



## Chaglla Hydroelectric Power Station (PE) Chemical Grouting Tunnels

<b>Employer</b>	Empresa de Generación Huallaga S. A. (Odebrecht Energia)
<b>Client</b>	Constructora Norberto Odebrecht S.A. Sucursal Perú
<b>Execution of works</b>	Renesco GmbH, Abt. Marti Geotechnik
<b>Construction Period</b>	March 2014
<b>Contract Sum (grouting only)</b>	€ 405.000

## Project Description

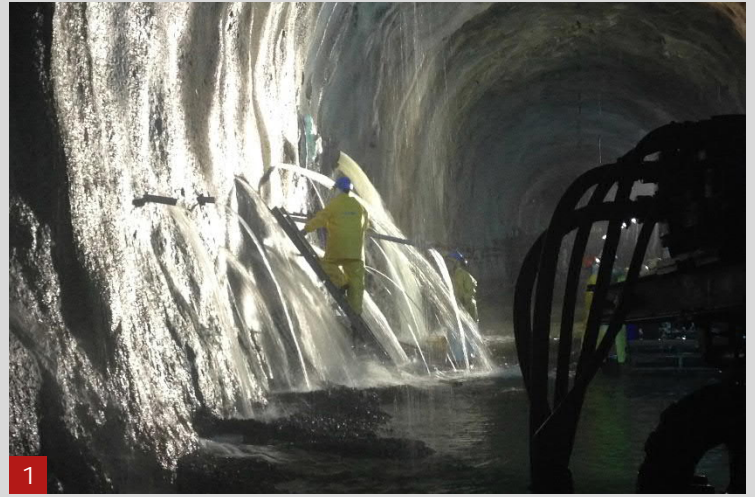
The Chaglla hydroelectric power station is on the Huallaga River in the Huánuco region of Peru. It has an installed output of 456MW. The project includes the following significant construction activities:

- Turbine hall
- A 203m high dam
- 3 tunnels for flood relief
- A pressure water tunnel  
d = 9,0m, length = 15.6km

## Scope of services

Significant water intrusion was experienced during driving of the pressure water tunnel. In one area, essentially dry conditions were required for installation and backfilling of steel pipes. In a short section water inflow was approximately 220 l/s. Normal grouting was unsuccessful in the karstified rock. Renesco GmbH, Marti Geotechnik was therefore commissioned to implement sealing with chemical grout. This grouting work reduced water intrusion sufficiently and allowed finishing work to continue.

Material: 15ton two-component polyurethane resin



Front page: Huallaga River and a view of the dam construction site from upstream

1. Tunnel interior before injection measures
2. Tunnel interior after injection measures
3. View of the dam construction site from the downstream