

DAILY SAFETY TALKS

Department Employees:

As part of a continuing effort to improve the safety of all employees throughout the commonwealth, the Safe and Accident Free Environment Taskforce (SAFE-T) has reviewed and revised the Daily Safety Talk Book (Pub 247). A special thank you is owed to District 6 for leading this effort.

This Daily Safety Talk Book (Pub 247) is intended to be a source of reference for all employees in order to be informed of some of the possible risks associated with certain work activities. This book is not a policy manual.

The Daily Safety Talk Book (Pub 247) is to be part of your Safety Discussion format and should be applicable to that day's work. You are encouraged to use the instructions on how to conduct safety talks and the index to access safety talks that relate to your day's scheduled activities. There is also an Index of hyperlinks for additional Safety Talks that can be accessed thru the Internet.

This is intended to be an evolving document updated, as needed, regularly. Please share your comments, concerns and tips with us.

Safety is everyone's responsibility, DO YOUR PART!

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Daily Safety Discussion Instruction Template

It is suggested that Supervisors use Pub 247 each day as part of their daily Safety Discussion, before the commencement of any work activity. To help ensure consistency of use, the following suggested guidelines have been developed.

1. At the beginning of each shift, supervisors are required to review the specific work activity of the day with their assigned crew. Using applicable sections of Pub 247 as a source of reference, a Safety Discussion can be formulated.
2. When going over the specific items in Pub 247, (or using another Safety Talk Resource) supervisors are expected to ask open-ended questions to aide in a productive discussion / conversation on the subject matter.

Examples of questions to ask include: (Why, What, When, How)

- Why do you think it is important to do a Circle of Safety when (subject matter)?
 - Why do you think proper footing is required when (subject matter)?
 - Why do you think it is important to _____ when (subject matter)?
 - What do you think would happen if you did not _____ when (subject matter)?
 - What are the other possible risks in (subject matter)?
 - What is your experience when (subject matter)?
 - When would it be ok not to _____ when performing the work on (subject matter)?
 - How do we ensure the proper use of _____ when performing the work on (subject matter)?
 - How does the weather effect safety when (subject matter)?
 - How do you know if a _____ is safe to use when performing the work on (subject matter)?
3. During your Safety Discussion, you should document any issues that need further clarification, and forward those issues to your District Safety Coordinator for review and response.
 4. Supervisors are required to document the subject of each of their daily Safety Discussions on the crew payroll.

GENERAL

FIRE TALKS

1010 FIRE ALARMS

You shall become familiar with fire alarm signals and the details for vacating your building or work area in the event of a fire. Take all reasonable measures that you can to extinguish or control the fire until assistance arrives.

1020 FIRE EXTINGUISHERS

Have you inspected your fire extinguisher lately? Are they fully charged, strategically located, accessible, and ready for use? Or, are they covered with dust and obscurely hidden in a corner for a false sense of security?

Ensure fire extinguisher is accessible - So often, fire extinguishers are purchased with enthusiasm as a vital need; and then, because they are not used regularly, they are relegated to a secondary position in our operation.

Conduct routine inspections of fire extinguisher - The fact that fire extinguishers are our first line of defense in event of fire should warrant a periodic and thorough inspection. Fire extinguishers must be kept clean to attract attention, accessible to eliminate lost time when needed, and the rubber hose, horn, or other dispensing component must be checked to assure against blockage.

Know the fire extinguisher capabilities - The following is a brief description of the classifications of fire. Fire extinguishers are rated according to the classification of fire it is equipped to extinguish. Check your fire extinguisher rating to ensure it is equipped to fight the classification of fire you encounter before using it.

- **CLASS "A" FIRES:** — Ordinary combustibles such as rubbish, paper, rags, scrap lumber, etc.- these fires require a cooling agent to be extinguished.
- **CLASS "B" FIRES:** — Flammable liquids, oils and grease- these fires require a smothering agent to be extinguished.
- **CLASS "C" FIRES:** — Electrical equipment- these fires require a nonconductive agent to be extinguished.

1030 FIREFIGHTING EQUIPMENT

Fire equipment is to be used only for preventing, controlling, or extinguishing fires.

Hand-operated fire equipment, such as extinguishers, hoses, etc., must be kept fully accessible and unobstructed at all times. Report an obstruction to your supervisor for removal.

If you use a fire extinguisher or any other fire equipment, notify your supervisor at once so that it can be immediately serviced or replaced.

1040 FIRE PREVENTION

You must obey all rules, regulations, and signs for fire safety. Signs restricting smoking, open flames, and other sources of ignition and those controlling the storage, handling, and use of flammable liquids or other hazardous materials are displayed for your protection. Heed them.

- To keep FUEL from combining with oxygen and heat, keep covers closed on flammable liquid containers, most especially those containing gasoline and alcohol.
- To keep HEAT from combining with fuel and oxygen, be sure no source of ignition is near exposed flammable liquids or solids.
- Empty gasoline containers shall be inundated with water, drained, and steam cleaned before being stored in a building.
- All emergency delivery cans shall be an approved safety type and labeled correctly to indicate their content.
- Never store, transport, or deliver flammable liquids gasoline, alcohol, or kerosene in open or glass containers.
- Remove spills immediately.
- Waste rags should be disposed of in covered, metal containers.
- Never drain a vehicle's gasoline tank inside a building.
- Good housekeeping will prevent accumulation of material which often constitutes a serious fire hazard. Keep your buildings and work areas neat and unobstructed.
- Keep accesses to fire extinguishers open.
- Do not clean your clothing with gasoline, solvents or other flammable agents. A spark can ignite your clothing and cause serious injury.
- Smoke only in designated areas only and use proper disposal containers.

1050 FIRE SAFETY

Fires can start easily and spread quickly causing damage and loss of lives.

By following a few simple rules a fire can be prevented:

- Always dispose of cigarette butts and matches safely.
- Never smoke in restricted areas or near combustible materials.
- Don't litter.
- Store oily rags, etc., in closed air tight containers. Remember oil can quickly catch fire.
- Immediately report any faulty electrical equipment to your supervisor.
- Be sure to ground all flammable materials to prevent the possibility of static electricity buildup which could lead to an explosion.
- Know the location and proper use of fire extinguishers.

1060 PERSONAL SAFETY IN EVENT OF FIRE

- If your clothing catches fire, smother the flame. **Stop, Drop, and Roll** on the floor or ground if necessary. **NEVER RUN.**

HANDLING SAFETY

1070 CARE & HANDLING OF BARRELS & DRUMS

When working with barrels or drums, use safety gloves, shoes, and any other protective clothing required. Barrels and drums should be stored in a non-hazardous area and out of the direct stream of traffic. Check labels on containers before stacking. Different materials should be stored separately. Never strike drums with tools or other metal objects.

Check barrels and drums for jagged metal bands and slivers before handling. Do not attempt to make repairs on any damaged drums, especially filled drums. Only drum owners or manufacturing plants should make repairs on empty drums. Do not smoke when filling, handling, testing, or emptying drums.

Never put water or other liquids foreign to the original contents in the drum. Products spilled on the outside of the drum should be flushed well with water. After contents have been removed, drums should be completely drained and the closure securely replaced. When stacking empty barrels and drums, make sure the ends of the bottom row are blocked. Ground barrels when transferring hazardous or combustible materials to another container.

Use special handling equipment available to lift the drums and barrels. Remember a full 55 gallon drum could weigh as much as 800 pounds.

1080 COMPRESSED GASES

Safety precautions must be followed when using and moving compressed gases. Compressed gas cylinders are color coded for easy identification as follows:

- Oxygen.....Green
- Acetylene.....Orange
- Propane.....Silver
- Carbon Monoxide.....Black

All cylinders should have protective caps or collars in place when stored or transported. Stored tanks must be secured to wall or other immovable object. When in operation, tanks should be secured to movable cart or an immovable object.

Oxygen cylinders must be stored 20 feet from any flammable and/or combustible materials or separated by flame proof barrier.

Always keep cylinders in an upright position whenever possible; this includes empty cylinders when being transported to be refilled.

When lifting or moving cylinders, try to use a mechanical device such as a dolly or fork lift and ensure cylinders are properly secured to avoid damage to cylinders.

When transporting cylinders, always make sure valves are closed, protective caps are on and that they are properly secured. Propane is a low pressure gas and, as exception, does not need protective caps when being transferred.

When working with compressed gas, always have a fire extinguisher readily accessible.

Always store empty cylinders separately from full cylinders and ensure cylinder valves are closed.

Make sure proper placards and Right to Know stickers are on each tank.

1090 SLEDGEHAMMER SAFETY PRECAUTIONS

A **sledgehammer** is a heavier version of the common hammer. It is primarily used in heavy-duty construction and demolition work. Because of its heavy weight and forcefulness, construction workers often use sledgehammers to drive beams or stakes into the ground or to demolish existing masonry. As with any tool, the safe use of a sledgehammer requires following safety precautions:

Ensure Adequate Clearance - Before operating a sledgehammer, make sure there are not obstructions on the floor that may create a tripping hazard as this can lead to serious injury. Also, ensure that there is enough room around you so that you can swing the hammer freely. Make sure people are a safe distance away, and that you have a secure footing in your work area.

Wear Safety Goggles - When you use a sledgehammer, particles often chip off and fly around. These particles can cause serious injuries if they land on your face or eyes. Therefore, it is important to protect your face and eyes with tough safety goggles and a mask.

Wear Protective Clothing, and Helmet, and Thick Gloves - Wear a thick jacket to shield your body when you operate a sledgehammer. Protect your head with a thick helmet as well. Injuries to the head can be fatal. Wear thick, comfortable gloves so that you can use the sledgehammer with ease and avoid calluses on your palms.

Keep the Sledgehammer in an Enclosed Location - Avoid leaving sledgehammers out in the open. The wooden handle must be protected from excessive moisture. The handle will absorb moisture and this can cause softening or cracking of the wood. Similarly, excessive dryness can also cause the wood to warp or shrink, damaging the fit. A handle that is not securely fit to a sledgehammer is probably the most dangerous situation to avoid.

Check the Handle and Hammer Head Often - Inspect your sledgehammer regularly to ensure that the handle is secure and tight. If it is not, have the handle replaced. Also, check the head to ensure that it is free of cracks and/or distortion. In such cases, the sledgehammer must be replaced. Never attempt temporary fixes such as using glue or duct tape to attach broken parts of a sledgehammer. This could lead to dangerous, life-threatening accidents. The handle could come off and cause you to lose control of the tool.

Use Sledgehammers with Heads Made of Durable Metal - Sledgehammers that have steel heads are a poor choice because they are not recommended for use on hard surfaces. This is because steel can easily crack and splinter, sending small pieces flying around and causing injury.

Avoid Using a Tool that is Too Heavy for You - When you purchase a sledgehammer, try it out to see if it fits your working method and body frame. Avoid sledgehammers that are too heavy for you to carry or work with. Also, ensure that the handle is smooth and easy to carry. This is important to ensure that you can work with sledgehammer comfortably and safely over a long term.

1100 HAND TOOLS

Many tools and devices are furnished by the Department for your use. Take care of them. If any Department-owned tools wear out, break or otherwise become dangerous to use, do not use. Report such condition to your supervisor. Keep your personal tools in good condition at all times.

Keep impact tools free from mushroomed heads. Cracked hammer handles must be replaced at once. Keep wrenches in good condition so that they don't slip.

Tools and materials must not be left in an elevated position or in above the head areas, because there is a possibility of their falling to a lower level. Do not use tools for purposes other than those for which they were designed. Get instructions from your supervisor before using tools you are not familiar with.

Never drop tools or equipment from one level to another. Raise or lower tools or equipment by hand or in a canvas tool bag.

Do not carry sharp edged tools loosely in clothing. Use a sheath or container.

1110 LIFTING & MATERIALS HANDLING

The Safe Way to Lift

Approach the load and size it up (weight, size and shape). Consider your physical ability to handle the load.

Remove any slippery substances from your hands, gloves and/or the bottoms of your footwear before lifting any object.

Place your feet close to the object to be lifted — 8 to 12 inches apart for good balance.

Place your feet close to the base of the object to be lifted. Bend the knees to the degree that is comfortable and get a good handhold. Keep your back straight and as nearly vertical as possible. Then use both leg and back muscles.

Lift the load straight up — smoothly and evenly. Pushing with your legs, keep the load close to your body.

Lift the object into the carrying position, making no turning or twisting movements until the lift is completed.

Turn your body with changes of foot position after looking over your path of travel making sure it is clear.

Setting the load down is just as important as picking it up. Using leg and back muscles comfortably lower load by bending your knees. When load is securely positioned, release your grip.

If you deposit the load on a bench or table, place it on the edge to have the table take part of the load. Then push it forward with your arms or, if necessary, with the part of your body in motion.

In placing the load on a floor surface from a waist high carrying position, bend your knees, and with your back straight and load close to your body, lower the load using your arm and leg muscles.

When lifting and carrying any object, always have a clear field of vision over your load.

Do not be afraid to ask for help handling any load.

INJURY, FIRST AID & FITNESS

1120 FIRST AID

First Aid is the immediate and temporary care given the victim of an accident or sudden illness until the services of a physician can be obtained.

This may include the control of bleeding, prevention of shock, and care for injuries by qualified and trained individuals (artificial respiration). The application of adhesive bandages (Band-aids) or local antiseptics is not considered as First Aid treatment for the purpose of this section.

Only employees who are qualified and approved by the Department shall administer First Aid treatment.

First Aid Kits are readily accessible in or near your work area. Ask your supervisor to replace First Aid supplies when necessary.

Know the phone number for emergency service 911, the nearest Ambulance, Fire Department, Doctor, and/or Police Department. When calling for this emergency service, remain calm. Do not end the call until you are sure that the person answering gives you permission to do so.

You should offer reasonable assistance to anyone involved in an accident whether or not Department equipment or personnel is involved.

1130 RABIES-PRECAUTIONS & FIRST AID

What is Rabies?

- Rabies is a viral disease that can infect all warm-blooded animals and humans.

How is Rabies Transmitted?

- Rabies is most frequently transmitted through the bite of a rabies-infected animal. It may also be transmitted through the exposure of an open wound, abrasion, scratch, or mucous membrane to the saliva of a rabies-infected animal.

What are some of the symptoms of a rabid animal?

- Abnormal behavior may vary from a quiet depressed state to a furious erratic behavior pattern.
- Reduced fear of humans by wild animals
- Domestic or tame animals with uncontrolled behavior
- Nocturnal animals moving about during daylight
- Foaming at the mouth can be present, but not always

What are some on-the-job countermeasures?

- Avoid contact with all live warm-blooded animals.
- If removing dead animals from roadway, always wear gloves and use a shovel.
- Consult your supervisor for proper disposal of dead animal carcass disposal procedures.

- Decontaminate gloves and shovel with a mixture of 1 part Clorox to 10 parts water; 1 pint Clorox to 1 gallon of water is a good field mix.

What is the First Aid Treatment after exposure?

- Clean the wound with soap and water.
- See a doctor immediately.

1140 WHAT TO DO WHEN SOMEONE IS INJURED

Secure the area - Make sure the injured is safe to approach. Ensure there are no hazards present that may cause injury to you or others.

Determine the severity of the injury - If immediate medical attention is needed call 911. If non-emergency medical care is needed, notify your supervisor and arrange for transportation to the nearest panel physician.

Know what NOT to do - If first aid is needed and you don't know how to give it, you may do more harm than good. It is important to know not only what to do, but also what NOT to do. For instance, do not try to move an injured person unless you know that moving him will not worsen the injury. Improper and/or careless moving can increase the severity of an injury and even cause death. In case of a fracture or broken bone, it's often best to let the victim lie where he is until competent help arrives. Remember that fracture cases are not for amateurs. Wait until a person arrives who is experienced in first aid.

Of course, these are the big accidents. Most often you'll run up against smaller injuries — burns, nicks cuts and scratches. The danger here is in the fact that most employees don't bother to get first aid for these minor injuries. But unless they are properly treated, these little injuries can develop into serious infection cases. Remember the old adage about a stitch in time. Work carefully, but if you get hurt or someone else gets hurt, get expert attention as soon as you can. Time is often very important.

When an injury occurs — serious or minor — be sure it receives the right kind of treatment, as early as possible.

1150 INSECT STINGS

Arrival of warmer weather brings out the bees, wasps, hornets, and other stinging insects. If you encounter these without having been stung, don't swat at the insect or try to run away; such movements antagonize the insect and increase your risk of being stung. Employees should let their supervisor know if they are sensitive to insect bites and stings.

Precautions

- Retreat slowly or lie face down and cover your head with your arms
- Don't wear scented lotions, colognes, and shampoos when working out-of-doors

Signs/Symptoms

- Local irritation and pain
- Moderate swelling and redness
- Possible itching and/or burning

First Aid Treatment

- If the stinger is left in the wound, withdraw it.
- Apply a paste of baking soda and water or a sting kill swab from the First Aid Kit
- Relieve pain by applying ice water to bite or sting.
- Use a constricting bandage (if on an extremity) and ice
- For people who are allergic to certain insects, get medical help immediately.

1160 GUARD AGAINST PINCH POINTS

In everyday operations there are many pinch points; sometimes we don't even think about these hazards.

Pinch Points to Consider

- Closing Doors: Equipment, car, and even office or shed doors.
- Closing tailgates and adjusting tailgate chains.
- Operating equipment: guarded and unguarded.

Ways to Guarding Against Pinch Points:

- Wear gloves to protect the hands and fingers.
- Never remove equipment guards. They are there for your protection.
- Take your time and make sure hands are clear before shutting doors and tailgates.
- Operate equipment in the proper manner using handholds.

A few extra minutes to check could save severe injury to you or someone else.

1170 CATCHING COLDS

Here are some not-so-common facts about the common cold:

- Colds are caused by specific viruses that for some reason appear mainly in the winter.
- The only way to catch a cold is to pick up a virus through contact with another cold sufferer.
- You cannot catch a cold from getting your feet wet, being chilled, or sitting in a draft.
- Young people are more likely to catch colds than older people because they have not yet built up immunities.
- Most people pick up colds from touching surfaces that have been contaminated with cold viruses by someone's sneeze or cough.
- Cold viruses can survive up to three days on hard surfaces, on some types of fabric, and even on the skin.

