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Safety Improvement Technologies for Mobile Equipment at Surface Mines, and for Belt Conveyors at Surface and Underground Mines.

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General Comment

In regards to new technology, the most common consideration would be infrared and laser-type safety devices. Or, equipment that shuts down a conveyor when sensors detect access. These devices are only reactive devices and like pull cords, only shut down a running conveyor after human interaction with the belt. The performance effectiveness of these devices is commonly reduced or completely negated due to beam refraction off of the amount of airborne dust in the work area. Although their implementation might reduce the severity of injuries and fatalities, their application in mining will be limited to clean process applications, they also will not prevent an injury, only potentially minimize it.

An excellent new technology to keep workers safe should be more closely related to reducing fugitive material. For example, Martin Engineering will soon be releasing a new belt cleaner tensioning device that eliminates human exposure to the belt cleaner. The new N2 tensioner automatically adjusts tension or can allow maintenance staff adjustment to the tension to a belt cleaner without the need to access the conveyor. A new technology like this not only reduces fugitive material and clean up, but also reduces maintenance crews exposure to a moving conveyor.

One of the best safety processes is the installation of guarding. Guarding is probably the second best solution for keeping people safe when working in the area of moving belt conveyors. Most

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initial installations of guarding is adequate but all too often guarding is modified to make maintenance applications faster and easier or to facilitate the clean-up of material. These modifications make the guarding inadequate or completely ineffective.

Site-specific rules and regulations have to be front and center in any discussion concerning safety. No amount of rules or regulations will change the attitude of any work center without effective training and consistent enforcement. Although training plays an important role in the dissemination and implementation of rules and regulations, training only works when it is effective enough to induce the trainee to change their previous behavior. Commonly, when it comes to safety, no two individuals perceive or perform safety procedures with equal levels of intent. As a result, there is always a human element flaw inherent in every process or action.

The best way to reduce conveyor accidents is by reducing both intentional and accidental contact with the belt conveyor. The problem in our industries using conveyor belts is we continue to fail at reducing the long-existent problem of fugitive material (spillage, carryback and dust). The required clean-up of this material along with continual belt tracking issues (also a result of fugitive material) and premature equipment failure, will continue to contribute to injuries and fatalities. If a facility who utilizes belt conveyors reduces the fugitive material from those conveyors, the problems of belt tracking, clean-up, and premature equipment failure are also reduced, and in turn reduces workers exposure to the pinch points of a conveyor, reducing the likelihood of injury.

In closing, we commend efforts to reduce accidents from belt conveyors. We believe that any new technologies will not have a significant impact unless they have abilities to reduce the fugitive material around conveyors, a solution that is too often overlooked.