

**From:** [Amanda Pierce](#)  
**To:** [Kyle Christiansen](#)  
**Cc:** [Isabelle de-Grandpre](#)  
**Subject:** LUP MV2018X0017  
**Date:** August 12, 2019 8:07:42 AM  
**Attachments:** [Bentonite Volclay - St Lawrence Chem.pdf](#)  
[AMC EZEE PAC R 161215.pdf](#)  
[AMC Xan-bore 161215.pdf](#)

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Hi Kyle,

I wanted to keep you updated on the progress out here at the Waste Facility Site near Fort Liard. The MVLWB permit allows for drilling with water and releasing the water into a low-lying area as long as the Total Dissolved Solids is below 2500 mg/L. We began drilling our first hole and the measured parameters for the water released to a low-lying area were as follows:

Total Dissolved Solids: 303.7 mg/L  
Electrical Conductivity: 438.1 uS  
pH: 7.90

Unfortunately, the casing became stuck at 84' below ground surface due to the loose sand we have encountered below surface. In order to drill deeper we will need to use bentonite drilling mud. The MSDS sheets for the bentonite mud and additives are attached. Each of these substances are naturally derived, biodegradable, and non-hazardous. These materials are used in the domestic water well industry. As we need to use a mud to drill and not just water, we are collecting all drilling fluids to settle out the bentonite clay, then will test the water before release and disposal of settled fines appropriately.

Please let me know if you have any comments or concerns.

Thank you,

Amanda

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