

Company: **WHITING OIL & GAS CORPORATION**

Well: **HORSETAIL 19N-1924M-R**

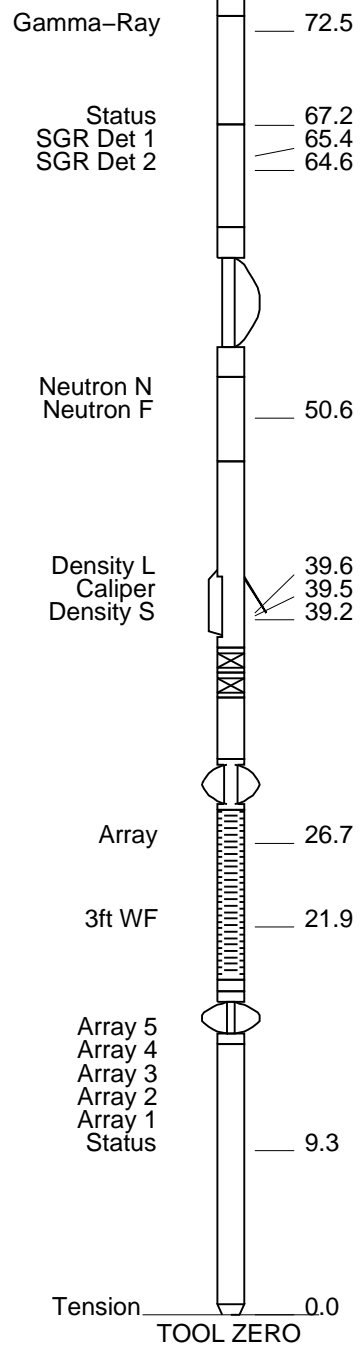
Field: **WILDCAT**

County: **WELD** State: **COLORADO**

[illegible][illegible]



TBAT2  
TMG-A 8  
TBSG-A 13  
TILE-B  
TBN-A 5  
NNLS-EWA  
TBD-A 24  
GGLS-FZ  
KAH-TB\_2  
KAH-TB\_1  
TBS-A 29  
TCME-A  
TBI-A 14



MAXIMUM STRING DIAMETER 2.13 IN  
MEASUREMENTS RELATIVE TO TOOL ZERO  
ALL LENGTHS IN FEET

Schlumberger

MAIN PASS

MAXIS Field Log

Company: WHITING OIL & GAS CORPORATIONWell: HORSETAIL 19N-1924M-R

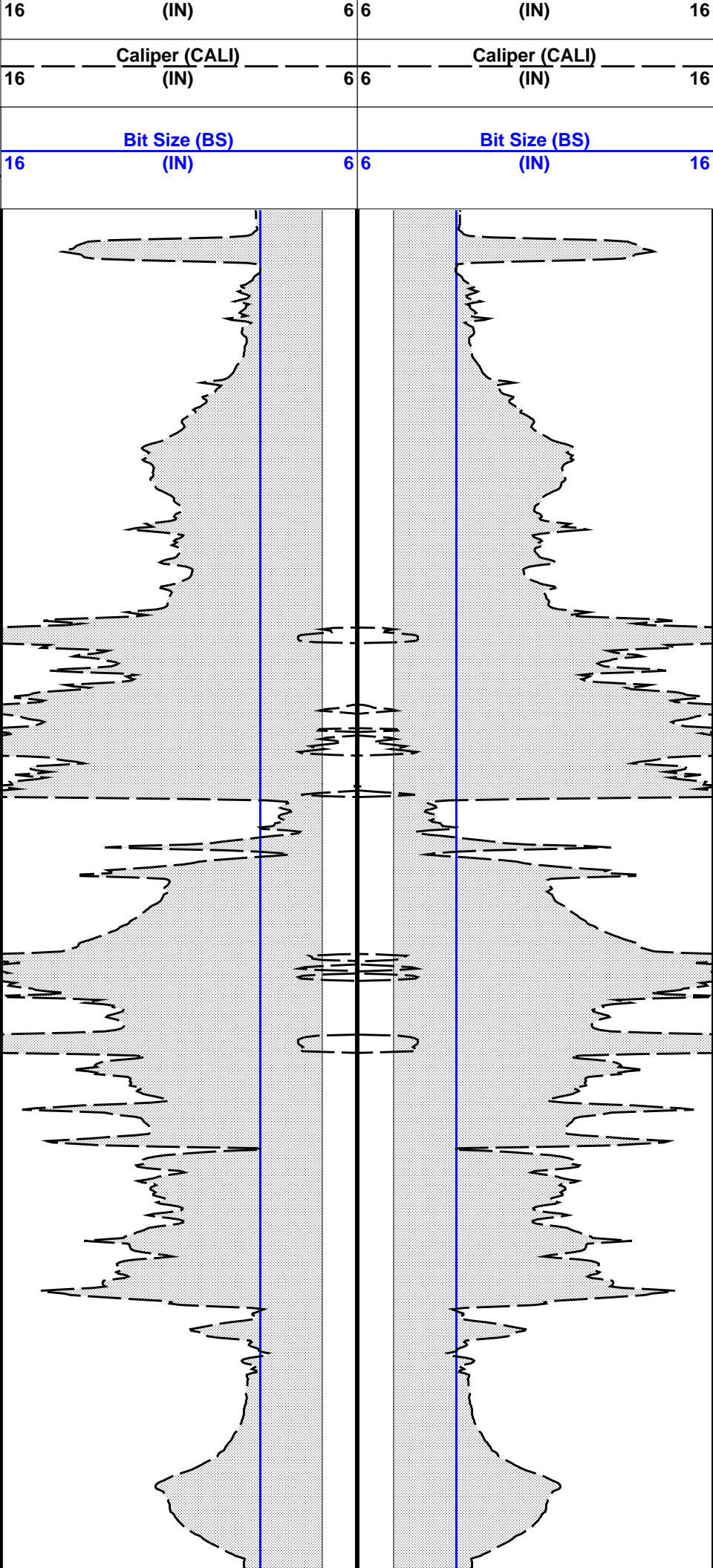
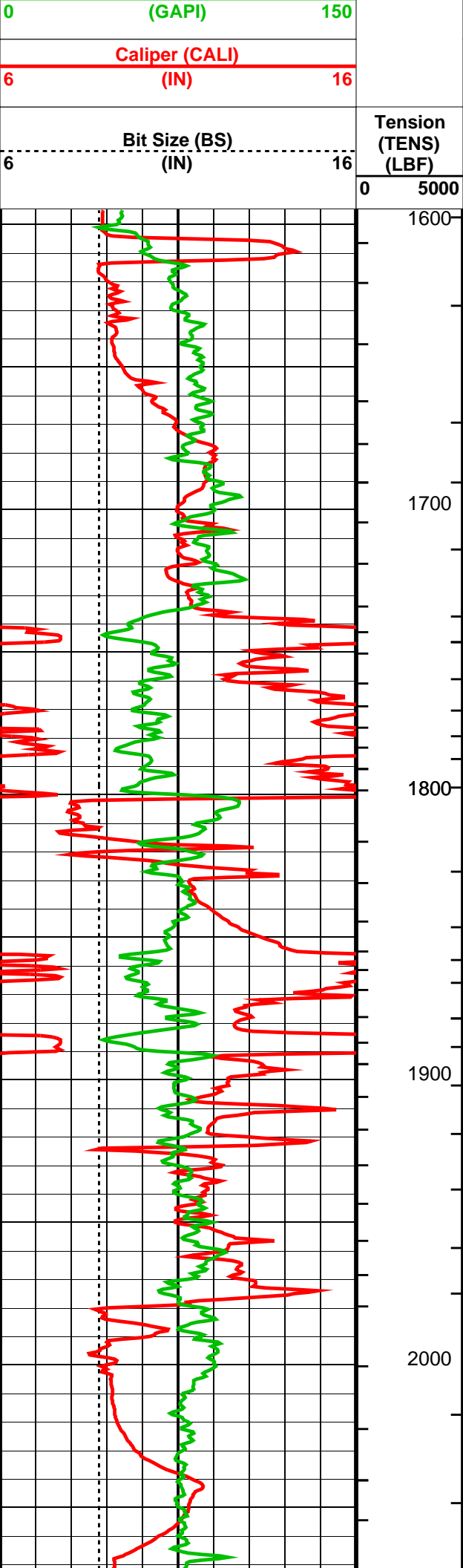
Input DLIS Files						
DEFAULT	ThruBit_025PUP	FN:20	PRODUCER	13-Dec-2014 22:18	8312.7 FT	48.7 FT

