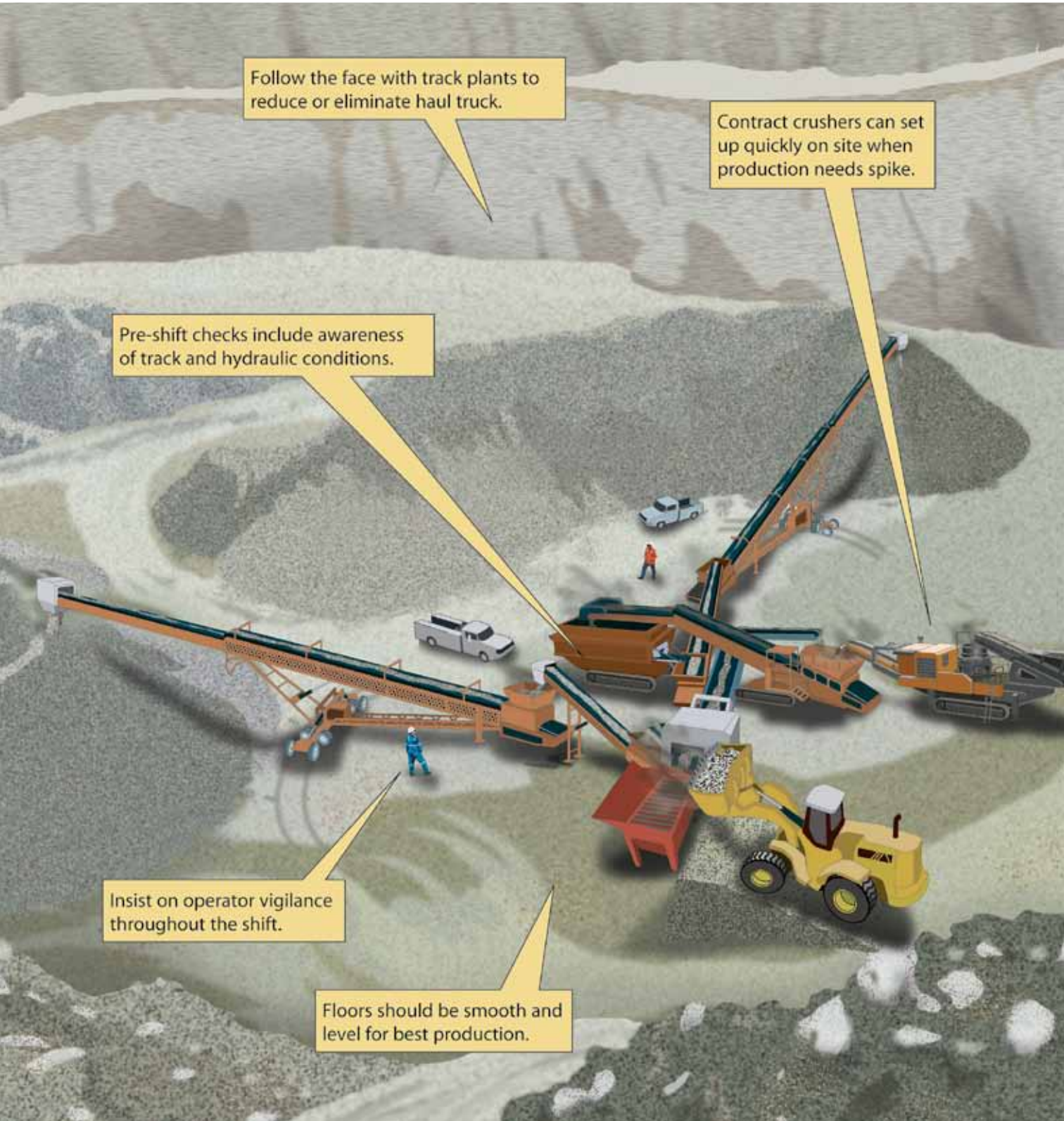


Keep Production on Track



Follow the face with track plants to reduce or eliminate haul truck.

Contract crushers can set up quickly on site when production needs spike.

Pre-shift checks include awareness of track and hydraulic conditions.

Insist on operator vigilance throughout the shift.

Floors should be smooth and level for best production.

AGGREGATES MANAGER

Keep Production on Track

The use of mobile crushing and screening plants in rock processing has arguably been slower to catch on in the United States than in other parts of the world, but it continues to be a growing trend.

“In 1999, we went from using haul trucks to using a track-mounted primary horizontal shaft impact crusher at the face,” says Jon Pechacek, quarry manager for Aggregate Industries’ Larson Quarry near Minneapolis. “We then convey the material to a surge pile for the secondary crusher, which is a stationary HSI crusher.” Pechacek says he believes Larson Quarry may have been the first quarry in the United States to install a tracked crusher.

