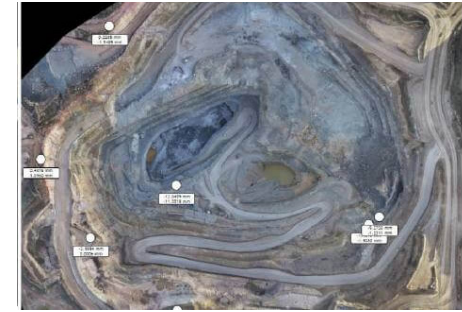


# Mt Carlton Gold Mine - Deformation Monitoring

CLIENT: POSITION PARTNERS / EVOLUTION MINING

## Gold producer Evolution Mining rolls out Senceive wireless monitoring platform to deliver live reporting



### Background

Mt Carlton is located 150 km south of Townsville, Queensland. Operating a 500 metre by 400 metre pit and a 600 metre by 600 metre tailings dam, the company opted to introduce advanced deformation monitoring technology to deliver real-time status updates and alerts to its team.

Evolution opted for Senceive's GeoWAN solution, a long-range transmission system capable of covering areas up to 15 km. It incorporates several sensors placed along the tailings dam and/or pit walls to measure for minute movements in the surface. The sensors are wirelessly connected to a solar powered gateway, positioned near to the pit, where data is transferred live to the web-based monitoring software.

Depending on the application, different sensors can be used in combination to deliver highly accurate geotechnical measurements, including tilt, pressure, vibration, temperature or optical displacement.

Technical support and product training was provided by Senceive's Australian based distributor, Position Partners. The Position Partners deformation monitoring team offers comprehensive advice, installation, onboarding and support throughout Australia, New Zealand and South East Asia.

### Solution

At Mt Carlton, Evolution has more than 20 triaxial tilt sensors positioned around the tailings dam to measure for any movement. The team is also rolling out live monitoring of piezometers that measure changes moisture levels within the tailings dam walls. In the open pit, there are numerous sensors monitoring pit wall, waste backfill and survey pillar movement.

Senior Mine Surveyor for Evolution, Callum McNaughton, said the solution has enabled his small team to provide accurate, viable monitoring data to the departments that need it. "The wireless monitoring platform has been perfect for us," he said. "It dramatically reduces the need for us to manually survey these areas, saving us time and increasing safety by removing surveyors walking these areas on foot." One of the key advantages, Mr McNaughton explains, is the ability to set different tolerances and time triggers for each sensor and/or area. "In the tailings dam we have a slightly higher tolerance before any alerts are triggered, because you do get some movement in the dam and swelling from rain," he said. "Inside the pit and in one area where there is a crack in the wall, the tolerance is much tighter and the sensors are triggered more frequently," he added. "The sensors are also firing measurements every 10 minutes in the pit, whereas they monitor every half an hour on the tailings dam."

### Outcome

The monitoring data is used by multiple teams at Evolution Mining, including surveyors, geotechnical engineers, pit supervisors and the control room. "We can configure who gets the alerts and the escalation process, so that different teams can receive different levels of alert if need be," Mr McNaughton said.

In addition to alerts if movement outside of tolerance is detected, the team uses the monitoring information for various reporting requirements. Geotechnical and survey teams use the data in their monthly reports, and it also forms part of the company's quarterly compliance report for the tailings dam.

"It's great that the monitoring data is helpful to so many different stakeholders at Evolution," Mr McNaughton said. "The geotechnical engineers can pull out any relevant information for their reports and dashboards, and the pit supervisors can instantly receive any alerts if there are changes detected by the system."

Mr McNaughton said that the wireless monitoring system did not replace traditional survey methods, but instead complimented them with ongoing monitoring data that enables early intervention and proactive management of the pit and tailings dam.