



# MEDIA COVERAGE

## PUBLICATION PROFILE

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<b>Publication</b>	Engineering and Mining Journal
<b>Type</b>	Mining industry magazine
<b>Profile</b>	World Mining Equipment features technology and equipment news and mining applications.
<b>Readership</b>	Mining industry
<b>Country</b>	United States
<b>Date</b>	July/August 2006
<b>AEV</b>	\$53,130
<b>Reach</b>	21,514
<b>Frequency</b>	Bi-Monthly

## STORY PROFILE

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<b>Headline</b>	Sudbury's Suppliers Reach Buyers Beyond the Nickel Market
<b>Sector</b>	Mining
<b>Focus of Article</b>	The merger and acquisition battles involving Canadian nickel miners Inco and Falconbridge have drawn industry and media attention to Ontario's Sudbury mining district, where both companies have major assets and deep historical roots.
<b>Coverage the result of</b>	GO North media mining tour – Sudbury and North Bay

# Sudbury's Suppliers Reach Buyers Beyond the Nickel Market

By Russell A. Carter, Managing Editor

The merger and acquisition battles involving Canadian nickel miners Inco and Falconbridge (see *Leading Developments*, p. 4) have drawn industry and media attention to Ontario's Sudbury mining district, where both companies have major assets and deep historical roots. Recently Inco, eager to promote the potential efficiencies offered by its proposed friendly acquisition of Falconbridge, conducted a tour of Sudbury Basin mine and plant operations for about 60 investors and analysts to illustrate how its "one-mine" concept could conceivably generate up to \$550 million annually in synergistic value within two years after acquiring Falconbridge's Sudbury properties.

Mining is big business in Ontario. In 2005, mineral exploration, development and production from its 14 base metal mines, 12 gold mines, PGM mine and more than a dozen industrial mineral operations contributed slightly less than \$8 billion to the province's economy and directly involved an estimated 22,500 employees. And, Ontario's Sudbury basin continues to be one of the world's most prolific mineral districts, having produced more than 21 billion lb of nickel and 21 billion lb of copper

to the end of 2002. Inco's facilities in the Sudbury district include the Coleman/McCreedy East, Copper Cliff North and South, Creighton, Frood-Stobie, Garson and Gertrude mines; the Clarabelle mill; and the Copper Cliff smelter and refinery. Mill production in 2005 totaled 96,673 mt of nickel-in-concentrate, 117,618 mt of copper-in-concentrate, and 3,259 mt of cobalt-in-concentrate. Falconbridge's local assets include the Craig, Fraser and Thayer-Lindsley mines, the Strathcona mill and the Falconbridge smelter. Last year's mill output totaled 19,708 mt of nickel-in-concentrate, 23,367 mt of copper-in-concentrate, and 354 mt cobalt-in-concentrate. Inco employs approximately 6,400 workers in the district; Falconbridge, about 1,500.

The city of Greater Sudbury recently celebrated 100 years of local mining activity, an accomplishment that looms much larger considering that the community survived—and has largely recovered from—severe environmental damage caused by logging, wildfires and toxic smelter emissions from earlier operations; and also weathered a slump in the nickel industry that lasted, with only intermittent upticks,

from the mid-1970s to the end of the 20th century. Today, in addition to being a source of expertise and innovation for hardrock mining techniques and equipment, Sudbury has become northern Ontario's regional center for educational and governmental services.

As an example, Laurentian University, located in Sudbury, was recently chosen to host a newly established Center of Excellence in Mining Innovation (CEMI) by the Ontario Mineral Industry Cluster Council, an advisory body created in late 2003 by the Ontario government to seek ways to capitalize on the benefits of a "cluster" approach for developing the mineral sector. CEMI's advisory board has developed a five-year plan and has identified \$25 million worth of research that the industry is interested in pursuing, primarily in the areas of deep mining research, integrated mine process engineering, telerobotics and automation, and the environment.

