



## Upper Gwynedd Township

1 Parkside Place  
North Wales, PA 19454

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### BOARD OF COMMISSIONERS ACTION ITEM REQUEST

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**Date:** December 7, 2022

**To:** Board of Commissioners

**From:** Megan Weaver, Assistant Township Manager

**Re:** UGT Employee Safety & Health Manual

**Meeting Date:** December 12, 2022 & December 20, 2022

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**Background:** Delaware Valley Workers Compensation Trust, the company that oversees handling the Township's Worker's Comp Insurance (as well as Property, Liability, and Health Insurance), has recommended that the Township adopt an employee Safety & Health Manual in addition to the recently adopted "Accident and Illness Prevention Program." The goal of the manual is to be proactive in preventing harm to our Township employees. The manual is a collection of practices designed to address the most frequent causes of injuries and illness among public employees. The Township's safety committee has reviewed the manual in-depth and their suggestions have been incorporated into the document.

A safe work environment is extremely important to the Township, and the township employees also play an important role in making their work environment even safer.

**Budget Impact:** There is no budget impact.

**Interdepartmental Action:** The manual will be distributed to all Department heads & Employees for implementation and ongoing reference.

**Recommended Motion/Resolution/Ordinance:** Motion to approve the adoption of the Upper Gwynedd Township employee "Safety & Health Manual"



UPPER GWYNEDD TOWNSHIP

# Safety and Health Manual



Revision 011518

*Prepared for the sole use of the membership of DVWCT and DVPLT by the Risk Control Department*



## **ACKNOWLEDGEMENT**

(Sign and Submit to Supervisor)

I hereby acknowledge that I have received, I have reviewed and I have had an opportunity to ask questions regarding the contents of this safety and health manual. Furthermore, I understand that by signing the below, I agree to comply with the contents of this safety and health manual.

Name of employee (print): \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Witnessed by (print): \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_



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CHANGE LOG

Date of Change	Change Made
Day-Month-Year	Manual Implemented



## **INTRODUCTION**

Injuries and illnesses cause needless pain and suffering and are a waste of limited resources. Proactive public employers recognize that preventing harm to employees must be a core value.

This manual is a collection of practices designed to address the most frequent causes of injuries and illnesses among public employees. The contents address the 20% of root causes responsible for 80% of workplace injuries and illnesses.

The manual is not intended to be a comprehensive reference.



## HOW TO USE THIS SAFETY MANUAL

To get the most out of this safety resource, it is recommended that employees consult this manual as follows:

**Step 1      ALL EMPLOYEES**

Review the information contained in Section 1.

**Step 2      BY DEPARTMENT**

Review the information contained in Section 2 that applies to your specific department.

**Step 3      DEPARTMENT SPECIFIC TASKS**

Review the information contained in Section 3 before performing specific high risk operations.



## **SECTION 1**

# **SAFE PRACTICES FOR ALL PUBLIC EMPLOYEES**



## ***INJURIES AND ILLNESSES DO NOT NEED TO HAPPEN!***

Very few employees go to work with the goal of getting hurt. Yet, injuries and illnesses occur on a daily basis.

Workplace injuries and illnesses cause needless pain and suffering and disrupt productivity. They waste limited resources. Therefore, each of us has a moral responsibility to prevent adverse events in the workplace.

Employees who educated and trained regarding safety, health, and security issues are more likely to:

- Avoid collisions and injuries on the job
- Develop safe work habits
- Understand and follow safety rules and procedures, and
- Understand and appreciate the organization's commitment to safety

Workplace injuries and illnesses are caused either by unsafe acts or unsafe conditions. Unsafe conditions can be a challenge to prevent since they are often caused by third parties or acts of nature. The vast majority of workplace injuries and illnesses are caused by unsafe acts. Most unsafe acts occur because (1) employees did not know the right way to do the job or (2) employees knew the right way to do the job but chose a different path.

To prevent injuries and illnesses caused by unsafe acts, we need to know how to do our job properly and we need to make a personal commitment to follow established safe work practices. No exceptions!

The following are general safety practices applicable to all employees in the workplace:

- 1.1 Adopt an attitude that you will take the time to perform work safely or not do the work.**
- 1.2 Observe workplace prohibitions.**
  - ✓ No smoking or vaping inside buildings or vehicles. Smoke in designated areas only.



- ✓ Being under the influence or possession of alcohol or controlled substances while in the workplace is prohibited. Notify your supervisor if you are on prescribed medications that can impair your judgment.
- ✓ Non-law enforcement employees are prohibited from bringing weapons into the workplace.
- ✓ Do not use hand-held communication devices when driving for your employer. Keep your eyes on the road and minimize distractions.

### **1.3 Observe workplace drug and alcohol rules.**

- ✓ There is zero tolerance for the abuse of illegal drugs and alcohol in the workplace.
- ✓ Where feasible, all new employees shall be subject to pre-hire drug and alcohol testing.
- ✓ All employees with commercial driver licenses shall be subject to pre-employment, periodic, for-cause and post-incident drug testing as mandated by the US Department of Transportation (US DOT). Positive test results shall result in immediate suspension from any safety sensitive duties.
- ✓ Specific prohibitions for CDL drivers include:
  - No driver shall report for duty or remain on duty while having a blood alcohol concentration of .04 or greater.
  - No driver shall be on duty or operate a commercial motor vehicle while the driver possesses alcohol unless the alcohol is manifested and transported as part of a shipment.
  - No driver shall perform safety-sensitive functions within four (4) hours after using alcohol.
  - No driver required to take a post-accident alcohol test shall use alcohol for eight (8) hours following the accident or until he or she undergoes a post-accident alcohol test, whichever occurs first.



- No driver shall refuse to submit to a post-accident, random, reasonable suspicion, return-to-duty, or follow-up alcohol or drug test. Refusal to test shall be considered a presumptive positive test.
- No driver shall report for duty or remain on duty when the driver uses any controlled substance, except when use is pursuant to the instructions of a physician who has advised the driver that the substance does not adversely affect the driver's ability to operate a commercial motor vehicle.
- ✓ Supervisors and managers are responsible for intervening when drug and/or alcohol intoxication is suspected. They shall comply with local procedures for dealing with suspected intoxicated employees.
- ✓ Employees suspected of being under the influence of illegal drugs or alcohol during working hours shall be prohibited from performing any work. The ultimate fate of the employee (e.g., suspension pending a discharge investigation, referral to a substance abuse professional, etc.) shall be determined by local human resources policies.
- ✓ Employees with drug and alcohol issues are encouraged to voluntarily seek help through the employer's confidential employee assistance provider (Health Advocate 877-240-6863).

#### **1.4 Report fit-for-duty.**

- ✓ Realize that if you are substance impaired, fatigued, angry, distracted or hung-over, you are more likely to make an error and get hurt.
- ✓ Manage your personal life so when you arrive at work, your head will be in the game.
- ✓ If you do not believe you are in a condition to perform the work safely, review your situation with your supervisor or manager.

#### **1.5 Before starting any task, conduct a mental risk assessment.**

- ✓ Think about what you are about to do.
- ✓ Ensure you have the qualifications to perform the work.
- ✓ Ensure the environment where you will be working is safe.



- ✓ Collect all the tools and equipment you will need to complete the work.
- ✓ Ask yourself are there any body parts that might be injured? If yes, obtain personal protective equipment as an added layer of protection.
- ✓ Think about how things might go wrong. Take precautions to protect yourself from problems likely to occur.
- ✓ Do not depend on others for your personal safety. Be self-sufficient.
- ✓ Recognize that human beings are imperfect and prone to errors.
- ✓ Think: “Failing to plan is planning to fail.”

#### **1.6 Don't be afraid to ask for clarification, guidance or assistance.**

- ✓ “Winging it” or “trial-by-error learning” is not an effective way to learn skills if the consequences of mistakes can result in serious injury or death.
- ✓ If you don't think you know enough to do a job safely, let your supervisor/manager know. They also want you to be successful and not get hurt at work.

#### **1.7 Know what to do in the event of an emergency.**

- ✓ Prepare for emergencies by:
  - Know the location of the nearest stairway or exit door. Ensure egress paths and exit doors are unobstructed.
  - Know the location of fire alarm pull stations.
  - Know the location of fire extinguishers and how to use them.
  - Ensure smoke and carbon monoxide detectors are functioning properly. Replace the battery in standard battery-powered units annually.
- ✓ Know how to use the emergency notification system in your workplace.
- ✓ Look for a minimum of two ways out of your work area in case you need to evacuate quickly.



- ✓ Know where you are to assemble once you evacuate for headcount purposes. Don't just leave the workplace without letting your supervisor or emergency response personnel know. If the evacuation is due to an active shooter event, DO NOT report to the assembly area. Instead, once out of the building, get as far away as possible as quickly as you can.
- ✓ Know how to summon medical assistance if you or someone nearby suffers a medical emergency. When in doubt, call 911.
- ✓ Protect yourself from infectious human blood and body fluids. Use impermeable nitrile gloves or barriers such as plastic wrap if you decide to aid an injured individual. Report any exposures to your supervisor for evaluation.
- ✓ Know what to do in the event of workplace violence. In most cases, you may need to sound the alarm and then decide whether to "RUN, HIDE or FIGHT".
- ✓ Know what to do in the event of a fire.
  - Upon discovering a fire, sound the alarm and contact 911, then notify your supervisor and coworkers.
  - Assess the size of the fire. If it can be safely extinguished and you or others in the workplace are trained to use a fire extinguisher, attempt to extinguish the fire.
  - If the fire is too large, evacuate the workplace closing any doors behind you. Do not lock doors as this may hinder emergency personnel.
  - If the room fills with smoke, stay as close as possible to the floor while moving to an exit.

## **1.8 Understand the hazards of chemicals found in your workplace.**

- ✓ Employee rights under the Pa. Worker and Community Right to Know Act are summarized on the mandatory public sector employee notice located;
  - Public Works – Lunchroom
  - WWTP – Administration Building & Service Building



- ✓ Employees should read container labels and review the Safety Data Sheets (SDS) for hazardous chemicals. SDSs for chemicals used in this workplace are compiled in a binder located;
  - Public Works – located outside of Foreman’s office
  - WWTP – in a binder in the Lab Area
- ✓ For a summary of hazardous substances used in this workplace, review the Hazardous Substances Survey Form (HSSF). Pa. employers are required to complete and post this mandatory form by April 1<sup>st</sup> of each year. The HSSF for this facility can be found:
  - Public Works – located outside of Foreman’s office
  - WWTP – in a binder in the Lab Area
- ✓ Read and follow the safe handling precautions described on container labels. The intentional removal of manufacturer applied labels is prohibited.
- ✓ Store flammable liquids in sealed containers and in approved flammable liquid storage cabinets.
- ✓ Review spill procedures before working with hazardous chemicals so you will know how to react should a spill occur.
- ✓ Assume all chemicals are toxic and limit your exposure. Today’s safety solvent may be tomorrow’s asbestos or PCB!
- ✓ Never mouth siphon liquid chemicals or fuels.
- ✓ Keep containers closed when not being used to limit evaporation and spills.
- ✓ Label all pipes and containers of hazardous materials with the identity of contents and hazardous properties. For example: Acetone – Flammable.
- ✓ Wash your hands after working with hazardous substances.
- ✓ Follow label or SDS instructions for the disposal of unused materials.
- ✓ Under the Pa. Worker and Community Right to Know Act, employees who work with hazardous chemicals are required to participate in initial (upon



being hired) and at least annual thereafter Worker and Community Right to Know Act training.

- ✓ Employers are required to maintain employee medical and exposure monitoring records for the duration of employment plus 30 years. Employees who would like to review the medical and exposure monitoring records maintained by their employer should request access to these records from their supervisor or human resources department.
- ✓ Supervisors shall be responsible for notifying employees of any unique hazards and required precautions in the event of non-routine work tasks.

### **1.9 Use required personal protective equipment.**

- ✓ Personal Protective Equipment (“PPE”) is designed to be the last layer of protection between hazards and your body. PPE used in conjunction with engineering controls and safe work practices can help prevent injuries, illnesses and death.
- ✓ All employees are required to wear the designated PPE that the employer has specified for the job task that they are assigned.
- ✓ Employees who consistently fail to use PPE, or consistently use it improperly, should expect disciplinary action in addition to being at elevated risk of injury, illness and death.
- ✓ Before beginning a task that requires PPE, make sure you receive training in the proper use, maintenance, and limitations of PPE. After receiving training, you should be able to demonstrate an understanding of how to properly use and maintain the PPE.
- ✓ All public sector employees are expected to:
  - Use PPE when required and use it properly
  - Inspect PPE before and after each use
  - Maintaining PPE according to the manufacturer’s instructions (e.g. cleaning and storing),
  - Notify supervision of damaged/inadequate PPE (Note: Do not use damaged or defective PPE!)



- Alert your supervision to workplace risks and hazards

### **1.10 Keep your work area clean, organized and clutter free.**

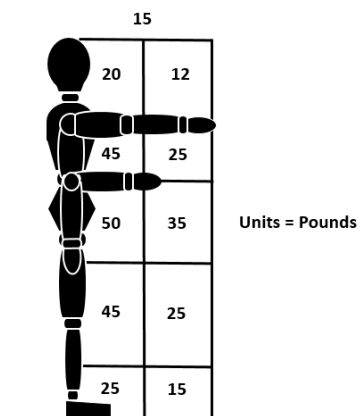
- ✓ The benefits of high standards of workplace housekeeping and organization include reduced risk of slips, trips and falls, reduced likelihood of fire and increased productivity.
- ✓ Water or other liquids on the floor can create slippery conditions just waiting for unsuspecting employees. Prevent slips and falls by cleaning up spills when you spot them or mark the area with a cone or equivalent and promptly notify area supervision of the hazardous condition.
- ✓ Stairways should have adequate safety treads and be free of obstacles or other tripping hazards.
- ✓ Floors, passageways, storerooms, and service rooms should be free from any protruding objects that can be a tripping, slipping, or obstruction hazard.
- ✓ Limit stacking height in storage areas. Maintain at least 18 inches of clear space below sprinkler heads.
- ✓ Maintain a minimum of 36 inches of clear space around electrical panels and utility equipment such as water heaters, air conditioning units and boilers.
- ✓ Do not overload electrical outlets and minimize the use of extension cords.
- ✓ Minimize the use of kitchen appliances. The last person out should confirm the coffee maker is turned off.
- ✓ Keep combustible material storage (paper goods, wood, clothes) to a minimum to reduce the fuel available for a fire.
- ✓ Don't use utility equipment rooms to store combustible materials.



- ✓ Flammable liquids shall be stored in approved containers. Whenever feasible, flammable liquids shall be stored in approved flammable liquid storage cabinets, storage sheds or protected rooms. Combustibles shall not be stored in the vicinity of flammable liquid storage cabinets.
- ✓ Grounding and bonding shall be used when dispensing flammable liquids to reduce the potential for static sparks.
- ✓ Think: “A place for everything and everything in its place.”

### 1.11 Protect your muscles, tendons and skeleton from injury.

- ✓ Recognize the human body has physical limits. Exceed these limits and injuries are likely to occur.
- ✓ Recognize that the upper lifting limit for a healthy adult is 51 lbs. at waist level next to your body. The safe lifting weight significantly decreases by as much as 76% as you move the weight up, down or away from your body. Refer to the illustration below.



- ✓ Design tasks so that this limit is not exceeded or provide mechanical assistive devices such as hoists, dollies or hand trucks whenever possible.
- ✓ Take periodic, short breaks when performing repetitive activities like typing or hammering.
- ✓ Stretch before performing strenuous work to get your body ready for heavy exertion.



- ✓ When lifting loads, use proper lifting techniques:
  - Assess the lift (weight, path, drop area)
  - Bend at the knees. Bring the load close to your body.
  - Lift using your legs. Keep your back straight.
  - Do not twist at the waist while carrying a load.
  - Drop the load by bending at the knees.

(See attached training aid on proper lifting.)

### **1.12 Protect yourself while driving.**

- ✓ Properly maintain your vehicle to ensure it is road worthy.
- ✓ Clear snow and ice from windshield to maximize your visibility.
- ✓ Wear your seat belt and make sure passengers are wearing theirs.
- ✓ Maintain a space cushion around your vehicle at all times. No tailgating.
- ✓ Stay focused on the task of driving. This means:
  - Do not drive and hold a cell phone to your ear
  - Do not drive and text message
  - Keep your eyes on the road and hands on the wheel

### **1.13 Protect yourself from hazardous energy sources**

- ✓ Before working on any equipment, make sure it does not contain hazardous energy sources or it cannot start unexpectedly. Review the equipment's written energy isolation procedure if available.
- ✓ Note that even equipment which has been disconnected from a power source may contain hazardous stored energy such as in a battery, capacitor, spring or fly wheel. The stored energy will need to be released or otherwise controlled in order to safely work on the equipment.
- ✓ Do not attempt to repair equipment if you have not been trained to work with electricity.



- ✓ For simple electrical equipment like a power stapler, shredder or toaster, make the equipment safe by unplugging the power cord before working on the equipment. Be sure to keep the plug in sight!
- ✓ If the equipment cannot be disconnected by a power cord, lockout/tagout will be required. Note: Only employer-authorized employees shall work on equipment requiring lockout/tagout.

#### **1.14 Protect yourself when working with hand and power tools/equipment.**

- ✓ Get training and practice with any tool or equipment before using it. Lack of familiarity increases the likelihood of injury.
- ✓ Familiarize yourself with the manufacturer's instructions and precautions.
- ✓ Inspect the tool. Only use tools in good, safe, and serviceable condition. Do not use it if it is damaged.
- ✓ Keep tools clean and free of grease.
- ✓ Pick the right tool for the right job and only use the tool for its intended purpose.
- ✓ Use the tool correctly and do not take shortcuts.
- ✓ Ensure all machine guards are in place and properly adjusted.
- ✓ Inspect the power cord and extension cord on powered tools. If damaged, remove from service. Use of electrical tape to repair damaged electrical cords is prohibited in the workplace.
- ✓ Use an extension cord equipped with a ground fault circuit interrupter (GFCI) when working in wet environments to prevent electrical shock.
- ✓ When working with tools, always keep the "line-of-fire" clear. This means keeping yourself and others out of the path of the saw cut, bore hole or hammer swing.
- ✓ Do not wear loose gloves, clothing, long hair, or jewelry that can become caught in moving parts.



