

“Bringing You The World’s Best”

Kalassay Group

Perth - Kalgoorlie - Leonora



KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

Cyanide Leach Assay

The C.L.A.S.S. System

Cyanide

Leach

And

Solvent

Separation



KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

C.L.A.S.S. System Applications

- **Gold at ppm level**
- **Total Gold Analysis**
- **Exploration Samples**
- **Grade Control**
- **Indicative Leachability**



KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

C.L.A.S.S. System Process

Sample Receipt & LIMS Capture

Sample Preparation

Sub-sampling & Catch-weigh

Cyanide solution generation

Agitation & Dissolution

Settling

Sampling of liquor

Solvent Extraction

Atomic Absorption Spectroscopy

Optional Fire Assay of residual solids



KALASSAY GROUP

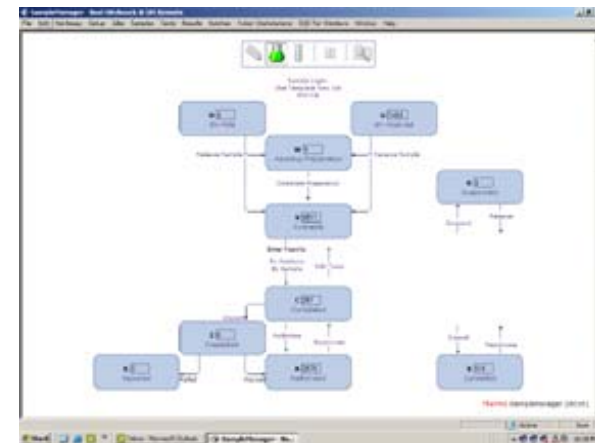
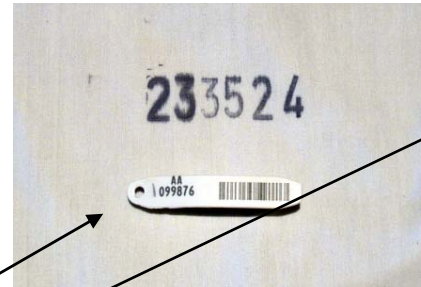
Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

Sample Receipt

- Sample received and matched to submission documents
- Sample entered into computerised Laboratory Information Management System (LIMS)
- Uniquely numbered barcode tag applied to sample.
- Tag number linked to original sample number





KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

Sample Preparation - Pulverising

Samples are logged in using Barcodes at each pulverising station

This records all details client, job number, sample number, operator, date, time

Samples pulverised and homogenised in LM5 Ring Mills

Minimum grind specification

= >90% passing 75um Test Screen
(Check screening protocols applied)



Sub-Sample taken for analysis

Residual material retained





KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

Sample Preparation - Pulverising

Samples are logged in using Barcodes at each pulverising station

This records all details client, job number, sample number, operator, date, time

Samples pulverised and homogenised in LM5 Ring Mills

Minimum grind specification

= >90% passing 75um Test Screen
(Check screening protocols applied)



Sub-Sample taken for analysis

Residual material retained





KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

Sample Preparation - Cleaning

Kalassay use high-capacity vacuum cleaning systems for cleaning sample preparation equipment

This has several advantages over compressed air cleaning:

- **No dust is pushed into the atmosphere**
 - Reduced sample contamination
 - Reduced pollution
 - Safer working environment
- **Dust is collected and contained**
 - Reduced sample contamination
 - Safer handling of dangerous samples
 - Reduced pollution
 - Safer working environment
- **Elimination of compressed air guns**
 - Safer working environment





KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

Sample Preparation - Cleaning

Kalassay use high-capacity vacuum cleaning systems for cleaning sample preparation equipment

This has several advantages over compressed air cleaning:

- **No dust is pushed into the atmosphere**
 - Reduced sample contamination
 - Reduced pollution
 - Safer working environment
- **Dust is collected and contained**
 - Reduced sample contamination
 - Safer handling of dangerous samples
 - Reduced pollution
 - Safer working environment
- **Elimination of compressed air guns**
 - Safer working environment





KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

C.L.A.S.S. System Sub-Sampling & Catch-Weigh

- Sub-sample of 420 – 380g
or 210 – 190g
taken from pulverised material
- Sub-sample actual weight captured by catch-weigh
onto Sample Manager LIMS System
- Pulverised residual sample retained



KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

C.L.A.S.S. System Cyanide Solution

- Sample for assay loaded into sealed Agitation Vessel
- Measured volume of water injected
- Cyanide Leach tablet introduced to make up powerful solution aided by reaction accelerators



KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

C.L.A.S.S. System Tumbling



- Sample containers loaded into trays
- Trays loaded into tumbling machine
- Tumbling time is calculated to ensure extraction has completely plateaued
- Samples tumbled for set period (time on, time off recorded)





KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

C.L.A.S.S. System

- Settling



- Sample trays & containers removed from tumbling machine
- Container caps loosened to depressurise container
- Samples allowed to settle until a clear, supernatant liquid is evolved.



KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

C.L.A.S.S. System - Sampling of Liquor & Solvent



- Measured sample of supernatant liquid drawn off
- Organic solvent added to concentrate Gold in solution
- Thorough mixing to ensure precious metal capture into solvent



KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

C.L.A.S.S. System

Atomic Absorption Spectroscopy



- Solvent subjected to AAS analysis
- Results captured and collated on Sample Manager LIMS
- Results compared to known and verified standards
- Detection level 0.01ppm Au



KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

Results Reporting

- Results captured and collated on LIMS
- Results analysed by routine utilisation of control samples:
 - Duplicates** for **Reproducibility**
 - Blanks** for **Contamination**
 - Standards** for **Bias**
- Authorised data sent to client Results of analytical work are normally reported by e-mail to a list of recipients authorised by the client
- Various report formats are available, but the overwhelming favourite is **.csv** as this is readily imported into most databases
- Our Laboratory Information System (LIMS) is able to publish QA / QC data at the same time as the job results, allowing real-time data verification.
- Results are also available in hard copy on request



KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

Customer Focus

- The Kalassay Group operates solely within the mining industry, offering analytical services to mining exploration companies from all over the world
- Our future is inextricably connected to the mining industry and we participate in many industry organisations and initiatives
- Our aim is to meet and exceed our client's expectations at all times
- We tailor our service to match client needs
- We are always looking for ways to extend and improve our services

Got a challenge?

–

Come to us!

Got a problem?

–

Come to us!



KALASSAY GROUP

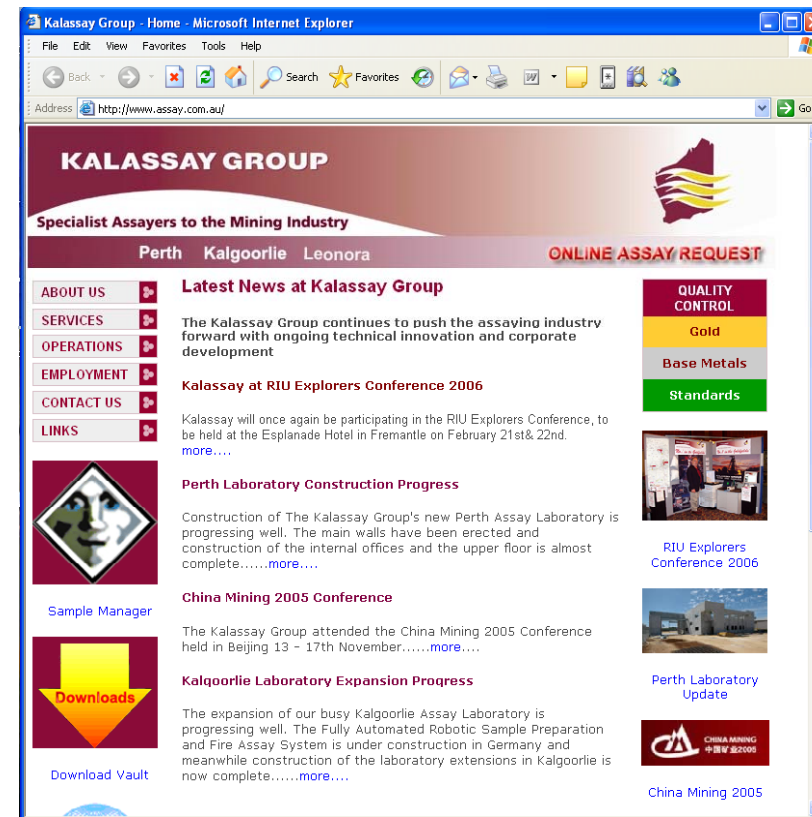
Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

Visit us.....
on the web!

- On-line Sample Submission
- Analytical Batch Information
- Useful Industry Links
- and The Latest Kalassay News !



www.assay.com.au



KALASSAY GROUP

Specialist Assayers to the Mining Industry



a member of the Inspectorate group of companies

....at your service !

Perth

Assay Laboratory

Tony White

Ph: (08) 9250 6122

Fx: (08) 9250 6133

Em: perth@assay.com.au

Kalgoorlie

Assay Laboratory

Kevin Bride

Ph: (08) 9091 7227

Fx: (08) 9091 7228

Em: kalgoorlie@assay.com.au

Leonora

Assay Laboratory

Wayne Turner

Ph: (08) 9037 6160

Fx: (08) 9037 6270

Em: leonora@assay.com.au

www.assay.com.au