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SECOND ANNUAL REPORT TO 13 MARCH 2003 ON EXPLORATION LICENCE 1/2001 BEACONSFIELD, TASMANIA NICKEL/COBALT LATERITE PROJECT FOR JERVOIS MINING LIMITED

March 2003

SUMMARY

Jervois Mining N.L. was the successful tenderer for ETA 504 “Anderson’s Creek” in December 2000. The area of 32 square kilometres is environmentally sensitive and contains a number of reserves.

The economically important rock types of the area lie within the “Anderson’s Creek Ultramafic Complex” that hosts primary chromite and platenoid mineralisation as well as secondary (laterite) nickel and cobalt.

Previous exploration for nickel laterite includes the drilling of 37 diamond drill holes by King Island Scheelite 1947 Ltd. in the late 1960’s and 116 air core and 8 diamond drill holes by Allegiance Mining N.L. in 1997. The latter company also metallurgically tested samples by high-pressure acid leach methods.

During the first year of the licence, the air core holes were re-logged to conform with Jervois’ format; a number of drill hole samples were assayed for the nickel laterite suite of elements and for checking previous results; composite samples were collected and despatched to Reno, Nevada for testing; these samples were subjected to column leaching at atmospheric pressure and ambient temperature; and resources were recalculated, categorised by lithology.

Metallurgical testing at Reno is on-going on bulk nickel laterite samples from Jervois' Young deposits in NSW. A programme and budget for bulk sampling 15 tonnes of laterite from Beaconsfield for metallurgical testing has been submitted to Mineral Resources Tasmania, however the results from the Young testwork will be assessed prior to excavating this sample.

Research in a collaborative joint venture with CSIRO, Adelaide, into the effect of scandium additions to aluminium is on-going.

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INTRODUCTION

Jervois Mining N.L. control considerable resources of nickel/cobalt laterite in Eastern Australia mostly at Young, NSW but also at Beaconsfield, Tasmania. The company has entered into an agreement with The Technology Store Inc. (TTS) of Reno, Nevada, USA concerning the metallurgical treatment of the laterites at atmospheric pressure and ambient temperature conditions. The agreement covers five phases:

Phase 1	Initial Evaluation	Complete
Phase 2	Technical Feasibility	In progress
Phase 3	Demonstration Plant	2002 (Delayed)
Phase 4	Economic Feasibility	2003
Phase 5	Commercial Application	2004

The initial evaluation involved the testing of some 130kg of lithologically selected composite samples from previous drilling of the Beaconsfield deposits. The Technical Feasibility phase is in progress for the Young deposit where a 15 (dry) tonne sample was collected using a Calweld drilling rig and transported to Reno, Nevada. This is the next stage of exploration for the Beaconsfield deposits, but using an excavator rather than a Calweld drill rig.

TENEMENTS

Jervois gained Exploration Licence 1/2001 by being the successful tenderer for ETA 504 “Anderson’s Creek”. The tender was submitted in early December 2000 and accepted by Mineral Resources Tasmania on 20 December 2000.

The licence was issued on 14 April 2001 and is current until 13 April 2006. It covers an area of 32 square kilometres less various existing leases and reserves. The licence applies from the surface to 50 metres below the surface.

The area comprises (see Land Tenure Plan):

Anderson’s Creek Forest Reserve
Peaked Hill Forest Reserve
Dans Hill Forest Reserve
Proposed Barnes Hill Conservation Area
Private Property
State/Multiple Use Forest
MDC Informal Reserve

Allstate Prospecting P.L. hold an exploration licence beneath EL1/2001 from 50 metres below the surface downwards.

GEOLOGY

The Cambrian Anderson's Creek Ultramafic Complex (ACUC) is the host of primary chromite and platinoid mineralisation associated with specific layers within the complex (A.R. Reed et al). Weathering of the ACUC has produced lateritic profiles that contain nickel and cobalt mineralisation. Erosion has produced Tertiary and Quaternary alluvial concentrations of heavy minerals, especially chromite and to a lesser extent osmiridium and other platinoids.

