

**WILD**

EWR Electromagnetic Wave Resistivity DGR Dual Gamma Ray

[illegible]

MWD Run Number	200	300	400	500	
Date run completed	23-Jun-05	25-Jun-05	26-Jun-05	29-Jun-05	
Rig Bit Number	3	4	5	6	
Bit Size (mm)	311	311	311	216	
Tool Nominal OD (mm)	203	203	203	171	
Log Start Depth (MD, m)	665.0	1,160.0	1,392.0	1,730.0	
Log End Depth (MD, m)	1,160.0	1,392.0	1,730.0	1,806.0	
Drill or Wipe	Drilling	Drilling	Drilling	Drilling	
Drill/Wipe Start Date and Time	22-Jun-05 12:00	24-Jun-05 09:40	25-Jun-05 13:43	28-Jun-05 14:07	
Drill/Wipe End Date and Time	24-Jun-05 15:16	25-Jun-05 04:27	26-Jun-05 01:23	28-Jun-05 19:05	
Min Inc (deg) @ Depth (MD, m)	0.56 @ 712.41	3.06 @ 1,006.82	5.17 @ 1,377.53	5.66 @ 1,783.40	
Max Inc (deg) @ Depth (MD, m)	5.74 @ 1,067.61	5.74 @ 1,067.61	6.37 @ 1,693.36	6.14 @ 1,734.43	
Bit TFA(in2) / Bit Type	1.052 / Smith GS04BDV	1.05 / Smith MA89PX	0.98 / Hyc DSX104HGWA5	0.91 / Hyc DSX104	
Flow Rate (gpm)	990	988	940	662	
Max AV (mpm) / CV (mpm) @ MWD	93 / 126	89 / 137	86 / 137	50 / 213	
Fluid Type	KCl / Polymer	KCl / Polymer	KCl / Polymer	Flo Pro	
Density (sg) / Viscosity (spqt)	1.20 / 55	1.20 / 49	1.20 / 49	1.20 / 50	
Filtrate CL (ppm)	42,000	45,000	46,000	148,000	
pH / Fluid Loss (mptm)	9 / 4.8	8.4 / 5.0	7.9 / 4.5	9.7 / 5.0	
PV (cp) / YP (lhf2)	15 / 26	11 / 26	14 / 36	14 / 32	
% Solids / % Sand	9 / 1	10 / 0.5	10 / 0.5	14 / 0.25	
% Oil / Oil:Water Ratio	0 / N/A	0 / N/A	0 / N/A	0 / N/A	
Rm @ Measured Temp (degC)	0.12 @ 20.0	0.11 @ 21.0	0.10 @ 22.0	0.08 @ 21.0	
Rmf @ Measured Temp (degC)	0.08 @ 20.0	0.08 @ 22.0	0.08 @ 22.0	0.06 @ 19.0	
Rmc @ Measured Temp (degC)	0.17 @ 20.0	0.12 @ 24.0	0.12 @ 23.0	0.09 @ 18.0	
Max Tool Temp (degC) / Source	49.4 / EWR	68.0 / HCIM	71.0 / HCIM	73.0 / HCIM	
Rm @ Max Tool Temp (degC)	0.07 @ 49.4	0.05 @ 68.0	0.05 @ 71.0	0.04 @ 73.0	
Lead MWD Engineer	A.Rule	A.Rule	A.Rule	A.Rule	
Customer Representative	R.Buitenhuis	R.Buitenhuis	R.Buitenhuis	R.Buitenhuis	

SENSOR INFORMATION

Downhole Processor Information

Tool Type	HCIM	HCIM	HCIM	HCIM	
Software Version	68.18	68.18	68.18	68.18	
Sub Serial Number	198839	161828	161828	10630413	
Insert Serial Number	91232	161828	161828	093281	
Logging String Serial Number	DM90072859X1HGVR	DA90777824XH1GR8	DA90777824XH1GR8	DM90073263HWRG6	
Date and Time Initialized	22-Jun-05 05:44	24-Jun-05 04:46	25-Jun-05 09:54	28-Jun-05 05:53	
Date and Time Read	24-Jun-05 01:44	25-Jun-05 09:27	26-Jun-05 16:39	29-Jun-05 13:19	

Directional Sensor Information

Tool Type	PM	PM	PM	DM	
Distance From Bit (m)	16.13	16.26	16.06	18.90	
Software Version	N/A	N/A	N/A	3.15	
Sub Serial Number	022759	043795	043795	152535	
Sonde Serial Number	134019	143272	143272	180031	
Sensor ID Number	500	563	563	N/A	
Survey String Serial Number	90074559	90061480	90061480	N/A	
Toolface Offset (deg)	N/A	N/A	N/A	N/A	

Gamma Ray Sensor Information

Tool Type	DGR	DGR	DGR	DGR	
Distance From Bit (m)	12.75	8.97	8.77	10.03	
Recorded Sample Period (sec)	12	12	12	12	
Software Version	N/A	N/A	N/A	N/A	
Sub Serial Number	196051	102971	102971	078523	
Insert/Sonde Serial Number	132474	10505500	10505500	126021	

Resistivity Sensor Information

Tool Type	EWR-P4	EWR-P4	EWR-P4	EWR-P4	
Distance From Bit (m)	9.72	11.27	11.07	12.37	
Recorded Sample Period (sec)	14	14	14	14	
Software Version	1.38	1.38	1.38	1.38	
Sub Serial Number	82377	78631	78631	156219	
Receiver Insert Serial Number	144719	205859	205859	138389	
Transmitter Insert Serial Number	122049	151389	151389	127877	
Receiver Orientation	Down	Down	Down	Down	

