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Czech Mate!!

Crews made the HDD crossing in February in the Czech Republic but had to return in April to do a second crossing

Powermole International recently directionally drilled under the Morava River at Napajadla in the Czech Republic as part of a project by Water and Sewerage Authority of Zlin.

The company was contracted by Talpa RPF of Ostrava, Czech Republic.

The project aim was to install a 528-ft (160-m), 12.6-in. (315-mm) diameter HDPE pipe below the Morava River as part of a drinking water supply renewal program. The Powermole/SE dry rock directional drilling system was chosen after another system failed to drill through the hard rock formations, 10 ft (3 m) from the bank.

The Powermole/SE PM903 system, with 26 tonnes (28.6 tons) of pullback and 12,000 nM (8,850 ft-lbs) of torque, completed the 528-ft (160-m) pilot bore within one day, easily penetrating and steering through the hard ground, where the other system had failed. Over the next few days the back reaming operation was carried out over three stages to widen the 5-in. (130-mm) pilot bore to the required 14-in. (350-mm) diameter, allowing the HDPE pipe to be pulled into the position in one working day.

During floods in March, a section of the pipeline appeared to have been washed out by the torrent of rain passing a deep gully on the right hand bank of the river. This raised the question between the contractor and client as to whether the minimum depth of earth cover—3 ft (1 m)—had been achieved, taking into consideration the nature of the changing riverbed.

The project was successfully completed.

However, during floods in March, a section of the pipeline appeared to have been washed out by the torrent of rain passing a deep gully on the right hand bank of the river. This raised the question between the contractor and client as to whether the minimum depth of earth cover—3 ft (1 m)—had been achieved, taking into consideration the nature of the changing riverbed.

After a couple weeks of stalemate, it was finally agreed to repeat the crossing.

Returning to Napajedla in April to perform the second crossing, the client stipulated 10 ft (3 m) of earth cover in order to avoid the problems experienced in the winter crossing. In achieving greater levels of depth, harder rock formations were encountered. These, however, did not pose problems for the dry rock directional drilling system. The pilot bore was completed in two days. Back reaming was carried out in four stages over a three-day period and the HDPE pipe was successfully installed, clear of the river. This enabled a permanent control shaft to be constructed.

Currently, Powermole is involved in a second project on behalf of Underground Moling Services for Turriff Contractors (contractors for British Gas Transco). This project involves the installation of 231 ft (70 m) of 10-in. (250-mm) HDPE as part of a new gas main installation in Aberdeenshire, Scotland. This project comes on the heels of their success last December on a similar project.

Said David Morrisson, Transco's engineering operations manager, of Powermole's work in Inverness in 1998: "The new machine not only had environmental benefits, but was also cost-effective with the project proving sig-

nificantly cheaper than other options."

A conventional wet system attempted to perform the second project in Aberdeenshire, however, only succeeded in drilling 23 ft (7 m) of the 231-ft (70-m) distance. The Powermole/SE PM903 dry rock system completed the 5-in. (130-mm) pilot bore in less than one working day.

The Powermole/SE dry rock directional drilling system uses compressed air with a small quantity of biodegradable additive as a lubricant to perform the drilling operation. The lubricant also produces a filter cake around the bore, which, together with the compressed air, act to prevent collapse of the bore. Spoil from the drilling operation is removed via the airflow through the borehole. This system employs a patented pneumatic/percussive head unit, which is automatically activated once the drill head comes into contact with hard ground conditions. Having simultaneous drilling and percussion ensures effective and consistent penetration no matter the ground conditions, according to Powermole officials.

This Powermole/SE PM903 dry rock drilling system was used on projects in the Czech Republic and in Scotland.

Powermole Background

Powermole International was recently purchased by Euro Iseki, the United Kingdom-based member of the worldwide Iseki Group. According to company officials, this purchase is in line with Iseki's objective to break into the small bore market and in turn enable Euro Iseki to offer a full range of no-dig installation technologies.

This article was edited from material provided by Powermole International, Kent, England.