

Case Study

Devico DeviDrill™ delivers directional drilling program of high technical quality in environmentally sensitive area

Objectives

- Collect the metallurgical samples from the Sakatti Cu-Ni-PGE deposit by means of core drilling
- Maintain a constant 25m drilling pattern in certain key areas of the deposit with the required 5m target precision (up to 800m depth)
- Adhere to project time and environmental constraints

Challenges

- The Sakatti copper, nickel and PGE deposit in Finland (150km from the Arctic Circle) is a deep and complex deposit located in an environmentally sensitive area.
- Drilling operations can only be conducted in winter on frozen and snow-covered ground, effectively limiting available drilling time to 4 months a year.
- For a successful program it is therefore crucial that each target is reached with the highest possible efficiency and accuracy whilst minimising surface disturbance.

IMDEX Solution

Devico DeviDrill Directional Core Drilling (DCD) services.

The DeviDrill is an innovative directional core barrel that delivers highly accurate borehole steering whilst collecting a 3m/10ft core sample, leading to the application name, Directional Core Drilling (DCD).

Project Details

Location: Sodankylä, Finland

Resource Company: Anglo American

Project: Sakatti

Resource: Cu-Ni-PGE

Application: Metallurgical drill program

Season: 2022-2023 Winter season



Image 1: In one drill hole, nine targets were intersected from the pilot hole

Strategy & Solution

- Several multi-branch DCD holes were planned by Devico in consultation with Anglo American's Sakatti project geology department.
- Devico crews cooperated with the drilling contractor to carry out the required directional drilling, supervising and adjusting the borehole paths to ensure tolerances were maintained.
- The length of the corrections varied from 5 to 75 metres and were planned with a dogleg (deflection rate) of 9 degrees per 30 metres.
- On average, each directional intervention lasted two days or less, with multiple 12-hour shifts recording over 20 metres of directional drilling.

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Devico's services and especially DCD has been an important factor to be able to conduct accurate diamond drilling programs in deep and complex deposits located in environmentally sensitive areas like Sakatti.

Janne Siikaluoma

Anglo American

Principal Geology and Resource Estimator

Customer Statement

"The Sakatti winter season 2022-23 metallurgical drilling program with several multi-branch DCD-guided holes was completed on time with high technical quality. This enabled AA Sakatti Mining Oy to collect the metallurgical samples from the Sakatti Cu-Ni-PGE deposit by means of core drilling which was the priority one objective and very important for the future progress of the Sakatti project.

Additionally, the successful drilling program enabled us to achieve a constant 25m drilling pattern in certain key areas of the deposit with the required 5m target precision (up to 800m depth), **which would have not been possible by any other practical means."**

Results

- The multi-branch DeviDrill program enabled AA to reach multiple targets (45) from a small number of drill pads (10), significantly reducing the impact of pads and roads on the environmentally sensitive area.
- In one hole, nine targets were intersected from the pilot hole by side-tracking either directly from the pilot hole or from another branch hole.
- On average, the side-tracking was performed at 500m depth with target depth ranging from 700 to 1000 meters. The time needed for each target was reduced and allowed more drilling in the ore zone to be achieved during the short season.
- Due to its coring design, the DeviDrill uses no more than the standard core barrel. This is a key element for winter drilling and for fluid recycling and recovery, which is an absolute requirement in this environment.