

MetalBulletin
Events

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5th Asian Stainless Steel Conference

Master Alloys for Stainless Steel Producers

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Weld Range Metals Limited



- Unlisted public company based in Western Australia.
- Owns all minerals rights to large metal inventories of chromium, iron, nickel and platinum group metals at Weld Range in Western Australia.
- Proponent of world class, long life mining and processing project.
- Strategically positioned in new regional infrastructure corridor.
- Aims to build a global business as a vertically integrated supplier of customized master alloys as raw materials feedstock for stainless steel producers in Asia.
- Offers competitive advantages as a long term supplier of customized master alloys from large metal inventories through strategic alliances and off-take agreements.

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Project location



■ Mineral resources

- 375 km north east of Oakajee in Western Australia.
- At the centre of major mine developments in the Mid West iron ore province.
- Located along the proposed regional infrastructure corridor for heavy haulage railway connecting new iron ore mines to Oakajee deep water port on the coast.

■ Mining operations:

- In mining tenements at Weld Range.

■ Processing facilities:

- Near Geraldton or Oakajee ports.

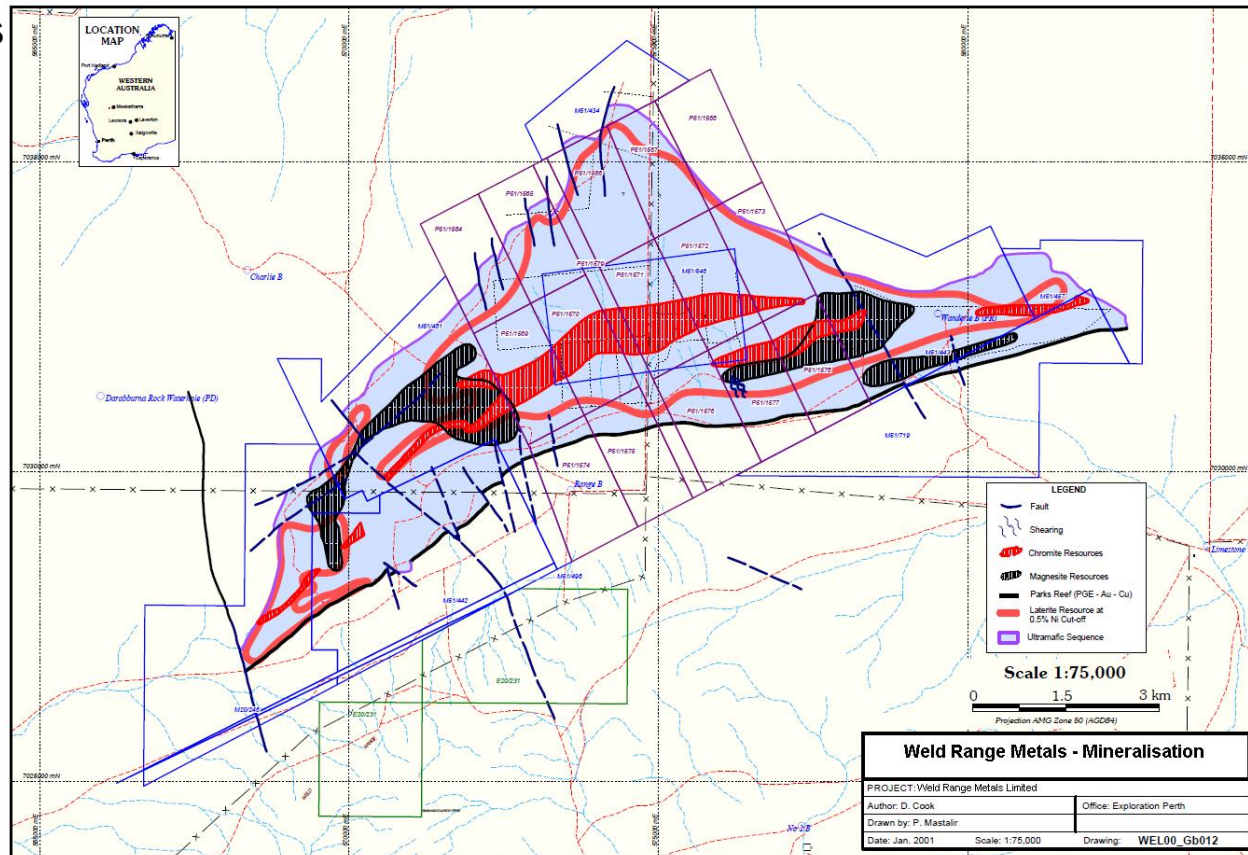


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Tenure



■ Mining tenements



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Metal inventories

■ Chromium:

- JORC Code Inferred Mineral Resources:
- 63.5 Mt at 5.22% Cr, 38.08% Fe and 0.38% Ni at a 4% Cr cut off.
- From surface to an average depth of 13.6 meters – shallow low cost mining.
- Represents over 3,300,000 tonnes of chromium – in-situ value over US\$7 billion.

