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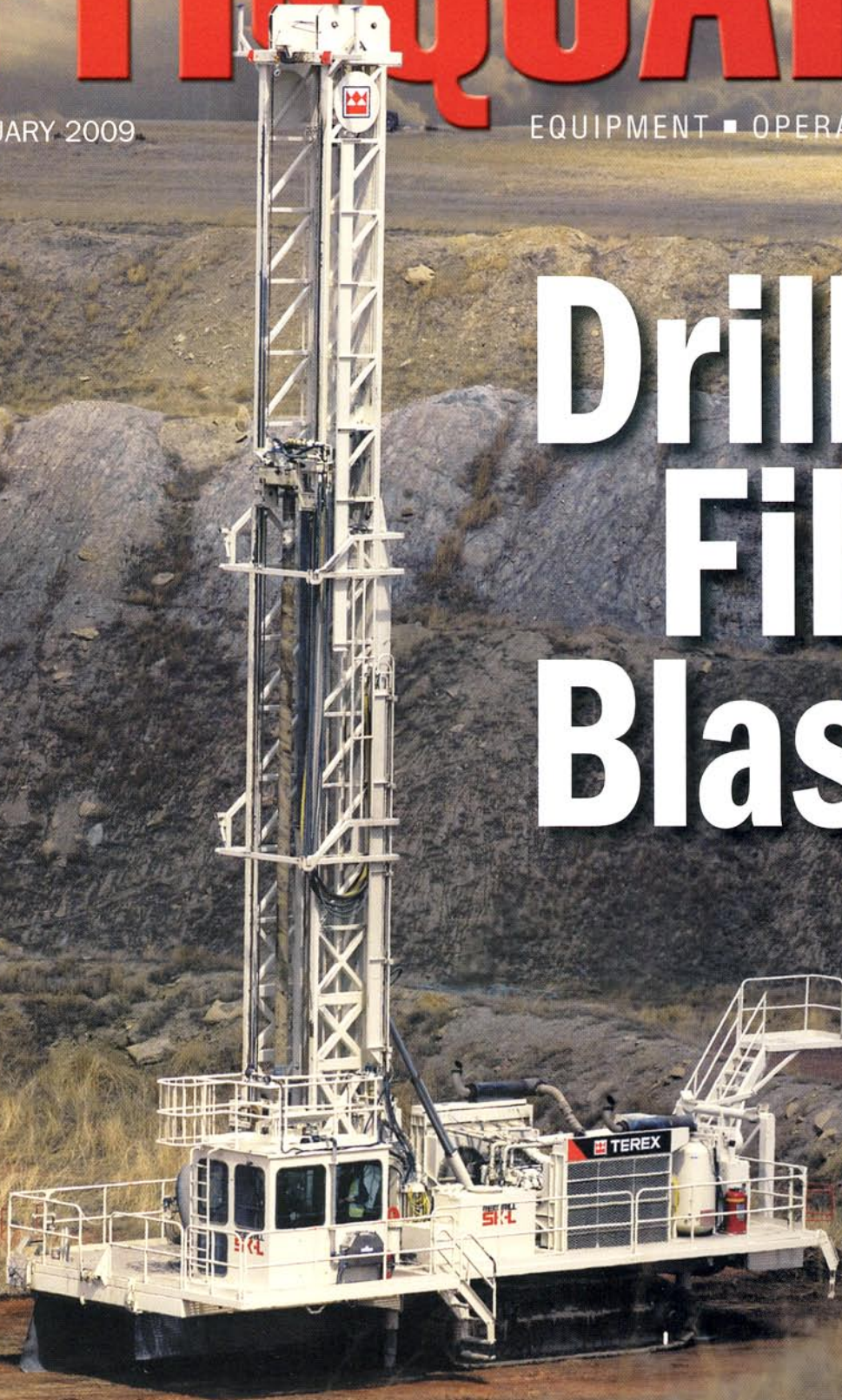
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