HERON RESOURCES LIMITED

John Macdonald

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Capital Details

ASX Code:	HRR
Share Price:	68.5 cents
Shares on issue:	159 million
Fully diluted:	169 million
Market Cap. (FD):	$116 million

Principal Office

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Directors

Craig Readhead	(Chairman, Director)
Ian Buchhorn	(Managing Director)
Mathew Longworth	(Exec Director)
Dr Allan Trench	(Non Exec. Director)

Substantial Shareholders

Ian Buchhorn	23.5%
Inco Limited	10.4%
BHP Billiton Limited	10.0%
MBM Corporation Pty Ltd	7.1%

Summary

Inco and BHP Billiton have concluded separate deals seeking exposure to Heron's Kalgoorlie Nickel Project.

Inco plans to start drilling in June 2005 as part of an agreement to earn 60% of the KNP. Heron is free carried through to project finance.

BHPB bought 11% of Heron's shares a week after the KNP JV was announced. Inco has responded by acquiring its own substantial shareholding (10.5%) in Heron at over twice BHPB's entry price.

The resultant situation is unstable due to the competing goals of Inco and BHPB.

Heron's perseverance in compiling the Kalgoorlie Nickel Project has been vindicated – by two of the world's leading nickel producers.

For the first time in over a decade some smart capital has targeted the nickel laterites of the Goldfields region in Western Australia.

The KNP is unique.

Inco and BHPB face off over Heron

Nickel laterite projects in Western Australia have a dismal record, but rather than die the concept has gained renewed credibility in recent weeks. At the end of March 2005, Heron Resources Limited (Heron) announced that Inco Limited (Inco) intends to start drilling as part of an agreement to earn up to 60% of Heron's Kalgoorlie Nickel Project (KNP). A week later, in a separate move, BHP Billiton Limited (BHPB) bought 11.2% of Heron on market. Inco responded within seven days by subscribing to a placement in Heron, paying A$12.4 million for an 10.5% stake and diluting BHPB back to a 10% interest in the process.

The three announcements mark a turning point. Previous investments in Western Australia's inland nickel laterites were the domain of the small company promoters, the financial sector and wannabe nickel players. The established nickel producers chose to remain aloof, keeping their balance sheet capacity and technical resources at the ready for other projects. The clear lesson is not to ignore the experts (in particular the direction of their money). Only in 2005 has the first smart money gone in, signalling the need for a fresh look at the Kalgoorlie Nickel Project and its circumstances.

The Kalgoorlie Nickel Project JV

Inco has signed a letter of intent to enter a joint venture with Heron for the purpose of developing the KNP. To earn a 25% JV interest, Inco must complete the remainder of the pre-feasibility study (PFS), for an estimated cost of US$17 million, and a bankable feasibility study (BFS) the cost of which is estimated at US$50 million. In addition, Inco will spend US$1 million on regional exploration in the first year of the JV.

To earn a 60% interest, Inco must then secure all project finance and lend Heron all of its proportional share of the equity financing of the total capital expenditure except for 4.5% of the project's total capital expenditure (including any cost overruns).

Heron must pay back the loan from the first 80% of project cash flow. Inco will be entitled to 100% of KNP offtake on a commercial basis. Should Inco fail to secure project funding within five years of completing the BFS, the JV will be dissolved and 100% ownership of the KNP will revert to Heron.

The following interpretation of intended JV terms is taken from discussion with a representative of Inco, together with Heron's announcement;

- Upon formal documentation of the agreement, Inco will commit to a one year drilling program designed to confirm Heron's results to date. Large diameter core drilling will aim to twin Heron's RC holes, checking whether any size fraction was underrepresented in the RC samples. No new drill collars are planned. At the conclusion of the program Inco will judge whether Heron's assumption, that the KNP can produce at least 120 million tonnes of material at a leach feed grade of 1.5% nickel or better, is a reasonable one. The estimated cost to Inco of the program is US$2.4 million.
- In addition to the check drilling, Inco will collate and analyse the available resource and mineral processing data at an estimated cost of US$1.6 million.
- Assuming satisfactory completion of these steps, Inco will then take an additional eighteen months and spend an estimated US$14 million to complete the PFS.
- At the completion of the PFS, scheduled for 2008, Inco can begin the US$50 million, two year BFS. Inco will not earn any equity in the KNP until completion of the BFS, in 2010 on the envisaged timetable. Heron is free carried through to the same juncture.

