

# The 3rd New Caledonian Nickel Conference

## Ravensthorpe Nickel - *Building New Capacity*

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Monday, 26 March 2007



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# Agenda

- **Overview of Nickel West and Ravensthorpe**
- Ravensthorpe Project Update – transition from construction to commissioning
- Ravensthorpe Project: A step forward in sustainable nickel production

# Nickel West – A significant new business for BHP Billiton

BHP Billiton acquired WMC Resources June 05

WMC's WA nickel operations incorporated into the Stainless Steel Materials Customer Sector Group as "Nickel West"

Nickel West is the world's third largest producer of nickel concentrate (16% of global conc. production)

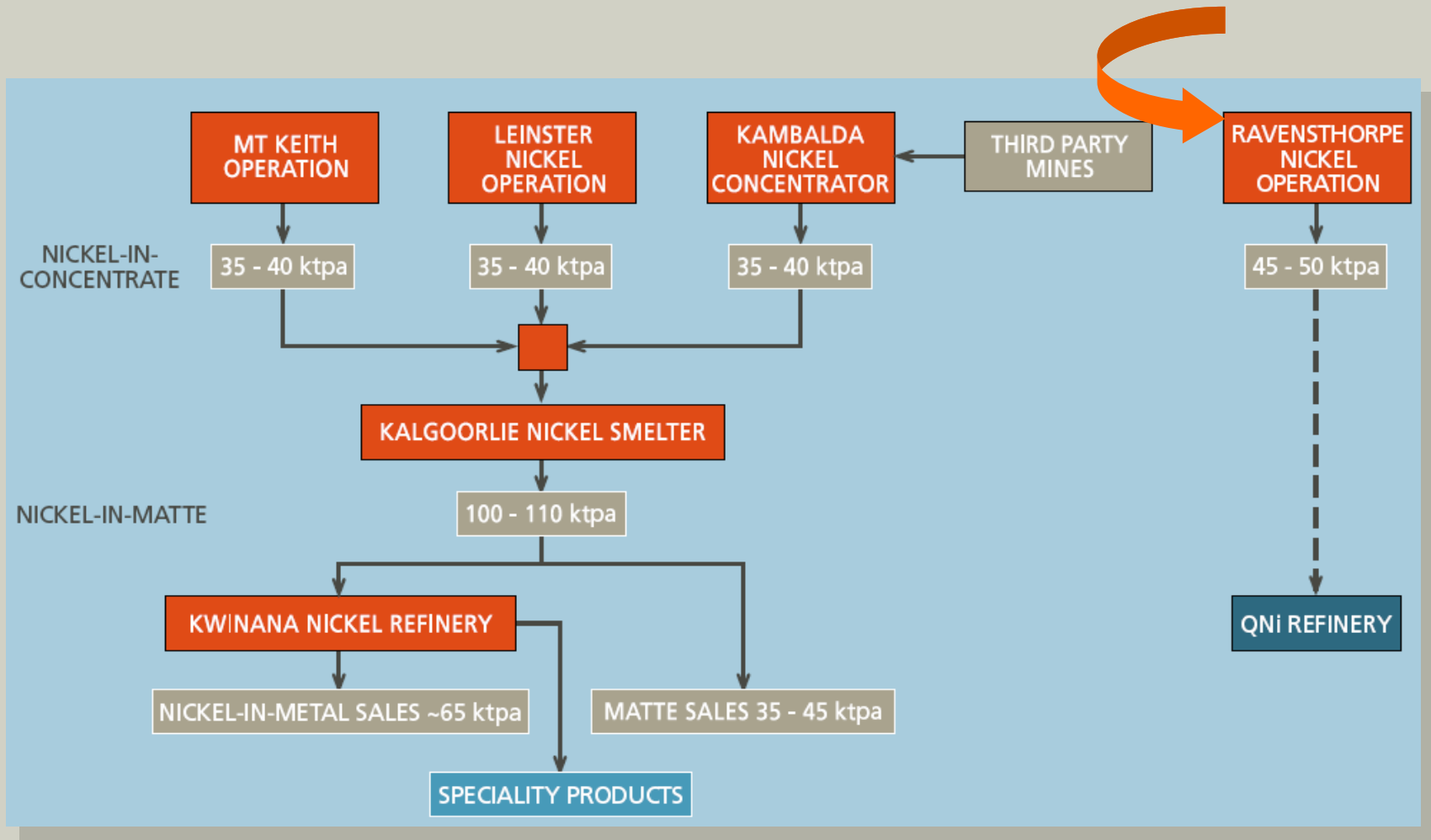
Produced 100kt contained nickel (US\$1.6B) in FY06

