

**DGR Dual Gamma Ray  
ACAL Acoustic Caliper  
EWR-Phase 4  
ALD Azimuthal Lithodensity  
CTN Compensated Thermal Neutron**

# Sperry Drilling Services

**1 : 500**

Country		: Australia			
Field		: Exploration			
Location		: Lat: 38° 5' 8.75" South Long: 147° 33' 44.11" East			
Well		: Galloway-1			
Company		: SANTOS Ltd			
Rig		: Ensign Rig 32			
LOCATION		Latitude : 38° 5' 8.75" South Longitude : 147° 33' 44.11" East UTM Easting = 549,307.00 m UTM Northing = 5,784,519.99 m		Other Services Directional Drilling	
				Elev. KB DF 8.60 m GL 2.78 m WD	
Permanent Datum : Mean Sea Level				Elevation : 0.00 m	
Log Measured From : Drill Floor				8.60 m Above Permanent Datum	
Drilling Measured From : Drill Floor				MD LOG	
Depth Logged : 320.00 m To 2,315.00 m				Unit No. : 182	
Date Logged : 25-Jul-06 To 22-Aug-06				Job No. : AU-FE-0004392520	
Total Depth MD : 2,315.00 m TVD : 1,364.69 m				Plot Type : Final	
Spud Date : 25-Jul-06				Plot Date : 04-Oct-06	
Run No.		Borehole Record (MD)		Run No.	
Size		From To		Size From To	
1	17,500 in	60.00 m	320.00 m		
2	12,250 in	320.00 m	636.00 m		
3	12,250 in	636.00 m	1,606.00 m		
4	8,500 in	1,606.00 m	1,660.00 m		
5	8,500 in	1,660.00 m	1,680.00 m		
6	8,500 in	1,680.00 m	1,881.00 m		
7	8,500 in	1,881.00 m	2,315.00 m		

<b>MWD Run Number</b>	200	300	400	500	600
<b>Date run completed</b>	03-Aug-06	06-Aug-06	13-Aug-06	15-Aug-06	16-Aug-06
<b>Rig Bit Number</b>	3	4	7	8	8RR
<b>Bit Size (in)</b>	12.25	12.25	8.5	8.5	8.5
<b>Tool Nominal OD (in)</b>	8.00	8.00	6.75	6.75	6.75
<b>Log Start Depth (MD, m)</b>	320.00	636.00	1,606.00	1,660.00	1,680.00
<b>Log End Depth (MD, m)</b>	636.00	1,606.00	1,660.00	1,680.00	1,881.00
<b>Drill or Wipe</b>	Drilling	Drilling	Drilling	Drilling	Drilling
<b>Drill/Wipe Start Date and Time</b>	02-Aug-06 22:42	04-Aug-06 12:19	12-Aug-06 02:08	13-Aug-06 13:12	15-Aug-06 09:35
<b>Drill/Wipe End Date and Time</b>	03-Aug-06 14:45	06-Aug-06 02:19	12-Aug-06 14:24	14-Aug-06 20:52	16-Aug-06 06:41
<b>Min Inc (deg) @ Depth (MD, m)</b>	22.40 @ 325.11	70.35 @ 712.75	69.84 @ 1,647.79	N/A @ N/A	47.98 @ 1,851.05
<b>Max Inc (deg) @ Depth (MD, m)</b>	70.37 @ 622.25	73.81 @ 799.62	71.72 @ 1,620.16	N/A @ N/A	67.72 @ 1,677.35
<b>Bit TFA(in2) / Bit Type</b>	1.03 / Reed T11C	1.37 / ReedRSX516S	90 / ReedRSX616MB1	90 / ReedRSX616MB1	49 / ReedRSX616MB1
<b>Flow Rate (gpm)</b>	701	770	580	554	600
<b>Max AV (mpm) / CV (mpm) @ MWD</b>	76.1 / 127.0	96.1 / 64.0	162.4 / 167.0	164.8 / 167.0	168.0 / 162.0
<b>Fluid Type</b>	Polymer	Polymer	Polymer	Polymer	Polymer
<b>Density (sg) / Viscosity (spqt)</b>	1.09 / 45	1.13 / 58	1.15 / 53	1.17 / 55	1.25 / 51
<b>Filtrate CL (ppm)</b>	25,307	34,742	30,062	30,062	36,602
<b>pH / Fluid Loss (mptm)</b>	10.00 / 5.6	9.00 / 5.8	9.50 / 5.6	9.50 / 5.9	9.00 / 9.0
<b>PV (cP) / YP (lbf2)</b>	12 / 14	22 / 40	12 / 21	16 / 24	21 / 29
<b>% Solids / % Sand</b>	3.4 / 0.75	4.6 / 1	6.5 / 0.1	6.6 / 0.3	8.6 / 0.2
<b>% Oil / Oil:Water Ratio</b>	0 / 0:100	0 / 0:100	0 / 0:100	0 / 0:100	0 / 0:100
<b>Rm @ Measured Temp (degC)</b>	N/A @ N/A	N/A @ N/A	0.15 @ 22.00	0.14 @ 21.00	0.10 @ 22.00
<b>Rmf @ Measured Temp (degC)</b>	N/A @ N/A	0 @ N/A	0.12 @ 24.00	0.12 @ 20.00	0.09 @ 20.00
<b>Rmc @ Measured Temp (degC)</b>	N/A @ N/A	N/A @ N/A	0.3 @ 24.00	0.25 @ 26.00	0.18 @ 22.00
<b>Max Tool Temp (degC) / Source</b>	51.00 / HCIM	67.00 / HCIM	47.00 / EWR-P4	52.00 / EWR-P4	67.00 / EWR-P4
<b>Rm @ Max Tool Temp (degC)</b>	N/A @ 51.00	N/A @ 67.00	0.10 @ 47.00	0.09 @ 52.00	0.03 @ 67.00
<b>Lead MWD Engineer</b>	A. Rule	A. Rule	M. Lee	M. Lee	M. Lee
<b>Customer Representative</b>	T. Reid	T. Reid	T. Reid	T. Reid	T. Reid

## SENSOR INFORMATION

Downhole Processor Information					
Tool Type	HCIM	HCIM	HCIM	HCIM	HCIM
Software Version	72.13	72.13	72.13	72.13	72.13
Sub Serial Number	078516	078516	145273	145273	145273
Insert Serial Number	076895	076895	81832	81832	81832
Date and Time Initialized	02-Aug-06 15:32	04-Aug-06 00:49	11-Aug-06 14:53	13-Aug-06 21:32	15-Aug-06 04:48:08
Date and Time Read	03-Aug-06 19:49	06-Aug-06 16:25	13-Aug-06 00:04	15-Aug-06 02:05	16-Aug-06 14:41:15

Directional Sensor Information					
Tool Type	DM	DM	DM	DM	DM
Distance From Bit (m)	12.99	8.90	8.95	8.96	8.96
Software Version	3.15	3.15	3.15	3.15	3.15
Sub Serial Number	10603354	CP5763	CP1004338	CP1004338	CP1004338
Sonde Serial Number	85268	85267	85268	85268	85268
Sensor ID Number	N/A	N/A	N/A	N/A	N/A
Toolface Offset (deg)	168	Rotary	Rotary	Rotary	Rotary

Gamma Ray Sensor Information					
Tool Type	DGR	DGR	DGR	DGR	DGR
Distance From Bit (m)	16.34	11.99	11.42	11.43	11.43
Recorded Sample Period (sec)	12	12	12	12	12
Software Version	N/A	N/A	N/A	N/A	N/A
Sub Serial Number	177739	177739	176027	176027	176027
Insert/Sonde Serial Number	10602972	10602972	16131	16131	16131

Resistivity Sensor Information					
Tool Type			EWR-P4	EWR-P4	EWR-P4
Distance From Bit (m)			13.78	13.79	13.79
Recorded Sample Period (sec)			12	12	12
Software Version			1.38	1.38	1.38
Sub Serial Number			226818	226818	226818
Receiver Insert Serial Number			225217	225217	225217
Transmitter Insert Serial Number			225154	225154	225154
Receiver Orientation			Down	Down	Down

Neutron Sensor Information					
Tool Type			CTN	CTN	CTN
Distance From Bit (m)			26.16	26.75	26.75
Recorded Sample Period (sec)			12	12	12
Sub Serial Number			10603697	10603696	10603696
Insert Serial Number			192981	10508914	10508914
Source Serial Number			0044NN	0044NN	0044NN
Source Factor			N/A	N/A	N/A
Pin Orientation			Up	Up	Up

Density Sensor Information					
Tool Type			ALD	ALD	ALD
Distance From Bit (m)			22.10	22.69	22.69
Recorded Sample Period (sec)			16	16	16
Software Version			2.13	2.13	2.13
Sub Serial Number			96941	174401	174401
Insert Serial Number			10640614	215917	215917
Sensor ID Number			12024	32001	32001
Source Serial Number			2615GW	2852GW	2852GW
Pin Orientation			Up	Up	Up
Stabilizer Blade O.D. (in)			8.250	8.250	8.250
DPA Offset			100.00	250.00	250.00

Caliper Sensor Information					
Tool Type			ACAL		
Distance From Bit (m)			25.10		
Software Version			4.00		

Software Version			4.20		
Sub Serial Number			10603697		
Insert Serial Number			192981		

WELL INFORMATION					
MWD Run Number	700				
Date run completed	21-Aug-06				
Rig Bit Number	9				
Bit Size (in)	8.50				
Tool Nominal OD (in)	6.75				
Log Start Depth (MD, m)	1,881.00				
Log End Depth (MD, m)	2,315.00				
Drill or Wipe	Drilling				
Drill/Wipe Start Date and Time	17-Aug-06 11:25				
Drill/Wipe End Date and Time	20-Aug-06 15:32				
Min Inc (deg) @ Depth (MD, m)	0.92 @ 2,284.10				
Max Inc (deg) @ Depth (MD, m)	44.71 @ 1,880.03				
Bit TFA(in2) / Bit Type	0.921 / Reed TC11P				
Flow Rate (gpm)	570				
Max AV (mpm) / CV (mpm) @ MWD	157.0 / 205.0				
Fluid Type	Polymer				
Density (sg) / Viscosity (spqt)	1.26 / 60				
Filtrate CL (ppm)	34,742				
pH / Fluid Loss (mptm)	9.00 / 9.0				
PV (cP) / YP (lhf2)	25 / 36				
% Solids / % Sand	10.3 / 0.3				
% Oil / Oil:Water Ratio	0 / 0:100				
Rm @ Measured Temp (degC)	0.09 @ 28.00				
Rmf @ Measured Temp (degC)	0.06 @ 20.00				
Rmc @ Measured Temp (degC)	0.27 @ 26.00				
Max Tool Temp (degC) / Source	63.00 / EWR-P4				
Rm @ Max Tool Temp (degC)	0.04 @ 63.00				
Lead MWD Engineer	M. Lee				
Customer Representative	T. Reid				

