Nickel – role and lessons of laterites

An update on the Murrin Murrin project

Peter Johnston - CEO & Managing Director
Minara Resources Limited

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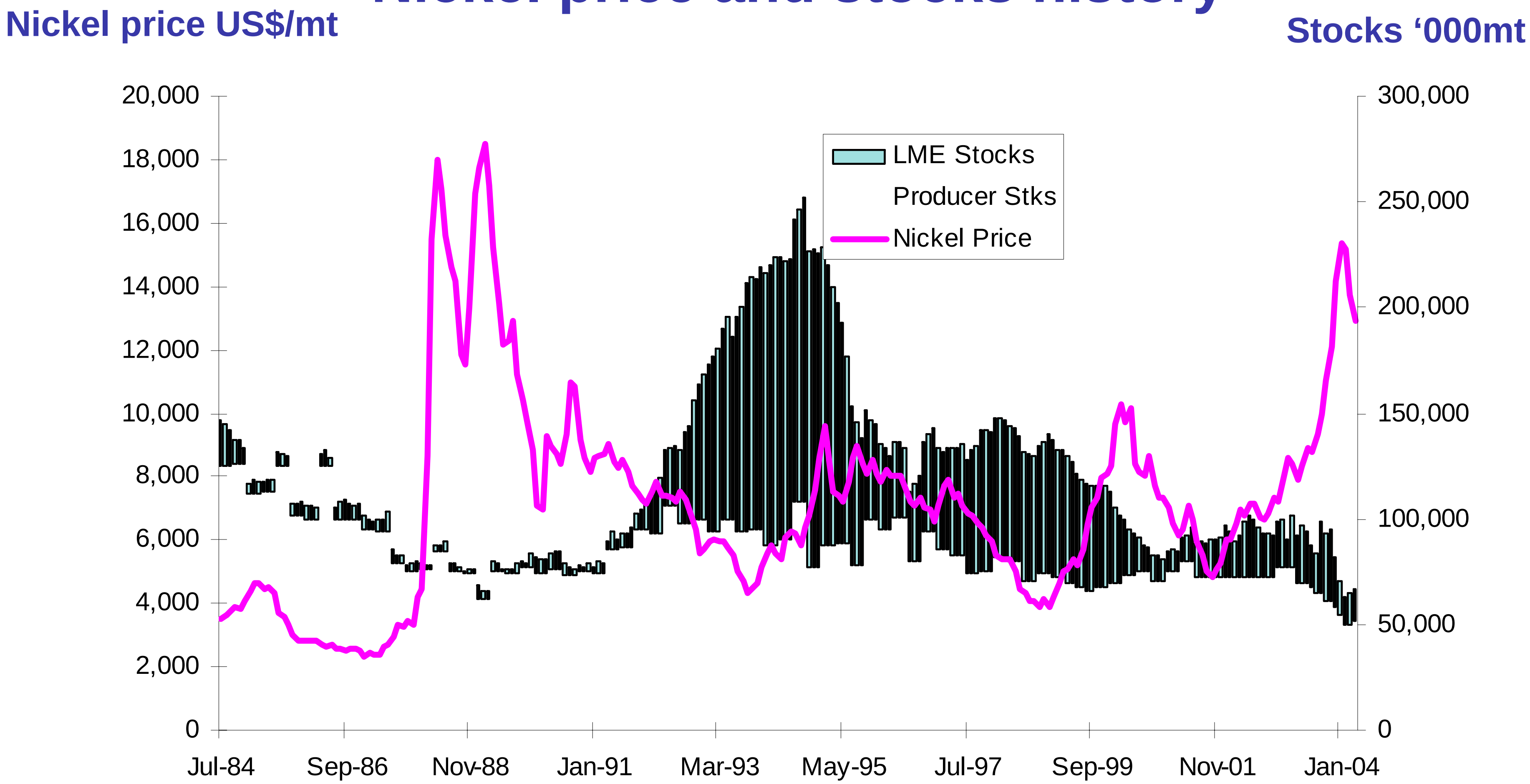
Agenda

- **Nickel market review**
- **Review of laterites**
- **Review of Murrin Murrin**
- **Conclusions**

Nickel prices are near historic highs:

