



EWB Electromagnetic Wave Resistivity
DGR Dual Gamma Ray
ACAL Acoustic Caliper
BAT Bi-Modal Acoustic Sonic

[illegible]

WELL INFORMATION

MWD Run Number	300	400			
Date run completed	29-Nov-03	03-Dec-03			
Rig Bit Number	4	5			
Bit Size (mm)	311	311			
Tool Nominal OD (mm)	203	203			
Log Start Depth (TVD, m)	2448.66	2391.81			
Log End Depth (TVD, m)	2480.82	2674.43			
Drill or Wipe	Drilling	Drilling			
Drill/Wipe Start Date and Time	28-Nov-03 23:50	30-Nov-03 23:30			
Drill/Wipe End Date and Time	29-Nov-03 08:00	02-Dec-03 18:45			
Min Inc (deg) @ Depth (TVD, m)	0.75 @ 2441.08	0.28 @ 2,332.10			
Max Inc (deg) @ Depth (TVD, m)	0.75 @ 2441.08	17.94 @ 2,564.05			
Bit TFA(in2) / Bit Type	1.33 / Hughes MX20DX	1.33 / Hughes MX20DX			
Flow Rate (gpm)	710	690			
Max AV (mpm) / CV (mpm) @ MWD	82.7 / 153.6	60.6 / 136.8			
Fluid Type	Aqua Drill	Aqua-Drill			
Density (sg) / Viscosity (spl)	1.2 / 72.00	1.2 / 80.00			
Filtrate CL (ppm)	39950	38500			
pH / Fluid Loss (cptm)	9.50 / 1.0	10.20 / 5.5			
PV (cp) / YP (pa)	25 / 35.00	25 / 16.80			
% Solids / % Sand	5.5 / 0.75	6.0 / 0.25			
% Oil / Oil:Water Ratio	N/A / N/A:100	N/A / N/A:100			
Rm @ Measured Temp (degC)	0.12 @ 18.00	0.12 @ 20.00			
Rmf @ Measured Temp (degC)	0.11 @ 18.00	0.11 @ 20.00			
Rmc @ Measured Temp (degC)	0.25 @ 18.00	0.24 @ 20.00			
Max Tool Temp (degC) / Source	66.00 / EWR-P4	65.00 / EWR-P4			
Rm @ Max Tool Temp (degC)	0.05 @ 66.00	0.06 @ 65.00			
Lead MWD Engineer	F.Besanger	F. Besanger			
Customer Representative	P.Devine	P. Devine			

SENSOR INFORMATION

Downhole Processor Information

Tool Type	HCIM	HCIM			
Software Version	66.37	66.37			
Sub Serial Number	198838	198838			
Insert Serial Number	132882	132882			
Logging String Serial Number	DM90031516XHRLG	DM90031516XHRLG			
Date and Time Initialized	28-Nov-03 16:22	30-Nov-03 14:52			
Date and Time Read	29-Nov-03 14:09	03-Dec-03 08:15			

Directional Sensor Information

Tool Type	DM	DM			
Distance From Bit (m)	26.71	26.71			
Software Version	3.15	3.15			
Sub Serial Number	29034	29034			
Sonde Serial Number	103286	103286			
Sensor ID Number	N/A	N/A			
Survey String Serial Number	DM90026201F8	DM90026201F8			
Toolface Offset (deg)	18.00	18.00			

Gamma Ray Sensor Information

Tool Type	DGR	DGR			
Distance From Bit (m)	12.94	12.94			
Recorded Sample Period (sec)	10	10			
Software Version	N/A	N/A			
Sub Serial Number	082377	082377			
Insert/Sonde Serial Number	89753	89753			

Resistivity Sensor Information

Tool Type	EWR-P4	EWR-P4			
Distance From Bit (m)	19.36	19.36			
Recorded Sample Period (sec)	12	12			
Software Version	1.38	1.38			
Sub Serial Number	121090	121090			
Receiver Insert Serial Number	74703	74703			
Transmitter Insert Serial Number	62499	62499			
Receiver Orientation	Down	Down			

Sonic Sensor Information

Tool Type	BAT	BAT			
Distance From Bit (m)	34.70	34.70			
Recorded Sample Period (sec)	14	14			
Software Version	4.41	4.41			
Sub Serial Number	187219	187219			
Receiver Insert Serial Number	180818	180818			
Transmitter Insert Serial Number	179659	179659			

