

# La Zarza Mine



**Client:** Ormonde Mining PLC (based in Ireland)  
**Location:** Huelva Province, south-west Spain  
**Date:** 2007-2008

La Zarza is a proposed new gold/copper/zinc underground mine in south-west Spain. The La Zarza area has been mined for gold and copper since Roman times, and pyrite from the mid-1800's to early 1990's. More recent investigation of the zinc resource hosted in the adjacent massive sulphide has yielded promising results.

In 2007, Ormonde Mining engaged ATC Williams\* to undertake a Feasibility Study to investigate the options of a tailings management facility (TMF) for the mine.

The project presented a number of challenges.

- Being an old mine, the project site area was limited and Spain's environmental/land use regulations are very strict with regard to tailings storage. Liners are considered mandatory.
- The client chose to pursue deep cone thickening. This resulted in very steep predicted beach slopes, which did not suit the topography of the available storage sites and were problematic.
- In addition to tailings, the TMP would need to store a considerable volume of ultra-fine precipitates resulting from treatment of underground mine water prior to start-up. The characteristics of this material are very different to the high SG tailings.

ATC Williams conducted an initial Options Study to identify the preferred location for the TMF site.

Of the four sites considered, two brownfield areas were viable. Of these, the Backfill Pits site was selected, consisting of two relatively shallow, unrehabilitated rock quarries, located directly above the old underground workings.

This site will require development to provide a TMF of sufficient capacity for the precipitates and various tailings streams. In addition, economic constraints meant it would be necessary to investigate staged construction and operation of the facility.

The final TMF concept involved:

- construction of a self-contained facility within the TMF to store 15 months of dewatering precipitates
- excavation of the wall dividing the pits to provide sufficient capacity and beach area
- a large 26m high embankment in the main drainage cut of Pit 2
- extensive earthworks within the pit walls to create a uniform slope and alignment for liner installation
- liner design to address the lack of fine-grained materials (clay or sand) available for bedding.

The concept was found to be a cost-effective solution, and considered current best practice for the storage of paste-thickened tailings.

The La Zarza Feasibility Study has indicated that the project requires further study. However, the client has confirmed they will continue to develop a working solution for the mine, and will require the ongoing involvement of ATC Williams.