

CASE HISTORY

WIRELESS HDD RIVER CROSSING

APPLICATION

Trenchless Horizontal Directional Drilling

TECHNOLOGY

Wireless HDD Positioning & Steering Systems, Pressure While Drilling (PWD)

LOCATION

Hinton, Alberta, Canada

CUSTOMER CHALLENGE

The customer required a 1.9km pipeline to connect two oil and gas processing plants, but the existence of a provincial park river in the pipeline trajectory presented strict regulations concerning ground disturbance and water contamination.

A trenchless horizontal directional drilling (HDD) approach was chosen to install the pipeline with minimal disturbance to the environment. However, the river crossing posed challenges to conventional wellbore location services: entry and exit points at least 1 kilometer apart, a resulting trajectory of over 1.8 km in length, and 150m of True Vertical Depth, just to name a few.

In addition, the economics of the project demanded the most expedient drilling and casing processes possible, with minimal heavy equipment footprint on location.

SCIENTIFIC SOLUTION

Scientific Drilling developed its PunchOut Wireless HDD Navigation system as a completely wireless directional drilling assembly that allows for precise subsurface location and steering of the assembly at depths of up to 150 meters—an industry first. PunchOut also eliminates the prolonged connection times of traditional HDD steering and location systems.

Scientific Drilling's Pressure While Drilling tool was used in conjunction with the PunchOut steering system to ensure the annular pressure of the wellbore was below the fracture gradient of the local geology. This allowed the project to adhere to regulations by greatly reducing the risk of injecting drilling fluid into the formation and subsequently the river.

In addition, by drilling a larger than normal borehole, our solution was able to accommodate the pipe pass-through without having to follow the pilot hole with additional reamer runs. This saved an immense amount of time.

CUSTOMER VALUE

Without the PunchOut System from Scientific Drilling, the customer would have been forced to rely on a traditional HDD steering and location system, which would have risked project overages due to extended rig time and the possibility of penalties and fines for provincial park disturbances.

By using the PunchOut system the customer was able to drill an accurate wellbore with minimal surface footprint, greatly reduced survey times and no need for multiple runs to increase hole size.

The project was completed 325% ahead of schedule—using only 1/3 of the proposed rig time—a savings of approximately \$1.5MM.

