Aditya Birla Minerals Ltd

Investor Presentation

30 April 2014

Integrity | Commitment | Passion | Seamlessness | Speed

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All figures are expressed in Australian dollars unless stated otherwise.

Competent Persons Statement

The Information in this release that relates to exploration results is based on information compiled by Maurice Hoyle, a Fellow of the Australasian Institute of Mining and Metallurgy and Sean Sivasamy, a Member of the Australasian Institute of Mining and Metallurgy, both of whom are full time employees of the Company. Mr Sivasamy and Mr Hoyle have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as Competent Persons as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration results.

The Information in this release that relates to Mineral Resources is based on information compiled by Sean Sivasamy, a Member of the Australasian Institute of Mining and Metallurgy, who is a full time employee of the Company and Peter Ball of DataGeo Geological Consultants (an independent geological consultancy). Mr Sivasamy and Mr Ball have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as Competent Persons as defined in the 2004 Edition of the Australasian Code for Reporting of Mineral Resource results.

Mr Ball and Mr Sivasamy have the necessary experience relevant to the style of mineralisation, the type of deposit and the activity undertaken to qualify as a 'Competent Person' under the JORC Code for Reporting of Mineral Resources and Ore Reserves (2004 Edition). Mr Ball and Mr Sivasamy have given their consent to the inclusion of the material in the form and context in which it appears. Mr Ball is Principal of DataGeo Geological Consultants (an independent geological consultancy). Mr Sivasamy is a full time employee of Aditya Birla Minerals Limited.

The information in this report which relates to Mineral Resources for the Nifty and Mt Gordon operations is based on and accurately reflects reports prepared by DataGeo and Sivasamy in 2013. This information was prepared and first disclosed under the JORC Code 2004. It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.

The Information in this release that relates to Nifty Copper Operations Ore Reserve is based on information compiled by Robyn Stonell, under the direct supervision of Otto Richter who is a Member of the Australasian Institute of Mining and Metallurgy and full time employee of Snowden Mining Industry Consultants Pty Ltd. Mr Richter has sufficient experience to be a Competent Person as defined in the 2004 Edition of the Australasian Code for Reporting of Ore Reserve results. Mr Richter given his consent to the inclusion of the material in the form and context in which it appears.

The Information in this release that relates to Mt Gordon Operations Ore Reserve is based on information compiled by Edward Gleeson who is a Member of the Australasian Institute of Mining and Metallurgy and full time employee of AMC Consultants Pty Ltd. Mr Gleeson has sufficient experience to be a Competent Person as defined in the 2004 Edition of the Australasian Code for reporting of Ore Reserve results. Mr Gleeson has given his consent to the inclusion of the material in the form and context in which it appears.

The information in this report which relates to Ore Reserves for the Nifty and Mt Gordon Operations is based on and accurately reflects reports prepared by Mr Richter and Mr Gleeson respectively in 2013. This information was prepared and first disclosed under the JORC Code 2004. It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.

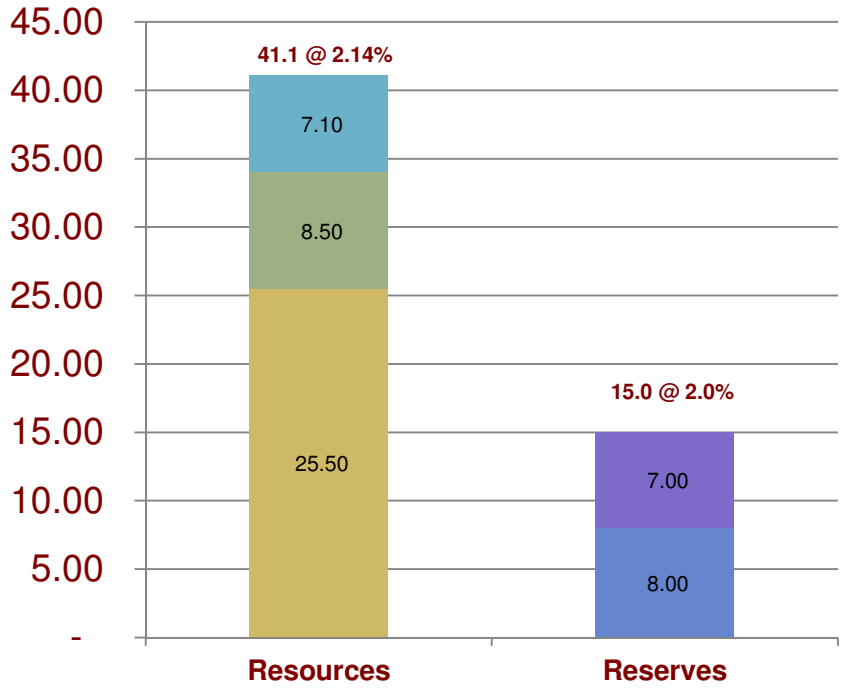
ABY: Company snapshot

Ordinary shares on issue	• 313,372,551
Share Price as at 20th March 2014 (before Trading halt)*	• A$ 0.295
Cash & cash equivalents As of 31/03/2014	• A $136.78 million
Dividend History	• 9 cents fully franked dividend paid for FY11 • 5 cents unfranked dividend paid for FY12 • No dividend declared for FY13 and FY14
Mines	• Owns two copper mines- Birla Nifty and Birla Mt Gordon.

*** Trading halt was declared subsequent to suspension of Nifty's operation subsequent to Sinkhole development.**

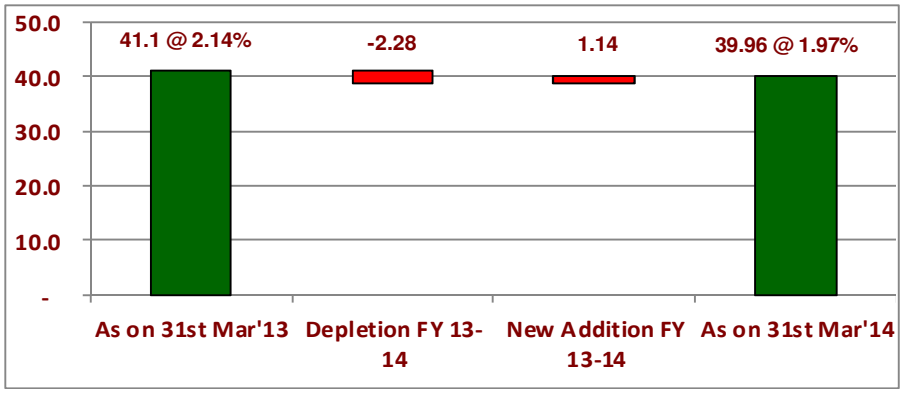
Nifty Resources and Reserves

As at 31st March 2013 (Mn tonnes)



Contained Copper in Resources	0.88Mn MT
Contained Copper in Reserves	0.30 Mn MT

Resources 31 March 2014 Mn. tonnes



Contained Copper in Resources	0.79 Mn MT

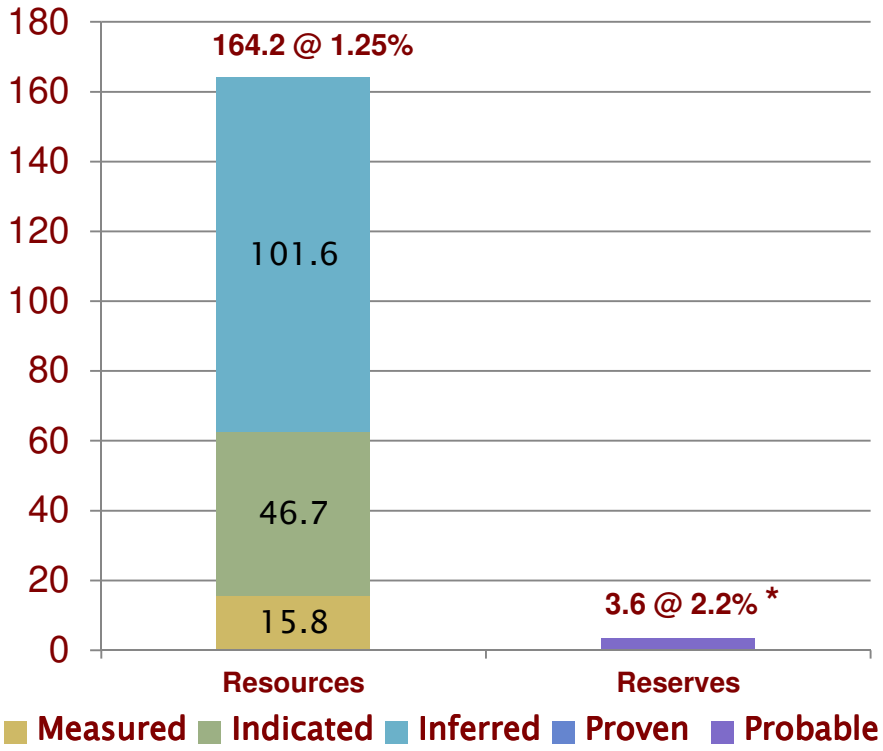
Reserve update and Depletion is underway

Measured Indicated Inferred Proven Probable

Resources Include both oxides and sulphide. Reserves are shown for sulphide only . Details at Annexure A & B

Mt Gordon Resources and Reserves

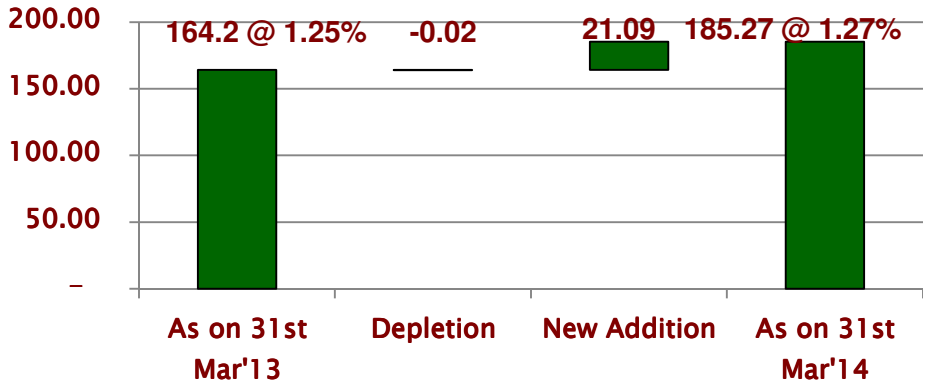
As at 31st March 2013 (Mn tonnes)



* Based on low volume operations

Contained Copper in Resources	2.05 MN MT
Contained Copper in Reserves	0.08 MN MT

Resources as on 31st March'14 Mn. tonnes



Contained Copper in Resources	2.35 MN MT

Details at Annexure A & B

Key Highlights: Year 2013-14

- **Productivity** : Nifty mined and milled highest ever ore in 2013-14, before the mine operation was stood down post development of a sinkhole in the open pit and subsequent prohibition notice from DMP, which resulted in 11 days loss of production to 31st March 2014
- **Costs :** Focused vigorously on various cost optimization initiatives
- **Resource and Reserves** : Mt Gordon contained copper resource increased by 289kt, from 2.05 Mn tonnes of contained copper as on 31-03-13 to 2.35 Mn tonnes of contained copper as on 31-03-14.
- **Reducing grade** : Nifty average grade reduced by 11% Y-o-Y to 2.08% in FY14 which resulted in 10% lower copper production as compared with FY13
- **Cash and cash equivalent balance** increased from $100mn as of 31st March 2013 to $137mn as of 31st March 2014 after taking care of Mt Gordon care and maintenance costs and all capital expenses.

FY14 Financial Highlights

Revenue	• A$ 317 million
EBITDA	• A$ 51.87 million
Depreciation & Amortisation	• A$ 54.80 million
Gross Profit	• A$ 5.70 million
NPAT	• A$ (0.22) million

ABML: Operational Highlights for FY14

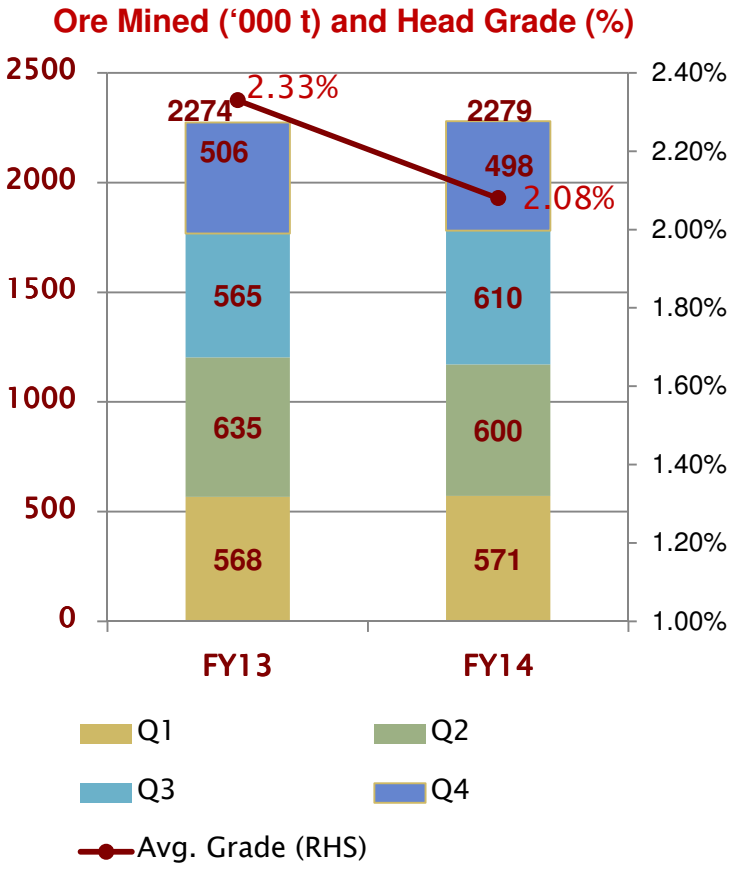
Production decreased in FY14 compared to that in FY13 as MGO operations was kept under care & maintenance since April 2013

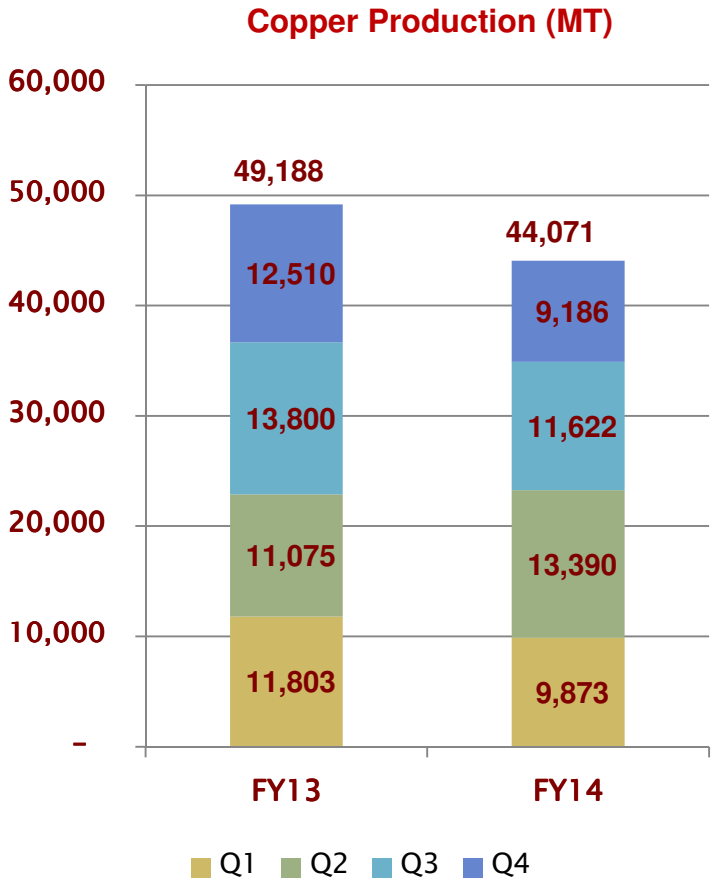
Ore Mined	• 32% decrease in ore mined: 2299k tonnes of ore in FY2014 as compared to 3379k tonnes in FY2013
Ore processed	• 32% decrease in Ore processed: 2318k tonnes of ore in FY2014 as compared to 3384k tonnes in FY2013
Copper production	• 36% decrease in Copper production: 44,565 tonnes in FY2014 as compared to 69,291 tonnes in FY2013

Nifty Production

Ore mined remained same on YoY basis.