Reed et al state:

> "The Anderson's Creek Ultramafic Complex (ACUC) is one of 15 ultramafic complexes throughout Tasmania, the ACUC being the easternmost outcropping complex. All the ultramafic rocks are orthopyroxene-rich, separating them from the dominantly clinopyroxene-rich rocks normally associated with mid-ocean ridge and back-arc environments. The mafic-ultramafic rocks are interpreted to have formed in a forearc setting .
>
> "Rocks comprising the mafic-ultramafic complexes have been subdivided into three groups based on their mineralogy. These are: layered pyroxenite-dunite (LPD), layered dunite-harzburgite (LDH), and layered pyroxenite-peridotite and associated gabbro (LPG).
>
> "Ultramafic-mafic rocks dominate the ACUC and can be subdivided into a layered plagioclase and norite to gabbronorite and a second unit typically comprising massive to layered orthopyroxenite to pyroxenite (websterite). Varying degrees of alteration of the original ultramafic mineral assemblages is ubiquitous, commonly masking the original rock composition.
>
> "Geophysical data suggests that the ACUC is folded into an anticline with a western limb dipping west beneath allochthonous Proterozoic rocks, and an eastern limb dipping NE approximately concordant with the Beaconsfield stratigraphy. This interpretation is consistent with earlier descriptions of the ACUC forming an antiform, based on variations in the orientation of compositional layering. The age of the folding is unknown but its upright orientation and refolding of earlier D-S2 foliations within the ACUC best fit a Tabberabberan age.
>
> "Several NW-trending and NE dipping Tabberabberan age faults also dissect the ACUC. These faults extend beyond the ACUC into Proterozoic and Palaeozoic rocks. These faults are rather acutely transgressive to the boundaries between the different rock groups, with Proterozoic and possibly early Palaeozoic allochthons emplaced prior to Tabberabberan faulting."

Other rock types within the complex include quartz-feldspar-biotite rocks, granite, rhodingite, metamorphics and some sediments.

> "Tasmanian ultramafic successions are known to be the source of platinum group minerals, gold, copper and nickel. Layered dunite-

harzburgite (LDH) contain iridium, osmium and ruthenium (±gold), whereas layered pyroxenite-dunite (LPD) rocks contain platinum, palladium and rhodium (±gold). There has been no systematic exploration of PGE in the ACUC, although alluvial concentrations of osmiridium (natural alloy of osmium and iridium) occur within Anderson's Creek."

Chromite and Iron have both been mined to a certain extent, the chromite from alluvial/eluvial deposits and the iron from concretionary and pisolitic hematitic and goethitic lateritic material.

GEOPHYSICS

Gravity

"A prominent gravity low to the west of Beaconsfield lies over outcropping Anderson's Creek Ultramafic Complex (ACUC) and Permian sediments, consistent with serpentinised ultramafic rocks having a mean density of 2.5 t/m^3. The gravity low extends to the south of the outcropping ultramafics, supporting continuation of the body at depth, although this may also be in part due to Ordovician and Permian sedimentary rocks. Toward the western margins of the outcropping ultramafics the residual Bouguer anomaly becomes more positive, and the northern extension of the body as suggested by regional magnetics implies that the body may continue north under denser lithologies."