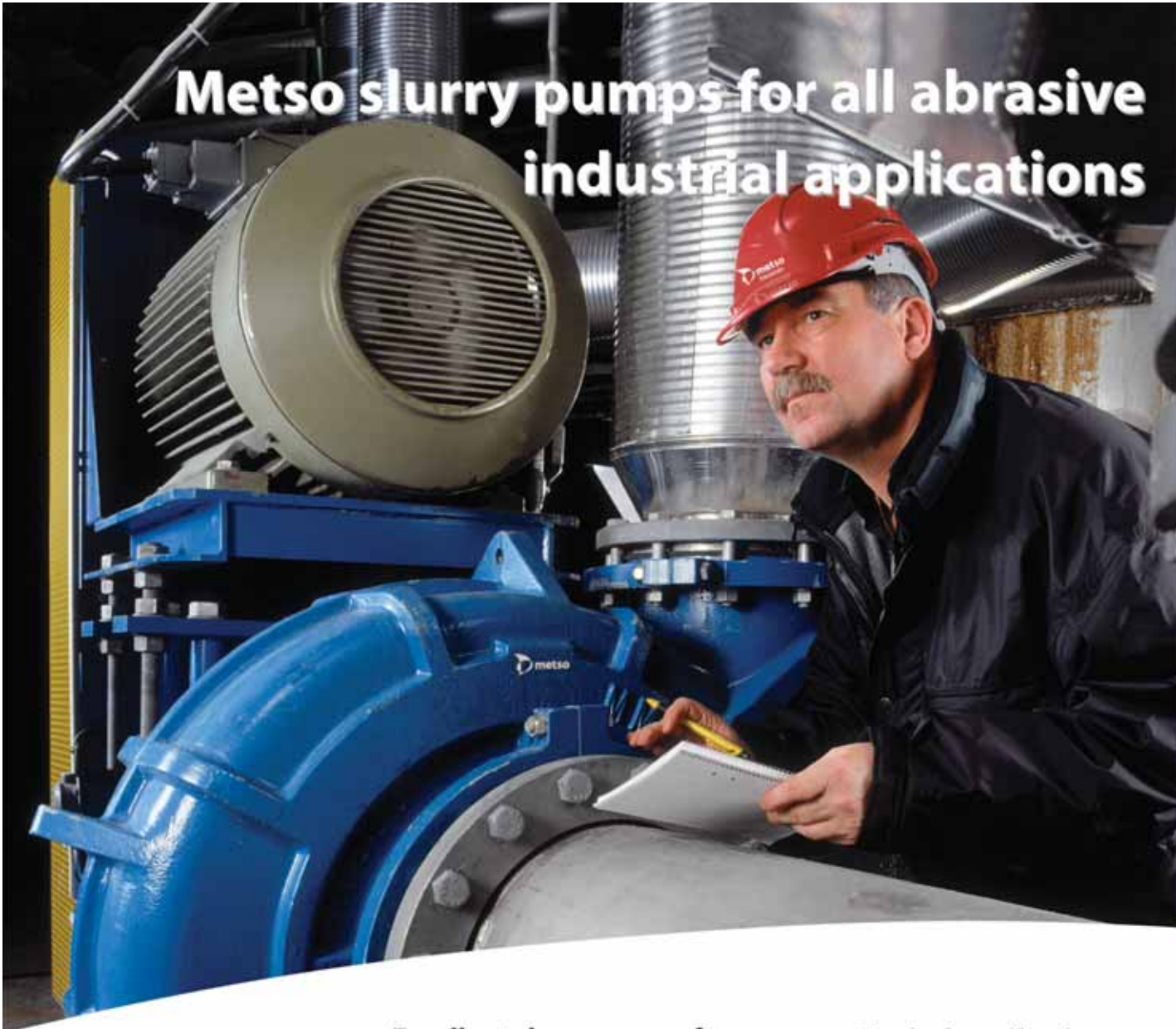
The Sudbury area and the university definitely fulfilled the "cluster" criterion, according to John B. Gammon, director—mining initiatives at Laurentian. Research organizations already established in the region include the Mining Innovation, Rehabilitation and Applied Research Corp. (MIRARCO), the Mineral Exploration Research Center (MERC), the Canadian Mining Industry Research Organization (CAMIRO), Natural Resources Canada's Center for Mineral and Energy Technology (CANMET) laboratory, the Northern Center for Advanced Technology (NORCAT). And, a surprisingly large number of small and medium-sized mining service and supply enterprises scattered throughout the area.

The M & A fray involving Inco and Falconbridge overshadows the fact that the Sudbury area, in addition to its mines and plants, hosts more than 300 companies that provide equipment and services to the global hardrock mining industry. The spectrum of products and services offered by Sudbury's suppliers and those of its nearby friendly competitor city, North Bay, range from everyday consumable items to complete mine construc-



In addition to manufacturing a wide line of underground loading and haulage equipment, Sudbury, Ontario-based MTI also produces tunneling and shaft-sinking equipment such as the shaft jumbo rigs shown here.