- ✓ Do not put down the power tool until it has stopped running.
- ✓ Never circumvent or disable power switches designed to protect the operator. Examples of these switches include:
  - Constant pressure switches (must be constantly pressed for equipment to operate).
  - Lock-on switches (allows operator to shut off equipment with same finger that operates the pressure switch, also known as dead-man switch).

### **1.15 Protect yourself while working at height by properly using ladders.**

- ✓ Use commercial grade ladders only. Household ladders shall not be used in the workplace.
- ✓ Fiberglass ladders are preferred over aluminum ladders because fiberglass will not conduct electricity.
- ✓ Inspect ladders for damage prior to use and do not use them if damaged.
- ✓ Ladder feet should have slip resistant pads on each ladder foot and properly functioning locking spreader braces.
- ✓ Ladder steps or rungs should be free of oil, grease, and other contamination.
- ✓ Place the ladder to ensure maximum stability. Ensure the ground beneath the ladder is firm.
- ✓ When handling ladders, watch for overhead power lines!
- ✓ Follow the 4:1 rule. For every four feet of vertical rise, position the ladder one foot from the base of the structure.
- ✓ Ladders shall extend three feet above the landing point for safe mounting/dismounting.
- ✓ Carry tools in a tool belt or bring them up in a bucket. Keep your hands free so you can grip the ladder.



- ✓ Do not move your body outside the side rails of the ladder.
- ✓ After climbing the ladder and accessing elevated surfaces, stay away from unprotected roof edges.

#### **1.16 Protect yourself from outdoor environmental hazards.**

- ✓ Avoid sunburn and skin cancer by wearing a broad brimmed hat, long sleeve/pants and using sun screen (minimum SPF 15).
- ✓ Protect yourself from insect bites by using an insect repellent that contains “DEET” as the active ingredient.
- ✓ Protect yourself when working in hot temperatures by pushing fluids. Drink about a cup of cool water every fifteen minutes. Take periodic breaks in cool environments such as a shady area or air-conditioned space.
- ✓ Protect yourself from frostbite when working in low temperatures by covering exposed body parts with clothing like a wool cap and gloves.

#### **1.17 Protect yourself from harmful noise.**

- ✓ The energy created by high noise destroys the hair cells in your inner ear required for hearing.
- ✓ Damaged hair cells do not heal. Use hearing protection today to preserve your hearing for tomorrow.
- ✓ Wear hearing protection when noise levels exceed 85 dBA. A rule of thumb for determining whether you need hearing protection is if you have to raise your voice to be heard over the background noise.
- ✓ There are two types of hearing protection - ear plugs and ear muffs. They are only effective when properly worn. Follow the manufacturer’s instructions on the packaging to ensure optimal protection.
- ✓ If you experience ringing or fullness in your ears, the hearing protection is probably inadequate or not properly fitted. See your supervisor.

#### **1.18 Protect yourself from security risks.**

- ✓ Do not leave valuables in plain sight at your workstation.



- ✓ Notify your supervisor and front-desk employees of any protection or restraining orders.
- ✓ Do not allow unfamiliar individuals into the building.
- ✓ Know who to contact if you notice an unfamiliar or suspicious person in the building.
- ✓ Know who to contact if you encounter a resident, vendor or fellow employee who makes threats or otherwise seems to be on the verge of violent action.
- ✓ Park in well-lit areas. Keep your car doors locked and do not leave valuables or electronic equipment exposed.

#### **1.19 Report injuries and illnesses immediately.**

- ✓ If you experience or suspect a work-related injury or illness, notify your supervisor immediately.
- ✓ Failure to report work-related injuries in a timely manner can result in denial of workers' compensation benefits.
- ✓ Think: "When in doubt, check it out."

#### **1.20 Seek prompt and quality medical attention for injuries and illnesses.**

- ✓ Expect that emergency medical providers and your employer's workers' compensation panel physicians will provide you with quality medical care.
- ✓ Cooperate with medical personnel and assigned WC adjusters. Alert the WC adjusters to problems with your medical care. Realize that their job is to get you back to full earning capacity as quickly as medically appropriate.

#### **1.21 Ask for modified duty following a work related injury or illness.**

- ✓ Short-term modified duty work assignments help to preserve your wage earning capacity, maintain your mental health and enable you to re-enter the workplace as quickly as medically appropriate.

#### **1.22 Resources**

Proper Lifting Techniques Handout



## Stretching Exercises:

Before attempting any heavy lift, get your body ready by warming up with some simple stretches. When stretching, expect to feel tension. If it starts to hurt, back off. Hold the position and count to three slowly, then change sides. Remember to relax and breathe deeply.



## PRE LIFT STRETCHING & PROPER LIFTING TECHNIQUE

*Note: If you have pre-existing musculoskeletal problems, consult your physician before attempting.*

### Step 1: Plan the lift

Evaluate the load and check the weight. If it's too heavy (>51 lbs.), use a mechanical lifting aid or get help.



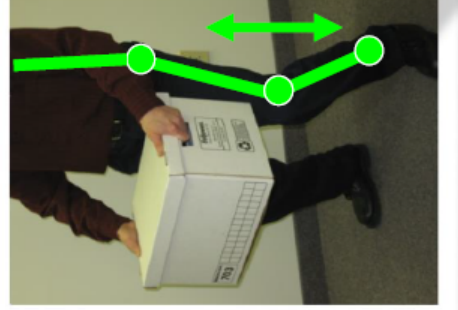
### Step 2: Hug the load

Bend at the knees and bring the load as close to the body as possible. Get a good grip on the load.



### Step 3: Lift using legs

Lift straight up using your legs. Keep your back straight and let your powerful leg muscles do all the work.



### Step 4: Don't twist!

Never twist at the waist while under load. If you need to change direction or pivot, move your whole body with your feet.



**Lifting loads is a common workplace task. To minimize the risk of a painful back injury, always use the following "safe lifting" technique:**



## **SECTION 2**

### **ADDITIONAL SAFE PRACTICES BY DEPARTMENT**



## **2.1 ADDITIONAL SAFE PRACTICES FOR OFFICE/ADMINISTRATION WORKERS**

### **2.1.1 Typical injuries and illnesses experienced by office/administration workers include:**

- ✓ Blunt trauma, fractures and orthopedic injuries due to slips, trips and falls
- ✓ Lacerations
- ✓ Musculoskeletal injuries due to manual handling
- ✓ Workplace violence

### **2.1.2 Personal protective equipment for office workers consists of:**

<b>Hazard</b>	<b>PPE Required</b>
Slippery walking surfaces	Shoes with non-slip soles

### **2.1.3 Take personal action to prevent workplace slips, trips and falls.**

- ✓ Keeping aisles and walking areas clear of storage.
- ✓ Close desk and file cabinet drawers after accessing.
- ✓ Repair or replace damaged carpeting and flooring.
- ✓ Clean up water and other spills promptly or protect with barrier until they can be cleaned.
- ✓ Wear footwear appropriate for environmental conditions.
- ✓ Hold handrails when using stairs.
- ✓ Use a ladder or step stool to reach elevated surfaces. Do not stand on a chair.
- ✓ Remove any extension cords lying in aisles or walking areas.



#### **2.1.4 Prevent musculoskeletal disorders through proper workstation layout.**

- ✓ Use an adjustable ergonomic chair. Take the time to adjust the chair to conform to your personal body dimensions for optimal comfort.
- ✓ Keep your keyboard angle flat to slightly negative and wrists straight (neutral). An adjustable keyboard platform/tray is preferred equipment for frequent users of keyboards. Use a cushioned wrist rest to reduce contact stress when not typing.
- ✓ Position the display straight ahead and at arm's length for optimal viewing. Adjust the screen height so your level gaze falls on the top 25% of the screen.
- ✓ Do not pinch the phone between your shoulder and neck. Consider using a headset or phone support.
- ✓ Because underlying, non-work related medical conditions can increase your risk of developing repetitive use injuries, work with your physician to rule out non-occupational causes such as hormonal imbalances, thyroid disease, tobacco use and diabetes.

#### **2.1.5 Prevent office fires.**

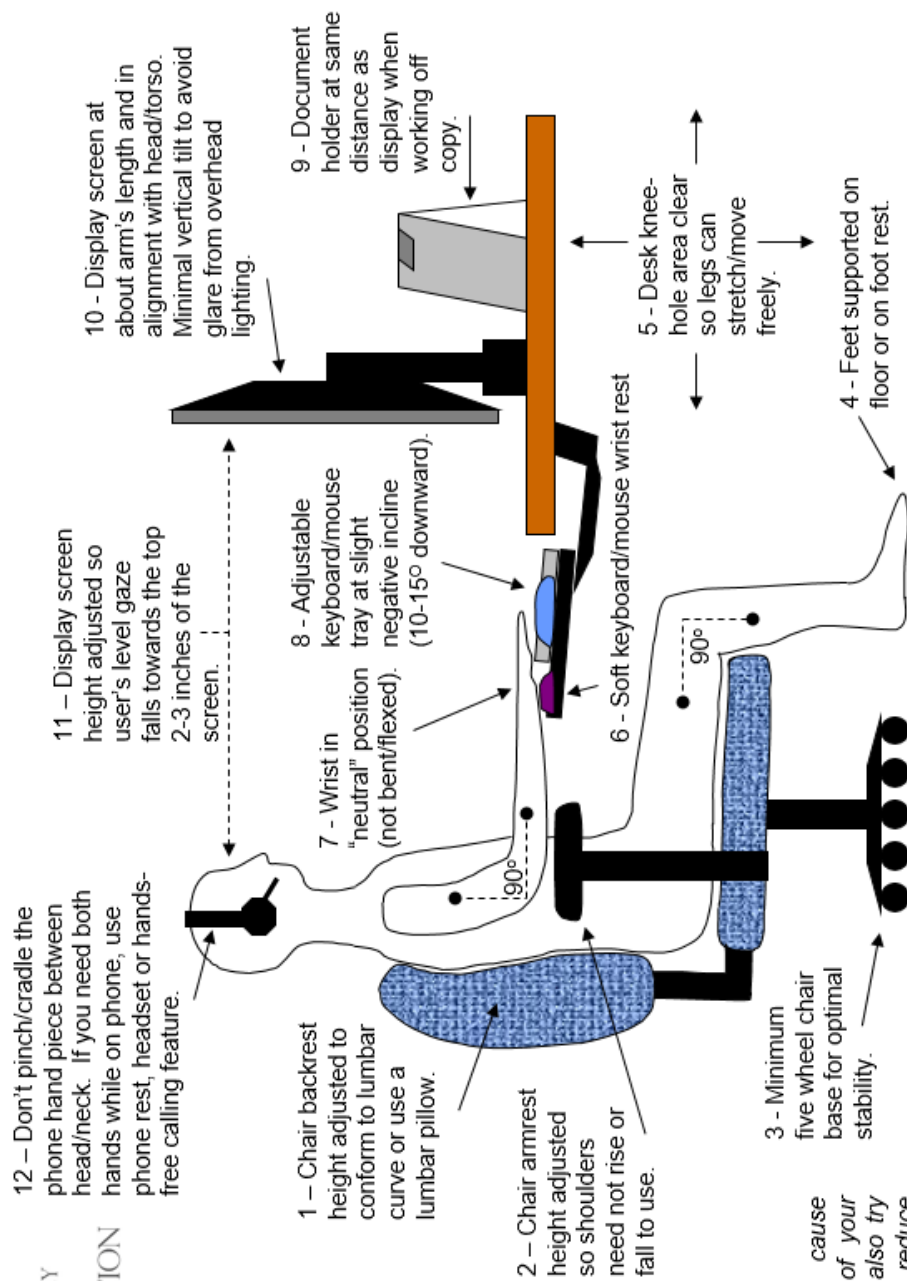
- ✓ Avoid bringing home appliances like coffee makers and space heaters into the workplace.
- ✓ When feasible, purchase appliances with an automatic shut-off feature. Otherwise, the last person out at the end of the day should be responsible for confirming all appliances are off.
- ✓ Avoid overloading electrical outlets. High current drawing appliance like coffee makers and heaters shall be plugged directly into the wall outlet.
- ✓ Use a multi-outlet extension cord equipped with over-current protection for low current drawing appliances like lights, fans and calculators.
- ✓ Turn off the power and unplug the equipment in the event of an electrical equipment malfunction.

#### **2.1.6 Resources**

12 Elements for Optimal Workstation Comfort



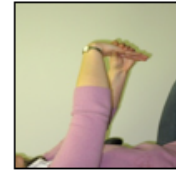
## 12 Elements of Optimal Workstation Comfort



### Stretching Exercises:

Prolonged sitting can cause discomfort. Try to get out of your chair periodically. You can also try these simple stretches to reduce muscle tension throughout the workday. When stretching, expect to feel tension. If you feel pain, back off. Hold the position and count to three slowly, then change sides. Remember to relax and breathe deeply. Note: These stretches are not recommended for anyone with pre-existing orthopedic problems. Consult your physician before attempting.

### Neck Stretch    Chair Rotation    Overhead Reach    Wrist Flexion    Wrist Extension





## **2.2 ADDITIONAL SAFE PRACTICES FOR HIGHWAY WORKERS (PUBLIC WORKS)**

### **2.2.1 Typical injuries and illnesses experienced by highway workers include:**

- ✓ Collisions with vehicles
- ✓ Foreign objects in eyes
- ✓ Musculoskeletal injuries
- ✓ Blunt trauma, fractures and orthopedic injuries due to slips, trips and falls
- ✓ Thermal burns

### **2.2.2 PPE for highway workers shall consist of:**

<b>Hazard</b>	<b>PPE Required</b>
Vehicular traffic	ANSI 107 Class 2 high visibility traffic safety apparel (Class 3 optional) and a Type I or II hard hat.
Overhead hazards or falling objects	Hard hat
Low velocity projectiles, irritating liquids	Safety glasses with side shields
High velocity projectiles, corrosive liquids	Safety glasses and face shield
Chain saw operations	Chainsaw headgear featuring head, face and hearing protection; chain saw chaps
Noise from jack hammers, grinders, etc. (85 dBA or more)	Ear plugs or ear muffs
Skin abrasion	Leather work gloves
Skin absorption of chemicals	Impermeable gloves (see SDS)
Jack hammering and other hand vibration	Anti-vibration gloves
General work hazards	Substantial work shoes with non-slip soles, long pants and long sleeve work shirt.



Foot crush hazards such as work involving cinder blocks, bricks, or gas cylinders	ANSI compliant safety boots
Harmful dust, vapors and fume at known levels	Air purifying respirator
Oxygen deficiency (<19.5%) or unknown concentrations of harmful dust, vapors and fume	Air supplying respirator
Sunburn/skin cancer	Broad-brimmed hat and sun screen (minimum SPF 15)

### **2.2.3 Protect yourself when working in traffic.**

- ✓ For work on or near a highway or when flagging, wear an ANSI 107 Class 2 or 3 high visibility traffic safety apparel and a Type I or II hard hat.
- ✓ When flagging, wear Class 2 or 3 high visibility traffic safety apparel, a hard hat and use a stop/slow paddle. Red flags are only permitted when flagging in an intersection or during an emergency when a stop/slow paddle is not available. Flaggers should use air horns as needed and to make sure there is a clear path for the flagger to get out of the way of traffic.
- ✓ Lay out the work zone and signage based on the work to be performed. Follow the most current Penn DOT Publication 213 Work Zone Traffic Control Guidelines.
- ✓ Employ shadow vehicles as physical obstructions to oncoming traffic. Do not rely on signage and cones as the sole means for keeping you safe.

### **2.2.4 Protect yourself from silica hazards.**

- ✓ Crystalline silica is a natural mineral component of many building materials including asphalt, brick, concrete, mortar and slate.
- ✓ Whenever you break, cut, grind, drill or pulverize these building materials, crystalline silica is released into the air and may be inhaled.



- ✓ Crystalline silica is toxic to the lungs. Overexposure to the inhaled dust can lead to the lung disease silicosis, lung cancer and other serious systemic diseases.
- ✓ The best way to avoid exposure is to minimize activities that result in the generation of airborne dust.
- ✓ Since avoidance is not always feasible, if you perform an activity that will generate dust, use the following exposure controls:
  - Water spray application / water-based dust suppression
  - Local exhaust equipment vented through a high efficiency particulate air (HEPA) filter
  - Respiratory protection equipment (N-95 rating or better)

#### **2.2.5 Protect yourself from asbestos hazards.**

- ✓ Asbestos is a name used to describe a group of naturally occurring minerals that are used in certain building materials and in automobile brake pads.
- ✓ Asbestos fibers pose little hazard when imbedded in a solid matrix. However, when the fibers become airborne and are inhaled, they can cause serious lung disease including cancer of the lung and cancer of the lining of the lung.
- ✓ Minimize your risk of inhaling airborne asbestos by avoiding activities that generate asbestos-containing dust:
  - ✓ Know where asbestos materials are in your workplace.
  - ✓ Avoid drilling, grinding or otherwise disturbing asbestos containing materials.
  - ✓ Note: Only Pa. DEP-licensed contractors are permitted to remove asbestos!



- ✓ Do not use compressed air as a cleaning tool during brake changes. Use a vacuum equipped with high efficiency particulate air (HEPA) filter.

#### **2.2.6 Secure yourself when working from a bucket truck or other elevating equipment:**

- ✓ A fall arrest or travel restraint system must be used for proper fall protection purposes.
- ✓ Do not use body belts for fall protection purposes.
- ✓ Familiarize yourself with the manufacturer's instructions on the fall protection equipment.
- ✓ Inspect all personal fall protection equipment before use.
- ✓ Use a full body harness and shock absorbing lanyard to secure yourself to the manufacturer-specified anchorage point on the elevating equipment. Other points may not support your weight during a fall.
- ✓ Note: Shock absorbing lanyards may expand during a fall (usually up to six feet). Make sure you don't hit the ground before the fall protection engages!
- ✓ Deploy outriggers if the elevating equipment is so equipped. Make sure the outriggers impact on stable ground. Follow the manufacturer's recommendations regarding outrigger plates.

#### **2.2.7 Drivers shall perform a vehicle inspection prior to leaving the yard.**

- ✓ Drivers should check:

Service brakes including trailer brake connections
Parking (hand) brake
Steering mechanism
Lighting devices and reflectors (head, tail, brake, turn signals, and 4-ways)
Tires
Horn
Windshield wipers



Rear vision mirrors
Coupling devices
Wheels and rims
Emergency equipment
Back-up alarm
A/C, heater, and defrost as applicable

- ✓ Do not take vehicles with serious deficiencies out of the yard. Alert supervision to critical defects identified during driver vehicle inspections.
- ✓ Clean windshields and mirrors to ensure maximum visibility.



