

Sperry Drilling Services

1 : 500



MWD

EWR Electromagnetic Wave Resistivity
DGR Dual Gamma Ray
SLD Stabilized Litho-Density
CTN Comp Neutron Porosity
BAT Bi-Modal Acoustic Sonic

Country : Australia			
Field :			
Location :		Lat: 38° 34' 45.54" South GDA94 Long: 142° 43' 50.92" East GDA94	
Well :		Halladale-1 DW2	
Company :		Woodside Energy Ltd	
Rig :		Ocean Patriot	
LOCATION			
Latitude : Lat: 38° 34' 45.54" South GDA94 Longitude : Long: 142° 43' 50.92" East GDA94 UTM Easting = 650,763.20 m UTM Northing = 5,728,485.20 m		Other Services Directional Drilling	
Permanent Datum : LAT		Elev. KB DF 21.50 m GL WD 44.80 m	
Log Measured From : Drill Floor		21.50 m Above Permanent Datum	
Drilling Measured From : Drill Floor		TVD LOG	
Depth Logged : 852.57 m To 1,879.96 m		Unit No. : 197	
Date Logged : 10-Apr-05 To 18-Apr-05		Job No. : AU-FE-000325468	
Total Depth MD : 1,941.00 m TVD : 1,879.96 m		Plot Type : Final	
Spud Date : 10-Apr-05		Plot Date : 06-May-05	
Run No.	Borehole Record (TVD)		Run No.
	Size From To		Size From To
1	216,000 mm 852.57 m 1,481.73 m		
2	216,000 mm 1,481.73 m 1,755.00 m		
4	216,000 mm 1,755.00 m 1,879.96 m		
		Casing Record (TVD)	
	Size Weight From To		
	762,000 mm 573.00 kgpm 66.28 m 99.46 m		
	340,000 mm 101.00 kgpm 66.28 m 420.98 m		
	244,000 mm 70.00 kgpm 66.28 m 833.63 m		

WELL INFORMATION

MWD Run Number	100	200	400		
Date run completed	13-Apr-05	15-Apr-05	18-Apr-05		
Rig Bit Number	1	2	4		
Bit Size (mm)	216	216	216		
Tool Nominal OD (mm)	171	171	171		
Log Start Depth (TVD, m)	852.57	1481.73	1755.00		
Log End Depth (TVD, m)	1481.73	1755.00	1879.96		
Drill or Wipe	Drilling	Drilling	Drilling		
Drill/Wipe Start Date and Time	10-Apr-05 16:35	13-Apr-05 07:02	17-Apr-05 11:00		
Drill/Wipe End Date and Time	12-Apr-05 17:26	15-Apr-05 02:53	17-Apr-05 17:30		
Min Inc (deg) @ Depth (TVD, m)	2.36 @ 909.01	21.26 @ 1720.97	19.03 @ 1875.57		
Max Inc (deg) @ Depth (TVD, m)	23.70 @ 1374.47	22.06 @ 1,585.74	20.58 @ 1799.55		
Bit TFA(in2) / Bit Type	1.180 / Smith MA89BVCTPX	1.108 / DBS FMF3553	1.357 / DBS 3353		
Flow Rate (gpm)	715	700	680		
Max AV (mpm) / CV (mpm) @ MWD	210.0 / 215.0	210.0 / 191.4	198.6 / 210.6		
Fluid Type	AQUA-DRILL	AQUA-DRILL	AQUA-DRILL		
Density (sg) / Viscosity (spl)	1.25 / 60.20	1.25 / 67.50	1.25 / 91.80		
Filtrate CL (ppm)	39,000	47,000	52,000		
pH / Fluid Loss (cptm)	11.10 / 4.0	9.50 / 4.0	9.00 / 3.7		
PV (cp) / YP (pa)	37 / 13.90	38 / 16.00	41 / 19.63		
% Solids / % Sand	7.8 / 1.00	8.29 / 0.75	8.75 / 0.50		
% Oil / Oil:Water Ratio	N/A / NA:100	N/A / N/A:100	N/A / N/A:100		
Rm @ Measured Temp (degC)	0.11 @ 28.00	0.12 @ 23.00	0.11 @ 24.00		
Rmf @ Measured Temp (degC)	0.07 @ 29.00	0.09 @ 22.00	0.07 @ 24.00		
Rmc @ Measured Temp (degC)	0.22 @ 28.00	0.19 @ 23.00	0.22 @ 24.00		
Max Tool Temp (degC) / Source	75.00 / EWR-P4	75.00 / EWR-P4	73.00 / EWR-P4		
Rm @ Max Tool Temp (degC)	0.06 @ 75.00	0.06 @ 75.00	0.06 @ 73.00		
Lead MWD Engineer	T.Oborne	T.Oborne	T. Oborne		
Customer Representative	D.Thorpe	D. Thorpe	D. Thorpe		

SENSOR INFORMATION

Downhole Processor Information

Tool Type	HCIM	HCIM	HCIM		
Software Version	68.18	68.18	68.18		
Sub Serial Number	107429	107429	10562757		
Insert Serial Number	76442	76442	160772		
Logging String Serial Number	90069311XHWRG6	90069311XHWRG6	90069312XHWRG6		
Date and Time Initialized	10-Apr-05 11:20	13-Apr-05 07:46	16-Apr-05 21:50		
Date and Time Read	01-Jan-70 00:00	01-Jan-70 00:00	03-Apr-05 01:24:00		

Directional Sensor Information

Tool Type	DM	DM	DM		
Distance From Bit (m)	8.97	8.98	3.14		
Software Version	3.15	3.15	3.15		
Sub Serial Number	783004	783004	30534076		
Sonde Serial Number	87896	87896	581139		
Sensor ID Number	N/A	N/A	N/A		
Survey String Serial Number	N/A	N/A	N/A		
Toolface Offset (deg)	N/A	N/A	N/A		

Gamma Ray Sensor Information

Tool Type	DGR	DGR	DGR		
Distance From Bit (m)	11.53	11.54	5.57		
Recorded Sample Period (sec)	12	12	12		
Software Version	N/A	N/A	N/A		
Sub Serial Number	070755	070755	131257		
Insert/Sonde Serial Number	10505416	10505416	176691		

Resistivity Sensor Information

Tool Type	EWR-P4	EWR-P4	EWR-P4		
Distance From Bit (m)	13.85	13.86	7.87		
Recorded Sample Period (sec)	14	14	12		
Software Version	1.38	1.38	1.38		
Sub Serial Number	65267	65267	197652		
Receiver Insert Serial Number	61101	61101	74703		
Transmitter Insert Serial Number	77011	77011	62499		
Receiver Orientation	Down	Down	Down		