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tion. Many products from these suppliers were conceived, developed and/or tested in Sudbury Basin mines.

Recognizing the Sudbury Basin's importance, major global equipment suppliers such as Atlas Copco, Boart Longyear, MTI, Sandvik Mining & Construction and others have located factories, assembly plants and/or large warehouse and distribution facilities in the area. Several well-known mine development, engineering and construction firms also are headquartered or have main offices in the Sudbury/North Bay area, including JS Redpath Ltd., Cementation Canada, and McIntosh Engineering.

However, the majority of mining-related businesses in the area are smaller enterprises that survive—and in some cases, thrive—by serving specific needs and specialized niches of the industry. During *E&MJ's* recent tour of the region's mining suppliers, the most common characteristic of these companies seemed to be a knack for understanding the methods and problems involved in underground mining, and the ability to develop specialized products in response.

As described in last month's issue (see *E&MJ*, June 2006, "The Color of Safety," p. 46), **Jannatec Radio Technologies** ([www.jannatec.com](http://www.jannatec.com)) has advanced the concept of its innovative cap-lamp design to include Safety Trak, a Jannatec-developed system that uses a mine's leaky feeder radio communications system to identify and track miners by computer whenever they use their two-way radio. Safety Trak is designed to function as a wireless lifeline for miners working alone in remote areas of underground mines, and can be



Marcotte Mining Machinery's M-10 personnel carrier.



Carriere Industrial Supply supplies aftermarket LHD and shovel buckets, as well as wear products and kits. Shown here is a new bucket for a Komatsu PC4000 hydraulic excavator.

expanded to include a number of additional safety-related functions. The system has been installed in several of Inco's Sudbury Basin mines and plans are under way to extend it to all of Inco's mines in the Basin. Other suppliers in this sector include **Hard-Line Solutions** ([www.hard-line.com](http://www.hard-line.com)), which specializes in telerobotic control systems for underground mobile and stationary equipment, and **Varis Mine Technology** ([www.varismine.com](http://www.varismine.com)), which markets the Ranger leaky feeder system for underground communications as well as the Smart Blast remote initiation system for safe underground blasting.

**WipWare Inc.** ([www.wipware.com](http://www.wipware.com)) designs particle measurement and analysis systems. The company's best known product is WipFrag, which uses video analysis and automated edge detection to quantify particle sizes from digital images of fragment samples. According to Tom Palangio, vice president of sales for WipWare, the system takes less than an hour to learn, offers user-friendly features that range from automatic brightness and contrast adjustment to powerful zoom capabilities, and can quickly generate results that can be saved in XML, EML, PDF, JPG or BMP formats. WipWare also offers MailFrag, an online service for prospective customers who would like to "try before buying"; by means of e-mail ([mailfrag@wipware.com](mailto:mailfrag@wipware.com)) or ftp sites, sample images can be sent to WipWare for analysis and results are generally returned in less than 48 hours.

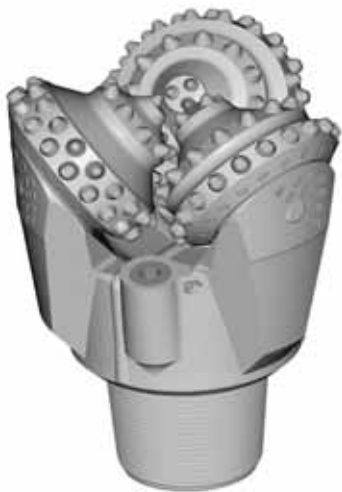
Marcotte Mining Machinery's ([www.marcottemining.com](http://www.marcottemining.com)) new M-10 personnel truck is a rugged four-wheel-drive underground vehicle designed to carry six people in its rear box as well as a driver and front passengers. Powered by a Tier 2-compliant, 100-hp Perkins diesel connected to a four-speed-forward/four-reverse powershift transmission, the M-10 is 14.75 ft long (with bumpers), 74 in. wide and stands 57 in. high without a cab (88 in. with cab). Empty vehicle weight is 9,500 lb without cab or canopy, and payload capacity is 4,000 lb. Maximum speed on flat surfaces is 30 km/h; fully loaded, it is claimed to reach up to 9 km/h on a 20% incline. Options include a Deutz diesel, front and/or rear ROPS canopy, larger box, scissor lift, crane and manbasket. Another Sudbury manufacturer, **Industrial Fabrication Inc.** ([www.ificanada.com](http://www.ificanada.com)), manufactures the Minecat 100PC, TN75 and 806 underground utility vehicles, the compact, cageable Mine Mule and the Load Lifter forklift.