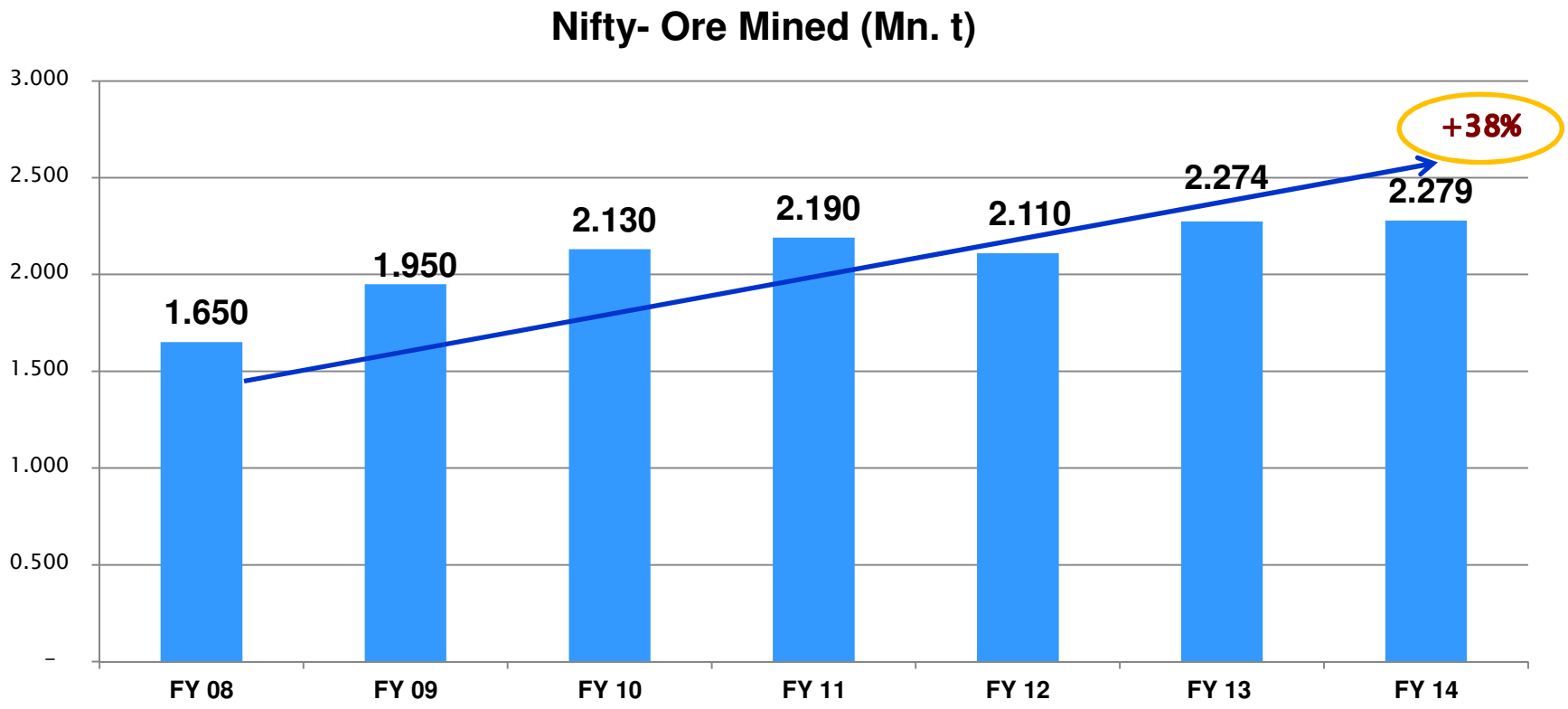
Copper production decreased by 10% (due to reduction in grade YoY, 2.08% in FY14 vs 2.33% in FY13)





Nifty Ore Mined

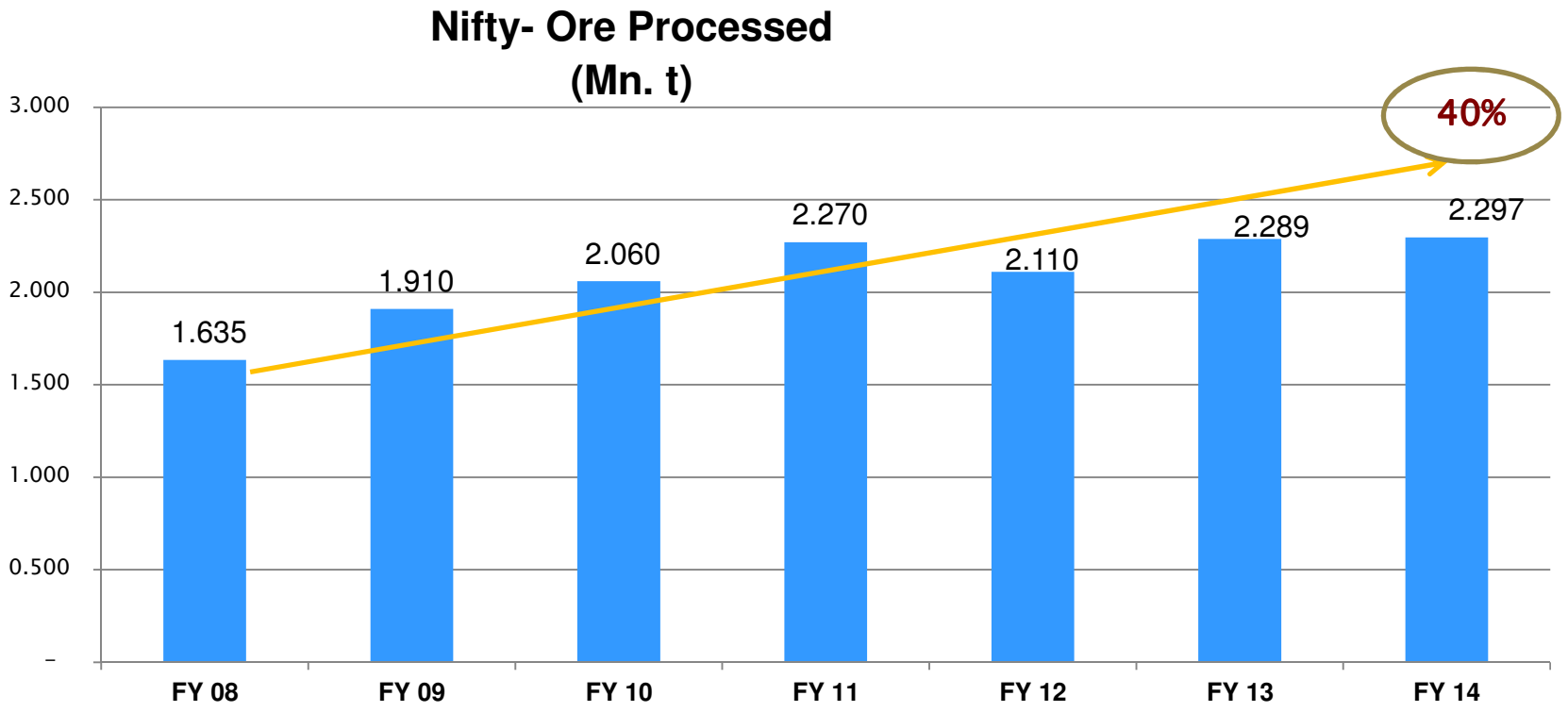
Mine productivity increased by 38% in last 6 years



Achieved highest ever Mine productivity in FY14

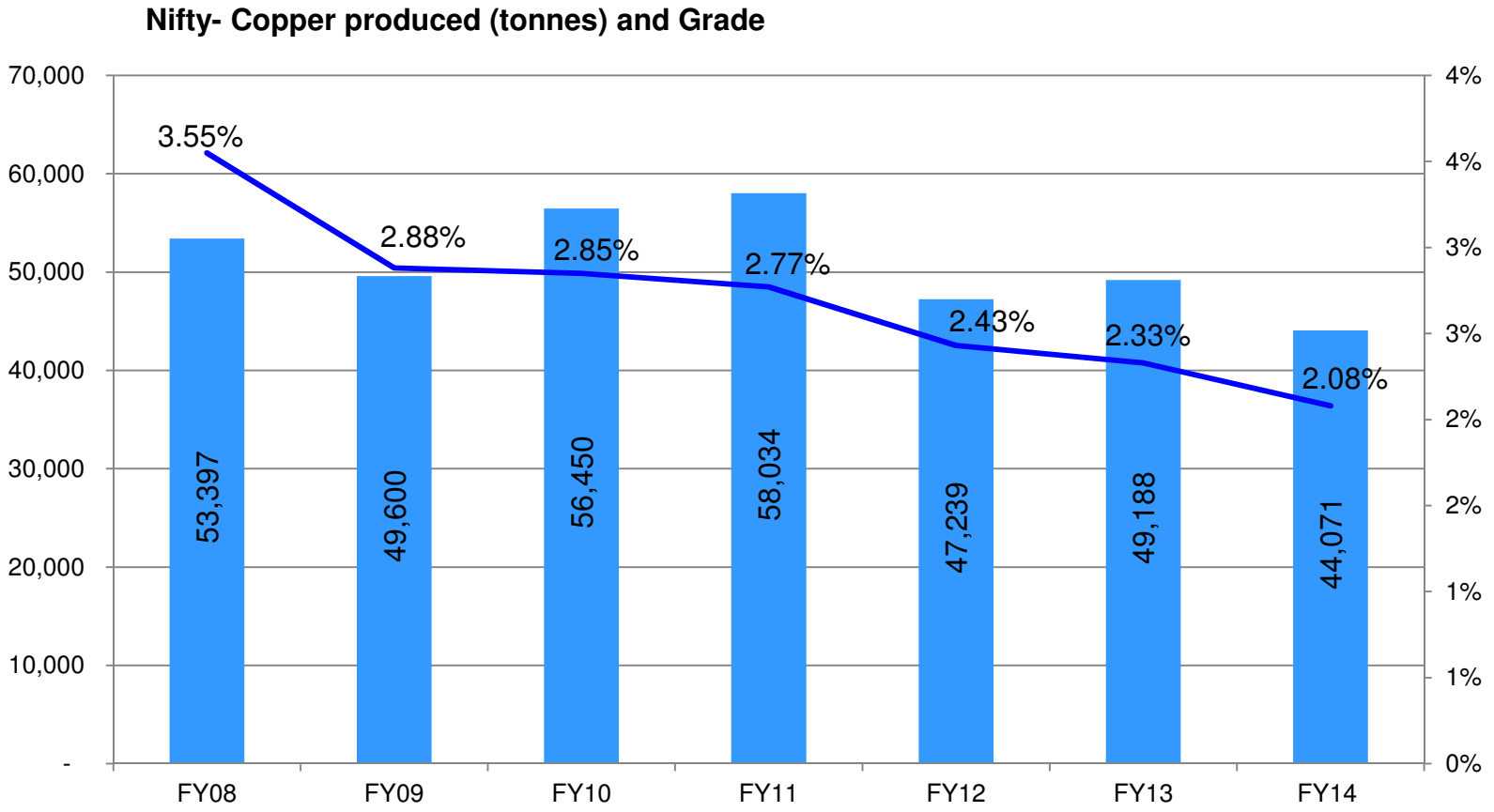
Nifty Ore Processed

Mill productivity increased by 40% in last 6 years



Continued to increase Mill productivity in the current year.

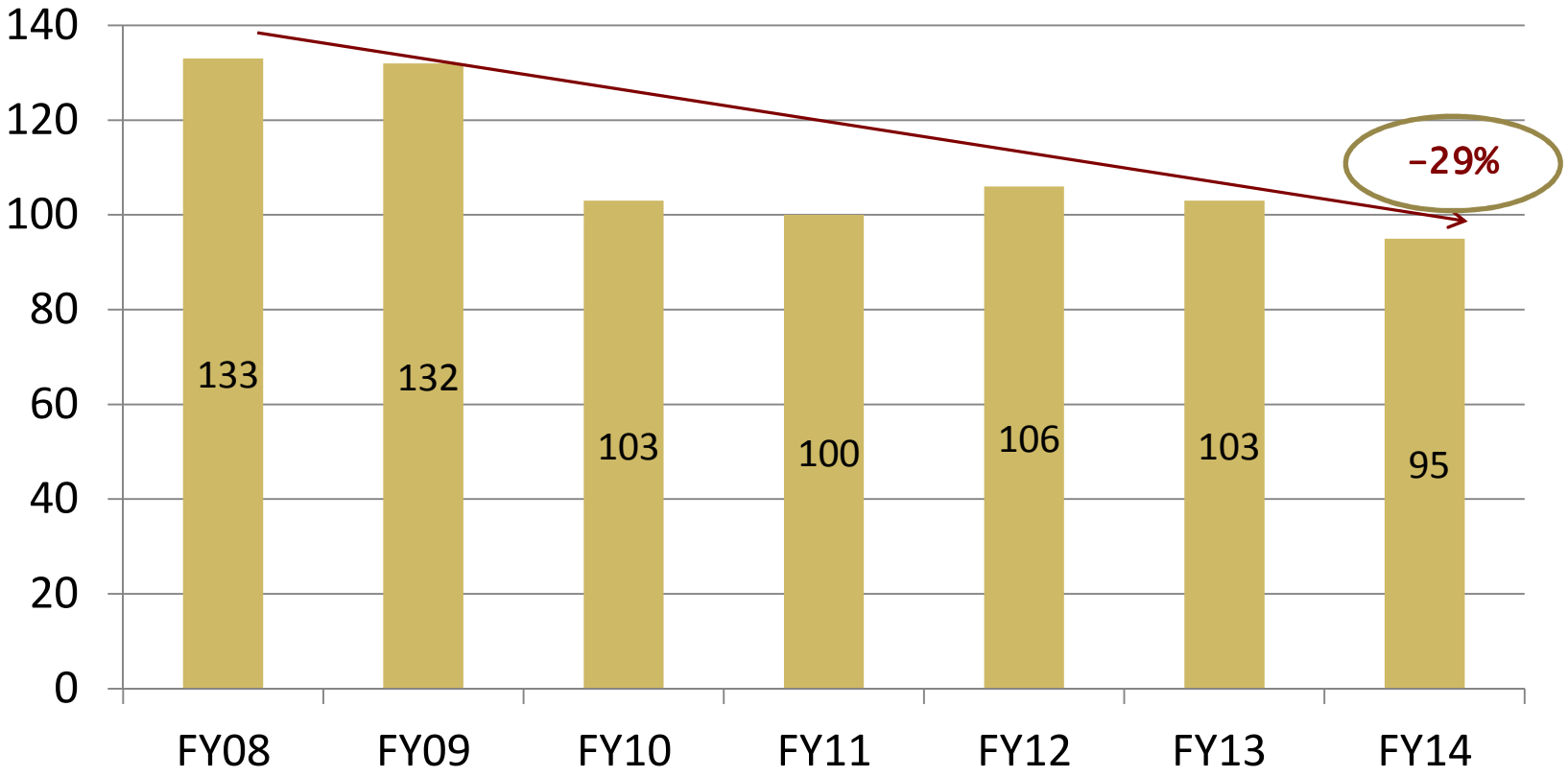
Nifty Copper produced and Average Grade



- Grade has gone down by 41% since 2008
- In spite of 41% reduction in grade, impact on Copper production was mitigated substantially by consistent improvements in operational efficiencies

