

# Analyst Visit 4 June 2005

QNI Pty Ltd



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# QNI has most of requisite factors for world competitive sustainable nickel and cobalt processing

- Abundant water – WRF
- Power largely self-generated by co-generation
- Reasonably priced gas and coal
- Skilled workforce
- Well established safety and production systems
- Well established sophisticated support industry
- Enabling local political climate
- Political and fiscal stability
- Good rail/road/air



# The QNI strategy



## Stabilise Yabulu operation

- Zero harm
  - Business re-engineering
  - Maximise plant uptime
- = **sustainable, predictable production improvements**

## Optimise Yabulu margins

- Incremental value-added product development.
- Plant efficiency projects
- Gas conversion
- Selected own mine development

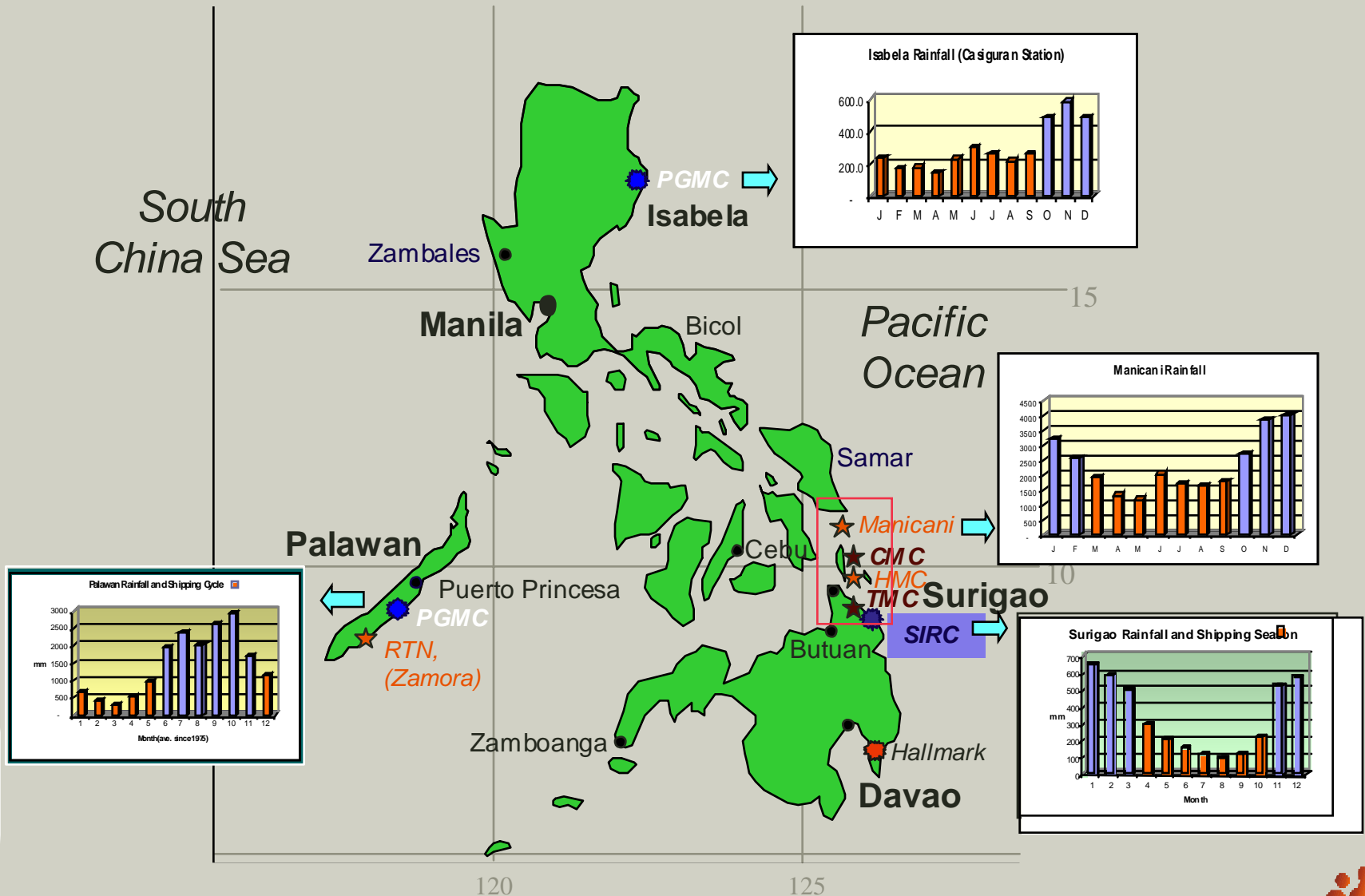
## Central Refinery Strategy

- **Phase I:**  
Develop Ravensthorpe as “front end” and expand Yabulu.
- **Phase II:**  
Develop next front end, replacing ore importation

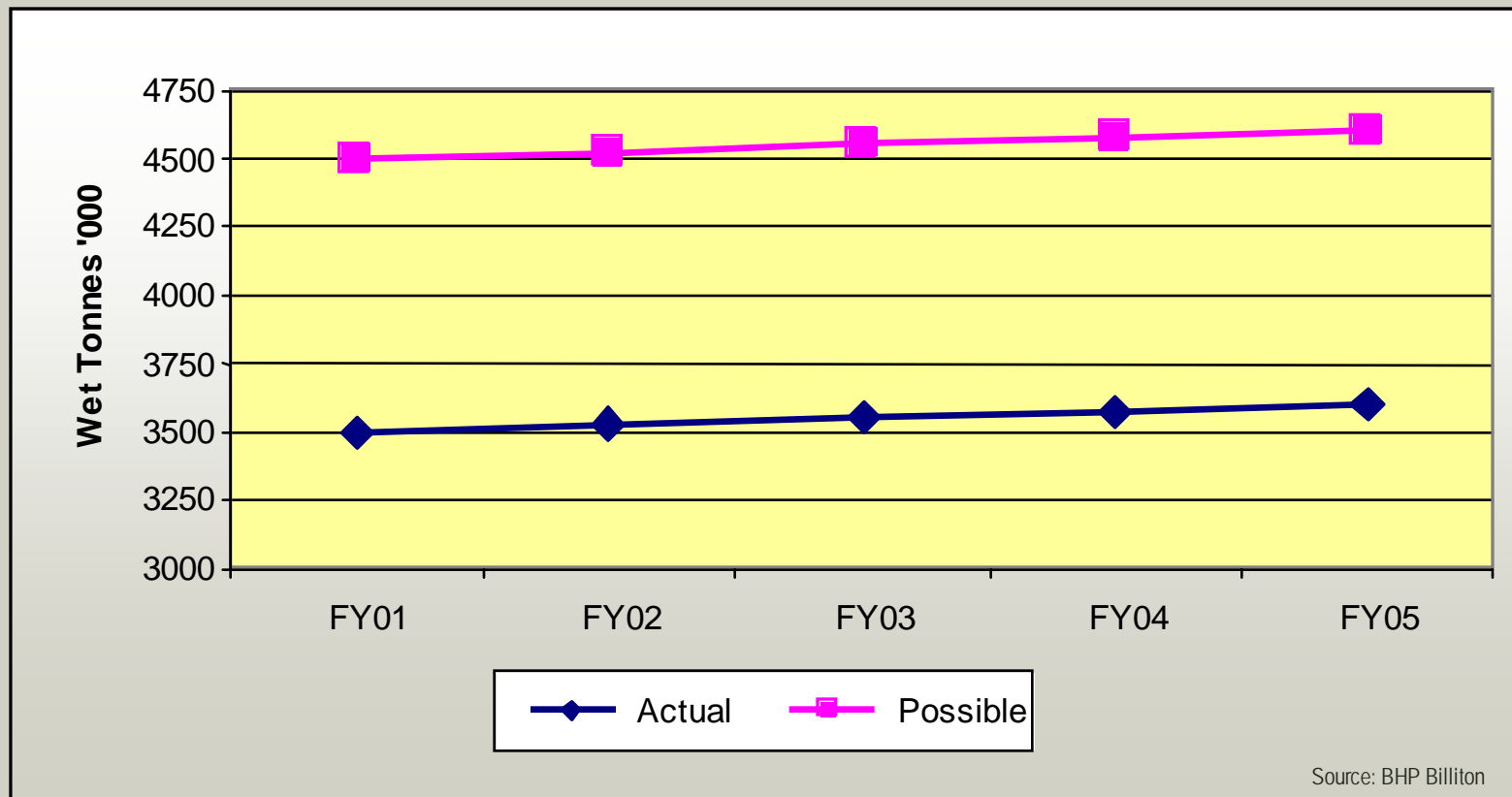
# Sources of ore supply to Yabulu Refinery



# Mine site location and rainfall patterns



# Identified ore sources vs actual offtake



# Ship loading by barge





# Ore discharge at Materials Handling Facility

Approximately 3.7 million tonnes of Nickel Ore is unloaded and transported to Yabulu Refinery every calendar year.



# The QNI strategy



Central Refinery Strategy

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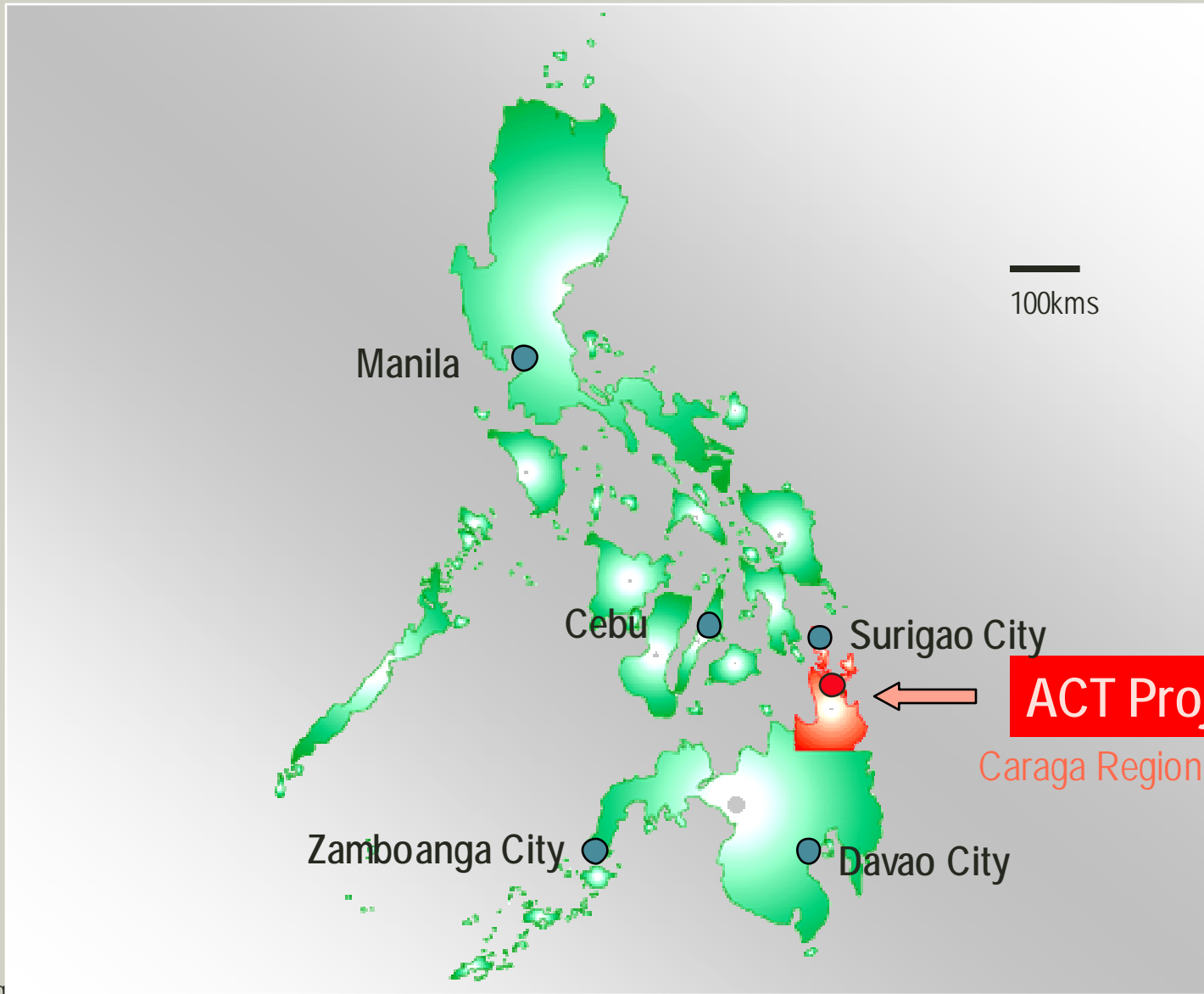
## Optimise Yabulu margins