**Bestech's** ([www.bestech.com](http://www.bestech.com)) flagship product is its NRG-1 energy management software. Formerly known as Automated Ventilation Scheduler (AVS), NRG-1 is Web-based software for automatically controlling large energy-consuming assets to achieve significant savings. A prime application, according to Bestech, is underground mine ventilation systems. Typically, mines are ventilated at 100% capacity 24 hours a day, even though actual demand may vary; NRG-1 allows operators to reduce ventilation volume

when demand decreases. The conventional approach for energy savings in this application, says Bestech, places controllers on main fans to turn them off or down at periods of reduced activity, as well as PLCs to sequence/schedule fan operation and HMI software to create flexible scheduling. NRG-1's more efficient solution, according to Bestech, uses generic, interchangeable PLCs and controllers on all fans; brings ventilation logic to a high-level interface that allows ventilation technicians immediate access to the ventilation network; and includes open, expandable system design architecture.

**Hurley Ventilation** ([www.thehurleygroup.com](http://www.thehurleygroup.com)) specializes in developing ventilation fans, systems and accessories; as does **Rocvent** ([www.rocvent.com](http://www.rocvent.com)), which also offers high-tech ventilation ducting systems.

North Bay-based **Rotacan** ([www.rotacan.com](http://www.rotacan.com)) manufactures tri-cone roller bits for medium- to large-diameter rotary drill rigs. The company's product line includes bit sizes from 9-7/8 in. to 13-3/4 in. diameter, available in several service grades for applications ranging from soft-rock drilling requiring 1,000 to 4,000 lb per inch of diameter, to very hard and abrasive material requiring 5,000 to 7,000 lb per inch of diameter. Owner Joe Guido said the company currently serves 12 customers in Western Canada and South America and produces 125 bits per month, with plans to eventually ramp up to 400 bits per month. The keys to Rotacan's success, according to Guido, include consistently high penetration rates, prompt product support in the field, and rapid product improvement to match customers' changing site conditions and job requirements.




Rotacan tri-cone drill bit.

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**Carriere Industrial Supply** ([www.steelwear.com](http://www.steelwear.com)) specializes in repairing, refitting and improving LHD and shovel bucket designs, and also carries a wide line of abrasion-resistant wear products, including CTI ceramic linings, for mobile equipment and plant applications. CIS has developed mechanical-attachment designs for LHD buckets that eliminate the need to weld bucket components together underground; heavy-duty buckets made from alloys that

provide longer life than OEM models without additional weight penalties; a long-life cast lip system; and bolt-on liner systems. It recently expanded its plant capabilities to handle shovel and excavator buckets in sizes ranging from 1 yd<sup>3</sup> to 75 yd<sup>3</sup>. Other products include Bucketware and Linerware software programs that enable customers to monitor the performance of wear components. A recent addition to its support capability allows the company to



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provide, via online access, current pricing schedules for its lining parts and materials. The price schedules, along with engineering details, can be viewed through CIS's online portal from any Web site. General Manager Jean-Marc Valade noted that CIS is quite possibly the first company to successfully market its LHD buckets on a cost-per-ton contract basis, and plans to extend that approach to include skips, stationary equipment, truck boxes and shovel buckets.

With a comprehensive mining and tunneling product line, three ISO 9000-certified Canadian manufacturing plants, and an extensive international distribution and dealer network, **Mining Technologies International** ([www.mti.ca](http://www.mti.ca)) can't be considered a small company, but it remains closely focused on its customers' equipment, inventory, and service needs, according to MTI executives. MTI's products include LHDs from 1 yd<sup>3</sup> to 12 yd<sup>3</sup> capacity; in-the-hole (ITH) drills, jumbos and drifters; and, through alliances with other manufacturers, underground trucks (from Dux Machinery), utility vehicles (Arva Industries) and rail haulage equipment (R.A. Warren Equipment). In addition, its consumable products division

sells ITH drill rods, bits and hammers; raise drill steel, heads, cutters and accessories, and blasthole pipe and accessories, while another division markets LHD hydraulic and air cylinders, pins and bushings. One of the company's more innovative products is the Hydracrusher, a mobile hydraulic crusher that can be mounted on the boom of a prime vehicle such as an LHD and will produce 16 t/h (at 1.5-in. CSS) to 95 t/h (at 8-in. CSS) of crushed rock for underground roadway maintenance. The unit measures 64.5 in. high, 105 in. long, 83 in. wide, and weighs 12,000 lb. It uses hydraulic power from the carrier vehicles and can operate at flow rates of 65-100 g/m.

