



The new 1530 RockMax VSI crusher has been central to K&S Sand & Gravel's recent success selling red rock.

MAKING AN **IMPACT**

The new VSI crusher at K&S Sand & Gravel's Crump Quarry is making a world of difference with its red rock

EDITED BY **KEVIN YANIK**

The new vertical shaft impact (VSI) crusher at K&S Sand & Gravel has been a “game-changer” for the company.

Since installing the VSI at the Crump Quarry in West Tennessee, K&S partners Bernie Reed and Arly Kinniburgh say their operation has experienced an increase in saleable product volumes and overall profitability.

According to K&S, the Crump Quarry previously faced ever-growing stockpiles of “red rock” which accounts for 50 percent of its mined materials. Common in Tennessee, red rock is

a reddish-colored sedimentary rock that’s rich in iron oxide minerals.

In its raw form, however, Reed says it’s a difficult sell.

“It’s hard to sell in our region, and our inventory of it just kept building and building,” he says. “We had to find the right way to ‘move’ this product.”

THE SOLUTION

Through research and referrals, Reed and Kinniburgh requested a consultation with REMco (Rock Engineered Machinery Co.), whose North American manufacturing and materials

TABLE OF CONTENTS

- S1** NEW VSI AT K&S SAND & GRAVEL
- S4** DUTRA GROUP GOES ELECTRIC
- S7** NORTH CENTRAL AGGREGATES ON ITS CONE PLANT
- S10** WHAT EMERGED AT AGG1
- S12** NEW CRUSHING & BREAKING EQUIPMENT
- S13** A LOOK BACK

COVER PHOTO: FRD USA

ALL IMAGES: REMCO



K&S Sand & Gravel's **Shane Kinniburgh** (left) and **Arly Kinniburgh** recently made an investment in a 1530 RockMax VSI crusher from REMco.

test crushing facilities are based in Stockton, California.

K&S ultimately installed a REMco 1530 RockMax VSI crusher, a 300-hp unit that processes up to 1,500 tons of red rock per day.

Reed says the new VSI allowed the facility to nearly double its saleable product volume, crushing the huge inventory of 4-in. red rock down to saleable 1/4-in.-plus products.

"These products provide added wear and skid resistance when used in asphalt surface dressing and chip seal treatments," Reed says. "Due to the high-quality particle shape of the crushed material, it has become our most popular and profitable product line."

As Kinniburgh describes, the VSI gives K&S a tremendous advantage in that it produces a consistent quality product that features a desired particle shape.

"Customers are telling us that the product quality is outstanding when compared to what they had experienced from previous suppliers," Kinniburgh

says. "We attribute that positive feedback to what this crusher is doing every day."

OPERATION & MAINTENANCE

While impact crushers are often thought of as more expensive to operate than other crushers, the K&S team finds the opposite to be true.

In fact, K&S learned that the impact crusher offers the most effective way to transfer energy from drive motors to the material feed, allowing for more effective material reduction. The VSI's design, meanwhile, comprises fewer moving parts and less mechanical loss.

As the Crump Quarry planned for its new crushing circuit, company leaders were confident the impact crusher was the best choice for them – particularly versus a cone crusher.

Additionally, Kinniburgh found the installation of the crusher to be fast and easy.

"After the setup, we hooked it up to a power supply and started crushing material," he says.

Plant operator Shane Kinniburgh

says startup of the 1530 RockMax is quite simple.

"You hit a switch in the morning, followed by a green light indicator that tells you that your pressure is good, and you're ready to fire it up," he says.

K&S controls the material feed to the VSI via a hopper and belt with a variable-speed drive. The feed size tops out at a 4-in. rock. Much of the time, the product output consists of 3/8-in. to 5/8-in. material. It's delivered at a rate of up to 180 tph.

According to REMco, the RockMax VSI delivers a maximum recommended reduction ratio of 8-to-1. This optimizes efficiency while minimizing wear.

The machine combines a heavy-duty VSI design with an autogenous (rock-lined) crushing chamber and rotors. According to REMco engineers, this unique combination allows for a significant reduction in operating costs and wear part replacement, with operations finding that RockMax wear part costs comparable to or lower than that of fine-head cone crushers

– regardless of the material feed type.

In its first year of operation, Shane says K&S has yet to change out the wear plates on the VSI.

“The maintenance side has been pretty pleasant,” says Shane, noting that the hydraulic lift on the crusher lid makes it easy to do inspections, as well as wear part replacements in just minutes. “Maintenance is not a labor-intensive thing to do.”

The Crump Quarry tracks its maintenance costs, with the operation realizing significant cost efficiencies.

“REMco gave us a ‘guaranteed not-to-exceed cost’ of maintenance per ton, and we are coming in at up to 35 percent below that projected cost per ton,” Shane says.

UNDERSTANDING VSI TECHNOLOGY

Although Reed has long been an

investor and industrial entrepreneur, he was nevertheless new to crushing.

As such, Reed and his team relied on the expertise of Mike Howell, who serves as central regional manager at REMco.

“He developed a plan of attack for us, and he was hands-on and helpful in leading us through the process of adding a crushing circuit to our plant and understanding the operation of the machine,” Reed says.

According to Howell, advanced VSI technology allows the impact crusher to surpass the tonnage capacities of older-style crushers while lowering cost per ton. He specifically notes that the geometry and variety of the machine’s open and closed impellers deliver power efficiency while meeting desired feed rates and product specifications.

“Due to its high-crushing velocity,

the RockMax VSI minimizes material recirculation while boosting the output of products with the best particle shape,” Howell says.

RETURN ON INVESTMENT

To further meet customers needs, K&S upgraded its operations with a classifier and a cyclone to produce cleaner sand. It also invested in a coarse material washer to produce cleaner red rock.

With the addition of the VSI, K&S says it is providing a high-quality asphalt seal coat aggregate with the optimum particle shape.

“Since we installed the RockMax VSI, we have crushed and sold more than \$1 million worth of red rock,” Reed says. “That’s a great return on our investment.” **P&Q**

Information for this article courtesy of REMco.

40TH NPK ANNIVERSARY

Celebrating 40 Years of Quality, Dedication and Commitment to Excellence and Unmatched Support in the Construction, Demolition and Mining Industries!
1985 – 2025

MAXIMIZE PRODUCTION

NPK Hydraulic Hammers and Pedestal Boom Systems break rock faster, more efficiently and safely. Systems custom designed to match your exact requirements.



NPK Construction Equipment, Inc.
7550 Independence Drive
Walton Hills, OH 44146-5541
Phone (440) 232-7900
npkce.com

