



Straight, clean holes with jet grouting at Niagara

Description of the project:

The city of Niagara needs to increase hydro power output to meet the demand for electricity during the highest consumption peaks of the year. To achieve this, construction was begun in the spring of 2007 of an 11-kilometre-long tunnel for an additional turbine at the Canadian Falls dam. The tunnel, which is 15 metres in diameter, begins above the falls and has its outlet below the falls. This is a large and complex project with strict safety requirements. Wassara's water-powered hammers are used for jet grouting at the inlet and outlet of the tunnel.

Geo Foundation is the name of the company which is drilling 400 holes 67 metres deep to strengthen the ground around the tunnel mouth. They chose the Wassara water-powered down-the-hole hammer because it is capable of drilling in ground conditions of almost every kind (steel scrap is the only thing it can't drill through) and because it is very well suited to water-bearing ground. In this particular case, one of the advantages is that the boreholes are straight and clean. This is also essential for performing geophysical tests to determine how much grouting the ground will take. The water emerges so slowly that no cavities are formed along the borehole. This allows the ground to handle more grouting.

Equipment

| | |
|-------------------|--|
| Hammer | W80HD |
| Drill bit | Wassara 95 mm |
| Pump | Electric high-pressure water pump, Cubex W350, capacity 350 l/min at 180 bar |
| Liquid | River water |
| Pipes | OD 76 mm Wassara |
| Rig | Casagrande M9-1 |
| Swivel | Wassara swivel Stenberg 600 |
| Formation | Dolomite, limestone |
| Contractor | Geo Foundation, subcontractor to Strabag |