

**EWR Electromagnetic Wave Resistivity  
DGR Dual Gamma Ray**

Country : Australia		Field : Exploration	
Location : Lat: 38° 43' 11.63" South Long: 142° 39' 39.78" East		Well : Henry-1-ST1	
Company : Santos Ltd		Rig : Ocean Patriot	
LOCATION	Company	: Santos Ltd	
	Rig	: Ocean Patriot	
	Well	: Henry-1-ST1	
	Field	: Exploration	
	Country	: Australia	
	DOE Number	:	
Latitude : 38° 43' 11.63" South Longitude : 142° 39' 39.78" East UTM Easting = 644,403.20 m UTM Northing = 5,712,996.40 m		Other Services Directional Drilling	
Permanent Datum : LAT		Elevation : 0.00 m	
Log Measured From : Drill Floor		21.50 m Above Permanent Datum	
Drilling Measured From : Drill Floor		MD LOG	
Depth Logged : 1,095.00 m	To : 1,748.00 m	Unit No. : SDL_197	Job No. : AU-FE-0003841251
Date Logged : 23-Jul-05	To : 28-Jul-05	Plot Type : Final	
Total Depth MD : 1,748.00 m	TVD : 1,745.38 m	Plot Date : 03-Aug-05	
Spud Date : 23-Jul-05			
Borehole Record (MD)		Borehole Record (MD)	
Run No.	Size	From	To
200	216.000 mm	1,095.00 m	1,370.00 m
300	216.000 mm	1,370.00 m	1,394.00 m
400	216.000 mm	1,394.00 m	1,464.00 m
500	216.000 mm	1,464.00 m	1,748.00 m
		Casing Record (MD)	
	Size	Weight	From
	762.000 mm	101.00 kgpm	SURFACE
	244.000 mm	70.00 kgpm	SURFACE
			711.55 m

### WELL INFORMATION

MWD Run Number	200	300	400	500	
Date run completed	24-Jul-05	25-Jul-05	26-Jul-05	28-Jul-05	
Rig Bit Number	4	5	6	7	
Bit Size (mm)	216.0	216.0	216.0	216.0	
Tool Nominal OD (mm)	171.45	171.45	171.45	171.45	
Log Start Depth (MD, m)	1,095.00	1,370.00	1,394.00	1,464.00	
Log End Depth (MD, m)	1,370.00	1,394.00	1,464.00	1,748.00	
Drill or Wipe	Drilling	Drilling	Drilling	Drilling	
Drill/Wipe Start Date and Time	23-Jul-05 18:00	25-Jul-05 05:27	26-Jul-05 00:20	26-Jul-05 21:55	
Drill/Wipe End Date and Time	24-Jul-05 12:37	25-Jul-05 12:12	26-Jul-05 10:48	28-Jul-05 03:35	
Min Inc (deg) @ Depth (MD, m)	2.74 @ 1,344.90	0.94 @ 1,361.38	0.45 @ 1,418.64	0.39 @ 1,504.63	
Max Inc (deg) @ Depth (MD, m)	10.43 @ 1,187.85	0.94 @ 1,361.38	0.45 @ 1,418.64	0.62 @ 1,705.43	
Bit TFA(in2) / Bit Type	0.920 / PDC Smith XR	0.910 / PDC Hycalog DSX104	0.909 / PDC Hycalog DSX104	0.909 / Tricone Hughes MX03	
Flow Rate (gpm)	556	614	630	730	
Max AV (mpm) / CV (mpm) @ MWD	166.0 / 191.0	174.0 / 202.0	174.4 / 195.0	204.6 / 186.0	
Fluid Type	KCl/Polymer	KCl/Polymer	KCl/Polymer	KCl/Polymer	
Density (sg) / Viscosity (spqt)	1.24 / 70	1.24 / 73	1.24 / 75	1.24 / 63	
Filtrate CL (ppm)	35,000	38,000	36,000	38,000	
pH / Fluid Loss (mptm)	9.00 / 4.6	9.0 / 4.0	8.6 / 4.8	9.20 / 4.0	
PV (cp) / YP (lhf2)	23 / 34	21 / 37	20 / 37	26 / 37	
% Solids / % Sand	10.5 / 1.0	11 / 1.25	10 / 0.60	11.7 / 0.5	
% Oil / Oil:Water Ratio	0 / 0.:89	0 / 0:89	0.0 / 0:88	0.0 / 0:88	
Rm @ Measured Temp (degC)	0.11 @ 24.0	0.12 @ 20.0	0.12 @ 20.0	0.11 @ 20.0	
Rmf @ Measured Temp (degC)	0.10 @ 20.0	0.10 @ 20.0	0.10 @ 20.0	0.10 @ 20.0	
Rmc @ Measured Temp (degC)	0.16 @ 21.0	0.14 @ 20.0	0.14 @ 20.0	0.14 @ 20.0	
Max Tool Temp (degC) / Source	51.0 / EWR-P4	57.0 / EWR-P4	57.0 / EWR-P4	73.0 / HCIM	
Rm @ Max Tool Temp (degC)	0.07 @ 51.0	0.06 @ 57.0	0.06 @ 57.0	0.05 @ 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	066719	066719	066719	066719	
Insert Serial Number	076895	076895	076895	076895	
Logging String Serial Number	90073264	90073264	90073264	90073264	
Date and Time Initialized	22-Jul-05 20:17	24-Jul-05 19:19	25-Jul-05 16:43:00	26-Jul-05 17:04	
Date and Time Read	24-Jul-05 18:51	25-Jul-05 16:43:00	26-Jul-05 15:13	28-Jul-05 13:17:00	

