



CONSTRUCTION

GOLD & MINERAL PROCESSING

PROCESS PLANT

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Leading the way for Gravity Recovery of Gold

The last few months has been an exciting period for Consep, with a number of new gold projects built with our customised solutions. Consep recognises the critical nature of gravity recovery, and we don't take risks with your gold production. We supply the world's leading equipment - Specialist gravity feed vibrating screens, Knelson Concentrators and Consep Acacia leach plants. We also supply a wide range of gravity recovery services, from test work and predictive modelling, through to training services for operating sites.

Nothing comes close to the recovery, availability or operating cost advantages offered by our premium package of equipment. This is why, for instance, over 30 different sites have purchased Consep gravity packages in Western Australia alone, a state that produces close to 200t per year of gold. We have recently added a number of new sites to our Western Australian project list including:

- Saracen Thunderbox
- Dacian Mount Morgans
- Gascoyne Resources Dalgarganga
- Eastern Goldfields Davyhurst

Added to these Western Australian sites, we have also recently supplied gravity equipment at Agnico Eagle Meliadine, Evolution Mt Carlton, Goldcorp Campbell, GSR Bogoso, SSR Seabee, Semafo Natougou, Newmont Tanami, SORED Mining Senegal, Endeavour

Hounde, Chinova Osborne, AngloGold Ashanti Sunrise Dam, Evolution Mt Rawdon, Evolution Mungari, Perseus Sissingue and Toro Mako.

Many of these were supplied with our agents and technology partners, FLS Knelson or Gravity Concentrators Africa.

In this recent group, there has been a number of new innovations introduced. One site is a copper gold site where the combination of a Consep screen, Knelson Concentrator, Consep Acacia, Electrowinning and tails detoxification allowed this site to produce gold dore on site for the first time.

Another site is one that occasionally has periods of extreme grades and GRG contents, which meant the Consep Acacia was customised to allow maximum gold carrying capacity.

Another needed a custom Consep Acacia to ensure that the high chloride water source used in the project did not effect electrowinning.

Another was a brownfields installation where the relatively large Consep Acacia needed to be customised to be less than 4m tall to fit under the existing Knelson Concentrators.

Consep is a supplier of customised equipment solutions, making upgrades and installations possible for projects.



Consep's automation systems



Newmont Merian Project Success



More Consep Acacias around the world

Atlas Mt Webber Sampling Stations

The Atlas Iron Mt Webber mine, located approximately 230km south-southeast of Port Hedland, was opened in July 2014 following completion of Stage 1 of the project (3Mtpa). Construction of Stage 2 was complete in late 2014, taking production capacity to 6Mtpa. Consep supplied sampling packages for both stages of the project.

BGC originally engaged Consep to supply each of the stockpile sampling stations for the first stages of the project in 2014. In 2015, the BGC/DRA JV contacted Consep again to supply another Lump sampling station equipment package for the projects expansion to 6Mtpa.

This time around, the design approach was different. The equipment design was required to be modular and skid mounted for ease of installation and to accommodate the small footprint reserved in the plant layout. As always, the sampling equipment and system was conformant to sampling standards.

The compact system required careful consideration to allow fitment of all components, whilst also providing adequate access for operator inspection and maintenance. The Lump Sampling System was designed to handle the lump product and generate a truly representative shift composite sample of the product stream suitable for the plant metallurgical accounting.

The equipment package included:

- Consep H&S Linear Mechanical Bottom Dump Cutter Sampler c/w Integrated Cutter Enclosure (head chute)
- Variable Speed Sample Belt Feeder
- Consep H&S Vezin Sampler
- Consep H&S 12 canister collector
- Consep PLC & MCC Control Panel
- Consep skid mounted support structure

The project went from concept to delivery in approximately 10 weeks, which represented an express delivery.

The modular skid mounted design was tailor made for this project is a perfect example of Consep's innovative quality and showcases the broad range of capabilities our company offers.

Consep is able to provide the services to meet your project specific requirements. Last, but not least, it was the can-do attitude of the Consep team that made this project possible.



