

										BOND LOG															
Weatherford®										CBL-VDL-GR-CCL															
COMPANY					WSP USA INC.																				
WELL					NAVAJO REFINING WDW #4																				
FIELD					ARTESIA																				
PROVINCE/COUNTY					EDDY																				
COUNTRY/STATE					UNITED STATES / NEW MEXICO																				
LOCATION					1319' FSL & 2493' FWL																				
SEC 23		TWP 17S		RGE 27E		Other Services																			
Latitude		32.816088								JBGR															
Longitude		-104.249871																							
API Number		30-015-44677																							
Permanent Datum GL, Elevation 3565.8 feet										Elevations: feet															
Log Measured From DF, 20.00 feet above Permanent Datum										KB 3585.80															
Drilling Measured From DF										DF 3585.80															
										GL 3565.80															
Date					14-JUL-2018					PERFORATION RECORD															
Run Number					ONE					Shot		Number		Depth From		Depth To									
Service Order					5217-218789721					Density		of Shots		feet		feet									
Type Log					MCG-MSS																				
Depth Driller					10327.00					feet															
Depth Logger					9940.00					feet															
Top Log Interval					8950.00					feet															
Bottom Log Interval					9940.00					feet															
Hole Fluid Type					WA TER																				
Hole Fluid Level					150.00					feet															
Restriction ID					2.750					inches		Gun Type													
Max Recorded Temp					150.00					deg F		Gun Size													
Well Head Pressure					0.00																				
Well Head Equipment																									
Time Well Ready					18:30					Size		Weight		Depth From		Depth To									
Time Logger Bottom					20:30					inches		pounds/ft		feet		feet									
Unit					14106					4.500		16.00		0.00		12000.00									
Equipment Name					WCMD280																				
Base					ODESSA																				
Recorded By					LEONARDO GUTIERREZ																				
Witnessed By					RONALD COOK																				

BOREHOLE RECORD						Last Edited: 14-JUL-2018 21:50
Bit Size inches		Depth From feet			Depth To feet	
8.500		0.00			120000.00	
CASING / TUBING RECORD						
Type	Grade	TypeJoint	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
			4.500	0.00	12000.00	16.00

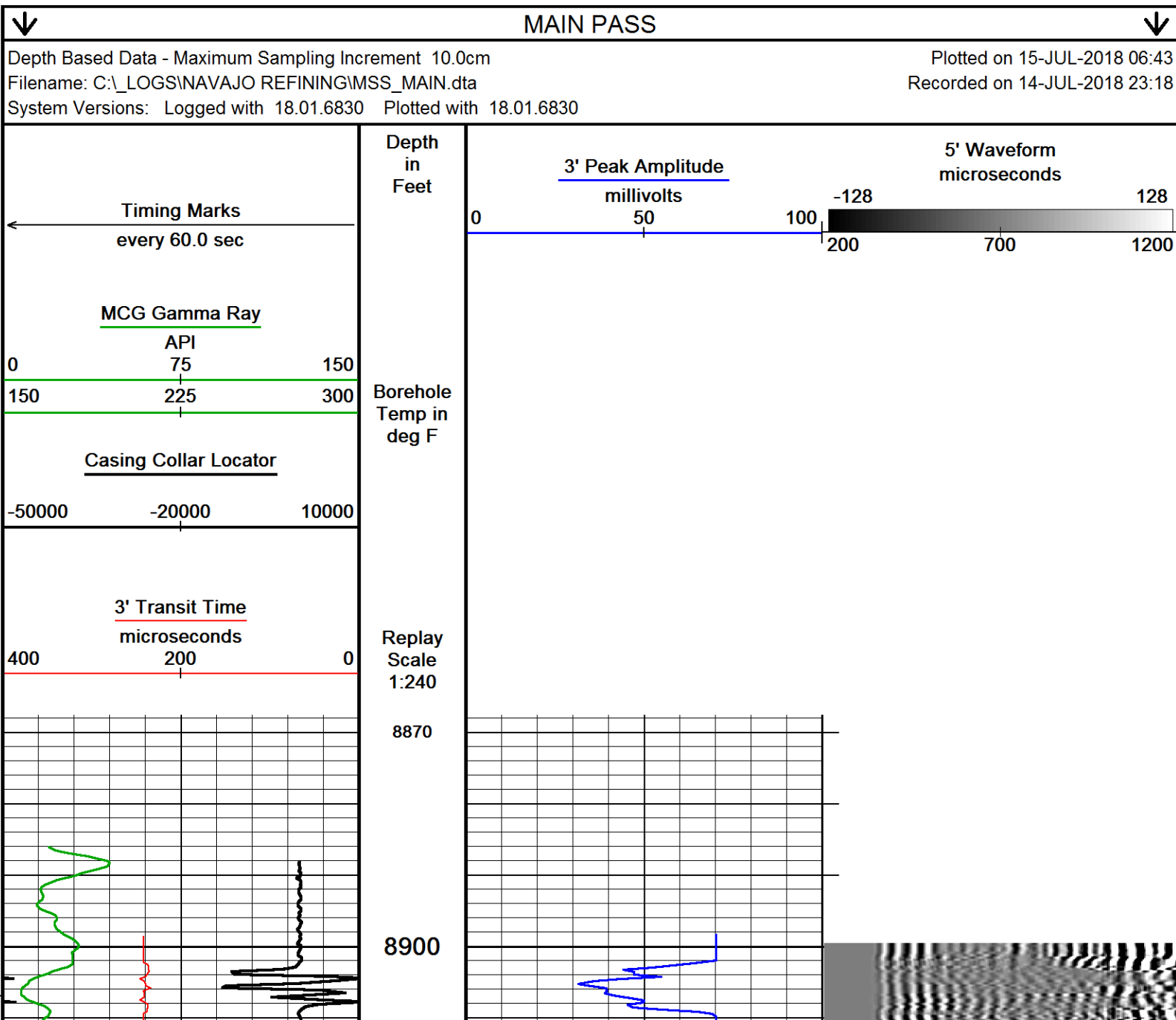
REMARKS
LOGS CORRELATED TO TIP HWDP # 1 REPORTED BY CLIENT @9940' M.D. HEADER REFLECTS INFORMATION AVAILABLE ON LOCATION.
RUN 1 - JUNK BASKET / GAUGE RING TOOLS RAN : GR-CCL / 5 FT WEIGHT BAR / JUNK BASKET / GAUGE RING GAUGE RING OD : 2.5 IN DEPTH REACHED : 9959FT
RUN 2 - BOND LOG TOOLS RAN : MTAP/MCG/MISE/MSS/MISE DEPTH REACHED : 9959 FT
BOND LOG INFO : FREE PIPE AMPLITUDE : 72 mV BONDED PIPE AMPLITUDE : 2 mV
12 HWDP's OBSERVED FROM 9940' TO 9570'

