

# Newcastle Demonstration Plant Progress

November 2005  
Update



# An Integrated ERMS SR Demonstration Plant

- A large scale test facility is critical to demonstrate our technologies
- The capacity of the plant must be large enough to minimise the scale-up risk for a commercial ERMS SR plant
- The plant will operate for sufficient time to provide engineering design parameters for the feasibility study

# Pilot Plant History

In 1997, Austpac moved its equipment from Newcastle University into an existing process tower on Kooragang Island

- The **ERMS** & **LTR** roasting, **ERMS SR** & **EARS** acid regeneration technologies all evolved here and have been trialled throughout 1998-2004
- However, the former pilot plant was not integrated and had limited capacity

Old Pilot Plant



# The New Demonstration Plant

We are constructing a fully integrated ERMS SR facility to produce high grade SR at a rate of at least 1,500 tpa, including:

- Ilmenite roasters – up to 400 kg/h capacity
- Continuous leach vessel – up to 400 kg/h feed
- Filter/wash/calcine – up to 200 kg/h ERMS SR product
- Acid regeneration – 900 L/h 25% HCl and 150 kg/h iron pellets

We are also considering increasing the capacity to 3,000 tpa of SR

# Our Objective

- The Demonstration Plant will confirm process parameters for final engineering design
- This is an essential precursor to the detailed feasibility study for a commercial ERMS SR plant
- We aim to have a scale-up factor to a commercial plant of  $\sim 20:1$ , so the technology risk is low