## Directional Sensor Information

Tool Type	DM	DM	DM	DM	
Distance From Bit (m)	21.29	12.77	12.77	12.76	
Software Version	3.15	3.15	3.15	3.15	
Sub Serial Number	178481	178481	178481	178481	
Sonde Serial Number	149865	149865	149865	149865	
Sensor ID Number	N/A	N/A	N/A	N/A	
Survey String Serial Number	N/A	N/A	N/A	N/A	
Toolface Offset (deg)	71.30	0	0	0	

## Gamma Ray Sensor Information

Tool Type	DGR	DGR	DGR	DGR	
Distance From Bit (m)	12.56	4.04	4.04	4.03	
Recorded Sample Period (sec)	12	12	12	12	
Software Version	N/A	N/A	N/A	N/A	
Sub Serial Number	066719	066719	066719	066719	
Insert/Sonde Serial Number	076895	076895	076895	076895	

## Resistivity Sensor Information

Tool Type	EWR-P4	EWR-P4	EWR-P4	EWR-P4	
Distance From Bit (m)	14.83	6.31	6.31	6.30	
Recorded Sample Period (sec)	14	14	14	14	
Software Version	1.38	1.38	1.38	1.38	
Sub Serial Number	130859	130859	130859	130859	
Receiver Insert Serial Number	128946	128946	128946	128946	
Transmitter Insert Serial Number	151384	151384	151384	151384	
Receiver Orientation	Down	Down	Down	Down	

