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# **OZ MINERALS**

## **PROMINENT HILL**

### **ANALYST TOUR**

#### **- DAY 1**

**6 MAY 2013**

**WWW.OZMINERALS.COM**

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# PROMINENT HILL



- Very favourable mining jurisdiction.
- Excellent infrastructure including: road and rail, grid power to site and water supply.
- Export route via Adelaide. Utilising containerised land transport from mine into ships hold.
- Copper concentrates railed to Port Adelaide and exported to smelter markets in Asia and Europe.

# PROMINENT HILL SITE



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# PROMINENT HILL VILLAGE



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MAR 2012

# PROMINENT HILL PRODUCTION & GUIDANCE



## **Mine and Plant:**

Open pit and underground mine, crush, grind, flotation.

## **Workforce**

Approximately 1,500 including contractors.  
80% of OZ Minerals employees from South Australia.

OZ Minerals employees 8 days on 6 days off roster.

## **Logistics**

17 flights a week from Adelaide, nine flights a week from Port Augusta and two flights a week from Melbourne.

## **Village**

Modern village with 1,200 cabins, sports facilities.

## **Production guidance 2013:**

Contained copper 82,000t to 88,000t.

Contained gold 130,000oz to 150,000oz.

## **C1 cost guidance 2013:**

US\$1.65-US\$1.80/lb.



# PROMINENT HILL MAJOR CONTRACTING PARTNERS



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- Open Pit Operations – Thiess.
- Underground Operations – Byrnecut Mining.
- Drilling – Ausdrill (Open Pit); Boart Longyear (Underground)
- Onsite Analytical – SGS
- Concentrate Haulage – Giacci Bros.
- Village Services – Sodexo.





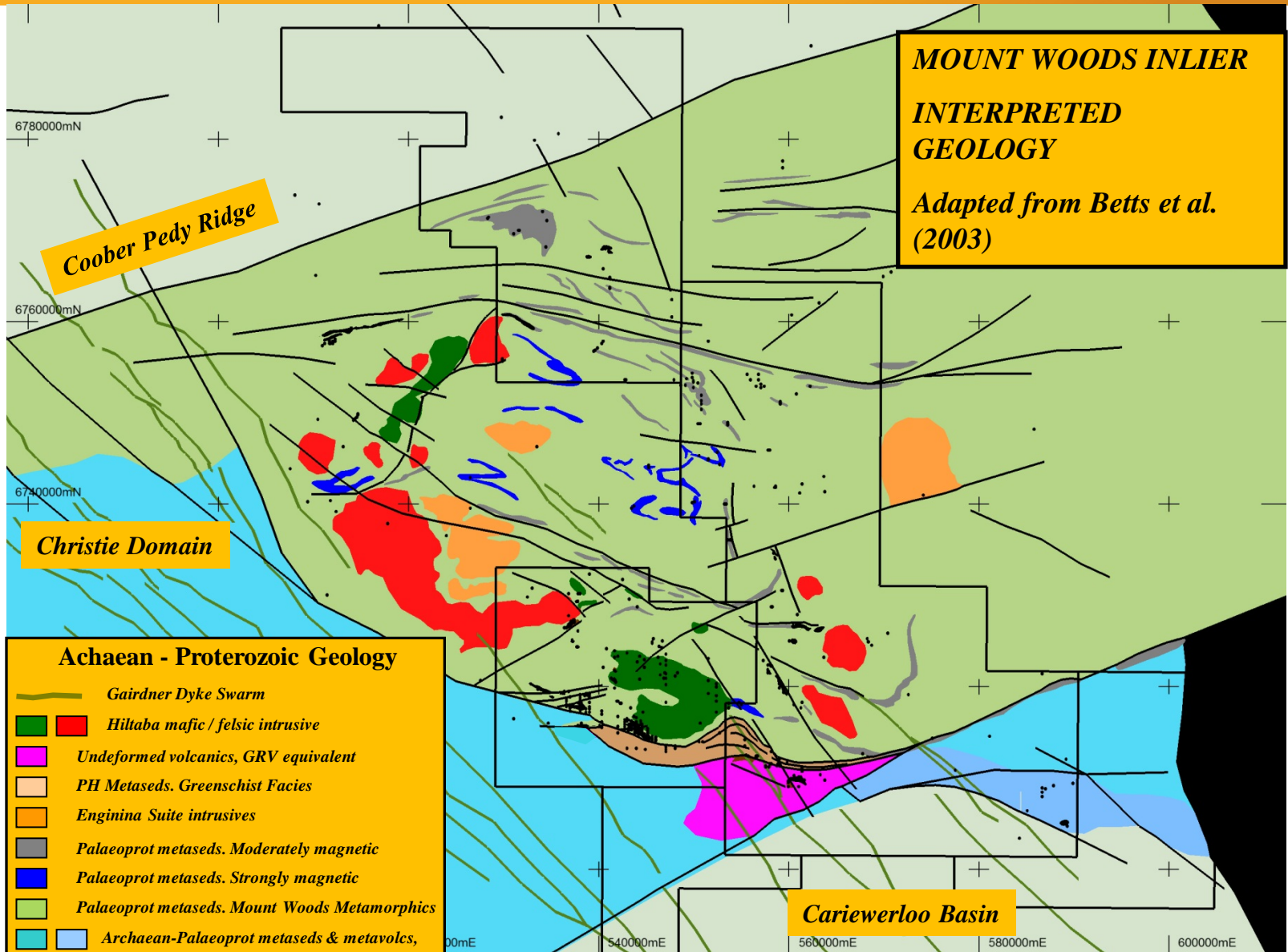
# **GEOLOGY AND RESOURCES**

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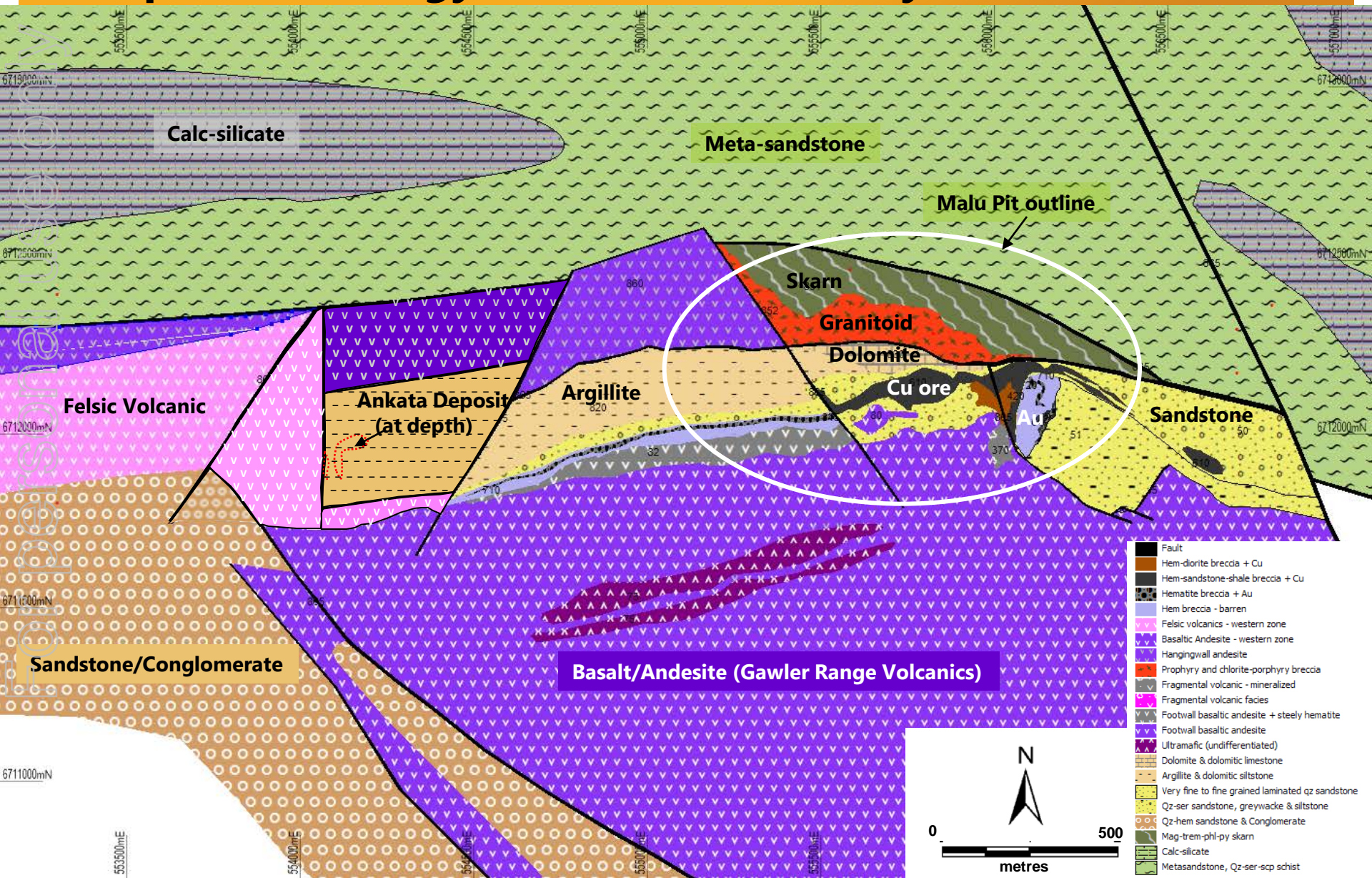
# MT WOODS INTERPRETED GEOLOGY

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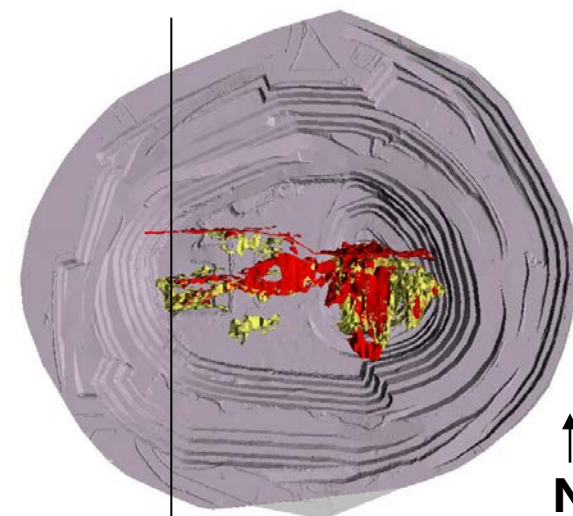
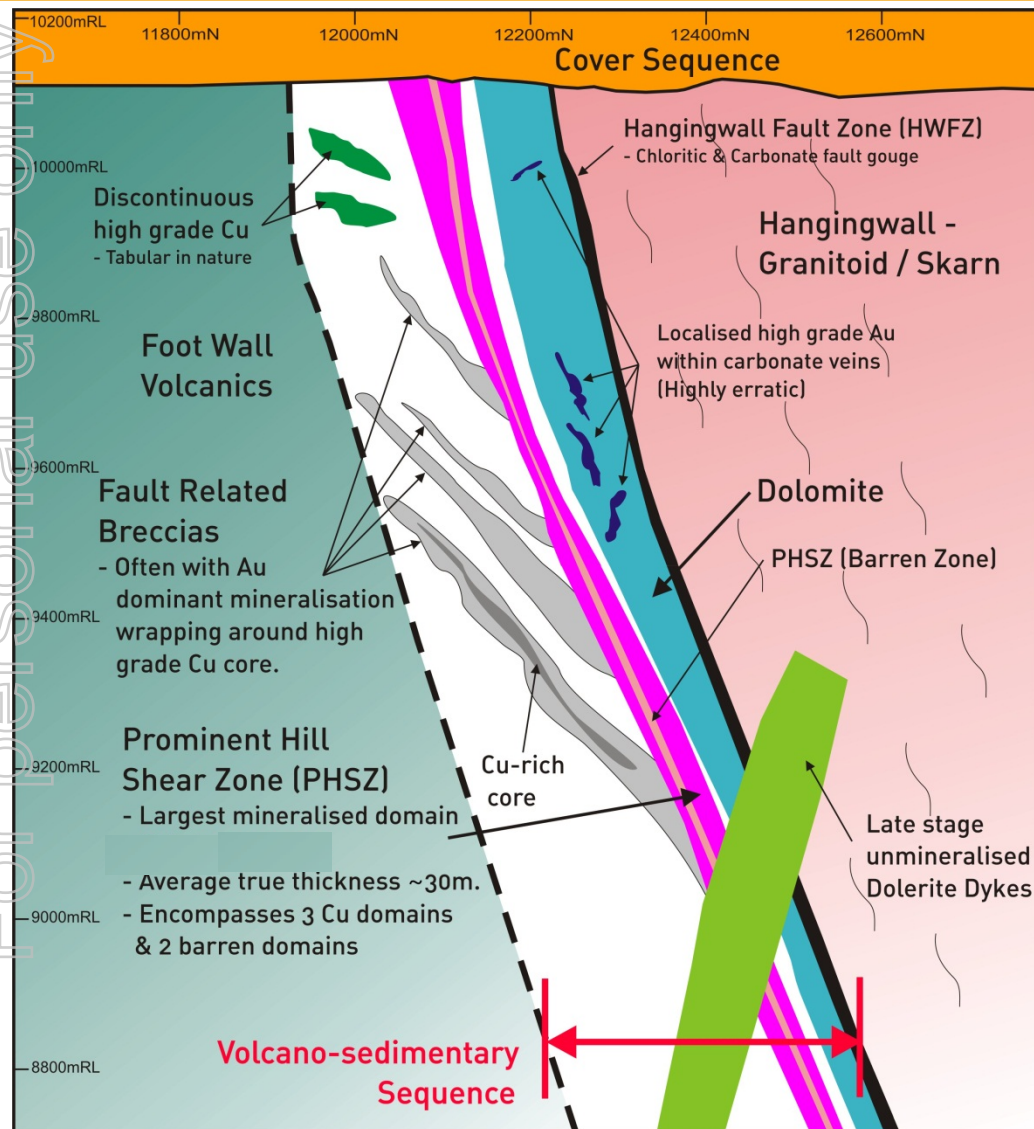


# PROMINENT HILL Interpreted Geology at the Unconformity





# CROSS SECTION 55500mE Looking West



# PROMINENT HILL Haematite Types

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"HR"

'Red rock'  
Haematite dusting  
of alkali feldspar.

Quartz diorite

"HS"

Specular haematite  
Coarse crystalline.

In vein with earthy  
haematite.

"HD"

Fine to coarse  
grained, crystalline,  
bladed.

In breccia matrix

"HE"

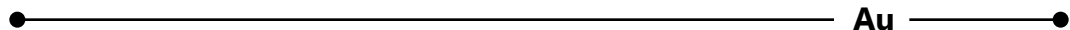
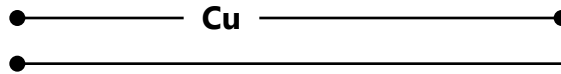
Fine grained,  
granular, 'earthy'  
haematite.

Replacing volcanic

"HG"

Ultra-fine grained  
haematite intergrown with  
cryptocrystalline silica.

'Steely haematite'



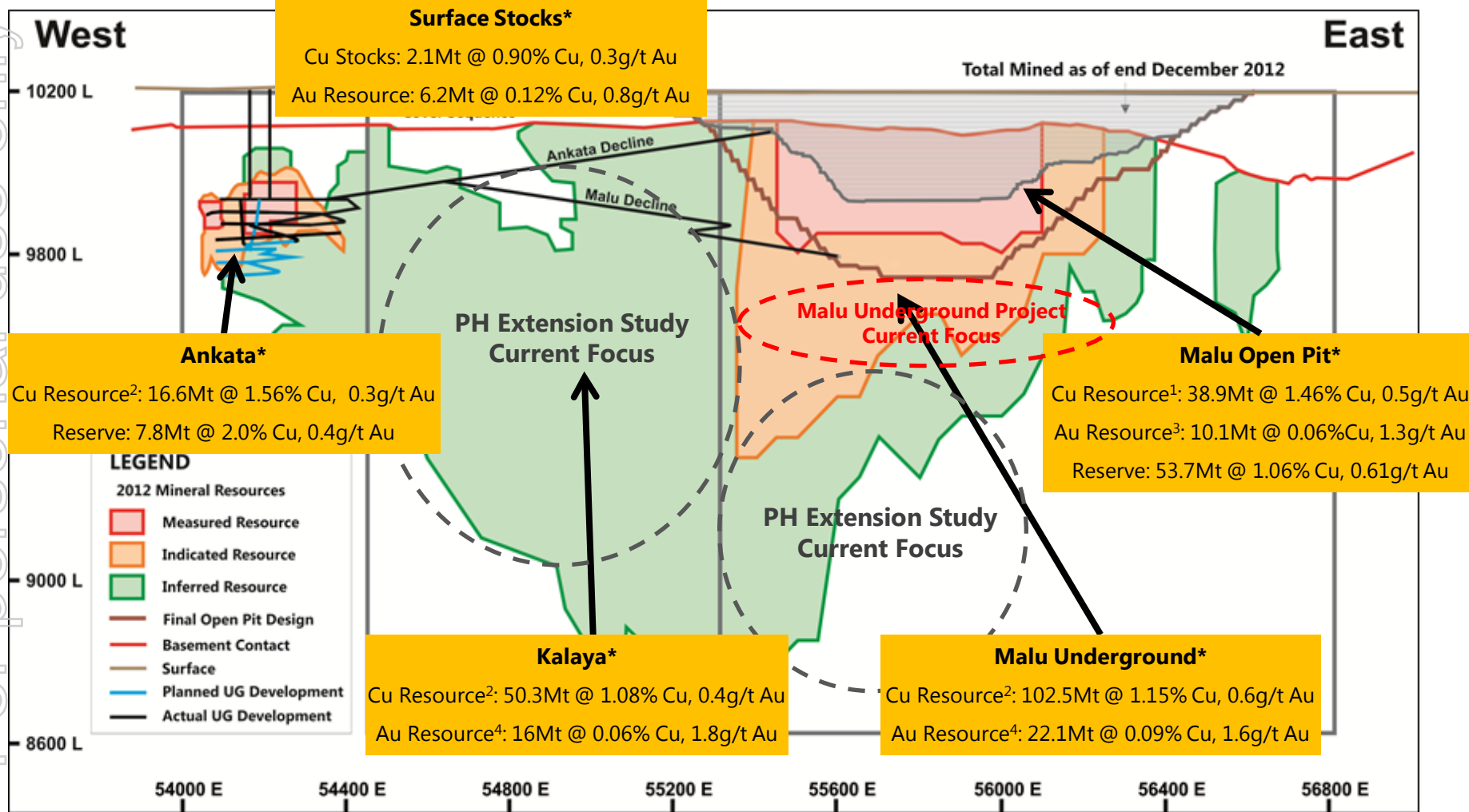


# RESOURCES & RESERVES



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# Prominent Hill Resources & Reserves as at 30 June 2012



<sup>1</sup> 0.3% Cu cut-off; <sup>2</sup> 0.5% Cu cut-off; <sup>3</sup> 0.5g/t Au cut-off Below 0.3% Cu; <sup>4</sup> 1.0g/t Au cut-off Below 0.3% Cu.

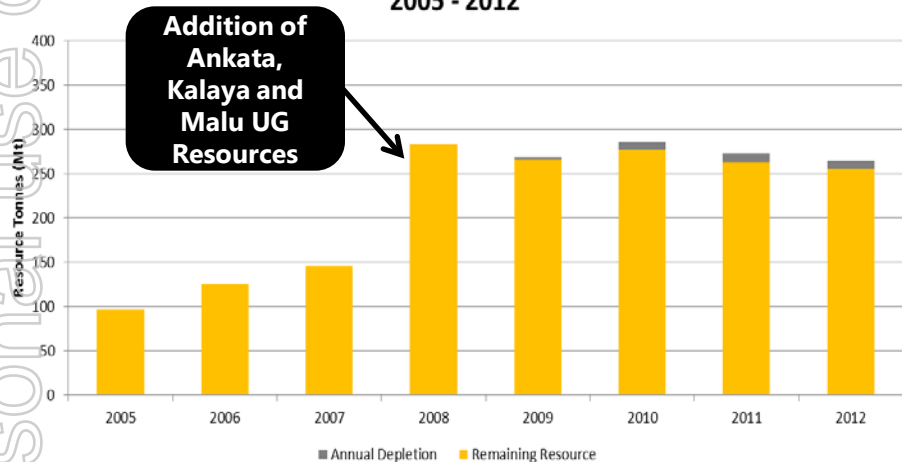
- Resource figures are based on Measured, Indicated and Inferred resource classification and Reserve figures are based on Proven and Probable classified material.
- For full details of the 2012 Prominent Hill Mineral Resources and Ore Reserves Statement go to <http://www.ozminerals.com/operations/resources--reserves.html>

# PROMINENT HILL - GROWTH IN CONTAINED METAL RESOURCE CHANGES 30 Jun 2005 – 30 Jun 2012\*



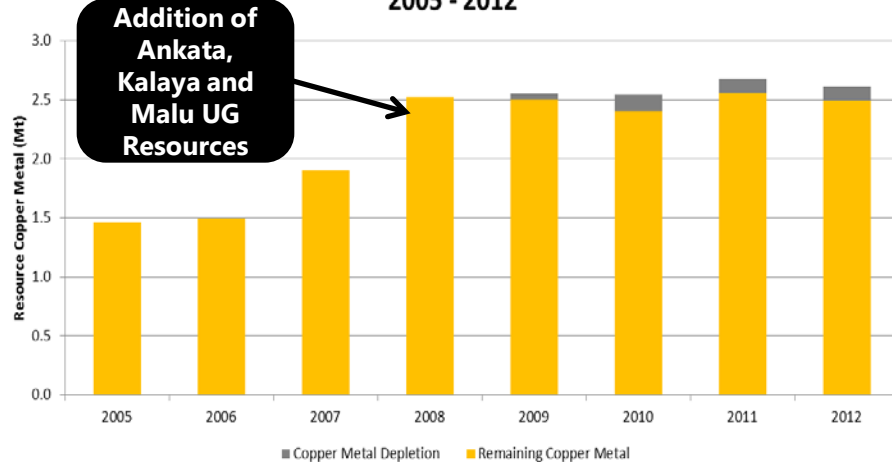
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Resource Tonnes Growth & Depletion  
2005 - 2012



Only a 6.8% reduction in resource ore tonnage since 2008.