Magnetics

> "Regional aeromagnetics flown over the West Tamar district show a dominant NNW structural trend in the region. A long NNW-trending positive magnetic anomaly west of the River Tamar corresponds to the position of the ACUC. The aeromagnetics support the notion that the complex is greater in extent in the subsurface than the outcrop.
>
> "Closer analysis and enhancement of more detailed aeromagnetics flown by AGSO and the Beaconsfield Mine JV in 1988 has revealed the ACUC to be composed of several ultramafic bodies or one complexly faulted and/or folded body. Enhanced magnetics have shown the body to extend a long way north and south of its outcrop extent in the subsurface, relatively unchanged. The outcrop extents of the ultramafic complex to the north and south are marked by faults. Close to and within its outcrop extents the body seems to be divided by an approximately north-south trending fault. The eastern body itself seems to be separated by dextral strike-slip faulting, whilst the western body curves substantially toward the west before encountering a fault and reappearing further south. This fault also marks the southernmost extent of ultramafic outcrop"

PREVIOUS EXPLORATION

The history of exploration of the laterite potential has been competently recorded by Newnham in the Annual Report to April 1997, EL 10/96 for Allegiance Mining N.L. (Allegiance). The exploration by Allegiance is equally well documented in the Annual Report 1998 (although there are some data discrepancies between Progress Reports within this Annual Report).

Because Allegiance only held the rights to explore for nickel and cobalt laterite mineralisation, Newnham's assessment of reports on other mineralisation such as gold, platinoids and chromite has been less exhaustive. Whilst gold has not been reported to occur much in the ETA, chromite has been mined (in alluvials) and explored for by a number of companies and Mineral Resources Tasmanian (MRT).

Previous explorers of the laterite deposits have drilled 161 holes. King Island Scheelite (1947) Ltd. (KIS) put down 37 diamond drill holes for approximately 580 metres in the late 1960's and Allegiance drilled 1178.4 metres in 116 aircore holes and eight diamond drill holes in 1997. Consequently, the main laterites have been drilled at a density of 100 to 150 metre centres. This is perfectly adequate for an indicated resource, and further definition drilling is not necessary at this stage.

ENVIRONMENT

Some background research had been initiated in the environmental situation when tendering for the ETA. Newnham (in Allegiance's Annual Report (1996-97)) outlines the Dan's Hill RAP (Recommended Area for Protection) which covers the whole of the Mt Vulcan resource and the eastern edge of Scott's Hill

resource. Reference is also made to the Mt Vulcan – Simmonds Hill Australian Heritage Act Registered Entry which covers virtually the whole of the serpentinites of the ACUC. The prime reason for these areas is to protect two plant species:-

Tetratheca gunnii

Epacris virgata sensu stricto 'Beaconsfield'

that are listed as Endangered under the Commonwealth Environmental Protection and Biodiversity Conservation (EPBC) Act 1999. This act was passed after Allegiance's field activities.

Information on the occurrence etc. of these plants was forwarded to Jervois by MRT with the assistance of the Threatened Species Unit, Department of Primary Industries, Water and Environment.

Further correspondence with MRT has also been entered into regarding the plant disease "Phytophthora cinnamomi", changes to conservation areas and the "Beaconsfield Strategic Prospectivity Zone".

Correspondence with Environment Australia regarding the EPBC Act has also been initiated.

WORK COMPLETED

1. **Metallurgy**

   Column leach testing using acid at atmospheric pressure and ambient temperature conditions was completed on six composite samples last year and produced encouraging results.

   Work is progressing on the metallurgical testing of a 15 tonne sample collected at Jervois' Young nickel laterite deposit in NSW. Interim results were received in November 2002. Whilst the report is confidential, the following has been extracted for this Annual Report:

   " **Nickel and Other Metal Extractions**

   Nickel leaching data for AC3 and AC4 are presented in Figures 1 and 2. In figure 1 a number of different regions can be identified. The first period is the initial one-week period when leaching took place in open circuit. The second period (day 10 through day 40) is the "rest period", where investigations were taking place to identify reasons for the permeability issues for the SAP material. During this period the solution flow was completely stopped. The third period consisted of a 20-day regular leaching period where the solution flow was cycled through AC3 and AC4 and re-acidified. During the fourth period a fresh solution, stored during the open circuit run, was applied. As shown in the figure this resulted a "decrease" in extraction because of certain metallurgical accounting procedures (higher grade "wash solution" from AC4 was recycled in a plug flow mode to AC3). Once equilibrium was re-established (day 72) leaching continued (fifth period) until this second