Nickel price and stocks history



….but stocks are nearing lows

Nickel supply/demand

	2000	2001	2002	2003	2004F	2005F
Stainless Steel production	19458	18798	20328	22303	24000	24310
% change	9.9%	-3.4%	8.1%	9.7%	7.6%	1.3%
Nickel consumption	1126	1103	1169	1260	1320	1375
% change	4.1%	-2.0%	5.9%	7.8%	4.8%	4.2%
Nickel production	1099	1149	1171	1195	1290	1350
World market balance	-26	46	3	-65	-30	-25
Norilsk/Other stockpile sales	-25	-35	1	64	4	0
Overall "balance" implied	-51	11	4	-1	-26	-25

Source: Macquarie Research 12 December 2003 / MRE update

Mitigating factors to projected deficits:

- Slow down in demand : China?
- Move from austenitic to ferritic stainless steels
- Substitution – eg. manganese
- Brownfield expansions
- Price – constraint on demand
- Availability & pricing of scrap

Price factors - reality:

- Strong demand : China & pickup in US
- Low stocks - producers & LME
- Lack of new sulphide discoveries
- Long lead times for new projects
- Projects take time to reach capacity
- No additional material – Russia / scrap

→ On balance support for strong prices over the next 2 / 3 years

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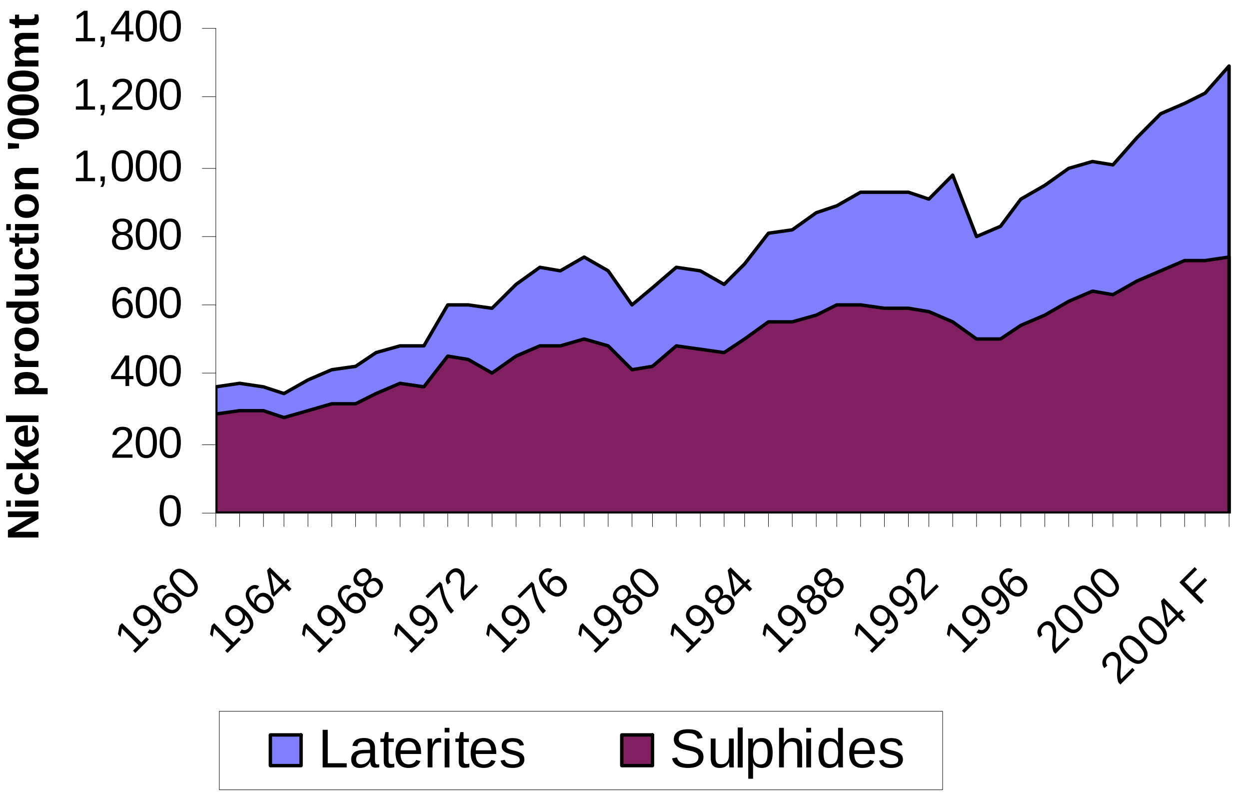
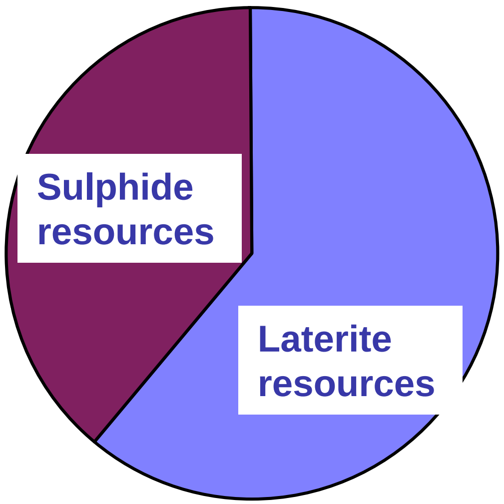
Nickel Supply by Process

