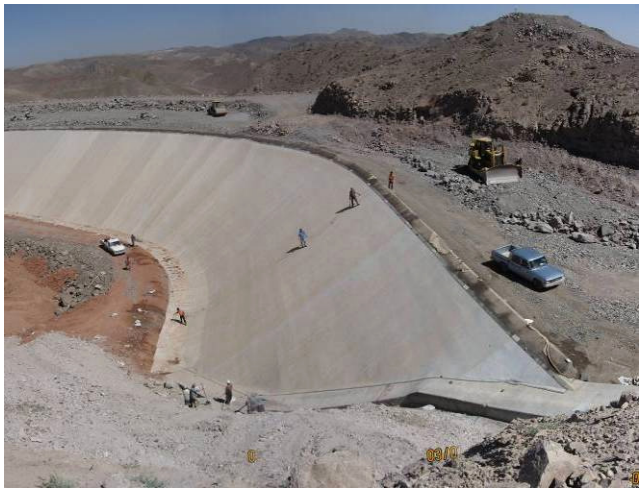
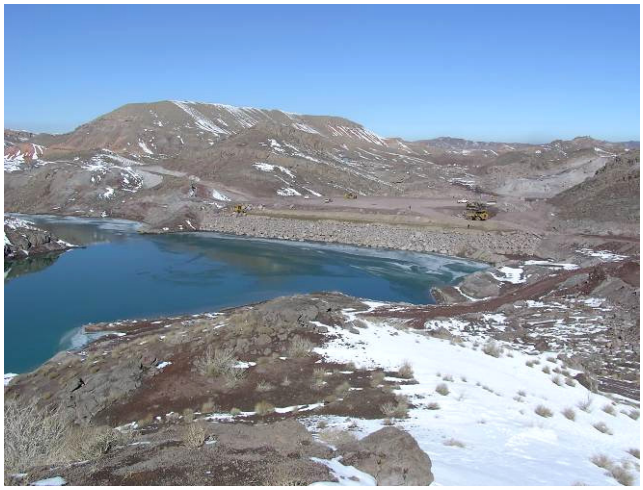
Sar Cheshmeh Copper Mine

ATC Williams
AUSTRALIAN TAILINGS CONSULTANTS





Client: National Iranian Copper Industries Corporation (NICICO)
Location: Sar Cheshmeh, Iran
Date: 2000-ongoing

Sar Cheshmeh has been operating since the early 1980's and is the largest of NICICO's operations. Current throughout is 22 Mtpa and with the imminent Stage 2 expansion, this will increase to 33 Mpta. Total future reserves will ultimately require storage for 1,000,000,000 tonnes of tailings over the next 30 years.

In 2000, ATC Williams* (then trading as Australian Tailings Consultants) was engaged by NICICO to develop and implement a tailings management strategy plan for the Stage 2 expansion.

The option selected was deep-cone Paste Thickeners with down-valley discharge (DVD). This relatively new technology offered significant water conservation benefits in a country where raw water supply is limited. It also allows savings in the required total tailings storage volume, and lower embankment heights by taking advantage of the steeper beach slopes.

At the time of construction, these Paste Thickeners will be the largest such installation in the world.

Since 2004, delivery of the project has been via a joint venture vehicle between ATC Williams and a local consultancy, Middle Eastern Water & Environment. ATC Williams has been providing feasibility and basic design, and some detailed design services, with an overseeing role on quality and technical issues during construction.

As the project has proceeded, ATC Williams has applied our experience and expertise in:

- detailed tailings storage and water management plan over LOM
- geotechnical investigation plans
- geological investigations
- 23 m high downstream raise of Main Embankment with upstream face Geo-membrane liner
- 65 m high zoned rockfill Temporary Tailings dam
- 80 m high asphaltic concrete core water dam
- 12 x 25 m diameter Paste Thickeners
- 2 x return water pump stations, in series 4,500 KW (combined)
- decant water pump station
- decant pipelines 700NB x 5 km
- return water pipeline 1000NB x 7 km
- tailings pipeline 1000NB x 4.5 km
- seepage dam and pump station
- access roads.

There have been many challenges during construction, particularly with equipment supply into Iran, and this has impacted on progress. The project is currently due for completion in 2011.