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**Alan Ehrlich**

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**From:** Keith Rosindell [rosindell1@calgary.westerngeco.slb.com]  
**Sent:** Wednesday, June 18, 2003 1:29 PM  
**To:** Alan Ehrlich  
**Cc:** Derek Melton; Dean Kennedy; Stephen Dix Whidden  
**Subject:** Technical Review of the Environmental Assessment for the WesternGeco Mackenzie River and Liard Rivers 2D Seismic Program 2003

Alan.

Please see the following e-mail I recieved from Dave Hannay at Jasco Research regarding the Popper Report. ( Technical Review of the Environmental Assessment for the WesternGeco Mackenzie River and Liard Rivers 2D Seismic Program 2003.)

I would especially like to bring to the Review Boards attention Daves comments "My opinion is that it is important to address this issue with Popper because the misunderstanding accounts for a large number of his critisisms. We need to find out why he thinks the maximum levels occured at 25 m when the measurments clearly show that is not the case. The actual exposure location definately was the worst-case. I think we should ask him to revise his review based on that mistake."

WesternGeco share the concerns raised by Dave Hannay. Furthermore the report itself is not in the format requested by the MVEIRB, and it is hard to see how this report can be accepted as a Technical Report for the MVEIRB process.

I would be grateful if you could address these two issues and make suggestions on how best to continue.

Rgds  
Keith

Hello Keith,

Popper's review is incorrect in terms of his assumptions regarding acoustic exposure levels. Many of his conclusions are based on the assumption that higher sound levels were present at 25 m than at 2 m range from the airgun array. This is simply not the case, and it is difficult to understand how he came to that opinion. Near-field sound levels are documented very clearly in the report. Specifically the near-field measurement section of the report includes two main figures showing near-field levels versus range, and showing pressure waveform variation over a suite of locations both on and off broadside between 2 and 75 m from the array. The first figure, and corresponding discussion, clearly indicate that levels at the 2-meter exposure distance are more than 10 dB higher (both for Peak and RMS metrics) than levels measured at 25 m. Even the case at 25m directly under the arrays, where coherent constructive interference effects would be considered maximal, could theoretically experience levels no more than 6 dB higher than levels at 25 m broadside. It is very likely that the actual increases would be considerably less than 6 dB due to non-perfect line alignments, variation in gun depths and timings of guns.

My opinion is that it is important to address this issue with Popper because the misunderstanding accounts for a large number of his critisisms. We need to find out why he thinks the maximum levels occured at 25 m when the measurments clearly show that is not the case. The actual exposure location

definitely was the worst-case. I think we should ask him to revise his review based on that mistake.

Please let me know how you intend on following up on this. I am happy to telephone him to discuss this issue.

Dave