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Plugging into reliability

By **G. ALAIN MOORE**
Upgrader

Upgrading's electricians are learning to use a new computer-based tool to monitor the condition of electrical motors. From the front: Crayton Sorenson (left), Stu Mugford (instructor from Kadon Motor Services) Mark Arsenault. From the back: John Fidder (left) and Pat Buis.

At first glance, the device merely looks like a silver briefcase with a laptop computer that's taken out into the field by Upgrading's maintenance crews. But the MCE/Emax (motor circuit evaluator) housed in the briefcase-shaped box is serving a special purpose of providing a peek at the condition of electrical motors throughout Upgrading.

That knowledge is helping electricians like **Gord Pederson** to determine whether the motor is showing telltale signs of failing in the near future.

"The beauty of this machine is it enables you to trend," he said. "This helps in tracking the readings. Changes in trends are a powerful tool in analyzing the current condition of a piece of machinery."

So as those readings of a particular motor deviate from previous data, Gord and other electricians can determine whether the motor would fail in the near future.

The reliability team is busy documenting the status of about 340 electrical motors throughout Upgrading. Doing that will provide a valuable baseline they'll be able to measure against in the future. Before this device, it was common to run the motors to failure because there was no device available to predict imminent failures and/ or the ability to trend motors.

They had to rely on Vibration Analysis and "hunches" based on years of experience to decide when to pull a motor for service.

"Now we can do the testing right where the machine is sitting whether it's running or not," he said. "We don't have to ship it off to a shop unless we know there's something wrong."

The MCE looks at the electrical integrity of the motor including the condition of the windings and insulation and does a very good job of assisting analysis while the machine is running. Three years ago, Gord heard about similar technology being used in other Syncrude departments. He learned more about the idea and eventually helped to get a pilot project for Upgrading.

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Quick and effective response to small fire

By **G. ALAIN MOORE**
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A quick and effective response is being credited for the successful resumption of production from one of Upgrading's two Cokers after a small fire caused a temporary shutdown in late April.

On April 18, a leaking pipe in Coker 8-1 caused a small blaze that was put out within seconds thanks to two process technicians who were at the scene, said Coker operations leader **Doug Lovegrove**.

"Our efforts in improving reliability and plant integrity is about avoiding these types of incidents in the first place," he said. "But everybody involved reacted promptly and properly to the incident. You couldn't have asked for a better job."

Those textbook reactions started with extinguishing the fire but also include safely shutting a unit down, repairing the leak and returning the Coker to full production within two days.

"There's always the possibility you can't bring the unit back up right away," said Doug. One challenge is when the unit is idle, coke, a coal-like by-product, can spall off the walls of the reactor and interfere with the unit's circulation.

"But process, mechanical and technical personnel worked together and got it back up a running despite those challenges," said Doug. "That's a lot of quality work being done in a short period of time."

The strong response should boost the department's confidence that it can deal with these types of incidents, said Bitumen Conversion manager **Tony Mankowski**.

"Fortunately when these events happen, this shows we're certainly very capable to respond to them in an effective manner."

Unfortunately, one employee suffered a sprained ankle and cut to his forehead when he fell during the start-up procedures for the Coker, which converts molasses-like bitumen into crude oil.

"In a busy time like this, we have to take the time to examine the job we're doing to eliminate any risks," said Tony. "The safety of yourself and others should be your primary concern."

The injured process technician was back to work on modified work duties after a couple days of healing.

The focus is now on a steady operation of the unit until the scheduled turnaround starting in mid May.

Doug added an investigation is in progress to determine what caused the leak. "The piece of pipe that failed is in for failure analysis. We want to know why it failed so we can prevent it from happening again."

New tool providing lots of insight into motors

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"We wanted to try it and see how it would work and whether it was something we could implement in our preventative maintenance system – obviously we decided we can."

But Gord's been on a continual learning curve for the last 18 months as he explored the intricacies of using the MCE. He's now seeing the project grow in size and acceptance in the department because he's been able to show that it works.

"People are starting to see we have some value-added data here," he said.

In April, a couple dozen Upgrading electricians took a course on how to use the device in a practical setting. One of the biggest benefits from that data is the fact it can help in planning ahead, according to **Rick Kish**, E&I Technology team leader.

"If we understand the condition of the equipment, we're better able to plan ahead and take equipment off in a controlled fashion rather than have it fail unexpectedly," he said.

"Knowing the condition of our equipment allows us to maximize its availability to ensure it is capable of providing us with the service we need to achieve our production targets."

But this technology isn't going to replace the need for regular preventative maintenance on the motors to ensure their reliability.

"Preventative maintenance and the need to do it will never go away," said Rick. "The MCE is another tool the Plant Integrity team has at its disposal."

An analogy is still bringing your car in for an oil change despite your mechanic also using the latest diagnostic tools. The idea of monitoring of Upgrading equipment with the help of technology isn't new. The Rotating Machinery Team follows a similar approach by monitoring vibration on pumps and other machinery.

Plus the two teams have found some common ground with Gord helping his colleagues out with occasional tests on rotating machinery. And seeing the use of this tool expand been a big boost for Gord. "It gives you a sense of accomplishment. You can actually see the results from your efforts."

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