## SENSOR INFORMATION

Downhole Processor Information					
Tool Type	HCIM				
Software Version	72.13				
Sub Serial Number	145273				
Insert Serial Number	81832				
Date and Time Initialized	16-Aug-06 17:02:11				
Date and Time Read	21-Aug-06 01:32				

Directional Sensor Information					
Tool Type	DM				
Distance From Bit (m)	9.18				
Software Version	3.15				
Sub Serial Number	CP1004338				
Sonde Serial Number	85268				
Sensor ID Number	N/A				
Toolface Offset (deg)	Rotary				

Gamma Ray Sensor Information					
Tool Type	DGR				
Distance From Bit (m)	11.65				
Recorded Sample Period (sec)	12				
Software Version	N/A				
Sub Serial Number	176027				
Insert/Sonde Serial Number	16131				

## Resistivity Sensor Information

**Resistivity Sensor Information**

Tool Type	EWR-P4				
Distance From Bit (m)	14.01				
Recorded Sample Period (sec)	12				
Software Version	1.38				
Sub Serial Number	226818				
Receiver Insert Serial Number	225217				
Transmitter Insert Serial Number	225154				
Receiver Orientation	Down				

**Neutron Sensor Information**

Tool Type	CTN				
Distance From Bit (m)	26.97				
Recorded Sample Period (sec)	12				
Sub Serial Number	10603696				
Insert Serial Number	10508914				
Source Serial Number	0044NN				
Source Factor	N/A				
Pin Orientation	Up				

**Density Sensor Information**

Tool Type	ALD				
Distance From Bit (m)	22.91				
Recorded Sample Period (sec)	16				
Software Version	2.13				
Sub Serial Number	174401				
Insert Serial Number	215917				
Sensor ID Number	32001				
Source Serial Number	2852GW				
Pin Orientation	Up				
Stabilizer Blade O.D. (in)	8.250				
DPA Offset	250.00				

**Caliper Sensor Information**

Tool Type					
Distance From Bit (m)					
Software Version					
Sub Serial Number					
Insert Serial Number					

**REMARKS**

1.) All depths are bit depths and are referenced to the driller's pipe tally unless otherwise noted.

2.) AV/CV values are calculated at the LWD collar using the Bingham Law for oil based mud, measured in m/min.

3.) Curve Mnemonics used are:

SGRC - Smoothed Combined Gamma Ray, api  
 SROP - Smoothed Rate of Penetration, m/hr  
 SEXP - Smoothed Extra-Shallow Phase Resistivity, ohm-metre  
 SESP - Smoothed Shallow Phase Resistivity, ohm-metre  
 SEMP - Smoothed Medium Phase Resistivity, ohm-metre  
 SEDP - Smoothed Deep Phase Resistivity, ohm-metre  
 ACAL - Smoothed Acoustic Caliper Hole Size, inches  
 SC02 - Smoothed Best Bin Stand Off Correction, g/cc  
 SBD2 - Smoothed Best Bin Bulk Density, g/cc  
 SNP2 - Smoothed Near Detector Pe, b/e  
 TNPL - Smoothed Compensated Thermal Neutron Porosity (LS), v/v

4.) CTN data processed using the CTN algorithm using the following parameters and is based on a Limestone matrix:

# MW = 1.19 - 1.25 SG  
 # Formation Salinity = 50,000 ppm Cl  
 # Mud Salinity = 28177 - 39378 ppm  
 # Matrix Density = 2.71 g/cc

# Matrix Density = 2.71 g/cc  
Fluid Density = 1.00 g/cc

5.) CTN data has been reprocessed using hole size derived from the Acoustic Caliper tool for run 400 and the ALD tool (HSI) for run 500.

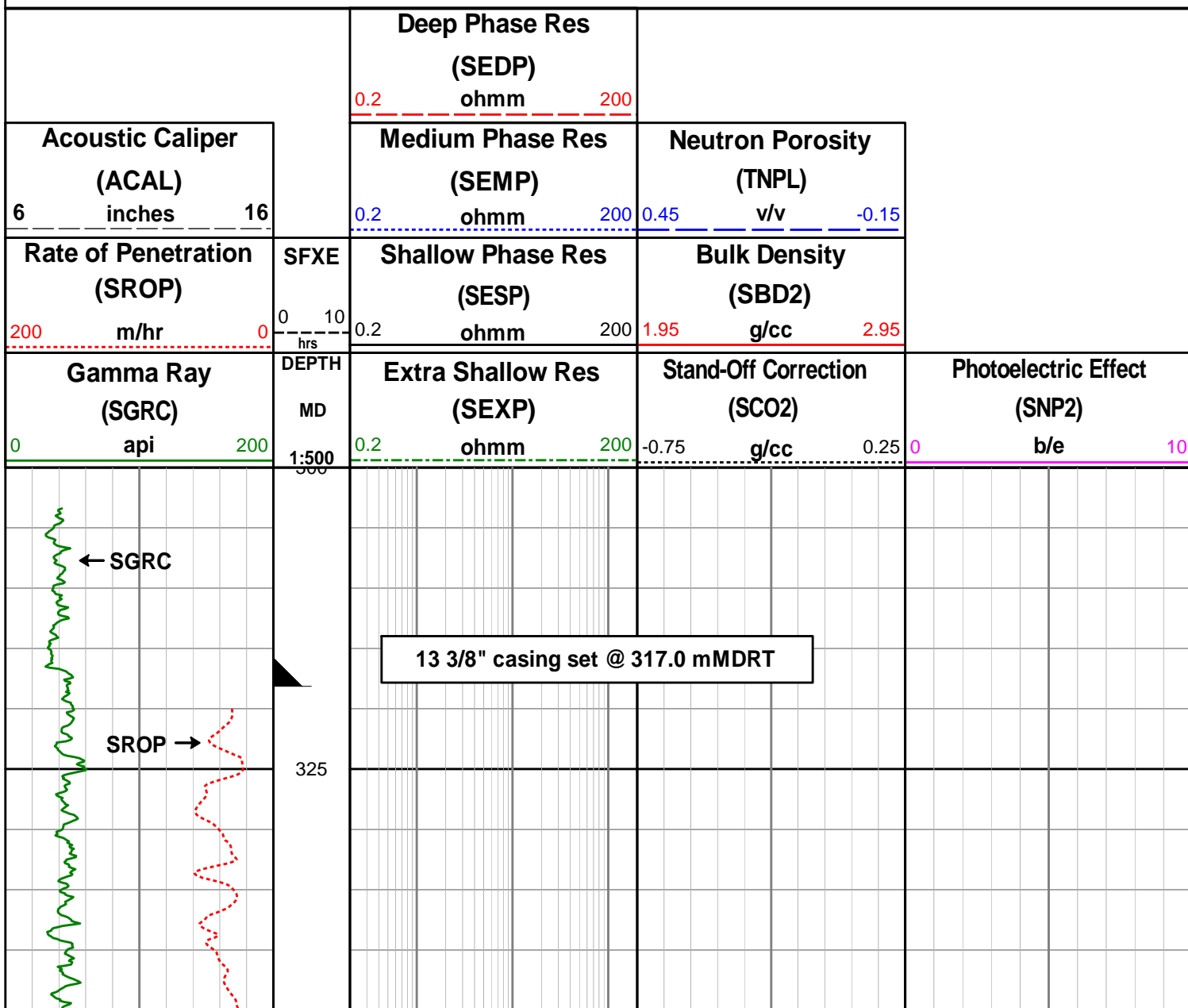
6.) CTN data is not presented from 1598.0 to 1634.5 mMDRT due to tool failure.

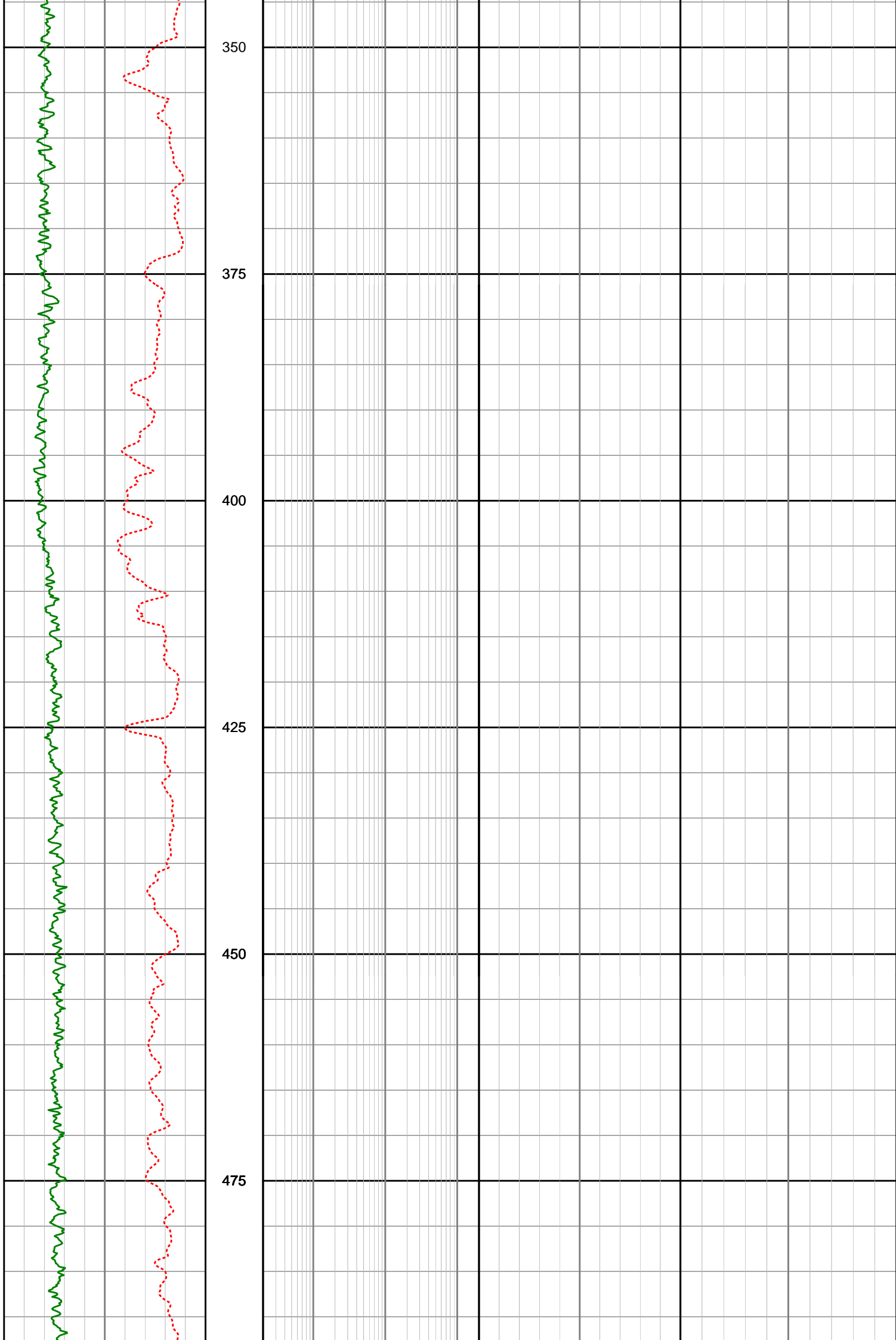
7.) Hole size indicator (HSI) from the ALD tool has been presented, from 1660.0 to 2292.4 mMDRT, as the Acoustic Caliper (ACAL) was not used during runs 500, 600 and 700.

