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A Golden Opportunity for PRO Services®

Lihir Island is a small (22km x 14km) volcanic island located just 3° south of the Equator in a remote region of the Pacific Ocean – in the New Ireland province of the country, Papua New Guinea. The 11,000 indigenous people, Lihirians, are known for their blond / ginger colored curly hair. And the island itself is known for its gold.

The Lihir open pit mine is one of the world's largest gold resources and producers. Gold was discovered on the island in 1982. Today Lihir Mine processes over 4 million tons annually, producing over 700,000 ounces of high purity gold. Its \$900 million US annual revenues represent about 15% of the PNG economy. Until recently, the entire plant and island power supply of 70MW was supplied by a number of generators running on heavy fuel oil. The island is volcanic "hot" and with the subsequent commissioning of a geothermal steam driven power station, the mine's dependence on fuel oil has been substantially reduced. Goulds vertical turbine pumps were selected for a number of services in the plant including the main condensate pumps to remove condensed steam after being passed through the turbines. To date there are six pumps on this service with an additional four ordered. During commissioning, a rope lifting sling must have been left in the suction pipe work of one of the pumps. It was drawn into the pump suction bowl upon start-up. It very neatly wrapped itself around the section of exposed shaft below the first stage impeller and above the bottom bearing. After two weeks of operation it managed to inflict heavy damage to the shaft, bearings, and wear rings. Suddenly, the Lihir mine operators found themselves down one pump, with no spares, and no on-site expertise. Due to the remoteness of the island and lack of services, most critical plant items are duplicated in inventory to allow



Lihir Process Plant



Lihir Geothermal Power Plant



Engineered for life



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complete on-site change-outs. The non-urgent rebuilds can be completed off-site. Since this was a new plant, the practice had not yet been implemented. The cost of running the heavy fuel oil power generators instead of the free steam turbine would be \$25,000 US per day. Standard delivery for these hard faced parts is 4-6 weeks. The Goulds Vertical Pump Operation, working with key vendors, expedited anew shaft, bearings and wear rings and air shipped the spare to the site within one week. The ITT PRO Services Center in Thailand was contracted to provide a service engineer to perform the on-site rebuild. The most experienced technician prepared for the two-day trip to Lihir via Port Morseby, the PNG capital, 900 km to the southwest. A last minute visa problem made it necessary for the Shop Manager, Scott Torgusson, to travel instead. He and the Goulds agent for PNG, Harry Mathers, Fimali Ltd worked tirelessly for a week to complete the rebuild. While the Lihir Mine has quite good workshop facilities, they are not set up for major rebuilds. Bearings had seized, turning in their housings – requiring stainless steel welding and machining. The machine shop operators were out-standing, assisting through some very frustrating situations. When complete, the pump had been returned to its original specifications. The Lihir Mine made a very special thanks to Goulds and the ITT PRO Services group for acting so quickly and professionally throughout the period.

Lifting Sling Caught in the impeller



Harry Mathers bolts columns together.



Scott Torgusson tightens impeller flange bolts.



Final Assembly.