Resource Copper Metal Growth & Depletion  
2005 - 2012



Net 92kt growth in contained Cu Metal since 2008.

\* For full details of the 2012 Prominent Hill Mineral Resources and Ore Reserves Statement go to <http://www.ozminerals.com/operations/resources--reserves.html>

## COMPETENT PERSONS STATEMENT

Within this presentation are references to a summary of information relating Prominent Hill Mineral Resources. The Prominent Hill Mineral Resources are set out in the Prominent Hill Mineral Resources and Ore Reserves Statement as at 30 June 2012. This information has been compiled by John Penhall and Andrew Loreck who are both full time employees of OZ Minerals and members of Australasian Institute of Mining and Metallurgy (AusIMM).

This information and exploration results relating to Prominent Hill has been approved for release in the form and context in which it appears by Mr Jim Hodgkison who is a full time employee of OZ Minerals and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity undertaken to qualify as a competent person as defined in the 2004 edition of the Australasian Code For Reporting Of Exploration Results, Mineral Resources and Ore Reserves.

Information in this presentation which refers to Prominent Hill Ore Reserves is a summary of information relating to Ore Reserves as set out in the Prominent Hill Mineral Resources and Ore Reserves Statement as at 30 June 2012. This information has been approved for release in the form and context in which it appears by Mr Justin Taylor who is a full time employee of OZ Minerals and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity undertaken to qualify as a competent person as defined in the 2004 edition of the Australasian Code For Reporting Of Exploration Results, Mineral Resources and Ore Reserves.

Within this presentation are references to exploration results relating to Carrapateena are based on information compiled by Mr Marcel Van Eck Msc who is a full-time employee of OZ Minerals, is a member of the Australian Institute of Geoscientists and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activities undertaken to qualify as a competent person as defined by the JORC code (2004). Mr Van Eck has consented to the inclusion of the material in the form and context in which it appears.

The information in this presentation which refers to Carrapateena Mineral Resources is based on information compiled by Stuart Masters who is a member of the Australasian Institute Of Mining And Metallurgy (AusIMM) (108430). Stuart Masters is employed by CS-2 Pty Ltd and is a consultant to OZ Minerals. He has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a competent person as defined in the 2004 edition of the Australasian Code For Reporting Of Exploration Results, Mineral Resources And Ore Reserves (JORC 2004). Stuart Masters consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. Stuart Masters Bsc (Geology), CFSG, has over 26 years of relevant experience as a geologist including 9 years in iron-oxide-copper-gold style deposits. Stuart Masters has visited site on many occasions since OZ Minerals acquired the project. All other references to exploration results within this presentation are based on information compiled by Mr Anthony Houston Bsc who is a full-time employee of OZ Minerals, a member of the Australian Institute Of Geoscientists and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activities undertaken to qualify as a competent person as defined by the JORC Code (2004). Mr Houston has consented to the inclusion of the material in the form and context in which it appears within this presentation to exploration results relating to Prominent Hill and Carrapateena.

For full details of the 2012 Prominent Hill Mineral Resources and Ore Reserves Statement and details relating to the 2012 Carrapateena Mineral Resources Statement for 2012 go to <http://www.ozminerals.com/operations/resources--reserves.html>





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# MALU OPEN PIT MINE

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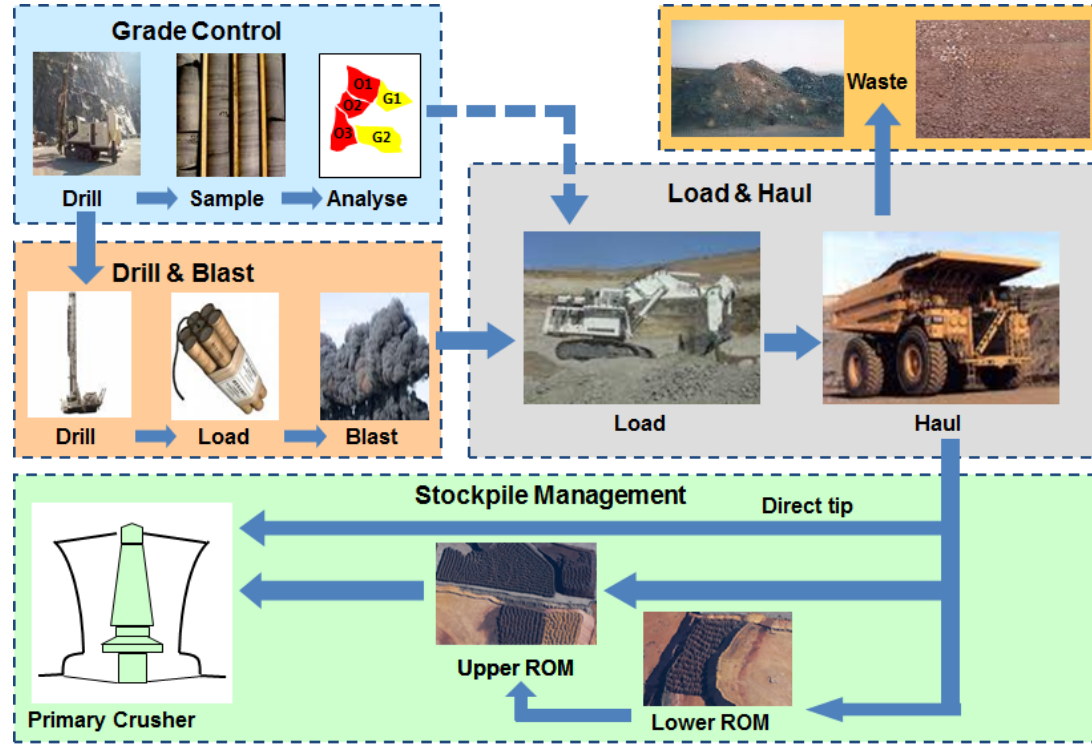
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# MAIN PRODUCTION EQUIPMENT

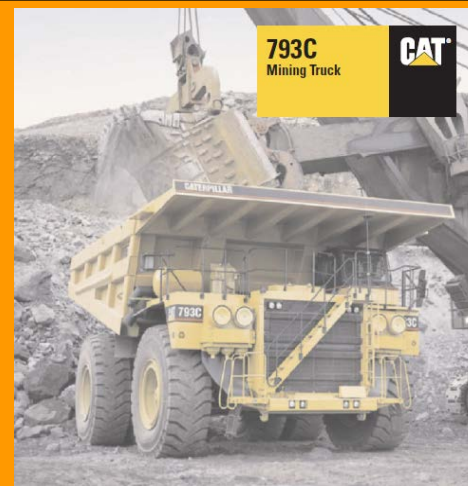
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## Liebherr 996 Excavator



**Manufacturer:** Liebherr  
**Machine Weight:** 677 tonnes  
**Engine:** 16 cylinder water cooled V-engine  
**Engine Output:** 3000HP (2240kW)  
**Fuel Capacity:** 13,000 litres  
**Shovel Capacity (Vol):** 25 – 36m<sup>3</sup>  
**Shovel Capacity (Mass):** ~50 tonnes  
**Target Production:** 1220bcm/hour (material dependent)

## CAT 793 Mining Truck



**Manufacturer:** Caterpillar  
**Machine Weight:** ~136 tonnes  
**Engine:** 16 cylinder four stroke diesel engine  
**Engine Output:** 2300HP (1750kW)  
**Tray Capacity:** 3,790 litres  
**Tray Capacity:** ~ 218+ tonnes

Source: Liebherr 996.pdf, Caterpillar 793 Technical Specifications.pdf



# PROMINENT HILL MINING FLEET MAY 2013



## Current mining fleet

- 4 x Liebherr 996 Excavators
- 1 x Liebherr 9350 Excavator
- 1 x Liebherr 9250 Excavator
- 49 x CAT 793 (240t) Trucks
- 2 x CAT 994 Loader for ROM
- 3 x CAT 785 Trucks for ROM
- 9 x D10 Dozers
- 4 x Graders
- 3 x CAT 777 Water carts
- 3 x Cubex drills
- 6 x Terex Reedrill SK Rigs
- 2 x RC Grade Control Rigs



## Mobilising equipment - May 2013

- 1 x Liebherr 996
- 5 x CAT 793
- 1 x D11 Dozers

# PROMINENT HILL – LONG SECTION

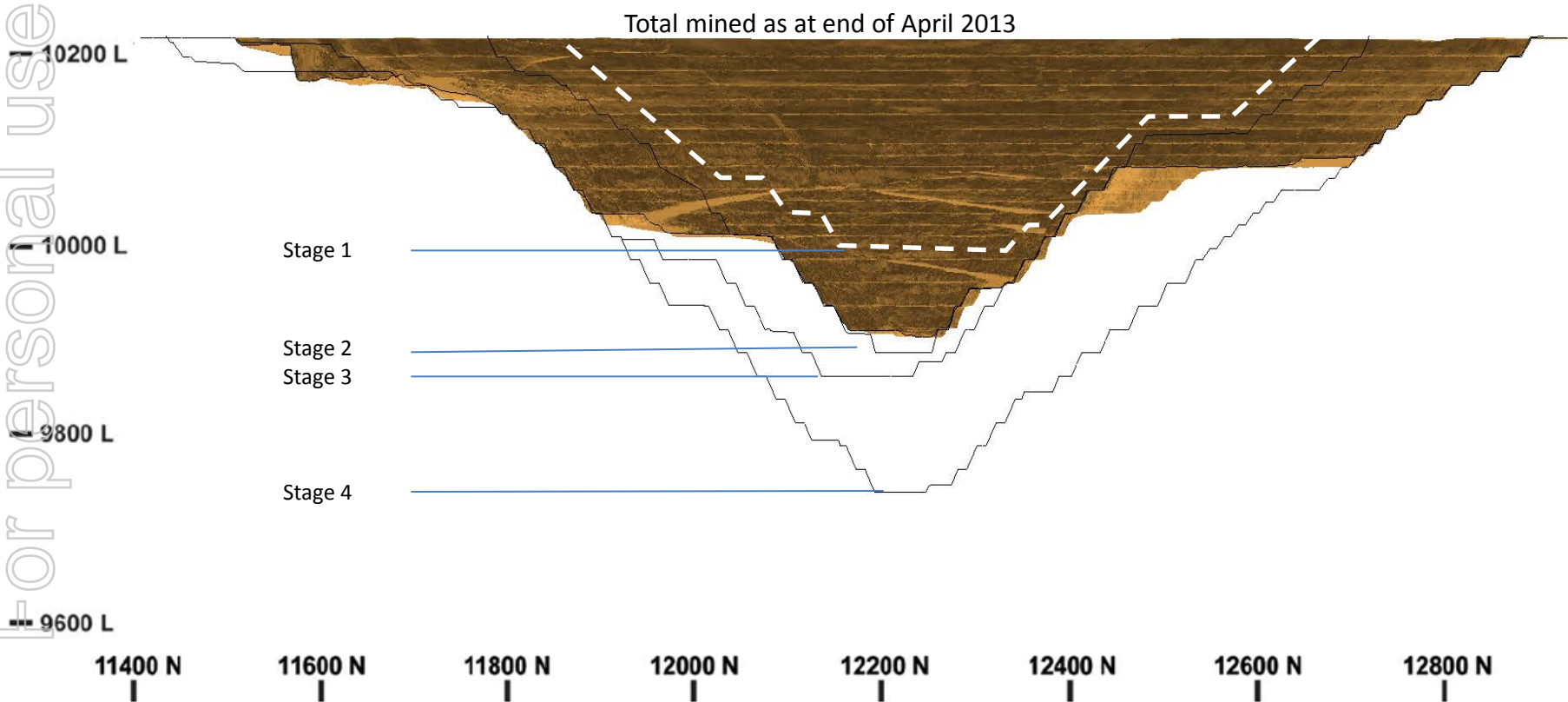
## APRIL FACE POSITION AND LOM MINING SCHEDULE



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South

North



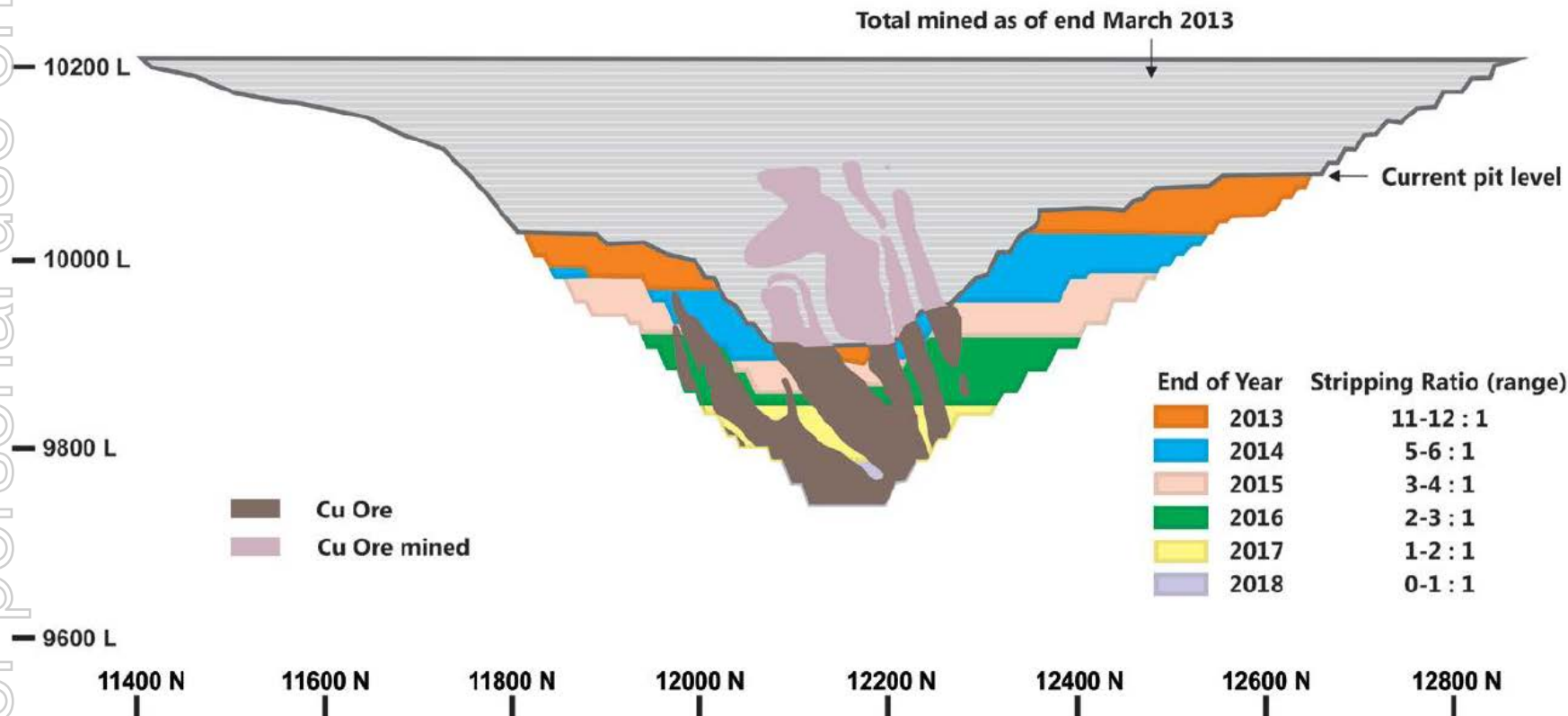
# PROMINENT HILL – FORECAST

## STRIP RATIO TO REDUCE SIGNIFICANTLY POST 2014



South

North

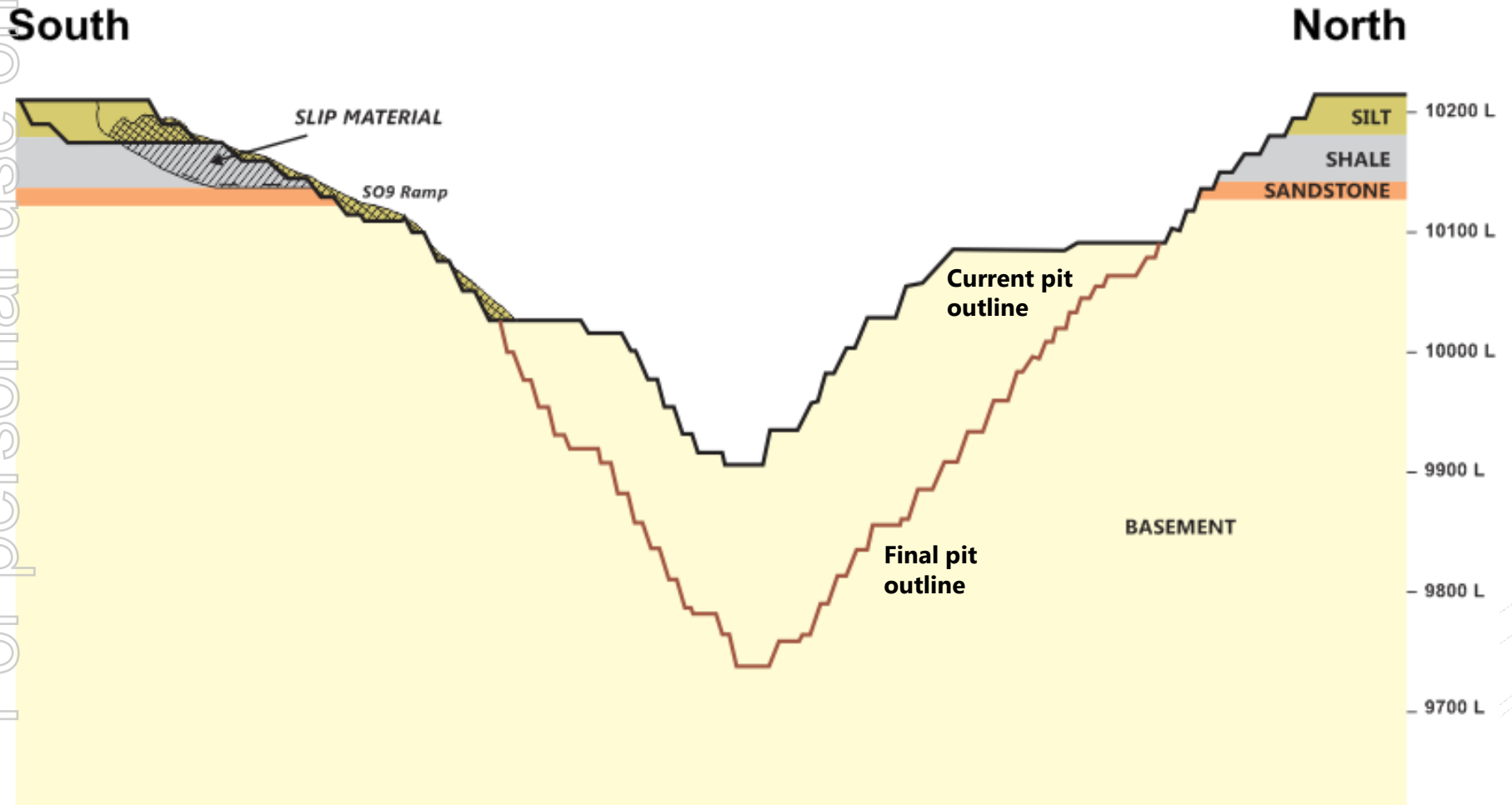


- 2013 sees significant waste movement.
- 2013 strip ratio to average between 11 – 12.
- Strip ratio forecast to decline steadily thereafter.



