



FOOTPRINT

NEWS FROM GEKKO SYSTEMS PTY LTD

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Step into the Future with Keyhole Processing

The management and staff of Gekko are delighted to present the company's latest innovation – the Python Underground Processing Plant (Python UPP). This high-tech, fully automated modular plant is the outcome of five years of intensive research. The unit has been designed to operate in a 5m x 5m tunnel and produce a high-grade concentrate that can be pumped to the surface.



Python UPP undergoes capacity trials

“We believe that mining companies will save up to 15-25% of their total costs. Experience curve benefits will result in even higher returns”, noted Gekko's Technical Director, Sandy Gray.

“Step change savings can be expected in haulage, ventilation, back fill, grinding, staffing, tailings disposal and environmental costs. Installation of the unit may also de-bottleneck production and it has the potential to lower cut off grade. Figure 1 illustrates the costs of two mining operation examples using traditional equipment, compared to expected costs in the same areas using Gekko's Python UPP.

Figure 1. Estimated Comparison of Underground Mine Costs

| USD \$/t | Mine A | UPP A | Mine B | UPP B |
|--------------|------------|-----------|------------|------------|
| Mining | 54 | 50 | 90 | 81 |
| Haulage | 5 | 1 | 14 | 3 |
| Metallurgy | 27 | 12 | 32 | 14 |
| Other | 18 | 16 | 18 | 16 |
| Total | 104 | 79 | 154 | 114 |

The process design concept is to operate the crushing, grinding and pre-concentration plant underground and to pump the concentrate to the surface. Depending on available voidage underground, and metallurgical test work, it can be expected that a volume concentrate of between 5-30% mass will be pumped to the surface – eliminating the need for trucking.

“mining companies will save up to 15-25% of their total costs”

Gekko's 20 t/hr prototype Underground Processing Plant has recently passed its most crucial step after undertaking onsite trials to evaluate capacity and quality control. The plant took less than 24 hours to commission.

For more information about Gekko's Python Underground Processing Plant, contact Gekko's Technical Director, Sandy Gray, on sandyg@gekkos.com, or the R&D Manager, Tim Hughes, on timh@gekkos.com.

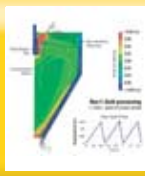
Metallurgical test work on the ore is recommended.

INSIDE UPDATE



IPJ Recovers Angolan Diamonds

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CFD + Stokes Law x CSIRO² = Optimum Separation

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Intensive Leach Success on Silver-Gold

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IPJ Recovers Angolan Diamonds



Denis Boska, Metallurgy Manager and Phil Hamer, SDM Section Head – Plant Engineering in front of the recently delivered IPJ

The Angolan diamond industry is set to benefit from the introduction of Gekko System’s InLine Pressure Jig (IPJ).

Plans to expand SDM’s Janange 1 Plant in the Lunda Norte region of Angola include the installation of Gekko’s IPJ 2400 for the pre-concentration of diamondiferous alluvial gravels. The SDM Company is a joint venture between Endiama EP (the National Diamond Company of Angola) and Odobrecht Engineering (a Brazilian-based civil construction company that also operates the Catoca diamond mine).

Russell Heins, Manager: RSA Operations & Sales for Gekko Systems, is excited about both the project and the relationship with SDM.

“This is the first IPJ in Angola. The Angolan diamond industry is growing and has, at present, a diversity of operations

which could benefit from the IPJ. These applications range from increasing installed capacity, improving DMS feed quality to use in small mobile alluvial sample plants.”

The IPJ arrived on-site and was recently commissioned with tests yielding exceptionally good diamond and value recoveries through the IPJ. It will be used as a pre-concentrating device and will allow the plant to increase the tonnage of river gravel that is mined, thus increasing the carats produced from this section of the operation.

“Based on the future mine plan, the decision to install the IPJ was made after it became clear that there was a shortage of installed DMS capacity at our Janange operations. After looking at all the possibilities, the IPJ clearly presented itself as the most suitable option in terms of performance, security, ease of operation and installation into our existing flow sheet.

The advantages over constructing and operating an additional DMS were significant compared to the labour and other operational costs that such a plant would have required” says Denis Boska, Metallurgy Manager for SDM.