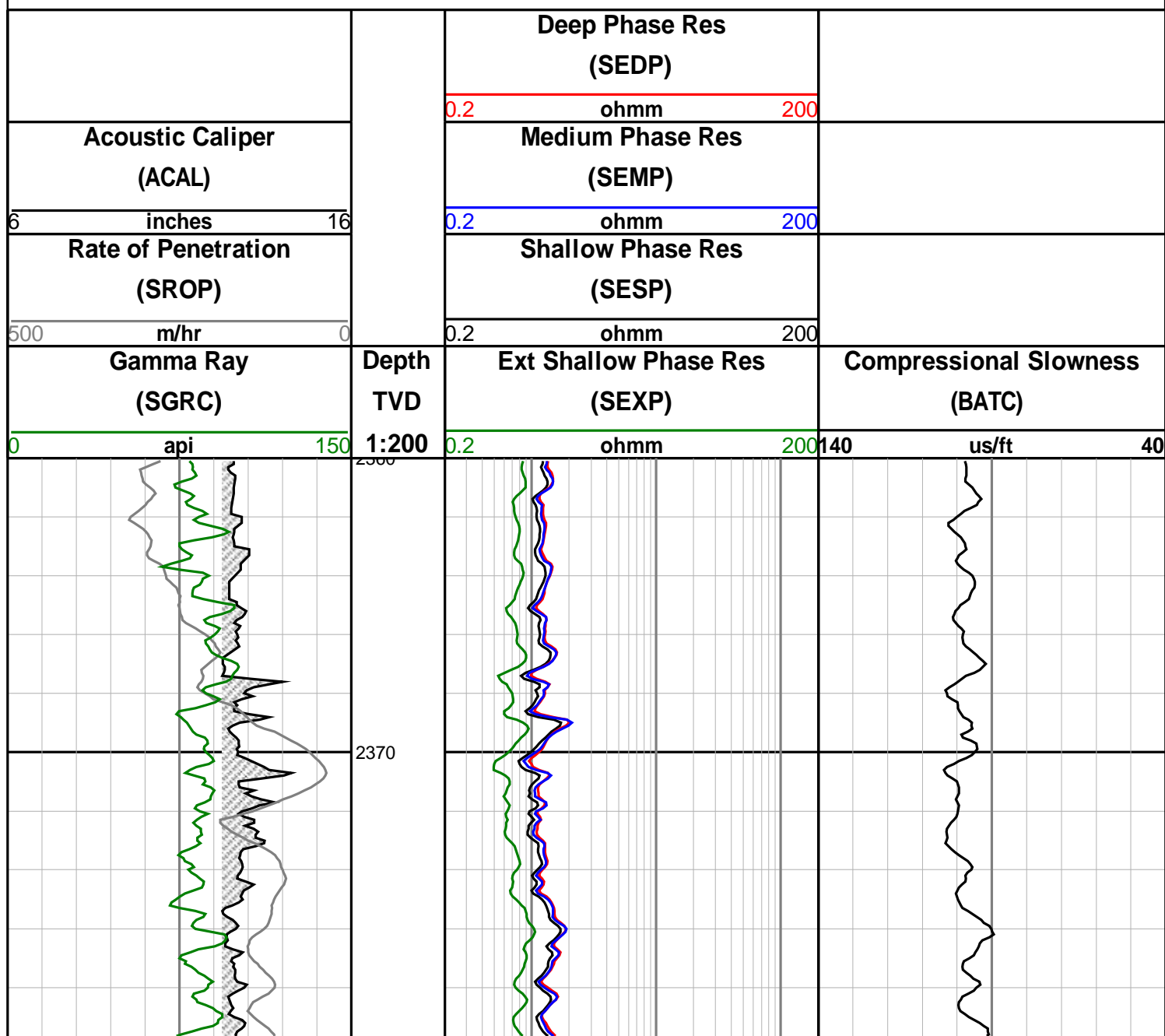
REMARKS

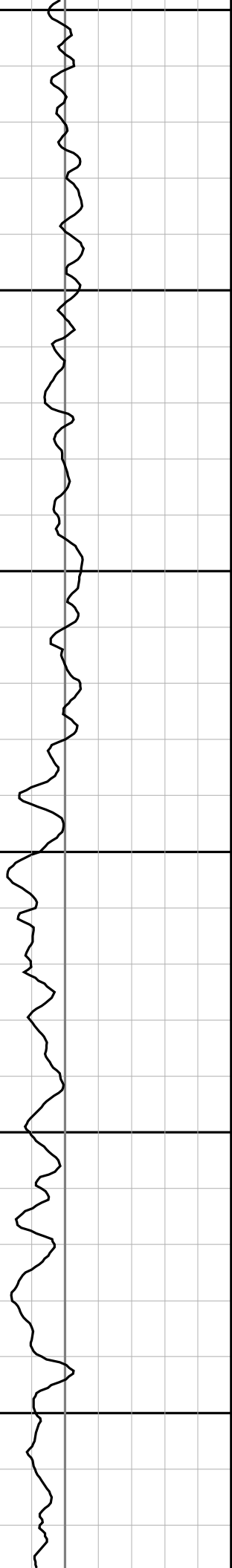
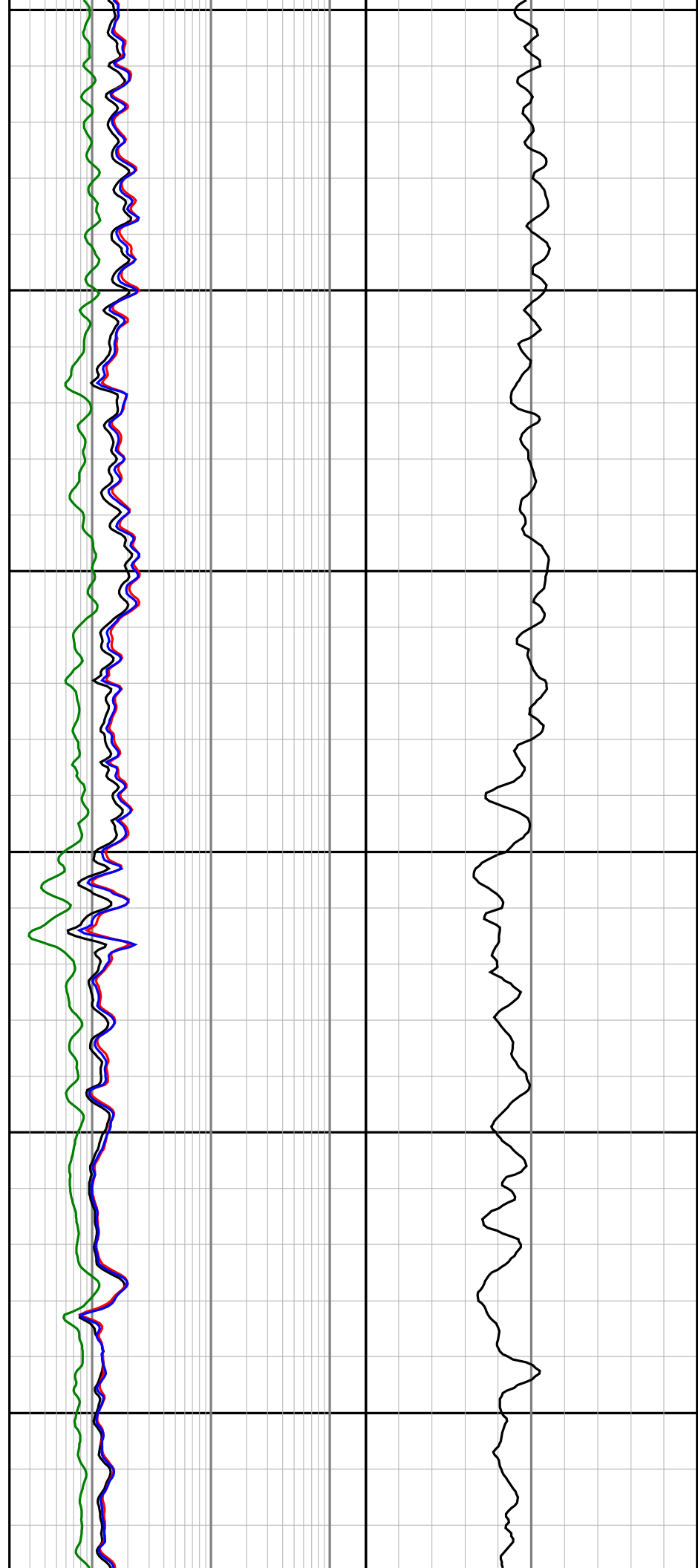
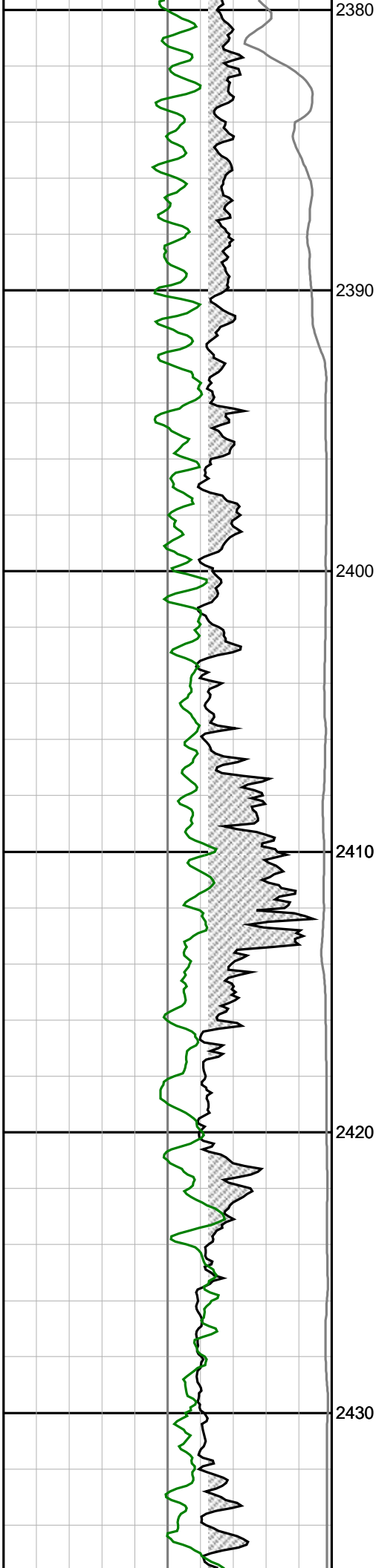
1. All depths are bit depths and referenced to the drillers pipe tally.
2. AV/CV is calculated at the MWD collar using the Power Law for water based muds and the Bingham's Plastic Law for oil based muds.
3. Curve mnemonics are :
 - SGRC - Smoothed Gamma Ray Combined, api
 - SEXP - Smoothed Extra Shallow Phase-Shift Derived Resistivity, ohm-m
 - SESP - Smoothed Shallow Phase-Shift Derived Resistivity, ohm-m

