

Mid-Ohio Resources dredges with “Supreme” confidence at their Belleville, Ohio plant

by Jon M. Casey

As
Seen In



The Supreme Clam Bucket is fully ported with drainage holes that allows excess water to flow back into the lake rather onto the screens.

When the opportunity presented itself for Darryl Lanker, to open up a greenfield mining operation in central Ohio, near his original home near Bellville, he jumped at the opportunity and looked to Supreme Manufacturing, of Stoneboro, PA for a new, fully computerized, state of the art 8-yard, clamshell dredge and floating conveyance system, as the heart of his excavation equipment.

“We moved to Florida from Ohio 25 years ago, after being in the land clearing business,” recalled Lanker, owner and CEO of Bedrock Resources of Ocala, FL, in a recent interview with *WHEN*. “We wanted to expand operations in the active southeastern market, which was flourishing at that time. Five years ago we had the opportunity to locate an exceptional sand and gravel reserve near our hometown in

Ohio, and that was the beginning of Mid-Ohio Resources.”

Lanker said that the site, 191 acres originally permitted in 2004, was found to have over 30 million tons of validated sand and gravel reserves, reaching to a depth approaching 200-feet. “We decided to build the “clean slate” recipe plant with a design that would maximize energy efficiency and product flexibility in a market area that we believe has great future potential, he said. “Bob Lanker has been the Operations Manager there from the start and is doing a great job along with our original employee team,” noting that the 400 ton per hour operation can be operated efficiently, with only 3 employees.

Lanker’s son Scott, who has served as the company’s director of engineering for the past two years, agrees. “We did a lot of research before we ultimately decided on the Supreme Dredge,” he said. “We needed a dredge that would be able to mine to those depths and do it efficiently. The clamshell dredge was the only one that could do that at the time, and the full automation was a very desirable feature. We did considerable study on the power consumption needs and how an electric dredge like this compares to a diesel fueled system of equal capacity and we could see that the Supreme Dredge looked to be easy to use and more economical.

He said that the Supreme Dredge is capable of mining to a depth of 200-feet. Once the aggregate is brought up from the floor of the quarry, it is screened on a Deister 6-foot x 16-foot double deck screen with the throughput going to an LPT hydrocyclone where it is dewatered and then onto a second 4-foot x 8-foot Deister Screen. From there, processed material is recombined and deposited onto a 700-foot x 36-inch floating conveyor that transports the material to a 300-foot x 36-inch overland conveyor and on to the blending plant.

“We engineered a “buffered” configuration into the

conveyance system so as the material approaches the plant, a radial stacker serves as an intermediate destination where the aggregate can be deposited in stockpiles without it going to the plant if we wish. In that way, the dredge can operate independently of the plant,” said Scott.



Adam Coleman, plant/scales operator is able to monitor the plant and scales from this location. All components are operated with touch screen controls.



Oversized material is dumped onto the chute on the mined side of the dredge's path in the water.

Material travels up a 275-foot conveyor to a height of 85-feet, where it enters the 6 bin fraction blending plant. There, the aggregate crosses a 6-foot x 20-foot, four deck Deister Screen plant with the oversized, top deck material dropping into a Sandvik cone crusher, then returned to the product stream once it is crushed. Then, the material is screened again and dewatered after going through a CFS hydrocyclone, before being deposited according to size, into each of six respective 200 ton bins. The process is controlled by Allen Bradley Programmable Logic control systems, which keeps an eye on tank levels. Product mix includes everything from masonry sand to aggregates in several sizes, up to 57's. "We also sell grit for highway anti-skid material during the winter months," he said.

From there, material is stockpiled and loaded into customer trucks with a CAT 980H loader. The loader has a payload control system with a wireless link to an automated ticketing system, controlled with an in-cab touch screen. Trucks come and go from the plant, passing over two Rice Lake Survivor electronic scales, in and out, each outfitted with a JWS fully automated, electronic access card, ticketing and billing system with two remote printers. As trucks leave the facility, and before they are weighed, a truck tire wash system cleans their wheels, keeping dust and debris on the plant site, and not out on local roads and into the community nearby.

"The customers really like the plant," he said. "They have been very impressed with the efficiency and accuracy of the system and how clean the product is."

Environmental Concerns

Scott said that they were looking to create a sand and gravel facility that had a high level of consideration for the environment, both on a local level and on an energy conservation level as well. The research that they did on dredges and processing plants revealed that over the 50 year expected lifespan of the mining deposits available, using electrical power for the Supreme clamshell bucket dredge, along with powering the remainder of the plant and water pumping needs with electricity, would be able to save the company more than \$17 million. Their comparisons included using diesel power, electric power, or a combination of both. Total electric was the choice. More importantly, electric power would meet the needs of energy conservation and carbon emission standards that face today's aggregate industry.



Material can be stockpiled directly from the dredge without the plant needing to operate. This is done with a "buffer" system design, using a radial stacker to either stockpile the material or depositing it onto another conveyor that leads to the processing plant.

"That really sold us," said Scott. "We have a mission statement that we believe in strongly," he added. "We want to serve our customers with excellence. We strive to build our team members with care. We seek to manage our resources with diligence, and above all, we want to honor Jesus Christ in all that we do. So, as we looked to designing the Mid-Ohio Resources operation, we considered how we would design, build and operate the plant with those things in mind. We believe that thus far, we have been extremely successful in accomplishing our mission." For more information on Mid-Ohio Resources, contact them at 352-369-8600 or via e-mail at blanker@midohioresources.com.



Oversized material is dumped from the grizzly screen, onto the chute and back into the mining pit.



Deister screens work to size aggregate mined with the dredge.



The high visibility cab gives the dredge captain a clear view of all that is going on above and below.



The clean control panel allow the operator an easy view of all the necessary functions of the dredge systems.



Inbound and outbound scales with computerized card readers, make customer visits to pick up material, quick and easy. Note the tire washing system on the outbound scale (right), used to clean the equipment before crossing the scale.