



Solutions for Angas Mine

Angas Mine exceeds all production start-up expectations by using the latest technology in Ceramec filters, which is drying higher than expected grades of zinc and lead concentrate.

In the face of the 2008/09 credit crunch, Angas mine in South Australia (SA) is outperforming its metal recovery targets and expected mining grades for a projected 400,000 tonnes per annum of concentrate for the life of mine. Full production capacity for the new lead-zinc mine was brought forward by six months to January 2009.

Aided by a lean start-up and lower consumable costs for grinding, milling reagents, diesel, as well as lower costs for smelting and shipping, the mine's site operating cash costs for 2009 have now been revised downwards, despite a weaker Australian dollar.

The Angas zinc mine is one of Terramin Australia Pty Ltd's base metal projects selected for its high grade

ore, proximity to infrastructure such as ports, roads, water and power, and potential for expansion. Sempra Metals and Concentrates Corporation holds a life-of-mine offtake for Angas's concentrate, forecasted to be 60,000 tonnes per annum for zinc and 22,000 tonnes per annum for lead

Challenges for Dewatering

In its first year of life, the low-cost mine with a resource of 2.4 million tonnes and situated only 60 kilometres (i.e. 45 minutes) from Adelaide, has produced nearly 23,000 tonnes of high-grade lead and zinc concentrate by the end of its second quarter.

The transporting of lead and zinc concentrate commenced shortly after the mine's commissioning on 18 July 2008. Lead concentrate is being trucked to Port Pirie's smelter while zinc concentrate is delivered to Port Adelaide before shipping to Korea.

Stringent mine and rehabilitation plan conditions for Angas mine are helping to reduce the potential of any impact on a nearby local development Strathalbyn. Noise levels cannot exceed 47 dB by day or 40 dB by night. Groundwater contamination is minimised by the containment of processing waste in a state-of-the-art tailings storage facility, valued at AU\$7.5M with double-lined high density polyethylene (HDPE) and sized for mine expansion.

Dewatering with Ceramec

The South Australian Centre for Economic Studies predicts that Angas's initial seven-year mine life, with its 64 site-based roles and future expansion possibilities, will boost the local economy by \$29M per annum.

The mine's remarkable start-up performance far exceeds expectations and is due in part, to an advanced filtering and drying system for the two concentrates, supplied and serviced by Larox Corporation. Angas's installation of two Ceramec- filters, fed by two Larox peristaltic roller-compressing pumps, is proving to be an excellent dewatering investment.

While sized for expansion and variable production rates, the two Ceramec filter systems use capillary action within ceramic disks to dewater the lead and zinc concentrates. The extracted filtrates are very high in clarity while the dried filter cakes meet required transport moisture limits (TMLs) for their ore grades.

Larox Pumps in Operation

The Larox feed pumps employ a single, bearing-mounted roller design that compresses each hose once during a 360° operating cycle. This feature reduces the hose compressions required by 50% when compared to traditional peristaltic pumps that use two sliding shoes.

After slurry thickening, the Larox pumps feed the relatively coarse lead (P80, 50µm) and zinc (P80, 71µm) concentrates into their respective filtering system. Here concentrates coat the ceramic disk segments during immersion into slurry baths and dewatering starts immediately via capillary action. Extracted filtrate passes through microporous holes in each disk before being transferred away by a small 2.2 kW vacuum pump. The dried filter cake that remains is continuously scraped off as the disks rotate.

Ceramec Capillary Action Disc Filter

Larox has undertaken extensive work to develop its Ceramec filters as top performers in the global mineral, metallurgical and mining markets.

Now the latest Ceramec filter, with new ultrasonic positioning between the disks, is being utilised by Angas at rates of 75% to 90% over a 24-hour period, depending on the ore grade being received.

Angas's general manager John Burgess initially planned to install Larox pressure filters instead of Ceramec filters after he experienced optimisation issues with an earlier version of Ceramec filters at Broken Hill in 1985. Once convinced by extensive tests and other site successes that the latest Ceramec filter would be ideal for Angas, John Burgess installed a Ceramec disc filter model CC30 (i.e. 30 m² filter area) for the zinc and model CC6/15 (i.e. 6 m² filter area; expandable to 15 m²) for the lead.

Maximizing Benefits

When lead grades rose higher than expected soon after installation, Larox suggested to Angas a filter upgrade from the CC6/15 to a CC9/15 would provide the greatest economical expansion benefit. The extra disk, now installed, is providing Angas with a 30% increase in filtration capacity, allowing for the handling of higher lead when the ore grade is high. As a result of this upgrade, the lead filter can capably handle higher lead head grade and increase production while still producing filter cake under the required TML.

Burgess reports he is "pleasantly surprised" at the ongoing performance of his dewatering system. "It's a good mine that is professionally set out and producing on its investment because things are done right". So much so in fact, that the Algerian government is interested in what Angas mine is doing for Terramin's development of its large Tala Hamza zinc deposit in Algeria.

- MINIMAL MAINTENANCE & HIGH AVAILABILITY
- LOW PROCESS COST
- ENVIRONMENTALLY SAFE
- CONTINUOUS OPERATION



John Burgess,
General Manager Angas Mine



The Angas Mine one the Terramin Australia Pty Ltd's base metal projects is equipped with Larox Ceramec CC30 filters, which are used for zink dewareing.

