

# OCEANAGOLD MACRAES

MAJOR MINERAL PROCESSOR REDUCES SWITCH-ROOM COSTS AND IMPROVES CAPACITY



The OceanaGold Macraes Goldfield is New Zealand's largest producing gold operation, located 90km north of Dunedin and approximately 30km northwest of Palmerston, Otago. Macraes has produced approximately 3.8 million ounces of gold since current mining operations began in 1990. Total Macraes production is expected to average approximately 180,000 ounces of gold per annum.

The Macraes operation is a hard rock gold mine so gold that is encased in rock is extracted. To achieve the production levels above the site must crush nearly 6 million tonnes of rock every year. The materials left over after the process of separating the gold from the rock is called tailings. These tailings are mixed with water to form a slurry. This slurry mix is removed from the production area by large pumps for discharging into a tailings pond where the solids in the slurry are allowed to settle, leaving water to decant off the top. The water is then returned and recycled back to the process area.

Recent increases in plant through-put and mine life expectancy required OceanaGold to undertake a significant expansion to their Tailings Storage Facility at Macraes. A new tailings dam was constructed but these are 5km away from the ore processing facility. To transport the slurry this distance to the dam, a combination of up to 6 x 650kW centrifugal pumps have been installed whilst 2 x 450kW centrifugal pumps are used to return the decanted water back from the tailings ponds to the main processing plant. All eight of these pumps are controlled by Power Electronics SD700 variable speed drives.

The project was initiated with very tight time constraints and Power Electronics worked closely with OceanaGold to ensure that the units were manufactured, shipped to New Zealand, and delivered

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*Ian Harrington, OceanaGold Macraes Electrical Supervisor.*

to site all within a 10 week window - a major feat for a quantity of drives of that size.

To ensure the project was completed on time many items were prefabricated remotely and then shipped to site. This included the switch-rooms that contained the SD700 variable speed drives.

Ian Harrington, OceanaGold Macraes Electrical Supervisor, comments "We had to keep the switch-rooms as compact as possible so they could still be road freighted to site. Not an easy task when you consider one of the switch-rooms contains 6 x 650kW SD700 variable speed drives and all the associated distribution and control equipment to support that. With 6 x 650kW variable speed drives running in a confined space, and capable of generating about 80kW of heat in total, we also had to give a lot of thought to how we would manage cooling. The SD700 turned out to be perfectly designed for this. The design of the SD700 allowed us construct cooling ducts that mount through the side of the switch-room connecting fresh cold air directly through the drive and then exhausting the hot air directly outside. This saved us the expense and on-going maintenance of installing switch-room air conditioning as well as keeping the switch-room small in size. Being able to utilise vendors that work together as a team, with an understanding of our business and realising what the project needed to achieve, was a key factor in making this project a success. Good open communication between Power Electronics, Switchbuild - the switch-room supplier, Otago Power and Refrigeration - the installer, and OceanaGold meant the project went without a hitch."



**SD700**  
Series

VARIABLE SPEED DRIVE