



## SAFETY & HEALTH

## PROGRAM

1 January 2020

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## **1 - Policy Statement on Safety**

The safety and health of each employee is of primary importance to the Department of Military and Veterans Affairs (DMVA). As an organization, we are committed to maintaining a safe and healthful working environment. Management will provide all necessary safeguards, programs, and equipment required to reduce the potential for accidents and injuries.

To achieve this goal, we have developed and implemented a comprehensive Safety and Health Program. This program is designed to prevent workplace accidents, injuries, and illnesses. A copy of this program is maintained at the DMVA Safety Office, located at 6848 S. Revere Parkway, Suite 2-158, Centennial, CO 80112 and can be accessed on the DMVA Webpage under Employee Resources. A copy is also maintained at each independent work site for your review. A copy of relevant portions of the program, that are applicable to your job, will also be provided to you upon request. You may also contact the DMVA Safety Director, David Callahan at 720-250-1507; [david.callahan@dmva.state.co.us](mailto:david.callahan@dmva.state.co.us) if you have any safety/health related questions or concerns.

It is the intent of DMVA to comply with all laws relating to occupational safety and health. To accomplish this, we require the active participation and assistance of all employees. The policies and procedures contained in DMVA Safety and Health Program are mandatory. You should also be constantly aware of conditions in all work areas that can produce injuries or illness. No employee is required to work at a job that he or she knows is not safe. Never hesitate to inform your foreman or supervisor of any potentially hazardous situation or condition that is beyond your ability or authority to correct immediately. No employee will be discriminated against for reporting safety concerns to management.

It is the responsibility of each employee to support the DMVA safety program and to perform in a manner that assures his or her own personal safety and the safety of others, including customers, visitors and other trades. To be successful in our endeavor, all employees on every level must adopt proper attitudes towards injury and illness prevention. We must also cooperate in all safety and health matters, not only between management and employees, but also between each employee and his or her respective coworkers. Only through such an effort can any Safety and Health program be

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successful. Our objective is to have a safety and health program that will reduce the total number of injuries and illnesses to an absolute minimum. Our ultimate goal is zero accidents.

## **2 - Duties and Responsibilities for Safety**

A successful Safety and Health Program can only be achieved and maintained when there is active interest, participation, and accountability at all levels of the organization. To ensure this, DMVA delegates the following safety duties by job title. Please keep in mind that this is not an all-inclusive list. In some cases employees will need to perform safety duties outside their regular responsibilities to prevent accidents.

Executive Management must plan, organize, and administer the program by establishing policy, setting goals and objectives, assigning responsibility, motivating subordinates, and monitoring results. DMVA will support and maintain an ongoing Safety and Health Program through the following:

1. Providing clear understanding and direction to all employees regarding the importance of safety through the development, implementation, monitoring and revision of policy and procedures.
2. Providing financial support for the Safety and Health Program through the provision of adequate funds for the purchase of necessary safety materials, safety equipment, proper personal protective equipment, adequate time for employee safety training, and maintenance of tools and equipment.
3. Overseeing development, implementation, and maintenance of the Safety and Health program.
4. Maintaining an organizational commitment to accident prevention by expecting safe conduct on the part of all managers, supervisors, and employees.
5. Holding all levels of management and employees accountable for accident prevention and safety.
6. Reviewing all accident investigations to determine corrective action.

Managers and Supervisors play a key role in the prevention of accidents on the job. They have direct contact with the employees and know the safety requirements for various jobs. Safety responsibilities for these individuals include:

1. Enforce all safety rules in the Code of Safe Practices and ensure safe work procedures.
2. Verifying corrective action has been taken regarding safety hazards and accident investigations.
3. Conducting periodic documented inspections of the work sites to identify and correct unsafe

actions and conditions that could cause accidents.

4. Act as a leader in DMVA safety policy and setting a good example by following all safety rules.
5. Becoming familiar with local, state, and federal safety regulations. The Safety Director is available for assistance.
6. Train all new and existing employees in proper safety procedures and the hazards of the job.
7. Instruct all employees, under their supervision, in safe work practices and job safety requirements.
8. Hold occasional safety meetings with employees.
9. Ensure employee proficiency when assigning work requiring specific knowledge, special operations or equipment.
10. Ascertain that all machinery, equipment, and workstations are maintained in safe working condition and operate properly.
11. Correct unsafe acts and conditions that could cause accidents.
12. Communicate with all employees about safety and accident prevention activities.
13. Correct the cause of any accident as soon as possible.
14. Ascertain that proper first aid and fire fighting equipment is maintained and used when conditions warrant its use.
15. Maintain good housekeeping conditions at all times.
16. Investigate all injuries and accidents to determine their cause and potential corrective action.
17. Ascertain that all injuries involving our employees that require medical attention are properly treated and promptly reported to the office.

The Safety Director acts as a safety resource for the DMVA and is responsible for maintaining program records and coordination with outside agencies regarding the safety program and its contents. David Callahan, 720-250-1507, [david.callahan@dmva.state.co.us](mailto:david.callahan@dmva.state.co.us) is currently responsible for this role.

Additional duties include:

1. Coordination of all Safety & Health activities as a representative of management. Acting as a consultant to management in the implementation and administration of the Safety & Health Program.
2. Develop and implement safety and health policies and procedures designed to insure compliance with the applicable rules and regulations of all federal, state, and local agencies.
3. Review all accident reports to determine cause and preventability.
4. Conduct periodic reviews of the program and job sites to evaluate performance, discuss problems and help solve them.
5. Consult with representatives of our Human Resource office to ensure their services will support Workers' Compensation Claims.

Every employee is responsible for working safely, both for self-protection and for protection of fellow workers. Employees must also support all DMVA safety efforts. Specific employee safety responsibilities include:

1. If you are unsure how to do any task safely, ask your supervisor.
2. Read and abide by all requirements of the DMVA Safety & Health Program.
3. Know and follow the Code of Safe Practices and all DMVA safety policies and rules.
4. Wear all required personal protective equipment.
5. Report all accidents and injuries, no matter how minor, to your supervisor immediately.
6. Do not operate any equipment you have not been trained and authorized to use.
7. Report any safety hazards or defective equipment immediately to your supervisor.
8. Do not remove, tamper with or defeat any guard, safety device or interlock.
9. Never use any equipment with inoperative or missing guards, safety devices or interlocks.
10. Never possess, or be under the influence of, alcohol or controlled substances while on the premises.
11. Never engage in horseplay or fighting.
12. Participate in, and actively support, the safety program.

### 3 - Program Records

DMVA will utilize the IMA Risk Management Center as the repository for maintaining the following records for the listed periods, including:

- |                                     |                      |
|-------------------------------------|----------------------|
| 1. Employee Safety Orientation      | length of employment |
| 2. Employee Safety training records | length of employment |
| 3. Disciplinary actions for safety  | 1 year               |
| 4. Safety contact reports           | 1 year               |
| 5. Safety meeting reports           | 2 years              |
| 6. Safety Inspections               | 3 years              |
| 7. Accident investigations          | 3 years              |

Records are available for review at the IMA Risk Management Center home page which can be accessed at: <https://www.lossfreerx.com/Platform/Home.aspx>



## 4 - Safety Communication

This section establishes procedures designed to develop and maintain employee involvement and interest in the Safety & Health Program. These activities will also ensure effective communication between management and employees on safety related issues that is of prime importance to the DMVA. The following are some of the safety communication methods that may be used:

1. Periodic safety meetings with employees that encourage participation and open, two-way communication.
2. New employee safety orientation and provision of the Code of Safe Practices.
3. Provision and maintenance of employee bulletin boards discussing safety issues, accidents, and general safety suggestions.
4. Written communications from management or the Safety Director, including memos, postings, payroll stuffers, and newsletters.
5. Anonymous safety suggestion program.

Employees will be kept advised of highlights and changes relating to the safety program. Management shall relay changes and improvements regarding the safety program to employees, as appropriate.

