

Simplified Microtox Bioassay Procedure for Drilling Waste Testing

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Drilling waste testing labs in Alberta use some multi-concentration version of the Microtox test, such as the "increased sensitivity assay" (ISA), in which four separate solutions are tested, ranging in concentration from 10 % to 82 % of the submitted sample.

The test result is reported as an EC50 value, the concentration of test sample that would have caused exactly 50 % light loss, 15 minutes after mixing sample and test organism. This value is obtained from the line of best fit through the four data points. For a Pass result, as specified in ERCB's D-50 directive, the EC50 concentration must be 75 % or more.

The following alternative method is proposed:

Only one test concentration (exactly 75 % of the as-received sample) would be used. The % light loss measured at that ERCB threshold concentration would be reported rather than an EC50 value but the net result, in terms of Pass or Fail, would be exactly the same. A Pass would occur when light output (after 15 min.) was still at least half of its initial level before

mixing.

Validation against the current ISA version of the Microtox bioassay would be required to confirm that this proposed single-concentration test was equivalent. Preliminary tests at ALS indicate that it is indeed equivalent. Funding is requested from AUPRF to offset the costs of this method validation, necessary to gain ERCB acceptance.

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