- Wash your hands frequently and keep them away from your eyes, mouth and nose to prevent colds. Hand sanitizer use is encouraged in the absence of wash facilities
- Over-the-counter medicines can alleviate cold symptoms, but it doesn't cure a cold.
- According to the National Institute of Health, there is no hard evidence that Vitamin C will prevent or cure colds.
- Drink plenty of liquids and stay in bed.

1180 EMOTIONAL STRESS & SAFETY

Everyone, at either one time or another, is hit with a tragic or burdensome problem, causing varying degrees of emotional stress. No one is guaranteed a life of tranquility and contentment. In fact, many of us have more than our share of problems. It has been proven that emotional stress is a prime cause of many accidents.

When emotional stress occurs, it is a time when safety precautions are unintentionally neglected and accidents are most likely to result. It is also a time when a person needs and craves sympathy, compassion, the understanding of a friend, or even a kind word from a stranger.

Most of your fellow workers are people of compassion, sympathy, kindness and understanding. They don't devote years and years to their job without becoming a humanitarian as well as a person able to cope with everyday stress and strain. These qualities, which we find in ourselves, should be put into practical use to successfully combat those accidents which result from emotional stress among our fellow employees. Here are a few tips which will help you accomplish this goal:

Kindness should be showed to everyone, all the time. That includes showing an interest in people in general, their family, and their work. It doesn't hurt anyone to say a cheery "good morning" to fellow workers. It makes you feel better too!

Some people's emotional stress can be relieved by a simple handshake, a pat on the back, any small token of sincere interest, or a few kind words.

By showing interest and concern in your co-workers, fewer accidents will result due to emotional stress. Remember, even though it is among the hardest cause of accidents to detect, it responds readily to a little kindness. Helping each other get rid of one of the most frequent causes of accidents will result in a safer working place for everyone.

1190 OVEREXERTION FROM LIFTING OR REPETITIVE MOTION

According to the Bureau of Labor Statistics strains and sprains are the most common injury type in most industries.

January 2011 showed a trend in strains and sprains resulting from loading and/or unloading tools, equipment and materials. There were a total of 63 injuries of this nature in fiscal year 2010-2011. To reduce these injuries in 2012, keep the tips below in mind.

Proper Lifting Techniques

- Do not attempt to lift anything that is too heavy, big, or awkward to grasp firmly
- Bend at the knees, not at the waist.
- Remove any slippery substances from your hands, gloves, and footwear.
- Bring the object as close to your body and center of gravity as possible.
- Do not twist your body when carrying a load; pivot with your feet instead of your spine.
- Plan your path of execution and make sure it is free of debris and obstacles.
- Use equipment (dollies, carts, two-wheelers, hydraulic/electrical hoists, or lifts) to move loads whenever possible.
- When lifting, comfortably lower or lift the load by bending your knees and keeping your back straight
- Ask for assistance if needed. Assistance may not be available at times, such as when driving a snowplow or having to attach chains. If someone must lift or move a heavy object, they should follow the above techniques.

Caution

- **Back Belts:** There is no evidence that back belts provide a real benefit in avoiding back injuries. People who use back belts tend to lift more than what they should lift thinking the belt acts as a brace or a mechanical aid when it does not. Back belts are no compensation for proper lifting technique and the strength needed to lift heavier objects.
- **Repetitive Motion:** Repetitive motion can also lead to strains and sprains. During the winter season, keep these techniques in mind, when clearing snow at home and at work.

1200 LIFTING & MATERIALS HANDLING

SPRAINS AND STRAINS PREVENTION

Sprains and strains account for about a third of injuries in construction. These soft tissue injuries occur frequently, and are painful, disabling and often accompanied by lengthy recovery periods. Maintaining good physical fitness is essential in avoiding sprains and strains.

Sprain - an injury to a ligament, the tough, fibrous tissue that connects bones to other bones. Sprain injuries involve a stretching or a tearing of this tissue. Ankle, knee and wrist injuries account for the majority of sprains.

Strain - an injury to either a muscle or a tendon, the tissue that connects muscles to bones. Back injuries are the most prevalent in regard to strains. Depending on the severity of the injury, a strain may be a simple overstretch of the muscle or tendon, or it can result in a partial or complete tear.

To minimize the chances of **sprains**, observe the following practices:

- Practice safety measures to help prevent falls. For example, practice safe housekeeping by keeping work areas clear of clutter.
- Avoid strenuous activity on the job when tired or in pain.

- Use extra caution when working on slippery surfaces such as ice or wet floors.
- Always wear appropriate and proper fitting footwear for your job.
- Use extra caution when walking across uneven surfaces. These are areas where you could easily turn or twist an ankle or knee.
- When stepping off ladders, always look where you are placing your feet, before you put your full weight on them.

To minimize the possibility of incurring **strains**, observe the following practices:

- Whenever possible, arrange your work areas to minimize the amount of heavy lifting required.
- Before any heavy lifting activity, always warm up, using moderate stretching exercises. Do not stretch aggressively as you may over-stretch and injure yourself.
- Always plan the lift. Consider the weight of the object; how far you must carry it and your route of travel. When you approach an object on the floor, try to get an idea of how heavy it may be by moving it with your foot or cautiously lifting it off the ground. If the object is too heavy, seek additional help or use a mechanical lifting device such as a forklift, hand truck or winch.
- Lift objects in the “power zone”. This is the area between mid-thigh and mid-chest height. Avoid lifting objects outside this zone. Use your best judgment when lifting heavy objects. Do not attempt to lift an object that exceeds your strength, and use extreme caution when lifting objects exceeding 50 lbs.
- Always carry objects close to your body.
- Always lift slowly and smoothly.
- Avoid twisting. Always turn the whole body as one unit when changing direction while carrying a heavy object.
- Move heavy objects by pushing or pulling, whenever possible. Pushing is always preferable.
- Always stand close to the object that you are lifting and be certain that fingers and toes are clear when setting it down.
- Always lift with your legs and not your back.

1210 ON-THE-JOB EXERCISE

Exercise helps you reduce tension, feel better, and work at maximum efficiency. But not everyone has the time or inclination to work out on a regular basis. Here are a few exercises you can perform on-the-job without interrupting your routine that can be almost as beneficial as a trip to the gym.

- In your office building, or anywhere else, get off the elevator a floor above or below your destination and walk up or down the last flight of stairs.
- Use odd moments during the day to do a few semi-pushups; lean on your desk at a 45° angle, then push yourself up straight or try several deep knee bends.
- Set aside part of your lunch hour for a brisk walk. Even ten minutes can help you walk off “tension buildup”.

1220 SHOVELING

The American Heart Association offers the following shoveling tips:

- Cover as much exposed skin as possible, especially when the wind chill is below 20°. Use multiple layers of lightweight clothing for easy movement. Top layers can be removed as you work to prevent overheating.
- Use a sturdy lightweight shovel to push snow out of the way. If you must lift it, take small scoops and use your legs and entire body to help move the load, not just your arms and back.
- Do not smoke, or drink an alcoholic beverage while shoveling. Cigarette smoke constricts your blood vessels making your heart and lungs work that much harder. Drinking may give you a false sense of energy and lead to over exertion.
- The best time to shovel is before eating or at least one to two hours after eating.

If at any point you feel a pain or heaviness in your chest, are dizzy, faint, or sweating profusely, stop shoveling immediately and get medical help; you may be having a heart attack.

Stay Healthy While Shoveling

- Stand near your work instead of reaching.
- Take a moment to stretch your muscles.
- Keep hands widely separated for good leverage.
- Bend your knees and keep your back straight as you lift.
- Scoop in a forward motion.
- Do not twist.
- Do not load the shovel with more than you can comfortably carry.

PERSONAL PROTECTIVE EQUIPMENT

1230 HEAD & EAR PROTECTION

Department approved hard hats shall be worn when working in areas where there is a danger of a high impact incident from falling or moving objects and on all field assignments.

Department approved bump caps may be worn while in the shop or garage area.

Hearing protection shall be worn when exposed to intense sound or high noise levels for extended periods of time and for temporary exposure to loud noises.

1240 CARE OF HARD HATS & CAPS

The hard hat or cap is one of the most important pieces of protective equipment. In order for it to provide you with the maximum protection, it is essential you use the proper care and maintenance on it.

The following procedures should be followed:

- Inspect the shell and suspension regularly. If any signs of wear such as hairline cracks, change in color, torn adjustment slots, or fraying material appear, it should be replaced immediately.
- Ensure suspension is properly adjusted to provide secure fit.
- Clean hat periodically with mild soap and water to keep it in good condition.
- Never alter or modify shell or suspension.
- Never use paint, solvents, chemicals, adhesives, gasoline, etc., on hats.
- Do not wear hat backwards.
- Never carry anything inside of helmet.

If the hat has sustained an impact from an object it should be replaced, even if no damage is visible.

1250 I DON'T LIKE TO WEAR MY HARD HAT

Although there is no valid defense for rejecting the idea of wearing protective head gear, objections do exist, including complaints of head gear being too heavy or causing headaches. Here are some answers to common objections to wearing safety head gear.

Headaches -This can be an actual problem rather than an imaginary one. Almost always, the cause is improper adjustment of the suspension system or nape strap. Loosening the size adjustment one notch can sometimes alleviate the problem. Replacing a worn out suspension or perspiration pad helps the hard hat rest more comfortably on the brow. Sometimes workers forget that their hair continues to grow after a comfortable adjustment. Hair trimming or readjustment of suspension can eliminate the headachy feeling.

Too Heavy - Most head gear weighs little more than a dress hat. Our hard hats are about 13 ounces in weight.

Too Cold - Approved helmet liners are available for winter use.

Too Hot - Actually, all types of head covering are cooler than an unprotected head. In laboratory tests, baseball type caps were tested with several hard hats and bump caps. An outside temperature of 100°F was created by photoflood lamps. Inside temperatures of the baseball caps was found to be 2°F cooler than the outside temperature. Inside the hard hats, temperatures were 5°F to 12°F cooler. The reflectivity of the shell and ventilation through the suspension give better thermal protection.

Despite these ready answers, objections to the wearing of hard hats will continue. Quite often the reason is that the objectors have not been properly informed of the value of protecting their heads.

Employees are not permitted to remove the suspension system for any reason. When the suspension system is removed the hardhat is useless. Ball caps must not be worn between the suspension system and the head, as the impact protection of the hard hat may be compromised.

1270 PROTECTIVE PERSONAL ATTIRE

Ensure that employees are properly attired at all times. Improper clothing can lead to serious injuries and lost time

Summer - Employees are exposed to poisonous plants, bright sun, rapid dehydration, biting and stinging insects, petroleum vapors, and hot liquids. In order to minimize these hazards, employees must wear the following:

- Light-weight, light-colored, cotton or cotton-blend clothing
- Tops with unaltered sleeves of 6" or longer from the seam (No see-through clothing allowed)
- Long-legged trousers (No sweatpants or capris allowed)
- Appropriate footwear as defined under the Foot Protection section.

Winter - Employees are exposed to severe wind chill factors and precipitation in the form of rain, sleet and snow. Employees must wear the following:

- Non-skid boots, rainwear, winter liner for hard hat, gloves and glove liners
- Wool or wool blend clothing
- Several layers of light clothing are warmer than one heavy layer

1280 FOOT PROTECTION

All safety footwear must be of high-top/above the ankle design. No sneakers are allowed. The Department provides toe protection in the form of metatarsals which are stored inside crew cabs. Toe Protection must be worn by all employees engaged in the following:

- Pneumatic spade, drill, or tamper operations
- All areas where there is a hazard from falling or rolling objects, or from accidental tool impact

Appropriate safety footwear with puncture resistant insoles must be worn by all employees exposed to foot puncture hazards such as nails, glass, wire and other sharp objects. Non-skid boots should be worn by all field operation personnel working during the following:

- During inclement weather.
- On wet or contaminated surfaces.

1290 SAFE WORK CLOTHING

Safe work clothing can be defined as ordinary clothing that is clean, in good repair, fits properly, and is suitable for the job. "Safety Clothing" are garments specifically designed for special or hazardous jobs where normal work clothing will not offer adequate protection to the worker. A good fit is essential because loose clothing tends to get caught in moving machine parts. Neckties and loose sleeves are hazardous and should not be worn. Trousers should fit properly and should be without cuffs.

SAFETY STATE OF MIND

1300 PROPER JOB INSTRUCTION

Proper job instruction takes little time and helps to reduce accidents, improve productivity, and helps cut costs. It is essential for every task performed.

Explain - Explain the importance of doing the task properly, giving step by step instruction on how to perform the task and inform the employee of the personal protective equipment that must be worn.

Show - Show the employee the proper procedures and answer any questions he may have.

Watch - Let the employee perform the task — watch carefully and correct any procedure done incorrectly.

Check - Check back with the employee from time to time to see if the job is being done properly and check with employee to see if he/she has any questions.

Follow up - The follow up is important for all employees. It is a good opportunity to correct safety problems before an accident happens.

1310 UNAVOIDABLE ACCIDENTS

This is the story of an event that really occurred in a large industrial plant.

An employee had removed a guard from a machine to do some oiling. The oil can that person was using had a long spout for getting into the more remote parts of the machine. While they were oiling the machine, the guard that had been removed fell over, struck the oil can and threw the spout over so that it cut an ugly gash across the right eyebrow of the employee, just missing the eye itself.

A little later the employee was in the emergency hospital receiving attention for the cut and spoke about the accident to the nurse who was attending him. They said, "You know, that was an unavoidable accident. You can talk safety as much as you please but there are always unavoidable accidents and this was one of them".

The nurse asked, "Do you mean that you are going to let that same thing happen again?". "No," answered the person, "it will never happen to me again." Then the nurse asked, "But how will you avoid it?" They replied, "By laying the guard in another position."

So, this person, who began by proclaiming this to be an unavoidable accident, concluded by explaining just how it might be avoided.

1320 THINK

If you were asked to define "Safety" in one word, what would you reply? Would you define safety as alertness, always ready for the unexpected? Would you define safety as

experience, asserting that the veteran never gets hurt? Would you define safety as cooperation, the ability to exercise patience and get along with your fellow worker? After due deliberation, would you finally define safety with the use of the single word: THINK?

Perhaps alertness, skill, experience and cooperation could be associated with safety, but these are secondary to the word THINK and must be thought of as secondary definitions.

A well-known business executive has made the word THINK synonymous with success, and as in other phases of industry, the application of the meaning of the word is also very necessary if we are to reduce the number of accidents and injuries. It has often been stated, ninety percent of all accidents are attributed to unsafe acts on the part of the worker, and failure to think before acting constitutes the cause of practically all accidents in this category.

A carpenter removes a guard from a table saw for the purpose of expediency; an injury results. The employee has not given thought to the original purpose of the guard and has suffered the unfortunate consequences. Another individual, again the essence of time, fails to wear safety goggles for a project "that'll only take a minute". Again, injury results because of failure to think of the possible negative result. A truck driver is involved in an accident because he knew he had the right of way but failed to think that perhaps the second party involved would not recognize this established right.

Many accidents could be averted if we would only discipline ourselves to give full thought prior to the application of our actions.

1330 PERSONAL SAFETY

HORSEPLAY AND CROWDING

Horseplay: Any action of horseplay on work operations or in the office will not be permitted. Such action can lead to disciplinary measures. Any practical jokes and misuse of Department equipment for the purpose of humor is forbidden. Shooting of rubber bands or paper clips is prohibited. Horseplay or any unauthorized activity, is prohibited during working hours and/or on the employer's premises.

Crowding: When working in groups, proper spacing assures better work efficiency and minimizes the danger of injury from hand tools or equipment being used by other personnel. Wherever possible, keep yourself clear of operating equipment and machinery and work facing the movements of mechanical equipment. Use safety publications, training aids, and literature, furnished by the Department, as an aid in your acquiring knowledge of accident sources and causes in work processes, equipment and machine operations and maintenance.

1340 CLOSE CALL

How many times have you come close to an accident, shrugged it off as a "near-miss" and gone on your way without giving it another thought? The difference between an

accident and a near-miss many times is just a fraction of a second in timing or a fraction of an inch in distance, and the next time the difference may not be there.

Near-misses are warnings of accidents in the making. If we accept the warnings and look for the causes, we may be able to prevent similar situations from developing. Suppose an employee is going up a gang plank onto a bridge footer. Their foot slips, but they are young, agile, fast and empty handed, so they regain their balance with no harm done. Someone else comes along, but their reactions are a little slower. Their foot slips, and to keep from falling, they jump off the plank. Again, no harm done. A third person then comes along carrying a load. They are just as fast as the first two but can't maneuver because they are weighted down. Their foot slips, then they fall off the plank with the load on top of them. The seriousness of the injury is a matter of luck, a broken ankle, a fractured rib, possibly a broken neck, or maybe only scratches. But, it's an accidental injury.

Two warnings were ignored and finally, someone was hurt. Now the loose cleat, sand, mud or ice is discovered and the condition is corrected. Like locking the garage after the motorcycle is stolen. Two people saw the thief but didn't bother to take another look and recognize it for what it was. There are few accidents that occur without some advanced warning. If we all heed the warning and check why, most accidents can be eliminated.

A near-accident is an indication that something is wrong, and we should be warned by each near-accident that occurs. Do not shrug off the near-misses as only close ones, but find out why they happened and who can take corrective action.

Don't take unnecessary chances or ignore warnings and don't think "it can't happen to me". It can happen to YOU if you don't take precautions to protect yourself.

1350 SAFETY ALWAYS — ALL WAYS

Safety must be practiced at all times and in all ways. Even though safety is emphasized at work, we must remember that accidents do occur en route to work and at home.

