Annonce de conférence

Jeudi 21.03.2013 à 17:15, Salle GCC30 (Génie Civil)

Selim M. Sayah

Lombardi SA Ingegneri consulenti, Minusio, Suisse

Theun Hinboun 220 MW Hydropower Project in Laos

The Theun Hinboun Expansion Project (THXP) in Lao PDR, owned by the Theun Hinboun Power Company (THPC), aims to increase the installed capacity of the existing hydropower plant from 220 MW to 440 MW while adding a second power station of 60 MW to give a total project capacity of 500 MW. This expansion project, presently commissioned, includes a 70 m high rolled compacted concrete dam (RCC) located about 20 km upstream of the existing Theun Hinboun weir for flow regulation and power generation, a new water intake downstream, a precast concrete lined Headrace Tunnel, approx. 5'500 m long, with an internal diameter of 6.9 m excavated parallel to the existing tunnel, a 900 m long steel Penstock, and finally, a new power station, with one 220 MW Francis unit, located on the right side of the existing power station. The second power station is located at the RCC dam site.

The contract requirements were defined using largely performance based criteria with the Contractor responsible for the design of the waterways system. The former constraint is, on the one hand, mainly related to the local geology and the upstream configuration of the headrace tunnel and, on the other hand, to the mass oscillation in the surge scheme during an emergency start-up/shut-down of the turbine. Concerning the contractual constraints, they are principally associated to the total headloss within the waterways system that should represent not more than 3% of the total available head. The main headrace tunnel section, around 5'300 m long, is excavated using a 7.65 m diameter single shield TBM. The precast lining segments are erected in parallel to the excavation works. At the upstream end of the headrace tunnel, a dismantling shaft is foreseen around 100 m before the tunnel portal at the river side in order to dismantle the TBM, granting thus a total independence of the excavation works from the flood season. The 900 m long penstock connecting the headrace tunnel to the power station has a varying diameter between 5.00 m and 5.80 m. The major section is buried in trenches while the upstream section is inserted inside the segmental lining of the tunnel. Massive thrust blocks are designed at each curve of the penstock. The installation of passive or active anchors is avoided in order to reduce any future inspection costs. At the upstream end of the penstock, a 950 m long surge tunnel is foreseen for mass oscillation.

La conférence sera donnée en anglais. Durée env. 45 minutes, suivie d'une discussion.

Prof. Dr Anton SCHLEISS