Nifty: Unit costs

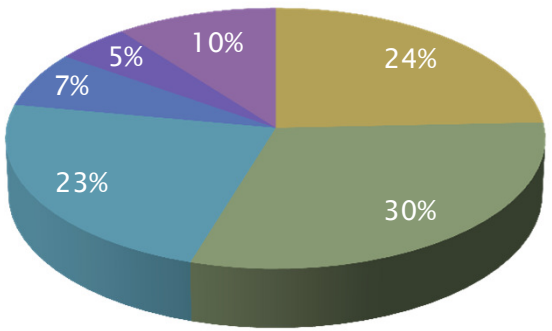
Site cost $ per ton of ore mined / processed



Cost inflation pressure has been countered by increase in mine output consistently

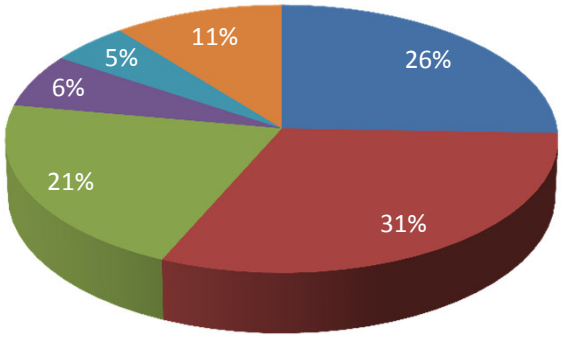
Nifty : Break-up of Site Cash Cost

YTD FY 2014



Maintenance
Manpower
Mining Exp
Energy
Reagent & Consumables
Overheads

FY 2013



Maintenance
Manpower
Mining Exp
Energy
Reagent & Consumables
Overheads

Nifty C1 Cost per Lb of Copper

A cents/lb

NIFTY C1 COST	FY14	FY13
Total Site Cash Cost	223	217
Transportation & Logistics Cost	18	16
Tc/Rc	24	17
Total CI cost	**265**	**250**

Site cost per lb of copper was higher in FY14 than previous year due to lower copper grade.

Nifty: Cost Optimization Initiatives

Particulars	Completion status / Timeframe
Rationalization of manpower numbers	Completed
Review cost through strategy rebuild plan- put optimised rebuild strategy in place	Completed
Tyres Tender: Long term contract.	Completed
Camp Rooms: De-hired	Completed
Mobile store relocation resulting manpower reduction	Completed
Cement: Develop alternative vendor and sourcing strategy	Completed
Reduce and/or optimise the cost of development- To optimize Fibrecrete, consumables and support	Completed
Maximise haulage capacity- To improve time management, designs by upgrading PITRAM (increased Ore production of 50kt)	Completed
Look for methods of recovery improvements	Ongoing
Reduce and/or optimise the cost of blasting- Optimize Powder factor, drill design, explosive pricing- Finalise long term contract	Q1'FY15
Maximise effectiveness of pastefill- Dry tails plant rebuild commenced and expected to be complete and mothballed by Dec '13. Checker board tertiary and South limb stopes identified for waste rock disposal	Dry tails plant under care and maintenance. Checker board review ongoing
Change delivery system- Optimise cement addition by installing Rotary valve and Bin Activators	Completed

Nifty: Update on Sinkhole Incidence

- A Sinkhole developed in southern wall of open pit on 20th March'14 at around 4.15pm. The mining crew was immediately evacuated safely to the surface and DMP was notified of the incident.
- DMP issued a Prohibition Notice on 21st March'14 suspending all operations to undertake investigation by an experienced geotechnical expert to establish the cause of the sinkhole and until all safety related issues identified in the risk assessment are adequately addressed.
- Report from external geotechnical expert and our Risk assessment report have been submitted to DMP.
- Most of the employees have been stood down with minimum people working at site to maintain essential services.
- Subsequently on acceptance of our proposed investigative work plan, DMP has given permission to start Probe drilling at Level 12 and 14 to investigate the extent of the sinkhole, potential void on top of stopes and/or status of the water level and quantities in the aquifer as well as to install Seismic monitoring system.
- The timing of mine resumption can be determined only after the assessment of aquifer and void status through probe hole drilling (which are in progress) provided all the identified risks have been managed and approved by DMP.

Nifty Operating Strategy

- To complete the Probe drilling and other investigative activities and get DMP's approval for re-start of the mining operations in the safe manner

- Expand resource and reserves base to extend the mine life

- Find extension of current ore body and new copper ore body through exploration.

- Continue focus on the cost optimisation initiatives and implement the identified initiatives

Mt Gordon: Strategic Review by ANZ Bank

- Mt Gordon was put under care & maintenance in April 2013 subsequent to a Scoping study conducted by AMC Consultants suggesting potential for reducing the operating cost through sub level cave mining methodology with hoist shaft haulage

- Scoping study highlights possibility of cost effective ~4 million tonnes per annum operations for 15 years with potential of total operating mine life of 20 years, total production target of 70mn tonnes at average copper grade of 1.3%

- Corporate Advisory Division of ANZ Bank was appointed as a sole financial advisor to carry out strategic review of Mt Gordon operations and advise on all strategic options

- The strategic review process has taken a considerable amount of time in order to fully evaluate each alternative available to the Company.

- The ANZ has concluded its review and has provided its draft findings to the management of the Company for comment.

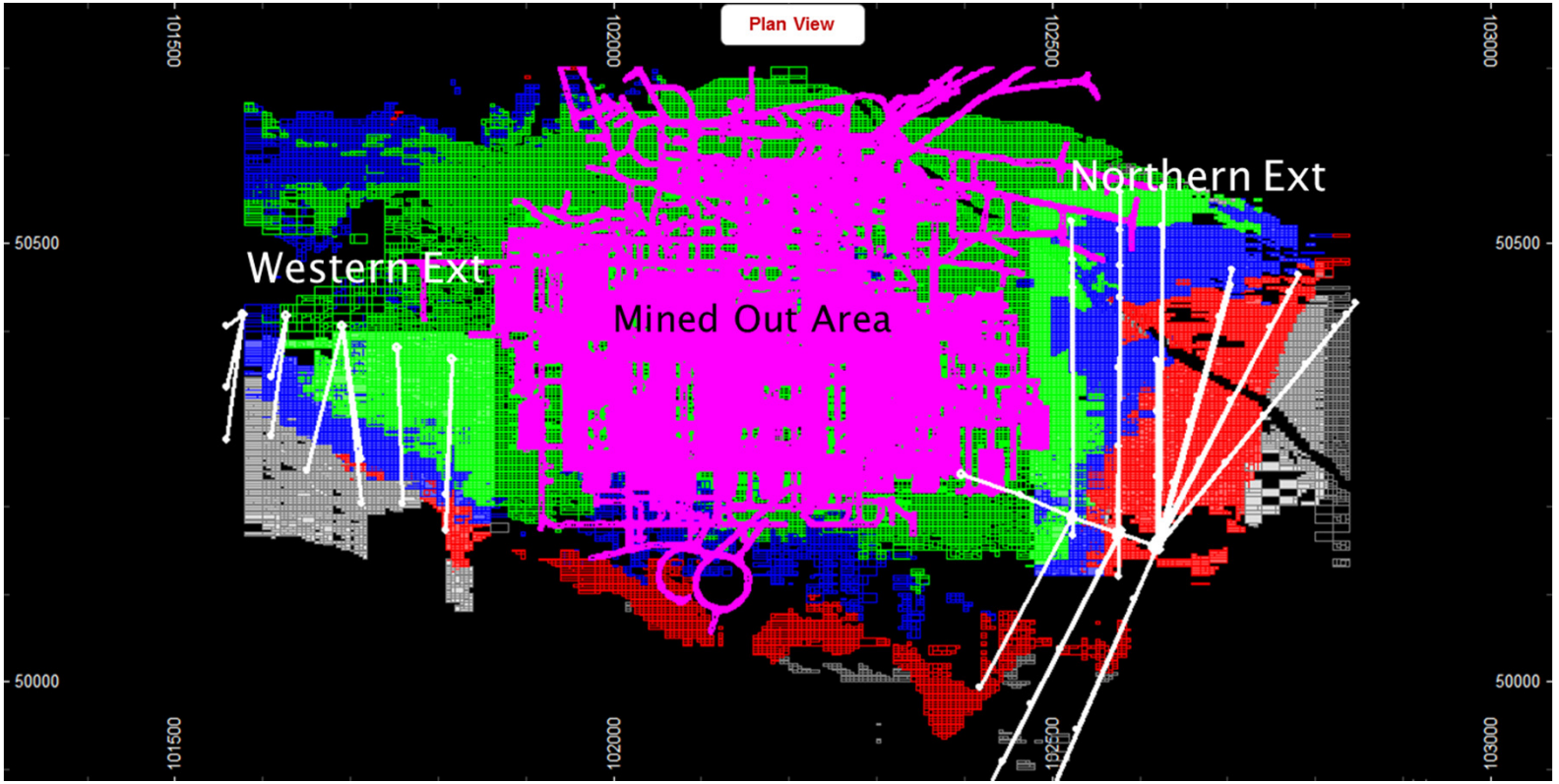
- The findings include an assessment of the following:
  - An outright divestment of the project or induction of a strategic partner into the project;
  - Optimise mine by further exploration and resource evaluation to generate reserves;
  - Remain under care and maintenance until market conditions improve;
  - Restart operations after optimizing operating parameters

- Management is working with ANZ in order to finalise the report following which the Board is expected to make an appropriate decision in coming quarter.

Exploration Achievements FY14

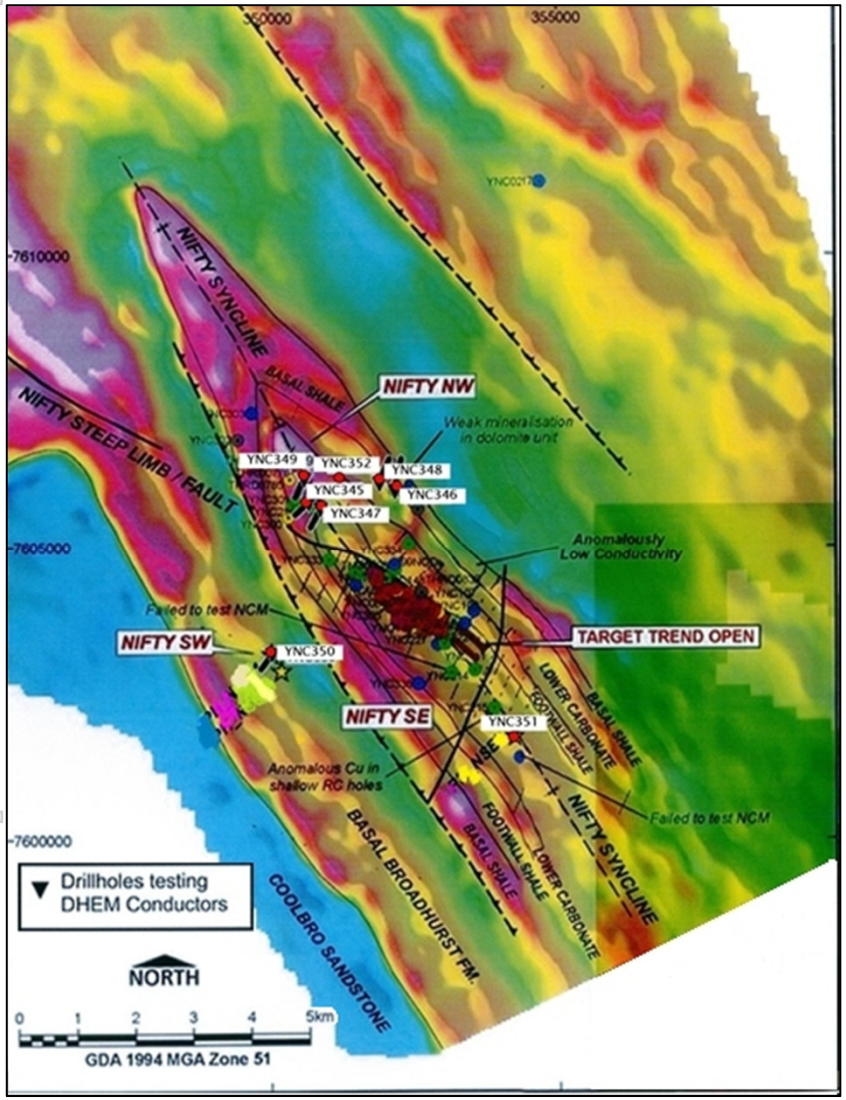
- Discovered new ore lenses at Mt Gordon Copper Operation (H lens and Mammoth South).
- Mineral Resource updated for the Mt Gordon Copper Operation; 185.24Mt @ 1.26% Cu above a reporting cut-off of 0.5% Cu for 2.33Mt of contained copper. This represents a 13% increase in contained copper over that of 31st March 2013.
- Mineral Resource updated for the Nifty Sulphide Copper Operations; 30.6Mt @ 2.5% Cu above a reporting cut-off of 1.2% Cu.
- A total of 3,833m were drilled (January-March);
  - Nifty –3,833m (Surface drilling for resource conversion of Western Resource Extension)
- A total of 36,904 metres were drilled to end March 2014:
  - Nifty –18,211m (Surface exploration near mine 8,920m, Regional 2,852m, Surface Resource 3,833m, and Underground 2,616m)
  - Mt Gordon – 13,000m (Surface 5,550m, Underground 7,450m)
  - Maroochydore—5,693m
- Drilling cost / m rates were reduced by 25-30% enabling reduction of projected drilling costs by $2.5M over the period.
- Drilled first hole of DMP co-funded drilling ($140,000). One further hole remaining.
- Completed specialist targeting studies on Nifty near mine, Nifty Regional and Maroochydore areas to generate drilling targets.