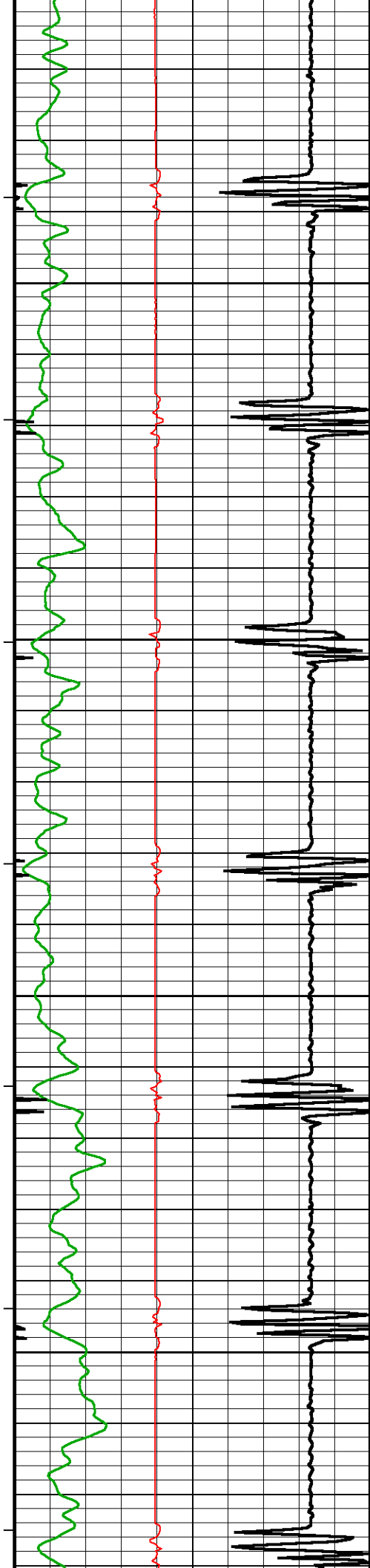
HWDP 5 OBSERVED FROM 9643' TO 9802'

HWDP 1 TO 4 FREE
HWDP 5 TO 10 CEMENTED
HWDP 11 AND 12 FREE

SALES ENGINEER : JASON GRIFFIN

In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.





138°

8950

139°

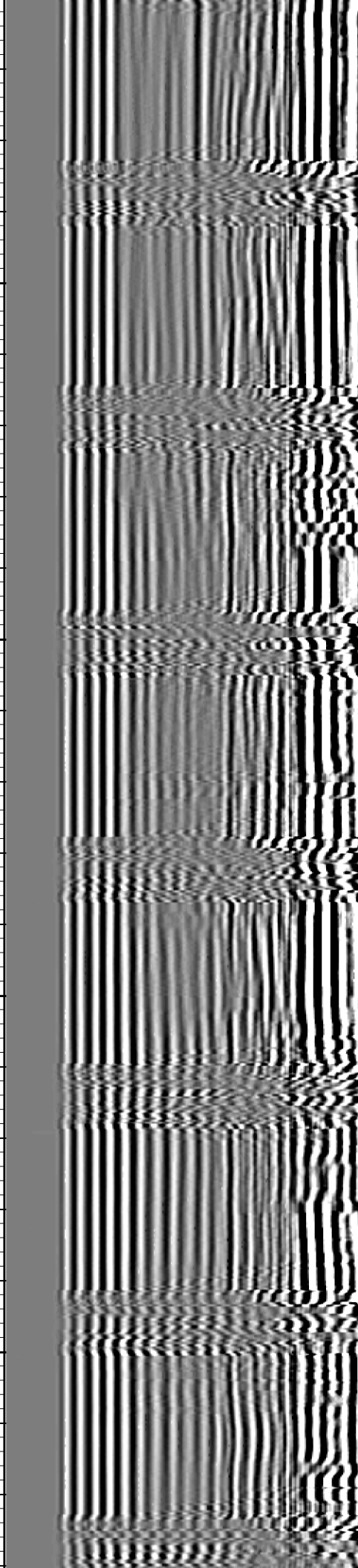
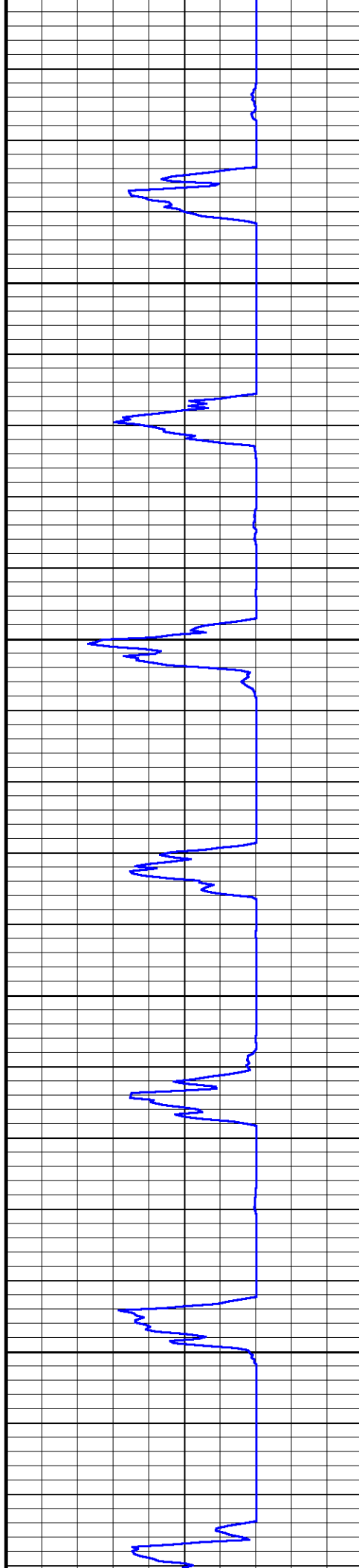
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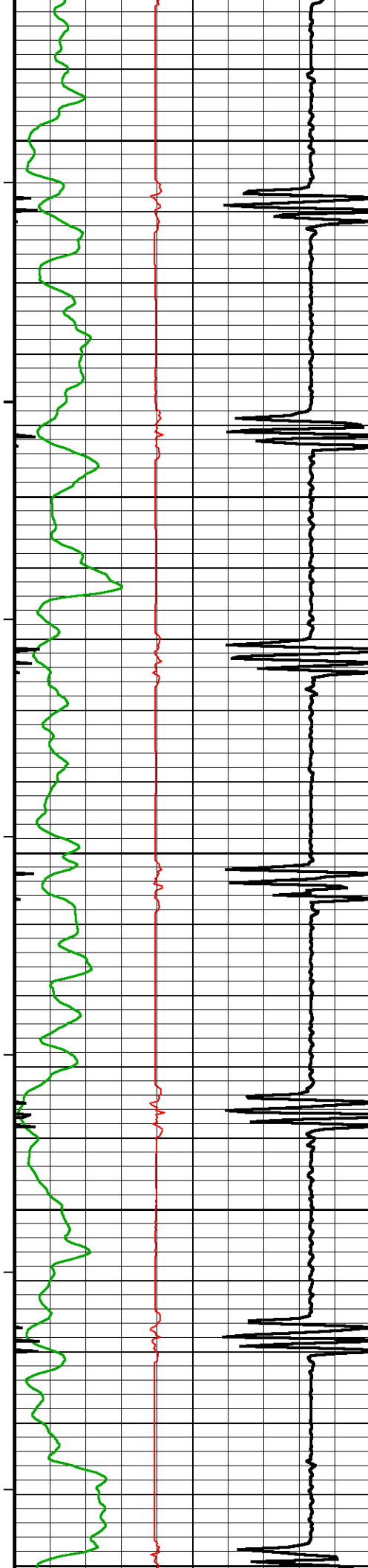
139°

