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## ENERGYBOOM

Dickinson riding high at center of North Dakota deposits



A MINING MEDIA PUBLICATION



PHOTOS: Vern Whitten Photography, Fargo, ND

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# POWER SUPPLIER

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DESPITE THE CURRENT ECONOMIC CLIMATE, SOUTHWESTERN NORTH DAKOTA'S DICKINSON READY MIX CO. IS AN EXPANDING STAR THANKS TO HIGH DEMAND SPURRED BY OIL FIELD BUSINESS AND A STEADY STREAM OF NEW PROJECTS IN THE LAST YEAR ALONE.

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*By Steve Prokopy*

When the time came to replace its existing 33-year-old concrete batch plant, North Dakota's Dickinson Ready Mix Co. considered several building options for the plant enclosure and adjoining new offices. The design portion of the project began in October 2008, and factors that were important to the company leadership included wanting to showcase the product they sell. As a result, the company not only opted to use concrete as its major building material but also wanted the concrete exposed. Dickinson also

wanted an energy-efficient building with a durable, low-maintenance exterior. In addition, cost-effectiveness was critical, and to keep the construction as sustainable as possible, the company wanted to utilize local contractors and sub-contractors.

Unlike other companies upgrading their facilities in anticipation of an improving economy and the resulting surge of new and returning business, Dickinson was in the fortunate position of never having gone through a significant downturn as many

other construction-related operations did. Their decision to build a new plant was borne of necessity. In fact, according to company General Manager Scott Olin, replacement of the old plant was originally scheduled to begin in 2010, but the start date needed to be moved forward because of the potential construction of a coal-to-hydrogen power plant 10 miles from Dickinson, originally slated to break ground in 2010.

At the same time, the oil boom that was taking place in the northwest corner of



This aerial view of the Dickinson Ready Mix Co. property, shows the new plant (center) and the old plant (upper left), which the company was only going to use as back-up, but unusually high demand kept it open for the duration of 2011. The plant's front entrance (inset) features decorative concrete work, including exposed aggregate concrete, as well as stamped and imprinted concrete.

the state was beginning to move south, resulting in an explosion of oil activity in the area. As a result, construction of Dickinson's new plant began in June 2009, with the move into the new building occurring on Labor Day 2010. Olin estimates that presently about 75 percent of his company's business from commercial work and 25 percent from residential, with 70–75 percent of total construction being oil and energy related. He adds that over the last two years, the company has added about 10 mixer trucks (to a total of 26) and a RexCon Mobile 12SE unit, with 150-yd./hour capacity and delivery by the main plant's mixer trucks.

With much of the residential work being the result of new oil workers coming into the community, the face of the town of Dickinson is changing rapidly. According to 2010 U.S. Census figures, the population of the town was around 18,000, with an additional 4,000 residents coming in as of September 2011. Dickinson's population is forecast to reach 32,000 by 2021. And while it would be a challenge for any business to keep up with such unprecedented growth, the combination of operational efficiency and good planning has made Dickinson a major player in this specialized boom market.

#### TILT-UP SOLUTION

After evaluating the different construction types and company requirements for the new plant, Dickinson selected site-cast tilt-up, making it the first project of any kind in North Dakota to utilize the Lite-Deck Tilt-Up system. The new office and batch

plant structure is a 15,780-sq.-ft. building that includes a 3,200-sq.-ft. office, an 8,000-sq.-ft. shop, a 3,600-sq.-ft. equipment footprint, and a 980-sq.-ft. lab/admixture room. The complex features tilt-up concrete walls with a post-tensioned concrete roof. All totaled, the complex required 82 individual wall and roof panels (totaling 27,153 sq. ft.), including 75 wall panels ranging between 16 ft. and 50 ft. 9 in. tall, and 12 roof panels up to 60 ft. long.

For both wall and roof panels, Dickinson used a Lite-Deck Tilt system, which involves panels cast on beds of expanded polystyrene (EPS) that remain in place when the panels are tilted-up. These EPS beds are profile cut to achieve a structural "concrete beam" in the panel and insert attachment rails for interior finishing. The wall panels for the batch plant portion of the facility were 13 in. thick at the beams and 50 ft. 9 in. tall. The 3-in. concrete face forms the exterior of the panel, while the 10-in. EPS bed provides an average R-31.2 for the walls. Most of the 50-ft. 9-in. panels are 12 ft. wide and weighed 24 tons. Innova Associates, Lite-Form Technologies and Benchmark Foam, Inc., were the tilt-up consultants.

Post tensioning was employed in the roof panels to enable Dickinson to reach the desired clear span. The roof panels for the batch plant portion of the facility were 24.5 in. thick at the beams and almost 60 ft. long. The EPS component on these panels provides an average R-60.8. The largest roof panels weighed 30.5 tons. A 12-ft. 4-in.-diameter circular opening was designed into the roof panels to accommodate a ce-

ment silo that extends through the roof.

The casting location in relationship to the panels' location in the building was critical, so the company cast panels in a predetermined sequence around the building perimeter on casting beds constructed with 70 percent fly ash concrete. During the erection process, the panels were tilted into place, set and braced, then welded and grouted. The roof panels were set in place next and had to fly over the 50-ft. 9-in.-tall wall panels, eventually bearing on previously cast embeds on the inside of the wall panels. When the project was complete, it had utilized 2,432 cu. yd. of concrete, resulting in a 150-yd./hour, RexCon LoGo 12 batch plant sheltered by a building that will require minimum maintenance over its life, and with minimal life-cycle heating and cooling costs.