## **2.3 Refuse Workers**

**Section was removed as it is not applicable**



## **2.4 ADDITIONAL SAFE PRACTICES FOR VEHICLE MECHANICS**

### **2.4.1 Typical injuries and illnesses experienced by vehicle mechanics:**

- ✓ Lacerations
- ✓ Foreign objects in eyes
- ✓ Musculoskeletal injuries
- ✓ Skin irritation

### **2.4.2 Personal protective equipment for vehicle mechanics consists of:**

<b>Hazard</b>	<b>PPE Required</b>
Low velocity particles, dirt, irritating substances	Safety glasses with side shields
High velocity particles from grinding or cutting operations	Safety glasses and face shield or goggles
Falling objects, slippery surfaces	Substantial work shoes with non-slip soles
Laceration hazards, skin irritating substances	Long pants and long sleeves
Battery acid, solvents, oils, fuels	Impermeable gloves (check SDS)

### **2.4.3 When working on elevated cabs, dump truck beds, leaf boxes or any equipment which could unexpectedly descend, utilize a safety block or jack stand to prevent the equipment from unexpectedly descending.**

### **2.4.4 Ensure hoists and automotive lifts are inspected and serviced by a qualified individual on a periodic basis.**

- ✓ An annual inspection is preferred.
- ✓ The inspections status shall be indicated by a tag or sticker affixed to the equipment.



**2.4.5 Drain and clean out fuel tanks and fuel supply lines prior to welding or cutting.**

- ✓ Confirm by using a calibrated LEL meter that the atmosphere inside the tank and in the vicinity will not explode.

**2.4.6 Minimize your inhalation and skin exposure to gasoline.**

- ✓ Gasoline contains benzene which is a known human cancer causing agent.
- ✓ Do not use gasoline to remove grease from parts.
- ✓ Keep fuel in sealed containers. Containers with self-closing spouts are preferred.

**2.4.7 Minimize your skin exposure to automotive fluids by using impermeable gloves.**

- ✓ Most automotive fluids are fat soluble and toxic if absorbed into the body.
- ✓ Used motor oil has been shown to cause skin cancer when painted onto the skin of laboratory animals.

**2.4.8 Minimize your inhalation exposure to asbestos from brake pads.**

- ✓ Do not use compressed gas to clean brake hardware.
- ✓ Use a vacuum equipped with a high efficiency particulate air (HEPA) filter.

**2.4.9 Minimize your exposure to toxic carbon monoxide gas.**

- ✓ Do not run engines in an enclosed space.
- ✓ Keep bay doors open or use local exhaust to vent tailpipe emissions to the outside.
- ✓ Watch for a sudden “band” headache which is an early way your body signals that it is being poisoned by carbon monoxide.



## **2.5 ADDITIONAL SAFE PRACTICES FOR PARK MAINTENANCE WORKERS**

### **2.5.1 Typical injuries and illnesses experienced by park maintenance workers include:**

- ✓ Foreign objects in eyes
- ✓ Insect bites
- ✓ Lacerations
- ✓ Skin reactions caused by poison plants
- ✓ Thermal burns
- ✓ Traumatic limb injury from contact with powered equipment
- ✓ Traumatic whole body injury from mower/tractor roll-overs
- ✓ Blunt trauma, fractures and orthopedic injuries due to slips, trips and falls

### **2.5.2 Personal protective equipment for park maintenance workers consists of:**

<b>Hazard</b>	<b>PPE Required</b>
Vehicular traffic	When exposed to traffic, ANSI 107 Class 2 high visibility traffic safety apparel (Class 3 optional) and a Type I or II hard hat.
Low velocity particles while string trimming	Safety glasses with side shields and face shield or goggles.
Slippery surfaces, broken glass, rocks and outdoor debris	Substantial work shoes with non-slip soles
Chain saw operations	Chainsaw headgear featuring head, face and hearing protection; chain saw chaps
Moving cutting blades on walk behind mower	ANSI safety boots with non-slip soles
Poison plants and flying debris during string trimming	Long pants and long sleeves
Poison plants and insect bites	Cut resistant work gloves



Excess sensitivity to poison plants	Ivy Block barrier cream
Noise from powered equipment (mowers, string trimmers, aerators)	Ear plugs or ear muffs
Sunburn	Broad brimmed hat and sunscreen (minimum SPF 15)
Insect bites	DEET containing insect repellent

**2.5.3 Scout the area to be mowed/trimmed to identify insect nests, groundhog holes, bottles, rocks and other hazards which could pose a projectile hazard or damage equipment.**

**2.5.4 Look for wasp and bee nests so you can avoid them. Also check tree stumps and sign posts for wasp and bees.**

**2.5.5 Know how to decontaminate yourself if you encounter poisonous plants.**

- ✓ First, clean the area with pharmacy-grade isopropyl alcohol (rubbing alcohol) or liquid dish detergent.
- ✓ Next, wash the area with soap and water.
- ✓ Avoid washing the area with bleach which can cause skin irritation.

**2.5.5 Familiarize yourself with the manufacturer's instructors for any powered equipment.**

- ✓ Confirm all manufacturer supplied guards are in position.

**2.5.6 Fully deploy roll over protection systems (ROPS) on powered landscaping equipment and wear seat belts.**

- ✓ Remember, the ROPS will only function if the driver remains inside the protection envelope of the equipment.
- ✓ Do not wear seat belts if the equipment lacks a ROPS. Without a ROPS, you stand a better chance of avoiding injury during a roll over if you jump clear.

**2.5.7 When cutting grass on hills, drive up the steepest slope and drive down gentler slopes.**



- ✓ Running parallel to the contours increases the likelihood that the equipment will roll over.

#### **2.5.8 Turn off powered equipment when refueling.**

#### **2.5.9 Store fuel in self-closing, approved fuel storage containers.**

- ✓ Label the container as to its contents.
- ✓ Keep fuel in sealed containers. Containers with self-closing spouts are preferred.
- ✓ Fuel containers shall be stored in flammable liquid storage cabinets back in the shop.

#### **2.5.10 Minimize your inhalation and skin exposure to gasoline.**

- ✓ Gasoline contains benzene which is a known human cancer causing agent.

#### **2.5.11 Minimize your exposure to toxic herbicides and pesticides.**

- ✓ The Pa. Department of Agriculture requires pesticide applicators to be licensed before they are permitted to apply pesticides or herbicides to public areas.
- ✓ Review the SDS and wear specified personal protective equipment. Most pesticides and herbicides are toxic.
- ✓ Minimize skin contact by wearing impermeable gloves and liquid resistant coveralls. Check SDS for the best PPE choice.
- ✓ Wash hands after working with herbicides and pesticides.



## **2.6 ADDITIONAL SAFE PRACTICES FOR WATER/WASTEWATER WORKERS**

**2.6.1 Typical injuries and illnesses experienced by water/wastewater workers include:**

- ✓ Collisions with vehicles
- ✓ Finger crush injuries from handling manhole lids
- ✓ Foreign objects in eyes
- ✓ Musculoskeletal injuries
- ✓ Blunt trauma, fractures and orthopedic injuries due to slips, trips and falls
- ✓ Exposure to infectious agents

**2.6.2 Personal protective equipment for park maintenance workers consists of:**

<b>Hazard</b>	<b>PPE Required</b>
Vehicular traffic	When exposed to traffic, ANSI 107 Class 2 high visibility traffic safety apparel (Class 3 optional) and a Type I or II hard hat.
Low velocity particles, dirt, irritating substances	Safety glasses with side shields
Corrosive treatment chemicals	Safety glasses with side shields and face shield or goggles.
Slippery surfaces, physical obstructions	Substantial work shoes with non-slip soles
Handling heavy gas cylinders	ANSI safety boots with non-slip soles
Wastewater, infectious agents, chemical agents, laceration hazards	Long pants and long sleeves
Infectious agents, treatment chemicals	Impermeable gloves (check MSDS/SDS)
Contact with wastewater while working on collection system	Liquid impermeable boots and disposable liquid resistant coveralls
Chlorine gas	Chlorine escape respirator



**2.6.3 Enclosed areas where sewer gases can accumulate shall either be equipped with forced ventilation systems to maintain gas levels below hazardous levels or the space shall be designated as a permit-required confined space.**

**2.6.4 When opening a sewer manhole lid:**

- ✓ Establish a highway work zone to protect employees from traffic hazards. Whenever feasible, use a shadow vehicle as a physical obstruction to oncoming traffic.
- ✓ Monitor the vicinity with a calibrated gas meter to ensure the absence of an explosive atmosphere.
- ✓ Use spark proof tools.
- ✓ Keep hands clear to avoid finger/hand crush injuries.
- ✓ Employ a magnetic lid lifter or other assistive devices.

**2.6.5 Familiarize yourself with the manufacturer's instructions for using sewer plugs.**

- ✓ Pressurize to the recommended maximums. The plug can burst unexpectedly if overfilled.

**2.6.6 Catwalks over vessels shall be equipped with guard rails consisting of a top rail and mid rail. If employees are required to work beneath the catwalk, then the employees should wear head protection and the catwalk should be equipped with a toe-board to prevent tools and materials from falling onto them.**

- ✓ If work activities require work over water where guardrails are lacking, employees shall use fall protection equipment and personal flotation devices.

**2.6.7 When hatches to wet wells are open and employees are exposed to fall hazards, employees shall don personal fall protection equipment.**



**2.6.8 Anaerobic sludge digesters shall feature safety systems to prevent potential methane explosions. These shall consist of:**

- ✓ Explosion proof electric equipment and forced ventilation systems in areas where methane gas could accumulate.
- ✓ Fixed, calibrated explosive gas meters connected to visual and auditory alarms.
- ✓ Sludge gas flare system.
- ✓ Hot work permit program.
- ✓ Mechanical integrity program which includes periodic piping inspections and leak checks to ensure the ongoing integrity of sludge gas piping systems.



## **2.7 ADDITIONAL SAFE PRACTICES FOR QUALIFIED ELECTRICAL WORKERS**

### **2.7.1 Typical injuries and illnesses experienced by qualified electrical workers include:**

- ✓ Electric shock
- ✓ Electrocution
- ✓ Arc flash burn and blast injuries
- ✓ Falls from height
- ✓ Blunt trauma, fractures and orthopedic injuries due to slips, trips and falls

### **2.7.2 Personal protective equipment for qualified electric workers consists of:**

<b>Hazard</b>	<b>PPE Required</b>
Vehicular traffic	When exposed to traffic, ANSI 107 Class 2 high visibility traffic safety apparel (Class 3 optional) and Class E hard hat.
Contact with energized conductors and equipment	Insulated electrical gloves/sleeves under leather “lineman’s” outer gloves; Class E hard hat
Arc flash/arc blast	Flame resistant coveralls, non-conductive safety glasses with side shields, arc flash rated face shield and hearing protection; arc flash hood may also be required depending on work to be performed
Slippery surfaces, physical obstructions	Substantial work shoes with non-conductive, non-slip soles

### **2.7.3 Whenever feasible, lockout/tagout shall be used to eliminate electrical hazards.**

### **2.7.4 Only qualified and authorized personnel that have completed a comprehensive electrical safety education program shall be authorized to**



**work on equipment containing exposed energized electrical conductors or equipment.**

- ✓ 1/10 of an ampere going through the human body for two seconds can kill a human.
- ✓ Recognize that wet skin is approximately one hundred times less resistant to electrical current than dry skin.
- ✓ Assume all conductors and equipment are energized unless proven otherwise.

**2.7.5 Prior to work being performed, the employer shall establish and enforce minimum approach distances and ensure no employee approaches or takes any conductive object closer to the exposed energized surface than the established minimum approach distance unless the employee is protected from potential electric shock and arc flash hazards.**

Table R-6

Alternative Minimum Approach Distances for Voltages of 72.5 KV and Less<sup>1</sup>

Nominal voltage (KV) phase-to-phase	Distance			
	Phase-to-ground exposure		Phase-to-phase exposure	
	m	ft	m	ft
0.50 to 0.300 <sup>2</sup>	Avoid Contact		Avoid Contact	
0.301 to 0.750 <sup>2</sup>	0.33	1.09	0.33	1.09
0.751 to 5.0	0.63	2.07	0.63	2.07
5.1 to 15.0	0.65	2.14	0.68	2.24
15.1 to 36.0	0.77	2.53	0.89	2.92
36.1 to 46.0	0.84	2.76	0.98	3.22
46.1 to 72.5	1.00	3.29	1.20	3.94
<sup>1</sup> Employers may use the minimum approach distances in this table provided the worksite is at an elevation of 900 meters (3,000 feet) or less. If employees will be working at elevations greater than 900 meters (3,000 feet) above mean sea level, the employer shall determine minimum approach distances by multiplying the distances in this table by the correction factor in Table R-5 (see 29 CFR 1910.269) corresponding to the altitude of the work. <sup>2</sup> For single-phase systems, use voltage-to-ground.				
Source: 29 CFR 1910.269				



**2.7.6 Institute and follow SOGs for common electrical work on exposed energized surfaces. Typical routine tasks include:**

- ✓ Taking voltage and current measurements
- ✓ Opening and closing disconnects and circuit breakers
- ✓ Racking circuit breakers on and off the bus
- ✓ Removing panels and dead fronts
- ✓ Opening electric equipment doors for inspection

**2.7.7 Prepare yourself to work with electricity**

- ✓ Remove jewelry and metal objects from your body.
- ✓ Tie back hair.
- ✓ Roll down and button sleeves.
- ✓ Tuck in shirts.

**2.7.8 When working within 10 feet of power lines, coordinate the work with the power utility to guard or preferably de-energize and ground the power line on both sides of the work area before proceeding with work.**

**2.7.9 Work on energized equipment requires the presence of two qualified workers at a minimum. Due to the elevated risk of serious injury, lone operations are prohibited.**

**2.7.10 Metal ladders may not be used for electrical work.**

**2.7.11 Protect yourself from falls while working at height.**

- ✓ A body restraint system is recommended as the optimum system for fall protection of workers in bucket trucks or articulating boom trucks. For body restraint, workers may use either a safety belt or full-body harness that is equipped with a short lanyard attached to the work platform (the manufacturers usually provide a designated tie-off point somewhere in the work platform), with it being imperative that the lanyard be of a



length short enough to prevent the person from being ejected from the basket.

- ✓ Use of a full body harness and shock absorbing lanyard to secure yourself to the manufacturer-specified anchorage point on the elevating equipment is also an approved method of fall protection but is not recommended due to the potential of being ejected out of the work platform. Other points may not support your weight during a fall.
- ✓ Note: Shock absorbing lanyards may expand during a fall (usually up to six feet). Make sure you don't hit the ground before the fall protection engages!
- ✓ Deploy outriggers if the elevating equipment is so equipped. Make sure the outriggers impact on stable ground. Follow the manufacturer's recommendations regarding outrigger plates.

#### **2.7.12 Use voltage-rated personal protective equipment, tools and test equipment.**

- ✓ Thoroughly inspect all equipment prior to use.
- ✓ Follow manufacturer's recommendations with respect to maintenance, calibration and testing.
- ✓ Insulating electrical gloves and sleeves should be tested every six months. Bucket trucks every twelve months. Equipment should also be tested after being repaired and prior to being placed back into service.

#### **2.7.13 Know what to do in the event of an electrical incident involving another employee.**

- ✓ Avoid becoming a victim yourself by protecting yourself first.
- ✓ Do not touch a victim if they are part of a circuit. The current in their body could also pass through you.
- ✓ If safe to do so, disconnect power to involved equipment before attempting to touch the victim.



- ✓ If it is not possible to disconnect the power, use a wooden pole or other non-conductive tool to attempt to drag the victim away from energized conductor or equipment.

#### **2.7.14 Learn Adult CPR and basic first aid.**

- ✓ Immediately following an electrocution incident, the victim may stop breathing and/or go into cardiac arrest.
- ✓ Each work crew shall have at least two employees capable of performing adult CPR.



## 2.8 ADDITIONAL SAFE PRACTICES FOR LAW ENFORCEMENT

### 2.8.1 Typical injuries and illnesses experienced by law enforcement professionals:

- ✓ Traumatic injuries from motor vehicle collisions
- ✓ Musculoskeletal injuries
- ✓ Lacerations
- ✓ Contusions
- ✓ Blunt trauma, fractures and orthopedic injuries due to slips, trips and falls

### 2.8.2 Personal protective equipment for law enforcement employees consists of:

Hazard	PPE Required
Ballistic and close quarter weapons	Bullet resistant vest
Irregular, slippery surfaces, sharps	Substantial work shoes with non-slip soles
Sharps	Puncture-resistant “frisker” gloves
Vehicular traffic	ANSI 207 Class 2 high visibility traffic safety apparel  Note: High visibility apparel is not required during tactical situations or other exigent circumstances when the vest places employee at elevated risk of injury/death.
Airborne pathogens	Minimum of N, P or R-95 rated filtering facepiece respirator and safety glasses
High potency narcotics	Impermeable nitrile gloves and N, P or R-100 rated air purifying respirator
Chemical, Biological, Radiological and Nuclear (CBRN)	CBRN full-face, air-purifying respirator equipped with combination cartridge; CBRN response suit



Noise and errant projectiles during firearm practice	Ear muffs or ear plugs Safety glasses with side shields
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**2.8.3 To properly fulfill their duties and to protect themselves, law enforcement professionals recommend maintaining a high degree of situational awareness at all times when in the field.**

- ✓ Arrive to work well rested and mentally focused.
- ✓ Avoid bringing distractions to the job which could cloud your judgment and provide perpetrators with a tactical advantage.
- ✓ Maintain a healthy suspicion of all contacts. Do not drop your guard unless in a safe, secure environment.
- ✓ Learn to filter sensory information and distinguish the “significant from the insignificant”.
- ✓ Discipline yourself not to turn your back on suspects.

**2.8.4 Law enforcement professionals are at elevated risk of exposure to bloodborne pathogens.**

- ✓ Obtain the Hepatitis B vaccination offered by your employer.
- ✓ Ensure Tetanus vaccinations are up-to-date.
- ✓ Report suspected exposures immediately for evaluation by a trained medical professional.
- ✓ Communicable Diseases (Police General Order 2.5.9)

**2.8.5 Strength and physical fitness are recommended job requirements for law enforcement professionals.**

- ✓ Engage in exercise and weight training on a regular basis in order to maintain optimal physical fitness.
- ✓ In addition to routine exercise, eat a healthy diet and get adequate sleep (7 to 9 hrs. sleep per day for healthy adults) to optimize physical and brain health.