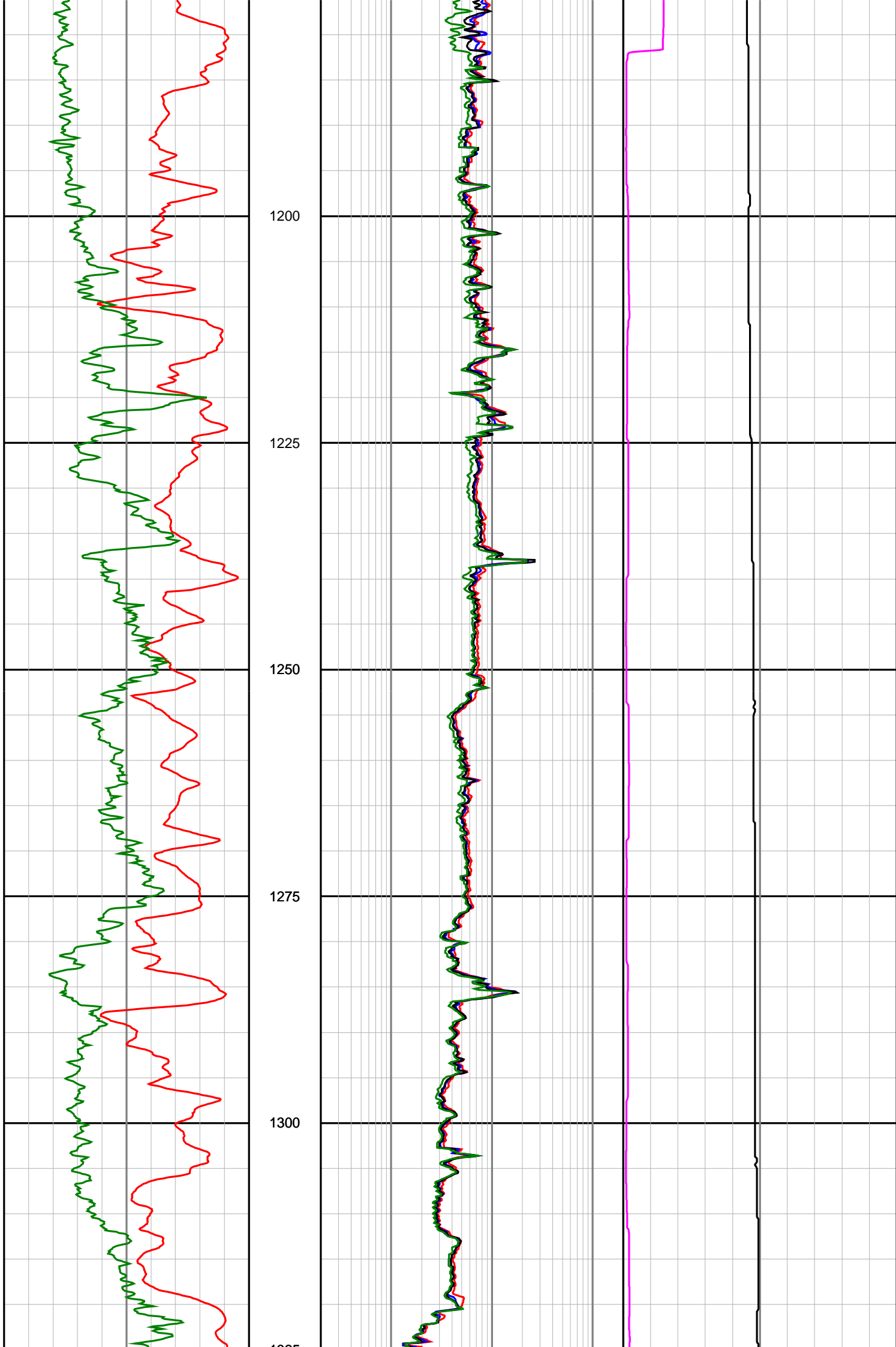
## REMARKS

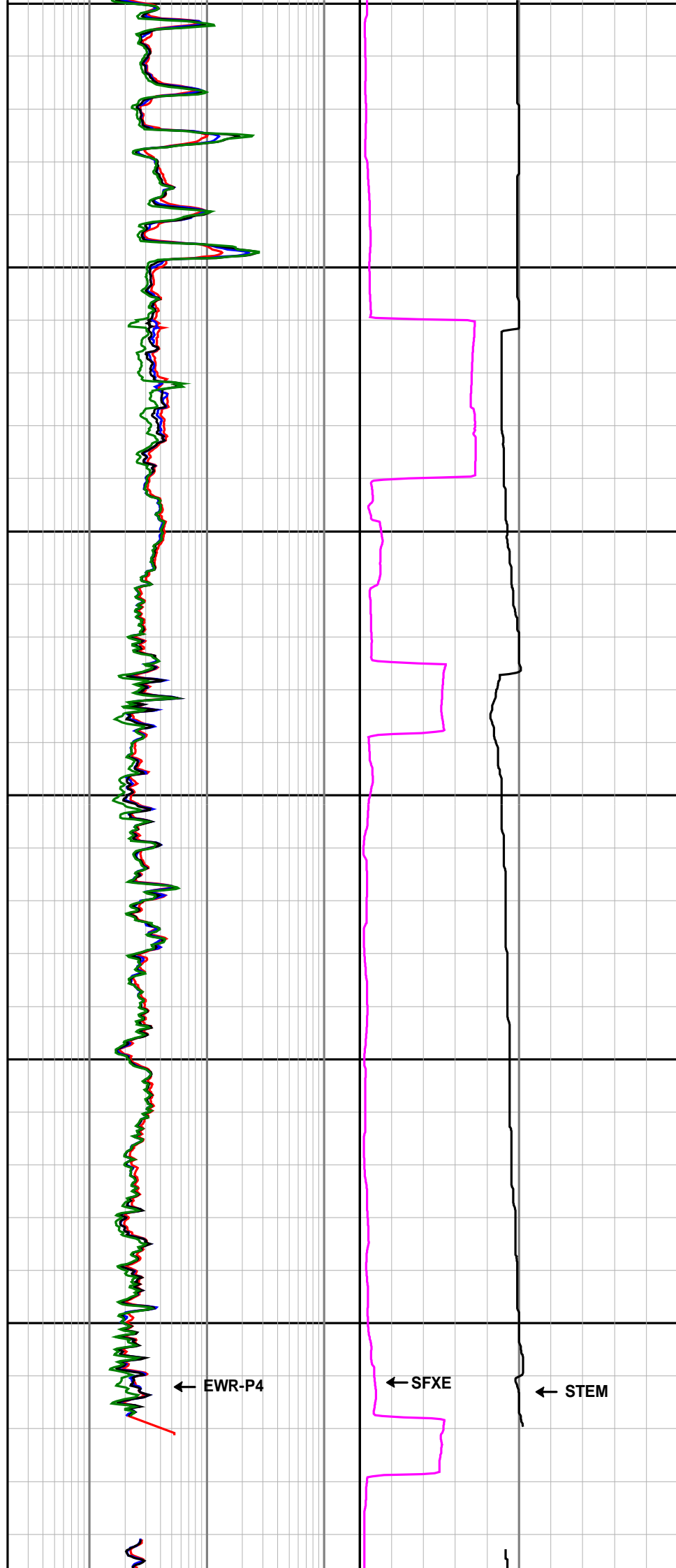
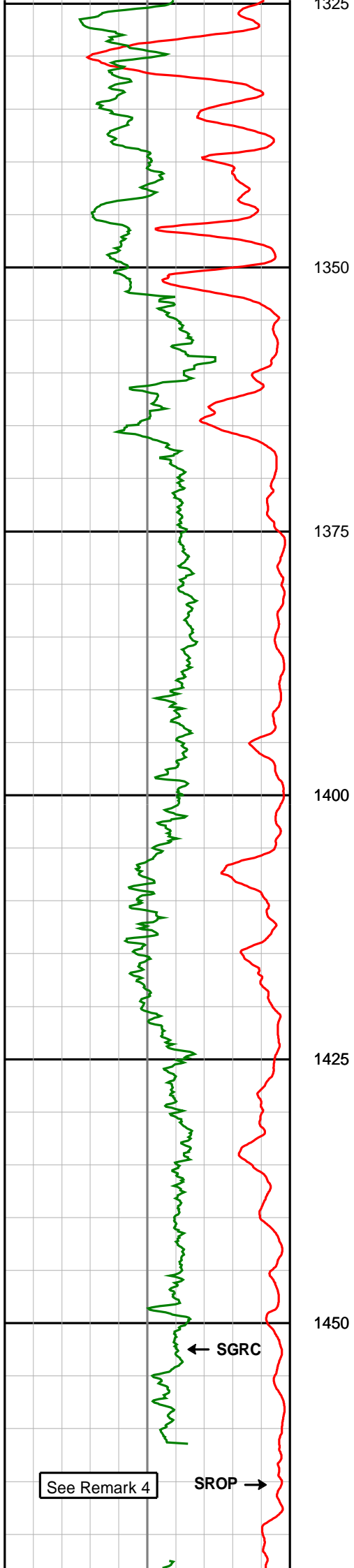
1. All depths are bit depths and referenced to the drillers pipe tally
2. AV/CV is calculated at the MWD collar using the Powere Law for water based muds and the Bingham's Plastic Law for oil based muds.
3. Curve mnemonics are:  
 SGRC - Smoothed Dual Gamma Ray Combined, api  
 SEXP - Smoothed Extra 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  
 SROP - Smoothed Rate of Penetration, m/hr  
 STEM - Smoothed Medium Phase Resistivity Temperature, deg C  
 SFXE - Smoothed Formation Exposure Time, hrs
4. No Gamma Ray and Resistivity data below 1460.0 m MDRT due to Lower Bus failure.