Drillstring Dynamics Sensor Information

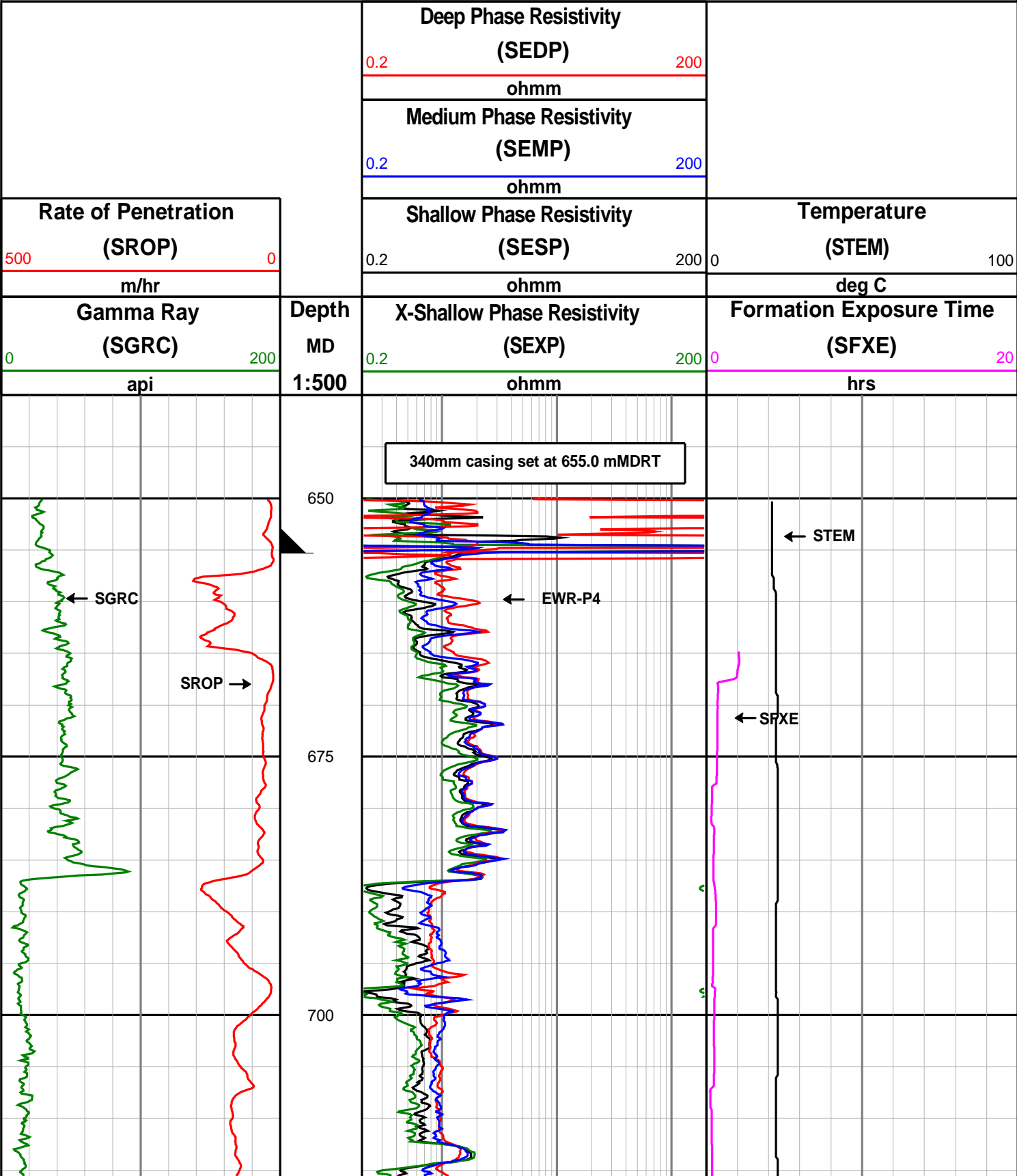
Tool Type	DDS				
Distance From Bit (m)	0				
Recorded Sample Period (sec)	12				
Software Version	0.37				
Sub Serial Number	196051				
Insert Serial Number	132474				
Sensor ID Number	699				