Neutron Sensor Information

Tool Type	CTN	CTN	CTN		
Distance From Bit (m)	26.13	26.14	20.06		
Recorded Sample Period (sec)	12	12	12		
Sub Serial Number	185450	185450	185450		
Insert Serial Number	173972	173972	173972		
Source Serial Number	0102NN	0102NN	0102NN		
Source Factor	N/A	N/A	N/A		
Pin Orientation	Up	Up	Up		

Density Sensor Information

Tool Type	SLD	SLD	SLD		
Distance From Bit (m)	22.05	22.06	16.01		
Recorded Sample Period (sec)	14	14	12		
Software Version	11.00	11.00	11.00		
Sub Serial Number	105252	105252	105252		
Insert Serial Number	182726	182726	182726		
Sensor ID Number	226	226	226		

Source Serial Number	2615GW	2615GW	2615GW		
Pin Orientation	Up	Up	Up		
Stabilizer Blade O.D. (mm)	209.550	209.550	209.550		
DPA Offset	0	0	0		

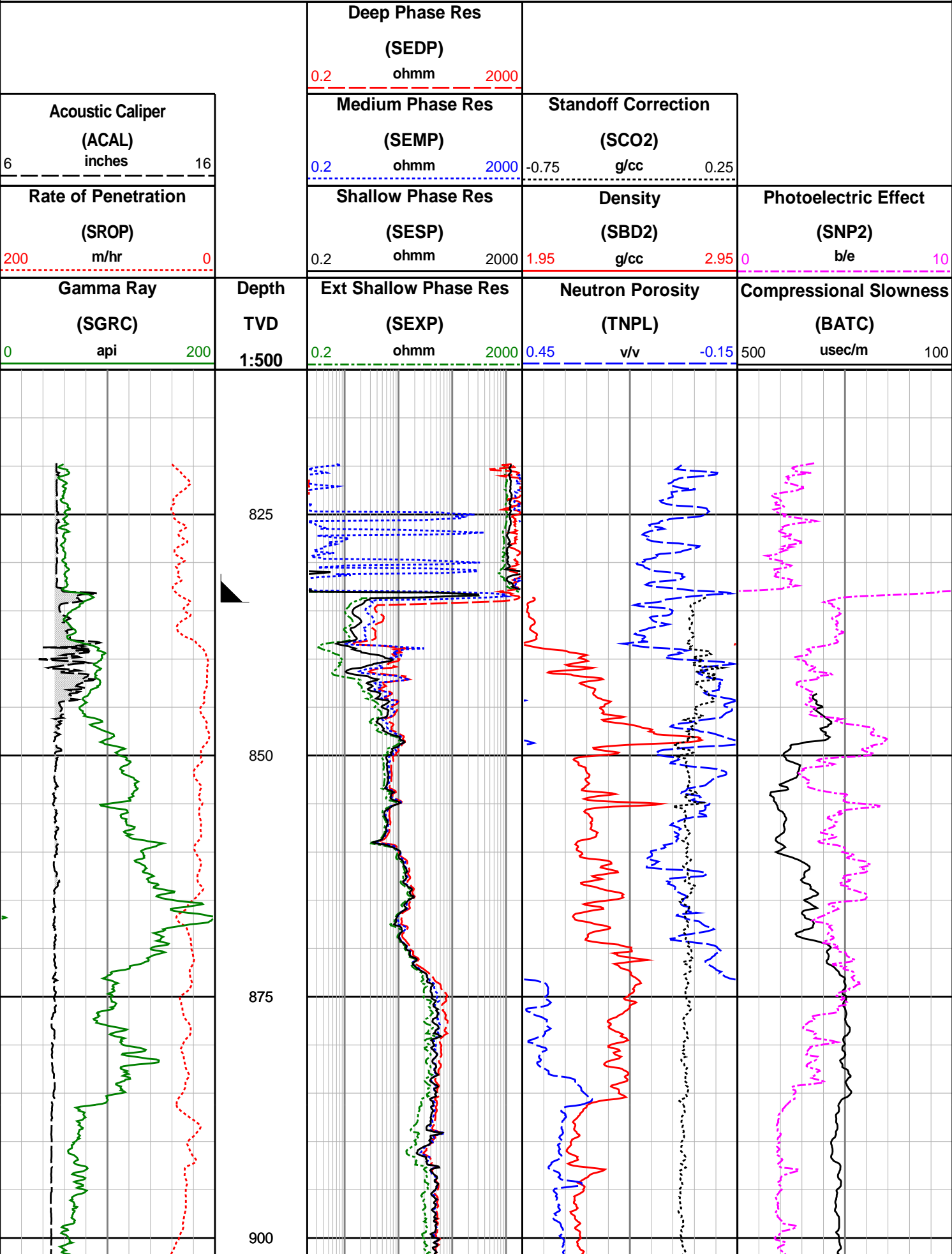
Sonic Sensor Information					
Tool Type	BAT	BAT	BAT		
Distance From Bit (m)	30.90	30.91	24.86		
Recorded Sample Period (sec)	18	18	16		
Software Version	4.41	4.41	4.41		
Sub Serial Number	179394	179393	179393		
Receiver Insert Serial Number	134954	145079	145079		
Transmitter Insert Serial Number	190319	190321	190321		