Every effort must be exerted to avoid possible accidents, injury, or death on the job. This is everyone's responsibility. Good judgment and alertness are two key items that aid in reduced accidents and injuries. Unsafe conditions will be eliminated if over-all good housekeeping is practiced in the work area by all workers, for it is everyone's obligation. Personal protective equipment affords the worker protection against many hazards. This equipment is furnished by the company and worn whenever the job requires it to be worn. No exceptions should be allowed.

Statistics indicate that more accidents are the result of unsafe conditions at home than on the job. Therefore, it is quite important that certain efforts be directed toward making our homes safer for ourselves and our families. Since we are considered to be self-appointed home safety engineers, we must be on the lookout for unsafe conditions and unsafe practices on the part of our families.

Fire hazardous items should not be placed in storage areas. Paints, thinners, pesticides, and other solvents that are potentially dangerous should be kept in proper locations.

Items that are not medicine and which are of a dangerous nature should not be stored in the medicine cabinet. This cabinet represents a contribution to our safe being and should contain medicines for this purpose only. Inspect all gas and electrical appliances regularly to assure A-1 operating condition.

Keep alert and practice safety all the time.

1360 BE SENSIBLE

There are two words that can save us many bad accidents. They are common words, but wise. "BE SENSIBLE".

Safety is nothing more than common sense. If we can depend on every employee to use his/her wits in an ordinary way, we will have little trouble. Remember these two little words, "BE SENSIBLE".

We can have the safest conditions, the safest equipment and the best intentions in this world, but if you don't practice those two words, you will continue to endanger your own well-being, your ability to earn a week's salary, and the lives of others.

What we want to do here is prevent accidents from occurring in the first place, and we can't do that without your help.

You are not using good sense when you attempt to operate equipment you know nothing about. It's not "being sensible" when you carry heavy loads up or down a ladder instead of using a hand-line. It's not "being sensible" when you fail to use safety goggles while operating Jack-Hammers, high pressure air hoses, or doing chipping and grinding.

It's not "being sensible" to ignore all warning signs. It's not "being sensible" when you fail in your own personal responsibility. Under the Rules and Law of this state, "Every employee shall use all safeguards, safety appliances, or devices furnished for his protection and shall carry out all regulations which may concern or affect his conduct."

Let's adopt a new attitude of Personal Responsibility for not being negligent.

Let's "BE SENSIBLE" AND PREVENT ACCIDENTS, NOT CAUSE THEM!

1370 DON'T KICK THE HABIT

The easy way to do things right is to make it a habit. Good habits make hard jobs simple. Good habits may take time to develop but they'll work for you forever.

You remember brushing your teeth and washing your face when you got up this morning don't you? Probably not, but you know you did it. It's so much a matter of habit you didn't even notice you did it automatically without thinking.

Good habits work for us, even when we're not at our best. Unlike conscious actions, they don't depend on how we feel or how busy we are. And habits are always more reliable than memory.

The mechanic who has made a habit of checking his/her tools for burrs, cracked handles, etc., sees that they are all in good shape before using them will not only do better work with them, but will do it safer.

The operator who has made it a habit to always check his machine over before mounting it to go to work, more than likely will save himself a lot of grief because this in itself is a safety check. At the same time, he may save the department an expensive repair bill.

Once a habit has been firmly established, you cannot forget it, or ignore it even if you want to. It becomes second nature almost.

Now, how do we go about forming good habits? The same way we form bad ones, by repeating the same action in the same situation, over and over again, without fail. If a secretary always writes the message down immediately, they will soon find themselves doing it right away, automatically. If the office manager pays bills and checks statements, always double checking the figures for accuracy, double checking will soon become second nature.

Every time you repeat an act, you reinforce and strengthen the habit. The important thing to remember is not to make any exceptions. Exceptions weaken the habit. That's why safety rules should be followed at all times — made into good work habits without any exceptions. Steady, unbroken safety rules, with constant repetition, fix them firmly as a habit and make them a part of you.

Let your good habits work for you. Make safety a force of habit.

1380 UNSAFE SHORT-CUTS

We all like to get our work done with the least amount of effort. We want to get the most out of the energy we use on the job. Sometimes this is good, and maybe had been responsible for a better way of getting things done.

But this energy-saving attitude also gives us an urge to take short-cuts. And all of us at some time or another have exposed ourselves to possible injury by short-cutting when a few extra steps would have meant the safe way. As kids we did it by jumping the fence instead of using the gate, now we do it by crossing the street between the intersections.

The safe way isn't always the shortest way. Sometimes the safe way takes some extra effort while the unsafe way seems very easy. The decisions we make when we're faced with such situations are a personal responsibility. Sometimes we can talk ourselves into taking an unsafe shortcut by faulty reasoning. We can convince ourselves that it is worth the risk because we're "in a hurry" and can probably get away with it.

Don't take chances. Take the case of the person working on a ladder who is almost done the job except for a little work that they can do by "reaching". That person knows they will be taking a chance so they have to make a decision whether to get down and move the ladder or take a short-cut. Let's suppose they take the short-cut -- they may get away without having an accident, or they may fall and suffer an injury that will change the whole course of their life, or end it. Whatever the result, their decision to

take the chance was a foolish one. Whether you win or lose, risking your neck to save a few minutes time is a stupid bet.

Take the extra time. When you come right down to it, most people don't really take shortcuts to save time; they do it because doing it the SAFE WAY is "too much bother". Like using the wrong tool because it's too much bother to get the right one, or lifting too much because it's "too much bother" to get the extra help, or chipping without safety goggles because it's "too much bother" to hunt up a pair.

Remember — Nothing is "Too Much Bother" That Concerns Your Safety.

WEATHER & ENVIRONMENT

1390 FROSTBITE

Some tips for preventing frostbite

- Wear warm, loose-fitting clothing and gloves or mittens.
- Keep feet dry.
- Keep active when you are outdoors.
- Don't smoke — nicotine reduces the flow of blood to the arms and legs, placing one at greater risk of frostbite.

Various factors must be considered to ensure safeguarding yourself against frostbite.

- Temperature and wind chill factor.
- Your general health condition.
- Length of exposure.

Consider all three factors above and be sure to dress appropriately.

Some of the signs of frostbite

- A sharp "prickling" or burning sensation of the skin.
- A lighter color to the skin in the affected area usually is apparent. Have fellow employees check periodically to see if this is happening.
- The sensation of pain will gradually turn to numbness as the severity of frostbite increases.

How to Treat Frostbite

- The best first aid is to apply warmth.
- Mild surface freezing can be treated immediately by warming the frost-bitten area with unaffected parts of the body.
- Deeper injury should be treated by soaking in water between 104 and 111 degrees.

The worst possible thing you can do to the frostbite victim is rub the affected area with snow. Also too hot of temperatures, as well as massage, tend to increase both the pain and swelling of frostbite.

1400 COPING WITH THE HEAT

When working outdoors in hot humid weather it is necessary to take precautions to beat the heat.

- Drink plenty of water to replace moisture lost by the body's cooling system. Avoid drinks containing caffeine. These acts as a diuretic which tends to remove fluid from the body.
- Wear loose, light clothing that allows sweat to evaporate and reflects the sun's rays.
- Make sure hard hat is worn to keep the head shaded and cool.

The following are the signs/symptoms and the recommended first-aid treatment for heat cramps, heat exhaustion and heat stroke.

HEAT CRAMPS

Signs/Symptoms

- Painful muscle cramps in the legs and abdomen
- Faintness
- Profuse perspiration

First Aid Treatment

- Move the victim to a cool place.
- Give him sips of water. Mix one teaspoon of table salt to a quart of water.
- Apply manual pressure to the cramped muscle.

HEAT EXHAUSTION

Signs/Symptoms

- Pale, cold and clammy skin
- Profuse perspiration
- Rapid and shallow breathing
- Weakness, dizziness, headache, loss of appetite and nausea

First Aid Treatment

- Have the victim lie down in a cool area and loosen clothing.
- Raise his feet 8 to 12 inches.
- If the body gets too cold, cover the victim.
- Get professional medical aid as soon as possible.

1410 SUMMER WORK PRECAUTIONS

Sun and Heat - Serious illnesses can result from too much sun and heat. To avoid illnesses you should drink cool water, sports drinks (with electrolytes). Eat vegetables and other light, easily digested foods and avoid heavy, fat foods. Wear light, loose clothing and get plenty of sleep.

Lightning - Lightning is another serious summer problem. If a storm is approaching, try to get to either a motor vehicle or a structure. Lightning strikes the tallest conducting object. More people are struck when they are out in the open, than in any other situation. Crouching in a grove of trees is better than standing under a lone tree. Stay 6 feet away from tree trunks, if possible. If there is not a grove of trees, find a ditch or a ravine and keep as low as possible. To minimize contact with ground, crouch as low as you can and have knees touching, but do not place hands down on the ground, place them on top of your knees. Lightning deserves to be treated with great respect and caution.

1420 SUMMERTIME THIRST QUENCHERS

Drinks containing alcohol or caffeine act as diuretics. They actually increase the loss of water from the body at a time when it should be replaced. Sweet drinks tend to draw water from the body tissues to the digestive tract in order to dilute the sugar. Thus, while these drinks may be refreshing at first, you can wind up being even thirstier after you drink them.

When you're really thirsty, there's nothing better than plain water, and lots of it. Under normal circumstances, adults need about three quarts of water a day, but hot weather and exercise can double this requirement. However, you don't have to drink that much water to meet the body's requirements. Most fruits and vegetables are at least 80 percent water by weight. Fried chicken contains over 50 percent water, and bread is about one-third water.

1430 SUN OVERDOSE LINKED TO NUTRITION RISK

Excessive sun, already linked to an increased risk of skin cancer, has shown a decrease in blood levels of beta carotene, according to researchers at Cornell University. The sun's ultra-violet rays seem to be the culprit. Tests with two dozen men and women exposed to measured amounts of ultraviolet light over a two week period showed a measurable decrease of beta carotene, the substance found in carrots, spinach, and broccoli that is converted into Vitamin A by the body. Vitamin A is necessary for normal cellular functioning. The researchers suggest a decrease in Vitamin A could increase the risk of lung, bladder, and skin cancers.

1440 GETTING STARTED IN THE SPRING

As the season changes, new activities are started. This is the time of the year when particular attention must be given to personal protective equipment. Hand injuries, cuts, bruises and blisters can occur when performing an activity after the winter season. Hands have not developed calluses and are not toughened. Wearing gloves can help prevent these injuries from occurring early in the season.

Special care must be taken when lifting. Back muscles which have deteriorated over the winter due to decreased use must be brought back into condition or sprains, strains or dislocations might result. This also holds true for arm, shoulder and leg muscles needing reconditioning to be in the same condition they were in last fall after a summer of activity. Use of lifting equipment and helping each other on heavy objects will reduce injuries.

Many times, employees begin tasks that they performed last year but forget the necessary protective equipment for the operations. The protective eyewear, hearing protection and foot protection needed for compressor-run operations; face shield (safety glasses or goggles), chaps, hearing protection and gloves for chainsaw operations; safety glasses and gloves for cutting pipe are all examples of personal protective equipment typically forgotten early in the maintenance season.

It is the responsibility of First-Level Supervisors to supply and require the use of personal protective equipment to prevent injuries.

1450 WORKING OVER OR NEAR WATER

Employees working over or near water, where the danger of drowning exists must have the following safety equipment available:

- U.S. Coast Guard approved life jacket or buoyant work vests. The jackets and vests must be inspected for defects prior to and after each use. Defective items must be replaced.
- Ring buoys with at least 90 feet of line must be readily available for emergency rescue operations.
- A lifesaving boat must be immediately available at locations where employees are working over or adjacent to water. The boat must be inspected periodically, be in good operating condition and comply with Commonwealth boating regulations.

1460 ENVIRONMENTAL HAZARDS: WATCH YOUR STEP

Use caution when performing work outdoors and watch for environmental hazards such as:

- Mud slides
- Branches or vines hidden in high weeds
- Slippery rocks, grass and slopes
- Uneven, loose or broken steps
- Hidden icy spots
- Uneven terrain or holes

All of these environmental hazards can cause slips, tripping, and falls which can cause serious injuries. Be sure of your footing and watch for hidden dangers. As warmer weather approaches watch for snakes and poisonous plants.

1470 WALKING

You shall follow designated walkways when moving through storerooms or stocking areas. Do not take shortcuts. When climbing or descending stairs you shall always use provided handrails.

WALK - DON'T RUN

Where possible do not walk under ladders, scaffolds or overhead work areas. If your duties require you to do so, wear prescribed personal protective equipment. Always watch where you are walking.

1480 OFFICE SAFETY

Office Furniture and Equipment - This furniture or equipment shall only be rearranged under the direction of your supervisor. Make certain that you close all doors and drawers when not in use. You must evenly distribute the weight of filed material in the file cabinet. Open only one drawer at a time to avoid toppling the cabinet. Desks, working areas, aisles, stairways and storage area should be well lighted. Report any lamp failure to your supervisor.

Broken glass shall be placed in specially marked containers and not in wastepaper baskets. If there are no containers, the glass must be carefully wrapped, marked and set aside for disposal by the cleaning force. (Check with your supervisor before handling). You shall store pointed or sharp objects such as scissors, paper cutters, pencils and pens with care. Spindle files are dangerous and shall not be used.

Use only ladders or footstools with non-slip treads when reaching high filing cabinets, shelves or other pieces of elevated equipment.

Aisles, Floors, Doors - You shall not leave objects lying in aisles or places where they could be tripped over. Alert yourself to electrical or phone connections mounted in the floor which could be a tripping hazard. Loose floor tile, holes or other defective flooring is dangerous. Report this condition to your supervisor. Slip resistant preparations are normally applied to polished floors. Test your footing to avoid slips. Corridors and entryways may become slippery when wet. If storm mats of fluted rubber, untreated leather, or other suitable material are not provided, walk with extreme caution. Differences in elevation of the floor in aisles, corridors and walkways are usually indicated by striping or signs. Use handrails provided for you. Clear glass doors and side lights should have an identifying mark usually in the center of the panel. Make certain that no one is near enough to be struck by the door when it is opened. Doors that open onto stairways are to be clearly marked with suitable signs for your protection. Report missing signs to your supervisor!

Stairs - You shall use handrails when ascending or descending stairs. Report worn stair treads or loose railings to your supervisor. Report wet, cluttered or unclean stair treads to your supervisor.

1490 SAFETY WITHIN THE WORK AREA

Control traffic and personnel movement within the work area. Most of our fatal accidents have occurred inside of work areas while employees are in close proximity to moving vehicles and equipment.

Obey the following instructions:

- Never permit employees to stand behind or in front of vehicles and equipment that are in operation.
- Do not permit employees to stand on running boards or other vehicle parts outside of the cab.
- Do not permit the movement of any vehicles inside your work area without prior approval.

- Instruct all operators that they are forbidden to back up a vehicle without conducting the circle of safety. This requires the operator to walk a complete circuit of his vehicle looking under the wheels as well as the front and rear of the vehicle observing potential hazards before backing.

SAFETY IN YARDS & ASSEMBLY AREAS

1500 MAINTENANCE YARDS & ASSEMBLY AREAS

The following areas should be inspected periodically:

- Anti-skid material, properly stored
- Propane storage
- Scrap pile area, small and neat
- Solvents and bituminous material properly stored and piled
- Core drilling sample stored properly
- Tool sheds, neat and clean
- Pipes stacked properly
- Disposal of refuse, properly and frequently
- Gasoline pump area, clean and neat
- General appearance

1510 MATERIAL STORAGE

- When using a lift truck always adjust forks to proper width.
- Round objects like pipe should be blocked and chained if necessary to prevent rolling.
- Materials in bags should be stacked by varying each layer in direction so that each bag rests on two in the layer below.
- Large cans and kegs should be banded or chained together on each layer.
- Lumber should be stacked with cross-tie pieces to steady the pile and prevent shifting. They also provide ventilation.

1520 OPERATING A FORKLIFT

- Employees operating a forklift must understand the principal of counterbalance.
- Forklifts are sensitive to rapid steering motion because of rear wheel steering and the instability of a hoisted load.
- Forklifts were not designed for high speed use or travel on uneven surfaces and will tip over when operated under these conditions.
- If a large load obstructs forward vision then operate with the load trailing.
- Allow additional turning space to clear stationary objects, moving trucks, and pedestrians.
- Place forks on the ground when not in use to prevent contact injuries with them. Allow for adequate overhead clearance to avoid hitting objects.
- When operating on grades travel slowly and do not angle or turn.
- Loaded trucks operated on an incline plane greater than 10% must be driven with the load upgrade.

1530 SAFE USE OF LADDERS

Climbing to or from one level to another is probably one of the chief causes of accidents. Many such accidents are caused by failure to think before selecting a ladder or positioning it. Remember to:

- **Choose the Right Ladder** - Use the right length ladder, neither too long nor too short. Be sure it has safety feet or is secured. Choose appropriate type; wood, aluminum, step or extension. If possible have a co-worker at the foot of the ladder to stabilize it.
- **Check the Condition of the Ladder** - Watch for split or cracked side rails, missing or broken rungs, loose rungs or other weaknesses, and for splinters or sharp edges.
- **Place the Ladder with Care** - Be sure the ladder has a firm footing.
- **Climb the Ladder Carefully** - Wear proper shoes with soles in good condition and free of grease or mud. Face the ladder and hold on with both hands when going up or down. Raise tools and materials with a hand line.
- **Never Overreach** - Move the Ladder Instead — Don't lean out to the sides — use safety belts and line and "tie off", when necessary.
- **Whether at Work or Home, Use Ladders Safely.**

1540 USE OF METAL LADDERS

Metal conducts electricity! Keep ladder away from power lines and electrical wires."

