ANSTO is the leading process development facility in Australia for expertise in the leaching and processing of uranium ores. It has carried out studies at all of Australia’s operating sites and undertaken development work at nearly all other deposits.

One notable success has been the development (with Interox Chemicals) of Caro’s Acid, a non-polluting oxidant alternative to manganese dioxide, which operated very successfully at the Narbalek mill for five years. The use of Caro’s Acid is one of the few innovations in uranium processing in the last 15 years.

The process evolved through batch and continuous testwork at ANSTO to plant trials at Nabarlek and emphasises that site work and plant operations continue to be a significant factor in transferring the results of our laboratory research to industry.

Past projects range from the optimization of processing conditions to minimizing the environmental impact of uranium processing and include but are not limited to:

- Development of models to describe the leaching of uranium and gangue minerals and allow prediction of optimum leaching conditions
- Development and demonstration of processes for the treatment of process and run-off waters for eventual discharge to the environment
- Laboratory and column studies to assess the amenability of a wide range of ores to heap and vat leaching techniques
- Construction and operation of a 15 kg/h pilot plant to demonstrate the feasibility of a direct precipitation process for the recovery of uranium
- Development of processes for the recovery of uranium from lateritic ores, including application of RIP
- Development of a novel SX process to recover uranium from liquors containing high chloride concentrations
- Development and demonstration of an improved neutralisation process for the treatment of acidic waste liquors
- Assessment and optimisation of uranium leaching circuits

ANSTO Minerals personnel have acted as consultants in uranium processing to the International Atomic Energy Commission for over 20 years.