The river gravel reporting to the DMS feed contains significant quantities of vegetation and other undesirable material. The IPJ will remove this material, thus minimising and improving downstream processing. “We are expecting very good efficiency from the IPJ in this application” says Russell.

“The gravel at the Janange 1 site is fairly typical of Angolan alluvial gravels, therefore the successful installation at the SDM Plant will open the door for other operators to benefit from the application of IPJ technology, saving them money on operating costs and increasing carats recovered.

“The advantages over constructing and operating an additional DMS were significant”

CFD + Stokes Law x CSIRO² = Optimum Separation

Recent modelling by Dr Chris Solnordal, from the World leading Computational Fluid Dynamics (CFD) modelling team at the CSIRO in Melbourne, has provided more information and answers as to how and why the InLine Pressure Jig (IPJ) achieves high recoveries on both fine and coarse mineral particles.

CFD uses advanced computer software to model the flow of fluids through a processing facility which subsequently analyses and solves problems involving fluid flows.

The CFD analysis found that while the fluids accelerated rapidly upwards from the distribution pot (indicated by the red region on Figure 2), the velocity of particles slowed dramatically once reaching the deceleration chamber (indicated by the green region). This provides for an optimum separation environment where turbulence is minimised. As illustrated in Figure 2, vertical velocities were very slow in the separation zone and were running between 0 - 0.02 m/s.

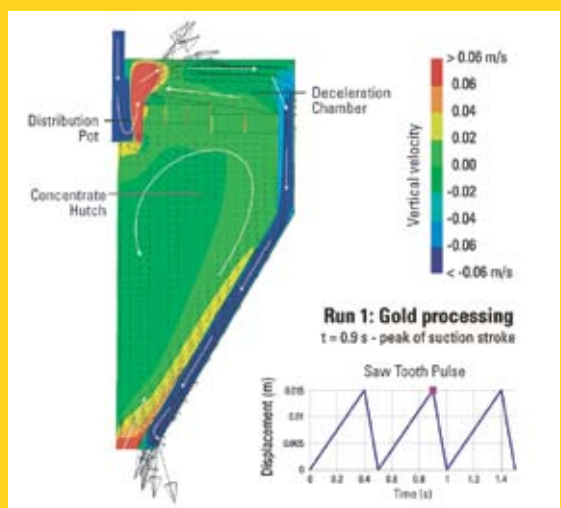


Fig 2. CSIRO data showing velocity (vectors) and the vertical velocity component (coloured contours)



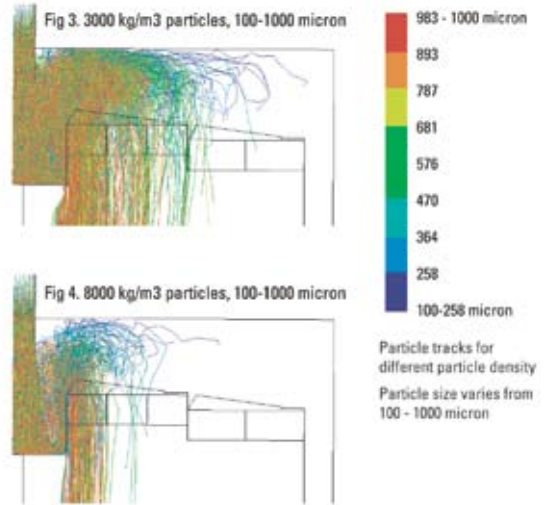
The CFD only models fluid flows and to extrapolate particle movement in the IPJ, Dr Solnordal applied Stokes Law. The results for particles of various sizes and sg's are illustrated in Figures 3 (sg = 3, similar to diamonds) and Figure 4 (sg = 8). The higher sg model indicates high recovery to concentrate hutch in all size ranges. Additionally, on relatively fine sg 3 particles recoveries to concentrate are very attractive, thus expanding the application of the IPJ.

"The CFD modelling has helped us to identify optimum operating parameters for different applications", says Tim Hughes, Gekko's R&D Manager.

"As a follow up we are considering the next level of CFD testing with the Discrete Element Method (DEM) to investigate further the potential for design optimisation of the IPJ."

