CUSTOMER CASE STUDY

Syncrude Canada uses the PI System™ to optimize maintenance, modernize business processes

Syncrude Canada
Partner - Dexcent
Industry - Metals Mining & Materials

Challenge

- Save $20 million in maintenance costs

Solution

- Reduced in-the-field incidents by 85%

Result

- Allowed for remote monitoring of operational processes

Syncrude Canada is one of the largest operators in Canada's growing oil-sands industry. The company prioritizes equipment uptime and preventative maintenance to avoid costly downtime when one of the 136 heavy haulers in its fleet needs to be taken out of service for days or weeks. The weather in northeast Alberta makes this easier said than done; temperatures range from -30°C (-22°F) in the winter to 35°C (95°F) in the summer. The oil sands are frozen solid in the winter and melted and sticky when it's warm, and both conditions lead to equipment failures and increased maintenance. Thanks to the PI System, Syncrude Canada is able to monitor its fleet and alert its team to potential issues before they happen, enabling the company to shift from reactive to proactive maintenance.

Stressing the system to prepare for extreme conditions

Syncrude Canada has collected data from its haul trucks since the mid-1990s but, until recently, still used spreadsheets to analyze large sets of data from those trucks. But the process was too cumbersome and effort-intensive to generate timely information. In 2014, the company partnered with Dexcent to create its Mobile Equipment Event Synthesis solution to support tracking, analysis, and reporting of mechanical events on Syncrude Canada's equipment. The PI System processed large amounts of data quickly and sent proactive alerts about potential issues.

The project team intentionally overloaded the system at first to ensure that it could meet the fleet's demands once it was fully up and running. It also accounted for trucks moving in and out of coverage in remote locations throughout Alberta. The rigorous testing provided assurance for business stakeholders that the new process would meet their needs and help them move away from old ways of doing things. "We had to ensure that the business trusted the results," said Kyle Gogolinski, a team leader in process control and automation at Syncrude Canada. "That was the only way they were going to give up their spreadsheets."

A robust pilot project with an unexpected use case

As part of its rigorous testing plan, Syncrude Canada and Dexcent designed dozens of use cases that spanned multiple systems and the functions those systems complete – everything from engine failure to improper loading procedures. All the tests were successful, and the average CPU usage was 25%. Even when staff simulated a 72-hour network outage and then brought everything back online all at once, the PI System kept up with both catch-up and active processing.

Along the way, Syncrude Canada and Dexcent also discovered that the PI System could help monitor employee practices in addition to system performance. The safety team raised a concern during the pilot phase: operators were not following proper dumping procedures and were putting themselves and the equipment in harm's way as they dropped a 500-ton load and the truck slammed to the ground. The project team mapped the correct event sequence and added it to the PI System so the team could track when proper procedures were not followed and quickly notify the appropriate people. In the end, Wright described the use case as a no-brainer and one that definitively showed that the PI System could be used to monitor processes as well as assets.

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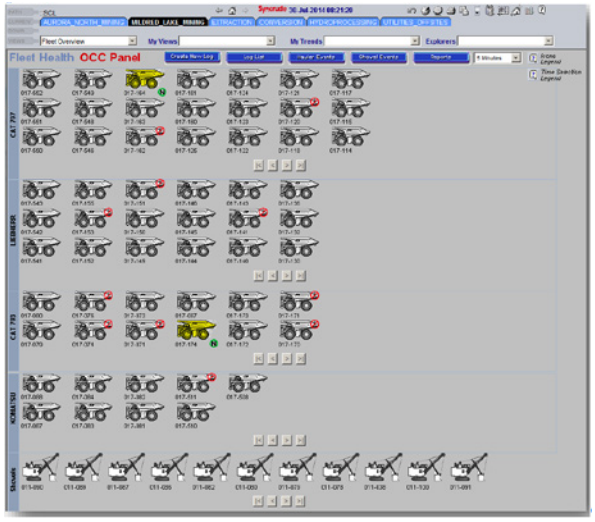
> **Kyle Gogolinski,**
> Team Leader in Process Control and Automation, Syncrude Canada



Syncrude Canada uses the PI System to track its heavy equipment spread throughout remote areas of Alberta, Canada, and receive notifications and alerts about equipment issues before they occur.

Mission accomplished in cost savings, increased efficiency

Syncrude Canada ended up with more than 6,600 data points from 131 trucks and five shovels coming from both critical and cumulative event escalations. Notifications and alerts were integrated with the company's existing monitoring platform. The result was a $16.75 per hour savings on each unit, or more than $20 million in maintenance-cost avoidance. The company also saw an 85% reduction in dumping incidents during the first month of production as a result of better process monitoring.

One example of the new processes in action occurred when one of the company's trucks experienced a major engine failure between the pilot and production phases. It was too late to do anything for that specific incident, but analysis showed that the PI System would have triggered a notification of engine-injector failure and an alarm signaling engine-oil dilution. Both of these signals would allow the team to take appropriate maintenance steps before the engine failed completely – saving the $1.2 million associated with replacing an engine.

In the end, Syncrude Canada was happy to say "Mission accomplished" when it came to maintenance and monitoring. "Syncrude was able to effectively leverage our reliability knowledge base by transforming reactive, time-intensive forensic data reviews into automated, near-real-time event synthesis and creation," Gogolinski said.

For more information about Syncrude Canada and the PI System, watch the full presentation here.