

SNOWY 2 - SITE INVESTIGATION NOV 2017 TO FEB 2021

BACKGROUND

In line with Australia's commitment to reduce carbon emissions and move towards renewable energy, Snowy 2.0 is a major project estimated to cost in the region of A\$5.2 billion.

Early feasibility studies investigated the viability of a tunnel linking Lake Talbingo and Lake Tantangara. Situated underground, along the tunnel would be the power station housing six turbines capable of generating 2000 megawatts. Power generation is not expected until 2025.

The initial site investigation by SMEC and GHD led to HMA Geotechnical being awarded the instrumentation installation work.

HMA Geotechnical began installation work in November 2017 and completed the work in February 2021



Figure 1 – Lake Talbingo, Kosciuszko National Park

OBJECTIVE

- Installation of vibrating wire piezometers in strings up to 950m depth.
- Installation of data loggers.
- Fully grouting boreholes.

CHALLENGES

- Working at remote locations.
- Ice and snow
- Helicopter access at some drill pads.
- Wildlife impacts.
- Deep angled boreholes.
- Bush fire risk



Figure 2 – HMA Geotechnical Winch truck & Grout Mixer

SOLUTION AND OUTCOME

HMA Geotechnical utilised a custom designed 4x4 winch truck to carry out the installations.

Over the course of the project 17km of 100mm diameter borehole was instrumented.

Seventy-five vibrating wire piezometers were installed on thirty-one thousand metres of cable.

All the boreholes were fully grouted using 190 tonnes of grout.

Not all the drill pads were accessible by the winch truck. A small number of boreholes required helicopter access, in those instances, a lightweight pneumatic installation winch was deployed, along with the grouting equipment and air compressor.



Figures 3 & 4 Pneumatic winch flown into drill pad

INSTALLATION

All the installations followed HMA Geotechnical's Safe Operating Procedures and Quantitative Risk Assessment.

However, on some of the deepest angled boreholes the drillers employed a Navi Drill to realign the borehole. This caused a narrowing in the borehole, which made the standard piezometer installation procedure with a long sinker weight impossible. HMA Geotechnical successfully designed an articulated weight that flexed past the narrowing borehole where the Navi Drill was used.

All the installations were carried out within Kosciuszko National Park. The drill pads had to be rehabilitated once the drilling program was completed.

To limit environmental impact of the logging systems, the data loggers were installed below ground level in many of the locations. An RST DT2055 data logger was used to log the vibrating wire piezometers, which was housed in a Pelican style case, resting on the borehole collar pipe.

A bush fire that swept through the area in January 2020 caused damage to some of the data logging systems but having them mostly below ground level reduced damage significantly.



Figure 5 –VW data logger in position at collar pipe

HMA GEOTECHNICAL STATEMENT

HMA Geotechnical have supplied bespoke monitoring systems and instrumentation to Civil Engineering projects for nearly 40 years. Delivering the right solution for our customers.

As an Australian employee-owned company, we take pride in our work.

Given our experience, workshop facilities and product range, we can offer the following options:

- Custom built equipment and wherever possible parts sourced in Australia to reduce lead time.
- Dataloggers custom built and programmed to client's requirements
- Integration with multiple software packages/protocols to suit any on-site requirement. Output can be via a range of industrial protocols such as Modbus, DNP3 and SFTP.
- Flexibility to supply and install globally