



A Rockwell Automation Company

Hudson Bay Mining & Smelting Callinan Mine Deepening

The Client:

Hudson Bay Mining & Smelting Ltd. operates a mining and refinery complex in Flin Flon, Manitoba. The site includes a zinc refinery, a copper smelter, and a new zinc pressure leach plant. There are several

mines that provide ore to the plant. One of these mines is the Callinan Mine which produces copper/zinc/gold/silver. It was being deepened to access a new ore body.

The Requirement:

Hudson Bay Mining and Smelting has been a long term client of Hinz. Hinz worked on the Callinan mine when it was first opened, therefore Hinz was familiar with the facility and was asked to provide the electrical and control design for the expansion. The control system for the expansion had to meet the same standards as with the existing control system. The PLC system had to have remote I/O that was distributed

over a long distance. The operator was to control the equipment using a conventional control console. There was also to be a operator terminal to provide the operator with an overview of the process as well as provide an alarm banner and alarm overview.

The Design Solution:

The Callinan Mine Deepening control system controls and monitors equipment used to crush and transport ore from the Rock Breaker area to the Loadout Bin. The operator's Control Console, located at the Rock Breaker area, contains seven television monitors, a operator terminal displaying alarms and operating status, and a set of pushbuttons and pilot lights for the operation of the system. Automated control of the equipment is done with an Modicon Quantum PLC processor with a Modicon PanelMate 4000 Plus terminal used as an HMI (Human-Machine Interface). A distributed I/O system is used to communicate between the PLC, PanelMate and the four distributed I/O racks in the system.

The equipment being monitored and controlled includes:

- Rock Breaker

- Crusher Feeder Chain Gate
- Crusher Feeder
- Dust Collector Fan
- Crusher Lube Pump
- Crusher
- Conveyor Feeder Chain Gate
- Conveyor Feeder
- Feeder Conveyor
- Magnet and Magnet Conveyor
- Two Main Conveyors and Take-Up units

Seven surveillance cameras positioned at key transfer points provide pictures to seven television monitors located in the main Control Console.

