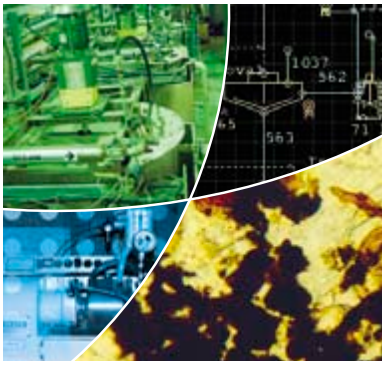
hrltesting

News at hrltesting

October 2009



number 3

Welcome to hrltesting issue 3

Welcome to this third **hrl**testing newsletter. It's been a year since the previous issue and a lot has happened since then. Like everyone else in the industry things turned down towards the end of 2008 and the beginning of 2009 and work orders were a bit lower.

At **hrl**testing we used this slower period to review some of our test work protocols and safety systems. However no sooner had we finished that, we were awarded a major project which has had us running at full capacity ever since. Over the last quarter we have seen the outlook firm further to the extent that we have increased our office areas and laboratory footprints and recruited additional staff.

In this context I'm very pleased to introduce two new additions to our project management team (see adjacent introductions). Brett and Oliver bring with them a wealth of experience over a diverse range of ore processing technologies. Now more than ever our clients expect a high level of service which is right first time. Having the right mix of talent and experience ensures our ability to keep delivering cost effective laboratory solutions to you (our clients).

Chris Casingena, General Manager

Process Engineering and Test Work

One of the key strengths of the **hrl**testing group is its ability to provide clients with a flowsheet development program that quickly incorporates process modelling, process engineering along with test work outcomes.

Our philosophy is to tap into our experienced personnel before initial tests are designed and to rapidly evaluate test matrices and an evolving flowsheet to eliminate test work and flowsheets that clearly do not add value to a client's project.

The process engineering team supports our Albion Process test work offering but also general process flowsheet development for our varied clients. The team also completes process engineering work for clients in support of the major engineering houses (such as Aker Solutions and Bechtel recently) and conducts process engineering reviews for owner's teams.

Alkaline Sulphide Leaching

During the last six months **hrl**testing has been investing a lot of time and effort in developing a new hydrometallurgical treatment route for base and precious metal ore concentrates which are also high in arsenic. This has extended to the development of novel analytical methods for evaluation of the treatment methods and environmental compliance of treatment products. While there's still some way to go yet, progress has been very good. At this stage it is envisaged that this work will be ongoing for several months with a pilot plant study currently scheduled for Q1 of 2010.

hrltesting introductions

Brett Kay
Project Manager – Gold Hydrometallurgy

Brett is a metallurgy graduate from Murdoch University in Western Australia. Brett brings with him plant operational experience having held the positions of Senior Metallurgist at Lihir, Fosterville and Osborne Mines and more recently as Process Engineer at Yarwun Alumina refinery.

Oliver Kloiber-Deane
Process Engineer – Albion Process

We are pleased to announce the appointment of Oliver Kloiber-Deane as process engineer for the Albion Process projects. Having held positions of process engineer with GRD Minproc and Western Minerals Technology, Oliver brings with him a wealth of experience in the areas of POX, HPAL, SX and EW.

Arsenic pentasulphide production test work

Analytical Services

The main focus of the hrltesting assay laboratory activities over the last year was on extending the range of analytical services on offer with particular reference to sulphur speciation analysis of complex refractory concentrates and leach liquors. During the year we also made some progress in developing an alternative method to fire assay for the analysis of gold content. Results so far are mixed with very high accuracy and precision levels achieved at low grades (<10ppm) but falling accuracy at high grade. Moving forward these activities are likely to remain key objectives for the analytical services department for the short to medium term.

Albion Process

Not surprisingly most of the Albion Process test work carried out over the last twelve months has been in relation to processing of refractory gold concentrates. While the work carried out has essentially been of a preliminary nature this has covered a wide range of Albion Process targets in terms of both geography and client mix. During the last six months an extensive equipment upgrade was undertaken to improve capacity and accuracy of the testing protocol. The upgrade included installation of PID controllers, data loggers and pulp density control sensors to adequately monitor and maintain prescribed operating conditions and for all levels of testing. Moving forward, a number of quotations for pilot scale testing of some of the targets have been submitted and two of these have tentatively been scheduled for a start up during Q1 of 2010.

Flotation Pilot Plant

A pilot scale flotation campaign was carried out during the last quarter of the 2009 financial year. The primary objective of the campaign was production of large sample of sulphide concentrate for a bacterial leaching amenability study. A key condition of the project was that of meeting a tight schedule for bench scale float optimization test work ahead of the pilot and actual production of the concentrate to tight grade and recovery criteria. These conditions were all met to client's satisfaction. Another pilot scale bulk sulphide concentrate production run is currently pencilled in for Q1 of 2010.

Miscellaneous

Some significant bench scale projects carried out over the last 12 months included the following;

- An extensive heap leaching amenability study for a copper deposit in North West Queensland. The study included numerous column leach tests, solvent extraction testing and geotechnical evaluation of test products.
- Testing of rare earth oxide concentrates for recovery of rare earth metals via sulphation roasting, leaching and solvent extraction.
- Beneficiation and leaching of phosphate ores for the production of phosphoric acid and superphosphate.

Mineralogical Services

John Knights continues to provide our clients with cost effective, timely mineralogical services and has recently been working on samples relating to a copper/gold porphyry, refractory gold and copper/cobalt project.

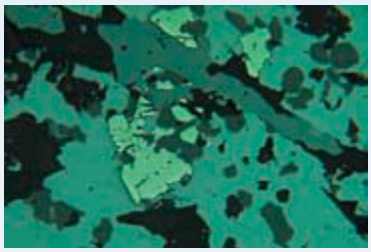
Come and join us at stand 54 at Mining 2009 **in Brisbane**

Varian ICP for assaying

Albion Process pilot plant

Knelson concentrator for gravity test work

Solution purification pilot plant



Ag/Pb/Zn ore comprising a silver vein of friebergite (Ag,Cu)10(Fe,Zn)2(Sb,As)4S13 (light grey) penetrating and traversing a matrix of galena cemented (medium grey) pyrite, granular sphalerite (dark grey) and interstitial carbonate gangue (black).

Average width of silver vein=25µm.

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