

CASE STUDY

MARCH 2013

SAMPLING SYSTEMS



ABOUT NORTON GOLDFIELDS

Norton Gold Fields Limited is one of Australia's largest domestic gold producers, with annual production of more than 178,000 ounces. The Company has a mining and processing complex in Western Australia's world-class Kalgoorlie gold region, including a highly prospective tenement package of 1,092km² surrounding the 3.3Mtpa Paddington Mill.

Norton has Mineral Resources of 10.35Moz, gold Ore Reserves of 1.11Moz and a mine life in excess of ten years, with considerable exploration upside from more than 80 known prospects across its tenement package.

With a sizeable footprint in a world-class gold province, a strong production pipeline, an exciting portfolio and the support of China's leading gold producer Zijin Mining; Norton has a very bright future

[Source: <http://www.nortongoldfields.com.au>]

PADDINGTON MILL SAMPLING STATION

In 2012, Consep was asked to design and supply a sampling station to determine the gold grade of third party ores fed to the Paddington Processing Plant.

The Paddington Mill is located approximately 30 kilometres north of Kalgoorlie and is the central processing plant for Norton's gold operations in the Goldfields region. Norton acquired the Paddington Mill in 2007 and as at 2014, has been operating above nameplate capacity at 3.63mtpa and reliably achieving over 88% gold recovery using a combination of carbon-in-pulp and gravity recovery.

In 2012, Consep was engaged to design and supply a sampling system that could accurately determine gold grades of the third party ores being treated by Paddington's Mill. The sampling station was to be integrated into the existing mobile crushing plant located on the Paddington ROM pad.

Consep designed a fully automated sampling system that involved integrating the primary sampler into the existing secondary crushed ore conveyor using a cantilevered support structure and supplying a separate standalone sampling tower to house the downstream sample preparation equipment

The Paddington Mill ROM sampling system is designed to handle 30mm top size ore at 100tph feed rate and generate a shift composite sample of the product stream suitable for plant metallurgical accounting.

The sampling system incorporates a linear cross cut sampler with bottom dump cutter, taking a primary cut from the 1200mm feed conveyer belt. The primary cut is then fed to a cone crusher before being fed to, and subsequently sub-sampled by a secondary vezin sampler. Sample increments are stored in a 2-pot collector for the entirety of the lot and sample rejects are discharged into a waste collection drum. Consep also responsible for the design and supply of the sampling tower, chute work and full standalone automation control system (field mounted PLC and MCC).

The sampling station was successfully commissioned by Consep staff during March 2013.



Paddington ROM Sampling Station



Our clients are able to work directly with staff who have both the experience and ability to develop custom solutions to a clients requirements.

For Paddington, one of the challenges we faced was coming up with a design that could easily integrate into the existing ROM crushing plant, yet still allowed the crushing plant to be mobile and at the same sampling plant allowed the sampling plant to be relocatable. The resultant primary sampler design c/w cantilevered support structure enables the mobile crusher conveyor to detach, and re-attach itself from the sampling system with ease.

We believe that only a company with Consep's sampling experience and in-house design and manufacturing expertise could satisfy the project's unique requirements.

Consep have a very broad product range for sampling systems. The sampling products which are fully manufactured and serviced by Consep include:

- Linear cross cut samplers
- Rotary vezin samplers
- Belt feeders, weigh feeders and shuttle feeders
- Bucket elevators and skip hoists
- Swirl tanks, chute works and structure
- Arcual samplers
- Cross belt ARM samplers
- In-line samplers (Pressure Pipe and Fixed Cutter)
- Poppet Samplers
- Custom made samplers
- Continuous sample dewatering modules
- Sample Collection Diverters and Carousels

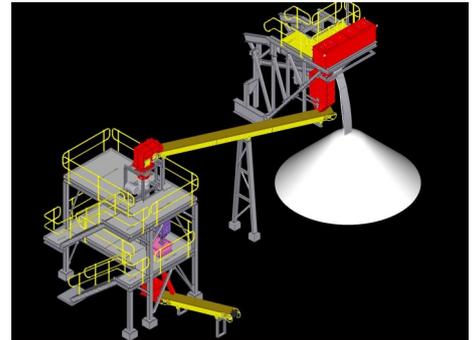
Consep also offers the widest range of proven drive types. For instance just within our range of linear cross cut samplers we can offer:

- Electric chain, ball screw & belt drives
- Hydraulic & Pneumatic drives
- Continuous unidirectional electric drives

One unique aspect of Consep is our ability to supply both the process and automation systems to go with the sampling equipment which allows us to provide a complete sampling solution.

For many of our clients we also develop the process design and sampling protocols to meet their specific needs, for instance meeting ISO3082 for Iron Ore. We then can develop the functional design and automation system for the sampling station.

Consep tailors each equipment package to suit our client's specific project requirements. Please contact our experienced engineers to discuss how we can assist with your sampling requirements.



Consep 3D Model of Paddington Sampling System



Crushed Ore Sampling System



Integrated Sample Crusher



Consep Pty Ltd is committed to providing customers with long term satisfaction through innovative, cost effective products and solutions which answer the customers individual needs.

CONSEP PTY LTD
Ph: +61 2 9756 5299
sales@consep.com.au
www.consep.com.au
ABN 74 053 177 898

SYDNEY
PO Box 6625
Wetherill Park NSW 1851
59 Newton Road
Wetherill Park NSW 2164
AUSTRALIA

PERTH
Level 15
111 St Georges Terrace
Perth WA 6000
AUSTRALIA
Ph: +61 8 9477 6777