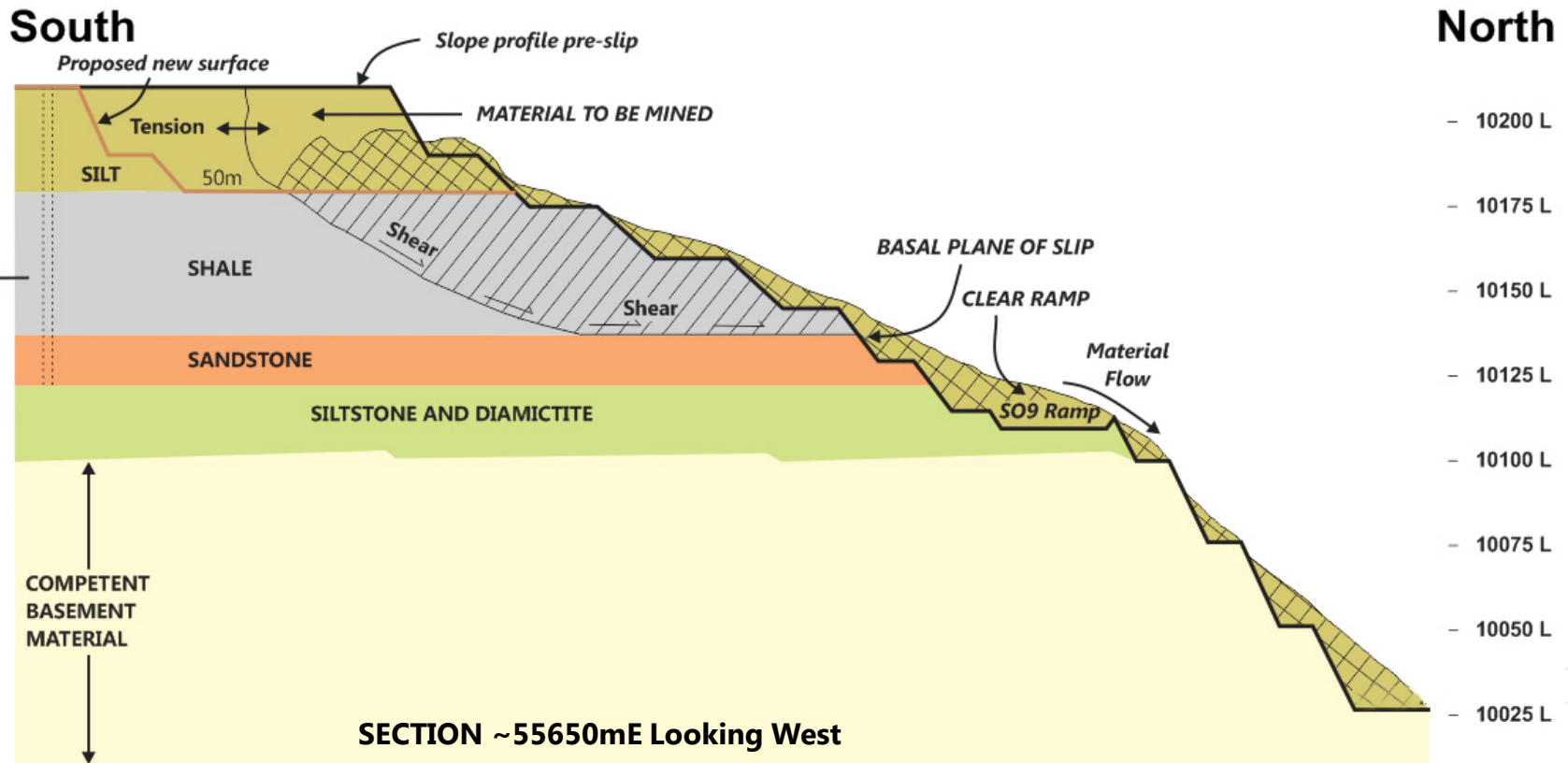
# SLIP IN OVERBURDEN OF SOUTH WALL OF MALU PIT

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# REMEDIATION OF OVERBURDEN SLIP UNDERWAY

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# PROCESSING REVIEW

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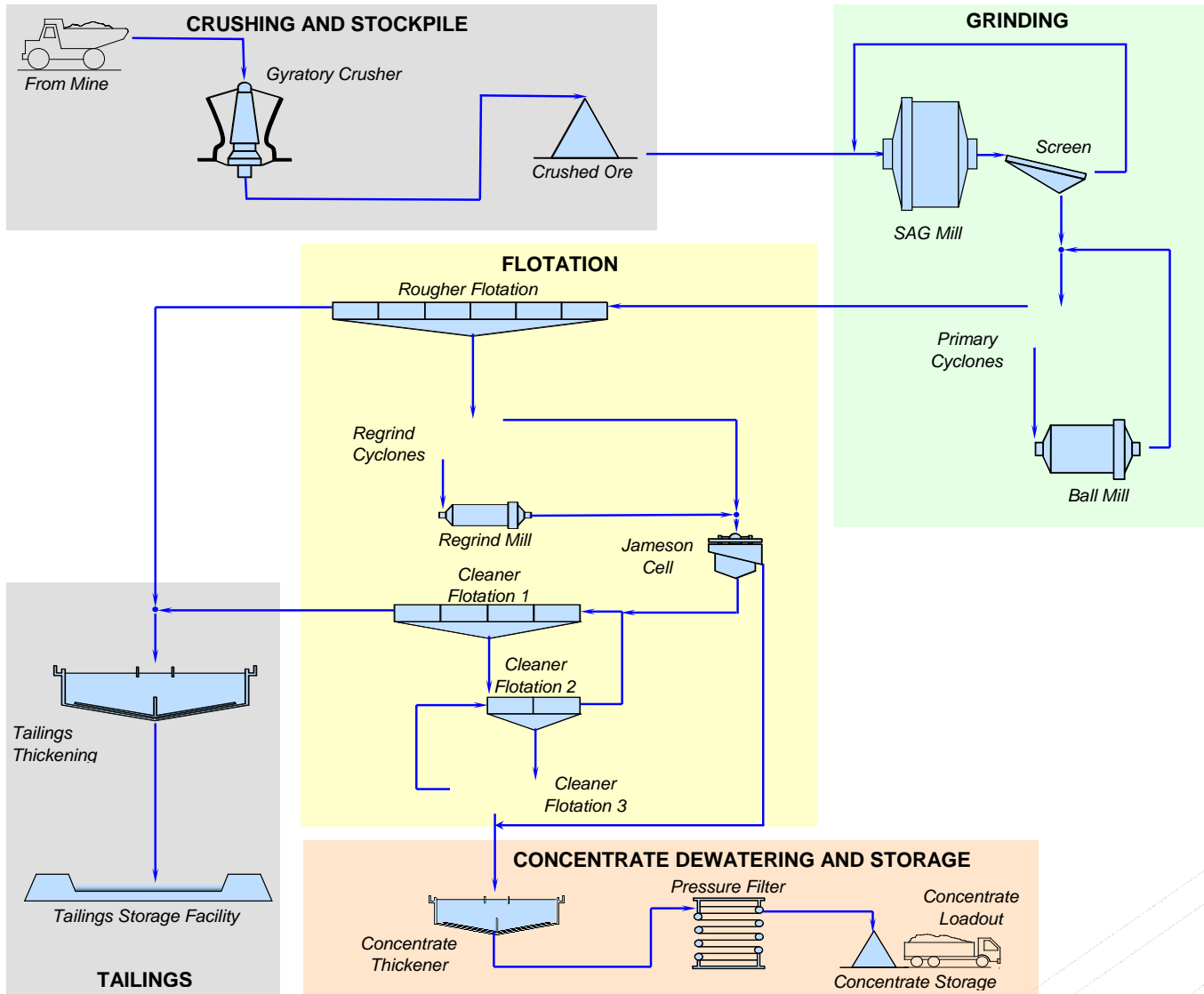


- Overview of processing operations.
- Performance to date.
- Improvements.

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# OVERVIEW OF PROCESSING OPERATIONS FLWSHEET

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# OVERVIEW OF PROCESSING OPERATIONS

## GRINDING



### Duty

- Design rate = 8Mtpa
- Current rate = 9.5Mtpa
- Size reduction to 80% passing 135µm

### Key statistics

- SAG Mill – 10.4m (34') x 4.7m. 12MW installed
- Ball Mill – 7.3m (24') x 10.4m. 12MW installed

### Key operating costs

- Power
- Grinding media and liners

### Improvements

- Dec '09 – ongoing - OCS commissioned and retuned to maximise throughput based on feed parameters.
- June '10 – ongoing - Several improvement projects to increase water recovery to address water bottleneck over 1200tph (feed well modification, Manta Tailings thickener controls).
- Aug '10 – ongoing – Improved liner design and reline metrics to increase availability and reduce costs (2<sup>nd</sup> reline machine for dual reline, discharge shell liners improved design, bullnose).
- Jul '11 – ongoing – Grinding media reduced usage (high chrome media, harder SAG Mill grinding media).



# OVERVIEW OF PROCESSING OPERATIONS

## FLOTATION



### Duty

- Design Cu Rec = 88% CCBN & 80% BNCP
- Current Cu Rec = 88% YTD

### Key Statistics

- 6 x 150m<sup>3</sup> Rougher Cells
- 14 x 50 & 20m<sup>3</sup> Cleaner Cells
- Ethyl Xanthate collector, thionocarbamate

### Key Operating Costs

- Reagents
- IsaMill ceramic media

### Improvements

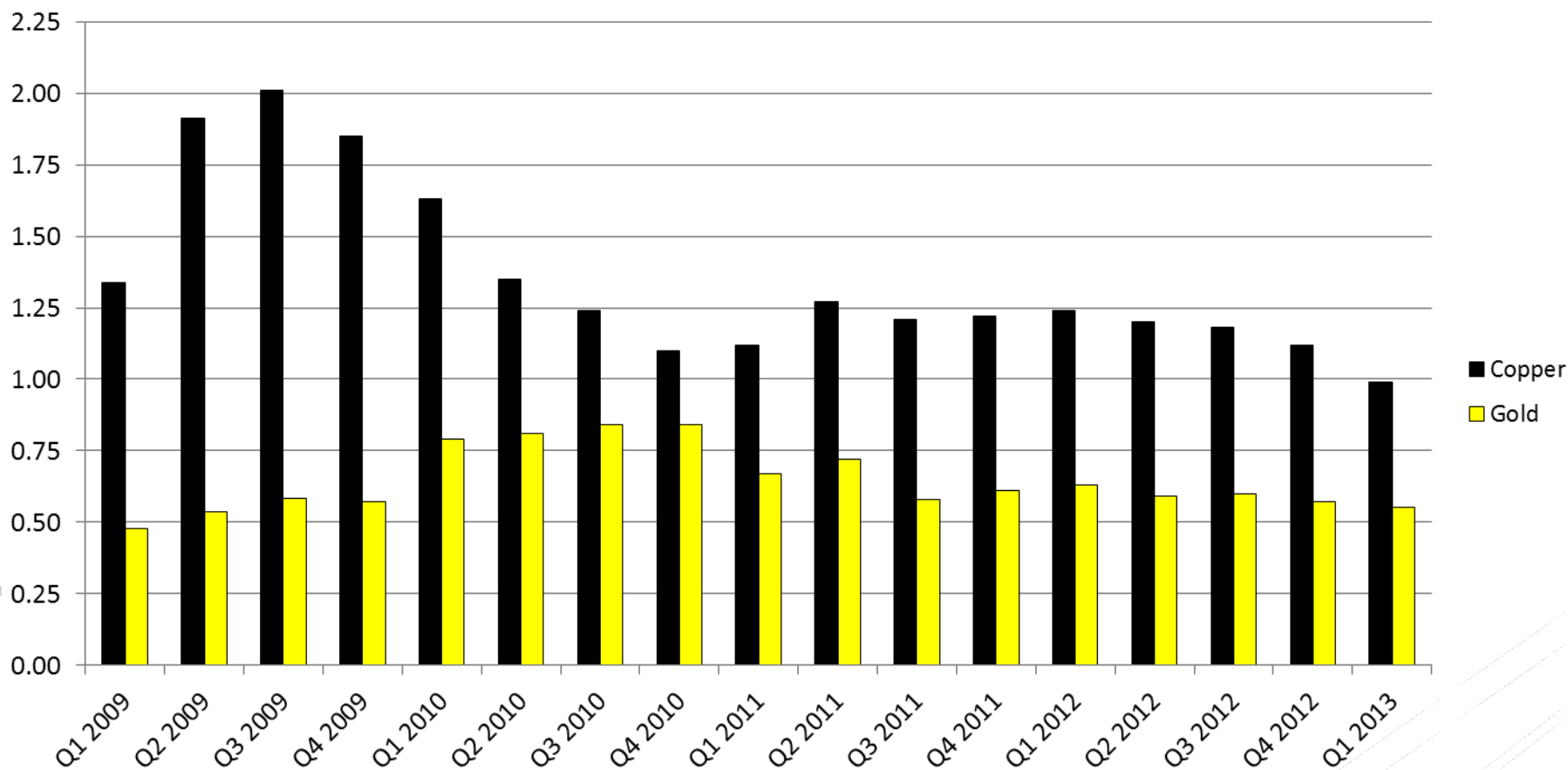
- June '10 – June '12 Improve coarse particle recovery in Roughers Cells (Installation of float force and flow booster mechanisms).
- Aug '10 – Jan '13 Improve copper and gold recovery in floatation recovery through additional reagents targeting selectivity (Thiocarbamate collector and “boutique collectors” in addition to xanthate).
- Sep '10 – May '12 Improve metal recovery and quality through process control (Advance process control including level stabiliser, rougher flow optimiser and cleaner 1 flow optimiser).

# PERFORMANCE TO DATE

## MILL – Feed Grades



### Milled Feed Grades



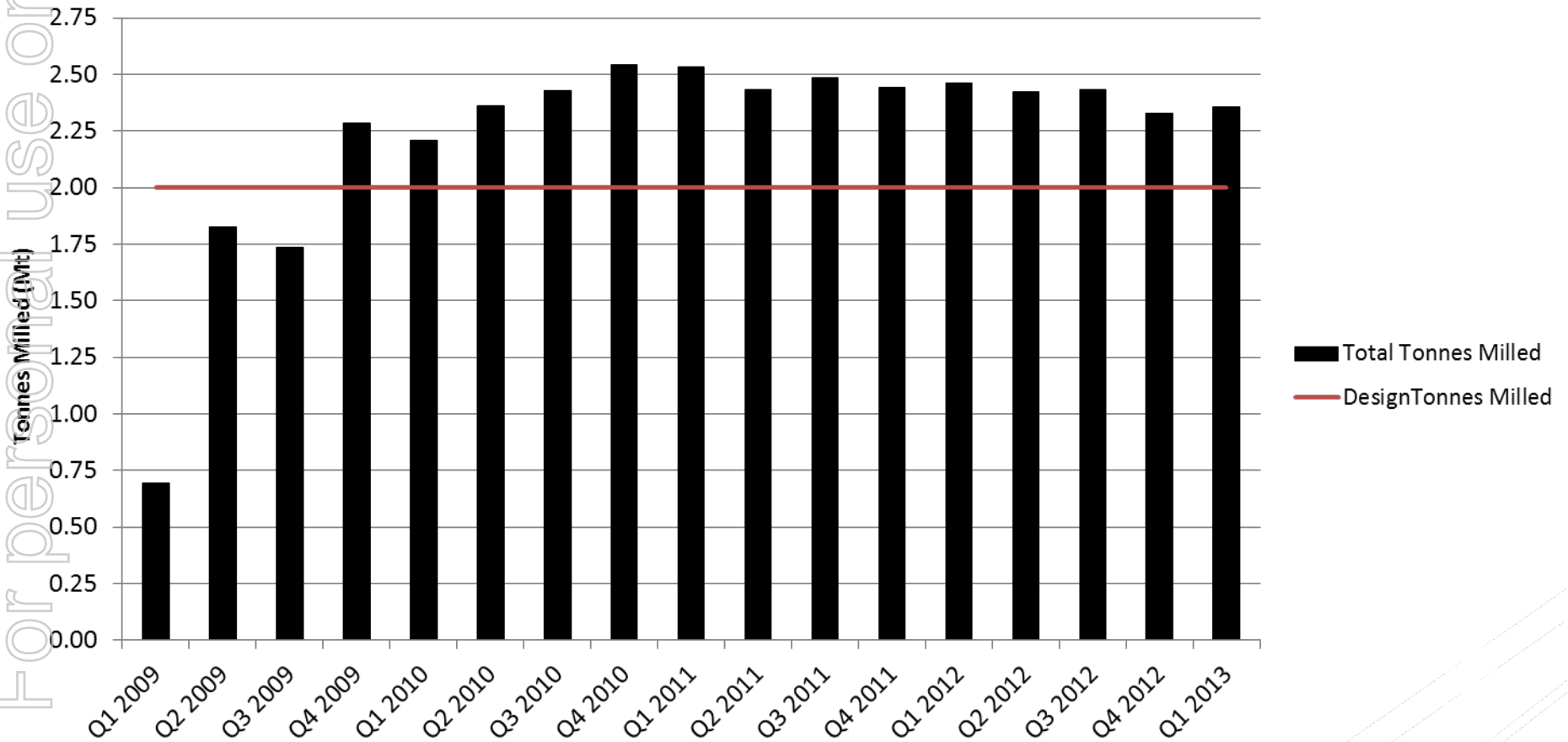
# PERFORMANCE TO DATE

## MILL – Throughput



### Tonnes Milled

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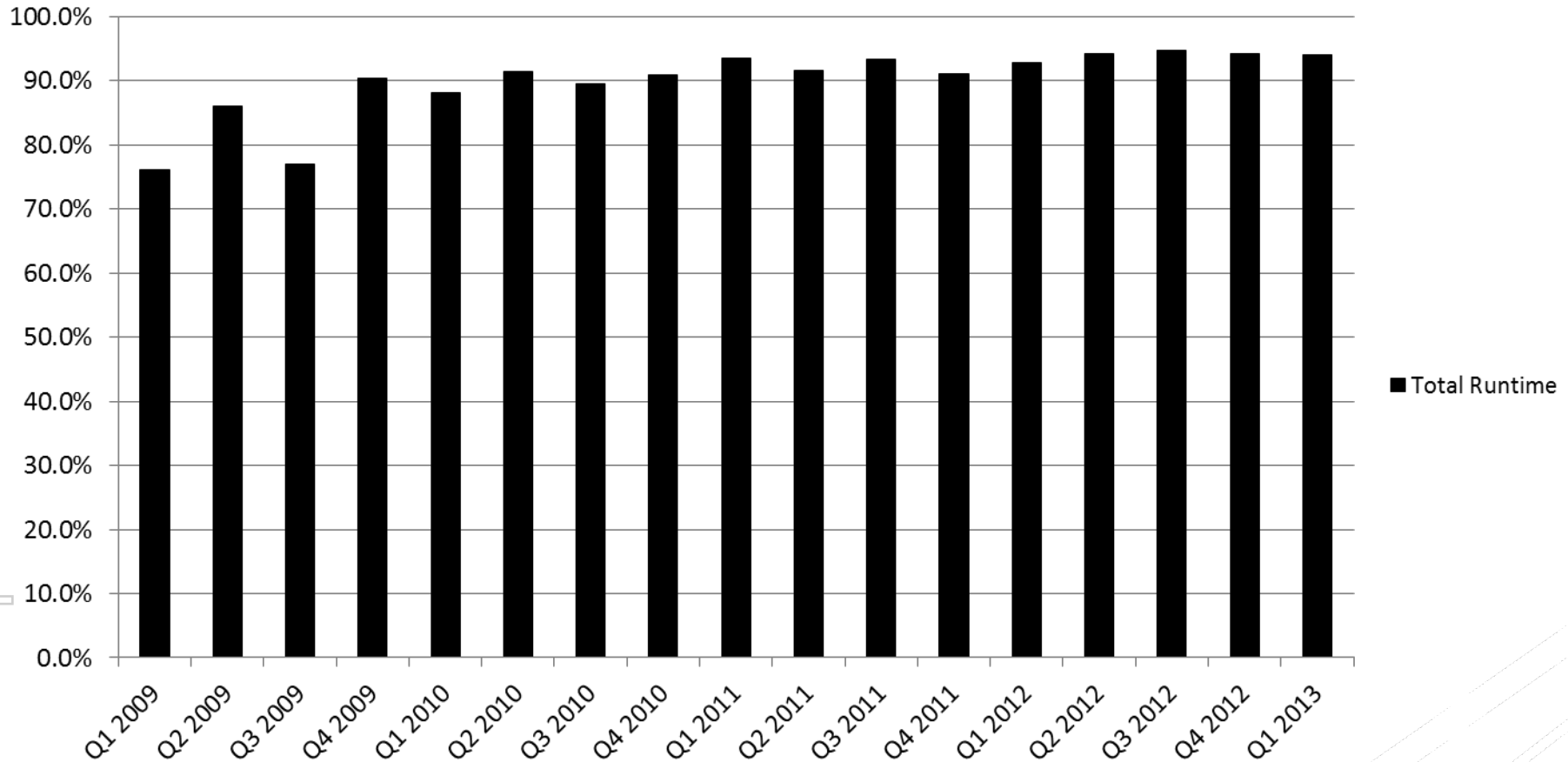