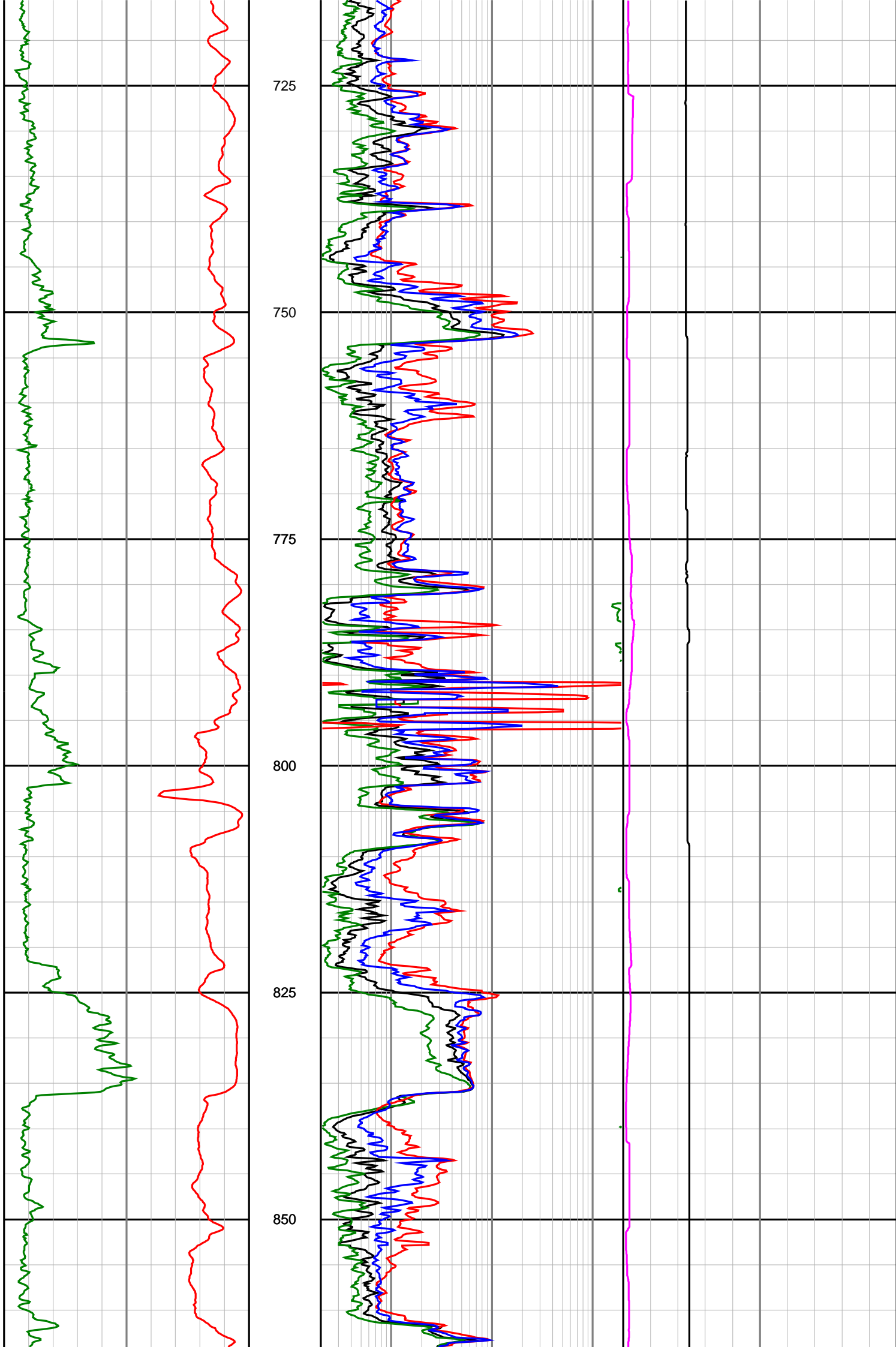
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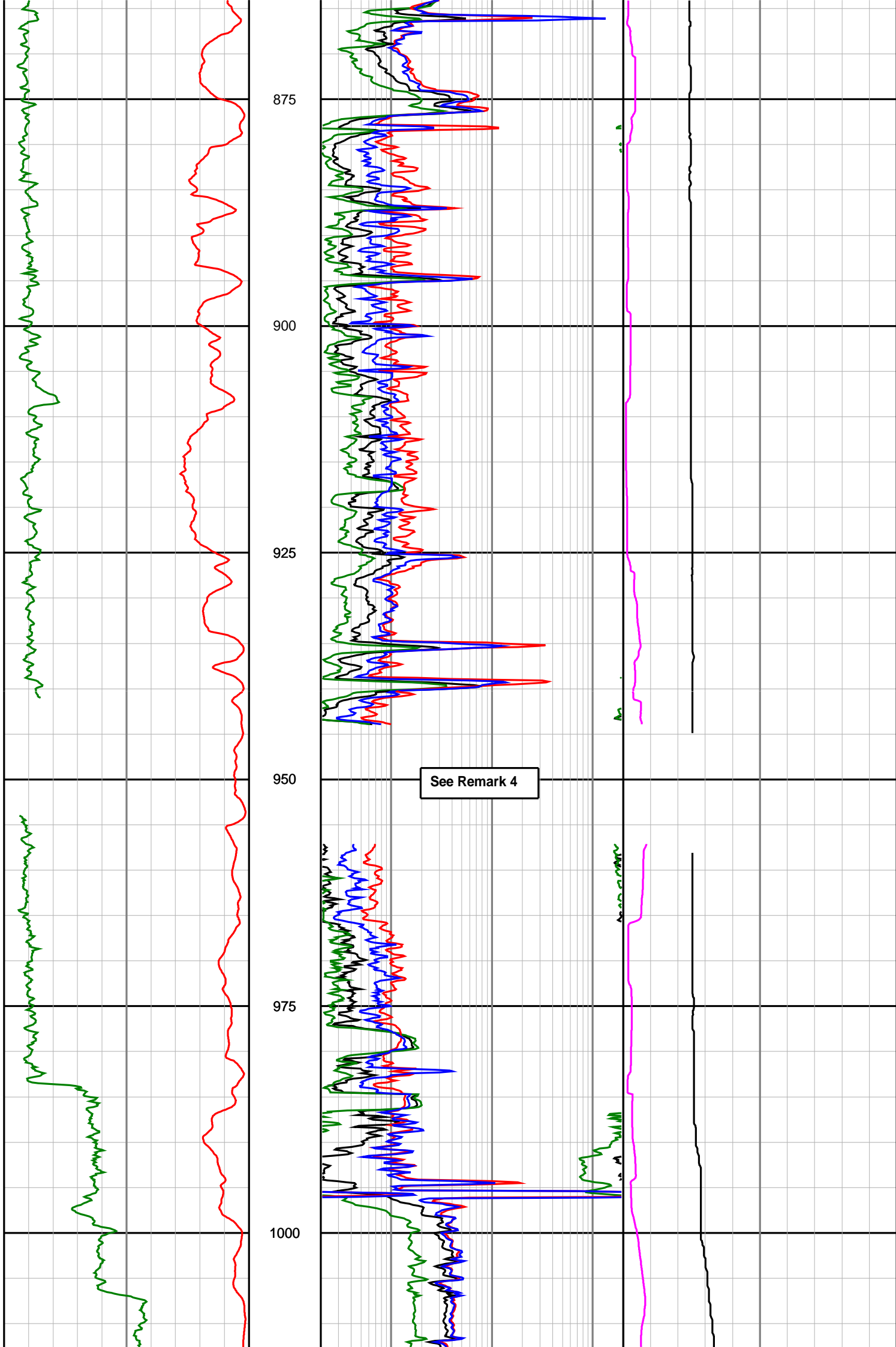
- All depths are bit depths and referenced to the drillers pipe tally
- AV/CV is calculated at the MWD collar using the Power Law for water based muds and the Bingham's Plastic Model for oil based muds, measured in m/min.
- Curve mnemonics are:
 - SGRC - Smoothed Dual Gamma Ray Combined, api
 - SEXP - Smoothed Extra Shallow Phase Resistivity, ohm-m
 - SESP - Smoothed Shallow Phase Resistivity, ohm-m
 - SEMP - Smoothed Medium Phase Resistivity, ohm-m
 - SEDP - Smoothed Deep Phase Resistivity, ohm-m
 - SRGP - Smoothed Rate of Penetration, m/hr
 - SFXE - Smoothed Formation Exposure Time, hr
 - STEM - Smoothed Phase Resistivity Temperature, degC
- No Data from 940.6 to 954.3 mMDRT (gamma depths) due to the tool resetting itself after high vibration.
- No DGR data from 1147.3 to 1151.2 mMDRT because of a BHA and subsequent sensor distance change.