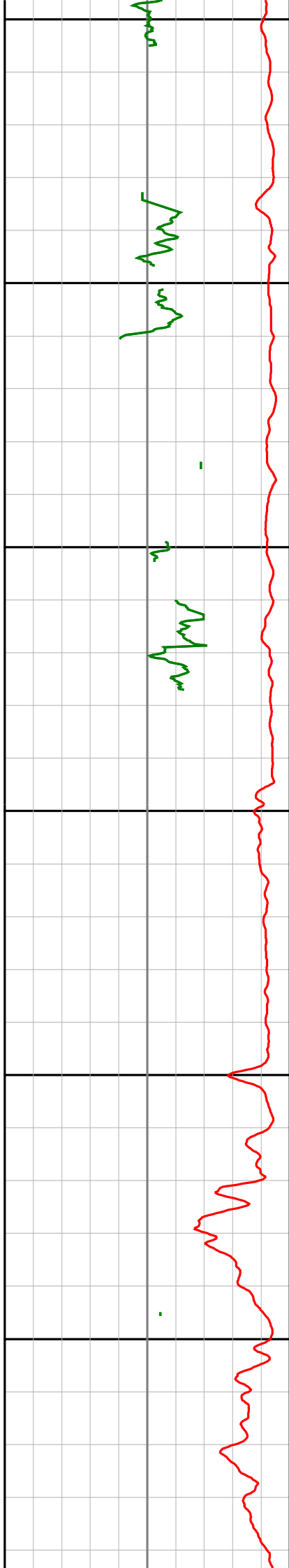
## WARRANTY

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		<b>Deep Phase Resistivity (SEDP)</b> 0.2 200 ohmm			
		<b>Medium Phase Resistivity (SEMP)</b> 0.2 200 ohmm			
<b>Rate of Penetration (SROP)</b> 200 0 m/hr		<b>Shallow Phase Resistivity (SESP)</b> 0.2 200 ohmm		<b>Temperature (STEM)</b> 0 100 deg C	
<b>Gamma Ray (SGRC)</b> 0 200 api		<b>X-Shallow Phase Resistivity (SEXP)</b> 0.2 200 ohmm		<b>Formation Exposure Time (SFXE)</b> 0 50 hrs	
<b>Depth MD</b> <b>1:500</b>		Henry-1 ST1 kicked off Henry-1 @ 1095.0 mMDRT			
1075		1100			
1125		1150			
1175					