Inco's interest in the KNP can be reconciled with its past detachment from the region because the KNP can potentially provide greater tonnages of 1.5% leach feed grade material than any other Australian laterite (see September 2004 note reproduced below). The opportunity took time to arise while Heron assembled the tenement package, defined a resource and conducted initial process testing. The concurrent work of others helped guide Heron's work and supports its claims (also see research note September 2004). Less specific factors attracting Inco to the KNP include Inco's reading of the nickel market, Kalgoorlie's well developed infrastructure and the apparently benign bureaucratic framework. After the frustrations of Voisey's Bay in Canada and Goro in New Caledonia, the relative ease of development in the Kalgoorlie region offers some relief.

Movement on the register

BHPB bought a parcel of 15.9 million or 11.2% (pre placement) of Heron shares for A$5.6 million, a week after the Inco JV agreement was announced. The shares were crossed at 35 cents from OMG Cawse, who bought the shares from the Centaur Receiver in 2001. Inco subsequently subscribed for 16.5 million Heron shares at 75 cents, raising A$12.4 million for Heron.

BHPB is building the Ravensthorpe project, on Western Australia's southern coast as a source of intermediate product for the Yabulu plant in Queensland. The Ravensthorpe deposits are less extensive, but geologically similar to the main KNP deposits, and together they are distinct from Murrin Murrin's main ore types (see research note September 2004). BHPB's acquisition of the Heron shares is a clear indication that BHPB considers its process design may be transferable to the KNP.

BHPB has shown its hand as an under-bidder for the right to become Heron's JV partner. Inco's relatively aggressive pursuit of the project appear to have caught BHPB off guard. Although BHPB's intentions with regard to its Heron stake are unclear, the effect is to introduce some competitive tension into the future ownership of both Heron and the KNP. BHPB could increase its stake in Heron with a view to eventually becoming Inco's 40% partner. Heron's free carry and the terms of the JV are certainly attractive enough for BHPB to entertain the possibility. Moreover BHPB will have plenty to offer the JV through its experience at Ravensthorpe. The only obvious sticking point would be Inco's rights to the offtake.

From Inco's perspective the presence of BHPB on Heron's register will be disconcerting, especially in the light of BHPB's bid for WMC Resources Limited. The prospect of a major competitor seeking to take over a JV partner is not generally accepted in markets such as nickel, where technical advantages are closely guarded. Since Inco carries all of the JV responsibilities through to BFS, the technical exchange could be a one way street. Inco's decision to take a placement in Heron is ostensibly a warning to BHPB that Inco will not tolerate BHPB hitching a ride on the JV through any sort of board control of Heron.

The next development will depend on how keen BHPB is to pursue the matter. BHPB may be determined not to let Inco gain a foothold in its backyard and in a project style that BHPB has spent considerable effort building up proprietary knowledge. Perhaps the harder Inco pushes the project the harder BHPB will try to protect its turf. Alternately BHPB could pull out at a profit in short order. The latter seems an opportunistic strategy out of character with BHPB's charter. The money made might not be worth the risk of damage to its image. The decision to make a $5 million equity investment in a competitor's JV partner would probably not have been taken lightly, or without high level management involvement.

Valuation issues

Inco has committed at least A$17.4 million to Heron via the placement and KNP JV expenditure, while BHP has spent A$5.6 million on shares in Heron. At one end of the scale of significance the amount of money involved will not blow out the respective annual corporate development or exploration budgets. At the other, Heron owns a large nickel project that two major nickel producers are prepared to enter into open competition for. The odds of its eventual development have dramatically shortened in the past two weeks.

For the KNP to eventually be developed with a real terms capital cost of over A$1.4 billion, an NPV of at least A$580 million would need to be demonstrated, assuming a minimum 15% hurdle rate of return on capital. If development were assured, Heron's share of the NPV, which is greater than 40% by virtue of the free carry, would be at least A$240 million. Development is far from assured, so the figures are only useful for setting a context.

The KNP is a long term proposition at an early stage of its assessment and so neither Inco nor BHPB are likely to immediately escalate perceptions that the KNP is a certain development. However, as Inco has stated, "finding a project of this scale with established infrastructure in a politically attractive location is extremely difficult."

Notes from September 2004 - reproduced

The Kalgoorlie Nickel Project - Background

Heron Resources began acquiring tenements over nickel laterite deposits in the Kalgoorlie region in 1997. The subsequent operational woes of Murrin Murrin, Cawse and Bulong effectively discouraged competing prospectors and Heron opportunistically acquired most of the nickel laterite prospects in the arc between the three operations, including the Bulong mineral rights in April 2004.