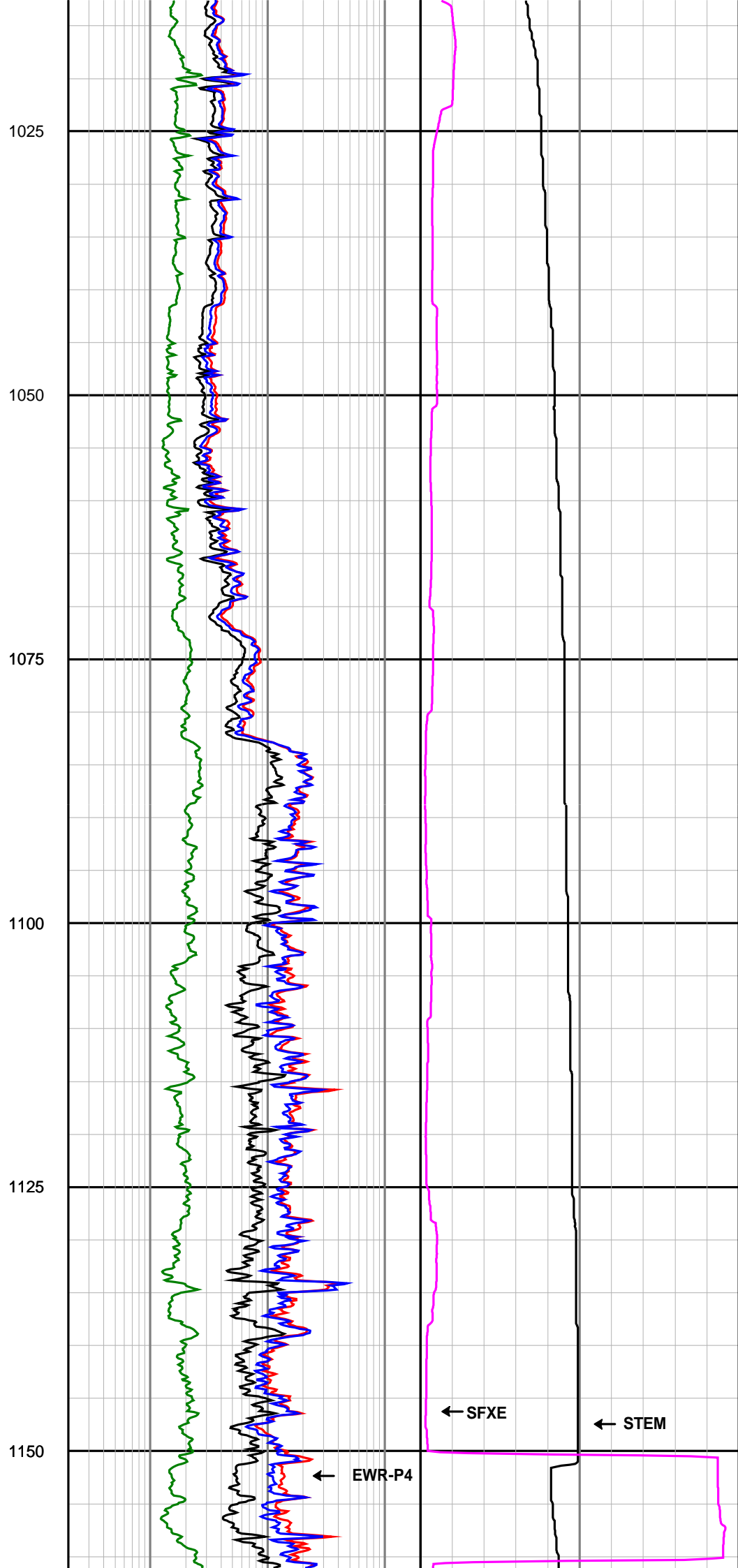
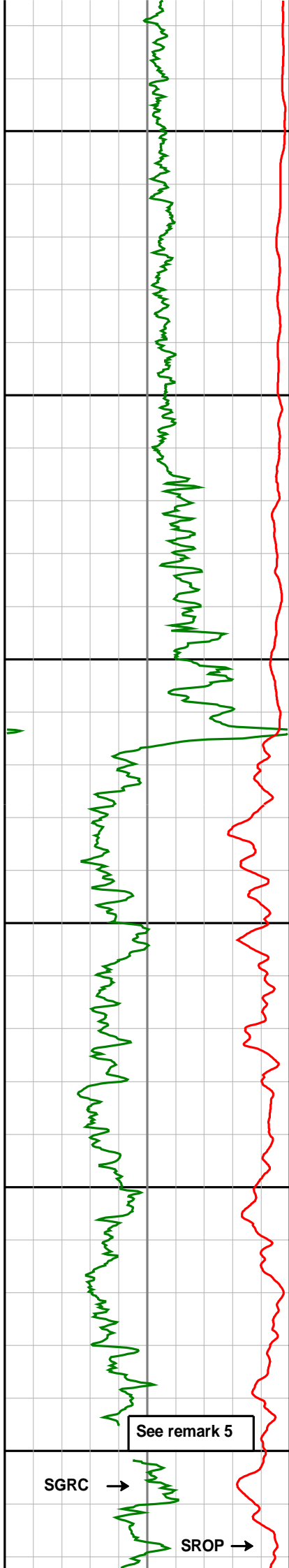
WARRANTY