Employees will be involved in future developments and safety activities, by requesting their opinions and comments, as necessary.

All employee-initiated safety related suggestions shall be properly answered, either verbally or in writing, by the appropriate level of management. Unresolved issues shall be relayed to the DMVA Safety Director.

Employees are encouraged to bring any safety concerns they may have to the attention of management. DMVA will not discriminate against any employee for raising safety issues or concerns.

DMVA also has a system of anonymous notification whereby employees who wish to inform the organization of workplace hazards without identifying themselves may do so by phoning or sending written notification to the following address:

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David Callahan, DMVA Safety Director

6848 S. Revere Parkway, Suite 2-158

Centennial, CO 80112

720-250-1507

[david.callahan@dmva.state.co.us](mailto:david.callahan@dmva.state.co.us)

## **5 - Enforcement of Safety Policies**

The compliance of all employees with the DMVA's Safety & Health Program is mandatory and shall be considered a condition of employment.

The following programs will be utilized to ensure employee compliance with the safety program and all safety rules.

- Training Programs
- Retraining
- Safety Incentive Programs
- Disciplinary Action

### Training Programs

The importance of safe work practices and the consequences of failing to abide by safety rules will be covered in the Employee Safety Orientation and safety meetings. This will help ensure that all employees understand and abide by DMVA safety policies.

### Retraining

Employees that are observed performing unsafe acts or not following proper procedures or rules will be retrained by their supervisor. A Safety Contact Report may be completed by the supervisor to document the training. If multiple employees are involved, additional safety meetings will be held.

### Safety Incentive Programs

Although strict adherence to safety policies and procedures is required of all employees, DMVA may choose to periodically provide recognition of safety-conscious employees and job sites without accidents through a safety incentive program.

### Disciplinary Action:

The failure of an employee to adhere to safety policies and procedures established by DMVA can have

a serious impact on everyone concerned. An unsafe act can threaten not only the health and well-being of the employee committing the unsafe act but can also affect the safety of his/her coworkers and customers. Accordingly, any employee who violates any of the company's safety policies will be subject to disciplinary action.

Note: Failure to promptly report any on-the-job accident or injury, on the same day as occurrence, is considered a serious violation of the DMVA's Code of Safe Practices. Any employee who fails to immediately report a work-related accident or injury, no matter how minor shall be subject to disciplinary action.

Corrective actions will be taken for infractions of safety rules and unsafe work practices that are observed, not just those that result in an injury. Often, when an injury occurs, the accident investigation will reveal that the injury was caused because the employee violated an established safety rule and/or safe work practice(s). In any corrective action, the supervisor should be cautious that discipline is given to the employee for safety violations, and not simply because the employee was injured on the job or filed a Workers' Compensation claim.

Violations of safety rules and the Code of Safe Practices are to be considered equal to violations of other DMVA policy. Corrective actions for safety violations will be administered in a manner that is consistent with DMVA's system of progressive discipline. If, after training, violations occur, disciplinary action will be taken as follows:

1. Oral warning. Document it, including date and facts on the "Safety Contact Report" form. Add any pertinent witness statements. Restate the policy and correct practice(s).
2. Written warning. Retrain as to correct procedure/practice.
3. Written warning with suspension.
4. Termination

As in all corrective actions, each situation is to be carefully evaluated and investigated. The step taken in the disciplinary process will depend on the severity of the violation, employee history, and regard to safety. Managers and supervisors should consult with the Human Resource office if there is any

question about whether or not disciplinary action is justified. Employees may be terminated immediately for willful or extremely serious violations. Classified employees are entitled to the grievance process specified by state rules.

## **6 - Employee Safety Training**

DMVA is committed to instructing all employees in safe and healthful work practices. Awareness of potential hazards, as well as knowledge of how to control them, is critical to maintaining a safe and healthful work environment and preventing injuries. To achieve this goal, we will provide training to each employee on general safety issues and safety procedures specific to that employee's work assignment.

Every new employee will be given instruction by their Supervisor in the general safety requirements of their job. Access to our Code of Safe Practices shall also be provided to each employee.

Managers, Supervisors, and employees will be trained at least twice per year on various accident prevention topics.

Training provides the following benefits:

- Makes employees aware of job hazards
- Teaches employees to perform jobs safely
- Promotes two way communication
- Encourages safety suggestions
- Creates interest in the safety program
- Fulfills OSHA requirements

Employee training will be provided at the following times:

1. All new employees will receive a safety orientation their first day on the job.
2. All new employees will be provided access to the Code of Safe Practices and acknowledge receipt and their understanding as part of their employee safety orientation.
3. All employees given a new job assignment for which training has not been previously provided will be trained before beginning the new assignment.

4. Whenever new substances, processes, procedures or equipment that represent a new hazard are introduced into the workplace.
5. Whenever the DMVA is made aware of a new or previously unrecognized hazard.
6. Whenever management believes that additional training is necessary.
7. After all serious accidents.
8. When employees are not following safe work rules or procedures.

Training topics may include, but are not be limited to:

- Employee's safety responsibility
- General safety rules
- Code of Safe Practices
- Safe job procedures
- Ergonomics
- Use of hazardous materials
- Use of equipment
- Emergency procedures
- Safe lifting and material handling practices
- Slips, trips, and falls
- Contents of safety program

#### Documentation of Safety Training and Incidents

New employee training will be documented using the Employee Safety Orientation form.

The following training method should be used. Actual demonstrations of the proper way to perform a task are very helpful in most cases.

- **Tell them** how to do the job safely
- **Show them** how to do the job safely
- **Have them tell you** how to do the job safely
- **Have them show you** how to do the job safely
- **Follow up** to ensure they are still performing the job safely



## 7 - Employee Safety Orientation

Employee Name \_\_\_\_\_

Start Date \_\_\_\_\_

Worksite \_\_\_\_\_

Position \_\_\_\_\_

Supervisors will address the following items with each employee on their first day of employment and document employee safety orientation completion in the employee's IMA Risk Management Center file.

- 1. Code of safe practices.
- 2. Office safety.
- 3. Driving safety rules.
- 4. Process for reporting safety hazards and submitting safety contact reports.
- 5. List all special equipment, tools, and vehicles employee is trained and authorized to use.
- 6. Proper work clothing & required personal protective equipment.
- 7. Emergency procedures and exits, location of first aid kits, AEDs, and fire extinguishers.
- 8. Necessity of reporting ALL injuries and accidents, no matter how minor, IMMEDIATELY to your supervisor.

This is to certify that I have access to a copy of the DMVA Safety & Health Program manual. I have read these policies and procedures, understand them, and will comply with them while working for the state. I understand that failure to do so may result in disciplinary action and possible termination.

I further understand that I have the following rights:

- I am entitled to information on any hazardous material or chemical I am exposed to while working.
- I am entitled to receive a copy of the DMVA Safety & Health Program.
- I will not be discriminated against for reporting safety concerns.
- I am not required to work in any area I feel is not safe.