- ✓ Get periodic wellness check-ups to ensure your ongoing physical and brain health.
- ✓ Wellness Program Participation

#### **2.8.6 Stress is a normal component of the law enforcement occupation.**

- ✓ Recognize that stress cannot be controlled, only one's reaction to it.
- ✓ Learn healthy coping strategies such as:
  - Deep breathing
  - Physical exercise
  - Meditation
  - Hobbies
- ✓ Do not be afraid to seek confidential assistance through your employer's confidential employee assistance provider (Health Advocate 877-240-6863) or other brain health support. This is a priority if stress is causing:
  - Insomnia
  - Headaches
  - Excessively consumption of alcohol or illegal substances use
  - Excessive consumption of food
  - Aggression toward family, coworkers, members of the public
  - Violent or suicidal thoughts

#### **2.8.7 Perform a pre-trip inspection of yourself and your patrol vehicle prior to hitting the road. Check that you have all your tools. Ensure your vehicle is in sound mechanical condition.**

- ✓ Tires inflated to manufacturer recommended maximums.
- ✓ Windshield clear.
- ✓ Lights and sirens functional.
- ✓ Loose equipment secured.

#### **2.8.8 Wear seat belts when in your patrol vehicle as the driver or as a passenger.**



**2.8.9 Unless exigent circumstances require contrary action, lights and sirens shall be on continuously while exceeding posted traffic regulations as required by law.**

- ✓ Note, modern vehicle sound systems and anti-noise treatments often reduce the ability of a driver to hear sirens. Never assume someone knows you are coming unless you make eye contact.

**2.8.10 During response driving, slow down prior to driving into and through the intersection and proceed with extreme caution.**

- ✓ Unless exigent circumstances require otherwise, keep lights and sirens on continuously while in transit.

**2.8.11 During traffic stops position your vehicle for optimal tactical advantage as well as to protect yourself and fellow officers from traffic.**

- ✓ Try to get as far off the road and onto the shoulder as possible. In areas where there is no shoulder, officers may need to use their PA system to direct the target vehicle to a more optimal location to conduct the stop.
- ✓ Park the cruiser several car lengths from the target vehicle. More space provides for greater reaction time. The space also creates a roll ahead area in the event the cruiser is struck from behind.
- ✓ If approaching the target vehicle from the driver's side, park the cruiser at a half car width off-set. Watch for traffic when exiting, walk around the door and approach the target vehicle on the driver's side. Recognize the offset provides a degree of protection from traffic hazards but is not 100% effective, especially in the event of a collision involving a heavy commercial vehicle. Angle the wheels of the cruiser opposite to the direction of the approach. For driver side approaches, this means angling the wheels towards the shoulder.
- ✓ If approaching from the passenger side, angle the wheels of the cruiser towards the travel lane. Exit the cruiser, walk behind the cruiser and approach the cruiser along the passenger side.

**2.8.12 Never manually push a disabled vehicle off the road. UGT police vehicles are equipped with a push bumper**



- ✓ Call for a tow truck to move disabled vehicles only in an emergency situation.

#### **2.8.13 Do not be afraid to call for back-up.**

- ✓ Recognize calling for backup is not a sign of weakness. It is a smart tactical move.
- ✓ Back-up ensures optimal force ratios in the event of a conflict.
- ✓ Back-up also improves your ability to maintain situational awareness in a 360° threat environment.

#### **2.8.14 During ballistic combat situations, keep moving, move perpendicular to the threat and take maximum advantage of cover.**

- ✓ Think “A moving target is harder to hit than a stationary one.”
- ✓ Moving directly towards a shooter makes you an easier target. Move perpendicular (i.e., in a zig-zag pattern) which makes you harder to hit.
- ✓ As you go through your day, make a habit of noting the location and quality of cover.
- ✓ Look for cover capable of stopping ballistic weapons.
- ✓ Although it may not stop a bullet, light cover can still be better than nothing to obscure the shooter’s line-of-sight.

**See Police Department General Order for use of force Policies**

#### **2.8.15 Mentally prepare yourself for a combat situation where you are without your primary firearm.**

- ✓ Consider carrying a back-up weapon such as a combat knife. Know how to use it.

#### **2.8.16 Wear impermeable gloves such as nitrile or equivalent when handling drug paraphernalia, drug manufacturing chemicals or items contaminated with human blood or body fluids.**

- ✓ Avoid inhaling unknown powders and volatile chemicals. When in doubt, secure the scene and contact the county’s hazmat team.
- ✓ Remember that infectious agents can enter cuts in your skin.



- ✓ Many chemical agents are fat soluble and readily absorbable through your skin where they can cause systemic poisoning.
- ✓ Wash with soap and water if you suspect exposure to such substances.

**2.8.17 Immediately report any suspected exposure to human blood or body fluids to your supervisor.**

- ✓ Expect to receive a post-exposure medical evaluation and if judged necessary, follow-up treatment and testing.



## **2.9 Emergency Medical Services Workers**

**Section was removed as it is not applicable**



## 2.10 ADDITIONAL SAFE PRACTICES FOR FIREFIGHTERS

### 2.10.1 Typical injuries and illnesses experienced by firefighters include:

- ✓ Heat exhaustion/overexertion
- ✓ Thermal burns
- ✓ Foreign objects in eyes
- ✓ Blunt trauma, fractures and orthopedic injuries due to slips, trips and falls
- ✓ Traumatic injuries from motor vehicle accidents
- ✓ Contact with hazardous chemicals
- ✓ Musculoskeletal injuries

### 2.10.2 Personal protective equipment for firefighters consists of:

Hazard	PPE Required
Heat and flame	NFPA compliant turn-out gear (head protection, Nomex hood, coat, pants, protective footwear and gloves.)
Smoke, carbon monoxide, products of combustion and other toxic vapors	Self-contained breathing apparatus during firefighting and overhaul
Traffic hazards	Minimum ANSI 207 Class 2 high visibility traffic safety apparel when directing traffic
Rescue operations, contact with sharps, bloodborne pathogens or other infectious substances	Safety glasses with side shields or face shield, impermeable gloves
Airborne infectious agents	Minimum N-95 filtering facepiece respirator
Noise levels in excess of 85 dBA	Hearing protection



**2.10.3 All firefighters shall be judged medically qualified prior to participating in training or fire ground operations.**

- ✓ Firefighting is a strenuous activity. Firefighters need to be healthy enough so as not to endanger themselves or others.

**2.10.4 Firefighters are at elevated risk of exposure to bloodborne pathogens.**

- ✓ Obtain the Hepatitis B vaccination offered by your employer.
- ✓ Ensure Tetanus vaccinations are up-to-date.
- ✓ Report suspected exposures immediately for evaluation by a trained medical professional.

**2.10.5 Stress is a normal component of the firefighting occupation.**

- ✓ Recognize that stress cannot be controlled, only one's reaction to it.
- ✓ Learn healthy coping strategies such as:
  - Deep breathing
  - Physical exercise
  - Meditation
  - Hobbies
- ✓ Do not be afraid to seek confidential assistance through your employer's confidential employee assistance provider (Health Advocate 877-240-6863) or other brain health support. This is a priority if stress is causing:
  - Insomnia
  - Headaches
  - Excessively consumption of alcohol or illegal substances use
  - Excessive consumption of food
  - Aggression toward family, coworkers, members of the public
  - Violent or suicidal thoughts



**2.10.6 Perform a pre-shift inspection of yourself and your fire apparatus prior to hitting the road. Check that you have all your tools and equipment. Ensure your vehicle is in sound mechanical condition.**

- ✓ Tires shall be inflated to manufacturer recommended maximums.
- ✓ Windshield shall be clear.
- ✓ Lights and sirens shall be functional.
- ✓ Loose equipment shall be secured.

**2.10.7 Wear seat belts when in your fire apparatus whether as the driver or as a passenger.**

**2.10.8 Unless exigent circumstances require contrary action, lights and sirens shall be on continuously while exceeding posted traffic regulations.**

- ✓ Note, modern vehicle sound systems and anti-noise treatments often reduce the ability of a driver to hear sirens. Never assume someone knows you are coming unless you can make eye contact.

**2.10.9 During response driving, slow down prior to driving into and through the intersection and proceed with extreme caution.**

- ✓ Keep lights and sirens on continuously while in transit.

**2.10.10 Place fire apparatus in a guarding position with lights on when responding to a traffic incident.**

- ✓ Angle the fire apparatus wheels towards the shoulder so that it will be pushed off the road in the event of a rear end collision.

**2.10.11 Never manually push a disabled vehicle off the road.**

- ✓ Call for a tow truck to move disabled vehicles.

**2.10.12 Immediately report any suspected exposure to human blood or body fluids to your supervisor.**

- ✓ Expect to receive a post-exposure medical evaluation and if judged necessary, follow-up treatment and testing.

**2.10.13 Upon arrival, size up the situation.**

- ✓ Identify and plan for potential hazards.



- ✓ Ensure an adequate water supply for your fire attack strategy.
- ✓ Determine whether high-risk entry is necessary to rescue occupants or whether a lower risk “vent, surround and drown” strategy is appropriate.
- ✓ Establish incident command and communicate response strategies and precautionary considerations to responders. Identify the members of the Rapid Intervention Team (RIT) and the means for summoning them.
- ✓ Vent the structure to release heat and smoke. Work from a tower, ladder or other stable footing whenever possible. Coordinate this operation with the hose team. Note: Roof failures occur suddenly and can have catastrophic consequences.

**2.10.14 Stay low when entering, inside and upon exiting an involved structure.**

**2.10.15 Get into the habit of frequently communicating status and observational data to command staff so that a high level of situational awareness is maintained.**

**2.10.16 Keep track of all firefighters on the fire ground.**

- ✓ Implement a personal accounting system to enable command personnel to keep track of all response teams at all times.
- ✓ Provide for a Rapid Intervention Team (RIT) which can be quickly dispatched to rescue unaccounted for or trapped personnel

**2.10.17 Beware of light weight, pre-fabricated truss construction.**

- ✓ Gusset plate failures can quickly lead to roof collapse. Avoid standing on roofs. Work from ladders and towers whenever feasible.

**2.10.18 Beware of explosion, collapse and shrapnel hazards.**

- ✓ Command staff shall perform a risk assessment at each emergency scene and implement precautions for safeguarding personnel.
- ✓ Be familiar with evacuation distances specified in the US DOT Hazardous Material Guidebook.



- ✓ Recognize that common objects of commerce can become deadly anti-personnel hazards when exposed to high heat. These include propane tanks, firearm ammo, gasoline cans, and paint containers.
- ✓ Distance and shielding are the most effective means to protect emergency personnel from explosion pressure waves and shrapnel hazards.

#### **2.10.19 Decontaminate after fire suppression.**

- ✓ Smoke and soot contains a variety of hazardous chemicals.
- ✓ Exposure to these chemicals can be minimized by decontaminating gear following a fire and having firefighters shower upon returning to the firehouse. Gear should be washed separately at the fire house and not mixed with household laundry.
- ✓ Periodic medical examinations can also protect firefighters by spotting the early signs of hazardous chemical exposures.



## **2.11 ADDITIONAL SAFE PRACTICES FOR CROSSING GUARDS**

### **2.11.1 Typical injuries and illnesses experienced by crossing guards include:**

- ✓ Blunt trauma, fractures and orthopedic injuries due to slips, trips and falls
- ✓ Traumatic injuries from motor vehicle accidents
- ✓ Sunburn (summer)
- ✓ Frost bite (winter)

### **2.11.2 Personal protective equipment for crossing guard employees consists of:**

<b>Hazard</b>	<b>PPE Required</b>
Slips and falls due to slick walking surfaces	Substantial non-slip shoes with rough rubber soles. Avoid smooth bottom shoes. Traction enhancing footwear such as Yaktrax™ or Ice Trekkers™ during winter precipitation.
Vehicular traffic	ANSI 207 Class 2 or 3 high visibility traffic safety apparel and a reflectorized stop paddle.

**UGT provides footwear and clothing**

### **2.11.3 Crossing guards shall maintain a high degree of situational awareness at all times when in the field.**

- ✓ Arrive to post well rested and mentally focused.
- ✓ Recognize that drivers are often distracted. Keep a close eye on traffic at all times. Never turn your back on a moving vehicle.
- ✓ Make eye contact with drivers to ensure they see you and stop before stepping into traffic.
- ✓ Observe and report any incidents or conditions that present a potential safety hazard to the school children or the guard post.

### **2.11.4 Be prepared for all types of potential weather conditions.**

- ✓ Stay alert for slick surfaces caused by rain, wet leaves or snow/ice.



- ✓ Wear anti-slip footwear that is appropriate for environmental conditions.
- ✓ Dress in layers for cold weather conditions and ensure clothing does not interfere with vision, hearing or constrict movement. During cold weather, cover exposed body parts to protect against frost bite.
- ✓ Sun burn, heat exhaustion and heat stroke are potential concerns during hot weather. Avoid these by using sun block (minimum PF 15), wearing a hat with a broad brim, covering exposed skin surfaces with light colored clothing, drinking plenty of water, utilizing shade and taking frequent rest breaks.

**2.11.5 Mobility and the ability to detect threats is a critical job requirement for crossing guards.**

- ✓ Crossing guards must be able to see, hear clearly and speak intelligibly.
- ✓ They must be able to react quickly to groups of children, traffic and potentially dangerous situations including errant vehicles.
- ✓ Crossing guards should be prepared to stand for long periods of time outdoors in all weather conditions.

**2.11.6 Crossing guards should have a way to summon assistance if a problem occurs. Cell phones are useful for this purpose.**



## **SECTION 3**

### **ADDITIONAL SAFE PRACTICES BY ACTIVITY**



### 3.1 USING RESPIRATORY PROTECTION



Photo Source: OSHA

#### 3.1.1 The following standard operating guidelines shall be followed by employees when using respiratory protection equipment in the workplace:

- ✓ Before any individual is allowed to use a respirator, three requirements shall be met:
  - The individual shall receive a medical clearance evaluation to ensure they are able to perform work while wearing a respirator. The initial evaluation shall be conducted by a physician-supplied, respirator-user questionnaire. A follow-up medical evaluation may be required based on the questionnaire responses.
  - The individual shall receive annual training in the proper use and limitations of the respirator and the elements of this procedure.
  - The individual shall be fit tested annually on the size, make and model of respirator to be used.
- ✓ Air-purifying respirators shall only be used in environments where the concentration of contaminants is known, the oxygen concentration in air is not less than 19.5% and contaminant concentrations do not exceed the maximum use concentration of the respirator.
- ✓ Self-contained breathing apparatus are the only authorized respirator for oxygen deficient atmospheres or when the concentration of airborne contaminants is unknown.



- ✓ Facial hair that interferes with the sealing surface of a negative-pressure respirator is prohibited.
- ✓ After donning an air-purifying respirator, employees shall perform a positive and negative pressure seal check.
  - A positive pressure seal check is performed by covering the exhalation valve and exhaling into the mask. Check for the outward leakage of air around the seal and readjust if necessary to ensure a tight seal.
  - A negative pressure fit check involves covering the cartridges or inhalation area and inhaling. Check for the inward leakage of air around the seal and readjust if necessary to ensure a tight seal.
- ✓ Respirator cartridges are to be replaced according to the documented change-out schedule or sooner if the user smells or tastes contaminants, notices a resistance to breathing or feels unwell. Users shall leave the contaminated area when replacing respirator cartridges.
- ✓ Disposable respirators do not need to be cleaned or disinfected after use. Dispose in the regular trash.
- ✓ Each individual shall be assigned their own reusable respirator. The respirator shall be cleaned after each use. This is accomplished by wetting the respirator with spray-on disinfectant or mild soap solution, wiping the respirator down and placing the respirator in a sealed plastic bag for storage. Solvents shall not be used to clean the respirator as they can weaken or damage the respirator's plastic components.
- ✓ Respirators shall be stored in a protected environment to prevent them from becoming damaged or distorted. The respirator shall be protected from heat, light, solvents/grease and physical abuse all of which can damage the respirator.



## **3.2 CONTROLLING HAZARDOUS ENERGY IN EQUIPMENT (LOCKOUT / TAGOUT)**

**3.2.1 The following standard operating guidelines shall be used by employees to control workplace hazardous energy sources in the workplace.**

- ✓ Hazardous energy may take the form of electricity, steam, hydraulic, compressed air and/or elevated equipment that could descend suddenly.
- ✓ Employees who are authorized by their employer to perform work on equipment containing potentially hazardous energy are responsible for using lockout/tagout procedures whenever their work exposes them to hazardous energy sources. These employees are referred to as “authorized employees” in this procedure.
- ✓ Employees not authorized to perform work using lockout/tagout procedures but who may be affected or who may come into contact with lockout/tagout devices shall not tamper or attempt to by-pass these devices. These employees are referred to as “affected employees” in this SOG.
- ✓ Only qualified and authorized electrical workers are permitted to work on exposed energized equipment. All other employees are prohibited. Additionally, unless qualified and authorized, employees shall remain at least 10 feet away from all power lines.
- ✓ Lockout/tagout is not be required for machinery/equipment where equipment is controlled by unplugging from the energy source and the plug remains under the exclusive control of the employee performing the servicing or maintenance.
- ✓ An adequate supply of locks with single keys, tags with “do not operate” wording and lockout devices shall be readily available for use in the



workplace. Multiple-keyed or keyed-alike locks may not be used for the purpose of lockout/tagout.

- ✓ All energy isolation points on equipment and any special procedures shall be identified using a tag mounted on the equipment or by equivalent means. A sample tag is attached to this procedure.
- ✓ Prior to performing work that could expose an employee to hazardous energy sources, the authorized employee shall:
  - A. Verify the disconnect points for all hazardous energy sources (i.e., electrical, hydraulic, steam, etc.). In addition, the authorized employee shall notify all affected employees that the equipment will be taken out of service.
  - B. Shut down the machinery/equipment using the equipment's normal operating controls.
  - C. Operate all energy isolation devices (i.e. circuit breakers, valve controls, etc.) to isolate the equipment from primary and secondary energy sources.
  - D. Apply lockout/tagout devices to the energy isolating devices. Tags shall bear the name of the employee and the current date. Keys to lockout devices shall remain under the exclusive control of the employee applying the lockout.
  - E. Relieve, disconnect, restrain or otherwise render safe all stored energy.
  - F. Verify that the energy isolation is complete through use of test equipment and/or trying the controls or other equivalent means. After isolation has been verified, work can proceed.
- ✓ When all work is completed, the authorized employee shall reinstall all covers/guards and inspect the machinery/equipment to verify all employees are clear and all tools have been removed. Any affected employees shall then be notified that lockout/tagout devices are to be removed. The authorized employee shall then remove their lockout/tagout devices from all energy isolation points and start-up the machinery/equipment.