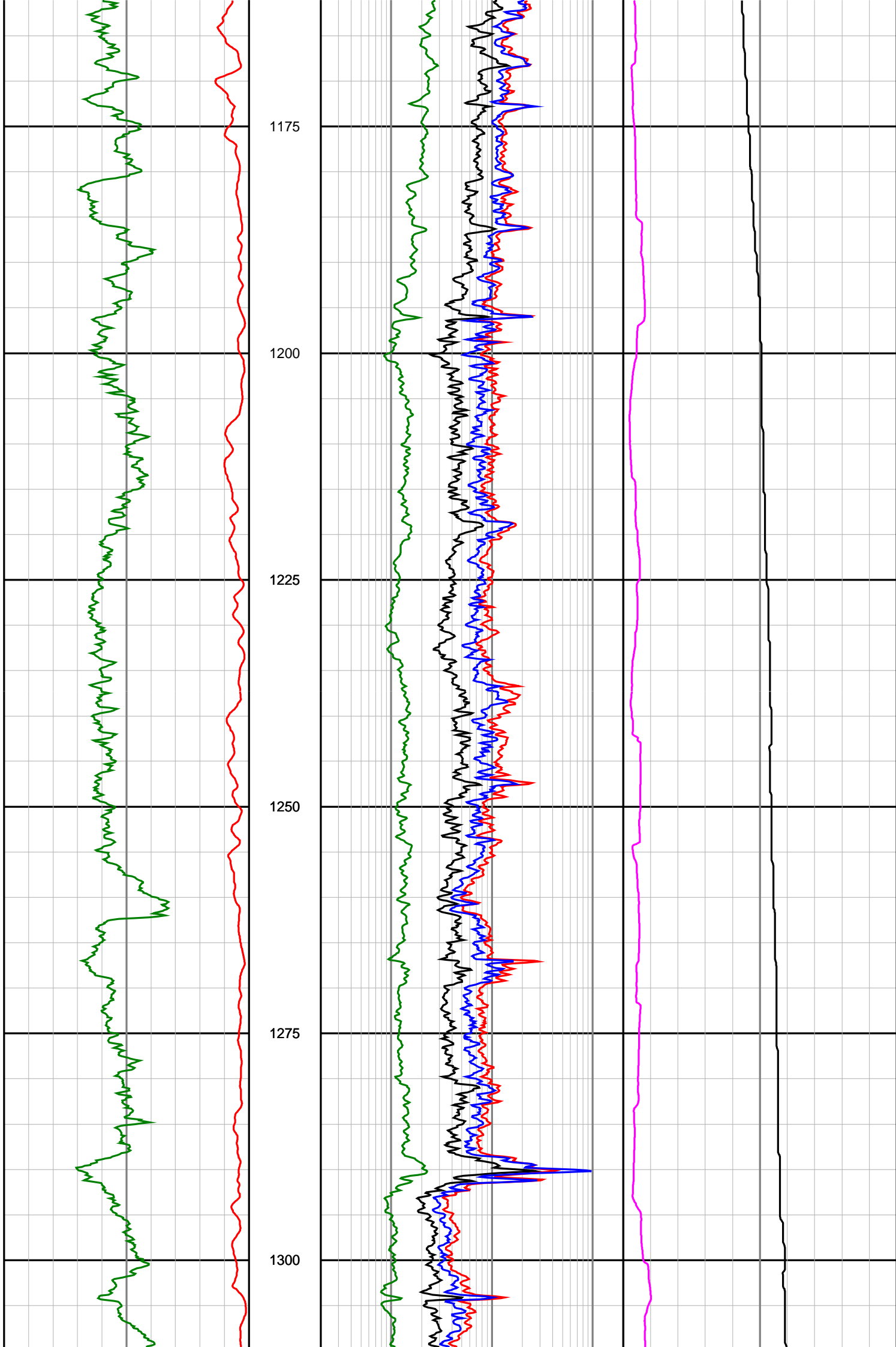
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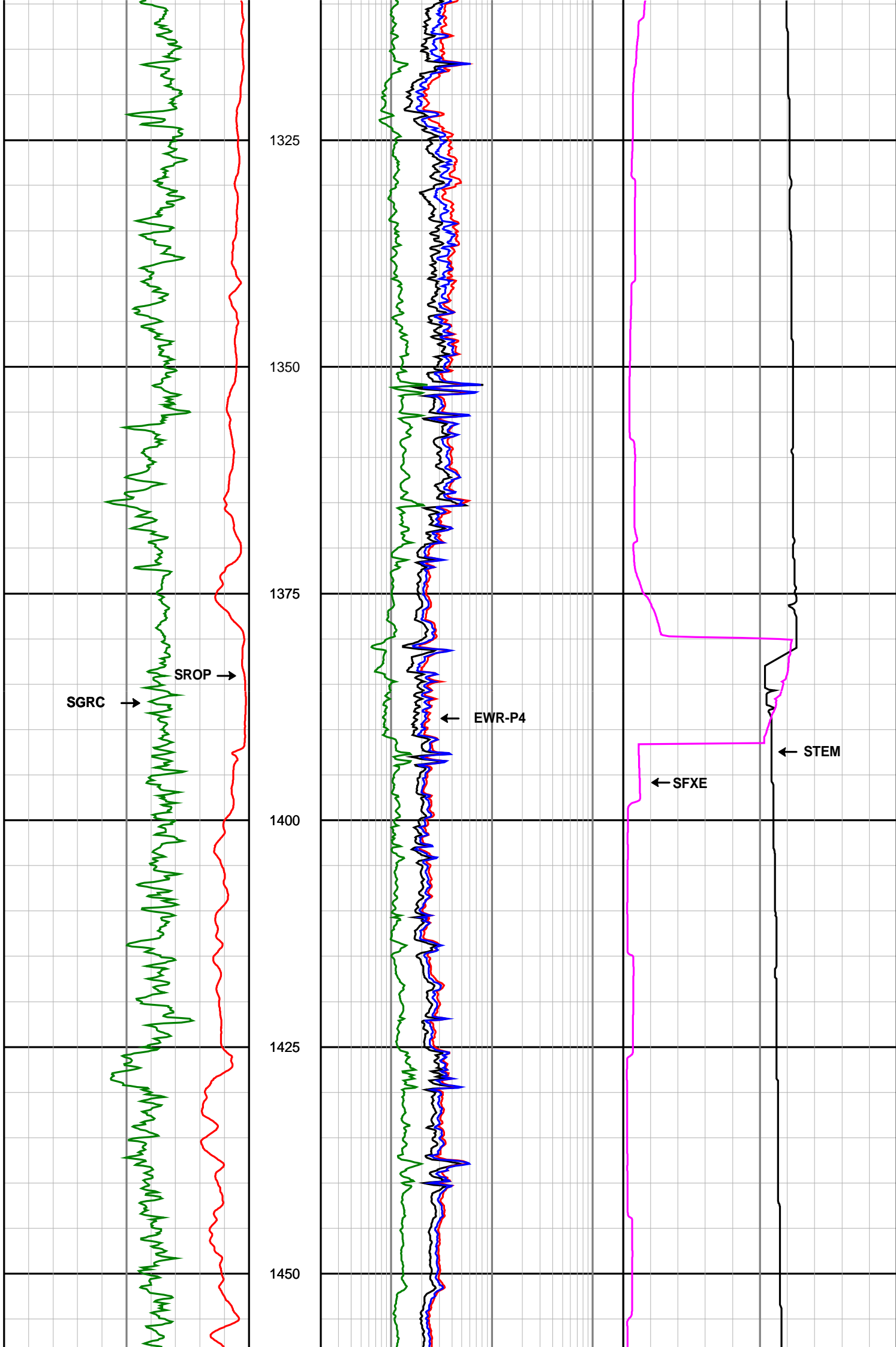


