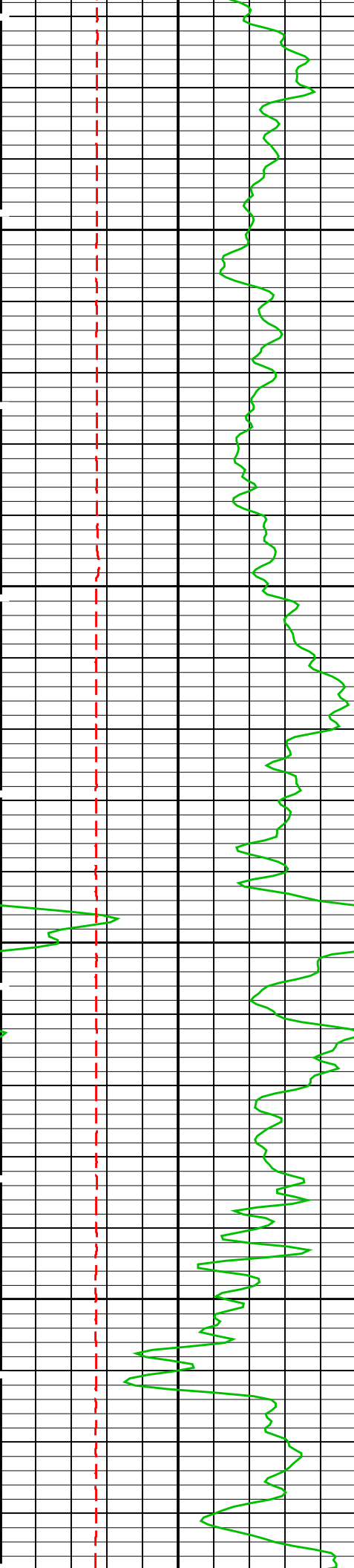


6800

6900

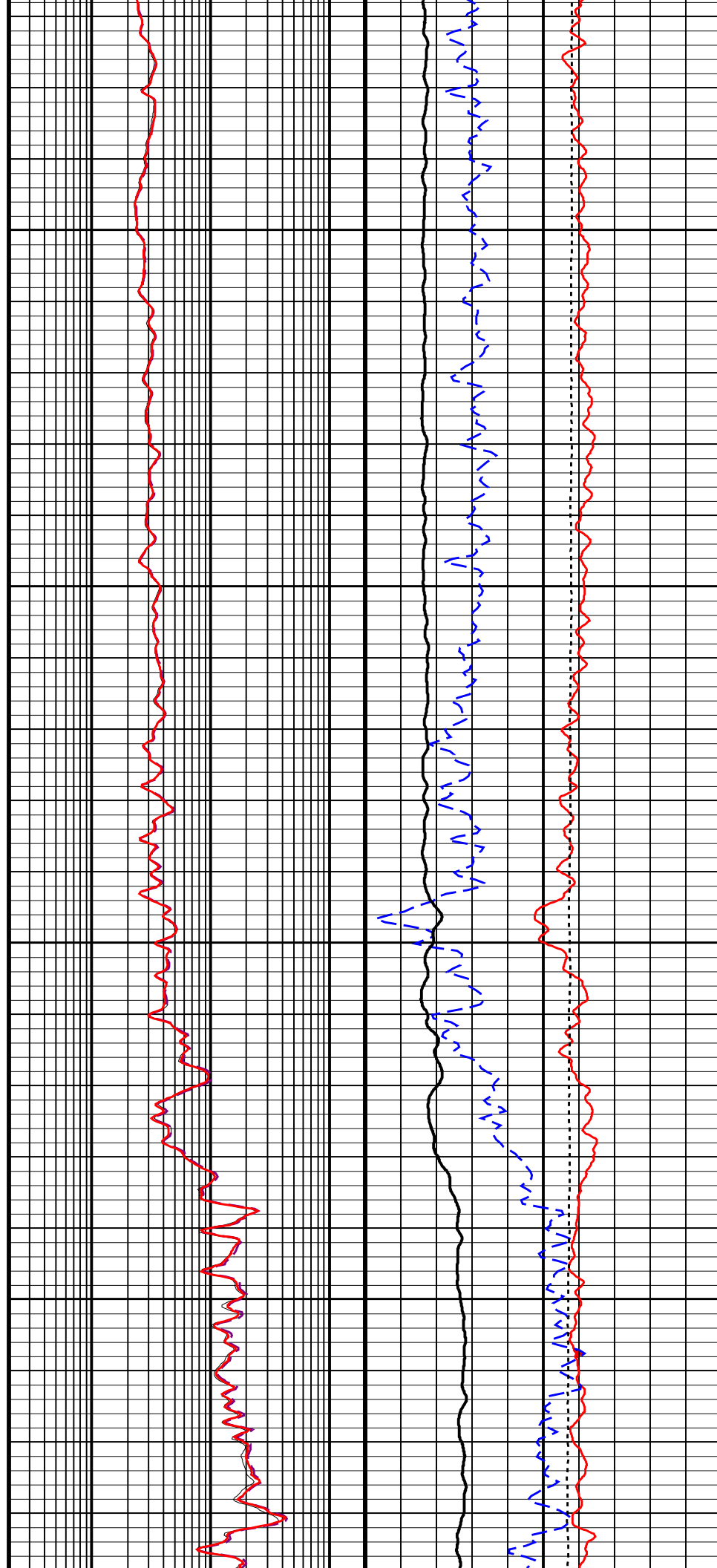
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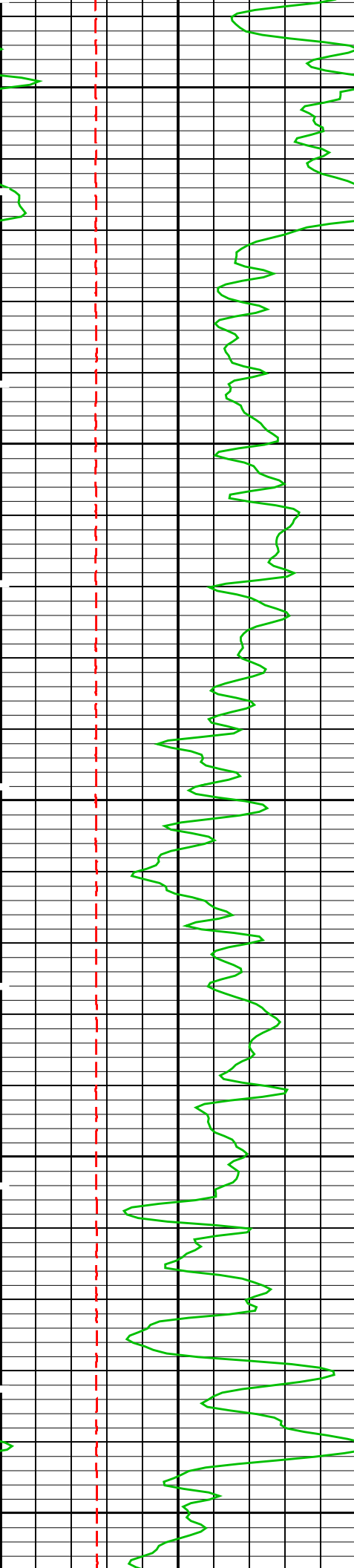




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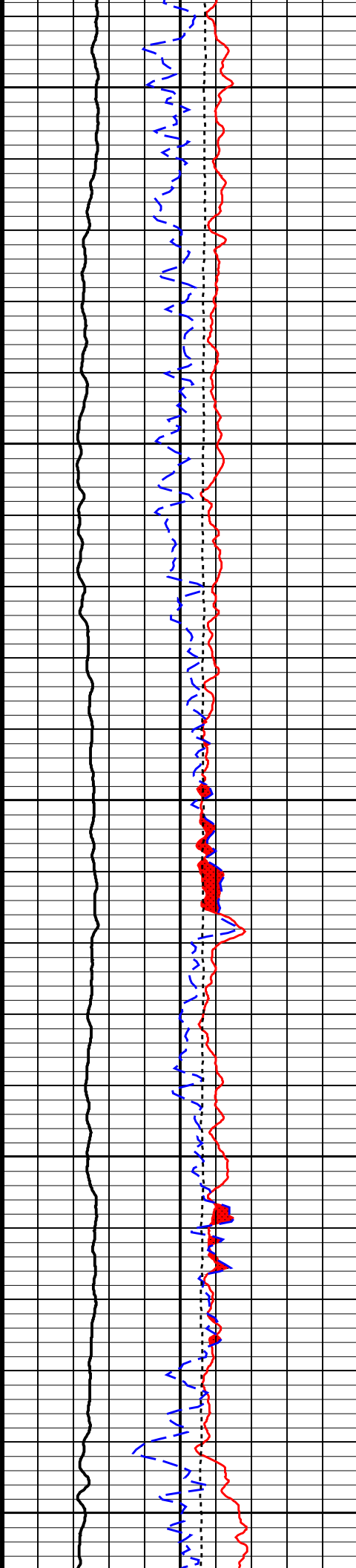
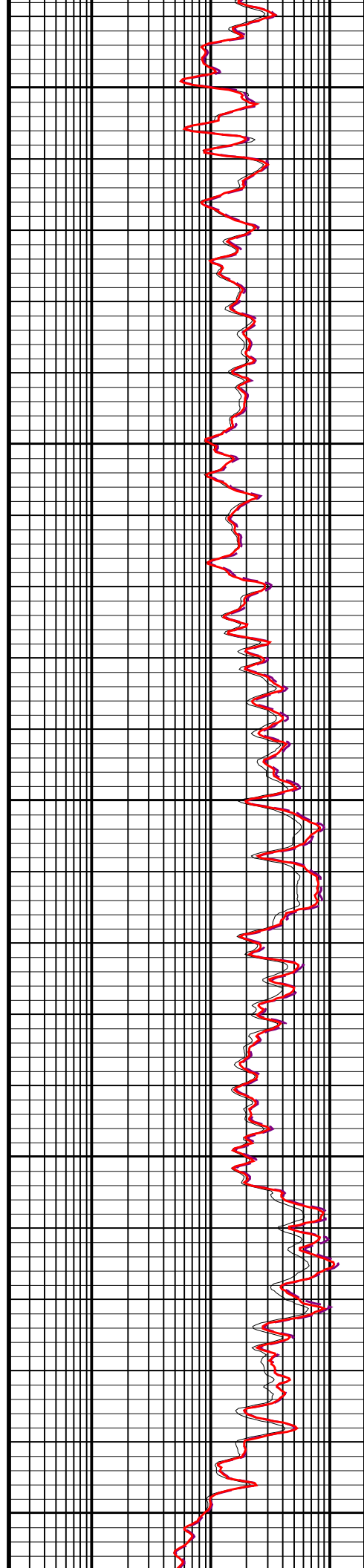
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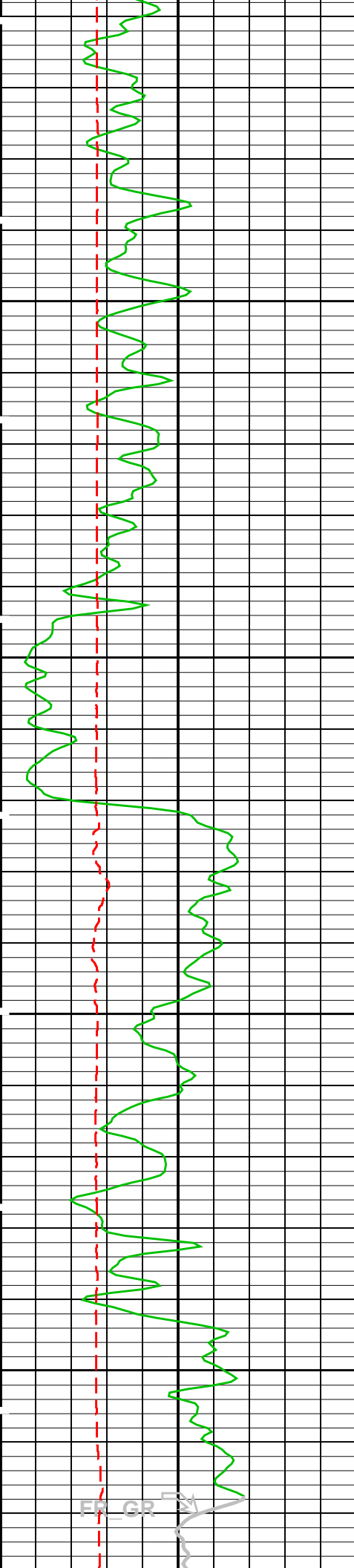