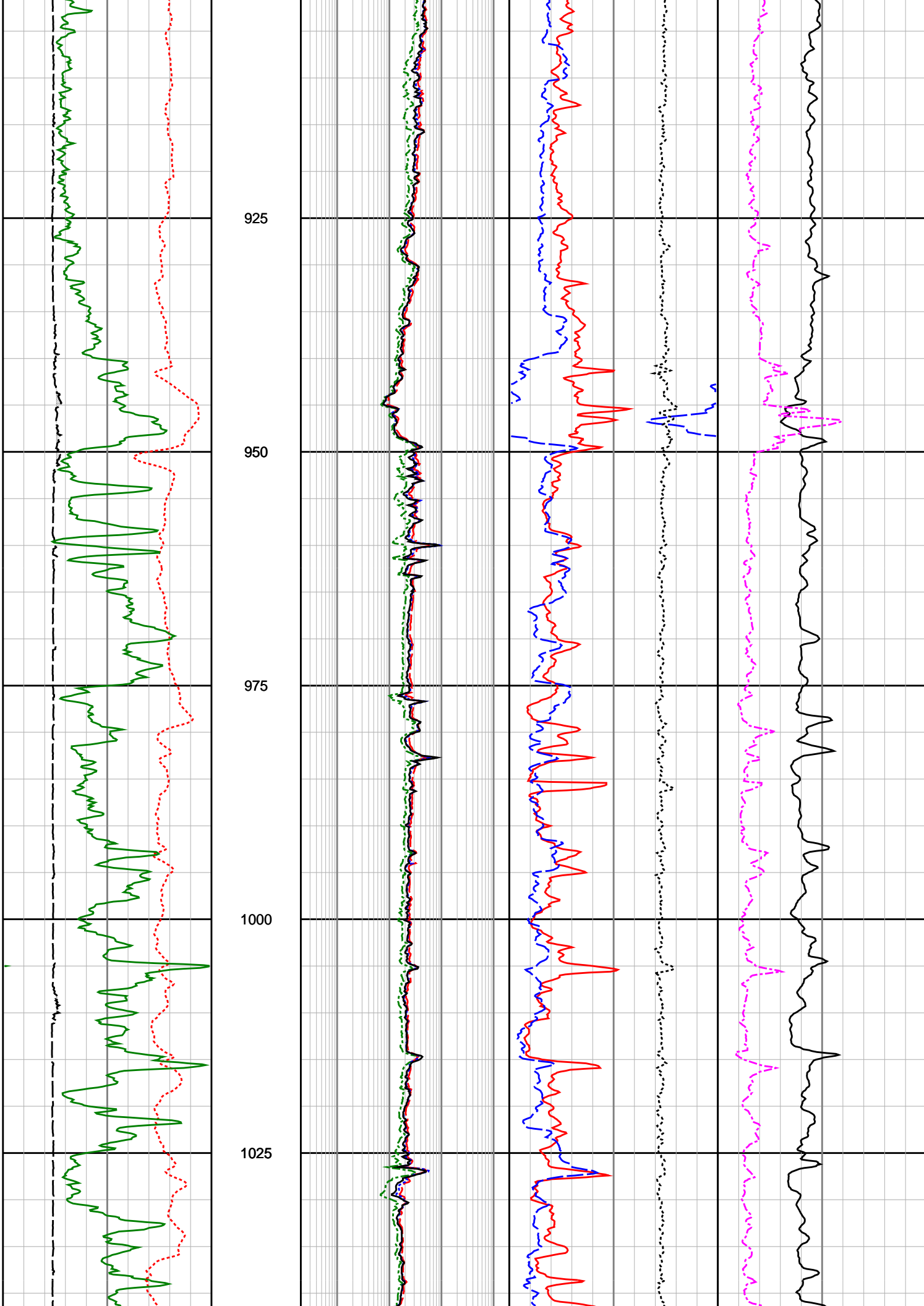
GeoPilot Sensor Information					
Tool Type	GP	GP			
Distance From Bit (m)	1.32	1.33			
Software Version	3	3			
Sub Serial Number	GP0850TL088	GP0850TL088			

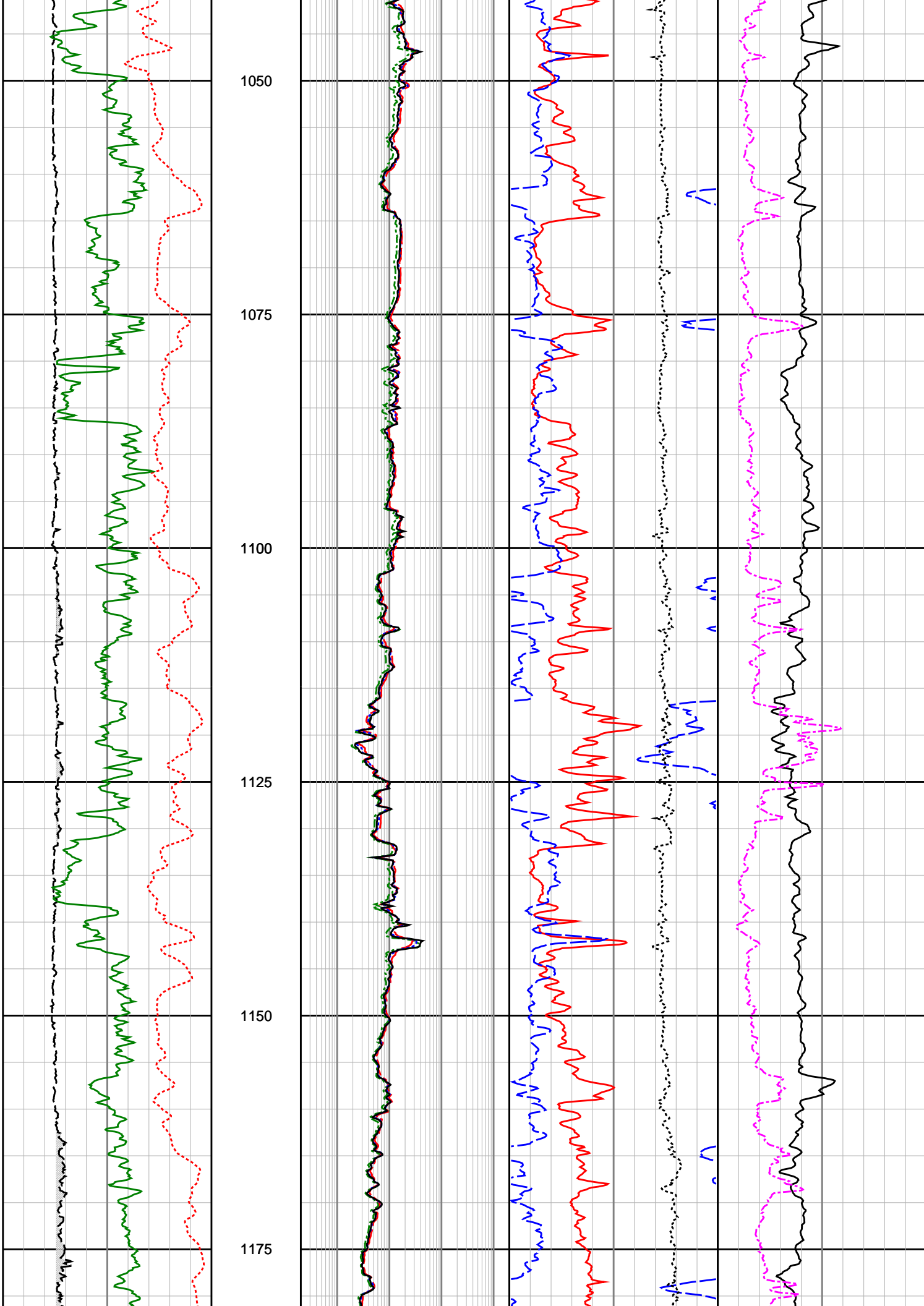
REMARKS					
<p>1. All depths are bit depths and referenced to the drillers pipe tally.</p> <p>2. AV/CV is calculated at the MWD collar using the Powers Law for water based muds and is in m/min.</p> <p>3. Curve mnemonics are:</p> <p>SGRC - Smoothed Gamma Ray Combined, api</p> <p>SEXP - Smoothed Extra Shallow Phase-Shift Derived Resistivity, ohm-m</p> <p>SESP - Smoothed Shallow Phase-Shift Derived Resistivity, ohm-m</p> <p>SEMP - Smoothed Medium Phase-Shift Derived Resistivity, ohm-m</p> <p>SEDP - Smoothed Deep Phase-Shift Derived Resistivity, ohm-m</p> <p>SROP - Smoothed Rate of Penetration, m/hr</p> <p>ACAL - Smoothed ACAL Caliper, inches</p> <p>SBD2 - Smoothed Best Bin Bulk Density Compensated, g/cc</p> <p>SCO2 - Smoothed Best Bin Stand-off Correction, g/cc</p> <p>SNP2 - Smoothed Best Bin Near Detector PE, b/e</p> <p>TNLP - Smoothed CTN Neutron Porosity corrected for Salinity, Temperature and Pressure, v/v</p> <p>BATC - Smoothed Bi-Modal Acoustic Compressional Slowness, usec/m</p> <p>RUN_SPD - Smoothed Running Speed, m/hr</p> <p>4. CTN data has been processed using the following parameters:</p> <p>MW = 1.16 - 1.25</p> <p>Formation Salinity = 50000 ppm, Cl</p> <p>Mud Salinity = 41000 - 49000 ppm, Cl</p> <p>Matrix Density = 2.71 g/cc</p> <p>Fluid Density = 1.00 g/cc</p> <p>5. CTN data has been reprocessed using data from the Caliper tool for borehole diameter.</p> <p>6. Acoustic Caliper data is missing due to memory fill.</p> <p>7. Data from 1755.00 - 1780.19 mTVDRT was wiped after coring this interval prior to Run 400.</p>					