continuous leaching period was completed at day 94. At this time the actual nickel extraction from WSERP had reached a level of 81%. Another metallurgical accounting issue arose when a new batch of stored solution was applied on day 95 (sixth period), repeating the previous solution changeover procedures. The nickel extraction data, while expected to be reasonable and accurate, are based on solution analyses and once the leaching is complete, confirmation by means of assays of the solid residue will be carried out. During period 1 (open circuit) the average daily nickel extraction approached a level of 2%, whereas during the closed cycle periods (period 3 and 5) the average was over 1% Ni extraction/day.

In figure 2 the leaching behavior of AC4 (blend WSERP and SAP) is presented. It is quite obvious that since the ore in AC4 was not exposed to a high-grade acid solution, but to the residual acid present in the discharge solution from AC3, nickel extractions are initially quite low due to on-purpose acid starvation. Once the AC3 ore reaches over 50% nickel extraction, acid breakthrough from AC3 assists with nickel extraction in AC4. At the time of writing as the AC3 has reached a nickel extraction in excess of 80%, with AC4 reaching a 30% level. The 80% level for AC3 was reached during an effective leaching period of about 60 days. While AC4 nickel extractions were initially very low, as expected since acid was readily consumed by gangue acid consuming components, towards the end of the current leaching period (day 60 through day 80) the nickel extraction accelerated and reached a very respectable 1.5%/day. Assuming that this rate will continue AC4 should see an 80% extraction level within less than 40 days.

The preliminary conclusion from the nickel extraction data is that the previous objective of achieving an 80+% Ni extraction in 120-180 days has been achieved. This was carried out by increasing the leach solution acidity from 50 to 75 gpl H_2SO_4 and by increasing the solution flux from 25 to 30 l/m^2/hr. To maintain an improved selectivity for Ni over Fe, further testing should be considered at an intermediate acidity. Alternatively, as is shown later, with an increase in iron dissolution relative to nickel over the course of leaching, consideration should be given to starting at a relatively high initial acidity of say 85 gpl and gradually reducing it to down to say 35 gpl H_2SO_4 at the end of the leaching campaign.

Using Fe/Ni and Mg/Ni ratios from both the ore and the leach solutions, the Fe and Mg dissolutions can also be estimated. The WSERP head assay was:

Element:	Al	Ca	Co	Cr	Cu	Fe	Mg	Mn	Ni	Sc	SiO_2	Zn
AV WSERP	6.60	0.72	183	0.50	61	13.4	9.48	0.18	0.78	26	39.3	107

Assuming a Ni extraction of 80% a Fe/Ni ratio in the pregnant solution of 8, an Mg/Ni ratio of 6, the Fe and Mg extraction can be estimated at 37% and 40% respectively for WSERP. We expect that these numbers under appropriate and optimized conditions should be reduced to the 25-30% level, resulting in a corresponding decrease in acid consumption.

There is as yet not enough data available to make similar estimates for SAP ore."

2. Research & Development

Jervois has a three year agreement in place with CSIRO to investigate in detail the effect of scandium additions to aluminium speciality alloys. This work is ongoing with the overall objective of adding value to Australian resources and by so doing, helping to establish possible markets for scandium in metallic or oxide form. CSIRO recently reported:

> 'The program of work to assess the effects of scandium, grain refiners and certain impurities on the properties of A5083 aluminium alloys was completed in time for an internal review at the beginning of July. Definite improvements in the strength of cast alloys have been achieved and a combination of scandium and zirconium identified as offering the greatest potential. Testing of alloys containing comparatively large additions of nickel and cobalt has shown no significant detrimental effects on properties during initial trials.'

The resarch in CSIRO's Adelaide Laboratories is continuing. Whilst the Beaconsfield laterites, with limited testing at this stage, do not have high scandium grades, the research and development programme is allocated to all of Jervois' nickel laterite projects.