- ✓ During shift changes, the out-going employee shall remove their lockout/tagout in the presence of the relieving employee who will then apply their own lockout/tagout.
- ✓ In the event an absence makes it necessary to cut a lock secured for lockout, this shall be accomplished by the employee's supervisor after a good faith effort has been made to locate and notify the absent employee. Upon returning from the absence, the employee shall be notified by their supervisor prior to starting work that their lockout was removed.

#### **3.2.4 Resources**

- ✓ Lockout/Tagout Checklist



## LOCKOUT/TAGOUT CHECKLIST

Equipment \_\_\_\_\_

Control and check the following to properly lockout this equipment.

Type of Hazardous Energy Source:

Location:

- High Voltage Electric \_\_\_\_\_
- Electric 240v \_\_\_\_\_
- Electric 120v \_\_\_\_\_
- Water \_\_\_\_\_
- Steam \_\_\_\_\_
- Natural Gas \_\_\_\_\_
- Air \_\_\_\_\_
- Hydraulic \_\_\_\_\_
- Spring \_\_\_\_\_
- Flywheel \_\_\_\_\_
- Falling Machine Parts \_\_\_\_\_
- Other – Specify \_\_\_\_\_

Test by: \_\_\_\_\_

Prepared by: \_\_\_\_\_

Date: \_\_\_\_\_



### **3.3 WORKING IN PERMIT-REQUIRED CONFINED SPACES**

#### **3.3.1 The following standard operating guidelines shall be followed by employees engaging in permit-required confined space operations.**

- ✓ A space is considered to be a permit-required confined space if it has the following features:
  - Large enough to allow access by an employee
  - Exhibits limited openings for employees to enter and exit
  - Not intended for continuous human occupancy
  - Potential to contain hazards such as oxygen deficiency, toxic vapors/gases or physical hazards
- ✓ Entering a confined space is defined as breaking the plane of the opening with a body part.
- ✓ In the public sector, such spaces typically include:
  - Water and wastewater manholes
  - Subgrade meter pits deeper than four feet
  - Excavations deeper than five feet

#### **3.3.2 The following procedures apply to all permit-required confined spaces:**

- ✓ Where feasible, permit-required confined spaces shall be identified with “Confined Space – Permit Required for Entry” signage, stencils or equivalent. Under no circumstances are personnel allowed to enter these spaces unless the requirements of this procedure are followed.
- ✓ Non-entry rescue equipment (full-body harness, tripod, and winch/fall arrest system) and active ventilation shall be used whenever feasible. If not feasible, then other arrangements shall be made to provide an equivalent level of protection.
- ✓ Only personnel trained in confined space entry procedures are authorized to perform an entry or act as an outside attendant.
- ✓ The entry team supervisor or equivalent shall be responsible for authorizing each entry permit.



- ✓ Before entering a confined space, entry personnel shall:
  - A. Communicate the intent to enter a permit-required confined space to all impacted personnel.
  - B. Provide for adequate vehicle traffic protection.
  - C. Ensure the space is empty/drained/flushed as appropriate.
  - D. Isolate the space from hazardous energy sources and/or feed/drainage lines using lockout/tagout, installing blinds, misaligning piping or using other energy isolation means.
  - E. Open all access ways and ventilate using active means (e.g., blower).
  - F. Monitor the internal atmosphere of the space at the low, middle and upper levels. First verify that oxygen levels are adequate. Then check for explosive and toxic atmospheres. Toxic atmospheres depend on the space to be entered. For example, hydrogen sulfide is a common contaminant associated with wastewater collection or treatment systems. Use a calibrated multi-gas meter. Continue to monitor the atmosphere in the space while work is being performed to check for changing atmospheric conditions. The results of monitoring shall be recorded on the entry permit. Acceptable measurements for entry are as follows:

<u>Parameter</u>	<u>Acceptable Levels</u>
Oxygen	Between 19.5 and 23.5%
Lower Explosive Limit	Less than 10%
Hydrogen Sulfide	Less than 0.5 ppm (1/2 ACGIH TLV)
Carbon Monoxide	Less than 12.5 ppm (1/2 ACGIH TLV)
Toxic Contaminants	Less than ½ exposure limit

- ✓ A hot work permit shall be required if work will involve use of an open flame or spark producing equipment. Forced ventilation and continuous monitoring is mandatory when performing work under a hot work permit.
- ✓ A ladder or equivalent means shall be provided for easy access and egress from the confined space.
- ✓ A trained entry attendant shall be stationed outside of the space for the duration of the entry. The attendant shall maintain continuous communications with the entrants and order an evacuation if:



- A condition not allowed by the permit occurs
  - If the entrant(s) show signs of distress
  - In the event an outside emergency occurs
- ✓ In the event of an emergency, the safety attendant shall notify the entrant to evacuate the space. If the entrant is non-responsive, then the attendant shall operate the winch and extract the entrant. If this is not effective, then the attendant shall call 911 and ask for local rescue service. Under no circumstances shall the safety attendant enter the space to attempt a rescue. Two victims could result!
  - ✓ Emergency procedures shall be reviewed prior to entering the space. In most cases when non-entry rescue equipment is used, outside emergency responders will be called on in the event of an emergency, it shall be confirmed in advance that the rescue service is equipped to provide confined space rescue services. Otherwise, the entry team shall be trained in performing confined space rescue. This training shall include an annual hands-on, rescue simulation in a representative confined space.
  - ✓ All information on the permit shall be completed. The permit shall be authorized by the entry supervisor and posted near the entry point. A sample entry permit is attached.
  - ✓ The space shall be evacuated at the first sign of danger or if directed to do so by the entry attendant.
  - ✓ At the conclusion of the entry, the entry permit shall be archived for a minimum of 1 year.
  - ✓ Contractors shall be expected to perform confined space entry work in accordance with their own confined space entry procedures. If the contractor does not have confined space entry procedures or these are judged to be inadequate, the contractor shall be required to comply with facility's procedures.

### **3.3.3 Procedures for entering ventilated sewer pump stations designed for continuous human occupancy. (a.k.a. "Alternate Entry Procedure")**

- ✓ Upon arriving on-site, turn on atmosphere monitoring equipment (gas meter) and ensure the equipment is functioning properly.



- ✓ Open the access hatch to the pump station and turn on the exhaust ventilator.
- ✓ After a minimum of five minutes of forced ventilation, lower the gas meter into the space to measure atmosphere at multiple levels (high, middle and low). If the alarm sounds, wait another five minutes before testing again. Continue ventilating and testing until acceptable test results are obtained. If acceptable air quality cannot be obtained, notify supervision and do not enter the space.
- ✓ Document the atmospheric test results on the daily work record.
- ✓ After the safety of the atmosphere has been verified, attach the gas meter near the employees breathing zone and proceed into the space.
- ✓ If at any point the alarm sounds, evacuate the space and notify supervision.

#### **3.3.4 Procedures for entering sewer and stormwater manholes.**

- ✓ Do not enter sewer or stormwater manholes if high flow is expected (i.e., heavy rain, half-time during the Super Bowl). If necessary, install a drain plug or take other precautions to control high flow hazards.
- ✓ Protect the vicinity of the entry from vehicular and pedestrian traffic. In addition to work zone signage and cones, park a shadow vehicle in the potential path of oncoming traffic.
- ✓ Monitor the outside of the manhole lid for a potential explosive atmosphere before employing non-spark proof tools. Remove the manhole lid using an approved manhole lifter. Take precautions to protect hands, feet and back.
- ✓ Start the electric generator and place the ventilator flex hose into the manhole. Ventilate the space for a minimum of five minutes.
- ✓ While waiting to test the atmosphere, set up the retrieval system (tripod and winch). Put on personal protective equipment consisting of:
  - Muck boots



- Disposable coveralls
  - Full body harness
  - Impermeable gloves such as nitrile
  - Hard hat
  - Eye protection
- ✓ After a minimum of five minutes of forced ventilation, test the atmosphere in the confined space from the outside. Test the atmosphere at various levels (top, middle, bottom).
  - ✓ If gas testing measurements are acceptable, document the results of the atmospheric testing and complete the confined space entry permit. If testing results are unacceptable, continue ventilating the space for an additional five minutes before testing again. Do not enter the space until the air quality in the space falls within the acceptable ranges.
  - ✓ Connect the entrant to the retrieval system and provide slack while the entrant enters the space via manhole rungs or ladder. Utilize a man-rated winch in addition to a fall limiter/retrieval device for suspended entries. The ventilator and gas testing equipment shall continue to run while the entrant is in the space. If possible, the entrant shall wear the gas meter near their breathing zone throughout the operation.
  - ✓ The safety attendant shall maintain continuous contact while the entrant is in the space. They shall have immediate access to a cell phone or other means to summon rescue services.
  - ✓ In the event of an emergency, the safety attendant shall notify the entrant to evacuate the space. If the entrant is non-responsive, then the attendant shall operate the winch and attempt to extract the entrant. If this is not effective, then the attendant shall call 911 and ask for local rescue service. Under no circumstances shall the safety attendant enter the space to attempt a rescue. Two victims could result!
  - ✓ Archive the completed permit for at least one year.

### **3.3.5 Resources**

- ✓ Confined space entry permit



## CONFINED SPACE ENTRY PERMIT

(Post permit at jobsite. When complete, archive for 1-year)

Name and Location of Confined Space: \_\_\_\_\_

\_\_\_\_\_

Work to be Performed in Confined Space: \_\_\_\_\_

\_\_\_\_\_

For Emergencies - Call 911

Permit Valid From: \_\_/\_\_/\_\_ Time: \_\_:\_\_ to: \_\_/\_\_/\_\_ Time: \_\_:\_\_ (Valid One Shift)

### Results of Atmospheric Monitoring:

Test Equipment Used (Name & Serial Number): \_\_\_\_\_

<u>Parameter</u>	<u>Results</u>	<u>(Acceptable Range)</u>
	Time: _____	
Oxygen (%)	_____	(19.5 to 23.5%)
LEL (%)	_____	(<10%)
H <sub>2</sub> S (ppm)	_____	(<0.5 ppm)
CO (ppm)	_____	(<12.5 ppm)
Other Toxic Contaminants:		(<½ PEL/TLV)
_____	_____	_____
(Specify)		

### Required Signatures

Entrant(s): \_\_\_\_\_

Safety Attendant: \_\_\_\_\_

Crew Leader: \_\_\_\_\_

Supervisor of Area: \_\_\_\_\_

(if applicable)

=Over for Compliance Checklist=>



ENTRY PROCEDURE CHECKLIST (CHECK TO VERIFY)

- \_\_\_\_\_ Did you communicate your intent to enter the confined space to impacted personnel?
- \_\_\_\_\_ Has the space been emptied/drained/flushed of its contents?
- \_\_\_\_\_ Has the space been isolated from hazardous energy sources including flow, electrical, potential energy, mechanical agitators, etc.?
- \_\_\_\_\_ Have material feed/drain piping (steam, nitrogen, raw material, etc.) been misaligned or blinds installed? (Note – simply locking out a valve alone is not considered adequate protection).
- \_\_\_\_\_ Have all access ports to the space been opened and is the space being actively ventilated?
- \_\_\_\_\_ Have the atmospheric levels of oxygen, explosive atmospheres and toxic contaminants been determined to be within acceptable ranges?
- \_\_\_\_\_ Have provisions been made for continuous atmospheric monitoring while the entrant is in the space?
- \_\_\_\_\_ Has a hot work permit been obtained for any hot work to be performed in the space?
- \_\_\_\_\_ Has a ladder or other means of quick exit been provided?
- \_\_\_\_\_ Is a trained safety attendant posted outside the space at all times during the entry?
- \_\_\_\_\_ Does the attendant have emergency communications equipment and does the attendant know what to do in the event of an emergency?
- \_\_\_\_\_ Has personal protective equipment appropriate for the work to be performed been selected?
- \_\_\_\_\_ Has the proper non-entry rescue equipment been selected?



### **3.4 PERFORMING HOT WORK**

#### **(WELDING/BRAZING/GRINDING/CUTTING)**

**3.4.1 This standard operating guidelines shall be followed by employees engaging in hot work involving an open flame or sparks such as welding, brazing, grinding or cutting.**

- ✓ Flame and spark-producing equipment shall be inspected to ensure it is in good repair prior to use.
- ✓ Verify sprinklers where/ if provided are operational and will not be taken out of service while the hot work is performed.
- ✓ Verify that no combustible gases, vapors, dusts, fibers or liquids are in the vicinity of the work area. Verify tanks and equipment previously containing such materials have been cleaned and purged. If there is a possibility of a leak developing in nearby piping, equipment or tanks, monitor the area continuously.
- ✓ In stable work environments, monitoring need only occur once per shift at the start of the hot work. In environments subject to change (e.g., welding in a confined space, work in sewers), monitoring shall be performed continuously.
- ✓ If arc welding will occur, welding flash curtains shall be utilized to confine slag and ultraviolet light.
- ✓ Surrounding floor areas shall be swept clean of debris. If the flooring is combustible, the floor shall be wet down.
- ✓ An ABC type fire extinguisher shall be available within 10 feet of the hot work area.
- ✓ All combustible materials shall be relocated at least 35 feet from the hot work area. If relocation is not possible, protect fixed combustible materials with metal guards or flame proof covers or other non-combustible spark barriers.
- ✓ Protect all floor and wall openings within 35 feet of the operation by tightly covering or providing non-combustible spark barriers.
- ✓ Identify a qualified individual to serve as a fire-watch. This individual shall



watch for dangerous sparks in the hot work area, as well as on floors above and below.

- ✓ Document that all fire prevention activities are complete in the attached hot work permit. Hot work permits are valid for one shift only. After completing the hot work, the permit shall be kept on file for one year.
- ✓ The hot work area shall be patrolled for at least one half hour after work has been completed to look for hot spots.

#### **3.4.2 The following procedures apply to protecting personnel engaged in welding and cutting operations:**

- ✓ Welding and cutting operations shall only be performed by qualified and authorized personnel.
- ✓ Minimum personal protection equipment for welders shall consist of a welding coat, gloves, and eye/face protection with lenses appropriate for the type of welding to be performed.
- ✓ Due to numerous hazardous emissions that can result during the welding and cutting process (e.g., lead, cadmium, manganese, fluorine, cyanides), such activities are best performed using local exhaust ventilation or in the open. If this is not possible, individuals shall be provided with appropriate respiratory protection equipment (high-efficiency particulate air filter or supplied air).
- ✓ Safety data sheets shall be reviewed to determine the health hazards associated with welding rods and flux materials.
- ✓ Welding and cutting equipment shall be inspected before use to ensure its safe operating condition.
  - Fuel gas cylinders shall be checked prior to use to ensure the integrity of manifolds, regulators, hoses, and connections.
  - Torches shall be checked for hose connections, tips, and mixing heads. Power supplies shall be checked for grounding, frayed power cables and insulation integrity.



- For welding/cutting operations using friction, ultrasonics, and lasers, special precautions shall be utilized to prevent hearing loss and eye damage from high-frequency sound waves and high-intensity light. Individuals operating this equipment shall have specialized training.



## HOT WORK PERMIT – NOT APPLICABLE

(Post permit at jobsite. When complete, archive for 1-year)

Name and Location of Work Area: \_\_\_\_\_

\_\_\_\_\_

Work to be Performed: \_\_\_\_\_

\_\_\_\_\_

For Emergencies, Contact: \_\_\_\_\_

Permit Valid From: \_\_/\_\_/\_\_ Time: \_\_:\_\_ to: \_\_/\_\_/\_\_ Time: \_\_:\_\_ (Valid One Shift)

### Results of Atmospheric Monitoring:

Test Equipment Used (Name & Serial Number): \_\_\_\_\_

<u>Parameter</u>	<u>Result</u>	<u>Acceptable</u>
Oxygen%	_____	19.5 to 23.5%
LEL%	_____	Less than 10%

### Required Signatures

Worker(s): \_\_\_\_\_

Fire Watch: \_\_\_\_\_

Supervisor: \_\_\_\_\_

=Over for Compliance Checklist=>



### **HOT WORK CHECKLIST (CHECK TO VERIFY)**

- \_\_\_ The work cannot be performed in a designated hot work area?
- \_\_\_ Has the flame or spark producing equipment been inspected and found to be in good repair?
- \_\_\_ Piping, tanks and equipment previously containing explosive/flammable/ combustible materials have been isolated and purged?
- \_\_\_ If there is a possibility of a leak developing in nearby piping, equipment or tanks, provisions for continuous gas monitoring have been made?
- \_\_\_ Surrounding floors have been swept clean and if combustible, wet down?
- \_\_\_ Proper fire-extinguisher is available in the vicinity of the work area?
- \_\_\_ All combustibles have been relocated at least 35 feet from the work area. If relocation is not feasible, has equivalent protection been provided in the form of metal guards, flame proof tarps or other non-combustible covers?
- \_\_\_ All floor and wall openings within 35 feet of the operations have been tightly covered?
- \_\_\_ A trained fire watch has been assigned to watch for dangerous sparks in the work area as well as in areas above and below?
- \_\_\_ Arrangements have been made to patrol the area at least one half hour after work is completed to ensure no smoldering fires exist?



### **3.5 WORKING WITH HUMAN BLOOD AND OTHER POTENTIALLY INFECTIOUS MATERIAL**

#### **3.5.1 The following standard operating guidelines shall be followed by employees performing work involving risk of contact with human blood and other potentially infectious material:**

- ✓ Employees who may come into contact with human blood or other potentially infectious material shall be trained on possible infection hazards associated with their work and how to protect themselves from infection. At a minimum, infection hazards shall be taken to consist of exposure to the causative agents for Hepatitis, Acquired Immune Deficiency Syndrome (AIDS) and Tuberculosis.
- ✓ The following employees routinely come into contact with infection hazards:
  - Emergency medical services personnel
  - Fire fighters
  - Police officers
  - Sewer workers
- ✓ The following employees may infrequently come into contact with potentially infectious materials:
  - First aid volunteer
  - Parks and recreation personnel
  - Sanitation workers
  - Housekeeping staff
- ✓ Each employee who has the potential for contact with infection hazards shall be offered the Hepatitis B vaccine free of charge. Employee authorization or refusal to obtain the vaccine shall be documented using the attached Hepatitis B Vaccination Acceptance or Declination Form. If an employee that declined the Hepatitis B vaccine later decides to obtain it, it shall be provided free of charge.