1475

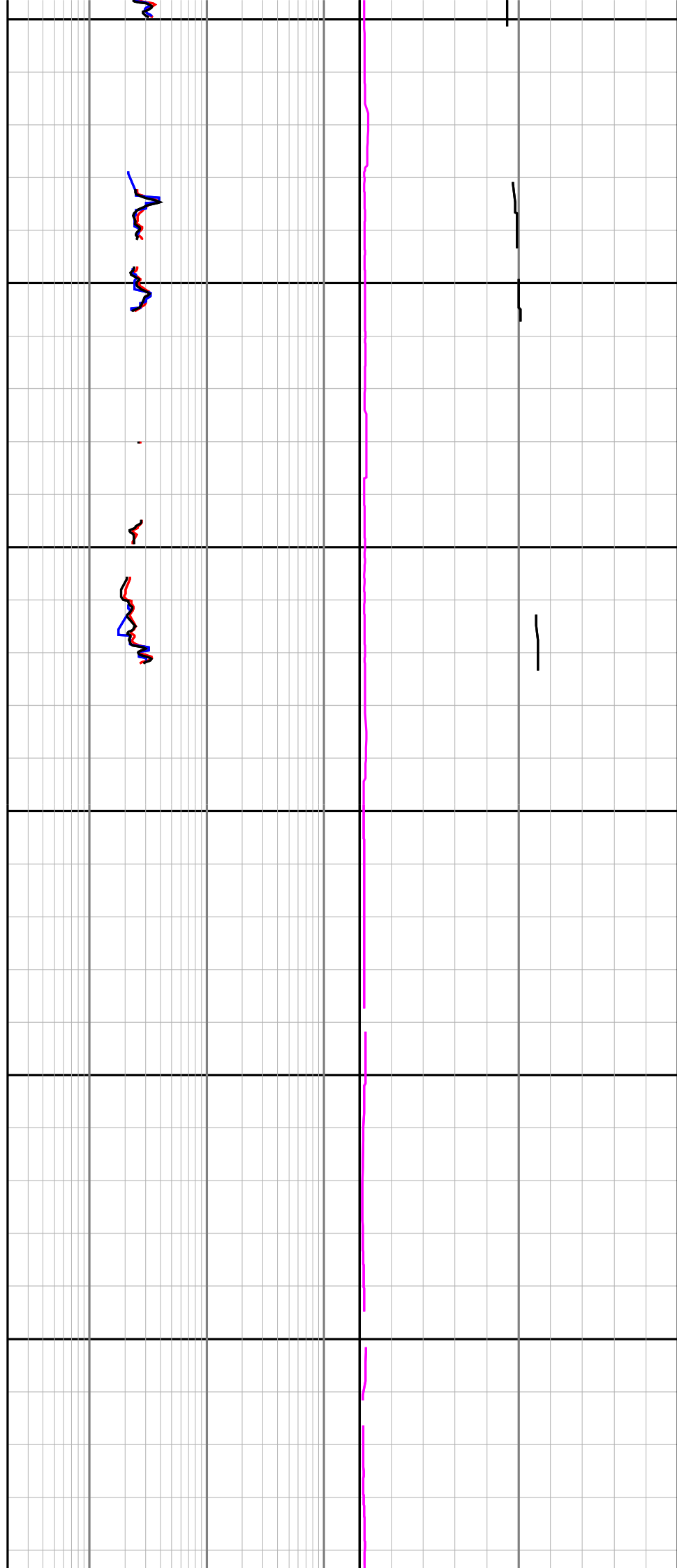
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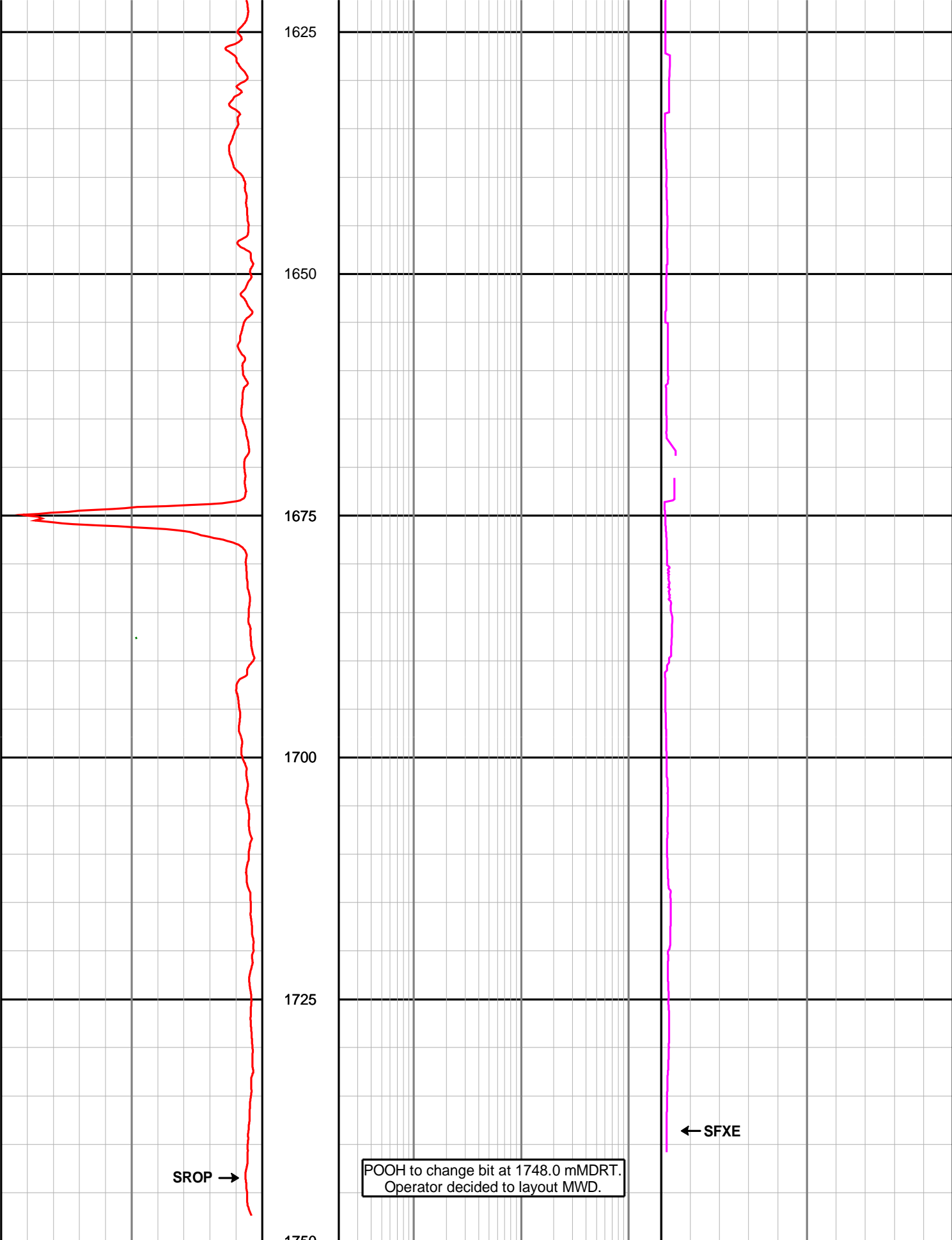
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1550