Nifty – Resource Geology



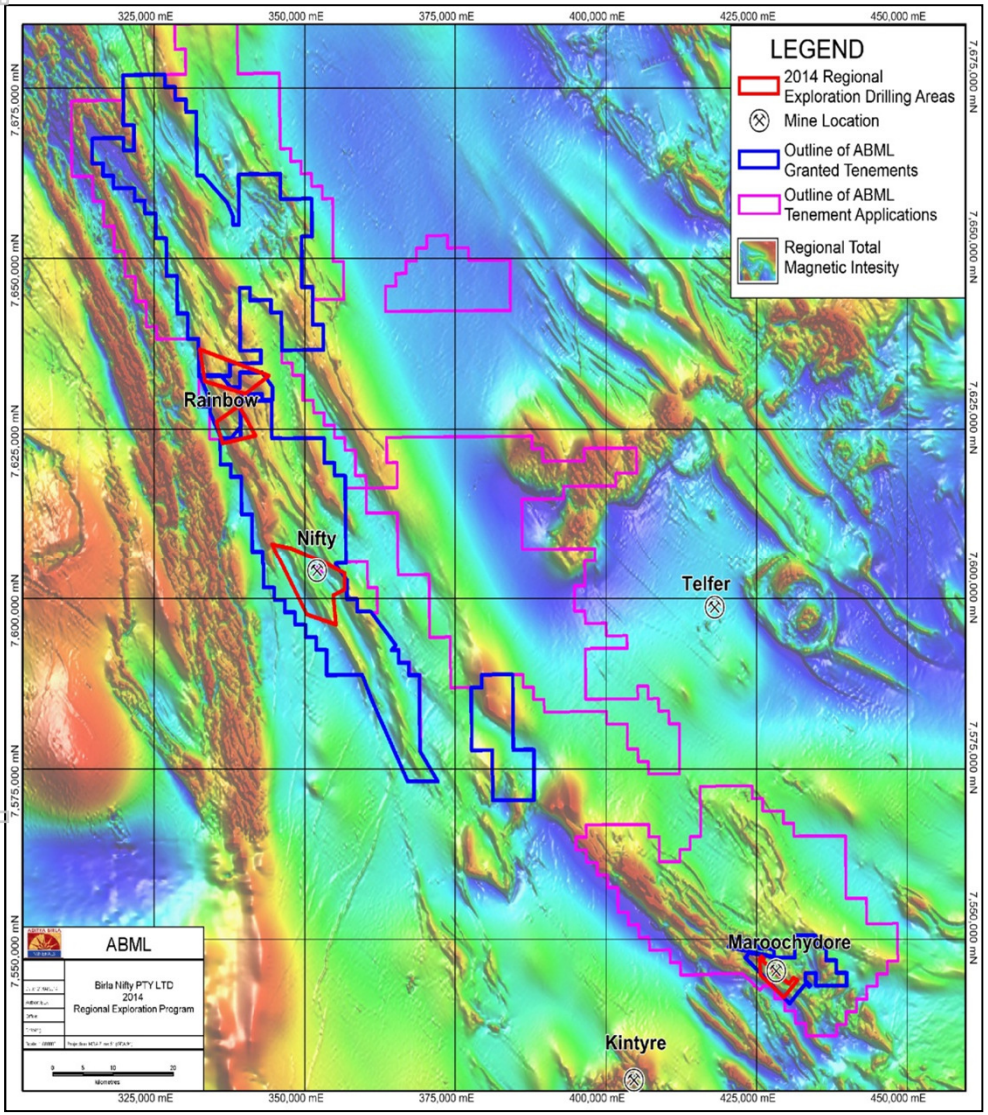
- 1,518m of RC and 465m of diamond drilling were completed out of a 5,500m Nifty Western Resource conversion drilling programme.
- 5,500m underground Northern Limb Conversion drilling programme is planned.
- Both programs are designed to convert in-situ Inferred/Indicated Resources into Measured and Indicated Categories to JORC 2012 classification.

Nifty Near Mine Drilling



- All planned drilling for FY14 was completed.
- Drill holes testing the northwest DHEM targets showed the presence of a syncline with footwall beds hosting persistent narrow intervals of low grade copper mineralisation. YNC352, testing the base of the synclinal trough, intersected a best interval of 2m @ 0.76%Cu from 793m.
- Drilling of 4 holes for up to 1.5km down plunge of the resource intersected a best interval of 4m @ 3.18% Cu, 5.6 g/t Ag in drill hole YNC341B approximately 150m down plunge.
- DMP co-funded drill hole (YNC350) intersected weak copper mineralisation in five 2 to 4m intervals between 10 and 108m downhole, including a best intersection of 4m @ 0.13%Cu from 104m depth.

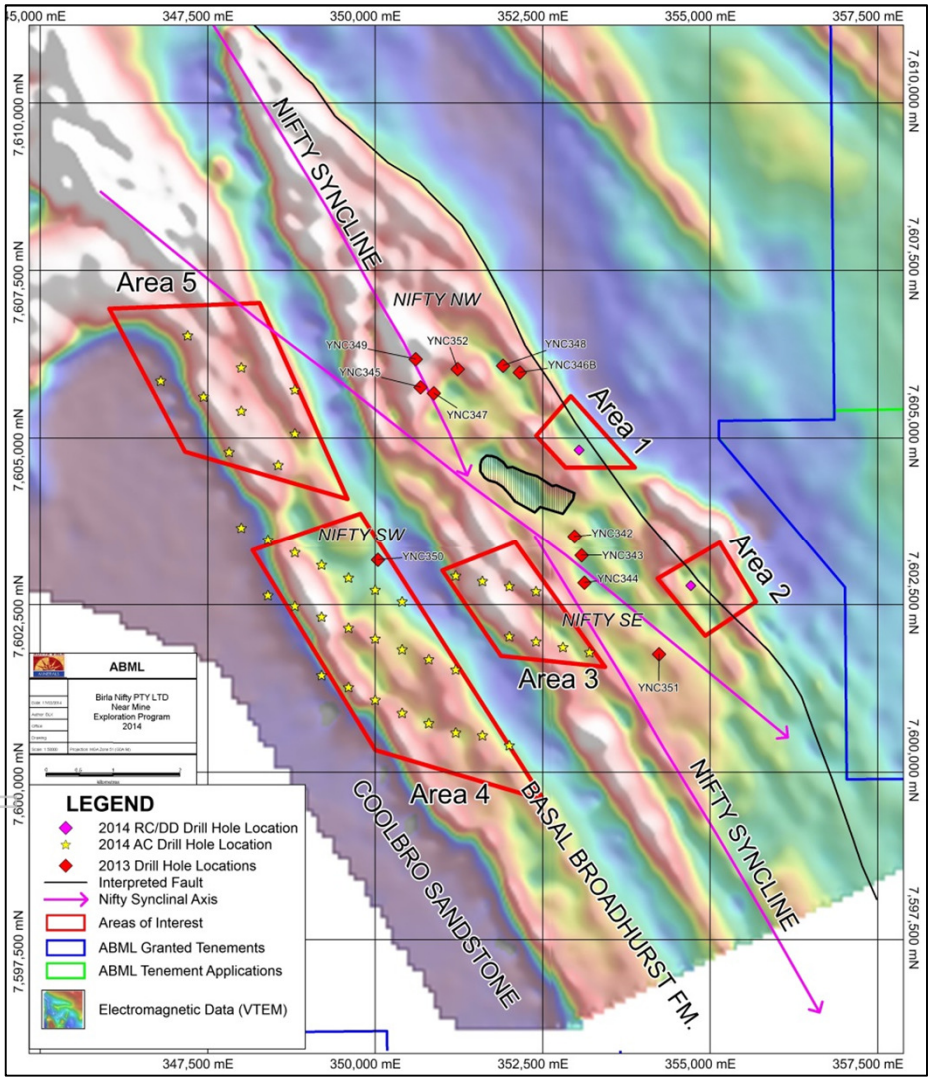
Principal Target Areas for FY15 Drilling



The Nifty near mine, Maroochydore and Rainbow project areas were identified as the highest priority areas for FY2015.

- At near mine Nifty a programme of 1965m of pre-collared diamond and Aircore drilling is planned to target 5 areas of interest.
- At Maroochydore 8,500m of pre-collared diamond and Aircore drilling are planned to test newly interpreted potential west of the oxide deposit and the sulphide system along the strike length of the deposit.
- 2025m of RC and Aircore drilling are planned at Rainbow project to test down dip and on strike of known mineralisation and previously untested areas for repetitions of the mineralised horizon.

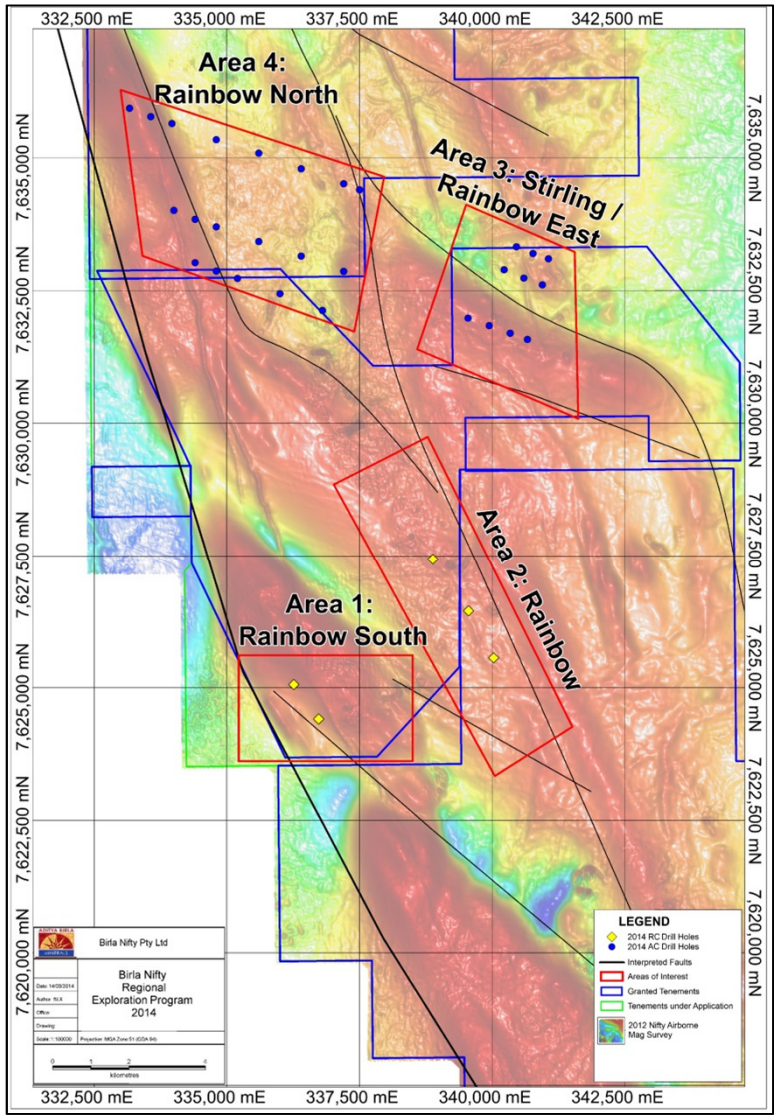
Nifty Near Mine Planned Drilling– FY15



Following a review of near mine data five areas of interest were identified for drilling in FY15.

- ***Area 1***: A 600m co-funded RC/DD hole testing an area of low conductivity and NW trending structures where old drill holes intercepted up to 6m @ 2.48% Cu from 54m in old drill holeTHRC0990.
- ***Area 2***: Planned 450m RC/DD hole testing a structural flexure and a discrete conductive high within a low conductivity zone.
- ***Area 3***: 160m of bedrock aircore drilling is planned to test an undrilled footwall sequence in the Southern Limb for Cu anomalism.
- ***Areas 4 and 5***: 755m of aircore bedrock drilling is planned to test 7km of undrilled strike length of the basal Broadhurst Formation /Coolbro contact zone within a similar setting to the stratabound Cu horizon at Rainbow.

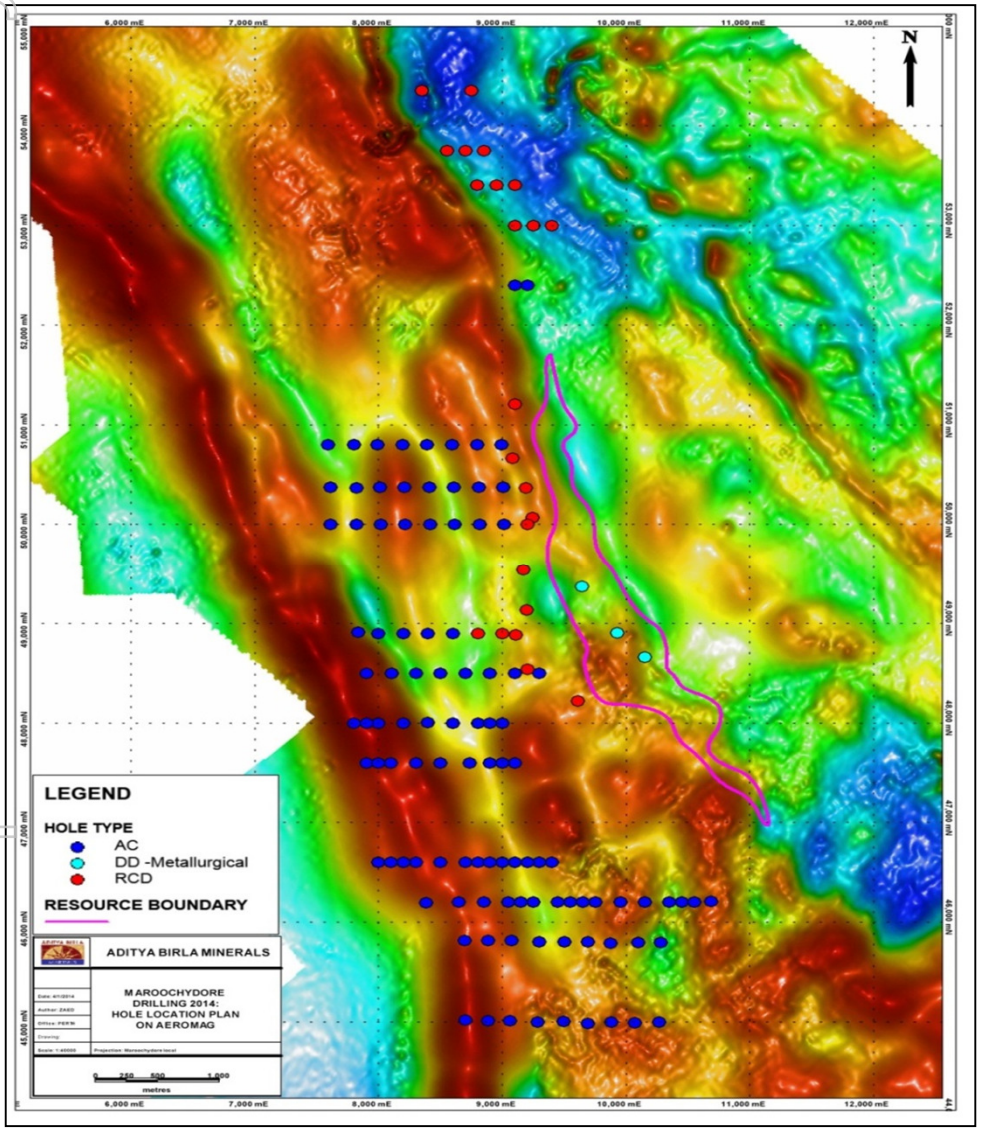
Rainbow Planned Drilling FY15



A total of 2,025m of AC and RC drilling has been planned for these 4 areas during FY15.

- Stratabound copper mineralisation is focused near the Broadhurst / Coolbro contact over several km of the contact zone in fold repetitions and structural zones. The best historic drill intersection was 18m @ 0.39%Cu from 36m (BMD0010).
- 1000m of RC drilling is planned to test along strike and down dip of limited previous drilling with intercepts of 6 metres @ 0.57%Cu from 36 metres (08RBR008) and 3 metres @ 0.26%Cu from 81 metres(BMD0007) in areas 1 and 2 respectively.
- 1,025m of aircore drilling is planned to search for copper anomalism in a strongly faulted and deformed setting over a 25sq.km in areas 3 and 4.