- ✓ Any blood or other bodily fluids shall be assumed to be infectious and handled so as to prevent contact with unprotected skin or mucous membranes.
- ✓ Any unknown individual who exhibits signs of Tuberculosis (sputum-producing cough, coughing up blood, weight loss, loss of appetite, lethargy/weakness, night sweats, or fever) shall be assumed to be positive for Tuberculosis and handled so as to minimize inhalation exposure.
- ✓ Whenever feasible, engineering and work practice controls shall be utilized to eliminate or minimize exposure to infection hazards. In most cases due to the nature of work, personal protective equipment shall be the primary means of protection.
- ✓ Employees who may come into contact with potentially infectious materials shall wear the following personal protective equipment at a minimum:
  - Impermeable gloves (nitrile preferred)
  - Liquid-resistant clothing
  - Eye protection
  - Face shield (when there is a risk of splatter-type exposures)
- ✓ Appropriate respirator protection for high risk exposure to TB positive employees shall be a minimum of an N-100 respirator. Employee who utilize respirators shall be medically cleared, trained and fit tested. Training and fit testing shall occur on an annual basis.
- ✓ Other controls to be used for preventing contact with potentially infectious materials include:
  - Use of labeled sharps containers and biohazard bags to contain contaminated sharps and non-sharp materials, respectively.
  - Use of shields to prevent unprotected contact during cardiopulmonary resuscitation (CPR) and/or rescue breathing.
  - No recapping of needles after they have entered the human body. If required, single hand techniques shall be employed.
  - Hand washing facilities and/or supplies



- ✓ Spills of potentially infectious materials shall be cleaned up using the following procedure:
  - Restrict access to the area
  - Put on personal protective equipment. Eye protection, gloves and an impermeable disposable apron are appropriate for most spill clean-up situations.
  - Cover the spilled material with paper towels.
  - Apply a fresh 1 part bleach to 9 parts clean water solution on top of the paper towels.
  - Allow a few minutes of contact time with the bleach.
  - Place materials into biohazard bag. If sharps or broken glass is present, use a remote handling technique such as a dustpan or large tweezers to pick up the debris.
  - Wipe down the spill area with additional bleach solution followed by soap and water.
  - Carefully remove PPE from the inside out to avoid touching contaminated surfaces. Place gloves and apron into biohazard bag.
  - Wash hands and any exposed surface with soap and water.
- ✓ A similar cleaning protocol can be used for decontaminated equipment that has come into contact with blood or other potentially infectious materials.
- ✓ Any employees who suffer an exposure event (touch blood, sustain a needle-stick injury, etc.) shall immediately notify their supervisor. These employees will then be offered a confidential post-exposure evaluation and follow-up through the facility's workplace medical provider that will consist of:
  - Documentation of the route of exposure and the circumstances related to the incident.
  - Identification and infectivity status of the source individual (if possible).
  - The employee will be offered the option of having their blood collected for testing.
  - The employee will be offered post-exposure prophylaxis in accordance with the current recommendations of the US Public Health Service.



- The employee will receive counseling regarding precautions to take during the period after the exposure incident and the potential illnesses to be alert for and report any related experiences to appropriate personnel.
- ✓ After performing the post-incident evaluation, the physician shall provide a written opinion that addresses:
  - Whether the hepatitis B vaccine is indicated and if the employee has received the vaccine, or for evaluation following an incident.
  - That the employee has been informed of the results of the evaluation.
  - That the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials.

### **3.5.2 Resources**

- ✓ Hepatitis B Vaccination Acceptance / Declination Statement
- ✓ Hepatitis B Vaccine Information Statement



## **Hepatitis B Vaccination Acceptance or Declination Form**

Hepatitis B is a serious disease that affects the liver. It is caused by the hepatitis B virus (HBV) and is spread through contact with the blood or other body fluids of an infected person. The vaccine to prevent Hepatitis B is usually given in a series of three shots. The vaccine series has proven to give long-term protection from HBV infection, possibly lifelong.

I understand that due to my occupational exposure to blood or other potentially infectious materials, I may be at risk of acquiring Hepatitis B Virus (HBV) infection.

Employee/Volunteer Name (Print): \_\_\_\_\_ Department: \_\_\_\_\_

Job Title: \_\_\_\_\_ Supervisor: \_\_\_\_\_

### **Acceptance**

I understand the benefits and risk of the vaccine and I consent to receive the vaccine at no cost to me. I understand that I am responsible for keeping my appointments in accordance with the recommended vaccine series (three injections; initial, one month later; and last injection within five months of the second injection).

Employee/Volunteer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

### **Declination**

I understand that due to my occupational exposure to blood or other potentially infectious materials, I may be at risk of acquiring Hepatitis B Virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline the Hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee/Volunteer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

### **Vaccination Previously Received**

I have already received the Hepatitis B vaccination: Approximate date: \_\_\_\_\_

Employee/Volunteer Signature: \_\_\_\_\_ Date: \_\_\_\_\_



## VACCINE INFORMATION STATEMENT

# Hepatitis B Vaccine

## What You Need to Know

Many Vaccine Information Statements are available in Spanish and other languages. See [www.immunize.org/vis](http://www.immunize.org/vis)

Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite [www.immunize.org/vis](http://www.immunize.org/vis)

### 1 Why get vaccinated?

Hepatitis B is a serious disease that affects the liver. It is caused by the hepatitis B virus. Hepatitis B can cause mild illness lasting a few weeks, or it can lead to a serious, lifelong illness.

Hepatitis B virus infection can be either acute or chronic.

**Acute hepatitis B virus infection** is a short-term illness that occurs within the first 6 months after someone is exposed to the hepatitis B virus. This can lead to:

- fever, fatigue, loss of appetite, nausea, and/or vomiting
- jaundice (yellow skin or eyes, dark urine, clay-colored bowel movements)
- pain in muscles, joints, and stomach

**Chronic hepatitis B virus infection** is a long-term illness that occurs when the hepatitis B virus remains in a person's body. Most people who go on to develop chronic hepatitis B do not have symptoms, but it is still very serious and can lead to:

- liver damage (cirrhosis)
- liver cancer
- death

Chronically-infected people can spread hepatitis B virus to others, even if they do not feel or look sick themselves. Up to 1.4 million people in the United States may have chronic hepatitis B infection. About 90% of infants who get hepatitis B become chronically infected and about 1 out of 4 of them dies.

Hepatitis B is spread when blood, semen, or other body fluid infected with the Hepatitis B virus enters the body of a person who is not infected. People can become infected with the virus through:

- Birth (a baby whose mother is infected can be infected at or after birth)
- Sharing items such as razors or toothbrushes with an infected person
- Contact with the blood or open sores of an infected person
- Sex with an infected partner
- Sharing needles, syringes, or other drug-injection equipment
- Exposure to blood from needlesticks or other sharp instruments

Each year about 2,000 people in the United States die from hepatitis B-related liver disease.

Hepatitis B vaccine can prevent hepatitis B and its consequences, including liver cancer and cirrhosis.

### 2 Hepatitis B vaccine

Hepatitis B vaccine is made from parts of the hepatitis B virus. It cannot cause hepatitis B infection. The vaccine is usually given as 3 or 4 shots over a 6-month period.

**Infants** should get their first dose of hepatitis B vaccine at birth and will usually complete the series at 6 months of age.

All **children and adolescents** younger than 19 years of age who have not yet gotten the vaccine should also be vaccinated.

Hepatitis B vaccine is recommended for unvaccinated **adults** who are at risk for hepatitis B virus infection, including:

- People whose sex partners have hepatitis B
- Sexually active persons who are not in a long-term monogamous relationship
- Persons seeking evaluation or treatment for a sexually transmitted disease
- Men who have sexual contact with other men
- People who share needles, syringes, or other drug-injection equipment
- People who have household contact with someone infected with the hepatitis B virus
- Health care and public safety workers at risk for exposure to blood or body fluids
- Residents and staff of facilities for developmentally disabled persons
- Persons in correctional facilities
- Victims of sexual assault or abuse
- Travelers to regions with increased rates of hepatitis B
- People with chronic liver disease, kidney disease, HIV infection, or diabetes
- Anyone who wants to be protected from hepatitis B

There are no known risks to getting hepatitis B vaccine at the same time as other vaccines.



U.S. Department of  
Health and Human Services  
Centers for Disease  
Control and Prevention



### 3 Some people should not get this vaccine

Tell the person who is giving the vaccine:

- **If the person getting the vaccine has any severe, life-threatening allergies.**  
If you ever had a life-threatening allergic reaction after a dose of hepatitis B vaccine, or have a severe allergy to any part of this vaccine, you may be advised not to get vaccinated. Ask your health care provider if you want information about vaccine components.
- **If the person getting the vaccine is not feeling well.**  
If you have a mild illness, such as a cold, you can probably get the vaccine today. If you are moderately or severely ill, you should probably wait until you recover. Your doctor can advise you.

### 4 Risks of a vaccine reaction

With any medicine, including vaccines, there is a chance of side effects. These are usually mild and go away on their own, but serious reactions are also possible.

Most people who get hepatitis B vaccine do not have any problems with it.

Minor problems following hepatitis B vaccine include:

- soreness where the shot was given
- temperature of 99.9°F or higher

If these problems occur, they usually begin soon after the shot and last 1 or 2 days.

Your doctor can tell you more about these reactions.

Other problems that could happen after this vaccine:

- People sometimes faint after a medical procedure, including vaccination. Sitting or lying down for about 15 minutes can help prevent fainting and injuries caused by a fall. Tell your provider if you feel dizzy, or have vision changes or ringing in the ears.
- Some people get shoulder pain that can be more severe and longer-lasting than the more routine soreness that can follow injections. This happens very rarely.
- Any medication can cause a severe allergic reaction. Such reactions from a vaccine are very rare, estimated at about 1 in a million doses, and would happen within a few minutes to a few hours after the vaccination.

As with any medicine, there is a very remote chance of a vaccine causing a serious injury or death.

The safety of vaccines is always being monitored. For more information, visit: [www.cdc.gov/vaccinesafety/](http://www.cdc.gov/vaccinesafety/)

### 5 What if there is a serious problem?

What should I look for?

- Look for anything that concerns you, such as signs of a severe allergic reaction, very high fever, or unusual behavior.

Signs of a severe allergic reaction can include hives, swelling of the face and throat, difficulty breathing, a fast heartbeat, dizziness, and weakness. These would start a few minutes to a few hours after the vaccination.

What should I do?

- If you think it is a severe allergic reaction or other emergency that can't wait, call 9-1-1 or get to the nearest hospital. Otherwise, call your clinic.

Afterward, the reaction should be reported to the Vaccine Adverse Event Reporting System (VAERS). Your doctor should file this report, or you can do it yourself through the VAERS web site at [www.vaers.hhs.gov](http://www.vaers.hhs.gov), or by calling 1-800-822-7967.

*VAERS does not give medical advice.*

### 6 The National Vaccine Injury Compensation Program

The National Vaccine Injury Compensation Program (VICP) is a federal program that was created to compensate people who may have been injured by certain vaccines.

Persons who believe they may have been injured by a vaccine can learn about the program and about filing a claim by calling 1-800-338-2382 or visiting the VICP website at [www.hrsa.gov/vaccinecompensation](http://www.hrsa.gov/vaccinecompensation). There is a time limit to file a claim for compensation.

### 7 How can I learn more?

- Ask your healthcare provider. He or she can give you the vaccine package insert or suggest other sources of information.
- Call your local or state health department.
- Contact the Centers for Disease Control and Prevention (CDC):
  - Call 1-800-232-4636 (1-800-CDC-INFO) or
  - Visit CDC's website at [www.cdc.gov/vaccines](http://www.cdc.gov/vaccines)

## Vaccine Information Statement Hepatitis B Vaccine

7/20/2016

42 U.S.C. § 300aa-26

Office Use Only





### **3.6 WORKING ALONE**

#### **3.6.1 The following standard operating guidelines shall be followed by employees working alone:**

- ✓ Work activities that require lone workers shall be evaluated to determine if the tasks are necessary or discretionary. The level of risk associated with the work activity shall be determined and a decision made as to whether the level of risk justifies performing the work in conjunction with a partner (e.g. buddy). A list of activities shall be identified that may not be performed alone due to excessive risk (e.g., confined space entry).
- ✓ Individuals who will be assigned to work as a lone worker shall be evaluated in order to determine if there are any relevant medical restrictions that may need to be accommodated. It shall also be verified that the lone worker has the adequate skill, experience and maturity level to work independently.
- ✓ A contact person shall be designated in the workplace who will be responsible for knowing details concerning the whereabouts of the lone worker such as the destination, estimated time of arrival, return time or date, mode of travel, and alternate plans.
- ✓ The lone worker shall be provided with the means to summon assistance if they run into a problem. Cell phones are useful for this purpose.
- ✓ A check-in procedure shall be implemented that is appropriate to the level of risk. A simple procedure might be to call/text a supervisor prior to departing and upon returning from the work location.
- ✓ A response plan for what to do in the event the lone worker fails to check in shall be prepared. The plan shall at a minimum address the prompt location of the lone worker and the delivery of law enforcement and/or emergency medical care.



### **3.7 WORKING IN TEMPERATURE EXTREMES**

#### **3.7.1 The following standard operating guidelines shall be followed by employees working in cold temperatures (i.e., temperatures below 40°F):**

- ✓ Employees shall protect themselves with insulated dry clothing when exposed to cold temperatures. Water impermeable insulated clothing shall be utilized if there is a possibility of exposure to water.
- ✓ Employees that work in cold temperatures shall be medically fit to work in such extreme environments. Employees shall discuss any medical restrictions with their supervisor.
- ✓ Lone operator work shall be avoided during temperatures less than 10°F.
- ✓ Frostbite is the most significant cold weather concern for public employees working outside. Cover vulnerable areas such as the ears and fingers with hat and gloves, respectively to avoid frostbite.
- ✓ Body parts that are frozen must be handled carefully. Remove victim to a warm environment. Warm frost bitten areas gently in warm (not hot) water. Do not rub as this may cause tissue damage. Seek medical attention as soon as possible.



**3.7.2 The following standard operating guidelines shall be followed by employees working in hot temperatures (i.e., temperatures above 90°F):**

- ✓ Employees shall receive a period of acclimatization (e.g., ramp-up) following extended periods away from the job.
- ✓ Employees shall wear light-weight clothing, ensuring proper hydration and using sun screen products to protect exposed skin from harmful ultraviolet sunrays.
- ✓ Employees shall drink water as recommended in small volumes (e.g., approximately 1 cup) of cool, potable water every 20 minutes.
- ✓ Employees that work in hot temperatures shall be medically fit to work in such extreme environments. Employees are encouraged to discuss any medical restrictions with their supervisor.
- ✓ Lone operator work shall be avoided during hot temperatures.
- ✓ Heat exhaustion and heat stroke are the most significant hot weather concerns for public employees working outside. Avoid these medical conditions by drinking plenty of fluids, covering exposed skin areas with light clothing, utilizing shade and taking frequent breaks in cool areas.
- ✓ Heat stroke is a medical emergency requiring immediate action. Heat stroke can often be recognized by the victim being red faced but not sweating. This is a sign that the body is overheating. Immediately remove the victim to a cool location. Use cool compresses, cool (not cold) water and fanning to bring down the victim's core body temperature. Contact 911 and seek immediate medical attention.



### **3.8 WORKING AT ELEVATION (LADDERS AND AERIAL LIFTS)**

#### **3.8.1 The following standard operating guidelines shall be followed by employees performing elevated work:**

- ✓ Fall protection shall be provided on walking-working surfaces having an unprotected side or edge that is 4 feet or more above a lower level or over dangerous equipment (at any level). Fall protection shall be in the form of guardrail systems (preferred), safety net systems or personal fall protection systems.
- ✓ Employees shall be protected from holes in walking-working surfaces (defined as at least 2 inches in its least dimension) by covers (preferred), guardrail systems, travel restraint systems or personal fall arrest systems.
- ✓ Employees working more than 6 feet from a roof edge on a low slope roof that lacks a parapet wall at least 42 inches high may perform work that is both infrequent and temporary within a designated area delineated by a warning line made of rope, wire or chain without additional fall protection.
- ✓ Employees working within 6 feet of a roof edge on a low slope roof that lacks a parapet wall at least 42 inches high shall be protected from falling by a guardrail system (preferred), safety net system, travel restraint system or personal fall arrest system.
- ✓ Guardrail systems shall feature a 42 inch high (+/- 3 inches) top rail and mid rail or equivalent infill. A mid rail or equivalent infill is not required when the roof wall parapet rises at least 21 inches. The top rail shall be capable of withstanding 200 lb. force. Toe boards (at least 3.5 inches high from the top edge of the toe board to the level of the walking-working surface) shall be installed if objects rolling off the edge of the roof could injure employees at a lower level.
- ✓ All employees exposed to fall hazards shall be trained in the procedures and equipment for protecting them from falls.



- ✓ Safety net systems shall be installed no more than 30 feet below the working surface. Safety nets shall be capable of withstanding a 400 lb. drop test. Openings in the net cannot exceed 6 inches in any dimension.
- ✓ Personal fall arrest systems shall require the use of a 5-point harness. Anchorages used for attachment shall be separate from those used to support platforms or other devices and shall limit free fall to no more than six feet. Self-retracting lifelines and lanyards may limit free-fall to two feet. Body belts shall not be used as a personal fall arrest systems.

**3.8.2 The following standard operating guidelines shall be followed by employees performing work from ladders:**

- ✓ Only ladders designed for their intended purpose shall be used. Ladders shall not be used in horizontal position as a work platform/scaffolding.
- ✓ Ladders shall be rated for the work demands expected and be able to withstand a single concentrated load of at least 250 pounds (e.g., minimum rating of commercial/light industrial grade). Residential grade ladders shall not be used in the workplace. Fiberglass-type ladders are recommended for most applications given they do not conduct electricity and have reduced maintenance requirements. All labels need to be in place on ladders and no ladder shall be painted as this prevents the viewing of structural damage.
- ✓ All ladders shall be inspected for proper operating condition prior to use. Any ladder requiring repairs shall be removed from service, tagged for maintenance, and stored away from working ladders until repaired. Typical deficiencies identified during the inspection process include: loose rivets, belt supports, steps/rungs damaged, glass-fiber split or deformed or broken hinge pins.
- ✓ Ladder users shall inspect the immediate work area prior to placing the ladder in order to maintain adequate clearance from overhead power lines (minimum 10 feet). Ladders shall not be rested on energized equipment, sprinkler system piping, chemical lines, windows or unsecured backing. Ladders shall not be placed in front of doors or other openings unless warning signs, barricades, or locks are used.