9050

139°

9100





140°

9150

141°

9200

143°

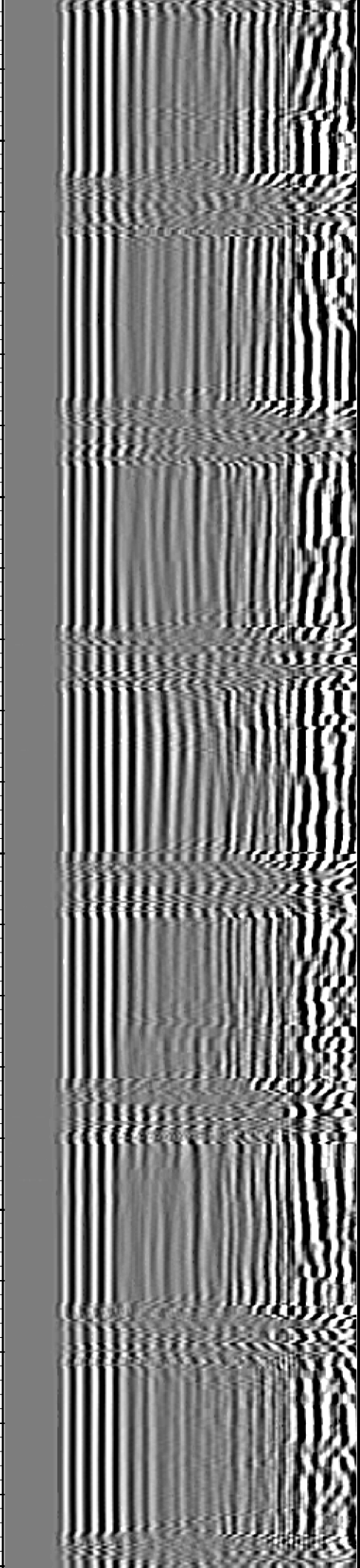
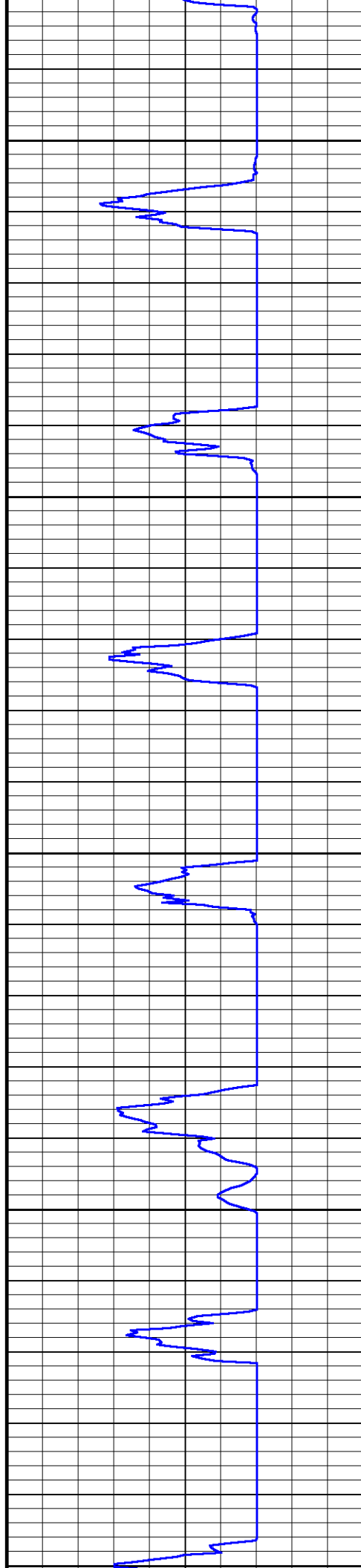
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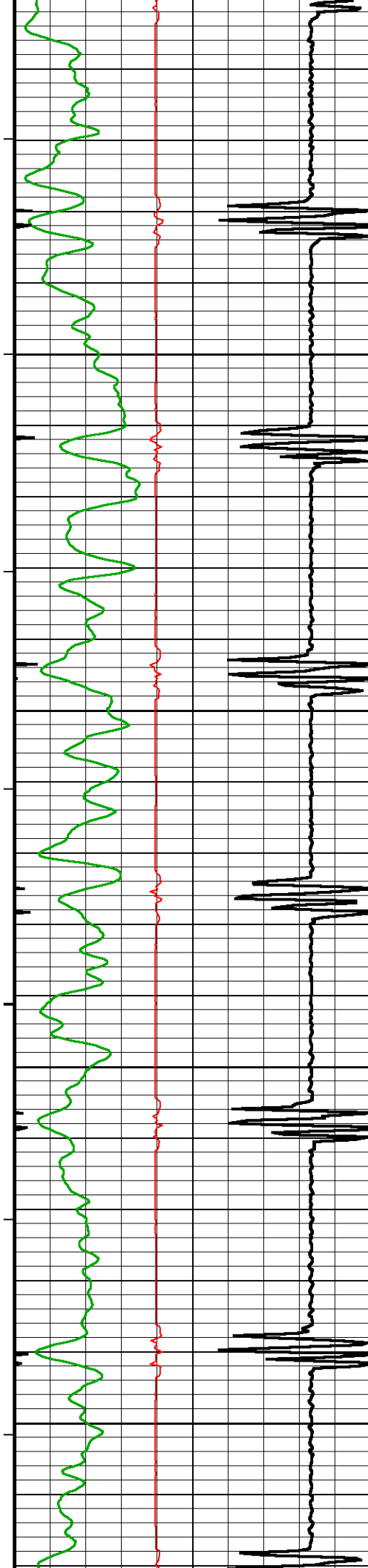
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9300