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# ACT Project Location



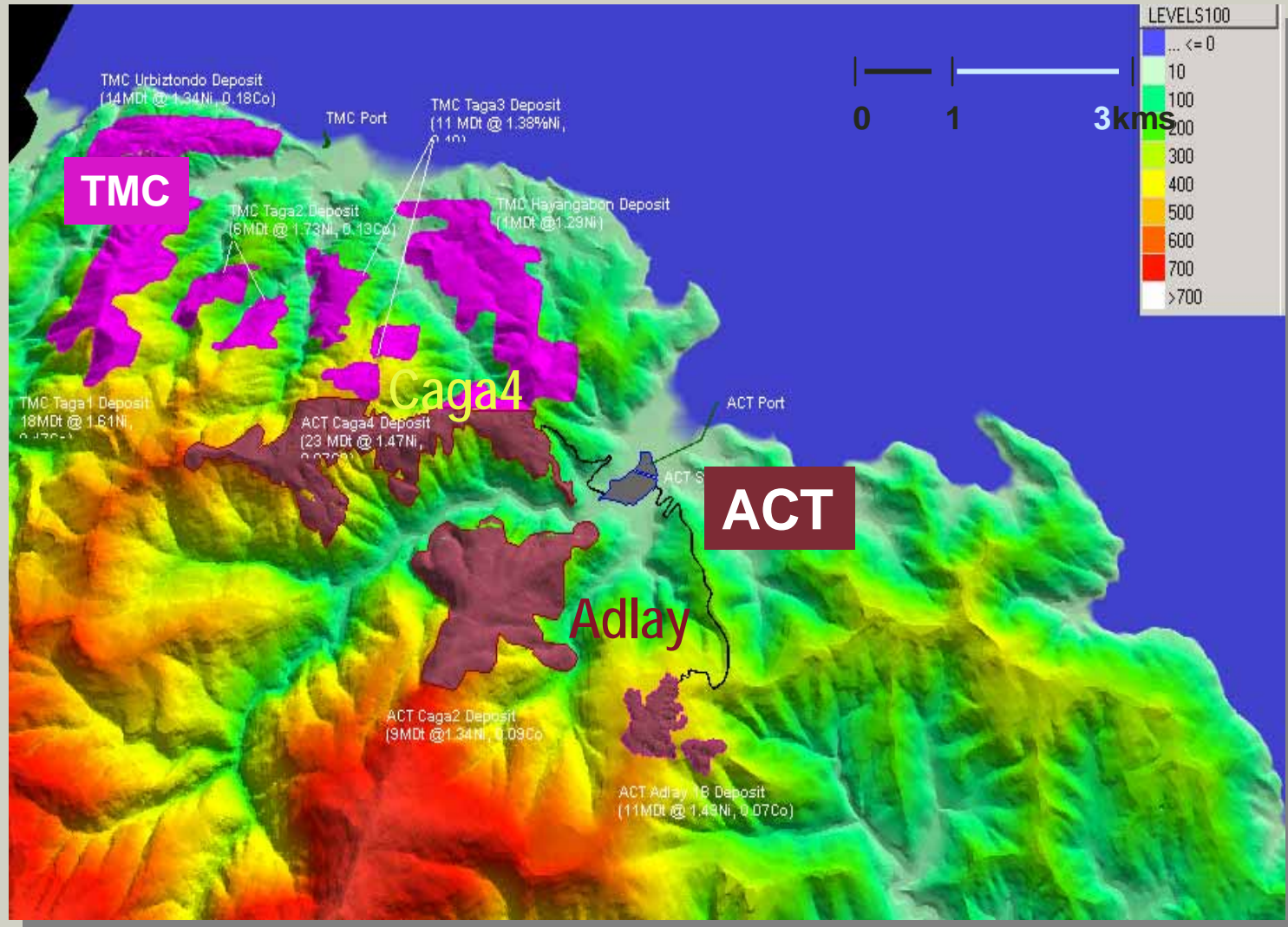
# ACT Project: significant parameters

- Mineable reserves: min 12MWt
- Minelife: 12 years, minimum
- Production: 1MWt/y
- Method: Surface mining w/ progressive rehab
- Sustainability: Programme & policy framework in plan
- Direct capitalisation: US\$19.2M





# ACT Project: Location of Ore Reserves



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Brief market and sales overview

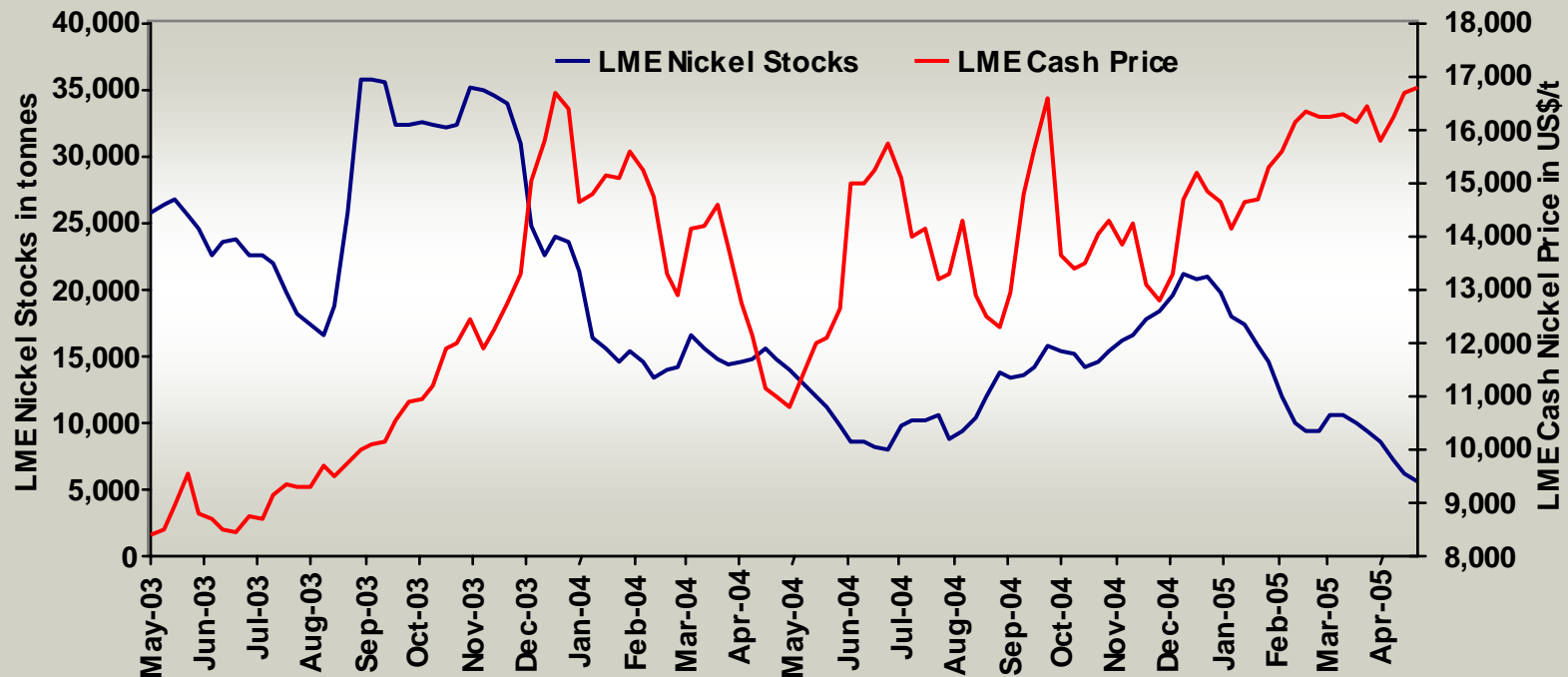


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# Nickel supply and demand balance, price and stock development

CY	2003	2004	2005
Global Supply (kt)	1,284	1,272	1,305
%change		-0.9%	2.6%
Global Consumption (kt)	1,240	1,263	1,317
%change		1.9%	4.3%
Surplus/Deficit	43	9	-12

Source: CRU



Source: London Metals Exchange

# Nickel market is in structural tightness

## ➤ Nickel demand remains robust

- 300 series remains the workhorse of the stainless industry because of “core” applications
- Strong growth in the aerospace industry and land-based turbines
- Hybrid electric vehicles provide a positive development for long-term growth

## ➤ Real constraints to supply

- No major technological revolution anticipated
- Capital costs are high

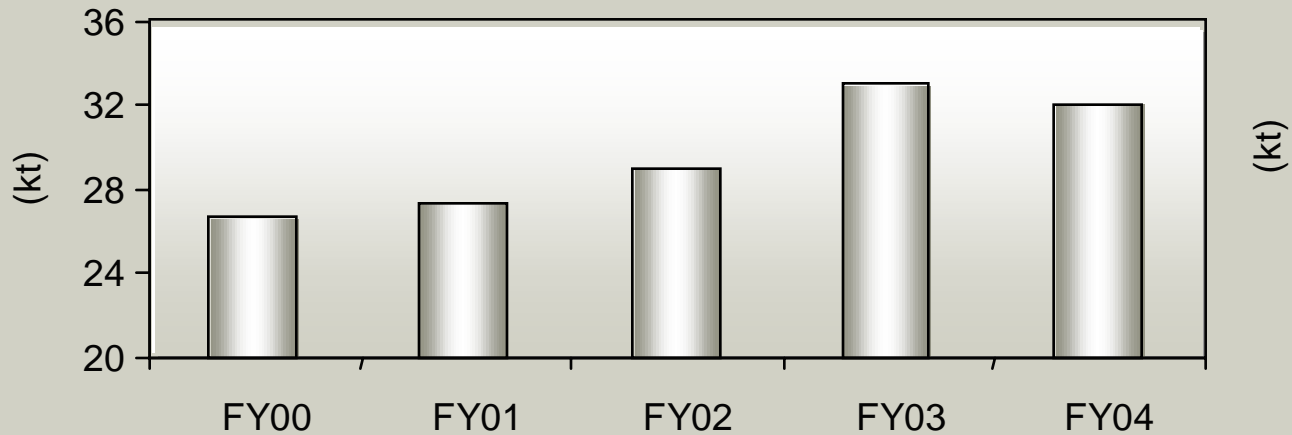
Nickel demand is, however, sufficiently elastic to avoid a prolonged period of high prices. Nickel bearing stainless steels remain cost-competitive against alternatives in their core applications.