- ✓ While being used, ladders shall be placed on a solid base. Shims or blocks are not permitted. Step ladders shall have the metal spreader locked before climbing. Extension ladders need to be placed in such a manner as to provide a 4:1 ratio of height of ladder to base set-back (for example, a 12 foot high ladder placed against a wall shall have its base three feet from the wall). Extension ladders shall be tied off at top. When used to gain access to a roof or platform, the ladder shall extend a minimum of three feet above the upper landing surface.
- ✓ When working with a portable ladder, any work above six feet measured from grade to the step where the feet are resting shall require a second person to steady the ladder. Only one individual shall be on the ladder at any time. The user shall not extend themselves beyond the top of the ladder (no higher than 3rd rung from top of extension ladders or second tread from top of step ladders) or shoulder width outside the rails to ensure proper support.
- ✓ Ladder users shall employ both hands when climbing a ladder and shall have suitable non-slip footwear. Materials to be carried shall be kept in a tool belt, lift bucket or other suitable means so as not to prevent the full use of both hands. Users shall face the ladder when climbing or descending and shall never slide down the ladder.
- ✓ Ladders shall be stored in areas where they are not subject to high heat, moisture, or extreme weather conditions or where the ladder itself poses a hazard (e.g., due to a risk of falling).
- ✓ Employees using fixed ladders that extend more than 24 feet above a lower level shall be protected by a personal fall arrest system or ladder safety system.

**3.8.3 The following standard operating guidelines shall be followed by employees performing work using aerial lifts:**

- ✓ During work with aerial lifts, extra care shall be exercised in order to be alert for the main causes of incidents: contact with high voltage power



lines; improper positioning of outriggers and blocking, poor bearing surface for outriggers; overreaching boom beyond safe operating range; failure to wear personal fall prevention systems, moving the vehicle while the boom is raised, not having the vehicle chocked and brakes engaged; swinging the boom against obstructions, boom movement/positioning where it interferes with traffic or other operating equipment; and inadequate training of personnel.

- ✓ Safe operation of the aerial lift involves operation according to manufacturer's instructions; testing operating mechanisms each day before use for proper function; inspecting the entire unit for defects: posting load limits and operating angles; performing a complete warm-up and test of hydraulic systems; verifying the insulation integrity of the bucket and other operating parts; posting the travel clearance in the cab; not permitting anyone in the bucket during transit unless in cradled position.; providing for proper footing for the outriggers; ensuring adequate clearances around equipment with respect to the general public and other workers; prohibiting transfers between baskets or aerial structures; and requiring that operators face the direction that the bucket is moving in order to observe and react to obstructions.
- ✓ Aerial lifts shall be inspected prior to use. This inspection shall focus on: attachment welds between actuating cylinders and booms/pedestals; pivot pins for security of locking devices; cables, sheaves, and leveling devices for wear; visual inspection off hydraulic system for leaks and wear especially of seals and gaskets; check of lubrication and fluid levels; check of boom and bucket for cracks and abrasions; and check of boom operating controls (run through one complete cycle from the ground).
- ✓ Bucket safeguards shall include requiring that all individuals in the bucket wear a hard hat, five point, full body fall prevention harness, and shock absorbing lanyard to securement to the manufacturer-specified anchorage point on the elevating equipment. Other points may not support an employee's weight during a fall.



- ✓ Note: Shock absorbing lanyards may expand during a fall (usually up to six feet). Employees should make sure that they won't hit the ground before the fall protection engages!
- ✓ When using the aerial lift, traffic shall be controlled by using work zone traffic controls including: the placement of barricades, having workers wear Class 2 traffic safety apparel; and utilizing the vehicle's four-way flashers, light bars, and rotating lights to ensure maximum visibility.



### **3.9 DRIVING FOR THE EMPLOYER**

#### **(FLEET OPERATIONS)**

##### **3.9.1 The following standard operating guidelines shall be followed by employees who operate motor vehicles on behalf of their employer:**

- ✓ Use of fleet vehicles shall be limited to personnel who are employees of the organization and have business of the organization to complete.
- ✓ Drivers shall possess a valid driver license and shall drive within listed limitations of class and commercial/medical restrictions as specified on their driver's license. Each vehicle shall have a valid insurance card.
- ✓ Drivers who are unfit to drive due to excessive fatigue or are under the influence of impairing pharmaceuticals, illegal drugs or alcohols shall not operate fleet vehicles.
- ✓ Drivers shall abide by all traffic laws including mandatory use of seat belts when on public highway and private roads including park lots.
- ✓ Drivers shall complete a general vehicle check before operating the vehicle. Items to check include: tires, wipers, headlights, turn signals, operation of brakes, fluid levels, and any other special accessories such as snow plow attachments or trailers. Any deficiency in essential equipment shall be brought to attention of the fleet manager for repair. Vehicles shall not be operated with known deficiencies in essential equipment.
- ✓ Drivers shall familiarize themselves with the vehicle prior to operating it. This familiarization may range from reviewing the owner's manual to formal training depending on the type and complexity of the vehicle to be operated. In some cases, such as with a vehicle that requires a commercial driver's license (CDL), a road test may be necessary.
- ✓ Drivers shall have knowledge of the performance characteristics of the vehicles they operate before driving in adverse weather. Drivers shall understand the limitations relative to weather and road conditions. Drivers of vans, utility vehicles, light trucks, and similar motor vehicles need to



recognize the special handling requirements under a variety of load and driving conditions.

- ✓ Drivers shall comply with all posted traffic signals and adopt a defensive driving posture when operating company vehicles, (e.g. giving right of way to more aggressive drivers, not engaging in certain behaviors that could escalate to "road rage", maintaining a conservative driving demeanor).
- ✓ Drivers shall avoid using hand-held electronic devices while the vehicle is moving. The eyes of the driver shall remain on the road when the vehicle is in motion.
- ✓ Drivers of law enforcement or emergency vehicles may need to drive more aggressively; however, shall exercise extreme caution while doing so due to the elevated risk of collisions. For these vehicles, non-compliance with traffic signals and markings shall only occur if the vehicle has its emergency lights and siren activated. The vehicle shall still slow down and exercise caution when approaching intersections or blind spots as the sudden appearance of a law enforcement or emergency vehicle traveling at high speeds may not be expected by other vehicles.
- ✓ Drivers shall secure the vehicle when not being used to prevent theft or misuse. Driver shall be alert for possible criminal activities such as staged accidents or car-jacking where personnel may be at risk of robbery or personal harm. No hitch hikers are to be picked up under any circumstances.
- ✓ Drivers may offer assistance to other drivers in distress but shall exercise extreme caution when doing so in order to prevent becoming victims themselves. Drivers shall be selective in the incidents they involve themselves in. When in doubt, 911 shall be notified.
- ✓ If involved in an incident, notify local law enforcement as soon as possible in order to ensure proper documentation of the incident. An attempt shall be made to identify any injured parties. Medical assistance shall be obtained if necessary. Insurance information shall be exchanged (note: obtain license number first in the event the other party leaves the scene of



the accident). Take the names of any witnesses to the accident and the nature of any damage to vehicles and other private property. A disposable camera in the glove compartment can be useful for this purpose. The employer's insurance carrier shall then be contacted as soon as possible. Drivers shall not engage in discussions of right and wrong, but shall complete an accident report while the facts are still fresh.

- ✓ For additional information, please refer to the employer's Fleet Safety Program.
- ✓ UGT Police and Fire Departments have EVOC training



## **3.10 PERFORMING TRENCHING / EXCAVATION**

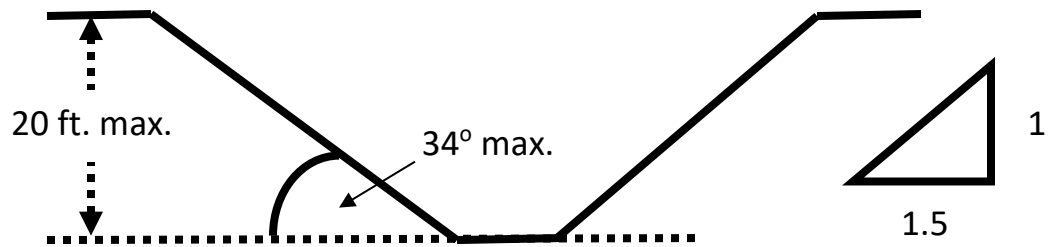
### **OPERATIONS**

#### **3.10.1 The following standard operating guidelines shall be followed by employees who perform trenching and excavation operations:**

- ✓ Before opening any trench or excavation, check for underground gas mains, fiber optic cables and other utility installations by contacting Pa. One Call (8-1-1). Even after utilities are marked, proceed with caution!
- ✓ Protect the excavation site against unauthorized entry; and, if applicable, implement work zone safety practices to protect against vehicular traffic.
- ✓ A competent person (e.g. management designated individual who possesses the necessary training and experience) shall approve all aspects of the excavation including shoring, sloping, and support systems. Excavations shall be inspected for safety at the start of the shift each day and following rain or other events that could change the characteristics of the excavation site.
- ✓ Conditions at the site that may need to be controlled include: groundwater infiltration, air quality, confined space entry issues, hot/cold temperature extremes, noise, and other factors that could adversely affect the working environment.
- ✓ Excavated material shall be kept at least two feet from the edge of the excavation in order to reduce loading on the face of the excavation and to prevent material from falling onto workers in the excavation.
- ✓ Based on the size of the excavation, excavations shall have at least two means of egress (e.g., ladder) if there is a risk that the primary means of egress may not be available in the event of an emergency. The distance to a means of egress shall not exceed 25 feet.
- ✓ If the excavation is over four feet in depth, a means to prevent soil collapse shall be provided. Appropriate controls shall include benching, sloping and shoring. When in doubt and provided the real-estate is available,



slope the excavation to 34° (1.5 : 1). This is the most conservative slope angle and is permitted for excavations up to 20 feet deep.



- ✓ When mobile equipment is used near the excavation opening, stop logs, barricades or spotters shall be utilized to prevent the equipment from falling into the excavation or contributing to a trench collapse.
- ✓ Caution shall be exercised when backfilling and removing trench supports. Work shall proceed from the bottom of the excavation to the top. The supports shall be released slowly and if in unstable soil, removed using remote means such as ropes.



### **3.11 WORKING NEAR TRAFFIC**

#### **(HIGHWAY WORK ZONES)**

##### **3.11.1 The following standard operating guidelines shall be followed by employees performing work near vehicular traffic:**

- ✓ The specific characteristics of the work area shall be considered in developing the work zone traffic control plan. Characteristics which can influence the layout of the work zone include type of work zone (static or moving), roadway speeds, equipment required for the work, weather, and time of day. Those planning the work shall ensure that the work zone complies with:
  - PennDOT Publication 213 - Work Zone Traffic Control Guidelines
  - PennDOT Publication 234 – Flagging Handbook
  - Manual on Uniform Traffic Control Devices – Current Version
- ✓ Prior to performing the work, all employees shall be familiar with the safety protocol for performing the work. Elements to review include:
  - Use of personal protective equipment as required for the job activity, including the use of high-visibility work clothing and head protection
  - Procedures for conducting the work
  - Emergency procedures
- ✓ Highway work zones shall be laid out according to the dimensions provided in the current edition of Penn DOT Publication 213. Note: A copy of the work zone diagram used shall be included in the project file to protect the public employer from liability.
- ✓ ROAD WORK AHEAD (W20-1) signage shall be installed in advance of the work zone according to distances specified in Penn DOT Publication 213.
- ✓ When using a flagger, ROAD WORK AHEAD (W20-1), ONE LANE AHEAD (W20-4) and FLAGGER (W20-7A) signs shall be installed in advance of the work zone on both approaches to the work zone according to distances specified in Penn DOT Publication 213.



- ✓ Whenever feasible, place a dump truck or other heavy shadow vehicle in advance of the work zone on all approaches as a physical barrier to oncoming traffic. Shadow vehicles are much more effective than signs and traffic cones in keeping drivers out of your work zone.
- ✓ Tapers shall conform to dimensions specified in Penn DOT Pub. 213.
- ✓ All employees working near vehicle traffic shall wear Class 2 high visibility traffic safety apparel (Type 3 is optional) and a Type I or II hard hat.
- ✓ Flaggers shall utilize a retro reflective stop/slow paddle. Red flags may only be used when flagging in an intersection when opposing traffic may become confused by the stop/slow paddles or in the event of an emergency when a stop/slow paddle is not available.
- ✓ Flagging teams shall be alert to driver inattention, especially in moving work zones. Flagging teams shall maintain active communication and close coordination between team members. Flaggers shall have a means of alerting the work crew to vehicles entering the work zone such as an air horn.
- ✓ Employees shall assume that the public does not see them and is not paying attention to work zone activities. As a result, employees shall exercise extra care when working near traffic, particularly during low-light and adverse weather conditions.
- ✓ Law enforcement shall be involved for critical work zone projects involving complex job functions, large numbers of personnel, and special work activities. Law enforcement assigned to such traffic details shall also wear Class 2 traffic safety apparel.
- ✓ At the completion of job activities, employees shall be alert while shutting down operations or when removing work zone equipment (e.g., barriers, cones, flashers, and warning signs). This is recognized as a vulnerable period.



### **3.11.2 Resources**

- ✓ Diagram of proper flagging technique from MUTCD 2009
- ✓ Diagrams of typical work zones used by public employers from Penn DOT Publication 213

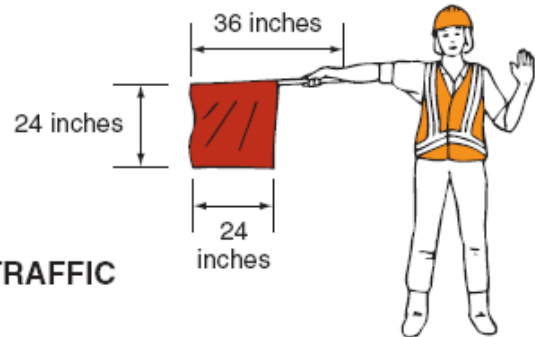


**PREFERRED METHOD  
STOP/SLOW Paddle**



**EMERGENCY SITUATIONS ONLY  
Red Flag**

**TO STOP TRAFFIC**



**TO LET  
TRAFFIC PROCEED**



**TO ALERT AND  
SLOW TRAFFIC**



Source: MUTCD 2009



**PATA 102 (Old PATA 7)**  
**Work Space On Or Beyond The Shoulder (Minor Roadway Encroachment)**

- ### Signs



Distance and Spacing Quick Reference Chart

## Distance and Spacing Quick Reference Chart

When multiple distance plaques are used on advance warning signs, they shall all be of the same series type.  
Example: either all "AHEAD" or XXX FEET.

S	L
40 MPH or less	$L = \frac{WS^2}{60}$
45 MPH or more	$L = WS$

S = Regulatory Speed Limit  
W = Width of Offset  
L = Length

Note: Channelizing devices used in taper shall be equally spaced at 1/2 D Max.



## PATA 103 (Old PATA 08) - Notes

1. Right Reverse Curve (W1-4R) sign shall only be used when lane shifts onto shoulder.
2. When a shadow vehicle is not used, distance E is measured from end of taper to beginning of work space.
3. Refer to PATA 008 for reverse curve/turn signing.

### Signs



W20-1 W1-4L W1-4R

### Sign Spacing Chart

Condition	Distance			
	A	B	C	F
Urban 35 MPH or less	100	100	100	100
	350	350	350	350
Urban Greater than 35 MPH	350	350	350	350
	500	500	500	500
Rural	500	500	500	500
	500	500	500	500

When multiple distance plaques are used on advance warning signs, they shall all be of the same series type.  
Example: either all "AHEAD" or XXX FEET.

### Taper Length Formulas

S	L
40 MPH or less	$L = \frac{WS^2}{60}$
45 MPH or more	$L = WS$

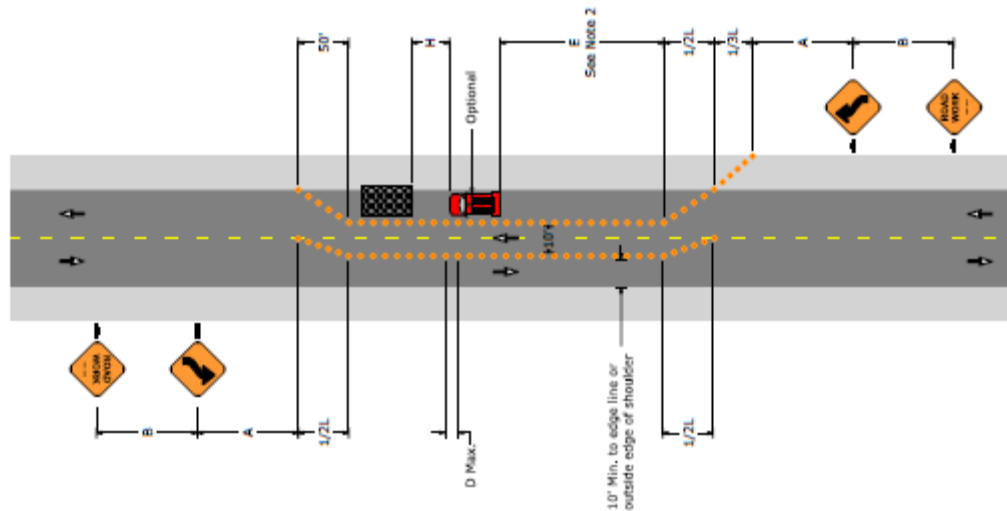
S = Regulatory Speed Limit  
W = Width of Offset  
L = Length

### Distance and Spacing Quick Reference Chart

Speed MPH	W Feet	Min. Channelizing Devices Per Taper Type (Length)										D Feet	E Feet	H Feet
		L	1/2L	1/3L	1/2L	1/3L	1/2L	1/3L	1/2L	1/3L	1/2L			
25	10	105	55	35	6	6	6	6	6	6	6	50	155	150
	11	115	60	40	6	6	6	6	6	6	6	50	155	150
	12	125	65	45	6	6	6	6	6	6	6	50	155	150
30	10	150	75	50	6	6	6	6	6	6	6	60	200	150
	11	165	85	55	7	7	7	7	7	7	7	60	200	150
	12	180	90	60	7	7	7	7	7	7	7	60	200	150
35	10	205	105	70	7	7	7	7	7	7	7	70	250	150
	11	225	115	75	8	8	8	8	8	8	8	70	250	150
	12	245	125	85	8	8	8	8	8	8	8	70	250	150
40	10	270	135	90	8	8	8	8	8	8	8	80	305	150
	11	295	150	100	9	9	9	9	9	9	9	80	305	150
	12	320	160	110	9	9	9	9	9	9	9	80	305	150
45	10	450	225	150	11	11	11	11	11	11	11	90	360	150
	11	495	250	165	12	12	12	12	12	12	12	90	360	150
	12	540	270	180	13	13	13	13	13	13	13	90	360	150
50	10	500	250	170	11	11	11	11	11	11	11	100	425	250
	11	550	275	185	12	12	12	12	12	12	12	100	425	250
	12	600	300	200	13	13	13	13	13	13	13	100	425	250
55	10	550	275	185	11	11	11	11	11	11	11	110	495	250
	11	605	305	205	12	12	12	12	12	12	12	110	495	250
	12	660	330	220	13	13	13	13	13	13	13	110	495	250

Note: Channelizing devices used in taper shall be equally spaced at 1/3 D Max.