In July 2004 Heron's consultants estimated Heron's aggregate nickel resources, in four main project areas, at 862 million tonnes at 0.74% nickel and 0.05% cobalt. The resource numbers help to convey the scale of the resources available to Heron, but say nothing about the equally important mineralogy. Developments in the field have highlighted both the requirement for higher grade ore and the efficiency of the screen upgrade process in delivering higher leach feed grades from certain ore types. Heron believes the Kalgoorlie Nickel Project has sufficient quantities of the screen upgradeable nickel laterite to support a long life operation at a low total cost of production. In 2004, having acquired such an extensive resource base with minimal outlay, Heron has begun the more involved process of devising an optimal project and testing its viability.

The Kalgoorlie Nickel Project

Most of the known resources of oxide-silica nickel laterites in Australia are derived from a unit within the Walter Williams Formation, a vertically dipping ultramafic lava flow that extends from west of Kalgoorlie to Ghost Rocks, north of Menzies. A portion of the formation called olivine adcumulate is comprised of a single mineral, which is low in aluminium and weathers to a consistent silica-goethite-kaolinite profile enriched in nickel and cobalt. The Walter Williams Formation is unique in terms of the extent of deeply weathered olivine adcumulates. The nearest known analog is the Bandalup Ultramafics at Ravensthorpe, which extends over 30 kilometres of strike compared to the Walter Williams Formation strike length of over 170 kilometres.

Heron dominates ownership of the Walter Williams Formation adcumulates, with about 125 kilometres or 75% of the known prospective strike. Most of the remainder forms the basis for the OMG Group's Cawse operation. Although Cawse is a pilot scale project producing about 8,000 annual tonnes of nickel in intermediate form, Heron's confidence in proceeding with the Kalgoorlie Nickel Project is in

Laterites aint laterites

The concentration of nickel and other elements in laterites, relies on weathering conditions and rock type. Australian laterites formed over a longer period of time than the active tropical deposits, and their survival owes much to the stability of the land mass and the absence of recent glaciation. Hence Australia is the world's principal source of nickel laterites away from the tropics.

In general, slower weathering favours the formation of clays in preference to iron oxides in the weathering profile, which accounts for the difference between the tropical oxide deposits and Australia's clay type deposits. Compared to the tropical oxides, nickel bearing clays are lower grade and more difficult to handle in the PAL process. Nevertheless Australia's relative political stability and natural lack of environmental obstacles led to close examination of their economic merit, and in the case of Murrin Murrin and Bulong, development ahead of many tropical candidates in the late 1990s.

The importance of the political setting in facilitating development is borne out by the contrast between Murrin Murrin and Inco's Goro project in New Caledonia. Goro is acknowledged as technically the best of the tropical nickel laterites and as such is a test case for the tropical island deposits that dominate the world's undeveloped nickel resources. Goro has conspicuous grade, tonnage, ore chemistry, and port access advantages over Murrin Murrin, however Inco is yet to commit to Goro despite $US350 million spent in its preparation since 1995, while Murrin Murrin was financed and built in the same time frame. Inco has battled opposition to proposed land based tailings despite a net water surplus and marine effluent disposal away from the coral reefs that surround the islands, against a backdrop of volatile local politics. Murrin Murrin's only real advantage over Goro is the availability of flat, dry land for tailings impoundment and a more stable political outlook. Goro's experience so far is echoed in other tropical laterite proposals. In the few instances where the geology favours any of the available processing options, problematic environmental, energy supply, and political issues have held back developers.

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…Not all Australian nickel laterites are dominated by clay type material. Under certain conditions, the absence of aluminium has precluded the development of secondary clay, and free silica has been deposited towards the base of the laterite profile instead (the coarse silica fraction of the ore is barren of nickel and cobalt, which allows beneficiation of at least a portion of the ore). Unlike the clay laterites, and the silicate laterites mined in the tropics for pyrometallurgical processing, magnesium is readily leached from the oxide profile, which reduces acid consumption in the PAL process. These oxide-silica type ores are more suited to PAL processing than clay ore types. Oxide-silica nickel laterites make up a proportion of the resources available to the Cawse and Ravensthorpe projects in Australia. At Ravensthorpe, BHP Billiton plans to treat oxide-silica ore in a conventional high pressure acid leach circuit, and the associated clays in a separate leach circuit. Spent acid from the high pressure oxide-silica stream will be used to dissolve nickel and cobalt at atmospheric pressure in the clay stream. By using the clay leach circuit to recover bonus nickel and further neutralise the spent acid, the two ore types are made complementary. The Kalgoorlie Nickel Project Scoping study completed in July 2004 recommended a similar process design to that of Ravensthorpe.

