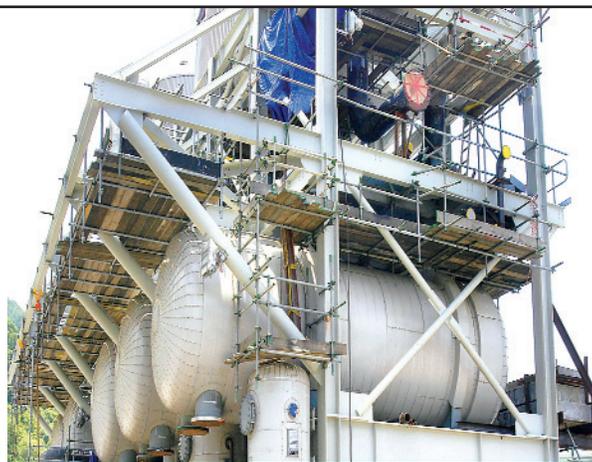


# Alcan realizes significant benefits using Emerson's PlantWeb® Architecture with FOUNDATION fieldbus™ technology



## RESULTS

- 30% savings in engineering & termination costs
- Significant reduction in labour, installation and commissioning costs
- Time to engineer, wire & test DCS cabinet reduced by 35%
- Time to assemble & pre-commission facility reduced by 25%



## APPLICATION

Bauxite to Alumina Refining.

## CUSTOMER

Alcan Gove, Nhulunbuy, Northern Territory, Australia and Alcan Engineering, Brisbane, Queensland, Australia, wholly owned subsidiary of Alcan International, a world leader in bauxite and alumina.

## CHALLENGE

The scope of the expansion project (G3) included 6,600 FOUNDATION fieldbus devices, 1,100 Profibus DP devices, 510 control/on-off /motorized valves, 275 variable speed drives, 15 new substations with HV/LV protection & interlocks with 100 Profibus DP devices and 3,000 conventional devices contained within large process facilities to increase the production of alumina from 2.2 to 3.8 million tons per annum.

The project had a very aggressive execution schedule with severe restriction on the number of on-site construction workforce.

***“Thanks to FOUNDATION Fieldbus - we achieved 30% savings in engineering (e.g. loop drawings, cable schedules etc.) and realized significant reduction in labour, installation and commissioning costs. Also the future management of technical documentation will be far easier.”***

**Manoj Pandya**  
Manager - Alumina Projects  
Alcan Gove

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The G3 scope also had a mixture of green-field and brown-field units operating in series and parallel that had to be integrated into a single operator console system.

Alcan's challenge included balancing the capital cost, minimizing the number of construction personnel on-site, integrate the green-field and brown-field facilities without affecting current operating facilities whilst achieving project budget, schedule and quality.

### SOLUTION

To meet this challenge, Alcan decided to expand using the Pre-Assembled Module (PAM) concept. This included a fabricated plant unit complete with concrete foundation, ground level equipment and fully tested E&I installations which were built off-site, pre-commissioned and shipped to Gove. The PAM concept enabled all modules to be built off-site in Thailand and Vietnam. Alcan chose Emerson to provide DeltaV™ control system with AMS™ Device Manager to assist with developing Fieldbus design & documentation standards and implement pre-commissioning methodologies.

Basic function tests, such as valve stroking were carried out at the PAM yards which ensured the quality of installation and the performance of the Fieldbus segments. By using DeltaV and AMS Device Manager to pre-commission FOUNDATION fieldbus devices, Alcan significantly reduced man-hours on-site and experienced substantial savings in labour costs. For example, on-site work for the first facility required installing 12 fieldbus trunk cables to be connected between the DCS and the PAM.

Alcan used Rosemount® 848T & 848L transmitters to optimize the wiring and to reduce number of transmitters for measurement of winding/bearing temperatures for pumps & agitators and pneumatic auto-rodding systems.

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Printed in Singapore.



***“We are not just installing  
Fieldbus, we are moving towards  
diagnostic based maintenance  
practices.”***

**Greg Daniels**  
Control Systems Leader  
Alcan Gove

Alcan also used Emerson Fieldbus engineering expertise to assist with the planning, pre-commissioning, and systems configuration.

According to Manoj Pandya, “The delivery and performance of I&C for the G3 expansion project could not have been met the conventional way.”