## PATA 103 (Old PATA 8) Work Space Has A Major Encroachment On The Roadway





**PATA 104 (Old PATA 9a S)**  
**Work Space In Center Of Roadway**

- ## Signs



Distance and Spacing Quick Reference Chart

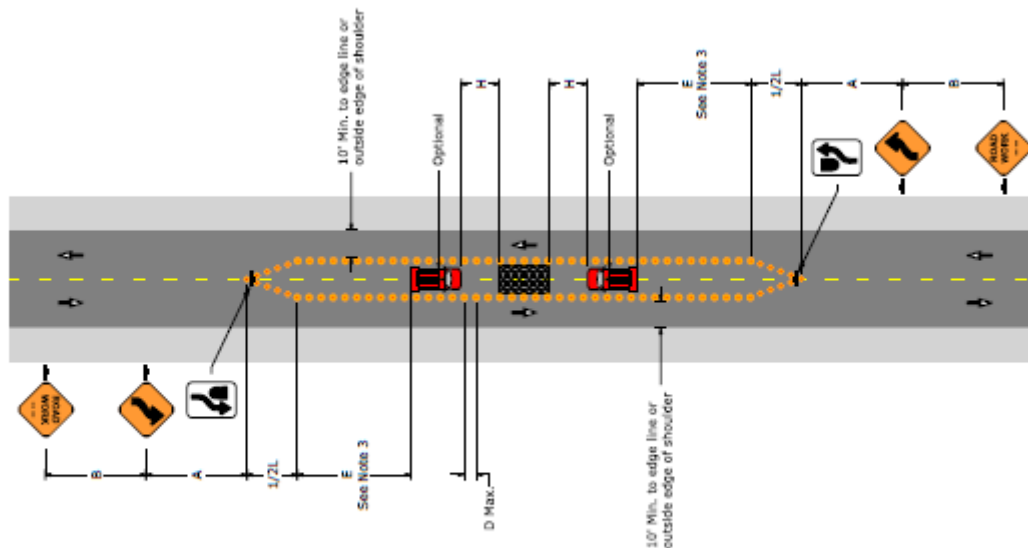
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When multiple distance plaques are used on advance warning signs, they shall all be of the same series type.  
Example: either all "AHEAD" or XXX FEET.

outside edge of shoulder

S	L
40 MPH or less	$L = \frac{WS^2}{60}$
45 MPH or more	$L = WS$

S = Regulatory Speed Limit

 $W = \text{Width of Offset}$  $L = \text{Length}$ 



## PATA 107 (Old PATA 10a) - Notes

- Each flagger shall be clearly visible to traffic for a minimum distance of E and shall be in constant communication with all other flaggers.
- For operations of 15 minutes or less:
  - The Road Work (W20-1), One Lane Road (W20-4), and Flagger Symbol (W20-7) signs are not required.
  - All channelizing devices may be eliminated if a shadow vehicle is present.
- The buffer space shall be extended so that the two-way traffic taper is placed before a horizontal (or crest vertical) curve to provide adequate sight distance for the flagger and a queue of stopped vehicles.
- When a shadow vehicle is not used, distance E is measured from end of taper to beginning of work space.

### Signs



W20-1 W20-4 W20-7

### Sign Spacing Chart

Condition	Distance			
	A	B	C	F
Urban 35 MPH or less	100	100	100	100
Urban Greater than 35 MPH	350	350	350	350
Rural	500	500	500	500

When multiple distance plaques are used on advance warning signs, they shall all be of the same series type.  
Example: either all "AHEAD" or XXX FEET.

### Taper Length Formulas

S	L
40 MPH or less	$L = \frac{WS^2}{60}$
45 MPH or more	$L = WS$

S = Regulatory Speed Limit

W = Width of Onset

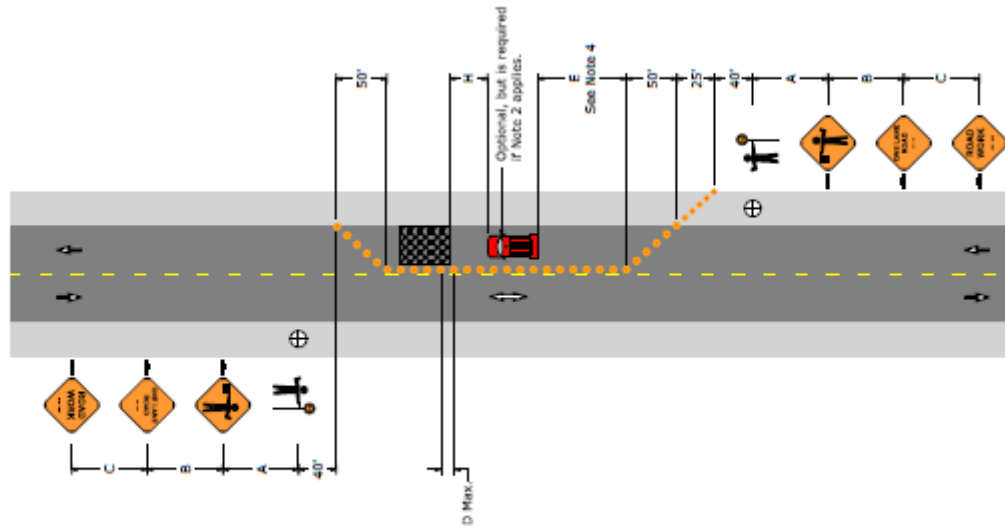
L = Length

### Distance and Spacing Quick Reference Chart

Speed MPH	W Feet	L Feet	1/2L			1/3L			D Feet	E Feet	H Feet
			Feet	Feet	Feet	L	1/2L	1/3L			
25	10	105	55	35		6	6	6	50	155	150
	12	125	65	45							
30	10	150	75	50	6	6	6	6	60	200	150
	12	180	90	60	7						
35	10	205	105	70	7						
	12	245	125	85	8	6	6	6	70	250	150
40	10	270	135	90	8						
	12	320	160	110	9	6	6	6	80	305	150
45	10	450	225	150	11	6					
	12	495	250	165	12	7	6	6	90	360	150
50	10	500	250	170	11	6					
	12	600	300	200	13	7	6	6	100	425	250
55	10	550	275	185	11	6					
	12	660	330	220	13	7	6	6	110	495	250

Note: Channelizing devices used in taper shall be equally spaced at 1/5 D Max.

## PATA 107 (Old PATA 10a) Work In One Lane; Two Flaggers





### **3.12 PERFORMING LEAF, REFUSE AND RECYCLING COLLECTION**

#### **3.12.1 The following standard operating guideline shall be followed by employees performing leaf collection, sanitation and recycling operations:**

- ✓ Crews engaged in leaf collection, sanitation and recycling operations shall receive a pre-shift briefing in the event of unusual environmental conditions or other unusual hazards likely to occur during their routes. Potentially hazardous conditions include: lightning, slippery surfaces from rain, ice and snow, foggy conditions, areas of construction activity, working in poor/low light and hot/cold temperature extremes.
- ✓ Any employee outside the vehicle shall wear appropriate clothing consisting of ANSI-107 Class 2 high visibility traffic safety apparel or equivalent Class 2 clothing, safety shoes, cut-resistant gloves, and eye protection. Hearing protection is required when operating leaf vacuuming equipment due to high noise levels associated with the suction equipment.
- ✓ Refuse employees shall be aware of potential biological hazards associated with discarded syringes, razor blades, sanitary napkins and soiled diapers.
- ✓ Employees shall practice safe load handling to ensure proper body mechanics during lifting and material handling. Load weight shall be minimized and not exceed 51 lbs. Whenever feasible, engineering controls shall be utilized to minimize the need for excessive human exertion.
- ✓ Employees shall warm-up and stretch before performing moderate to heavy manual labor. Alternate techniques shall be employed for handling weights such as hand-trucks, buddy-lifts, and sliding materials.
- ✓ If using a winch on a packer or other similar vehicle, employees shall exercise care to make sure the hook is fastening securely to the load. Employees shall stay clear of the load and wire rope during lifting.



- ✓ Employees may ride on the riding step while on curb-side pick-up but shall ride in the cab when traveling over 10 miles per hour. Seat belts shall be employed during such travel.
- ✓ Employees may not ride on leaf vacuum equipment between stops.
- ✓ Drivers shall only move the vehicle when all of the ground crew is visible to avoid running over employees.
- ✓ Drivers shall employ spotters when facing traffic obstacles or backing up. Drivers shall not move their vehicle if they lose sight of the spotter.
- ✓ Vehicles shall be properly equipped for slow movement along public right-of-ways. Standard equipment shall include: rotating lights visible from the front and back approaches to vehicle; light bar or flashers to be activated in work area; "tiger striping" of rear gates for increased visibility and/or use of retro-reflective tape on sides and rear faces of the vehicle. A slow moving vehicle sign or placard shall be posted and under special circumstances, a "shadow" vehicle or police presence may also be required.
- ✓ Vehicle drivers shall adopt tactics that will offer the best possible protection for personnel on the ground. This shall include: blocking through-traffic until work can be completed; restricting collection activities to one side of street for high traffic, two-way highways; using a "shadow" vehicle; and employing special driving/pick-up positions on steep hills or during adverse weather.
- ✓ Employees shall be prepared to deal with road rage and other confrontations with the general public during work activities. Employees shall be encouraged to avoid confrontation and to apply de-escalation techniques.



### 3.13 PERFORMING CHAIN SAW OPERATIONS



Photo source: OSHA

#### 3.13.1 The following standard operating guidelines shall be followed by employees performing chain saw operations:

- ✓ Only trained and authorized employees shall attempt to perform work using a chain saw. Employees under 18 are prohibited from using a chain saw.
- ✓ Operators shall review the equipment operating manual to familiarize themselves with proper equipment procedures.
- ✓ Personal protective equipment when using a chain saw shall include:
  - Clothing shall fit well and be free of dangling or ragged edges which can become tangled in the saw
  - Nylon mesh chain saw “chaps” protect the legs from inadvertent contact with the running saw
  - A hard hat protects the head from falling limbs or branches.
  - A full face shield or safety goggles/glasses that have side shields prevent injury from flying wood chips, twigs, and sawdust.
  - Ear muffs or ear plugs protect your hearing from the high level noise produced by the saw.
  - Safety boots or shoes with high tops protect ankles in the event of unintentional contact with a moving saw blade or falling limbs or logs.
  - Lightweight leather gloves protect hands from cuts splinters, and abrasion



- ✓ Keep the saw in good repair. Consult the operator's manual and check for needed maintenance before each use. The operator's manual can be the best source of information for this procedure.
- ✓ Before starting the saw:
  - Check controls, chain tension, and all bolts and handles to ensure they are functioning properly and adjusted according to the manufacturer's instructions.
  - Fuel the saw (cold if possible) at least 10 feet from sources of ignition.
  - Start the saw at least 10 feet from fueling area, with chain brake engaged, and with the chainsaw on the ground or otherwise firmly supported.
  - Check the fuel container for the following requirements:
    - Shall be metal or plastic
    - Shall not exceed a 5 gallon capacity
    - Shall prevent the fuel from evaporating
  - Shall be approved by Underwriters Laboratory, Factory Mutual, Department of Transportation or other national recognized testing laboratory
- ✓ While running the saw:
  - Keep hands on the handles, and maintain secure footing while operating the chainsaw.
  - Clear the area of obstacles that might interfere with cutting the tree or using the retreat path.
  - Do not cut directly overhead.
  - Shut off or throttle released prior to retreating.
  - Shut off or the chain brake engaged whenever the saw is carried more than 50 feet, or on hazardous terrain.
- ✓ Sharpen the saw if:
  - The chain tends to "walk" sideways while cutting
  - The cut shows fine powder instead of chips
  - It becomes necessary to press hard to cut
  - You smell burnt wood



- ✓ Monitor chain tension. Good cutting action and a long chain life, increase with correct chain tension. If too loose, a chain will derail; if too tight, a chain will bind.
- ✓ Lubricate the chain saw according to the manufacturer's recommendations. Proper lubrication prolongs the life of the saw and increases safety.
- ✓ When fueling the chain saw:
  - Only refuel the engine when it is cool.
  - Never smoke when working with a power saw.
  - Start by putting one foot on the bracket to the rear of the saw.
  - Grip the top handle of the saw firmly with one hand and use the other to pull the starting rope.
  - Never "drop start" the saw.
- ✓ Transport a power chain saw in a chain guard or a carrying case. Do not carry the saw in the passenger area of a vehicle. Brace the saw so that it cannot tip.
- ✓ When storing the saw, drain the fuel tank in a safe area, and run the engine at the idle until it stops. Remove the chain and store in oil. Disconnect the spark plug to reduce an accidental starting.
- ✓ Maintain the saw according to the manufacturer's instructions.
- ✓ Chain Saw Chaps will be provided for use when performing chain saw operations
- ✓ Public Works & Parks & Recreation Departments have been properly trained in Chain Saw Operations



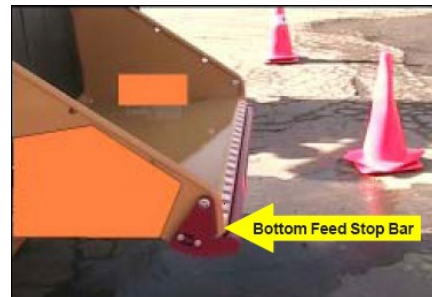
### 3.14 PERFORMING WOOD CHIPPER OPERATIONS

#### 3.14.1 The following standard operating guidelines shall be followed by employees performing wood chipper operations:

- ✓ Employees feeding limbs into wood chippers are at risk of getting caught in the equipment and being pulled into the high speed chipper blades. They are also at elevated risk of being injured due to being struck by limbs, chipper components or vehicular traffic.
- ✓ Only trained and authorized employees shall attempt to perform work using a wood chipper. Employees under 18 may not perform work involving a chipper.
- ✓ Users should familiarize themselves with all emergency stops (E-stops):



**Feed Control Bar E-Stop**



**Bottom Feed Bar E-Stop**



**Panic Bar E-Stops**



**Pull Rope E-Stops**

Photo Source: OSHA



- ✓ Inspect and test the chipper at the start of each work shift to ensure that all parts and safety devices are functioning properly. Look for broken parts, cracks, worn hinges, and missing parts and pins. Ensure the blade enclosure/guard is securely fastened. Ensure no foreign object is in the infeed area. Use lockout/tagout before performing any service to equipment.
- ✓ Test all emergency shut-off devices to ensure they will work when needed.
- ✓ PPE for chipper operators shall consist of head protection, hearing protection, eye and face protection, hand protection and work shoes with non-slip soles. Gloves should be cuff less (non-gauntlet). Clothing should be close fitting without stray straps or strings. Tuck in shirts and remove jewelry. Class 2 or 3 traffic safety apparel and a Type I or II hard hat is required if working near traffic.
- ✓ If chipping will be performed near traffic, establish a highway work zone and if feasible, place a shadow vehicle between the work area and oncoming traffic.
- ✓ Ensure that the discharge chute is positioned to prevent chips from hitting employees.
- ✓ Do not stand in front of the feed table when the chipper is running.
- ✓ Inspect materials to be fed to ensure that it is free of metal and other foreign objects.
- ✓ Stand to the side of the infeed chute when feeding material into the chipper. This reduces the "caught-in" hazard and allows quick access to emergency stop devices.
- ✓ Keep hands and feet out of the immediate infeed chute area while the chipper is running.
- ✓ Push material into the feed rollers with a wooden tool or a long branch.
- ✓ Feed branches into the chipper butt-end first. This technique reduces the likelihood of a jam.
- ✓ Place shorter branches on top of longer branches being fed into the chipper.



- ✓ Keep the area around the chipper clear to prevent slips, trips and falls. Periodically rake up small debris into trash cans instead of feeding it into the chipper.
- ✓ Never stand, sit or climb onto any part of the chipper while it is running.
- ✓ Shut down the chipper and remove the ignition key when it is unattended.
- ✓ Use proper locking pins to immobilize the disc cutting wheel when attempting to clear a clogged chipper chute or changing chipper blades.



## SECTION 4

### **BIBLIOGRAPHY OF SOURCES**

Materials from the following sources were incorporated into the DVWCT Workplace Safety and Health Manual:

*U.S. OSHA General Industry Regulations (29 CFR 1910)*

[https://www.osha.gov/pls/oshaweb/owasrch.search\\_form?p\\_doc\\_type=standards&p\\_toc\\_level=1&p\\_keyvalue=1910](https://www.osha.gov/pls/oshaweb/owasrch.search_form?p_doc_type=standards&p_toc_level=1&p_keyvalue=1910)

*U.S. OSHA Construction Regulations (29 CFR 1926)*

[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=standards&p\\_id=10593](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=10593)

*Pa. Confidentiality of HIV Related Information Act*

<http://www.legis.state.pa.us/cfdocs/legis/li/uconsCheck.cfm?yr=1990&sessInd=0&act=148>

*Pa. DOT Publication 213 Temporary Traffic Control Guidelines*

<http://www.dot.state.pa.us/public/PubsForms/Publications/PUB%20213.pdf>

*Pa. DOT Publication 234 Flagging Handbook*

<http://www.dot.state.pa.us/public/PubsForms/Publications/PUB%20234.pdf>

*Pa. Worker and Community Right to Know Act*

[http://www.pacode.com/secure/data/034/chapter301/034\\_0301.pdf](http://www.pacode.com/secure/data/034/chapter301/034_0301.pdf)