

## Dam Break and Risk Analysis of Tailings Deposits

Ayacucho, Perú

### Client

Catalina Huanca Sociedad Minera S.A.C.

### Timeframe

April - July 2019

### Contract Amount

\$74,054.20

### Personnel

Martín Purizaga

Claudia Carrillo

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Geo-Logic Peru (GLP) has developed a simulation of dam breakage for three tailings deposits and determined the maximum extension that would reach the flow, flood levels, and flow velocity within differing time frames.

The tasks developed involved the execution of a field research campaign, the creation of a hydrological model, and the estimation of displacements and fault plans in each deposit. These displacements were estimated as a consequence of a dam breakage under the reduction method of resistance to cutting. In addition, the numerical model for the simulation of the wave due to dam breakage in the tailings deposits has been developed. Likewise, a risk analysis and a contingency plan have been carried out.

The scenarios considered were carried out under the conditions of failure by tubing and by overflow (hydrological failure), the latter contemplates return periods of 500, 1000 years and probable maximum precipitation (PMP).

Flood and risk zoning maps were prepared considering the peak flow travel time, the flow straps, as well as the maximum flow velocities.

Finally, the elaboration of the contingency and mitigation plan presents the procedures to be followed against the risk of dam rupture, establishing prevention, mitigation and action measures during an emergency.

### Project Highlights

- Simulation of dam break for three deposits
- Execution of a field campaign
- Development of the contingency and emergency plan