Employee Signature:

Date:

Supervisor Signature:

Date

## 8 - Safety Contact Report

Work site: \_\_\_\_\_ Date \_\_\_\_\_

Manager / Supervisor: \_\_\_\_\_

Employee name \_\_\_\_\_ Job title \_\_\_\_\_

Safety concern:

Corrective action:

Employee Signature:

Date:

Supervisor Signature:

Date:

## 9 - Code of Safe Practices

### General Safety Rules

1. All persons shall follow this Code of Safe Practices and render every possible aid to safe operations.
2. Failure to abide by the Code of Safe Practices may result in disciplinary action up to and including termination.
3. Immediately report any unsafe conditions, accidents, injuries or illness to your Supervisor or Manager.
4. If you are unsure of the safe method to do your job, STOP and ask your Supervisor. Ignorance is no excuse for a safety violation.
5. No one shall be knowingly permitted to work while the employee's ability or alertness is impaired by fatigue, illness, and prescription or over the counter drugs. Employees who are suspected of being under the influence of illegal or intoxicating substances, impaired by fatigue or an illness, shall be prohibited from working.
6. Never work while under the influence of an illegal or intoxicating substance, fatigued or ill.
7. Anyone known to be under the influence of any drugs or intoxicating substances which impair the employee's ability to safely perform the assigned duties shall not be allowed on the job.
8. Horseplay, scuffling, fighting and other acts that tend to have an adverse influence on the safety or well-being of the employees are prohibited.
9. Work shall be well planned and supervised to prevent injuries in the handling of materials and in working together with equipment.
10. Keep your work area clean, free of debris, electrical cords and other hazards.
11. Immediately clean up spilled liquids.
12. Always notify all other individuals in your area who might be endangered by the work you are doing.
13. Do not operate equipment that you are not familiar with. Do not attempt to use such equipment

until you are fully trained and authorized.

14. You are responsible for ensuring all safety guards are operable and in place. If they are not, STOP working and tell your Supervisor.
15. Firearms, weapons, illegal drugs or alcoholic beverages are not permitted on DMVA facilities without the expressed consent of the executive director.
16. A red tag system identifies equipment that is NOT to be operated, energized or used. All lock-out or tag-out notices and procedures must be observed and obeyed.
17. Do not block exits, fire doors, aisles, fire extinguishers, first aid kits, emergency equipment, electrical panels, or traffic lanes.
18. Do not leave tools, materials, or other objects on the floor that might cause others to trip and fall.
19. Do not run on the work site or in the shop or office area.
20. Employees shall not enter manholes, underground vaults, chambers, tanks, silos, or other similar places that receive little ventilation, unless it has been determined that it is safe to enter.
21. Employees shall ensure that all guards and other protective devices are in proper places and adjusted, and shall report deficiencies promptly to the Supervisor or Manager.
22. Materials, tools, or other objects shall not be thrown from buildings or structures until proper precautions are taken to protect others from the falling objects.
23. Employees shall cleanse thoroughly after handling hazardous substances, and follow special instructions from authorized sources.
24. Gasoline or other flammable liquids shall not be used for cleaning purposes.
25. No burning, welding, or other source of ignition shall be applied to any enclosed tank or vessel, even if there are some openings, until it has first been determined that no possibility of explosion exists, and authority for the work is obtained from the Supervisor or Manager.

### Electrical Safety

1. Only trained, qualified, and authorized employees are allowed to make electrical repairs or work on

electrical equipment or installations.

2. All electrical equipment and systems shall be treated as energized until tested or otherwise proven to be de-energized.
3. All energized equipment and installations will be de-energized prior to the commencement of any work. If the equipment or installation must be energized for test or other purposes, special precautions will be taken to protect against the hazards of electric shock.
4. All equipment shall be locked out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy-isolating device bearing a lock.
5. Safety grounds shall always be used where there is a danger of shock from back feeding or other hazards.
6. Polyester clothing or other flammable types of clothing shall not be worn near electrical circuits. Cotton clothing is much less likely to ignite from arc blast. Employees working on live circuits shall be provided fire resistant clothing.
7. Suitable eye protection must be worn at all times while working on electrical equipment.
8. Always exercise caution when energizing electrical equipment or installations. Take steps to protect yourself and other employees from arc blast and exploding equipment in the event of a fault.
9. All power tools will be grounded or double insulated. Tools with defective cords or wiring shall not be used.
10. Metal jewelry should not be worn around energized circuits.
11. Extension and temporary power cords must be heavy duty and grounded. Frayed or defective cords shall not be used.
12. Electrical installations must be protected from accidental contact by enclosures or tight fitting covers.
13. Circuits shall not be overloaded with equipment or extension cords.

### Lock-out / Tag-out

1. All machinery and electrical equipment shall be locked out and tagged prior to repair, cleaning, or adjustment unless power is necessary to perform the work. If so, other precautions, specified by your Supervisor, will be taken.
2. Use your own lock and key. No one else should have a key for your lock.
3. Maintain control of your key at all times to prevent unauthorized use.
4. Never remove another employee's lock or energize tagged equipment.
5. If multiple employees are working on the same equipment, each employee should install their own lock.
6. Notify all affected employees that a lock-out/tag-out is required and the reasons for it.
7. If the equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.).
8. Operate the switch, valve or other energy isolating devices so that the energy source(s) (electrical, mechanical, hydraulic, etc.) is disconnected or isolated from the equipment.
9. Stored energy, such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas or water pressure, etc. must also be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.
10. Lock-out all energy isolation devices with an individual lock.
11. After ensuring that no employees are exposed and as a check of having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate. **Caution: Return operating controls to neutral position after the test.**
12. The equipment is now locked-out. Install red lock-out tag on operating controls.
13. After repair is complete and the equipment is ready for testing or normal operation, check the equipment to see that all cover plates and safety devices have been reinstalled.
14. When the equipment is clear, remove all locks and tags. The energy isolating devices may be operated to restore energy to the equipment.

## State Vehicles

1. Only authorized employees are permitted to operate state vehicles. Do not let anyone else drive your state vehicle.
2. State vehicles are to be used for state business only. Personal, off duty and family use is prohibited.
3. Drive defensively and obey all traffic and highway laws.
4. Always wear your seat belt, whether the driver or a passenger.
5. Report all accidents as soon as possible to your supervisor and obtain a police report.
6. Keys must be removed from all unattended vehicles and the vehicles must be locked, unless parking inside the facility.
7. Do not jump from the cab or bed of state vehicles.
8. Inspect your vehicle and report any defects or operating problems to your supervisor so that repairs can be made.
9. No smoking in state provided vehicles or while refueling.
10. If your driver's license is revoked or expired, immediately notify your supervisor and do not drive.

## Ladder Safety

1. Inspect the ladder before using it. If it is broken, throw it out. Never repair a broken ladder, get a new one. Keep portable stairways, ladders and step stools in good condition and use them only in a safe manner.
2. Use the proper ladder for the job. Do not use "A" frame ladders as straight ladders. Make sure the ladder is tall enough to reach the work area. Do not use metal ladders for electrical work.
3. Do not place ladders in passageways, doorways, or any location where they might be hit or jarred, unless protected by barricades or guards.
4. Ladders should only be placed on hard level surfaces. Make sure the ladder feet are not placed on

sandy, slippery, or sloping surfaces. Clean or sweep the area where the ladder feet will be and make sure the rubber feet are in good shape.

5. Ladder rungs and steps must be kept free of grease, oil, mud, or other slippery substances.
6. Arrange your work so you are able to face the ladder and use both hands while climbing. Do not carry tools or equipment while climbing a ladder. Climb the ladder, and then hoist the tools or equipment with a line or a hoisting device.
7. Avoid temporary ladders. Always use a commercially made, construction grade ladder of the proper length for the work being performed.
8. Secure portable ladders in place and at a pitch so the leveling indicator is in alignment or the distance from the wall to the base of the ladder is at least 1' for every 4' of height.
9. Straight ladders shall be tied off the top of the ladder to prevent slipping.
10. Be aware of objects below you, move or cover sharp objects in case you fall.
11. Do not stand on or work from the 2nd rung from the top or above. Also do not reach too far from the ladder. Keep your belt buckle between the side rails.
12. Extension ladders shall extend at least 36" above the level being accessed.
13. On all ladders, do not step on cross bracing that is not intended to be used for climbing.

### Personal Protective Equipment (PPE)

1. Use the correct PPE for each job assignment. If you don't know, ask.
2. PPE shall be maintained in good condition and cleaned regularly.
3. PPE shall be stored properly when not in use to protect it from damage.
4. Damaged or broken PPE must be returned to your foreman for replacement.
5. Hard hats must be worn on job sites at all times.
6. ANSI approved safety glasses must be worn when working with power tools, compressed air or gasses, chemicals or any other item that creates an eye injury hazard.