# PERFORMANCE TO DATE

## MILL – Availability



### Mill Availability

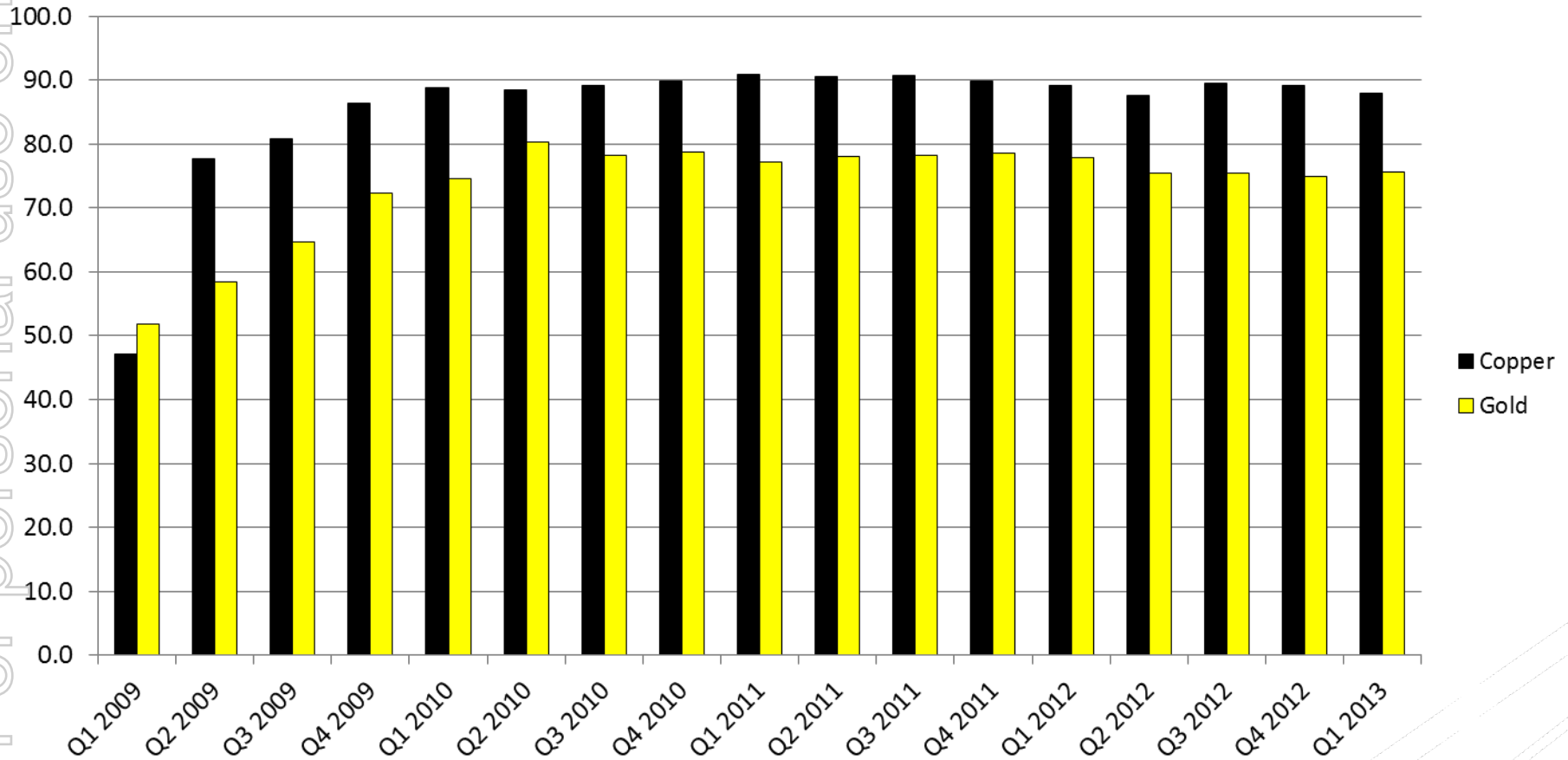


# PERFORMANCE TO DATE

## FLOTATION - Recovery



### Plant Recoveries

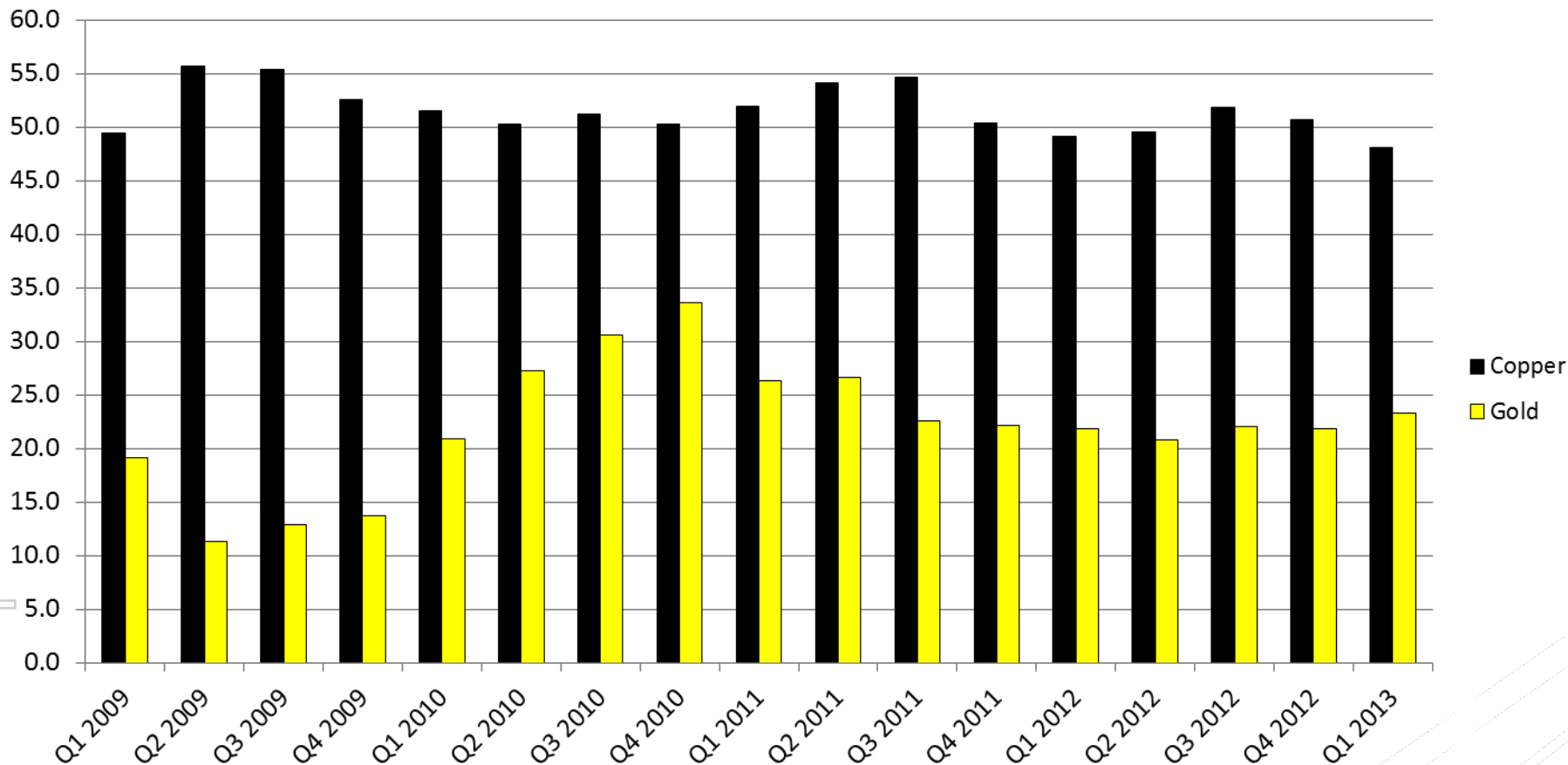


# PERFORMANCE TO DATE

## FLOTATION - Grades



### Concentrate Grades



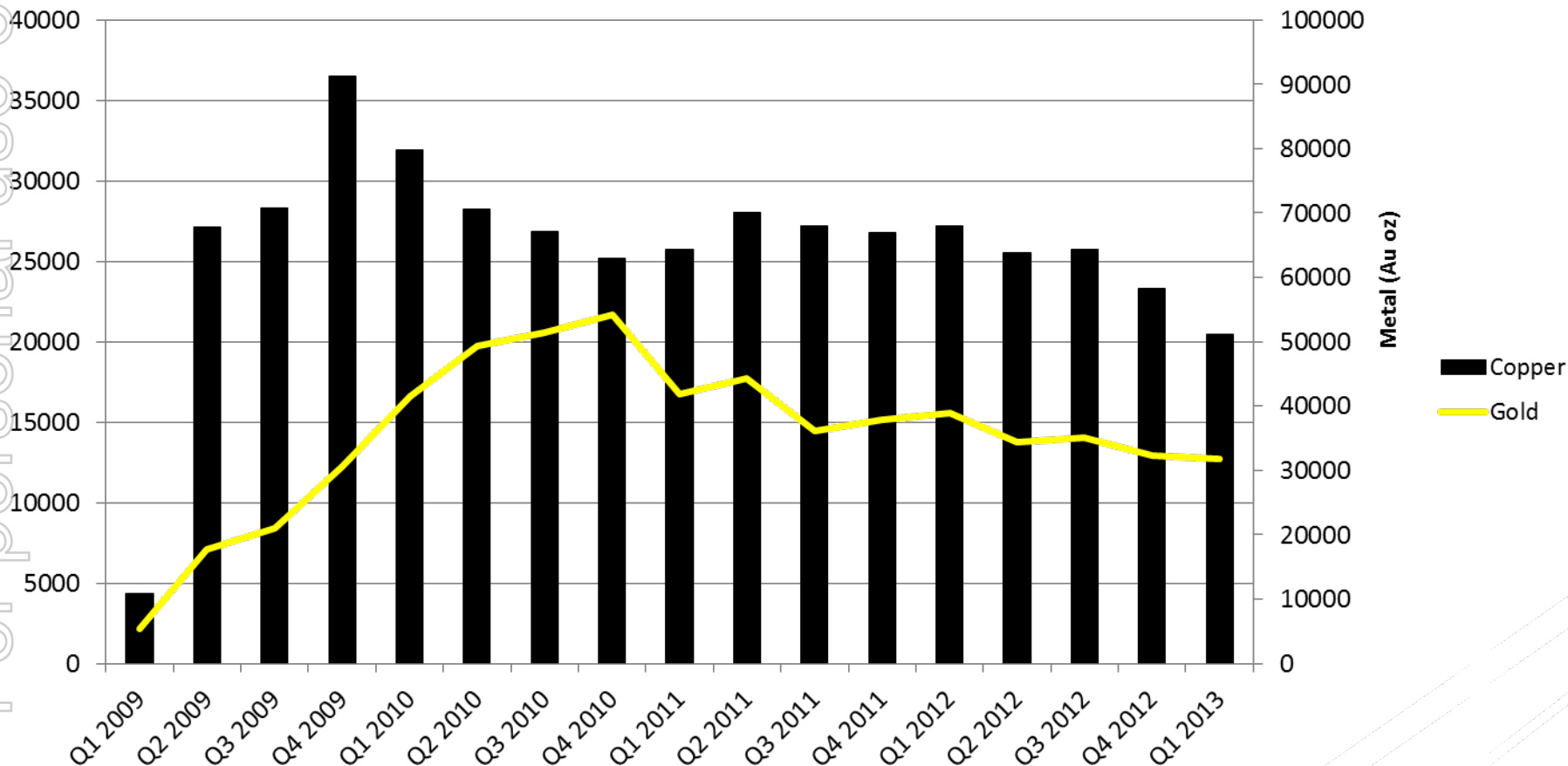
# PERFORMANCE TO DATE

## PRODUCTION - Metal



### Copper and Gold metal production

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## PROJECTS

- Cleaner cells wash water improvements to reduce penalty elements.
- Addition of mill noise control measurement into integrated OCS.
- Mill liner design changes including complete redesign of discharge end and feed end liners increase life from 13 week availability to >17 weeks and hence less mill shut down per year.
- Increase flexibility and re-arranging of circuit to increase regrinding capacity and classification.
- Greater substitution of process water compared to raw water.
- Water treatment trial to reduce costs.
- Further grinding media, reagent and ceramic media substitutions to reduce unit costs of consumables.

# SUMMARY



## PERFORMANCE

- Consistent and robust performance of the plant under changing feed conditions.
- Over design performance for throughput, recoveries and grades.
- Cost profile reductions for variable costs.

## PEOPLE

- Strong technical team with average onsite retention rate of > 3.5 years.
- Offsite technical services to draw expert advice and technical support.
- Improving safety culture with Laboratory achieving goal of zero and currently at 20 consecutive months at zero harm.

## PROJECTS

- Continued focus on improvement projects and business improvement culture embedded in the Processing department since 2010.
- Strong cost focus and performance focus.

# CASE STUDY

## FEED GRADE TRIAL



### Trial basis

- Feed grade trial to compare test work in the laboratory vs actual plant performance.
- Blend trial 87% bornite/chalcopyrite (BNCP) mineral species and 13% gold only ore in the feed.
- Predicted feed grade 0.72% Cu and 0.42 ppm Au.

### Design

- 80% copper recovery for BNCP and 34% Cu Con.

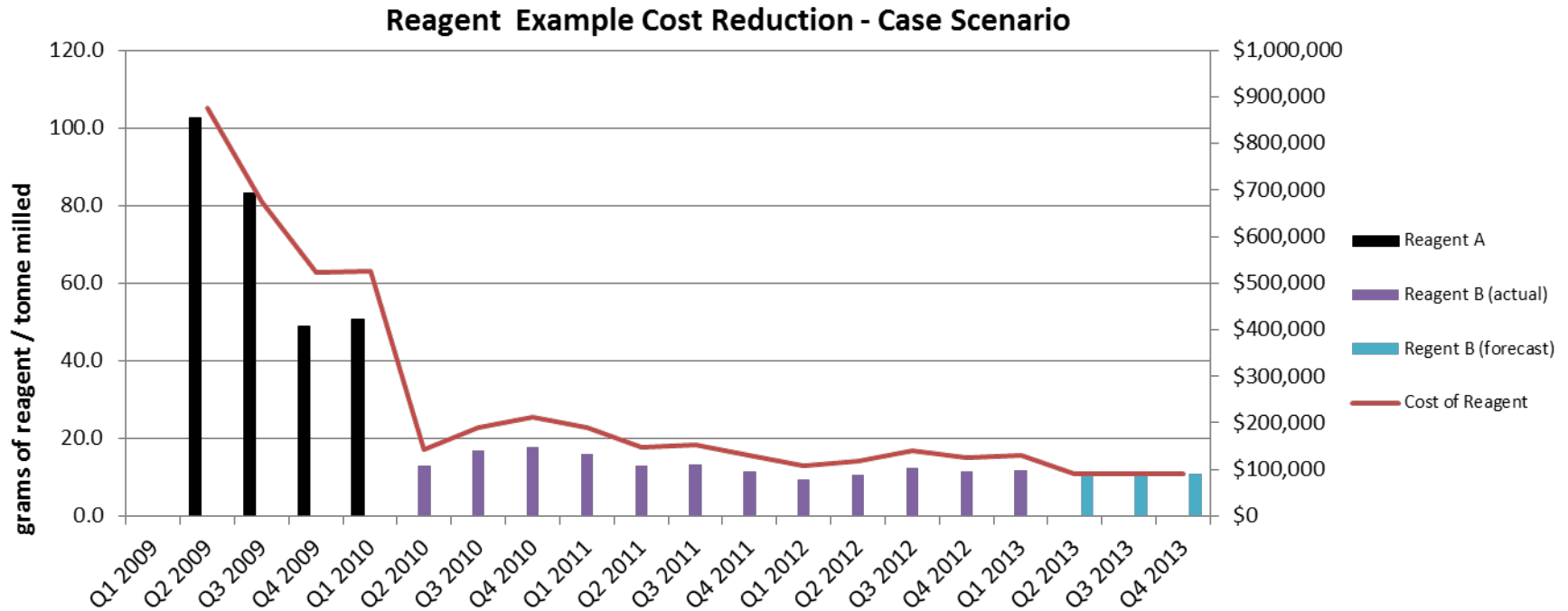
### Actual plant trial results

- Throughput tonnes 29,169 t milled per day at a rate of 1,215 tonnes per hour.
- Copper recovery at 85.9% for the trial and Gold recovery at 70%.
- Copper concentrate grade  $\approx$  40% Cu Con.

Recovery still at 5% above expectation for mineral species and feed grade.

# CASE STUDY

## COST REDUCTION



### Cost Saving and increased performance example

- Rigorous testing in 2009 to select optimal reagent to decrease usage g/t.
- Implemented in 2010 a change of reagent to reduce usage and increase performance.
- Worked with our reagent suppliers to reduce unit cost moving forward.
- Successfully negotiated a reduction in 25% per unit kg of the same quality reagent.



# CASE STUDY IMPLEMENTED BI PROJECTS



## Business Improvement – Metallurgy SAG Mill Discharge End Shell Liner



**Situation:** Repeated impact from grinding media and abrasive feeds can lead to significant erosion and wear on the shell of the SAG Mill. As a result, replaceable liners are installed in the SAG Mill to protect its shell. The current SAG shell discharge end liner was wearing excessively approximately 0.5m from the discharge end. The rest of the liner was in good condition and twice the thickness. The intended life of the liner is 6 months (2 relines p.a.).

**Opportunity:** The design of the liner plays a critical role in its performance. Data collection and analysis indicated that the liners were prematurely failing in their current design, being changed out every 3 months. Optimising the design of the liner is an ongoing, iterative process whereby incremental improvements are made over time.

## Business Improvement – Metallurgy & Maintenance SAG Mill Shell Lifter Bolt & Liner Failures



**Situation:** Failure of SAG Mill shell lifter bolts & liners have been a significant contributor to plant unplanned downtime. In 2010, 104 hours of unplanned downtime resulted from this problem which represented 27% of total unplanned downtime.

**Opportunity:** An investigation of SAG Mill shell lifter bolt and liner failures indicated that the high incidence of failure was related to liner installation techniques. Existing SOPs for these activities were neither comprehensive nor detailed and allowed for considerable variation in installation techniques.



## Business Improvement – Metallurgy & Maintenance Reline Equipment Upgrade



**Situation:** Four major planned shutdowns are carried out each year in the Prominent Hill plant. At least one of these is a "dual mill" shut, in which both the SAG and Ball Mills are relined. The main driver of plant downtime throughout the year is the duration of planned shuts so any actions to reduce this driver will increase Mill availability and throughput.

**Opportunity:** The duration of a planned shutdown is determined by the time needed to complete Mill relines, so minimising reline time provides the most effective way of increasing Mill availability. Prominent Hill currently has one specialised Mill Reline Machine (MRM). Purchase of a second MRM would allow CAP and Ball Mill relines to be done at the same time.



## Business Improvement – Metallurgy High Chrome Media – Ball Mill



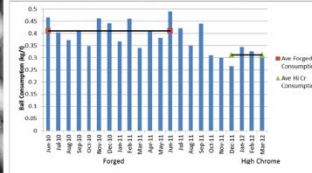
**Situation:** Prominent Hill was using forged steel grinding media in the ball mill.

**Opportunity:** An alternate supplier of Prominent Hill's grinding media, Maggoteaux, offered a new product, Duramax® High Chrome Media. Maggoteaux were confidently predicting the High Chrome media would reduce ball mill media consumption.

**Solution:** Conduct a "marked ball" test to determine the wear reduction of high chrome media compared to current forged steel media. The trial was subsequently conducted in mid 2011. A minimum decrease in wear rate of 23% was determined as the economic decision point to make the change to high chrome as it is more expensive. The marked ball test showed up to a 40% reduction was possible. As a result the decision to permanently swap to high chrome media was made starting August 2011. A purge period in the mill was required to change out the media type by attrition with media consumption reducing from 24 2011.

**Project Owners & Implementers:** Metallurgy team.

**Value:** The result of the trial was that on average the reduction in ball consumption in the ball mill was 34%. This reduction in ball wear/usage thus generates an average LOM EBITDA cost saving of \$1,075,000.



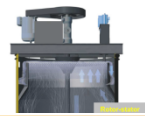
RESPECT • INTEGRITY • ACTION • RESULTS | Issued by PHO: 11/09/2012

## Business Improvement – Metallurgy Outotec FloatForce® Mechanism in Rougher Cells 1, 2 & 3



**Situation:** The heart of the mechanical flotation cell is the rotor-stator mechanism. The job of this mechanism is to mix the content, disperse the air, and generate the kinetically turbulent energy required to accelerate the particles and attach them to the bubbles.

**Opportunity:** The Met. team identified various performance bottlenecks in the existing flotation cell mechanism. The current flotation cell design brings air into the central area of the rotor which causes the mixing efficiency of the flotation cell to be sub-optimal.

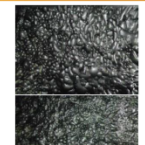


## Business Improvement – Metallurgy Installation of High Shear Stators in Cleaner 2 Cells 1 & 2



**Situation:** A gas dispersion measurement survey conducted by Outotec highlighted that the superficial gas velocity was abnormally high in the Cleaner 2 cells. This finding inferred that the bubble size was larger than normal and therefore particle fines recovery was less than optimal.

**Opportunity:** Test work data conducted by Outotec demonstrated that the high shear mechanism can produce finer bubble sizes and increase the potential for fines recovery (Binley et al, 2006). Onsite data identified fine losses from the cleaner as a high source of

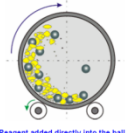


## Business Improvement – Metallurgy Improving the Selection of Flotation Reagents



**Situation:** Optimal selection of reagents can have a significant impact on flotation kinetics and concentrate grade recovery. Thus, the Metallurgy group devotes continuous efforts to improve reagent selection and process optimisation.

**Opportunity:** Trial an assortment of reagents to determine whether or not the current selection of reagents could be improved upon. New reagents could yield (1) cost-savings & (2) recovery improvements. Interfroth's CMS 2500 reagent, for example, was trialled because it was believed that it could provide an increase in



## Business Improvement – Metallurgy Installation of Mintek FloatStar & Outotec FlowBooster™



**Situation:** Studies performed by the Metallurgy team on the flotation circuit and rougher cells resulted in the following findings:

- The current flotation control system was less than optimal at maintaining the cell's level set point when there were disturbances in the system.
- Operators were spending large amounts of time maintaining a rougher concentrate flow rate and an expert control system could assist in more stable performance.
- The P80 particle size of the material in the rougher cells was dropping significantly with depth in the cell meaning not all valuable minerals were being promoted to concentrate.