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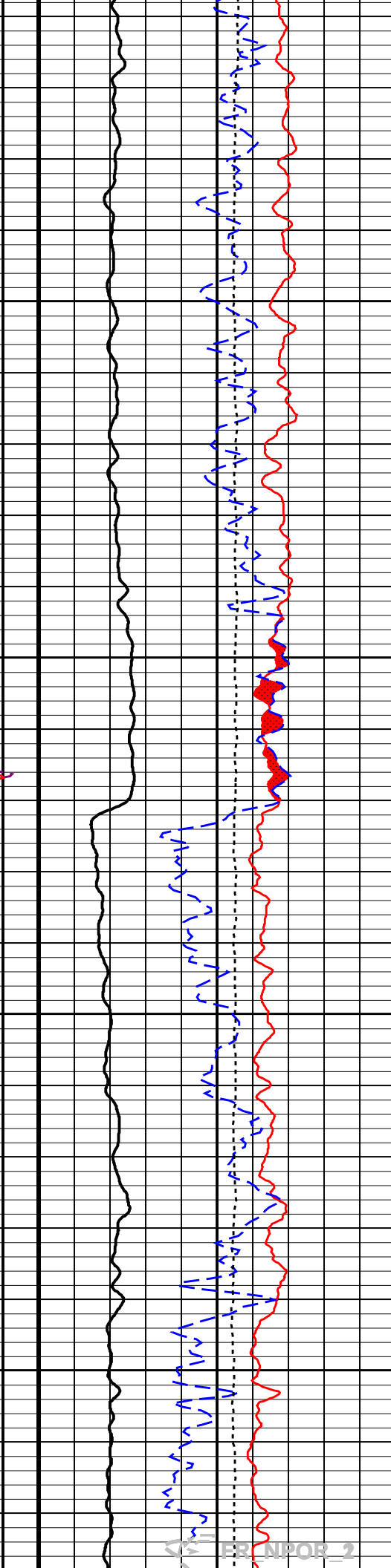
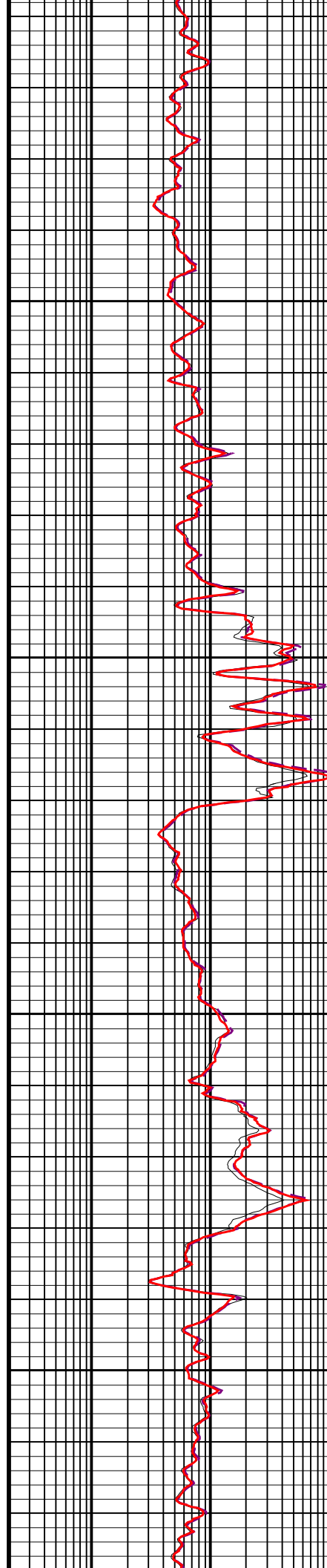
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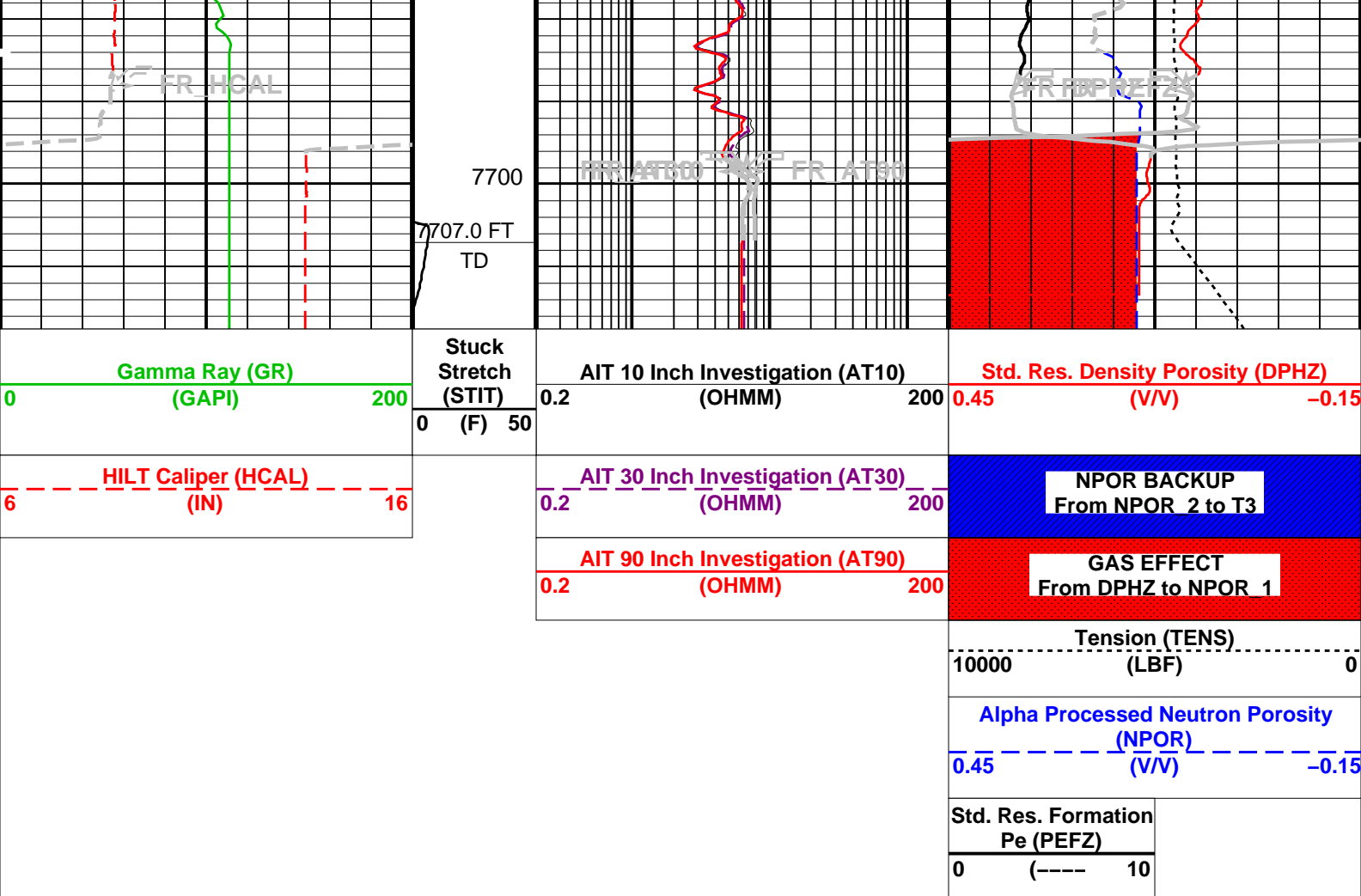




7500

7600





### PIP SUMMARY

Time Mark Every 60 S

### Parameters

| DLIS Name  | Description   | Value                   |
|--|---|-------------------------|
| AIT-M: Array Induction Tool - M                        |   |                         |
| ABHM   | Array Induction Borehole Correction Mode                      | 0_ComputeMudResistivity |
| ABHV   | Array Induction Borehole Correction Code Version Number       | 900                     |
| ABLM   | Array Induction Basic Logs Mode                               | 6_One_Two_and_Four      |
| ABLV   | Array Induction Basic Logs Code Version Number                | 223                     |
| ACDE   | Array Induction Casing Detection Enable                       | No                      |
| ACEN   | Array Induction Tool Centering Flag (in Borehole)             | Eccentered              |
| ACSED  | Array Induction Casing Shoe Estimated Depth                   | -50000 FT               |
| AETP   | Array Induction Enable Sonde Error Temp&Pres Corr             | Yes                     |
| AFRSV  | Array Induction Response Set Version for Four ft Resolution   | 41.70.24.20             |
| AIGS   | Array Induction Select Akima Interpolation Gating             | On                      |
| AMRF   | Array Induction Mud Resistivity Factor                        | 1                       |
| AORSV  | Array Induction Response Set Version for One ft Resolution    | 41.70.24.20             |
| ARFV   | Array Induction Radial Profiling Code Version Number          | 701                     |
| ARPV   | Array Induction Radial Parametrization Code Version Number    | 232                     |
| ASTA   | Array Induction Tool Standoff                                 | 0.25 IN                 |
| ATRSV  | Array Induction Response Set Version for Two ft Resolution    | 41.70.24.20             |
| ATSE   | Array Induction Temperature Selection(Sonde Error Correction) | Internal                |
| AULV   | Array Induction User Level Control                            | Normal                  |
| AZRSV  | Array Induction Response Set Version for Z Resolution         | 00.10.25.00             |
| BHS  | Borehole Status   | OPEN                    |
| BHT  | Bottom Hole Temperature (used in calculations)                | 208 DEGF                |
| FEXP   | Form Factor Exponent  | 2                       |
| FNUM   | Form Factor Numerator   | 1                       |
| GCSE   | Generalized Caliper Selection                                 | HCAL                    |
| GDEV   | Average Angular Deviation of Borehole from Normal             | 0 DEG                   |
| GGRD   | Geothermal Gradient   | 0.01 DF/F               |
| GRSE   | Generalized Mud Resistivity Selection                         | CHART_GEN_9             |
| GTSE   | Generalized Temperature Selection                             | HSTS_HTEM               |
| MATR   | Rock Matrix for Neutron Porosity Corrections                  | LIMESTONE               |
| SHT  | Surface Hole Temperature                                      | 68 DEGF                 |
| HILTH-FTB: High resolution Integrated Logging Tool-DTS |   |                         |
| BHFL   | Borehole Fluid Type   | OIL                     |
| BHFL TLD   | HILT Nuclear Mud Base   | OIL                     |

|   |   |             |      |
|---|---|-------------|------|
| BHS   | Borehole Status                                   | OPEN        |      |
| BHT   | Bottom Hole Temperature (used in calculations)    | 208         | DEGF |
| 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           |      |
| 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 |
| GRSE  | Generalized Mud Resistivity Selection             | CHART_GEN_9 |      |
| GTSE  | Generalized Temperature Selection                 | HSTS_HTEM   |      |
| 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                              | StdRes      |      |
| NSAR  | HRDD Depth Sampling Rate                          | 1           | IN   |
| PTCO  | Pressure/Temperature Correction Option            | NO          |      |
| SDAT  | Standoff Data Source                              | SOCN        |      |
| SHT   | Surface Hole Temperature                          | 68          | DEGF |
| SOCN  | Standoff Distance                                 | 0.125       | IN   |
| SOCO  | Standoff Correction Option                        | YES         |      |
| HNGBS-BA: Hostile Natural Gamma Ray Sonde     |   |             |      |
| BHS   | Borehole Status                                   | OPEN        |      |
| BHT   | Bottom Hole Temperature (used in calculations)    | 208         | DEGF |
| GCSE  | Generalized Caliper Selection                     | HCAL        |      |
| GDEV  | Average Angular Deviation of Borehole from Normal | 0           | DEG  |
| GGRD  | Geothermal Gradient                               | 0.01        | DF/F |
| GRSE  | Generalized Mud Resistivity Selection             | CHART_GEN_9 |      |
| GTSE  | Generalized Temperature Selection                 | HSTS_HTEM   |      |
| MATR  | Rock Matrix for Neutron Porosity Corrections      | LIMESTONE   |      |
| SHT   | Surface Hole Temperature                          | 68          | DEGF |
| MAPC-B: Multimode Array Sonic Power Cartridge |   |             |      |
| BHS   | Borehole Status                                   | OPEN        |      |
| BHT   | Bottom Hole Temperature (used in calculations)    | 208         | DEGF |
| BS  | Bit Size  | 8.750       | IN   |
| GCSE  | Generalized Caliper Selection                     | HCAL        |      |
| GDEV  | Average Angular Deviation of Borehole from Normal | 0           | DEG  |
| GGRD  | Geothermal Gradient                               | 0.01        | DF/F |
| GRSE  | Generalized Mud Resistivity Selection             | CHART_GEN_9 |      |
| GTSE  | Generalized Temperature Selection                 | HSTS_HTEM   |      |
| MATR  | Rock Matrix for Neutron Porosity Corrections      | LIMESTONE   |      |
| SHT   | Surface Hole Temperature                          | 68          | DEGF |
| EDTC-B: Enhanced DTS Cartridge                |   |             |      |
| BHFL  | Borehole Fluid Type                               | OIL         |      |
| BHS   | Borehole Status                                   | OPEN        |      |
| BHT   | Bottom Hole Temperature (used in calculations)    | 208         | DEGF |
| BSCO  | Borehole Salinity Correction Option               | NO          |      |
| CCCO  | Casing & Cement Thickness Correction Option       | NO          |      |
| FSCO  | Formation Salinity Correction Option              | NO          |      |
| GCSE  | Generalized Caliper Selection                     | HCAL        |      |
| GDEV  | Average Angular Deviation of Borehole from Normal | 0           | DEG  |
| GGRD  | Geothermal Gradient                               | 0.01        | DF/F |
| GRSE  | Generalized Mud Resistivity Selection             | CHART_GEN_9 |      |
| GTSE  | Generalized Temperature Selection                 | HSTS_HTEM   |      |
| HSCO  | Hole Size Correction Option                       | YES         |      |
| MATR  | Rock Matrix for Neutron Porosity Corrections      | LIMESTONE   |      |
| MCCO  | Mud Cake Correction Option                        | NO          |      |
| MCOR  | Mud Correction                                    | NATU        |      |
| MWCO  | Mud Weight Correction Option                      | NO          |      |
| PTCO  | Pressure/Temperature Correction Option            | NO          |      |
| SDAT  | Standoff Data Source                              | SOCN        |      |
| SHT   | Surface Hole Temperature                          | 68          | DEGF |
| SOCN  | Standoff Distance                                 | 0.125       | IN   |
| SOCO  | Standoff Correction Option                        | YES         |      |
| DIR: Directional Survey Computation           |   |             |      |
| SPVD  | TVD of Starting Point                             | 0           | FT   |
| TIMD  | Along-hole depth of Tie-in Point                  | 0           | FT   |
| TIVD  | TVD of Tie-in Point                               | 0           | FT   |
| DIRPLOT: Enhanced Directional Plots           |   |             |      |
| BHS   | Borehole Status                                   | OPEN        |      |
| BHT   | Bottom Hole Temperature (used in calculations)    | 208         | DEGF |
| GCSE  | Generalized Caliper Selection                     | HCAL        |      |
| GDEV  | Average Angular Deviation of Borehole from Normal | 0           | DEG  |
| GGRD  | Geothermal Gradient                               | 0.01        | DF/F |
| GRSE  | Generalized Mud Resistivity Selection             | CHART_GEN_9 |      |

