

## **Specific Comments on MSHA's Guide to Equipment Guarding (OT 3, Rev. 2000)**

### **Introduction (p. 1)**

*MSHA Statement:* "Grease lines should be extended so that lubrication can be accomplished from a safe location outside the guard."

*NSSGA Response:* Some field offices now write citations based on their interpretation of this recommendation. These inspectors inappropriately interpret this guidance as mandating extended grease fittings only, and disallowing any openings in a guard.

### **Basic Principles of Guarding (p. 2-3)**

*MSHA Statement:* "When designing guards, all possible **contingencies should be considered including acts of thoughtlessness and foolhardiness.**" [original emphasis]

*NSSGA Response:* This language should be removed, since it is not possible to consider all possible contingencies. MSHA has no standard mandating this approach, and the above language simply provides a mechanism for issuing citations.

*MSHA Statement:* "**Guards cannot be removed unless the hazards they guard against have been eliminated.**" [original emphasis]

*NSSGA Response:* This statement is contrary to standard .14112 that allows guards to be removed for testing and adjustments. Additionally, effective lockout/tag out procedures are better suited to address this issue.

*MSHA Statement:* "An effective machine guard must: Be considered a permanent part of the machine or equipment. "

*NSSGA Response:* This statement is too absolute. Sometimes a guard must stand alone or be mounted unattached to the machine due to vibration.

*MSHA Statement:* "An effective machine guard must: Prevent access to all moving machine parts."

*NSSGA Response:* Add the phrase, "that create a hazard," to the end of the sentence. Many things move that do not have pinch points or create a hazard; e.g., screens.

*MSHA Statement:* "An effective machine guard must: Be designed and fabricated - to the extent practical - to such dimensions and weights that one person is able to physically install and remove the individual guard components."

*NSSGA Response:* Many guards are built in such a way that they cannot be handled by one person. It should be left up to manufacturers and operators to design and fabricate appropriate guards that provide protection from inadvertent or accidental contact.

*MSHA Statement:* "Materials for guards should be carefully selected...."

*NSSGA Response:* Who determines what is satisfactory? Citations have been issued for the use of conveyor belting as guarding material. The type of material used should not be a regulatory concern.

## **Area Guarding**

General Comments: Coal operations are permitted to use area guards while metal/nonmetal are not. For example, area guards permitted in coal include guarding 14' diameter drag line drums with 6' high chain link fence bolted to the floor with a locked gate for access. Another example is a 6' high expanded metal guard for a bull gear that is rolled away for access. Coal inspectors generally permit area guards when such guards are too heavy for miners, and hence require a hoist or crane to move them. Area guards in coal are often installed in response to miners' complaints about the size or weight of point guards.

*MSHA Statement:* "An '**area guard**' is any guard which covers more than one independently controlled component **or** is large enough to permit a person to place themselves between the moving machine parts and the guard." [original emphasis]

*NSSGA Response:* The definition of an area guard is an administrative decision not a regulation. Therefore, to be a rule for Metal/Nonmetal, the definition should go through notice-and-comment rulemaking.

*MSHA Statement:* "In several instances, moving machine parts of multiple independently controlled components (i.e., two or more conveyor tail pulleys) have been enclosed together. Persons can enter the areas to perform maintenance or cleaning on one of the tail pulleys, while the other(s) remain in operation."

*NSSGA Response:* Effective lockout/tag out procedures clearly state that all sources of energy must be isolated when performing work. This would include multiple pinch points from separate machines.

*MSHA Statement:* "A single area guard which encloses multiple moving machine parts does not provide the protection required to be in compliance with the guarding standard."

*NSSGA Response:* This statement is contradicted by several illustrations in the manual. Figure 13 shows bend pulleys for a gravity take-up being guarded by a single area guard. Figure 32 shows what is clearly an area guard, since a person can get between the guard and the moving machine parts.