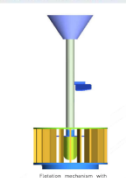
**Opportunity:** In response to these findings three improvement opportunities were identified. Firstly, disturbance propagation could be reduced and an increase in recovery could be seen over the whole operating shift if the controllers were able to improve the stability of the circuit and provide a faster response to disturbances. Secondly, a more stable rougher mass flow could be achieved with the use of an expert optimiser logic manipulating cell level to a target flow set point, improving consistency of metal recovery. Thirdly, greater agitation in the rougher cells would push coarser mineralised particles higher up in the cell and increase the probability of them reporting to concentrate - ultimately improving recovery.

**Solution:** The FloatStar advanced flotation control system was implemented to stabilise the circuit during disturbances along with flow optimiser logic to maximise rougher circuit mass pull at all times. An improvement in recovery with FloatStar enables increased metal (copper & gold) production without increasing operating costs. In addition, FlowBooster™ were installed in Rougher cells 1, 2 and 3 to promote better primary and secondary mixing flow leading to an increase in coarse particle recovery. The FlowBooster™ is a pitch blade turbine attached to the lower shaft above the normal flotation mechanism at the bottom of the cell.

**Value:** Copper & Gold recovery improvements of 0.50% equating to \$5.8 million p.a.

**Idea Owners & Implementers:** Metallurgy, Maintenance and Operations teams.

RESPECT • INTEGRITY • ACTION • RESULTS | Issued by PHO: 21/02/2011

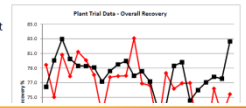


## Business Improvement – Metallurgy Aero 404® Gold Recovery Improvement



**Situation:** Liberated gold particles in the rougher tailings, smaller than 15 microns in size, were being lost to the tailings dam.

**Opportunity:** Increase plant effectiveness through increased recovery of gold that would otherwise have been lost to the tailings dam.



## Business Improvement – Concentrator LAROX Filter Cloth Improvement



**Situation:** The Larox Filter takes slurry from the Concentrate Thickener and extracts the water, leaving behind concentrate filter cake which is stored in the Concentrate Shed ready for dispatch. The Larox filter cloth is an integral part of the concentrate drying process. The filtering process at Prominent Hill was consuming filter cloths at a high rate of two per month.

**Opportunity:** Other sites using similar processes have achieved higher utilisation of filter cloths, through heavier gauge cloths and improved maintenance and standard operating procedures.



## Business Improvement – Metallurgy Outotec FloatForce® Mechanism in Rougher Cells 4 & 5



**Situation:** Outotec FloatForce® mechanisms were installed in rougher cells 1, 2 & 3 during the June 2010 Shut. These mechanisms improve the mixing of the slurry in the flotation cells and reduce the amount of entrapped air, both of which theoretically improve the recovery effectiveness of the cells. Measurements taken after the devices were installed indicated that significant improvement in Copper recoveries had indeed occurred.

**Opportunity:** Following the success of FloatForce® in rougher cells 1, 2 & 3, the Metallurgy team identified that further improvements in metal recovery could be achieved by installing the device in rougher cells 4 & 5.



## Business Improvement – Metallurgy & Maintenance Tails Thickener SmartDiver®



**Situation:** The operating rate of the Concentrator has been increased 20% above design capacity which has provided significant financial benefit to the business. However, at high throughput rates, the Concentrator water balance is upset; increased amounts of process water are carried with the tails slurry to the Tails Storage Facility (TSF) where it is lost to evaporation. As site water supply is limited, the Concentrator operating rate has then to be reduced until a balance between water supply & demand is reached.

**Opportunity:** Better control over the operation of the Tails Thickener would deliver a higher-density slurry containing less water to the TSF. With less water lost from the Concentrator circuit, higher operating rates could then be maintained, providing considerable financial value to the business.

**Solution:** Install a Manta Cube "SmartDiver" expert control system to automatically adjust Tails Thickener & flocculent addition settings to optimise tails slurry density & maximise plant water retention.

**Project Owners & Implementers:** Metallurgy & Maintenance teams.

**Value:** Since the installation in February 2011 analysis of performance has confirmed that tails density & water recovery increases have been achieved that would allow the Concentrator to run approximately 50 tonnes per hour faster. This represents increased capacity of approximately 200kt ore p.a. In addition, flocculent use has decreased around 10% providing a direct cost saving.



RESPECT • INTEGRITY • ACTION • RESULTS | Issued by PHO: 15/02/2011

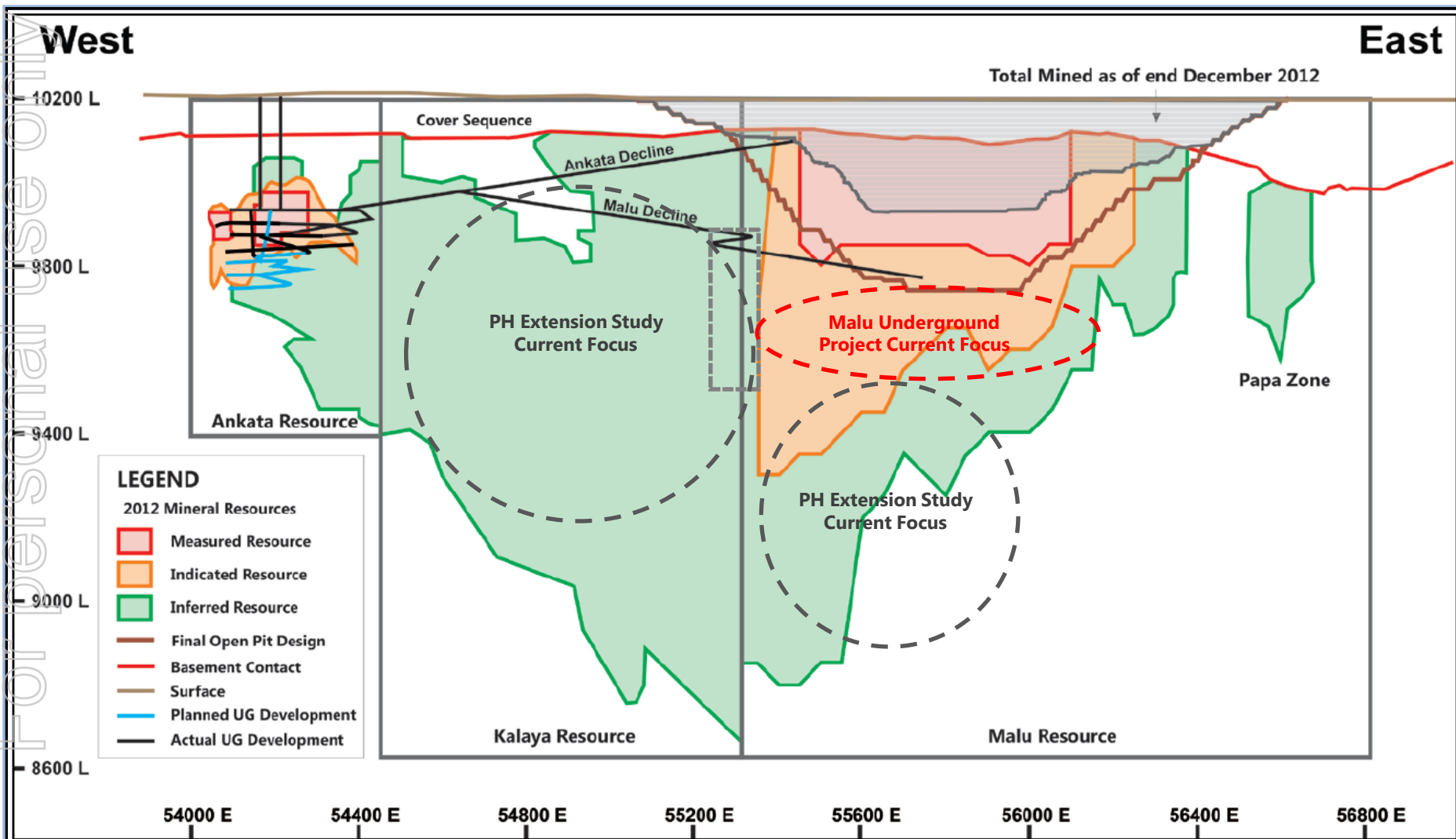


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# ANKATA UNDERGROUND MINE



# ANKATA UNDERGROUND LOCATION



# ANKATA MINE - BASELINE STATISTICS



- Reserves : 7.8 Mt at 2.0 % copper, 0.4g/t gold for 154,000t Cu and 92,000oz Au.
- Throughput : 1.2 Mtpa.
- Mine life : 6 years.
- Mining method : Sub-level-open stoping with pastefill.
- OZ Minerals personnel : 57.
- Contractor personnel : 186
  - Byrnegut (140) – UG operations
  - Boart Longyear (40) – diamond drilling
  - Rock & Crete Crushing Services (6) - tramp metal removal.

## Competent Persons Statement

The information set out in this table that refers to Prominent Hill Ore Reserves is a summary of information relating to Ore Reserves set out in the Prominent Hill Mineral Resources and Ore Reserves Statement as at 30 June 2012, available at [www.ozminerals.com/operations/resources--reserves.html](http://www.ozminerals.com/operations/resources--reserves.html).

This information has been approved for release in the form and context in which it appears by Mr Justin Taylor, who is a full time employee of OZ Minerals and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity undertaken to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'



# ANKATA UNDERGROUND – SUCCESSFUL PROGRESS

Ankata mineralisation discovered



Exploration programs and studies to define Ankata deposit completed



Board approval to develop the project



Access decline successfully reaches Ankata orebody



First ore achieved through stoping



Commencement of full production rates



Addition of 2 years mine life

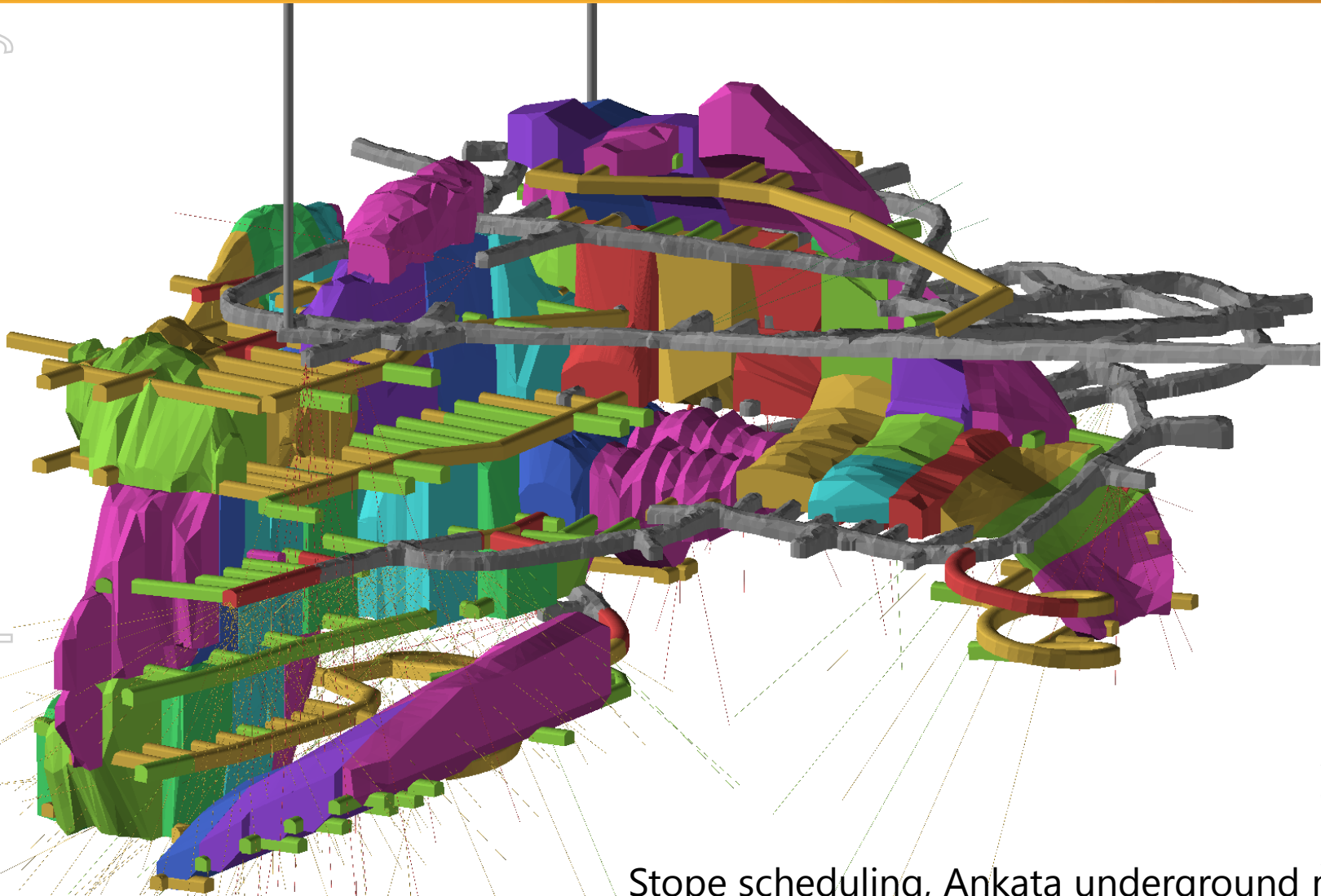


2007      2008      2009      2010      2011      2012      2013



# ANKATA STOPES OUTLINED




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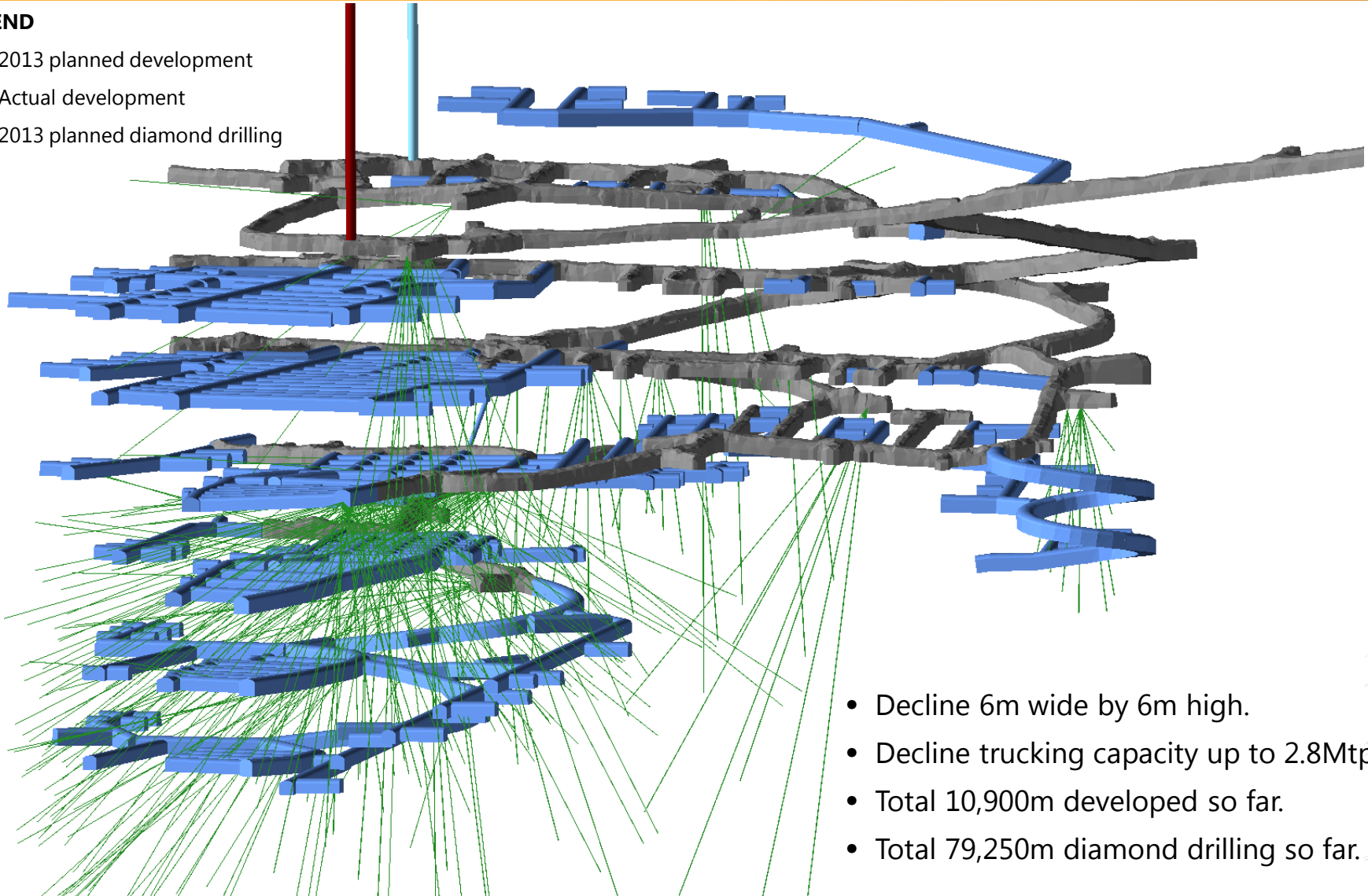


Stope scheduling, Ankata underground mine

# ANKATA UNDERGROUND DEVELOPMENT

## LEGEND

-  2013 planned development
-  Actual development
-  2013 planned diamond drilling



- Decline 6m wide by 6m high.
- Decline trucking capacity up to 2.8Mtpa.
- Total 10,900m developed so far.
- Total 79,250m diamond drilling so far.

# ANKATA UNDERGROUND – 1 MILLION TONNES OF ORE ACCESSED READY FOR MINING



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**9875 Irene**  
**Producing**  
Production to end of Q1 –  
264,910t @ 2.7% Cu\*\*

**9875 Eve**  
**Filled**  
Production –  
130,564t @ 3.8% Cu\*\*\*

**9845 Violet**  
**Drilling**  
Stope Design –  
69,583t @ 1.5% Cu\*

**9845 Charlotte**  
**Producing**  
Production to end of Q1–  
12,597t @ 1.0% Cu\*\*

**9845 Audrey**  
**Filling**  
Production –  
90,060t @ 1.8% Cu\*\*

\* Physical's generated from final stope design with modifying factors applied, to the 2012 Ankata Mineral Resource model, exclusive of completed development. See <http://www.ozminerals.com/Media/docs/2012-Prominent-Hill-MROR-Explanatory-Notes> for modifying factor details.

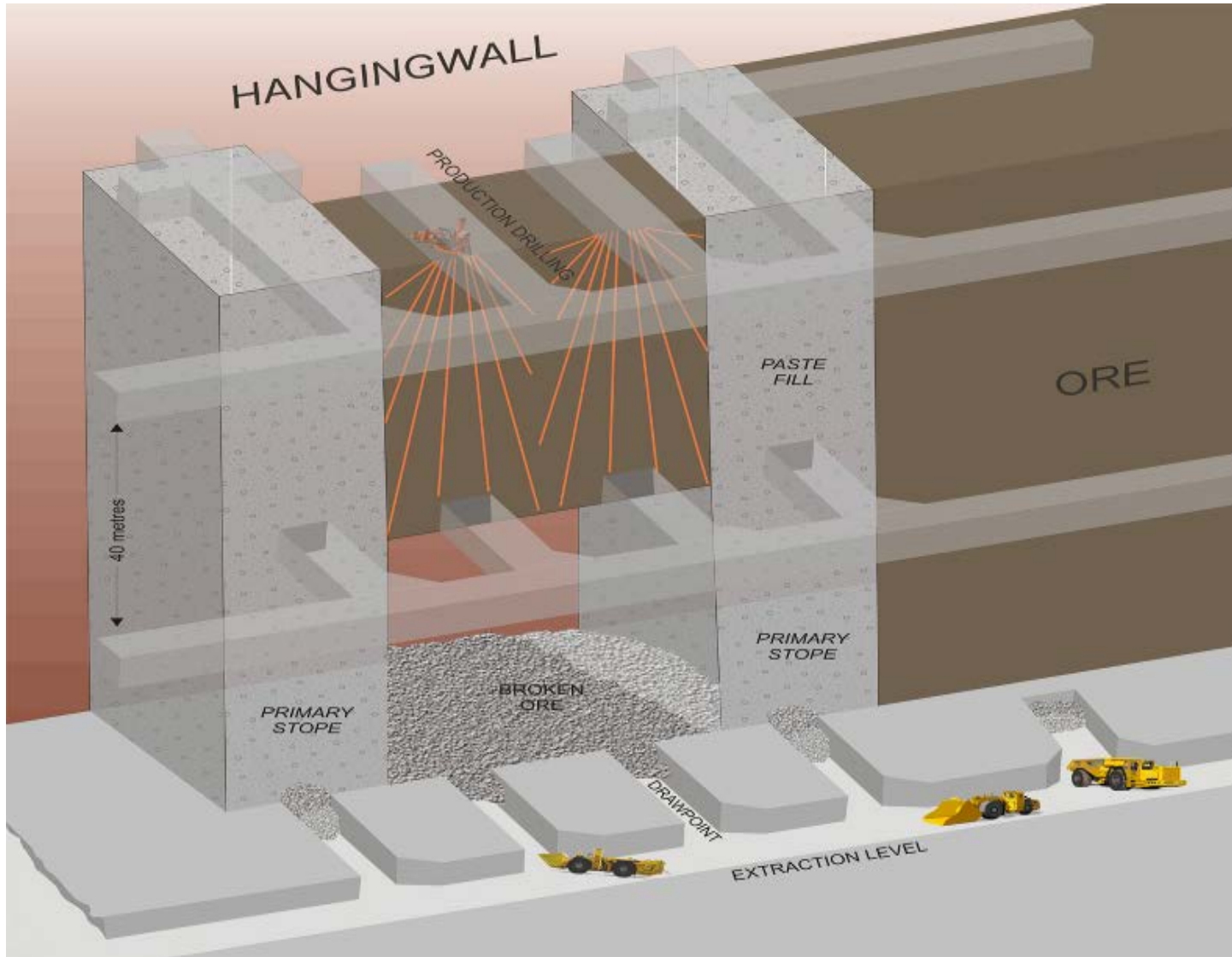
\*\* Mined ore production reconciled to concentrator production as at the end of Q1 2013.