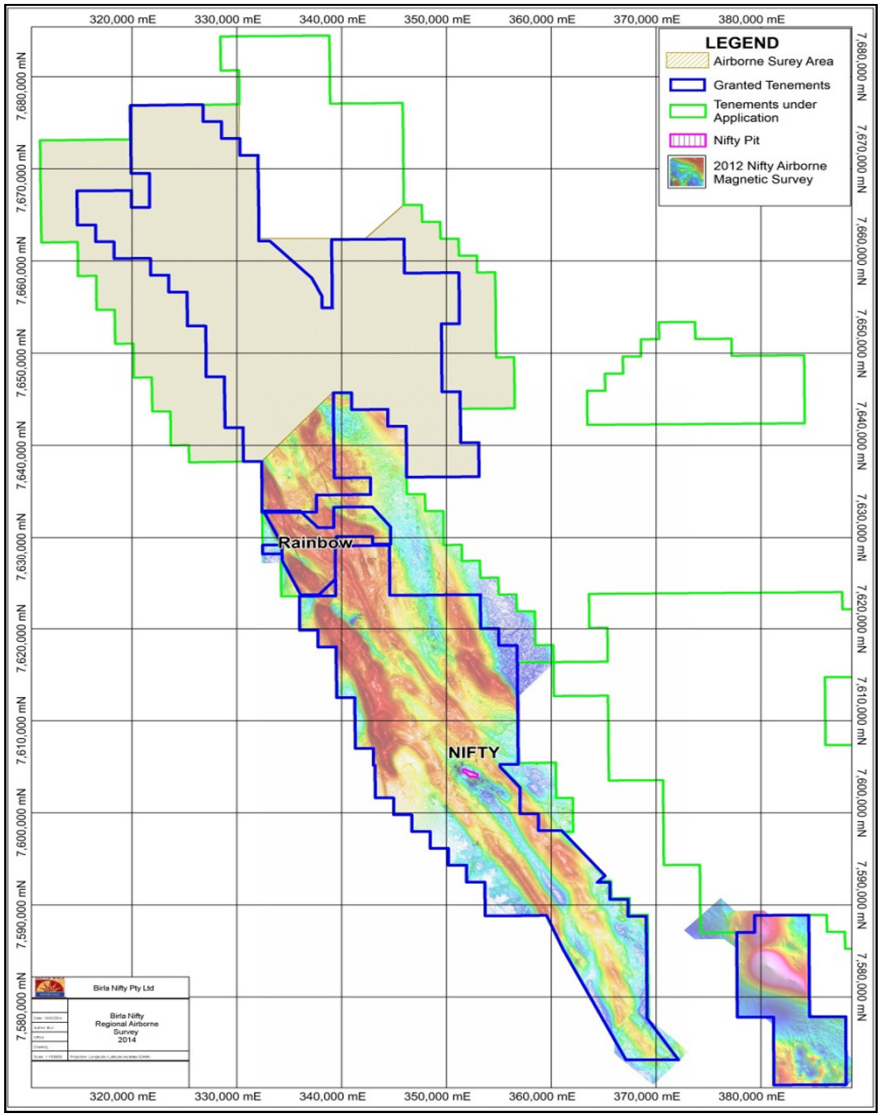
Maroochydore – West Copper Potential



Detailed interpretation of aeromagnetic data has identified a probable faulted syncline lying immediately west of the Maroochydore oxide deposit which appears to have support from the results of drillhole13MAD009.

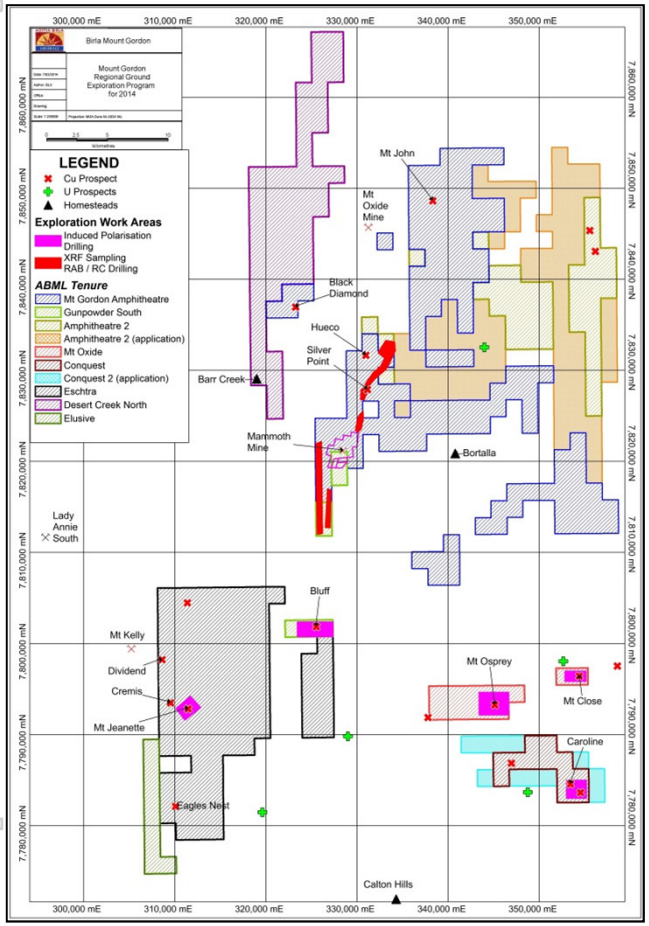
- 4,500m of RC/DD drilling have been planned to test for sulphide mineralisation west, along strike and down plunge of the oxide deposit.
- 4,000m of aircore drilling is planned to follow-up anomalous copper values in historic rock chip and bedrock drill holes west of the oxide deposit.
- 3 holes are planned to drill the full profile of the high grade oxide resource area to provide bulk samples for mineralogical speciation and bench scale metallurgical test-work.

Nifty Regional Aeromagnetic Survey



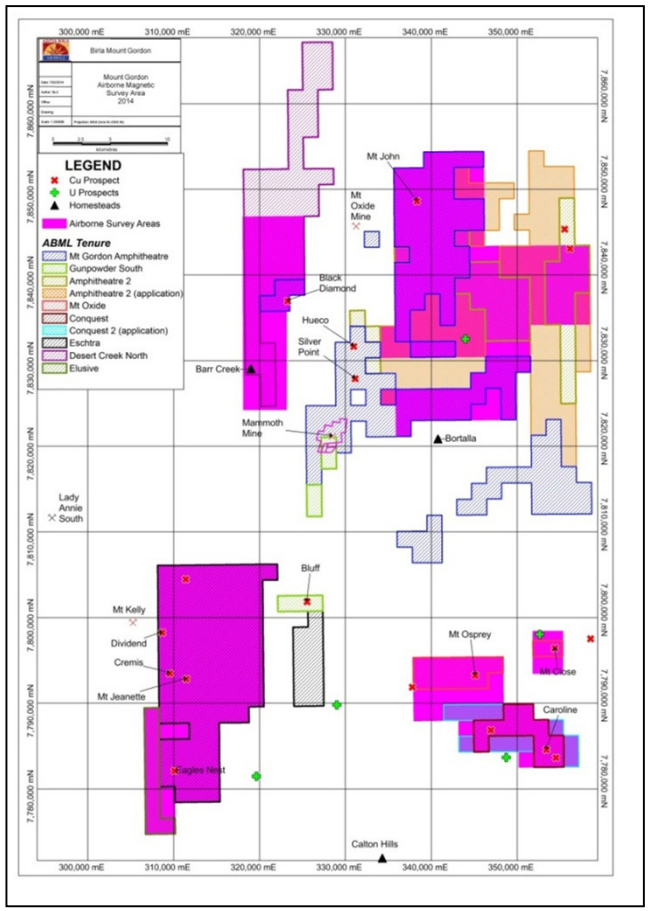
- A 24,900 line km low-level high-resolution aeromagnetic survey is planned over the northern tenement areas to complete the coverage commenced in FY13.
- This will provide detailed structural and magnetic coverage over the Waroo Hill, Warrabarty, Muttabarty, Dromedary, GP28, Duke and Cross-Faults copper and zinc prospects.

Mt Gordon Exploration Planning –FY15



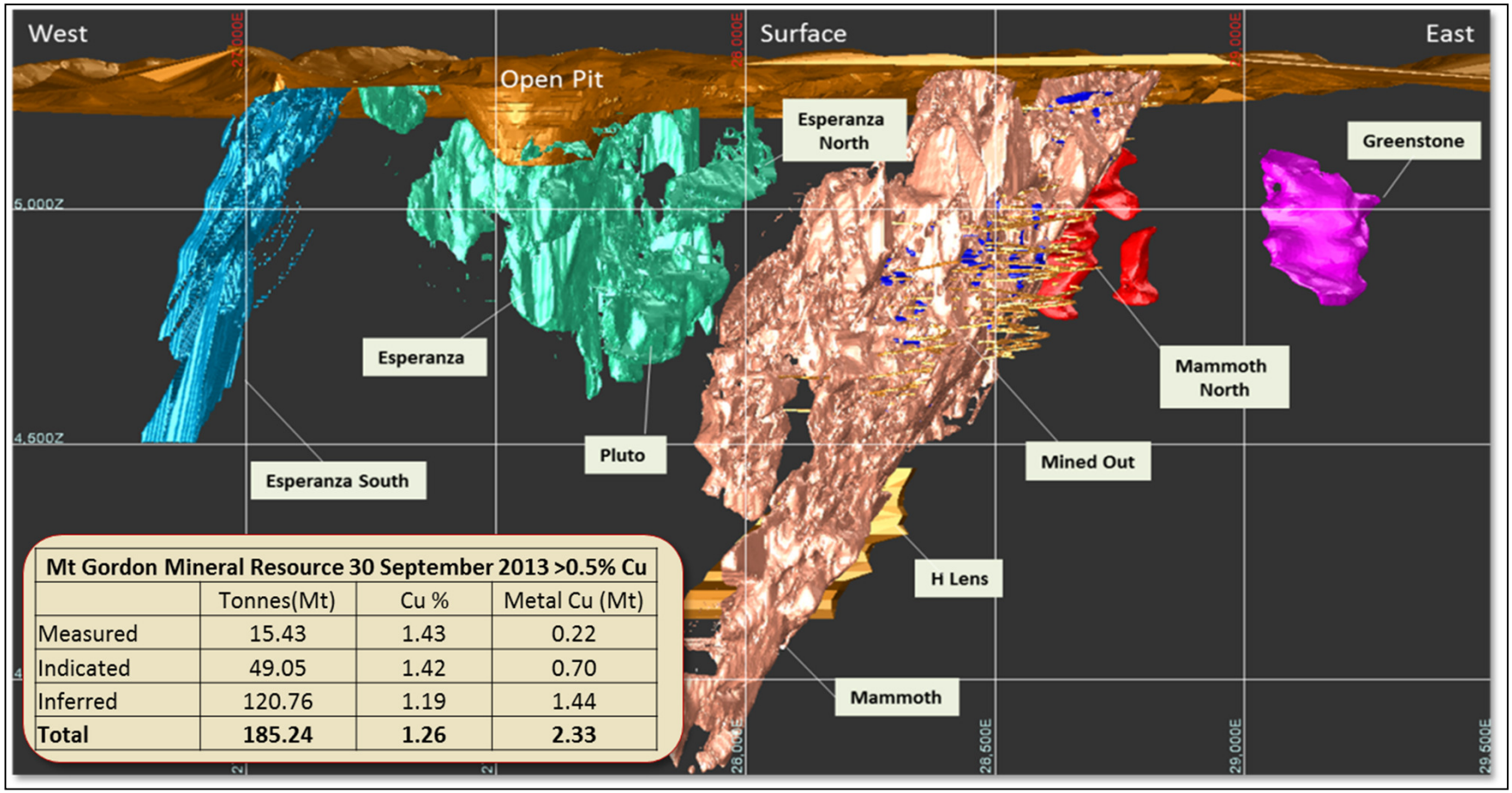
Areas for planned ground follow-up geological , geochemical, geophysical surveys and drilling in regional tenements.

- Ground and airborne surveys, and up to 5,650m of follow-up diamond, reverse circulation and aircore drilling is planned for FY2015.
- Testing radiometric anomalies as potential mineralised splay faults or extensions of the Mt Gordon Fault system.
- Completing IP surveys over known advanced mineralised target areas.
- Meeting annual exploration commitments for FY2015..



Planned high resolution aeromagnetic and radiometric surveys over key regional tenements.

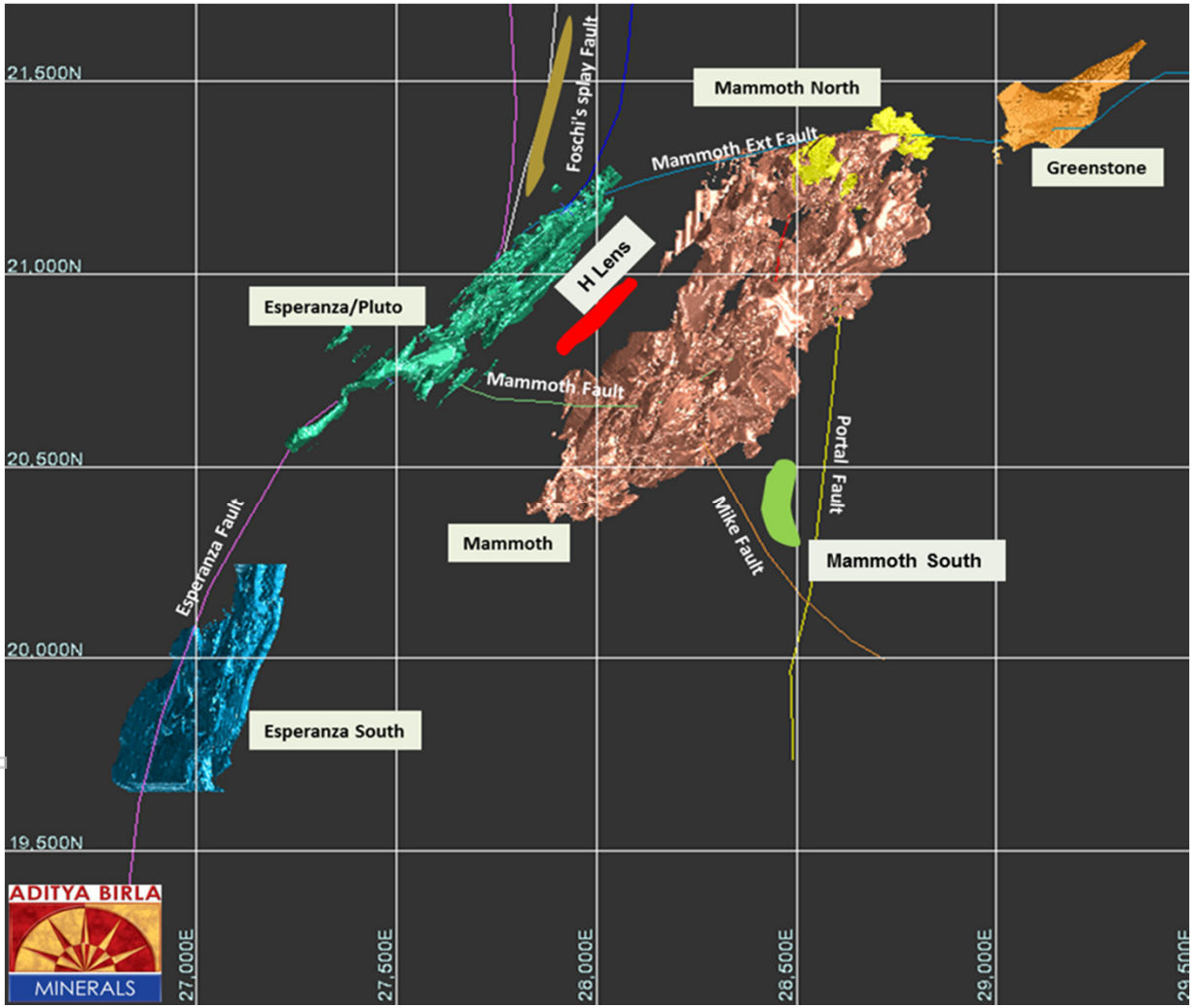
Mt Gordon Resource Building



Mt Gordon Mineral Resource 30 September 2013 >0.5% Cu			
	Tonnes(Mt)	Cu %	Metal Cu (Mt)
Measured	15.43	1.43	0.22
Indicated	49.05	1.42	0.70
Inferred	120.76	1.19	1.44
Total	**185.24**	**1.26**	**2.33**

