PROJECT DETAILS

LOCATION
North America

DATE
First phase installed in 2018 with subsequent expansions in 2019 and 2020

INSTRUMENTATION
Geokon Piezometers, Geokon IPIs, Leica GPS

PROJECT TYPE
Tailings Storage Facility

EXPANDING A TAILINGS STORAGE FACILITY

OBJECTIVE
In order to expand operations at their site, our client had to increase the capacity of their Tailings Storage Facility (TSF) through additional raises. To get the needed construction approvals from the authorities and regulators required that they use best in class industry practices and technologies to effectively manage the associated risks. This required them to prove that they have a system in place that promotes accountability, supports emergency response plans and enables reviews by independent parties.

PROBLEM
Measurements were manually collected on an irregular basis. Readings could for instance not be taken during winter months due to the extreme weather conditions experienced by this site. Aggregating, analyzing and interpreting data was so time intensive that it limited the instrument types to piezometers only. Managing other types of sensors would have been unsustainable for the lean onsite project team. The Engineer of Record had limited access to baseline data, which was a critical component of the pre-design work that needed to be completed prior to commencing with construction.

SOLUTION
Deployment of the sensemetrics Connectivity solution consisting of autonomously powered Thread gateways enabled with smart power scheduling algorithms, ensures that measurements are being collected throughout the year regardless of weather conditions. The self healing, intelligent mesh network, securely streams real time data from piezometers, In-Place Inclinometers and GPS units to the centralized sensemetrics Cloud platform creating a single source of truth for all project data. Flexible storage capabilities of the sensemetrics Cloud ensures that data is available throughout the lifetime of the asset as it progresses from the construction phase to the operational phase. This is an invaluable benefit to the design team as instrumentation plans are further refined and iterative monitoring phases address any underlying performance issues.
Through an electronic chain of custody, information pertaining to the TSF performance is now quickly and securely shared, increasing data visibility not only across the site, but also to the Engineer of Record who has immediate access to the same data set.

The project has been sustainably grown in 3 separate phases over a period of 3 years due to the greatly reduced startup costs as well as required resource burden for expansions, brought about by the next generation technology that the sensemetrics solution is built on.

**ROIS**

- First phase consisted of over 100 piezometers implemented in 5 days, saving $218,000 on upfront engineering time due to the reduced complexity of the sensemetrics Connectivity solution.

- Provides an annual cost reduction of $143,000 spent on collecting, aggregating, storing, computing, analyzing and visualizing manual data.