



Mining Closure and Reclamation Services

Client
Confidential

Location
Asia

Mercury Treatment Process Facility Decontamination, Demolition, and Closure

Project Highlights

- Mobilized international resources for local delivery, demonstrating our ability to do such anywhere on the globe. Ultimately, the project involved staff from our Australian offices in Sydney and Melbourne; the Kuala Lumpur office in Malaysia; and the Denver office in Colorado, USA
- Used innovative water treatment process to eliminate the need for surface water discharge
- Executed a technically challenging scope well within schedule and budget

Project Description

The project began with a preliminary investigation conducted by CH2M HILL (Sydney, Australia, office) in 2003. CH2M HILL prepared an initial report "Evaluation of Decommissioning and Demolition Options" to assist the Client in decision making. CH2M HILL was subsequently engaged to document the exact methodologies the Client should apply in decommissioning and demolishing the plant. In October 2004, we delivered Health and Safety Plans, demolition hazard studies, risk management, and a Decontamination Plan to the client.

Based on our performance in the Phase 1 and 2 investigations, CH2M HILL was awarded a sole-source construction contract for the plant decontamination and demolition. That contract was later extended to include the demolition of an 8.5-kilometer-long tailings pipeline.

The project involved:

- Treating 180,000 liters of mercuric chloride solutions from former scrubber operations
- Demolishing the scrubber, 8.5-kilometer-long land tailings pipeline and associated infrastructure
- Cleaning all infrastructure by hydro-blasting (i.e., high pressure up to 32,000 pounds per square inch water cleaning)
- Establishing an onsite laboratory and performing analytical validation of all cleaned components
- Treating all cleaning process water including chemical dosing, filter press removal of precipitates and fines, and evaporation of all waste water solutions
- Stockpiling approximately 600 tonnes of steel for recycling/remelting
- Stabilizing approximately 130 tonnes of sludges generated from the process vessels and pipes, hydro-blasting, and the water treatment

circuit to an acceptable Toxicity Characteristic leaching Procedure (TCLP)

- Transporting and disposing 24 shipping containers of non-metallic waste to a hazardous waste landfill

Deconstruction began in October 2005, and was completed in early January 2006. The project was managed from CH2M HILL's Sydney office, and included preparing and approving all plans and budgets; procuring subcontractors for cleaning and disposal; and interfacing with the local Environment Protection Authority (EPA) on treatment methods and emissions. The demolition of the structures involved the use of five cranes ranging in capacity from 10 to 300 tonnes. Treatment included evaporation of treated water to avoid surface water discharge while meeting EPA stringent air emissions standards, and stabilization of precipitated mercury (Hg [II] and Hg [I]), zinc, and arsenic compounds for offsite landfill. Elemental mercury was also encountered during deconstruction and washed, separated, and treated as a salable product for purification and recycling. Treatment operations were extremely successful and completed in time for the start of deconstruction operations. CH2M HILL received commendation for the entire decommissioning, decontamination, and disposal project from both regulators and the client.

One of the most significant issues from the client's perspective was our rigorous adherence to international environment, health, and safety standards. All this was undertaken over an 18-week period, including mobilization and demobilization. Over 61,000 hours were worked onsite with no reportable or first aide injuries.