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Martin Limestone, Inc. Unveils New Primary Circuit at Their Burkholder Quarry

by Jon M. Casey

EPHRATA, PA - Company officials of Martin Limestone, Inc. a subsidiary of New Enterprise Stone and Lime Co., Inc. (NESL), welcomed more than 80 employees and guests to a plant start up celebration, at their Burkholder Quarry. The October 27th gathering commemorated completion of a new and uniquely designed, primary crushing, and screening plant. The installation features an Allis Chalmers 42-65 Superior Gyratory Crusher, housed inside what designers refers to as an "igloo," a layout that has become a signature design at quarries in the NESL family. (See NAQN Vol. 8, No. 7; August 2005.)

Other innovations at the new plant include twin unloading portals at the primary. With this capability, two haul trucks are able to unload simultaneously, if desired. A modified 200-ton surge bin that feeds onto two distinctly different product circuits with the flip of a switch stands out distinctly, near the base of the primary's "igloo." Additionally the site features an automated load-out facility where truck operators can self-load hi-calcium limestone destined for cement manufacturing plants.

Jeff Detweiler (R) details how the new plant construction unfolded as his father, Paul I. Detwiler, Jr., New Enterprise Stone & Lime Co., Inc. Chairman looks on.

In this unique design, a Syntron Feeder is installed so that it rotates 90 degrees, enabling it to dispense stone onto either of two belts destined for different processing.

Jeff Detweiler, the company's Production and Development Specialist, said that he and several of Martin's management personnel worked closely with Craig V. Gartzke, President of Steel Systems Equipment (SSE), to design the new plant for present and future needs. Detweiler said that while the plant had been in the planning stages for nearly five years, SSE's fabrication and installation of the equipment went very smoothly. "It only took them ten months from start to finish," he said. "Since we were experiencing such a mild wither, we broke ground on January 15th, 2006. Here we are, ready for start up before November 1st. We plan to work the bugs out of the system and complete the automation control capabilities, and we are expecting to go online with full production schedules in the spring of 2007."

The Gyratory in an "Igloo"

Detweiler said that while the installation of an Allis-Chalmers 42-65 Superior gyratory crusher inside an "igloo" housing configuration is not a "first" for the parent company, it is the first installation of its kind for Martin Limestone, Inc. "We have several variations of this design throughout NESL," he said. "We included some new features on this installation that we believe will help make this crusher to operate more smoothly."

For example, the primary crusher, a unit that was acquired from another mining operation in the US, was totally refurbished by NESL's "Electric Shop." It has been outfitted with a Syntron feeder that distributes crushed material onto the primary's conveyor more evenly, before crushed stone exits the "igloo." By having the Syntron feeder controlling the flow of material onto the belt, instead of having it directly drop onto the conveyor from the crusher, it greatly reduces the chances of stalling the belt from the primary and causing the need for a shut down.

A 200-Ton Surge Bin Feeds Two Distinct Product Lines

From the primary, material conveys directly into a 200-ton surge bin that serves to regulate the flow of material onto two distinctly different paths. Since the new primary plant produces material for both the existing processing plant, located within eyesight of the new facility, and since they wanted to produce material for load out from the new site as well, the design team wanted to insure production flexibility in the new plans wherever possible.

"We fabricated a motorized system, on the discharge of the surge tank, that rotates a Syntron feeder, 90-degrees," said Craig V. Gartzke, President of Steel Systems Equipment. "We wanted to be able to redirect the flow of material from one conveyor to the other, with a minimum of time and effort. Quarry operations can pause crushing, rotate the Syntron feeder to the other conveyor, and resume crushing in a matter of a couple of minutes. We had not seen one of these feeders used quite like this, but we have found that it works very well."

Gartzke said they wanted to be able to bypass the screens and send material directly from the primary crusher to a surge pile that supplies the existing processing equipment more than one-quarter mile away. At the same time, they wanted the ability to re-direct material across the new Deister 8 X 20 triple deck screen, where screened aggregate is either stockpiled, or sent to the secondary, Allis Chalmers 24-60 Superior gyratory crusher, for additional processing as needed. In all, the new plant can initially produce aggregate in seven common sizes.

Material Load Out

Detweiler said there are two grades of limestone mined at the Burkholder Quarry. "We have a standard grade road stone that is the most common prod-

Craig V. Gartzke, President of Steel Systems Equipment (L) and Randy Martin, Burkholder Quarry Plant Supervisor (second from left) chat.

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uct from this plant," he said. "The other is a hi-calcium limestone that goes to our cement plant customers."

Current plans call for road stone to be loaded with front-end loaders from stockpiles replenished by radial stacker. "With the radial stacker being capable of stockpiling material in a 270-degree arc, we can accommodate a total stockpile of about 50,000 tons of material on this side of the plant," said Detweiler. The hi-calcium on the other hand, is tunnel fed from its own stockpile, over to a computerized, self-loading bin and scale unit, that will allow truck drivers to acquire their loads without the need for a loader operator or a weigh master. About one fourth of our production is hi-calcium for cement plants."