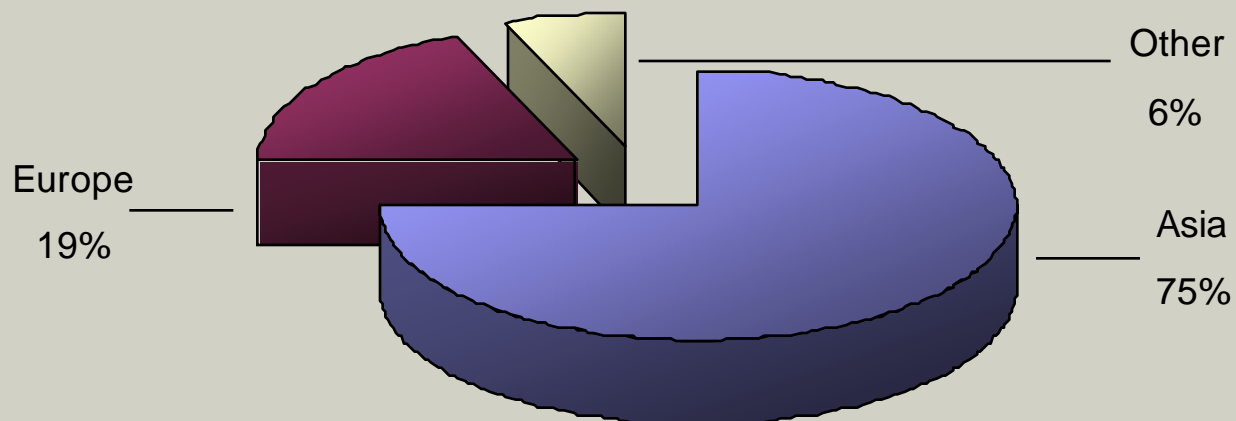


# Yabulu Ni production and sales

## Yabulu nickel sales



## FY 04 Geographical Sales split – Poised for YEP Output



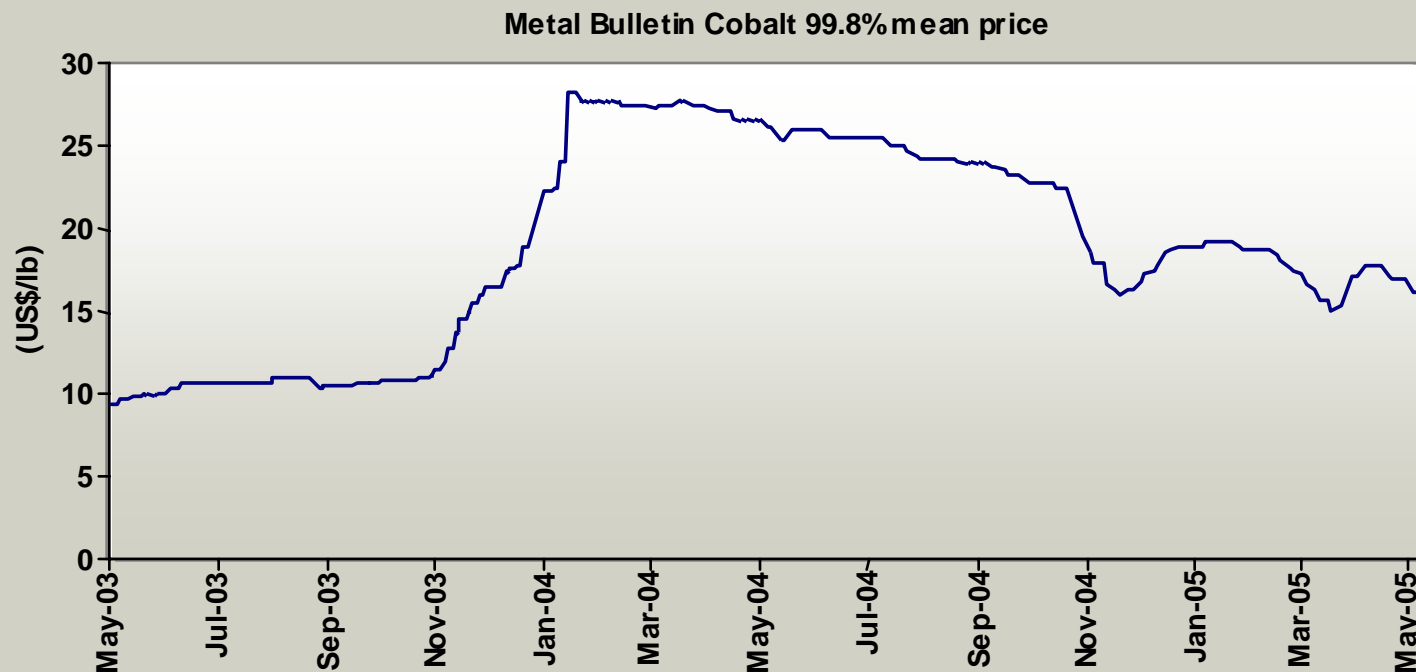
Source: BHP Billiton

# Cobalt supply and demand balance, price development

CY	2001	2002	2003	2004*
Global Supply (kt)	41.5	42.4	46.7	49.5
%change		2.2%	10.1%	6.1%
Global Consumption (kt)	39.4	41.0	45.9	49.4
%change		4.1%	12.0%	7.6%
Surplus/Deficit	2.1	1.4	0.8	0.1

Source: CRU

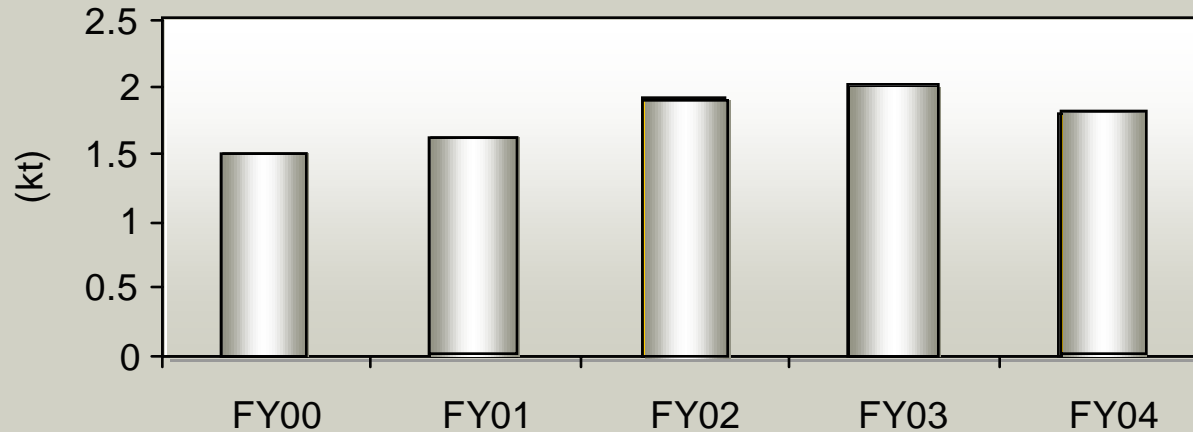
\* Provisional figures



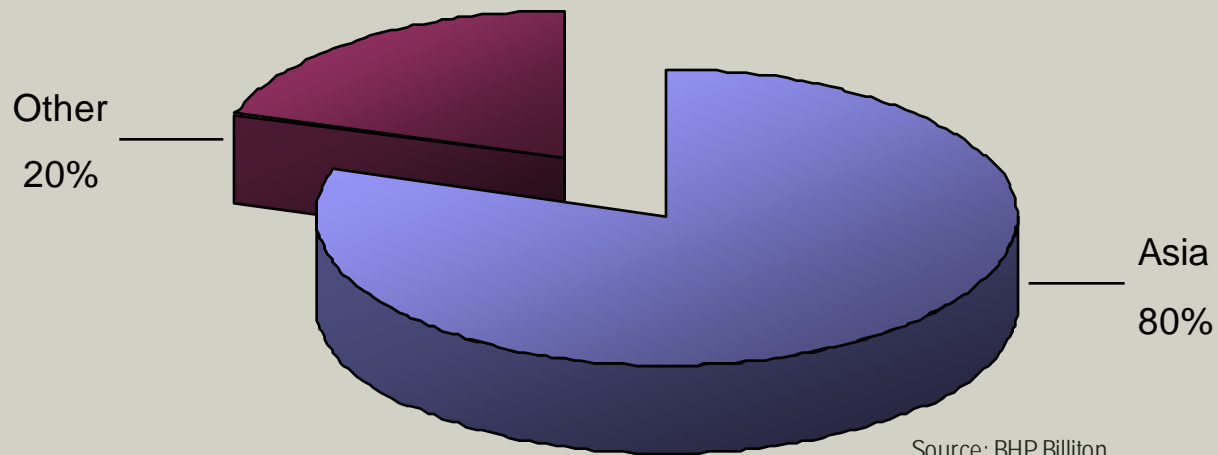
Source: London Metal Bulletin

# Yabulu Cobalt production and sales

## Yabulu cobalt sales



## Geographical Sales split – FY04



Source: BHP Billiton

# The QNI 3 Horizon Strategy – creating a robust platform for capital efficient growth



## Stabilise Yabulu operation

- Zero harm
- Business re-engineering
- Catch-up maintenance

## Optimise Yabulu margins

- Incremental value-added product development.
- De-bottlenecking to increase Ni and Co volumes
- Cost reduction
- Ore supply risk management
- Gas conversion

## Central Refinery Strategy

- Phase I:  
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# Incremental value-added product development for cobalt

**Aim:** Incremental value-added product development based on modification of existing products

**Target:** Li-Ion battery for portable applications

**Results:** Last year 70% of cobalt was sold as a premium chemical product to the Li-Ion battery industry

**Future:** Expand activities to include Ni and Co targeting the Li-Ion battery for larger applications



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Yabulu Refinery

Alan Cuddon



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# Outline of presentation

- Our vision
- Yabulu strategy
- Yabulu Refinery overview
- Yabulu Performance
- Our Environment
- Our Community



# Our Vision

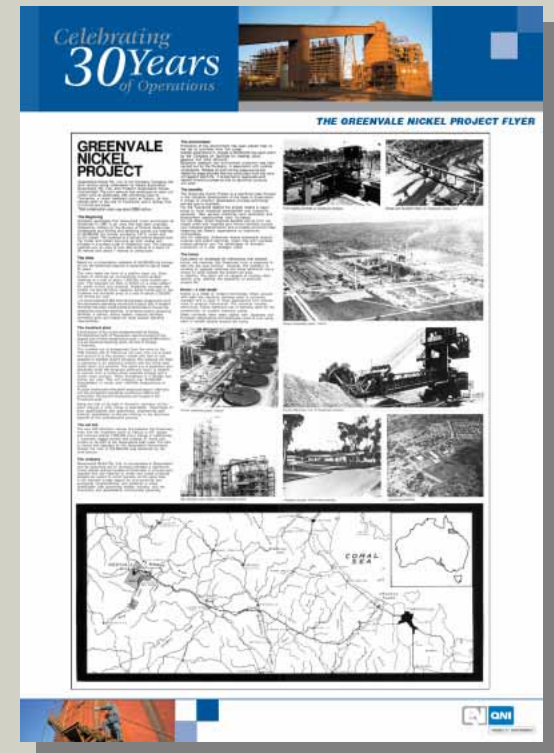
We are here for the long term to grow a responsible, robust, world class nickel and cobalt business.