Consep Hoists – The Hoist of Choice at Sydney's Central Park DUO

Consep Hoists are the material hoist of choice at Multiplex's Sydney Central Park DUO project with BKH Group and JDP Integrated Structures each opting to employ Consep Hoists to free their progress from site crane restrictions. A total of three Consep Hoists are to be installed over the two Central Park DUO towers, with two already installed and operating. Consep Hoists have been chosen due to their large car area, versatility, and flexibility to meet the needs of the challenging project.



A single conventional, externally mounted Consep Hoist was chosen by BKH Group for use on the eastern DUO tower. The Consep Hoist services 5 levels and provides day zero access to the freshly poured slab. In addition to traditional materials hoist functionality, it also offers movable crane landing platform access to all five floors serviced. The Consep Hoist's unique cantilever design has enabled installation fully within the site boundary and will allow the facade to be closed out below the Consep Hoist rails as they are climbed. This minimises impact on following trades and allows lower levels to be made fully water tight while upper levels are still under construction.

JDP Integrated Structures opted for two internally mounted Consep Hoists on the western DUO tower to complement their table form system.

Each of the two specialist Consep Hoists are fitted with front and rear car and landing gates to provide direct access to two pours from a single Consep Hoist. The installation penetration is closed out below the Consep Hoists rails as they are climbed, making the lower floors water tight and eliminating impact on following trades. The Consep Hoist's large car area is being utilised to safely and rapidly transport full sized table forms independently to the site crane, maximising construction efficiency.

Other high profile Sydney projects that are currently seeing the benefits of Consep Hoists include:

- Wentworth Point Marinas – Billbergia
- Opal Tower – ICON Co. and Dalma Formwork
- Ovo Tower – Mirvac and Trazmet

Consep & WesTech – 20 years of Success



For 20 years Consep has offered a complete range of solid liquid separation equipment from US based industry leader WesTech. Consep is proud of this partnership with WesTech, who have a name in the water industry synonymous with process expertise and quality equipment.

Since the supply of our first WesTech COP clarifier to a project in Kurnell in 1997, Consep has gone on to provide innovative solutions to a variety of water and wastewater projects in every state of Australia and New Zealand.

The success of these projects stemmed from the strength of WesTech's process experience combined with Consep's in-house design and manufacturing capabilities. This combination ensured that our customers received quality, robust equipment that often exceeded the process requirements for the project and was backed by support from Consep's local offices.

Consep can supply a range of equipment for both new and existing plants including **clarifiers**, dissolved air

flotation (**DAF**) units, **filters**, replacement **drive units** and **packaged treatment plants** for the processing of water and wastewater in municipal and industrial applications.

Consep and WesTech have together supplied a large number of new projects across five states of Australia, including clarifiers and DAFs for both municipal waste water treatment and for the Australian liquified natural gas industry.

Further information on our range of water solutions is available on our website. Alternatively, please feel free to contact our team to see how we can assist with your project.



Roy Hill Project Update

Roy Hill is the leader of a new generation of integrated iron ore mining, rail & port operations in the Pilbara region of Western Australia. The operation introduced a new wave of innovation, technology and knowledge to Australia's iron ore industry. Consep is proud to be their supplier of sampling technology.

To achieve Roy Hill's goal of minimising iron ore production costs, the project required innovative solutions to maximise automation. Consep provided a package of fully automated sampling systems.

The key technology supplied by Consep is the solids station primary samplers. These devices represent the latest development of extreme duty linear samplers incorporating a belt drive for maximum reliability. The largest duty, the Train Load Out (TLO) sample station, has a maximum throughput of 16,000tph, making it amongst the largest samplers installed in the world.

All of Consep's Samplers were designed and manufactured in our own workshop which allowed us to provide Roy Hill with two important advantages. It maximises local content for the project and has allowed an express delivery of the equipment, with most of the scope delivered within 20 weeks.

Importantly almost all of this scope was designed and manufactured inside our own ISO9001 Accredited workshop in Australia.