*MSHA Statement:* "**Historically, if space is provided between a guard and a hazard, someone will eventually go there and be exposed to the hazard.**" [original emphasis]

*NSSGA Response:* What facts support this assertion? Forbidding area guarding stifles technology. Interlocking switches on gates have been shown to be effective in other industries. Laser curtains immediately halt moving machines when the beam is broken. Manufacturers will not even attempt to develop new technology, such as robotic technology, if MSHA considers it impermissible. Other industries have shown that robots can be effective in



**Figure 11.**

Figure 11 has a relationship with Figure 2. Some of the recent enforcement actions, as explained above concerning guarding skirt boards, would have one believe that there must be guards on skirt boards and handrails or stop cords also.

**Figure 14.**

If a guard were built exactly as illustrated, some inspectors would issue a citation based on the belief that a person could reach under the guard and come in contact with moving parts. This enforcement scheme arises by inspectors who reference the Preamble to the Standard while ignoring the Program Policy Manual. If field offices are going to cite this guard, then the Guide should show added guarding material extending the guard closer to the ground, as the example slide shows (in red).

**Figure 15.**

This illustration shows what could be considered an area guard by some inspectors. The language seems to skirt the issue by referring to a "suspended load hazard."

**Figure 22.**

Same issue as Figure 14 above.

**Figure 24.**

*MSHA's Statement:* "Where contact is possible from both sides, the belts and pulleys must be totally enclosed as shown in Figure 24."

*NSSGA's Response:* This illustration is misleading. Recent enforcement activity has inspectors writing citations for not guarding the small amount of exposed smooth shaft that is not guarded in this figure. Again, the inspectors refer to deliberate contact. If field offices are going to cite this guard, then the Guide should show added guarding material coving the exposed smooth shafts as the example slide shows (in red).

**Figure 26.**

This illustration shows a completely enclosed drive belt that is appropriate for the situation portrayed. Unfortunately, inspectors have interpreted this to mean that all drive belt guards, regardless of location, shall be guarded in a similar way. Elevated drive pulley guards, without nearby walkways, which would simply catch the broken belt, would provide equal protection.

**Figure 27.**

*MSHA's Statement:* "Generally, smooth shaft ends protruding less than one-half the shaft diameter need not be guarded."

*NSSGA's Response:* Although the smooth shaft exemption is stated here, inspectors are citing smooth shafts regardless of the length of protrusion. One operator was recently threatened with 109 citations for failing to guard smooth shaft ends that meet the exemption. This plant had 12 previous inspections without this issue ever being raised. Once again, extra guarding material was added in the example slide (in red).

**Figure 34.**

The individual trunnion rollers are guarded adequately. No reference is made to the possibility of protruding parts on the exterior parts of this dryer. The only practical way to guard this rotating drum would result in its being classified as an area guard. Citations have been issued for not guarding the rotating drum and have been abated by area guarding.

**Figures 35 and 36.**

Figure 35 could easily have an interlock switch on the gate entry to prevent movement even if lock out procedures were not followed. Also, to improve Figure 36, the example slide shows guarding extended to the ground (in red).

**Figure 37.**

*MSHA's Statement:* "Figure 37 is another example of an area guard. In this example, two separately controlled conveyors are guarded by one guard. Each conveyor is required to have its own guard. A miner working on one conveyor could be exposed to hazards created by the moving machine parts of the other conveyor."

*NSSGA's Response:* This represents an unrealistic assumption; that is, that one of these belts would start without the other starting. As illustrated, this entire system would be locked out prior to service.

**Figures 39 and 40.**

*MSHA's Statement:* "However, the guard is large enough that a miner could place any part of his/her body between the guard and the moving machine parts."

*NSSGA's Response:* Figure 39 is an adequate guard. Although the space may be large enough to hold a person, there is no access. Figure 40 contradicts the previous definition held out administratively by Earnie Teaster and others that multiple pinch points guarded by a single guard was an area guard. The current handbook attempts to skirt this definition by using the language "more than one independently controlled component."

**Figure 42.**

Some inspectors have taken this illustration to mean that even with the manufacturer's guards in place, additional guards such as the one illustrated are needed. This is contrary to MSHA's own objective, which is to ensure that manufacturer's guards remain in place. The illustration shown is apparently of a loader that has had the original factory guards removed and a home made guard added. It is appropriate if that is the case. Some inspectors have taken this illustration to mean that all mobile equipment needs additional guards such as the illustration even though the factory guards are in place. The preamble to the standard clearly states that MSHA's intention is to ensure that factory guards are in place and rarely would additional guarding be necessary. Usually additional guards are only needed on very old equipment.