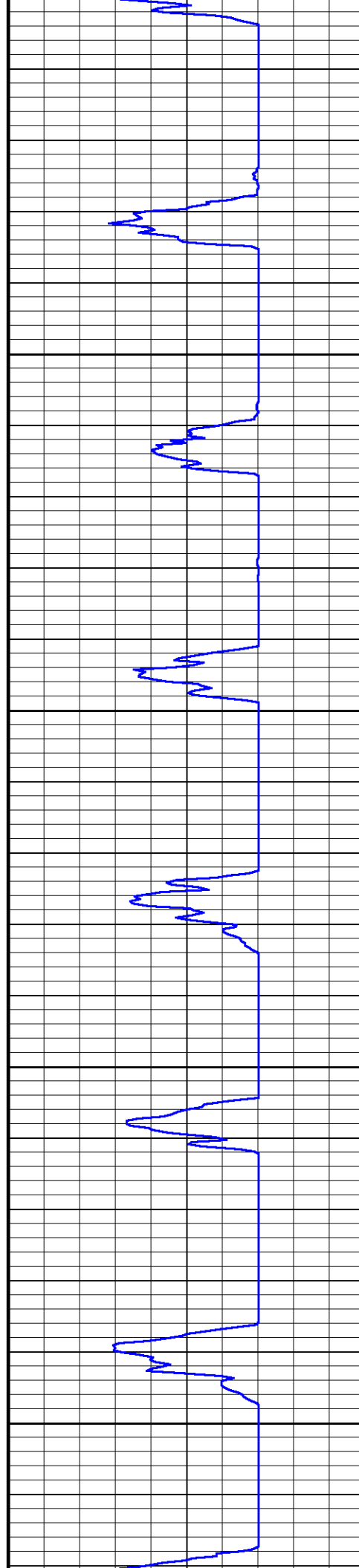
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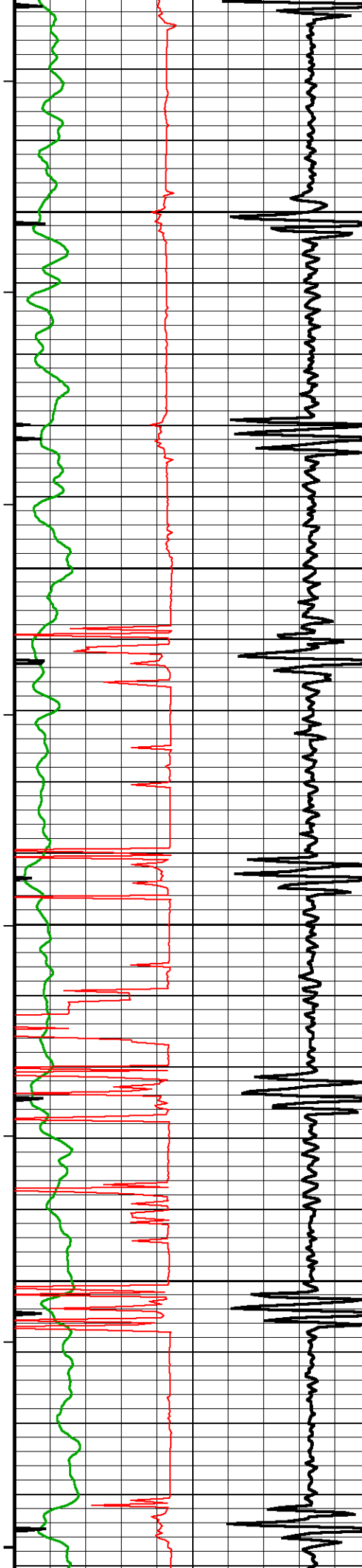
9350