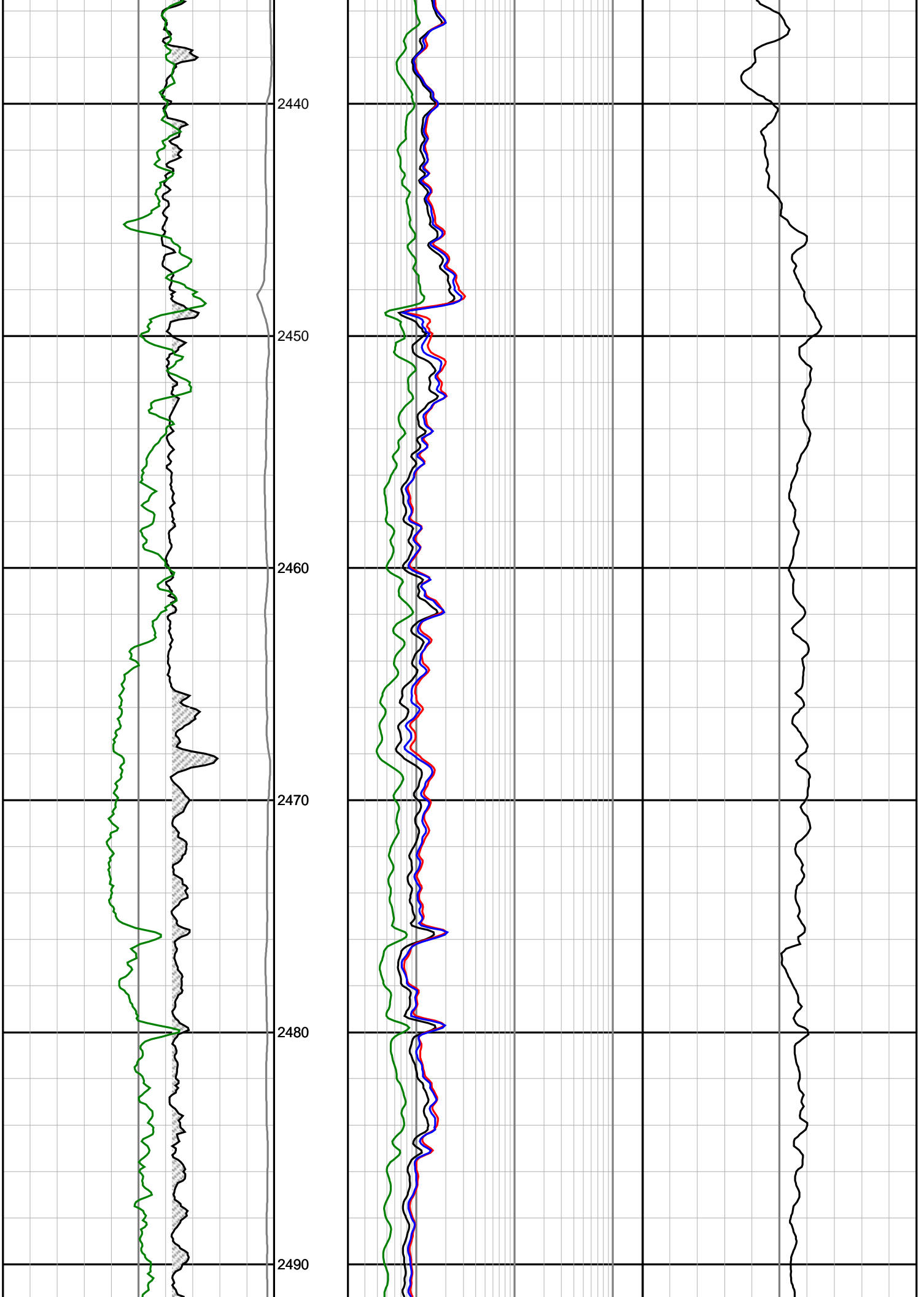
SESP - Smoothed Shallow Phase-Shift Derived Resistivity, ohm-m
 SEMP - Smoothed Medium Phase-Shift Derived Resistivity, ohm-m
 SEDP - Smoothed Deep Phase-Shift Derived Resistivity, ohm-m
 SROP - Smoothed Rate of Penetration, m/hr
 ACAL - Acoustic Caliper, inches.
 BATC - Bi-Modal Acoustic Compressional Sonic, usec/ft

