

SUCCESS STORY

Process optimization at
the Haile Gold Mine in
South Carolina, USA



AUTOMATION CONTROL AND OPTIMIZE

DRIVING THE MODERN GOLD RUSH WITH
ADVANCED AUTOMATION TECHNOLOGY

ANDRITZ

ENGINEERED SUCCESS

The challenge

Optimize the operation of a new gold plant prior to start-up

In 2015, OceanaGold was planning the construction of their new Haile Gold Mine in Kershaw, South Carolina. They wanted a gold plant that could provide maximum recovery at the lowest possible operating cost, a level of optimization that required an advanced control system. OceanaGold's plant operators also needed to receive the best possible training prior to the start of commercial production in 2017.

ANDRITZ had previous experience dynamically modeling gold plant operations and demonstrated this capability to OceanaGold. Based on this experience and on ANDRITZ's record of successfully delivering simulation, advanced process control, control system integration, and training solutions to its clients, ANDRITZ was awarded the contract.

Our solution

Simulation-driven engineering that reduces project risks

Drawing on its prior gold industry experience and focus on simulation-driven engineering, ANDRITZ offered a collection of innovative services to minimize start-up risks and maximize operational readiness, including simulator-based operator training with IDEAS, advanced process control with Advanced Control Expert (ACE), and Digital Twin technology.

Using the IDEAS process simulation software, ANDRITZ proposed building a first principles, dynamic process simulation of the Haile Gold Mine's industrial processes. The high-fidelity process model can be used for P&ID validation, control system verification, the creation of virtual instruments, and more. At Haile, the IDEAS process model with the IDEAS instructor package connected to control system emulation to form an operator training simulator (OTS).

Digital Twin technology was later added in the form of IDEAS models connected, in real time, directly to the

operating plant to provide virtual instrumentation. The IDEAS simulation model also provided a virtual environment for configuration and testing of the BrainWave advanced control system. The BrainWave system was used in conjunction with ACE to stabilize and then optimize plant processes.

Combined, these technologies provided OceanaGold with a powerful predictive and diagnostic tool. For example, operators can now use virtual instruments to monitor plant data, like slurry density, continuously in real time, which reduces the need for manual sampling. And they can test adjustments to a process prior to implementing these in the real plant, reducing the chance of error.

Operators were trained on the new process and control system using the simulator before start-up, which resulted in a faster start-up and safer, more efficient operations.

Results

Accurate prediction and fully integrated automation

As a result of their collaboration with ANDRITZ, OceanaGold started operations more quickly and smoothly, with simulator-trained operators and advanced process control. They have also increased throughput greatly. When commercial production began in 2017, their ore feed rate was 250 tons per hour. Now it's over 430 tons per hour.

ANDRITZ innovations have yielded further benefits as well. The Digital Twin and ACE technologies have enabled human operators to step back and supervise processes more, rather than interact directly with them. This has not only helped to improve the accuracy and efficiency of plant operations but has allowed operators to spend more time on optimizing and adding value to operations than on performing repetitive tasks.

Throughout the journey, ANDRITZ has been with OceanaGold every step of the way and continues to support the operation. Staff are on site regularly, and more ACE systems are being added to further improve operational performance.

“The system ensures that processes are predictable and efficient.”

CAELEN ANDERSON, PHD
Metallurgical Superintendent,
OceanaGold





WHY WORK WITH ANDRITZ

For over 20 years we've been providing simulation and automation services to clients across a variety of industry verticals, offering our clients proven solutions that enable them to achieve their project startup and operational objectives. As a vendor-neutral control system integrator, we can provide automation for a wide range of vendor equipment. Similarly, our simulation capabilities connect with any third-party control system vendor.

ANDRITZ INC.

Atlanta, GA, USA

p: +1 404 370-1350

automation-sales@andritz.com

AUSTRIA: Vienna

BRAZIL: Belo Horizonte, Curitiba

CANADA: Nanaimo, Prince George,
Richmond, Terrace

CHILE: Santiago

FINLAND: Tampere

INDIA: Bangalore

USA: Eugene, Montoursville,
Pensacola

ANDRITZ.COM

ANDRITZ

All data, information, statements, photographs and graphic illustrations in this leaflet are without any obligation and raise no liabilities to or form part of any sales contracts of ANDRITZ AG or any affiliates for equipment and/or systems referred to herein. © ANDRITZ AG 2019. All rights reserved. No part of this copyrighted work may be reproduced, modified or distributed in any form or by any means, or stored in any database or retrieval system, without the prior written permission of ANDRITZ AG or its affiliates. Any such unauthorized use for any purpose is a violation of the relevant copyright laws. ANDRITZ AG, Stattegger Strasse 18, 8045 Graz, Austria. AT.OceanaGold.01.en.02.19