9550
144°
9400
143°
9450
143°
9500
144°
9550





145°

9600

147°

9650

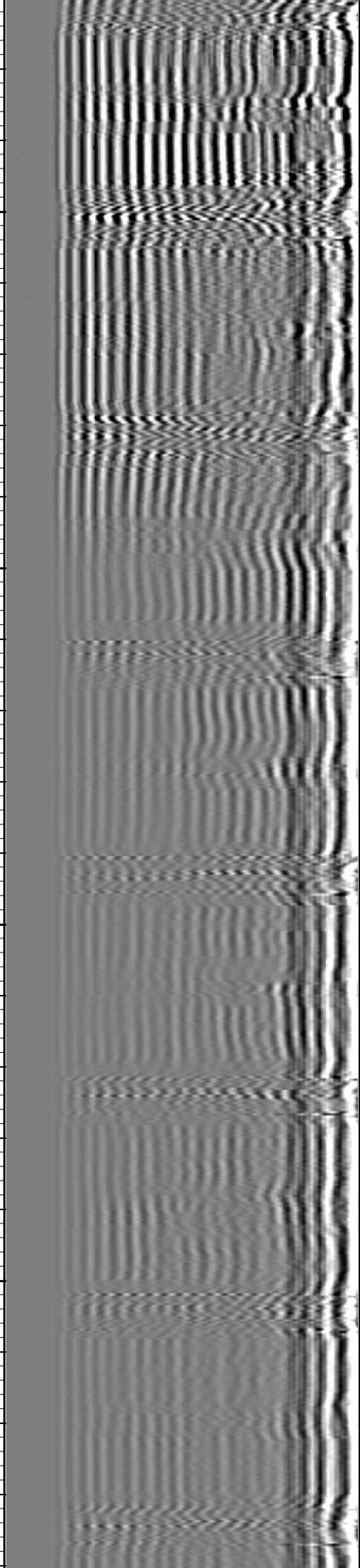
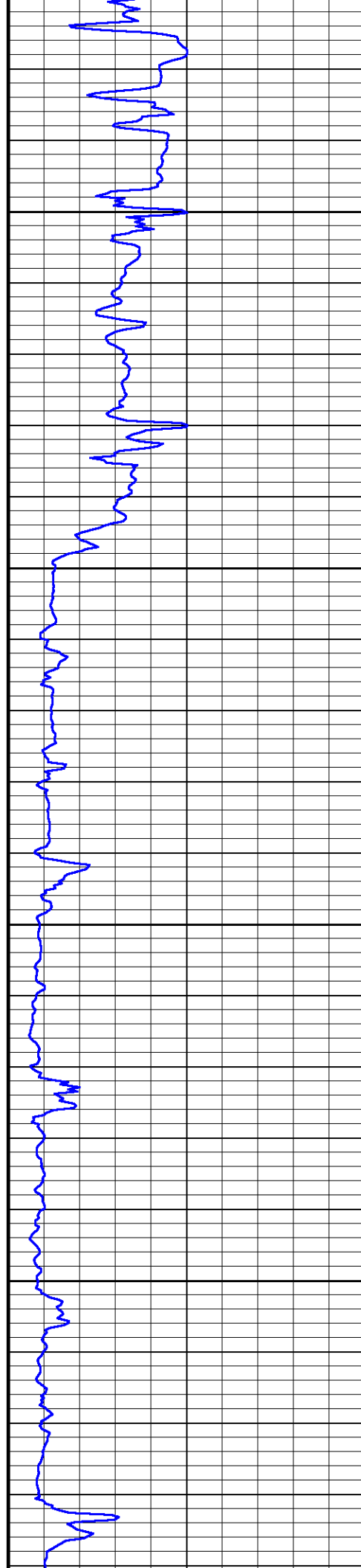
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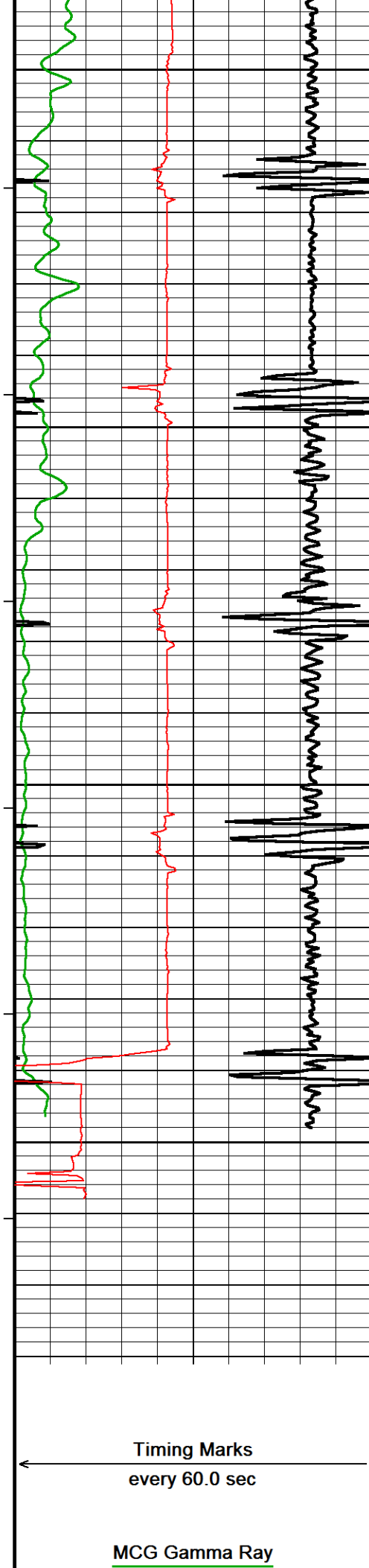
9700