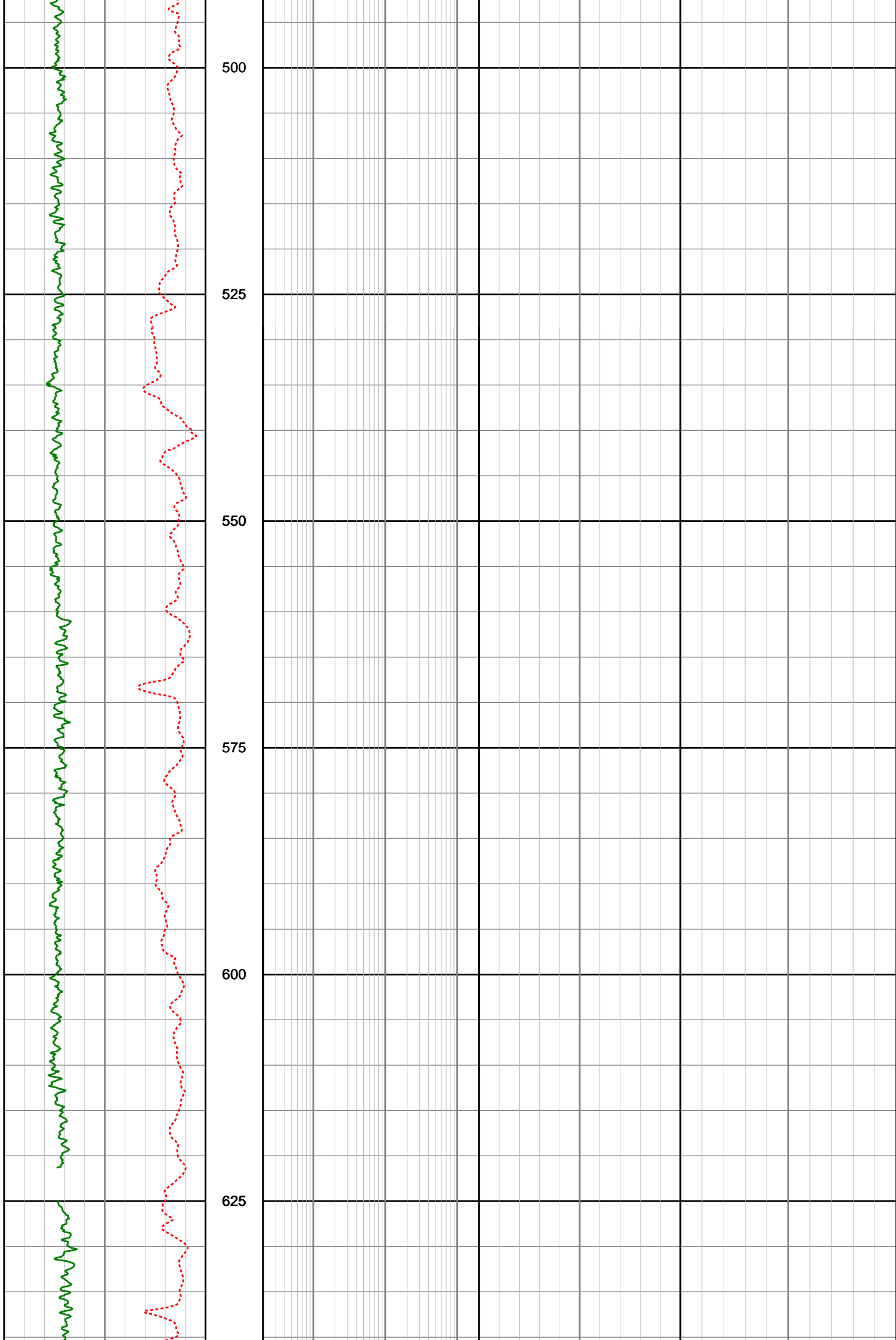
8.) The ALD tool was not setup for Azimuthal sampling for the 8½" hole section.

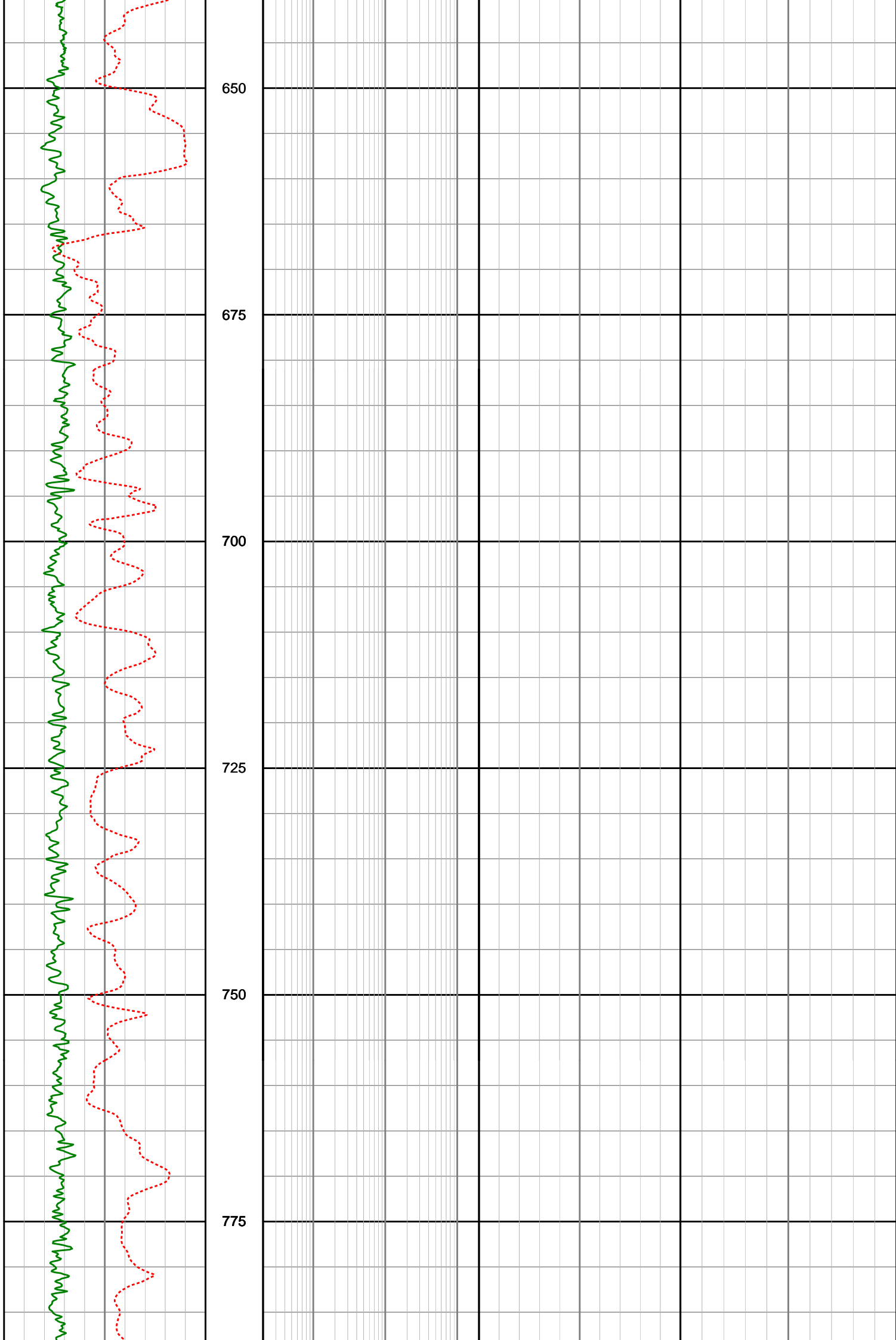
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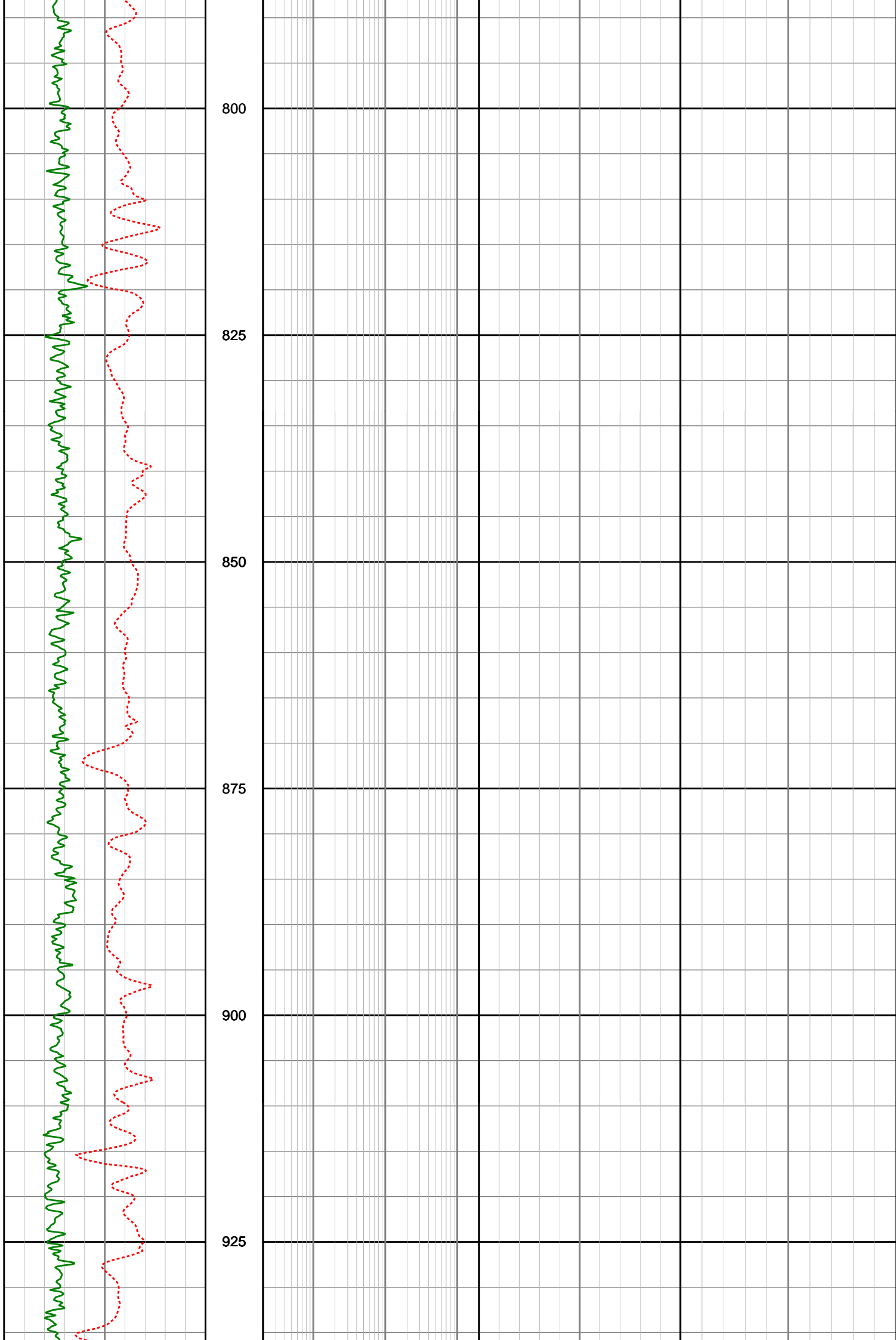