7. Face shields with safety glasses are recommended when grinding or working with hazardous chemicals.
8. Employees must wear industrial work shoes in the shop and on the job site. The shoes must have complete leather uppers and skid resistant soles and be in good condition. Steel toe protection is recommended.
9. Athletic style shoes, tennis shoes, open toe shoes, plastic or vinyl shoes or shoes with decorative accessories are not allowed.
10. Hearing protectors must be worn when working with loud equipment such as cut off saws, chain saws, air hammers or grinders.
11. Back support belts should be worn for heavy lifting tasks. They do not help you lift more, but may provide some protection from back injuries.
12. Be sure the protective clothing you wear will not hamper or restrict freedom of movement due to improper fit.
13. Long pants are the standard duty uniform; however, shorts may be worn at the discretion of the supervisor IAW applicable uniform guidelines.
14. Do not wear loose, torn or frayed clothing, dangling ties, finger rings, dangling earrings, jewelry items, or long hair unless contained in a hair net, while operating any machine that could cause entanglement.
15. If required, wear NIOSH approved respirators when applying adhesives, paint, welding, grinding or working with chemicals. Read the SDS to find out which type of respirator is required. Facial hair may not be permitted in certain circumstances.

### Hand and Power Tools

1. Proper eye protection must be worn when using hand and power tools.
2. Know your hand and power tool applications and limitations. Always use the proper tool for the job.

3. Inspect cords and tools prior to use. Do not use tools that are faulty in any way. Exchange them for safe tools immediately.
4. Power tools must be grounded or double insulated. All power tools are to be plugged into a grounded GFCI outlet.
5. Do not use power tools in damp, wet or explosive atmospheres.
6. Do not lift, lower or carry portable electrical tools by the power cord.
7. Keep all safety guards in place and in proper working order.
8. Use clamps or vises to secure work pieces.
9. Do not force hand power tools. Apply only enough pressure to keep the unit operating smoothly.
10. Return all tools and other equipment to their proper place after use.
11. Unplug all power tools before changing bits and/or grinding disks.
12. Never leave chuck keys in the tool during operation.
13. Do not use a screwdriver as a chisel.
14. Before using sledges, axes or hammers, be sure the handles are securely fastened with a wedge made of sound material.
15. Do not use a handle extension on any wrench.
16. Files should be equipped with handles and should not be used as a punch or pry.

## Hazardous Materials and Chemicals

1. Read all warning labels and Safety Data Sheets (SDS) before using any chemicals. SDS contain personal protective equipment and safety information and is available from your Supervisor.
2. Hazardous materials shall be handled in accordance with the SDS and label. If protective equipment is required, use it.
3. Eye protection must be worn when working with hazardous materials or chemicals.
4. Mixing of chemicals is prohibited at all times unless required by the label. Before you mix - review all SDS.
5. Always wash your hands thoroughly after handling chemicals and before eating or smoking, even if you were wearing protective gloves.
6. Never use solvents for hand cleaning. Use the non-toxic hand cleaners provided.
7. Store all hazardous materials properly in suitable containers that are properly labeled.
8. Use chemicals only in well-ventilated areas.
9. When using secondary containers, ensure that they are labeled as to their contents and hazards.
10. Do not disturb any asbestos. STOP work and tell your Supervisor. If you are not sure, STOP and ask.
11. Do not cut or weld stainless steel or galvanized metal without respiratory protection. These items create toxic fumes.
12. Work with lead, asbestos, cadmium and other toxic compounds require special precautions. Do not attempt to perform this work without special equipment and training.

## Fire Prevention and Housekeeping

1. Always take precautions to prevent fires which may be started, particularly from oily waste, rags, gasoline, flammable liquids, acetylene torches, improperly installed electrical equipment and trash.
2. Firefighting equipment is to be inspected on a regular basis. All discharged, damaged or missing

equipment is to be immediately reported to a Supervisor. Tampering with fire equipment is prohibited.

3. Access to fire extinguishers must be kept clear at all times. Make note of the location of firefighting equipment in your work area.
4. Never use gasoline or flammable solvents for cleaning purposes, with the exception of manufacturer approved solvents and procedures.
5. Smoking is prohibited within 20 feet of where flammable substances are present.
6. In case of fire, employees shall consider the safety of themselves and other individuals before saving property.
7. Keep your work areas free of debris. Remove useless material from the work area as fast as required to help reduce tripping hazards.
8. Maintain awareness of potential hazards when walking about the work site.
9. Keep tools, materials and equipment out of walkways and stairways at all times.
10. Sharp wires or protruding nails must be kept bent.

### Traffic Safety

1. All employees exposed to traffic hazards are required to wear orange and reflective flagging garments (shirts, vests, jackets) at all times.
2. When possible, company vehicles are to be placed between the employees and traffic to prevent vehicles from entering the work area and hitting members of the crew.
3. Traffic controls are to be properly maintained throughout the workday. Signs and cones must be kept upright, visible and in their proper position at all times.
4. Do not put yourself between a vehicle you are backing up and another object.
5. Don't walk backwards when backing up a vehicle. Stop, move to the next location from which you and the vehicle driver have positive contact, and then resume vehicle movement.

## 10 - Office Safety

Office accidents can and do happen. To prevent them, DMVA has developed the following rules for our office staff. We will also endeavor to include office employees in periodic safety meetings. If at any time, you feel there is a safety hazard, or you have any safety concerns, please do not hesitate to notify your supervisor or safety officer. Report all accidents and injuries, no matter how minor, to your Supervisor immediately.

1. Correct or report any safety hazards that you observe.
2. Clean up any spilled material that may present a slipping hazard.
3. Do not stretch any cords across aisles that may present a tripping hazard.
4. No one is allowed to climb on shelves or stand on chairs; you must use a step stool or ladder.
5. Keep all legs of the chair on the floor. Do not tilt chairs too far back.
6. No one shall be in the possession of, or under the influence of, alcohol or controlled substances while on the premises.
7. No horseplay will be tolerated.
8. Close file drawers when not in use.
9. Do not open more than one file drawer at a time. This could cause the cabinet to tip.
10. Do not store flammable or combustible materials near heaters or other heat sources.
11. If you are unsure how to do any task safely, ask your supervisor.
12. Do not operate any equipment you are not trained and authorized to use.
13. Always follow safe lifting procedures when lifting any object and get help for heavy loads.
  - Bend your knees, not your back.
  - Keep the load close to body.
  - Keep your back straight.
  - Lift with your legs.

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- Do not lift and twist.

## Office Ergonomics

Studies have shown over the years that poorly designed and arranged work areas and repetitive motions can lead to a variety of injuries including carpal tunnel syndrome and tendonitis, which are often referred to as repetitive motion injuries (RMI). As with cancer, heart disease, and many other ailments, there are risk factors that increase an individual's likelihood of developing RMI. If the risk factors are reduced, so are the chances of being injured. While some of these risk factors, such as family history, cannot be controlled in the employment setting, many can, including:

- The force used to perform a task.
- Posture while performing tasks.
- The number of repetitions performed in a given time period.
- Mechanical stresses such as hard surfaces.

The most significant RMI risk factor in office environments is poor body posture caused by improper workstation design or layout. In many cases employees are required to work in awkward positions for long periods of time. This greatly increases the likelihood of injury. Fortunately, this is often the easiest problem to correct. The goal is to perform work in neutral posture as much as possible.

Neutral posture is best described as the most comfortable position and usually involves little or no twisting or deviation of the joints.

To apply the principle of neutral posture to the office setting we need to look at the five major components of office workstations. They are: the chair, the computer keyboard, the desk, the computer monitor, and the work product.

Chairs are often the most overlooked piece of office equipment, yet they are the single most important item from an ergonomic standpoint. A poor chair that lacks adjustments and support makes it almost impossible to work comfortably and in neutral posture. Good office chairs are fully adjustable including:

- Chair height.