150°

9750

150°





9800

150°

9850

150°

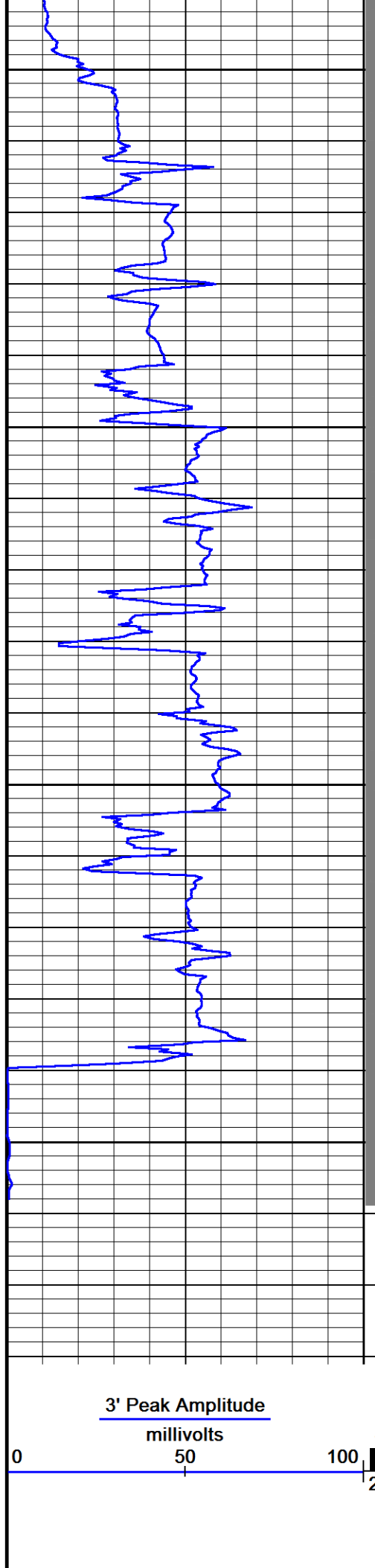
9900

151°

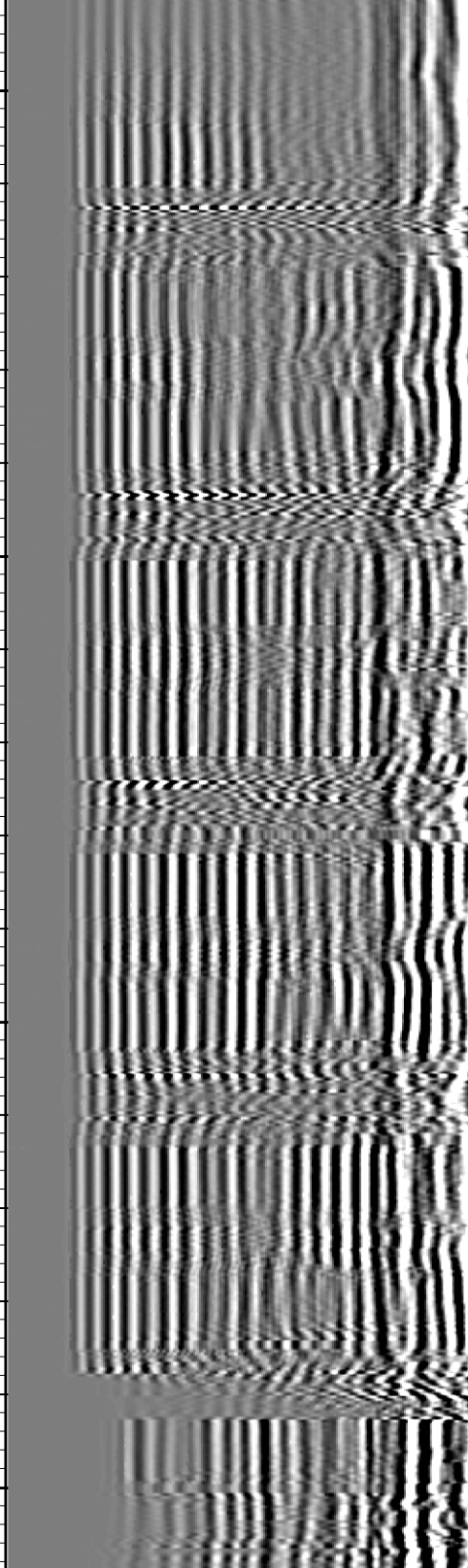
9950

9978

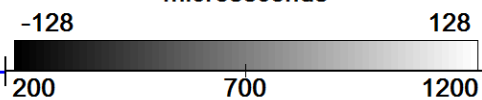
Depth
in
Feet

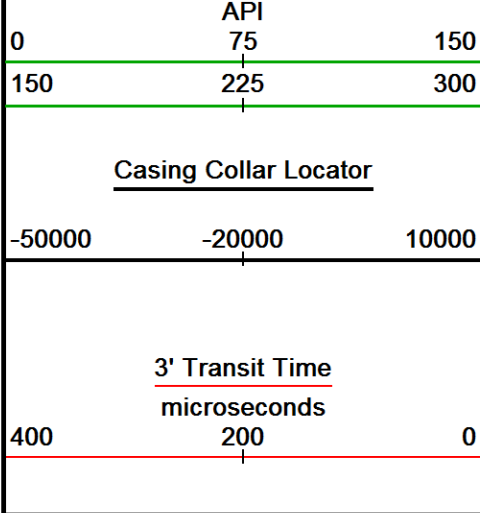


3' Peak Amplitude
millivolts



5' Waveform
microseconds





Borehole
Temp in
deg F

Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\LOGS\NAVAJO REFINING\MSS_MAIN.dta
System Versions: Logged with 18.01.6830 Plotted with 18.01.6830

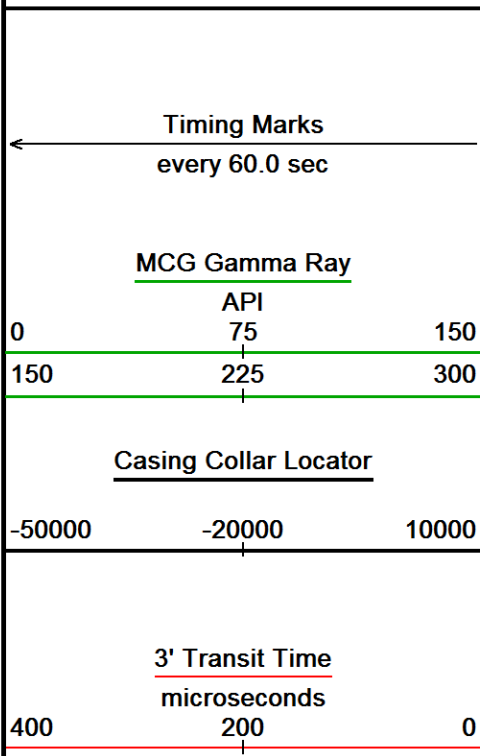
Plotted on 15-JUL-2018 06:43
Recorded on 14-JUL-2018 23:18

MAIN PASS

REPEAT PASS

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\LOGS\NAVAJO REFINING\MSS_REPEAT.dta
System Versions: Logged with 18.01.6830 Plotted with 18.01.6830

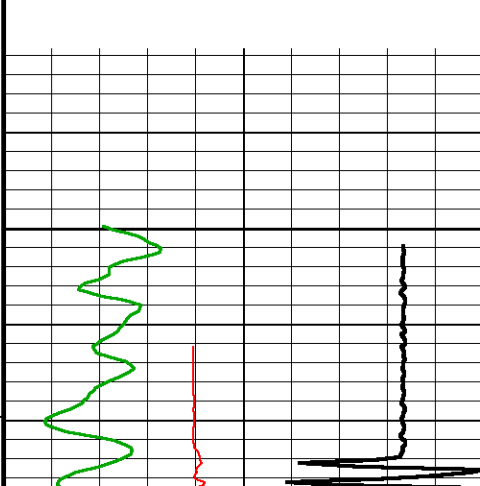
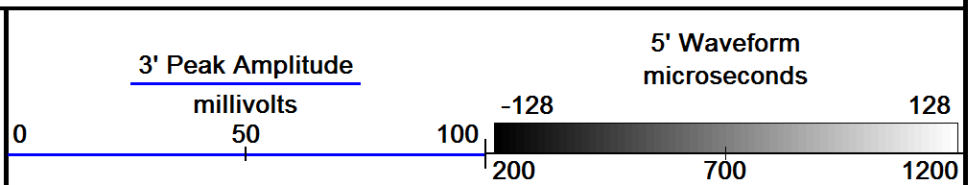
Plotted on 15-JUL-2018 06:43
Recorded on 15-JUL-2018 00:00