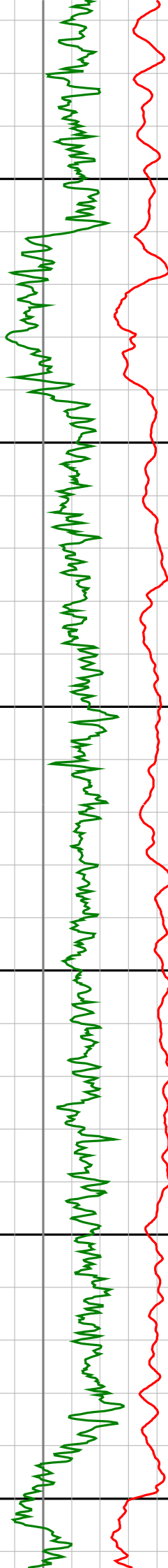












1475

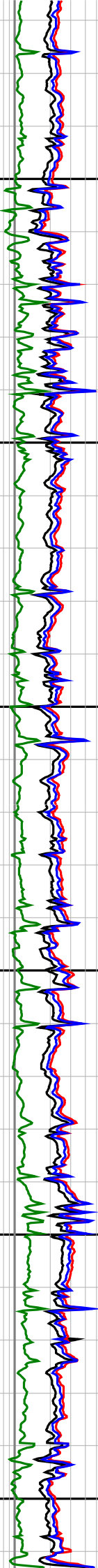
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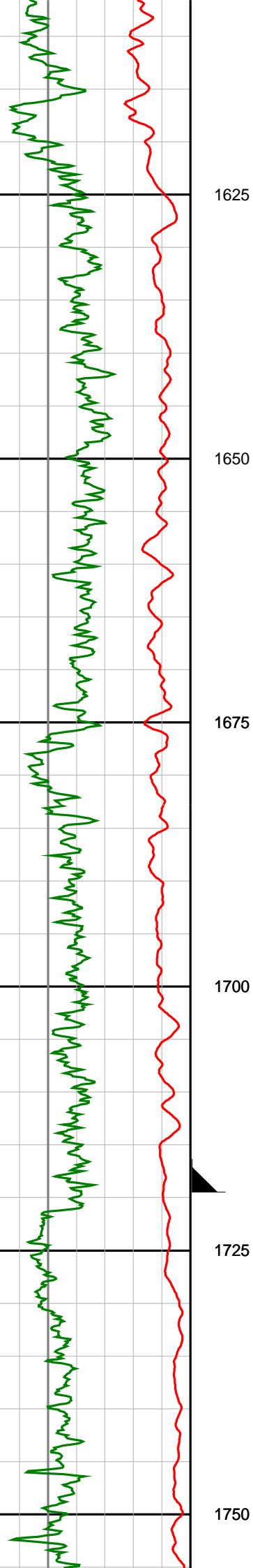
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1550

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1600





1625

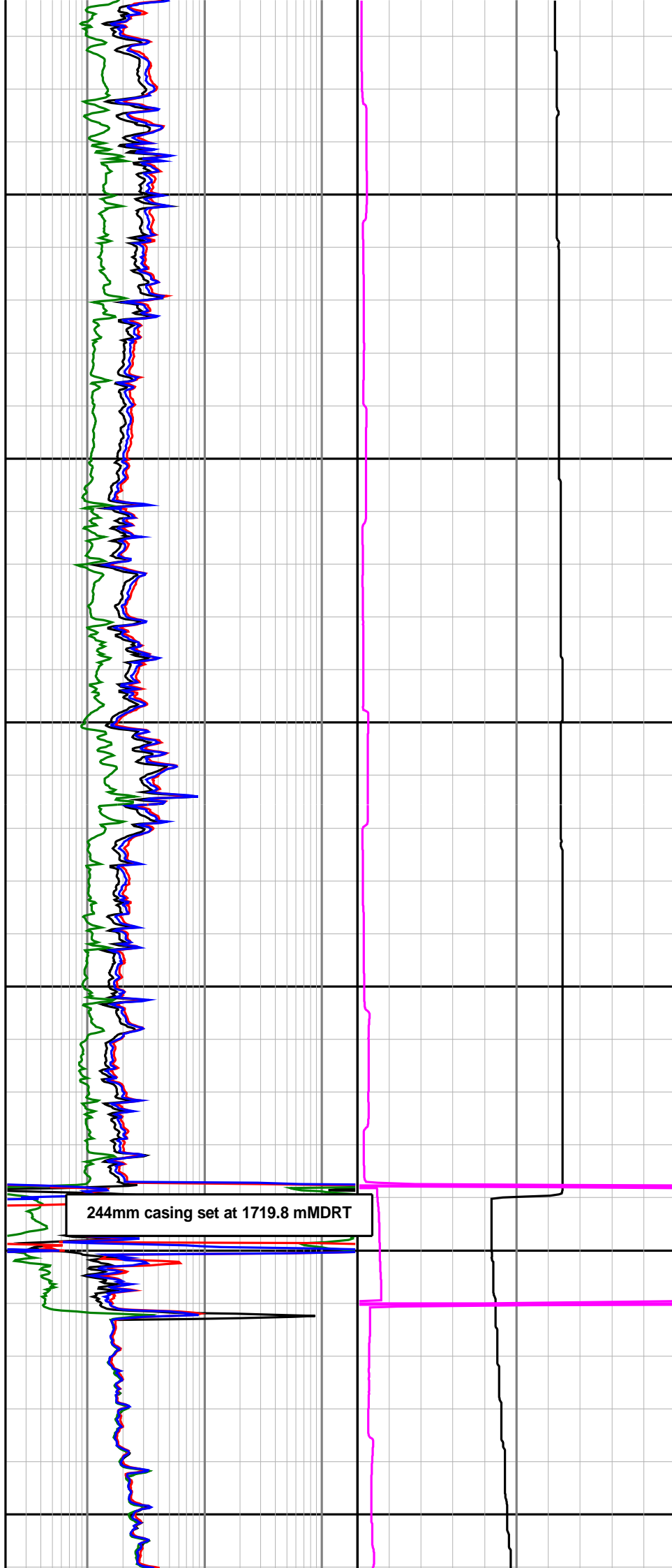
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1675