- Height of the backrest.
- The position forward or back of the backrest.
- The position forward or back of the seat pan.
- The angle (tilt) of the seat pan.
- If armrests are provided, they should be height and width adjustable.

In many cases, fully adjustable chairs are provided for employees, but they never adjust them. Make sure you understand all of the adjustments your chair has and how to use them. When in doubt, read the owner's manual or ask. A properly adjusted chair should allow the user to rest their feet comfortably on the floor without putting pressure on their lower thighs. Their knees should be approximately the same height as their hips, or slightly higher, and they should be able to sit back against the backrest which is positioned for low back support. If your feet don't rest comfortably on the floor the chair is too high. If the chair cannot be lowered any further, a footrest should be used. Whether armrests are provided depends on the type of workstation and personal preference. If they are provided, they should be height adjustable to allow the arms to rest comfortably on them without excessive shoulder drop. Armrests should also be well padded to reduce pressure on the lower arms.

Once the chair is properly adjusted, the next step is to position the keyboard to minimize bend in your wrists. In order to accomplish this, it is often necessary to have a position and height adjustable keyboard tray attached to the underside of the desk. These should not be confused with keyboard drawers that cannot be adjusted for height or position. If you do not use a tray, the only way to adjust the keyboard height is by moving the desk that is difficult at best, and sometimes impossible. Using a tray also frees up workspace on the desk where the keyboard once sat.

The height of the keyboard should be set so that there is approximately a 90-degree angle between the upper and lower arms. There should also be a straight line from the elbow out through your fingers. If your fingers hang down too much or bend up, creating a "V" between your hand and forearm, you place extra stress on your wrist. Many people find it comfortable to use padded wrist rests in front of the keyboard. This often helps minimize wrist deflection. The keyboard tray should also be adjusted so that you do not have to reach forward too far to type. Your elbows should be close to your side and



back by your spine, not out in front of you. Do not extend the small legs on the bottom of the keyboard tray. This increases the wrist angle unnecessarily. Many keyboard trays now also have extensions for your mouse. This places everything you need within easy reach.

After you have adjusted the chair and keyboard tray, try using your desk. You should be able to comfortably write and use your other office equipment such as the calculator and phone. Some of these items may need to be moved closer to you. Your legs should also fit easily under the desk.

Often, stored items such as boxes or trashcans, block this and should be removed. The standard desk height is fine for most people. If you are exceptionally tall or short, however, adjusting the desk up or down an inch, if possible, may be helpful.

Now you are ready to position your monitor. It should be directly in front of you. Monitors that are off to one side cause you to turn your neck that can lead to injury. The top of the screen should be at about eye level. If the screen is too low your neck will ache from constantly looking down. Putting old phone books or reams of copy paper under them can easily raise monitors. You may also use a special adjustable monitor holder to free up desk space. Tilt the screen so that the top is closer to you than the bottom. This will reduce glare from overhead lights. If you can't get away from outside light, use a glare screen to improve contrast and reduce eyestrain that can cause headaches. Also know how to adjust the screen contrast and brightness controls and keep the screen clean and free of dust and fingerprints.

The work product should be kept within easy reach. Heavy notebooks or binders that you use often should be placed near you. If you use the phone a lot, consider using a headset to reduce neck strain and free up your hands for other tasks. Copyholders can be very helpful if you are entering data or typing from paper. Set them up so they are as close to the screen as possible to reduce neck motion.

The risk factors of force, repetition, and mechanical stress are also controllable in an office environment. Force can be reduced by using automatic staplers and date stamps. If heavy files, boxes, or other items must be moved, use carts and dollies. When filing, use two hands to hold the larger files and keep heavy items stored between knee and shoulder height to reduce strain on your back and arms.

Repetition is controllable through the use of task management. Break up the work as much as possible throughout the day. If possible, do not spend more than two hours at a time typing or entering data. Intersperse other tasks such as filing to use other muscle groups. You should take ten-minute breaks every two hours if you are doing repetitive tasks.

Mechanical stress occurs when you rest parts of your body against hard or sharp objects. This cuts off blood flow and presses on nerves, which can lead to numbness and tingling. Sharp edges can be padded or cushioned where needed to reduce this.

## 11 - Driving Safety Rules

DMVA has established the following guidelines and procedures for our drivers and vehicles to protect the safety of individuals operating any motor vehicle on company business. Protecting our employee drivers, their passengers, and the public is of the highest priority. The commitment of management and employees is critical to the success of this program. Clear communication of, and strict adherence to, the program's guidelines and procedures are essential.

Our primary goal is to maintain a high level of safety awareness and foster responsible driving behavior. Driver safety awareness and responsible driving behavior will significantly decrease the frequency of motor vehicle accidents and reduce the severity of personal injuries and property damage.

Drivers must follow the requirements outlined in this program. Violations of this program may result in disciplinary action up to, and including, suspension of driving privileges or dismissal.

Our program consists of the following elements:

- Driver selection
- Driver training
- Vehicle use policy
- Vehicle inspection & preventive maintenance
- Accident investigation Driver Selection

Only DMVA authorized and assigned employees are allowed to drive company vehicles at any time. Prior to being authorized and assigned, supervisors will check the following items. Drivers must have:

- A valid un-restricted driver's license.
- A current MVR driving record with no more than 2 points and no serious or major violations.

Supervisors will also check driving records of all employees authorized to drive on company business on an annual basis.

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Employees that do not meet these requirements are not authorized or allowed to drive company vehicles or drive their own vehicle on company business.

## Driver Training

All employees driving state vehicles, and personal vehicles on state business, will be given a copy of the Driving Safety Rules and DMVA Vehicle Use Policy and required to read and sign for them. Safe driving will also be periodically covered during safety meetings and highlight awareness on the following driving actions and behaviors:

1. The single biggest thing you can do to save your life is wearing your seat belt. Hundreds of studies over the years have proven, without a doubt, that seat belts save lives. This is true even in crashes involving fire and water submersion. Properly worn seat belts actually absorb crash forces that, otherwise, would be transferred to your body. If the seat belts in your vehicle are inoperative or defective, have them repaired or replaced immediately. You should wear the lap belt low across your hips and have the shoulder strap directly across your chest. You also need to keep the belt tight. There should not be more than an inch between your body and the belt at any point.
2. Get the big picture while driving. Keep your eyes aimed high and try to anticipate hazards and other drivers' mistakes. You should be looking well ahead of where you are. You should also always leave yourself an out in case the other driver does the unexpected.
3. Maintain a safe following distance at all times. Approximately 1/3 of all auto accidents are rear end collisions. You should be at least two seconds behind the vehicle in front of you to allow yourself sufficient time to stop. Do not tailgate. Following distances should be increased for larger vehicles or if in slippery or rainy conditions.
4. Avoid passing on two lane roads. Head on collisions are the most common cause of fatalities. You should also turn on your headlights while driving on two lane roads. This helps oncoming traffic see and avoid you. Never pass another vehicle on blind turns or hills.
5. You must be sober and alert at all times while driving. The use of drugs or alcohol while driving, or prior to driving, significantly increases your chances of having an accident. It should be at least eight hours from the time you take a drink until operating a vehicle. You should also avoid the use of prescription or over the counter medicines that make you drowsy.
6. Inspect the vehicle for mechanical defects prior to each trip. Test your brakes as soon as you start

out to insure they are properly operating. Worn tires can make your vehicle difficult to control or stop.