Depth
in
Feet

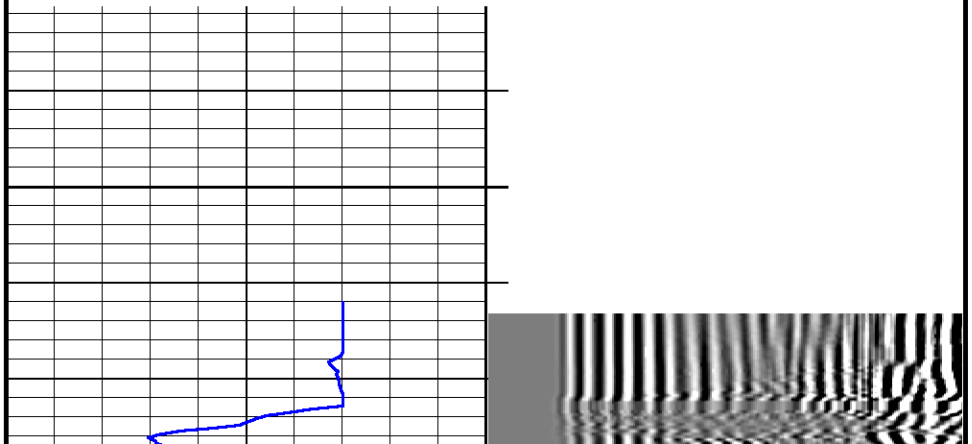
Borehole
Temp in
deg F

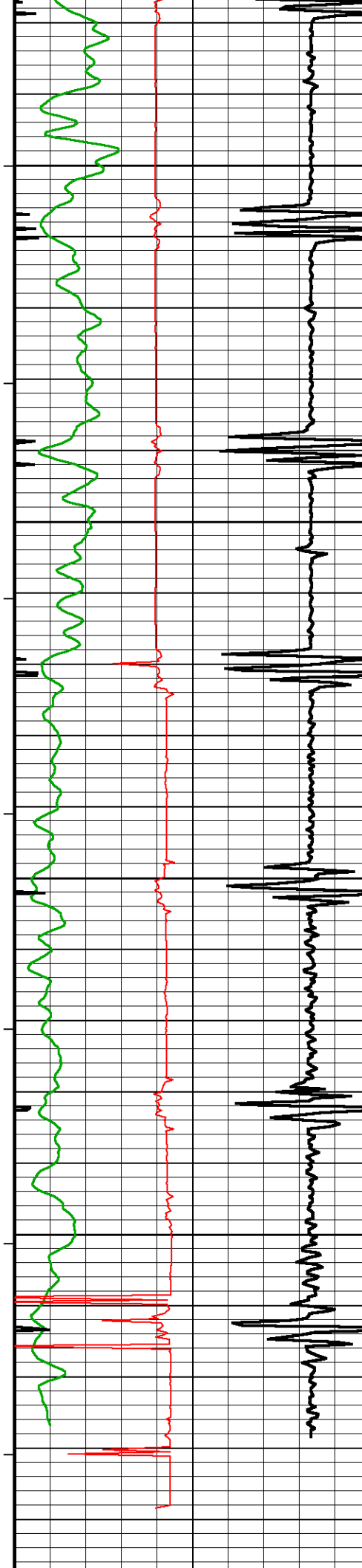
Replay
Scale
1:240



9434

9450





143°

9500

144°

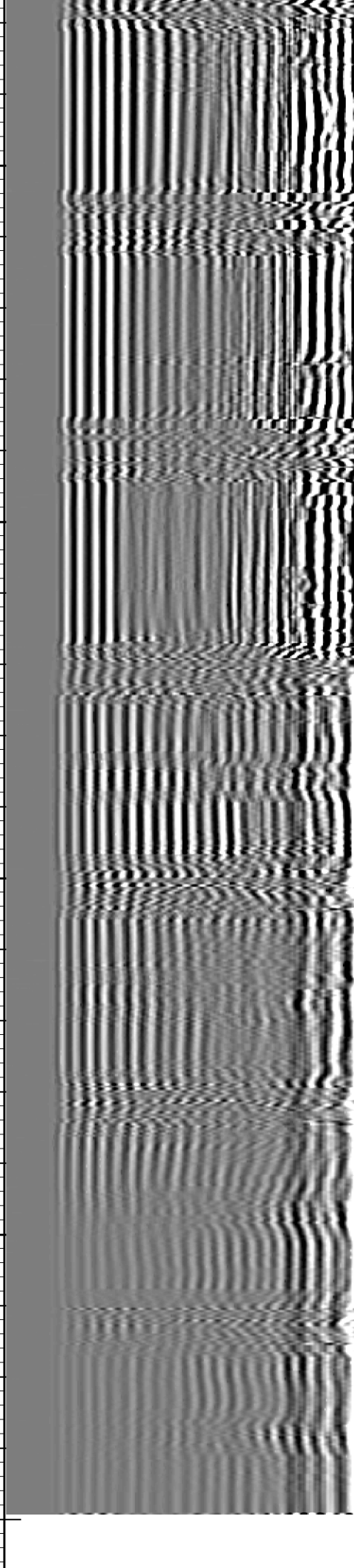
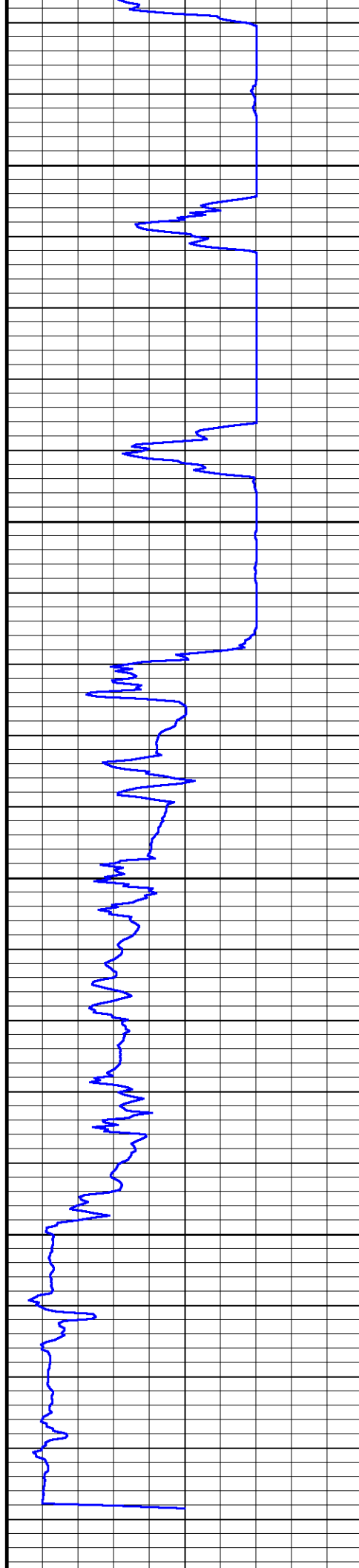
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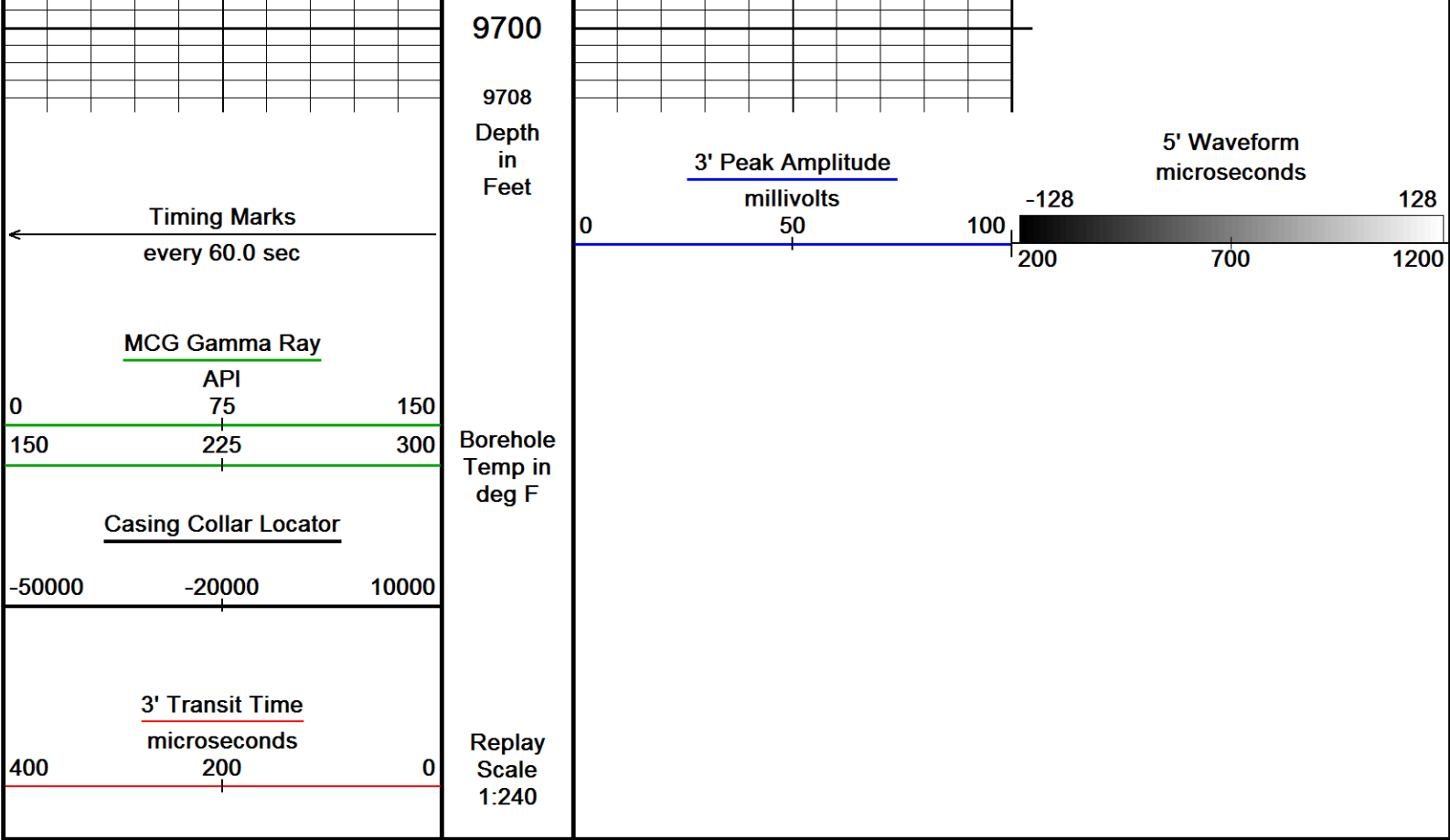
145°