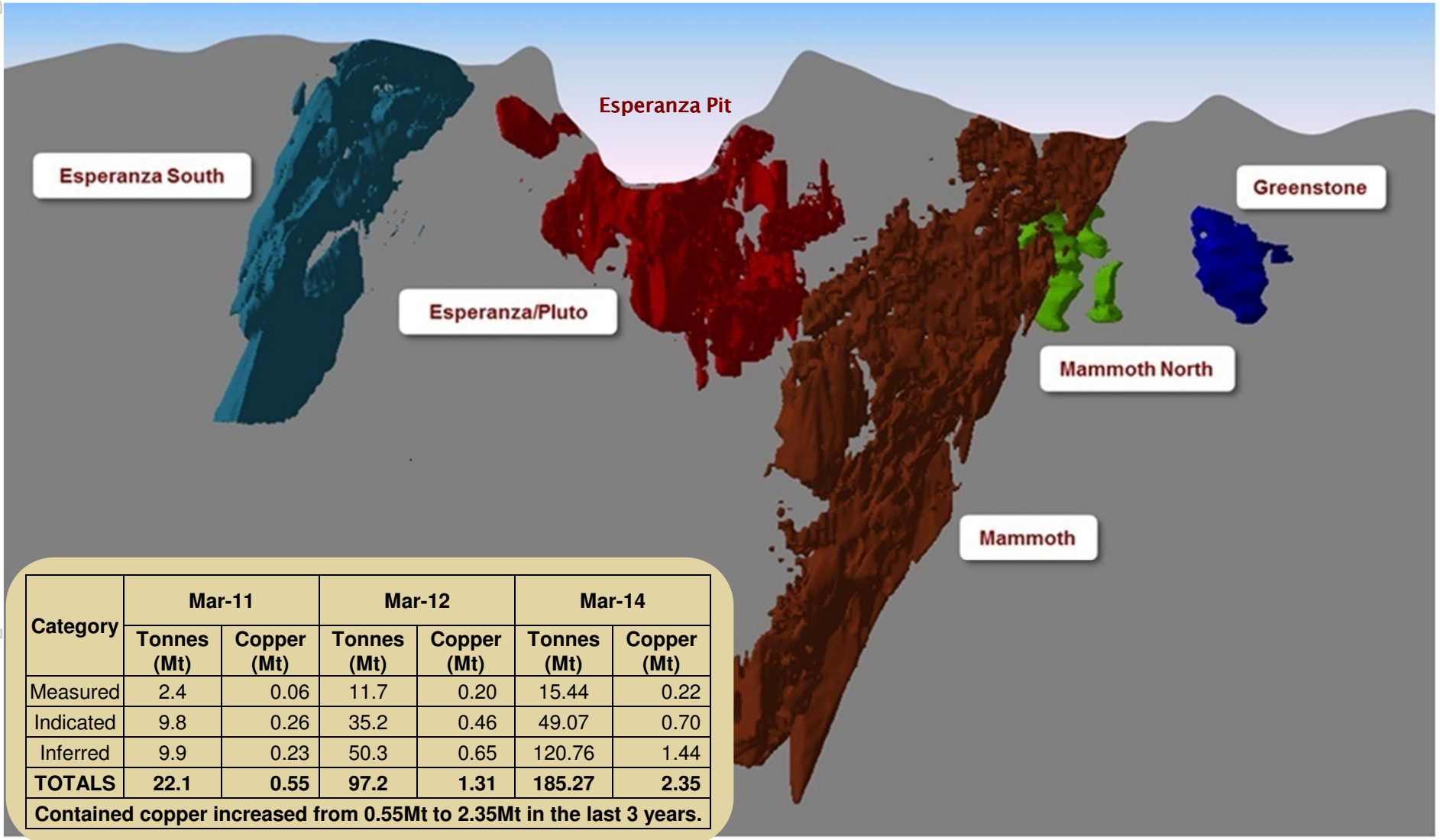
- The recent drilling at Mt Gordon copper project discovered new mineralisation systems, H Lens and Mammoth South.
- The Mineral Resource for the Mt Gordon Operations now stands at 185.27Mt @ 1.27% copper above a reporting cut-off of 0.5%Cu for 2.35Mt of contained copper, a 13% increase over that dated 31 March 2013.

Mt Gordon Resource Building



- H lens hole SD532 intersected a mineralised envelope of 233m @ 1.01% Cu, 2.1g/t Ag, 381ppm Co from 808m with high-grade sections incl: 60m @ 3.29%Cu, 4.17g/t Ag, 1,395ppm Co from 984m.
- UM1576 best intercepts are: 44m @ 3.76% Cu, 9.9g/t Ag and 1,209ppm Co from 825m incl: 4m @ 5.95% Cu, 9.2g/t Ag and 1,384ppm Co from 828m.
- 19m @ 8.08% Cu, 15.8g/t Ag and 1,793ppm Co from 849m.
- Mammoth South hole UM1572 intersected 7m @ 0.81% Cu from 213m incl: 4m @ 1.20% Cu from 216m and 9m @ 0.89% Cu from 229m incl: 2m @ 2.35% Cu from 236m.

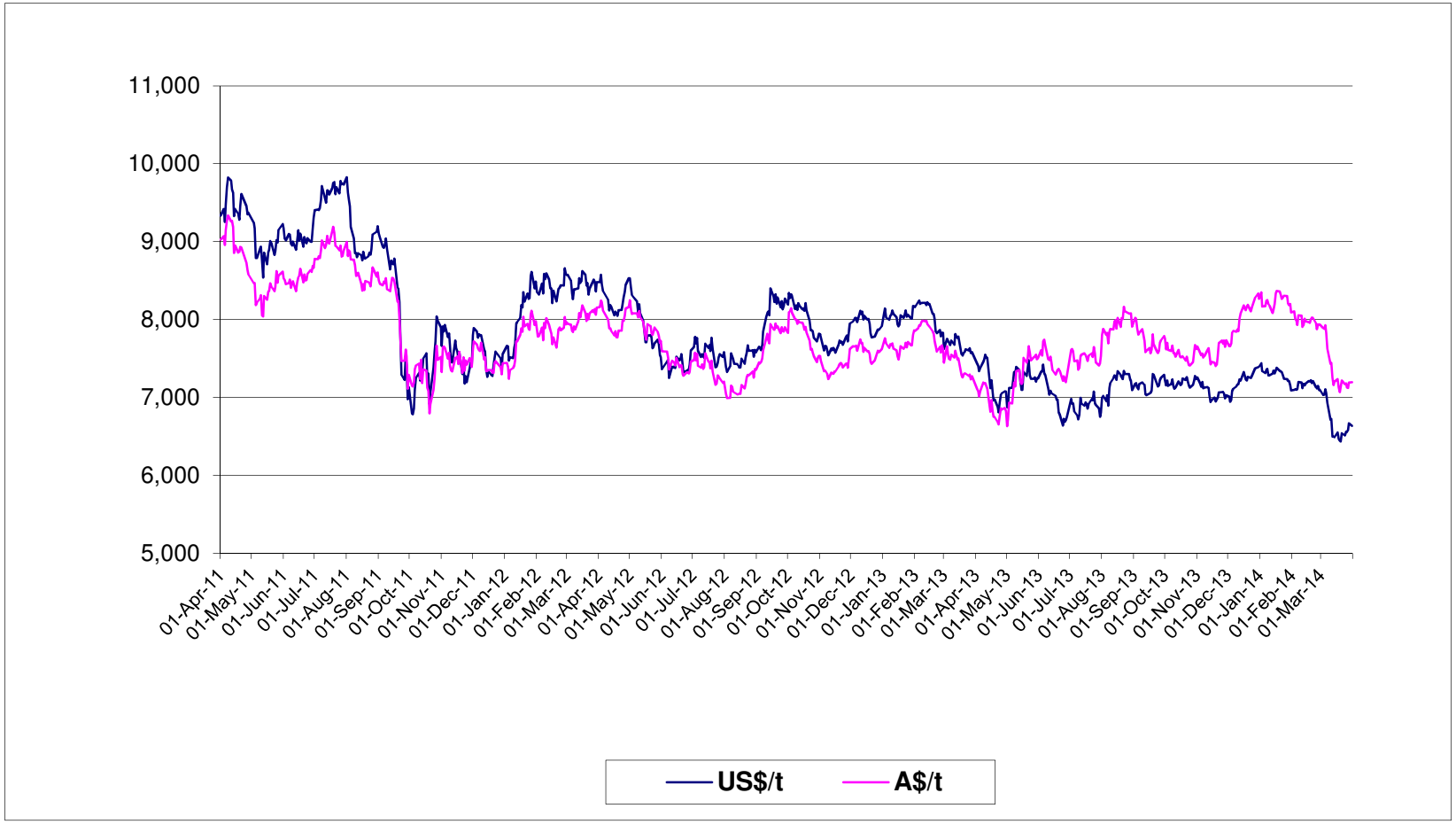
Mt Gordon Resource Building



Category	Mar-11		Mar-12		Mar-14	
	Tonnes (Mt)	Copper (Mt)	Tonnes (Mt)	Copper (Mt)	Tonnes (Mt)	Copper (Mt)
Measured	2.4	0.06	11.7	0.20	15.44	0.22
Indicated	9.8	0.26	35.2	0.46	49.07	0.70
Inferred	9.9	0.23	50.3	0.65	120.76	1.44
TOTALS	**22.1**	**0.55**	**97.2**	**1.31**	**185.27**	**2.35**
Contained copper increased from 0.55Mt to 2.35Mt in the last 3 years.						

LME trend, Hedging position and Production Guidance

Copper Prices



LME is currently prevailing in the range of US$ 6600-6700 level. The depreciation in AUD/USD rate in the 2nd half the year helped in increasing the Copper price in AUD terms. However, recent appreciation of AUD/USD coupled with fall in LME price has brought down the price in AUD terms again

FY 2014-15 Copper Production Guidance

Production: Contained Metal in concentrate

- The production estimate is uncertain at this stage until the results of investigative activities are known and DMP's approval is received for re-start of the Nifty mining operations

Metal and Fx Hedges as on 31st Mar'14

Metal hedging	Buy Put		Sell Call		Swap			
QP month	Qty	USD	Qty	USD	Qty	USD	Total Qty Hedged	Average Rate
Delivered Qty*	-	-	-	-	12,250	7,193	12,250	7,193
Rolling 12 months	-	-	-	-	13,350	7,284	13,350	7,284
Total Qty Hedged	-	-	-	-	25,600	7,241	25,600	7,241

* Out of total payable delivered quantity of 12,291 MT as on 31-3-2014

	Forward Sell	Average
FX Hedging	US$-Mn	FX Rate
Rolling 12 months	159.0	0.8768

Hedged price in terms of AUD is A$8,258

Macro Economic Overview

Copper prices are currently range bound between US$ 6600 - 6700 /MT. The prices have sharply fallen in last few months due to concerns of slowdown in Chinese growth, which accounts for ~ 40% of world's total copper consumption

The slow recovery in Europe and the housing sector in USA is showing positive improvement, and this augur well for Copper demand

LME copper inventories have been falling recently. While Copper fundamentals appear to be supportive of range bound LME in the short term, downside risks from the macro economic factors persist.

Strategic Direction and Way Forward

Nifty Operations

- Complete probe drilling and get DMP's approval for re-start of operations in the safest manner
- Expand resource and reserves base through exploration success
- Continue to optimize costs

Mt Gordon Operations

- To get strategic review completed by ANZ Bank and execute strategic options based on their study for creating maximum value for shareholders

Exploration

- Advance regional targets in Nifty and Maroochydore
- Extend mine life
- Increase sulphide resources at Maroochydore

Inorganic growth

- To look at medium-sized economically viable projects

Thank you

Annexure A: Resources as at 31 March 2014

Aditya Birla Minerals Limited Mineral Resources MAR -2014

	Cutoff Grade	Measured Resource		Indicated Resource			Inferred Resource			Total Resource		
NIFTY COPPER OPERATIONS – Mineral Resources as at 31 March 2014												
	%	Tonnes (Mt)	Cu %	Tonnes (Mt)	Cu %	Co ppm	Tonnes (Mt)	Cu %	Co ppm	Tonnes (Mt)	Cu %	Co ppm
In situ Oxide and Supergene	0.4	6.58	1.22	3.50	0.92	–	0.20	0.62	–	10.28	1.11	–
Broken Ore Stocks – Oxide and Supergene	N/A	–	–	–	–	–	–	–	–	–	–	–
Sub Total Oxide and Supergene		**6.58**	**1.22**	**3.50**	**0.92**	–	**0.20**	**0.62**	–	**10.28**	**1.11**	–
In situ Sulphide	1.2	23.05	2.40	4.07	1.88	–	2.57	1.70	–	29.68	2.27	–
Broken Ore Stocks – Sulphide	N/A	–	–	–	–	–	0.00	0.00	–	–	–	–
Sub Total Sulphide		**23.05**	**2.40**	**4.07**	**1.88**	–	**2.57**	**1.74**	–	**29.68**	**2.27**	–
Total Mineral Resource		**29.63**	**2.14**	**7.57**	**1.44**	–	**2.77**	**1.66**	–	**39.96**	**1.97**	–
Heap Leach Inventory *		15.70	0.50	–	–	–	–	0.00	–	15.70	0.50	–
MT GORDON COPPER PROJECT – Mineral Resources as at 31 March 2014												
In situ Sulphide	0.5	15.44	1.43	49.07	1.43	–	120.76	1.19	–	185.27	1.27	–
Broken Ore Stocks – Sulphide	N/A	–	–	–	–	–	–	–	–	–	–	–
Total Mineral Resource		**15.44**	**1.43**	**49.07**	**1.43**	–	**120.76**	**1.19**	–	**185.27**	**1.27**	–
MAROOCHYDORE COPPER PROJECT – Mineral Resources as at 31 March 2014												
In situ Oxide and Supergene	0.5	–	–	40.80	0.92	388	2.30	0.81	451	43.20	0.91	391
In situ Sulphide	1.1	–	–	0.00	0.00	–	5.43	1.66	292	5.43	1.66	292
Total Mineral Resource		–	–	**40.80**	**0.92**	**388**	**7.73**	**1.41**	**339**	**48.63**	**0.99**	**380**
TOTAL (excl Nifty heap leach inventory)		**45.07**	**1.90**	**97.44**	**1.22**		**131.26**	**1.14**		**273.86**	**1.29**	

** Recoverable copper in the inventory under leach is additional to measured mineral resources.*

The information in this table which relates to Mineral Resources for the Nifty, Mt Gordon and Maroochydore projects is based on and accurately reflects reports prepared by DataGeo and Sivasamy in 2013/14. Mr Ball and Mr Sivasamy have the necessary experience relevant to the style of mineralisation, the type of deposit and the activity undertaken to qualify as a 'Competent Person' under the JORC Code for Reporting of Mineral Resources and Ore Reserves (2012 Edition). Mr Ball and Mr Sivasamy have given their consent to the inclusion of the material in the form and context in which it appears. Mr Ball is Principal of DataGeo Geological Consultant (an independent geological consultancy). Mr Sivasamy is a full time employee of Aditya Birla Minerals Limited.