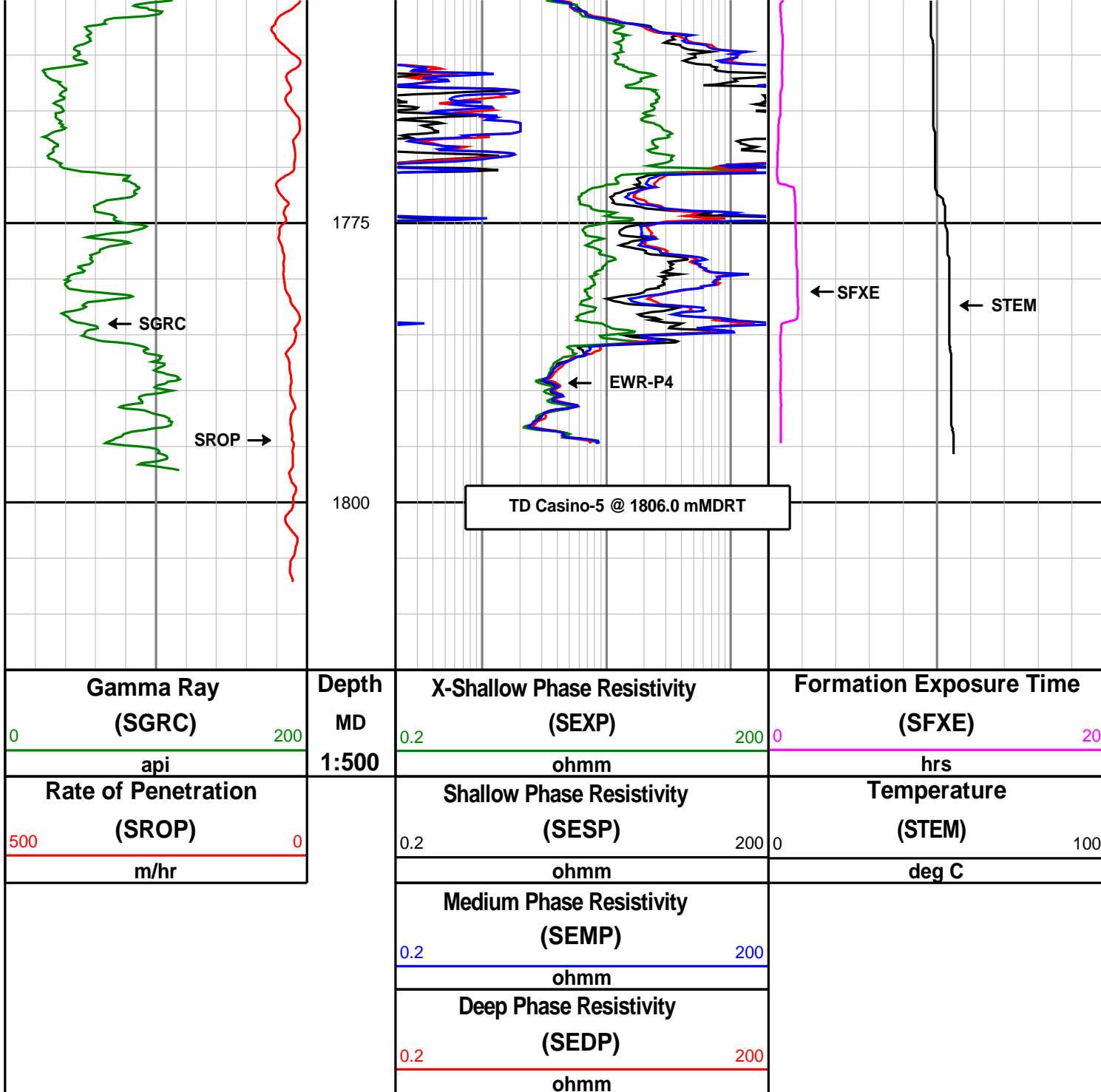
1700

1725

1750



244mm casing set at 1719.8 mMDRT



DIRECTIONAL SURVEY REPORT

Santos Ltd
Casino-5
Casino
Victoria
Australia

AU-FE-0003530537

RT to LAT = 21.5m. Final survey projected to TD.

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
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Casino-5

<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>
89.700	0.00	0.00	89.700	0.000 N	0.000 E	0.000	TIE-IN
153.320	0.87	155.19	153.318	0.438 S	0.203 E	-0.438	0.41
180.770	0.73	150.88	180.765	0.780 S	0.375 E	-0.780	0.17
236.210	1.06	149.10	236.198	1.529 S	0.810 E	-1.529	0.18
263.920	1.31	159.82	263.902	2.046 S	1.051 E	-2.046	0.36
292.770	1.22	161.34	292.745	2.647 S	1.263 E	-2.647	0.10
321.460	1.16	161.70	321.429	3.212 S	1.452 E	-3.212	0.06
350.140	1.12	162.94	350.103	3.755 S	1.626 E	-3.755	0.05
378.700	1.03	165.33	378.658	4.271 S	1.773 E	-4.271	0.11
407.390	0.99	169.70	407.344	4.764 S	1.882 E	-4.764	0.09
436.080	0.89	162.06	436.030	5.220 S	1.995 E	-5.220	0.17
464.750	0.86	161.47	464.697	5.636 S	2.132 E	-5.636	0.03
493.600	0.87	164.24	493.543	6.052 S	2.260 E	-6.052	0.04
522.350	0.23	169.75	522.292	6.318 S	2.330 E	-6.318	0.67
551.140	0.52	129.89	551.081	6.459 S	2.440 E	-6.459	0.39
579.900	0.54	127.68	579.840	6.626 S	2.648 E	-6.626	0.03
608.620	0.51	119.52	608.559	6.771 S	2.866 E	-6.771	0.08
636.960	0.54	120.09	636.898	6.900 S	3.091 E	-6.900	0.03
652.270	0.52	118.09	652.207	6.969 S	3.215 E	-6.969	0.05
712.410	0.56	146.86	712.344	7.343 S	3.616 E	-7.343	0.13
741.290	1.28	173.83	741.221	7.781 S	3.728 E	-7.781	0.85
800.770	1.61	179.35	800.682	9.272 S	3.808 E	-9.272	0.18
858.080	1.58	236.40	857.973	10.512 S	3.160 E	-10.512	0.80
891.650	3.06	238.12	891.515	11.241 S	2.014 E	-11.241	1.33
1006.820	3.06	237.46	1006.520	14.520 S	3.191 W	-14.520	0.01
1067.610	5.74	249.44	1067.127	16.462 S	7.406 W	-16.462	1.39
1150.270	5.53	253.03	1149.388	19.075 S	15.085 W	-19.075	0.15
1178.550	5.52	254.47	1177.536	19.837 S	17.699 W	-19.837	0.15
1207.090	5.50	252.55	1205.944	20.615 S	20.327 W	-20.615	0.20
1294.000	5.38	250.68	1292.462	23.213 S	28.148 W	-23.213	0.07
1322.590	5.29	252.03	1320.928	24.063 S	30.668 W	-24.063	0.16
1351.220	5.31	252.31	1349.436	24.873 S	33.186 W	-24.873	0.03
1377.530	5.17	251.91	1375.636	25.611 S	35.472 W	-25.611	0.16
1406.190	5.23	251.21	1404.178	26.433 S	37.937 W	-26.433	0.09
1434.970	5.43	251.49	1432.834	27.288 S	40.470 W	-27.288	0.21
1463.790	5.42	253.43	1461.525	28.109 S	43.068 W	-28.109	0.19
1492.550	5.42	251.34	1490.156	28.931 S	45.657 W	-28.931	0.21
1521.490	5.55	253.59	1518.964	29.763 S	48.293 W	-29.763	0.26
1550.140	5.55	251.90	1547.479	30.585 S	50.939 W	-30.585	0.17
1607.590	5.88	251.40	1604.644	32.386 S	56.367 W	-32.386	0.17
1636.210	5.89	252.97	1633.113	33.283 S	59.160 W	-33.283	0.17
1664.650	6.20	254.05	1661.395	34.133 S	62.033 W	-34.133	0.35
1693.360	6.37	251.89	1689.932	35.054 S	65.039 W	-35.054	0.30
1712.400	6.06	251.82	1708.860	35.696 S	66.998 W	-35.696	0.48
1734.430	6.14	252.76	1730.765	36.409 S	69.229 W	-36.409	0.17
1763.180	5.90	251.71	1759.357	37.328 S	72.100 W	-37.328	0.28
1783.400	5.66	250.49	1779.474	37.987 S	74.026 W	-37.987	0.40
1806.000	5.66	250.49	1801.964	38.731 S	76.127 W	-38.731	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 0.00 DEGREES (GRID)
A TOTAL CORRECTION OF 11.99 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 1806.000 METRES
IS 85.413 METRES ALONG 243.03 DEGREES (GRID)**


