Alkimos Desalination Plant
Project Case Study

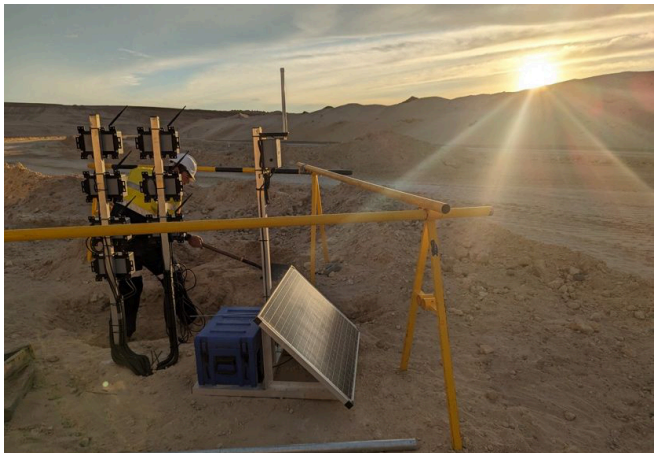
Location:
Perth, Australia

Client:
Monitel

Application Summary:
Monitoring settlement beneath preload embankment

Tags:
IPX; ASP; settlement; consolidation; direct-burial;

Description:
Ahead of the construction of a series of large water storage tanks to service the new desalination plant at Alkimos, a 9m high preload embankment has been placed to consolidate the underlying material. While primarily sands and sandstones, a handful of organic layers exist which present potential sources of ongoing settlement. The In-Place Extensometer (IPX) was selected to measure and monitor settlement at multiple depths across the site, and an Automatic Settlement Profiler (ASP) installed within a trench to monitor settlement at the original ground/ embankment interface.
The IPX monitors movement of magnetic targets placed at the stratigraphic boundaries to provide high precision monitoring of consolidation within the various strata. The ASP offered a simple and reliable means of monitoring settlement beneath the embankment at multiple points. All sensors were cabled back to wireless, battery powered data loggers with data presented in near-real time on a web-based data presentation platform.



Key Benefits - IPX:

- Large Measurement Range
- Easily adapted to target stratigraphic boundaries
- Excellent compatiblity with a wide range of soil types and strengths
- Direct burial allowed uninterrupted settlement monitoring without imacting earthworks

Key Benefits - ASP:

- Simple installation within existing conduit
- High precision settlement monitoring without need for temperature or barometric compensation
- No need for on-site hydraulic connections, flushing or deairing - arrives as a complete, sealed unit, ready to install
- Easily accomodates uneven terrain and a dog-leg alignment to target areas of concern

Customer Feedback:

"I am extremely grateful to Peter and the Osprey team for their fantastic support throughout our recent project. Peter guided us throughout the process of procurement, installation, extracting quality data and ongoing technical support. Clear communication, reliable technology and industry leading technical support resulted in the best outcome for our client and Monitel as a business. I am looking forward to working on future projects with Peter and extending our collaboration."

Dave Contencin, Director of Operations, Monitel

Related Articles:

Settlement Monitoring at Alkimos Desalination Plant

"The implementation of these advanced geotechnical monitoring tools provided the project engineers with reliable and continuous data. As a result, they gained confidence in making informed decisions regarding the settlement process. The data indicated when the settlement of the pre-load area was slowing down and reaching completion. This timely and accurate information allowed for the construction commencement of the ActiDAFF tank structure to proceed with confidence, ensuring structural integrity and project success."

https://monitel.com.au/alkimos-desalination-plant/

Site preparation begins for $2.8bn Alkimos Seawater Desalination Plant

"The desalination plant will supply up to 100 billion litres of clean, safe drinking water at full capacity, supporting the long-term water security for more than 2.5 million Western Australians who receive drinking water through the Integrated Water Supply Scheme."

https://www.felix.net/project-news/site-preparation-begins-for-2.8bn-alkimos-seawater-desalination-plant

$2.8 billion investment to secure Perth's next major water source

"The plant will have net-zero greenhouse gas emissions during construction and operation, and will allow Water Corporation to reduce its groundwater allocation by 30 billion litres a year – helping to preserve healthy wetlands, parks, forests and public open spaces in Perth's north."

https://www.watercorporation.com.au/About-us/Media-releases/2023/December-2023/Perth-next-major-water-source