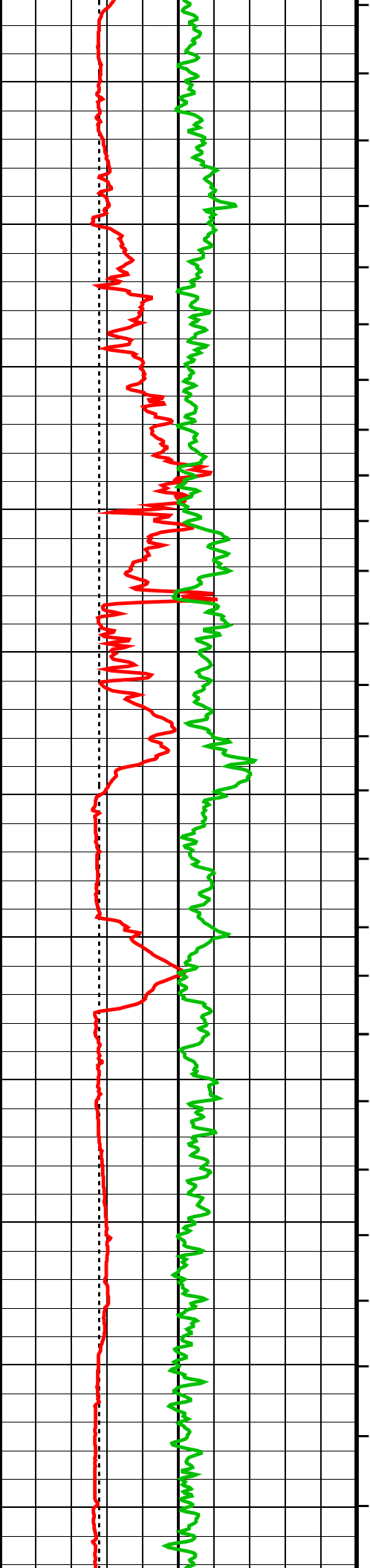
Integrated Hole/Cement Volume Summary	
Hole Volume = 3057.71 ft3	
Cement Volume = 1261.17 ft3 (assuming 7.00 in casing O.D.)	
Computed from 8312.2 ft to 1590.2 ft	

OP System Version: 19C2-270	
TBT	SRPC-5307-ThruBit

PIP SUMMARY	
└ Integrated Cement Volume Major Pip Every 100 F3	
└ Integrated Cement Volume Minor Pip Every 10 F3	
└ Integrated Hole Volume Major Pip Every 100 F3	
└ Integrated Hole Volume Minor Pip Every 10 F3	

Gamma Ray (GR)	ANNULAR From CALI_1 to FCD_1	ANNULAR From FCD to CALI
	FCD_1 (FCD)	FCD (FCD)





2100

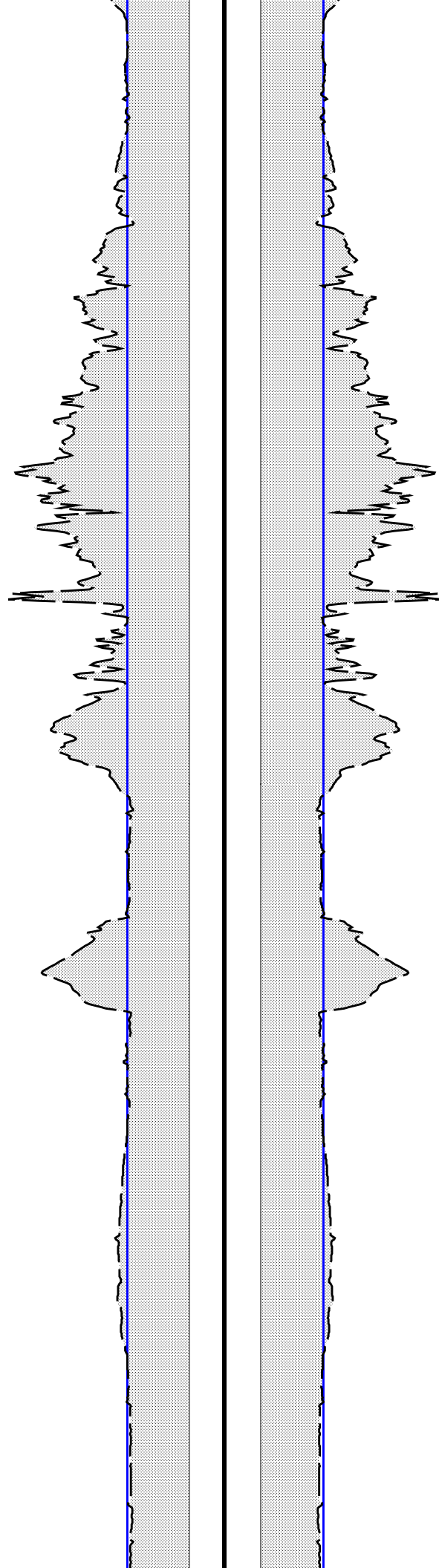
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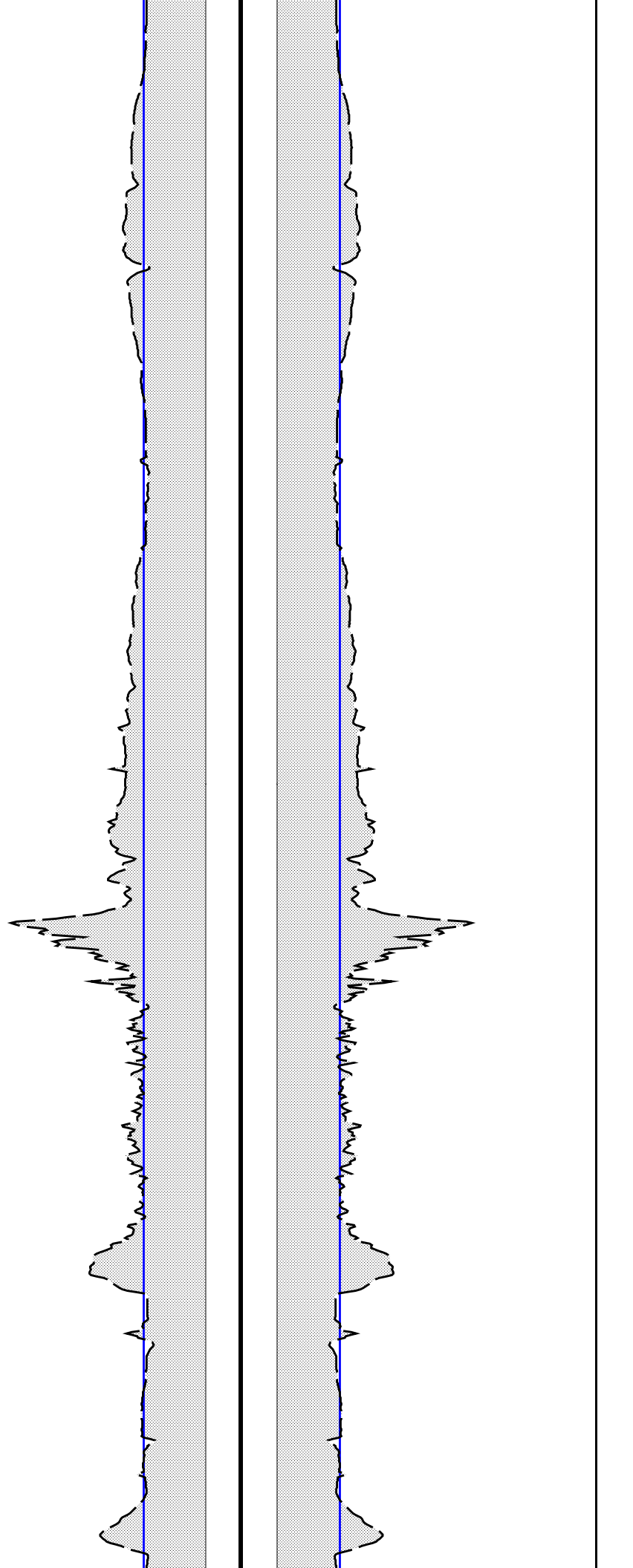
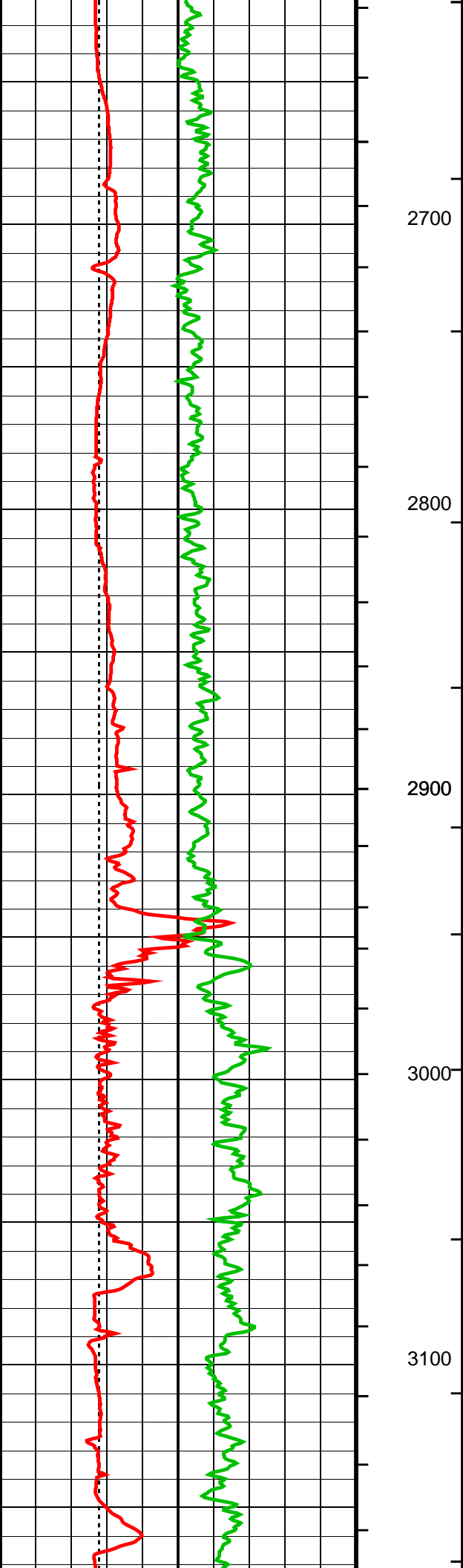
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2400