The depletion of the Mineral Resources for the Nifty and Mt Gordon operations for the 2014 reporting is based on and accurately reflects information prepared by Mr Ball and Mr Sivasamy. Mr Ball is a member of the AusIMM (CP-Geo) and Mr Sivasamy is a Member of the AusIMM. Mr Ball and Mr Sivasamy have the qualifications and necessary experience with this style of mineralisation to qualify as a competent person as described by the 2012 JORC Code for reporting of Mineral Resources and Ore Reserves. Mr Ball and Mr Sivasamy have given their consent to the inclusion of the material in the form and context in which it appears.

The Measured and Indicated Mineral Resources tabled above are inclusive of those Mineral Resources modified to produce the Ore Reserve. In all Resources and Reserves tables, significant figures do not imply precision. Figures are rounded according to JORC Code guidelines.

"Aditya Birla has had preliminary studies carried out for the Deposits currently reporting Mineral Resource at Mt Gordon to establish if it is economic to mine at a lower head grade and hence cut-off. This work has suggested that material within the mineral resource above a cut-off of 0.5% has the potential to be mined by bulk underground methods".

Annexure B: Sulphide Reserves as at 31 March 2013

	Cutoff Grade	Proven Reserve		Probable Reserve		Total Reserve	
	Cu%	Tonnes(Mt)	Cu%	Tonnes(Mt)	Cu%	Tonnes(Mt)	Cu%
Nifty Copper Operations							
Nifty Underground Sulphide	1.1	8.0	2.2	7.0	1.8	15	2.0
Broken Ore Stocks - Sulphide	N/A	0	0	0	0	0	0
Nifty Sulphide Ore Reserves		**8.0**	**2.2**	**7.0**	**1.8**	**15.0**	**2.0**
Mt Gordon Copper Operations							
Sulphide	1.5	0	0.0	3.6	2.2	3.6	2.2
Broken Ore Stocks - Sulphide	N/A	0	0	0	0	0	0
Mt Gordon Sulphide Ore Reserves		**0.0**	**0**	**3.6**	**2.2**	**3.6**	**2.2**
Total Sulphide Ore Reserves		**8**	**2.2**	**10.6**	**1.9**	**18.6**	**2.0**

The Information in this release that relates to Nifty Copper Operations Ore Reserve is based on information compiled by Robyn Stonell, under the direct supervision of Otto Richter who is a Member of the Australasian Institute of Mining and Metallurgy and full time employee of Snowden Mining Industry Consultants Pty Ltd. Mr Richter has sufficient experience to be a Competent Person as defined in the 2004 Edition of the Australasian Code for Reporting of Ore Reserve results. Mr Richter given his consent to the inclusion of the material in the form and context in which it appears.

The Information in this release that relates to Mt Gordon Operations Ore Reserve is based on information compiled by Edward Gleeson who is a Member of the Australasian Institute of Mining and Metallurgy and full time employee of AMC Consultants Pty Ltd. Mr Gleeson has sufficient experience to be a Competent Person as defined in the 2004 Edition of the Australasian Code for reporting of Ore Reserve results. Mr Gleeson has given his consent to the inclusion of the material in the form and context in which it appears.

The information in this report which relates to Ore Reserves for the Nifty and Mt Gordon Operations is based on and accurately reflects reports prepared by Mr Richter and Mr Gleeson respectively in 2013. This information was prepared and first disclosed under the JORC Code 2004. It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.

Annexure C: JORC Section 1 Sampling Techniques and Data

Section 1 Sampling Techniques and Data		
Criteria	**Explanation**	**Comments**
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down whole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*	The drilling and sampling data utilised for mineral resource estimation is as follows: - Mammoth diamond and sludge with total metres exceeds 351,000m from 5,221 holes; Esperanza-Pluto diamond drilling totals 45,000m from 237 holes; Esperanza South has 109 diamond holes (24,000m) and 8 Reverse Circulation (RC) holes (930m); Mammoth North has 26 diamond holes totalling 8,322m. Greenstone has 14,220m from 33 diamond holes. Nifty Deposit has 504 diamond and 227 RC holes containing 136,429m. Maroochydore has 294 diamond, RC and percussion holes totalling 45,500m. The holes for all deposits are drilled mostly perpendicular to the orientation of the mineralisation although the lower parts of some deposits (particularly at Mammoth and Esperanza South) are drilled more down dip/plunge due to the hole location restrictions.
	• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*	Drilling and sample collection used industry standard techniques for diamond coring, RC and sludge sampling. Diamond sample representivity is assumed given the drilling mostly perpendicular to the mineralisation and the very good core recovery achieved. Similarly orientated RC holes generate samples for each 1m drilled which are collected from the cyclone, sample recovery is generally reported as good although not recorded. Sludge samples are collected from the flushed return and copper grades were adjusted based on test results. The method of sample collection for the RC holes within Mt Gordon Project is unknown. No other measurement tools or systems were used ort considered necessary.
	• *Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	For the diamond drilling the mineralised intervals and adjacent locations were sampled by cutting the core in 1/2 based on the logging. The preparation and analysis was undertaken at an accredited commercial laboratory. The entire sample was dried and crushed to 2mm and then split and a portion pulverised to 80% passing 10micron. The analysis was by fire assay with either atomic absorption finish or gravimetric determination. RC samples are split in the field to approximately 2.5Kg and then prepared and assayed in the same manner as for the diamond samples. Sludge samples were collected in 20L plastic buckets from 1.8m sample intervals and then transferred to poly-weave bags. These samples are prepared and assayed in the onsite laboratory using 3 acid digest and AAS finish. No information is available concerning the RC hole sampling or analysis at Mt Gordon.

Criteria	Explanation	Comments
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	The diamond core was of variable diameter with surface holes drilled using HQ and NQ whilst underground holes were mostly NQ sized core. Diamond drilling is mostly cored from collar and hole depths range to 1316.5m. The earlier core was not orientated however more recent holes are orientated using a spear. The method of drilling the RC holes at Nifty and Maroochydore is the use of a face hammer in a 150mm diameter hole, these holes vary in length to 208m. Method of the RC drilling at Mt Gordon is unknown. Sludge sampled holes used a jumbo rig and vary in length to 121m.

Annexure C: JORC Section 1 Sampling Techniques and Data

Criteria	Explanation	Comments
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.*	The core information is recorded in the database for some holes as recovered length and recovery is determined as recovered length/interval length. These measurements are made by the responsible geologist or field technician under supervision. The average core recovery is in excess of 93%. Blast holes were drilled using jumbo rigs with 1.8m rods, the sludge sample return is flushed into 20L buckets and then transferred into poly-weave bags. No documentation on the sample recovery for the RC holes.
	• *Measures taken to maximise sample recovery and ensure representative nature of the samples.*	Core recovery is on average extremely good and no additional measures are required to maximise recovery. The representativeness of the core in terms of copper grade is appropriate given the QAQC conducted and the mining history; there is some evidence for the available QAQC at Mammoth North and Greenstone of a small high-bias in samples with grade >3% Cu and at Nifty some calibration issues were noted with one of the laboratories. Sludge sample return is maximised by placement of the bucket. There is little other control on the sampling. There is no documentation on the sample collection/recovery for the RC holes.
	• *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	Whilst no assessment has been conducted/reported the competency of the core as demonstrated by the high average recovery would tend to preclude any potential issue of sampling bias. Sludge sample Cu grades are adjusted by formulae based on test work. The lack of documentation on the sample recovery for the RC holes precludes any assessment.

Criteria	Explanation	Comments
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.*	For core geological recording of lithology, mineralisation, veining, alteration, weathering, structure is appropriate to the style of the Deposit occurs. Sludge samples have lithological information recorded. Chip lithological logs are maintained for the RC samples.
	• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography*	For core geological logging is both in summary and detailed for the information listed above and includes mineralisation type and content, some angle to core axis information, vein type, incidence and frequency, magnetic content. For sludge samples only lithology is recorded. For RC the logging is qualitative.
	• *The total length and percentage of the relevant intersections logged.*	the entire length of all diamond and RC holes, apart from surface casing, was logged.

Annexure C: JORC Section 1 Sampling Techniques and Data

Criteria	Explanation	Comments
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.*	based on information provided and observed in photographs all core to be sampled was 1/2ed using a mechanical saw. It is not known if the core was consistently taken from one side of the stick.
	• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*	The entire sludge sample is dried, pulverised and split prior to analysis. RC samples are collected by either rotary splitter or riffling.
	• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*	based on information relating with the previous companies and knowledge of the current owners the approach of using commercial laboratory facility for the preparation of samples is industry standard practise for this type of material with the copper mineral content demonstrated.
	• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*	Prior to Aditya Birla the inclusion of QAQC samples (standard and blanks) and the use of duplicates and re-submissions was not well documented and potentially fairly random. Aditya Birla has adopted industry best practise with respect to the numbers of standards and blanks inserted with the core the samples submitted however the use of non certified blank material is discouraged. Aditya Birla also uses an umpire laboratory and field duplicates on occasions. Sludge sample QAQC is restricted to duplicates and repeats. There is no information related to QAQC for the RC drilling at Mt Gordon.
	• *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.*	The QAQC results are on most occasions supportive of the copper grades however Aditya Birla does not regularly follow up the occasional apparent laboratory issues. Duplicate sampling when conducted is supportive of the original results. No 1/2nd half core duplicate assay results have been observed.
	• *Whether sample sizes are appropriate to the grain size of the material being sampled.*	The mineralisation style and the relatively low local grade variance combined with the domaining and supported by the QAQC validation provides confidence in the overall grade of the deposits being fairly represented in the estimates.

Criteria	Explanation	Comments
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	The assay techniques applied for the measurement of copper content is appropriate for the determination of the level of copper in the sample. The routine technique was aqua regia digest with ICPES analysis with over range values repeated using four acid digest with atomic absorption spectroscopy finish.
	• *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*	on occasions down hole EM is adopted to detect sulphide presence with some success.
	• *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	Standards and Blanks have been included at rates varying between 1 in 20 to 1 in 40 relative to the number of routine samples for the recent diamond holes. The results were acceptable although occasional potential bias has been observed in Standards and there is evidence of potential sample preparation issues in a small number of blank samples. Neither of the issues is considered significant enough to negate the use of the impacted sample results. Umpire laboratory checking also provided support for the original results. Sludge sample duplicates and assay repeats give supportive results for the onsite laboratory.

Annexure C: JORC Section 1 Sampling Techniques and Data

Criteria	Explanation	Comments
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.*	high grade mineralisation in the core was observed and verified by Aditya Birla personnel and DataGeo reviewed the intercepts compilation reported.
	• *The use of twinned holes.*	No specific twinning program has been conducted however in many positions within the Deposit drilling is in close proximity and the comparison of assay results is supportive
	• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols*	primary data was recorded directly onto electronic spread sheets and validated against code tables by the database manager.
	• *Discuss any adjustment to assay data.*	sludge samples with assay results >2% Cu are adjusted by a graphical transform related to Cu content.

Annexure C: JORC Section 1 Sampling Techniques and Data

Criteria	Explanation	Comments
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	The recent collar positions are surveyed by Aditya Birla or its contractors from known surface and underground datums. Documentation for previous drill holes indicates a similar methodology. The orientation and dip at the start of the hole was recorded and similar information is recorded down hole by single shot camera.
	• *Specification of the grid system used.*	From the MT Gordon Project the regional grid is AMG84 Zone 54 with the Deposits laid out on a local grid which is a truncated version of the regional grid. 5000m is added to the AHD. For the Nifty Project the regional Grid is GDA94, Projection MGA Zone 51. All information is located on the Nifty Mine Grid which is a transformation and rotation based on local control point. 10000 is added to the AHD elevation. Maroochydore is located in the same regional grid as Nifty and a local grid converted form regional about local control with a 45° (approx) rotation is used for modelling
	• *Quality and adequacy of topographic control.*	Topographic control is taken from site surveys (aerial) and hole collar surveys and is adequate for the control required. Under ground control is from known datums.

Annexure C: JORC Section 1 Sampling Techniques and Data

Criteria	Explanation	Comments
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.*	Spacing varies by Deposits and position within the deposit. At Mammoth with sludge holes in rings as close as 5m along strike and more exploration focused holes up to 400m apart; At Esperanza-Pluto the holes are drilled on a 25m to 50m spacing along strike and at 15 to 25m on section with the more concentrated drilling in the central part of the Deposit to a depth of 300m from the original surface, at depth (below 300m from surface) the holes are up to 100m to 400m apart. At Esperanza South generally the holes are drilled on a 20m to 50m spacing along strike and at 15 to 30m on section with the more concentrated drilling in the central part of the Deposit with the best coverage to 200m depth. Deeper coverage has holes up to 100m to 200m apart. For Mammoth North the hole spacing varies between 100m and 400m apart. At Greenstone spacing varies with position in the deposit with holes on average between 40m and 100m apart along strike and 20 to 40m on section. At Nifty the most concentrated drilling is on 40m spaced sections along strike with holes approximately 10 to 50m apart of section. Elsewhere spacing on varies to 80m. At Maroochydore the drilling is on sections between 100 and 200m apart along strike with holes on section between 10 and 50m apart near surface expanding to 200m apart at depth.
	• *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.*	Successive drilling programs have in filled the previous and on the majority of occasions drilling has returned mineralisation in the expected locations. This provides a high degree of confidence in the geological continuity. Relatively close spaced drilling in many deposits provides good support for positioning of mineralisation. Successful mining at Mammoth, Esperanza-Pluto and Nifty further enhances confidence in the geology interpretation.
	• *Whether sample compositing has been applied.*	Only occurs in those deposits with RC drilling and then is not regularly adopted.

Annexure C: JORC Section 1 Sampling Techniques and Data

Criteria	Explanation	Comments
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	The drilling is oriented as best as possible to perpendicular to the structure/geology containing or controlling the mineralisation. Drilling is in some locations down plunge/dip and the influence of this drilling is recognised in the estimation methodology.
	• *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	No sampling bias is considered to have been introduced.
Sample security	• *The measures taken to ensure sample security.*	The chain of custody adopted by Aditya Birla is documentation based and the responsibility of the site geologist and the database manager. Each facet of the sample collection, site numbering and preparation and despatch to the laboratory is documented.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	Aditya Birla has standard operating procedures for drilling, sample collection, sample storage, data base management etc. It monitors and audits its own procedures.