- Metal ladders that come in contact with an electrical current will cause an electrocution hazard for the person on the ladder and those standing near it.
- Warning labels are usually found on all metal step ladders and extension ladders — to avoid being electrocuted; the following guidelines must be followed:
- Carefully check the location of all power lines before using a ladder. Any power line can permit electricity to flow if a piece of metal or other object touches it. Keep, at least, a 10 foot working distance from all power lines.
- Assume all overhead lines are carrying electricity.
- Before climbing the ladder, make certain that the ladder's feet are solid and on level ground. If possible have a co-worker at the foot of the ladder to stabilize it.
- Use a non-conducting ladder, such as fiberglass or wood, when working near power lines.
- Never place a ladder where it could slide into a power line. The distance to the nearest line should be at least twice the length of the ladder.
- If a ladder falls toward a power line; let it go, don't attempt to move it until the power company has disconnected the electric current.

1550 LADDER SAFETY-DO'S & DON'TS OF USING A LADDER

As simple as it may seem to use a ladder, many disabling injuries occur each year due to improper use of ladders. Knowing the “Do’s” and “Don’ts” can help you avoid becoming another victim of falling from a ladder.

- **Do** - Look overhead before placing a ladder, with special attention to power lines and other electrical hazards.
- **Don’t** - Assume the area above the ladder is clear of hazards.
- **Do** - Use ladders made of non-conductive material when working around power lines or other electrical hazards.
- **Don’t** - Use aluminum ladders when working around electricity.
- **Do** - Set up the ladder on the ground, floor, or other level, stable surface.
- **Don’t** - Place a ladder on slippery, cluttered, or unstable surfaces such as boxes, carts, tables, etc.
- **Do** - Take your time and climb one rung at a time while using the “3 Point Contact” rule.
- **Don’t** - Hurry up a ladder to complete a task.
- **Do** - Climb down and move the ladder to get proper access to the work area. Keep your belt buckle between the side rails.
- **Don’t**...overreach beyond the side rails to conduct work.
- **Do** - Climb all ladders facing the rungs.
- **Don’t** - Turn your back to the ladder at any time.
- **Do** - Use a bucket or other means to lift objects to the work area.
- **Don’t** - Carry heavy objects or tools up the ladder.

RESPONSIBILITY FOR SAFE OPERATIONS

1560 EMPLOYEE RESPONSIBILITY IN SAFE OPERATIONS

The Department's injury prevention program cannot be achieved unless employees are dedicated to the prevention of accidents. Through the safety organization, all employees play an important part in making the job a safe and healthful place in which to work. However, improvement can only be made as we become aware of areas needing improvement. This job must be done by everyone bringing hazards to the attention of their supervisors immediately.

All new employees need to be informed of Department safety policies upon hire. The newcomer is normally unfamiliar with the operations. He/she is not experienced in safe operating procedures or the use of protective safety equipment. He/she will have to be shown, perhaps many times, how to work safely and how to prevent accidents from happening to themselves or to their fellow employees.

The older, more experienced worker has their own set of safety problems. They may become lax, taking shortcuts in their work operations or neglecting to use protective safety equipment because of that "safe" feeling brought about by the familiarity.

Supervision alone cannot accomplish the safety task. It can only be accomplished as you cooperate.

You are personally obligated to your fellow employees, and to yourself to recognize and suggest ways to improve the safety and health conditions in the workplace. Each person must in some way become his own "safety engineer".

As you keep a sharp eye out for job hazards, and as you personally set a good example of safe workmanship, you will contribute much toward the health and well-being of yourself and your co-workers.

1570 INTOXICANTS — DRUGS

Intoxicants, narcotics, alcohol, hallucinogens, illegal drugs, or other mind impairing substances are prohibited on property owned or occupied by the Department, nor shall they be transported in any Department vehicle.

The use of any of these by you or any other person, during working hours, while operating Department equipment, or working on leased equipment, is strictly prohibited and constitutes grounds for disciplinary action.

1580 LEAVE YOUR JEWELRY AT HOME

Many serious accidents have been caused by wearing jewelry on the job.

- Rings, bracelets, necklaces, earrings and wrist watches should be left at home or removed before work begins.

- Jewelry not only causes serious injuries due to being caught on, under or between objects, but it is also an ideal conductor of electricity and has been the cause of many electrocutions.
- It is better to remove jewelry before an accident occurs; because in most cases the extremity is either amputated or so severely deformed that jewelry can't be worn after the accident.
- Protect your hands and fingers and don't wear jewelry on the job.

1590 RESPECT POWER LINES

Our field activities involve constant work in proximity to power lines. Supervisors and employees must always be alert to this fact. The location and height of power lines must be taken into consideration before conducting any work operations.

The following precautions will minimize the risk of power line hazards:

- Always evaluate the location and height of power lines before starting any operation.
- Maintain a minimum operating clearance of 10 feet around all power lines.
- Contact PA1 prior to digging.

These guidelines apply to employees, vehicles and equipment. If this clearance cannot be established, contact the power company for assistance. Power Company employees are highly trained in electrical safety and will always cooperate to avoid potential accidents.

Always remember the following:

- Maintain a minimum drive under clearance of 5 feet between the highest point of the vehicle and equipment and the power line. This clearance only applies to vehicles and equipment in transit on the highway. If this clearance cannot be established contact the power company to have their lines raised.
- Do not stockpile materials directly under power lines to avoid the possibility of trucks and materials handling equipment exceeding a safe clearance distance.

MAINTENANCE

RESPONSIBILITY FOR SAFE OPERATIONS

2010 WINTER OPERATIONS

Blocking Snow Plow - Snowplows are to be blocked to the proper height for immediate attachment to vehicles. Employees are not permitted to manually lift snow plows.

Jammed Spreaders - Turn off power to the augers, remove key from ignition, open spreader box and clear jam with a wood pry bar, return to cab and activate auger. Employees are not permitted to place their hands in augers except for required maintenance with auger disconnected.

Getting On and Off of Vehicles

- Clear snow and mud from boots. Use a firm hand grip and place feet securely, maintaining three points of contact, when climbing on and off a vehicle. Do not jump off vehicles — use steps and hand grips to dismount. Dismount facing the same way you entered.
- Perform a dry run of your snow route. Become familiar with any hazards such as low power lines, raised manholes, expansion joints and low bridge clearance.
- Check equipment before each use. Look for cracks or damages to the plow. Insure that all controls are working properly.
- Before leaving the stockpile, check the anti-skid for lumps, stones, etc.
- Make sure truck has not been overloaded.
- Perform the circle of safety — with lights on.
- Dress appropriately- wear warm gloves, hat, insulated/waterproof boots, hard hat liner.
- Set tail gate chains before loading up.
- Disconnect engine heater electrical cords before moving equipment. Install tire chains if needed.

2020 WALKING & WORKING SURFACES

- Wear waterproof boots with good tread during inclement weather to keep feet dry and to help prevent slips and falls.
- Be aware that there may be hidden icy spots under the snow which can cause falls.
- When it is raining and temperatures are low, there may be icy spots in certain areas.
- Clean boots before getting into vehicle to prevent falls and feet slipping from brake and gas pedals.
- Use caution when getting on/off vehicles. Be sure of footing and use hand holds.

2030 HANDLING OF ANTI-SKID

- Use caution when clearing augers and spreaders so that the covers do not fall on your feet and that hands are never placed in these items. Use a pry bar to unclog augers.
- When removing lumps of anti-skid from bed of truck, make sure you have good footing when climbing and descending. Be sure to use handholds.
- When covering anti-skid stockpiles, watch footing for possible sinkholes.
- Probe with a bar or pole in front of you as you climb to locate sinkholes. If you must manually spread anti-skid, avoid standing in the bed of a truck whenever possible. Never stand in a moving vehicle.
- Always wear gloves when handling anti-skid.
- Ensure limited contact exposure to skin and remove anti-skid from clothing as soon as possible.
- Ensure spreader calibration is properly adjusted to avoid damage to private property.
- Check for lumps and foreign objects before spreading.

ASSEMBLIES

2040 DELINEATOR POSTS

Be sure to check for broken or cracked posts when loading or installing new delineator posts. When posts are broken or cracked they produce a splinter like glass that is very sharp and can penetrate the skin. Gloves should always be worn when handling delineator posts.

2050 GUIDE RAIL REPAIR & REPLACEMENT

- When manually installing posts, use driving head and wear goggles or face shield.
- Don't use cutting torch on any galvanized parts.
- Use enough people to handle panels.
- Watch for panels with pressure on them when unbolting – can spring back.
- Use spud wrench (alignment tool).
- Use clamps to pull panels together to install bolts.
- Gloves should be used when handling metal parts.

2060 PIPE REPLACEMENT

- Use leather gloves when handling pipe.
- Split pipe and use band when inserting into existing headwalls.
- Use saw, not cutting torch, to cut pipe.
- Caution employees to stay away from backhoe.
- Use a ratchet wrench, not open ended, on the bands.

2070 CRACK & JOINT SEALING

- Use leather gloves with gauntlets.
- Coveralls must be rated to protect against thermal burns and should be loose-fitting to allow for easy removal.
- Rubber hose on applicator wand will cut down on heat.
- Fire extinguisher on kettle should be easily accessible.
- Inspect router to be used. Ensure guards are in place and the equipment power cord is in good condition.
- Use a spotter while routing and staying within work zone.
- Cleaning cracks, keep a good hold on the compressed air nozzle. Never use compressed air to clean off clothing or point the nozzle at another employee. Maintain good communication with dump truck operator during the task. Predetermine what signals to be used. Wear goggles to protect eyes.
- Whenever possible, stretch hands outward to maintain blood flow and reduce cramping. Rotate workers if needed.
- When applying material at a minimum you must wear a hard hat with full face shield attached and in the down position, Nomex hood, long-sleeved shirt, leather gloves with gauntlets, and coveralls or a welding apron.

- Keep our back us straight as possible while applying material. If possible change you posture occasionally to prevent static positioning.
- Always keep body within work zone and be aware of oncoming traffic.
- Hydrate frequently throughout the day to prevent heat illness.
- Use proper lifting techniques when loading or placing blocks. Bend at the knees, pull the object close to your body, keep your back as straight as possible, and stand up with object (do not twist).

2080 SHOULDER GRADING & CUTTING

- Use pilot vehicle if possible to aid in traffic control.
- Have protective cab on tractor/broom.
- Check mirror system of tractor/broom.
- Pay close attention to sign placement (no more than 3,000' between signs).

2090 PIPE FLUSHING

- Don't operate flusher without nozzle and use proper nozzle.
- Wear full face shield.
- Mark hose 10 to 15 feet from nozzle.
- Don't prop up grates, remove and lay flat.
- Wear leg protection.

2100 BRUSHING

- Hearing protection, full mesh face shields, chaps and gloves should be worn.
- Make sure proper guards are on brush hogs.
- Keep tools sharp.
- Bow saws are safest to use on banks.
- Avoid snow covered or frozen banks.
- Only one person on crew should feed chipper.

2110 TRAFFIC SIGN REPAIR & REPLACEMENT

When repairing and/or replacing signs, the following safety precautions should be followed:

- Wear gloves to prevent hand injuries from splintering metal and sharp points.
- Watch footing and surroundings for uneven surfaces, slippery rocks, etc.
- Wear proper personal attire — gloves, long sleeve shirts, and slacks to prevent contact with environmental hazards.
- Ensure proper footing to maintain balance when straightening posts.
- Watch that post does not snap off and come back and strike you.
- Watch for pinch points.
- Do not strain or overexert yourself when straightening posts.

- When pounding posts, employee holding post should ensure hands will not get hit if post is missed.
- Be cautious of curious travelers.

2120 SAFE ROLLER OPERATION

Safe roller operation should include the following steps:

- Inspect rollers often to make sure they are in proper operating order. Do not operate if there are faulty brakes or steering. Caution should be used when checking rollers parked away from yard overnight to ensure that no vandalism has occurred and that gas has not been stolen.
- Always operate roller at a safe speed. If possible, stop roller and put in low gear before starting downhill. When possible, roll forward downhill and back uphill.
- Always check for pedestrians and vehicles/equipment before changing directions.
- When working on steep hills, caution must be taken to severely restrict vehicles or pedestrians through the area where a runaway roller might pass. Check for runaway area and steer roller towards it.
- Try to stay within the paddle controlled area. If you must go outside this area, make sure roller is equipped with slow moving vehicle sign and wear a safety vest.
- Always chock wheels of unattended rollers parked on hills.
- Watch for low or soft shoulders which could cause the roller to tip over.

ROADSIDE

2130 TREE TRIMMING FROM THE GROUND

PROTECTION OF PUBLIC:

- It is imperative that all necessary barricades and warning devices be placed in appropriate locations to safeguard the public against injury. If it is necessary to divert pedestrians or vehicular traffic, flagmen should be used. Employees should be instructed to work within the designated work area. If this cannot be done, enlarge the work area so that both the employee and public can be protected from traffic and falling limbs.

HANDLING TOOLS:

- Sharp tools in the hands of experts rarely cause injury. Employees cut themselves often because they do not know the proper way to use sharp tools. It should be a habit for employees, under the supervision of the foreman, to inspect all pruning tools, axes, and saws prior to using them on a trimming operation. This practice, along with constant instruction as to proper tool usage will not only speed up the operation, but will assure the job is done efficiently and without incident. The axe is a particularly dangerous tool and should be inspected for sharpness, condition of the handle and adequate space in which to use it properly. Co-workers on this type of operation should take care that they are not within the dangerous swing area of the axe, and should always be alert for falling branches being pruned or sawed from trees.

When tools such as pruners, saws, and axes are being transported, suitable racks should be provided. This is particularly true if these tools are being transported regularly. When they are carried in trucks only occasionally, they should be securely tied to prevent shifting.

WORKING FROM THE GROUND:

- Perhaps one of the most important things to do prior to trimming trees, is to survey the tree for power lines. Cutting a power line with pruners could cause serious injury or death. If power lines cannot be clearly defined from the ground, working aloft where the wire can be seen plainly is the best safety practice; in this case contract tree trimming crews shall be used. Under no circumstances should an employee climb trees during this type of operation.
- Goggles or safety glasses should be worn at all times during trimming operations. This will not only protect the eyes, but will give more confidence to the worker who will in turn be more alert to the job at hand.
- Constant alertness must be maintained for falling limbs or branches. Both the public and fellow workers are always in danger of falling limbs. It's almost physically impossible to determine how a limb will fall from a tree, therefore care must be taken to guard the worker, co-worker and public against this hazard.
- During tree trimming operations as well as brush cutting, it's a good safety practice to know poisonous plants on sight and avoid them if possible. If it

is impossible to avoid poisonous plants, such as ivy and sumac, always wear gloves and use hoods if it becomes necessary to remove plants from the work area.

DISPOSAL:

- When disposing of the limbs, it may be necessary to cut them into smaller pieces for easier hauling. If axes are used to do this job, be careful you have sufficient room to work. Particular attention should be given to overhead and lateral clearances, especially if there are co-workers nearby. Eye protection will be worn at all times during this type of operation.
- Extreme care must be taken if burning is necessary. Burning will not only cause severe damage to property if not adequately controlled, but can cause personal injury or illness. Personnel should avoid the smoke from burning ivy or sumac. The smoke carries oil from the plant, and contact with the skin may result in infection.
- When transporting limbs from the work area to the disposal area, insure that the load is adequately secured so that it will not fall off the truck, causing a road hazard. Under no circumstance will an employee ride on a loaded truck while it is in motion. A truck load of limbs or branches is dangerously unstable at best, therefore, it is necessary that employees be especially careful while working on the truck during the loading process.
- Whenever possible, tree limbs or brush should be removed from the work area and disposed of prior to returning to the shed at night. This practice will not only eliminate a safety hazard from the public, but it will show good public relations.

2140 SAFE OPERATING PRACTICES FOR RIDING MOWERS

- READ THE OWNER'S MANUAL.
- Know the controls and how to stop quickly.
- Do not carry passengers.
- Clear the work area of objects that might be picked up and thrown. Disengage all attachment clutches and shift into neutral before attempting to start the engine (motor).
- Disengage power to attachment(s), and stop the engine (motor) before leaving the operator's position; before making repairs or adjustments and when transporting or not in use.
- Take all possible precautions when leaving the vehicle unattended, such as disengaging the power-take-off, lowering the attachment(s), shifting into neutral, setting the parking brake, stopping the engine, and removing the key.
- Do not stop or start suddenly when going uphill or downhill. Mow up and down the face of steep slopes.
- Reduce speed on slopes and in sharp turns to prevent tipping or loss of control. Exercise extreme caution when changing direction on slopes.
- Stay alert for holes in the terrain and other hidden hazards. Watch out for traffic when crossing or near roadways.

- Handle gasoline with care — it is highly flammable.
 - Use approved gasoline container.
 - **Never** remove the cap of the fuel tank or add gasoline to a running or hot engine, or fill the fuel tank indoors. Wipe up spilled gasoline.
 - **Open** doors if the engine is run in the garage — exhaust gases are dangerous. Do not run the engine (motor) indoors.
 - **Keep** the vehicle and attachments in good operating condition, and keep safety devices in place.
 - **Keep** all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
 - **Never** store the equipment with gasoline in the tank inside a building where vapors may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.
 - **Do not** wear loose clothing around moving parts such as the power take off.
 - **Keep** the engine free of grass, to reduce fire hazard, leaves, or excessive grease.
 - **Vehicle** and attachments should be stopped and inspected for damage after striking a foreign object, and the damage should be repaired before restarting and operating the equipment.

2150 CHAIN SAWS

A chain saw is a cutting tool designed to cut wood. Like any cutting tool, it works best when properly maintained; when the chain is kept sharp, properly tensioned and lubricated. These instructions are provided to help you avoid hazards and use this fine tool safely. In areas of fire hazard and where required by the law, equip your saw with a spark attester and check frequently to see that it is in good condition.