One result of the Murrin Murrin, Bulong and Cawse developments has been to tip the race to reduce nickel laterite processing costs in favour of Australian projects. The only other PAL development undertaken in the world to date was at Moa Bay, Cuba in the 1950s. Now an experienced bank of engineering and metallurgical expertise applicable to Australian conditions and ore types has been built up since 1997. The construction of Ravensthorpe in 2005 and 2006 will further broaden the capability base.

large part based on the performance of the Cawse process train, in particular Cawse's success with upgrading siliceous ores by screening.

Cawse was commissioned in 1998 with a resource of 275 million tonnes at 0.7% nickel and 0.04% cobalt, of which 80% comprised laterites over Walter Williams Formation intended for upgrade by screening prior to treatment in an autoclave. Cawse's screening practices have evolved with experience and technical development. Initially higher grade (1%+ Ni) siliceous ore was mined preferentially and screened through a relatively coarse mesh (212 micron), achieving an average upgrade in the order of 40% and a leach feed grade of about 1.7%. Improved upgrade rates have since been achieved at lower ore grades and finer mesh sizes, so that on average a 0.8% mined grade is screened through a sub 100 micron mesh to deliver material grading 1.6% to the autoclave. BHP Billiton has drawn heavily on the Cawse experience in designing the Ravensthorpe screening circuit, adding an attritioning unit to remove more goethite from the silica surfaces and improve nickel recovery. In the first six years of operation Ravensthorpe plans to mine siliceous laterite grading 0.89% and upgrade it to a leach feed grade of 1.87%. At each of Cawse and Ravensthorpe predictive models have been developed to guide mine planning in achieving a consistent leach feed grade.

Heron's testing of KNP laterites has so far been consistent with the Cawse and Ravensthorpe findings. As expected due to the geological closeness to Cawse, the same broad mineralisation types with analogous screen upgrade responses have been identified. In accordance with early Cawse practice Heron has tested over 5,500 KNP drill samples by bottle roll (to emulate the washing process) followed by screening through a 500 micron mesh. The average upgrade of the screened siliceous samples has been 54%. The more recent success of both Cawse and Ravensthorpe with finer mesh sizes and lower grade material encouraged Heron to test 180 micron screens across a range of cutoff grades in August 2004. The results confirmed the trend of improving upgrades of siliceous mineralisation with lower grades and finer mesh sizes; a finding which has added impetus to the KNP. The possibility that a lower cutoff grade (down to 0.5% Ni) can be applied to the KNP resources, while still delivering a leach feed grade of up to 1.6% Ni, has the potential to greatly improve the mining continuity of the deposits and thus enhance the conversion of resources to reserves.

Further tests of KNP resource screen upgrading are required. Larger sample sizes are required to test 75 micron mesh screening because of the reduced screened product. Heron has retained a consultant to test a series of 90kg RC drill sample composites by March 2005. Caldwell hole samples (900 mm diameter and 1 tonne of sample per metre) will also be required as part of a feasibility study.

The determination of the screening upgrade behaviour to be expected from KNP resources is an important first step to establishing the viability of the project. One of the lessons of the first generation of Australian PAL developments is that a leach feed grade of at least 1.3% nickel is required to cover the capital and running costs of the leaching circuit, considering long run nickel prices of $US3.50/lb. The costs of the mechanical mining and screening processes are insignificant relative to the expense of running and maintaining a set of autoclaves and the associated pipe work under high temperature, high pressure, acidic conditions. As long as the tonnages are available, any means of increasing the leach feed grade is likely to improve project economics, regardless of the mass of nickel lost from the starting resource during mining and screening.

A second lesson from other projects is that the project must have competitive scale. The KNP has sufficient inferred resources to suggest Heron's target of producing 50,000 tonnes of annual nickel is achievable. However the relatively wide spaced drilling of the KNP resource requires filling in to increase confidence in the resources. Heron intends to concentrate on resource drilling and screening tests in an effort to demonstrate sufficient scale/longevity of operation and a high leach feed grade over the life of the project. Other technical issues will remain to be studied, including the procurement of acid, the ore leaching characteristics, the cost of infrastructure, and the form and destination of an intermediate product. However the resource and the screening behaviour probably account for about 80% of the project risk. If Heron can satisfy the major mining houses that the KNP resource is capable of annually providing 50,000 tonnes of nickel, in better than 1.5% material, to a set of autoclaves for at least 20 years, then Heron can expect to be knocked over in a rush.

DISCLAIMER

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