



ARAFURA RESOURCES LIMITED (ASX : ARU)

Rare Earths Recovery Testwork by ANSTO

SULPHURIC ACID DIGEST PROCESS DELIVERS 90% RARE EARTHS RECOVERY

NOLANS RARE EARTH / PHOSPHATE / URANIUM PROJECT
NORTHERN TERRITORY: ARU 100%

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Highlights

- Hydrometallurgical test work results in a rare earths recovery of 90% in a sulphuric acid circuit.
- The overall recovery of rare earths from the resource to a rare earths concentrate averages 83%.
- Further work into the separation of rare earths products will be undertaken.
- Test work will commence into the solvent extraction recovery of uranium.
- Planning for the pilot plant phase is well advanced.
- The pre-feasibility work for the estimation of capital and operating costs is nearing completion.

Perth based specialty mineral resources company, Arafura Resources Ltd (ASX:ARU) today announced the successful results of rare earths test work into processing ore from the company's Nolans Project.

Located in the Northern Territory 135 kilometres northwest of Alice Springs, Nolans is a unique deposit with major characteristics in size and grade of rare earth elements and phosphate, with significant credits of uranium. Arafura has been exploring the prospect since discovering it in 1999.

In 2005 Arafura engaged the services of the Australian Nuclear Science and Technology Organisation (ANSTO) based at Lucas Heights, NSW to investigate the processing routes that would enable the commercialisation of the Nolans deposit.

The test work has defined a hydrometallurgical process from a sulphuric acid digest resulting in a rare earths recovery of 90%.

Managing Director Alistair Stephens said "These results are outstanding. We are consistently making solid progress in defining a large resource with multiple revenue streams from rare earths, phosphoric acid, uranium and calcium chloride. Based on the information Arafura has on other deposits, the rare earths recovery is higher than any other reported resource, and demonstrates that quality is the best factor in any measure".

Rare Earths Recovery

The hydrometallurgical test work at ANSTO has defined a process flow sheet for:

1. **Pre-leach process.** The process separates phosphate-rich minerals from rare earth-rich minerals in a leaching condition that delivers the phosphate in a form that achieves commercial extraction of high quality phosphoric acid.
2. **Rare Earths in the Phosphoric Circuit.** The neutralisation stage in the phosphoric acid circuit returns rare earths into the rare earth circuit. The recovery from this process is about 90% of rare earths (and other metals).
3. **Rare Earths Circuit.** The process then concentrates rare earths minerals into a single circuit (at a grade of +10%) that allows a selective chemical process for the optimum extraction of rare earths.
4. **Rare Earths Acid Bake Recovery.** A sulphuric acid "baking" process delivers a rare earth recovery of about 90%.
5. **Total Rare Earths Recovery.** The overall recovery of rare earths from the resource grade to a rare earths concentrate averages 83%. Therefore 26 kilograms of rare earths oxide (REO) is recovered from every 1 tonne of resource that contains on average 31 kilograms of rare earths oxide.

Alternative test work based on a caustic cracking process (the conventional “monazite” process) resulted in recoveries of 70% to 75%. These are acceptable for the rare earth industry but not as optimal as the sulphuric acid bake has proven to be for the Nolans mineralisation.

Phosphate Recovery.

The successful recovery of high purity phosphoric acid undertaken by Bateman Litwin, Israel has been previously reported at 80% to a high purity fertiliser grade product. Bateman also defined the process for the production of commercially saleable calcium chloride product from the residue of the phosphate process (ARU:ASX announcement 14 March 2007).

Beneficiation.

The Company recently published results (ARU:ASX announcement 18 July 2007) of gravity separation (or heavy media separation). This process results in the rejection of 30% of the rock mass for 95% recovery of rare earths and phosphate minerals. This has a significant benefit in optimising mineral resource recovery and minimising downstream costs of transport and processing.

The process flow sheet now includes a rare earth recovery from gravity separation of 95%. The overall recovery of rare earths from the resources to a rare earths concentrate of about 83%.

The Resource.

The Nolans deposit contains a JORC code compliant resource containing 577,000 tonnes of rare earths oxide. The resource estimate was announced in November 2005 (ASX:ARU 21 Nov 2005). Since then the Company has undertaken more drilling that has identified additional mineralisation that has not yet been classified as resource as the drilling spacing is too broad.

In 2007, the Company is planning to undertake additional drilling to convert this mineralisation to JORC code compliant resources. The program will also look to explore for mineralisation in the north and east of the resource that is still open along strike.

Mineralisation is exposed at surface and requires no mining pre-strip.

Further Work

The ANSTO test program is continuing with the objectives now set for the recovery of uranium and the separation of the rare earths products.

The pilot plant scale assessment for the pre-leach and phosphoric acid stages is scheduled to commence within the next six months.

The pre-feasibility estimates for capital and operating costs for this plant design are well progressed. The Company is awaiting the outcome from the study manager and will release these results as soon as they become available.

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