

The Yorkshire Italian job

Since acquiring the Woodsmith polyhalite mine project earlier this year Anglo American has been pressing ahead with the site's development. As part of that work Welltherm Drilling used an MI6 rig from Italian manufacturer Massenza to create a borehole for groundwater monitoring purposes

Top right: With a 56Kn pull-up, 5.20m stroke and a rotary head that can reach 650rpm and 9,630Nm of torque, the MI6 rig was easily able to drill a 200mm diameter well to a depth of 75m

Bottom: The Massenza MI6 drill rig ready to start work in the under-construction mine shaft at the Woodsmith polyhalite mine project

Specialist drilling contractor Welltherm Drilling Ltd has used a Massenza MI6 rig to drill a 200mm diameter well to a depth of 75m at the Woodsmith polyhalite mine project in Yorkshire, UK, one of the most interesting, innovative, and ecologically sensitive mine construction sites in the world.

The work which was undertaken with the MI6 for Anglo American Plc was supervised by UK-based Dunelm Geotechnical and Environmental Ltd.

At the construction site the Massenza MI6, which was supplied by the Italian manufacturer to Welltherm Drilling Ltd, a company specialising in water well, geothermal and site investigation drilling projects, drilled a 200mm diameter well to a depth of

75m, then installed a 125mm wellscreen with filter pack. On completion of the well, a borehole pump was installed and a series of pump and recharge rate tests were undertaken as part of groundwater monitoring within the diaphragm walls of the shaft.

This Massenza MI6 can boast a 56Kn pull-up, 5.20m stroke and a rotary head that can reach 650rpm and 9,630Nm of torque.

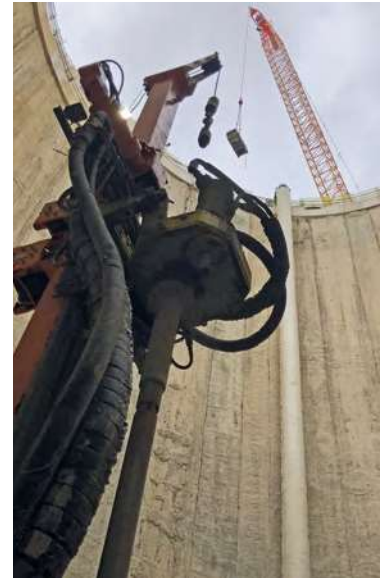
The Woodsmith project is a deep mine and associated transport, processing, and shipping infrastructure development under construction since 2017 in North Yorkshire, UK.

POLYHALITE

This mine will extract polyhalite, a naturally occurring mineral containing potassium, sulphur, magnesium and calcium, four of the six key nutrients required for plant growth. The polyhalite extracted at the mine will be exported to overseas markets as a low chloride, multi-nutrient fertiliser suitable for organic use that can boost crop yields and aid more sustainable farming.

The relevant fact is that the Woodsmith project area contains the largest and highest-grade resource of polyhalite to be found anywhere in the world, amounting to some 2.69 billion tonnes, giving the mine a potential lifespan of over 100 years.

Polyhalite, indeed, is commonly found at a centimetre scale in mineral deposits throughout the world. But North Yorkshire is the only currently known place where such a thick and high-grade deposit is known to exist.



The Yorkshire polyhalite deposit was formed in the late Permian period, around 260 million years ago, in the southern North Sea basin. What was then the Zechstein Sea periodically evaporated, leaving behind a sequence of mineral deposits including the shelf and basin seams of polyhalite.

In 2017, building work started on a low environmental impact, state-of-the-art mine two miles south of Whitby in the North York Moors National Park. Polyhalite ore will be extracted via two mine shafts and transported outside of the National Park to Teesside on a conveyor belt system in an underground tunnel, avoiding any impact on the countryside above.

Massenza Drilling Rigs is proud to contribute with its technology and experience to what could be a solution to the ever-growing demand for food of the world population, by making cultivation methods and fertilizers more efficient and sustainable. ♥