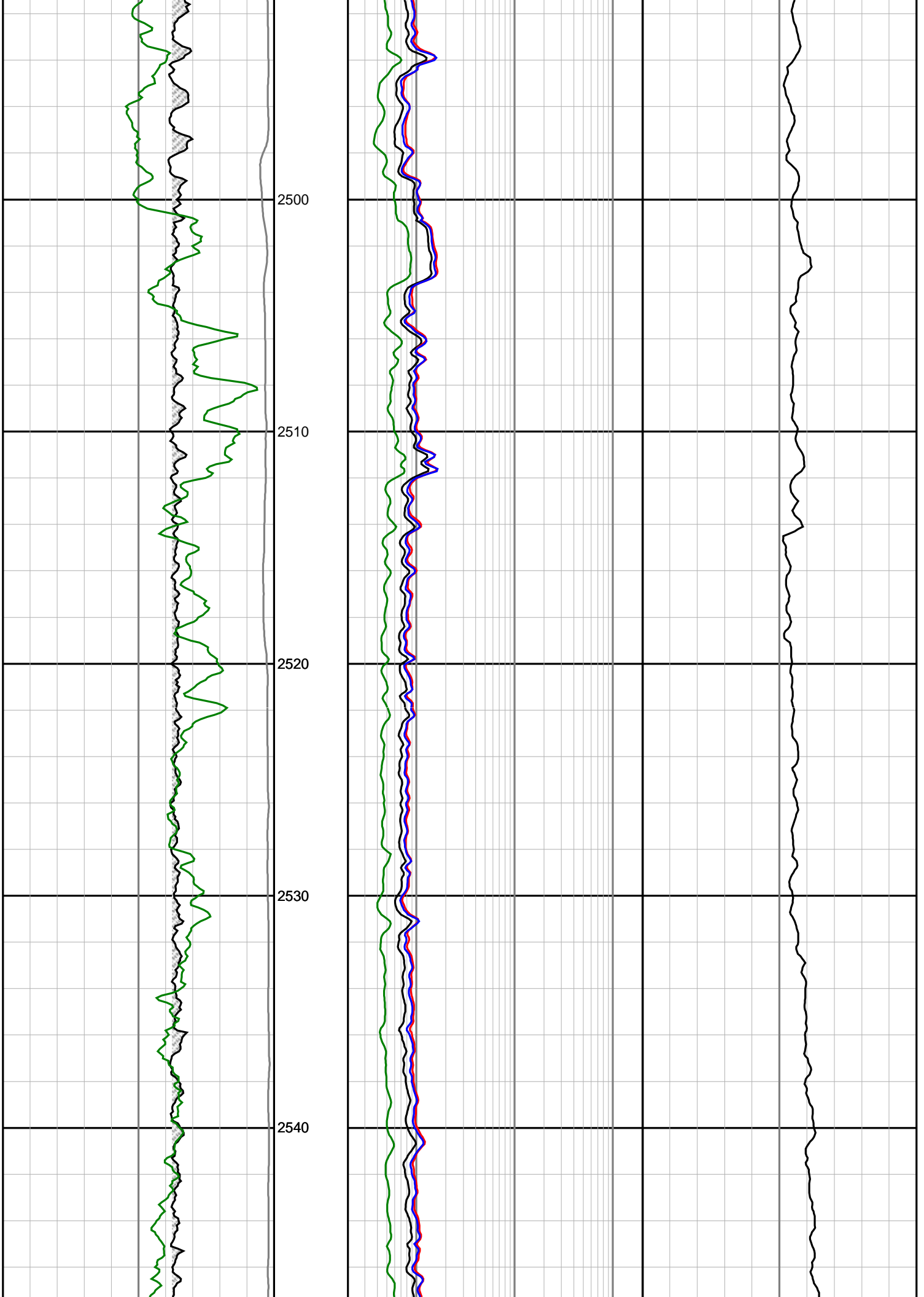
WARRANTY

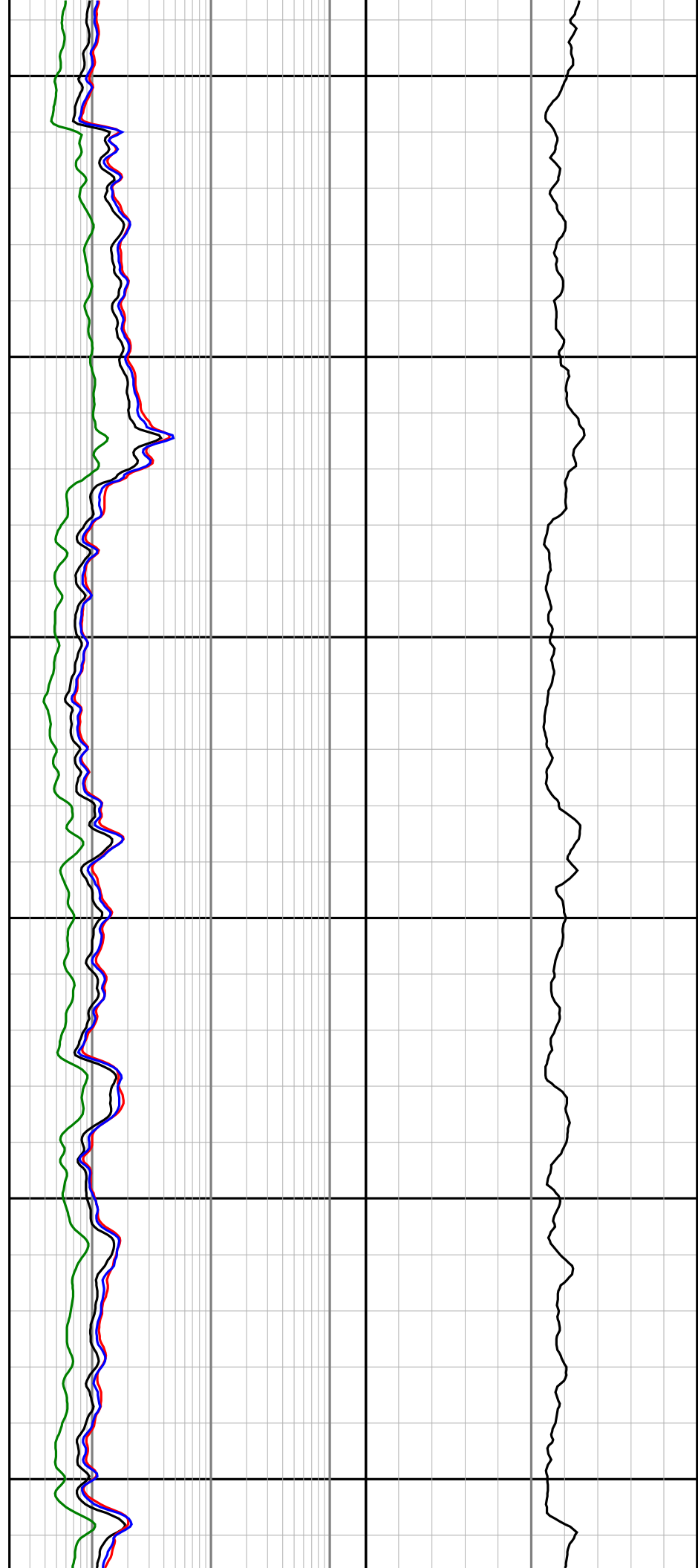
