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## GATINEAU PULP MILL UPGRADE, CANADA

US pulp and paper producer Avenor finalized a long-running upgrade at its Gatineau mill in Ottawa, Ontario, by installing the first commercial Foundation Fieldbus system with a device-based control. The installation of such a system was the first device-based control enabled by this fieldbus technology. The company is one of North America's largest suppliers of post-consumer recycled content newsprint, a significant exporter of market pulp and one of the largest suppliers of uncoated freesheet to the Canadian market.

The incentive to innovate the mill's former system was based on the company's belief that the new technology looked promising and offered control advantages. Furthermore, being a new system which no other commercial company had yet used, the investment would allow Avenor's management to get a headstart on how to make the system work for them.

### FIELDBUS PLANTWEB BUILDER

The Gatineau mill started up successfully in August 1998 using a kraft pulper automation solution. This incorporated the use of FR's PlantWeb field-based architecture along with Foundation Fieldbus.

The new Fieldbus PlantWeb Builder incorporates a number of products that adds Foundation Fieldbus capability to PlantWeb's field-based architecture. These products include measurement and analytical instruments, valves with digital controllers and actuators, a scalable control system with integrated asset management and implementation support services.

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**Map showing the location of Gatineau near the Canadian city of Ottawa in Quebec.**

## TECHNICAL COMPONENTS

By installing the complete system from a single supplier, the Gatineau mill has been fitted with Fisher-Rosemount Systems DeltaV scalable process control system with integrated asset management capabilities, as well as conventional I/O for existing transmitters, Fisher Controls Fieldvue DVC5000f Series digital valve controllers, Rosemount Model 3051 pressure transmitters and Model 3244MV temperature transmitters, AMS integrated Asset Management Solutions software, and implementation services from certified Fisher-Rosemount fieldbus system integrators.

Under the new system, PID control algorithms running in transmitters and digital valve controllers that are part of the PlantWeb architecture control some areas of the mill's pulping processes. A number of other control functions, which include consistency control on the kraft pulper and storage tank, were provided using a mixture of conventional and fieldbus I/O in the DeltaV system.

Level, temperature and pressure transmitters were commissioned and then installed. These communicated on two different fieldbus segments, including device-based control. The whole process was completed in a matter of minutes. This then enabled Avenor to accelerate the schedule for some start-up tasks, as well as switching the old process to the new system without interrupting ongoing production.

## PROJECT SUCCESS

Avenor stated that, in its initial stages, the true measure of effectiveness and success of the investment is difficult to quantify, especially with regards to the major operations and maintenance improvements. However, installation and start-up benefits were said to be noticeable.

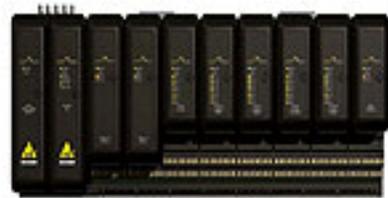
The new system of architecture significantly lowered wiring costs compared to traditional methods and

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**Fieldbus I/O card.**

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**Fieldbus technology.**

instrument checkout was completed in a very short time. Avenor estimated a 90% reduction in required commissioning time.

Installation of the fieldbus components was reported to be both quick and easy, as was the commissioning process and getting the components on control. Further benefits of the system included the potential to eliminate unscheduled downtime by using the advanced valve diagnostics through fieldbus.

The system's PlantWeb Builder feature was designed to supply control of the system anywhere in the mill. As the fieldbus devices use a common set of function blocks it enables control strategies to operate the same way for either a transmitter valve controller or host system. Combined with DeltaV's drag and drop configuration, users were able to design a control strategy and put the control functions where they will perform the best.

## **INTEGRATED ASSET MANAGEMENT SOLUTION (AMS)**

Finally, the Integrated Asset Management Solution (AMS) capabilities permitted users to perform wiring checkout and device configuration from the control room or other location without having to send a technician into the specific area. Furthermore, the system ensures that problems are detected before they become serious.



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**Previous work had been done on the site by Lavigne & Baril.**

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**The emergency basin was installed in 1995.**

**SPECIFICATION**