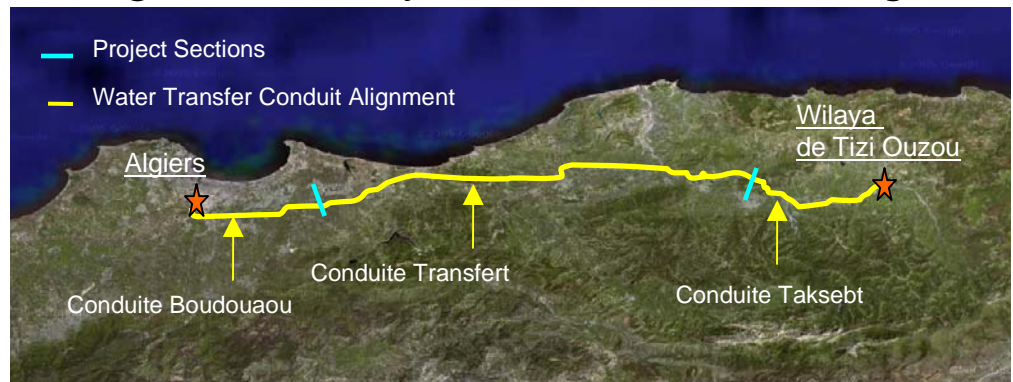
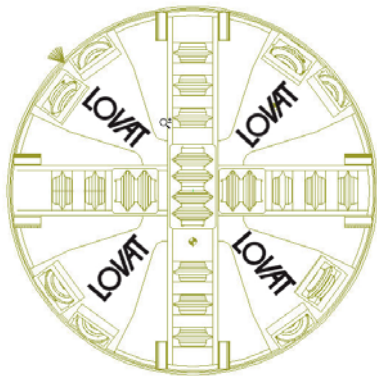
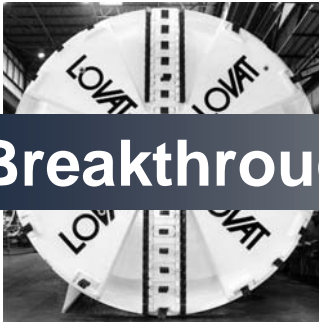


## Breakthrough News

July 8, 2005

### Mobilisation des ressources en eau dans l'Algérois Algeirs a Wilaya de Tizi Ouzou, Algeria



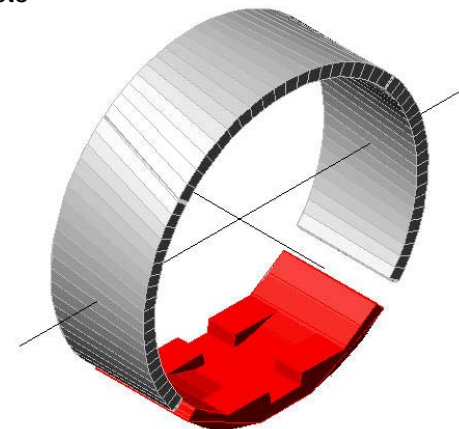
LOVAT is pleased to announce the sale of twin hard-rock 3.7m diameter Tunnel Boring Machines, ancillary equipment and services to Cooperativa Muratori e Cementisti S.p.A. (CMC) of Ravenna, Italy. CMC is contracted to work for the General Contractor, SNC-Lavalin, as Tunnelling Sub-Contractor.

CMC will be using these LOVAT TBMs to drive 11km's for the multi-tunnel Tizi Ouzou - Alger water-transfer project in northern Algeria. Within this project, TBM1 will be boring 2377 metres for the Tizi Ouzou Tunnel and 2600 metres for the Naciria Tunnel. TBM2 will be boring 1208 metres for the Draâ-Ben-Khedda Tunnel followed by a bore of 4768 metres for the Thenia Tunnel. The maximum depth of tunnel is 95 metres, all above the watertable. The geology of the tunnel alignments is consists of primarily hard, compacted and very compacted blackish-grey marl with an RQD typically from 75-90% and a UCS up to 70 mPa.

The TBMs will be built with Pressure Relief Gates for face isolation of the Cuttinghead. The Cuttinghead Drive is powered by 524 kW hydraulic drive and operates from 2.5 rpm to 9.5 rpm. Also included will be an Auxiliary Ventilation System, and LOVAT's PLC Systems.

The TBMs will be erecting a primary lining made up of expanded concrete segments. Each ring will be composed of three segments and an invert base. As each ring leaves the trailing shield, the ring will be expanded hydraulically to the cut diameter of the TBM. The resulting expansion joint will be kept open by means of spacer blocks that are manually inserted. Expanding the ring allows for a significant cost savings in terms of materials such as grout and associated products. The secondary lining will be a grouted-in-place concrete pipe.

The first TBM is to be delivered from the LOVAT plant in Toronto, Canada on September 30th, 2005, while the second follows on October 28th, 2005. LOVAT will now have 3 Hard-Rock TBMs in use for water-transfer tunnels in Algeria, including a 4.2 metre machine for the Beni Haroun Aqueduct project, also under contract to SNC Lavalin.



SECTIONAL VIEW -after expansion