Why did this facility choose to process at the face? “Our fleet of haul trucks was old at the time, and it was a constant battle to keep them up and running,” Pechacek says. “The company looked at the outlay for a new fleet of trucks and decided that a track crusher and conveyors would be cheaper to run.” He adds that, in addition to truck costs, the quarry has realized additional benefits with its use of mobile crushing and conveyors, such as reduced costs in watering and grading haul roads.

“If you can drive the tracked crusher right up to the wall after the blast, then convey that material to the secondary crusher, you’re seeing cost savings from a lot of sides,” agrees Chris Wade, general manager of crushing services for

FLSmith Excel LLC in Pekin, Ill. “You’ve eliminated the initial capital cost of haul trucks, as well as the ongoing costs for fuel, tires, haul road maintenance, and drivers.”

Wade, who has worked with crushing equipment in both the United States and overseas, says track-mounted plants have always had a natural fit in Europe and Asia’s smaller pits. However, he has also seen track-mounted crushers and screens put to use in smaller quarries and operations in the United States, especially for reducing river rock in dredging operations. “These operations often need someone to help reduce the oversize rock, and they often will build a stockpile and then have a contract crusher come in with a track-mounted jaw to crush the material,” he says.

In Wade’s native Australia, Bryan Rankin is maintenance superintendent, crushing services west, for HWE Mining Pty. Ltd. As one of its services, HWE Mining maintains a large fleet of track-mounted plants available for contract processing services. According to Rankin, while there is a learning curve to operating and maintaining track-mounted equipment, the ability to move independently to the source, rather than having to truck the ore/aggregate to the crusher, means that relocating within the quarry or to another site can be carried out in a matter of hours instead of days — which positively impacts production revenues.

OPERAT

Get the Mos

1 Global trend



Track-mounted aggregates processing plants were developed in Europe and grew to be popular in European and other overseas countries before they caught on in the United States. Because European quarries and pits are typically smaller deposits, mobile machines provided an answer to a need for equipment that could set up quickly and run in close quarters. Their prevalence in these markets also helped them to be cost competitive.

4 Track plant do's



While track plants typically have user-friendly on-plant and/or remote controls, they still require operational and maintenance care — some of which is unique to tracked plants versus wheeled or stationary equipment. Hydraulic system maintenance is critical to operation. Be sure to conduct manufacturer-recommended pre-start checks, remain attentive to feed and production rates during operation, and follow proper maintenance schedules.

TIONS ILLUSTRATED

t from Your Track-Mounted Plant

OUR EXPERTS

2 U.S. perspective



In North America, the track-mounted trend has gained momentum over the past decade, and not just in recycle applications. Track plants are seen in greenfield operations for initial production as stationary plants are being built. They also are effective for use in smaller quarries and in dredging operations that need to crush oversize material. Larger quarries opt to process material with track plants as a means of eliminating haul trucks, with their associated expenses.

3 On the move



Because they are self-contained, self-sufficient machines with on-plant diesel/hydraulic drives and conveyors, track-mounted plants are ideal equipment choices for contract crushing companies. Track foundations make them self-mobile to follow a quarry face or other feed material. When moving equipment to a new site, the plants are capable of driving off the transport trailer and crushing or screening within a matter of minutes.

5 Track plant don't's



Don't allow a "set it and forget it" mentality. The fact that it's run from the ground, without a central control room, can create conditions in which operators fail to recognize a change in a track plant's performance during a shift. Track plants are popular as rental equipment for peak production periods, but don't fall into a "rent it and forget it" trap. Lack of understanding about everything that's housed on a track plant's compact chassis can result in lost tons and lost revenue.

6 Material considerations



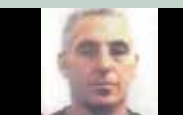
Whether you own or rent a track machine, be aware that a switch in material – from quarry to pit to recycle – creates special considerations for operation and maintenance of a track plant. Quarry rock differs from oversize dredge-mined material, and both types of mined material create a different feed than concrete or asphalt. Because it often has rebar, concrete is considered a dirty feed. Concrete and asphalt material also affect wear rates differently.



Jon Pechacek, quarry manager for Aggregate Industries' Larson Quarry on Grey Cloud Island, Minn., has worked in the aggregates industry for 15 years. He has been a heavy equipment mechanic, maintenance tech, barge loader, safety tech, and yards and towing manager — all for Aggregate Industries. Pechacek came to the Larson Quarry as quarry manager in 2007. He can be reached at jon.pechacek@aggregate-us.com.



As the Pekin, Ill.-based general manager of crushing services for FLSmidth Excel, Chris Wade has worked for years in the construction and maintenance of stationary and portable crushing equipment. He also was in charge of an authorized dealer repair center. For the past seven years, he has been with FLSmidth Excel, starting as technical service manager for Excel Crushers. He can be reached at chris.wade@flsmidth.com.