Fig 1: *AC3* Ni Extraction (based on solution analysis)

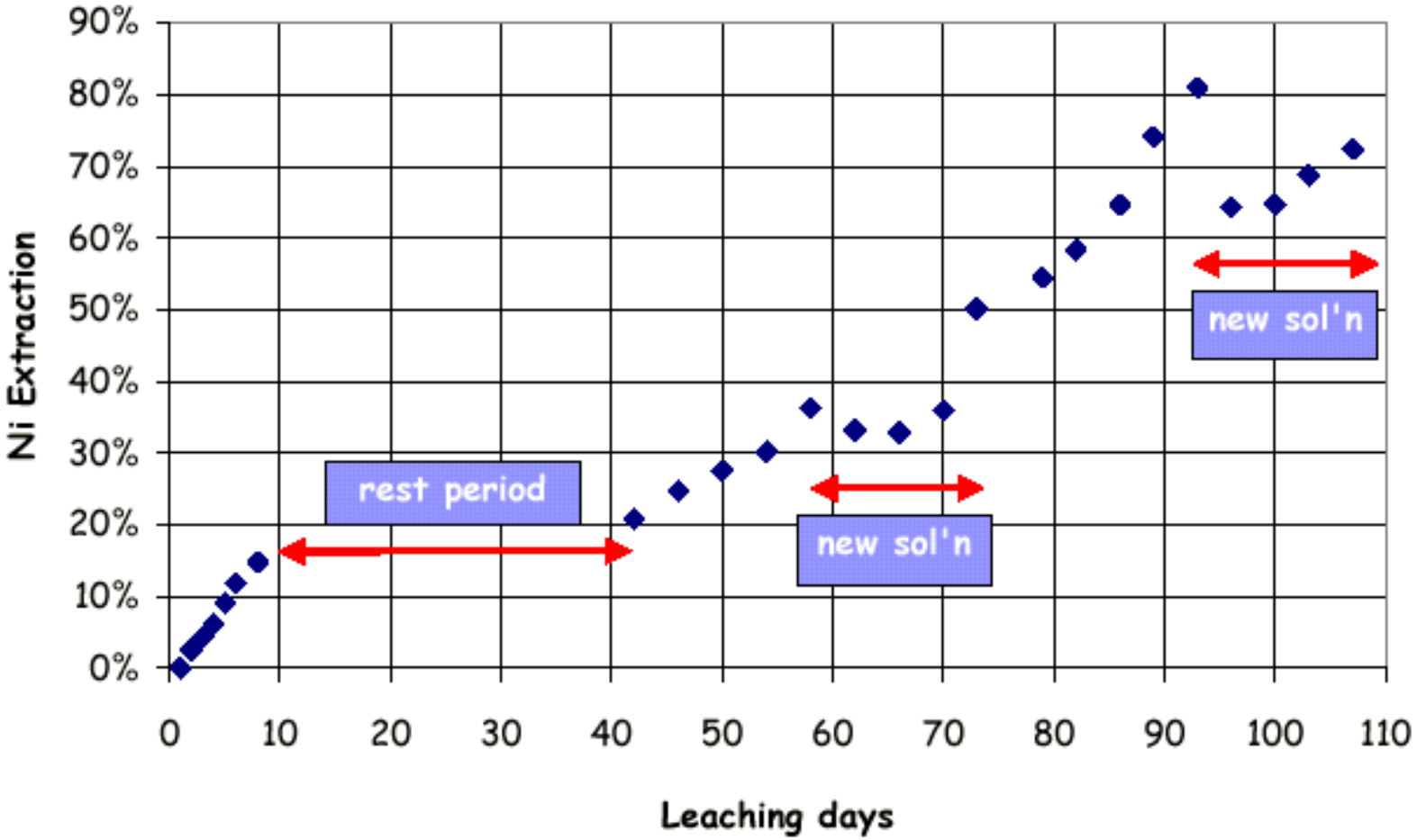
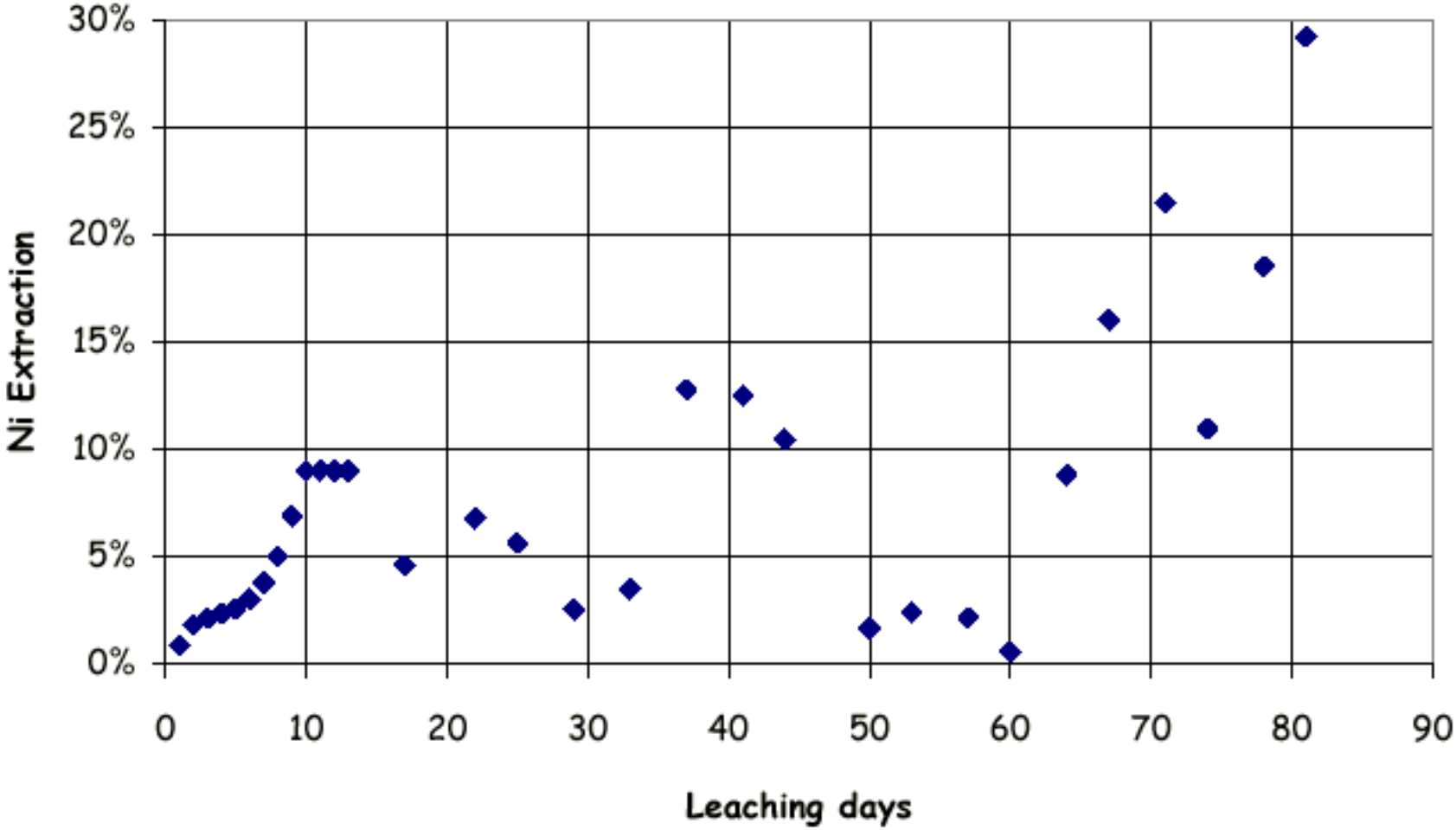


Fig 2: AC4 Ni Extraction (solution analysis)



DISCUSSION AND RECOMMENDATIONS

The metallurgical programme at Reno, Nevada is taking longer than expected. Since the Interim Report, some technical problems have arisen that have caused delays. However, assuming the results are favourable then the same proposed programme outlined in last year's Annual Report remains the same.

