



**MWD**

**EMR Electromagnetic Wave Resistivity  
DGR Dual Gamma Ray  
BAT Bi-Modal Acoustic Sonic**

Country		: Australia		
Field		: VIC-P-45		
Location		: Lat: 38° 35' 44.230" South Long: 148° 16' 31.859" East		
Well		: Megamouth-1ST		
Company		: BHP Billiton		
Rig		: Ocean Epoch		
LOCATION				
Latitude : Lat: 38° 35' 44.230" South Longitude : Long: 148° 16' 31.859" East		Other Services		
UTM Easting = 611,077.19 m UTM Northing = 5,727,325.06 m				
Permanent Datum : LAT		Elev. : 0.00 m		
Log Measured From : Drill Floor		22.40 m Above Permanent Datum		
Drilling Measured From : Drill Floor		MD LOG		
Depth Logged : 2,393.00 m To 2,688.00 m Date Logged : 27-Nov-03 To 02-Dec-03 Total Depth MD : 2,688.00 m TVD: 2,677.28 m Spud Date : 27-Nov-03		Unit No. : LT 1087 Job No. : ALUFE-0002796094 Plot Type : Final Plot Date : 08-Jan-04		
Run No.	Borehole Record (MD)		Borehole Record (MD)	
	Size From To	Run No.	Size From To	
4	311.000 mm 2,450.00 m 2,483.00 m			
5	311.000 mm 2,393.00 m 2,688.00 m			

## 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 (MD, m)	2,450.00	2,393.00		
Log End Depth (MD, m)	2,483.00	2,688.00		
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 (MD, m)	0.75 @ 2,442.35	0.28 @ 2,412.80		
Max Inc (deg) @ Depth (MD, m)	0.75 @ 2,442.35	17.94 @ 2,656.60		
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			