9600

147°

9650





Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:_LOGS\NAVAJO REFINING\MSS_REPEAT.dta
System Versions: Logged with 18.01.6830 Plotted with 18.01.6830

Plotted on 15-JUL-2018 06:43
Recorded on 15-JUL-2018 00:00

↑ REPEAT PASS ↑

BEFORE SURVEY CALIBRATION
C:_LOGS\NAVAJO REFINING\MSS_REPEAT.dta

Gamma Calibration MCG-D.K 477			Field Calibration on 14-JUL-2018,21:49
	Measured	Calibrated (API)	
Background	57	38	
Calibrator (Gross)	680	458	
Calibrator (Net)	623	420	

Gamma Calibration Tolerances MCG-D.K 477		
Ratio	1.484	Counts/API

Gamma Constants MCG-D.K 477			Last Edited on 14-JUL-2018,21:48
Gamma Calibrator Number	123		
GRC-M Calibrator Jig in Use?	NO		
Inactive Background Jig in Use?	NO		
Mud Density	1.00	gm/cc	
Caliper Source for Processing	Bit Size		
Tool Position	Centred		
Potassium Equivalence	Chloride		
K Mud Concentration	0.00	%	

High Resolution Temperature Constants MCG-D.K 477		
Pre-filter Length	11	

Sonic Constants MSS-C.K 371			Last Edited on 14-JUL-2018,22:20
Maximum Boundary Contrast	70.00	micro-sec/ft	
Fluid Transit Time	189.00	micro-sec/ft	
Limestone Transit Time	47.50	micro-sec/ft	

Sandstone Transit Time	55.50	micro-sec/ft
Dolomite Transit Time	43.50	micro-sec/ft
Sonic used for Porosities	3-5' Compensated Sonic	
Correction for Sonde Skew	Applied	
Cycle Stretch Algorithm	Applied	
MN3FT	0.00	micro-sec
MX3FT	1500.00	micro-sec
Hunt-Raymer Constant	83.13	micro-sec/ft

Sonde Mode	Single Waveform
Hole Type	Cased Hole

Sonde Parameters

	Measured	Calibrated
Offset		0.0000
Free Pipe	156.0000	71.7705

Peak Amplitude Source	PK21
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Waveform	Start Time (micro-sec)	Width (micro-sec)	Pre Gain	Start Gain	Discriminator (mV)
3'	246	29	1	16	31.738
4'	324	25	1	16	4.883
5'	355	27	1	16	20.752
6'	438	25	1	16	2.441

Processed Fixed Gate Parameters

Waveform Used For Processing	5 foot		
Start Time (micro-sec)	End Time (micro-sec)	Discriminator (mV)	Depth (m)
0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00

Full Waveform Parameters

Use 3' Waveform to derive TR	N/A	
Use 4' Waveform to derive TR	N/A	
Use 5' Waveform to derive TR	N/A	
Use 6' Waveform to derive TR	N/A	
3' Waveform Discriminator Level	N/A	mV
4' Waveform Discriminator Level	N/A	mV
5' Waveform Discriminator Level	N/A	mV
6' Waveform Discriminator Level	N/A	mV

Waveform Discriminator Filter	N/A	
Semblance Window Width	N/A	micro-sec
Semblance Processing Enabled	N/A	
Tracking Boxes Enabled In Processing	N/A	

COMPANY	WSP USA INC.
WELL	NAVAJO REFINING WDW #4
FIELD	ARTESIA
PROVINCE/COUNTY	EDDY
COUNTRY/STATE	UNITED STATES / NEW MEXICO

Elevation Kelly Bushing	3585.8	feet	Bottom Log Interval	9940.00	feet
Elevation Drill Floor	3585.8	feet	Depth Driller	10327.00	feet
Elevation Ground Level	3565.8	feet	Depth Logger	9940.00	feet



BOND LOG

CBL-VDL-GR-CCL

Weatherford[®]