**Language and Enforcement Schemes**

The guarding handbook is being used as an enforcement document even though it is not intended as such, but rather "...to assist industry, labor and inspectors of the Mine Safety and Health Administration in obtaining uniformity throughout the mining industry." (introductory paragraph).

Language in the current edition is not in concert with the machine guarding standard, its preamble, or the MSHA Program Policy Manual. The standard at 56.14107 states that "Moving machine parts shall be guarded to *protect* [emphasis added] persons from contacting gears... and similar moving parts that can cause injury." Yet recent enforcement activity suggests MSHA really means *prevent*, not "protect." This is a higher standard to meet because, for instance, an operator might be able to *protect* a miner from catching his/her hand in a drive pulley by guarding it, but may not be able to *prevent* it if the miner chooses to defeat the guard to gain access to the pulley.

The source of this reinterpretation appears to come from a reference in the preamble to the standard (Vol. 53, No 165 / Thursday, August 25, 1988, p. 32509). Here, the wording strongly suggests MSHA's intent with the machine guarding standard is to prevent deliberate or purposeful encounters with moving machinery parts. For, in responding to a commenter who felt guards should provide protection against inadvertent, careless or accidental contact but not against deliberate or purposeful actions, MSHA noted that its research revealed that most guarding injuries were because "...persons were performing deliberate or purposeful work-related actions with the machinery." Despite the fact that the preamble to federal standards does not carry the force of law, this reference has been translated by AR's, Supervisors, CLR's and District Managers to mean *protection from even deliberate contact*, and has been the source of numerous citations.

The Program Policy Manual (PPM), at p. 55a, states:

This standard is to be cited when a guard at conveyor locations does not extend a distance sufficient to prevent any parts of a person from *accidentally* [emphasis added] getting behind the guard and becoming caught..."

The PPM pronouncement is contrary to the agency's recent emphasis on *deliberate* contact. The revised guarding handbook should conform to the interpretations of the standard in the Policy Manual.

When referring to guarding, the word used in some MSHA districts is "evolutionary." Although the Guide has been revised and reprinted several times (1987,1990, 1992, 1993 and 1999), we do not believe it should be an evolving document. Rather, this publication, and any other on the subject released by the agency, should (in its language and graphics) accurately, clearly and unambiguously reflect the existing regulation, and any attempt to reach beyond the regulatory language will be considered by NSSGA as unauthorized and unlawful rulemaking. The purpose of a new release must be to clear up confusion, not break new ground in rulemaking or enforcement.

It is interesting to note that manufacturers build their products to accepted industry standards and practices. The governing body in this area is the ANSI/AMSE standard on conveyors (B20.1). This standard uses the words "accidental" and "inadvertent" in its standard. Perhaps the agency and industry should look to the ANSI standard for guidance. It is a rare piece of equipment that is delivered to an operator that does not need additional guards, according to MSHA.

## **Additional Comment**

The NSSGA Guarding Task Force recognizes that all conceivable guards cannot be depicted in a guarding handbook. We also recognize that any handbook published should not show illustrations that could be considered violations under current enforcement schemes. A guide that would lead an operator into a citation or worse is a disservice to the miners, operators, and the agency.

The agency should clarify the distinction between accidental and intentional contact.

The handbook should address any other guarding-related issues; e.g., the definition of "secured." To be considered "secured," some AR's have required double nuts on bolts holding guards, while others have contended that the use of steel wedges does not secure a guard. Still others have required a lock and key. A simple, clear, universally accepted definition of "secure" is sorely needed. Any fastening method can be circumvented by the inappropriate action of a determined individual.

MSHA seems concerned about the increased level of guarding-related litigation. Recent changes in enforcement strategy will not alter the fact that much of this litigation stems from inspectors who do not follow the Program Policy Manual when issuing citations. Uniform enforcement using guidelines understood and agreed upon by all concerned parties would reduce litigation with responsible operators.