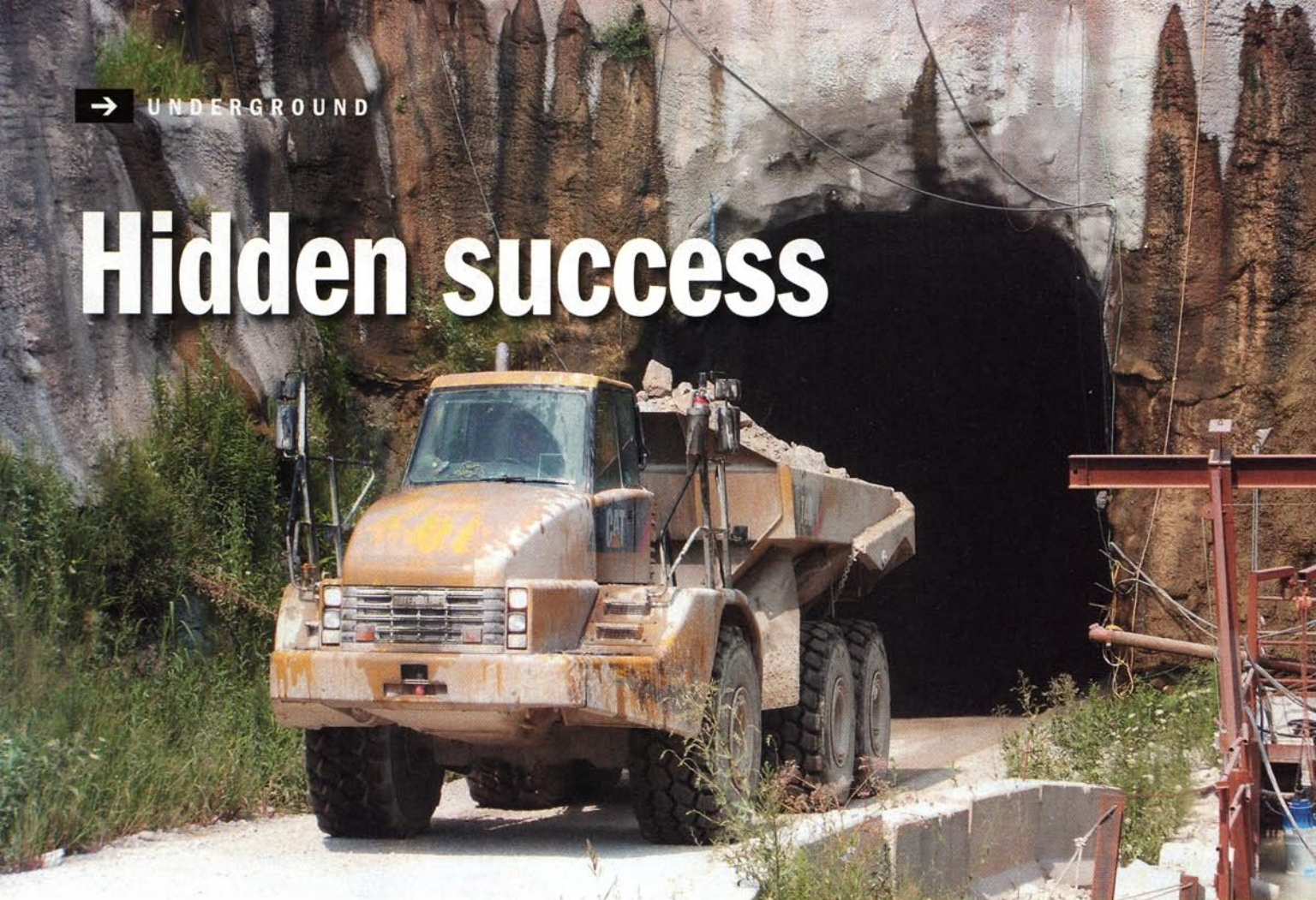
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Hidden success