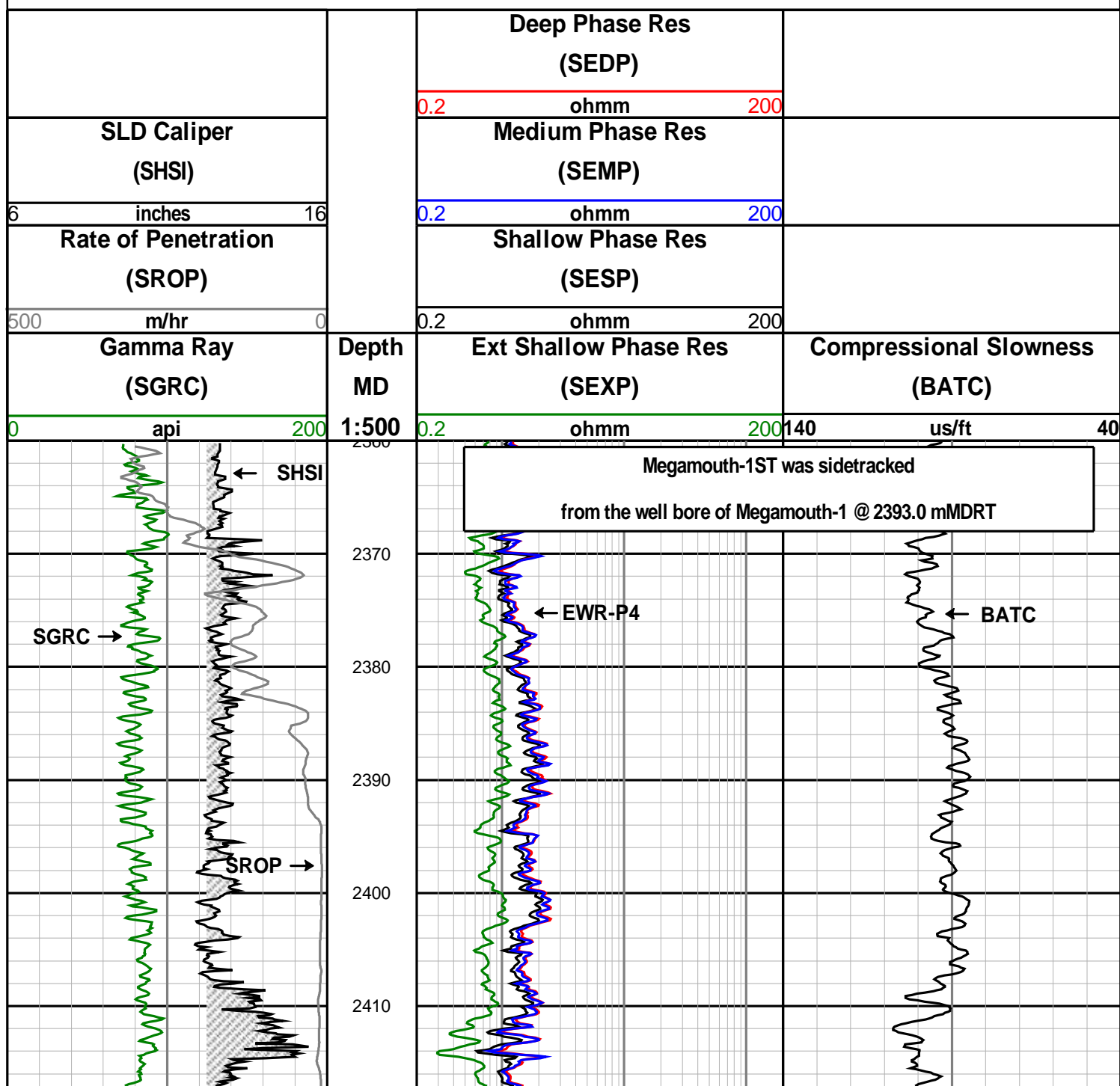
## REMARKS

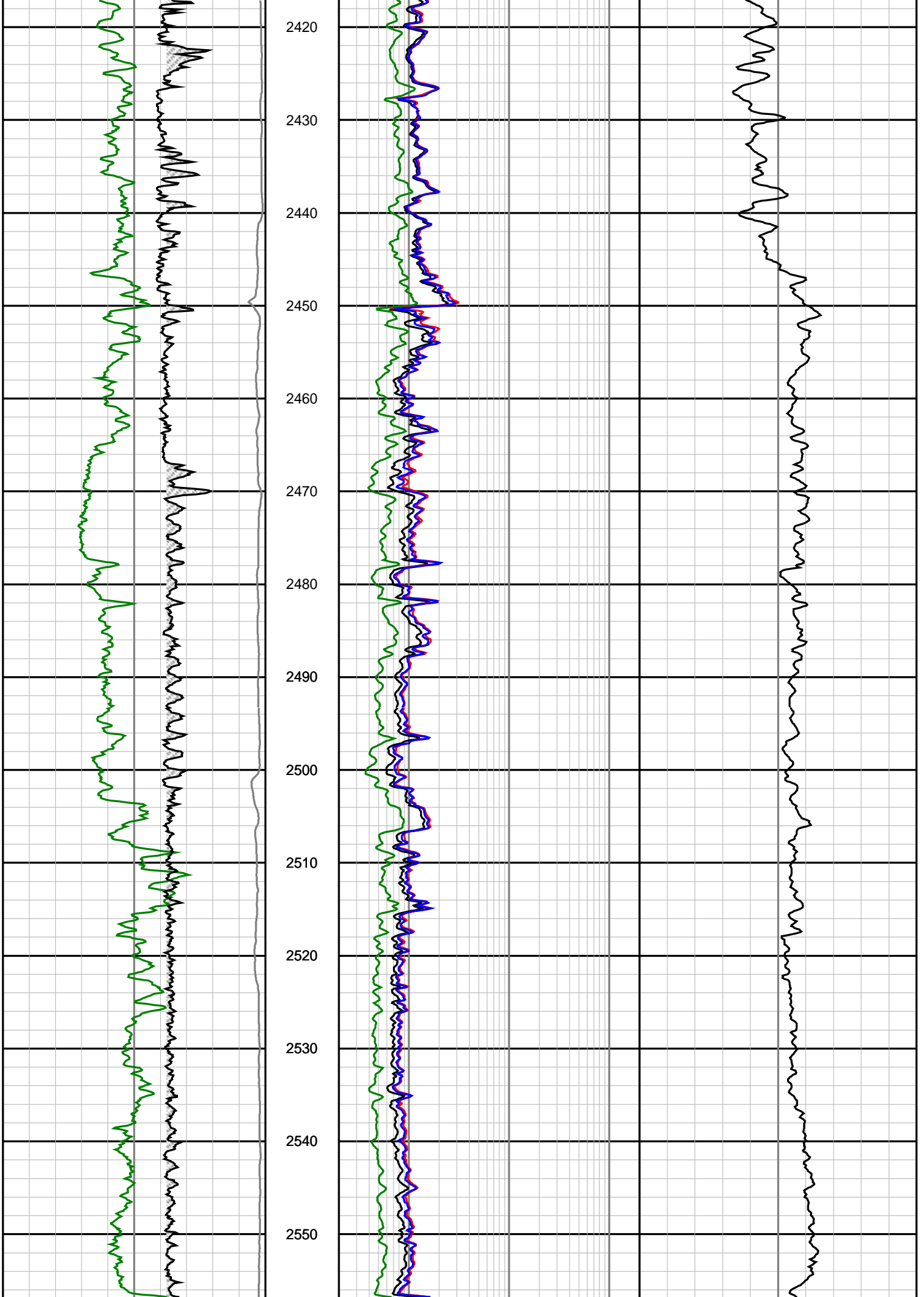
1. All depths are bit depths and referenced to the drillers pipe tally.
2. AV/CV is calculated at the MWD collar using the Power Law for water based muds and the Bingham's Plastic Law for oil based muds.
3. Curve mnemonics are :
  - SGRC - Smoothed Gamma Ray Combined, api
  - SEXP - Smoothed Extra Shallow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

