



## **PERFECT PIPELINE PREMIERE: HERRENKNECHT DIRECT PIPE FOR THE FIRST TIME IN CANADA.**

**A smooth success right from the beginning: For the first time, a Canadian construction company has installed a pipeline using the Direct Pipe® technology from Herrenknecht. Crossing beneath the Beaver River in the province of Alberta with a 42 inch pipeline (1,067mm) was successfully completed in two weeks.**

**Bonnyville, Canada / Schwanau, Germany, December 9, 2013:** Wes Lingerfelt got up to speed on the jobsite: "We were at the machine seven days a week to get the project finished quickly and efficiently." Wes Lingerfelt operated the Direct Pipe® system, which Canadian tunnelling company Michels Canada ordered from Herrenknecht for the Beaver River pipeline crossing in the province of Alberta. A pipeline with a diameter of 42 inches (1,067mm, double FBE coating) had to be built over a length of 340 meters under the river. The drill was carried out with an entry angle of four degrees and an exit angle of eight degrees with an overburden of around five meters below the river bed. The target pit was reached after 13 days of drilling between the start on August 24 and breakthrough on September 8, 2013. Wes Lingerfelt is impressed by the performance capacity of the technology: "We reached an impressive 68 meters on our best day."

Direct Pipe® was first used in Canada to cross beneath the Beaver River, a premiere achieved with bravura. Patrick O'Donoghue, Trenchless Crossing Manager at Michels Canada: "Direct Pipe is gaining more and more attention among trenchless tunnelling specialists in North America. We look forward to completing more high-quality projects."

The crossing beneath the Beaver River is part of a section of the "Cold Lake Pipeline" extension between La Corey and Hardisty over a total length of 240 kilometers. The client Inter Pipeline Limited is expanding its capacities for the transport of the bitumen gained from oil sands in Cold Lake.

The Direct Pipe® Technology developed by Herrenknecht combines the advantages of Microtunnelling and Horizontal Drilling Technology (HDD). In only one work step, a prefabricated pipeline is installed in the trenchless mode and the required borehole produced simultaneously. This provides for the speedy and highly cost-efficient installation of pipelines with lengths of up to more than 1,500 meters. To date, 35 projects have been completed successfully using Direct Pipe in Germany, Great Britain, Italy, Canada, the Netherlands, Thailand and the USA.

<b>Beaver River Crossing</b>			
Location	Bonnyville, Canada	Herrenknecht Direct Pipe®	
Application	Oil	AVN800X	Torque: 90kNm
Geology	Sand, clay, stones, boulders, shells, wood	Pipe Thruster HK750PT	Thrust force 750t
Client	Inter Pipeline Limited	Contractor	Michels Canada Co.
Pipeline	Diameter: 42" (1,067mm) Length: 340m		

<b>Herrenknecht Direct Pipe®</b>
<p>From the launch pit, the soil is excavated using a slurry-supported Herrenknecht Microtunnelling Machine (AVN). The pipeline, which is laid out on the surface on rollers and welded to the end of the microtunnelling machine, is pushed into the borehole at the same time as excavation takes place. The necessary thrust force is provided by the Pipe Thruster. It pushes the Microtunnelling Machine forward together with the pipeline with a thrust force of up to 750 tonnes in strokes of five meters. The force is transferred to the pipeline via the Pipe Thruster clamping unit and then to the machine's cutterhead.</p>

### **Herrenknecht AG**

*As the only company worldwide, Herrenknecht AG delivers tunnel boring machines for all ground conditions and in all diameters – ranging from 0.10 to 19 meters. The product range includes tailor-made machines for transport tunnels, supply and disposal tunnels and additional equipment and service packages. Furthermore, Herrenknecht manufactures drilling rigs for vertical and inclined shafts as well as deep drilling rigs. In the year 2012, the Herrenknecht Group achieved a total output of 1,135 million euros. The Herrenknecht Group employs around 5,000 members of staff worldwide, among them 200 trainees. With 77 subsidiaries and associated companies working in related fields in Germany and abroad, Herrenknecht provides a comprehensive range of services close to the respective project and customer.*

**Utility Tunnelling.** *The market for Utility Tunnelling technology is characterized by sustainable megatrends such as population growth, urbanization and resource scarcity. Oil, gas, water, electricity and data must be transported efficiently over long distances without loss, and wastewater must be disposed of in high-performance systems. With over 1,800 plants delivered worldwide, Herrenknecht has the highest reference density, both for standardized micromachines and project-specific customized special machines, as well as for innovative solutions for the installation of pipelines. Currently, around 850 tunnel projects are being implemented using utility equipment with diameters of up to 4.20 meters made by Herrenknecht. Here, trenchless tunnelling offers a range of advantages compared to conventional construction methods: transport, economy and environment remain largely undisturbed while micromachines, HDD rigs or shaft sinking equipment are being used.*



Pic1\_ Direct Pipe® technology premieres in Canada: A pipeline with a diameter of 42 inches (1,067mm, double FBE coating) was built over a length of 340 meters under the Beaver River in the province of Alberta in only 13 days.



Pic2\_ Direct Pipe® Technology from Herrenknecht allows for the installation of a prefabricated pipeline in the trenchless mode in only one work step, while the required borehole is excavated simultaneously. This provides for the speedy and highly cost-efficient installation of pipelines with lengths of up to more than 1,500 meters.