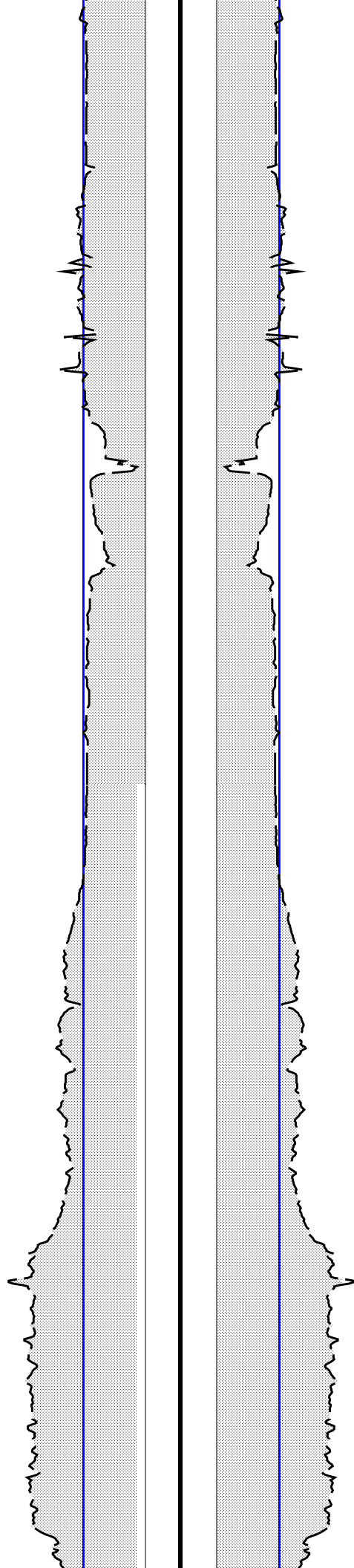
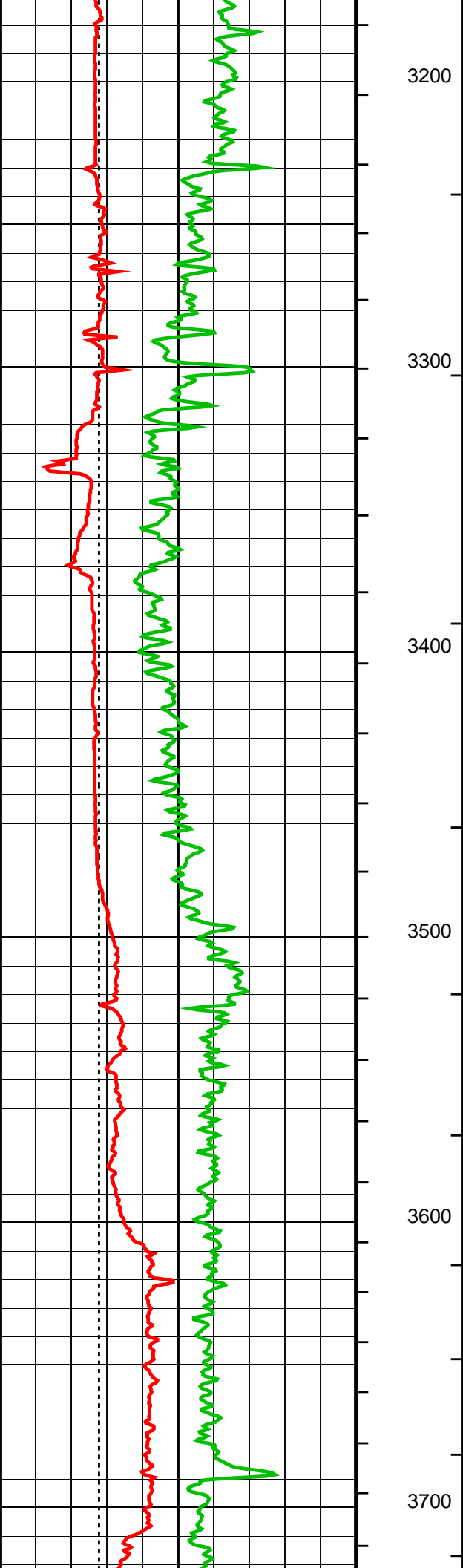
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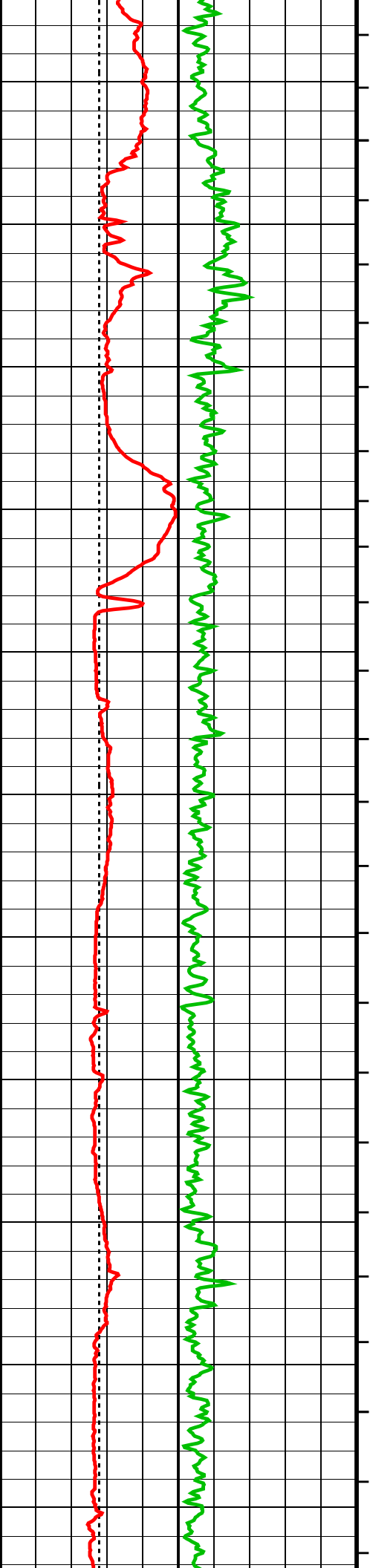












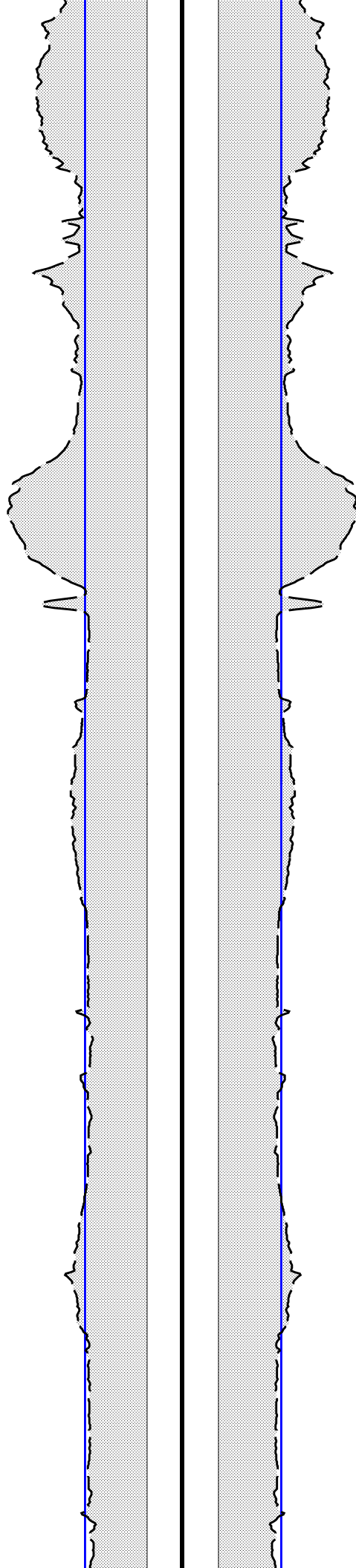
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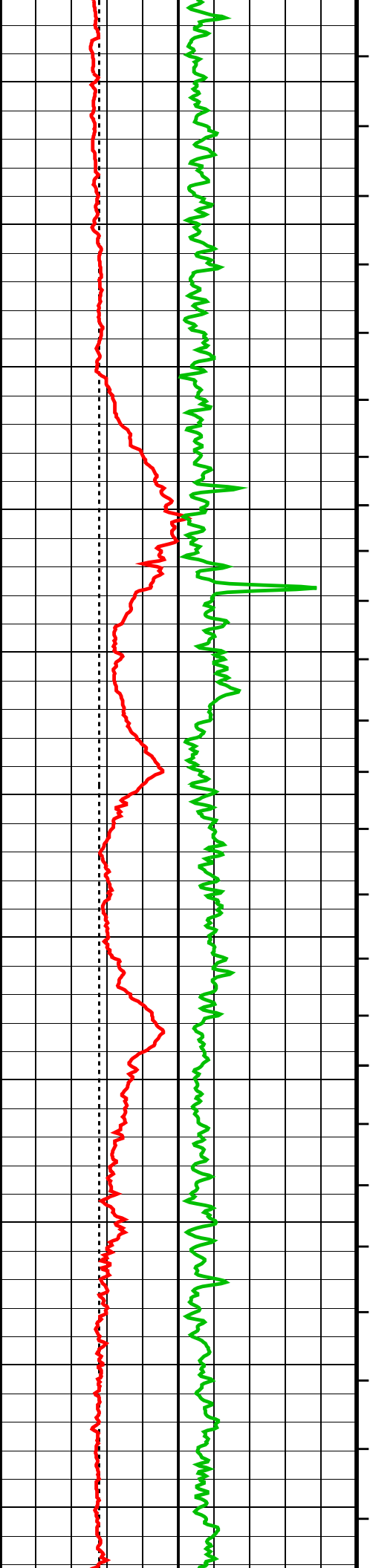
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4000