|  |   |             |      |  |
|--|---|-------------|------|--|
| GRSE                                     | Generalized Mud Resistivity Selection             | CHART_GEN_9 |      |  |
| GTSE                                     | Generalized Temperature Selection                 | HSTS_HTEM   |      |  |
| MATR                                     | Rock Matrix for Neutron Porosity Corrections      | LIMESTONE   |      |  |
| SHT                                      | Surface Hole Temperature                          | 68          | DEGF |  |
| FEQL: Formation Evaluation Quick Look    |   |             |      |  |
| FEXP                                     | Form Factor Exponent                              | 2           |      |  |
| FNUM                                     | Form Factor Numerator                             | 1           |      |  |
| HOLEV: Integrated Hole/Cement Volume     |   |             |      |  |
| BHS                                      | Borehole Status                                   | OPEN        |      |  |
| BHT                                      | Bottom Hole Temperature (used in calculations)    | 208         | DEGF |  |
| GCSE                                     | Generalized Caliper Selection                     | HCAL        |      |  |
| GDEV                                     | Average Angular Deviation of Borehole from Normal | 0           | DEG  |  |
| GGRD                                     | Geothermal Gradient                               | 0.01        | DF/F |  |
| GRSE                                     | Generalized Mud Resistivity Selection             | CHART_GEN_9 |      |  |
| GTSE                                     | Generalized Temperature Selection                 | HSTS_HTEM   |      |  |
| MATR                                     | Rock Matrix for Neutron Porosity Corrections      | LIMESTONE   |      |  |
| SHT                                      | Surface Hole Temperature                          | 68          | DEGF |  |
| PERT: Preliminary Evaluation – Real Time |   |             |      |  |
| BHS                                      | Borehole Status                                   | OPEN        |      |  |
| BHT                                      | Bottom Hole Temperature (used in calculations)    | 208         | DEGF |  |
| FEXP                                     | Form Factor Exponent                              | 2           |      |  |
| FNUM                                     | Form Factor Numerator                             | 1           |      |  |
| GCSE                                     | Generalized Caliper Selection                     | HCAL        |      |  |
| GDEV                                     | Average Angular Deviation of Borehole from Normal | 0           | DEG  |  |
| GGRD                                     | Geothermal Gradient                               | 0.01        | DF/F |  |
| GRSE                                     | Generalized Mud Resistivity Selection             | CHART_GEN_9 |      |  |
| GTSE                                     | Generalized Temperature Selection                 | HSTS_HTEM   |      |  |
| MATR                                     | Rock Matrix for Neutron Porosity Corrections      | LIMESTONE   |      |  |
| SHT                                      | Surface Hole Temperature                          | 68          | DEGF |  |
| STI: Stuck Tool Indicator                |   |             |      |  |
| LBFR                                     | Trigger for MAXIS First Reading Label             | TDL         |      |  |
| STKT                                     | STI Stuck Threshold                               | 2.5         | FT   |  |
| TDD                                      | Total Depth – Driller                             | 7700.00     | FT   |  |
| TDL                                      | Total Depth – Logger                              | 7707.00     | FT   |  |
| System and Miscellaneous                 |   |             |      |  |
| BSAL                                     | Borehole Salinity                                 | -50000.00   | PPM  |  |
| CSIZ                                     | Current Casing Size                               | 9.625       | IN   |  |
| CWEI                                     | Casing Weight                                     | 36.00       | LB/F |  |
| DFD                                      | Drilling Fluid Density                            | 9.20        | LB/G |  |
| DO                                       | Depth Offset for Playback                         | 0.0         | FT   |  |
| DORL                                     | Depth Offset for Repeat Analysis                  | 0.0         | FT   |  |
| FLEV                                     | Fluid Level                                       | -50000.00   | FT   |  |
| MST                                      | Mud Sample Temperature                            | -50000.00   | DEGF |  |
| PP                                       | Playback Processing                               | OFF         |      |  |
| RMFS                                     | Resistivity of Mud Filtrate Sample                | -50000.0000 | OHMM |  |
| TD                                       | Total Depth                                       | 7707        | FT   |  |

Format: COMBO      Vertical Scale: 5" per 100'      Graphics File Created: 09-Jan-2013 03:46

## OP System Version: 19C1-222

|        |                      |           |                      |
|--------|----------------------|-----------|----------------------|
| AIT-M  | 19C1-222             | HILTH-FTB | 19C1-222             |
| HNGC-B | HFE-5203-OP19.1-NUCL | HNGS-BA   | HFE-5203-OP19.1-NUCL |
| GPIT-F | 19C1-222             | PPC1      | 19C1-222             |
| MAXS-B | 19C1-222             | MAPC-B    | 19C1-222             |
| EDTC-B | 19C1-222             |           |                      |

## Input DLIS Files

|         |                            |       |          |                   |           |           |
|---------|----------------------------|-------|----------|-------------------|-----------|-----------|
| DEFAULT | AIT_TLD_MCFL_CNL_IS_017PUP | FN:16 | PRODUCER | 09-Jan-2013 03:36 | 7717.5 FT | 1767.5 FT |
|---------|----------------------------|-------|----------|-------------------|-----------|-----------|

## Output DLIS Files

|         |                            |       |          |                   |
|---------|----------------------------|-------|----------|-------------------|
| DEFAULT | AIT_TLD_MCFL_CNL_IS_019PUP | FN:18 | PRODUCER | 09-Jan-2013 03:46 |
|---------|----------------------------|-------|----------|-------------------|

**Schlumberger**

**REPEAT ANALYSIS**

Input DLIS Files

|         |                            |       |          |                   |           |           |
|---------|----------------------------|-------|----------|-------------------|-----------|-----------|
| DEFAULT | AIT_TLD_MCFL_CNL_IS_018PUP | FN:17 | PRODUCER | 09-Jan-2013 03:43 | 7705.5 FT | 6956.5 FT |
| DEFAULT | AIT_TLD_MCFL_CNL_IS_017PUP | FN:16 | PRODUCER | 09-Jan-2013 03:36 | 7717.5 FT | 1767.5 FT |

Output DLIS Files

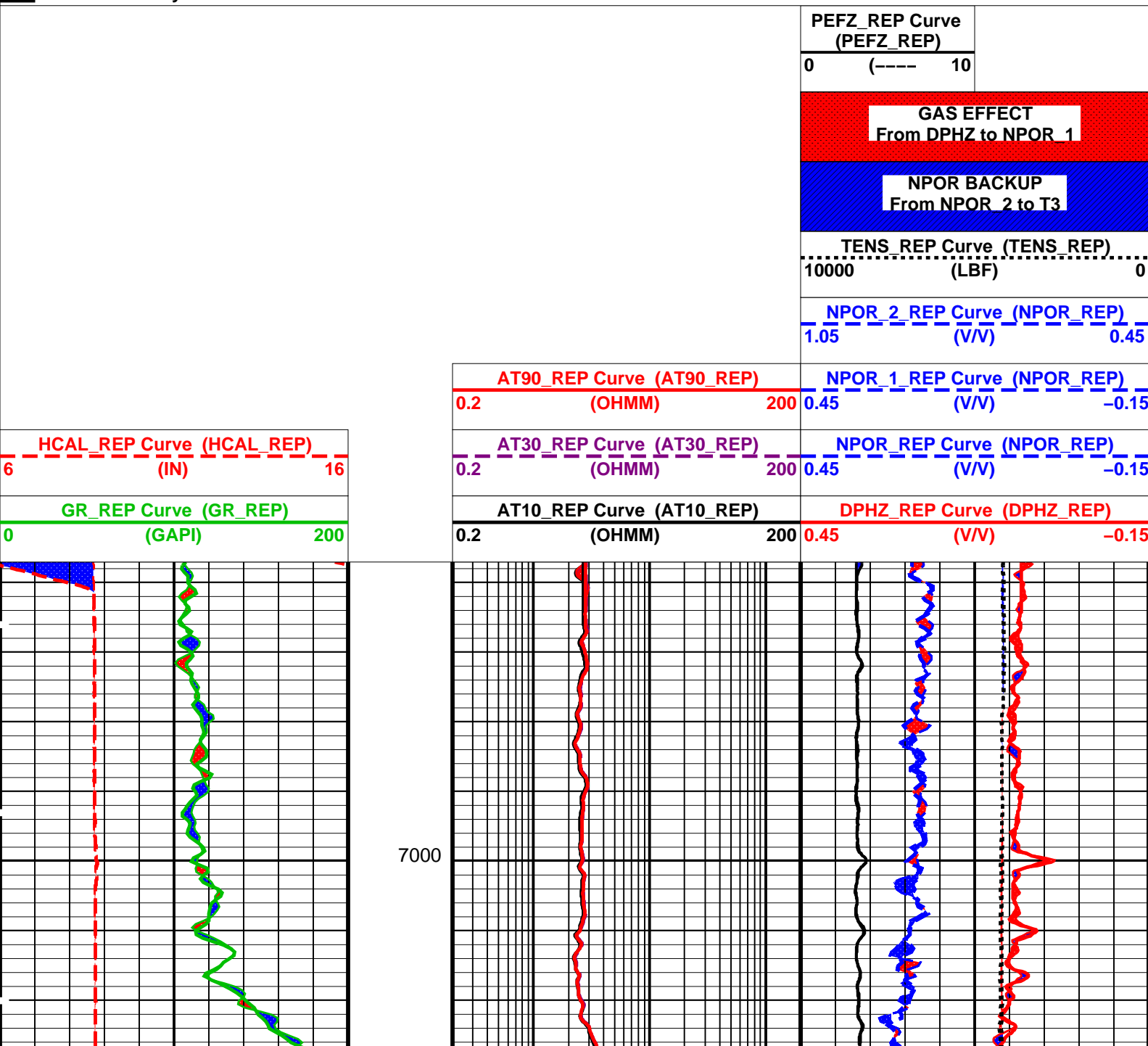
|         |                            |       |          |                   |
|---------|----------------------------|-------|----------|-------------------|
| DEFAULT | AIT_TLD_MCFL_CNL_IS_019PUP | FN:18 | PRODUCER | 09-Jan-2013 03:46 |
|---------|----------------------------|-------|----------|-------------------|

OP System Version: 19C1-222

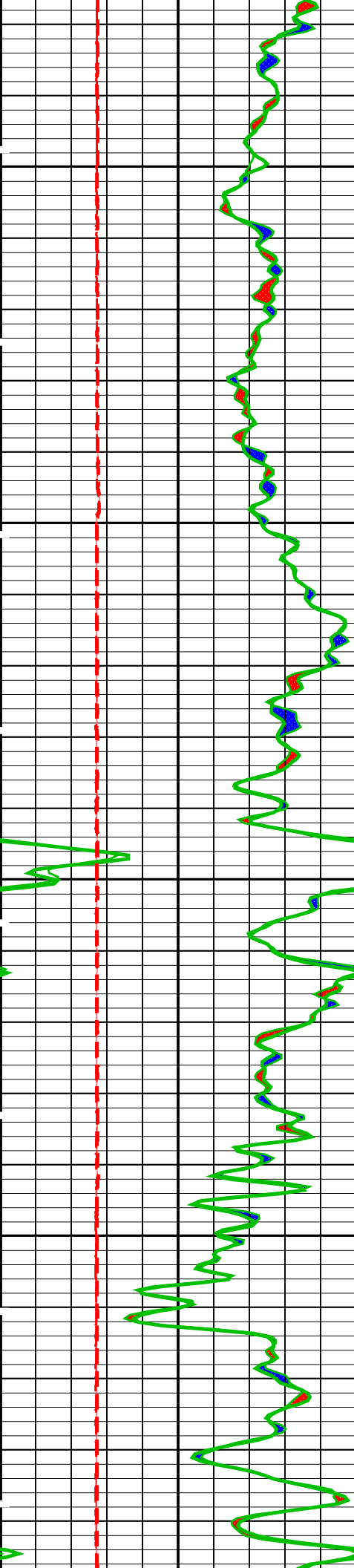
|        |                      |           |                      |
|--------|----------------------|-----------|----------------------|
| AIT-M  | 19C1-222             | HILTH-FTB | 19C1-222             |
| HNGC-B | HFE-5203-OP19.1-NUCL | HNGS-BA   | HFE-5203-OP19.1-NUCL |
| GPIT-F | 19C1-222             | PPC1      | 19C1-222             |
| MAXS-B | 19C1-222             | MAPC-B    | 19C1-222             |
| EDTC-B | 19C1-222             |           |                      |