An Illinois producer is off to a quick start with its underground operation.

BY BRIAN RICHISSON

Gerard Keating's real-estate background piqued his senses and formed his vision for valuable land in the Midwest. Conversations with people in the mining industry confirmed his beliefs. He found the location and the opportunity couldn't get any better.

From left, Alec Burnham, Gerard Keating and Gary Smyth from Mining International and Shawn McKinney from IAAP.

So in 2006 the plan became a reality – Mining International went underground to mine high-grade limestone in Joliet, Ill., and the sur-

face was reserved for production and distribution sites to complement the operation.

Keating, president and CEO of Mining International, had created an aggregates business park that would allow the company to move a high volume of material.

Success in the real-estate industry is based on location. Mining International's site 40 miles southwest of Chicago sits near the intersection of Interstates 80 and 55. It also has access to barge and rail terminals and is positioned close to a major industrial area that presents additional business opportunities. The market in the area is strong and demand for product is high, mine officials said.

"This is one of the fastest-growing counties in the nation," said Keating of Will County. "What brought me to the site was the transportation assets, with the barge and rail terminals."

Mining International is one of 10 underground stone mines in Illinois, with seven located in the Chicago area. In addition to Mining International's site, Lafarge and Vulcan each operate three. Keating's mine, however, is the newest to be developed, with full operation having



begun in February 2007.

In less than two years, Mining International is producing about 2 million tons of limestone (technically classified as dolomite) per year, said Gary Smyth, senior vice president, mine development and operations. The mine is designed to produce 4 million tpy, and there are enough reserves to last about 80 years.

“He had a lot of vision here and he believed in the area,” Smyth said of Keating. “He put this site under contract and assembled more land.”

Clearing the way

Mining International’s progress underground is based on a continuous mining machine, called a roadheader, which is rarely used in limestone. The machine provides the company with flexibility in haulage and mining methods. Its efficiency is derived from its continuous advancement underground, using one constant cycle to mine and convey material backward for loadout.

The roadheader is creating a large ventilation loop to the outer edge of the mine, and Mining International is mining backward. This allows it to operate all three levels of the mine at the same time. Each level has two separate vent loops and can be operated independently of one another.

“By doing it this way, the air always sweeps the faces being mined, and air is not wasted ventilating areas that are not being mined,” Smyth said. “By doing the retreating mine plan, it reduces the exposure to old workings as mining progresses on each level and allows for total removal of the stone by not leaving barrier pillars for ventilation.”

Mining International prides itself on its ventilation system, relating air quality to production. It has two low-pressure, high-volume fans measuring 144 in. in diameter running in parallel and flowing at 500,000 cfm. Its vent shaft is 20 ft. in diameter, with the mine’s rooms measuring 45 ft. x 65 ft. and the decline 22 ft. x 23 ft.

“We have very little resistance in the ventilation loop, which allows these fans

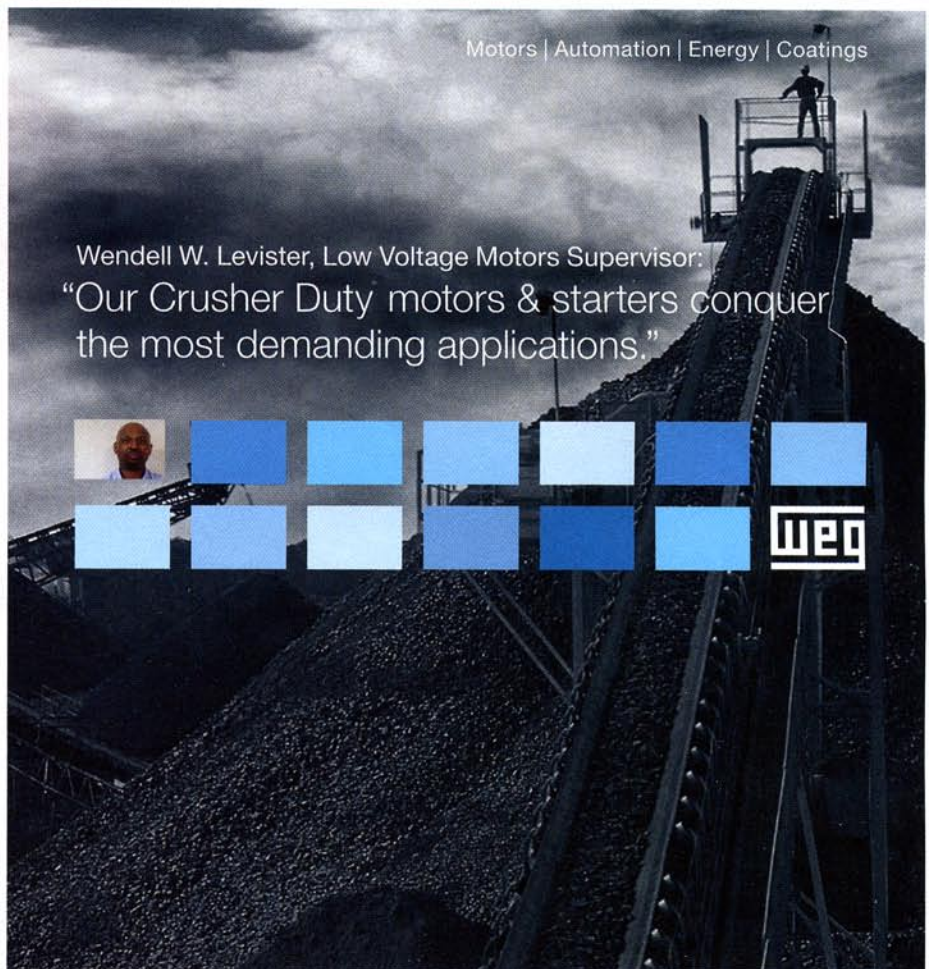
to work,” Smyth said. “We keep very good air in the mine. There is more air here than in most coal mines.”