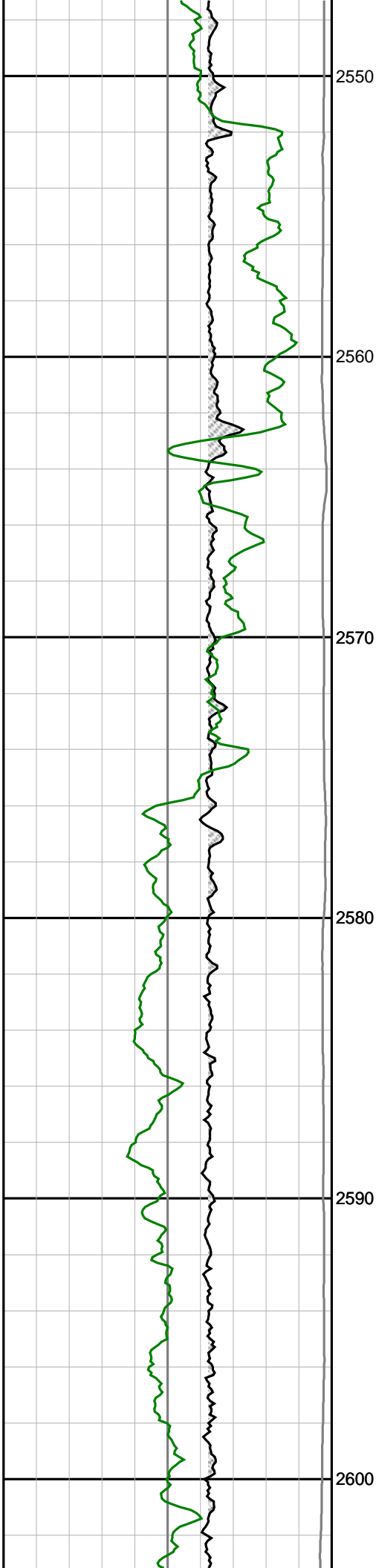