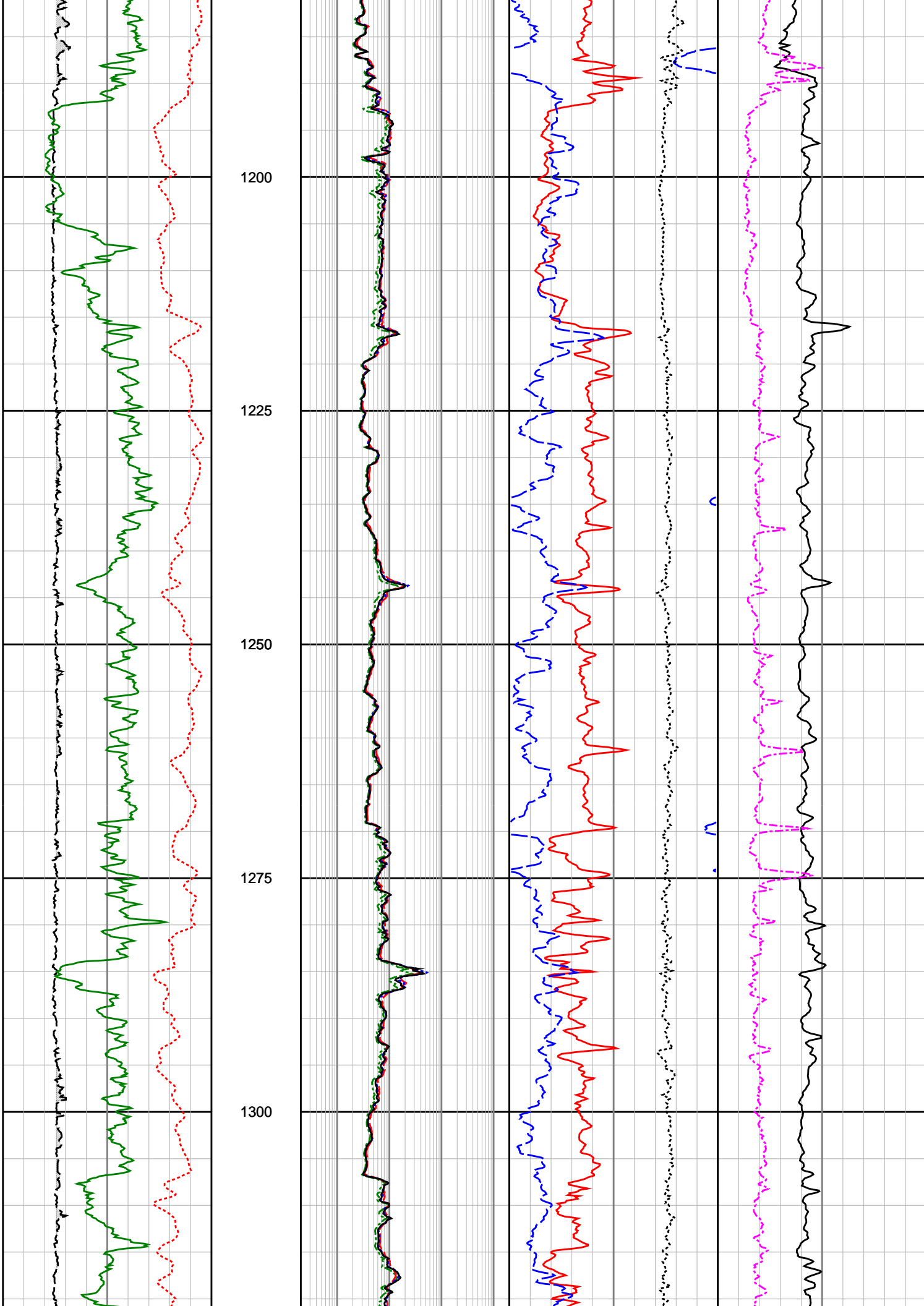
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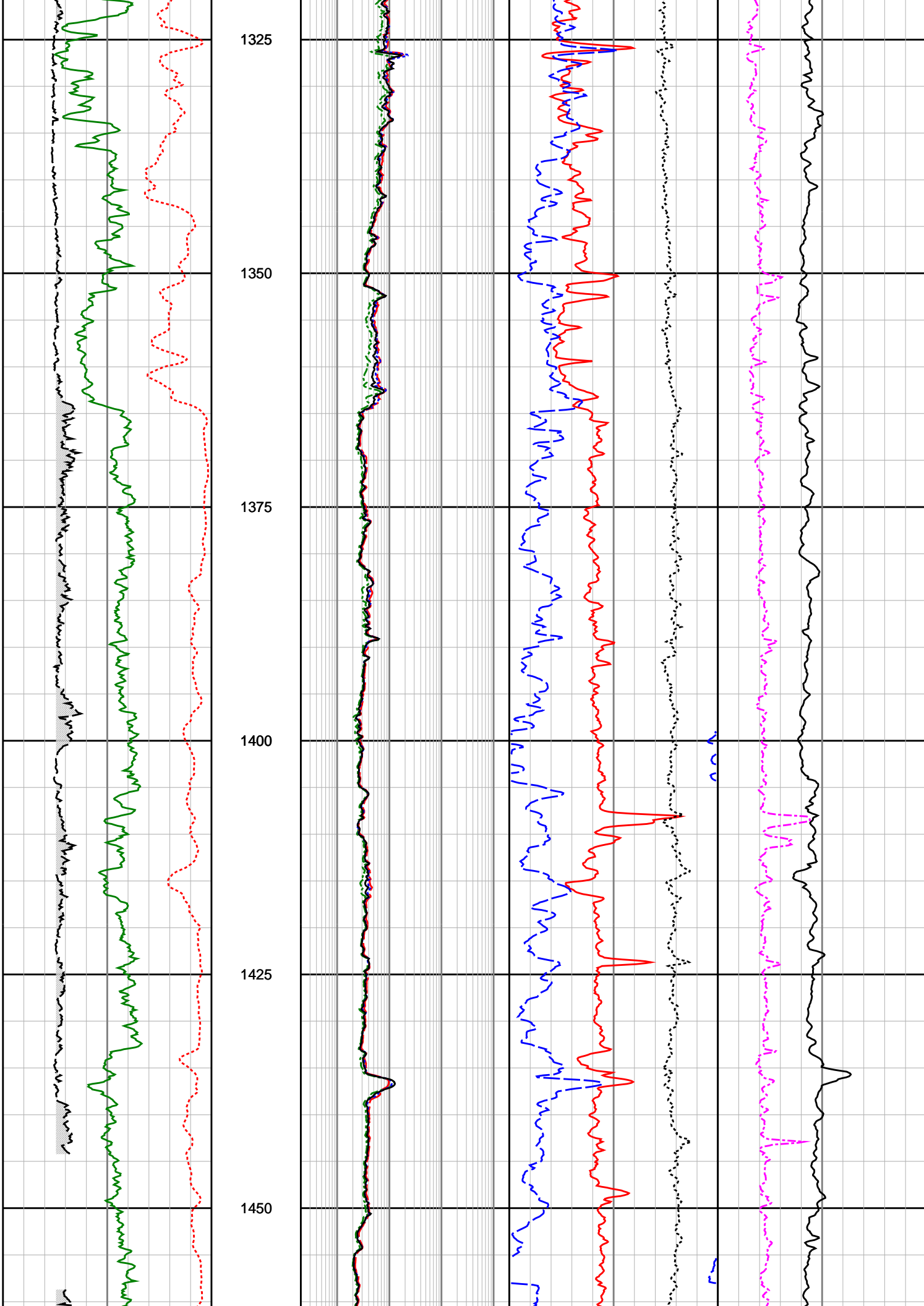