**Ilmenite Roasters**

**Filter**

**Continuous Leach**

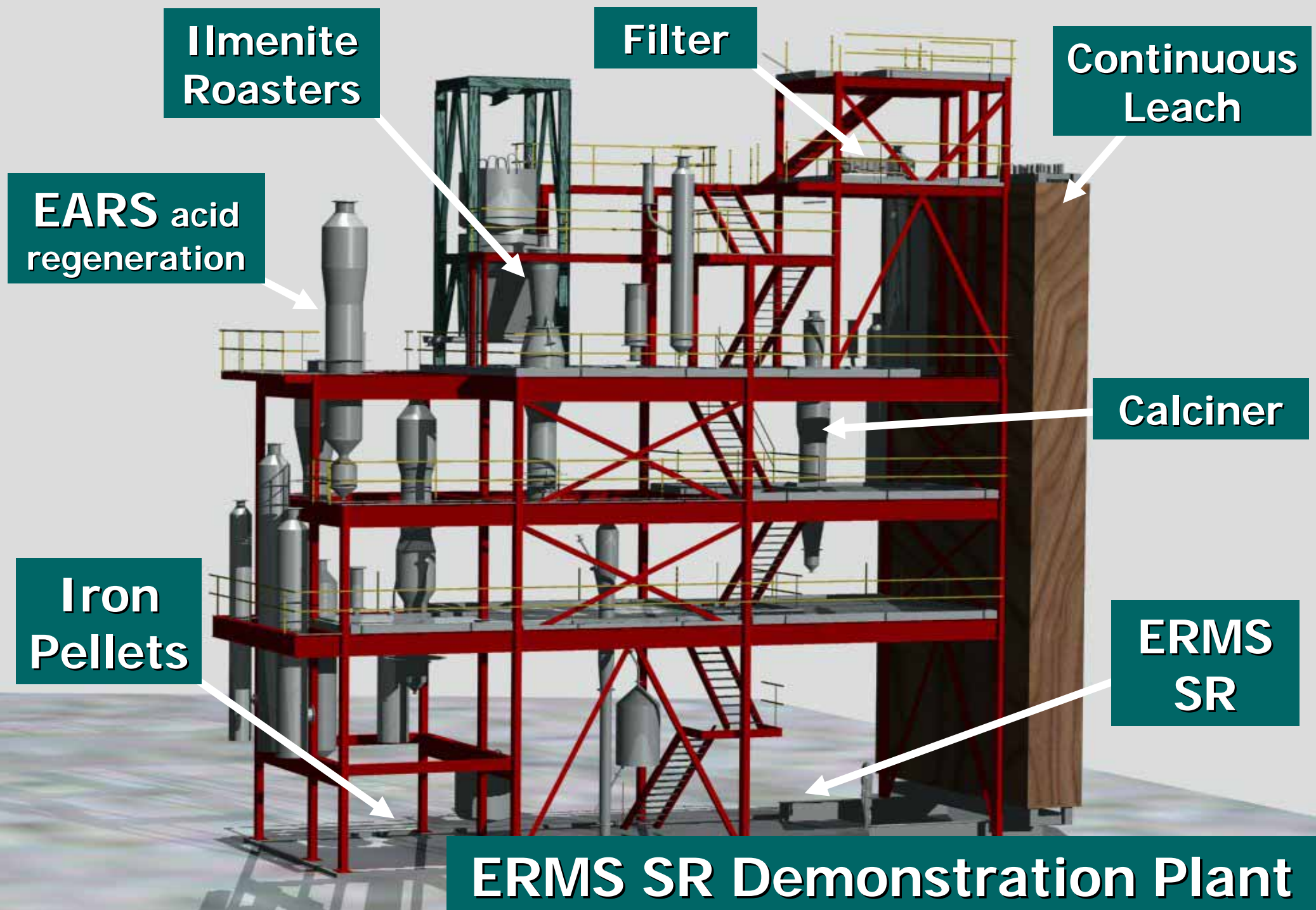
**EARS acid regeneration**

**Calciner**

**Iron Pellets**

**ERMS SR**

**ERMS SR Demonstration Plant**



Refurbishment commenced November 2004



Equipment Removal

December 2004



**Process Tower  
Refurbishment**



**Oxidation  
Roaster**



**Pre-heater**



**Installation of Roasters**



**Pre-heater;  
installed**



**Oxidation  
Roaster;  
installed**

# Reduction Roaster; installed





**Two-stage  
Anaerobic  
Cooler;  
installed**



# Construction of Raw Materials Hoist Enclosure

# Placement of Raw Materials Feed Bins and Enclosure



# Raw Materials Feed Bins





# Progress to November

Raw Materials Feed Bins and Enclosure

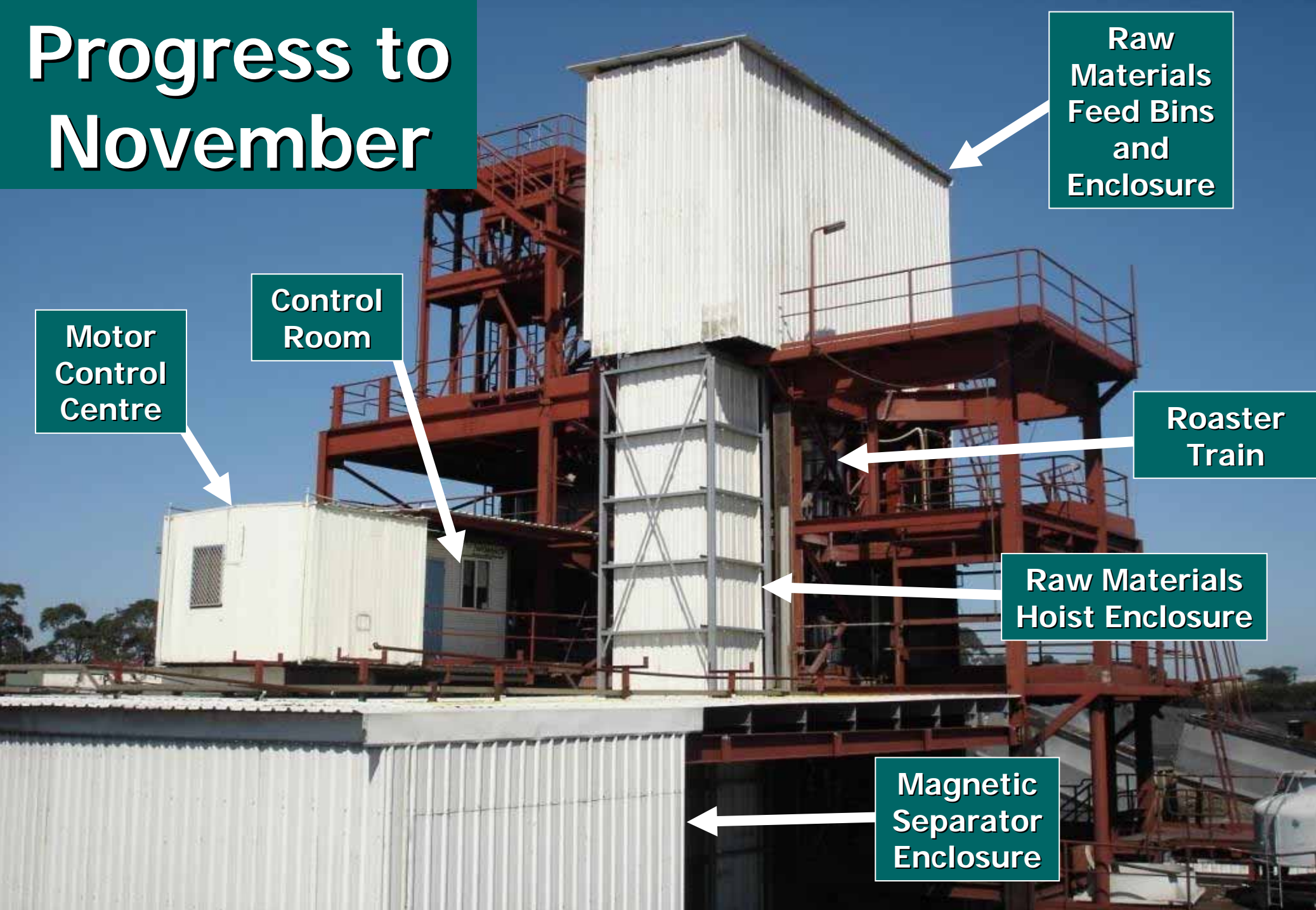
Control Room

Motor Control Centre

Roaster Train

Raw Materials Hoist Enclosure

Magnetic Separator Enclosure





# View from Western Side of Plant (November 2005)

# Upgrade Progress (November 2005)

ITEM	ACTIVITY	COMPLETE
Process Tower	Obsolete equipment removed, painting completed, structural modifications essentially complete	99%
Ilmenite Roasters	Preheater, oxidation & reduction roasters, two-stage anaerobic cooler, afterburner and solids transfer systems installed	100%
Continuous Leach Reactor	Fluid flow modelling complete, design complete, detailed package for tender in preparation	20%
Filter and Calciner	Filter sourced, calciner designed and awaiting quotation	20%
EARS Section	Mass & energy balance complete, roasters designed, gas absorption system ready for fabrication, pump section complete	20%
Ancillary Equipment and Services	Services building & magnetic separation building complete, control rooms installed, electrical design & wiring instrumentation diagrams complete, materials handling system under construction	35%



**The Objective:  
a commercial  
ERMS SR Plant**

# END OF UPDATE

