MODULE NUMBER 10
OF
INSTRUCTION GUIDE NUMBER 40

ON-THE-JOB TRAINING
FOR THE
SAND, GRAVEL, AND CRUSHED STONE INDUSTRY

TRUCK HAULAGE

This module describes the proper procedures and the associated hazards involved in operating and loading quarry trucks, customer finished-product trucks, and pit-run trucks.

The safety of the truck driver and other personnel should be the primary concern of the mine operator. This training module is designed to present safe loading and haulage procedures, which will help ensure that customer truck drivers, mine employees, and other personnel are protected from accident and injury.

Heavy-duty trucks are used in mining to transport finished material to customer job locations, and to transport unfinished material from the quarry to the crusher, or from the

pit to the primary dump station. Large haulage trucks may cause serious accidents and injuries on the road, or in the quarry, if safe haulage procedures are not followed at all times.

Persons can be struck or run over when working near or around trucks. Drivers can be injured if they lose control of their trucks, or over-travel a dump point. Even if truck accidents do not injure anyone, these mishaps often result in damaged equipment, lost efficiency, lowered production, and higher maintenance costs.

Safe driving procedures are generally the same for highway vehicles and for large over-the-road haulage trucks. Off-road trucks, however, have different hazards. Off-road truck drivers need to be trained in special procedures for vehicle loading and operation.

In order to reduce dangers to the operator from falling material, a truck should be spotted so that the bucket of a front-end loader, shovel, or drag-line that is loading the truck does not swing over the cab of the truck. The operator should dismount and stand in a designated safe area while the truck is loaded, if the truck does not have a protective cab, or cannot be spotted to avoid swinging the bucket over the cab.

Mobile equipment operators, who transport materials, must know haulage policies and procedures. Signs must be posted at the mine site to show traffic patterns and speed limits.

Equipment that has an obstructed view to the rear must be provided with a back-up alarm.

Modern, heavy-duty haul trucks are carefully engineered, expensive pieces of equipment. These trucks must only be operated by drivers who are qualified through training and experience. Prospective drivers must thoroughly familiarize themselves with the truck's mechanical features, safety rules, and emergency procedures.

Truck accidents caused by unsafe operating practices outnumber truck accidents caused by unsafe equipment conditions. Therefore, the time required for effective training is well worth the effort. After drivers have had appropriate training, and demonstrated safe performance, constant supervision is necessary to make sure that drivers continue to operate haul units in the way in which they were instructed.

Mobile equipment operators must be especially cautious during bad weather. Potential hazards include slippery ladders and platforms, slippery haulageways, poor visibility, rock falls, and brake failure. Frozen material in truck beds could cause the truck to overturn while dumping.

The following safe job procedures involving truck loading and haulage will help to minimize incidents which may cause injuries and adversely affect production:

REQUIRED PERSONAL PROTECTIVE EQUIPMENT:
HARD HAT, STEEL-TOED SHOES

I. OPERATION OF CUSTOMER HAULAGE TRUCKS ON MINE PROPERTY

SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENTS OR HAZARDS	RECOMMENDED SAFE JOB PROCEDURES
1. Report to office or scale house.	1. A) Collision with another vehicle. Struck by another vehicle after exiting cab.	1. A) Follow designated route, and observe and obey traffic control signs. Wear seat belts. Park or stop at designated areas. Receive hazard training as required. Obtain loading instructions, including locations, traffic patterns, and other pertinent information.
2. Weigh empty truck.	2. A) Collision with another vehicle.	A) Follow designated truck route to scale. Stay on your side of the road.
	B) Truck roll-over.	B) Drive onto scale correctly.
3. Load truck with material.	3. A) Collision with another vehicle.	3. A) Obey posted traffic patterns and speed limits to loading point. Watch for other traffic.
	B) Hit by loader.	B) Make sure loader operator sees you.

SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENTS OR HAZARDS	RECOMMENDED SAFE JOB PROCEDURES
	C) Struck by falling material.	C) Stay in cab of truck. Make sure truck is spotted correctly at hopper, or stockpile, so material does not strike cab.
	D) Equipment failures, such as brakes, steering, engine, and tires.	D) Follow emergency safety procedures applicable to equipment and mine site.
4. Weigh full truck.	4. A) Uneven load may affect vehicle control.	A) Make sure material is loaded evenly.
	B) Collision with another vehicle.	B) Follow designated truck route to scale. Stay on your side of road.
	C) Truck roll-over.	C) Drive onto scales correctly.