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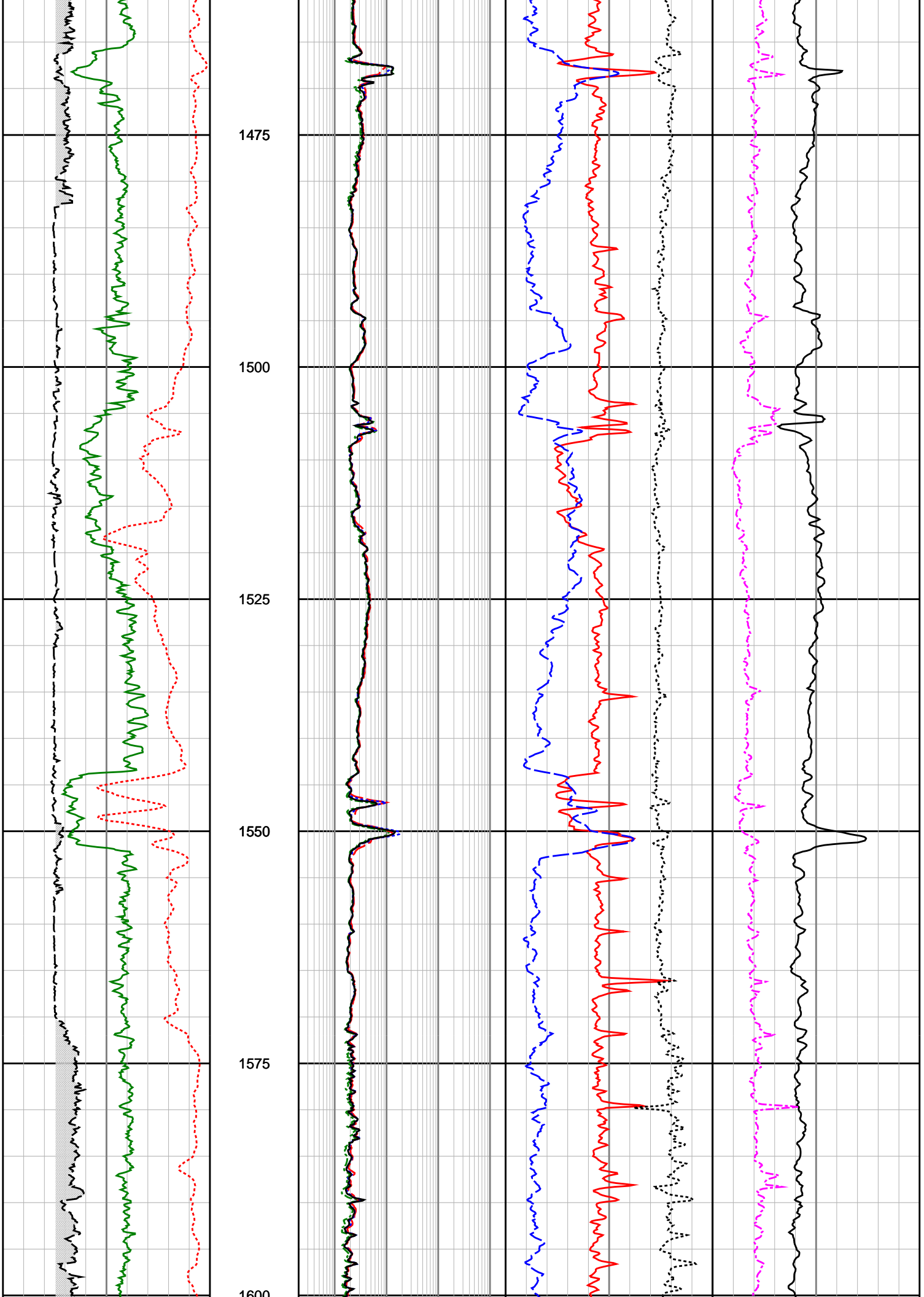