PIP SUMMARY

Time Mark Every 60 S

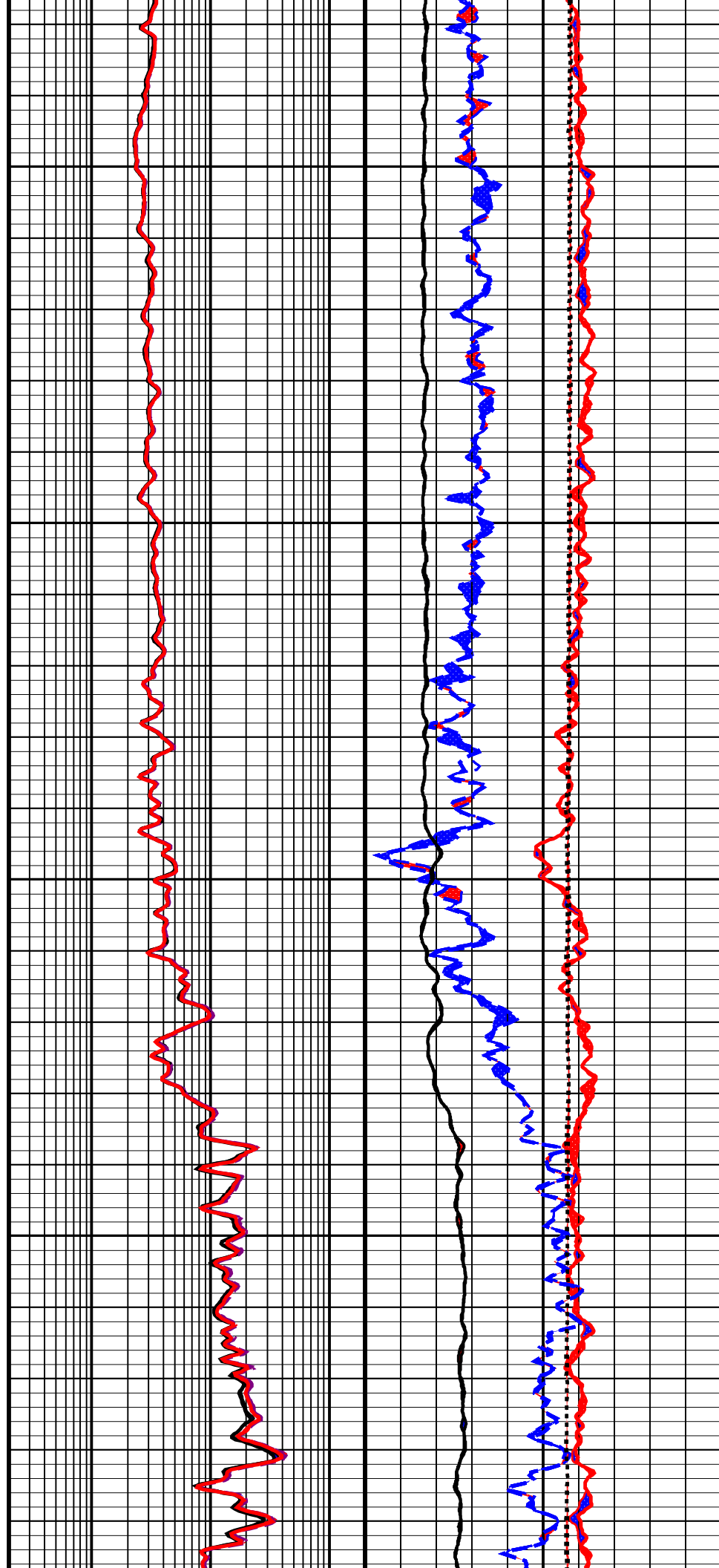


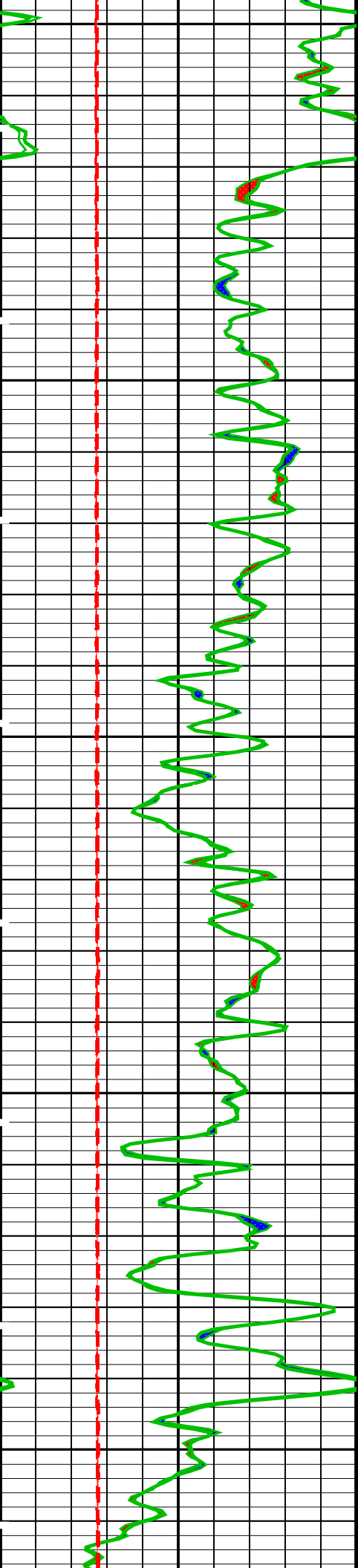




7100

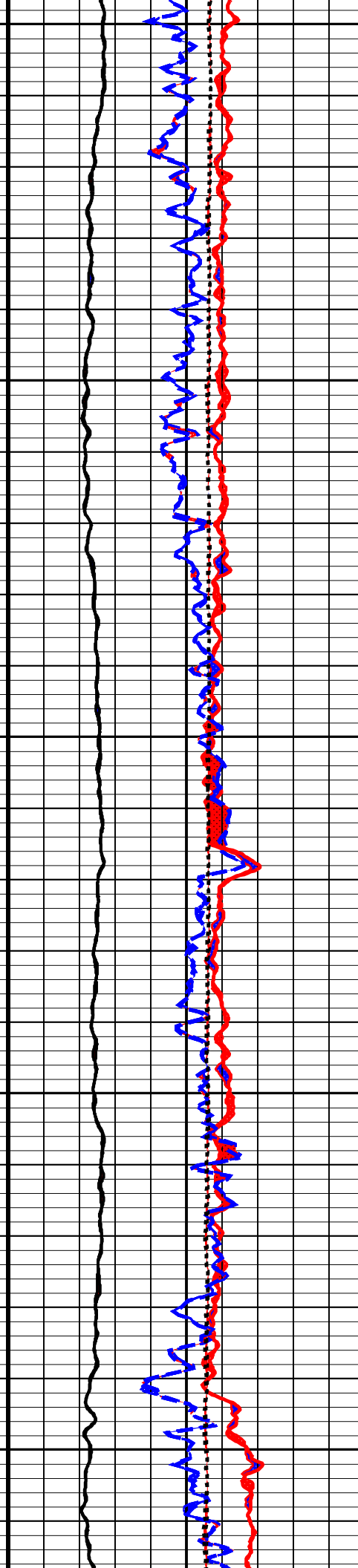
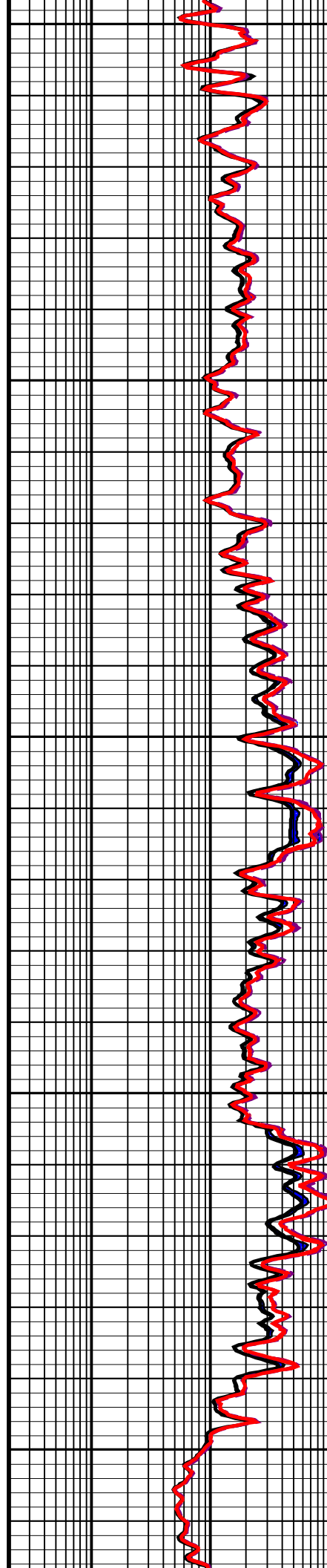
7200

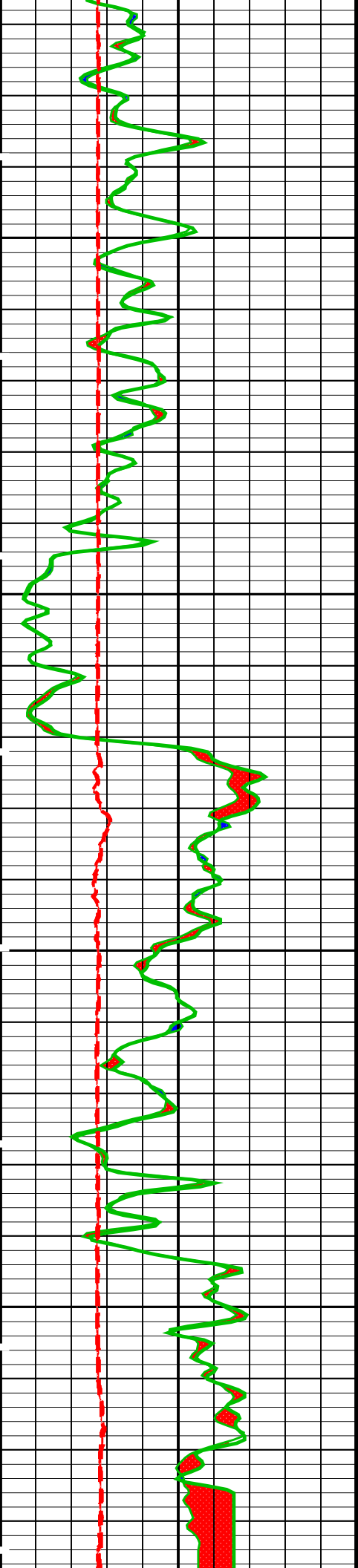




7300

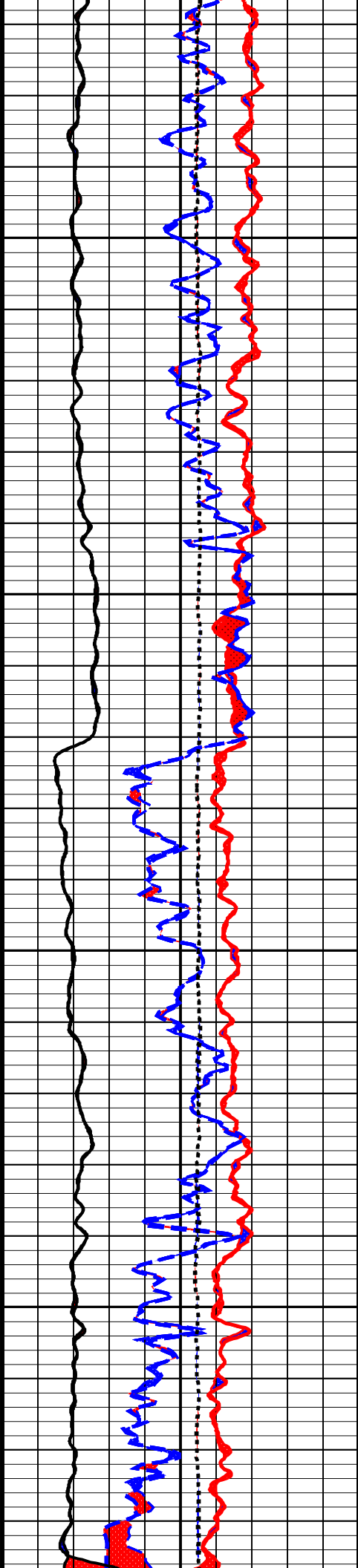
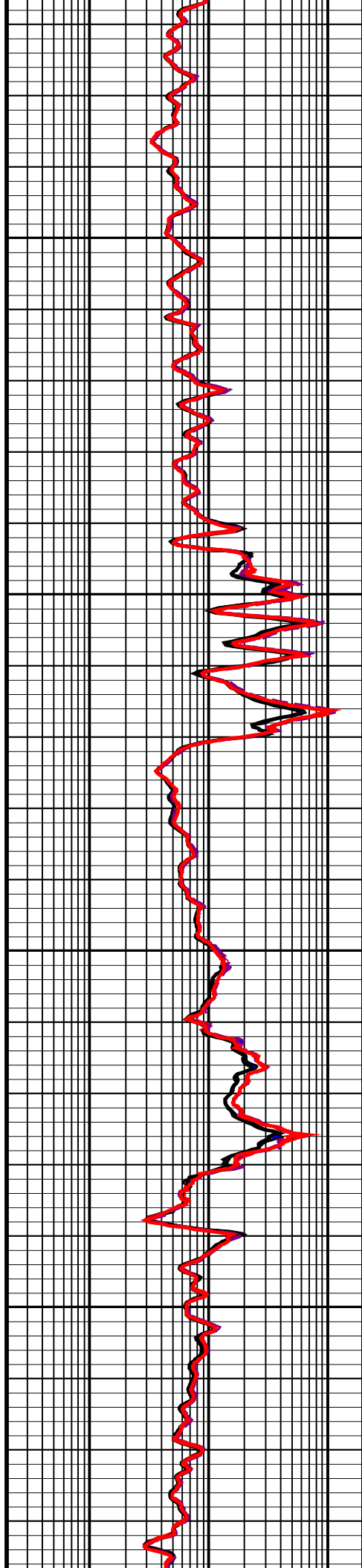
7400