- Always shut off engine before refueling. Refuel as required to avoid running out of fuel in a cut. Wipe spilled fuel from saw and move away from the fueling spot before restarting the saw. Avoid fire hazards. Be sure to use an approved container for gasoline. Only mix enough fuel for each day's operation.
- Hold saw firmly on ground or on a stump during starting. Make sure chain stays clear of all obstructions.
- Always be sure of your footing and hold the saw properly with both hands when it is running. Always hold saw firmly with both hands, locking thumb around handle bar.
- Guard against kick-back, kick-back is dangerous. It occurs when the chain near the nose or on top of the guide bar contacts any object such as another log or branch or when the chain is pinched in a cut. Hold saw firmly with both hands. When bucking on a hillside, always stand on the uphill side of the log. When "cutting through", slack off on the cutting pressure near the end of the cut to maintain complete control without relaxing your grip on the saw. Never let the chain hit the ground. After completing a cut, wait for the chain to stop before you move or move the saw. Always stop the engine before moving from tree to tree.
- Select a clear path of safe retreat before starting to fell a tree. This escape route should be back, away from the tree and diagonal (45 degrees) to the

line of fall. When the tree starts over, flip ignition switch to "off", set saw in the clear, and retreat to safety — watch your footing, and also look for falling limbs.

- When felling a tree, consider factors such as wind, the natural lean and balance of the tree, and whether the trunk is sound, hollow, or partially broken through. A leaning or partially broken tree can have a lot of tension and will release unexpectedly when you start cutting.
- DO NOT fell trees near buildings, power lines, support cables, street lights, or equipment. Make sure the area is clear before you begin your first cut.

VEHICLE OPERATIONS

3010 VEHICLE SAFETY

Equipment Operator Training:

- It is the policy of the Department that no one will be allowed to operate any piece of automotive equipment unless he has been trained and certified as being competent. (Only exception, Department sedans).
- If you are authorized to operate Department vehicular equipment, you shall do it according to the rules and regulations of the Department and the Pennsylvania Motor Vehicle Code. You have no special traffic rights while operating this equipment on or off the roadway. All local laws and ordinances concerning parking, speed restrictions, etc., must be obeyed. Any violation(s) shall be your personal responsibility.
- PENNDOT vehicles are rolling billboards and as such sometimes the targets of drivers looking for a “big payday”. The more you adhere to state and local laws as well the PENNDOT policy the less chance you have of being named at fault for an accident.
- ALWAYS use three points of contact when climbing on and off a vehicle when doing an inspection, cleaning the vehicle, or in the normal maintenance routine. Be sure of your footing in inclement weather. Avoid climbing on vehicles if at all possible. Wear gloves to protect your hands against sharp edges, cold/hot surfaces, and the general dirt and grime associated with highway maintenance vehicles.

Preventive Maintenance

- A programmed inspection, lubrication, upkeep and minor repair of vehicles and equipment assures a minimum of unscheduled downtime and reduces the probability of accident and injury, the result — a safer, efficient and more productive operation.
- Report defective equipment at once to your supervisor. Do not operate vehicles or equipment with makeshift repairs. Use the 614 form to report defects on equipment, if operating a sedan report defects to the Equipment Manager. It is Department policy and a CDL law that this form must be filled out before beginning your trip each day. This is the driver’s responsibility to complete the form 614 properly.
- Test your brakes frequently to ensure their being ready for an emergency. Do not operate any vehicle with faulty brakes. Report this condition to your supervisor. Transportation Equipment Operators must document this on the form 614.
- All vehicles equipped with air brakes are required by CDL law to have an air brake test performed every day or shift. This is the responsibility of the equipment operator.
- Give special attention to your vehicle's windshield, windows, mirrors and lights. See that they are always clean and in good working order.
- To prevent your feet from slipping from the brake or clutch pedal(s) while driving, keep your footwear free of mud, grease or snow. Do not store unsecured items in the cab that can roll around and possibly wind up under the accelerator and brake pedal.

Seat belts are for your protection: You must use them and instruct your passengers to use them where provided. Do not operate your vehicle until everyone is "Buckled Up". The best contribution you can make toward safe vehicle operation is:

- Make careful pre-departure and en route vehicle inspection.
- Make thorough and conscientious defect reports to your supervisor. Complete the form 614 for as required.
- Make it a practice to get out of your vehicle on the curb side. You shall not operate motor vehicles or equipment within 10 feet of unguarded power lines.

Do not drive if you are ill or fatigued: You are responsible for any accident which may occur because of such conditions.

- Disregard for Department regulations and the Motor Vehicle Code will subject you to disciplinary action.
- A professional driver always keeps his vehicle under control. He allows for the mistakes of others and allows a margin of error for his own mistakes. This is called defensive driving — the sign of a real professional.

3020 WHAT TO DO IN DRIVING EMERGENCIES

If the throttle sticks:

- Try tapping the accelerator pedal a few times to see if it will spring back to its normal position.
- Or try to pull the pedal up with the toe of your shoe — or have someone else reach down for it.
- If these techniques fail, shift into neutral and apply the brakes. Guide the vehicle off the roadway if you can. Then turn off the ignition.

If you have a fire under the hood:

- Pull off the road, cut the engine, and get everyone out of the vehicle. Open the hood carefully with a rag. Use a fire extinguisher, blanket, or sand to put out the fire.

If the engine stalls:

- Try to guide your vehicle onto the shoulder. If it stalls on the highway, do not turn off the ignition or you may cause the steering mechanism to lock.
- Shift into neutral, and guide your vehicle off the pavement and onto the shoulders. Turn on flashers, light flares, and get everyone out of the vehicle (in case you're hit from behind).

If you lose the steering:

- Turn on your emergency flashers and sound your horn to warn other drivers and pedestrians while you brake and come to a stop quickly.
- If the engine overheats, pull off the road and let the engine cool (15 minutes). Remove the radiator cap with a rag and check the coolant level. If it is too low, add water while the engine is running. Do not pour cold water into an overheated engine. Check for leaks.
- If you have a flat on a busy road, guide the vehicle onto the shoulder. Never stop in traffic lanes.

3030 HYDRAULIC BRAKE FAILURE YOU'RE BRAKES FAIL — WHAT DO YOU DO?

You're driving along the road and prepare to slow down as the traffic up ahead gets more congested. Suddenly your brakes fail. What do you do? Here are some actions that could assist you in this frightening situation:

- See if there is any resistance at all in your brake pedal. If there is, pump it. This may enable you to build up enough pressure to provide some braking help.
- If there is no pressure in the brake pedal and your driving path is clear, coast in the drive gear and use your parking brake. If you need to slow more quickly, shift to the lowest forward gear. In this way, engine compression will offer some braking effect.
- On a hill or mountain grade, the problem becomes still more critical. In this type of situation, look for something to sideswipe (roadside brush, curbing, a guiderail or snow bank), thus helping your vehicle to slow down.
- Make use of your horn or lights to warn other drivers and pedestrians that your vehicle is not in control.

We fully realize that it is easier said than done. But try not to panic. In these and other emergency situations you will have enough problems without complicating things further.

- Your greatest single safety item is your seatbelt. It won't prevent your involvement in an accident, only defensive driving skill will help do this. But wearing your seatbelt will minimize the possibility of injury. It will also keep you behind the wheel where you can control the vehicle and prevent you from being ejected in the event of a crash.

3040 HOW TO HELP AT A COLLISION SCENE

- If you witness a collision or are the first on the scene, pull over and put your emergency flashers on. Warn oncoming traffic.
- Use a cell phone to call 911 or have someone else do it. If no phone is available, use the two-way radio to call the garage or office to send an ambulance to the accident scene (when in doubt, assume an ambulance is needed).
- Switch off ignition of collision vehicles if engines are still running to reduce possibility of fire.
- Check condition of victims. Try to help the injured where they lie. Keep them warm and as comfortable as possible.
- Do not move the injured unless there is further danger of injury from traffic or fire. If they must be moved, lift or pull from the person's shoulders or arms. Try to use a blanket or coat to pull them on.
- Apply first aid, if qualified. Attempt to stop bleeding by applying a clean compress directly over the wound. Give artificial resuscitation to an injured person who has stopped breathing.

3050 PARKING LOT SAFETY

Accidents occur before, during and after the work day in parking lots and stockpiles.

- First, when turning in off the road, be sure you can turn in without hitting someone on foot or a car ahead or behind you on the road.
- In the lot, keep in the right lane and observe the low speed limit, you might have to stop anytime. If it's winter, with snow and ice, use extreme caution (parking lots need to be salted or cindered).
- Park properly, so you don't block a lane or crowd cars out of two parking spots. Back into the parking spot to avoid having to back out in the middle of the lot where there will be traffic.
- Don't open car doors, until you've looked both ways for another car coming alongside.
- Circle of safety is conducted prior to entering vehicle. Before you back-up and swing out, when leaving the lot, look both ways for cars and pedestrians. Startup slow.
- Remember, when you are the PEDESTRIAN in a parking lot, use the walkways, if there is one. Keep very alert at vehicles crossing travel lanes, always walk to the left, facing the oncoming traffic. Watch your footing during the winter season. Any time is danger time in a busy parking lot!

3060 TOWING EQUIPMENT

When towing equipment, it is essential that the following steps be followed to insure towed equipment does not become detached.

- Ensure the ball and socket connections are the same size. Different sizes are not interchangeable.
- Make certain the pintle hook type hitches are closed and have the safety pin inserted.
- Make certain the removable type hitches are the correct ones for the receiver on the vehicle and the retaining pin actually goes through the shaft of the hitch and has a safety clip.
- Ensure the safety chain is heavy enough to handle the load. And that they are crossed under the tongue of the trailer.
- Inspect any type of hitch device for damages prior to connecting and ensure connection is properly secured.

3070 TIRE PRESSURE

Tire pressure should be checked when the tires are cold. Tires are considered cold when the car has not been driven at over 30 mph, and it has not been driven over 10 miles. Using a tire pressure gauge is the only acceptable method of checking air pressure.

3080 PASSING

Passing is such a common maneuver that we sometimes do it without giving it much thought. So, there is one point of passing we haven't dealt with yet, that is, is the pass necessary?

Have you ever had someone pass you, move in front of you, and then turn or exit? How about the driver who passes, moves in front of you, and then slows down? In their hurry, they usually make some careless maneuver causing problems for themselves and drivers around them. So, before you make a pass, ask yourself two questions, so that you don't become that kind of driver:

- What will I really gain?
- And will I be causing trouble to myself or anyone else if I pass?

3090 PICKUP & DELIVERY

Pickups and deliveries require you to back up.

- Back into alleys and driveways. This allows you a full view of traffic as you pull out. Never back into traffic.
- When docking your vehicle, check the surface you have to back over — for objects, homes, bumps or people! Get out of the truck to be sure you have the whole picture
- Check side clearances to see if the width of your truck will fit into the space available. Check the top clearance for canopies, signs, fire escapes or utility wires that hang lower than your truck.
- Back so the rear of the vehicle moves toward the driver's side when possible. This reduces guesswork and gives you more control. Use both side mirrors several times as you back. This ensures that your clearances haven't changed since you checked outside.
- Back slowly to guide the truck smoothly between other trucks or fixed objects. This also allows you to ease up to the dock with a "feather" touch avoiding a severe jolt that can damage the truck, the cargo, the dock — and you!
- In difficult or tight backing situations, ask someone reliable for help. A spotter can keep an eye on your blind zone from a position where he can see both you and the area your backing into and guide you with hand signals you've both agreed on, if you lose sight of your helper stop immediately, do not move until you spot him again.
- Never, under any circumstances, back up if you overshoot a pedestrian crosswalk. You can count on the pedestrians swarming in front of and behind your vehicle.
- Be patient when you have to merge — even when other drivers refuse to give you your turn. Remember that it is wiser to lose a couple of seconds than to force your way in and risk collision. Remember that you're a

professional driver. Take pride in your skills, your reputation with your fellow drivers and with your company.

3100 DOWNTOWN DRIVING

Driving in congested, downtown traffic isn't anyone's idea of fun. Other drivers pull right in front of you, and run stop signs and red lights. These mistakes by other drivers can cause collisions — collisions that produce injuries and affect your career.

- Be alert for mistakes other drivers are about to make. Watch parked cars for exhaust fumes and people in the drivers' seats. Prepare for occupied parked cars to pull out in front of you.
- Before crossing an intersection — even on a green light — check traffic to the left, to the right, and scan oncoming traffic ahead as you make a quick glance back to the left. This will enable you to stop if a driver on the intersecting street is about to run a red light. To avoid hitting the vehicle ahead, use the four-second following distance rule. This works in downtown traffic just as it does on the expressway. But the following distance will be shorter and appropriate for your slower speed.
- Check your mirrors every five seconds for traffic behind. If you spot a tailgater, decrease your speed by a mile or two to increase the distance between you and the vehicle ahead. When the vehicle ahead stops, you have time to stop slowly and flash your brake lights so the driver behind can stop before hitting you.
- Scan sidewalks and the tops of parked cars for pedestrians. At intersections, be certain that all pedestrians have cleared your cab before you start up.
- Check your mirrors carefully before turning. Look closely for motorcycles and bicycles that squeeze between your vehicle and the curb as you are preparing to turn right. And remember that most bicyclists are children under the age of 15. Be alert for their mistakes.

3110 VEHICLE & EQUIPMENT BACKING PROCEDURES

- Backing a vehicle is perhaps one of the most difficult procedures an operator performs in his day-to-day operation of a motor vehicle or piece of equipment. The operator is subjected to numerous potential backing accidents that range from vehicle and property damage to bodily injury.
- There are methods which are at the operator's disposal to significantly reduce the possibility of a backing accident. The operator can:
 - Plan his activity in advance to reduce or eliminate backing situations.
 - Perform a circle of safety to observe hazards in the area.
 - Utilize other employees to direct the vehicle back whenever possible.
 - Check all mirrors for a final site clearance and proceed to back with caution.

- Policy requires that all back-up alarms are connected and in working order at all times.

3120 SEAT BELTS

Shall be used by all employees at all times when:

- Operating department vehicles and equipment except those that do not have cabs or roll cages.
- Operating personal vehicles on Department business.
- Riding as a passenger in any vehicle on Department business.
- It is a state law and department policy that we use seat belts any time we get into a vehicle.

3130 WHAT'S THE HUMAN COLLISION?

A vehicle runs off the road and into a tree. This is the vehicle's collision. The vehicle stops, but unbelted passengers and drivers don't — they keep on going at the same speed the vehicle had been moving.

Within one second, the people inside have hit one or more dangerous objects, such as the steering column, dashboard, door frame, or windshield. How hard are they hitting these objects? If the vehicle was going 30 miles per hour, the people will hit these objects with the same force as if they had been dropped from a three story building.

This second collision doesn't have to occur. If driver and passengers are wearing their seat belts, they will be held in place inside the vehicle and not be thrown out the windows or doors.

Loose objects in the vehicle should also be avoided since they can be thrown into the passengers in the event of an accident. Keep items such as extra plow pins, chains, pintle hooks, and tools in the tool boxes on the vehicle where they are intended to be kept.

3140 SAFE DRIVING

Here are three things to look for as you drive:

Check the shape

- Is the road straight, curved, flat, or hilly? Are there road signs to guide you? This will affect your ability to recognize potential hazards ahead of you and act in time.

Check the surface

- Is it concrete, asphalt, dirt, gravel, or mud?
- Is it dry, wet, or slick?
- Is it smooth or bumpy?
- Are the lanes and edges of the road clearly defined?
- These factors will affect your ability to control your vehicle.

Check the shoulder

- To see if it's safe to drive on in case of an emergency. For instance, is there a drop-off?
- Are there light poles or road signs to your right?

Most accidents happen within 25 miles of home. Does that tell you something about how most of us drive on a road that's familiar? We take for granted that we know what's going to happen and probably don't pay as much attention as we would if the road were unfamiliar to us. No matter how well you think you know the road you're on don't take it for granted — stay alert.

3150 DRIVER ALERTNESS

Even under the best of conditions, driving demands your undivided attention. 85% of all traffic accidents are driver-related. So, when you get in your car are you ready to drive?

What are some other problems affecting driver alertness?

- Tired/sleepy
- Distracted
- Daydreaming
- Over-confident
- Inexperienced
- Angry
- Frustrated
- Celebrating
- Reduced Hearing
- Reduced Sight
- Stress
- Attitude

3160 PEDESTRIANS

Remember that pedestrians and people riding bicycles may not always have the right of way but drivers should be prepared to yield to them. Do not take for granted that a pedestrian is going to do what you think they will do. Be prepared for the unexpected especially if the pedestrian or bike rider is a juvenile.

When driving through or taking off from an intersection:

- Look Left
- Look Right
- Then, Scan Left

Look ahead of you as you turn your head back from right to left, there may, be someone there.

3170 REVERSE ADVICE

Backing up is one of the trickiest driving maneuvers. Before you back up, walk around the car/truck or piece of equipment to check for hazards. Check for traffic from all directions before backing up, especially if shrubs or fences block your view. Walk over the area you are about to back over. You may discover a hazard you didn't even know was there. Plan your path of travel when backing as well as driving forward. Put your foot on the brake before you shift into reverse, and turn to look over first your left, then your right shoulder. Continue to look over your right shoulder as you shift into reverse. Back up slowly, it is very easy to lose control of a vehicle by backing too fast. Check both of your mirrors periodically when backing. Pick a point to line your vehicle up with and back to it. Back as straight as possible. If you're backing out of a very tight space, ask someone to guide you with hand signals. Be sure your spotter stands where you can see them.

3180 KEEP "BACKS" HEALTHY ON THE ROAD

Can sitting hurt your back?

The answer is a definite "yes", especially if your back is subjected to vibrations from a truck or auto.

Sitting is very stressful to the back, and most people don't notice their poor sitting posture until they experience back pain. Add constant vibrations and you have got a real problem.

Sitting for long periods with poor back support can lead to slouching, which flexes the spine. That is very stressful to the lower back because it causes the muscles and ligaments to stretch, sag, and strain the disc. Proper back support "acts like a jack to prop the back up and keep it from straining the disc".

Drivers and others who spend hours behind the wheel should take the following precautions:

- Always support the lower back properly (lumbar region).
- Take a break from driving every few hours to stretch your back muscles.
- Make sure to use proper posture while driving — knees should be somewhat bent, and the back should be straight.