For a more detailed explanation of the Theory of Operation for the IPJ, please visit our website, www.gekkos.com

Run 1: Gold processing at 160 tph feed rate



Intensive Leach Success on Silver-Gold Con'

The successful commissioning of the InLine Leach Reactor (ILR) 10 000 Batch Manual at the Ares Mine in Peru scores some world-first honours. It is the largest batch machine commissioned in the world to date and is the first one that is treating high-grade silver-gold flotation concentrates. The Ares site is situated 5,014 metres above sea level in the Andes Mountains.

The staff at Gekko Systems is proud of the smooth commissioning process and the results that are being recorded.

"The plant is achieving better results than were achieved in the laboratory on the same material, with overall recoveries of 98.5%," says Gekko's intensive leach specialist, Nick Katsikaros.

The project involved close collaboration between Gekko, the Peruvian agent, Jose Palomino, and Hochschild Mining –Victor Delgado and Walter Montoya. Hochschild and Gekko combined their technical expertise to understand and control the chemistry involved in leaching complex silver minerals. The result is a plant which is delivering benefits on many levels to Hochschild Mining.

The plant uses the ILR to leach large batches of fine, high-grade, flotation concentrates. It is designed to treat nine tonnes per day of concentrate from the nearby Explorador Mine.

"The Gekko system is unique in that it allows the mining company to produce their own metal doré," reports Nick Katsikaros. "They can maintain control over the entire process on site from recovery through to the production of pure product. By eliminating the need to sell the product as concentrate, cost variables can be avoided in the areas associated with processing the concentrate, such as transport, insurance, security, payment timing and treatment at the refinery."

"A further saving is achieved as there is a much smaller quantity of product leaving the mine, which means reduced transport costs. The bottom line is that the mining company gets the full value for their product, now."

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Gekko's Nick Katsikaros (front right) with the ILR project and operating team

National Award for Gekko's BGF Plant



BGF gravity plant - designed and installed by Gekko.

GEKKO Systems has been recognised by the Australian Mining Prospect Awards for its design and supply of the Ballarat Goldfields (BGF) Plant - now a subsidiary of Lihir Gold Ltd.

The Awards aim to recognise companies within the Australian mining industry that have demonstrated innovation and excellence in a range of categories.

Gekko won the Highly Commended Award in the Minerals Processing Plant of the Year category, at the third annual awards held in Brisbane, Australia, late last year.

Despite a very tight design period, Gekko successfully incorporated all requirements of the BGF brief for the least possible cost, using an innovative solution. Technical Director at Gekko, Sandy Gray, said the Gekko team was proud of the outcome.

"The expandable 600,000 tpa plant is performing above our test work predictions. The final tailings residues to date have been better than expected and well below design," he said.

"The plant is custom-made and matched to the specific ore body. The majority of the gold can be recovered at a very coarse grind size, so we have built an innovative plant that matches the properties of the ore with the properties of the equipment, to meet the needs of the customer."

Top performing gold stock, Lihir Gold Ltd, merged with Ballarat Goldfields on 8th March, 2007. Under the guidance of Lihir's Managing Director, Arthur Hood, the Ballarat operation has rapidly progressed.

As outlined in Lihir's September, 2007, Quarterly Report, Stage 2 of the Ballarat processing plant is currently being installed and underground development is showing Indicated Resources for Ballarat East increasing by 27% to 305,000 oz. Total Mineral Resource is now estimated at 1.5m oz. Stage 2 of the plant includes Gekko's designed and manufactured Intensive Leach and Resin gold recovery circuits.

Praising the supply and service provided by Gekko, BGF's previous Managing Director, Richard Laufmann, said "the skills and facilities available through Gekko Systems are second to none."

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Gekko's CEO meets Canadian Prime Minister

Gekko's CEO, Elizabeth Lewis-Gray, was invited to attend a Parliamentary Luncheon in Canberra to honour The Right Honourable Stephen Harper, Prime Minister of Canada. Mr Harper addressed a special joint sitting of the Australian Parliament, making him the first Canadian Prime Minister to do so in its 106-year history.

Ms Lewis-Gray was delighted to have the opportunity to discuss with Mr Harper, Gekko's strong relationships with the Canadian mining industry and to highlight the company's potential growth opportunities, due to the expansion of Canadian resources.

The invitation was extended to Ms Lewis-Gray in her capacity as a Board Member of Innovation Australia, which administers innovation, R & D and venture capital programs for the Australian Federal Government.



Ms Elizabeth Lewis-Gray and The Right Honourable Stephen Harper

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