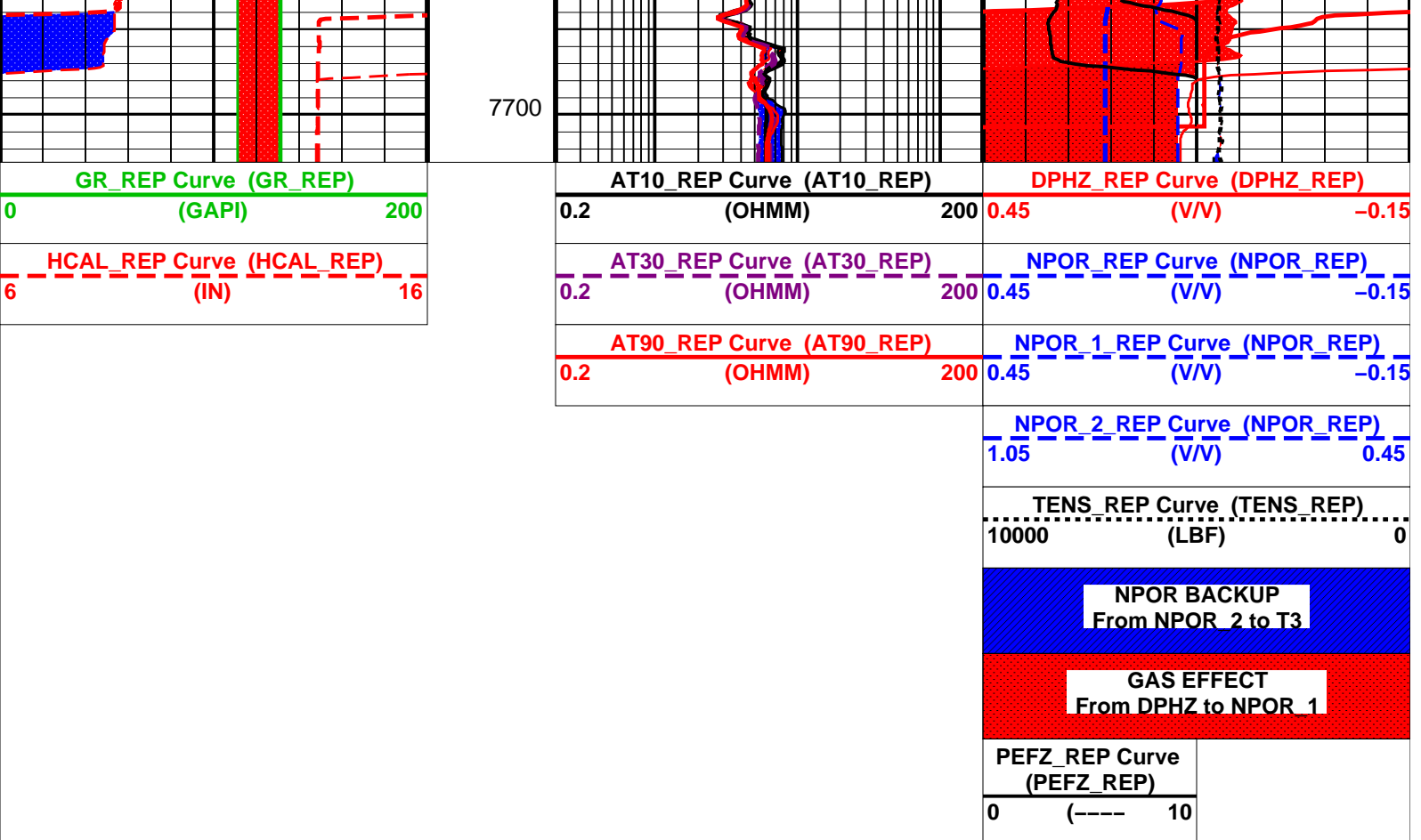




7500

7600





#### PIP SUMMARY

Time Mark Every 60 S

### Parameters

| DLIS Name  | Description   | Value                   |
|--|---|-------------------------|
| AIT-M: Array Induction Tool - M                        |   |                         |
| ABHM   | Array Induction Borehole Correction Mode                      | 0_ComputeMudResistivity |
| ABHV   | Array Induction Borehole Correction Code Version Number       | 900                     |
| ABLM   | Array Induction Basic Logs Mode                               | 6_One_Two_and_Four      |
| ABLV   | Array Induction Basic Logs Code Version Number                | 223                     |
| ACDE   | Array Induction Casing Detection Enable                       | No                      |
| ACEN   | Array Induction Tool Centering Flag (in Borehole)             | Eccentered              |
| ACSED  | Array Induction Casing Shoe Estimated Depth                   | -50000 FT               |
| AETP   | Array Induction Enable Sonde Error Temp&Pres Corr             | Yes                     |
| AFRSV  | Array Induction Response Set Version for Four ft Resolution   | 41.70.24.20             |
| AIGS   | Array Induction Select Akima Interpolation Gating             | On                      |
| AMRF   | Array Induction Mud Resistivity Factor                        | 1                       |
| AORSV  | Array Induction Response Set Version for One ft Resolution    | 41.70.24.20             |
| ARFV   | Array Induction Radial Profiling Code Version Number          | 701                     |
| ARPV   | Array Induction Radial Parametrization Code Version Number    | 232                     |
| ASTA   | Array Induction Tool Standoff                                 | 0.25 IN                 |
| ATRSV  | Array Induction Response Set Version for Two ft Resolution    | 41.70.24.20             |
| ATSE   | Array Induction Temperature Selection(Sonde Error Correction) | Internal                |
| AULV   | Array Induction User Level Control                            | Normal                  |
| AZRSV  | Array Induction Response Set Version for Z Resolution         | 00.10.25.00             |
| BHS  | Borehole Status   | OPEN                    |
| BHT  | Bottom Hole Temperature (used in calculations)                | 208 DEGF                |
| FEXP   | Form Factor Exponent  | 2                       |
| FNUM   | Form Factor Numerator   | 1                       |
| GCSE   | Generalized Caliper Selection                                 | HCAL                    |
| GDEV   | Average Angular Deviation of Borehole from Normal             | 0 DEG                   |
| GGRD   | Geothermal Gradient   | 0.01 DF/F               |
| GRSE   | Generalized Mud Resistivity Selection                         | CHART_GEN_9             |
| GTSE   | Generalized Temperature Selection                             | HSTS_HTEM               |
| MATR   | Rock Matrix for Neutron Porosity Corrections                  | LIMESTONE               |
| SHT  | Surface Hole Temperature                                      | 68 DEGF                 |
| HILTH-FTB: High resolution Integrated Logging Tool-DTS |   |                         |
| BHFL   | Borehole Fluid Type   | OIL                     |
| BHFL_TLD   | HILT Nuclear Mud Base   | OIL                     |
| BHS  | Borehole Status   | OPEN                    |
| BHT  | Bottom Hole Temperature (used in calculations)                | 208 DEGF                |
| 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           |      |
| 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 |
| GRSE   | Generalized Mud Resistivity Selection             | CHART_GEN_9 |      |
| GTSE   | Generalized Temperature Selection                 | HSTS_HTEM   |      |
| 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                              | StdRes      |      |
| NSAR   | HRDD Depth Sampling Rate                          | 1           | IN   |
| PTCO   | Pressure/Temperature Correction Option            | NO          |      |
| SDAT   | Standoff Data Source                              | SOCN        |      |
| SHT  | Surface Hole Temperature                          | 68          | DEGF |
| SOCN   | Standoff Distance                                 | 0.125       | IN   |
| SOCO   | Standoff Correction Option                        | YES         |      |
| HNGBA: Hostile Natural Gamma Ray Sonde       |   |             |      |
| BHS  | Borehole Status                                   | OPEN        |      |
| BHT  | Bottom Hole Temperature (used in calculations)    | 208         | DEGF |
| GCSE   | Generalized Caliper Selection                     | HCAL        |      |
| GDEV   | Average Angular Deviation of Borehole from Normal | 0           | DEG  |
| GGRD   | Geothermal Gradient                               | 0.01        | DF/F |
| GRSE   | Generalized Mud Resistivity Selection             | CHART_GEN_9 |      |
| GTSE   | Generalized Temperature Selection                 | HSTS_HTEM   |      |
| MATR   | Rock Matrix for Neutron Porosity Corrections      | LIMESTONE   |      |
| SHT  | Surface Hole Temperature                          | 68          | DEGF |
| MAPCB: Multimode Array Sonic Power Cartridge |   |             |      |
| BHS  | Borehole Status                                   | OPEN        |      |
| BHT  | Bottom Hole Temperature (used in calculations)    | 208         | DEGF |
| BS   | Bit Size  | 8.750       | IN   |
| GCSE   | Generalized Caliper Selection                     | HCAL        |      |
| GDEV   | Average Angular Deviation of Borehole from Normal | 0           | DEG  |
| GGRD   | Geothermal Gradient                               | 0.01        | DF/F |
| GRSE   | Generalized Mud Resistivity Selection             | CHART_GEN_9 |      |
| GTSE   | Generalized Temperature Selection                 | HSTS_HTEM   |      |
| MATR   | Rock Matrix for Neutron Porosity Corrections      | LIMESTONE   |      |
| SHT  | Surface Hole Temperature                          | 68          | DEGF |
| EDTCB: Enhanced DTS Cartridge                |   |             |      |
| BHFL   | Borehole Fluid Type                               | OIL         |      |
| BHS  | Borehole Status                                   | OPEN        |      |
| BHT  | Bottom Hole Temperature (used in calculations)    | 208         | DEGF |
| BSCO   | Borehole Salinity Correction Option               | NO          |      |
| CCCO   | Casing & Cement Thickness Correction Option       | NO          |      |
| FSCO   | Formation Salinity Correction Option              | NO          |      |
| GCSE   | Generalized Caliper Selection                     | HCAL        |      |
| GDEV   | Average Angular Deviation of Borehole from Normal | 0           | DEG  |
| GGRD   | Geothermal Gradient                               | 0.01        | DF/F |
| GRSE   | Generalized Mud Resistivity Selection             | CHART_GEN_9 |      |
| GTSE   | Generalized Temperature Selection                 | HSTS_HTEM   |      |
| HSCO   | Hole Size Correction Option                       | YES         |      |
| MATR   | Rock Matrix for Neutron Porosity Corrections      | LIMESTONE   |      |
| MCCO   | Mud Cake Correction Option                        | NO          |      |
| MCOR   | Mud Correction                                    | NATU        |      |
| MWCO   | Mud Weight Correction Option                      | NO          |      |
| PTCO   | Pressure/Temperature Correction Option            | NO          |      |
| SDAT   | Standoff Data Source                              | SOCN        |      |
| SHT  | Surface Hole Temperature                          | 68          | DEGF |
| SOCN   | Standoff Distance                                 | 0.125       | IN   |
| SOCO   | Standoff Correction Option                        | YES         |      |
| DIR: Directional Survey Computation          |   |             |      |
| SPVD   | TVD of Starting Point                             | 0           | FT   |
| TIMD   | Along-hole depth of Tie-in Point                  | 0           | FT   |
| TIVD   | TVD of Tie-in Point                               | 0           | FT   |
| DIRPLOT: Enhanced Directional Plots          |   |             |      |
| BHS  | Borehole Status                                   | OPEN        |      |
| BHT  | Bottom Hole Temperature (used in calculations)    | 208         | DEGF |
| GCSE   | Generalized Caliper Selection                     | HCAL        |      |
| GDEV   | Average Angular Deviation of Borehole from Normal | 0           | DEG  |
| GGRD   | Geothermal Gradient                               | 0.01        | DF/F |
| GRSE   | Generalized Mud Resistivity Selection             | CHART_GEN_9 |      |
| GTSE   | Generalized Temperature Selection                 | HSTS_HTEM   |      |
| MATR   | Rock Matrix for Neutron Porosity Corrections      | LIMESTONE   |      |
| SHT  | Surface Hole Temperature                          | 68          | DEGF |
| FEQL: Formation Evaluation Quick Look        |   |             |      |

|      |  |   |             |      |
|------|--|---|-------------|------|
| FEXP | FEQL: Formation Evaluation Quick Look    | Form Factor Exponent                              | 2           |      |
| FNUM |  | Form Factor Numerator                             | 1           |      |
|      | HOLEV: Integrated Hole/Cement Volume     | Borehole Status                                   | OPEN        |      |
| BHS  |  | Bottom Hole Temperature (used in calculations)    | 208         | DEGF |
| BHT  |  | Generalized Caliper Selection                     | HCAL        |      |
| GCSE |  | Average Angular Deviation of Borehole from Normal | 0           | DEG  |
| GDEV |  | Geothermal Gradient                               | 0.01        | DF/F |
| GGRD |  | Generalized Mud Resistivity Selection             | CHART_GEN_9 |      |
| GRSE |  | Generalized Temperature Selection                 | HSTS_HTEM   |      |
| GTSE |  | Rock Matrix for Neutron Porosity Corrections      | LIMESTONE   |      |
| MATR |  | Surface Hole Temperature                          | 68          | DEGF |
| SHT  |  |   |             |      |
|      | PERT: Preliminary Evaluation – Real Time | Borehole Status                                   | OPEN        |      |
| BHS  |  | Bottom Hole Temperature (used in calculations)    | 208         | DEGF |
| BHT  |  | Form Factor Exponent                              | 2           |      |
| FEXP |  | Form Factor Numerator                             | 1           |      |
| FNUM |  | Generalized Caliper Selection                     | HCAL        |      |
| GCSE |  | Average Angular Deviation of Borehole from Normal | 0           | DEG  |
| GDEV |  | Geothermal Gradient                               | 0.01        | DF/F |
| GGRD |  | Generalized Mud Resistivity Selection             | CHART_GEN_9 |      |
| GRSE |  | Generalized Temperature Selection                 | HSTS_HTEM   |      |
| GTSE |  | Rock Matrix for Neutron Porosity Corrections      | LIMESTONE   |      |
| MATR |  | Surface Hole Temperature                          | 68          | DEGF |
| SHT  |  |   |             |      |
|      | STI: Stuck Tool Indicator                | Total Depth – Logger                              | 7707.00     | FT   |
| TDL  |  |   |             |      |
|      | System and Miscellaneous                 | Borehole Salinity                                 | -50000.00   | PPM  |
| BSAL |  | Current Casing Size                               | 9.625       | IN   |
| CSIZ |  | Casing Weight                                     | 36.00       | LB/F |
| CWEI |  | Drilling Fluid Density                            | 9.20        | LB/G |
| DFD  |  | Depth Offset for Playback                         | 0.0         | FT   |
| DO   |  | Depth Offset for Repeat Analysis                  | 0.0         | FT   |
| DORL |  | Fluid Level                                       | -50000.00   | FT   |
| FLEV |  | Mud Sample Temperature                            | -50000.00   | DEGF |
| MST  |  | Playback Processing                               | OFF         |      |
| PP   |  | Resistivity of Mud Filtrate Sample                | -50000.0000 | OHMM |
| RMFS |  | Total Depth                                       | 7707        | FT   |
| TD   |  |   |             |      |

Format: COMBO\_REP    Vertical Scale: 5" per 100'    Graphics File Created: 09-Jan-2013 03:46

## OP System Version: 19C1-222

|        |                      |           |                      |
|--------|----------------------|-----------|----------------------|
| AIT-M  | 19C1-222             | HILTH-FTB | 19C1-222             |
| HNGC-B | HFE-5203-OP19.1-NUCL | HNGS-BA   | HFE-5203-OP19.1-NUCL |
| GPIT-F | 19C1-222             | PPC1      | 19C1-222             |
| MAXS-B | 19C1-222             | MAPC-B    | 19C1-222             |
| EDTC-B | 19C1-222             |           |                      |

### Input DLIS Files

|         |                            |       |          |                   |           |           |
|---------|----------------------------|-------|----------|-------------------|-----------|-----------|
| DEFAULT | AIT_TLD_MCFL_CNL_IS_018PUP | FN:17 | PRODUCER | 09-Jan-2013 03:43 | 7705.5 FT | 6956.5 FT |
| DEFAULT | AIT_TLD_MCFL_CNL_IS_017PUP | FN:16 | PRODUCER | 09-Jan-2013 03:36 | 7717.5 FT | 1767.5 FT |

### Output DLIS Files

|         |                            |       |          |                   |
|---------|----------------------------|-------|----------|-------------------|
| DEFAULT | AIT_TLD_MCFL_CNL_IS_019PUP | FN:18 | PRODUCER | 09-Jan-2013 03:46 |
|---------|----------------------------|-------|----------|-------------------|