\*\*\* Stope production reconciled to concentrator production - completed Dec 2012.



# LONG HOLE OPEN STOPING METHOD

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# ANKATA MINE – UNDERGROUND EQUIPMENT



- Volvo L120F Integrated Tool Carrier (4)
- Normet Trans-Agi Concrete Truck
- Normet Spraymec Fibrecrete Machine
- Atlas Copco GA160 Electric Compressor
- Toyota Light Vehicles & Buses (26)
  - S264 Caterpillar 740 Water Truck
- Normet Charmec Explosive Charging Machine (2)

- Sandvik DD420 Twin Boom Jumbo (3)
- Sandvik LH621 Loader – 8m<sup>3</sup> bucket (4)
- Komatsu HD465 – 7EO 55t Trucks (7)
- Caterpillar 140M Grader
- Sandvik DL420 – 15 Solo Production Drill
- Dieci Zues Telehandler
- Isuzu Flatbed Trucks (4)

# PROMINENT HILL - UG INFRASTRUCTURE

## Permanent services completed

- Roads and hardstands
- Change-house and office
- Communications to UG
- High voltage power supply
- Raw water supply to UG
- UG crib room
- Surface workshop
- Paste-fill plant
- UG pump-station

## Still to complete:

- UG explosives magazine
- Orebody definition  
diamond drilling from UG





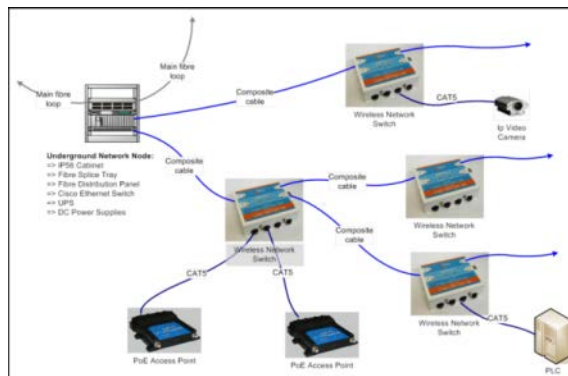
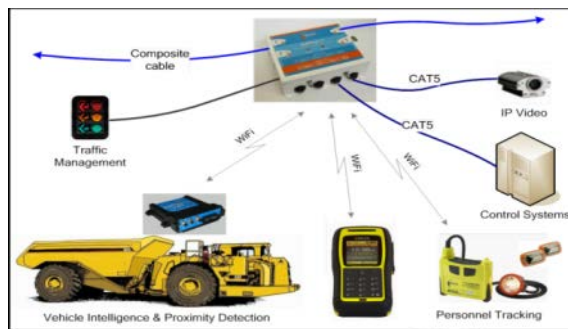
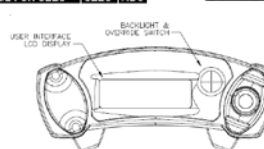
# UNDERGROUND COMMUNICATIONS, PROXIMITY DETECTION & PED

## UNDERGROUND COMMUNICATION

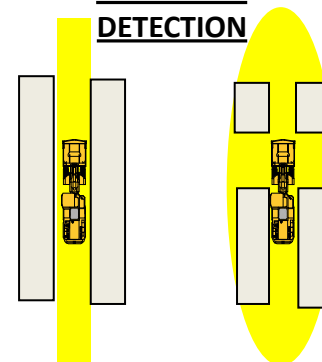
- **Optical Fibre network** surface to underground
- **Minesite Technologies ImPact network** infrastructure
- **Citect SCADA equipment controls** on pastefill delivery and primary fans
- **Equipment telemetry** on development fans, motorised vent doors, pump-station, seismic system, real-time gas and airflow monitoring, cameras for pastefill monitoring
- **Wireless network communications** for equipment & personnel tracking, electronic tagboards
- **Independent firing zones and electronic firing system**
- **Personal Emergency Device (PED) communications**
- **Proximity Detection** (vehicle vs vehicle vs personnel)
- **Prominent Hill LAN** in underground cribroom and workshop

## PED SYSTEM

The cap lamps can be sent messages from the PED computer and will display the time



## PROXIMITY DETECTION



RFID tags fitted to all mobile equipment



RFID tag inside equipment



RFID tag inside caplamp



# PROMINENT HILL FUTURE GROWTH

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## WHY?

- Fulfils company strategy

Strategy has five key elements with base of zero harm:

1. Focus on copper.
2. Maximise potential of assets.
3. Build a project pipeline.
4. Invest in exploration.
5. Disciplined capital management.



**OBJECTIVE**

**SHAREHOLDER  
RETURNS**

## AIMS

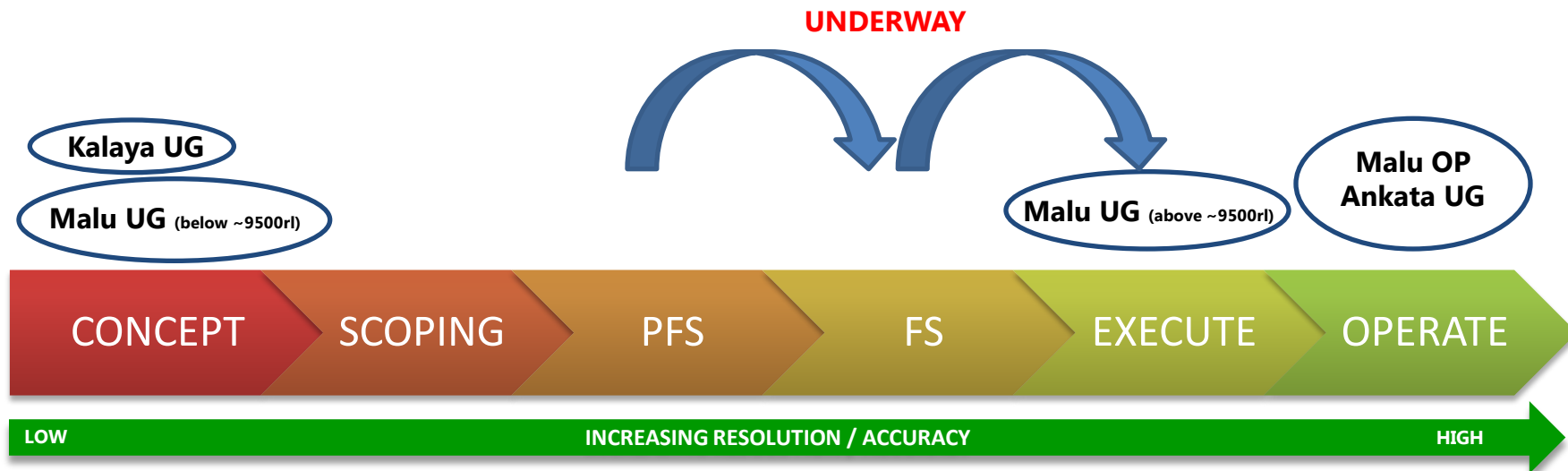
- Maximise value extracted from Prominent Hill
- Integrates operational and project planning
- Provides direction and guidance for an optimised Life of Mine Plan

# PROMINENT HILL EXTENSION STUDY

## OPERATIONAL / PROJECT PLANNING INTEGRATION

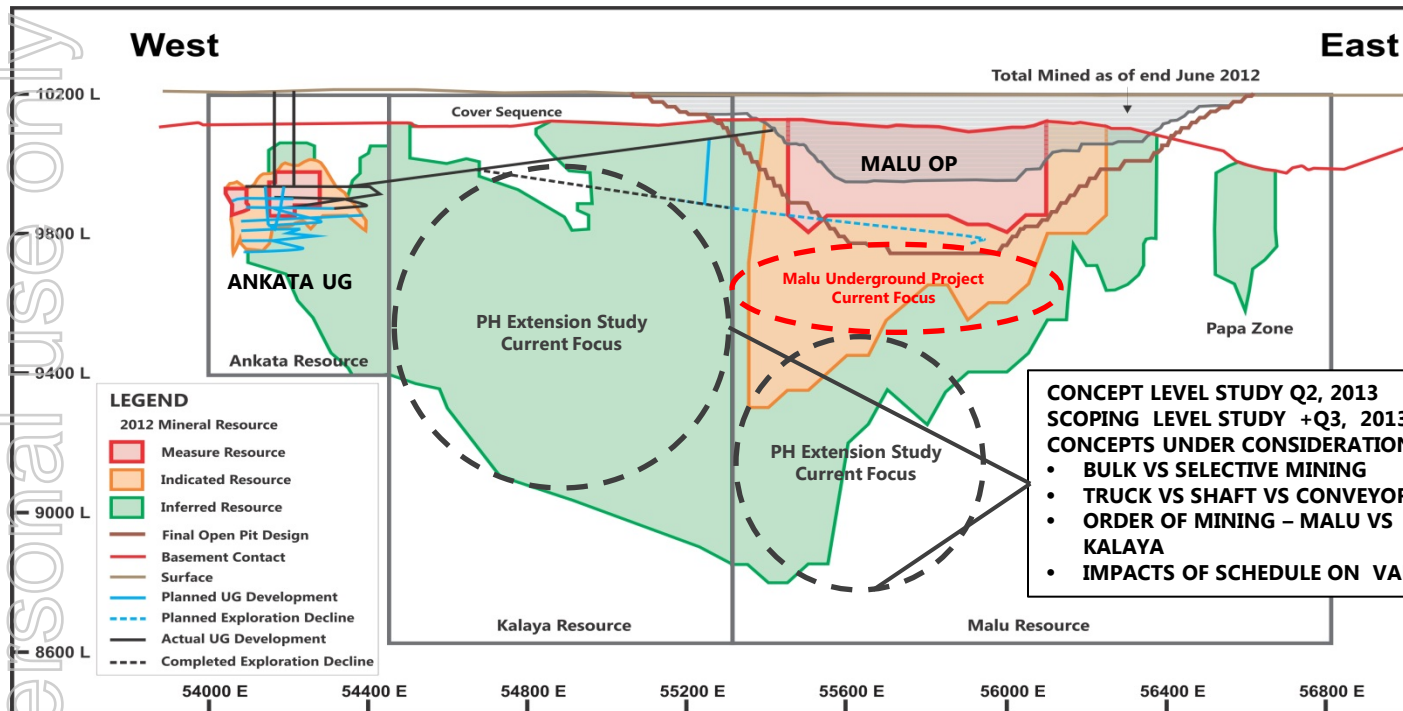


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- The PH Extension Study will look to facilitate the integration of current operational (Malu OP / Ankata), development (Malu UG above 9500rl) and study activities (Malu UG below 9500rl / Kalaya UG).

# PROMINENT HILL EXTENSION STUDY CONCEPTUAL MINING SCENARIOS



- Significant Mineral Resource of Moderate / Low Confidence outside of current Ore Reserve
- Requires additional drill testing to improve confidence
- Conceptual study phase aims to better understand the areas of potential higher value within the Resource, as it currently stands

Kalaya Mineral Resource as at 30<sup>th</sup> June 2012

	Category	Tonnes (Mt)	Cu (%)	Au (g/t)	Ag (g/t)	Cu (kt)	Au (Moz)	Ag (Moz)
<b>Cu Mineral Resource Kalaya</b> 0.5% Cu cut-off	Measured	0	0	0	0	0	0	0
	Indicated	0	0	0	0	0	0	0
	Inferred	50.3	1.08	0.4	1.9	545	0.6	3.1
	<b>Total</b>	<b>50.3</b>	<b>1.08</b>	<b>0.4</b>	<b>1.9</b>	<b>545</b>	<b>0.6</b>	<b>3.1</b>
<b>Au Mineral Resource Kalaya</b> 1.0 g/t Au cut-off Below 0.5% Cu	Measured	0	0	0	0	0	0	0
	Indicated	0	0	0	0	0	0	0
	Inferred	16	0.06	1.8	0.7	9	0.9	0.4
	<b>Total</b>	<b>16</b>	<b>0.06</b>	<b>1.8</b>	<b>0.7</b>	<b>9</b>	<b>0.9</b>	<b>0.4</b>

Malu Underground Mineral Resource as at 30<sup>th</sup> June 2012

	Category	Tonnes (Mt)	Cu (%)	Au (g/t)	Ag (g/t)	Cu (kt)	Au (Moz)	Ag (Moz)
<b>Cu Mineral Resource Malu Underground<sup>1</sup></b> 0.5% Cu cut-off	Measured	1	2.03	0.6	4.4	21	0	0.1
	Indicated	48.2	1.28	0.6	3	615	0.9	4.6
	Inferred	53.3	1.01	0.6	2.7	540	1	4.6
	<b>Total</b>	<b>102.5</b>	<b>1.15</b>	<b>0.6</b>	<b>2.8</b>	<b>1,176</b>	<b>1.9</b>	<b>9.3</b>
<b>Au Mineral Resource Malu Underground<sup>1</sup></b> 1.0 g/t Au cut-off Below 0.5% Cu	Measured	0.2	0.13	1.6	0.7	0	0	0
	Indicated	12.8	0.1	1.7	1.2	12	0.7	0.5
	Inferred	9	0.08	1.3	1	7	0.4	0.3
	<b>Total</b>	<b>22.1</b>	<b>0.09</b>	<b>1.6</b>	<b>1.1</b>	<b>20</b>	<b>1.1</b>	<b>0.8</b>

1 – Outside of Ore Reserves final pit design and east of 55300mE, Kalaya outside of Ore Reserves final pit design and west of 55300mE (excluding Ankata Resource). See <http://www.ozminerals.com/Media/docs/2012-Prominent-Hill-MROR-Explanatory-Notes-> for more details.

# MALU UNDERGROUND PROJECT – IN DEVELOPMENT

## UNDERGROUND DIAMOND DRILLING STRATEGY 2013-2014

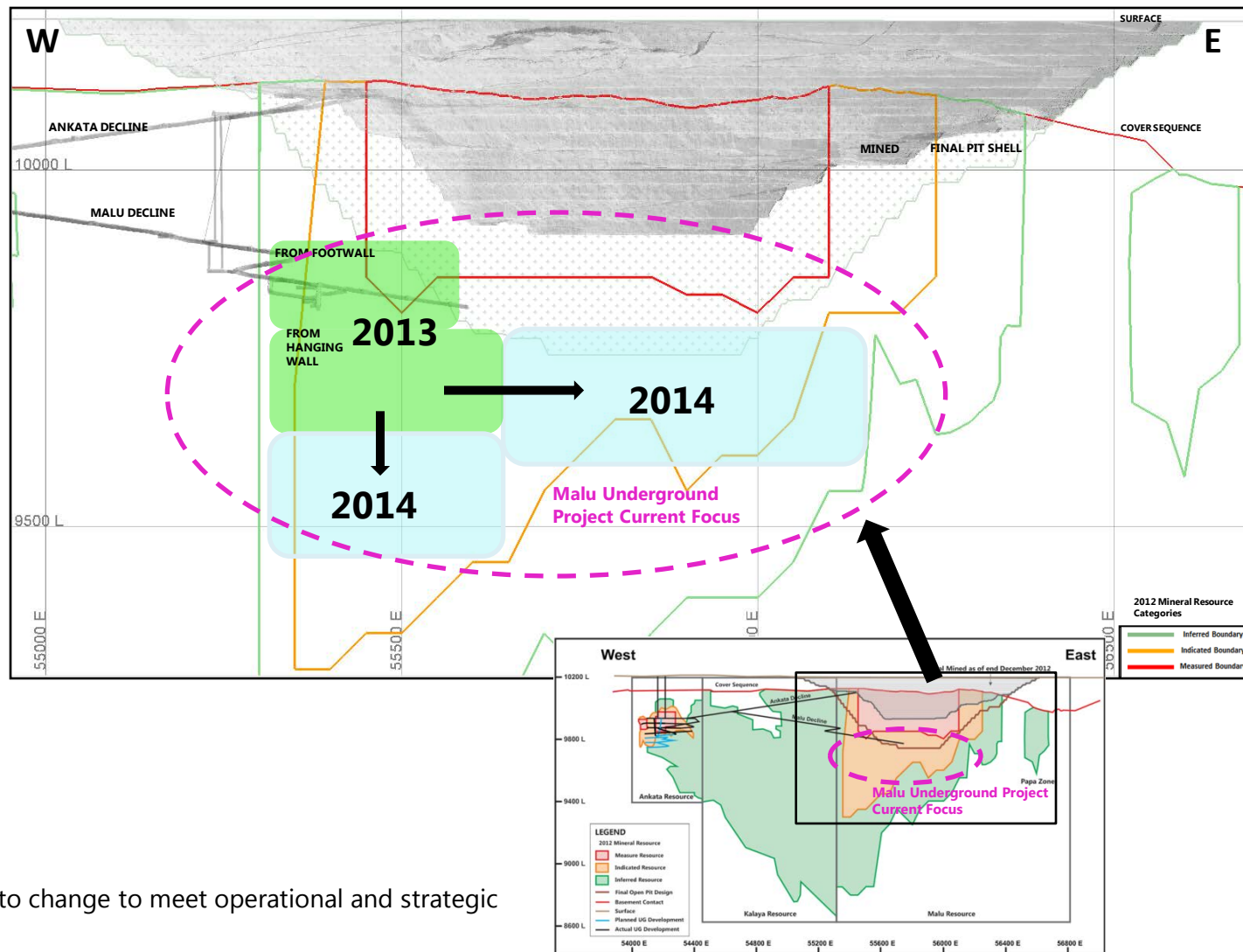


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### “Ramping Up”

- Combined Resource Delineation and Grade Control Diamond Drill Target Areas for 2013-2014.
- Increase in drill resources to four by end of 2013.
- Combined Diamond Drilling Forecast
  - 2013 – 39km\*
  - 2014 – 58km\*

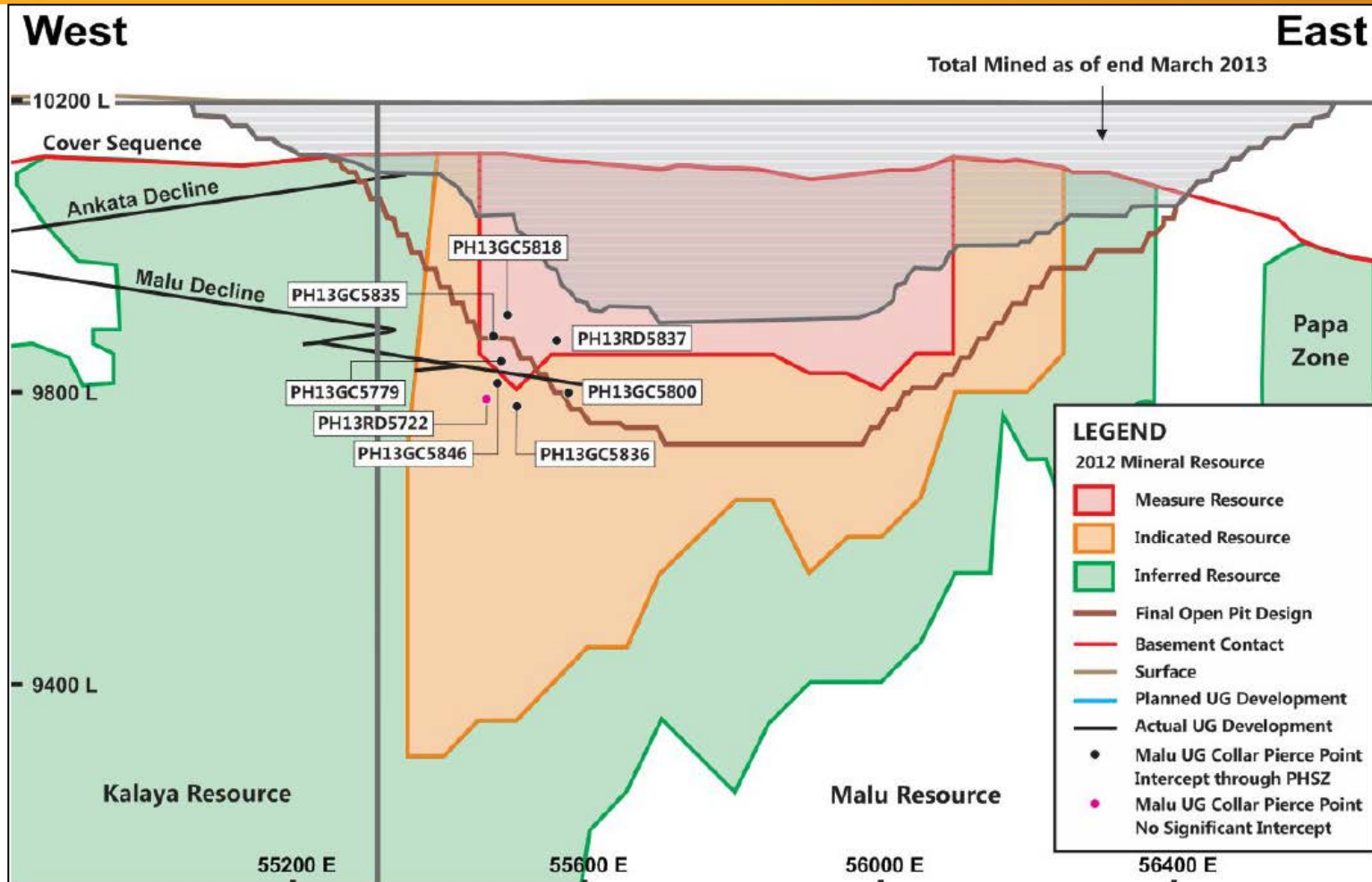
\*Note: Drilling forecast subject to change to meet operational and strategic requirements.