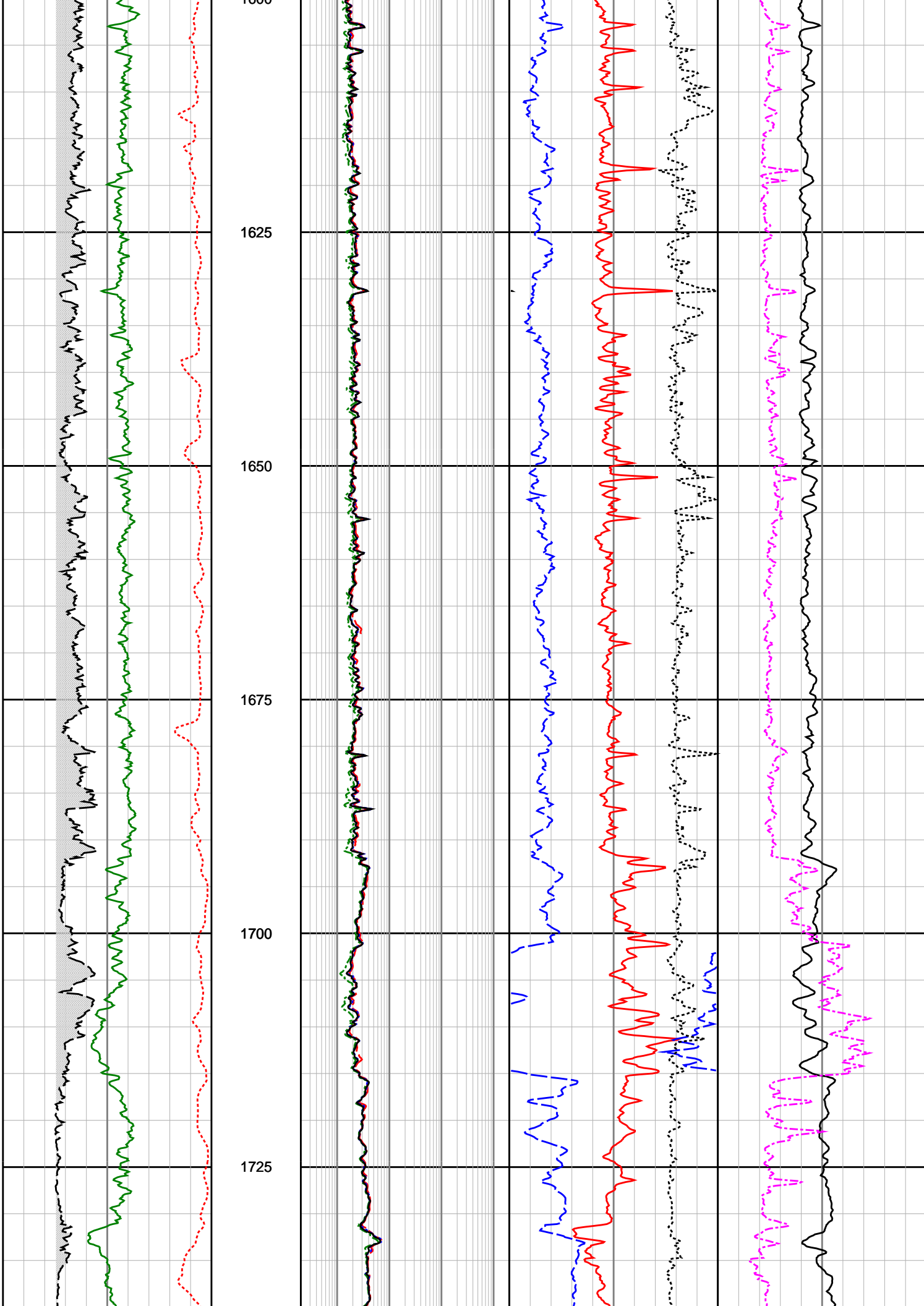


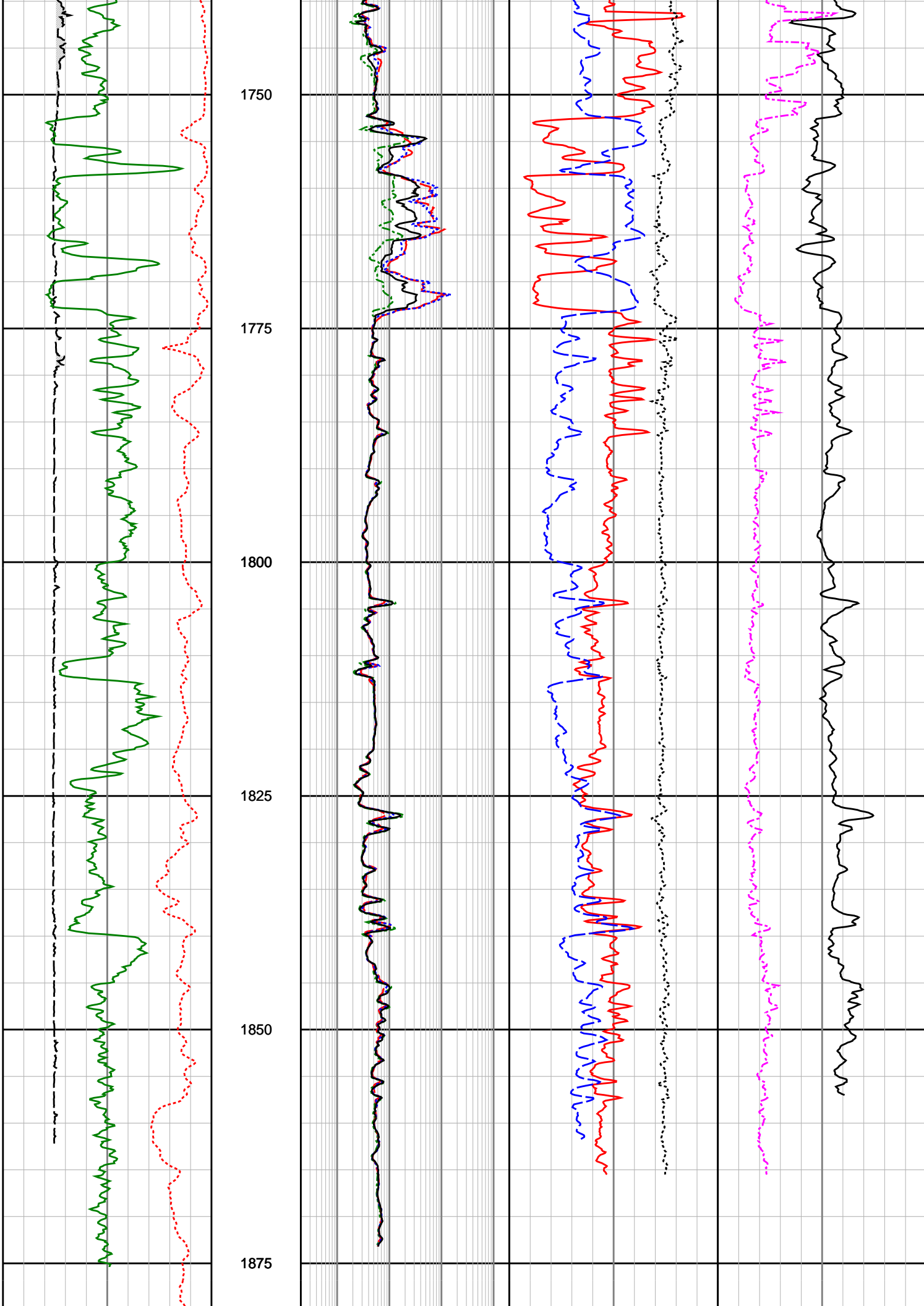


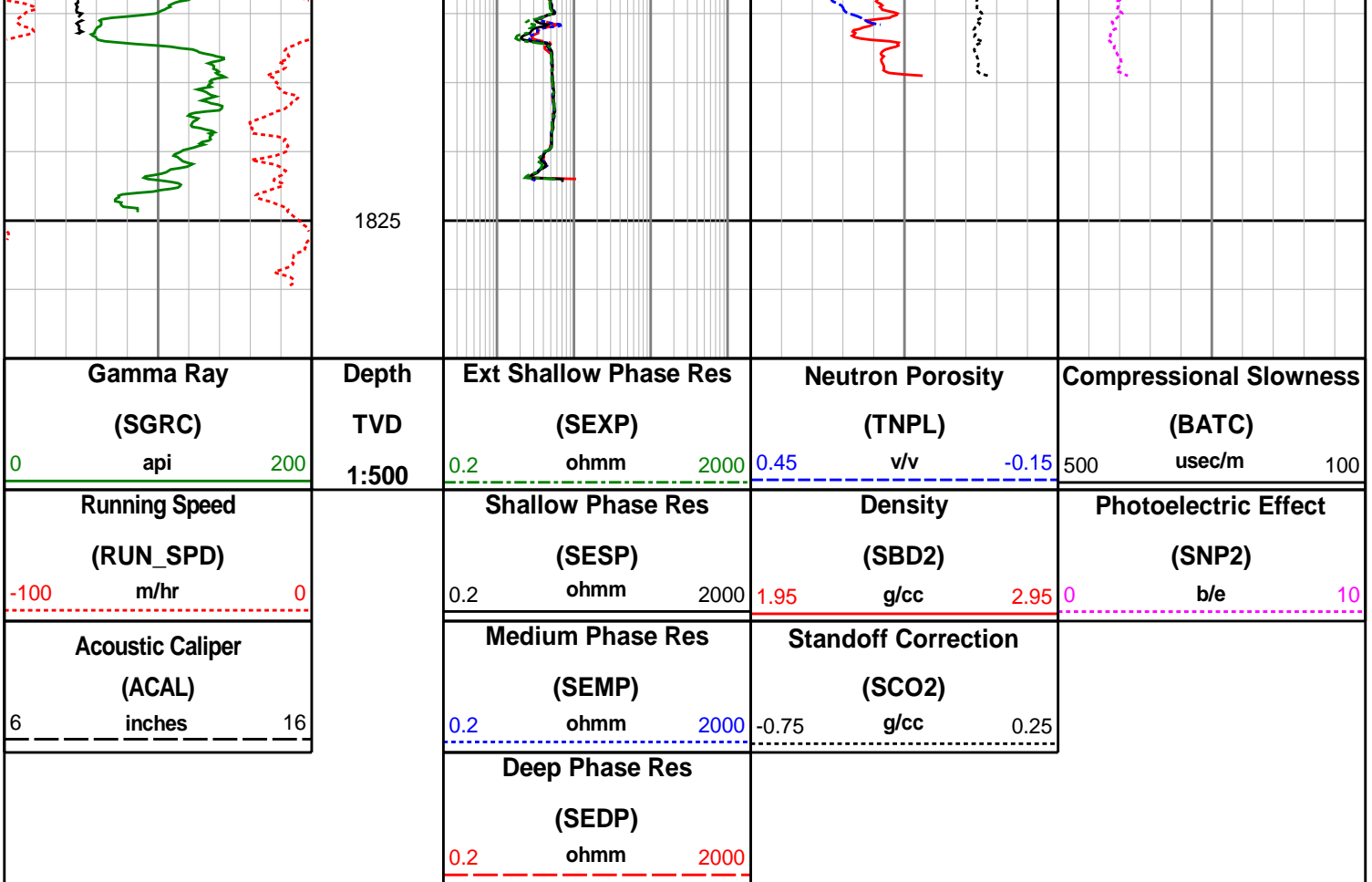












HALLIBURTON

DIRECTIONAL SURVEY REPORT

Woodside Energy Ltd

Halladale-1 DW2

VIC

Australia

AU-FE-0003325468

The final survey has been projected to TD. RT-LAT=21.5m

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
810.510	4.59	213.32	810.220	1.716 S	9.639 W	-5.042	TIE-IN
852.560	4.74	218.31	852.131	4.485 S	11.640 W	-8.343	0.31
881.040	3.38	227.57	880.539	5.975 S	12.990 W	-10.216	1.59
909.540	2.36	275.21	909.007	6.489 S	14.194 W	-11.125	2.63
938.460	2.99	330.60	937.900	5.777 S	15.158 W	-10.805	2.64
967.340	4.38	356.47	966.721	4.020 S	15.595 W	-9.319	2.22
996.060	7.12	4.58	995.294	1.151 S	15.521 W	-6.612	2.98
1024.960	9.29	0.02	1023.897	2.968 N	15.377 W	-2.713	2.35
1055.560	12.32	353.37	1053.952	8.682 N	15.753 W	2.491	3.21
1084.420	14.52	350.57	1082.023	15.310 N	16.701 W	8.345	2.38
1112.890	16.05	349.61	1109.485	22.702 N	17.996 W	14.789	1.63
1141.340	17.92	346.59	1136.693	30.829 N	19.720 W	21.766	2.18
1169.860	20.36	343.90	1163.635	39.866 N	22.114 W	29.354	2.73
1198.200	21.57	340.05	1190.100	49.500 N	25.259 W	37.232	1.94
1226.910	21.90	339.02	1216.769	59.460 N	28.977 W	45.211	0.53
1256.080	22.21	337.21	1243.804	69.622 N	33.060 W	53.248	0.77
1284.960	21.89	340.96	1270.573	79.744 N	36.931 W	61.323	1.50
1311.610	23.12	342.06	1295.194	89.418 N	40.163 W	69.207	1.46
1340.280	23.01	345.53	1321.573	100.200 N	43.297 W	78.161	1.43
1368.830	22.99	346.35	1347.853	111.021 N	46.007 W	87.303	0.34
1397.820	23.70	346.53	1374.470	122.188 N	48.701 W	96.775	0.74