A Steel Systems Equipment-fabricated radial stacker deposits screened aggregate onto a stockpile that can grow to an estimated 50,000 tons in size because of the stackers 270-degrees of travel.

Rick Naranjo, Superintendent of Quarry Maintenance (L) and Jeff Detweiler (R) pose for a photograph in front of the recently completed Burkholder Quarry primary crusher.

AB IntelliCENTER

Rick Naranjo, Process Engineer, and also in charge of the Quarry Maintenance department, whose crews were responsible for the electrical and control systems at the new plant, said the plant will soon be fully automated. "We have designed this plant to be controlled through an Allen-Bradley PLC, which will monitor the Allen-Bradley IntelliCenter® Motor Control Center (MCC)", he said. "We wanted to reduce the potential for lightning strike damage, so remote communication is done using fiber optics. All plant control is linked via Ethernet to the operator control room so that we can monitor everything that is going on in the plant."

Galen Rutt, Manager of Quarry Operations for Martin Limestone, Inc. said that he is extremely pleased with the outcome of this project. "This plant offers us the flexibility that we need for our production demands," he said. "We have plenty of production capacity for both road stone and for hi-calcium. We will be able to increase production from this location as future need arises. We put a lot of care and planning into this facility, and I know that it will serve us profitably in the coming years."

Steel Systems Serves the Mid-Atlantic with Custom Design and Quality

by Jon M. Casey

When New Enterprise Stone and Lime (NESL) began the planning process for the creation of a new primary circuit at the Martin Limestone-Burkholder Road facility, they teamed up with Steel Systems of Quarryville, PA for the design and installation of their new plant. Jeff Detweiler, NESL Production and Development Specialist, said that he and several of Martin's management personnel worked closely with Craig V. Gartzke and Rick Welch of Steel Systems, to design the new plant for present and future needs. The relationship between NESL and Steel Systems has gone back many years, and they have come to rely on Steel Systems for custom design and fabrication work as well as equipment installation and start-up.

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"We have been serving the aggregate industry since 1987," said Gartzke. "We are proud to say that almost seventy five percent of the work that we do is repeat business. Customers like NESL have come to rely on us for our innovative design capabilities and our desire to engineer systems that meet their specific needs. Several industry suppliers have come to rely on Steel Systems as their exclusive engineering and installation company in the Mid-Atlantic Region, as well."

Gartzke said that Steel Systems successes include the design and installation of multiple circuit aggregate processing plants, large-scale lime hydrating/loadout facilities, and projects like the new primary plant at Martins. "We can custom design and fabricate screen towers, crusher supports, cold feed systems, product bins, loader and truck fed hoppers, just about anything that our industry would need. We serve quarries, sand plants, concrete and asphalt plants and recycling facilities throughout the region. We also work with portable crushing and screening equipment, rail car unloading/loading facilities, and we custom design and fabricate radial stacking conveyors, stationary conveyors and surge tunnels as well."

Gartzke said that in the case of the Burkholder Plant, Steel Systems worked with the quarry design team for nearly five years, looking at ways to make the best use of the customer's existing equipment, coupled with the latest technology. "We worked together to come up with the innovative design of the entire layout of this plant," he said. "From the twin unloading portals at the primary, to the surge bin with the rotating Syntron Feeder, we were open to working with the customer on making the plant what they wanted it to be. From the custom fabricated conveyors to the installation of the customer's own crushing equipment, we helped fill their need for a smooth operating, turnkey operation."

According to Gartzke, rather than being tied into a specific line of equipment that may not be the ideal choice for a given application, Steel Systems believes that a better solution is to build the conveying equipment, bins, chutes, and support steel ourselves, and complete the project with the most appropriate equipment items currently available on the market. "Sometimes that may be an item the customer currently owns, and other times it may actually be an equipment item sold by a competitor," he said. "Whichever piece is most appropriate, that's the piece we want to use. Our name goes on the system when it is completed, and the bottom line is that it must do the job."

"We use the latest in CAD and 3D modeling," said Gartzke. "Our engineering department is able to efficiently and accurately produce drawings ranging from a simple conveyor elevation to an entire plant layout, including all flows and details. When it comes to equipment application and plant evaluation, our engineers can assess the customer's needs and make recommendations on how to accomplish the task, much like we did here with NESL."

"We currently maintain at least two fully-equipped field crews," said Welch. "All of our installers are MSHA trained and certified. Our fabrication work is done in our Quarryville facility where we manufacture all of our conveyors, bins, chutes, equipment support structures and other necessary equipment. With our plant centrally located in our marketing area, we are able to place the equipment at the customer's site quickly and safely. In this way, we are able to get the job done on site in a way that saves our customers time and money. We also make it a point to remain current with OSHA and MSHA standards, and all of our systems are designed to comply with them." For more information on Steel Systems products and services, contact them at 717- 786-1264 or online at www.steelsystems.com.