Expertise in hydrometallurgy, process chemistry, chemical engineering and analytical chemistry, together with a detailed knowledge of wastewater treatment systems, allows ANSTO Minerals to diagnose and solve water problems across the mining and mineral processing industry.

**Wastewater**

Understanding the water requirements of individual process steps, the chemical interactions in the processes and the requirements of the entire operation enables the group to formulate water management options to optimise water consumption and reduce water costs.

**High Density Sludge**

A disadvantage of the conventional neutralisation process for acidic waste liquors using lime or limestone as a reagent is the voluminous sludge produced, particularly in the treatment of liquors of low dissolved solids loading such as acid mine drainage (AMD). The high density sludge process differs from conventional treatment in that part of the waste sludge is recycled back to the start of the treatment process. ANSTO Minerals has developed processes that enhance the impact of sludge recycle. The application of such processes can dramatically improve waste density and disposal costs relating to the waste solids and reduce the overall water usage in the process.

**Removal of Toxic Elements**

The group has extensive experience in the treatment of wastes that contain toxic elements and radioactivity. Our techniques have been applied to a wide range of industries including areas such as acid mine drainage, drinking and geothermal waters and liquors produced during the mining of gold, uranium and base metals.

ANSTO Minerals specialises in performing process audits, developing process flowsheets and demonstrating practical solutions from the laboratory to continuous pilot plant scale with specific expertise in:

- Removal of radioactivity from wastewater using in particular, flocculation-coagulation, ion exchange, membrane and evaporation technologies
- The application of high-density sludge recycle systems to processing environments
- Advanced technologies to remove arsenic from wastewaters and contaminated soils and generate stable, solid waste forms for disposal