MWD RUN 200 - BHA
MWD RUN 200 - MWD

Component Length (m)	Sensor Measure
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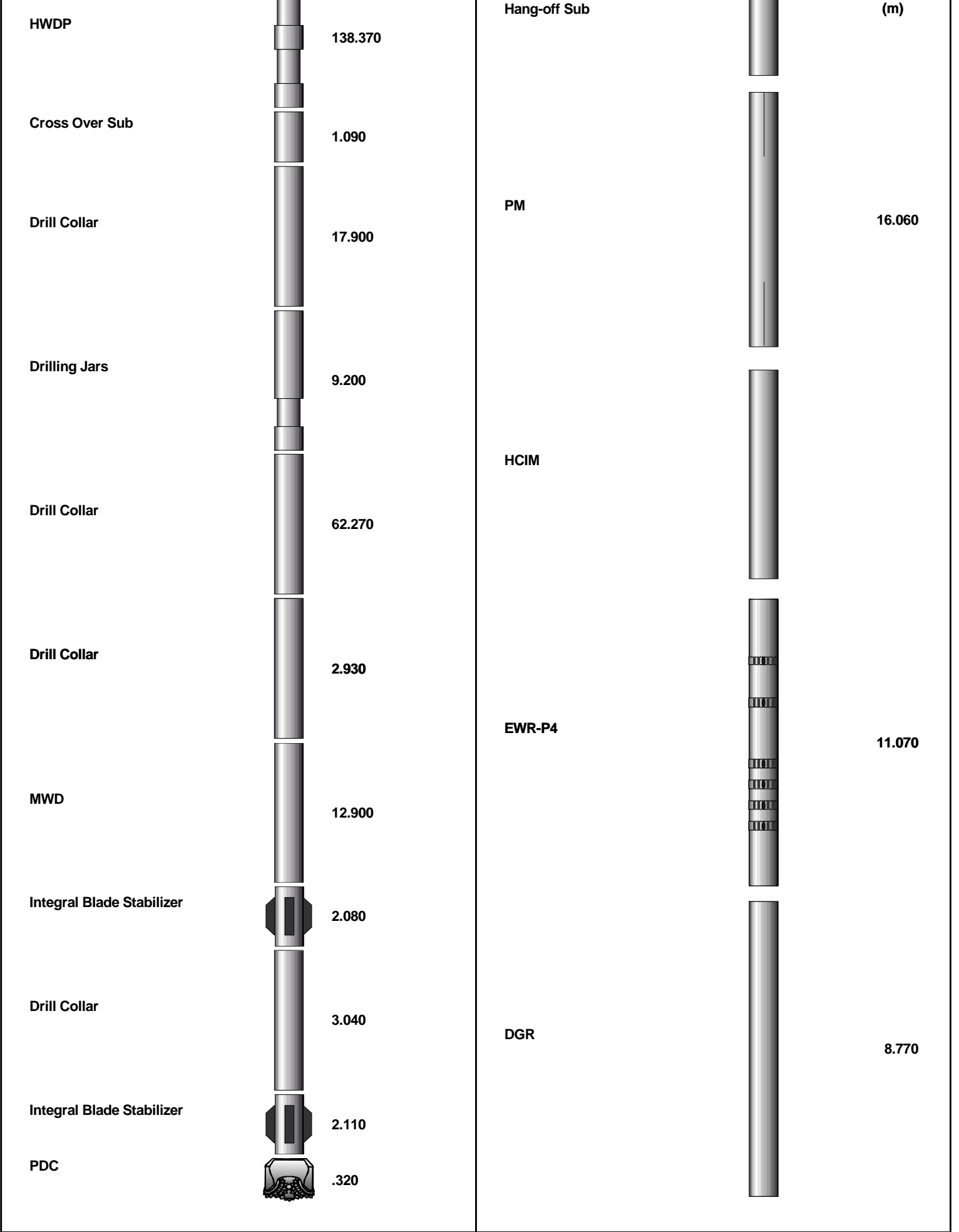
<div> <div>HWDP</div> <div>138.370</div> </div> <div> <div>Cross Over Sub</div> <div>1.090</div> </div> <div> <div>Drill Collar</div> <div>17.900</div> </div> <div> <div>Drilling Jars</div> <div>9.200</div> </div> <div> <div>Drill Collar</div> <div>62.270</div> </div> <div> <div>Drill Collar</div> <div>2.930</div> </div> <div> <div>MWD</div> <div>12.900</div> </div> <div> <div>Integral Blade Stabilizer</div> <div>2.080</div> </div> <div> <div>Drill Collar</div> <div>3.040</div> </div> <div> <div>Integral Blade Stabilizer</div> <div>2.110</div> </div> <div> <div>PDC</div> <div>.520</div> </div>	<div> <div>Hang-off Sub</div> <div></div> </div> <div> <div>PM</div> <div>16.260</div> </div> <div> <div>HCIM</div> <div></div> </div> <div> <div>EWR-P4</div> <div>11.270</div> </div> <div> <div>DGR</div> <div>8.970</div> </div>
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MWD RUN 400 - BHA

MWD RUN 400 - MWD

Component Length (m)


Sensor Measure Point Distance To Bit

MWD RUN 500 - BHA	MWD RUN 500 - MWD
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