1575

1600





<div>Gamma Ray (SGRC)</div> <div>0200</div> <div>api</div>	<div>Depth MD</div> <div>1:500</div>	<div>X-Shallow Phase Resistivity (SEXP)</div> <div>0.2200</div> <div>ohmm</div>	<div>Formation Exposure Time (SFXE)</div> <div>050</div> <div>hrs</div>
<div>Rate of Penetration (SROP)</div> <div>2000</div> <div>m/hr</div>		<div>Shallow Phase Resistivity (SESP)</div> <div>0.2200</div> <div>ohmm</div>	<div>Temperature (STEM)</div> <div>0100</div> <div>deg C</div>

<p><b>Medium Phase Resistivity (SEMP)</b></p> <p>0.2 200</p> <p>ohmm</p>	
<p><b>Deep Phase Resistivity (SEDP)</b></p> <p>0.2 200</p> <p>ohmm</p>	

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Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
1024.830	1.38	293.31	1024.780	1.893 N	1.351 W	1.893	TIE-IN
1072.480	3.04	270.46	1072.394	2.130 N	3.141 W	3.329	1.16
1101.390	9.78	276.53	1101.107	2.416 N	6.349 W	6.550	7.02
1130.110	9.92	275.93	1129.403	2.949 N	11.233 W	11.463	0.19
1158.840	10.14	276.98	1157.694	3.512 N	16.206 W	16.467	0.29
1187.850	10.43	276.79	1186.238	4.133 N	21.348 W	21.645	0.31
1216.570	8.59	274.16	1214.562	4.596 N	26.070 W	26.390	1.97
1245.340	5.93	275.44	1243.099	4.892 N	29.694 W	30.025	2.78
1273.930	5.77	274.36	1271.540	5.142 N	32.598 W	32.939	0.20
1302.490	4.52	272.18	1299.984	5.294 N	35.154 W	35.499	1.33
1331.700	3.40	272.95	1329.124	5.382 N	37.170 W	37.514	1.15
1344.900	2.74	275.83	1342.305	5.434 N	37.875 W	38.221	1.55
1361.380	0.94	282.18	1358.776	5.503 N	38.400 W	38.749	3.29
1418.640	0.45	253.56	1416.031	5.539 N	39.074 W	39.424	0.31
1504.630	0.39	264.79	1502.019	5.418 N	39.687 W	40.023	0.03
1533.160	0.40	256.46	1530.549	5.386 N	39.880 W	40.211	0.06
1562.370	0.39	243.20	1559.758	5.317 N	40.067 W	40.391	0.09
1590.630	0.44	219.82	1588.017	5.191 N	40.221 W	40.533	0.18
1676.690	0.57	215.52	1674.074	4.591 N	40.680 W	40.932	0.05
1705.430	0.62	207.87	1702.812	4.338 N	40.835 W	41.063	0.10
1748.000	0.62	207.87	1745.380	3.930 N	41.051 W	41.239	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 275.47 DEGREES (GRID)  
A TOTAL CORRECTION OF 11.88 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

