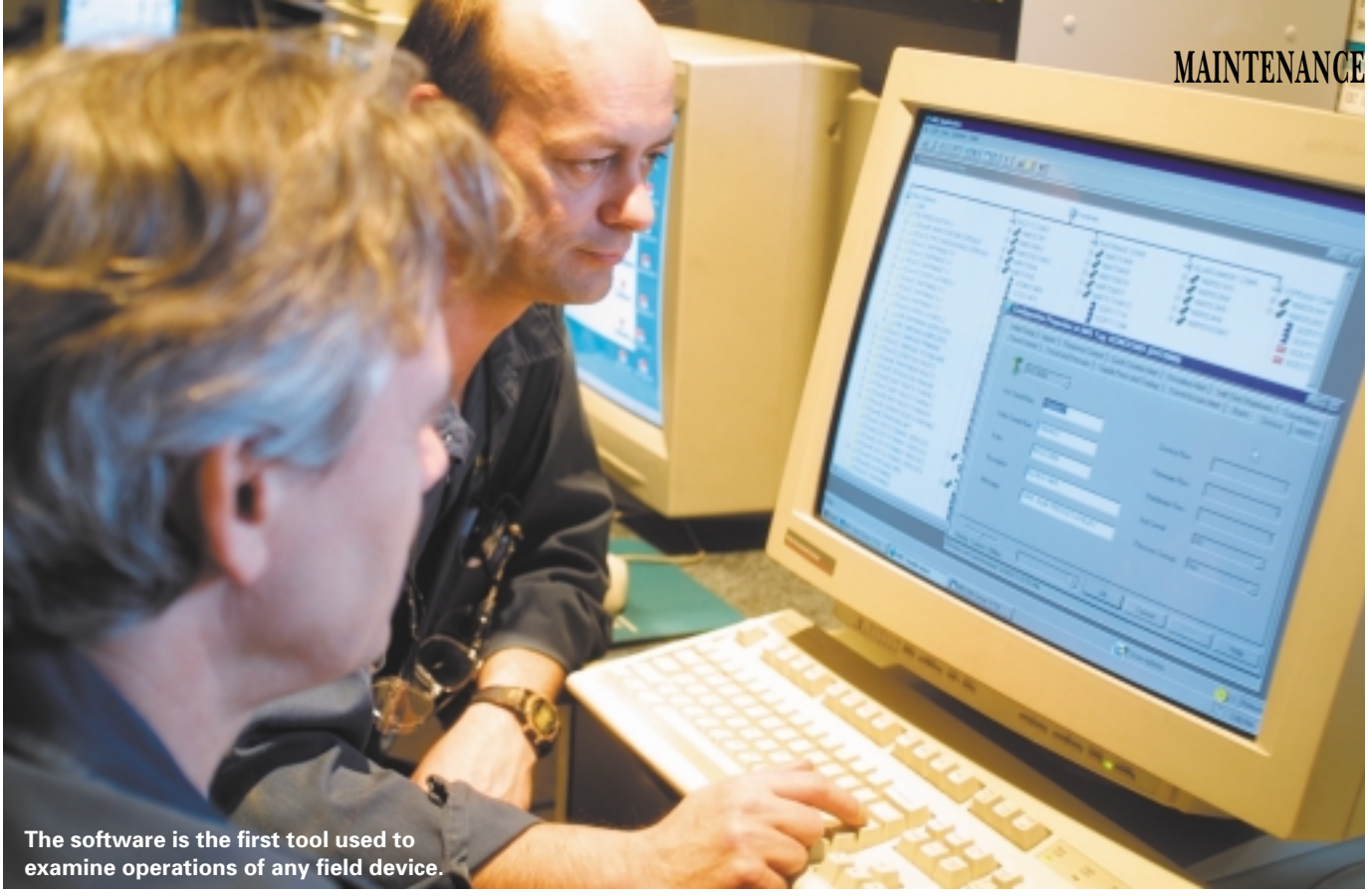


The software is the first tool used to examine operations of any field device.

