

POTENTIAL BACTERIAL GOLD RECOVERY

As previously reported, Nagambie Resources has been investigating the screening of concrete aggregates from the material on the historic cyanide heap leach pad at the Nagambie Mine, with a view to then recovering gold from the remaining fines fraction.

Recently, the Company has been considering whether it could recover gold from the heap leach material "as is" before carrying out screening to produce the aggregates and, in particular, whether it could recover gold by using naturally-occurring bacteria rather than cyanide.

In the USA, the use of naturally-occurring bacteria has been shown to get significant recovery of residual gold in cyanide heap leach pads. Recoveries up to 50% and as high as 65% have been achieved, depending on the optimisation of bacteriological activity in the heap.

Planning is currently being carried out for the testing of bulk samples from the Nagambie Mine heap leach pad in a specialist metallurgical laboratory in the USA. The testing would aim to establish the best naturally-occurring bacteria to use and the gold recovery that could be achieved.

Conceptual Numbers

Conceptual numbers for bacterial treatment of the heap leach pad are shown in Table 1 on page 2, based on ranges for key variables.

Mining of the East and West Pits at the Nagambie Mine was carried out between 1989 and 1994. Over 6.5 million tonnes of gold ore and diluting waste were placed on the heap leach pad which has a total area of approximately 17 hectares. The northern and western walls of the heap were built to the maximum planned heights of up to 35 metres. Elsewhere, the heap didn't reach maximum height because mining of the West Pit was stopped early when the costs of dewatering that pit became excessive given the gold price in 1994.

Heap leach gold recovery by circulating a weak cyanide solution through the heap was carried out between 1989 and 1997. Economic recovery of gold from the heap was possible for around three years after mining ceased because the value of the gold recovered exceeded the cyanide heap leach operating costs at the time. In 1997, the gold price averaged around A\$450 per ounce.

It is important to note that the cyanide heap leaching ceased in 1997 because the gold price was only A\$450 per ounce, not because no more gold could be recovered from the heap using cyanide. The current gold price exceeds A\$2,600 per ounce, over five times the 1997 price.

Total recorded gold production from the heap between 1989 and 1997 was 134,000 ounces.

Since 1997, up to around 1.0 million tonnes could have been removed from the Nagambie Mine heap leach pad for use in the local area as road base, foundation material etc., leaving over 5.5 million tonnes.

Cyanide heap leaching of oxide gold mineralisation has a long history in the USA. Gold recoveries there have been typically between 55% to 75%, with 25% to 45% residual gold in the heap. Residual grades for cyanide heap leach pads in the USA have typically been in the 0.2 g/t to 0.3 g/t gold range.

NAGAMBIE RESOURCES

Exploration for Fosterville-style, structural-controlled, high grade sulphide-gold underground deposits within 3,600 sq km of Waranga Domain tenements is being methodically carried out using geophysical targeting techniques, diamond drilling and analysis for hydrothermal alteration of the sediments.

Underwater storage of sulphidic excavation material (WASS / PASS) in the two legacy gold pits at the Nagambie Mine is an excellent environmental fit with major infrastructure projects for Melbourne such as Metro Rail, West Gate Tunnel and North-East Link.

Recycling of the tailings and overburden dumps can produce aggregates for concrete and gravel products respectively.

Quarrying and screening of sand deposits at the mine to produce various sand and quartz aggregate products is planned.

The first landfill site is planned to take advantage of the 17 Ha of engineered black plastic under the mine tailings pad.

SHARES ON ISSUE

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Nagambie Resources Limited
ABN 42 111 587 163

Registered, Operations & Head Office

533 Zanelli Road
Nagambie Vic 3608
(PO Box 339)

Tel: (03) 5794 1750

www.nagambieresources.com.au
info@nagambieresources.com.au

Board

Mike Trumbull (Exec Chairman)
Gary Davison (Director)
Alfonso Grillo (Dir/Company Sec)

James Earle CEO

For the conceptual numbers in Table 1, an historic cyanide heap leach recovery range of 65% to 80% is considered, with a residual gold range of 20% to 35%. Nagambie Resources considers that the average historic recovery for the heap leach pad could have been in the 70% to 75% range, giving a residual gold grade in the 0.21 g/t to 0.27 g/t range (refer Table 1).

Circulation of a bacteria-in-water solution through a remnant cyanide heap using pumps, delivery piping and sprinklers is physically very similar to the circulation of the cyanide-in-water solution through the original heap. The bacteria acts on the remnant gold in the heap, ignoring the sandstone and siltstone waste rock, and gold ions are then carried through the heap in the circulating solution. As for the cyanide heap leach process, the gold ions in the pregnant bacterial solution will adsorb onto activated carbon (for example, burnt coconut shell fragments) when the solution is pumped through a carbon column.

A bacterial gold recovery range of 30% to 50% is considered for conceptual purposes in Table 1.

Table 1 Conceptual Numbers for Heap Leach Pad Bacterial Gold Recovery

Original Heap (tonnes)	6,500,000	6,500,000	6,500,000	6,500,000
Cyanide Recovered Gold (ounces)	134,000	134,000	134,000	134,000
Cyanide Recovered Grade (g/t gold)	0.64	0.64	0.64	0.64
Cyanide Heap Gold Recovery (%)	65	70	75	80
Cyanide Heap Head Grade (g/t gold)	0.99	0.92	0.85	0.80
Cyanide Heap Remnant Grade (g/t gold)	0.35	0.27	0.21	0.16
Original Remnant Gold (ounces)	72,154	57,429	44,667	33,500
Current Heap (tonnes)	5,500,000	5,500,000	5,500,000	5,500,000
Remnant Grade (g/t)	0.35	0.27	0.21	0.16
Current Remnant Gold (ounces)	61,053	48,593	37,795	28,346
Bacterial Recovered Gold (ounces):				
30% Bacterial Recovery	18,316	14,578	11,338	8,504
40% Bacterial Recovery	24,421	19,437	15,118	11,338
50% Bacterial Recovery	30,527	24,297	18,897	14,173

USA operating costs for bacterial treatment of historic gold heap leach pads are understood to be as low as US\$200 per ounce or under A\$300 per ounce of gold recovered. With the current gold price exceeding A\$2,600 per ounce, an operating margin of around A\$2,000 per ounce or more could be achievable.

To minimise total capital costs, Nagambie Resources could recover the gold in bacterial solution onto activated carbon and then get the fully-loaded carbon stripped at one of the existing cyanide-carbon gold treatment plants in Victoria. By doing so, capital costs for the subsequent processes required to strip the gold from the carbon and produce gold dore bars could be avoided.

To minimise initial capital costs, the number of modular carbon columns and pumping arrangements could be increased over time as gold revenues increase.



James Earle
Chief Executive Officer

FORWARD-LOOKING STATEMENTS

This announcement contains “forward-looking statements” within the meaning of securities laws of applicable jurisdictions. Forward-looking statements can generally be identified by the use of forward-looking words such as “may”, “will”, “expect”, “target”, “intend”, “plan”, “estimate”, “anticipate”, “believe”, “continue”, “objectives”, “outlook”, “guidance” or other similar words, and include statements regarding certain plans, strategies and objectives of management and expected financial performance. These forward-looking statements involve known and unknown risks, uncertainties and other factors, many of which are outside the control of Nagambie Resources and any of its officers, employees, agents or associates. Actual results, performance or achievements may vary materially from any projections and forward-looking statements and the assumptions on which those statements are based. Exploration potential is conceptual in nature, there has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource. Readers are cautioned not to place undue reliance on forward-looking statements and Nagambie Resources assumes no obligation to update such information.