

Turning residues into resources

By Dave Sammut, Corporate Development Manager, Intec Ltd

The year 2007 will be remembered as a milestone period for Intec Ltd. The restarting of the idled Intec Hellyer Mill and the first shipment of bulk zinc concentrate on January 30 2007 from the Port of Burnie marked the transition of Intec from a promising junior with a technology focus to a base metal producer with positive cash flows.

Intec is also the developer and owner of the patented Intec Process technology, a halide-based hydrometallurgical method for recovering base and precious metals from a variety of feedstocks. The technology has been applied at the demonstration plant scale to zinc, copper and polymetallic feedstocks, with pilot plant experience of the Intec Gold Process and laboratory-scale work on nickel sulfides and nickel laterites.

SUCCESSFUL STRATEGY

Intec listed on the ASX in May 2002 and in February 2006 on the Deutsche Boerse. Since 2002, Intec's strategy has been to acquire interests in 'stranded' projects where the Intec Process can be applied in order to add significant value.

The acquisition of the Hellyer assets from the receivers of Western Metals has proved to be an excellent application of this strategy. Purchased in 2004 for A\$1.25m, the Intec Hellyer Mill has recently been revalued at A\$20m.

The contained metal value of the 55ha tailings dam has risen to over A\$3bn on the back of the intervening surge in metal prices, and additional assets such as the associated exploration

tenements already having recouped their purchase price several times over.

THE HELLYER ZINC CONCENTRATE PROJECT

The Hellyer Zinc Concentrate Project is a 50/50 joint venture with Polymetals, a Brisbane-based private mining group. The joint venture agreement provides for the regrinding and flotation of tailings from the 11Mt Hellyer tailings dam to produce a bulk zinc concentrate.

In order for Polymetals to earn its 50 per cent interest, it was required to spend A\$6 million to bring the project into production. At the completion of the treatment of 6Mt, Intec will acquire Polymetals 50 per cent joint venture interest for A\$1.

Refurbishment of the Intec Hellyer Mill commenced in June 2006 and commissioning was completed by December 2006, making the HZCP the only new producer of zinc in Australia in 2006.

The tailings are recovered by dredge and pumped as a slurry to the Intec Hellyer Mill. The pyritic tailings are re-ground in a ball mill, from 45 to 30 micron, then floated to form a rougher concentrate. This is further ground to 15 micron in a tower mill before being passed to the cleaner concentrate circuit to produce a final bulk zinc concentrate grading 38-43 per cent Zn, 6-9 per cent Pb and 200-220g/t Ag.

At the base-case throughput rate of 1.5Mtpa of tailings, the HZCP will produce approximately 63,000tpa of bulk zinc concentrate.

The project is expected to produce significant cash profits for the joint venture partners, with Intec's share of the project EBITDA (earnings before interest, taxation, depreciation and amortisation) expected to be over A\$20m per annum at a zinc price of US\$1.75/lb.

The Hellyer Zinc Concentrate Project also contains a number of growth options:

- Increase in tailings throughput to 2.0Mtpa;
- Toll-treatment of ore supplied by regional producers; and
- Blending of beneficiated zinc-bearing residues with bulk zinc concentrate.

BASS METALS AND OTHER REGIONAL ORE PRODUCERS

The flexibility of the Intec Hellyer Mill gives the joint venture the opportunity to increase the tailings throughput, or alternately to incorporate ore from other nearby regional producers.

BASS METALS

Intec enjoys a strong relationship with Bass Metals as its major shareholder (~23.5 per cent), which will become increasingly

Below: **The Intec Hellyer Mill**



important as Bass Metals' continued exploration in the minerals-rich region around the Mount Read volcanics belt starts to yield results.

OTHER REGIONAL PRODUCERS

Intec has also entered into discussions with other potential regional producers in Tasmania's northwest regarding the milling of their ores on an ongoing basis, meaning that the Intec Hellyer Mill will stand alongside Rosebery and Mt Lyell as a major strategic asset for the continued success of the Tasmanian minerals industry.

THE INTEC PROCESS – FROM RESIDUES TO RESOURCES

Going forward, Intec's greatest value lies in the upcoming commercial application of its patented Intec Process technology. This is a halide-based hydrometallurgical technique for extracting and recovering base and precious metals from a range of metal-bearing feedstocks.

The Intec Process is ideally suited to add value to resources that, typically by reason of complex metallurgy, are difficult to treat by conventional technologies.

ELECTRIC ARC FURNACE DUST

One such material is Electric Arc Furnace Dust (EAFD), a waste from the recycling of galvanised steel. Of negative value to the steel recyclers, this material contains appreciable quantities of zinc (averaging ~25-30 per cent), which is extracted and recovered at 98-99 per cent efficiency by the Intec Process.