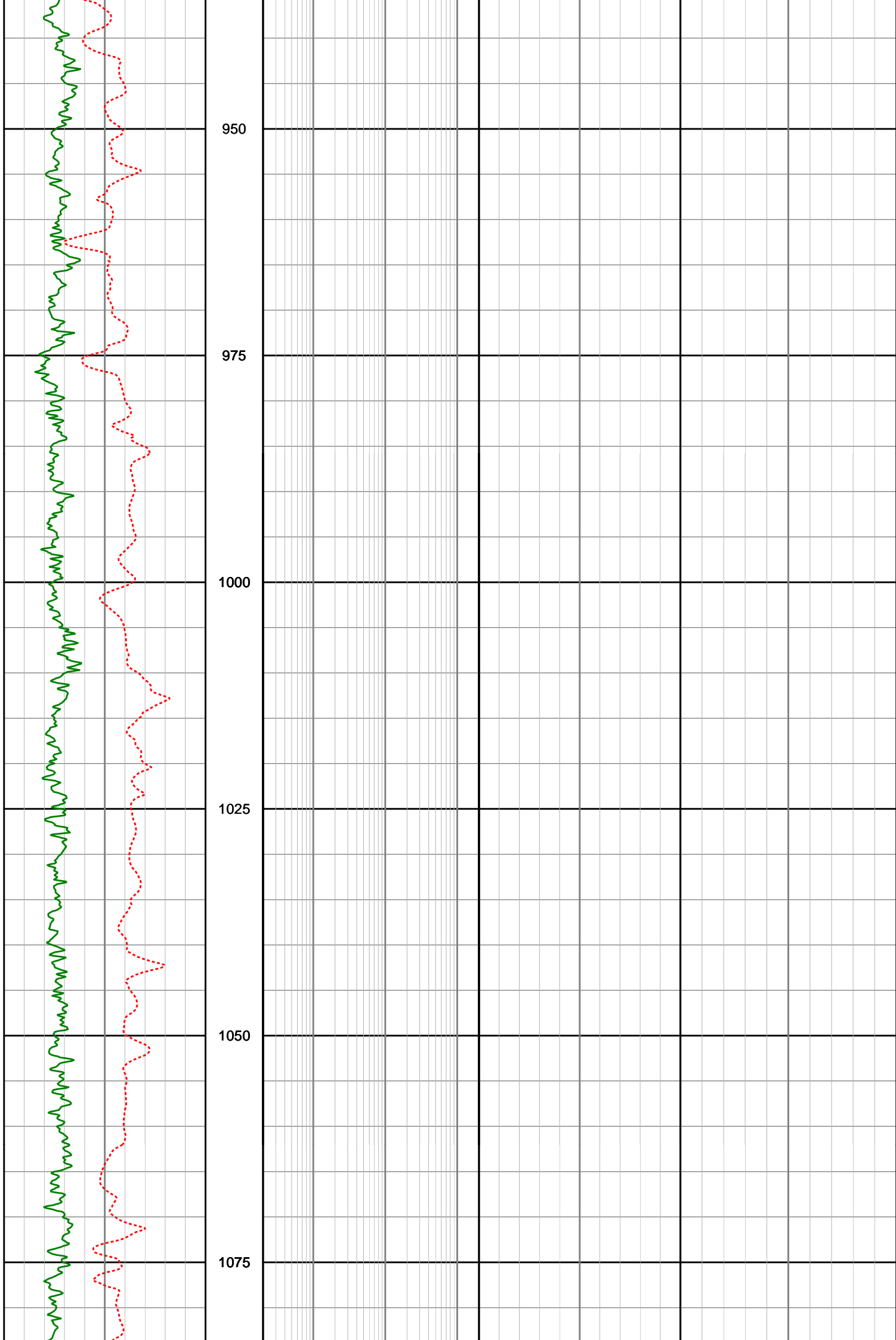


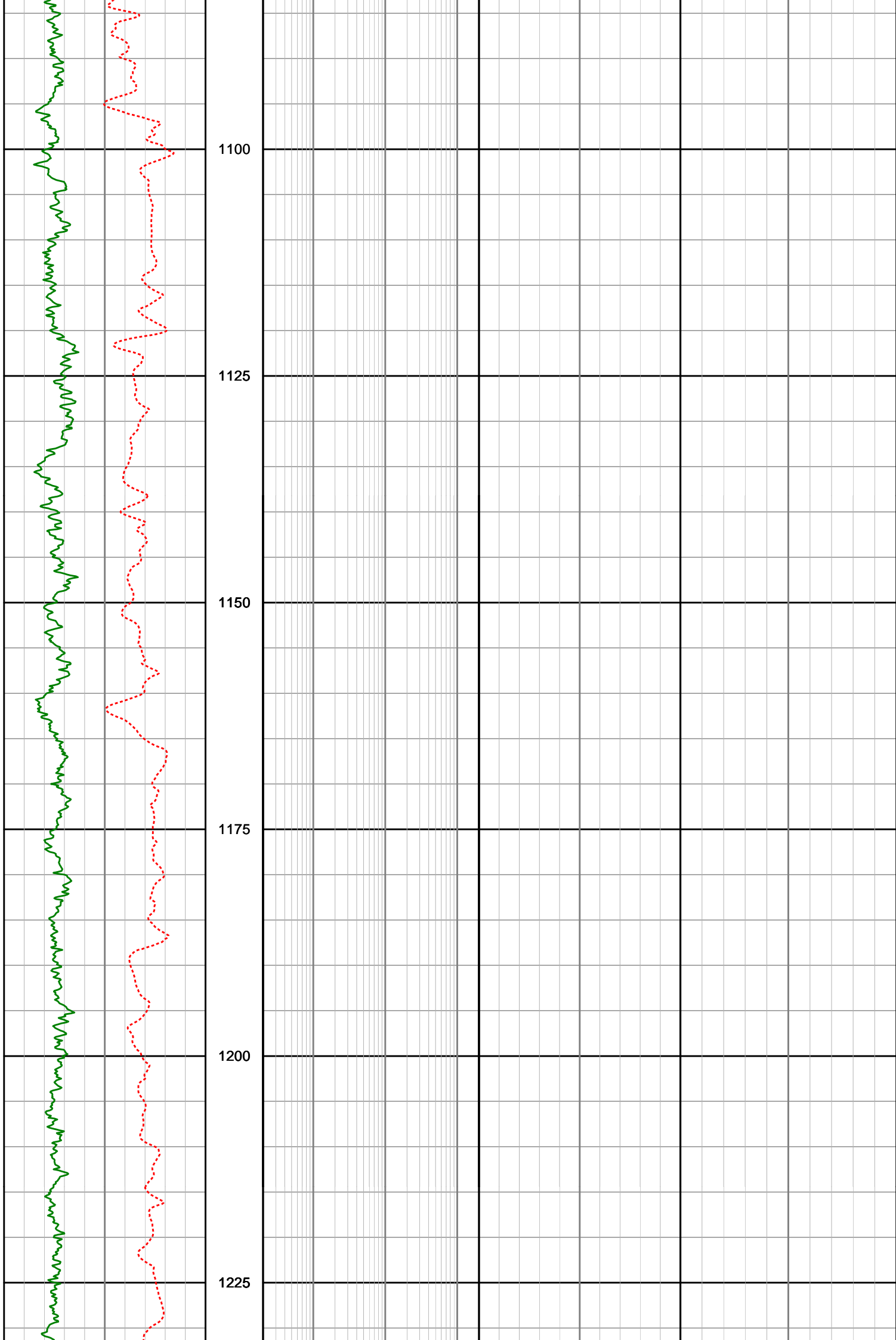


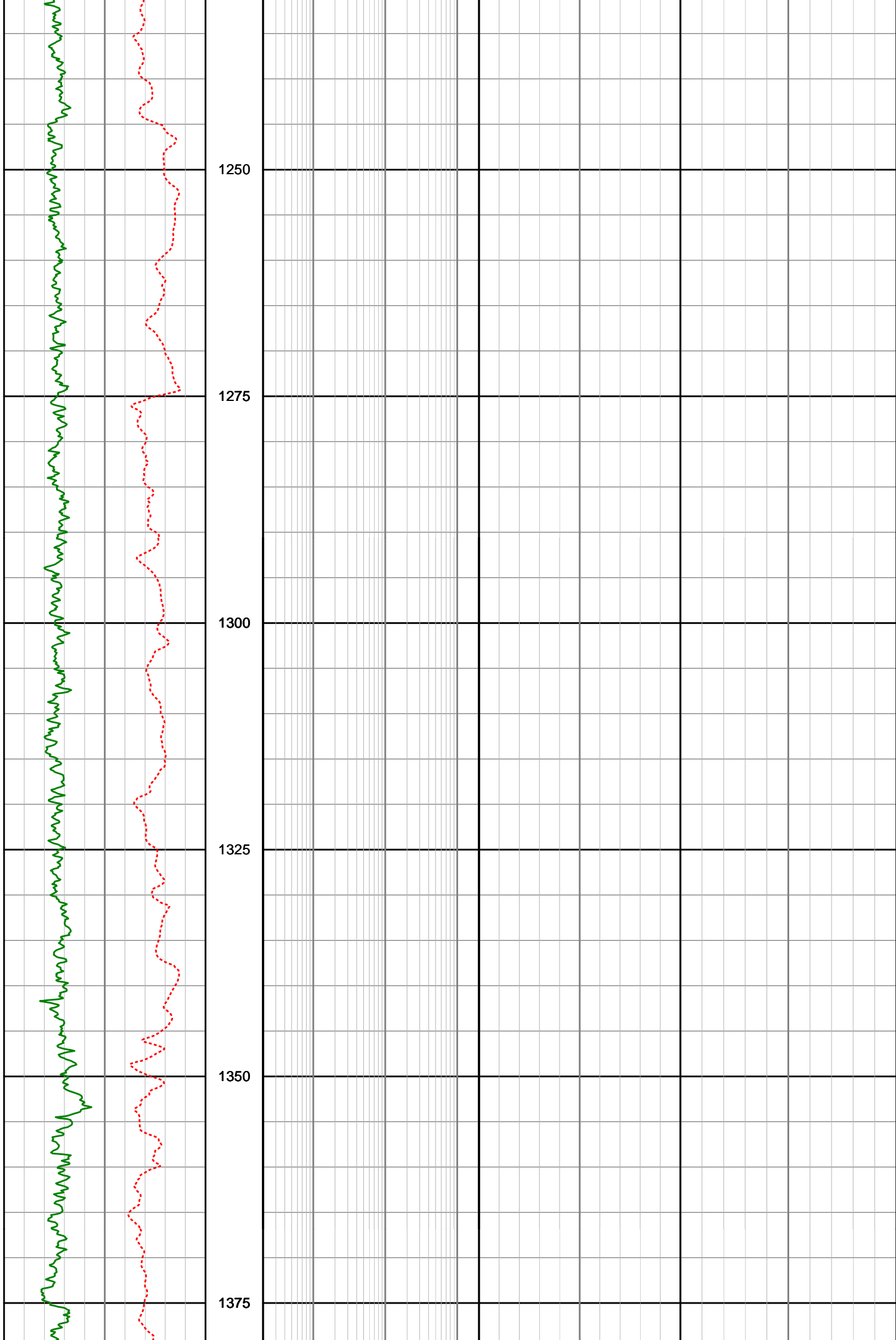


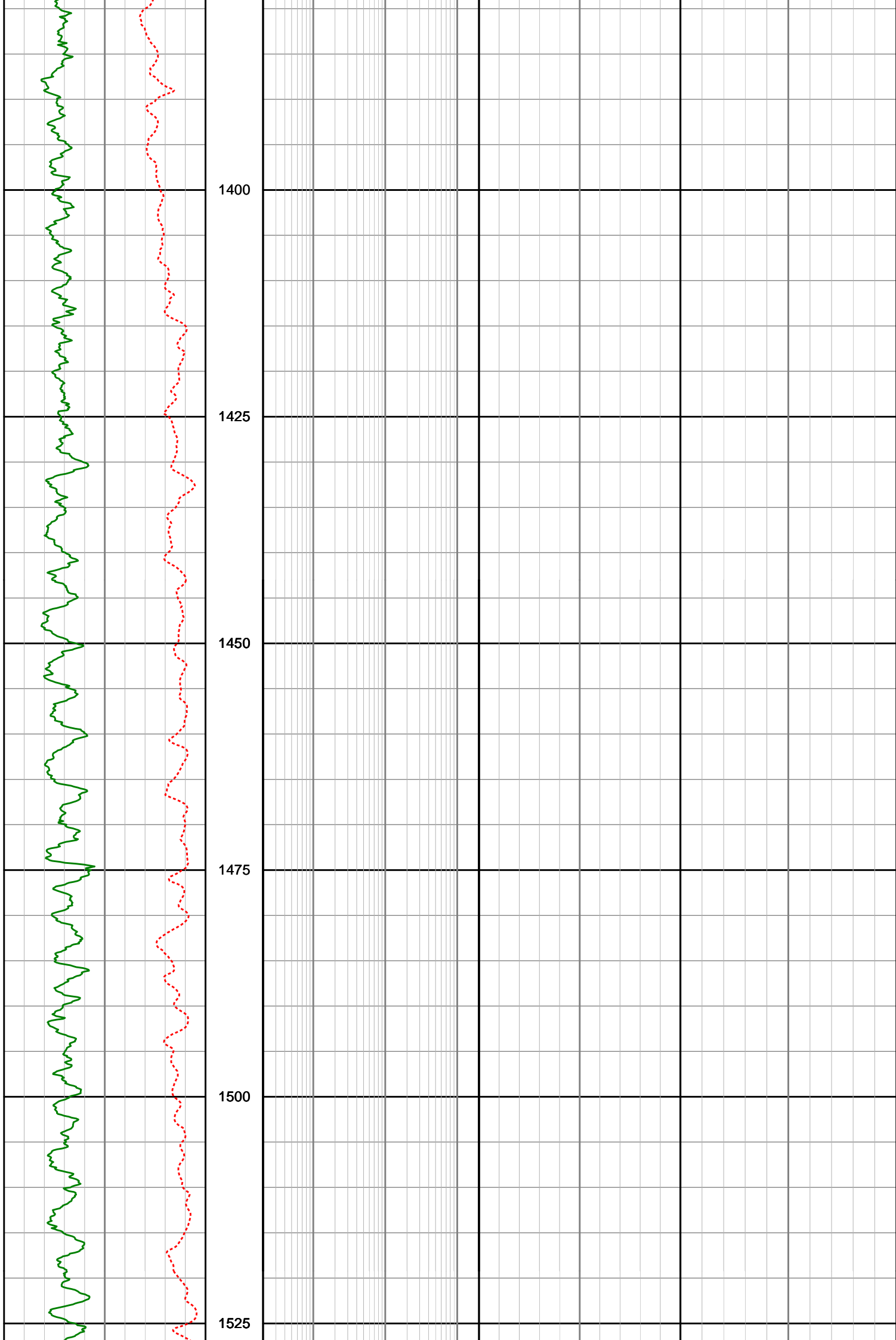


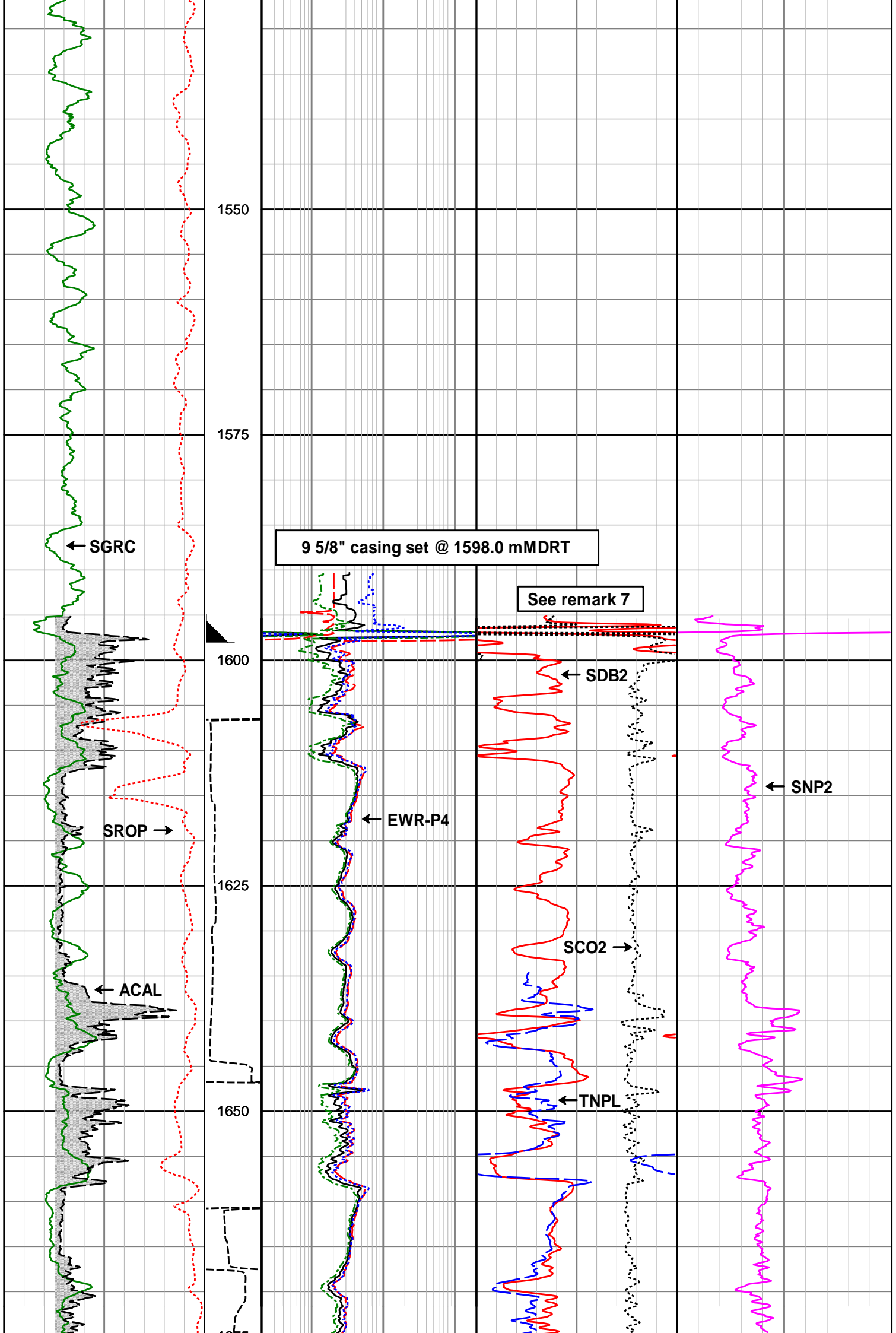


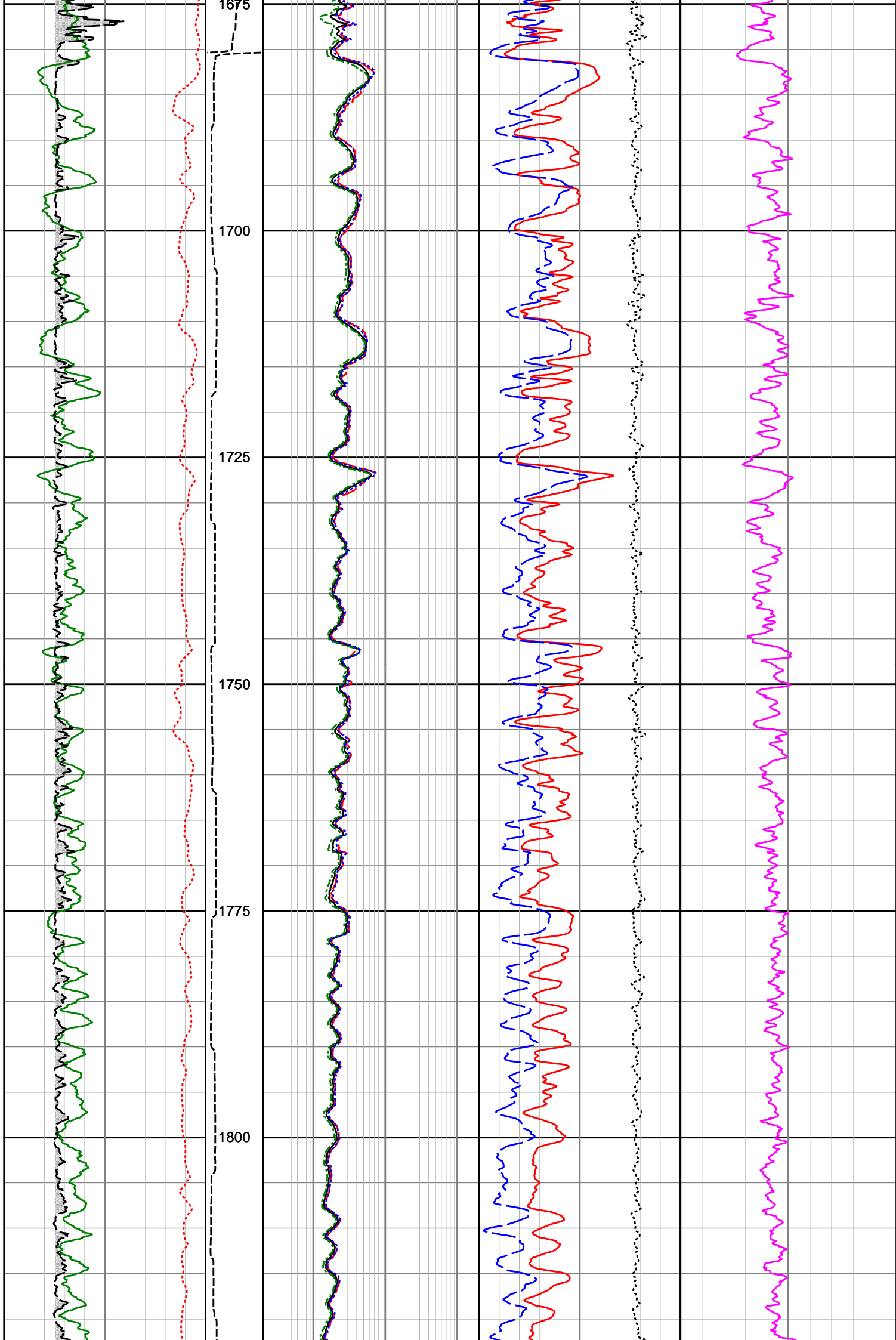


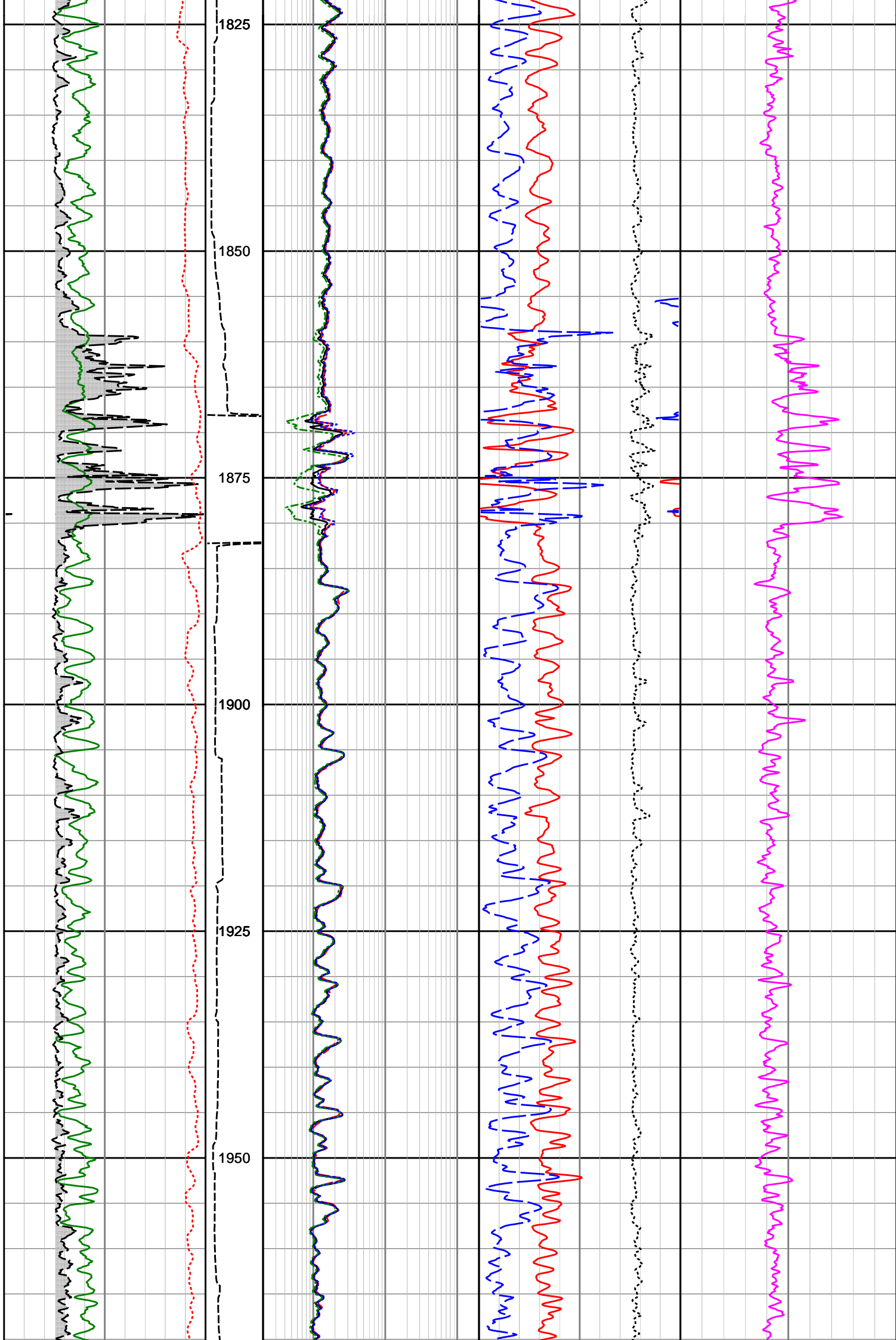