1426.750	22.93	345.84	1401.037	133.307 N	51.434 W	106.188	0.85
1454.770	22.79	347.81	1426.857	143.904 N	53.915 W	115.202	0.83
1503.000	21.72	346.50	1471.494	161.713 N	57.971 W	130.393	0.73

1510.750	21.22	346.89	1478.706	164.473 N	58.623 W	132.739	2.01
1539.560	21.91	348.03	1505.499	174.810 N	60.921 W	141.575	0.84
1568.700	21.37	347.26	1532.586	185.307 N	63.219 W	150.562	0.63
1597.380	21.89	344.99	1559.246	195.568 N	65.756 W	159.243	1.03
1625.950	22.06	342.29	1585.741	205.823 N	68.768 W	167.749	1.08
1654.300	21.72	343.30	1612.047	215.919 N	71.895 W	176.065	0.54
1683.200	21.55	344.71	1638.912	226.161 N	74.831 W	184.586	0.57
1714.560	21.72	343.34	1668.062	237.276 N	78.013 W	193.834	0.51
1742.320	21.67	344.05	1693.856	247.125 N	80.894 W	202.007	0.29
1771.450	21.26	343.64	1720.966	257.364 N	83.860 W	210.514	0.45
1795.600	21.51	343.38	1743.453	265.807 N	86.360 W	217.511	0.33
1855.710	20.58	343.78	1799.553	286.512 N	92.463 W	234.676	0.47
1884.130	19.43	342.64	1826.258	295.820 N	95.268 W	242.370	1.28
1912.690	19.24	343.45	1853.207	304.865 N	98.026 W	249.836	0.35
1936.360	19.03	343.20	1875.569	312.297 N	100.252 W	255.986	0.29
1941.000	19.03	343.20	1879.956	313.746 N	100.690 W	257.183	0.00

CALCULATION BASED ON MINIMUM CURVATURE METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT



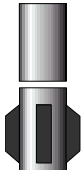




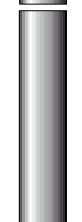
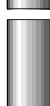
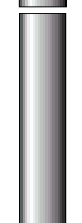
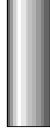


VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 20.90 DEGREES (GRID)