Employs ~3,000 people in current operations

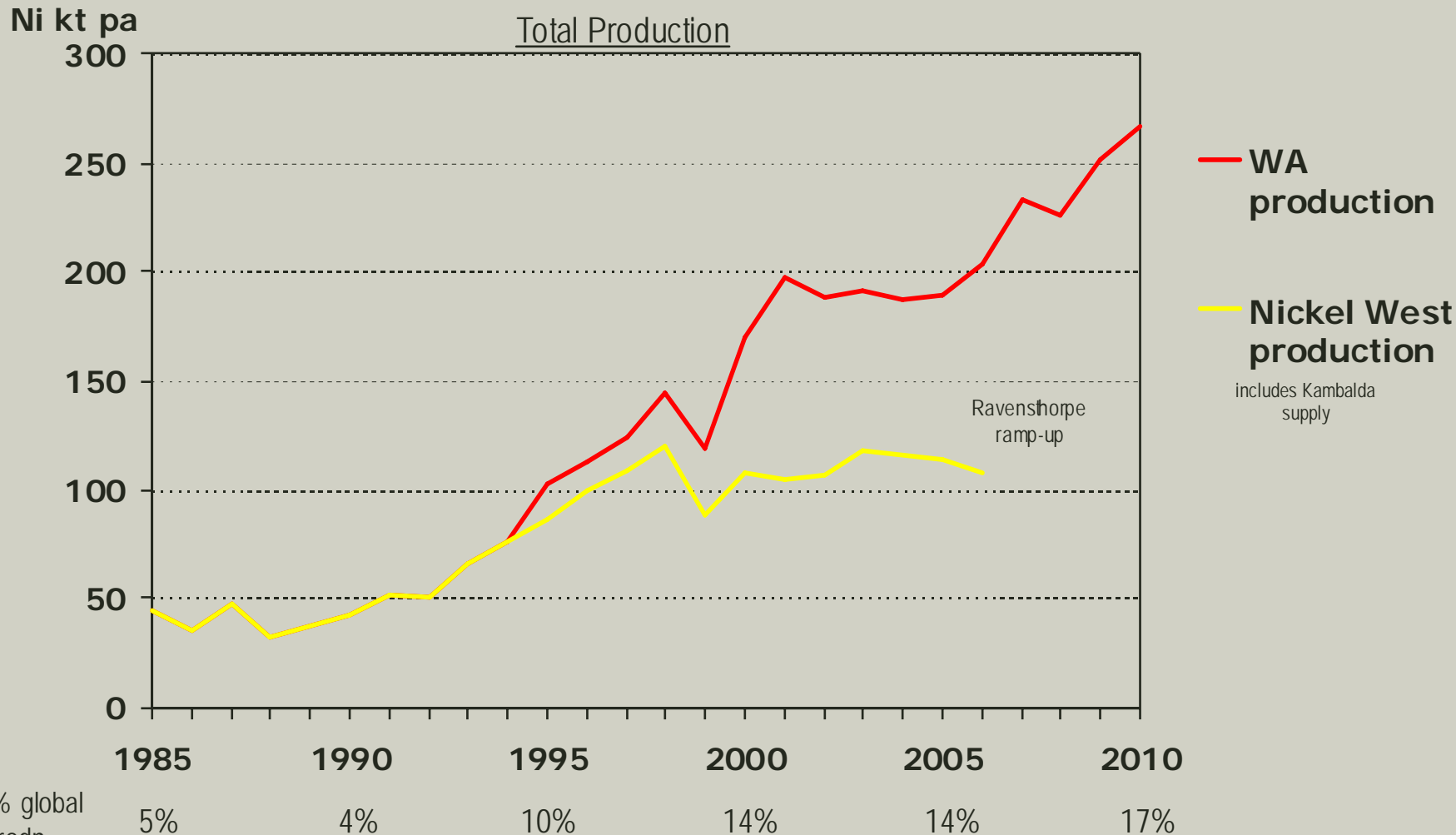
Ravensthorpe Nickel integrated with Nickel West