The proposed programme is to obtain approximately 15 (dry) tonnes of sample representative of the saprolite and weathered serpentinite resources at Barnes Hill. The main criteria used in selecting appropriate locations for taking the sample were (see also plan BN-46):

- Lithologically representing the resource
- Average grade representing the resource
- Spatially representing the resource
- Near tracks – good access, no clearing
- Away from mapped locations of Epacris virgata and Tetratheca gunnii (protected species)
- Depth within reach of a backhoe.

The following table shows the first choice of four old drill sites located on land owned by Beams Bros (Holdings) P.L. and M.I.Beams & Sons P.L. (two of which lie within "Private Land Reserve (RFA)"):

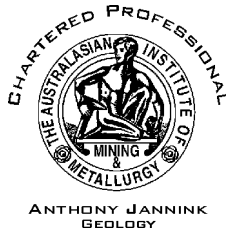
PROPOSED BACK-HOE SAMPLES FOR BULK TESTING

Hole No.	E m agd	N m agd	From m	To m	Lithology	%Ni	%Co
S031	481177	5436691	6	7	Saprolite	0.60	0.095
			7	8	Saprolite	0.70	0.065
			8	9	Saprolite	1.12	0.060
			9	10	Saprolite	1.17	0.048
		Average				0.90	0.067
S032	481457	5436721	5	6	Saprolite	1.03	0.024
			6	7	Saprolite	1.23	0.045
			7	8	Saprolite	1.50	0.039
			8	9	Saprolite	1.72	0.033
		Average				1.37	0.035
S048/SD075	481442	5435608	2	3	Saprolite	0.64	0.049
			3	4	Saprolite	0.88	0.049
			4	5	W. Serp	0.72	0.027
			5	6	W. Serp	0.91	0.031
		Average				0.79	0.039
S065	480908	5436840	2	3	Saprolite	0.38	0.098
			3	4	Saprolite	0.43	0.092
			4	5	Saprolite	0.45	0.063
			5	6	Saprolite	0.75	0.044
		Average				0.50	0.074
		Average				**0.89**	**0.054**
		(Equivalent Resource Average				0.90	0.058)

Experience at Young in collecting the sample there showed that saprolite had a 28% moisture content and weathered serpentinite 22%. Thus about 1.25 tonnes should be collected from each metre excavated to produce a 15 (dry) tonne sample (from 15 metres excavated depth). At Young, a sample collecting device was designed. When the Calweld bucket was emptied into the catcher, a head sample of approximately 10kg was taken (for each metre). Subsequently, a slide in the base of the catcher was opened to allow the sample to drop into a 44 gallon drum. The drums were then weighed on a scale. It required five drums to make up one dry tonne. For a vertical metre to produce one dry tonne (5 x 44 gallon drums) the area of the pit needs to be 0.7 square metres or 80cm by 80cm across.

In practice, the backhoe will remove topsoil first and put it aside. Overburden will also be put to one-side. When a sample metre depth is reached, sample from that metre will be placed in the sample catcher, a head sample taken and then the sample be allowed to drop into a 44 gallon drum which is subsequently sealed. Once five drums are full, sampling of the next metre will commence. Each drum will be weighed and labelled (pit number, depth, lithology etc) then stored at a central location for easy pick-up by truck. The pits will be fenced off and at the end of the programme, the pits will be backfilled with sand/gravel from the local gravel pits or old chromite tailings and with the dumped overburden and finally topsoil.

The drums will subsequently be picked up, washed and containerized for despatch to Reno, Nevada, USA.



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