

# Australian Site Tour Ravensthorpe Nickel Operation

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Competent Persons for Mineral Resources and Ore Reserves are named in the BHP Billiton Annual Report 2008, which can be viewed at www.bhpbilliton.com. Phil Hopkins (Resource and Reserves), who is a member of AusIMM and full time employee of BHP Billiton and has the required qualifications and experience, verifies that the relevant content of this document is based on and fairly reflects the information in the supporting documentation relating to Resources and Reserves.

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### Agenda

Key Messages

Sustainability

**Business Overview** 

Successes and Overcoming Challenges

**Operational Performance** 



### Key messages

- First major nickel laterite project in production in a decade
- Now ramping up to reach full nameplate capacity
- The process plant technology works
- Enhanced HPAL technology will help BHP Billiton to take advantage of laterite growth opportunities



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### Safety performance

### Actions and priorities

- Increasing compliance with BHP Billiton Fatal Risk Control Protocols
- Leading by example in the field
- Simple, integrated systems
- Improving the working environment
- Creating positive attitudes
- Ensuring that team members (both employees and contractors) are aligned and committed



# Workforce

- A hybrid residential and fly-in fly-out strategy
  - Residential Hopetoun and Ravensthorpe
  - Bus-in, bus-out, Esperance
  - Fly-in, fly-out, Perth
- A diverse group of 650 employees
  - 6% indigenous
  - 16% female
  - 7% international
- Operation a part of the local community
  - Community investment
  - Local business development
  - Community infrastructure
  - Shire airport





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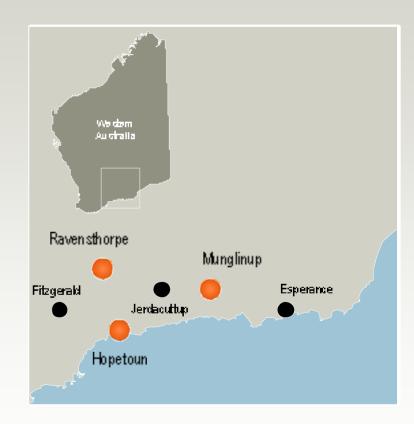
**Operational Performance** 



### Overview statistics

Location:	Ravensthorpe, Western Australia
BHP Billiton Ownership:	100%
Reserves:	235 mt at 0.67% Ni <sup>1</sup>
Resources:	386 mt at 0.62% Ni <sup>1</sup>
Production Capacity:	50,000 tpa contained nickel 1,400 tpa cobalt
Expected mine life	21 years
Overview:	<ul> <li>Open cut mine and hydrometallurgical process plant</li> </ul>
	Uses proven technology to recover nickel and cobalt to produce a mixed nickel cobalt hydroxide intermediate product

 Product shipped to 100% owned Yabulu refinery in Queensland





(MHP)

### Mining overview

- Open cut operation
- Three ore bodies
- Two ore types Limonite, Saprolite
- BHP Billiton employee operated
- Two Liebherr 994 excavators
- Ten Caterpillar 785 trucks
- Five Atlas Copco L8 drill rigs
- Ancillary mining fleet





### Processing overview – ore handling and beneficiation



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# Processing overview - leach



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### Processing overview – hydro-metallurgy

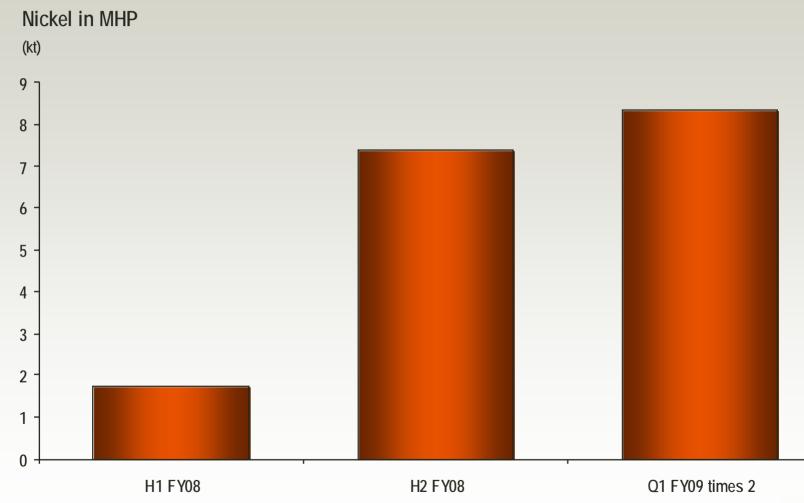




# Processing overview - utilities



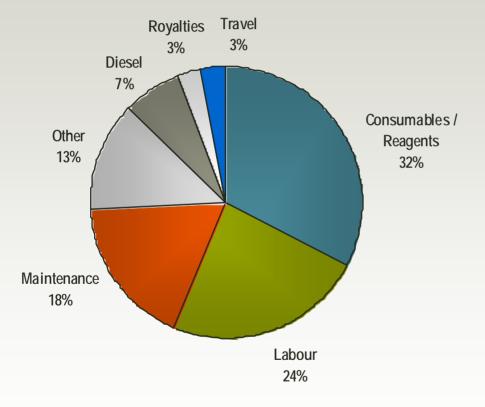
### Ramp-up production





### Indicative operating cost structure at full capacity

### Cash operating cost (%)



• AUD spend is approx 85%



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### Key milestones

- Operations workforce successfully recruited and prepared
- Mining operations performing well
- First production H1 FY2008
- First 5000t of MHP H1 FY2008
- Ramp up toward nameplate capacity
- Process plant technology proved and performing to expectation.





# Ramp-up – key issues summary

Issue	Remedy
Materials handling	Support and equipment deployed
	Component redesign underway
Beneficiation dewatering	Work around successfully installed
	Successful pilot
	Long term dewatering solution in design
Tank failures	Technology sound
	Repairs successful
Build-up of scale – a common problem	High pressure cleaning implemented
	Studies underway to control the scaling
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