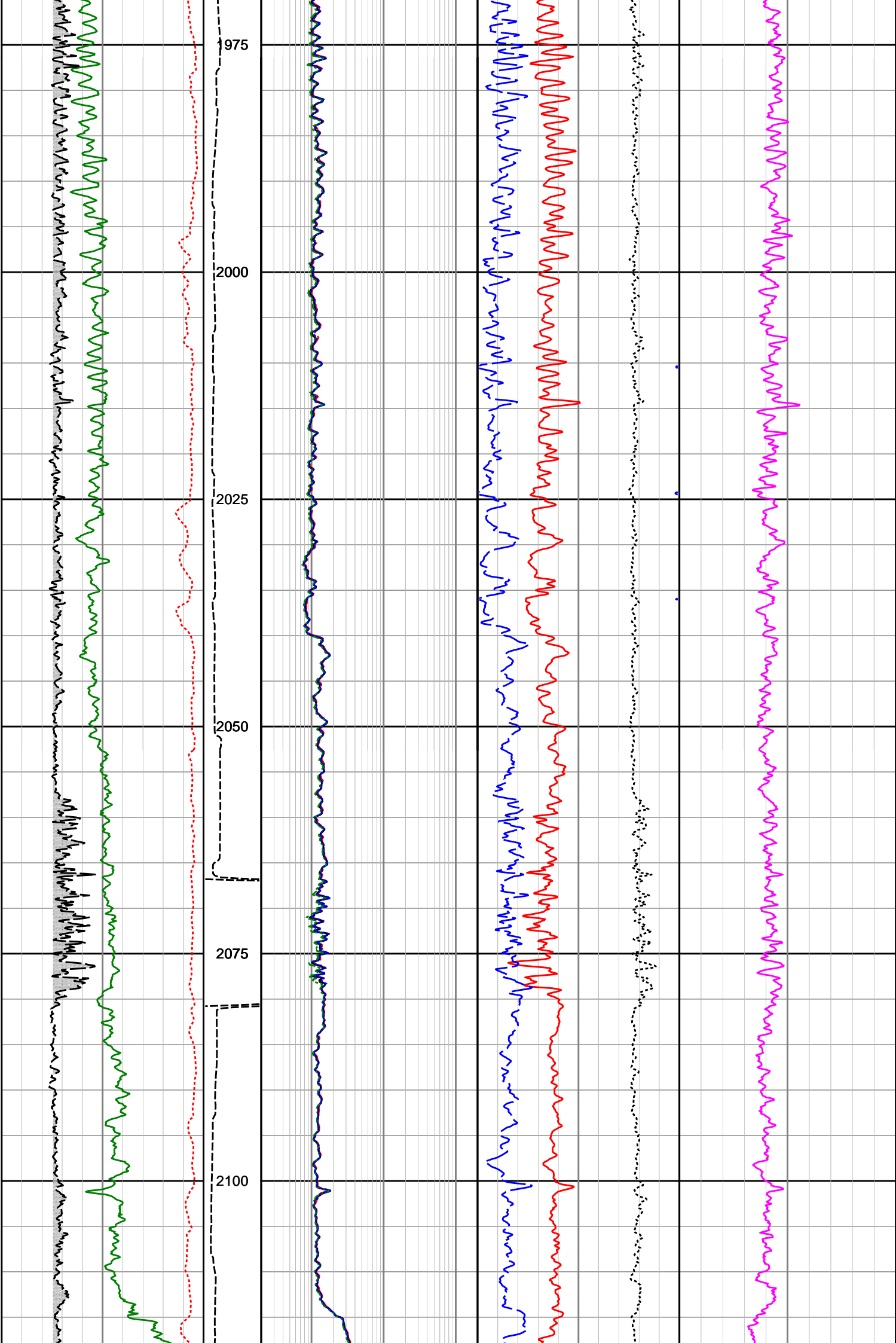


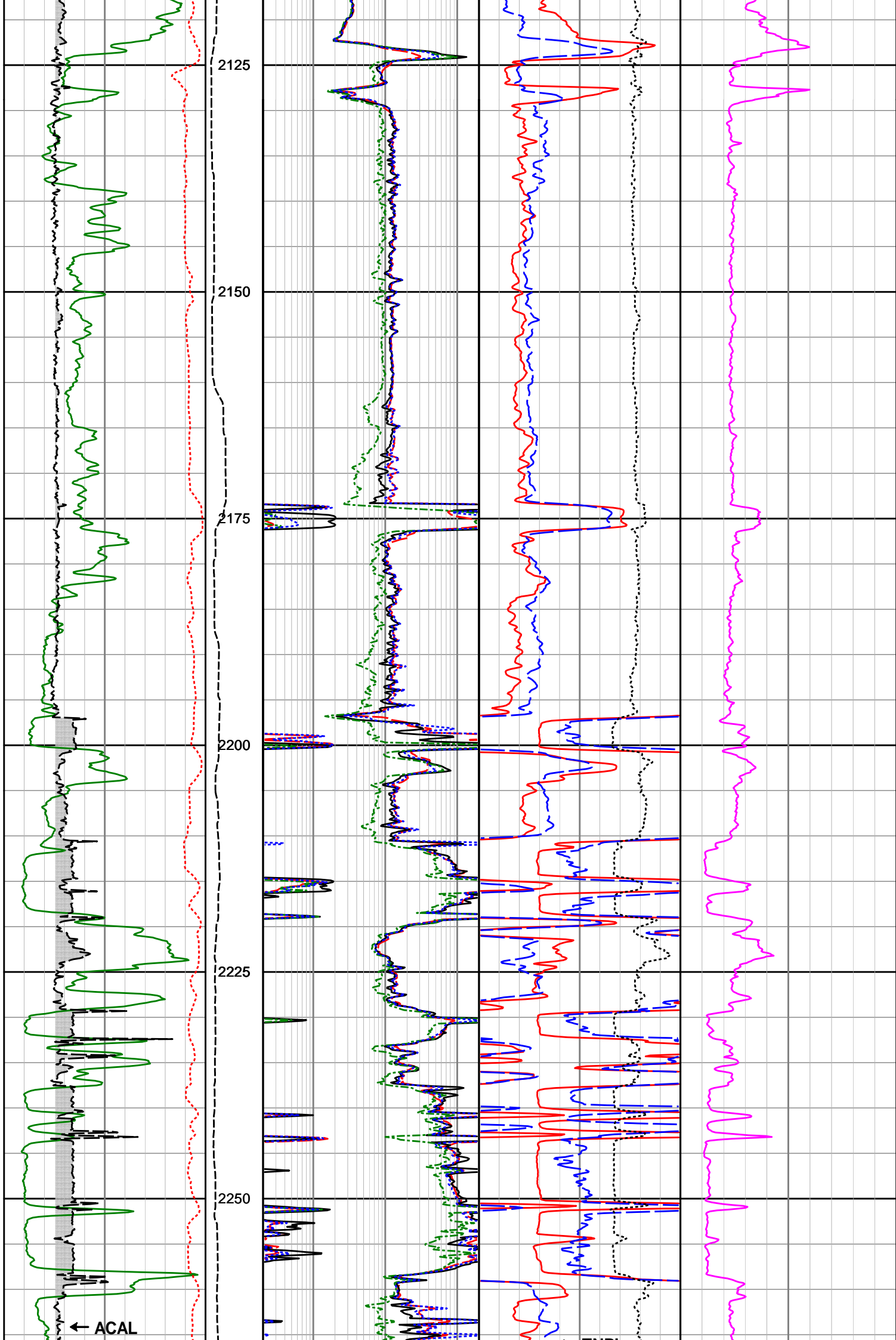


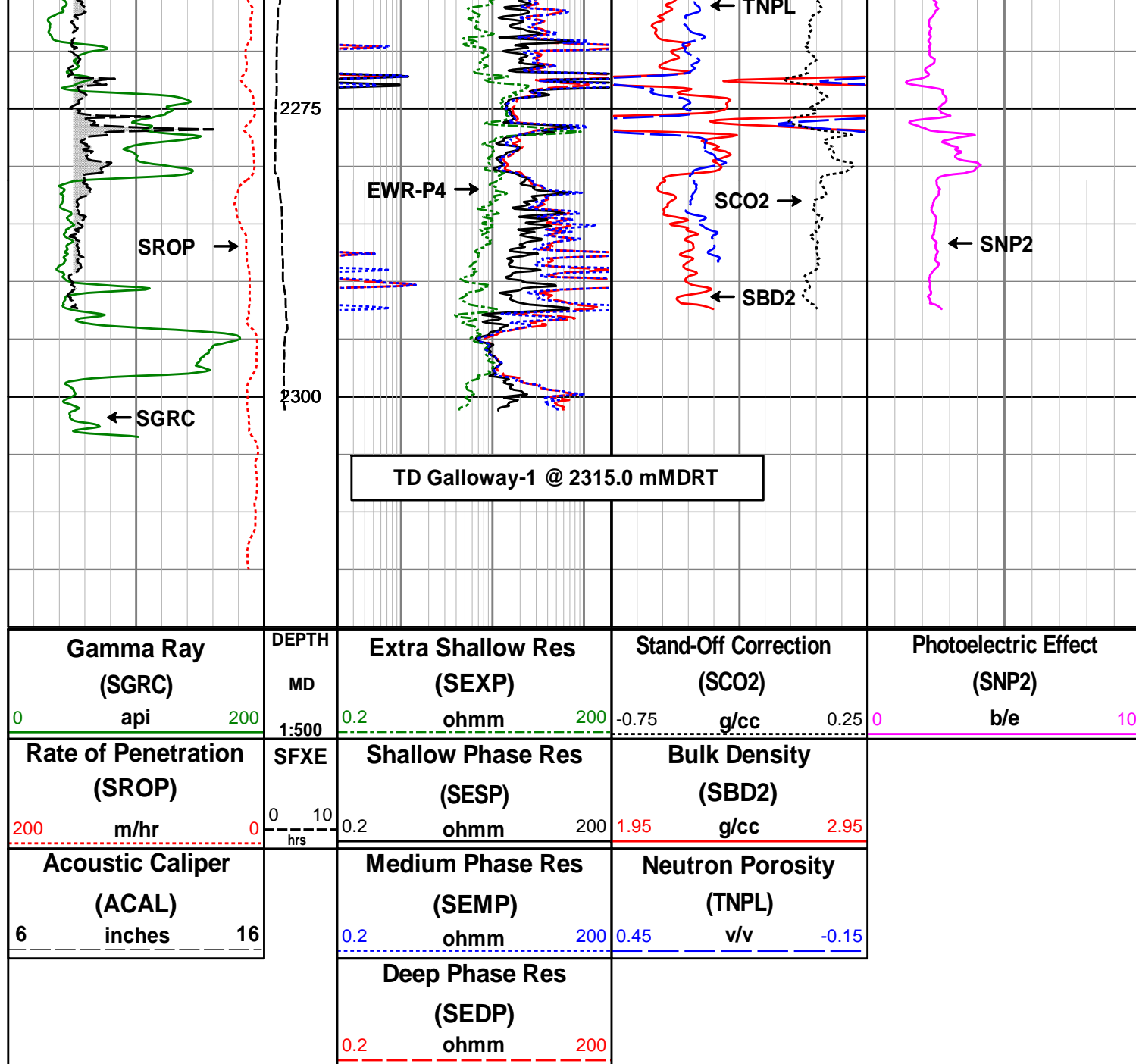












## Sperry Drilling Services

### DIRECTIONAL SURVEY REPORT

SANTOS Ltd.

Galloway-1

Exploration

VIC

Australia

AU-FE-000439252

Final survey has been projected to TD.

RT - MSL = 8.6m

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
0.000	0.00	0.00	0.000	0.000 N	0.000 E	0.000	TIE-IN
68.730	0.22	154.70	68.730	0.119 S	0.056 E	0.106	0.10
89.740	0.64	277.76	89.739	0.140 S	0.043 W	0.029	1.12
118.310	0.63	112.18	118.309	0.178 S	0.055 W	0.036	1.32
125.390	0.31	210.53	125.389	0.209 S	0.029 W	0.074	3.14
146.550	1.33	135.42	146.547	0.433 S	0.114 E	0.307	1.82
163.200	2.41	112.53	163.188	0.705 S	0.573 E	0.840	2.33
175.900	2.70	134.29	175.875	1.016 S	1.034 E	1.394	2.37
190.200	4.40	115.22	190.148	1.485 S	1.772 E	2.265	4.30
204.730	5.78	113.55	204.620	2.015 S	2.947 E	3.551	2.87