# Overview - Yabulu Refinery

- Commenced operations in 1974, ore from Greenvale nickel deposit.
- Mine exhausted in 1992; other domestic supplies in 1995. Imported ore since 1986
- Located on the east coast of Australia
- 3.5 M tpa of imported ore produces 32 000T Ni and 2000T Co
- Efficient refining process (Caron)
- Billiton finalised purchase in Dec 1998, Billiton merged with BHP in June 2001.
- Ravensthorpe - Yabulu Integrated Nickel Project approved – March 2004
- Largest private employer in the region.



# Production, process & people

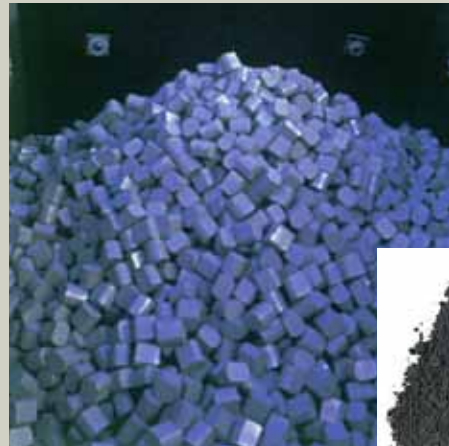
- Four main processing areas
- Continuous process – Caron
- Ore Roast, Extract & Refine
- 24 hour production utilising 4 shift crews on 12hr rotating roster
- Day-work support crews
- People – 700 compliment  
+ 200 projects



# Product Range – Nickel/Cobalt Products

## Nickel

- QN Nickel compacts (>99% Ni)
- QN Nickel Carbonate
- QN Nickel Oxide (78% Ni)



## Cobalt

- QN ChemGrade Cobalt



# The QNI strategy



Central Refinery Strategy

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## Stabilise Yabulu operation

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- = sustainable, predictable production improvements



## Power Generation

- Coal-fired boiler produces process steam & power



## Gas Production

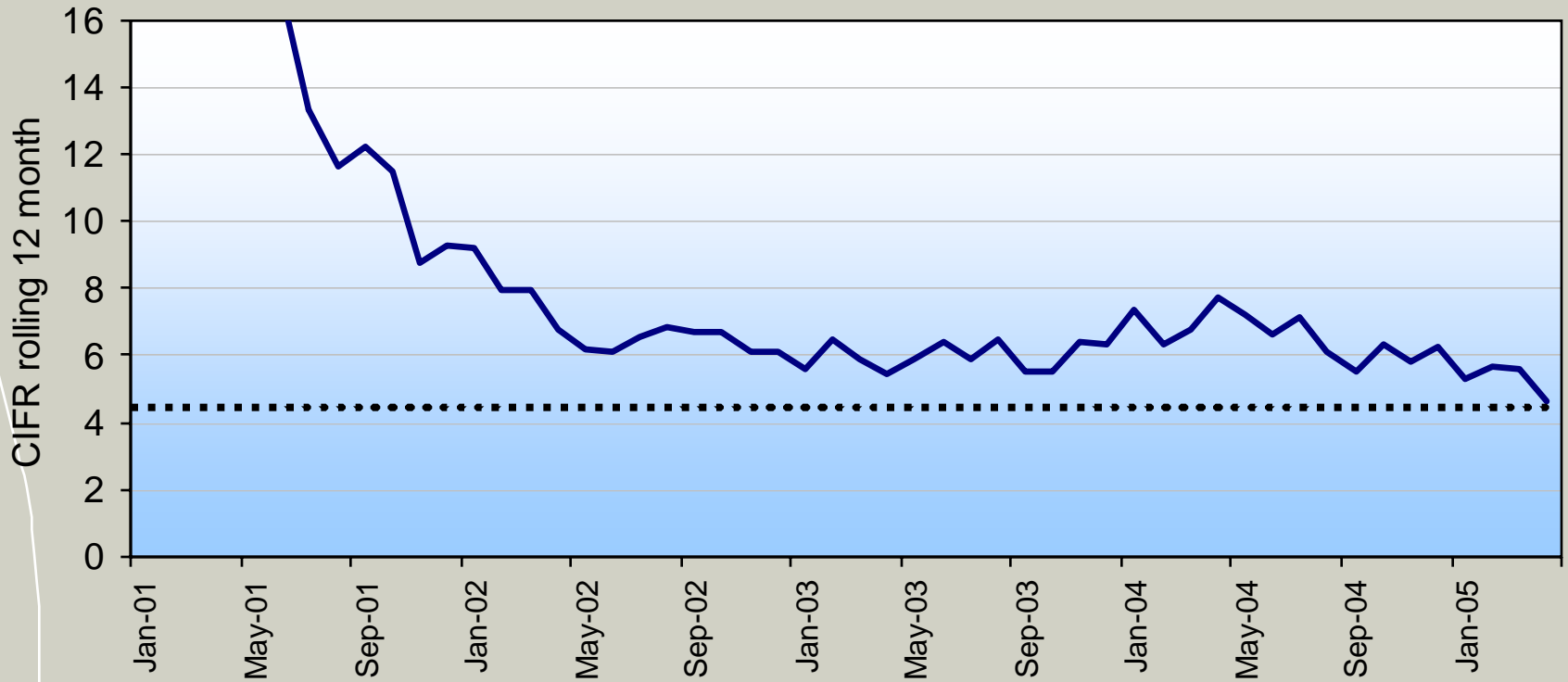
- Syngas, aqua ammonia & H<sub>2</sub>S from naphtha

## Conversion to Coal Seam Methane

- Tie in's completed, key equipment being procured
- Taking gas at Yabulu from early 2006
- Reduce unit costs, US\$0.14/lb nickel

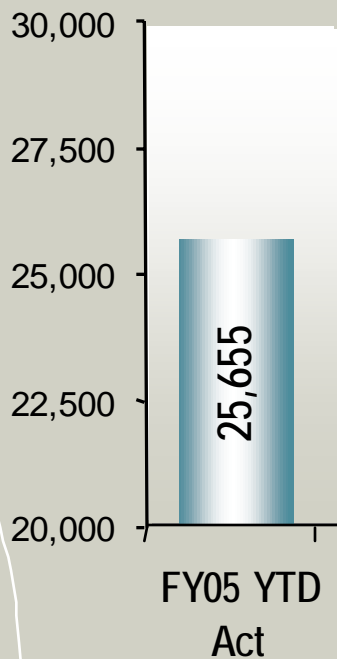


## Classified Injury Frequency Rate Performance

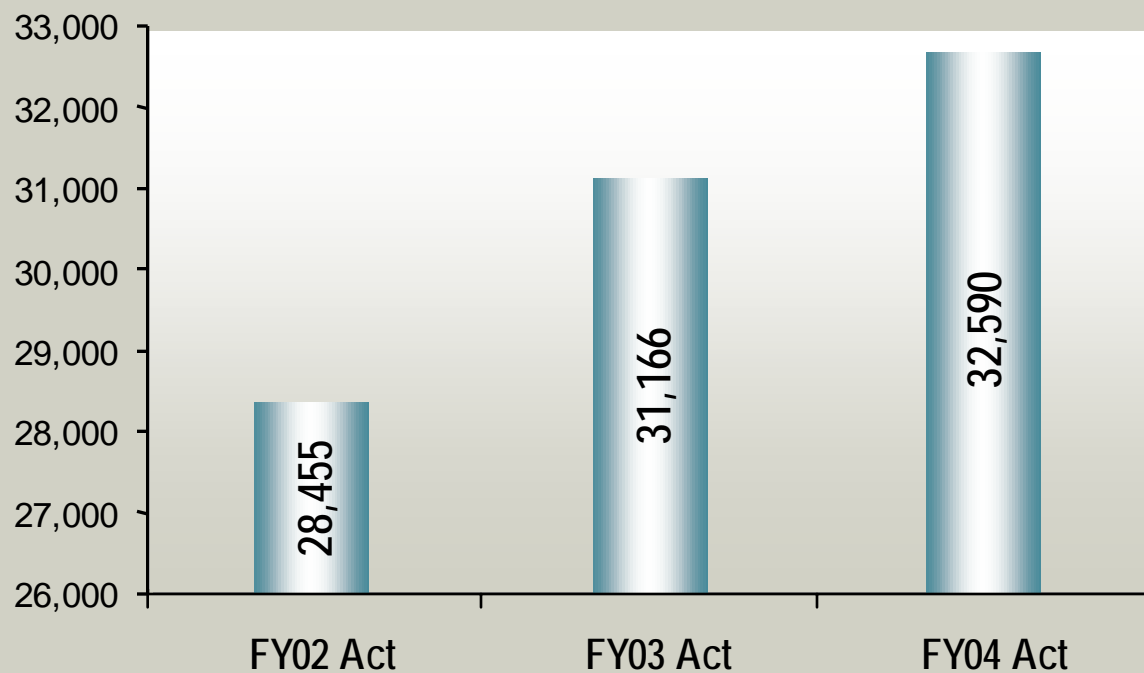


# Improving Production - Ni

YTD Apr 05

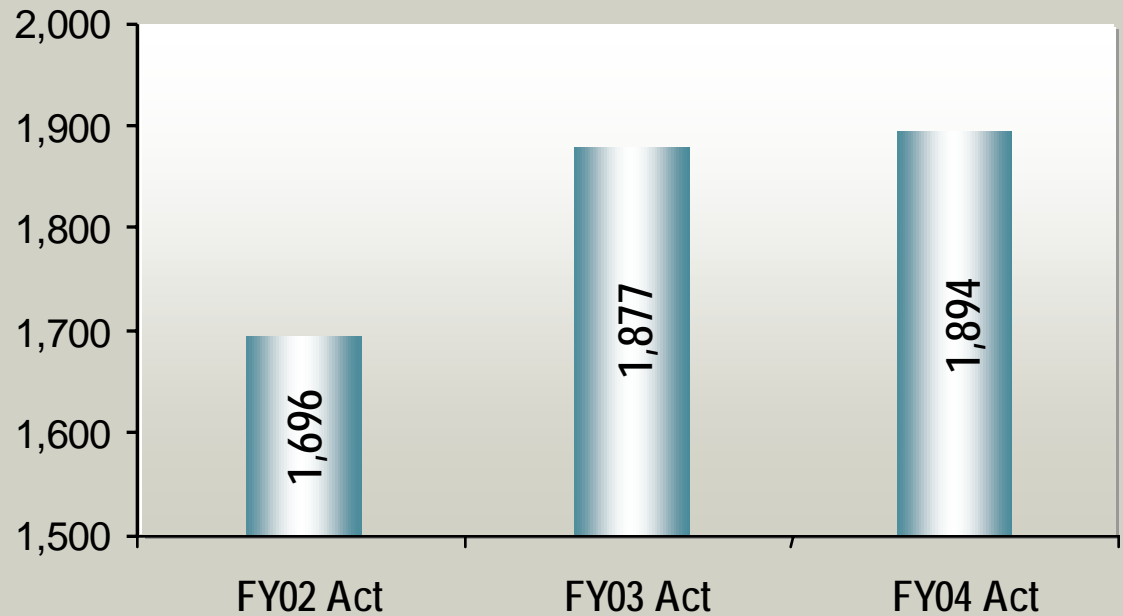
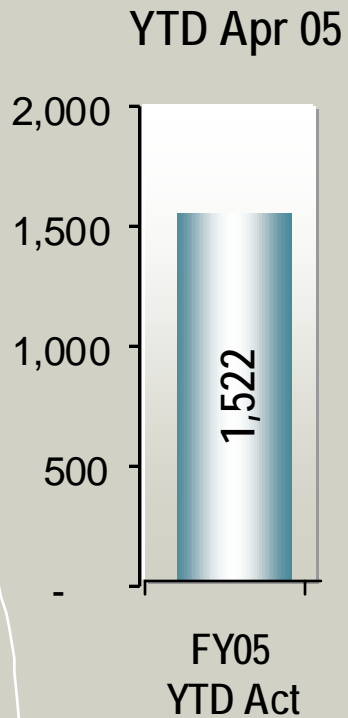