4100

4200





4300

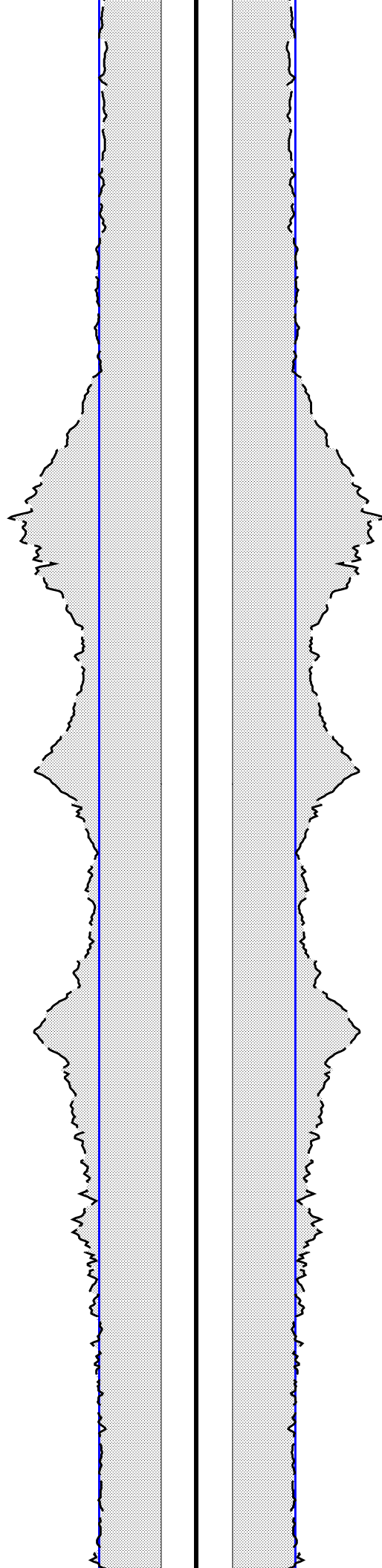
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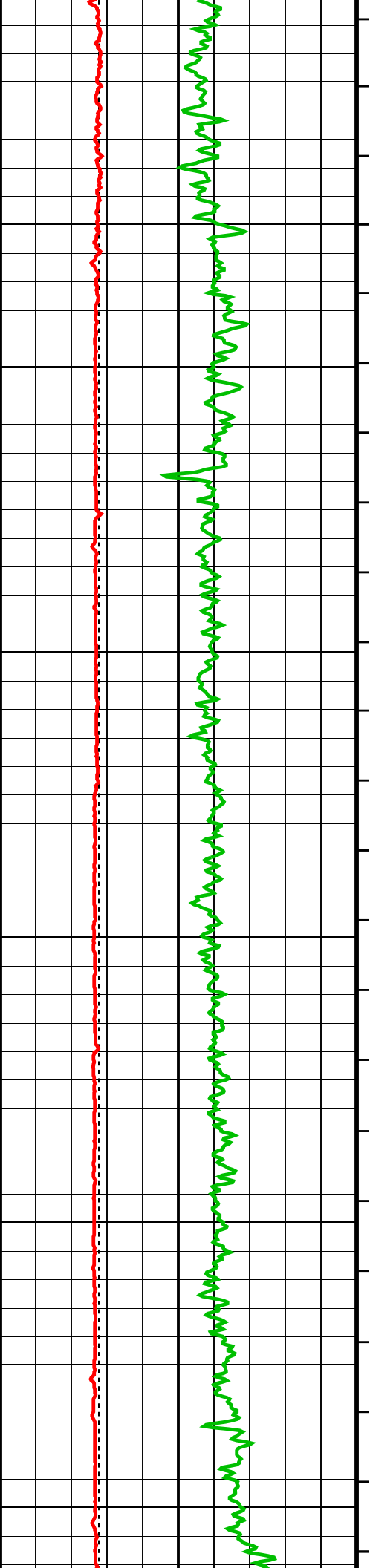
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4600

4700

4800





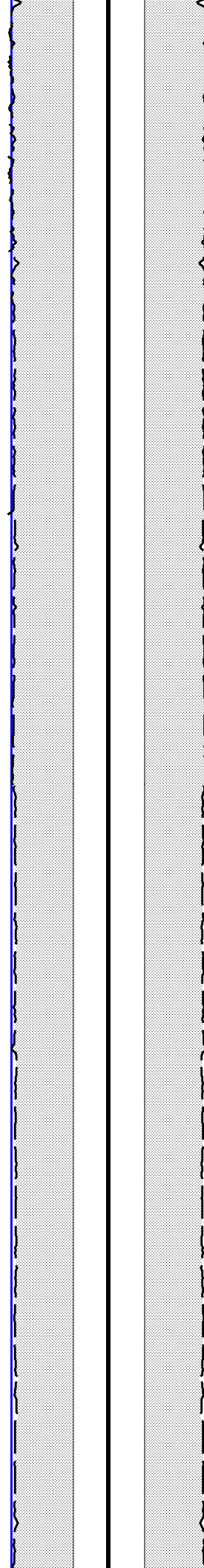
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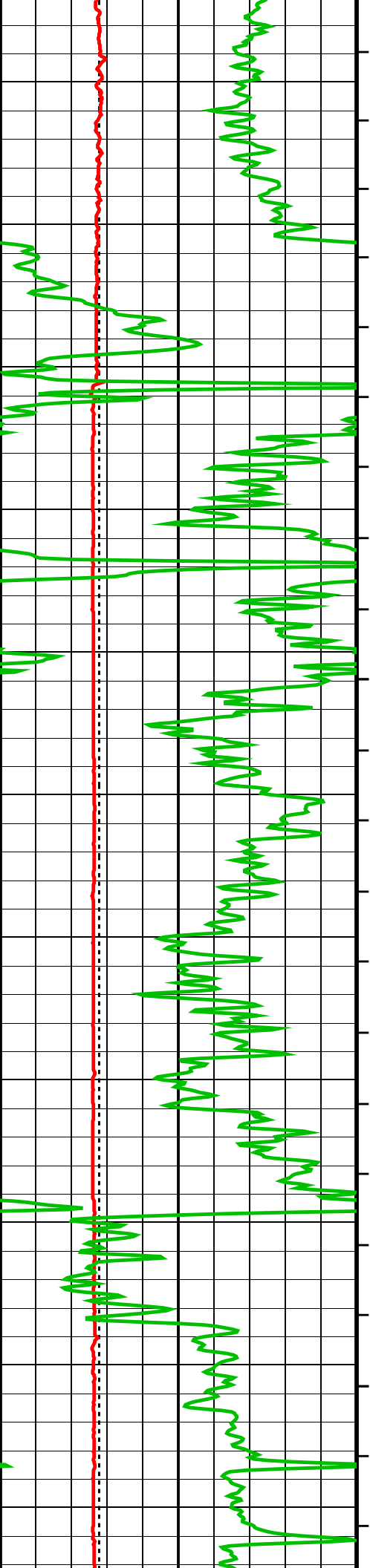
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5100

5200

5300





5400

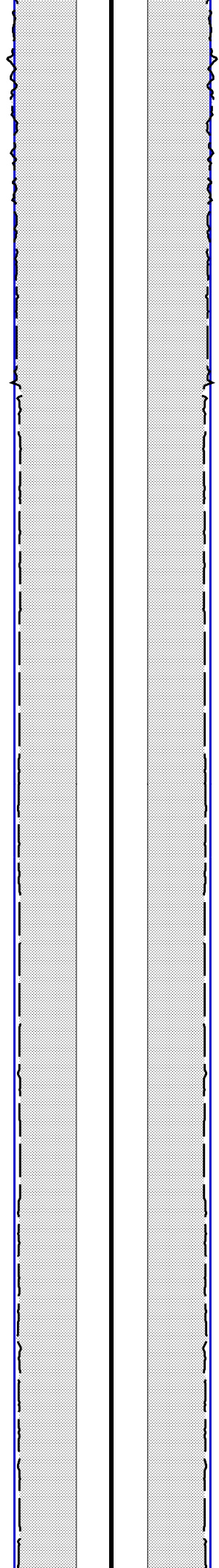
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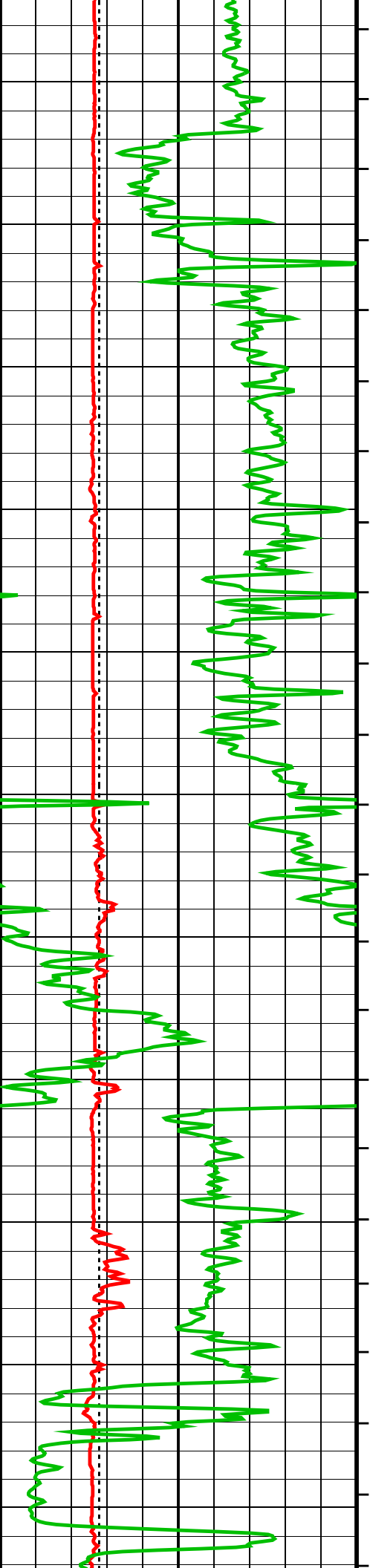
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5700