Bryan Rankin is maintenance superintendent for HWE Mining Pty. Ltd. in Nedlands, Western Australia. Rankin is responsible for startups and maintenance of the company's large fleet of mobile tracked processing equipment. Prior to joining HWE Mining, Rankin worked in maintenance for Crushing & Mining Equipment Pty. Ltd., based in Naval Base, Western Australia. He can be reached at bryan.rankin@hwe.com.au.

OPERATIONS ILLUSTRATED

Voices of Experience

Jon Pechacek

In Aggregate Industries' Larson Quarry, near Minneapolis, a track-mounted primary has been the answer to efficient crushing at the face for the last decade. "We have two elevations," he says. "Right now, we're on the upper elevation, and we'll run here for five to six years, adding conveyors as we mine it back, before we drop to the lower one."

A front shovel feeds the primary HSI crusher, and both plants are run by one operator in the pit. The processed material from the primary runs via field conveyors to a surge at the secondary stage. "The shovel and the impactor are a perfect match for us in the pit," Pechacek says. "There's a little downtime when we back the equipment out for a shot (approximately once a week), but that's about it."

Pechacek says that he has learned some practices that help with operating and maintaining the tracked impactor. "Tied in with your drilling and blasting is keeping your floor level and in good condition," he says. "You've got your conveyors all linked, and if the floor's in bad condition, it can cause problems."

Pechacek says it also helps to keep the mentality that this is mobile equipment. "Your tracks and undercarriage are all hydraulically driven," he says. "It's critical to keep up with oil changes to keep your hydraulics clean." In fact, a couple years ago, Larson Quarry tore down the primary crusher's hydraulic system and found the system was contaminated. "We lost track drives and pumps, but we were able to add a clean vent to the tank where it's vented. No dust can get in, and that's helped."

Some additional tips from Pechacek:

- Inspect tracks, crusher, feeder, and belts (including transfer points) daily;
- Follow greasing schedules;
- Sample hydraulic oil regularly and change annually; and
- Break down the tracks and pull the idlers annually to inspect the rails and undercarriage.

Chris Wade

"In the States, track-mounted crushing and screening plants aren't utilized the way they are in the rest of the world," says Chris Wade, general manager of crushing services for FLSmidth Excel LLC. He explains that, in the smaller quarries and pits in Europe and Asia, tracked plants are ideal for in-pit and pit-to-pit mobility. "Part of the reason for the difference was when track plants first hit the market in the United States 12 or so years ago, they were two times the price that the Europeans were paying for them."

Wade says that cost difference has come down some since more manufacturers now build track-mounted plants. "The price is more competitive in the United States today," he adds.

"Use in recycle crushing has been an obvious market for tracks," Wade says. But he notes that U.S. aggregate producers who use tracks have found they fit needs that are unique to North America. "Here, if you're talking tracked plants in quarries, you will often see them in smaller quarries or with companies that mine multiple smaller deposits, and I also have seen them put to use in crushing oversize river rock."

Wade says that track plants are a popular choice for contract crushers to use because they are easy to set up, and they are also becoming more and more prevalent as a rental item.

In rental fleets of track plants, especially, proper operation and maintenance practices can become an issue. Because the operator isn't the owner, care of the plant isn't always a priority. "You see a lot of damaged feeders, for example, because the loader operator hasn't been feeding the plant properly. You'll see operators putting a lot of fines through the plants," Wade says. "And, also, these operators don't stop to think that everything on the plant is supported by the tracks, and they'll dump so much rock into the feeder or through the cone that you end up with maintenance issues on the tracks."

Bryan Rankin

As maintenance superintendent, crushing services west for HWE Mining Pty. Ltd. in Western Australia, Bryan Rankin handles startup and maintenance of a large fleet of mobile processing equipment. He says, in Australia, mobile equipment is used in mining and quarrying to reduce or eliminate trucking.

Rankin says he's seen bad and good operational habits over the years. The bad? "Probably not having personnel around the plant regularly inspecting and monitoring for problems such as recirculating ore (due to incorrect cone closed-side setting) or adjusting feeder speeds as the ore makeup changes, to maximize plant efficiency," he says.

And from a maintenance standpoint, Rankin sometimes sees a lack of maintenance all together. "Contract crushing utilizing tracked plants has exploded in Western Australia, with a lot of companies not fully understanding how to maintain their plants as a whole," he says. "There are hydraulic circuits; 24-volt electrics; diesel motors; conveyors; screens; primary, secondary, and tertiary crushers — and all are housed in a compact chassis that requires a fairly broad knowledge base to carry out effective maintenance." Additional unique issues to watch for include accelerated wear on rubber and steel skirts because chutes and belts are narrow, and skirts are used to contain material on the belts. Rankin says not having an effective regime of preventive maintenance to cover all of these areas will result in low plant availability and, ultimately, lost tons.

Alternately, Rankin says the best practice that operators can employ in working with mobile equipment is remaining vigilant. It's critical that operating personnel visually inspect the crushing and screening circuit, not only handling prestart checks, but also on an ongoing basis.