

**ENCLOSURE 10**  
**SOLE-2**

**50 Hz Ricker**  
**Synthetic Seismogram**  
**- 10cm/s scale**  
**(both polarities)**

**-CGG-**



BOREHOLE

DISPLAY SA3

### SYNTHETIC SEISMOGRAM RIG SOURCE SURVEY

WELL : SOLE - 2  
 COMPANY : OMV AUSTRALIA PTY. LTD.  
 UTM WELL COORD. : 5 780 595.42 M N  
 676 059.05 M E  
 AREA : PERMIT VIC/RL3  
 COUNTRY : AUSTRALIA

COMPOSITE  
 POLARITY : SEG NORMAL & REVERSE  
 TIME SCALE : 10 CM/S  
 RICKER WAVELET : 50 HZ ZERO PHASE

#### PROCESSING PARAMETERS

PRINCIPAL DATA : CALIBRATED VELOCITY LOG  
 SUPPLEMENTARY DATA : DENSITY & GAMMA-RAY LOGS  
 LOG DATA DIGITISING : CONTINUOUSLY IN DEPTH  
 SOURCE DEPTH (SEISMIC) : 5.0M (ASSUMED)  
 DETECTOR DEPTH (SEISMIC) : 4.0M (ASSUMED)  
 SYNTHETIC TIME-LAYER INTERVAL : 1 MS (TWO-WAY)  
 DEPTH SCALE : NON-LINEAR IN METER  
 DATUM : MSL  
 SURFACE REFLECTION COEFFICIENT : 0.18  
 VELOCITY MODEL : DEPTH (M) VELOCITY (M/S)

0.0 - 124.5	1524	(WATER VELOCITY)
124.5 - 171.9	1762#	(CHECK SHOT DATA)
171.9 - 271.9	1842#	(CHECK SHOT DATA)
271.9 - 372.0	2090#	(CHECK SHOT DATA)
372.0 - 472.0	2294#	(CHECK SHOT DATA)
472.0 - 571.9	2302#	(CHECK SHOT DATA)
571.9 - 604.6	2211#	(TOP OF LOG)

VERTICAL DEPTHS BELOW DATUM OF MSL  
 # DENOTES UNREALISTIC REFLECTION COEFFICIENT OMITTED DURING CALCULATIONS

CONVOLUTION WAVELETS : 50 HZ RICKER WAVELET

POLARITY :  
 - SEG NORMAL : INCREASE IN ACOUSTIC IMPEDANCE REPRESENTED BY A WHITE TROUGH WHEN CONVOLVED WITH A ZERO PHASE WAVELET.  
 - SEG REVERSE: INCREASE IN ACOUSTIC IMPEDANCE REPRESENTED BY A BLACK PEAK WHEN CONVOLVED WITH A ZERO PHASE WAVELET.

DIFFERENCE IN CALCULATED RESPONSE FOR MARINE AND LAND WELLS :

THE SYNTHETIC SEISMOGRAM CALCULATIONS ARE BASED ON THE ASSUMPTIONS THAT-  
 MARINE WELLS = HYDROPHONE RECEIVERS = PRESSURE-SENSITIVE  
 IE UP AND DOWNGOING WAVEFIELDS ARE THE SAME POLARITY  
 LAND WELLS = GEOPHONE RECEIVERS = VELOCITY-SENSITIVE  
 IE UP AND DOWNGOING WAVEFIELDS ARE OPPOSITE POLARITIES  
 CONSEQUENTLY,  
 FOR MARINE WELLS : A +VE REFLECTION COEFFICIENT GIVES A +VE PRIMARY SPIKE  
 FOR LAND WELLS : A +VE REFLECTION COEFFICIENT GIVES A -VE PRIMARY SPIKE

#### REMARKS

THE REFLECTION COEFFICIENT AT SEA BED HAS BEEN EDITED TO REPRESENT A CHANGE IN FORMATION DENSITY FROM 1.0 TO 1.5 GM/CC.

THE REFLECTION COEFFICIENTS GENERATED AT THE CHECK LEVELS (WITHIN THE VELOCITY MODEL), AND AT THE TOP OF THE LOG ARE CONSIDERED UNREALISTIC AND HAVE NOT BEEN INCLUDED IN THE SYNTHETIC SEISMOGRAM.