People who spend hours behind the wheel need to devote some free time to a regular exercise program, paying attention to routines that strengthen the back. Proper body mechanics are important, as well as posture. When on long trips or extended work hours, make plans to stop and get out walking around and stretching. Refueling, reloading material, or coffee breaks stops are a good time to do this.

3190 PARKING VEHICLES

Employees should be instructed to use the following precautions when parking vehicles:

- Always block the wheels with chocks. (They should be carried on every vehicle).
- Park the vehicle on a level spot. If one is not available, park the vehicle heading downhill, back into the parking spot whenever possible. This will avoid having to back out of the spot into traffic.
- Turn the wheels toward the curb side.
- Apply the emergency brake.
- If the engine is not running, put the vehicle in a low gear.

3200 HOW TO PROTECT AGAINST VEHICLE THEFT

- Always lock your vehicle and take the keys with you. Make sure all windows are closed securely.
- Don't leave valuables visible in your vehicle. Put them in the body of the truck, or hide them in the cab. But do so a block before you park so you won't be observed.
- Park in well-lighted, busy areas.
- To thwart towing by thieves, turn wheels sharply to the right or left.
- If your vehicle is equipped with an anti-theft device, use it. Visible devices may discourage thieves.
- Don't leave your driver's license in your vehicle. If your vehicle is stolen, a thief may use the document to impersonate you.
- Don't "hide" a spare house key in your vehicle. And never leave anything with your address on it in your vehicle. It invites home burglary.

3210 DRIVING IN THE RAIN

When the rain first hits the road it brings the oil on the road to the surface, making the road dangerously slick. At the onset of rain some drivers are thinking about being someplace dry and comfortable rather than where they are.

This sets up a dangerous situation for everyone:

- So be alert for other drivers as well as yourself in the rain.
- Slow down.

Remember that the speed that you normally take a corner may be too fast for conditions. Check the condition of your wiper blades and the level of the washer fluid often.

State law requires you to have your headlights on if it is raining hard enough to use your wipers.

3220 HYDROPLANING

Hydroplaning: Driving on top of a thin layer of water. That means your tires are not touching the road.

Hydroplaning develops from a combination of these three factors:

- Too much speed
- Too much water, and
- Not enough tire tread to channel the water away from your tires.

To avoid Hydroplaning:

- Check your tires regularly for proper pressure and tread.
- SLOW DOWN when you're driving in the rain and increase your following distance from the driver ahead of you.
- Remember that other drivers around you may lose control, so stay alert.

Do not drive through flooded roadways or underpasses. You may be driving into a washed out drainage system or the water could flood out your engine and cause you to be stranded in the middle of a rushing current. Flood waters also wash roadside debris into the driving lanes, such as broken glass, sharp rocks, and various other objects which could cause a flat tire. The middle of a flood is not the best place to change a flat tire.

3230 FOG

Let's talk about driving in the fog. Since fog is condensed water vapor and water reflects light —how do you adjust to driving in the fog?

- Slow down, and use your fog lights or low beam lights for best visibility. They shine downward.
- Your high beam lights shine directly into the fog and reflect off of it, thus reducing your ability to see who and what's ahead of you.
- Be especially careful driving in fog during the day, other drivers may have forgotten to turn on their lights.
- If conditions are such that you need to use your wipers to see, you'll need your headlights on to be seen better by other drivers.
- This is especially important if you drive a small car —you're harder to see.
- So remember, wipers on, headlights on.

3240 WINTER DRIVING TECHNIQUES

To avoid accidents during inclement weather, adhere to the following:

- To start on snow or ice, begin very slowly to avoid losing the small amount of traction between wheels and the road.

- Look far ahead. Apply brakes by gentle "taps" on the pedal once or twice a second. Tapping or pumping the brakes will slow your vehicle without breaking the traction between wheels and snow.
- When turning, always revolve the steering wheel gently and slowly. Avoid sudden turning or jerking of the wheel.
- If you get stuck — avoid spinning your wheels. Every spin digs you deeper. Throw a shovelful of dirt under your rear wheels.
- On busy roads and intersections, start stopping before you get to an intersection. Remember snow and ice becomes packed and slippery where traffic is the heaviest.
- Wet ice or snow at 30 degrees offers only about half the traction of thoroughly frozen road surfaces at 1 to 5 degrees. Adjust driving condition to the thermometer and be especially suspicious of road conditions at 25-30 degrees. Listen to weather forecasts daily to stay abreast of changing weather conditions.

Carry these essentials to aid in emergency situations:

- Long handled shovel
- Tire chains
- Sand and rock salt
- Tow chain
- Snow brush and ice scraper
- Flares and flashlight

3250 NIGHT DRIVING

The amount of natural and artificial light affects your ability to see and other driver's ability to see you. Sometimes there's too little light and sometimes there's too much.

At night, your pupils are wide open in order to allow as much light in as possible. After being blinded by the bright lights of an oncoming driver, your pupils need 4 to 7 seconds to readjust. At 55 MPH you'll travel 320 to 560 feet blind! For comparison, a football field is 300 feet long.

So when an oncoming driver has his or her bright lights, or high beams, on, what do you do to take care of yourself?

- Slow down — increase your following distance if there is a driver ahead of you.
- Flash your lights to communicate with the oncoming driver, if no one is ahead of you.
- Look to the right — for the white line or the edge of the road.

What do you do when the driver behind you has his bright lights (high beams) on?

- Adjust your mirror.
- Slow down and encourage him to pass.

Whether those bright lights are coming toward you or from behind you, they may be on for a good reason. For instance, the other driver may not even know they're on. Maybe his low beams don't work or only one headlight is working. This is a time to ask

yourself which way you'll come out ahead, by getting even and putting your bright lights on or getting where you want to go safely?

At night it's possible to drive too fast for conditions. Sometimes there's not enough light from your headlights to see a hazard and react in time. This is called over-driving your headlights.

Sometimes street lights are not working properly or are not there at all. Sometimes your headlights are not working or haven't been cleaned or aimed properly. More than 57% of all traffic deaths happen at night.

Slow Down - Driving at night requires your best judgment. Sometimes during daytime hours there's too little light. Like on an overcast or foggy day at dusk and dawn, or driving in a tunnel.

In situations like these, turn on your low beam lights. They were designed for this purpose.

Remember when entering or leaving a dark tunnel to give yourself time for your pupils to adjust to the light. Do this by increasing your following distance with the driver ahead of you before you enter and leave the tunnel.

How do you protect yourself from daytime glare?

- Sunglasses
- Sun visor — Tilt your visor all the way forward then bring it back to shade your eyes. Always keep it pointed forward when using it.

3260 SEAT BELT USE

- 8 out of every 10 crashes happen at speeds less than 40 m.p.h.
- People not wearing safety belts have been fatally injured at speeds as low as 12 mph. That's about the speed you would drive in a parking lot.
- Being thrown into the steering assembly accounts for 30% of fatal injuries of people involved in collisions.
- 40% of deaths are caused by striking the windshield, windshield frames, or instrument panels.
- Your chances of being fatally injured are 25 times greater if you are thrown from your vehicle.
- Estimates reveal that 4 out of 5 people who died when thrown from their car would have lived had they remained in their vehicle. By wearing your safety belt, you'll have room to live.
- 1 out of 5 injuries occurs due to unrestrained people, inside the vehicle slamming into each other.
- Only 1 out of every 200 injury-producing crashes involves fire or submersion in water.

Wearing your safety belt will help you survive the collision so that you'll be better able to remain conscious and leave your vehicle.

Most of these deaths and injuries could have been prevented, if people had worn their safety belts.

There's one more fact; you can change the statistics by wearing your safety belt.

In a collision, you have a choice. You can hit the windshield, the steering column, or your safety belt.

IT IS STATE LAW AND DEPARTMENT POLICY—WEAR YOUR SEAT BELT!

3270 SMALL CARS

We're beginning to see more small cars on our roadways. There are some special considerations for the small car driver. He or she is driving a car that's lighter, narrower, shorter, and probably has front wheel drive.

The small car driver needs to be aware of the following six conditions:

Light

- Smaller cars are harder to see. So use your low beam lights at night and at dusk and dawn.
- Be sure to use your brake lights and turn signals well in advance, to show other drivers and pedestrians your intentions.

Weather

- Using your low beam lights in the rain, snow, and fog will help you be seen by other drivers.
- Use the instruction "*Wipers on, Headlights on.*"
- Because your car weighs less it is more easily thrown about in the wind. Slow Down!

Road

- Roads were designed for bigger and wider vehicles, so avoid driving in the blind spots of other drivers.
- Since the ground clearance of smaller cars is lower, be sure to check the road ahead for potholes. Remember that rain may fill and cover those potholes, so slow down.
- You may be sitting as much as 9 inches below the original eyelevel standard that the road was built for. This means you may have limited vision.
- So when you approach a hill or curve or when passing another vehicle, you're at a disadvantage.
- By keeping a safe speed you'll have more time to react to who and what's ahead of you.
- Breakaway light poles, road signs, and median barriers were designed to give way to 4000 pound vehicles, not 2000 pound ones. Be prepared to glance off them.

Traffic

- Because small cars offer swift handling and maneuverability, you may be tempted to zip in and out of traffic. Remember that you're harder to see.
- Your small car may be slower. So when entering a street or highway intersection, especially from a standing start, give yourself time to merge smoothly.
- Use the 2 and 4 second rules to help you keep a safe following distance.
- When approaching an intersection behind a large vehicle, make sure that oncoming, turning traffic can see you. You may be hidden from their view.
- Be 100% prepared to yield. A 2000 pound car is no match for a 4000 pound one.

Vehicle

- Most of the newer, small cars have front wheel drive. Their main advantage is traction, especially in the snow. Be careful, they don't stop or slow down any better on snow or other slick surfaces than a larger car.
- Remember that during sudden stops loose items can become flying objects. Keep those items in the trunk.

Driver

- You're closer to the upper frame of the door to your left by 6 inches or more. You're also closer to the windshield. Wearing a seat belt is a must. Make sure small children are properly restrained.
- Be careful not to overcrowd your car. Make sure that each person has his or her own safety belt.

3280 THE DEFENSIVE DRIVING ATTITUDE

Professional drivers have a bigger stake in driving defensively than anyone else. Lapses in attention and mistakes behind the wheel can not only result in injuries, they affect your career.

Inspect your vehicle - To avoid collisions caused by mechanical failure, take a couple of minutes to do a pre-trip inspection of your vehicle each day before you start your trip.

THIS IS DEPARTMENT POLICY AND CDL REGULATION!!

Keep a safe distance - Keep a four-second following distance on dry pavements when all other conditions are also good. Watch the rear bumper of the vehicle just ahead pass a stationary marker — a tar strip, sign post, phone pole, etc. and count "one thousand and one, one thousand and two, one thousand and three, one thousand and four". As you say "four", your front bumper should reach that marker. If you reach it before you say "four", just reduce your speed by one or two miles per hour, then check your distance again. When conditions are not good, increase your following distance to six seconds.

Do NOT drink and drive - Don't drink alcoholic beverages before you are going to drive. Remember that a standard 12-oz. serving of regular beer contains as much alcohol as 5 oz. of table wine or 1-1/2 oz. of 80-proof distilled liquor. Keep in mind that other depressants, most cold remedies, tranquilizers and sleeping pills affect driving skills just as alcohol does. Hallucinogens, including marijuana, impair driving skills, as do amphetamines. The legal Blood Alcohol Content (BAC) for a CDL license holder is currently .04. This affects any vehicle you operate not just the CDL vehicle.

Stay calm - If you've had a bad day, take a few deep breaths before you get behind the wheel and while you're driving. Be especially alert for potential hazards when you are under stress.

Be considerate - Always remember that your driving style reflects on your company. Drive as though your name was on the side of your vehicle. This is especially true of snow removal operations. Do not operate your vehicle as if you are the only one allowed on the highway. You never know who is in the vehicle you blast with snow or

salt. Remember just about everybody has a cell phone with a camera these days. Don't be the next video featured on You Tube!

3290 TWO-SECOND RULE

When you're driving behind another driver follow the TWO-SECOND distance rule.

- When the driver ahead of you passes a fixed marker, like the shadow of an overpass, a light pole, or even a line on the road, begin counting, from the back of his vehicle to the front of yours: a thousand one, a thousand two.
- If you reach the mark before you've finished counting, you're following too closely. Ease off the accelerator, and check yourself again.
- If you're going to drive closer than two seconds, you will need to brake fast and hard every time you think the driver ahead of you is going to brake.
- If you keep 2 seconds of following distance, you are in control
- The Two-Second Rule was designed for ideal conditions. Under the following condition the time should be increased:
 - Light
 - Weather
 - Road
 - Traffic
 - Vehicle
 - Driver
- For instance, if you're towing a trailer, add 1 second of following distance for every 10 feet of additional vehicle length. If the trailer is 20 feet long, give yourself 2 more seconds.
- If you have a tailgater, you would want to leave additional space between you and the driver in front of you. You may consider 4 seconds (2 seconds for you and 2 for the tailgater).
- Increase the distance between you and the other driver by easing off the accelerator. Avoid hitting your brakes.
- In the process of slowing down, 2 positive things will happen. First, you create a safer following distance with the driver ahead of you. And second, you'll encourage the driver behind you to pass.
- By using the 2-Second Rule you'll use your brakes less often. They'll last longer. You'll also save gas. That means you'll save your time and money.
- But even more importantly — by using the 2-Second Rule, you'll have enough safe following distance if the driver ahead of you stops suddenly.

CONSTRUCTION INSPECTION/ INSPECTOR

4000 SAFETY ATTIRE

All inspector/field personal shall wear a Department-approved protective high visibility hard hat and a vest, t-shirt, sweatshirt, raincoat or jacket which meets ANSI Class II safety garment requirements. When working at night a yellow/lime green leggings should also be worn.

During inclement weather, high visibility rain gear is permissible. During hours of darkness, similar outside garments shall meet ANSI Class III requirements.

4010 HEAD & EAR PROTECTION

Department approved hard hats shall be worn when working in areas where there is a danger of a high impact incident from falling or moving objects and on all field assignments.

Hearing protection shall be worn when exposed to intense sound or high noise levels for extended periods of time and for temporary exposure to loud noises.

4020 PROTECTING YOUR EYES AT WORK

Potential eye hazards against which protection is needed in the workplace are:

- **Projectiles** (dust, concrete, metal, wood and other particles)
- **Chemicals** (splashes and fumes)
- **Radiation** (especially visible light, ultraviolet radiation, heat or infrared radiation, and lasers)
- **Bloodborne pathogens** (hepatitis or HIV) from blood and body fluids

The best methods of eye protection differ for each type of hazard. The protector must be matched to the potential hazard. High risk occupations for eye injuries include: construction, manufacturing mining, carpentry, auto repair, electrical work, plumbing, welding, and maintenance.

The type of safety eye protection you should wear depends on the hazards in your workplace:

- If you are working in an area that has particles, flying objects, or dust, you must at least wear safety glasses with side protection (side shields)
- If you are working with chemicals, you must wear goggles
- If you are working near hazardous radiation (welding, lasers, or fiber optics) you must use special-purpose safety glasses, goggles, face shields, or helmets designed for that task

In addition, supervisors need to take steps to make the work environment as safe as possible. This includes:

- Conducting an eye hazard assessment of the workplace
- Removing or reducing eye hazards where possible
- Providing appropriate safety eyewear and requiring employees to wear it

Two major reasons workers experience eye injuries on the job are:

- Not wearing eye protection,
- Wearing the wrong kind of protection for the job.

4030 CARE OF HARD HATS AND CAPS

The hard hat is one of the most important pieces of protective equipment. In order for it to provide you with the maximum protection, it is essential you exercise the proper care and maintenance. The following procedures should be followed:

- Inspect the shell and suspension regularly. If any signs of wear such as hairline cracks, change in color, torn adjustment slots, or fraying material appear, it should be replaced immediately.
- Ensure suspension is properly adjusted to provide secure fit. There should be 1-1/4 inches between suspension and shell to absorb impact.
- Clean hat periodically with mild soap and water to keep it in good condition.
- Never alter or modify shell or suspension.
- Never use paint, solvents, chemicals, adhesives, gasoline, etc., on hats.

4040 SAFETY WITHIN THE WORK AREA

Control traffic and personnel movement within the work area. Accidents typically occur within the designated work area while employees are in close proximity to moving vehicles and equipment.

Obey the following instructions:

- Never permit employees to stand directly behind or in front of vehicles and equipment that are in operation.
- Do not permit employees to stand on running boards or any other vehicle parts located outside of the cab.
- Do not permit the movement of any vehicles inside the work area without approval of the individual in charge of the operation.
- Instruct all operators that they are forbidden to back up a vehicle without conducting the circle of safety. This requires the operator to walk a complete circuit of the vehicle looking under the wheels as well as the front and rear of the vehicle observing potential hazards before backing.

4050 COPING WITH THE HEAT

When working outdoors in hot humid weather it is necessary to take precautions to beat the heat.

- Drink plenty of water to replace moisture lost by the body's cooling system. Avoid drinks containing caffeine. These acts as a diuretic which tends to remove fluid from the body.
- Wear loose, light clothing that allows sweat to evaporate and reflects the sun's rays.
- Make sure hard hat is worn to keep the head shaded and cool.

The following are the signs/symptoms and the recommended first-aid treatment for heat cramps, heat exhaustion and heat stroke.

HEAT CRAMPS

Signs/Symptoms

- Painful muscle cramps in the legs and abdomen
- Faintness
- Profuse perspiration

First Aid Treatment

- Move the victim to a cool place.
- Give him sips of water. Mix one teaspoon of table salt to a quart of water.
- Apply manual pressure to the cramped muscle.

HEAT EXHAUSTION

Signs/Symptoms

- Pale, cold and clammy skin
- Profuse perspiration
- Rapid and shallow breathing
- Weakness, dizziness, headache, loss of appetite and nausea

First Aid Treatment

- Have the victim lie down in a cool area and loosen clothing.
- Raise his feet 8 to 12 inches.
- If the body gets too cold, cover the victim.