In July 2006, Intec acquired a 20,500 tonne stockpile of EAFD from Smorgon Steel in Victoria, receiving a payment of A\$100/t for the treatment and a deferred payment of a further A\$100/t for the transport to Hellyer, where Intec plans to build the Intec Hellyer Residues Project by the end of 2008.

On an annual basis, Australia and New Zealand produce

approximately 30,000 tonnes of EAFD from four scrap iron recycling operations, and this is only a tiny fraction of the 3-5 Mtpa produced globally, of which it has been estimated up to half is directly disposed of to landfill.

As such, EAFD represents a significant ongoing opportunity for recovery of zinc via the Intec Process, and particularly for diverting metal from disposal back into global supply.

LOW-GRADE LEAD SULPHIDE

Metallurgical testwork has shown that a second, lead sulphide concentrate can be separated from the conventional operations at the Intec Hellyer Mill. At 15-20 per cent Pb, this is too low-grade for international sale, but represents an excellent feedstock for the Intec Process.

This exemplifies the ability of the Intec Process to unlock value that is unavailable to conventional technologies.

The additional recovery would represent over 11,000tpa of contained lead (currently trading at historic record prices), offering significant additional revenues to Intec while at the same time significantly reducing the amount of heavy metals returning to the tailings dam after reprocessing.

ZEEHAN RESIDUE STOCKPILE

Intec also acquired in 2006 the 460,000 tonne historic stockpile of lead smelter residues at Zeehan, approximately 80 km to the southwest of the planned Hellyer Residues Project.

Grading approximately 19 per cent zinc equivalent, these residues are particularly well suited to co-treatment with EAFD.

OTHER METALLIFEROUS RESIDUE FEEDSTOCKS

Given the flexibility of the Intec Process to varying feedstocks, Intec is also examining the possibility of accepting other metal-bearing wastes and residues. The company has been approached by both the Tasmanian and Victorian

Below: Adam Randall, Maintenance Manager at Intec's Burnie demonstration plant facility





environmental authorities about the prospect of offering solutions to a number of complex waste problems.

DEMONSTRATION PLANT

The company has already proven the Intec Zinc Process at its demonstration plant in Burnie, achieving steady state operation with high zinc extraction from a combination of Hellyer tailings (2.8 per cent Zn) and EAFD (~25 per cent Zn).

The Burnie demonstration plant is currently being reconfigured to treat alternate residue feedstocks (EAFD and lead sulphide from the HZCP) to generate design data for a commercial residue treatment project to produce zinc chemicals.

INTEC HELLYER RESIDUES PROJECT

Applying the experience gained at the demonstration plant level, the next stage in the commercialisation of the Intec Process will be the construction of a full-scale hydrometallurgical plant at the Hellyer project site.

The Intec Hellyer Residues Project represents a major milestone in the history of Intec, as the first commercial application of the Intec Process technology. The IHRP is scheduled for construction in 2008, for operation in 2009.

The project will treat up to 25,000tpa of EAFD (typically grading 30-40 per cent Zn, 1-2 per cent Pb, and ~100g/t Ag), as well as 56,000tpa of low-grade lead sulphide and possibly also recycling the metal from a variety of wastes from Tasmanian and Victorian manufacturers.

The Hellyer Residues Project will offer substantial synergies by operating alongside the conventional Intec Hellyer Mill on the same site. By producing high-grade ZnS (~65 per cent Zn) and PbS (~82 per cent Pb) products, the IHRP products could be used to upgrade the bulk zinc concentrate from the mill, enhancing the product saleability for long-term operations.

INTERNATIONAL EXPRESSIONS OF INTEREST

In addition to pursuing the strategy of acquiring and developing its own projects, Intec is regularly approached with

international expressions of interest about the use of the Intec Process technology for resources around the world.

Mr Philip Wood recently outlined three separate projects for which Intec had submitted engineering proposals for feasibility studies.

Located in Russia, Bolivia and Iran, these projects could see the Intec Zinc Process applied at 40,000 to 100,000tpa commercial scale.

Of course, it is early days yet. Such projects would be several years off, but these or comparable opportunities do represent an excellent longer term prospect for the widespread application of the Intec Process to the global minerals processing industry.

SUMMARY

Intec has now taken the important step to become a cash-positive minerals production company via the Hellyer Zinc Concentrate Project joint venture – a move welcomed by the company's long-standing shareholders.

Even greater value can now be envisioned through the application of the commercially-ready Intec Process technology to challenging metalliferous resources.

The development of the Hellyer Residues Project at Intec's brownfield site in Tasmania will represent the next significant milestone in the evolution of this extremely promising hydrometallurgical processing technology.

Above: The dredge on the Intec Hellyer tailings dam

“Comparable opportunities represent excellent prospects for the application of the Intec Process”