#### IN WITH THE NEW, BUT KEEP THE OLD

Dickinson's new batch plant was built at the same location as the old facility. In fact, the new plant's location on the 9.5-acre-plus property—the owners purchased an additional 2 acres on top of the original property's 7.67 acres—is adjacent to the old plant so both plants could be fed from the same stockpiles using just one loader. While it was the company's intention to only use the old unit as a back-up, business was so robust in 2011 that both old and new were fully operational for the entire year. Factoring in the capacity of the portable plant as well, Dickinson's peak daily production occasionally reached 2,200–2,400 yds.

Although the 150-ton aggregate storage capacity of the new system is less than the 300-ton capacity of the old plant, the new facility features a fully automated RexCon Auto-Fill system that keeps the bins topped off at all times. Fisher Industries supplies Dickinson's aggregate products, while the company sources cement from Lafarge and GCC America.

The single most critical issue facing Dickinson during its rapid expansion was finding qualified CDL drivers. "Our driver recruitment area is no longer just local," explains Scott Olin. "At one time or another in 2011, we had ready mixed drivers from Washington, Oregon, California, Idaho, Minnesota, Wisconsin, Illinois and Tennessee. In addition to the 10 mixer trucks we had to purchase in the past two years, because of the acute driver shortage, Dickinson has also leased outside haulers—drivers and mixers—from other plants in Minnesota and North Dakota."



Current Dickinson General Manager Scott Olin (left) with his father, former 41-year President/GM Jack Olin. The company was sold to current owners Mike Fisher and Suzie Medley in 2000.



Dickinson's 40-plus-year employees (from left): Terry Miller (45 years), Tony Heidt (42), and Ernie Frank (45).

Olin added that finding housing for these drivers in such a crowded market has been difficult. "Some are living in trailers or rental units. In fact, we had to resort to renting some trailers and then turning around and renting them to our people," he says. "We had people staying as far away as 40-60 miles when they first got to North Dakota, but most have gotten something closer."

One of the many ways Dickinson was able to showcase the product it was selling was to include concrete as part of the new office's interior, as well as the walls and roof. Although the offices themselves were carpeted, all other interior floors, including the showroom, were chemically stained concrete. The building also features precast concrete countertops in the reception area and a 1,080-lb. concrete conference table in the shape of a mixer drum. According to Olin, the precast table legs were built first and placed on the floor so that they lined up with the ducts at the bottom of the tabletop. It took 16 people to hoist it into place. The decorative work, countertops and conference table were treated and fabricated by Grizzly Concrete Services (a division of TCI).

In addition to the interior finishes, this project used decorative concrete at the entry to the building, including exposed aggregate concrete together with concrete stamped and imprinted with Yorkshire Slate pattern surrounded by a Rough Stone pattern embossed concrete. A custom compass was included as well.



Dickinson driver Andy DeCosteau discharges material into B&W Concrete Pumping's 43-meter Putzmeister concrete pump on a residential project. The concrete will be used by L&D Construction for a foundation on a new housing start.



In partnership with various contractors, the company has successfully promoted the pouring of many concrete parking lots in the area. Dickinson provided material to Winn Construction for this 62,000-sq.-ft. parking lot at a commercial project in the town.

Dickinson Ready Mix Co. began operations in May 1950 (under the name Ready Mix Co.), and since that time, the company has had only three plant superintendents in its 61-year history: Bill Heidecker from 1950 to 1987, Terry Miller from 1987 to 2010, and Cory Birrenkott, who took over in 2010. With business picking up so drastically in the last couple of years, Miller came out of retirement in 2011 to run the old batch plant; he is one of three company employees with 40-plus years at Dickinson.

#### BOUNDLESS ENERGY

The largest project that Dickinson has poured to date is the Baker-Hughes Frac Station in 2011, which required 25,000 yd. of concrete and included seven buildings and nearly 900,000 sq. ft. of 8-in. concrete paving. In fact, most of Dickinson's energy jobs to date have all been located within a few miles of each other. "The area is ripe with development in oil-related projects adjacent to or near Baker-Hughes," he says. Olin added that after



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one of the wettest Mays and Junes on record, construction on the Baker-Hughes facility finally began in July 2011 and was completed in mid-October.

To emphasize the growing construction trends in and around Dickinson, Olin points to 2011 versus 2010 building permit data. From January to September 2010, the value of building permits in the area was roughly \$44.7 million; for the same time period in 2011, the value has more than doubled to \$97.4 million.

When most ready mixed operations (the Dickinson facility also houses a block plant) are closing up shop before winter weather sets in, for the last two years, Dickinson has kept

its plant rolling until well into the fall months. "It depends on how long the weather stays nice," Olin explains. "There's such a rush to get building done and still much work to complete that we will go into winter. We're sometimes pouring city streets in the first half of November. I'd estimate it's a 20 percent increase in work compared to a typical year."

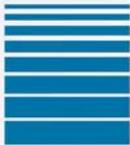
With satellite plants in Killdeer (at the center of the oil activity, about 35 miles due north of Dickinson) and Beach (62 miles west, at the Montana border), Dickinson is at the forefront of this new, strong market, while continuing to supply its original staples of farm, commercial and residential applications.



The RexCon LoGo 12 features aggregate bins and batcher enclosed by a four-story batch tower, built with Lite-Deck tilt-up wall panels and a post-tensioned concrete roof. Operations superintendent Cory Birrenkott (inset) loads a truck using the RexCon RC3 batch control system. The first load of concrete out of the Westgate Avenue plant was batched on Labor Day 2010.



The largest project that Dickinson has poured to date is the Baker-Hughes Frac Station in 2011, which required 25,000 yd. of concrete and included seven buildings and nearly 900,000 sq. ft. of 8-in. concrete paving. This aerial shot shows the facility under construction and Dickinson's portable RexCon plant (lower-left corner) and arrival in North Dakota (inset).



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