Performance for Life

The many benefits of using Ceramec filters and Larox peristaltic pumps are being realized at Angas mine as well as other sites. The benefits include a plug-and-play design, no downtime is required for maintaining filter disks, only once-a-month maintenance checks are needed for filter ultrasonics and seals, routine filter backwashing is automatic and takes only half an hour per shift, feed pump hose leaks can be easily detected, revolution counters can record pump hose life (thereby reducing unscheduled stoppages) and processing noise levels can be kept to a minimum.

Larox is providing Angas with full customer support from its new SA service office for filter and pump after-market service agreements. Larox was quick in replacing a defective generator unit in the ultrasonics of one of the filters while it was still under warranty and actively responds to any performance queries with its customers directly.

Larox Service Team

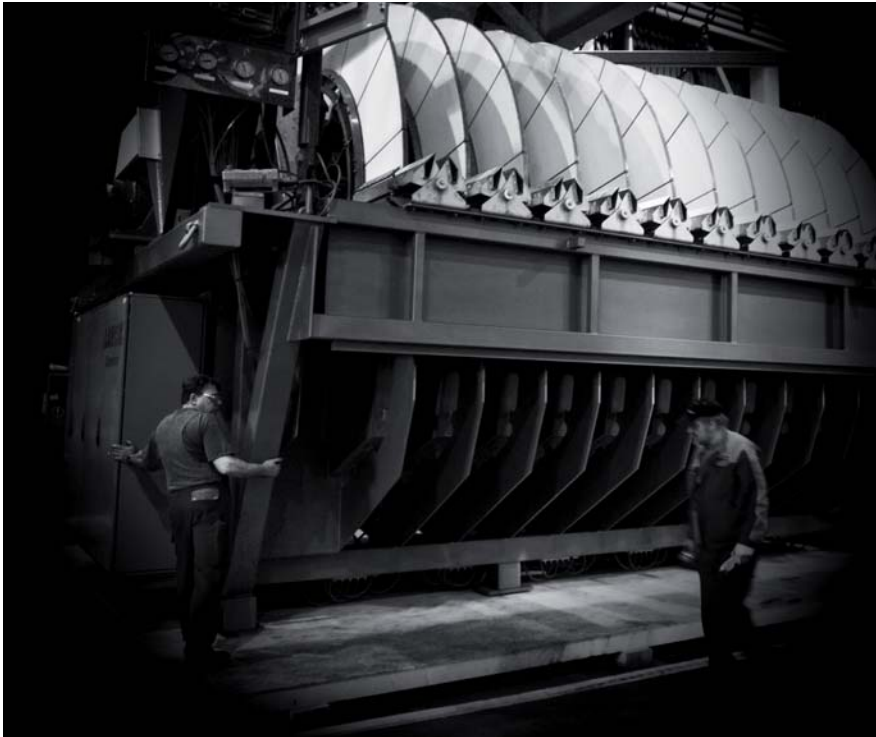
Since Larox's acquisition of Ceramec, Hoesch, Pannevis and Scanmec filter brands in 2004, Larox is well positioned as a global 'one stop, multi-filter shop'. Larox's products and services available include an array of filter products, spare parts, after-market technical services, maintenance services and upgrade solutions.

During the past couple of years Larox has developed its organization from two offices in Sydney and Perth to a network of seven offices that are located near to its Customers around in Australia. Mining boom helped to justified the investment as there were plenty of work around, but now in the down turn of the economy, the network has proven to be extremely beneficial for both Larox and its Customers.

The Larox's Australian service team has grown in the last 12 months from 6 persons to 28 persons. Larox now has service offices in Kalgoorlie, Perth, Tasmania and Adelaide and this national distribution will help reduce the lead times on spare parts.



- MAXIMUM AVAILABILITY
- MINIMUM OPERATING COSTS
- OPTIMUM PROCESS RESULTS



YOUR SINGLE SOURCE
BUSINESS PARTNER
FOR:

- SOLID-LIQUID SEPARATION EXPERTISE
- PROCESS FILTERS & FILTRATION SOLUTIONS
- AFTER-MARKET SERVICES

Larox Corporation

Larox Corporation, the parent company of the Larox Group, is headquartered in Lappeenranta, Finland. Larox Corporation's B share is listed on the Nasdaq OMX Helsinki Ltd.

The Larox Group consists of several subsidiaries worldwide. The number of employees in the Group in 2008 was approximately 562.

For further information about Larox's service and equipment packages and how they could suit your site's needs, please contact suggest inserting Larox Australia details to replace Larox's Australian subsidiary office representative, John Durie, on john.durie@larox.com. or visit Larox's website www.larox.com

Larox Pty. Ltd.

Unit 1/28 Smith Street
2067 Chatswood NSW
Tel +61 (02) 9910 6412
allan.wilson@larox.com

Larox Pty. WA Office

Larox Pty. W.A. Office
Suite 8, 176 Main St.
6017 Osborne Park WA
Tel +61 (8) 9207 1966
patrick.jay@larox.com

Larox Pty Ltd. Northern Territories Queensland

433 Logan Road, Stone Corner
4120 QLD
Tel +61 7 3394 8423
harry.stone@larox.com

Larox Pty Ltd., South Australia, Tasmania and Victoria

P.O.Box 7167, Upper Fern Tree Gully
7156 Victoria
Tel +61 (3) 9758 4417
john.durie@larox.com



*John Durie,
Larox Area Sales Manager*

Larox Corporation
P.O. Box 29
FI-53101 Lappeenranta
Finland
Phone +358 20 768 7200
Fax +358 20 768 7277
E-mail info@larox.com
www.larox.com

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