Nickel Production (tonnes)  
(financial year)



# Production - Co

## Cobalt Production (tonnes) (financial year)





# Post Investment Review – Yabulu Optimisation Initiatives

- HSEC



- 0 CI, 0 MTC

- Budget



- Budget US\$15.4m
- Actual US\$15.4m

- Benefits



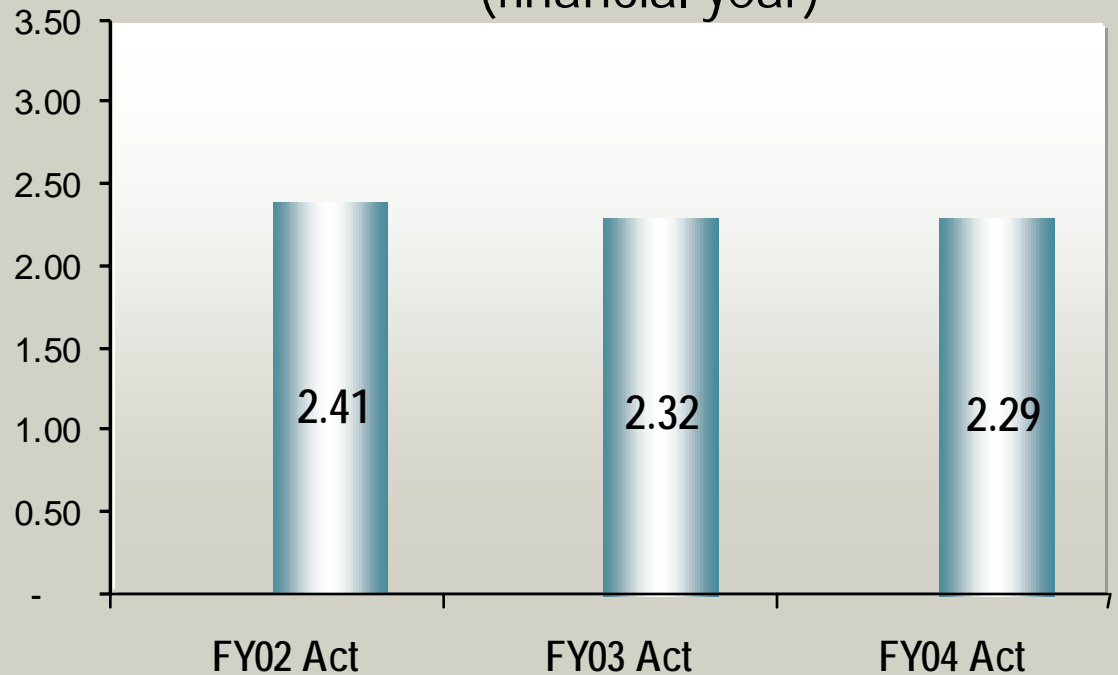
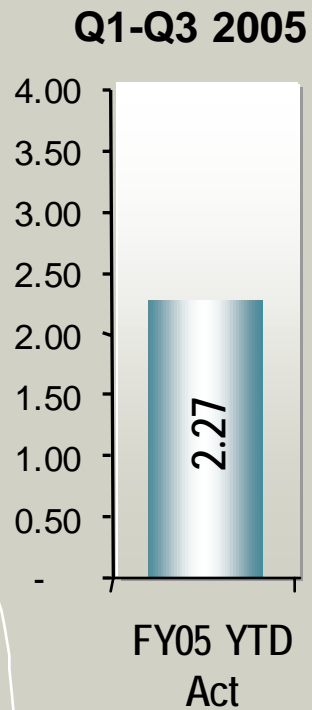
- NPV US\$69.8m @ 7.0% discount
- Payback 2.2yrs
- ROR 77.3%
- Safer plant operation
- Ni +2.2%
- Co +8%
- Steam Savings 24tph
- Reduced Energy 512,000 GJ/yr
- Reduced GHG 35,200 t Co2
- Reduced Raw Water 650 ML/yr

# QNI Financial Performance

<b>US\$M</b>		<b><u>FY05 H1</u></b>	<b><u>FY04</u></b>	<b><u>FY03</u></b>
Ni Production	Tonnes	15,027	32,590	31,166
	M lb Ni	33	72	69
Ni Sales	Tonnes	15,556	32,097	33,008
	M lb Ni	34	71	73
<b>Ni Turnover</b>	<b>\$M</b>	<b>207</b>	<b>375</b>	<b>234</b>
EBITDA	\$M	96	163	48
Depreciation	\$M	18	28	24
<b>EBIT</b>	<b>\$M</b>	<b>78</b>	<b>135</b>	<b>24</b>
Turnover - EBITDA	\$M	111	212	186
	\$/lb Production	3.35	2.95	2.71
Turnover - EBIT	\$M	129	240	210
	\$/lb Production	3.89	3.34	3.06

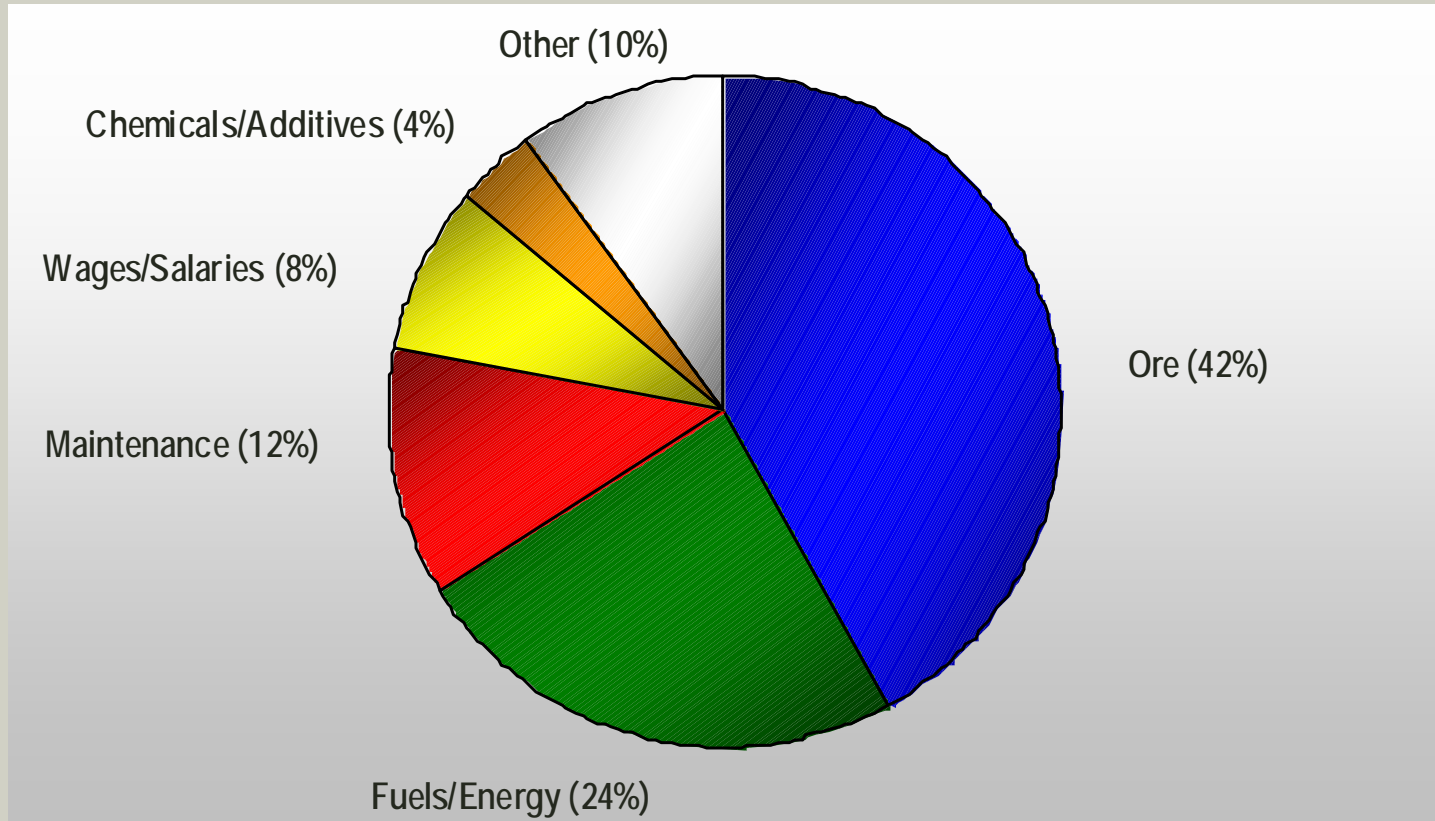
# Operating Unit Cost (after Cobalt Credit)

## Unit Operating Cost (US\$/lb after Co credits) (financial year)



\* Normalised to FY01 protocols

# QNI Cost Structure



# Environment Management programs



- Environment Assessment and Management (EA&M) Program
  - carried out by CQU, Uni of Qld and JCU.
  - monitors and investigates marine, estuarine, terrestrial and freshwater systems, in place for 5 years ~ clean bill of health.

