ELEMENT 8

KNOW YOUR LIMITLESS

CASE STUDY

Powerful technology helps mining company wash away unnecessary costs

PRODUCTS:	INDUSTRY:	INTEGRATOR:	END USER:
CANARY	MINING	DARNER ENGINEERING	PALABORA MINING COMPANY

01

Introduction

Palabora Mining Company Limited is a publicly traded mining company that has been in business since August 1956. Headquartered in Phalaborwa, Limpopo Province, South Africa, they operate a single cluster of open-pit and underground mines that produce copper and a variety of by-products such as precious metals from anode slimes, nickel sulphate, sulphuric acid, magnetite, and vermiculite. Not only that, but Palabora also has processing facilities on site for the production of purified copper from mined copper ore, and a vermiculite recovery plant. As South Africa's major producer of refined copper, Palabora Mining Company produces approximately 45 000 tons of copper per annum.

02

Problem

The main issue PMC was struggling with was a lack of oversight on the Gland Service Pump. One of 33 large pumps monitored by a Process Controller at Auxiliary Services, it supplies water for the entire Concentrator.

Cavitation for short periods of time resulted in extremely low MTBF, which in turn had a negative impact on production due to the non-supply or unstable supply of gland water. Neither the Process Controller nor the Operator had any visual indications that these issues were occurring.

These reliability issues cost PMC around half a million in replacement costs (with replacements taking around 6 months to complete) and another half million in increased raw water costs.

03

Solution

PMC installed Canary to act as their central collection point for all process data. The Historian displays process data in real-time, enabling them to keep track of the Gland Pumps, Gland Pressure, Gland Flow and even Reservoir Levels and their health status (which is colour coded).

The data trending tool helped them to detect the low flow cavitation occurrences and the frequency thereof, enabling them to act and implement preventative measures.

04

Results

With the combined power of Canary's intuitive and fully customisable dashboards and the powerful data trending tool, they are able to now easily access process data quickly and in a user-friendly way. This has assisted them with troubleshooting, root cause analysis and solution development.

They discovered that the root cause for the cavitation were certain ad hoc plant conditions that the automatic pump control strategy was inadequate to cater for. This resulted in the gland water pump being starved of water, causing the low flow cavitations, and which ultimately resulted in a premature failure of the pump.

PMC was able to now implement a solution, which was to change the minimum flow set point of the automated barge control strategy, to avoid a reoccurrence. This stabilised and improved the reliability of the gland water supply to the concentrator.

Canary helped PMC save over a million in raw water and replacement costs just by providing them with a comprehensive and intuitive view of what's happening beyond what the naked eye can see.

05

5 Excel Add-In	11 Axiom Users	Hosted locally on own server	Microsoft SQL Database	25,723 Tags

5 API

1 ODBC