Sudbury-based **Atlas Copco Construction & Mining Canada** ([www.atlascopco.com](http://www.atlascopco.com)) handles four major Atlas Copco lines: construction and mining equipment, Secoroc drill tools, and its compressor/generator and industrial tools products. ACCMC offers a full range of services including after-sales service and spare parts replacement, service contract-based maintenance, oil analysis and predictive maintenance, and simulator-based training for specific AC drill models. One of its innovative services involves place-

ment and exchange of spare-parts "ready boxes" at customers' operations: large transportable aluminum lockers that contain parts, tools, diagrams and instructions for installation of a customer's most frequently repaired/replaced parts. In many cases, parts contained in the boxes are pre-assembled and fitted with necessary bearings. The **Atlas Copco Craelius** facility in North Bay annually generates about C\$75 million from sales of exploration drilling equipment, divided fairly evenly among drill rig, bit and rod production.

**Boart Longyear's** ([www.boartlongyear.com](http://www.boartlongyear.com)) North Bay, Ontario, plant manufactures diamond drilling and percussion drilling products, ranging from the LF230 hydraulic core drilling rig that can drill to depths of 7,550 ft; to the Ezy Lock compact overshot for use with wireline systems. The LF230 rig is equipped with BL's patented Nitro-Chuck—also manufactured at North Bay—which offers an efficient double action (nitrogen gas-spring applied/hydraulically released) for better rod holding and release, a substantial improvement in holding capacity (50,000 lbf for PQ sizes, 30,000 for HQ),

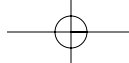
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and uniform gripping force, with the PQ version equipped with seven jaws and the HQ version with five. Also produced at North Bay are an improved pump-in core barrel head designed with dual pump-in seal lips and a new valve that eliminates O-rings; and BL's RQ HP high performance wireline drill rod, which features an innovative thread design and heat treatment to improve mid-rod bend strength.

The names JS Redpath and Cementation are familiar to anyone in the mine development and construction sector. Both Redpath (owned by the German company Deilman-Haniel GmbH) and Cementation Canada (owned by Murray & Roberts of South Africa) have major offices and other facilities in Sudbury, but their market area is global, reaching as far away as Mongolia in Redpath's case and Australia for Cementation Canada.

To date **Redpath** ([www.jsrl.com](http://www.jsrl.com)), which pioneered full-face shaft sinking, has sunk about 72 shafts worldwide and driven more than 520,000 ft of lateral advance. Its capabilities include shaft sinking, mine development, contract

mining, raise boring, mechanized raising, engineering and project management, and mechanical/electrical installations including hoist facilities. As a measure of its global reach, the company says it had to conduct business in eight different languages in 2005. Its targeted market regions are Canada and the United States, Central and South America, and Indonesia and Mongolia. Recent projects include:

- Falconbridge's Montcalm property, located 70 km northwest of Timmins, Ontario, with estimated nickel production of 8,000 mt annually. Redpath's role includes a seven-year mining contract and more than 9,000 m of development and raising,
- Falconbridge's Kidd mine D project, requiring more than 4,100 m of vertical raising and approximately 17,000 m of lateral development. The project is aimed at developing reserves at the Kidd mine below the 6,800-ft level.
- Teck-Cominco Ltd.'s Pogo project 150 miles east of Fairbanks, Alaska, where Redpath was contracted to provide 4,000 m of development, excavation

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and construction of three portals and an ore bin, and additional mine development during early production.

- Ivanhoe Mines' Oyu Tolgoi copper/gold project in Mongolia, involving engineering and construction services, mine hoisting plant and related infrastructure, a 6.7-m-diameter x 1,300-m-deep exploration shaft, and 2.5 km of lateral development.

**Cementation Canada** ([www.cementation.ca](http://www.cementation.ca)) says it is the most active shaft-sinking company in North America, and currently has six shaft projects under way or being set up the region. It specializes in shaft sinking, trackless mechanized development of declines, inclines and lateral drives, Alimak raising (air driven, diesel and electric), raise boring up to 6-m diameter, and pilot raising and slashing. Recent and current projects include a design/build contract spanning six years at the Nickel Rim South mine involving two deep shafts and valued at \$150 million; completion of the Kidd D mine No. 4 shaft; and preparations for sinking two shafts at the Resolution Copper project in Arizona, USA.

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