- Water Recycling Facility

- \$25million WRF a sustainable, long term solution to water management at Yabulu.
- Benefits:
  - replaces the practice of routine release of excess water to sea
  - allows a significant reduction in demand from external water supplies



# Community Relations

- Matched Community Safety Grants when recognising 1,000,000 LTI free hours (twice in FY05!)
- Community spend
  - Sustainable Energy Precinct – Thuringowa Riverway Project: \$750,000
  - Adopt A School program with NQ Cowboys – Cowboys foremost community program ~ & a league benchmark
- Participated in UQld Community Reputation Survey
  - 175 surveys completed in community.
- 30 years of Operations program of activities & events during 2004

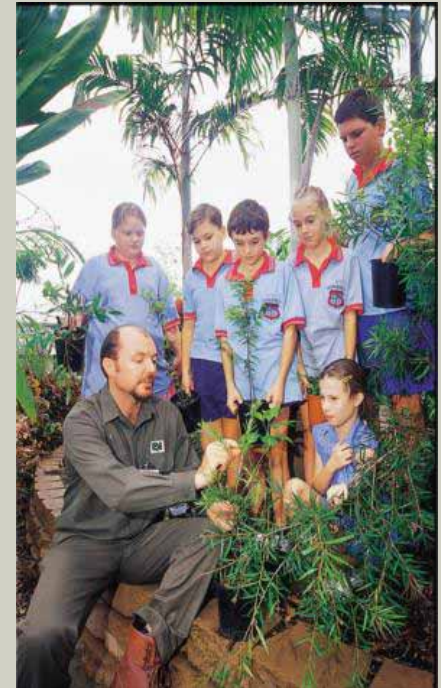


# QNI Yabulu Refinery - The Triple Bottom Line

## Environment



## Community



## Business

Our License to Operate



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Ravensthorpe Nickel Project





# Ravensthorpe Nickel Project



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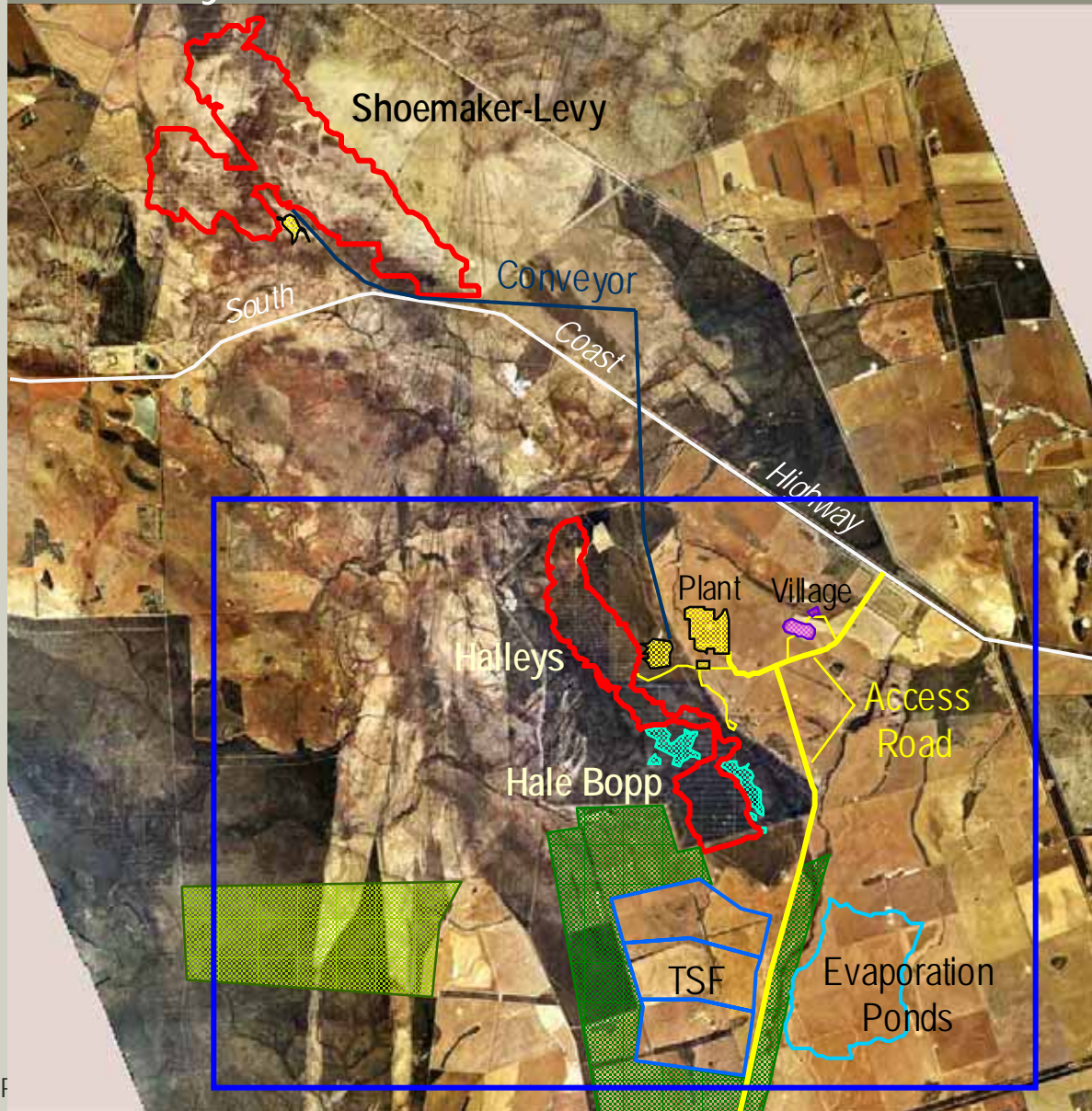
## Optimise Yabulu margins





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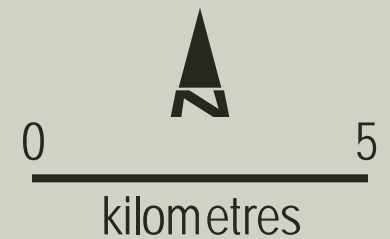
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# Ravensthorpe Nickel Project Site Layout



- LEGEND
-  Pit Outline
  -  Priority Flora
  -  Re-vegetated Area
  -  Conservation Offset

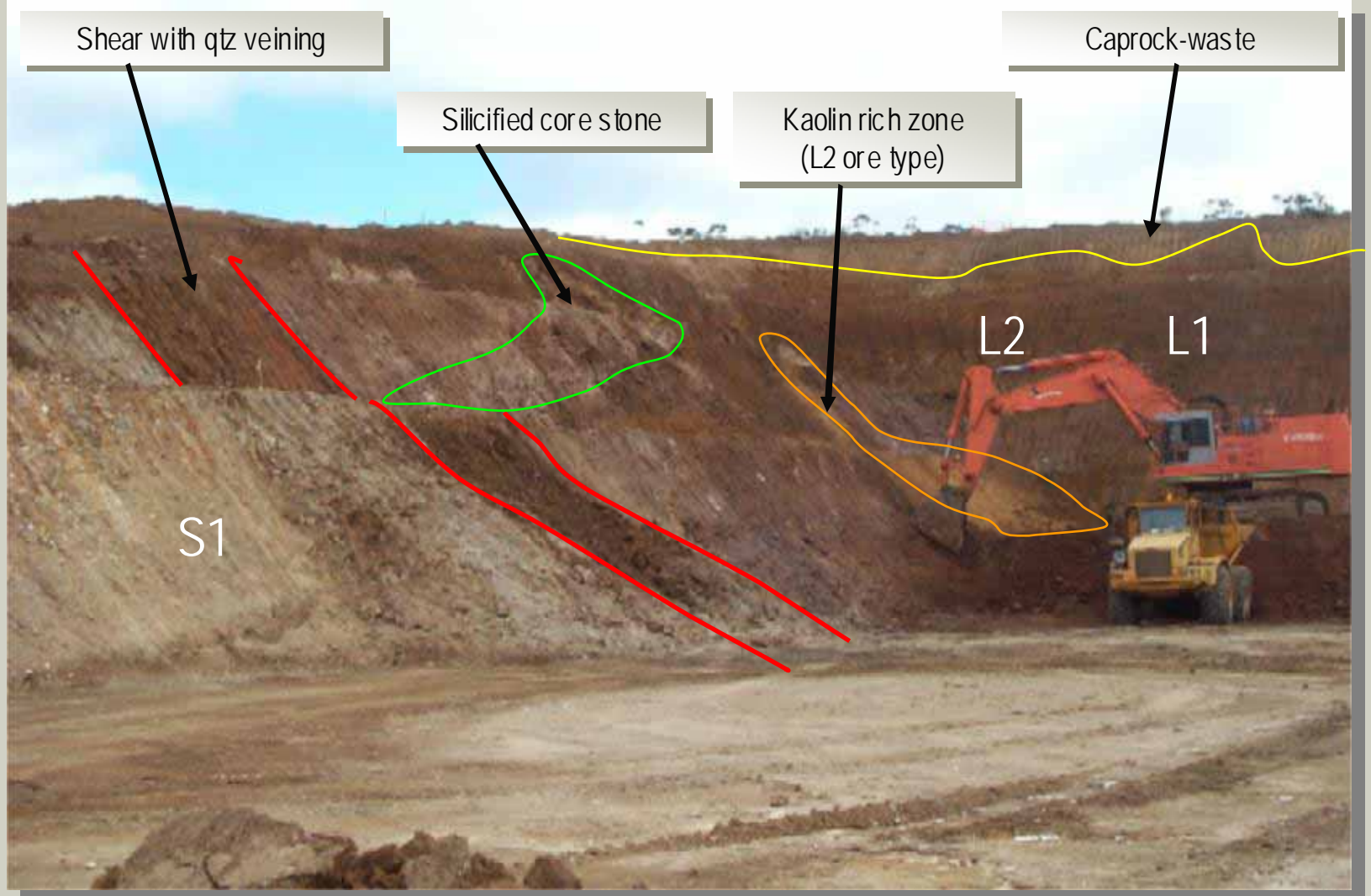


# HSEC Performance and Issues

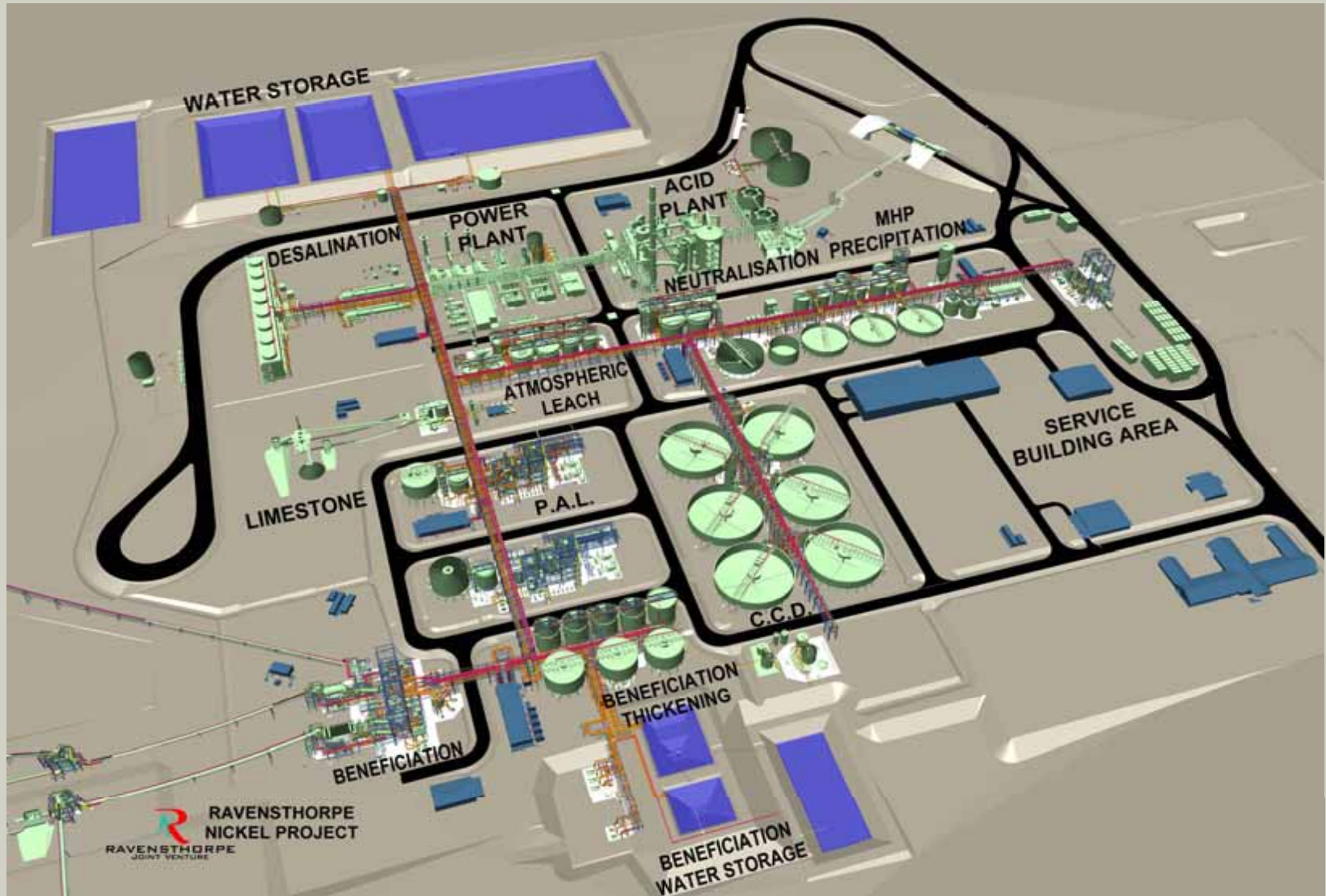
- Leading indicators on target or better
- CIFR (end – May and 1,025,000 hrs) at RNP of 4.7
- ICAM training completed and FRCPs implemented
- DuPont appointed to assist in the Road to Zero Harm
- Contractor management remains the key focus
  - Tender evaluations
  - Pre-mobilisation checks
  - Quality of JSAs, Toolbox Talks and Behavioural Observations
  - D & A testing
- No material environmental issues
- Community relations remain excellent
- Local contracting and employment programs (incl indigenous) in place