5800

5900





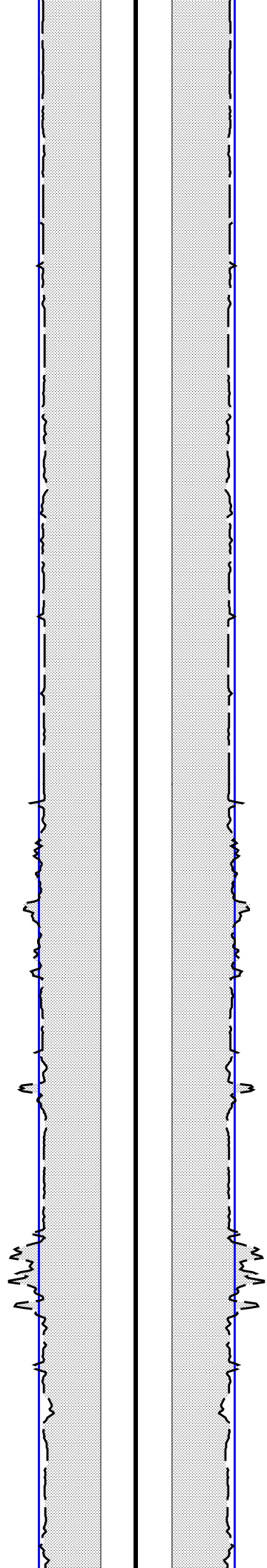
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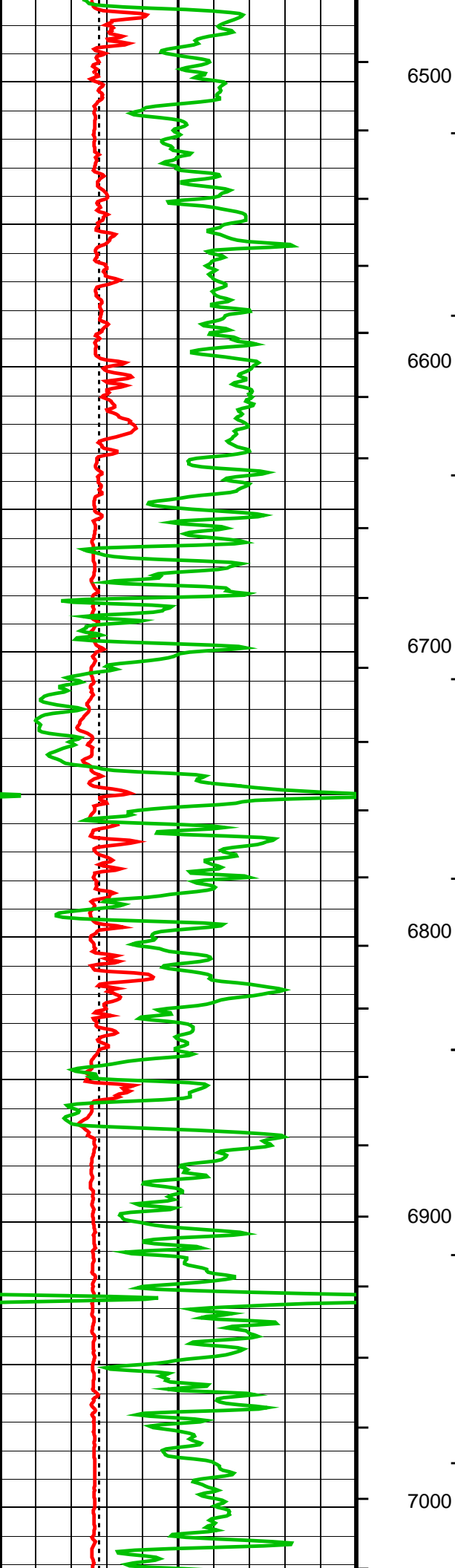
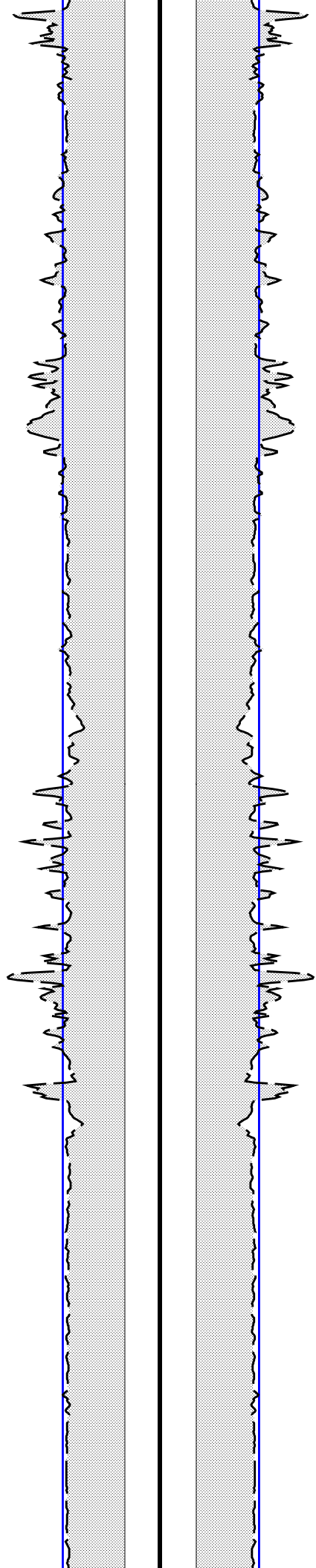
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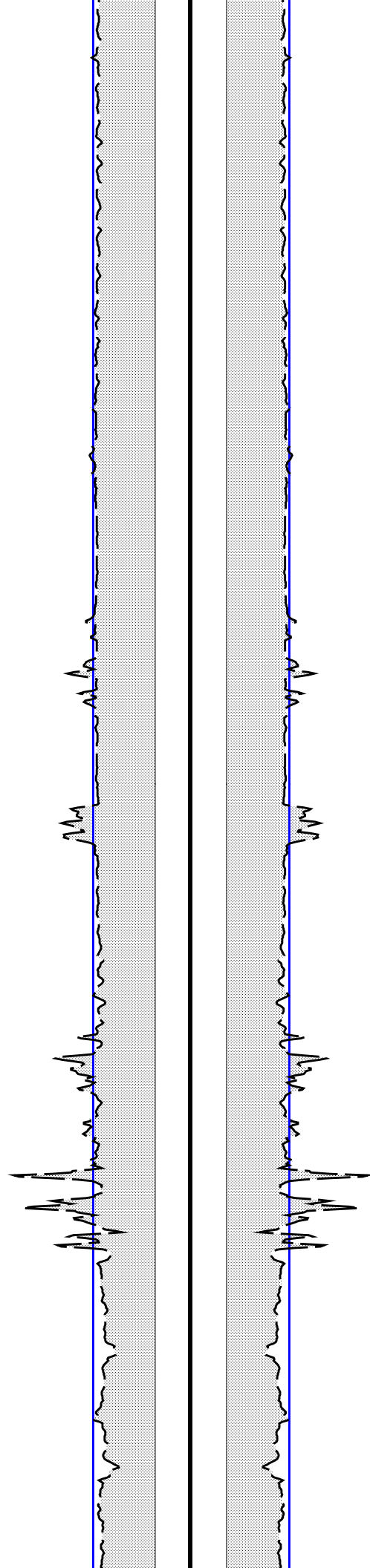
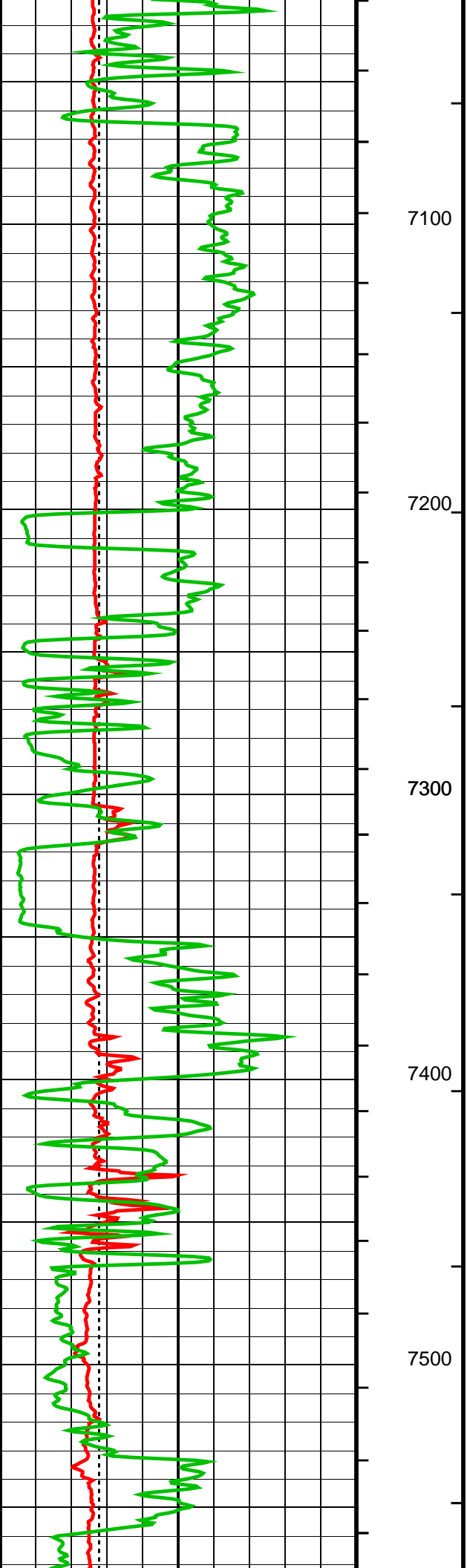
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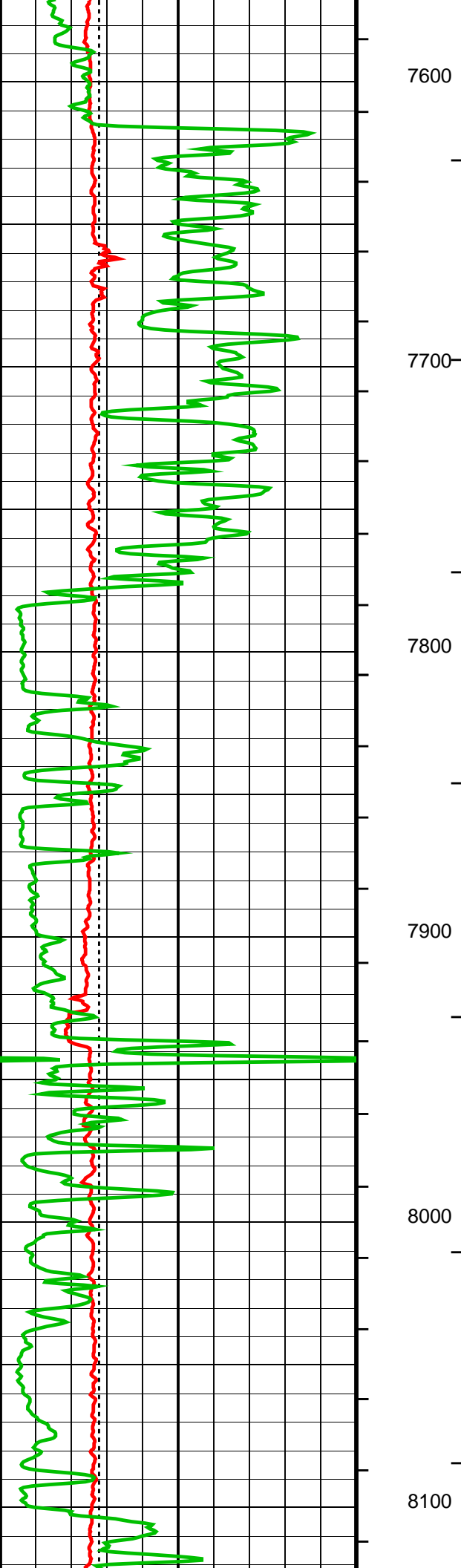