Consep designed and manufactured a wide range of equipment for the fourteen sampling stations, including:

- Belt drive linear samplers
- Ball Screw linear samplers
- Vezin Samplers
- Belt feeders and sample conveyers
- Sample crushers
- Sample collectors
- Automation systems
- Custom chute work package

Consep designed and supplied a range of conforming automation systems for the sample stations. These were custom designed to meet the project specifications and are based upon Allen Bradley PLC systems. Consep designs and builds the electrical panels in our own workshop using our in house team of electrical engineers.

Consep's samplers have successfully been in operation since January 2016.

We would like to thank Roy Hill for their continued support of Australian owned companies and Australian manufacturing.



Consep Automation Systems



Consep has the electrical design team able to meet the requirements of your project. Our team has 25 years of experience in a range of electrical and automation systems and packages.

While Consep's standard PLC brands are either Allen Bradley or Siemens, over the past few years we have supplied a wide range of electrical packages to meet customer specifications. Some examples include:

- 1 AB ControlLogix L71 with PVP1000s. The Consep PLCs were integrated with both client and other sub-suppliers PLCs.
- 2 A range of Schneider projects including Quantum Concept, Quantum Unity M340 and Momentum.
- 3 Siemens S7-400, PCS7 based platform, including a wide range of features such as Modbus comms, fiber nodes and hart instrumentation.
- 4 GE Fanuc Rx31 PLCs, Form 4B cyclone

rated outdoor cabinets housing the VSDs and DOL starters.

- 5 GE Versamax PLC's
- 6 Kingfisher RTU based platform integrating with the client system
- 7 Packages designed to meet various international design codes, including several sites meeting CSA codes.
- 8 Various MCC packages including form 2B, 3B & 4B, including smart controls.
- 9 Communications protocols including TCP/IP, CIP, Modbus, Modbus+, Modbus TCP/IP, RTU, RS485, RS232, Profibus and Profinet.

For small and medium sized control system upgrades, Consep has the experience and expertise to supply your electrical requirements.



More Consep Acacias around the world

The installation list for Consep Acacias continues to grow, with nearly 150 units installed on over 130 sites worldwide. The Consep Acacia is the worlds leading system for leaching of gravity concentrates, generating over \$10B per year of gold.

Recent projects include Dacian Mount Morgans, Gascoyne Dalgara, GSR Bogoso, Agnico Eagle Meliadine, Evolution Mt Carlton, Goldcorp Campbell, SSR Seabee, Semafo Natougou, Eastern Goldfields Davyhurst, Newmont Tanami and SORED Mining Senegal.

All of these new projects combine the package of Knelson Concentrators and the Consep Acacia.

Many of the above projects have chosen custom designed units to suit the projects flow sheet, ore, water quality, or layout.



Golden times ahead for Newmont Merian

Newmont has expanded its presence in South America with the Merian Processing Plant in Suriname. The Merian Consep Acacia represents the tenth unit ordered and installed by Newmont across its gold mines world wide.



Consep has consolidated its presence in the Guiana Shield gold region in South America following the successful commissioning of the gravity circuit in the 350,000ozpa Merian Project in Suriname. The project is a new addition to the Suriname gold mining industry which already included IAMGOLD's Rosebel mine.

The gravity circuit included three QS48 Knelson Concentrators and the CS6000 Consep Acacia Dissolution Module.

Commercial production was achieved in October 2016 and the project is looking to be one of Newmont's strongest performing mines. The Merian project was completed below budget and has one of the lowest all-in sustaining costs.

During commissioning Consep staff worked with Newmont representatives from other mines locations, including Boddington and Tanami (Australia) and Ahafo (Ghana). The project was delivered by Canadian company GMining, a company that offers EPC services for development and operationalization of mining projects.

Consep is now looking forward to working with Newmont in the upcoming commissioning of the Tanami Processing Plant located in the Northern Territory, Australia. The plant expansion includes new higher capacity QS40 Knelson Concentrators and larger CS4000 Consep Acacia installation.



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