



A Rockwell Automation Company

Endako Mines Wet Electrostatic Precipitator Upgrade

The Client:

Endako Mines is an active molybdenum mine located at the geographical center of British Columbia near the town of Fraser Lake. It is a joint venture operation between Thompson creek Mining and Nissho Iwai Moly Resources Inc. The Endako ore deposit is mined

in 3 separate pits and as a result of expansions over the years and improved production methods; mill throughput is 27,000 metric tons per day.

The Requirement:

The processing plant incorporates an Oxide Roaster, which takes in molybdenum sulfide and produces technical grade molybdenic oxide. As a result of the roasting process there are large amounts of SO₂ gas produced that due to their toxicity cannot be directly released to atmosphere. The gas is treated, or scrubbed, through a system of coolers and treatment vessels, one of them being the Wet Electrostatic Precipitator (WESP).

The Endako WESP uses a combination of high voltage electricity to separate the SO₂ particles from the waste gas stream and cool water to absorb these particles and

produce SO₂ water, which is then reused in the plant process stream. The water also prevents the high voltage from causing excess heat conditions in the WESP, but the water flow system failed on the Endako WESP which consequently overheated and caught on fire, thereby destroying the vessel.

As part of the replacement process for the WESP, Hinz was retained to provide their automation and control expertise to the implementation of a more efficient control strategy of cooling water flow, so as to prevent this incident from re-occurring.

The Design Solution:

In examining the existing system it became apparent that the solution was not going to be found by merely modifying the existing PLC program function. There needed to be more field instrumentation added so as to incorporate a much more comprehensive water flow control scheme. This would allow the ability to implement safety interlocks to prevent the system from catching on fire again.

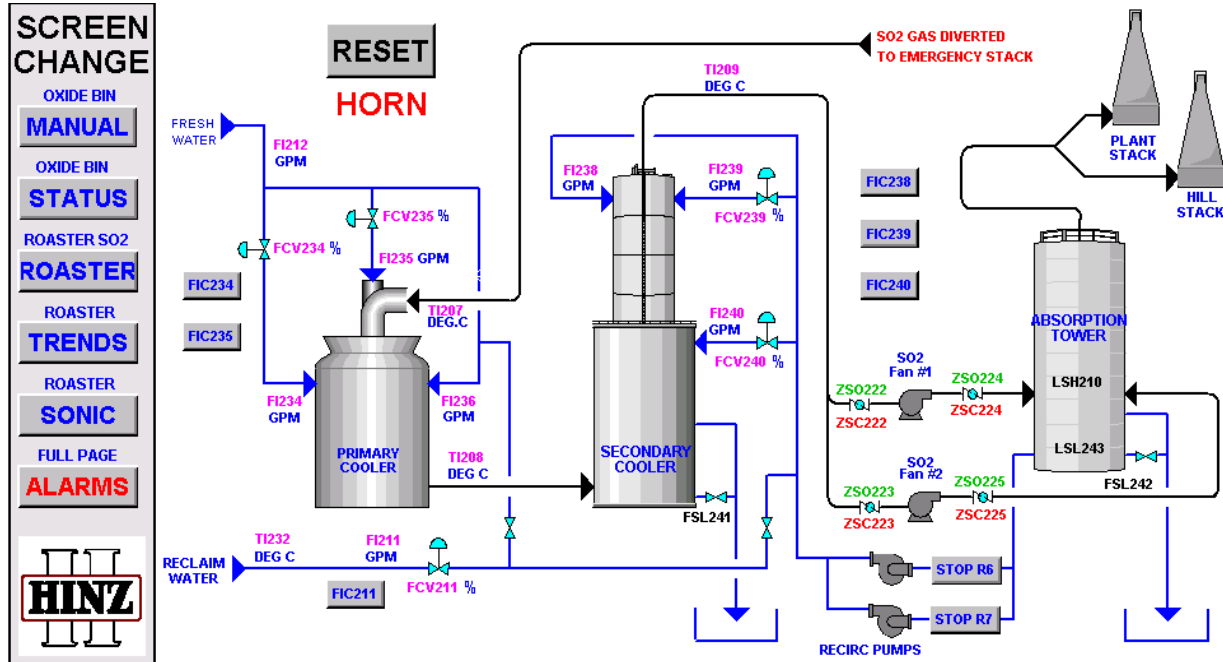
New instrumentation was evaluated and specified for purchase by Hinz. All instrumentation was specified to stand up to the highly corrosive nature of the process medium. Installation guidelines were also supplied for all instrumentation as well as complete wiring and configuration documentation. Endako personnel performed all installation of the field devices.

All the field devices were wired back to new Genius I/O blocks. The existing GE 90-70 PLC program was modified to incorporate the new I/O and the new water flow control scheme. A large emphasis was paid to system interlocking which would prevent the WESP from operating unless sufficient water flow was present, but at the same time would provide ample warnings to the operator for corrective action prior to the system having to go to full vent of SO₂ Gas. The Simplicity HMI was already revised extensively from a previous project by Hinz (Re: Roaster Oxide Automation) and only required minor modifications to incorporate the new field devices and loop controllers.



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System Specifications:

- Four (4) new PID Loops
- Six (6) new interlock points
- Remote I/O Cabinet
- Field Instrumentation (data sheets and installation specifications)
- GE Genius I/O Blocks
- Complete wiring documents
- Cable Block Diagrams
- Motor Elementary and Schematic diagrams
- Revisions to GE 90/70 PLC

For further information or to contact a Hinz office near you, please check our website at:

www.hinz.com