Get professional medical aid as soon as possible

4060 FOOT PROTECTION

- Foot protectors (metal — attachable) shall be worn in areas where there is a hazard from falling or rolling objects, or from accidental tool impact.
- Boots (rubber) shall be worn by Maintenance employees working during inclement weather and/or wet surface conditions, or working with calcium or sodium chlorides.
- All employees working or exposed to foot hazard areas are urged to wear hard toed safety shoes and metatarsal protection where necessary.
- You shall not work barefooted or wear sandals, sneakers/similar footwear.

4070 SAFE USE OF LADDERS

Accidents involving ladders typically occur when climbing to or from one level to another. Many such accidents are caused by failure to properly position the ladder or, in some cases, by not selecting the proper ladder for the job.

- Choose the proper length ladder, neither too long nor too short.
- Be sure it has a slip resistant foot pad.
- Make sure the ladder is in good working condition.
- Watch for split or cracked side rails, missing or broken rungs, loose rungs or other weaknesses, and for splinters or sharp edges.
- Ensure the ladder is on firm footing prior to use.
- Climb the ladder carefully. Wear proper shoes with soles in good condition that are free from grease or mud. Face the ladder and hold on with both hands when going up or down.
- Raise tools and materials with a hand line.
- Never overreach. Move the ladder instead.
- Don't lean out to the sides. Use safety belts and line, and "tie off" when necessary.

4080 FALL PROTECTION

In the construction industry in the U.S., falls are the leading cause of worker fatalities. Each year on average, between 150 and 200 workers are killed and more than 100,000 are injured as a result of a fall at a construction site. The Department recognizes that accidents involving falls are generally complex events frequently involving a variety of factors. Consequently the standard for fall protection deals with both the human and equipment-related issues in protecting workers from fall hazards. For example, employers and employees need to do the following:

- Where protection is required, select fall protection systems appropriate for given situations.
- Utilize proper construction and installation of safety systems.
- Supervisor should review safe work procedures with employees.
- Train workers in the proper selection, use and maintenance of all protection systems.
- Supervisor needs to know when to implement the use of a guardrail system, safety net system or a personal fall arrest system (i.e. exposure to a fall \geq 6 feet).

4090 BE ALERT OF MOVING EQUIPMENT

When construction equipment is rumbling around a project, you've got to watch your step. If construction workers and equipment operators keep their eyes open, it reduces the opportunity for someone to get hurt. Construction equipment is husky, heavy, and

extremely unhealthy to tangle with. Always assume that the operator doesn't see you; doesn't even know you're around. Always figure that it's up to you to keep in the clear.

Following are ways to help you maintain a healthy respect for cranes, dozers, excavators and trucks:

- Never assume the equipment operator can see you.
- Never depend upon hearing a horn or other warning signals; it might be muffled by the general noise around a project.
- Equipment shouldn't be backed without someone to check the blind spots and give signals; nevertheless, keep in the clear whenever equipment is traveling backwards, as that's when most equipment accidents happen.
- Swinging counterweights often create a dangerous pinch-point. Don't ever get into a spot where you could get squeezed between a counterweight and other object/vehicle.
- Never try to ride on any part of a moving machine. Generally the only seat on these machines is the driver's seat. They were not made for passengers.
- Never ride on top of loaded trucks; the load may shift, also you may not have enough over-head clearance in some situations.
- If you're riding in a transport vehicle to a job, or between jobs, keep all parts of your body inside the unit.
- Never walk alongside moving equipment. Keep in the clear in case the unit suddenly turns your way, or slides, or the load shifts.
- Stay out from under loads on any machine such cranes, hoists, backhoes, or excavators. Use established walkways. The operator has no control over what may fall out of the bucket or hydraulic failure.
- If the boom of a unit ever hits a power line, keep away (do not touch) from the frame of the unit and the load cables.
- Never lubricate, clean or work on a machine that's in operation. Stop the machine. If you have to remove a guard for cleaning, replace it as soon as the cleaning is completed.

BRIDGE INSPECTION/INSPECTOR

5010 WORKING OVER OR NEAR WATER

- For safety purposes, a minimum of two inspectors is required for all bridge inspection activities.
- All bridge inspection equipment must be inspected prior to each use.
- If using a snooper crane, lift truck, and/or “free-climbing” on bridge, a safety harness must be worn at all times and properly attached to equipment/bridge member, with an approved lanyard.
- Be aware of waterborne diseases & contaminants that may be present in rivers and creeks.
- Waterborne diseases can be prevented by wearing water proof clothing to prevent direct body contact with contaminated water and by using good hygiene practices prior to consuming food, beverages and tobacco products.
- Employees with broken skin should avoid making direct contact with untreated water.
- During the winter months, be cautious of thin ice covering the waterways (and actual water depth under the ice), while performing bridge inspections.

5020 OCCUPATIONAL HEALTH & ENVIRONMENTAL HAZARDS

- First aid kits should be fully stocked at all times (including snake bite kit), and expiration dates monitored.
- Fire extinguishers should be fully charged, and readily available in the event of an emergency.
- Insect repellants and wasp sprays are recommended if exposure is anticipated.
 - According to the CDC (4/15/02), approximately 16,000 confirmed Lyme disease cases occur each year. DEET-based products (in concentrations of less than 40 percent) are recommended for maximum insect-repelling protection.
- Be aware of the hazards associated with confined spaces, and be aware of any specific procedures that must be followed, prior to entering a potentially confined space.
- Be aware of blood borne pathogens and infectious diseases associated with insects, birds and rodents (including bird/rodent feces), while inspecting bridges.
- When working within Amtrak/Railroad right-of-way, ensure required precautions are taken. Right-of-Entry permits, railroad provided flagmen and proper work attire must be worn.
- Be aware of possible lead based paint and/or asbestos materials used during construction of the bridge.
- Be aware of the location of high tension power lines during routine bridge inspections. This is especially important if a bridge snooper crane is utilized for the inspection.

FLAGGING

6010 WHY USE FLAGGERS

At work sites, flaggers are provided to stop traffic as necessitated by the work; or to maintain continuous traffic flow past the work site at reduced speeds. In all cases, the Flagger must be clearly visible to approaching traffic. The Flagger's station shall be located such that approaching traffic will have sufficient distance to stop at an intended stopping point. Refer to the correct PATA drawing in Publication 213, for the work being performed.

6020 FLAGGERS

A Flagger should have **PRIDE**:

Professional: Have a neat, clean appearance; be properly attired; be alert and properly positioned.

Responsive: Able to adjust to changing conditions.

Informed: Properly briefed by the supervisor, and know the limits of the work area and the type of traffic that will be encountered.

Decisive: Give signals that are clear, that motorists and the crew will understand and comply with.

Effective: Able to efficiently control the flow of traffic by following these rules.

Flaggers who display PRIDE in their work, will be more effective at controlling the flow of traffic through the work zone.

6030 FLAGGER CONDUCT

- If the instruction to the motorist is to "STOP", you should tell the first driver the reason for the delay if it is not apparent. (Do not abandon your post at the head of the traffic line to advise other drivers). Information should be given in a few brief but courteous words, such as, "There is a culvert out ahead", "We have a grader working around the corner", etc.
- Do not lean on the vehicles and talk to the occupants. Be friendly and polite but do not become preoccupied with small talk. Your job demands full and complete concentration.
- Never engage in arguments with the occupants of a vehicle. It is important that you be courteous, yet brief and factual in your conversation with them.
- All signs indicating a flagger is on duty must be removed or covered when you or your replacement are not actually flagging.
- You should always be alert to the needs of emergency vehicles and crews. (Special care should be used to allow safe passage of such vehicles and crews. Remember, however, that these "priority rights" should never ignore the basic rules of safety first).

6040 FLAGGER POSITIONING

While flagging, you must be alert and on your feet facing approaching traffic.

- Always stand in a highly visible location.
 - The flagger must be located in such a position to be seen by the traffic so motorists may react safely to the flagger's instructions.
 - For proper flagger positioning in relation to the work area, refer to the proper PATA drawing.
- A flagger should stand either on the shoulder adjacent to the traffic being controlled or in the closed lane prior to stopping motorist.
- A flagger should only stand in the lane being used by moving traffic after the vehicles have stopped. The flagger should stand alone and never permit an individual or group of workers to congregate around the flagger station. The flagger shall also stay clear from all work vehicles and equipment.
- The flagger should always plan their "Avenue of Escape" should a vehicle stray from the travel path. Flagger should not be located near any vehicles that would restrict their "escape" from possible harm.
- All flagger stations should be preceded by the appropriate work area signs (which can be found in Publication 213).
- The flagger should take precautions to be visible; particularly when working at night. During nighttime operations, the flagger station shall be illuminated as per Publication 213.

6050 INFORMING MOTORISTS

Whenever practical, flaggers should advise motorists of the reason for the delay and the approximate time that traffic will be halted. Flaggers and operators of construction machinery should understand that every reasonable effort must be made to prevent excessive delays and to allow the driving public adequate right-of-way.

6060 FLAGGER EQUIPMENT

All flaggers should be given a Stop/Slow paddle (W21-10). It shall display an 18" minimum size Stop Sign on one face, and a diamond shaped Slow Sign on the opposite face. The signs shall be attached to a 72" staff, and shall be retro-reflective.

6070 NIGHTTIME FLAGGING

The following procedures should be used when a flashlight with a red wand is used to supplement a Stop/Slow paddle (or red flag) at night.

- To stop traffic, the light should be waved back and forth across the path of the approaching vehicle.
- The signal to proceed should be given by lowering the light and either telling the vehicle operator to proceed or using the daytime hand motion.

6080 FLAGGER ATTIRE

- Flaggers shall wear a hardhat, high-visibility, fluorescent yellow, with orange stripes and gray reflective trim (multi-colored), Class II vest. High-visibility fluorescent yellow-green pants, leggings or chaps while flagging during daylight hours is recommended.
- During nighttime operations, ANSI Class III garments are required for all employees, including flaggers.
- A neat appearance helps promote a professional atmosphere and helps you be a more respected and effective flagger.
- When positioning yourself, remember to maintain the color contrast between the background of the work area (foliage, equipment, buildings, etc.), and your garments.

6090 USE OF THE STOP/SLOW PADDLE

- To stop traffic, the flagger shall face traffic and hold the Stop/Slow paddle with the "STOP" facing oncoming traffic. For emphasis, the other arm should be raised to approximately shoulder level with the palm toward approaching traffic.
- When it is safe for traffic to proceed, the flagger shall slowly turn the paddle to the message "SLOW" and motion traffic to proceed with the other hand.
- Where it is desired to alert or slow traffic, the flagger shall use the paddle with the message "SLOW". For added emphasis, the flagger may slowly raise and lower the free hand with the palm down.

6100 USE OF THE RED FLAG

- A red flag shall only be used in an emergency when a Stop/Slow paddle is not available or at an intersection where a single flagger is used within the intersection.
- To stop traffic, the flagger shall face traffic and extend the flag horizontally across the traffic lane in a stationary position so that the full area of the flag is visible below the staff. For added emphasis, the free arm may be raised with the palm open toward approaching traffic.
- When it is safe for traffic to proceed, the flagger shall stand parallel to the traffic movement, and with the flag and arm lowered from view of the driver, motion traffic ahead with the free arm. Flags shall not be used to signal traffic to proceed.

6110 FLAGGER APPAREL MAINTENANCE

- Retro-reflective vests, hard hats, rain gear, and other high-visibility apparel should be maintained in a neat, clean, and presentable condition to ensure optimal visibility.

- High-visibility garments must be replaced periodically because of increased fading of the high-visibility colors.
- High-visibility garments should be checked periodically to determine if the reflectivity has been compromised.

6120 FLAGGER ATTENTIVENESS

- Flaggers shall not be assigned other duties when flagging.
- Flaggers shall not use cell phones, pagers, headsets or other electronic devices that could distract their vision, hearing, or attention while flagging. Two-way radios used for communications between flaggers to direct traffic or ensure flagger safety are the only electronic devices allowed.
- A flagger station should not be a point where employees gather to have discussions.

6130 AUTOMATED FLAGGER ASSISTANCE DEVICES (AFADS)

AFADs are operated remotely by a flagger located off the roadway and away from traffic. The device is a safety enhancement for projects that use alternating traffic control by physically placing the human flagger off the roadway while maintaining control of the traffic movements approaching the work zone. Standard drawings for AFADs are located in Publication 213.

6140 MOBILE FLAGGING

In a mobile flagging operation when the flagger is moving with the operation, all signs associated with the flagger shall be moved ahead whenever work advances to more than **2 miles** from the advance warning signs. **Refer to Publication 213 for additional details.**

6150 FLAGGER'S RULES OF CONDUCT

- Be clearly visible to approaching traffic at all times.
- Do not stand in front of parked/stopped cars.
- Always be aware of oncoming traffic.
- Do not step into, or turn your back on the traffic.
- Stand on the shoulder of the road observing traffic and the work zone.
- Choose the best flagging position that will provide the greatest color contrast between you and the background.
- If at all possible, do not stand in the shade. If necessary, re-locate the flagger station to a non-shaded location.
- Never flag from inside a vehicle.
- Do not lean, sit, or lie on a vehicle.

- Stand alone. Do not permit an individual or group of workers to congregate around you.
- Familiarize yourself with the general nature of the work being performed. Be able to answer motorists' questions.
- Be aware of the work in progress.
- Establish a warning signal with the work crew in case of an emergency.
- Plan an escape route in case of an emergency.
- Stay alert! Be ready to respond to an emergency.
- Record the license number and description of any vehicle whose driver disobeys your instructions and threatens the safety of the work area. Report information to authorities.
- Be courteous and professional.
- Keep your mind on your job; do not do any other work when flagging.
- Do not involve yourself in unnecessary conversation with workers, pedestrians, or motorists.
- Do not leave your position until you are appropriately relieved.
- Cover, turn, or remove the "FLAGGER AHEAD" sign, and other conflicting signs, when a flagger is no longer on duty.

6160 ESTABLISH AN ESCAPE ROUTE

Identify appropriate escape routes for flaggers and other workers in the event that a vehicle does not follow intended traffic controls. A key element in work zone planning and preparation, is to determine if the work zone can be set up without using flaggers for traffic control. If there are no other options, and it is determined that flaggers are needed for work zone traffic management, then it is paramount that an effective safety plan be in place that incorporates various elements designed for the safety of the driving public, the workers in the work zone and the flaggers conducting traffic control for the work zone. Because of the exposure and the risks and hazards to the flagger from moving traffic, establishing a flagger escape route is not only important but should always be an essential part of any project requiring flagger traffic control.

There are several items that should be considered when planning and establishing a flagger escape route. They include:

- An unobstructed path of travel that the flagger can use to get out of the way of an errant vehicle.
- The escape route should consider vehicles traveling from several directions past the flagger station depending on the layout of the work zone.
- The escape route needs to take into consideration the work activity taking place, and not direct the flagger's escape route into the hazards of the work zone.
- The escape route should take into consideration the physical features of the surrounding area (guiderail, trees, culverts, embankments, drop-offs, etc.).

6170 ENVIRONMENTAL CONDITIONS

During the winter, flaggers have to protect themselves from cold stress and in the summer they have to be concerned about heat stress along with insect bites. You should

be prepared by wearing the proper clothing and ensuring that a first aid kit is available on site. Inform your foreman if you are experiencing heat or cold stress that may impair your ability to flag. Also, inform your foreman and coworkers if you are allergic to bees and know where the proper medication can be found quickly.

6180 DRIVER WORK ZONE VIOLATIONS

If a driver refuses to obey instructions, note the vehicle description and license plate number and notify your foreman. Do not leave your flagger station to report an incident. Make sure the line of communication is established with the foreman prior to the shift. The foreman will be able to report any work zone violations to the appropriate authorities.

6190 WORKING WITH ANOTHER FLAGGER

When there are two flaggers, one should be designated as the chief flagger for purposes of coordinating movement. Flaggers shall be able to communicate with each other by means of verbal commands, hand signals that cannot be mistaken for flagging hand signals, or with two-way radios. Where the end of a one-lane section is not visible from the other end, the last vehicle can be identified by description or license plate, and relayed to the other flagger. Each flagger must be stationed in accordance with Publication 213.

One Way Traffic Control

When traffic traveling in both directions must for a short distance use the same lane, alternate traffic flow must be used allowing traffic from each direction to pass through the constricted section.

- Select control points at each end that will allow easy passing of opposing lanes of traffic.
- Establish method of communication between flaggers—verbal commands, hand signals or two-way radio.

Releasing Traffic

- When releasing traffic the flagger should move to a safe position on the shoulder or in the closed lane, and face traffic.
- The flagger will then hold the paddle in a vertical position with the arm extended horizontally away from the body and rotate the paddle so that the full SLOW face is aimed toward traffic. Traffic movement should be waved forward by moving the free arm across the body.
- The free arm may be extended horizontally away from the body and raised and lowered with the palm down, indicating that the vehicle should slow down.
- Generally, traffic should be made to stop completely before being allowed to pass through the work zone.

6200 GENERAL SAFETY GUIDELINES

- Never turn your back on approaching traffic until the motorist has come to a complete stop.
- Be aware of your placement near hills and curves so that drivers can see you in time to slow down.
- The use of cell phones while performing flagging duties is prohibited.
- Notify your Supervisor if you are fatigued and are not alert enough to perform your duties safely.
- Do not mingle with the work crew.
- Do not leave your post unless authorized to do so, or when replaced by another flagger.
- Do not sit while on duty.
- Maintain multiple safety escape routes in case of emergency.
- Avoid standing in the shade as it will reduce your visibility significantly.
- Avoid standing in front of your equipment as it reduces your visibility significantly.

Lane Closure

- Closing the road will be the first option when it is supported by the District and alternate routes are available which can reasonably accommodate traffic. Assistant County Maintenance Managers should notify their respective District Traffic Units for an approved detour, and a complete evaluation of the lane closure option.

Keeping Flaggers Safe

- On all maintenance projects, it is recommended that flaggers be rotated at two hour intervals to keep them alert. Utilize "spotters" with radios, air horns, and/or other warning devices on all maintenance projects where a work zone intrusion is likely. Spotters are additional personnel assigned to watch for, and warn of, intrusions into the work zone.

