

Rumpelstiltskin revisited

Intermec helps Syncrude turn sand into (black) gold

By John Burnell

Syncrude Canada Ltd. is a modern-day Rumpelstiltskin. Instead of spinning gold from straw, Syncrude makes black gold from sand. Working with resources millions of years old and the latest mobile computing technology, Syncrude produces 230,000 barrels of crude oil a day from the sand at its massive operation in Fort McMurray, Alberta, Canada.

Syncrude's headquarters are in the midst of the Athabasca Oil Sands Deposit, which holds five times more oil than all of Saudi Arabia and could satisfy the world's petroleum demand for the next 15 years. Extracting oil from bituminous sand requires mountains of materials. Syncrude uses Intermec for materials management applications to deliver what's needed anywhere in the 64-square-kilometer (40-square-mile) operation.

With seven warehouses, nine tool cribs, numerous other facilities, 4,000 employees and 1,000 contractor workers, the Syncrude operation is like a city unto itself in remote Alberta. The challenging weather, production demands and remote locale require self-sufficiency, which places strong demands on Syncrude's materials management system. Putaway, storage, picking and delivery operations have all been automated over the years, with Intermec equipment processing thousands of transactions each day.

"We stock everything needed to run a huge mine and keep 4,000 people working," said Syncrude's Dwight Cain, who worked on the company's first bar code application nine years ago. Since then, Cain has worked with Intermec to develop receiving, stocking, cycle count, tool crib and other

applications. Syncrude recently automated its internal delivery process, using latest-generation Intermec® Model 720 mobile computers.

Delivering Where No One Else Does

Syncrude delivery personnel often travel more miles in a day than commercial express parcel couriers to fulfill hundreds of material orders. "It's quite a bit like what FedEx or Purolator Courier would do," Cain said. "It can take our people 40 minutes to drive from one location to another, so we need to be very efficient."

When making deliveries, workers use the 720 to scan bar code labels on the materials being delivered to record the inventory transfer. Once all the items are scanned, a checklist on the terminal alerts the driver if any items for the order were missed, an important feature because it avoids having to make long drives back to warehouses to complete orders. Once the order is reviewed and approved, the driver captures the recipient's signature directly on the 720 screen for proof of delivery and issues a receipt from an Intermec Model 7820 mobile printer. While on their routes, drivers can also pick up items on the fly, capture those transactions, and deliver those items to the desired destination. "Signature capture has been really helpful," Cain said. "It used to be that packages would be missing after delivery. Signature capture has saved a lot of time in tracking lost packages."

Delivery personnel previously used mobile computers on their routes, but have improved productivity since switching to the 720s. Drivers dock their computers at delivery locations three to five times a day to receive additional assignments and update inventory records. Docking transfers that previously took a couple minutes now are completed in 10 to 15 seconds. Productivity also has been enhanced because the Microsoft Windows Pocket PC operating system almost never crashes and can be rebooted in seconds, a major improvement over the previous operating system.

Delivery personnel dock their computers since real-time wireless is not an option because of the size of the area to be covered and the sensitivity of wireless safety and control equipment in the mines. Syncrude makes extensive use of wireless networking at its warehouse facilities and currently is migrating from 900 MHz to 2.4 GHz OpenAir wireless technology and MobileLAN™ 2100 access points.

Workers praise the ergonomics of the smaller, dramatically lighter 720.



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Warehouse Operations

Syncrude operates seven major warehouses and nine tool cribs holding 90,000 line items, ranging from copier paper to components for 320-ton Caterpillar earth-moving trucks. All incoming materials receive a bar code stock label produced on an Intermec EasyCoder® 3400 printer, which has given Syncrude outstanding performance in the dirty, high-volume environment.

"A colleague and I have one printer that we've used since we first started to get into bar coding in 1994," Cain said. "It has probably printed a label for everything in our facility a couple of times. This unit has printed several miles of labels and all we've ever done to it is pop in new materials. We haven't even changed the printhead."

After incoming materials are labeled, they are placed into storage and recorded with a variety of Intermec wireless computers. The most widely used computer is the Model 6400 handheld, with Model 2435 handheld and Model 1700 truck-mounted units also deployed. Original computers and network equipment continued to perform reliably until they were removed to make way for newer models with improved features and ergonomics.

"The original 3400 printers and 900 MHz equipment are still in service and work great," Cain said. "The wireless system never caused down time. In fact, the 900 MHz system has never gone out of service and was the only thing that worked when our network went down."

All the mobile computers run Syncrude's proprietary materials management software applications, which Syncrude wrote in-house and continually upgraded over the years. The application and wireless interface directs all putaway and picking operations, gives users immediate responses to item inquiries and enables immediate problem resolution.

Strong ROI

Cycle counting is the most valuable application that Syncrude developed. "This is the biggest time-saver we've built into the system and it has justified the cost of the whole project."

Previously, cycle counting was performed manually by counting items and keying in the information on a PC. The computer then would generate a report, often 50 pages long, that then was compared to the physical count. "If there was a discrepancy, we would have to print a new report, recount the inventory, rekey the count, then print a new report," Cain said. "Now, the count, recount, problem-report process can be handled right from the handheld. Thousands of pages of paper are now *not* printed and we can reasonably do 1,000 counts a day when it used to be only 300 to 400 counts a day." The system is so accurate that inventory counts for each item are only done once a year.

Bar code identification has brought similar benefits to Syncrude's tool crib management, which processes 1,000 transactions a day. A metal tag with a serial number bar code is permanently applied by epoxy to tools and equipment. Employees sign out needed tools and enter them back into inventory by scanning their bar-coded ID badges and the symbol on the tool.

In all, Syncrude records thousands of transactions every day with Intermec bar code scanners and wireless computing equipment. From the time Syncrude started with bar coding, it has continually sought new ways to take advantage of the technology. After investing strongly to improve processes and technology, Syncrude improved its return on capital to an impressive 25.7 percent last year, the fourth time in five years the company has topped 20 percent.

"There was a groundswell to move from paper signatures and documents because the task of records management was huge," Cain said. "We had file cabinets full of back-up material. By converting from manual processes, we would be able to eliminate a lot of paper. We could go further with the automation—automate manual processes and remove manual paperwork—if people trusted the technology."

The performance and reliability of Intermec equipment has helped build the user trust that allows Syncrude to continually expand and update its applications. Syncrude doesn't have a magic spinning wheel to turn straw into gold, but it has its own bit of magic: "I'm very confident in Intermec equipment," Cain said. "It has been so reliable over the years that my expectation has become that it is always up and running." ▮

John Burnell is principal of Burnell Reports, a communications and consulting firm serving the data capture and mobile computing industries.

Resources:

Syncrude Canada Ltd: www.syncrude.com | Intermec 720 mobile computer, EasyCoder® 3400 printer, 7820 mobile printer, 6400 and 2435 handheld computers, and 1700 vehicle mount computer: www.intermec.com