7600

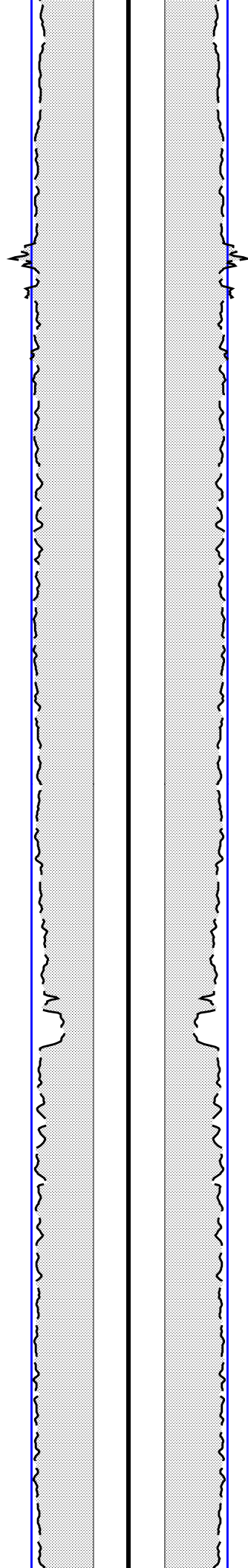
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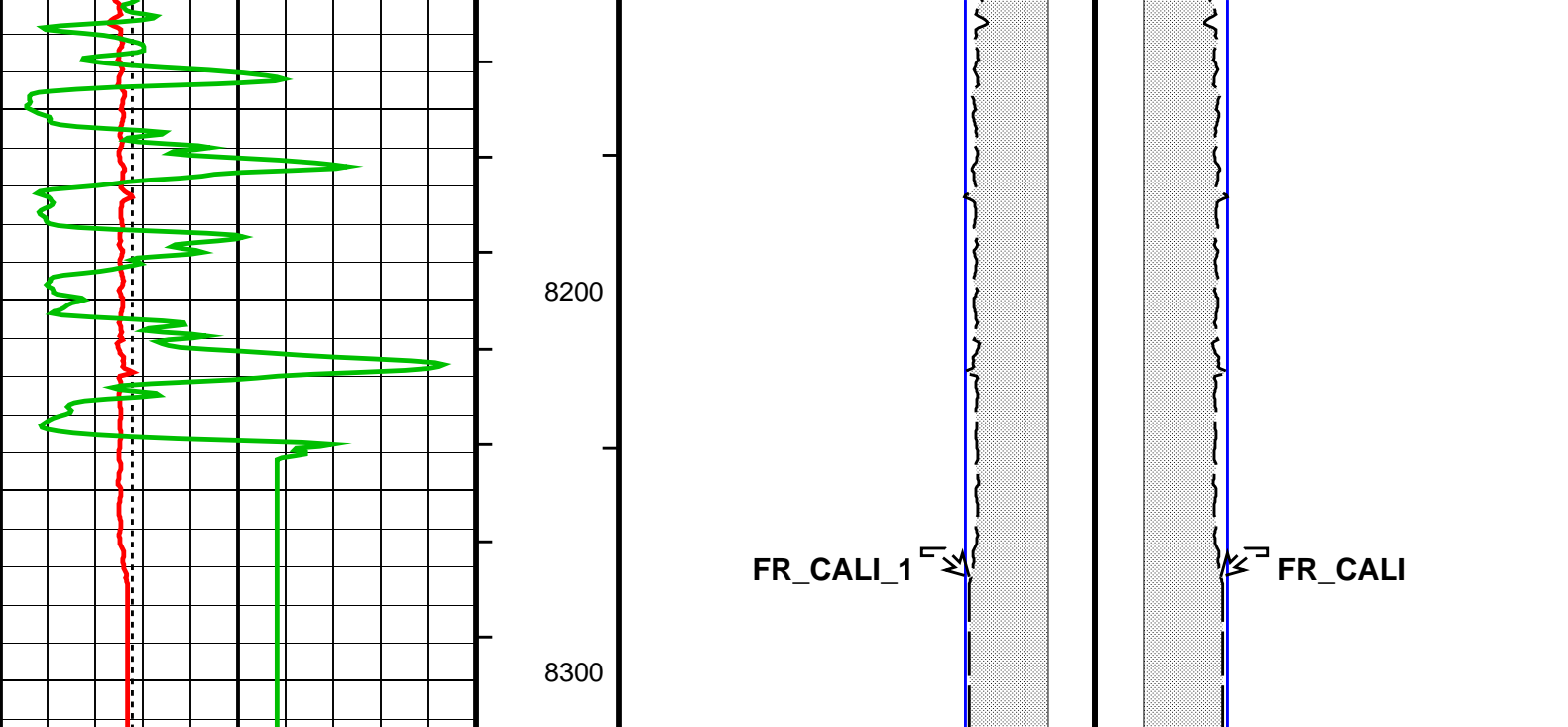
7800