Asset management software becomes first tool used by maintenance technicians

Open automation architecture facilitates access to information from intelligent field instruments at Abitibi-Consolidated's Jonquière mill

A Pulp & Paper Canada Special Report

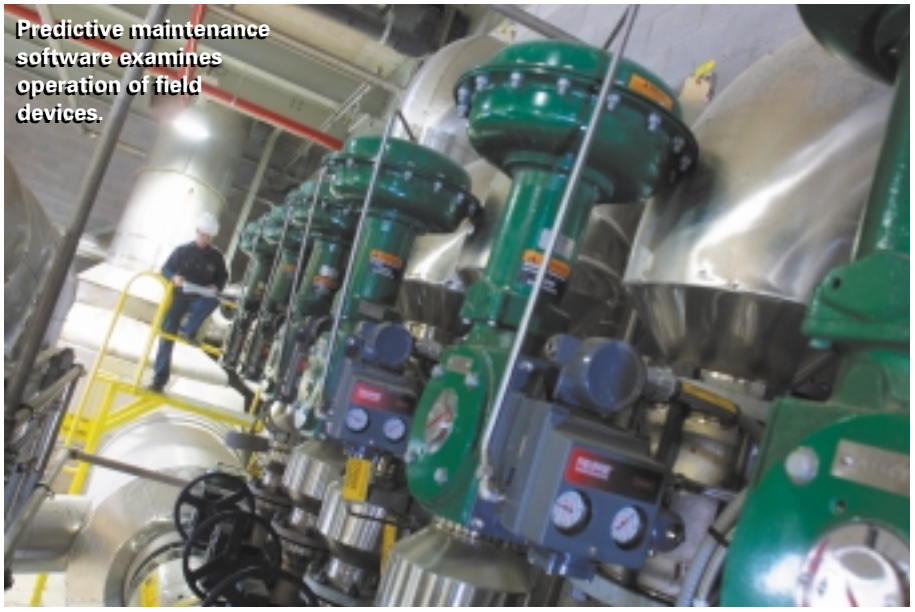
When Abitibi-Consolidated built a new thermo-mechanical pulping (TMP) mill to provide high quality pulp for the 525 tpd specialty paper mill at Jonquière, Quebec, it provided Remi Simard, electrical engineer in the TMP mill, an opportunity to try a multi-faceted asset management software product.

"I had wanted to implement this kind of predictive maintenance software for a number of years," Simard recently told *Pulp & Paper Canada*, "but it was difficult to justify buying a product not directly related to papermaking. When it was decided to build the new TMP mill, we were able to convince management officials to include software in the project as a tool for significant cost-savings during instrument commissioning, calibration, and start-up."

According to Simard, expectations were met. "We commissioned the instruments in August 2000, and started up the TMP mill in January 2001," he said. "I was later able to show the project manager that the software we choose (AMS software from Emerson Process Management) had paid for itself at that time. It was so easy to use, we did not have to hire a contractor to commission approximately 400 smart HART-compatible instruments in the new TMP mill," he said. This cost-avoidance easily saved more than the cost of the software.

"This was made possible because the instrument suppliers were required to pre-calibrate their products before shipping," he added. "Using the asset management software, our technicians could check out those instruments much more quickly from the comfort and safety of the control room without having to go into the mill during construction."

Since the TMP began full operation, the asset management software has become the first tool used by maintenance technicians to check on the operating condition of those same field devices, Simard continued. It can automatically raise an alarm if the operating condition of an instrument degrades below a preset limit.



Predictive maintenance software examines operation of field devices.

Although the process does not use a control host from the same company, installation of the predictive maintenance software was easy and trouble free. The software interfaces with the TMP distributed control system through multiplexer boards mounted in the controller panels. Through this connection and the open PlantWeb® automation architecture of Emerson, the software becomes an online application. It is able to continually capture information generated by the HART-compatible measurement and analytical instrumentation and control valves without interfering with the control system's I/O signals. People making decisions affecting the enterprise have access to this field-based information across the entire process automation network.

Mill personnel are able to communicate directly with control system instrumentation in a way never before possible, obtaining critical field-based data that is organized into an asset management database. This information can be used to verify instrument and loop integrity during commissioning, streamline routine maintenance tasks such as instrument calibration, monitoring the condition of operating instruments, and troubleshooting devices suspected of malfunctioning.

