

Memorandum

To	Vicki Morrison-Shaw	Page	1
CC			
Subject	TTRL - IMT Crawler Noise Clarification		
From	Darran Humpheson		
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I was asked by the DMC to clarify whether the De Beers crawler would be operating when it is described as *'crawler operational but not deployed'*.

My answer given to the DMC would be that the crawler would not be extracting sediment as it would still be on-board the Louis G Murray (LGM), but would probably have some noise emissions. My exact wording will be on the transcript.

I agreed during questioning that the report¹ taken in isolation did not full describe the operational conditions of that particular measurement. However, the report does describe a number of scenarios including data from the crawler operating having been deployed.

The 1994 Coley reported stated that the Louis G Murray (LGM) and its sea bed crawler data were measured over three days by IMT and these measurements are:

- Day 1 (Section 6.1 of the report) – LGM + crawler
- Day 2 (Section 6.2 of the report) – LGM + crawler not operational
- Day 3 (Section 6.1 of the report) – LGM + crawler operational but not deployed

From the Day 1 and Day 2 data the separate contributions from the LGM vessel and the crawler can be determined. The crawler was operating and this is demonstrated by section 6.3, specifically the frequency plot which shows high frequency noise from the uplift of material in the riser pipe. This graph is reproduced below.

A further report produced by IMT² included measurements of mining activities associated with three vessels. Further measurements from the LGM and crawler are reported. An updated source level graph was included (report Figure 6) and numerous graphs (Appendix A) showing the crawler operating and the influence of the sound emissions on the higher frequencies, due to the transport of large particles up the riser tube.

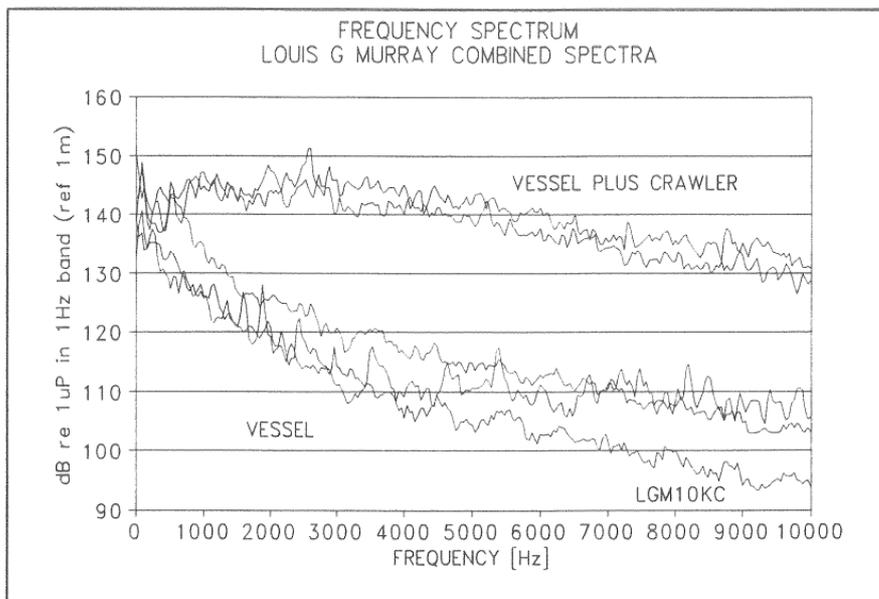
In my assessment I have used this data to inform the likely frequency spectra that the crawler and IMV would have. I have reduced the higher frequency data to reflect the reduced particle size and length of riser pipe (TTRL being one third the length of the LGM).

¹ NP Coley, Environmental Impact Study: Underwater Radiated Noise, TV0010-000003-730, 8 July 1994

² NP Coley, Environmental Impact Study: Underwater Radiated Noise II, TV0010-950048-730, 23 March 1995

6.3 LGM 10 kHz spectrum

When the crawler is operating there is a marked level increase between 1 kHz and 10 kHz, with an identifiable peak at 2 600 Hz. The difference between the two modes of operation is between 20 and 25 dB. Figure 3 illustrates the combined noise levels.



Taken from 1994 Coley Report