7900

8000

8100





Bit Size (BS) (IN)		Tension (TENS) (LBF)	Bit Size (BS) (IN)		Bit Size (BS) (IN)	
6	16		16	6	6	16
Caliper (CALI) (IN)		0 5000	Caliper (CALI) (IN)		Caliper (CALI) (IN)	
6	16		16	6	6	16
Gamma Ray (GR) (GAPI)			FCD_1 (FCD) (IN)		FCD (FCD) (IN)	
0	150		16	6	6	16
			ANNULAR From CALI_1 to FCD_1		ANNULAR From FCD to CALI	

#### PIP SUMMARY

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

#### Parameters

DLIS Name	Description	Value
FCD	HOLEV: Integrated Hole/Cement Volume	7.000 in
BS	Future Casing (Outer) Diameter	8.750 in
	System and Miscellaneous Bit Size	

Format: TB\_BOREHOLE Vertical Scale: 2" per 100' Graphics File Created: 13-Dec-2014 22:34

OP System Version: 19C2-270

TBT SRPC-5307-ThruBit

#### Input DLIS Files

DEFAULT ThruBit\_025PUP FN:20 PRODUCER 13-Dec-2014 22:18 8312.7 FT 48.7 FT

# MAXIS Field Log




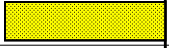









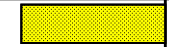








## ThruBit String / Equipment Identification


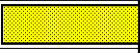
















### Primary Equipment:

























Induction Resistivity  
Sonic  
Density  
Gamma-Ray Logging Source  
Thermal Neutron  
Neutron Logging Source  
Spectral GR  
Telemetry Memory GR

TBI – A 14  
TBS – A 29  
TBD – A 24  
GGLS – FZ  
TBN – A 5  
NNLS – EWA  
TBSG – A 13  
TMG – A 8

### Auxiliary Equipment:

ThruBit String Master Calibration					
TBI Master Calibration Sonde Errors					
Freq 1, A1, R	Value	Nominal	Freq 1, A1, X	Value	Nominal
	-443.386	-457.000		35.8213	300.000
-556.000 (Minimum)	(Nominal)	-387.000 (Maximum)	-500.000 (Minimum)	(Nominal)	1100.00 (Maximum)
Freq 1, A2, R	Value	Nominal	Freq 1, A2, X	Value	Nominal
	-142.556	-141.000		3.48780	320.000
-182.000 (Minimum)	(Nominal)	-120.000 (Maximum)	-75.0000 (Minimum)	(Nominal)	700.000 (Maximum)
Freq 1, A3, R	Value	Nominal	Freq 1, A3, X	Value	Nominal
	-28.4814	-28.0000		50.6850	50.0000
-38.0000 (Minimum)	(Nominal)	-18.0000 (Maximum)	-375.000 (Minimum)	(Nominal)	475.000 (Maximum)
Freq 1, A4, R	Value	Nominal	Freq 1, A4, X	Value	Nominal
	-15.1835	-16.0000		282.529	300.000
-24.0000 (Minimum)	(Nominal)	-8.00000 (Maximum)	25.0000 (Minimum)	(Nominal)	575.000 (Maximum)
Freq 1, A5, R	Value	Nominal	Freq 1, A5, X	Value	Nominal
	-13.0608	-14.0000		135.630	150.000
-21.0000 (Minimum)	(Nominal)	-7.00000 (Maximum)	25.0000 (Minimum)	(Nominal)	300.000 (Maximum)
Freq 2, A1, R	Value	Nominal	Freq 2, A1, X	Value	Nominal
	-228.677	-237.000		-11.6484	150.000
-313.000 (Minimum)	(Nominal)	-186.000 (Maximum)	-375.000 (Minimum)	(Nominal)	675.000 (Maximum)
Freq 2, A2, R	Value	Nominal	Freq 2, A2, X	Value	Nominal
	-92.3298	-92.0000		-27.6569	160.000
-126.000 (Minimum)	(Nominal)	-76.0000 (Maximum)	-100.000 (Minimum)	(Nominal)	425.000 (Maximum)
Freq 2, A3, R	Value	Nominal	Freq 2, A3, X	Value	Nominal
	-20.7663	-21.0000		-16.7829	-20.0000
-28.0000 (Minimum)	(Nominal)	-13.0000 (Maximum)	-325.000 (Minimum)	(Nominal)	250.000 (Maximum)
Freq 2, A4, R	Value	Nominal	Freq 2, A4, X	Value	Nominal
	-18.4470	-20.0000		99.2009	100.000
-28.0000 (Minimum)	(Nominal)	-10.0000 (Maximum)	-75.0000 (Minimum)	(Nominal)	275.000 (Maximum)
Freq 2, A5, R	Value	Nominal	Freq 2, A5, X	Value	Nominal
	-18.3613	-20.0000		-6.02465	-25.0000
-27.0000 (Minimum)	(Nominal)	-10.0000 (Maximum)	-125.000 (Minimum)	(Nominal)	100.000 (Maximum)
Freq 3, A1, R	Value	Nominal	Freq 3, A1, X	Value	Nominal
	-143.488	-149.000		-84.3063	25.0000















-213.000 (Minimum)	(Nominal)	-108.000 (Maximum)		-375.000 (Minimum)	(Nominal)	425.000 (Maximum)	
Freq 3, A2, R		Value	Nominal	Freq 3, A2, X		Value	Nominal
		-69.8780	-70.0000			-63.9249	70.0000
-101.000 (Minimum)	(Nominal)	-57.0000 (Maximum)		-125.000 (Minimum)	(Nominal)	250.000 (Maximum)	
Freq 3, A3, R		Value	Nominal	Freq 3, A3, X		Value	Nominal
		-17.1798	-17.0000			-68.3308	-90.0000
-23.0000 (Minimum)	(Nominal)	-11.0000 (Maximum)		-300.000 (Minimum)	(Nominal)	125.000 (Maximum)	
Freq 3, A4, R		Value	Nominal	Freq 3, A4, X		Value	Nominal
		-20.6548	-22.0000			-20.7417	-50.0000
-31.0000 (Minimum)	(Nominal)	-11.0000 (Maximum)		-200.000 (Minimum)	(Nominal)	100.000 (Maximum)	
Freq 3, A5, R		Value	Nominal	Freq 3, A5, X		Value	Nominal
		-21.5533	-22.0000			-109.059	-110.000
-32.0000 (Minimum)	(Nominal)	-11.0000 (Maximum)		-250.000 (Minimum)	(Nominal)	0 (Maximum)	
Freq 4, A1, R		Value	Nominal	Freq 4, A1, X		Value	Nominal
		-79.0503	-80.0000			-216.096	-190.000
-128.000 (Minimum)	(Nominal)	-54.0000 (Maximum)		-450.000 (Minimum)	(Nominal)	75.0000 (Maximum)	
Freq 4, A2, R		Value	Nominal	Freq 4, A2, X		Value	Nominal
		-50.2664	-50.0000			-129.964	-75.0000
-80.0000 (Minimum)	(Nominal)	-41.0000 (Maximum)		-200.000 (Minimum)	(Nominal)	50.0000 (Maximum)	
Freq 4, A3, R		Value	Nominal	Freq 4, A3, X		Value	Nominal
		-13.7559	-14.0000			-150.816	-190.000
-19.0000 (Minimum)	(Nominal)	-8.00000 (Maximum)		-350.000 (Minimum)	(Nominal)	-25.0000 (Maximum)	
Freq 4, A4, R		Value	Nominal	Freq 4, A4, X		Value	Nominal
		-23.6177	-25.0000			-195.441	-235.000
-37.0000 (Minimum)	(Nominal)	-11.0000 (Maximum)		-400.000 (Minimum)	(Nominal)	-75.0000 (Maximum)	
Freq 4, A5, R		Value	Nominal	Freq 4, A5, X		Value	Nominal
		-27.2398	-28.0000			-281.125	-300.000
-43.0000 (Minimum)	(Nominal)	-12.0000 (Maximum)		-475.000 (Minimum)	(Nominal)	-100.000 (Maximum)	
Master: 26-Nov-2014 11:53							


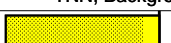








ThruBit String Master Calibration					
TBI Master Calibration COMPLEX GAINS					
Freq 1, R	Value	Nominal	Freq 1, X	Value	Nominal
	1.003	1.000		-0.0002245	0
	1.003	1.000		0.001410	0
	1.007	1.000		-0.007156	0
	0.9967	1.000		0.003115	0
	1.003	1.000		-0.0007491	0
0.9500 (Minimum)	1.050 (Maximum)		-0.05000 (Minimum)	0.05000 (Maximum)	
(Nominal)	(Maximum)		(Nominal)	(Maximum)	
Freq 2, R	Value	Nominal	Freq 2, X	Value	Nominal
	0.9968	1.000		-0.009233	0
	0.9965	1.000		-0.008014	0
	0.9937	1.000		-0.008754	0
	0.9911	1.000		-0.005932	0
	0.9978	1.000		-0.01136	0
0.9500 (Minimum)	1.050 (Maximum)		-0.05000 (Minimum)	0.05000 (Maximum)	
(Nominal)	(Maximum)		(Nominal)	(Maximum)	
Freq 3, R	Value	Nominal	Freq 3, X	Value	Nominal
	1.005	1.000		-0.004493	0
					