219.700	8.44	111.19	219.474	2.713 S	4.662 E	5.392	5.36
233.580	10.99	113.04	233.154	3.599 S	6.830 E	7.720	5.55
247.700	13.99	113.35	246.938	4.803 S	9.636 E	10.760	6.38
261.590	16.60	112.23	260.335	6.219 S	13.015 E	14.405	5.67
276.520	19.07	117.09	274.547	8.137 S	17.161 E	18.964	5.79
291.260	21.66	120.03	288.365	10.596 S	21.661 E	24.092	5.67
303.700	23.23	118.68	299.862	12.922 S	25.801 E	28.840	3.98
325.211	22.40	120.78	319.690	17.056 S	33.044 E	37.178	1.62
334.100	23.32	120.73	327.881	18.821 S	36.012 E	40.629	3.11
341.630	24.17	120.94	334.774	20.376 S	38.615 E	43.658	3.40
354.390	25.45	121.32	346.356	23.144 S	43.198 E	49.007	3.03
368.840	26.91	120.74	359.323	26.429 S	48.661 E	55.375	3.08
382.560	29.25	120.44	371.427	29.715 S	54.220 E	61.829	5.13
398.500	32.80	120.73	385.085	33.896 S	61.291 E	70.038	6.69
411.790	34.80	121.09	396.128	37.694 S	67.634 E	77.424	4.54
426.360	36.07	120.21	407.999	41.999 S	74.901 E	85.865	2.82
441.550	39.04	119.30	420.040	46.591 S	82.939 E	95.120	5.97
454.180	41.35	119.26	429.687	50.578 S	90.049 E	103.270	5.49
470.210	44.59	118.69	441.414	55.869 S	99.607 E	114.195	6.11
483.690	47.79	118.33	450.745	60.510 S	108.154 E	123.921	7.15
498.440	50.43	118.30	460.400	65.799 S	117.970 E	135.070	5.37
512.240	53.16	117.92	468.934	70.907 S	127.534 E	145.913	5.97
527.620	56.02	117.93	477.844	76.777 S	138.609 E	158.446	5.58
541.360	58.57	119.10	485.268	82.297 S	148.766 E	170.007	5.97
556.000	60.63	119.75	492.676	88.501 S	159.763 E	182.632	4.37
570.640	62.05	120.65	499.697	94.963 S	170.865 E	195.472	3.33
584.890	64.27	121.30	506.131	101.507 S	181.766 E	208.174	4.83
598.880	66.35	122.11	511.974	108.188 S	192.579 E	220.864	4.73
613.580	68.65	121.68	517.599	115.363 S	204.109 E	234.420	4.76
622.250	70.37	121.24	520.634	119.601 S	211.036 E	242.531	6.12
654.810	71.72	121.17	531.210	135.555 S	237.374 E	273.290	1.25
683.790	70.55	121.69	540.581	149.855 S	260.774 E	300.677	1.31
712.750	70.35	122.39	550.271	164.332 S	283.907 E	327.915	0.71
741.720	71.06	123.87	559.844	179.276 S	306.804 E	355.167	1.62
770.660	71.98	125.52	569.018	194.900 S	329.369 E	382.453	1.88
799.620	73.81	126.25	577.536	211.124 S	351.793 E	409.901	2.03
828.550	73.62	125.41	585.648	227.380 S	374.307 E	437.443	0.86
857.490	72.83	124.33	594.001	243.221 S	397.039 E	464.980	1.35
886.430	71.86	122.55	602.778	258.418 S	420.049 E	492.453	2.03
915.360	70.94	122.36	612.006	273.132 S	443.185 E	519.806	0.97
944.350	71.53	122.47	621.331	287.846 S	466.357 E	547.191	0.62
973.270	72.75	121.46	630.201	302.417 S	489.709 E	574.666	1.61
1002.250	72.51	119.57	638.854	316.460 S	513.536 E	602.306	1.88
1031.200	72.38	117.86	647.586	329.721 S	537.742 E	629.906	1.69
1060.160	71.85	117.00	656.480	342.418 S	562.203 E	657.461	1.01
1089.080	71.39	116.01	665.599	354.666 S	586.763 E	684.889	1.09
1118.040	71.67	115.22	674.774	366.541 S	611.531 E	712.322	0.83
1147.010	71.72	114.43	683.873	378.088 S	636.494 E	739.769	0.78
1175.950	71.38	114.73	693.032	389.507 S	661.458 E	767.158	0.46
1204.930	71.66	115.31	702.218	401.132 S	686.365 E	794.592	0.64
1233.870	71.80	114.62	711.290	412.730 S	711.278 E	822.021	0.69
1262.800	72.05	114.78	720.266	424.223 S	736.264 E	849.463	0.30
1291.770	72.51	114.84	729.084	435.802 S	761.312 E	877.001	0.48
1320.700	72.00	115.71	737.901	447.566 S	786.228 E	904.511	1.01
1349.570	71.48	115.11	746.947	459.330 S	810.992 E	931.887	0.80
1378.370	70.75	115.43	756.268	470.963 S	835.634 E	959.093	0.82
1407.210	70.63	115.67	765.805	482.702 S	860.189 E	986.274	0.27
1436.050	70.95	116.59	775.295	494.696 S	884.640 E	1013.485	0.96
1464.900	71.22	116.99	784.647	506.997 S	909.002 E	1040.765	0.48
1493.720	71.07	117.29	793.961	519.438 S	933.273 E	1068.031	0.33
1522.570	71.02	117.07	803.332	531.902 S	957.545 E	1095.309	0.22
1551.400	70.95	118.07	812.725	544.517 S	981.707 E	1122.562	0.99
1580.210	71.07	117.93	822.100	557.306 S	1005.760 E	1149.803	0.19
1596.100	71.07	117.39	827.255	564.284 S	1019.073 E	1164.832	0.96
1620.160	71.72	118.44	834.932	574.959 S	1039.222 E	1187.633	1.48
1647.790	69.84	118.53	844.028	587.400 S	1062.153 E	1213.721	2.05
1677.350	67.72	119.25	854.727	600.711 S	1086.278 E	1241.274	2.25
1706.300	64.96	118.42	866.343	613.501 S	1109.503 E	1267.788	2.96
1735.260	61.92	118.32	879.291	625.809 S	1132.292 E	1293.688	3.16
1764.180	58.81	117.25	893.591	637.529 S	1154.525 E	1318.819	3.36
1793.140	55.54	117.44	909.288	648.704 S	1176.139 E	1343.146	3.39
1822.110	51.89	116.24	926.430	659.251 S	1196.969 E	1366.484	3.90
1851.050	47.98	115.64	945.053	668.940 S	1216.881 E	1388.607	4.08
1880.030	44.71	114.61	965.055	677.846 S	1235.860 E	1409.536	3.47
1908.970	41.14	113.88	986.242	685.943 S	1253.827 E	1429.188	3.73
1937.890	37.57	111.88	1008.772	693.498 S	1273.883 E	1447.548	2.88










1937.900	37.77	114.06	1008.576	693.410 S	1270.624 E	1447.513	3.50
1966.870	33.71	114.22	1032.085	700.327 S	1286.063 E	1464.382	4.21
1995.760	30.21	114.36	1056.593	706.615 S	1300.000 E	1479.630	3.64
2024.650	26.31	113.76	1082.035	712.195 S	1312.485 E	1493.264	4.06
2053.450	22.08	113.22	1108.298	716.903 S	1323.306 E	1505.021	4.41
2082.290	19.06	112.80	1135.297	720.866 S	1332.631 E	1515.107	3.15
2111.130	15.99	111.66	1162.795	724.157 S	1340.665 E	1523.737	3.22
2139.980	13.10	108.53	1190.718	726.663 S	1347.459 E	1530.904	3.10
2168.790	9.86	104.21	1218.948	728.307 S	1352.949 E	1536.513	3.49
2197.640	6.92	99.24	1247.486	729.192 S	1357.061 E	1540.549	3.14
2226.470	3.33	92.87	1276.197	729.513 S	1359.612 E	1542.944	3.78
2255.270	1.11	90.43	1304.973	729.557 S	1360.727 E	1543.945	2.31
2284.100	0.92	88.16	1333.799	729.552 S	1361.238 E	1544.391	0.21
2303.740	1.19	92.86	1353.436	729.557 S	1361.598 E	1544.710	0.43
2315.000	1.19	92.86	1364.693	729.569 S	1361.832 E	1544.921	0.01

**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 DIRECTION OF 118.50 DEGREES (GRID)**  
**A TOTAL CORRECTION OF 13.14 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED**  
  
**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.**  
**HORIZONTAL DISPLACEMENT(CLOSURE) AT 2315.000 METRES**  
**IS 1544.945 METRES ALONG 118.18 DEGREES (GRID)**

Date Printed:04 October 2006

MWD RUN 100 - BHA			MWD RUN 100 - MWD		
	Component Length (m)			Sensor Measure Point Distance To Bit (m)	
Heavy Weight	86.050				
Drill Collar	9.420		Positive Pulser		
Jar	9.950				
Drill Collar	9.050				
X-Over Sub	.800		TM		
Drill Collar	27.610				








					0
MWD		11.21			
Integral Blade		1.890	DGR Insert		16.340
Float Sub		.650			
Mud Motor		8.160	DM Sonde		12.990
Tricone		.820			

MWD RUN 300 - BHA





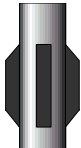



MWD RUN 300 - MWD

	Component Length (m)		Sensor Measure Point Distance To Bit (m)
Heavy Weight	57.170	Positive Pulser	
Jar	9.950	TM	
Heavy Weight	86.050	HCIM Insert	
X-Over Sub	.800		
Float Sub	.650		
String Reamer	2.010	PWD Insert	12.860
MWD	8.44		

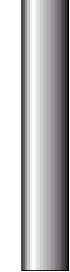






Flex		2.810	DDS Insert		0
Geo-Pilot		6.610	DGR Insert		11.990
PDC		.530			

MWD RUN 400 - BHA

MWD RUN 400 - MWD

	Component Length (m)		Sensor Measure Point Distance To Bit (m)
Heavy Weight	57.170	Positive Pulser	
		TM	
Jar	9.950	CTN Insert	
		ACAL Insert	
Heavy Weight	86.050	ALD Insert	
		HCIM Insert	
X-Over Sub	.350	PWD Insert	
Float Sub	.630		

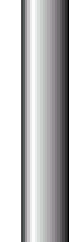







MWD		22.95	EWR-P4 Insert		13.780
			DDS Insert		0
Geo-Pilot		7.080	DGR Insert		11.420
PDC		.400	DM Sonde		8.950

MWD RUN 500 - BHA








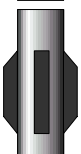





MWD RUN 500 - MWD

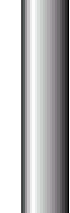





	Component Length (m)		Sensor Measure Point Distance To Bit (m)
Heavy Weight	57.170	Positive Pulser	
		TM	
Jar	9.950	CTN Insert	26.750
		ACAL Insert	
Heavy Weight	86.050	ALD Insert	22.690
		HCIM Insert	
X-Over Sub	.350	PWD Insert	16.320
Float Sub	.630	EWR-P4 Insert	

MWD		23.53		13.790
			DDS Insert	0
Geo-Pilot		7.080		11.430
PDC		.410		8.960

MWD RUN 600 - BHA

MWD RUN 600 - MWD









	Component Length (m)		Sensor Measure Point Distance To Bit (m)
Heavy Weight	 57.170	Positive Pulser	
		TM	
Jar	 9.950	CTN Insert	
		ACAL Insert	
Heavy Weight	 86.050	ALD Insert	
		HCIM Insert	
X-Over Sub	 .350	PWD Insert	
Float Sub	 .630	EWR-P4 Insert	
			13.790

MWD		23.53	DDS Insert		0
Geo-Pilot		7.080	DGR Insert		11.430
PDC		.410	DM Sonde		8.960

MWD RUN 700 - BHA

MWD RUN 700 - MWD

	Component Length (m)		Sensor Measure Point Distance To Bit (m)
Heavy Weight	57.170	Positive Pulser	
		TM	
Jar	9.950	CTN Insert	26.970
		ACAL Insert	
Heavy Weight	86.050	ALD Insert	22.910
X-Over Sub	.350	HCIM Insert	
Float Sub	.630	PWD Insert	16.540
MWD	23.53	EWR-P4 Insert	14.010

				
				
Geo-Pilot		7.080		0
				
Stabilizer		.380		11.650
				
PDC		.250		9.180