Most supply continues to come from sulphide ores …..





..however the majority of the world nickel resource is in laterite ores.

Laterite Nickel Production – 3 Routes

- Caron Process – limited capacity – will not expand
- Ferro-nickel – energy the key – some brownfield expansion
- HPAL - first laterite production Moa Bay, Cuba (1950's)
  - Cawse, Bulong, Murrin Murrin 1995 - 2003
  - Goro 2002 - 2007
  - Ravensthorpe 2004 - 2008
- Hydrometallurgy – possible?

Drivers of Laterite Growth

- Exploitation of laterites is not new but interest was raised by the:
  - surge in nickel price from 1993 to 1995
  - window of opportunity before Voisey's Bay
  - high cobalt prices
  - low interest rates/access to US bonds
  - low sulphur prices
  - improved high pressure acid leach technology - gold
- Leading to the 3 new projects in Western Australia
- Technical success – economic failure

→ **Led to a shortage of new projects**

Future Growth is Laterites:

- 60% world nickel reserves are laterites but 60% world production from sulphides
- New laterites promised lower capital + operating costs
- Reality: capital & operating costs are similar for new sulphide and laterite projects
- No new major sulphide discoveries since Voisey's Bay in 1994
- Nickel consumers are indifferent to processing route

→ To meet demand in the next 10 years expansion in nickel supply required from laterites

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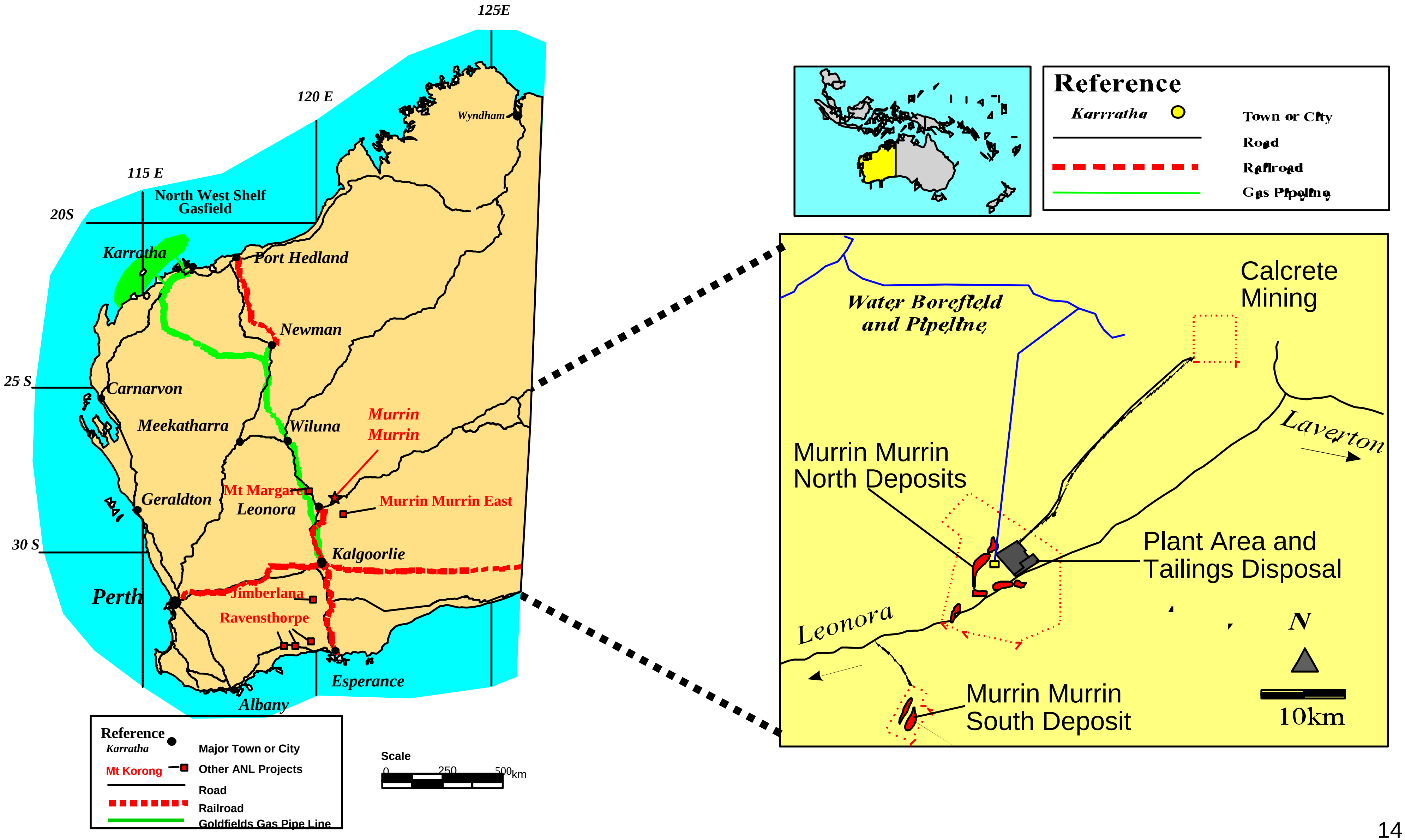
History

