MODULE NUMBER 17
OF
INSTRUCTION GUIDE NUMBER 43

ON-THE-JOB TRAINING MODULES
FOR
SURFACE METAL AND NONMETAL MINES

PREVENTION OF SLIP AND FALL ACCIDENTS

Slips and falls are a serious safety problem. Falls account for approximately 30 percent of all accidents in the mining industry. Most lost time accidents are the result of falling to the same level and are caused by slipping or tripping over some object left in the walkways and travelways. The severity of injuries in most cases is limited to bruises, sprains, fractures, etc.

Most falls from higher levels are the result of falling less than ten feet; usually off a box, a piece of machinery, or short step ladder. The number of incidents is fewer than falls to the same level, but the severity of injuries is greater. Falls from higher levels can result in broken bones, internal injuries, permanent disability, and even death.

Slips and falls, combined with handling of materials, account for approximately 60 percent of all lost time accidents. More than 12 million people every year are injured from falls. Suffering, medical expenses, lost wages, diminished production, etc. combine to make falls one of the most costly type of accidents. Most of these falls could have been prevented.

Many falls are caused by obvious hazards - spills on walkways, tools and equipment not put away, loose ladder rungs, debris on the ground or walkways, and uneven walking surfaces. Other causes of falls are slippery spots, tripping hazards, and even poor vision. People who wear bifocal glasses should be especially careful because the two differently powered lenses sometimes confuse the wearer.

Working conditions at surface mines, such as loose blasted or excavated materials, uneven walking surfaces, adverse weather conditions, and frequent mounting and dismounting of equipment, make miners vulnerable to slips and falls. Miners sometimes have to hand-carry heavy objects. This can lead to reduced visibility and awkward body positions which can cause slips and falls. Snow, ice, and freezing rain make surfaces very slippery. Wear shoes or boots with non-slip soles. Be careful while walking.

No matter how well we guard against all exposures to dangers, we can be injured any time we do not think about protecting ourselves and others. Serious injuries can, and do, result from slips and falls.

This module is designed to highlight tasks performed at surface mines where workers are most likely to slip or fall.

The basic job steps included in this module are:

1. Traveling to and from the work place.
2. Performing primary duties in a working area.
3. Getting on and off mobile equipment.
4. Handling materials.
5. Climbing to a higher level.
6. Making required inspections.

The following safe job procedures will help minimize incidents which may cause injuries and adversely affect production:

Required and/or recommended personal protective equipment:

Hard hat, safety shoes, safety glasses with side shields, gloves, snug fitting clothing appropriate for weather conditions, hearing protection where needed

SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENTS OR HAZARDS	RECOMMENDED SAFE JOB PROCEDURES
1. Traveling to and from the work place.	1. A) Fall to same level.	1. A) Keep travelway free of debris.
	B) Slips and falls.	B) Use proper footwear to match conditions.
	C) Fall to same or from higher level.	C) Observe step off areas. Install well-constructed handrails.
	D) Fall to same level.	D) Walk around, rather than through, visibly slippery areas and water holes.
	E) Trips/slips.	E) Maintain maximum visibility.
	F) Falling into moving machinery, caught in moving machinery.	F) Provide warning and directional signs for particularly hazardous conditions. Check guards. Wear snug fitting clothing and leg bands.
	G) Exhaustion.	G) Travel at steady pace.
	H) Falling material, struck by mobile equipment.	H) Avoid walking near highwalls, loading facilities, and moving equipment. Seek shelter, or get well in the clear, when machines approach.

SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENTS OR HAZARDS	RECOMMENDED SAFE JOB PROCEDURES
2. Performing primary duties in a working area.	2. A) Slips, trips, and falls.	2. A) Keep work areas free of debris and visually examine for tripping or slipping hazards. Keep boots free of mud, ice, snow, grease, and oil.
	B) Falling or slipping into moving machine.	B) Post warning signs and install guards where necessary.
	C) Struck by mobile equipment.	C) Watch for moving machinery. Do not position yourself in narrow, confined, or hazardous locations.
3. Getting on and off mobile equipment.	3. A) Striking against objects caused by slipping.	3. A) Maintain machines free of excess oil and grease.
	B) Fall from higher level, clothing caught on control levers or other projections.	B) Wear personal protective equipment (proper footwear) and snug fitting clothing. Keep steps and boots free of mud, ice, snow, grease, and oil.
	C) Fall from higher level or to same level.	C) Do not get on or off moving equipment.

SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENTS OR HAZARDS	RECOMMENDED SAFE JOB PROCEDURES
3. (Continued)	D) Falling while climbing ladder or steps.	D) Use belt hooks, pockets, etc., to carry material up ladders and keep both hands free for climbing. Ropes can be used to hoist bulkier items. Face ladder and use three points of contact when climbing (two hands and one foot, or two feet and one hand, in contact with ladder at all times). Use handholds and select firm footing. Avoid haste and projections.
	E) Fall from higher level.	E) Do not use machine as work platform.
	F) Falls, strains.	F) Use proper techniques for mounting and dismounting. Use handholds.
4. Handling materials.	4. A) Slips, trips, and falls while lifting or carrying materials.	4. A) Maintain visibility while lifting or carrying job related material.
	B) Strain or sprain.	B) Use proper lifting techniques. Keep load close. Lift with your legs instead of your back.
	C) Striking against, or being struck by materials due to adverse conditions.	C) Store materials properly. Maintain good housekeeping.

SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENTS OR HAZARDS	RECOMMENDED SAFE JOB PROCEDURES
5. Climbing to a higher level.	5. A) Fall from higher level, defective ladder, insecure footing for ladder.	5. A) Check ladder for defects and proper installation of ladder. Select or make a secure, even surface for ladder. Temporary ladders should be tied off when possible.
	B) Slipping from ladder.	B) Be sure shoes and ladder are dry and grease free.
	C) Falling from ladder.	C) Climb ladder correctly using three points of contact (two hands and one foot, or two feet and one hand, in contact with ladder at all times). Do not reach too far to either side of ladder.
	D) Fall from higher level, knocking objects off on someone below.	D) Keep work surfaces clear. Maintain proper balance.
6. Making required inspections.	6. A) Fall from higher level, or to same level.	6. A) Maintain good footing and only use means of safe access.
	B) Slips and falls.	B) Maintain proper housekeeping.
	C) Equipment hazards.	C) Post warning signs where necessary.

GENERAL INFORMATION

This module is part of an Instruction Guide that was developed to assist the surface metal and nonmetal mining industry in conducting effective on-the-job training (OJT) of new employees, or employees reassigned to different jobs. The use of training materials, such as this module, is an important part of an effective, systematic, OJT program.

This Instruction Guide uses a generic Job Safety Analysis (JSA) of jobs common to the industry. The JSA format facilitates uniform basic training in safe job procedures, while requiring only a minimum of time and effort on the part of the trainer. This material is generic to the industry; therefore, each company using this guide will need to tailor the material somewhat to fit their particular requirements. In some cases, the material must be general in nature, and will not include specific details of procedures or equipment that must be taught by the trainer.

Recommendations for an overall OJT program are contained in the Mine Safety and Health Administration (MSHA) guide: "Structuring Effective On-The-Job Training Programs," June, 1983.

TRAINING RECOMMENDATIONS

On-the-job training is usually best done by the employee's immediate supervisor. If the supervisor relies on another employee to do certain parts of the training, the supervisor should be present to monitor the training. OJT is conducted at the actual job site where the work will be done.

The supervisor/trainer should use the training materials (this module, or other materials) while the training is being done, to help ensure that all job steps are covered, and that no important safety precautions are omitted. Effective OJT should begin with an explanation (lecture and/or discussion) of the safe job procedure. The explanation should be followed by a hands-on demonstration of the proper job procedure. A good demonstration is, perhaps, the most important part of OJT. The demonstration is followed by supervised practice, during which the supervisor/trainer coaches (corrects and encourages) the employee, and evaluates when the employee is ready to do the job without direct supervision.

The first step – explaining the job to the employee – can be done in different ways. The supervisor/trainer and the employee can sit down and go through the training materials together. It may be advantageous to provide the employee with a copy of the training modules that are applicable to his/her job. The fact that most of the training is conducted at the job site does not preclude the use of a classroom or a quiet office for the first part of the training. Any general theory or knowledge training, as well as the initial explanation of the job procedure, may be best done in an office/classroom setting; especially when noise levels, or other conditions at the job site, make communication difficult. A complete series of job steps could be presented through the use of slides developed at the mining operation.