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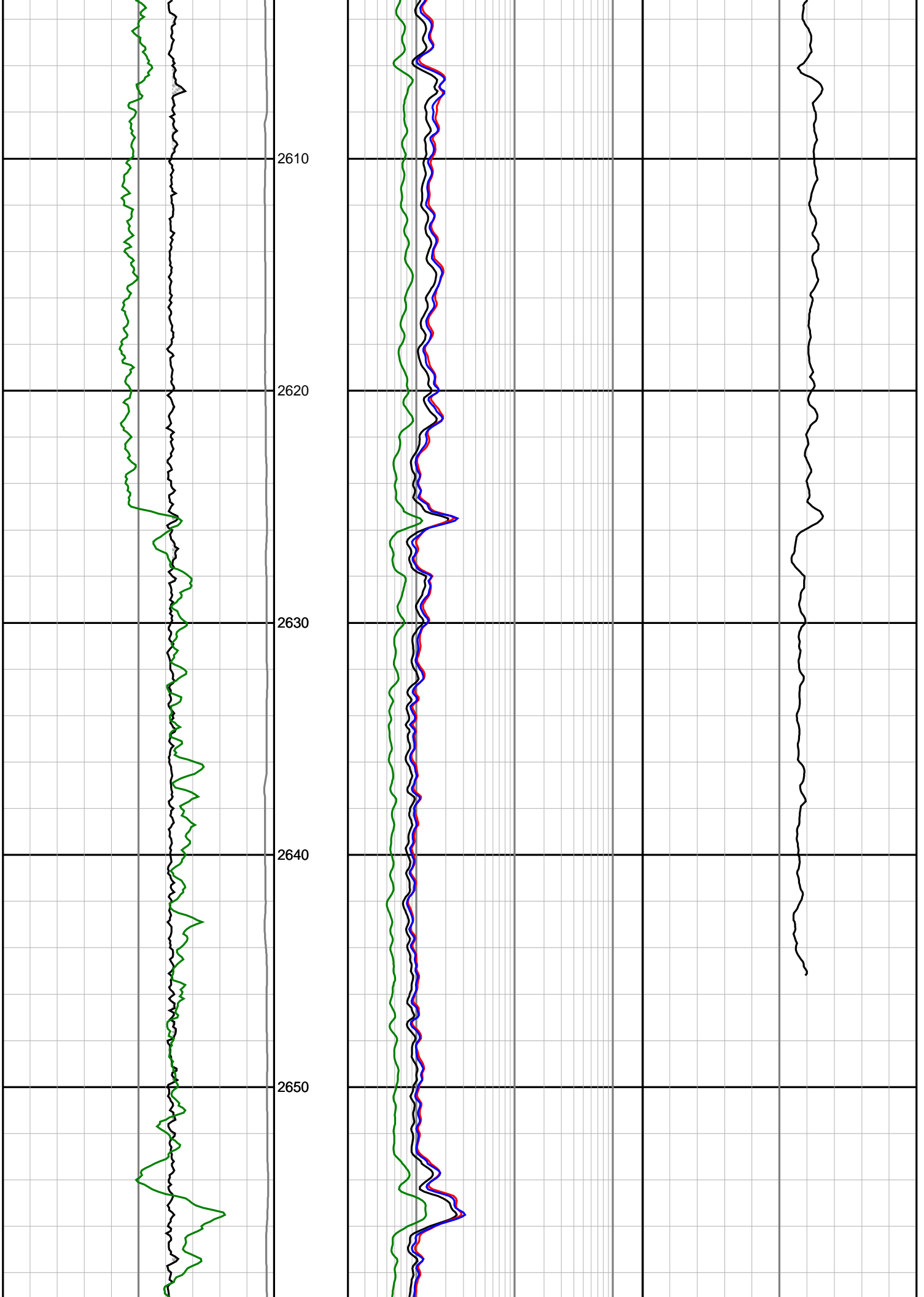