7. Avoid operating a cell phone, reading maps or other distracting activities while driving. These actions take your focus off the road and often cause you to swerve. Pull over into a safe parking area before making that call.
8. Never drive faster than road conditions warrant. Slow down when road conditions are poor (rain, snow, fog, night) and never exceed posted speed limits.
9. Always signal when changing lanes or turning.
10. Use caution when passing any stopped vehicle, especially near intersections or cross walks.
11. Aggressive driving has become a significant problem in the past few years. Just don't do it. Avoid tailgating, rapid lane changes, speeding, and hand gestures to bad drivers. You never know, they may be armed. If you are being tailgated, change lanes and let them pass. It's really not worth getting killed over.
12. Intersection collisions are also a significant problem. These are often caused by someone running the red light. You should always be under control when approaching an intersection and be prepared to stop if the light changes.
13. Slow down and look for trains at all railroad crossings. Even with modern signals and gates, hundreds of cars are hit by trains each year at grade crossings.
14. Use your low beams while driving in fog and slow down. If you can't see, pull over into a safe parking area and wait for better visibility. Do not stop in the traffic lanes. You will almost certainly be hit by another vehicle if you do.
15. Always walk behind the vehicle before backing. This will insure that there are no people or objects behind you that you cannot see from the driver's seat. You should also make sure that all loads are properly secured to prevent them from moving. Numerous accidents are caused by objects that have fallen off vehicles.
16. Always signal well in advance when changing lanes or turning, and make sure to check your blind spot for other vehicles. Also, avoid driving in someone else's blind spot. If they can't see you, they don't know you are there.

17. Yield the right of way until you are sure the other driver is going to stop. Just because you have the legal right of way doesn't mean you should always take it. Always yield the right of way to emergency vehicles.

Defensive drivers:

- Expect the unexpected
- Anticipate bad driving by others
- Look ahead for hazards
- Always leave themselves an out
- Always drive under control
- Obey the rules of the road

## DMVA Vehicle Use Policy

DMVA has established the following policies pertaining to company vehicles:

1. Personal and off duty use of state vehicles is prohibited.
2. Only authorized employees may drive state vehicles. No other family members may drive state vehicles.
3. Non-employee passengers are not permitted in state vehicles at any time, unless they are business related.
4. Seat belts must be worn in state vehicles at all times.
5. No employee is permitted to drive state vehicles while impaired by alcohol, illegal or prescription drugs, or over the counter medications.
6. All accidents involving state vehicles must be reported to the fleet management office immediately.
7. Employees with two or more preventable accidents in a three year period, or that obtain three points on their driving record, will be subject to a loss of their driving privileges or have their driving privileges restricted.

### Vehicle Inspection & Preventive Maintenance

All state vehicles must be inspected by the driver prior to each use. Mechanical defects will be repaired immediately. Supervisors will periodically spot check state vehicles to determine their condition.

Vehicle inspections will include:

- Lights
- Turn signals
- Emergency flashers
- Tires



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- Horn
- Brakes
- Fluids
- Windshield condition and wiper condition
- Mirrors

All vehicles will also be maintained in accordance with the manufacturers' recommendations. It is the responsibility of the individual assigned the vehicle to ensure proper maintenance and repairs are performed. If your vehicle is not safe, do not drive.

### Accident Investigation

All accidents in state vehicles will be investigated by the Supervisor or Manager. Where possible, witness's statements will be obtained and photos used to document the scene of the accident and the damage. Police reports will also be obtained whenever possible. The following guidelines will be used to help determine preventability.

### Auto Accident Preventability Guide

This guide will assist in determining whether our driver could have prevented the accident. An accident is preventable if the driver could have done something to avoid it. Drivers are expected to drive defensively. Which driver was primarily at fault, which received a traffic citation, or whether a claim was paid has no bearing on preventability. If there was anything our driver could have done to avoid the collision, then the accident was preventable.

An accident was non preventable when the vehicle was legally and properly parked, or when properly stopped because of a highway patrol officer, a signal, stop sign, or traffic condition. When judging accident preventability, here are some general questions to consider:

1. Does the investigation indicate that the driver considers the rights of others, or is there evidence of poor driving habits that need to be changed?
2. Does the investigation indicate driver awareness? Such phrases as "I did not see," "I didn't think," "I didn't expect," or "I thought" are signals indicating there probably was a lack of awareness, and the accident was preventable. An aware driver should think, expect, and see hazardous situations in time to avoid collisions.
3. Was the driver under any physical stresses that could have been contributory? Did the accident happen near the end of a long day or long drive? Did overeating contribute to fatigue? Did the

driver get prior sufficient sleep? Is the driver's vision faulty? Was the driver feeling ill?

4. Was the vehicle defective without the driver's knowledge? Was a pre-trip inspection done, and would it have discovered the defect? A car that pulls to the left or right when the driver applies the brakes, faulty windshield wipers, and similar items are excuses, and a driver using them is trying to evade responsibility. Sudden brake failure, loss of steering, or a blowout might be defects beyond the driver's ability to predict. However, pre-trip inspections and regularly scheduled maintenance should prevent most of these problems. If either of these are the cause of the accident, then the accident was probably preventable by the driver.
5. Could the driver have exercised better judgment by taking an alternate route through less congested areas to reduce the hazardous situations encountered?
6. Could the driver have done anything to avoid the accident?
7. Was the driver's speed safe for conditions?
8. Did the driver obey all traffic signals?
9. Was the driver's vehicle under control?

### Intersection Collisions

Failure of our driver to yield the right-of-way, regardless of who has the right of way, as indicated by stop signs or lights, is preventable. The only exception to this is when the driver is properly proceeding through an intersection protected by lights or stop signs and the driver's vehicle is struck in the extreme rear side of the vehicle. Regardless of stop signs, stoplights, or right-of-way, a defensive driver recognizes that the right-of-way belongs to anyone who assumes it and should yield accordingly.

Questions to consider:

1. Did the driver approach the intersection at a speed safe for conditions?
2. Was the driver prepared to stop before entering the intersection?
3. At a blind corner, did the driver pull out slowly, ready to apply the brakes?
4. Did the driver look both ways before proceeding through the intersection?

## Sideswipes

Sideswipes are often preventable. Defensive drivers do not get into a position where they can be forced into another vehicle or another vehicle can be forced into them. Defensive drivers continuously check for escape routes to avoid sideswipes. For two lane roads, this means a driver should pass another vehicle only when absolutely certain that he or she can safely complete the pass. A driver should also be ready to slow down and let a passing vehicle that has failed to judge safe passing distance back into the lane. A driver should make no sudden moves that may force another vehicle to swerve. If a driver sideswipes a stationary object while taking evasive action to avoid striking another car or a pedestrian, such an accident may not be preventable. However, you should consider what the driver could have done or failed to do immediately preceding the evasive action to be in the position of no other options.

A driver is also expected to anticipate the actions of an oncoming vehicle. Sideswiping an oncoming vehicle is often preventable. Again, evasive action, including leaving the roadway, may be necessary if an oncoming vehicle crosses into the driver's lane. Drivers are expected to allow merging vehicles to merge smoothly with them, and to merge smoothly on controlled access highways. Drivers are expected to be able to gauge distances properly when leaving a parking place and enter traffic smoothly.

Questions to consider:

1. Did the driver look to front and rear for approaching and overtaking traffic immediately before starting to pull away from the curb?
2. Did the driver signal before pulling away from the curb?
3. Did the driver look back rather than depend only upon rear-view mirrors?
4. Did the driver start into traffic only when this action would not require traffic to change its speed or direction in order to avoid his or her vehicle?

## Head-on Collisions

A head-on collision with a vehicle traveling in the wrong lane may be preventable if the driver could have pulled off the road or taken other evasive action to prevent a collision. However, the driver should never drive into the other lane to avoid the oncoming vehicle. If the driver swerved off the road to avoid a head-on collision, the accident is non-preventable. The driver in this case made a good defensive driving decision, taking the lesser of two evils.

Many skidding conditions are caused by rain, freezing rain, fog, and snow, which all increase the hazard of travel. Oily road film, which builds up during a period of good weather, causes an especially treacherous condition during the first minutes of a rainfall. Loss of traction can be anticipated, and these accidents usually are preventable. Driving too fast for conditions is the most common reason why these types of accidents are preventable.

