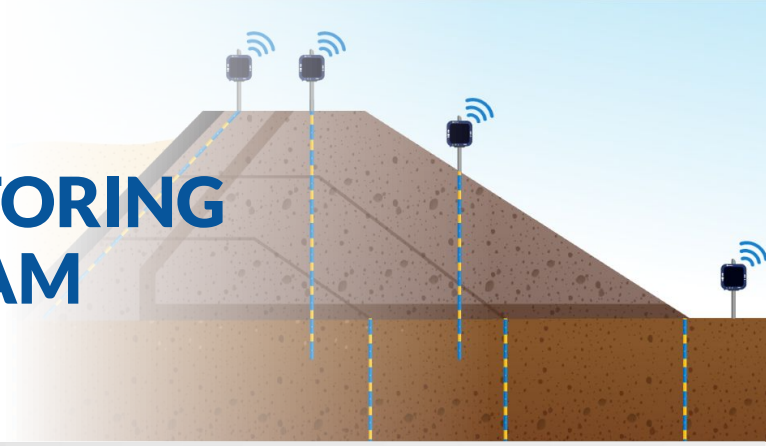
beadedstream

FRENCH DRAIN MONITORING AT TOE OF TAILINGS DAM

CASE STUDY



SSR Mining needed to monitor the temperature profile along their French Drain system each winter. Freeze of the drain could result in seepage from the tailings pond into the adjacent lake.

***beaded**stream's solution allowed them to collect high quality data to monitor the performance of the drain and to mitigate any freezing that occurred.*

SSR MINING

Seabee Gold Mine,
Saskatchewan,
Canada

*"**beaded**stream provided us with a product that's both rugged enough for our climate, and fulfilled our monitoring needs."*

-Tyler Shemrock, Senior Environmental Advisor

Application

One of the tailings management facilities at Seabee Mine was built adjacent to a lake. It was discovered that impounded water was seeping out of the dam towards the lake. To protect the lake from the untreated water, a French drain was installed at the toe of the dam down to bedrock and it included analog thermistor strings to ensure the drain would not freeze over the winter. If the drain were to freeze, there was a risk of seepage entering the lake. All water collected in the drain went to a sump to be pumped back into the facility. The analog thermistor strings installed produced erroneous data sets and eventually failed, which was attributed to corrosion of the conductors.

beadedstream Solution

SSR was looking for an alternative method for monitoring the temperature along the French drain. **beaded**stream was able to supply two digital temperature cables at 100m and 125m lengths with sensors spaced every 10m.

The cables were attached to a rope and pulled through an existing conduit, which was made possible by the small 11mm diameter of the digital temperature cable. Both cables were connected to a single D505 data logger, located at the sump, with satellite telemetry to collect the data in real-time.

D505 data logger mounted on the sump building roof, collecting data from 2 digital temperature cables.

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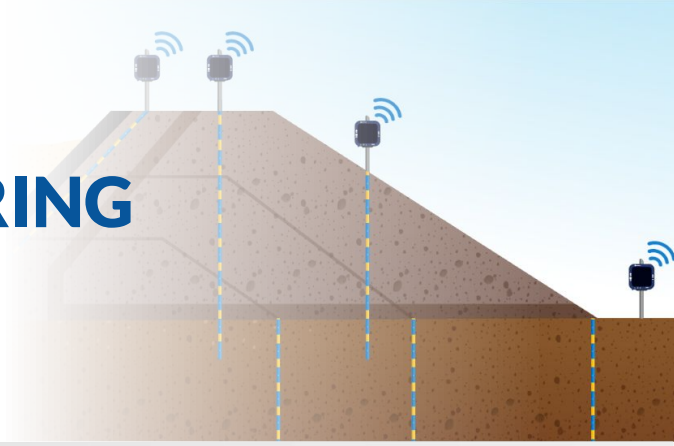


Aerial image of the tailings dam with the adjacent lake shown on the left.

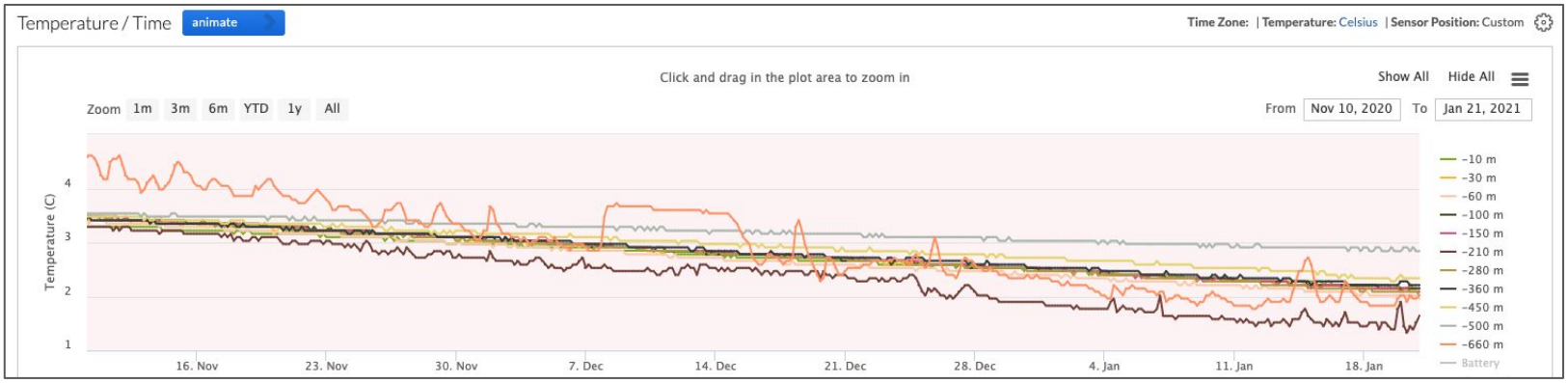
beadedstream Solution (cont.)

The sump location was relocated shortly after procurement, which required the extension of the cables to reach the new data logger location. **beaded**stream was able to supply extension cables with connectors at each end for simple execution at site without special tools or kits.

beadedstream Solution Benefits

During the winter months, the team at Seabee monitors the data collected a few times a week. If they notice that the drain is freezing at any particular point, they can quickly act to mitigate it by injecting steam into the drain at the nearest access point.

The data collected from the D505 logger is automatically stored in **beaded**stream's **beaded**cloud web application. As long as they can connect to the internet (on-site or off-site), the Seabee team can quickly and easily login online and view the French drain's temperature profile data. This information helps guide their decision making. Since installing the digital temperature cables, they have not had any challenges with erroneous data and they have been able to effectively monitor the French drain over a number of winters.



*Example data set from **beaded**cloud web application showing temperature data over a 2 month period.*

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