Chrome Hill



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Metal inventories



- **Nickel:** Historical Resource Estimate (not JORC Code)
 - 330 Mt at 0.75% Ni and 0.06% Co at 0.5% Ni cut off.
 - Represents over 2,400,000 tonnes of nickel - in-situ value over US\$42 billion.
- **Platinum Group Metals:** Historical Resource Estimate (not JORC Code)
 - 15Mt at 1.1 gpt Pt+Pd at 0.05 Pt and Pd cut off.
- **Potential for substantial additions to metal inventories:**
 - Resource definition drilling of Chrome laterite and Nickel laterite.
 - Drilling for primary Chromite, Nickel and Platinum Group Metals.

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Process technology



- Engineering studies have identified a technically and economically viable flow sheet based on proven process units and technology used in iron and steel making today.
- Simple three stage pyro-metallurgical process incorporating:
 - Direct reduction of Chrome ore containing Cr, Fe and Ni in rotary hearth furnace to produce high Cr direct reduced iron with Ni units (high Chrome DRI).
 - Melting high Chrome DRI in electric arc furnace (EAF) to produce crude molten alloy containing Cr, Ni and Fe.
 - Liquid crude alloy tapped and transferred to refining vessel similar to basic oxygen furnace (BOF).
- Cr and Ni units can be added at EAF and/or BOF to customize composition of master alloy to specifications of stainless steel producer.
- Refined master alloy produced in form of ingots, granules, briquettes or other.

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Product description



■ Customized master alloys:

200 series:	Cr: 18%	Ni: 0.73%	Fe: ~80%
Duplex series:	Cr: 22%	Ni: 3.50%	Fe: ~74%
300 series:	Cr: 18%	Ni: 7.00%	Fe: ~75%

■ Other elements:

- C: <3%; P: max 0.02%; S: max 0.02 %; Cu: max 0.01%; Co: max 0.10 %.

■ Product Form:

- Ingots, granules, briquettes, or other.

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Product advantages



- Composition and form of master alloy to specifications of stainless steel producer.
- Consistent quality with certified metal composition.
- Greater efficiency and flexibility over bulk raw materials and scrap.
- Reduced power, handling and other costs.
- Premium product at competitive prices through strategic alliances and off-take agreements.

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Pricing structure



Cost of customized master alloy to stainless steel producer:

- Basis of Pricing:
 - 85% of market price for Cr.
 - 90% of market price for Ni.
 - 100% of market price for Fe.
- Indicative long term market prices (source SMR):
 - Cr: US\$ 2,204/t (US\$1.00/lb)
 - Ni: US\$17,500/t (US\$7.40/lb)
 - Fe: US\$300/t
- Indicative price of master alloy based on above:
 - 200 series: US\$699/t; Duplex series: US\$1,187; 300 series: US\$1,665/t

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Development strategy



- **Staged development.**
- **Stage 1:** (Base case assumes smelting and refining plant in Western Australia)*
 - **Mining:** Open pit mining of 600,000 tpa of high grade ore containing Cr, Fe, Ni.
 - **Transport:** Crushed ore by rail (or road) for processing at Oakajee on coast.
 - **Processing:** crushed ore at smelting and refining facilities at Oakajee.
 - **Production:** 310,000 tpa of refined master alloy containing Cr, Fe and Ni.
 - **Product mix:** 200 series, Duplex series and 300 series.
 - **Product form:** ingots, granules, briquettes or other form.
- **Stage 2:** Expansions in capacity for nickel to increase Duplex series and 300 series.
- *Alternative sites for location of smelting and refining facilities in other countries close to customers to be evaluated.

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Project economics - robust



■ Stage 1: Base Case from Independent Engineering Study (Rail option)

KPI	Value
Capital costs:	US\$503 million*
Annual operating income:	US\$289 million
Annual operating costs:	US\$124 million
Annual operating profit:	US\$165 million
NPV (geared nominal at 10%):	US\$639 million
IRR:	34%
First 25 years	

*Capital costs include provision for indirect costs and contingencies of US\$107million.

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Project timeline

2010-2011

Feasibility studies
Development decision

2012-2013

Project approvals
Project finance
Construction

2014-2015

Project commissioning
Production
Ramp-up
Steady state operations
Optimization

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Customized Master Alloys



- Composition and form of master alloy customized with certified metal content.
- Premium product at competitive prices through strategic alliances and off-take agreements.
- Single supplier with security of raw materials close to markets in Asia.
- Source metals from large inventories for long project life – over 100 years.
- Robust project economics.

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Key Advisers to Company



- Resources and Mining: Snowden Mining Industry Consultants Pty Limited
- Process Engineers: ProMet Engineers Pty Limited
- Marketing Advisers: SMR
- Financial Advisers: Somerley Limited

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Closing



Customized Master Alloys for Stainless Steel Producers