II. LOADING TRUCKS USING FRONT-END LOADERS

SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENTS OR HAZARDS	RECOMMENDED SAFE JOB PROCEDURES
1. Conduct pre-shift inspection of loader - check the following: a. Tires and wheels b. Area around vehicle c. Engine compartment d. Fluid levels e. Hydraulic lines f. Fire extinguisher g. Loader linkage h. Ladders, platforms I. Loose objects/debris in cab j. Seat-belt k. Back-up alarm l. Clean windows m. Engine operation n. Wipers and lights o. Service and parking brakes p. Steering	1. A) Slips and falls.	1. A) Make sure work area is clear of slipping hazards.
	B) Burns.	B) Wear gloves.
2. Spot the truck.	2. A) Run over by truck.	2. A) Make sure the truck drivers see you, if you are not in the loader.
3. Load the truck.	3. A) Running over someone.	3. A) Be aware of everyone's location in the work area.

SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENTS OR HAZARDS	RECOMMENDED SAFE JOB PROCEDURES
	B) Dropping material on cab and driver	B) Do not move bucket near cab of truck.
	C) Uneven loading may affect control of truck.	C) Load truck evenly.
	D) Equipment failures, such as brakes, steering, engine, and tires.	D) Follow emergency safety procedures applicable to equipment and mine site.

III. OPERATION OF HAUL UNITS AND PIT-RUN TRUCKS

SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENTS OR HAZARDS	RECOMMENDED SAFE JOB PROCEDURES
1. Conduct pre-shift inspection of truck - check the following: a. Tires and wheels b. Area around vehicle c. Engine compartment d. Fluid levels e. Hydraulic lines f. Fire extinguisher g. Loader linkage h. Ladders, platforms I. Loose objects/debris in cab j. Seat-belt k. Back-up alarm l. Clean windows m. Engine operation n. Wipers and lights o. Service and parking brakes p. Steering q. Gauges and warning lights r. Retarder	1. A) Slips and falls.	1. A) Use handrails. Make sure that ladders and walkways are clean and in good repair.
	B) Burns.	B) Wear gloves.
2. Follow designated truck route to pit or quarry.	2. A) Collision with another vehicle.	2. A) Stay on your side of the road.
	B) Run off road.	B) Watch for other traffic.
	C) Loss of control of vehicle.	C) Follow posted traffic patterns and speed limits.

SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENTS OR HAZARDS	RECOMMENDED SAFE JOB PROCEDURES
	D) Equipment failures, such as brakes, steering, engine, and tires.	D) Follow emergency safety procedures applicable to equipment and mine site.
3. Load truck with raw material.	3. A) Collision.	3. A) Follow established procedure for loading trucks.
	B) Struck by shovel or drag-line bucket, or falling material.	B) Spot truck in proper position.
	C) Run over by loader.	C) Do not leave truck cab unless necessary, and then only after assuring loader operator is aware of your position.
	D) Covered by material.	D) Dismount truck and stand clear if a hazard of falling material exists.
	E) Uneven load may affect control of vehicle.	E) Make sure material is loaded evenly.
4. Follow designated route to crusher or pit run hopper.	4. A) Collision with another vehicle.	4. A) Stay on your side of the road.
	B) Run off road.	B) Watch for other traffic.

SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENTS OR HAZARDS	RECOMMENDED SAFE JOB PROCEDURES
	C) Loss of control of vehicle.	C) Follow posted traffic patterns and speed limits.
	D) Equipment failures, such as brakes, steering, engine, and tires.	D) Follow emergency safety procedures applicable to equipment and mine site.
5. Dump material.	5. A) Collision with another vehicle.	A) Stay on your side of road.
	B) Run off road.	B) Watch for other traffic.
	B) Backing into crusher.	C) Back up slowly until rear tires reach stop block.
6. Return to pit or quarry.	6. A) Collision with another vehicle.	6. A) Stay on your side of the road.
	B) Run off road.	B) Watch for other traffic.

IV. WORKING AT NIGHT, AND NIGHT ILLUMINATION

SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENTS OR HAZARDS	RECOMMENDED SAFE JOB PROCEDURES
1. Working at night, and night illumination.	1. A) Driving off benches.	1. A) Drive slower at night.
	B) Run over.	B) Watch out for moving equipment. Wear light colored, or reflective, clothing.
	C) Trips, slips, and falls.	C) Watch step. Work areas must be safely illuminated.
	D) Struck by falling material.	D) Look out for, and avoid, overhead hazards.
	E) Running into objects (rocks, etc.) In haulageways.	E) Keep equipment lights on, and clean. Watch for obstacles.
	F) Blinded by headlights.	F) Dim headlights when approaching equipment and personnel.

GENERAL INFORMATION

This module is part of an Instruction Guide that was developed to assist the sand, gravel, and crushed stone 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"

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.