Section 3 Estimation and Reporting of Mineral Resources		
Criteria	**Explanation**	**Comments**
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	The data utilised has been validated by Aditya Birla's database manager by comparing laboratory result sheets and sample intervals on the drill logs to the contents of the database. Previous to this numerous external consultants have reviewed, compiled and validated the data also.
	• *Data validation procedures used.*	The Aditya Birla utilises a SQL Server database and loads data with the contents checked against validation tables. The previous audit provided sufficient confidence in the database contents to state that it accurately represents the drill information.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	Aditya Birla's competent person regularly visits all of the sites. DataGeo has not visited any of the sites.
	• *If no site visits have been undertaken indicate why this is the case.*	Given the relationship between DataGeo and Aditya Birla (a cooperative approach to mineral estimation) no site visit is considered necessary for DataGeo.

Criteria	Explanation	Comments
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The confidence in the geological interpretation is considered good as it is supported by the mining history and reconciliation (on some Deposits) and close spaced drilling providing adequate geological information. Any mineral domaining is generally constrained by well known structural controls or within lithological conditions. At Mammoth there are some shortcomings noted in constraining internal "high-grade" lenses.
	• *Nature of the data used and of any assumptions made.*	Only physical data obtained in the field was utilised.
	• *The effect, if any, of alternative interpretations on Mineral Resource estimation.*	The application of hard boundaries to reflect the position of the deposits and domains within the deposits is supported by the field and drilling observations and if appropriate mining. The domaining of the high-grade it considered very important and requires ongoing assessment particularly in the Mammoth Deposit. No other interpretations are thought appropriate for the various deposits.
	• *The use of geology in guiding and controlling Mineral Resource estimation.*	A cu grade boundary of 0.2% to 0.3% appears to define statistically and geologically the margins of the mineralisation. The presence of structural controls and/or the positioning of appropriate rock types (for hosting mineralisation) provides the geological control and this combined with presence of copper is used to constrain the interpretation.
	• *The factors affecting continuity both of grade and geology.*	Within the Mt Gordon Deposits the higher-grade Cu zones occur both in lens (sub-parallel to structure [near the structure] and at acute angle to the structure at distance) whilst elsewhere mineralisation is disseminated within the host rock. At the Nifty Deposit the mineralisation is within 4 styles depending on position, oxide, transition, supergene and sulphide. All styles are defined by copper grade and/or mineral type plus position and lithology. In the sulphide style the higher-grade mineralisation is constrained in two well defined carbonate units within an overall well defined sedimentary sequence (total 8 units) which also carries mineralisation. The oxide, transition and supergene mineralisation is limited to the northern limb position within 300m of surface. At the Maroochydore Deposit the oxide, transition, fresh and sulphide mineralisation zones are defined by grade, mineral type and lithology. The position and style of mineral impacts the grade continuity.

Criteria	Explanation	Comments
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	In the Mt Gordon Project the mineralisation within the 5 Deposits occurs over a cumulative 3150m strike length, a maximum depth of 1500m (Mammoth) and in some places is outcropping. The deposits are generally open at depth and up to 200m in width. At Nifty the sulphide strike length, measured along the hinge of the fold, is 1200m within the modelled area and extends further down plunge to the east. The Nifty sulphide sequence in both limbs of the fold is up to 1200m in length and extends to 500m below surface. The mineralised sequence is between 50 and 100m thick. The oxide, transition and supergene mineralisation occurs mostly near surface on the northern limb to a depth of up to 300m over a width of up to 100m. At Maroochydore the mineralisation is generally flat lying and extends over a strike length of 3000m, over a width of up to 600m and to a depth of 500m below surface.

Criteria	Explanation	Comments
Estimation	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	In the Mt Gordon Project there are 5 Deposits with each having internal domaining based on structure, lithology and grade. At Mammoth the large size of the domains and the large number of included composites plus the availability of a continuity model supported the use of ordinary and indicator kriging techniques. Domains with few composites and a less robust continuity model had grade estimated using inverse distance techniques. The composites were created within each domain and input to the grade estimation was restricted to those composites which were within the domain being estimated. Top-cuts were applied to the composites in domains estimated by OK or IVD and these were based on statistical analysis. Estimated blocks were informed a three step strategy with orientation set to the orientation of the domain being estimated. The initial (primary) search was 50m x 30m x 15m in strike, dip and across dip-strike plane. In domains estimated using top-cut composites the influence of such composites was restricted to the primary search. This search range was expanded by double the length for blocks were not informed in the primary search and again in the final search strategy. This strategy informed on average 65% of the blocks within the domains to be estimated in the primary and secondary search. For the Esperanza-Pluto Deposit the presence of two large domains, the large number of included composites plus the availability of a continuity model supported the use of ordinary kriging techniques. The smaller less continuous Pluto North zones were estimated using inverse distance techniques. The composites were created within each domain and input to the grade estimation was restricted to those composites which were within the domain being estimated. Estimated blocks were informed a three step strategy with orientation set to the orientation of the domain being estimated. The initial (primary) search was 40m x 25m x 10m in strike, dip and across dip-strike plane. This search range was expanded by double the length for blocks were not informed in the primary search and again in the final search strategy. This strategy informed on average 65% of the blocks within the domains to be estimated in the primary and secondary search. For Esperanza South the presence of two domains (weathered and fresh), the large number of included composites plus the availability of a continuity model supported the use of indicator kriging techniques. The composites were created within each domain and input to the grade estimation was restricted to those composites which were within the domain being estimated. Estimated blocks were informed in a three step strategy with orientation set to the orientation of the domain being estimated. The initial (primary) search was 60m x 40m x 20m in strike, dip and across dip-strike plane. This search range was expanded by double the length for blocks were not informed in the primary search and again in the final search strategy. This strategy informed on average 75% of the blocks within the domains to be estimated in the primary and secondary search. At Mammoth North the large size of the single domain and the relatively large number of included composites plus the availability of a continuity model supported the use of ordinary kriging techniques. 1m composites were created within the domain and input un-cut into the grade estimation process. Estimated blocks were informed in a two step strategy with orientation set to the orientation of the domain being estimated. The initial (primary) search was 50m x 30m x 15m in strike, dip and across dip-strike plane. This search range was expanded by double the length for blocks were not informed in the primary search. This strategy informed all blocks reported. At Greenstone the large single domain and the relatively large number of included composites plus the availability of a continuity model supported the use of ordinary kriging techniques. 1m composites were created within the domain and input un-cut into the grade estimation process. Estimated blocks were informed in a two-step strategy with orientation set to the orientation of the domain being estimated. The initial (primary) search was 30m x 20m x 10m in strike, dip and across dip-strike plane. This search range was expanded by double the length for blocks not informed in the primary search. This strategy informed all blocks reported. At Nifty unfolding is applied and the grade is estimated from un-cut 1m composites using ordinary kriging into blocks representing the sulphide mineralisation subdivided into the 8 units in the mineralised sequence. Search ranges were varied by unit with up to 200m along strike, 100m across strike and up to 10m in the thickness of the unit. No information is available on the estimation technique applied to the oxide, transition and supergene zones. At Maroochydore the oxide, transition and fresh has been estimated using indicator kriging based on un-cut 1m composites with each zone estimated separately. The search strategy (distance and orientation) was based on geostatistical analysis. The sulphide mineralisation was estimated by ordinary kriging on uncut 1m composites. Grade estimation was carried out in either of the VulcanTM, Surpac or Datamine applications.

Criteria	Explanation	Comments
and modelling techniques	• *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.*	The Mt Gordon project and Nifty mineral resource estimates have been the subject of numerous comparative estimates producing similar results. At the Mammoth Deposit comparison of the estimate in global terms to production figures is generally poor possibly due to imprecise production record keeping and uncertain survey of the areas mined. Check estimates within the Mammoth Deposits have been made in some domains and provided similar results to the estimate reported. At Nifty the comparison to production data supports the estimate in a global sense. The oxide, transition and fresh estimate at Maroochydore has been subject of previous estimates by various parties on the same data giving similar results.
	• *The assumptions made regarding recovery of by-products.*	Estimates of associated elements (Ag, Co, Sb and Bi) have been conducted for all the majority of the deposits within the Mt Gordon Project Deposits. At Mammoth Ag reconciliation is very poor with production. The "value" of and the recovery of the accessory elements has not been documented. At Nifty there has been no assessment of any potential by-products. At Maroochydore whilst Co and Zn have been estimated their value has not been assessed.
	• *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).*	No assessment of deleterious elements has been made.

Criteria	Explanation	Comments
	• *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.*	For the Mt Gordon Project the block models were constructed using blocks which were of variable size pending on Deposit and location within the deposit. At Mammoth the block sizes range from 20mE x 20mN x 5mRL to 5mE x 5mN by 10mRL. At Esperanza-Pluto the blocks sized at 5mE x 5mN x 10mRL. At Esperanza South the blocks were sized at 5mE x 10mN x 10mRL to 5mE x 5mN by 10mRL. At Mammoth North the block size was 10mE x 5mN x 5mRL. At Greenstone the block model was constructed using parent blocks of 10mE x 5mN x 5mRL. Sub-celling to 1/2 the block size in each direction for all Deposits except Greenstone where is was 1/4 the block size in each direction was adopted to ensure accurate volume representation. Grade estimation was to the parent block size. At Nifty the block model was constructed using blocks which were 20mE (along strike) x 10mN (across strike) by 5m in the vertical plane. Sub-celling to 1/2 the block size in each direction was adopted to ensure accurate volume representation. At Maroochydore the block size for the oxide, transition, fresh and sulphide was 20mE x 50mN x 10mRL. Sub-celling to 1/2 the block size in each direction was adopted to ensure accurate volume representation. In all cases estimation was to the parent block size.

Criteria	Explanation	Comments
and modelling techniques (continued)	• *Description of how the geological interpretation was used to control the resource estimates.*	Hard boundaries where applied to the Domains within the Deposits. Grade was estimated within these boundaries.
	• *Discussion of basis for using or not using grade cutting or capping.*	Statistical analysis of the cu composite data indicated that most domains within most Deposits had elevated coefficients of variation. The influence of outlier grades was either minimised using top-cuts with high-grade influence restricted by search for ordinary kriging or inverse distance estimation or the use of an estimation methodology which accommodated grade variability with orientation and range.
	• *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	Volume validation was carried out by comparison of the solids representing the mineralisation to the block model. Grade validation was carried by both global comparison of the average estimated grade to the average input grade and spatially by comparison of the estimated grades to the input grades by position. Also visual comparison was used. If appropriate production information was compared to modelled information (Mammoth and Nifty) with variable results.

Criteria	Explanation	Comments
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	Density was determined by wet and dry measurements or calculated from Cu and Fe content. This information was then used to model/assign density either estimated using inverse distance methods, assigned using empirical methods based on Fe and Cu or using nearest neighbour methods. The tonnages estimated using density determined by copper content thus can be considered dry.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	For the Mt Gordon project Deposits a 0.5%Cu reporting cut-off deemed appropriate to report all material which may be incorporated into a mine deign using SLC techniques – see next point. For the Nifty Project a cut-off of 1.2% Cu is used for reporting that sulphide material with sufficient grade for economic underground mining by long hole open stoping methods. The use of 0.4% for oxide, transition and supergene is justified by studies and previous mining of this type of material. For the Maroochydore project the 0.5% Cu cut-off applied to the oxide, transition and fresh material describes that material from which open cut studies have identified economical outcomes by transporting and processing the material at Nifty. It is assumed that the Maroochydore sulphide will be mined and treated in a similar way with a higher reporting cut-off applied to identify material closer to the sulphide operating grade at Nifty.

Criteria	Explanation	Comments
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	For the Mt Gordon Project mining studies have indicated that SLC underground techniques can be applied with a Project returning a significant mining inventory (5 Deposits - 66.5Mtonnes) at diluted mining average head grades ranging from 1.1% to 1.6% Cu. Whilst this method has not been trialled at this time in order the ensure that all mineral resource which is likely to appear in a "mine" design a reporting cut-off of 0.5% Cu is felt appropriate. For the Nifty sulphide Deposit long hole open stoping has been successfully utilised for many years. For the near surface oxide, transition and supergene open pit studies have indicated its viability at the lower 0.4% cut-off. For the Maroochydore Project the reporting cut-off for open cut mining (oxide, transition and fresh material) of 0.5% is based on mining studies and ore transport to Nifty for processing. Similarly the sulphide material will be treated at Nifty and the higher cut-off is justified by average grade requirements.

Criteria	Explanation	Comments
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	At the Mt Gordon project the metallurgical characteristics of the Mammoth Deposit have been demonstrated by the successful production history of copper produced in concentrate. The mineralisation characteristics of the other Deposits in the Project appear very similar to Mammoth and thus it is assumed that the copper can be extracted using the same process as is currently in place. The Nifty mineralisation has been successfully treated for several years to produce copper in concentrate. Initial studies on Maroochydore material indicates that a similar treatment to Nifty will be appropriate.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	For the Mt Gordon Project the infrastructure and licensing is in place to conduct all aspects of a mining, processing and waste disposal operation. At the Nifty Site the mining and processing is on going and it is planned to treat the Maroochydore Deposit at the Nifty facility.

Criteria	Explanation	Comments
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	For the Mt Gordon Project density has been determined from over 58,350 core sample measurements using weight in the air and weight in water technique or empirical determinations using Fe and Cu content. The results were modelled using inverse distance techniques into the block model. For the Nifty Deposit a large number of determinations have been made based on copper content. For the Maroochydore Project no density information has been collected and values for modelling are taken from the Nifty deposit by material type.
	• *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.*	The rocks within all Deposits do not display significant porosity thus the technique adopted is appropriate.
	• *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	The material is generally fairly uniform as evidenced by the consistency in the specific gravity information.

Criteria	Explanation	Comments
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.*	The classification is based on the quality and amount of input data, the grade continuity model, the physical domaining, the results of mining in some Deposits and drilling observation of the mineral system. The lack of drilling QAQC for some of the data have been offset by the amount of drilling data with supportable assay information. Higher confidence areas have more supporting data (and in some cases a mining history), areas of lower geological support reflect a lower classification.
	• *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).*	The input data particularly the more recent is consistent and closely spaced enough to support the projection of the geological interpretation at depth and along strike/down plunge which in terms of style of mineralisation is consistent with other deposits within the same or similar geological setting. Later drilling programs have successfully in filled earlier programs in mineralised locations predicted by the initial program. The estimated grade correlates reasonably well with the input data given the nature of the mineralisation and to production information (particularly at Nifty)
	• *Whether the result appropriately reflects the Competent Person's view of the deposit.*	The Mineral Resource estimate reflects the Competent Persons understanding of the Deposit.

Criteria	Explanation	Comments
Audits or reviews.	• *The results of any audits or reviews of Mineral Resource estimates.*	Audits are routinely undertaken by external consultants
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	The mineral resource estimates are volume and sample constrained in well defined geological locations and the confidence in the mineral resource is defined by the classification adopted as per the guidelines of the 2012 JORC code. Some areas of the Mammoth Deposit would benefit by, if possible and the data is available, more detailed application of the production history.
	• *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.*	The statement relates to global estimates of tonnes and grade.
	• *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	For the Mammoth Deposit comparison to production information is poor particularly for the earliest underground mining where mined volume information does not equate to production records. For the two open cuts at Mt Gordon no reconcilable information is available. At Nifty the comparison to production is good.