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**BEFORE CALIBRATIONS**

MAXIS Field Log

| Measurement   | Nominal | Master    | Before    | After | Change | Limit | Units |
|---|---------|-----------|-----------|-------|--------|-------|-------|
| Array Induction Tool – M Wellsite Calibration – Electronics Calibration Check – Thru Cal Mag. & Phase |         |           |           |       |        |       |       |
| Master: 19–Nov–2012 15:21 Before: 7–Jan–2013 16:55  |         |           |           |       |        |       |       |
| Thru Cal Magnitude – 0  | 0       | 0.6205    | 0.6202    | N/A   | N/A    | N/A   | V     |
| Thru Cal Magnitude – 1  | 0       | 1.271     | 1.271     | N/A   | N/A    | N/A   | V     |
| Thru Cal Magnitude – 2  | 0       | 0.6319    | 0.6316    | N/A   | N/A    | N/A   | V     |
| Thru Cal Magnitude – 3  | 0       | 0.7133    | 0.7130    | N/A   | N/A    | N/A   | V     |
| Thru Cal Magnitude – 4  | 0       | 1.335     | 1.334     | N/A   | N/A    | N/A   | V     |
| Thru Cal Magnitude – 5  | 0       | 1.955     | 1.954     | N/A   | N/A    | N/A   | V     |
| Thru Cal Magnitude – 6  | 0       | 1.951     | 1.950     | N/A   | N/A    | N/A   | V     |
| Thru Cal Magnitude – 7  | 0       | 1.423     | 1.423     | N/A   | N/A    | N/A   | V     |
| Thru Cal Phase – 0  | 0       | 180.7     | 180.4     | N/A   | N/A    | N/A   | DEG   |
| Thru Cal Phase – 1  | 0       | 179.6     | 179.4     | N/A   | N/A    | N/A   | DEG   |
| Thru Cal Phase – 2  | 0       | 176.0     | 175.8     | N/A   | N/A    | N/A   | DEG   |
| Thru Cal Phase – 3  | 0       | 175.3     | 175.0     | N/A   | N/A    | N/A   | DEG   |
| Thru Cal Phase – 4  | 0       | 169.1     | 168.9     | N/A   | N/A    | N/A   | DEG   |
| Thru Cal Phase – 5  | 0       | 167.4     | 167.2     | N/A   | N/A    | N/A   | DEG   |
| Thru Cal Phase – 6  | 0       | 167.5     | 167.2     | N/A   | N/A    | N/A   | DEG   |
| Thru Cal Phase – 7  | 0       | 166.7     | 166.4     | N/A   | N/A    | N/A   | DEG   |
| Array Induction Tool – M Wellsite Calibration – Electronics Calibration Check – Auxiliary             |         |           |           |       |        |       |       |
| Master: 19–Nov–2012 15:21 Before: 7–Jan–2013 16:55  |         |           |           |       |        |       |       |
| Array Induction SPA Plus  | 991.0   | 991.9     | 992.0     | N/A   | N/A    | N/A   | MV    |
| Array Induction SPA Zero  | 0       | 0.1681    | 0.2254    | N/A   | N/A    | N/A   | MV    |
| Array Induction Temperature PI  | 0.9170  | 0.9188    | 0.9188    | N/A   | N/A    | N/A   | V     |
| Array Induction Temperature Ze  | 0       | 0.0001712 | 0.0001620 | N/A   | N/A    | N/A   | V     |
| Array Induction Tool – M Wellsite Calibration – Test Loop Gain Correction                             |         |           |           |       |        |       |       |
| Master: 19–Nov–2012 15:21   |         |           |           |       |        |       |       |
| Test Loop Gain Correctio – 0  | 0       | 1.017     | N/A       | N/A   | N/A    | N/A   | V     |
| Test Loop Gain Correctio – 1  | 0       | 1.012     | N/A       | N/A   | N/A    | N/A   | V     |
| Test Loop Gain Correctio – 2  | 0       | 1.015     | N/A       | N/A   | N/A    | N/A   | V     |
| Test Loop Gain Correctio – 3  | 0       | 1.011     | N/A       | N/A   | N/A    | N/A   | V     |
| Test Loop Gain Correctio – 4  | 0       | 0.9926    | N/A       | N/A   | N/A    | N/A   | V     |
| Test Loop Gain Correctio – 5  | 0       | 0.9879    | N/A       | N/A   | N/A    | N/A   | V     |
| Test Loop Gain Correctio – 6  | 0       | 1.004     | N/A       | N/A   | N/A    | N/A   | V     |
| Test Loop Gain Correctio – 7  | 0       | 1.006     | N/A       | N/A   | N/A    | N/A   | V     |
| Test Loop Gain Correctio – 0  | 0       | 0.5584    | N/A       | N/A   | N/A    | N/A   | DEG   |
| Test Loop Gain Correctio – 1  | 0       | 0.5864    | N/A       | N/A   | N/A    | N/A   | DEG   |
| Test Loop Gain Correctio – 2  | 0       | 0.03871   | N/A       | N/A   | N/A    | N/A   | DEG   |
| Test Loop Gain Correctio – 3  | 0       | 0.1097    | N/A       | N/A   | N/A    | N/A   | DEG   |
| Test Loop Gain Correctio – 4  | 0       | 0.08555   | N/A       | N/A   | N/A    | N/A   | DEG   |
| Test Loop Gain Correctio – 5  | 0       | –0.1304   | N/A       | N/A   | N/A    | N/A   | DEG   |
| Test Loop Gain Correctio – 6  | 0       | 0.2583    | N/A       | N/A   | N/A    | N/A   | DEG   |
| Test Loop Gain Correctio – 7  | 0       | –0.05734  | N/A       | N/A   | N/A    | N/A   | DEG   |
| Array Induction Tool – M Wellsite Calibration – Sonde Error Correction                                |         |           |           |       |        |       |       |
| Master: 19–Nov–2012 15:21   |         |           |           |       |        |       |       |
| R Sonde Error Correction – 0  | 0       | –68.09    | N/A       | N/A   | N/A    | N/A   | MM/M  |
| R Sonde Error Correction – 1  | 0       | 173.0     | N/A       | N/A   | N/A    | N/A   | MM/M  |
| R Sonde Error Correction – 2  | 0       | 118.0     | N/A       | N/A   | N/A    | N/A   | MM/M  |
| R Sonde Error Correction – 3  | 0       | 64.68     | N/A       | N/A   | N/A    | N/A   | MM/M  |
| R Sonde Error Correction – 4  | 0       | 26.07     | N/A       | N/A   | N/A    | N/A   | MM/M  |
| R Sonde Error Correction – 5  | 0       | 11.33     | N/A       | N/A   | N/A    | N/A   | MM/M  |
| R Sonde Error Correction – 6  | 0       | 9.470     | N/A       | N/A   | N/A    | N/A   | MM/M  |
| R Sonde Error Correction – 7  | 0       | –0.3643   | N/A       | N/A   | N/A    | N/A   | MM/M  |
| X Sonde Error Correction – 0  | 0       | –545.4    | N/A       | N/A   | N/A    | N/A   | MM/M  |
| X Sonde Error Correction – 1  | 0       | 62.32     | N/A       | N/A   | N/A    | N/A   | MM/M  |
| X Sonde Error Correction – 2  | 0       | 21.21     | N/A       | N/A   | N/A    | N/A   | MM/M  |
| X Sonde Error Correction – 3  | 0       | –45.12    | N/A       | N/A   | N/A    | N/A   | MM/M  |
| X Sonde Error Correction – 4  | 0       | 10.81     | N/A       | N/A   | N/A    | N/A   | MM/M  |
| X Sonde Error Correction – 5  | 0       | –17.56    | N/A       | N/A   | N/A    | N/A   | MM/M  |
| X Sonde Error Correction – 6  | 0       | –7.318    | N/A       | N/A   | N/A    | N/A   | MM/M  |
| X Sonde Error Correction – 7  | 0       | –14.17    | N/A       | N/A   | N/A    | N/A   | MM/M  |
| Array Induction Tool – M Wellsite Calibration – Mud Gain Correction                                   |         |           |           |       |        |       |       |
| Master: 19–Nov–2012 15:21   |         |           |           |       |        |       |       |
| Coarse – Mag, Real, Imag – 0  | 0       | 0.8211    | N/A       | N/A   | N/A    | N/A   |       |
| Coarse – Mag, Real, Imag – 1  | 0       | 1.126     | N/A       | N/A   | N/A    | N/A   |       |
| Coarse – Mag, Real, Imag – 2  | 0       | 0.8211    | N/A       | N/A   | N/A    | N/A   |       |
| Fine – Mag, Real, Imag – 0  | 0       | 0.8235    | N/A       | N/A   | N/A    | N/A   |       |
| Fine – Mag, Real, Imag – 1  | 0       | 1.125     | N/A       | N/A   | N/A    | N/A   |       |
| Fine – Mag, Real, Imag – 2  | 0       | 0.8236    | N/A       | N/A   | N/A    | N/A   |       |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – Stab Measurement Summary           |         |           |           |       |        |       |       |
| Before: 7–Jan–2013 16:56  |         |           |           |       |        |       |       |
| BS Window Ratio   | 0.7386  | N/A       | 0.7395    | N/A   | N/A    | N/A   |       |
| BS Window Sum   | 24580   | N/A       | 24680     | N/A   | N/A    | N/A   | CPS   |
| SS Window Ratio   | 0.4926  | N/A       | 0.4922    | N/A   | N/A    | N/A   |       |
| SS Window Sum   | 11010   | N/A       | 11020     | N/A   | N/A    | N/A   | CPS   |

|  |        |        |        |     |     |         |      |
|--|--------|--------|--------|-----|-----|---------|------|
| SS Window Sum  | 14040  | N/A    | 14030  | N/A | N/A | N/A     | CPS  |
| LS Window Ratio  | 0.3017 | N/A    | 0.3027 | N/A | N/A | N/A     |      |
| LS Window Sum  | 1264   | N/A    | 1257   | N/A | N/A | N/A     | CPS  |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – Photo–multiplier High Voltages Calibrations |        |        |        |     |     |         |      |
| Before: 7–Jan–2013 16:56   |        |        |        |     |     |         |      |
| BS PM High Voltage (Command)   | 1572   | N/A    | 1593   | N/A | N/A | N/A     | V    |
| SS PM High Voltage (Command)   | 1666   | N/A    | 1679   | N/A | N/A | N/A     | V    |
| LS PM High Voltage (Command)   | 1323   | N/A    | 1329   | N/A | N/A | N/A     | V    |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – Crystal Quality Resolutions Calibration     |        |        |        |     |     |         |      |
| Before: 7–Jan–2013 16:56   |        |        |        |     |     |         |      |
| BS Crystal Resolution  | 11.19  | N/A    | 11.27  | N/A | N/A | N/A     | %    |
| SS Crystal Resolution  | 10.38  | N/A    | 10.48  | N/A | N/A | N/A     | %    |
| LS Crystal Resolution  | 7.934  | N/A    | 8.181  | N/A | N/A | N/A     | %    |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – MCFL Calibration                            |        |        |        |     |     |         |      |
| Before: 7–Jan–2013 16:57   |        |        |        |     |     |         |      |
| Raw B0 Resistivity   | 3875   | N/A    | 3910   | N/A | N/A | N/A     | OHMM |
| Raw B1 Resistivity   | 3830   | N/A    | 3858   | N/A | N/A | N/A     | OHMM |
| Raw B2 Resistivity   | 3830   | N/A    | 3869   | N/A | N/A | N/A     | OHMM |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – HILT Caliper Calibration                    |        |        |        |     |     |         |      |
| Before: 7–Jan–2013 16:52   |        |        |        |     |     |         |      |
| HILT Caliper Zero Measurement  | 8.000  | N/A    | 7.832  | N/A | N/A | N/A     | IN   |
| HILT Caliper Plus Measurement  | 12.00  | N/A    | 12.16  | N/A | N/A | N/A     | IN   |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – Detector Calibration                        |        |        |        |     |     |         |      |
| Before: 7–Jan–2013 16:51   |        |        |        |     |     |         |      |
| Gamma Ray Background   | 30.00  | N/A    | 74.78  | N/A | N/A | N/A     | GAPI |
| Gamma Ray (Jig – Bkgd)   | 165.0  | N/A    | 184.1  | N/A | N/A | 15.00   | GAPI |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – Zero Measurement                            |        |        |        |     |     |         |      |
| Master: 29–Oct–2012 12:30 Before: 7–Jan–2013 16:54   |        |        |        |     |     |         |      |
| CNTC Background  | 28.19  | 28.19  | 27.09  | N/A | N/A | 4.229   | CPS  |
| CFTC Background  | 28.82  | 28.82  | 27.31  | N/A | N/A | 4.323   | CPS  |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – Ratio Measurement                           |        |        |        |     |     |         |      |
| Master: 29–Oct–2012 12:30  |        |        |        |     |     |         |      |
| Thermal Near Corr. (Tank)  | 5800   | 5780   | N/A    | N/A | N/A | N/A     | CPS  |
| Thermal Far Corr. (Tank)   | 2400   | 2407   | N/A    | N/A | N/A | N/A     | CPS  |
| CNTC/CFTC (Tank)   | 2.159  | 2.401  | N/A    | N/A | N/A | N/A     |      |
| High resolution Integrated Logging Tool–DTS Wellsite Calibration – Accelerometer Calibration                   |        |        |        |     |     |         |      |
| Before: 8–Jan–2013 21:41   |        |        |        |     |     |         |      |
| Z–Axis Acceleration  | 32.19  | N/A    | 32.09  | N/A | N/A | N/A     | F/S2 |
| Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check  |        |        |        |     |     |         |      |
| Master: 7–Jan–2013 17:22 Before: 7–Jan–2013 17:30  |        |        |        |     |     |         |      |
| Na 511 Peak Loc  | 40.00  | 38.55  | 38.53  | N/A | N/A | 1.000   |      |
| Na 511 Peak Res  | 15.50  | 14.07  | 14.00  | N/A | N/A | 2.000   | %    |
| High Voltage   | 1150   | 1046   | 1046   | N/A | N/A | N/A     | V    |
| Na 1785 Peak Loc   | 142.6  | 139.2  | 139.1  | N/A | N/A | 7.000   |      |
| Na 1785 Peak Res   | 8.500  | 8.556  | 8.058  | N/A | N/A | 2.000   | %    |
| Temperature  | 59.90  | 70.09  | 70.02  | N/A | N/A | N/A     | DEGF |
| Na Count Rate  | 45.00  | 12.47  | 12.69  | N/A | N/A | 8.000   | CPS  |
| Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check  |        |        |        |     |     |         |      |
| Master: 7–Jan–2013 17:22 Before: 7–Jan–2013 17:30  |        |        |        |     |     |         |      |
| Na 511 Peak Loc  | 40.00  | 39.40  | 39.87  | N/A | N/A | 1.000   |      |
| Na 511 Peak Res  | 15.50  | 17.15  | 16.01  | N/A | N/A | 2.000   | %    |
| High Voltage   | 1150   | 990.2  | 990.9  | N/A | N/A | N/A     | V    |
| Na 1785 Peak Loc   | 142.6  | 141.8  | 142.4  | N/A | N/A | 7.000   |      |
| Na 1785 Peak Res   | 8.500  | 7.696  | 8.722  | N/A | N/A | 2.000   | %    |
| Temperature  | 59.90  | 75.78  | 75.79  | N/A | N/A | N/A     | DEGF |
| Na Count Rate  | 45.00  | 12.44  | 12.73  | N/A | N/A | 8.000   | CPS  |
| Hostile Natural Gamma Ray Sonde Wellsite Calibration – Ratio Of Detector 1 To Detector 2                       |        |        |        |     |     |         |      |
| Master: 7–Jan–2013 17:22 Before: 7–Jan–2013 17:30  |        |        |        |     |     |         |      |
| Coincidence Count Rate Ratio   | 1.000  | 0.9991 | 0.9932 | N/A | N/A | 0.05000 |      |
| Enhanced DTS Cartridge Wellsite Calibration – EDTC Accelerometer Calibration                                   |        |        |        |     |     |         |      |
| Before: 8–Jan–2013 21:41   |        |        |        |     |     |         |      |
| EDTC Z–Axis Acceleration   | 32.19  | N/A    | 32.14  | N/A | N/A | N/A     | F/S2 |
| Enhanced DTS Cartridge Wellsite Calibration – Detector Calibration   |        |        |        |     |     |         |      |
| Before: 7–Jan–2013 16:52   |        |        |        |     |     |         |      |
| Gamma Ray (Jig – Bkg)  | 154.7  | N/A    | 154.7  | N/A | N/A | 14.06   | GAPI |
| Gamma Ray (Calibrated)   | 165.0  | N/A    | 165.0  | N/A | N/A | 15.00   | GAPI |



The GLS-VJ source activity is acceptable.