"Since the software is installed in a PC in the TMP configuration room, it is easy for a technician to change the configuration of a field device, and then turn around and check that configuration on the control console," Simard explained, "all without leaving the configuration room."

Confirming instrument calibration is a time-consuming maintenance activity that must be performed periodically on every field instrument in order to assure efficient operation of the process and to satisfy the requirements of certain regulatory agencies. It can take from one to four hours of a technician's time to test each field device using generally accepted procedures. This amount of time can be reduced substantially, since all of the information required for calibration has been built into each instrument's record in the database during installation. A technician simply locates an instrument to be tested by tag number, and all of the information necessary for calibration testing is readily accessible. The test parameters can then be accurately downloaded to a hand-held self-documenting calibrator, which is taken to the field and attached to each device in a predetermined sequence.

Calibration testing and adjustment proceed as before, and when complete, the technician returns to the maintenance shop, attaches the calibrator to the PC once more, and instantly uploads results to the asset management database. This data transfer is fast, error-free, and easily accomplished. The results for each instrument tested are archived with all the other maintenance information.

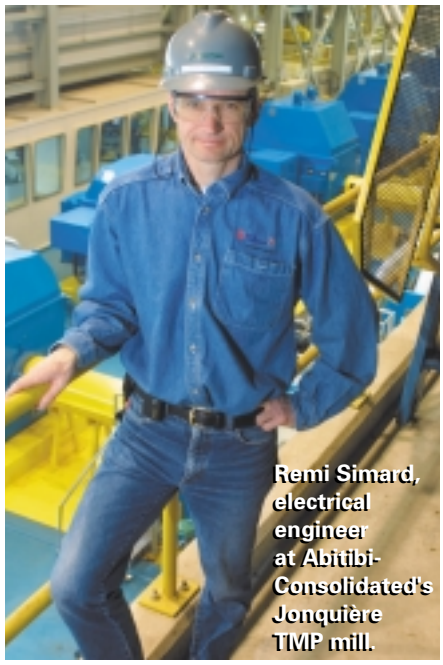
Perhaps even more valuable is the ability of the software to continuously monitor the condition of all smart instruments on the network and provide early warnings of deteriorating performance. Technicians can then evaluate the condition of an instrument and predict when maintenance will be required to avoid serious problems with the pulping process. All such events are documented, so a history is available if needed for analysis at a later time.

Currently, the software is used at the Abitibi-Consolidated TMP mill in Jonquière to determine the true condition of devices suspected by mill operators of substandard performance.

This is, said Simard, "the first tool we use to examine the operation of any field device. Every smart device provides important performance information, which a technician can use to check on any specific instrument."

For example, technicians using the software can determine the exact position of any of the mill's 150 Fisher valves equipped with digital valve positioners. In the past, when an operator was not sure of a valve's position, a technician would go into the field and look at the positioner as a means of checking, but the asset management software provides that same information much more easily.

"In the beginning, we did not trust the software because the technology was new for us," Simard said. "If an operator thought a valve was not open but the software indicated it was, the technician went to the field, located that valve, and confirmed its position. Now, if the valve is supposed to be 50% open, the software might show it at 49.99%. It is that accurate. We now trust the software completely because it tells us right away whether or not a valve is functioning properly."



Remi Simard, electrical engineer at Abitibi-Consolidated's Jonquière TMP mill.

It is also possible to preset an instrument alarm to indicate deviation from a given parameter. For example, an alarm can be initiated if a valve position is off from its setpoint by just 2%.

"We use the asset management software at least once a week to verify an instrument's operation in response to an operator's concern," Simard said. "If an actual problem occurs, steps can be taken to correct the condition before it becomes serious enough to shut down production or impact quality. That is how the predictive maintenance software continues to save us time and money." **P&PC**

AMS predictive maintenance software was supplied to the Abitibi-Consolidated mill at Jonquière by Laurentide Controls of Montreal, the Emerson representative in eastern Canada.