Questions to consider:

1. Was the driver operating at a safe speed considering weather and road conditions?
2. During inclement weather, was the driver keeping at least twice the safe following distance used for dry pavement?
3. Were all actions gradual?
4. Was the driver anticipating ice on bridges, in gutter, ruts, and near the curb?
5. Was the driver alert for water, ice or snow in shaded areas, loose gravel, sand, ruts, etc?

If a driver goes off the road or strikes another vehicle because of skidding, the accident is preventable.

### Pedestrian Accidents

All types of pedestrian accidents, including collisions with pedestrians coming from between parked cars, are usually considered preventable. There are few instances where the action of pedestrians is so unreasonable that the operator could not be expected to anticipate such an occurrence.

Questions to consider:

1. Did the driver go through congested areas expecting that pedestrians would step in front of the

vehicle?

2. Was the driver prepared to stop?
3. Did the driver keep as much clearance between his or her vehicle and parked vehicles, as safety permitted?
4. Did the driver stop when other vehicles had stopped to allow pedestrians to cross?
5. Did the driver wait for the green light or stop for the caution light?
6. Was the driver aware of children and prepared to stop if one ran into the street?
7. Did the driver give all pedestrians the right-of-way?
8. Did the driver stop for a school bus that was stopped and properly signaling that passengers were loading or unloading?

#### Backing Accidents

Backing a vehicle into another vehicle, an overhead obstruction, or a stationary object is normally preventable. The fact that someone was directing the driver in backing does not relieve the driver of the responsibility to back safely.

Questions to consider:

1. Was it necessary to back?
2. Did the driver plan ahead so that he or she could have pulled forward out of the parking space instead of backing?
3. Was it necessary to drive into the narrow street, dead-end alley, or driveway from which he or she backed?
4. If the driver could not see where he or she was backing: Did the driver try to get someone to guide him or her?
5. Did the driver look all around the vehicle before backing? Did the driver back immediately after looking?

6. Did the driver use the horn while backing? Were the back-up lights working?
7. Did the driver look to the rear without relying totally on the rear-view mirror?
8. If the distance was long, did the driver stop, get out, and look around occasionally?
9. Did the driver back slowly?
10. Did the driver judge clearances accurately?

### Parking Accidents

Doors on our driver's parked vehicle that are damaged when opened on the traffic side are considered preventable accidents. The driver is responsible to see that the traffic side is clear of traffic, before any doors on that side are opened.

In most cases, if our driver, while driving, strikes a parked vehicle's opening door it is considered preventable. Usually our driver can see from a sufficient distance that the parked vehicle is occupied, and should therefore, be prepared to stop, should move closer to the center line or change lanes.

It is a driver's responsibility to park the vehicle so that it will remain stationary. A runaway type accident is preventable and blaming such a collision on defective parking brakes or other holding devices are inadequate excuses. A good pre-trip inspection, and maintenance program will eliminate most opportunities for this type of accident being the result of mechanical failure.

Accidents occurring when vehicles are properly and legally parked are considered non preventable. Accidents occurring while the vehicle was double-parked or in a "No Parking" zone are preventable.

Questions to consider:

1. Was the vehicle parked on the proper side of the road?
2. Was it necessary to park there or was there a safer, only slightly less convenient place nearby?
3. Did the driver have to park on the traveled part of the highway, on the curve, or on the hill?
4. When required, did the driver warn traffic by emergency warning devices?
5. Did the driver park parallel to the curb?

6. Was it necessary to park so close to an alley or directly across from a driveway?

### Collision with Obstructions

Obstructions can be avoided if the driver knows the height and width of the vehicle, pays attention to posted clearances, and takes the time to properly judge clearances.

### Cargo Accidents

The accident should be considered preventable if the investigation shows a mechanical defect of which the driver was aware, a defect the driver should have found by inspecting the vehicle, or the driver caused the accident by rough and abusive handling. It is a driver's responsibility to secure cargo properly to prevent shifting, loss, or damage. Cargo should be safely stowed to prevent flying objects that can strike or distract the driver.



## **12 - Accident Investigation**

The Supervisor, Manager, or other designated individual will investigate all work-related accidents in a timely manner. This includes minor incidents and "near misses", as well as serious injuries. An accident is defined as any occurrence that results in injury to personnel, damage to equipment, facilities, or material, or interruption of normal operations.

### Responsibility for Accident Investigation

Immediately upon being notified of an accident, the Supervisor, Manager, or other designated individual shall conduct an investigation. The purpose of the investigation is to determine the cause of the accident and corrective action to prevent future reoccurrence. An unbiased approach is necessary in order to obtain objective findings.

### The Purpose of Accident Investigations:

- To prevent or decrease the likelihood of similar accidents.
- To identify and correct unsafe work practices and physical hazards. Accidents are often caused by a combination of these two factors.
- To identify training needs. This makes training more effective by focusing on factors that are most likely to cause accidents.

### What Types of Incidents Do We Investigate?

- Fatalities
- Serious injuries
- Minor injuries
- Property damage
- Near misses

### Procedures for Investigation of Accidents

Immediately upon being notified of an accident the Supervisor, Manager, or other designated individual will:

1. Visit the accident scene, as soon as possible, while facts and evidence are still fresh and before witnesses forget important details, and to make sure hazardous conditions to which other employees or customers could be exposed are corrected or have been removed.
2. Provide for needed first aid or medical services for the injured employee(s).
3. If possible, interview the injured worker at the scene of the accident and verbally "walk" them through a re-enactment. All interviews should be conducted as privately as possible. Interview all witnesses individually and talk with anyone who has knowledge of the accident, even if they did not actually witness it.
4. Report the accident to the Safety Director (720-250-1507) and Human Resources Director (720-250-1520) within 48 hours.
5. Consider taking signed statements in cases where facts are unclear or there is an element of controversy.
6. Thoroughly investigate the accident to identify all accident causes and contributing factors. Document details graphically. Use sketches, diagrams and photos as needed. Take measurements when appropriate.
7. All accidents involving death, disfigurement, amputation, loss of consciousness or hospitalization for more than 24 hours must be reported to the Safety Director (720-250-1507) and Human Resources Director (720-250-1520) within 24 hours.
8. Focus on causes and hazards. Develop an analysis of what happened, how it happened, and how it could have been prevented. Determine what caused the accident itself, not just the injury.
9. Every investigation must also include an action plan. How can such accidents be prevented in the future?
10. In the event a third party or defective product contributed to the accident, save any evidence as it

could be critical to the recovery of claim costs.

### Accurate & Prompt Investigations

- Ensures information is available
- Causes can be quickly corrected
- Helps identify all contributing factors
- Reflects management concern
- Reduces chance of recurrence

### Investigation Tips

- Avoid placing blame
- Document with photos and diagrams, if needed
- Be objective, get the facts
- Reconstruct the event
- Use open-ended questions

### Questions to Ask

When investigating accidents, open-ended questions such as who, what, when, where, why, and how will provide more information than closed-ended questions such as "Were you wearing gloves?"

Examples include:

- How did it happen?
- Why did it happen?
- How could it have been prevented?
- Who was involved?
- Who witnessed the incident?

- Where were the witnesses at the time of the incident?
- What was the injured worker doing?
- What was the employee working on?
- When did it happen?
- When was the accident reported?
- Where did it happen?
- Why was the employee assigned to do the job?

**The single, most important question that must be answered as the result of any investigation is:**

"What do you recommend be done (or have you done) to prevent this type of incident from recurring?"

Once the Accident Investigation is completed

- Take or recommend corrective action
- Document corrective action
- Management and the Safety Director will review the results of all investigations
- Consider safety program modifications
- Information obtained through accident investigations can be used to update and improve our current program.

## **13 - Hazard Communication Program**

### Introduction

It is the policy of DMVA that the first consideration of work shall be the protection of the safety and health of all employees. We have developed this Hazard Communication Program to ensure that all employees receive adequate information about the possible hazards that may result from the various materials used in our operations. This Hazard Communication Program will be monitored by Supervisors who will be responsible for ensuring that all facets of the program are carried out, and that the program is effective.

