



A Rockwell Automation Company

## Obed Mountain Coal Train Loadout

### The Client:

Obed Mountain Coal is an open pit coal mine and processing plant near Hinton, Alberta. The strip mining is done using a drag line and large dump trucks. The coals is cleaned, crushed and shipped via

rail to both domestic and international clients. One unique feature about this coal mine is the 11 kilometer over land conveyor from the plant to the train loadout facility.

### The Requirement:

The main method of moving coal to market is through the train/truck loadout facility. In addition to the train loadout facility, truck transports can be filled by front end loaders. The initial system, installed in the mid eighties, was getting very near the end of its life cycle. While the existing system provided a printout of the loadout operation, changes to the system were impossible and hardware components were very difficult to replace.

New requirements put on the system by management

and clients, demanded that the system must be flexible enough to change. Information must be shareable between the carrier, customers and OBED company databases. Operators of the system, must have improved, and more extensive control over the loadout process, and the accuracy of the weighing system must be increased and more repeatable. Above all is that the system must be reliable enough to get the product to market.

### The Design Solution:

Hinz was retained by Obed Mountain Coal to design and implement a solution to the growing problems at the train loadout facility. The control system to be replaced consisted of an Allen-Bradley PLC 2/30 connected to the loadout computer through an ASCII interface. The operator interface was a mimic panel with switches and buttons for input devices. The weighing system, which consisted of a bin scale and a train car scale, was connected to the loadout computer through a BCD and serial interface.

The PLC 2/30 was replaced with a PLC 5/30, which is connected through the Allen-Bradley DH+ network to the new loadout computer. The loadout computer is a Pentium Personal Computer running the MMI software, InTouch from Wonderware. The bin weighing system was converted to a BLH scale system which is connected to the PLC through remote I/O. The SAI train car scale connects directly to the loadout computer through a serial interface. On the loadout computer, Access, a Microsoft's database program, is used to collect information from the loadout process and produce manifest and summary reports.

The Operator enters certain information about the loadout into the database before the operation begins. Information like Car IDs, Train Type, Destination, and Preloading Delays are some examples. This information, along with the tare weights of the empty cars, received from the track scale is used during the loadout process to automatically set the amount of coal to fill each car. After the loadout is complete, additional information can be added about loading delays and general comments. Data gathered from the PLC during the loadout is used to produce the manifest and summary reports.

The Operator now controls the loadout, enters and views all information about the train and produces reports from one interface. Future enhancements include connecting the loadout computer to the corporate network, and sharing the loadout information directly with management. Automatic faxing of summary reports to customers and carriers, as well as receiving the train car details electronically from the carrier, are also future considerations.



A Rockwell Automation Company

## Obed Mountain Coal Train Loadout

File Logic Special Development!

1/24/96 15:47:09

### LOADOUT 3

HIGH WEIGHT TIMER PRESET: 0.0 Min SP

LOW WEIGHT TIMER PRESET: 0.0 Sec SP

GATE 1 & 2 CLOSE: 0.0 % SP

GATE 3 & 4A CLOSE: 0.0 % SP

GATE 4B CLOSE: 0.0 % SP

MAXIMUM COAL NET WEIGHT: 0 KG SP

**TRACK SCALE**

CAR POSITION: 0

TARE WEIGHT: 0 KG

TRAIN SPEED: 0.0 Km/h

**CURRENT CAR**

CAR POSITION: 0

CAR ID:

LOADING SPEED: 0 Sec

PREDICTED FINISHED TIME: 0 Min

BN-02 SURGE BIN (0 %)

UN-01 WEIGHT BIN (0 KG)

CHUTE

LOADING UP

CURRENT CAR TARGET WT (0 KG)

NET WEIGHT (0 KG)

SAMPLER (RUNNING)

SPRAY BAR

AC01-1 (REV)

SA IN

CS01-1 (120)

HIGH LEVEL (HI LVL)

MID LEVEL (MID LVL)

LOW LEVEL (LO LVL)

LAST SPRAY

LOAD CHUTE

DISCH CHUTE

READY

TRAIN LOADOUT

EMERGENCY NET WEIGHT PRINT

STOP LOADOUT LAST CAR

BN-01 CHUTE

OPEN CLOSE

ZERO OFFSET (0 KG)

ZERO SCALE

MM/DD HH:MM:SS	Comment	Name	GroupName	Val	AlarmState
01/24 15:45:14	FIRE WATER HIGH SHUTDOWN	FIRE_H2O_HT_SD	System	ON	ACK ALM
01/24 15:45:14	SURGE BIN HIGH WEIGHT ALARM	BN-02 HI WT ALA	System	ON	ACK ALM
01/24 15:45:14	SURGE BIN HIGH WEIGHT SHUTDOWN	BN-02 HI_WT_SD	System	ON	ACK ALM

### System Specifications:

- Allen-Bradley PLC 5/30
- Train Manifest & Loadout Summary Reports
- Wonderware InTouch
- Automatic & Manual Loadout Capabilities
- Microsoft Access Database
- 
- SAI Track Scale Interface

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

[www.hinz.com](http://www.hinz.com)