- Founded in 1994, previously known as Anaconda Nickel Ltd
- Debt restructure and recapitalisation in 2002/2003
- Name changed in Dec 03 to Minara Resources Ltd
- Minara will be the world's 10th largest nickel producer at Murrin Murrin
- Murrin Murrin is a 60/40 Joint Venture between Minara and Glencore International AG
- Murrin Murrin capacity - 40,000tpa Nickel
  - 2,500tpa Cobalt

Murrin Murrin Location



Murrin Murrin Facility

Murrin Murrin - Key Lessons Learnt

- Debt financing challenge – manage cashflow
- Inexperienced team
- Project fast tracked with unachievable milestones
- Unrealistic expectations – over promised
- No piloting of the conceptual plant design
- Single train plant design very unforgiving
- "Built to a price"
    - → Significant commissioning and operating challenges

Minara Achievements – last 2 years

- New management and structure at Murrin Murrin
- Debt restructured & company recapitalised 2003
- Grade profile significantly improved
- Infrastructure deficiencies corrected
- Targeted capital program
- Technology challenges progressively eliminated
- Strong governance implemented
- Legal legacies dealt with

Minara - Assets

- World scale plant - Murrin Murrin
- 40 year mine life @ 40,000tpa
- Large tenement holding – exploration upside
- Strong management team experienced in Ni
- Intellectual property in dry laterites - proven technology
- Capable of treating range of inputs
- Low political risk – Western Australia

Minara - Future Growth

- Continuous debottlenecking to 42,500mt
- Ore reserves
  - no grade decline for 5 yrs
  - 40 years life on current reserves
- Additional third party feed options
- Exploration for sulphides / high grade laterites
- 5th autoclave to 50,000mt

Minara - Key Summary

- $71.5m EBITDA in December half
- No debt - $60m cash in bank March 04
- Fluor Daniel settlement – A$155 million
  (MMJV Participants – Minara 60% / Glencore 40%)
- Focus on Murrin Murrin - performance improving
  - 40,000tpa rate by mid year
- Realistic growth options
- Dividend policy under consideration

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Implications – Nickel Industry - Laterites

- Each orebody has unique characteristics
- Extensive R+D required
- Pilot Plant will reduce risks
- Lead time – minimum 5 years
- Fast tracking – creates additional risks
- Complex process plants – require realistic commissioning and ramp-up schedule

Implications – Nickel Industry - Laterites

- **Capital intensive – US$1.5 million investment**
- **Minimum size – 45,000tpa for 20 years project life**
- **Grade – 1.2% nickel**
- **Need experience – Design / Construct / Operation**
- **Projects need sound financial economic returns**

Conclusions

- Future nickel supply – combination Ni sulphides and laterites
- Sulphides limited by lack of new discoveries
- Ferro nickel constrained by energy costs
- HPAL not new technology – "new" applications of titanium and scale
- Risks will decrease over time – 3rd generation plants
- Nickel production growth will be in laterites

  – change will take 10-20 years