# Trial Pit Geology - Visually Distinct Ores

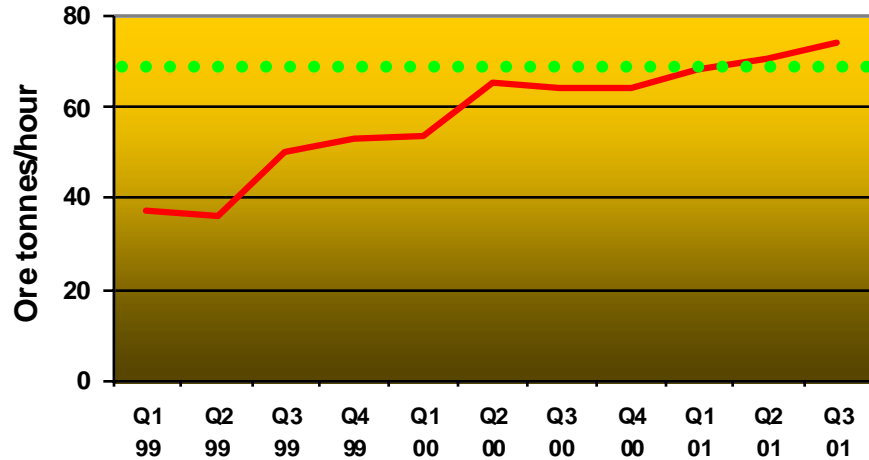


# Ravensthorpe Nickel Project - Virtual Tour

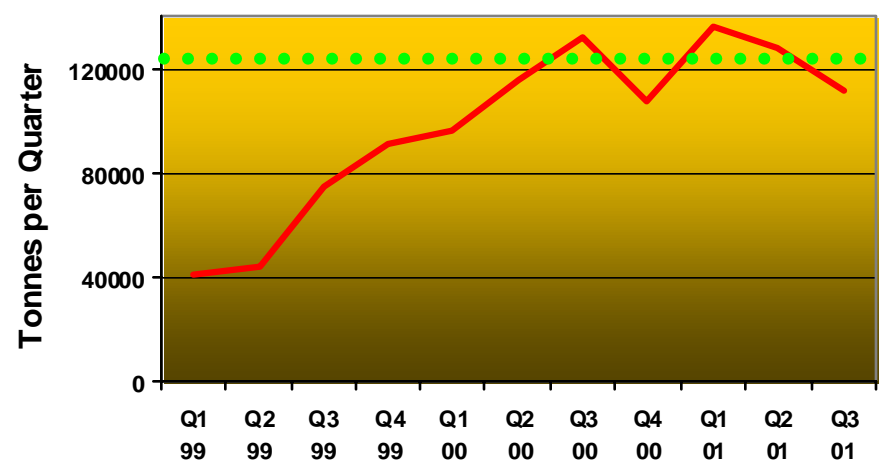


# Ravensthorpe Nickel Project Cawse Ramp-up Rate

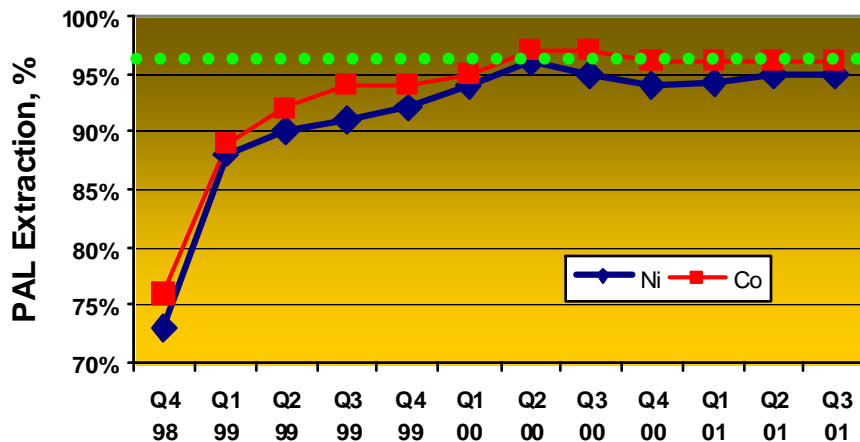
### Cawse Autoclave Feed Rate



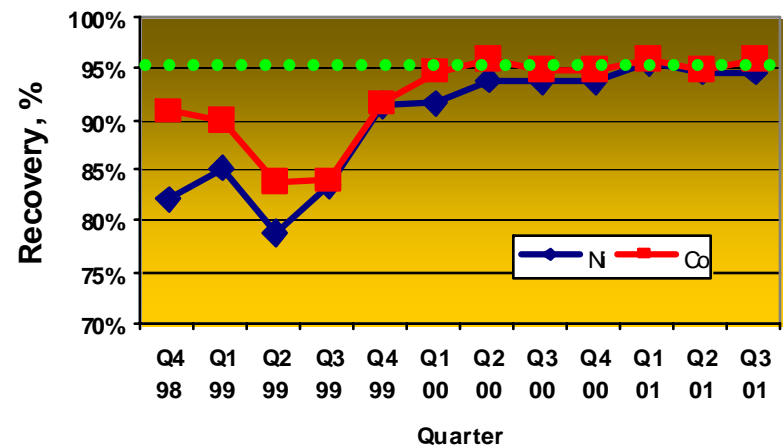
### Cawse Autoclave Feed Tonnage



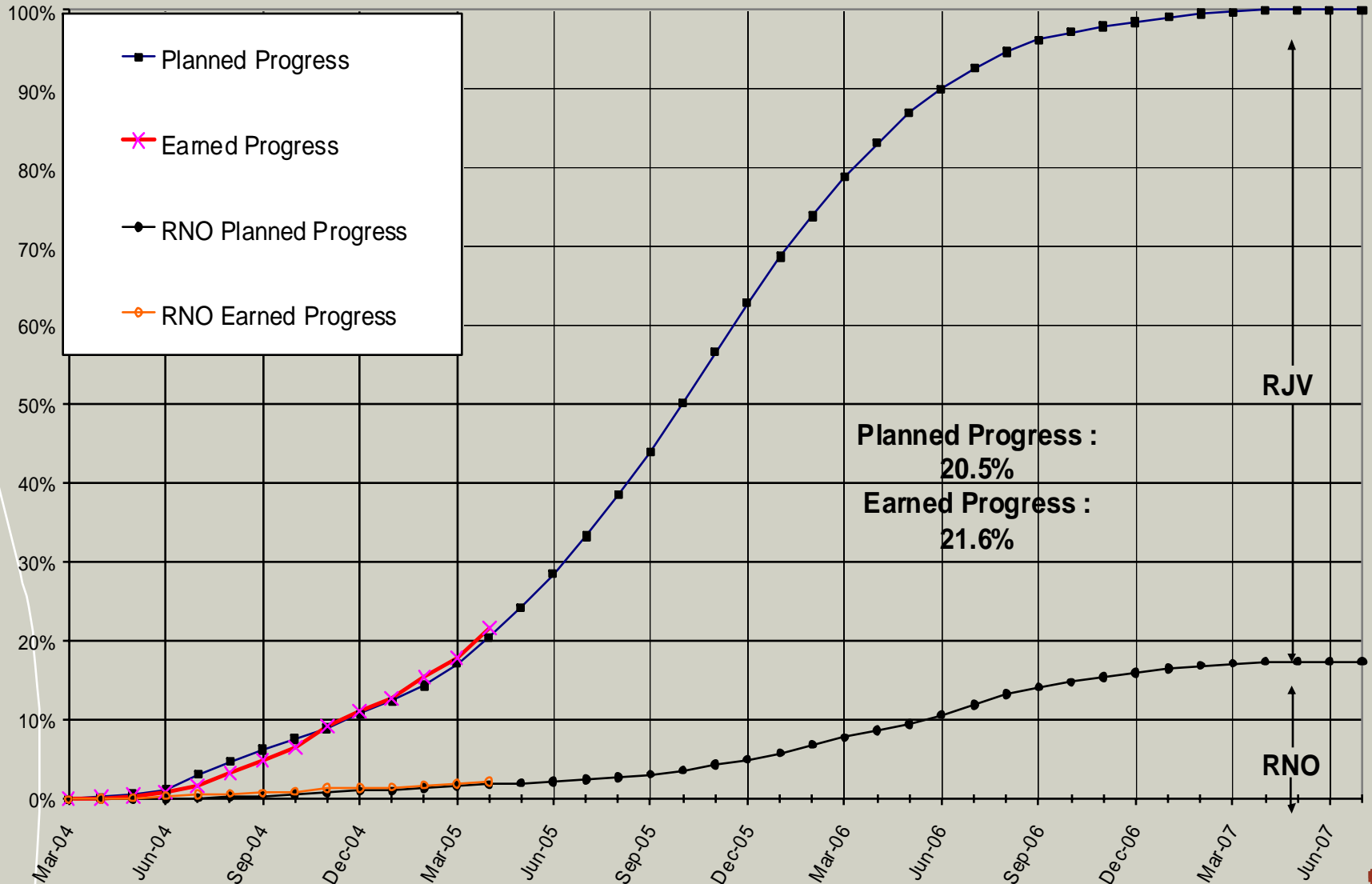
### PAL Extraction vs time



### Post-PAL Metals Recovery



# Ravensthorpe Nickel Project Overall Progress April 2005





# Ravensthorpe Nickel Project

## Proposed Upgrade at Esperance Port Location of Sulphur Storage Shed

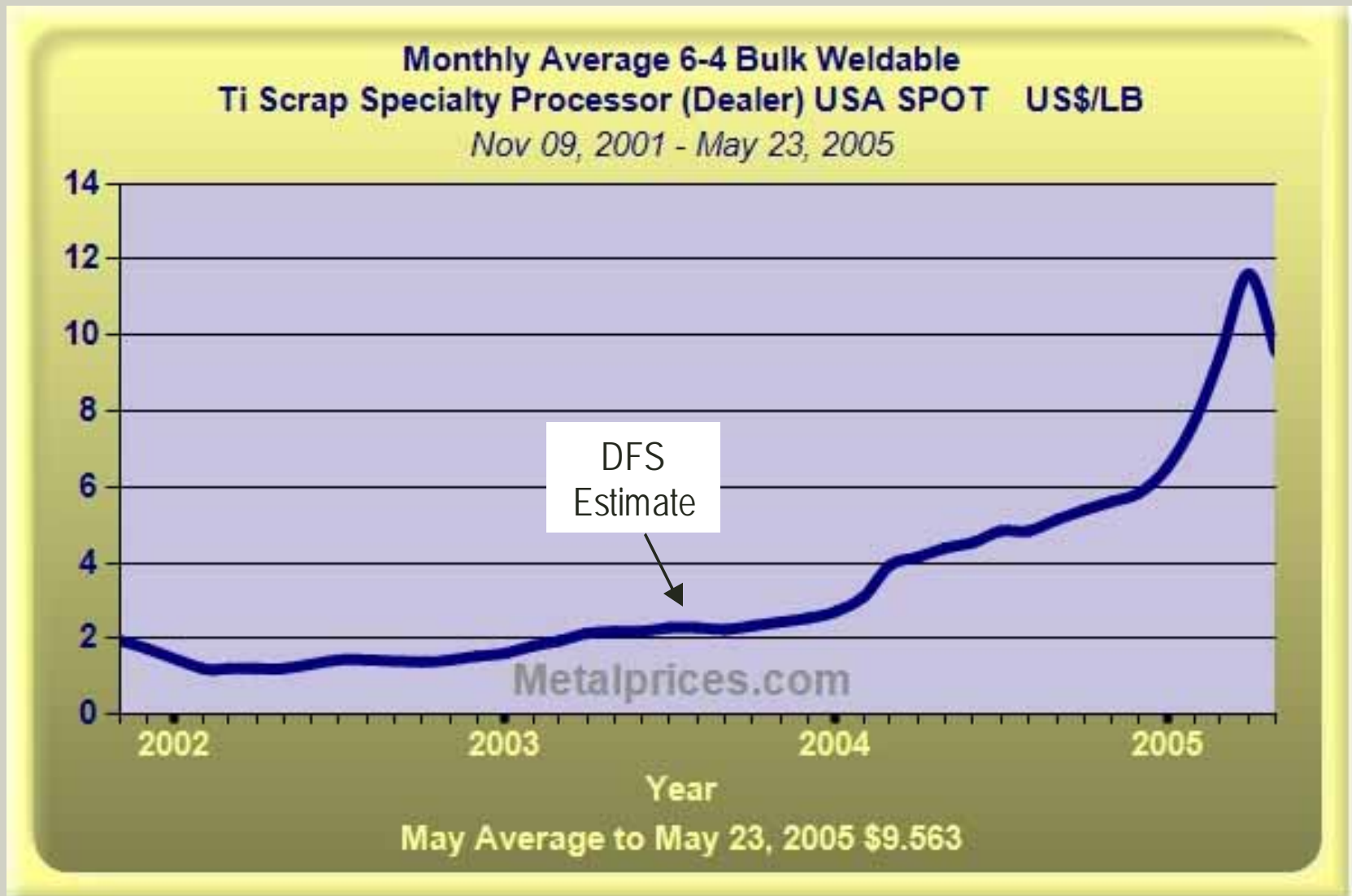


**Proposed unloading of sulphur and loading of containers at Berth 2**

**Proposed Sulphur Storage Shed**



# Ravensthorpe Nickel Project Titanium Prices 2002 - 05

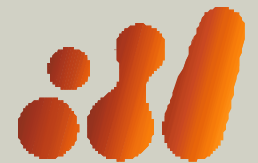


# Key Issues and Forward Plan

- HSEC
  - DuPont assistance
- Cost Pressures
  - Extensive off-shore procurement (>US\$200M)
  - Early procurement of Titanium raw materials
  - Minimise changes through scope and design control
  - Sole source where expertise and leverage
- Schedule
  - On track for early 2007 start-up
  - IR management - site agreement, quality facilities, safety
  - Targeted incentives and expediting

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Yabulu Extension Project



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# What is YEP?

