

Smooth Sailing

A uranium mining company boosts cost savings and helps protect the environment by converting to Flowserve SLC slurry mechanical seals.

Minimizing costs is always an important business strategy, and so is environmental protection — especially with the heightened awareness of emissions control and how we can all be better stewards for the environment. When the Pregfeed pumps at Rössing Uranium Ltd., Republic of Namibia, Africa, experienced severe leakage from the gland packing, the company found a solution that took it on a voyage to slash costs and reduce its carbon footprint.

Rössing is a large, open-pit uranium mine located in the Erongo Region's Namib Desert. In 1979, the company began full-scale production of uranium oxide (U_3O_8) extracted from the ore — a valuable resource in the nuclear power industry. In

2008, Rössing produced 4,004 tons of drummed uranium. With this level of production, equipment must operate with minimal downtime.

However, by 2006, the Warman® 250 FL Preg-feed pumps were failing frequently because of leaking from the gland. This caused significant product leakage and corrosion. Rössing was using a Dynas-eal™ for the pump-shaft seal to prevent leakages, but it was insufficient, and corrosion caused by the Preg solution created an unsafe environment.

The company incurred the costs of maintenance labor and lost production from downtime. In addition, damaged wet-end replacement parts for four pumps cost Rössing N \$493,443 (about U.S. \$60,498) per pump annually.



Rössing, a large, open-pit uranium mine in the Erongo Region's Namib Desert, converted to Flowserve SLC slurry seals. This allowed the company to eliminate gland-packing leaks, increase uptime, help meet environmental regulations and save valuable water that is scarce in the Namibian desert.

Conversion Success

Robbie Dow, country manager for Flowserve Corp., was coordinating seal solutions at Rössing. He knew Flowserve SLC slurry seals would stop the leaks and help meet environmental regulations, as well as save water — a scarce resource in the Namibian desert.

He also knew that implementing new sealing solutions would eliminate maintenance and cleanup time and significantly reduce the cost of replacement parts. Flowserve SLC slurry seals are designed to seal higher pressures and withstand corrosive environments.

“We recommended using our SLC seals, but the lead engineer didn't have faith in the capabilities of mechanical seals,” says Dow. “So we offered him a mechanical seal for a free three-month trial on one of the pumps. After six months, the mechanical seal was still working great. The lead engineer changed his mind and ordered all four pumps to be converted to Flowserve SLC slurry seals.”



Dow and Ray Fitzpatric from Warman Namibia conducted training and taught Rössing's Maintenance Recovery Workshop crew how to install the seals. Rössing shut down the plant to upgrade line 4 on March 29, 2006, and several workers stripped the pumps. The maintenance team then successfully installed the SLC seals under the supervision of Phil Nel, Rössing's plant supervisor.

"We preplanned the upgrade and checked everything when it was finished. It was smooth sailing," says Dow.

No More Failures

The conversion cost per pump was about N \$100,000 (U.S. \$12,260). Since the upgrade, all four Pregfeed pumps have operated with no breakdowns; the company hasn't had to change any of

Rössing has saved more than N \$2 million (US \$238,336) annually and increased plant availability since converting to Flowserve SLC slurry seals. The Flowserve SLC slurry seals also are helping to preserve the environment.

the Flowserve SLC slurry seals since the initial 2006 installation. The bearing housings have operated without failure, leaks are nonexistent and corrosion problems have disappeared.

As a result, Rössing has saved more than N \$2 million (U.S. \$238,336) annually. Also, the increased uptime helps boost plant availability. The Flowserve SLC slurry seals are helping the company on its journey to keep down costs, improve productivity and preserve the environment.

For more information about Flowserve Corp. SLC slurry mechanical seals, visit www.flowserve.com.