Information gathered for this section came from the Manual on Uniform Traffic Control Devices (MUTCD), and the Department's Publications 213 and 234.

HAZARDOUS MATERIALS

7010 REGULATIONS FOR MOTOR VEHICLES CONTAINING HAZARDOUS MATERIAL

The following regulations apply to motor vehicles containing 1,000 pounds or more gross weight of hazardous materials (nonflammable gases, flammable gases, combustible liquids, flammable liquids or solids).

- A vehicle that is located on a public street or highway or the shoulder of a public highway must be attended by its driver. However, the vehicle need not be attended while its driver is performing duties which are incidental and necessary to his duties as the operator of the vehicle.
- The vehicle is attended when the person in charge of the vehicle is in the vehicle or is within 100 feet of the vehicle and has it within his unobstructed field of view.
- The vehicle must not be parked on or within five feet of the traveled portion of public street or highway except for brief periods when the necessities of operation require the vehicle to be parked and make it impracticable to park the vehicle in any other place.
- Operator of vehicle must be certified and instructed in the proper procedures he must follow in emergencies.
- There shall be no smoking or open flames near the hazardous material.
- No hazardous materials shall be stored in the garage area except in closed containers not exceeding 120 gallons, one container not exceeding 60 gallons capacity.
- No repairs shall be made to any tank vehicle unless the repairs can be made without hazard, nor shall any loaded motor vehicle be repaired in a closed garage.
- No cargo tank shall be repaired by any method employing a flame, arc or other source of ignition, unless the tank is maintained gas free or otherwise made safe in an approved manner.

7020 PCB LEAKAGE

When working along roadways, remind all employees that if PCB leakage is found coming from an electrical transformer, they must notify the Department of Environmental Protection, Bureau of Waste Management, or the utility company responsible for the contents of the leaking container.

7030 ACCIDENT SCENES

When approaching the scene of an accident involving any cargo (not only regulated hazardous materials):

- Move and keep people away from incident scene.
- Do not walk into or touch any spilled material.

- Avoid inhaling fumes, smoke and vapors even if no hazardous materials are involved.
- Do not assume that gases or vapors are harmless because of lack of smell.

7040 FIRE & EXPLOSIVE HAZARDS

- Never smoke while refueling or handling fuel containers.
- Always shut off engine and any electrical equipment when fueling.
- When the fuel tank is directly above an engine, let the engine cool before opening gas cap and refueling.
- Ground funnel or fuel nozzle against filler neck to avoid sparks when refueling.
- Never use gasoline or diesel fuel for cleaning parts. Always use a nonflammable solvent. Discard greasy or oily rags in closed metal container.
- Never smoke near a battery. Never check electrolyte level with a match.
- Hydrogen gas from the battery may explode and cause severe injury.
- Never place a metal object across battery terminals. Serious burns and explosion may result.

7050 FIRE, EXPLOSION, FLOOD, WINDSTORM OR OTHER CATASTROPHE

- You shall immediately report to your supervisor all incidents involving fire, explosion, flood, windstorm or other catastrophes, affecting any department property or facility, by any direct means of communication open and available to you.
- Prompt reporting of any incident can, in many instances, lead to the immediate control of the intensity of the occurrence and result in the preservation of life and property by minimizing loss.

7060 FLAMMABLE LIQUIDS

- Some petroleum products irritate the skin. Contact should be avoided as far as practical. Do not wash hands with gasoline, kerosene or similar products.
- Light petroleum products, such as gasoline, solvents and burning oils, are perhaps the most irritating, since they have a tendency to rapidly dissolve the natural oils of the skin.
- In case of contact, thoroughly wash the exposed skin area with soap and water.
- Make certain hands are washed before food, tobacco or anything else is conveyed to the mouth.
- Avoid prolonged inhalation of gasoline or solvent vapors.
- Do not smoke when handling flammable liquids and warn others not to do so.
- Before fueling equipment, make certain that the vehicle ignition is shut off.

- Block or brace the raised bed on trucks prior to passing the fueling hose over the truck frame members.
- Fill saddle tanks from one side of truck at a time.
- To avoid static spark, insert the hose nozzle firmly in tank making sure that it has metal to metal contact.
- Make sure there is no leakage from the delivery hose or nozzle.
- To avoid spills, keep eyes on fill pipe. Slow your pumping rate for a second or two after delivering the first few gallons to allow pressure in the tank to escape.
- It is wise to stand in such a position as to be able to observe the surrounding area as well as the fill pipe. Be certain you can shut off the nozzle and vacate your position in an emergency.

7070 HOW TO HANDLE GASOLINE SAFELY

There is one purpose for gasoline: to provide fuel for an explosion that releases energy for power. Some people forget, sometimes with tragic consequences, that gasoline is explosive outside an engine as well as inside. For that reason, gasoline must be handled with extreme caution on and off the job. The following are some rules to remember in handling this extremely flammable energy source:

- Never use gasoline for cleaning floors, tools, clothes or hands. Gasoline vapors too easily ignite and the risk is great that the object or person being cleaned will be set ablaze.
- Always store gasoline in an approved closed container. Never use an open container.
Never store gasoline in glass or in any other breakable container. Don't assume that every metal container painted red and bearing the word "gasoline" is a safe container
- A safety container is equipped with a flame arrester, to prevent ignition of gasoline inside the can; a pressure release valve, to alleviate excess vapor pressures inside the can; and a dispensing opening with a cover that closes automatically to prevent spills.
- Metal-to-metal contact must be maintained when pouring gasoline from one container to another. Failure to do so can result in a charge of static electricity being generated.
- Be sure that gasoline spills are cleaned up immediately, before vapors have a chance to accumulate. Keep electrical switches turned off until the vapors have dispersed. Electrical devices that start automatically, such as cold water fountains, may have to be shut off at the main switch.
- If gasoline is spilled on someone, remove the person's saturated clothing immediately and keep the person and clothing away from sources of ignition.
- Wash the affected skin with soap and water to prevent a skin rash or irritation from developing. If the eyes are involved, flush them with water and take the person to a doctor.
- Gasoline tanks or vehicle parts that are likely to contain gasoline should be drained or dismantled outside or in a well-ventilated area free from source of ignition.
- Do not permit smoking in fueling areas, fuel system servicing areas, lubricating pits or bulk fuel delivery areas.

- Never dispense gasoline in a fuel tank while the engine is running.
Encourage employees to handle gasoline safely at home as well as at work.
Many of the same rules apply.

7080 CHEMICALS – HAND INJURIES

One way chemicals can enter our bodies is through absorption through the skin. More often than not, this occurs through the hands as we handle various chemicals. It is important to read the label and to know the chemicals you are working with and to utilize protective gloves when handling chemicals.

Chemicals can cause irritations to your skin. Most of the time this isn't acute and doesn't occur with just one unprotected handling of the chemical, but it's with repeated unprotected handling of the chemical. Detergents and solvents can dry out your skin and dissolve the oils in your hands. Your hands may develop a rash that is further irritated as you use your hands to work on various tasks. Continued abrasion of the tender skin can cause you further irritation and discomfort.

Also some chemicals, such as caustic Sodium Hydroxide, can cause a burn to your hands. Very acidic or caustic chemicals can immediately burn your skin from contact. It's important you protect your hands with gloves. More importantly, the right glove for the chemicals you are handling. Not all gloves are made the same. Neoprene gloves work great for many workplace chemicals such as solvents and detergents; however they are not effective for some chemicals such as Benzene. Latex gloves don't work well with many solvents. Cut-resistant gloves work well on sharp objects, but won't do a thing against chemicals.

Even after using gloves, you should wash your hands after handling chemicals especially before you eat or drink. Protect your hands from irritation and burns; utilize the proper gloves when handling chemicals.

7090 HAZARDOUS CHEMICALS - DANGER

Chemicals can present serious hazards to your health and safety. They can be:

- Reactive: may react with air, water, or itself and burn, explode or release vapors.
- Flammable: they catch fire easily
- Explosive: they explode under certain conditions
- Corrosive: they burn the skin or eyes
- Toxic: they're poisonous

Know the routes of entry chemicals can take to get into your body:

- Skin and eye contact
- Inhaling
- Ingestion

You can block these routes of entry by using good safety practices and the right Personal Protective Equipment such as safety glasses or goggles, gloves, protective clothing and respirators.

Remember, you can guard against chemical hazards. A good safety attitude protects everyone – you, your family and your co-workers.

7100 CHEMICAL IDENTIFICATION & CONTROL

The proper identification and control of chemicals is one of the most critical components of a safety system.

- Always make sure chemical bottles, including secondary containers such as spray bottles and dispensers, are marked with the chemical contents and a clear and legible label.
- Ensure you use an easily identifiable label that clearly denotes and hazards of the product within the container.
- Ensure you know about the various chemicals you utilize and check the original label or MSDS sheet to for information of reactivity with other substances.
- Once a secondary container is designated for a certain chemical, never utilize it for a different chemical component.

The following combinations have the potential to create very hazardous vapors:

- Mixing of bleach and ammonia
- Mixing of bleach and acids (vinegar, some glass cleaners, lime/calcium/rust removers)
- Do not use two drain cleaners together, or use one right after the other.
- Today, check around your work area and ensure all chemical bottles are marked and that you know the hazards associated with each. If you have questions or concerns, see the label, MSDS sheet or your supervisor.

7110 CARBON MONOXIDE POISONING

Carbon Monoxide (CO) is truly “the silent killer” and can cause death within minutes depending on exposure.

CO is found in combustion fumes, such as those produced by cars and trucks, small gasoline engines, stoves, lanterns, burning charcoal and wood, and gas ranges and heating systems. CO from these sources can build up in enclosed or semi-enclosed spaces. People and animals in these spaces can be poisoned by breathing it.

The most common symptoms of CO poisoning are headache, dizziness, weakness, nausea, vomiting, chest pain and confusion. High levels of CO ingestion can be difficult to diagnose because the symptoms mimic other illnesses.

To prevent CO poisoning:

- Do not use portable flameless chemical heaters indoors. Although these heaters don’t have a flame, they burn gas and can cause CO to build up.
- Never use a generator inside or near a window, door or vent.

- Never run a car or truck in the garage with the garage door shut unless exhaust can be properly ventilated through another means such as a vehicle ventilation system.

7120 INFECTIOUS WASTE

Employees engaged in picking litter and removing trash from rest areas and roadsides should guard against exposure to infectious material. The most probable situation is a needle stick from a used hypodermic needle, or exposure from handling infectious materials such as medical waste along the highway.

- Use special caution when handling red garbage bags or packages marked “INFECTIOUS” or “BIOHAZARD”. Red is used for medical waste. Do not touch needles, drug vials or other drug paraphernalia, or medical waste without the use of proper personal protective equipment.
- Consider all needles and knives as potentially infective. Transport in proper container until final disposal. Sharp objects such as needles can be safely transported in a coffee or paint can for later disposal.
- Wear heavy duty work gloves to prevent penetration when handling litter or refuse bags. Be alert for needles protruding through the bags.
- Do not over pack litter bags, or push trash down in a bag or barrel with your hands or feet.
- Do not allow refuse bags to touch your body. Use of leather chaps or an apron during clean-up can prevent needle sticks.
- Use tools such as pitch forks, litter sticks or shovels, wherever possible.
- Practice good hygiene. Washing is the single most important means of preventing the spread of infection.
- Wear a band-aid or otherwise cover a cut, scratch, or any other break in the skin such as rashes and chapped hands.
- The best way to avoid exposure to infectious material is to be informed. Know it is out there, know what it looks like, know what to do when you find it and know how to protect against accidental contact.

7130 POISON IVY

Poison ivy is more than a nuisance. For many, it is a serious medical problem. While poison ivy is active all year, spring and summer are when contact is most likely to occur.

Description:

- All varieties of poison ivy have three leaves. They can be smooth or toothed, hairless or hairy, glossy or dull. It can grow as a vine or shrub and survive almost anywhere. Berries are hard, white and small, and droop in clusters.

Skin Reaction:

- Skin reaction may take four hours up to three days. Affected skin reddens and breaks into bumps and blisters, which begin to ooze. The clear liquid from open blisters will not spread the rash or cause others to get poison ivy. The

harmful chemical in poison ivy is urushiol. If it is not completely washed off skin and clothes, poison ivy will spread.

Treatment:

- Wash affected areas thoroughly with soap and water as soon as possible.
- When blistering begins, apply a solution of boric acid or table salt and water (a teaspoon to a pint of water).
- Over the counter lotions are also effective. When the blisters break and skin begins to scale, any cooling ointment will help.

Prevention:

After contact, nothing can be done to prevent getting a rash. You do not have to touch poison ivy to get it. Urushiol can be carried in smoke caused when poison ivy plants are burned, or carried in contaminated clothing.

There are effective ways to minimize the risk of poison ivy. Avoiding contact is the surest way to prevent poison ivy. To minimize risk:

- Wear clothing that covers arms and legs.
- Wash skin and clothing thoroughly and as soon as possible after exposure
- Know what poison ivy looks like.
- Apply herbicides several weeks before working in an area

7140 SAFE HANDLING OF ANIMAL CARCASSES

Employees removing animal carcasses from the highway right-of-way must be aware of the need to protect themselves, co-workers and others against potential exposure to, and inadvertent spread of infectious agents. Careless handling of animal carcasses can create potentially harmful exposure to serious diseases such as rabies and Lyme disease, and infections from salmonella, e-coli and other pathogens. Failure to properly disinfect tools, vehicles and equipment may also infect co-workers, as well as potentially spread disease to the general public and wildlife population. By following established work practices, wearing appropriate personal protective equipment, practicing good personal hygiene, and exercising good judgment, employees can safely handle animal carcasses.

Safe Work Practices:

- Confirm animal is dead by prodding with a long-handled tool. Startling an injured, apparently lifeless animal can increase potential for contamination or personal injury.
- Animals injured or dying, or exhibiting abnormal behavior, should be reported to the police.
- Numerous dead or diseased animals (or birds) in one location should be reported to supervisor, as this may warrant contacting other agencies.
- When proper disposal cannot be achieved immediately; animal carcasses should be removed from the pavement or shoulder and left in a location in the right-of-way that does not create a public hazard.
- Reasonable effort shall be made to disinfect the tools after using on dead animals prior to reusing. Washing with a 10% household bleach solution is recommended.

Personal Protective Equipment:

Good judgment and attention to personal hygiene must be practice when handling animal carcasses:

- Avoid hand to mouth transfer from eating, drinking, smoking, nail biting, or touching the face.
- Protect mucous membranes of eyes, nose and mouth by wearing either a full face shield or goggles when the carcass is bloated.
- Wear disposable Nitrile, latex or vinyl gloves under heavy water impermeable work gloves. Gloves should be puncture resistant.
- To protect against ticks, wear a long sleeve shirt tucked into pants and tuck pants into socks or boot tops.

CONFINED SPACES

8010 CONFINED SPACE

Definition: A “confined space” is a space that meets the following criteria:

- Is large enough that an employee can bodily enter and perform assigned work.
- Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry).
- Is not designed for continuous employee occupancy.

In a non-emergency situation, prior to entry into a confined space, the confined space will be evaluated using a “Request for Evaluation Form, Appendix B.”

There are 2 types of confined spaces: Permit required and Non Permit required. Permit Required: A Confined Space that has been determined to be Permit required must have one or all of the following:

- Contains or has a potential to contain a hazardous atmosphere.
- Contains a material that has the potential for engulfing an entrant.
- Has an internal configuration such that an entrant could be trapped or asphyxiated.
- Contains any other recognized serious safety or health hazard.

8020 EMERGENCY EVALUATION OF CONFINED SPACES

If a space that has not been formally evaluated must be entered to ensure immediate public safety, such as road or bridge failure, the Department can conduct an onsite emergency evaluation of the space to determine if it is a permit-required confined space. In addition, onsite training can be conducted for the individual(s) that must enter the space and interim procedures will be developed. This evaluation would be applicable only to the space evaluated, and for the identified work that is to be done immediately. A formal evaluation must still be completed on the space, and all other elements of the confined space program will be applicable to the space once the emergency work condition has been addressed.

8030 RESPONSIBILITY OF EMPLOYEES:

PennDOT Employees Will:

- Not enter a permit-required confined space unless they are specifically trained in confined space entry.
- Not enter a space that has not been evaluated to determine if it is a permit-required confined space.
- Notify supervisor or manager promptly if entry into a permit-required confined space is required, for which the employee has not been trained.

- Attend training commensurate with their involvement with the Confined Space Entry Program.
- Comply with all applicable requirements of the Department's Confined Space Entry Program.

LINKS TO SAFETY TALKS

9010 TOOL BOX TOPICS

Free construction safety meeting topics to remind enlighten, educate your employees or coworkers to help reduce accidents.

<http://www.toolboxtopics.com/Construction/index.htm>

NY DOT Safety program

<https://www.dot.ny.gov/divisions/operating/employee-health-safety>

Workzone.org

http://www.workzonesafety.org/training/toolbox_talks

CDC

<http://www.cdc.gov/niosh/topics>

OSHA quick cards

<http://www.osha.gov/OshDoc/quickcards.html>

9020 REFERENCES

North Carolina Department of Labor – Sprains and Strains Fact Sheet (2009):

http://www.nclabor.com/osha/etta/A_to_Z_Topics/Sprains.pdf

National Institute for Occupational Safety and Health, Simple Solutions:

Ergonomics for Construction Workers (2007):

<http://www.cdc.gov/niosh/docs/2007-122/>

Through the OSHA Alliance Program's Construction Roundtable, the Roundtable participants developed this product for informational purposes only. It does not necessarily reflect the official views of OSHA or the U.S. Department of Labor. May 2010

9030 Dept. Safety Pubs / Policy

PUB 445 Safety Policy Manual

<ftp://ftp.dot.state.pa.us/public/PubsForms/Publications/PUB%20445.pdf>

Mandatory Safety Talks