A TOTAL CORRECTION OF 11.97 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 1941.000 METRES
IS 329.507 METRES ALONG 342.21 DEGREES (GRID)

MWD RUN 100 - BHA












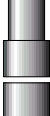
MWD RUN 100 - MWD

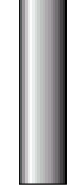















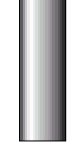


	Cumulative Length (m)		Sensor Measure Point Distance To Bit (m)
Drill Pipe	1139.71	Positive Pulser	
HWDP	286.27	TM	
Drill Collar	147.56	BAT	
Jar	128.87	CTN	26.130
Drill Collar	119.07	SLD	22.050
		HCIM	

Sub		35.19			
Reamer		32.91	PWD		16.370
Sub		30.89			
Stabilizer		30.27	EWR-P4		13.850
		29.59			
Drill Collar			DGR		11.530
		26.79			
MWD			GeoPilot		1.320
Bit		0.42			

MWD RUN 200 - BHA




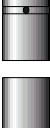










MWD RUN 200 - MWD












		Cumulative Length (m)			Sensor Measure Point Distance To Bit (m)
Drill Pipe		1167.20	Positive Pulser		
		313.76	TM		
HWDP			BAT		
		175.05			
Drill Collar			CTN		26.140
		156.36			
Jar			SLD		22.060
		146.63			

Drill Collar			HCIM		
Sub		34.79			
Reamer		32.51	PWD		16.370
Sub		30.90			
Stabilizer		30.28	EWR-P4		13.860
		29.60			
Drill Collar			DGR		11.540
		26.80			
MWD			GeoPilot		1.330
Bit		0.43			

MWD RUN 400 - BHA

MWD RUN 400 - MWD

		Cumulative Length (m)			Sensor Measure Point Distance To Bit (m)
		2810.48			
Drill Pipe			Positive Pulser		
		310.48	TM		
HWDP					
		171.77	BAT		
Drill Collar			CTN		20.060
		153.08			

Jar			SLD		16.010
		143.35	HCIM		
Drill Collar					
		31.51	PWD		10.400
Sub		29.23			
Sub		28.61	EWR-P4		7.870
Stabilizer		27.94			
MWD			DGR		5.570
		1.67	PM		
Stabilizer					
Bit		0.30			