# MALU UNDERGROUND PROJECT

## UNDERGROUND DIAMOND DRILLING RESULTS – LONG SECTION

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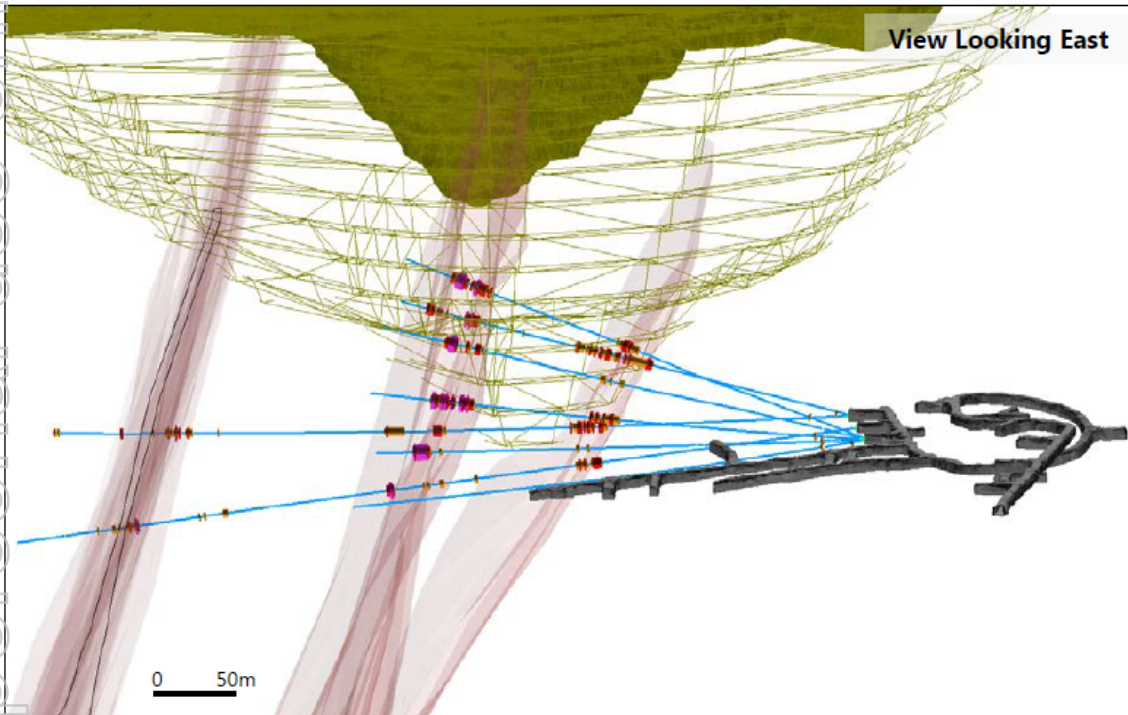


- 12 holes were collared with 3,783 metres completed during Q1, 2013.
- 8 hole with analytical results returned to date.



# MALU UNDERGROUND PROJECT

## SIGNIFICANT UNDERGROUND DIAMOND DRILLING RESULTS TO DATE



### LEGEND

Pit Shell	Malu Development	Holes drilled in Q1 2013	0.5 - 1.5% Cu	+5 % Cu
Final Pit Design	Resource targets		1.5 - 5% Cu	

Intercepts are length weighted down-hole,  $\geq 0.5\%$  Cu with  $\leq 2\text{m}$  consecutive down-hole internal dilution, widths reported may not reflect true widths, please refer to the Prominent Hill 2012 Mineral Resource Explanatory and notes for further explanation on quality assurance.

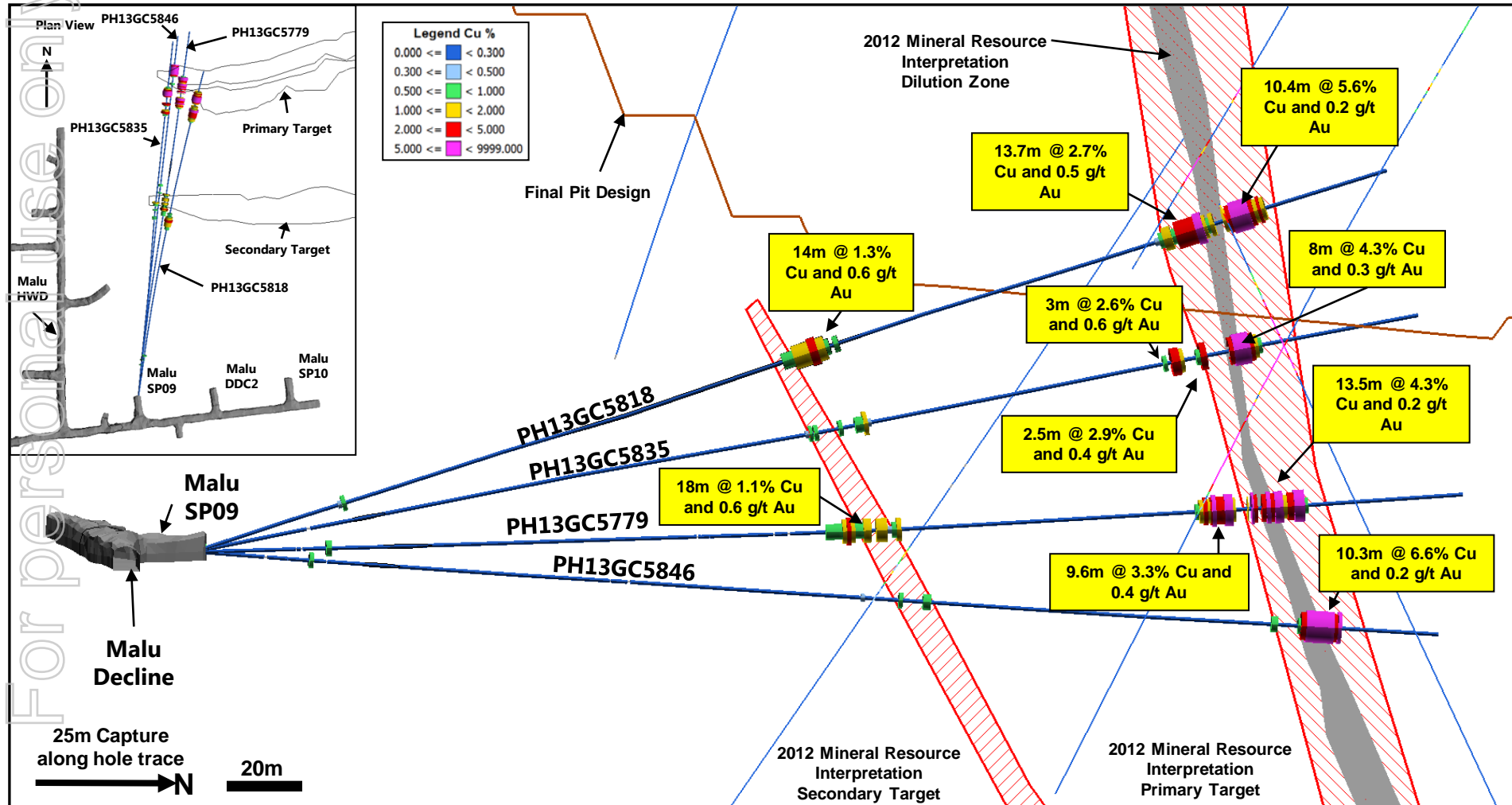
^Intercepts inside final Malu Open Pit design.

- Drilling is confirming 2012 Mineral Resource interpretation.
- Three drills operational from footwall drilling platforms since March 2013.

Hole location	From (metres)	Interval (metres)	Copper %	Gold g/t
PH13GC5779	148	18	1.1	0.6
PH13GC5779	236.1	9.6	3.3	0.4
PH13GC5779	249.5	13.5	4.3	0.2
PH13GC5800	143	24.5	1.6	0.3
PH13GC5800	240	7.8	2.0	0.4
PH13GC5800	265	12	0.9	0.3
PH13GC5800	392	4	1.4	0.0
PH13GC5800	399	10	1.4	0.3
PH13GC5818	144.2	14	1.3	0.6
PH13GC5818^	238.3	13.7	2.7	0.5
PH13GC5818^	254.3	10.4	5.6	0.2
PH13GC5835	235	3	2.6	0.6
PH13GC5835	249	8	4.3	0.3
PH13GC5836	153.2	6.8	2.8	0.6
PH13GC5836	162	7	1.3	0.6
PH13GC5836	278.4	4.5	4.8	0.3
PH13GC5836	432	7	2.0	0.1
PH13RD5837	120	18	1.3	0.4
PH13RD5837^	140.2	27.8	1.3	0.1
PH13RD5837^	227	9	3.7	0.2
PH13RD5837^	254	5.2	2.6	0.4
PH13GC5846	261.4	10.3	6.6	0.2

# MALU UNDERGROUND PROJECT

CROSS SECTION DRILLING RESULTS: PH13GC5779, PH13GC5818, PH13GC5835, PH13GC5846



### **COMPETENT PERSONS STATEMENT**

THE EXPLORATION RESULTS RELATING TO PROMINENT HILL HAVE BEEN APPROVED FOR RELEASE IN THE FORM AND CONTEXT IN WHICH THEY APPEAR BY MR COLIN LOLLO WHO IS A FULL TIME EMPLOYEE OF OZ MINERALS AND HAS SUFFICIENT EXPERIENCE WHICH IS RELEVANT TO THE STYLE OF MINERALISATION AND TYPE OF DEPOSIT UNDER CONSIDERATION AND TO THE ACTIVITY UNDERTAKEN TO QUALIFY AS A COMPETENT PERSON AS DEFINED IN THE 2004 EDITION OF THE 'AUSTRALASIAN CODE FOR REPORTING OF EXPLORATION RESULTS, MINERAL RESOURCES AND ORE RESERVES.

INFORMATION IN THIS ANNOUNCEMENT WHICH REFERS TO PROMINENT HILL MINERAL RESOURCES IS A SUMMARY OF INFORMATION RELATING TO MINERAL RESOURCES SET OUT IN THE PROMINENT HILL MINERAL RESOURCES AND ORE RESERVES STATEMENT AS AT 30 JUNE 2012. THIS INFORMATION HAS BEEN COMPILED BY JOHN PENHALL AND ANDREW LORECK WHO ARE BOTH FULL TIME EMPLOYEES OF OZ MINERALS AND MEMBERS OF AUSTRALASIAN INSTITUTE OF MINING AND METALLURGY (AUSIMM).

THE INFORMATION RELATING TO MINERAL RESOURCES HAS BEEN APPROVED FOR RELEASE IN THE FORM AND CONTEXT IN WHICH IT APPEARS BY MR JIM HODGKISON WHO IS A FULL TIME EMPLOYEE OF OZ MINERALS AND HAS SUFFICIENT EXPERIENCE WHICH IS RELEVANT TO THE STYLE OF MINERALISATION AND TYPE OF DEPOSIT UNDER CONSIDERATION AND TO THE ACTIVITY UNDERTAKEN TO QUALIFY AS A COMPETENT PERSON AS DEFINED IN THE 2004 EDITION OF THE 'AUSTRALASIAN CODE FOR REPORTING OF EXPLORATION RESULTS, MINERAL RESOURCES AND ORE RESERVES.

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# COSTS



- Overview – production costs.
- C1 comparison Q4 2012 vs Q1 2013.
- Cost composition by area.
- Focus upon costs.
- Guide to IFRIC 20
  - Background & impact
  - How to model it.



# OVERVIEW - PRODUCTION COSTS



	A\$m		Cost to Conc A\$ tonne milled		C1 USc/lb		
	MAR QTR '13	DEC QTR '12	MAR QTR '13	DEC QTR '12	MAR QTR '13	DEC QTR '12	
Open Pit Mining costs	112.8	113.4	47.9	48.7	266.9	235.7	Gross A\$ costs at similar levels
Ankata Underground mining costs	15.7	13.9	6.7	6.0	37.1	29.0	
Deferred mining	(33.5)	(50.0)	(14.2)	(21.5)	(79.0)	(103.7)	
Ore inventory adjust	(16.5)	(1.2)	(7.0)	(0.5)	(39.4)	(2.7)	
Total site processing costs	26.3	25.6	11.2	11.0	62.3	53.4	Gross A\$ costs at similar levels
Other direct cash costs	9.5	9.4	4.0	4.1	22.4	19.7	Gross A\$ costs at similar levels
<b>COST TO CONC</b>	<b>114.2</b>	<b>111.2</b>	<b>48.5</b>	<b>47.8</b>	<b>270.3</b>	<b>231.4</b>	
TC and transport	17.0	18.2	7.2	7.8	40.3	37.9	
Net by product credit (incl processing/TCRC/Transport)	(53.0)	(57.0)	(22.5)	(24.5)	(125.6)	(118.4)	
<b>TOTAL C1 COSTS</b>	<b>78.2</b>	<b>72.5</b>	<b>33.1</b>	<b>31.0</b>	<b>185.0</b>	<b>150.9</b>	
Physicals:							
Tonnes mined (m)			18.3	21.7			
Tonnes milled (m)			2.4	2.3			
Payable lbs (m)					43.9	49.9	

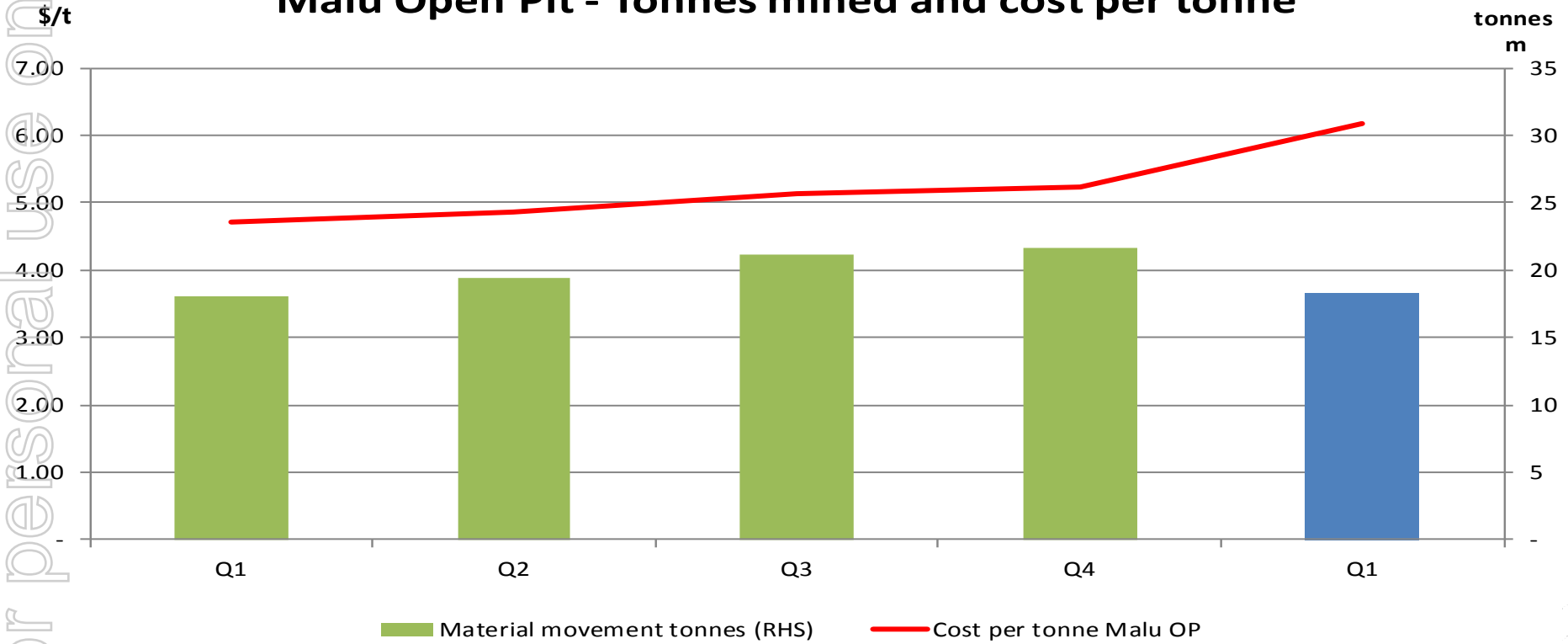
- Note: numbers above include the adoption of IFRIC 20 for Q1 2013. The impact of the IFRIC 20 was a benefit of 12.3USc/lb, which equates to A\$5.2m and A\$2.20 per tonne of ore milled.
- C1 is only one measure of site performance and includes the impact of payable metal, gold price and FX. Other measures focus upon the operations performance which highlights similar Qtr on Qtr performance for all activities other than the open pit mine.

# OPEN PIT ACTIVITY – TONNES MINED AND COST PER TONNE



## Malu Open Pit - Tonnes mined and cost per tonne

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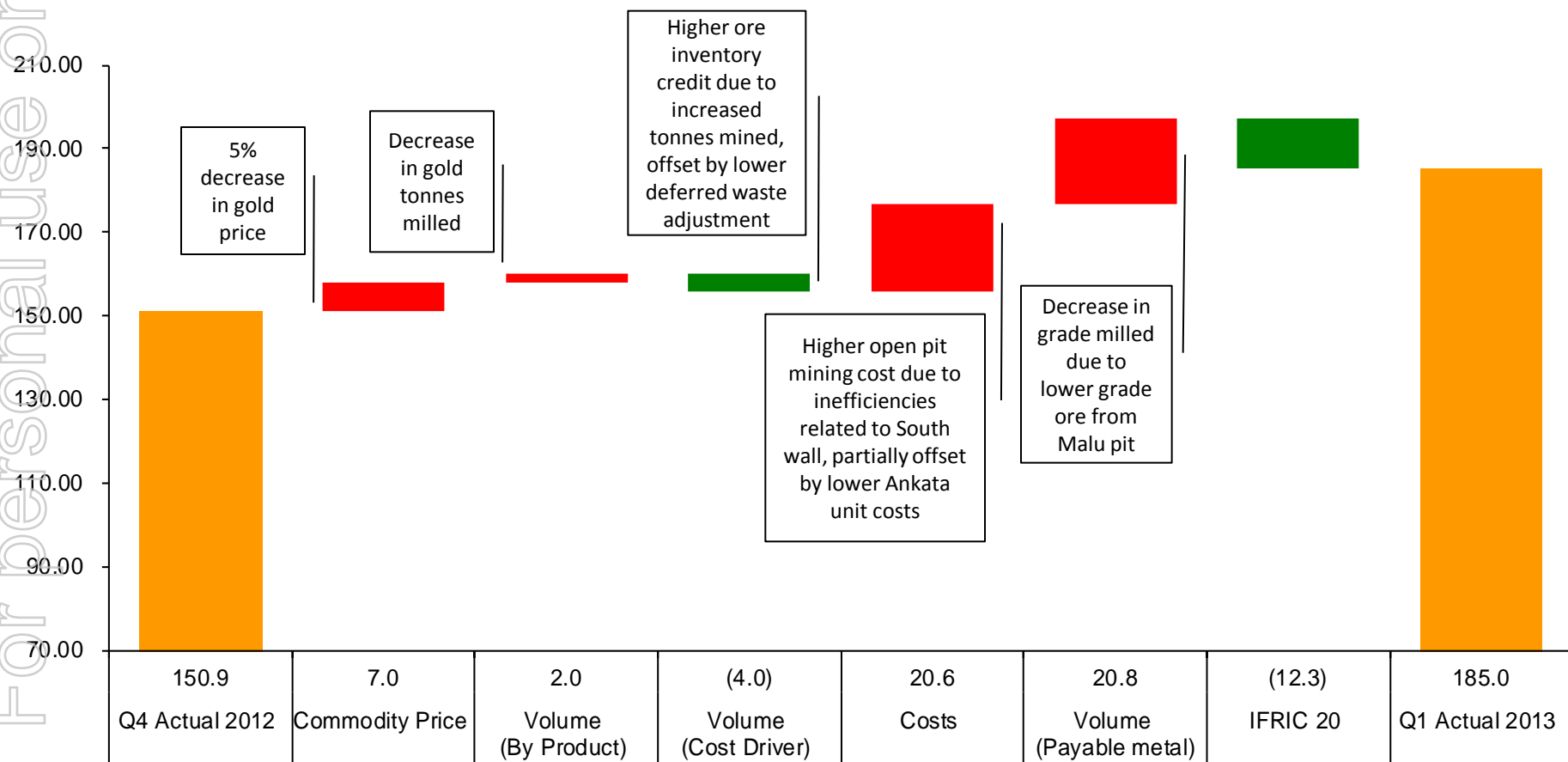


- Open pit equipment levels similar between Q4 2012 and Q1 2013.
- Slip in the wall impacted material movement heavily resulting in lower material movement in Q1, pushing cost per tonne of material up.
- Tonnes mined will improve going forward.