# Ravensthorpe Nickel is a major expansion of Nickel West production into a very strong market



# WA and Nickel West continue to provide much of the world's increasing demand for nickel



WA as % global  
Ni prodn

Source: Historicals – ABARE and NiW; Forecasts – Brook Hunt and NiW

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# Ravensthorpe Nickel Project: US\$2.2b investment

Overall construction was 78% complete at end of December

Atmospheric leach tanks



View over PAL 1



Ravensthorpe mixed hydroxide product to be treated at expanded Yabulu Refinery, on schedule in Q1 CY08



Sulfuric Acid Plant

Beneficiation



'First Ore' achieved end-2006





One team, one goal for commissioning targets

Go for...

**Go  
For Green!**

**Go For Green  
Campaign**

Air



Water



Steam



Ore

Beneficiation

Leach

Acid & Slurry

Green!

Townsville!



A major recruitment campaign has selected 400 employees out of a total of 650 required

A life...

we lead.

A life...

less ordinary.

A life...

to share.

Shared challenges, shared responsibilities and shared successes inspire us. We encourage you, your family and the broader community to live, work and play together. Collectively we will celebrate our successes.

## Mining Team

Ravensthorpe Nickel is Australia's latest nickel laterite mine and processing facility boasting state of the art equipment, technology and infrastructure. As an integral member of the local community, Ravensthorpe Nickel provides a supportive and rewarding environment for a long-term career challenge and accompanied benefits of living in a coastal location.

Become a key member of the Mining Team and support the implementation of mining operations:

### Pit Superintendent Ref No. V89873

Reporting to the Mining Manager, you will manage and coordinate all mine production activities to ensure ore quality and production targets are achieved safely and efficiently. You will manage costs in the production area as well as ensuring that production activities are carried out in an environmentally responsible manner and appropriate rehabilitation work is undertaken.

### Maintenance Superintendent - Mining Ref No. V89874

Reporting to the Mining Manager, you will assume responsibility for managing mine maintenance activities to ensure that all equipment achieves planned target availability and reliability to meet ore quality and production targets are met. You will lead the Mining Maintenance Team and work closely with relevant Contractors to ensure that long, medium and short term maintenance plans and processes are in place and executed safely.

### Short Term Mine Planning Engineer Ref No. V89875

Reporting to the Mine Planning Superintendent, you will maximise the value of the operation by providing short term mine plans and activities to ensure ore quality and production targets are achieved safely and efficiently. Working closely with the rest of the Mining Team, you will develop relevant plans to allow delivery of the required ore to the process plant and undertake appropriate mine planning reconciliations on a monthly basis. As we move into steady-state operations, the assumptions on which all the plans were based will be tested and it is expected that you will liaise with the relevant customers to re-evaluate and adjust the quality of the plans as required.

to mine where employees living in a coastal location.

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ravensthorpe nickel

### Looking for further details?

Contact HR Assist 1800 247 772 Human Resources to assist with your queries.

To register your interest please apply online at [help.jobs.bhpbilliton.com](http://help.jobs.bhpbilliton.com) entering reference number V89822 to easily locate the advert and upload a detailed copy of your resume.