- Yabulu flowsheet consists of ore treatment and metal refining.
- YEP extends the high-value add metal refining plant.
- Why at Yabulu?
  - Known flowsheet – more of the same with only one new flowsheet step
  - Skilled workforce
  - Maintains existing product suite (Ni & Co) and branding
- First step towards turning Yabulu into a toll refiner of semi-processed feedstocks.

# HSEC Performance

- ✓ 241 000 hours CI free during implementation  
[508 000 hours CI free project to date including all study phases]
- ✓ Yabulu's licence conditions change as required to cater for the construction, commissioning and subsequent operation of YEP plant
- ✓ Construction EMP & ambient particulate monitoring programme sanctioned by EPA and in place.



# Progress

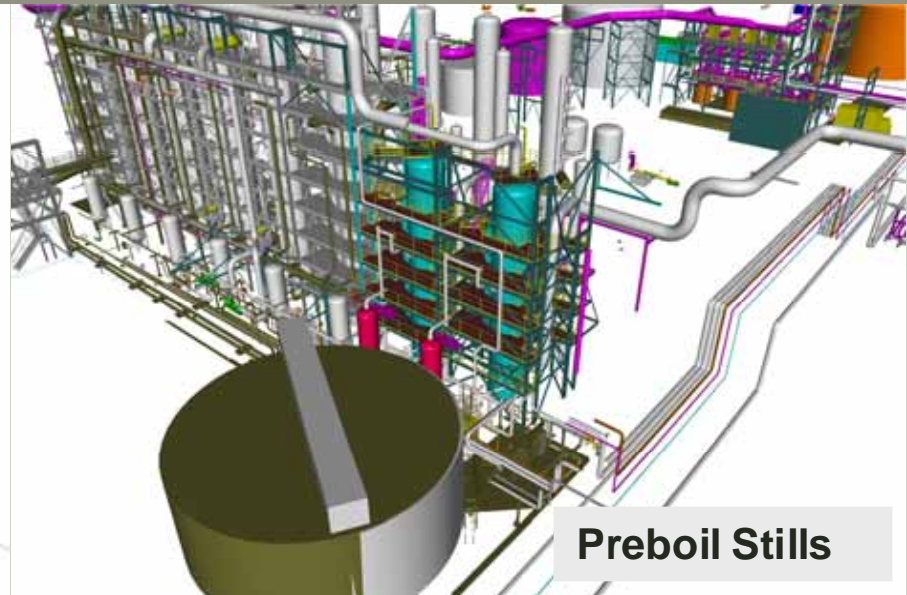
- Project remains on schedule
- Long lead equipment ordered ahead of schedule
- Supply Enquiries issued 80 of 85
- Construction Contracts let 4 of 11
- Commitments to date AUD 123M –v- AUD 142 plan

# Site Activities

- Site labour agreement ratified
- Early site infrastructure works underway
- Progressive handover of areas from Operations
- BNC tanks foundations completed, tank erection started
- Horizontal concrete & piling package started

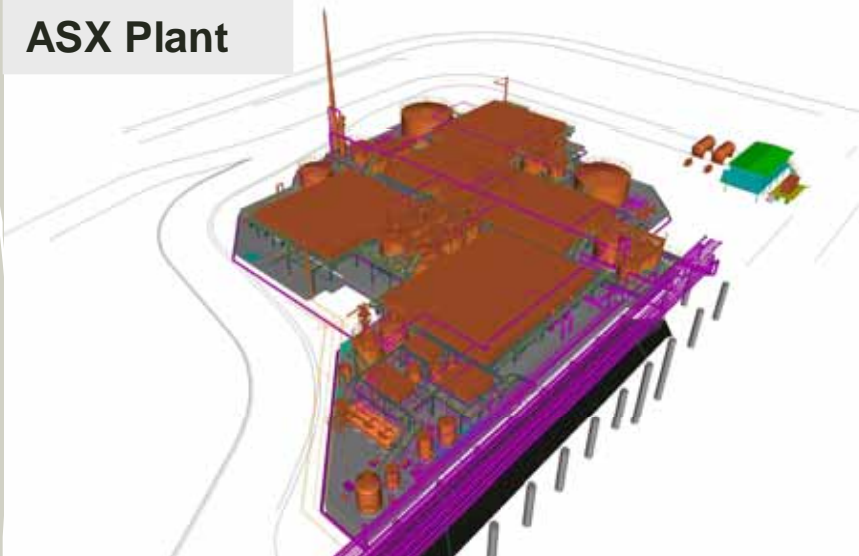
# Site Photographs

**MHP Receival & Leach**



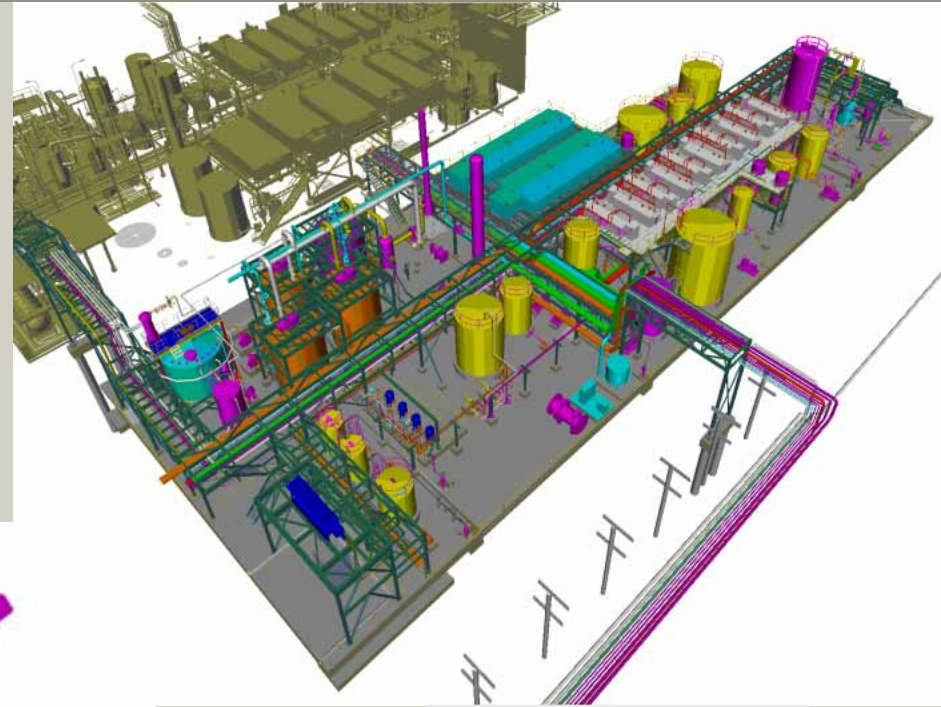
**Preboil Stills**

**ASX Plant**





# Site Photographs



**Cobalt Plant**

**Nickel Plant**





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