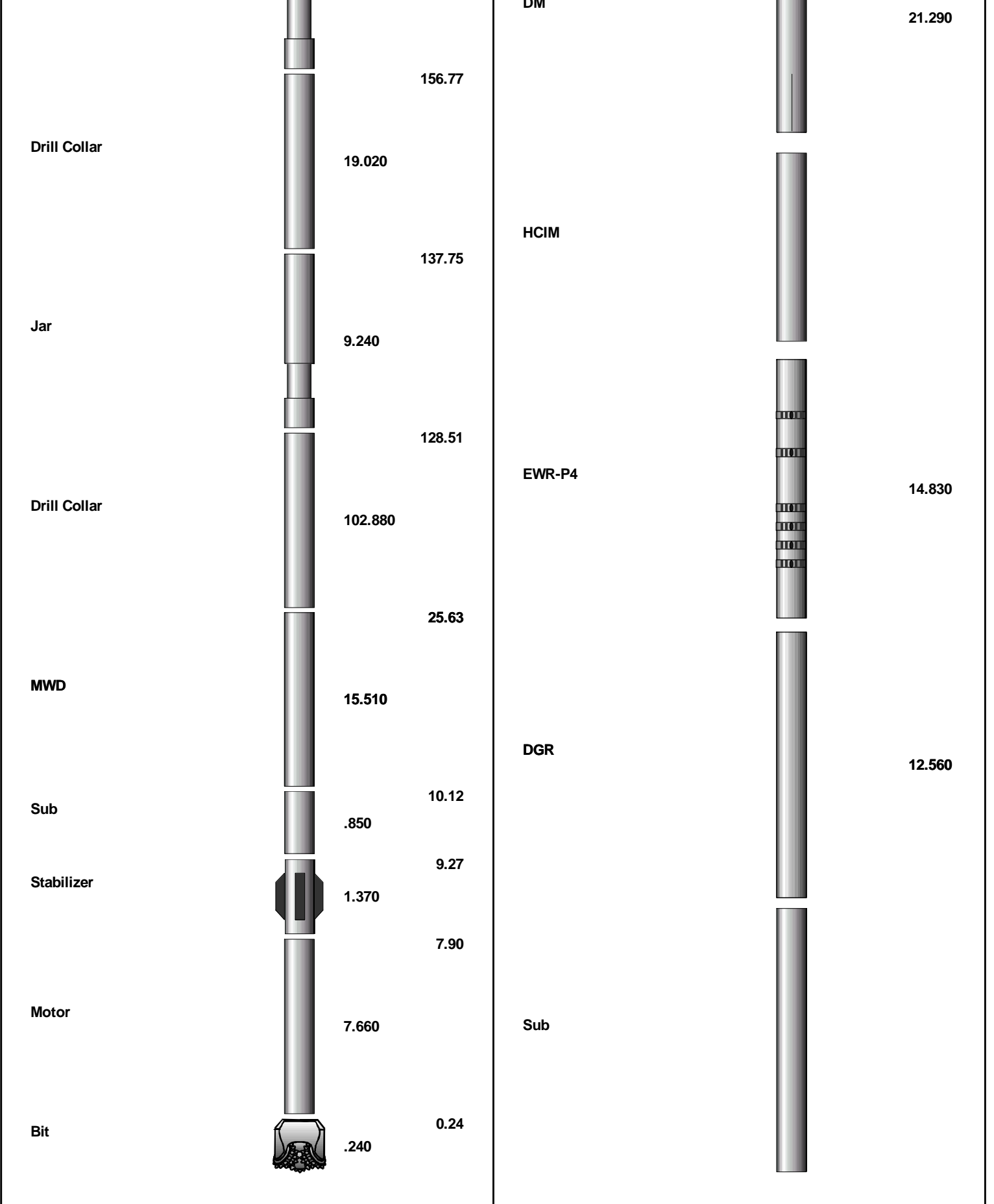
**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.  
HORIZONTAL DISPLACEMENT(CLOSURE) AT 1748.000 METRES  
IS 41.239 METRES ALONG 275.47 DEGREES (GRID)**

# MWD RUN 200 - BHA

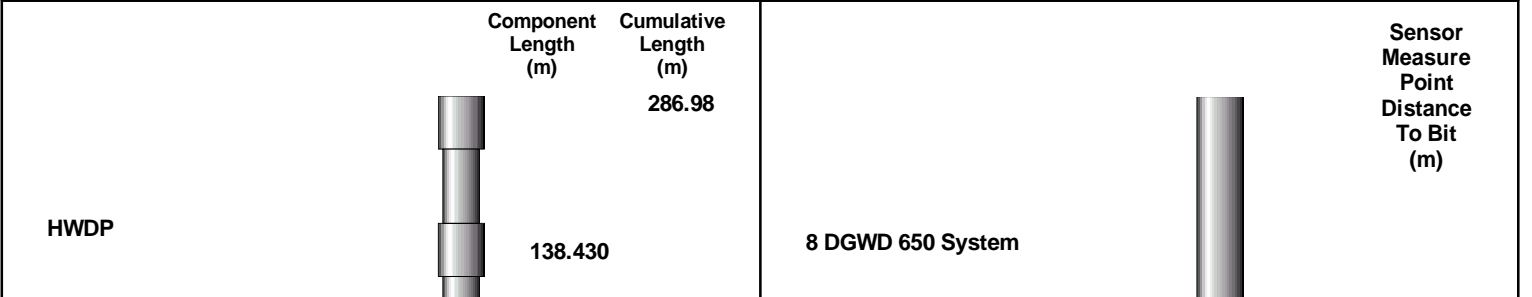
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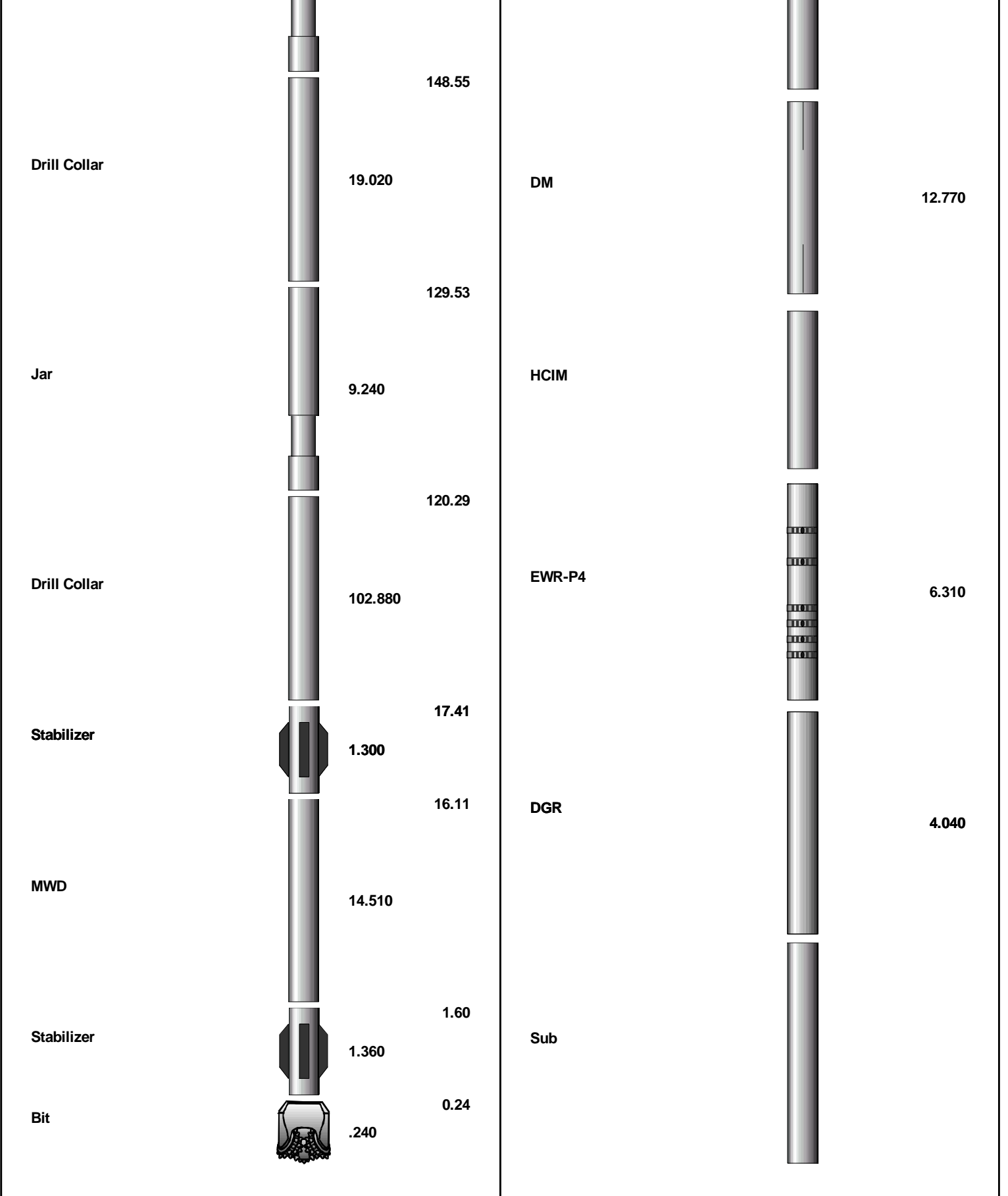
	Component Length (m)	Cumulative Length (m)	Sensor Measure Point Distance To Bit (m)
Date Printed:03 August 2005		295.20	
HWDP	138.430		



