



# ENVIRONMENTAL LABORATORY REPORT

## DRILLING FLUID TOXICITY EVALUATION AphronICS Micro-bubble System

The 96-hour acute, aquatic toxicity of the laboratory prepared drilling fluid sample (ES-4506) is described in this report. Environmental Services of M-I L.L.C. began an investigation to establish the level of toxicity of the drilling fluid sample on 10/27/00. The sample was submitted by C. Ivan. The results are presented below.

### Bioassay Results

A 96-hour range finder bioassay using the standard EPA protocol was conducted on a suspended particulate phase (SPP) of the sample using *Mysidopsis bahia*. The SPP is the unfiltered supernatant extracted from a 1:9 mixture of the drilling fluid and seawater that was allowed to settle for one hour. A 96-hour LC<sub>50</sub> of **633,700** ppm was determined for the drilling fluid. A 95% confidence interval of 561,100 to 715,700 ppm was obtained for the drilling fluid sample. The LC<sub>50</sub> is the median lethal concentration or the quantity of a toxic substance in the surrounding water that produces 50% mortality in the test species. The greater the 96-hour LC<sub>50</sub> value, the lower the toxicity of the drilling fluid sample being tested. The negative control (20 mysids in straight seawater) showed 100% survivability.

### Conclusions


The results of this bioassay indicate that the 96-hour LC<sub>50</sub> for this laboratory prepared sample (**633,700** ppm SPP) is greater (i.e. less toxic) than the 30,000 ppm toxicity limitation set by the Gulf of Mexico NPDES permit.

This information is being provided for internal use and should not be utilized for any legal or official regulatory compliance purposes.

Page 1 of 1

10/31/00

Prepared by: 

Approved by: 

Sample ID: ES-4506

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