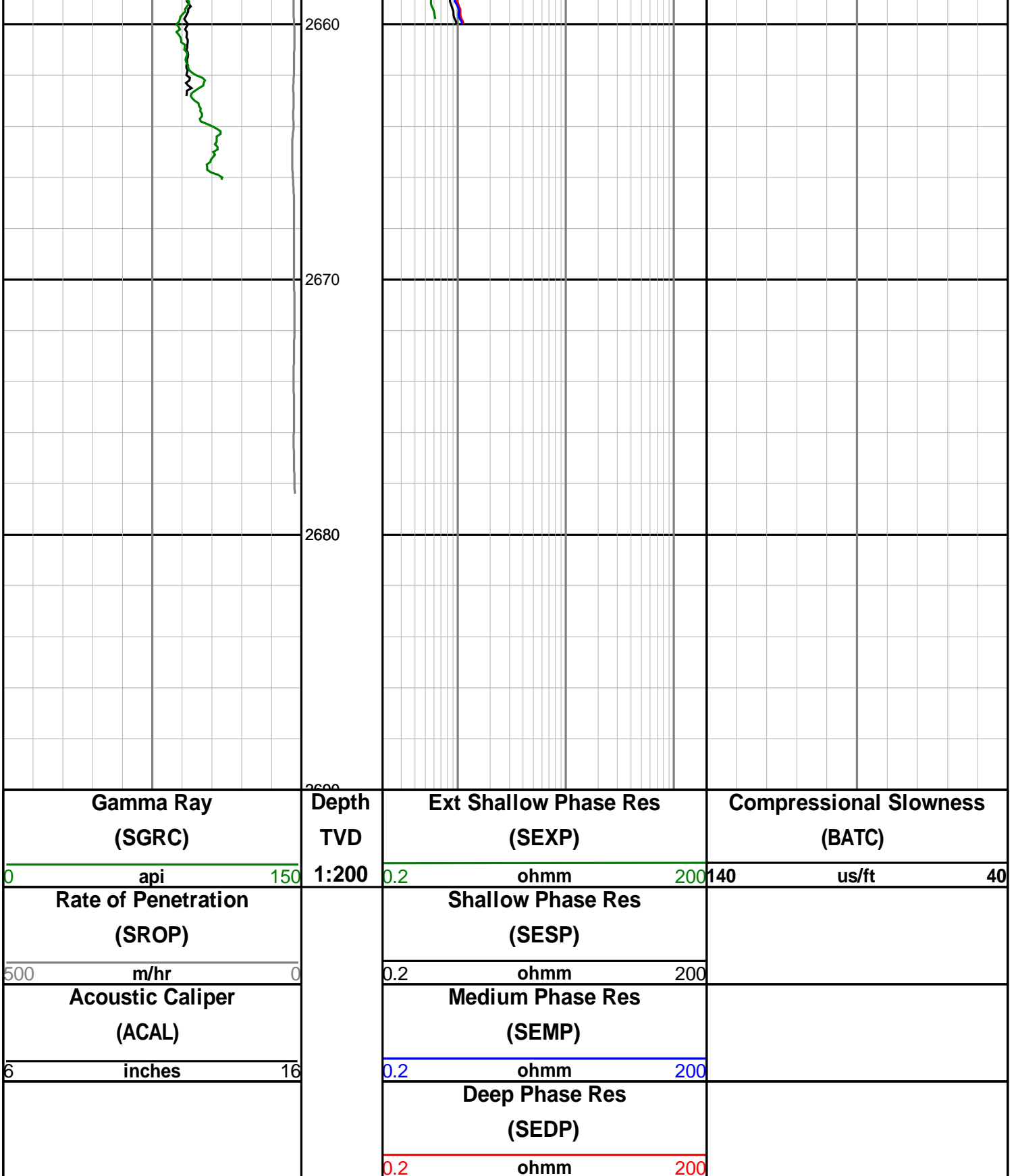












DIRECTIONAL SURVEY REPORT
BHP Billiton

<i>Measured Depth (metres)</i>	<i>Inclination (degrees)</i>	<i>Direction (degrees)</i>	<i>Vertical Depth (metres)</i>	<i>Latitude (metres)</i>	<i>Departure (metres)</i>	<i>Vertical Section (metres)</i>	<i>Dogleg (deg/30m)</i>
2383.080	0.83	351.30	2381.890	46.190 N	1.780 W	46.190	TIE-IN
2384.750	0.76	350.33	2383.560	46.213 N	1.784 W	-41.053	1.22
2412.800	0.28	303.92	2411.609	46.435 N	1.871 W	-41.217	0.65
2443.800	7.35	186.91	2442.525	44.507 N	2.172 W	-39.344	7.23
2469.500	14.35	185.33	2467.750	39.699 N	2.666 W	-34.784	8.18
2499.760	15.12	185.79	2497.015	32.039 N	3.413 W	-27.535	0.78
2528.500	15.52	186.75	2524.733	24.491 N	4.244 W	-20.352	0.49
2553.500	16.08	187.06	2548.789	17.733 N	5.062 W	-13.889	0.68
2585.900	16.57	187.44	2579.882	8.698 N	6.212 W	-5.224	0.47
2614.750	17.07	187.73	2607.497	0.421 N	7.315 W	2.734	0.53
2656.600	17.94	187.31	2647.409	12.059 S	8.961 W	14.727	0.63
2688.000	17.94	187.31	2677.282	21.653 S	10.192 W	23.932	0.00

CALCULATION BASED ON MINIMUM CURVATURE METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT

TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

VERTICAL SECTION RELATIVE TO WELL HEAD

VERTICAL SECTION IS COMPUTED ALONG A CLOSURE OF 205.21 DEGREES (GRID)

A TOTAL CORRECTION OF 14.07 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED



HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.

HORIZONTAL DISPLACEMENT(CLOSURE) AT 2688.000 METRES

IS 23.932 METRES ALONG 205.21 DEGREES (GRID)














MWD RUN 300 - BHA

MWD RUN 300 - MWD

		Cumulative Length (m)			Sensor Measure Point Distance To Bit (m)
		211.42			
HWDP			BAT		
Sub		135.77			
		135.13			
HWDP			8 DGWD 650 System		
Sub		125.66			
		124.55			
Drill Collar			PM		
		105.63			
Jar			HCIM		
		95.88			



















Date Printed:08 January 2004





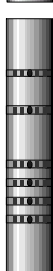




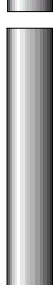

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Drill Collar			CNP		22.310
Sub		40.10	EWR-P4		19.360
		38.18			
MWD					
Reamer		11.73	SLD		16.400
Sub		9.41			
		8.64	DGR		12.940
Motor					
Bit		0.35			

MWD RUN 400 - BHA

MWD RUN 400 - MWD

		Cumulative Length (m)			Sensor Measure Point Distance To Bit (m)
HWDP		211.42			BAT
					
					
Sub		135.77			8 DGWD 650 System
		135.13			
					
HWDP					PM
					
					
Sub		125.66			HCIM
		124.55			
					
Drill Collar		105.63			
					
Jar					

Drill Collar		95.88	CNP		22.310
					
Sub		40.10	EWR-P4		19.360
MWD		38.18			
Reamer		11.73			
Sub		9.41			
Motor		8.64	DGR		12.940
Bit		0.35			