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









NCT-B Water Temperature 57.2 DEGF.  
Thermal Housing Size 3.375 IN.  
NSR-F serial number 2554

Array Induction Tool – M / Equipment Identification

















Primary Equipment:  
Rm/SP Bottom Nose  
Array Induction Sonde  
AMRM – A  
AMIS – A  
1372

















Auxiliary Equipment:



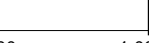
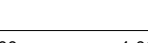


| Array Induction Tool – M Wellsite Calibration         |        |                      |                      |                          |                         |                    |                          |
|---|--------|----------------------|----------------------|--------------------------|-------------------------|--------------------|--------------------------|
| Electronics Calibration Check – Thru Cal Mag. & Phase |        |                      |                      |                          |                         |                    |                          |
| Idx   | Phase  | Value                | Thru Cal Magnitude V | Nominal                  | Value                   | Thru Cal Phase DEG | Nominal                  |
| 0   | Master | 0.6205               |                      | 0.6100                   | 180.7                   |                    | 197.0                    |
|   | Before | 0.6202               |                      |                          | 180.4                   |                    |                          |
| 1   | Master | 1.271                |                      | 1.270                    | 179.6                   |                    | 196.0                    |
|   | Before | 1.271                |                      |                          | 179.4                   |                    |                          |
| 2   | Master | 0.6319               |                      | 0.6200                   | 176.0                   |                    | 192.0                    |
|   | Before | 0.6316               |                      |                          | 175.8                   |                    |                          |
| 3   | Master | 0.7133               |                      | 0.7000                   | 175.3                   |                    | 191.0                    |
|   | Before | 0.7130               |                      |                          | 175.0                   |                    |                          |
| 4   | Master | 1.335                |                      | 1.340                    | 169.1                   |                    | 185.0                    |
|   | Before | 1.334                |                      |                          | 168.9                   |                    |                          |
| 5   | Master | 1.955                |                      | 1.960                    | 167.4                   |                    | 182.0                    |
|   | Before | 1.954                |                      |                          | 167.2                   |                    |                          |
| 6   | Master | 1.951                |                      | 1.960                    | 167.5                   |                    | 181.0                    |
|   | Before | 1.950                |                      |                          | 167.2                   |                    |                          |
| 7   | Master | 1.423                |                      | 1.410                    | 166.7                   |                    | 175.0                    |
|   | Before | 1.423                |                      |                          | 166.4                   |                    |                          |
|   |        | 60.00 %<br>(Minimum) | (Nominal)            | 140.0 %<br>(Maximum)     | Nom -60.00<br>(Minimum) | (Nominal)          | Nom + 60.00<br>(Maximum) |
| Master: 19-Nov-2012 15:21                             |        |                      |                      | Before: 7-Jan-2013 16:55 |                         |                    |                          |



| 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  |  |  | 991.9               | Master                   |  |  | 0.1681               |
| Before  |  |  | 992.0               | Before                   |  |  | 0.2254               |
| 941.0<br>(Minimum)                            |   |  | 991.0<br>(Nominal)  | 1040<br>(Maximum)        |   |  |                      |
|   |   |  |                     | -50.00<br>(Minimum)      |   |  | 0<br>(Nominal)       |
|   |   |  |                     |                          |   |  | 50.00<br>(Maximum)   |
| Phase   | Array Induction Temperature Plus V  |  | Value               | Phase                    | Array Induction Temperature Zero V  |  | Value                |
| Master  |  |  | 0.9188              | Master                   |  |  | 0.0001712            |
| Before  |  |  | 0.9188              | Before                   |  |  | 0.0001620            |
| 0.8710<br>(Minimum)                           |   |  | 0.9170<br>(Nominal) | -0.05000<br>(Minimum)    |   |  | 0<br>(Nominal)       |
|   |   |  | 0.9630<br>(Maximum) |                          |   |  | 0.05000<br>(Maximum) |
| Master: 19-Nov-2012 15:21                     |   |  |                     | Before: 7-Jan-2013 16:55 |   |  |                      |

| Array Induction Tool – M Wellsite Calibration |  |
|---|--|
| Test Loop Gain Correction                     |  |

| Test Loop Gain Correction |        |   |                    |                    | Test Loop Gain Correction Phase DEG |   |                |                    |     |
|---------------------------|--------|---|--------------------|--------------------|-------------------------------------|---|----------------|--------------------|-----|
| Idx                       | Value  | Test Loop Gain Correction   |                    |                    | Value                               | Test Loop Gain Correction Phase   |                |                    | DEG |
| 0                         | 1.017  |    |                    |                    | 0.5584                              |    |                |                    |     |
|                           |        | 0.9500<br>(Minimum)   | 1.000<br>(Nominal) | 1.050<br>(Maximum) |                                     | -3.000<br>(Minimum)   | 0<br>(Nominal) | 3.000<br>(Maximum) |     |
| 1                         | 1.012  |  |                    |                    | 0.5864                              |  |                |                    |     |
|                           |        | 0.9500<br>(Minimum)   | 1.000<br>(Nominal) | 1.050<br>(Maximum) |                                     | -3.000<br>(Minimum)   | 0<br>(Nominal) | 3.000<br>(Maximum) |     |
| 2                         | 1.015  |  |                    |                    | 0.03871                             |  |                |                    |     |
|                           |        | 0.9500<br>(Minimum)   | 1.000<br>(Nominal) | 1.050<br>(Maximum) |                                     | -3.000<br>(Minimum)   | 0<br>(Nominal) | 3.000<br>(Maximum) |     |
| 3                         | 1.011  |  |                    |                    | 0.1097                              |  |                |                    |     |
|                           |        | 0.9500<br>(Minimum)   | 1.000<br>(Nominal) | 1.050<br>(Maximum) |                                     | -3.000<br>(Minimum)   | 0<br>(Nominal) | 3.000<br>(Maximum) |     |
| 4                         | 0.9926 |  |                    |                    | 0.08555                             |  |                |                    |     |
|                           |        | 0.9500<br>(Minimum)   | 1.000<br>(Nominal) | 1.050<br>(Maximum) |                                     | -3.000<br>(Minimum)   | 0<br>(Nominal) | 3.000<br>(Maximum) |     |
| 5                         | 0.9879 |  |                    |                    | -0.1304                             |  |                |                    |     |
|                           |        | 0.9500<br>(Minimum)   | 1.000<br>(Nominal) | 1.050<br>(Maximum) |                                     | -3.000<br>(Minimum)   | 0<br>(Nominal) | 3.000<br>(Maximum) |     |
| 6                         | 1.004  |  |                    |                    | 0.2583                              |  |                |                    |     |
|                           |        | 0.9500<br>(Minimum)   | 1.000<br>(Nominal) | 1.050<br>(Maximum) |                                     | -3.000<br>(Minimum)   | 0<br>(Nominal) | 3.000<br>(Maximum) |     |
| 7                         | 1.006  |  |                    |                    | -0.05734                            |  |                |                    |     |
|                           |        | 0.9500<br>(Minimum)   | 1.000<br>(Nominal) | 1.050<br>(Maximum) |                                     | -3.000<br>(Minimum)   | 0<br>(Nominal) | 3.000<br>(Maximum) |     |
| Master: 19-Nov-2012 15:21 |        |   |                    |                    |                                     |   |                |                    |     |

| 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   | -68.09  |   |                     |                    | -545.4 |   |                |                    |  |
|   |         | -231.0<br>(Minimum)   | -56.00<br>(Nominal) | 119.0<br>(Maximum) |        | -2250<br>(Minimum)  | 0<br>(Nominal) | 2250<br>(Maximum)  |  |
| 1   | 173.0   |  |                     |                    | 62.32  |  |                |                    |  |
|   |         | 114.0<br>(Minimum)  | 159.0<br>(Nominal)  | 204.0<br>(Maximum) |        | -625.0<br>(Minimum)   | 0<br>(Nominal) | 625.0<br>(Maximum) |  |
| 2   | 118.0   |  |                     |                    | 21.21  |  |                |                    |  |
|   |         | 66.00<br>(Minimum)  | 111.0<br>(Nominal)  | 156.0<br>(Maximum) |        | -350.0<br>(Minimum)   | 0<br>(Nominal) | 350.0<br>(Maximum) |  |
| 3   | 64.68   |  |                     |                    | -45.12 |  |                |                    |  |
|   |         | 39.00<br>(Minimum)  | 64.00<br>(Nominal)  | 89.30<br>(Maximum) |        | -250.0<br>(Minimum)   | 0<br>(Nominal) | 250.0<br>(Maximum) |  |
| 4   | 26.07   |  |                     |                    | 10.81  |  |                |                    |  |
|   |         | 15.00<br>(Minimum)  | 25.00<br>(Nominal)  | 35.00<br>(Maximum) |        | -63.00<br>(Minimum)   | 0<br>(Nominal) | 63.00<br>(Maximum) |  |
| 5   | 11.33   |  |                     |                    | -17.56 |  |                |                    |  |
|   |         | 4.000<br>(Minimum)  | 14.00<br>(Nominal)  | 24.00<br>(Maximum) |        | -50.00<br>(Minimum)   | 0<br>(Nominal) | 50.00<br>(Maximum) |  |
| 6   | 9.470   |  |                     |                    | -7.318 |  |                |                    |  |
|   |         | 5.000<br>(Minimum)  | 10.00<br>(Nominal)  | 15.00<br>(Maximum) |        | -30.00<br>(Minimum)   | 0<br>(Nominal) | 30.00<br>(Maximum) |  |
| 7   | -0.3643 |  |                     |                    | -14.17 |  |                |                    |  |
|   |         | -5.000<br>(Minimum)   | 0<br>(Nominal)      | 5.000<br>(Maximum) |        | -30.00<br>(Minimum)   | 0<br>(Nominal) | 30.00<br>(Maximum) |  |
| Master: 19-Nov-2012 15:21                     |         |   |                     |                    |        |   |                |                    |  |

| Array Induction Tool – M Wellsite Calibration |        |   |                    |                    |        |   |                    |                    |  |
|---|--------|---|--------------------|--------------------|--------|---|--------------------|--------------------|--|
| Mud Gain Correction                           |        |   |                    |                    |        |   |                    |                    |  |
| Idx   | Value  | Coarse – Mag, Real, Imag  |                    |                    | Value  | Fine – Mag, Real, Imag  |                    |                    |  |
| 0   | 0.8211 |  |                    |                    | 0.8235 |  |                    |                    |  |
|   |        | 0.8000<br>(Minimum)   | 1.000<br>(Nominal) | 1.200<br>(Maximum) |        | 0.8000<br>(Minimum)   | 1.000<br>(Nominal) | 1.200<br>(Maximum) |  |
| 1   | 1.126  |  |                    |                    | 1.125  |  |                    |                    |  |
|   |        | 0.8000<br>(Minimum)   | 1.000<br>(Nominal) | 1.200<br>(Maximum) |        | 0.8000<br>(Minimum)   | 1.000<br>(Nominal) | 1.200<br>(Maximum) |  |
|   |        |  |                    |                    |        |  |                    |                    |  |

|   |                     |  |                    |  |                    |                    |
|---|---------------------|--|--------------------|--|--------------------|--------------------|
| 2 | 0.8211              |  | 0.8236             |  |                    |                    |
|   | 0.8000<br>(Minimum) | 1.000<br>(Nominal)   | 1.200<br>(Maximum) | 0.8000<br>(Minimum)  | 1.000<br>(Nominal) | 1.200<br>(Maximum) |

Master: 19-Nov-2012 15:21

### High resolution Integrated Logging Tool-DTS / Equipment Identification

#### Primary Equipment:

HILT high-Resolution Mechanical Sonde  
HILT Rxo Gamma-ray Device  
HILT Micro Cylindrically Focused Log Dev  
GR Logging Source  
HILT High Res. Control Cartridge  
HILT Gamma-Ray Neutron Sonde-DTS  
HGNS Gamma-Ray Device  
HGNS Neutron Detector with Alpha Source

HRMS - H 3863  
HRGD - H 3870  
MCFL - H  
GLS - VJ 5471  
HRCC - H 2898  
HGNS - H  
HGR -  
HCNT - H







#### Auxiliary Equipment:

Neutron Calibration Tank  
Gamma Source Radioactive  
HGNS Housing

NCT - B  
GSR - U/Y  
HGNH -

### High resolution Integrated Logging Tool-DTS Wellsite Calibration




#### Stab Measurement Summary

| Data Window Summary |   |                     |                     |        |   |                     |                     |        |   |                     |                     |
|---------------------|---|---------------------|---------------------|--------|---|---------------------|---------------------|--------|---|---------------------|---------------------|
| Phase               | BS Window Ratio   |                     | Value               | Phase  | SS Window Ratio   |                     | Value               | Phase  | LS Window Ratio   |                     | Value               |
| Before              |  |                     | 0.7395              | Before |  |                     | 0.4922              | Before |  |                     | 0.3027              |
|                     | 0.7016<br>(Minimum)   | 0.7386<br>(Nominal) | 0.7755<br>(Maximum) |        | 0.4679<br>(Minimum)   | 0.4926<br>(Nominal) | 0.5172<br>(Maximum) |        | 0.2866<br>(Minimum)   | 0.3017<br>(Nominal) | 0.3168<br>(Maximum) |
| Phase               | BS Window Sum CPS   |                     | Value               | Phase  | SS Window Sum CPS   |                     | Value               | Phase  | LS Window Sum CPS   |                     | Value               |
| Before              |  |                     | 24680               | Before |  |                     | 14030               | Before |  |                     | 1257                |
|                     | 23350<br>(Minimum)  | 24580<br>(Nominal)  | 25810<br>(Maximum)  |        | 13340<br>(Minimum)  | 14040<br>(Nominal)  | 14740<br>(Maximum)  |        | 1201<br>(Minimum)   | 1264<br>(Nominal)   | 1327<br>(Maximum)   |