# C1 COSTS – VARIANCE Q4 2012 VS Q1 2013

(US c/lb)

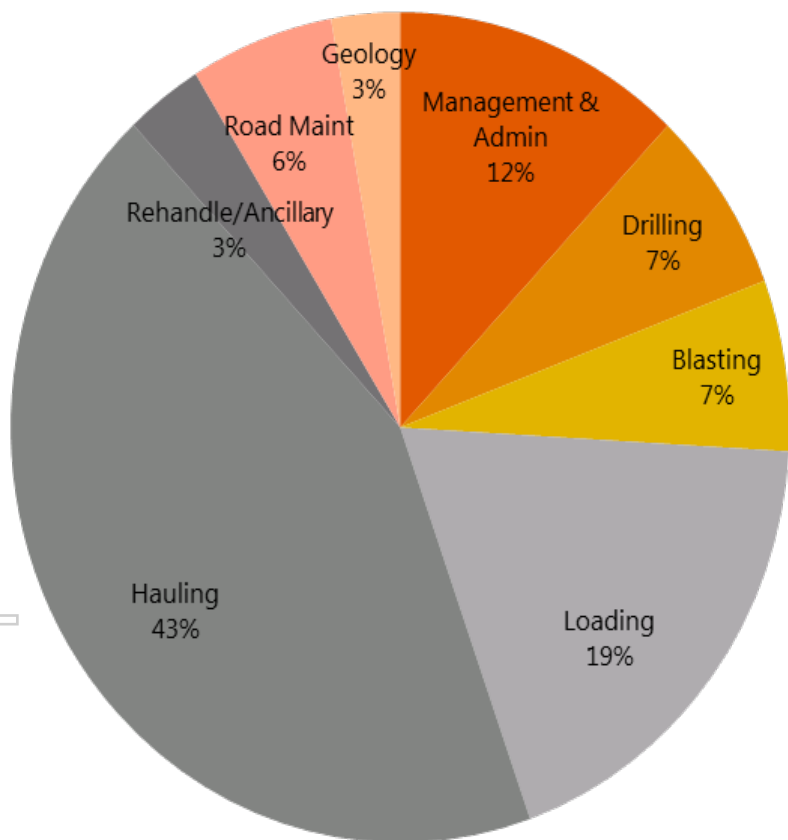
## Unit Cost C1 - Q4 2012 vs Q1 2013



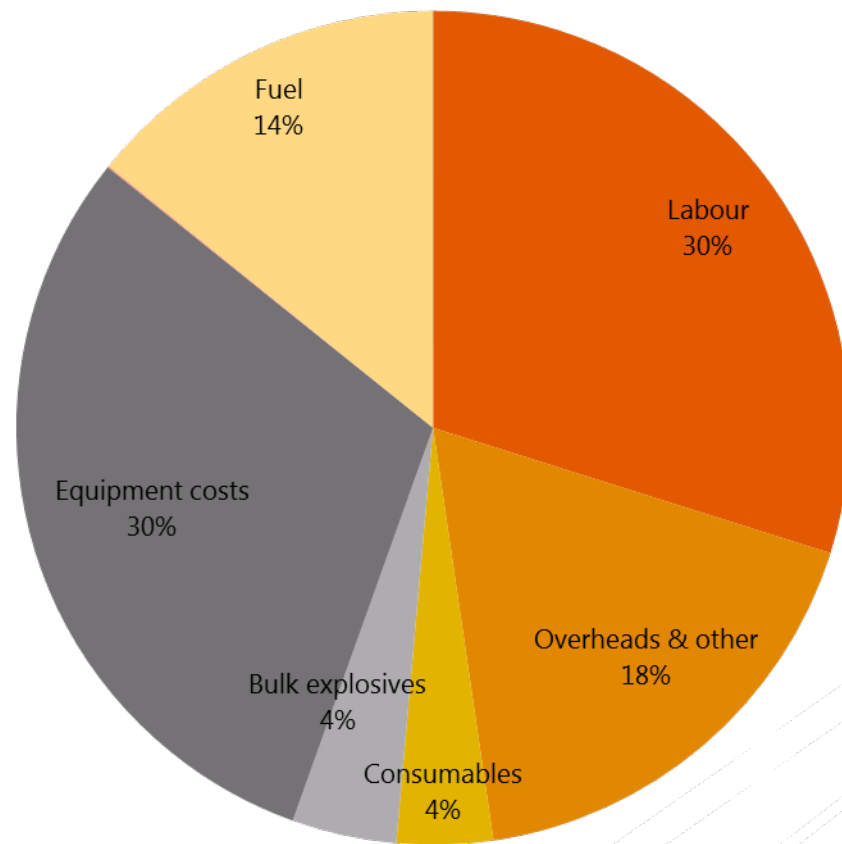
# OPEN PIT MINING COST COMPOSITION (INDICATIVE)

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## Cost by Activity



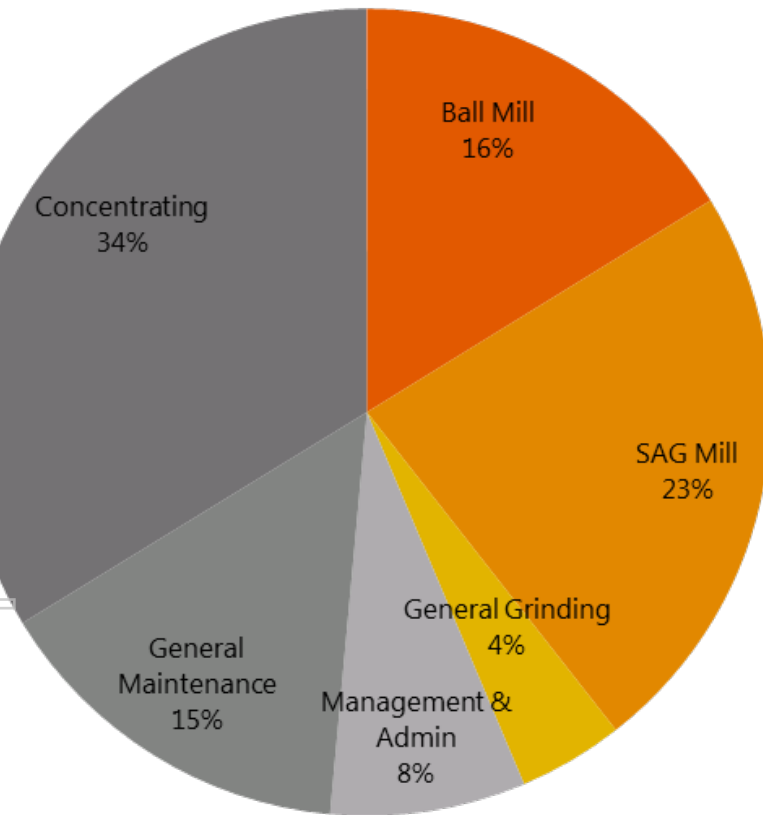
## Cost by Nature



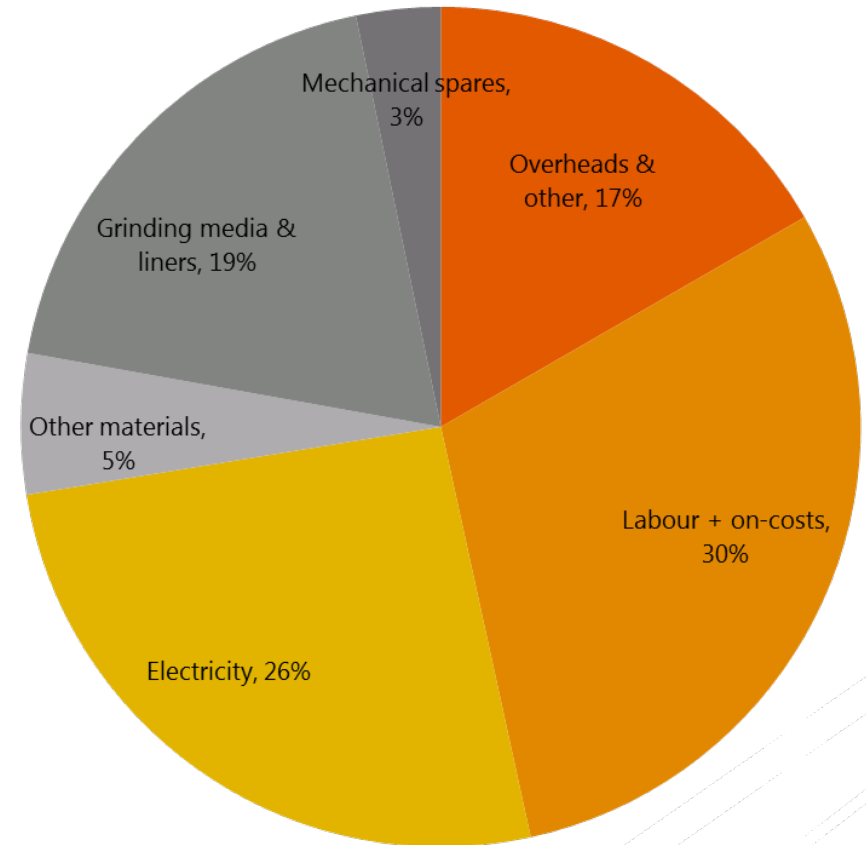
# PROCESSING & MAINTENANCE COST COMPOSITION (INDICATIVE)

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## Cost by Activity



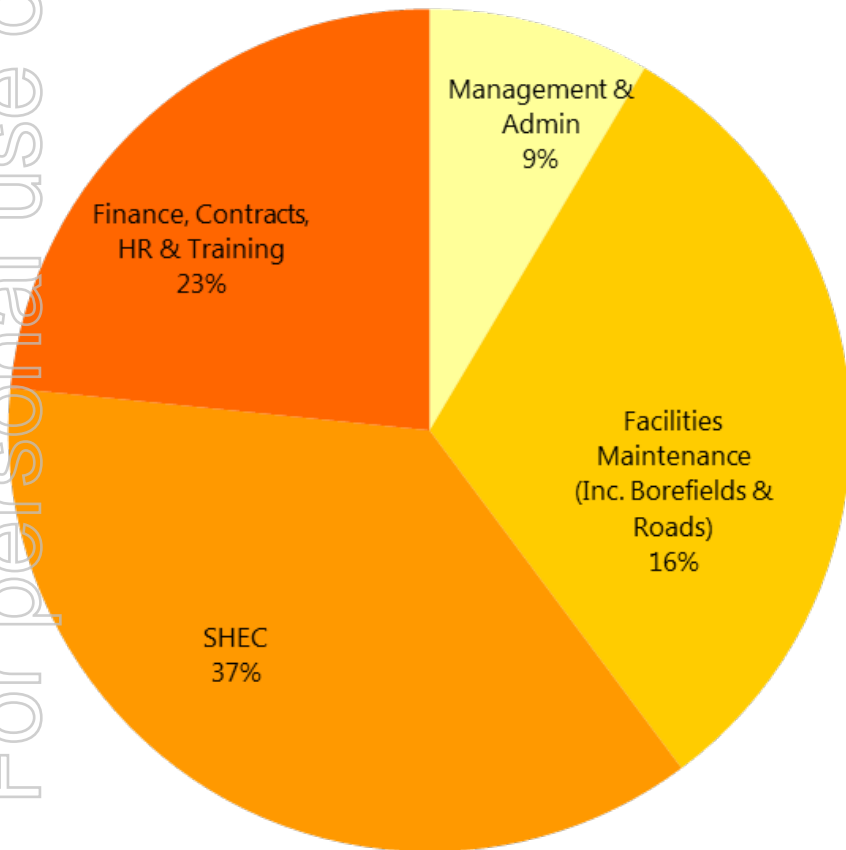
## Cost by Nature



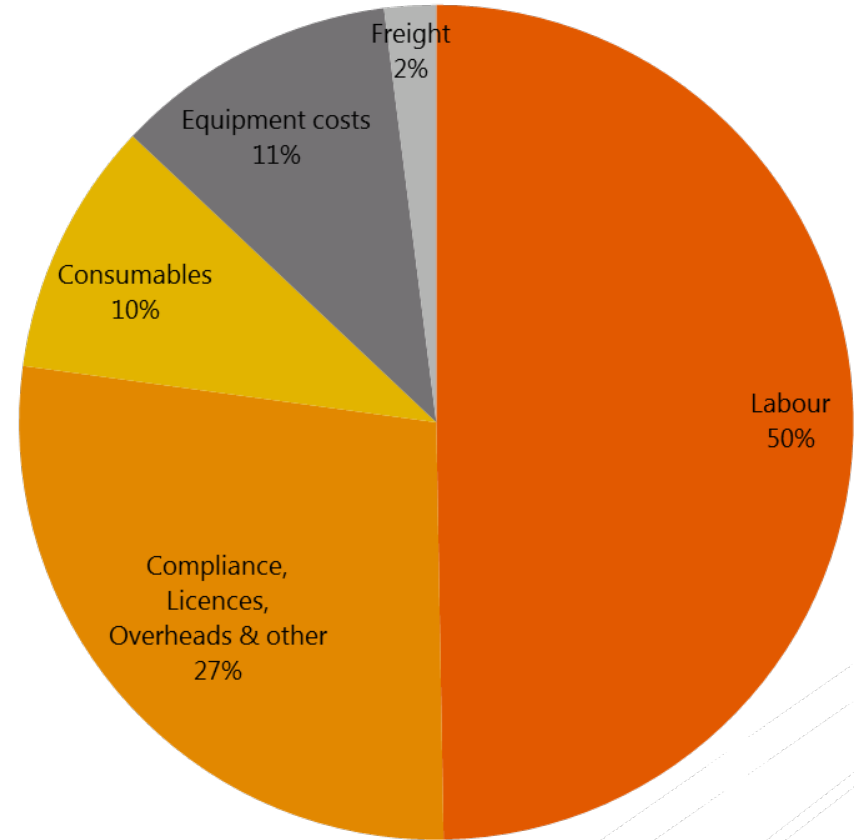


# SITE G&A COST COMPOSITION (INDICATIVE)

## Cost by Activity



## Cost by Nature



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# FOCUS UPON COSTS



- Business improvement within the physical business will be discussed in detail within the individual presentations of the Prominent Hill business (Mining, Processing etc..).
- OZ Minerals has been impacted in Q1 by increasing unit cost in the open pit however lower payable metal and lower material movement are the major factors in the recent performance.
- Cost focus is not just upon Prominent Hill, it is company wide.
  - Wage freeze.
  - Cuts to cash bonuses.
  - Cuts to equity programs.
  - Review of exploration costs – in particular regional activities.
  - Savings made with renegotiation of contracts as they mature.
    - Success to date with Fuel, Electricity, Village & Mining.
- Company's ability to negotiate continues to improve due to major projects either completing or being delayed (Olympic Dam expansion).

# IFRIC 20 – BACKGROUND & IMPACT



- New accounting interpretation IFRIC 20 must be adopted as of 1 January 2013 for all open pit mines – results in changes to OZ Minerals accounting technique for deferred waste.
- **Net change to OZ Minerals is minimal**
  - **Impact to EBIT is minor**
  - **No impact to cashflow.**
- Presentation within the Income statement will change with an increase in the deferral of waste (favourable impact to C1) being offset by higher depreciation (unfavourable impact to C2).
- Old technique –
  - Net Mining costs in the income statement were based upon the deferral or retrieval of waste tonnes as determined by the LOM strip ratio.
  - All entries were made via the deferred waste line within the Income Statement.
- New technique -
  - Permits the deferral of costs according to a Remaining LOM strip ratio but does not allow for the retrieval of costs from the balance sheet to the deferred waste line in the Income Statement.
  - In place of the retrieval of costs the deferred waste asset must now be depreciated.

# IFRIC 20 – HOW TO MODEL IT

There are two parts to the new calculation, as follows:

## 1. Deferral of waste according to the “reducing” remaining life of mine strip ratio

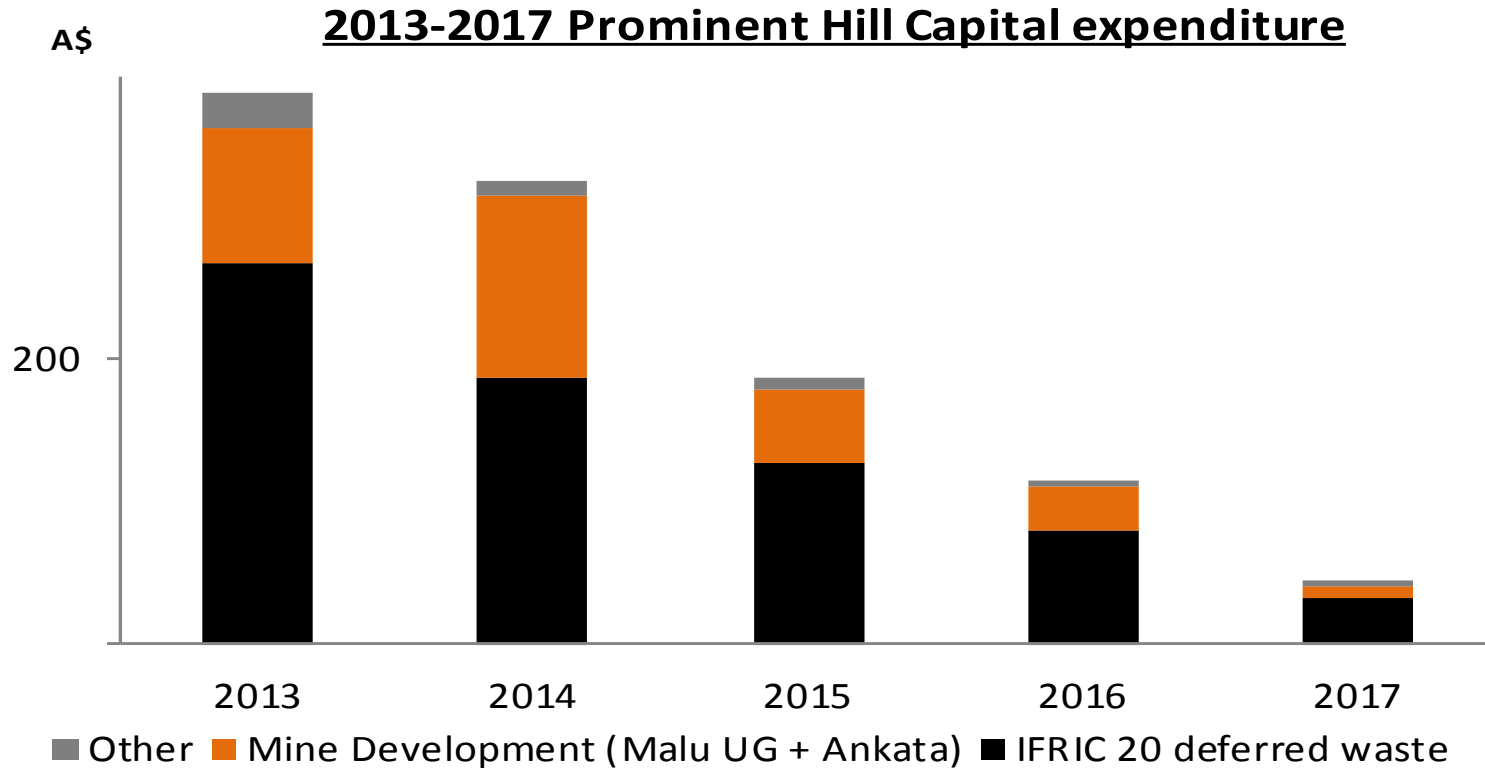
- Sum ore yet to be mined (eg 50 million tonnes).
- Sum waste yet to be mined (eg 220 million tonnes).
- Divide waste by the ore to achieve the remaining life of mine strip ratio ( $220/50 = 4.4:1$ ).
- Compare the actual strip ratio for the period to this remaining life of mine strip ratio. Expect the actual strip ratio of waste to be above the remaining life of mine strip ratio. Make a deferral from the PL to the asset in the balance sheet for the extra waste.
- For the next period – go back and start process again with “sum ore yet to be mined”.

## 2. Calculate depreciation on the deferred mine asset

- Determine the deferred waste asset balance in \$s at the start of the period (eg \$230m).
- Sum ore yet to be mined (as per above eg 50 million tonnes).
- Divide the deferred waste asset by the sum of the ore to be mined to get a rate per tonne ( $\$230/50 = \$4.60$ ).
- Multiply the rate per tonne by the ore mined in the period – this amount is the \$ depreciation for the period.
- For the next period – go back and start process again.

The above completes the changes in the technique. Forward of these steps apply existing process.

# IMPACT OF IFRIC 20 ON CAPITAL EXPENDITURE



- IFRIC 20 will increase the deferral of waste from the income statement
  - This results in a lower mining cost that is offset by increased deferred waste capital expenditure
  - There is no cash impact
- Depreciation will increase so that the impact to the Income statement is minimal



# ANNUAL DEPRECIATION CHARGE



The annual depreciation charge, including the effect of IFRIC 20 will consist of:

- Depreciation on the plant – Units of ore processed divided by remaining ore reserve (inc. stockpiles). Written down value (“WDV”) per 2012 disclosures A\$678m. Depreciation recorded for the plant in 2012 was \$108m.
- Depreciation of land and buildings – straight line over life of mine. Cost of land and buildings per December 31 disclosures \$165m. Depreciation recorded in 2012 \$17.2m.
  - Depreciation of mine property and development– Units of ore mined over remaining ore reserves. Approximate WDV of mine property and development at 31 December:
    - Malu Open pit pre strip and development asset \$161m, (2012 Depreciation \$25m)
      - Ankata mine \$122m (2012 Depreciation \$4m)
      - IFRIC 20 deferred waste balance ~\$200-\$250m
  - IFRIC 20 implication – the depreciation expense will continue to grow through to end of mine, offset by lower mining costs. (The old method would have allocated the deferred mining asset to mining costs).

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