		1.005	1.000			-0.003378	0
		1.002	1.000			-0.004313	0
		0.9991	1.000			-0.001445	0
		1.007	1.000			-0.007069	0
0.9500 (Minimum)	(Nominal)	1.050 (Maximum)		-0.05000 (Minimum)	(Nominal)	0.05000 (Maximum)	
Freq 4, R		Value	Nominal	Freq 4, X		Value	Nominal
		1.004	1.000			-0.006248	0
		1.003	1.000			-0.005342	0
		1.002	1.000			-0.008158	0
		0.9977	1.000			-0.002925	0
		1.014	1.000			-0.01246	0
0.9300 (Minimum)	(Nominal)	1.070 (Maximum)		-0.05000 (Minimum)	(Nominal)	0.05000 (Maximum)	
Master: 26-Nov-2014 11:53							

ThruBit String Master Calibration								
TBD Caliper Master Calibration								
Caliper 12in Ring IN	Value	Nominal	Caliper 9in Ring IN	Value	Nominal	Caliper 6in Ring IN	Value	Nominal
	1870.0	1949.8		2029.5	2096.7		2189.2	2285.7
1799.8 (Minimum)	2099.8 (Maximum)		1946.7 (Minimum)	2246.7 (Maximum)		2135.7 (Minimum)	2435.7 (Maximum)	
Master: 20-Sep-2014 11:13								

ThruBit String Master Calibration						
TBD Density Master Calibration. Ti Window, ThruBit blocks						
LS1 Background CPS	Value	Nominal	SS1 Background CPS	Value	Nominal	
	140.22	143.00		153.31	143.00	
100.00 (Minimum)	186.00 (Maximum)		100.00 (Minimum)	186.00 (Maximum)		
LS2 Background CPS	Value	Nominal	SS2 Background CPS	Value	Nominal	
	36.3909	37.0000		40.1750	38.0000	
26.0000 (Minimum)	48.0000 (Maximum)		27.0000 (Minimum)	50.0000 (Maximum)		
LS3 Background CPS	Value	Nominal	SS3 Background CPS	Value	Nominal	
	22.0162	22.0000		24.5551	23.0000	
15.0000 (Minimum)	29.0000 (Maximum)		16.0000 (Minimum)	30.0000 (Maximum)		
LS4 Background CPS	Value	Nominal	SS4 Background CPS	Value	Nominal	
	30.44	30.00		33.8994	31.0000	
20.00 (Minimum)	40.00 (Maximum)		22.0000 (Minimum)	40.0000 (Maximum)		
LS1 Aluminium CPS	Value	Nominal	SS1 Aluminium CPS	Value	Nominal	
	1111.3	1210.0		7318.47	7850.00	
850.00 (Minimum)	1570.0 (Maximum)		5500.00 (Minimum)	10200.0 (Maximum)		
LS2 Aluminium CPS	Value	Nominal	SS2 Aluminium CPS	Value	Nominal	
	1019.31	1110.00		3744.85	4000.00	
780.000 (Minimum)	1440.00 (Maximum)		2800.00 (Minimum)	5200.00 (Maximum)		
LS3 Aluminium CPS	Value	Nominal	SS3 Aluminium CPS	Value	Nominal	
	943.622	1010.00		3152.41	3350.00	
710.000 (Minimum)	1300.00 (Maximum)		2350.00 (Minimum)	4360.00 (Maximum)		
LS4 Aluminium CPS	Value	Nominal	SS4 Aluminium CPS	Value	Nominal	
	708.60	760.00		3026.2451	3230.0000	
530.00 (Minimum)	990.00 (Maximum)		2260.0000 (Minimum)	4200.0000 (Maximum)		
LS1 Al + Sleeve CPS	Value	Nominal	SS1 Al + Sleeve CPS	Value	Nominal	
	896.59	970.00		5726.00	6160.00	
680.00 (Minimum)	1260.0 (Maximum)		4300.00 (Minimum)	8000.00 (Maximum)		

LS2 Al + Sleeve CPS		Value	Nominal	SS2 Al + Sleeve CPS		Value	Nominal
		752.479	830.000			2826.24	3050.00
580.000 (Minimum)	(Nominal)	1080.00 (Maximum)		2130.00 (Minimum)	(Nominal)	4000.00 (Maximum)	
LS3 Al + Sleeve CPS		Value	Nominal	SS3 Al + Sleeve CPS		Value	Nominal
		590.007	650.000			2026.41	2190.00
460.000 (Minimum)	(Nominal)	850.000 (Maximum)		1533.00 (Minimum)	(Nominal)	2850.00 (Maximum)	
LS4 Al + Sleeve CPS		Value	Nominal	SS4 Al + Sleeve CPS		Value	Nominal
		375.36	420.00			1606.04	1700.00
300.00 (Minimum)	(Nominal)	550.00 (Maximum)		1190.00 (Minimum)	(Nominal)	2200.00 (Maximum)	
LS1 Magnesium CPS		Value	Nominal	SS1 Magnesium CPS		Value	Nominal
		7475.90	8100.00			12081.0	12740.0
5670.00 (Minimum)	(Nominal)	10530.0 (Maximum)		8920.00 (Minimum)	(Nominal)	16560.0 (Maximum)	
LS2 Magnesium CPS		Value	Nominal	SS2 Magnesium CPS		Value	Nominal
		6957.24	7650.00			6301.64	6670.00
5360.00 (Minimum)	(Nominal)	9950.00 (Maximum)		4670.00 (Minimum)	(Nominal)	8670.00 (Maximum)	
LS3 Magnesium CPS		Value	Nominal	SS3 Magnesium CPS		Value	Nominal
		6228.36	6800.00			5162.76	5400.00
4760.00 (Minimum)	(Nominal)	8840.00 (Maximum)		3780.00 (Minimum)	(Nominal)	7020.00 (Maximum)	
LS4 Magnesium CPS		Value	Nominal	SS4 Magnesium CPS		Value	Nominal
		4440.72	4850.00			5000.98	5240.00
3400.00 (Minimum)	(Nominal)	6300.00 (Maximum)		3670.00 (Minimum)	(Nominal)	6810.00 (Maximum)	
Master: 9-Dec-2014 10:51							

ThruBit String Master Calibration							
Thermal Neutron Master Calibration							
TNF, Background CPS		Value	Nominal	TNN, Background CPS		Value	Nominal
		0.35	1.0			0.23	1.0
0 (Minimum)	(Nominal)	2.0 (Maximum)		0 (Minimum)	(Nominal)	2.0 (Maximum)	
TNF, Tank CPS		Value	Nominal	TNN, Tank CPS		Value	Nominal
		60.83	96.00			1788.0	2860.0
25.00 (Minimum)	(Nominal)	200.0 (Maximum)		750.00 (Minimum)	(Nominal)	5700.0 (Maximum)	
TNF, Tank + Al Sleeve CPS		Value	Nominal	TNN, Tank + Al Sleeve CPS		Value	Nominal
		1888.2	3040.0			19977.4	32350.0
727.00 (Minimum)	(Nominal)	6080.0 (Maximum)		8000.00 (Minimum)	(Nominal)	64700.0 (Maximum)	
Tank + Al Sleeve Ratio		Value	Nominal	Tank + Al Sleeve Porosity PU		Value	Nominal
		11.143	10.797			14.46	14.40
10.300 (Minimum)	(Nominal)	11.300 (Maximum)		13.40 (Minimum)	(Nominal)	15.40 (Maximum)	
Tank, Ratio		Value	Nominal	Tank, Temperature DEGF		Value	Nominal
		29.395	30.958			75.0	70.0
28.000 (Minimum)	(Nominal)	34.000 (Maximum)		20.0 (Minimum)	(Nominal)	120 (Maximum)	
Master: 8-Dec-2014 14:10							

ThruBit String Master Calibration							
TMG Accelerometer Calibration							
Minimum Ax, m/s2		Value	Nominal	Maximum Ax, m/s2		Value	Nominal
<div>NOT DONE</div>		N/A	−9.810	<div>NOT DONE</div>		N/A	9.810
−10.81 (Minimum)	(Nominal)	−8.810 (Maximum)		8.810 (Minimum)	(Nominal)	10.81 (Maximum)	
Minimum Ay, m/s2		Value	Nominal	Maximum Ay, m/s2		Value	Nominal
<div>NOT DONE</div>		N/A	−9.810	<div>NOT DONE</div>		N/A	9.810
−10.81 (Minimum)	(Nominal)	−8.810 (Maximum)		8.810 (Minimum)	(Nominal)	10.81 (Maximum)	

Minimum Az, m/s2		Value	Nominal	Maximum Az, m/s2		Value	Nominal
NOT DONE		N/A	0	NOT DONE		N/A	9.810
-1.000 (Minimum)	(Nominal)	1.000 (Maximum)		8.810 (Minimum)	(Nominal)	10.81 (Maximum)	
RB Offset, degrees		Value	Nominal				
NOT DONE		N/A	0				
-360.0 (Minimum)	(Nominal)	360.0 (Maximum)					
Master: Calibration not done							

ThruBit String Master Calibration							
TMG Gamma-Ray Calibration							
GR Background GAPI		Value	Nominal	GR Jig-Background GAPI		Value	Nominal
NOT DONE		N/A	30.00	NOT DONE		N/A	152.0
0 (Minimum)	(Nominal)	120.0 (Maximum)		121.6 (Minimum)	(Nominal)	182.4 (Maximum)	
Master: Calibration not done							

Company: WHITING OIL & GAS CORPORATION



Well: HORSETAIL 19N-1924M-R  
Field: WILDCAT  
County: WELD  
State: COLORADO

BOREHOLE VOLUME  
MEMORY LOG