Before its implementation at Mining International, the roadheader was tested in hard-rock conditions. The machine can cut through rock with psi levels reaching 18,000 to 20,000, said Smyth, who has helped build 12 underground

mines in his career.


Manufactured by Sandvik-owned Voest-Alpine, the ATM 105 Alpine Tunnel Miner is used 18 hours per day, on average, allowing it to cut through 60 ft. of rock. It creates an impressively uniform tunnel.

“If you’re doing a single heading, nothing can beat it,” Smyth said. “Other



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Progress underground is based on a roadheader, which is rarely used in limestone.

mines take three to four years compared to where we are right now.”

Mining International officials admit that much thought and planning went into making the roadheader most efficient for its operation.

“You have to know the machine and watch it,” said Alec Burnham, vice president, mine development and marketing, of Mining International. “Just because it’s here, that doesn’t mean it’s going to perform. A lot of thought went into getting the footage that we did.”

Mining International is only the second mine in the United States to use the roadheader to construct its decline (measuring 2,000 ft. with an 18 percent grade) and the first for underground development (now reaching more than 3,000 ft.), Keating said.

The roadheader, which measures 24 ft. x 21 ft., is operated on a programmable logic controller. Tunnel and grade specifications are programmed into the machine, and multiple lasers that shine against the rock are used to guide the operator as he cuts.

“It’s a very old technique that was



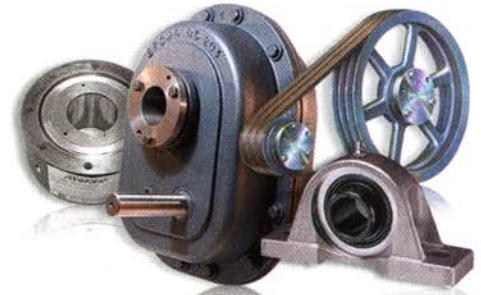
used many moons ago. It hadn’t been applied to the rock industry until the past 15 years,” Smyth said of the roadheader. “Each time you push it to its limit, you find something else that will make it more efficient.”

Mining International has had few problems with the roadheader, Smyth added, with only minor electrical issues caused by vibrating wires.

Going under

Shawn McKinney, outreach manager for the Illinois Association of Aggregate Producers, said more companies are mining underground today, especially in the Chicago area, for several reasons: developers are building over primary reserves; property values are high; and gaining permission to mine greenfield surface sites has become more difficult owing to local opposition in some areas.

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But being underground has proven beneficial for Mining International.

The company has 14 union employees and hires its share of contractors for electrical work and its surface processing plants. Keating expects his workforce to increase to 25 employees and the mine's production to reach 3 million tons by the end of 2009. The mine

operates year-round, with employees working two 10-hour shifts Monday through Friday and eight-hour shifts on Saturday.

