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Exploration Progress Report - Year Ending
30/6/2001 - RL 3/1996
Encore Metals NL*
Anon RL3/1996

ENCORE METALS NL

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EXPLORATION PROGRESS REPORT YEAR ENDED 30 JUNE 2001

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TASMELT PROJECT

EXPLORATION PROGRESS REPORT

YEAR ENDED JUNE 30TH 2001

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REGIONAL SMELTER CONCEPT

- Encore owned 450,000 tonne zinc, silver and lead bearing Zeehan slags dumps to serve as a platform upon which to establish a regional boutique smelter on the West Coast of Tasmania. (The Zeehan slags contain in excess of A\$100 million of recoverable metals).
- Facility would recover saleable zinc and tin products from the processing of a variety of in-situ and stockpiled zinc and tin bearing mineral resources that individually do not warrant the building of conventional facilities.

INITIAL PROPOSAL

- To establish a Sirosmelt high intensity submerged lance zinc fumer to produce saleable concentrates from alternating feeds sourced from Zeehan slags and Renison Bell tailings.
- Renison Bell materials withdrawn when Murchison United NL decided to examine tailings opportunity itself in addition to other overall value-adding opportunities.

PREDEFINITION STUDY COMPLETED

- Using own funds and State/Commonwealth grant (\$20,000 of \$100,000 study grant drawn down to date) completed an \$86,000 Predefinition Study with the aim of technically and financially positioning Zeehan slags and providing benchmark for other potential feeds, specifically Renison Bell tailings.
- With loss of Renison bell tailings extended study to examine plasma arc furnace alternative.

- Treating only the Zeehan slags at the rate of 100,000tpa, the Sirosmelt and Plasma Arc Furnace options examined both generated positive net cash flows (EBITDA) of \$15.7 million and \$41.0 million respectively (zinc price of US\$1150 per tonne). However, amortising the entire capital costs of \$23.5 million and \$56.4 million respectively rendered both options unprofitable.
- The possibility of moving to Zeehan the 60,000tpa Radio Hill Sirosmelt plant at Karratha, Western Australia, was also evaluated as was siting all plant options at Burnie. The outcome was a significantly reduced EBITDA due to the higher unit operating costs.
- For both pyro-metallurgical options, the capital costs were considerably in excess of initial indications. There would appear to be little room to reduce capital for the Sirosmelt option but there is some scope to do so with the PAF option that was almost double initial expectations.

(The cash flow from the Sirosmelt option is less than half that from the PAF. This is because the PAF is coupled with a splash condenser, which potentially produces metal pure enough for direct sale to the LME. Sirosmelt only produces a zinc oxide fume that the refiners consider to be a 'problematic concentrate' and for which they will only pay a net 50% to 55% of its contained metal value).

ADDITIONAL FEEDS

- A number of potential additional feeds into the project (Mt. Bishoff, Queen Hill, Luina etc) were identified, examined in the field and evaluated in a separate memorandum to the PPS as an inventory.
- Considerable capital and operating (mining, concentration and transport) costs would have to be invested up front for each resource to produce sufficient concentrates to maintain the planned 100,000tpa throughput. This reflects the significant difference in the tenor of the slags (ie 13.6% zinc) and tin materials (ie 0.3% tin) and suggests that it will not be commercially practical to alternate slag and tin concentrate feeds into the same smelter.

CURRENT ACTIVITIES

Pyro-Metallurgical Options

1. Continuing to examine the PAF route with a view to reducing capital costs.
2. Monitoring early stage work by the CSIRO – G K Williams Cooperative Research Centre for Extractive Metallurgy that is investigating the production of zinc metal using an electric arc furnace coupled with a fluid bed condenser.

Hydrometallurgical Options

1. Have discussed with Electrometals NL the application of its proprietary SX-EW technology for the recovery of copper and cobalt, which it believes, can be extended to the recovery of zinc.

The slags would be directly leached and zinc recovered as a high value zinc powder for which almost full value for the contained zinc would be paid. Test work required to identify an applicable leachate other than proposed sulphuric acid which would be prohibitively expensive delivered to Zeehan site.

2. Have discussed with Titan Resources NL its proprietary bio-leaching technology with a view to using bacteria to produce acid on site through bacterial leaching of a locally sourced sulphide feed i.e. pyritic ore, Comstock concentrate.
3. Western Metals NL undertook bench scale testwork to determine if slag could be blended with a concentrate it intends to produce from its 50 million tonne Hellyer tailings. It will then pressure leach this in an autoclave to ultimately recover zinc, gold and other metals. WML confirmed that the Zeehan slag is readily leachable in 'spent' sulphuric acid but that the large amount of silica present would potentially cause solid-liquid separation problems in its proposed circuit. WML has concluded that the Zeehan slags are a potential blend but that other materials it has secured (Risdon residues) currently rank above the slags in priority.
4. Spanish group Technidas Reunidas SA believes that it can produce zinc metal using proprietary technology (MZP – Modified Zincex Process) originally developed and successfully commercialised for zinc oxide ores. It has proposed a US\$50,000 test work and pre-feasibility study.

Cement Replacement

- Recently completed tests to determine if slag can be used as a mine stope back-fill binder (to replace cement). Slag is unsuitable as-is but slag residue from fumer likely to be.

SUMMARY

Prevailing zinc price (<US\$830 per tonne) discourages progress of remaining options but low cost project advance will continue. Sustainable recovery in zinc price would justify progress of MZP proposal. Otherwise, best options are as feed into Hellyer or combining with a possible Comstock concentrate if sufficient sulphide reserves can be defined.