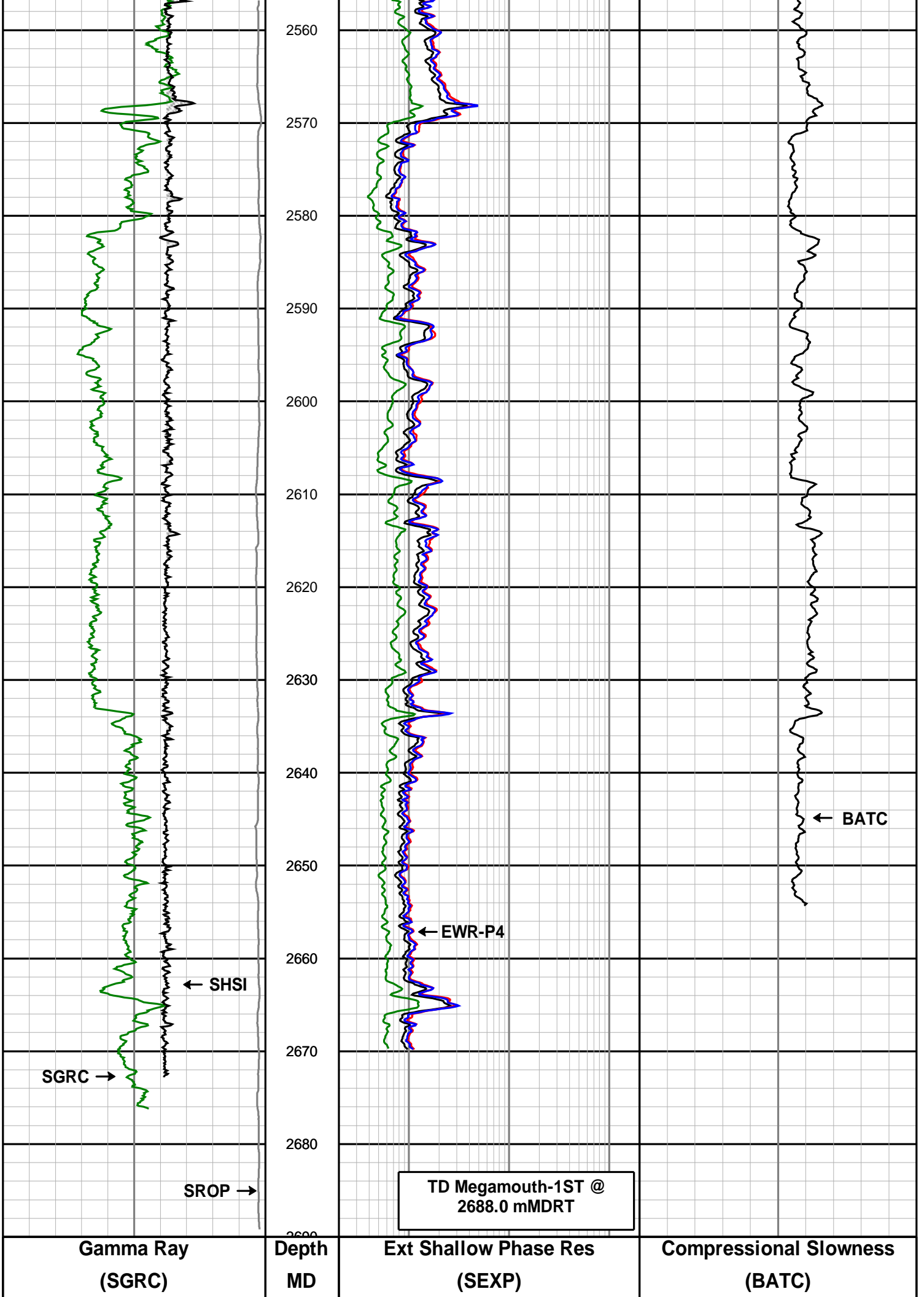
SESP - Smoothed Shallow Phase-Shift Derived Resistivity, ohm-m  
 SEMP - Smoothed Medium Phase-Shift Derived Resistivity, ohm-m  
 SEDP - Smoothed Deep Phase-Shift Derived Resistivity, ohm-m  
 SROP - Smoothed Rate of Penetration, m/hr  
 SHSI - SLD Smoothed Hole Size Indicator, inches  
 BATC - Bi-Modal Acoustic Compressional Sonic, usec/ft

## WARRANTY

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0	api	200	1:500	0.2	ohmm	200	140	us/ft	40
Rate of Penetration (SROP)				Shallow Phase Res (SESP)					
500	m/hr	0		0.2	ohmm	200			
SLD Caliper (SHSI)				Medium Phase Res (SEMP)					
6	inches	16		0.2	ohmm	200			
				Deep Phase Res (SEDP)					
			0.2	ohmm	200				



## DIRECTIONAL SURVEY REPORT

BHP Billiton  
Megamouth-1ST  
VIC-P-45  
Victoria  
Australia  
AU-FE-0002796094  
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)
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

Date Printed:08 January 2004		Cumulative Length (m)	Sensor Measure Point Distance To Bit (m)
HWDP		211.42	
BAT			