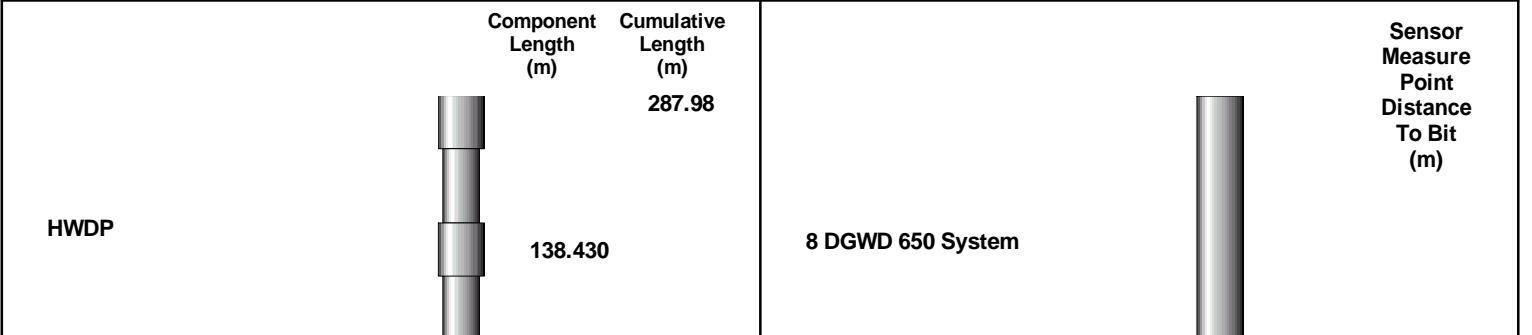










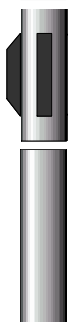







MWD RUN 300 - BHA	MWD RUN 300 - MWD
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
































MWD RUN 400 - BHA	MWD RUN 400 - MWD
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Drill Collar			149.55	DM		
		19.020				12.770
Jar		130.53		HCIM		
		9.240				
Drill Collar		121.29		EWR-P4		
		102.880				6.310
Stabilizer		18.41		DGR		
		1.300				4.040
MWD		17.11		Sub		
		15.510				
Stabilizer		1.60				
		1.360				
Bit		0.24				
		.240				

MWD RUN 500 - BHA	MWD RUN 500 - MWD
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HWDP		Component Length (m)	Cumulative Length (m)	8 DGWD 650 System		Sensor Measure Point Distance To Bit (m)
		138.430	287.97			

		149.54			
Drill Collar		19.020	DM		12.760
		130.52			
Jar		9.240	HCIM		
		121.28			
Drill Collar		102.880	EWR-P4		6.300
		18.40			
Stabilizer		1.300	DGR		4.030
		17.10			
MWD		15.510			
		1.59			
Stabilizer		1.360	Sub		
		0.23			
Bit		.230		