The mine does its own blasting underground, emitting six to eight shots per day and resulting in 1,300 tons of rock per development heading shot and 3,000 tons per bench shot – much less

than the tonnage resulting from open-pit blasts.

Its primary crusher, which had been on the surface, and a hanging conveyor were recently installed underground and became operational in December. By moving its Lippmann J3650 portable plant closer to the operation, the company will not waste time and money hauling material out by truck. The company also expects to produce 1,000 to 1,200 tph with its new setup.

In addition to its primary crusher underground, the mine utilizes an Oldenburg UV-11 ANFO truck and powder machine; a Komatsu PC-270 scaler with a BTI VP-285 vibratory pick; a Fletcher 3035 AD roofbolter; an Oldenburg two-boom jumbo model DPH-2-HD drill; a Terex RT200XL crane; and a JLG 9-ton capacity telehandler. Two 988H Caterpillar loaders and three 740 Caterpillar articulating trucks also are used in the operation.

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Much of the product mined at Mining International is used in asphalt, concrete, pipe bedding and anti-skid material. Ready-mix concrete and asphalt are produced on site, and Lafarge invested \$3.5 million in a cement and fly ash distribution center there. Mining International also manufactures sand.

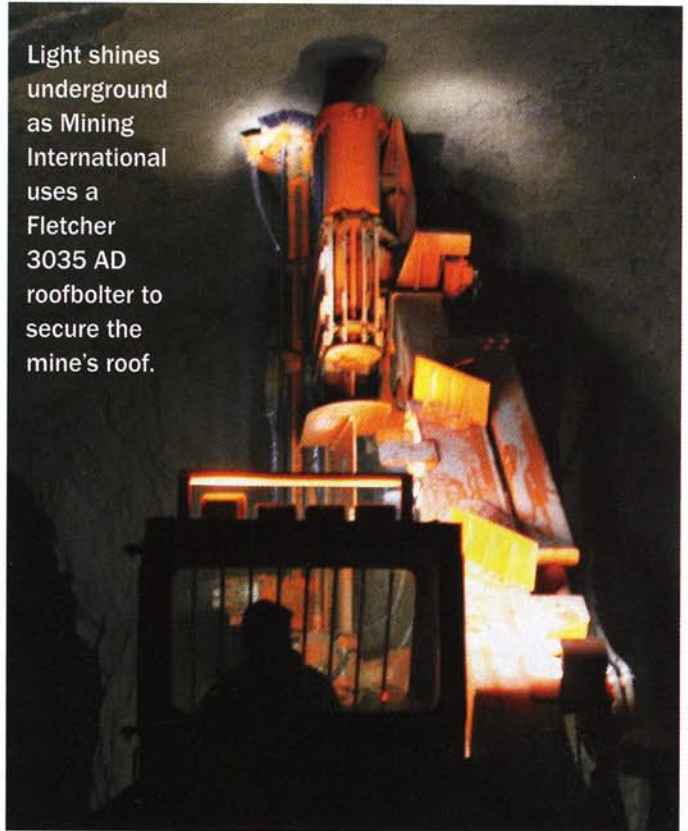
Most of the material is used within a 25-mile radius of the mine site. Four major railroads and the Des Plaines River provide the mine with an economical method to ship its products. The barge system often serves the Chicago and Peoria markets.

Mining International officials also point to a planned 3,800-acre intermodal rail and industrial park near its site as a major asset because it reflects the market's long-term growth possibilities. CenterPoint Properties reportedly intends to spend more than \$2 billion on the CenterPoint Intermodal Center North project over the next 10 years. In 2002, CenterPoint Properties built a 2,500-acre intermodal and industrial business park in nearby Elwood, Ill., just two miles south of Mining International.

These projects are the foundation for Mining International's future, which is packed with opportunity, and the company looks to take advantage.

"We're evaluating additional development opportunities," Burnham said. ☒

Light shines underground as Mining International uses a Fletcher 3035 AD roofbolter to secure the mine's roof.



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