# Local housing at Hopetoun: A key driver to attract and retain a high quality, locally-based workforce



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# Extensive reviews completed prior to project commitment

- Extensive **Front End Loading** to reduce project risk:
- Exploration, resource definition and mine modelling
- Process & Design investigation:
  - Beneficiation Upgrade
  - Slurry Rheology
  - Hydrometallurgical Recovery
  - Benchmarking Studies
- Trial mining
- Continuous pilot plant operations

# Enhanced Pressure Acid Leach technology reduces acid consumption and downstream processing complexity

- PAL process is ideal for treating iron-rich limonitic zone in the laterite deposit
- Combined Atmospheric Leach and Pressure Acid Leach flow sheet enables use of all ore types within the laterite profile
- Recovers an additional 15,000tpa Ni



Limonite



Saprolite



# Split plant concept - refinery section of the project is a brownfield expansion of the existing, proven Yabulu Refinery

Leveraging off BHP Billiton Yabulu Refinery and reducing risk in the refining process



**Ship intermediate product from Ravensthorpe via Esperance to Yabulu Refinery**



# Energy efficiency: Acid plant will produce high-pressure steam for power and processing



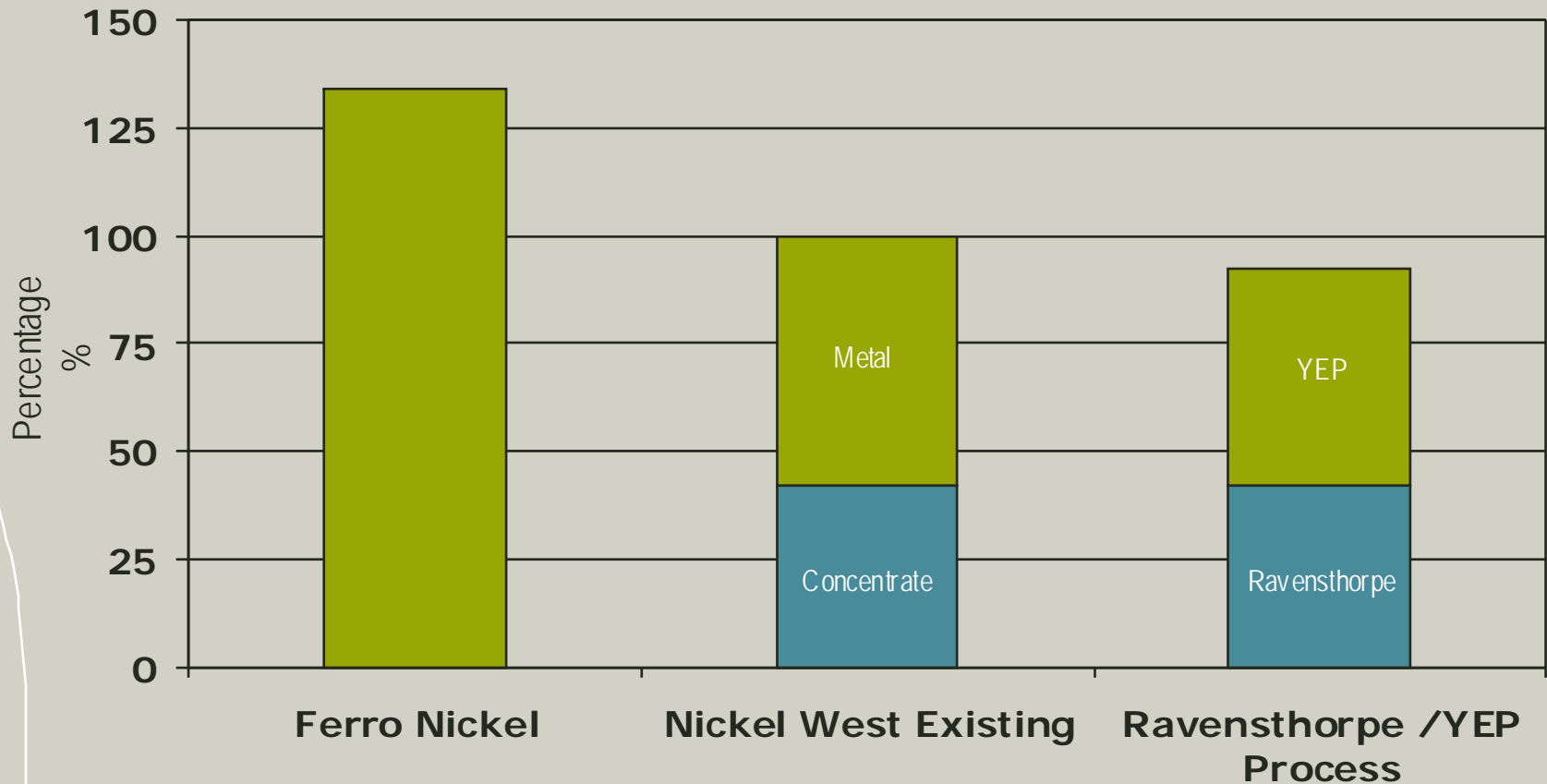
*Power plant steam blowing main header*



# Ravensthorpe & YEP Process will set a new benchmark in low greenhouse intensity nickel production

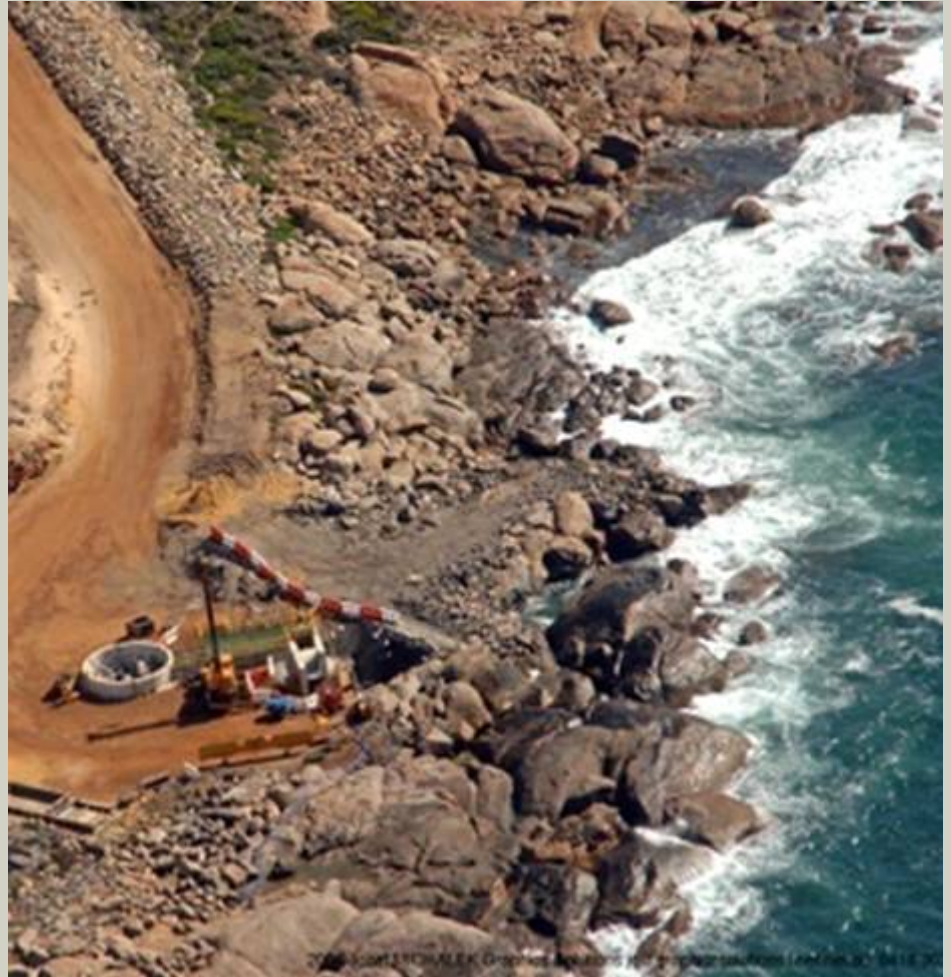
## Greenhouse Gas Production

Relative  $\text{tCO}_2\text{-e} / \text{t Ni}$





# Seawater piped from Southern Ocean reduces reliance on local groundwater





# Mine planning and project design resulting in reduced environmental footprint



*Kunzea Similis – priority species (conservation area established)*



*Heath Mouse (ecological study funded by RNO)*

# Ravensthorpe Nickel – Questions?