Before: 7-Jan-2013 16:56

### 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 |  |                   |                   | 1593  | Before            |  |                   |  | 1679  | Before            |  |                   |  | 1329  |
|        | 1472<br>(Minimum)   | 1572<br>(Nominal) | 1672<br>(Maximum) |       | 1566<br>(Minimum) | 1666<br>(Nominal)   | 1766<br>(Maximum) |  |       | 1223<br>(Minimum) | 1323<br>(Nominal)   | 1423<br>(Maximum) |  |       |

Before: 7-Jan-2013 16:56

### 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 |  |                    | 11.27              | Before |  |                    | 10.48              | Before |  |                    | 8.181              |
|        | 10.19<br>(Minimum)  | 11.19<br>(Nominal) | 12.19<br>(Maximum) |        | 9.376<br>(Minimum)  | 10.38<br>(Nominal) | 11.38<br>(Maximum) |        | 6.934<br>(Minimum)  | 7.934<br>(Nominal) | 8.934<br>(Maximum) |

Before: 7-Jan-2013 16:56

### 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 |  |                   |                   | 3910  | Before            |  |                   |  | 3858  | Before            |  |                   |  | 3869  |
|        | 3565<br>(Minimum)   | 3875<br>(Nominal) | 4185<br>(Maximum) |       | 3524<br>(Minimum) | 3830<br>(Nominal)   | 4136<br>(Maximum) |  |       | 3524<br>(Minimum) | 3830<br>(Nominal)   | 4136<br>(Maximum) |  |       |

Before: 7-Jan-2013 16:57



### High resolution Integrated Logging Tool-DTS Wellsite Calibration





#### HILT Caliper Calibration

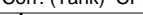
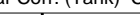
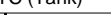
| Phase  | HILT Caliper Zero Measurement IN  |                    |                    | Value | Phase  | HILT Caliper Plus Measurement IN  |                    |                    | Value |
|--------|---|--------------------|--------------------|-------|--------|---|--------------------|--------------------|-------|
| Before |  |                    |                    | 7.832 | Before |  |                    |                    | 12.16 |
|        | 6.000<br>(Minimum)  | 8.000<br>(Nominal) | 10.00<br>(Maximum) |       |        | 9.000<br>(Minimum)  | 12.00<br>(Nominal) | 15.00<br>(Maximum) |       |


Before: 7-Jan-2013 16:52

# High resolution Integrated Logging Tool-DTS Wellsite Calibration

| High resolution Integrated Logging Tool-DIS Wellsite Calibration |  |  |           |       |           |  |  |           |       |
|--|--|--|-----------|-------|-----------|--|--|-----------|-------|
| Detector Calibration   |  |  |           |       |           |  |  |           |       |
| Phase  | Gamma Ray Background   |  | GAPI      | Value | Phase     | Gamma Ray (Jig – Bkgd)   |  | GAPI      | Value |
| Before   |  |  |           | 74.78 | Before    |  |  |           | 184.1 |
| 0  | 30.00  |  | 120.0     |       | 157.1     | 165.0  |  | 206.3     |       |
| (Minimum)  | (Nominal)  |  | (Maximum) |       | (Minimum) | (Nominal)  |  | (Maximum) |       |
| Before: 7-Jan-2013 16:51   |  |  |           |       |           |  |  |           |       |










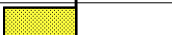


| High resolution Integrated Logging Tool–DTS Wellsite Calibration        |   |  |  |       |   |   |  |  |       |
|---|---|--|--|-------|---|---|--|--|-------|
| Zero Measurement  |   |  |  |       |   |   |  |  |       |
| Phase   | CNTC Background CPS   |  |  | Value | Phase   | CFTC Background CPS   |  |  | Value |
| Master  |  |  |  | 28.19 | Master  |  |  |  | 28.82 |
| Before  |  |  |  | 27.09 | Before  |  |  |  | 27.31 |
| 5.000                      28.19                      40.00             |   |  |  |       | 5.000                      28.82                      40.00             |   |  |  |       |
| (Minimum)                      (Nominal)                      (Maximum) |   |  |  |       | (Minimum)                      (Nominal)                      (Maximum) |   |  |  |       |
| Master: 29–Oct–2012 12:30   |   |  |  |       | Before: 7–Jan–2013 16:54  |   |  |  |       |

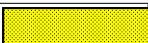

| High resolution Integrated Logging Tool-DTS Wellsite Calibration |   |                   |                   |        |   |                   |                   |        |   |                    |                    |
|--|---|-------------------|-------------------|--------|---|-------------------|-------------------|--------|---|--------------------|--------------------|
| Ratio Measurement  |   |                   |                   |        |   |                   |                   |        |   |                    |                    |
| Phase  | Thermal Near Corr. (Tank) CPS   |                   | Value             | Phase  | Thermal Far Corr. (Tank) CPS  |                   | Value             | Phase  | CNTC/CFTC (Tank)  |                    | Value              |
| Master   |  |                   | 5780              | Master |  |                   | 2407              | Master |  |                    | 2.401              |
|  | 4700<br>(Minimum)   | 5800<br>(Nominal) | 6900<br>(Maximum) |        | 1900<br>(Minimum)   | 2400<br>(Nominal) | 2900<br>(Maximum) |        | 2.120<br>(Minimum)  | 2.159<br>(Nominal) | 2.540<br>(Maximum) |
| Master: 29-Oct-2012 12:30  |   |                   |                   |        |   |                   |                   |        |   |                    |                    |

| High resolution Integrated Logging Tool-DTS<br>Wellsite Calibration |   |                    |
|---|---|--------------------|
| Accelerometer Calibration   |   |                    |
| Phase   | Z-Axis Acceleration F/S2  | Value              |
| Before  |  | 32.09              |
| 31.53<br>(Minimum)  | 32.19<br>(Nominal)  | 32.84<br>(Maximum) |
| Before: 8-Jan-2013 21:41  |   |                    |



| Hostile Natural Gamma Ray Cartridge – B / Equipment Identification |          |     |
|--|----------|-----|
| Primary Equipment:   |          |     |
| HNGC Cartridge   | HNGC – B | 250 |
| Auxiliary Equipment:   |          |     |
| HNGC Housing   | HNGH – A | 87  |

| Hostile Natural Gamma Ray Sonde / Equipment Identification |           |     |
|--|-----------|-----|
| Primary Equipment:   |           |     |
| HNGS Sonde   | HNGS – BA | 152 |
| Auxiliary Equipment:                                       |           |     |
| HNGS Sonde Housing   | HNSH – BA | 149 |
| Gamma Source Radioactive                                   | GSR – U   | 599 |

| 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   |  |  | 38.55              | Master             |  |  | 14.07 | Master             |  |                     | 1046  |  |                    |                    |
| Before   |  |  | 38.53              | Before             |  |  | 14.00 | Before             |  |                     | 1046  |  |                    |                    |
| 37.50<br>(Minimum)                                   |   |  | 40.00<br>(Nominal) | 43.50<br>(Maximum) | 12.00<br>(Minimum)  |  |       | 15.50<br>(Nominal) | 19.00<br>(Maximum)  | 850.0<br>(Minimum)  |       |  | 1150<br>(Nominal)  | 1600<br>(Maximum)  |
| Phase  | Na 1785 Peak Loc  |  | Value              | Phase              | Na 1785 Peak Res %  |  | Value | Phase              | Temperature DEGF  |                     | Value |  |                    |                    |
| Master   |  |  | 139.2              | Master             |  |  | 8.556 | Master             |  |                     | 70.09 |  |                    |                    |
| Before   |  |  | 139.1              | Before             |  |  | 8.058 | Before             |  |                     | 70.02 |  |                    |                    |
| 135.0<br>(Minimum)                                   |   |  | 142.6<br>(Nominal) | 150.3<br>(Maximum) | 7.000<br>(Minimum)  |  |       | 8.500<br>(Nominal) | 11.00<br>(Maximum)  | -20.00<br>(Minimum) |       |  | 59.90<br>(Nominal) | 140.0<br>(Maximum) |

|                          |   |                    |                    |                          |
|--------------------------|---|--------------------|--------------------|--------------------------|
| Phase                    | Na Count Rate CPS   |                    | Value              |                          |
| Master                   |   |                    | 12.47              |                          |
| Before                   |  |                    | 12.69              |                          |
|                          | 10.00<br>(Minimum)  | 45.00<br>(Nominal) | 100.0<br>(Maximum) |                          |
| Master: 7-Jan-2013 17:22 |   |                    |                    | Before: 7-Jan-2013 17:30 |

| 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   | <div><div></div></div> |  | 39.40              | Master                   | <div><div></div></div> |  | 17.15              | Master              | <div><div></div></div> |  | 990.2              |
| Before   | <div><div></div></div> |  | 39.87              | Before                   | <div><div></div></div> |  | 16.01              | Before              | <div><div></div></div> |  | 990.9              |
| 37.50<br>(Minimum)                                   |                        |  | 40.00<br>(Nominal) | 12.00<br>(Minimum)       |                        |  | 15.50<br>(Nominal) | 850.0<br>(Minimum)  |                        |  | 1150<br>(Nominal)  |
| 43.50<br>(Maximum)                                   |                        |  |                    | 19.00<br>(Maximum)       |                        |  |                    | 1600<br>(Maximum)   |                        |  |                    |
| Phase  | Na 1785 Peak Loc       |  | Value              | Phase                    | Na 1785 Peak Res %     |  | Value              | Phase               | Temperature DEGF       |  | Value              |
| Master   | <div><div></div></div> |  | 141.8              | Master                   | <div><div></div></div> |  | 7.696              | Master              | <div><div></div></div> |  | 75.78              |
| Before   | <div><div></div></div> |  | 142.4              | Before                   | <div><div></div></div> |  | 8.722              | Before              | <div><div></div></div> |  | 75.79              |
| 135.0<br>(Minimum)                                   |                        |  | 142.6<br>(Nominal) | 7.000<br>(Minimum)       |                        |  | 8.500<br>(Nominal) | -20.00<br>(Minimum) |                        |  | 59.90<br>(Nominal) |
| 150.3<br>(Maximum)                                   |                        |  |                    | 11.00<br>(Maximum)       |                        |  |                    | 140.0<br>(Maximum)  |                        |  |                    |
| Phase  | Na Count Rate CPS      |  | Value              |                          |                        |  |                    |                     |                        |  |                    |
| Master   | <div><div></div></div> |  | 12.44              |                          |                        |  |                    |                     |                        |  |                    |
| Before   | <div><div></div></div> |  | 12.73              |                          |                        |  |                    |                     |                        |  |                    |
| 10.00<br>(Minimum)                                   |                        |  | 45.00<br>(Nominal) |                          |                        |  |                    |                     |                        |  |                    |
| Master: 7-Jan-2013 17:22                             |                        |  |                    | Before: 7-Jan-2013 17:30 |                        |  |                    |                     |                        |  |                    |

| Hostile Natural Gamma Ray Sonde Wellsite Calibration |   |                    |                    |
|--|---|--------------------|--------------------|
| Ratio Of Detector 1 To Detector 2                    |   |                    |                    |
| Phase  | Coincidence Count Rate Ratio  | Value              |                    |
| Master   |  | 0.9991             |                    |
| Before   |  | 0.9932             |                    |
|  | 0.9500<br>(Minimum)   | 1.000<br>(Nominal) | 1.050<br>(Maximum) |
| Master: 7-Jan-2013 17:22                             |   |                    |                    |
| Before: 7-Jan-2013 17:30                             |   |                    |                    |

| General Purpose Inclinomater / Equipment Identification |          |
|---|----------|
| Primary Equipment:                                      |          |
| GPIT Cartridge – F                                      | GPIC – F |
| Auxiliary Equipment:                                    |          |
| GPIT Housing – F  | GPIH – B |

| Powered Positioning Device/Caliper 1 / Equipment Identification |          |
|---|----------|
| Primary Equipment:  |          |
| PPC Powered Positioning Device/Caliper                          | PPC1 – B |
| PPC1 Caliper Standard   | PPC_ –   |
| Auxiliary Equipment:  |          |

| Multimode Array Sonic Power Cartridge / Equipment Identification |           |
|--|-----------|
| Primary Equipment:   |           |
| Multimode Array Sonic Minimum Service So                         | MAMS – BA |
| Multimode Array Sonic Control Cartridge                          | MAPC – BA |
| Auxiliary Equipment:   |           |
| Electronics Cartridge Housing                                    | ECH – SF  |

## Enhanced DTS Cartridge / Equipment Identification

## Primary Equipment:

EDTC Gamma Ray Detector  
Enhanced DTS Cartridge

EDTG – A/B  
EDTC – B


## Auxiliary Equipment:

EDTC Housing

EDTH – B




## Enhanced DTS Cartridge Wellsite Calibration

## EDTC Accelerometer Calibration

| Phase                    | EDTC Z-Axis Acceleration F/S2   | Value |
|--------------------------|---|-------|
| Before                   |  | 32.14 |
|                          | 31.53 (Minimum)      32.19 (Nominal)      32.84 (Maximum)                         |       |
| Before: 8-Jan-2013 21:41 |   |       |

## 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                   |  | 77.86 | Before |  | 154.7 | Before |  | 165.0 |
|                          | 0 (Minimum)      30.00 (Nominal)      120.0 (Maximum)                             |       |        | 140.6 (Minimum)      154.7 (Nominal)      168.8 (Maximum)                         |       |        | 150.0 (Minimum)      165.0 (Nominal)      180.0 (Maximum)                           |       |
| Before: 7-Jan-2013 16:52 |   |       |        |   |       |        |   |       |

Company: **Conoco Phillips Company****Schlumberger**Well: **State of Colorado 36–1P**Field: **Wildcat**County: **Adams**State: **Colorado**

Platform Express

Triple Combo