Our program consists of the following elements:

1. Hazardous material inventory.
2. Collection and maintenance of Safety Data Sheets.
3. Container labeling.
4. Employee training.

The following items are not required to be included in the program and are therefore omitted:

- Foods, drugs, cosmetics or tobacco.
- Untreated wood products.
- Hazardous waste.
- Consumer products packaged for sale to and use by the general public, provided that our exposure is not significantly greater than typical consumer exposure.

### Hazardous Material Inventory

The DMVA Environmental Safety Office maintains a list of all hazardous materials used in our operations. This list contains the name of the product, the type of product (solvent, adhesive etc.) and the name and address of the manufacturer.

### Safety Data Sheets (SDS)

Copies of SDS for all hazardous substances to which our employees may be exposed will be kept in a binder in the office at the State environmental office. These SDS are available to all employees, at all times, upon request. Copies of the most commonly used products will also be kept by the Supervisor at the work site.

The DMVA Environmental Safety Officer will be responsible for reviewing incoming SDS for new and significant health/safety information. They will ensure that any new information is passed on to the affected employees.

Supervisors will also review all incoming SDS for completeness. If an SDS is missing or obviously incomplete, a new SDS will be requested from the manufacturer.

New materials will not be introduced into the shop or field until a SDS has been received. The purchasing department will make it an ongoing part of their function to obtain SDS for all new materials when they are first ordered.

### Container Labeling

No container of hazardous substances will be used unless the container is correctly labeled and the label is legible.

All chemicals in cans, bags, drums, pails, etc., will be checked by the receiving department to ensure the manufacturer's label is intact, is legible, and has not been damaged in any manner during shipment. Any containers found to have damaged labels will be held until a new label has been installed. New labels will be obtained from the manufacturer.

The label must contain:

- The chemical name of the contents.
- The appropriate hazard warnings.
- The name and address of the manufacturer.

All secondary containers will be labeled as to their contents with a reference to the original label.

### Employee Information and Training

All employees will be provided information and training on the following items through the DMVA safety training program and prior to starting work with hazardous substances:

1. An overview of the requirements of the Hazard Communication Standard, including their rights under this regulation.
2. Information regarding the use of hazardous substances in their specific work areas.
3. The location and availability of the written hazard communication program.
4. The program will be available from the Supervisor and Facility Safety Manager.
5. The physical and health hazards of the hazardous substances in use.
6. Methods and observation techniques used to determine the presence or release of hazardous substances in the work area.
7. The controls, work practices and personal protective equipment that are available for protection against possible exposure.
8. Emergency and first aid procedures to follow if employees are exposed to hazardous substances.
9. How to read labels and safety data sheets to obtain the appropriate hazard information.

### Hazardous Non-Routine Tasks

Infrequently, employees may be required to perform hazardous non-routine tasks. Prior to starting this work, each involved employee will be given information by his/her supervisor about hazards to which they may be exposed during such activity.

This information will include:

- The specific hazards.
- Protective/safety measures which must be utilized.

- The measures DMVA has taken to lessen the hazards, including special ventilation, respirators, the presence of another employee, emergency procedures, etc.

#### Informing Outside Contractors and Vendors

To ensure that outside contractors are not exposed to our hazardous materials, and to ensure the safety of the contractor's employees, it will be the responsibility of the Supervisor to provide outside contractors the following information:

- The hazardous substances under our control that they may be exposed to while at the work site.
- The precautions the contractor's employees must take to lessen the possibility of exposure.

We will obtain from outside contractors and vendors the name of any hazardous substances the contractor's employees may be using at a work site or bringing into our facility. The contractor must also supply a copy of the safety data sheet relevant to these materials.

#### Employee Rights under the Hazard Communication Standard

At any time, an employee has the right to:

- Access the SDS folder, and the Hazard Communication Program.
- Receive a copy of any environmental sampling data collected in the workplace.
- See their employment medical records upon request.



## **14 - Hazard Communication Employee Training Handbook**

It is important that all of our employees understand the information given about hazardous materials. If you have any questions regarding this, please ask your Supervisor or contact the DMVA Safety Director at: 720-250-1507.iyj6t

This material has been prepared to assist our employees in better understanding the hazardous materials with which they commonly work.

Chemicals can enter the body in a number of ways, including inhalation, skin contact or ingestion. The hazard of any substance is dependent on other variables such as age, sex and health of the employee as well as the concentration and duration of exposure. In other words, the same amount of a chemical may produce very different effects on two different people.

Chemicals are controlled in the workplace in such a manner so as to keep exposures below a level that may produce a reaction in very sensitive people. These levels are set by the government in the interest of minimizing harmful health effects of chemicals in the workplace. The Occupational Safety and Health Administration (OSHA) has established specific legally enforced permissible exposure limits (PEL) for hazardous substances in the workplace. The PEL indicates the concentration of airborne contaminants to which nearly all workers may be exposed to for eight hours a day, forty hours a week, over a working lifetime of 30 years, without adverse health effects.

This handbook briefly outlines the hazardous materials you may encounter in your work area. To simplify this task, we have broken down the chemicals used into special categories including:

1. Solvents
2. Adhesives
3. Paints & Dyes
4. Lubricants
5. Compressed Gases

In each category, the general characteristics of the material are presented along with the potential

health effects of both short-term and long-term overexposure. The use of personal protective equipment and material handling procedures under normal conditions are also included.

Additional information on the materials you may be exposed to can be found in the product's Safety Data Sheets (SDS). A complete folder of SDS is available to you at all times in the office. Your Supervisor also has copies of data sheets on commonly used items.

At any time, an employee has the right to:

- Access the SDS folder, and the Hazard Communication Program.
- Receive a copy of any chemical sampling data collected in the workplace.
- See their employment medical records upon request.

Personal protective equipment acts as a barrier to the routes of entry that a chemical may take into your body. As a barrier to chemicals that can be inhaled, there are a variety of respirators that may be used. There are two important things to remember about using respirators. The first is that a respirator only works when you wear it and use it properly. Second, and equally important, is that you must use the proper respirator for the specific hazard. Respirators designed for one type of chemical will not work for another. One last note about respirators is that no one is allowed to use any respirator without proper training. It is against the law to use a respirator without formal training in its proper use.

As a barrier to skin, we have gloves, facemasks, protective clothing, and head protection. A combination of these items may be necessary to provide the proper level of protection in your area.

As a barrier to the eyes, a variety of eye protection may be used. Goggles are recommended when pouring or handling chemicals which may splash the eyes. They are also recommended while spraying adhesives and paints. Protect your eyes; your vision is priceless and irreplaceable.

There is no real protection against swallowing materials except good work practices. Always label any container to prevent accidental drinking. Always thoroughly wash your hands with soap and water before eating, drinking or smoking. Keep any food and cigarettes away from the work area. Breads, fruits, and cigarettes can actually absorb chemicals from the air, to be inhaled or ingested later.

Prolonged exposure to excessive noise can cause permanent hearing damage. For those employees working in areas where excessive noise is generated, it is recommended that earplugs or ear muffs be used on a regular basis.

General first aid practices should be followed in the event of exposure to hazardous materials.

**EYES:** Flush eyes for at least 15 minutes with water.

**SKIN:** Wash the affected area with soap and water. If clothing is involved, remove and launder before putting back on. If caustic materials are spilled, remove clothing immediately and wash off of the body.

**INGESTION:** Do Not Induce Vomiting Unless the Label Indicates - transport the affected person to the medical clinic immediately for treatment or call 911. They will take the appropriate action.

**INHALATION:** Generally, removing the person to fresh air is adequate after short-term exposure to most vapors. If breathing difficulty develops, dial 911 and be prepared to administer CPR.

The provisions set forth by the Federal Hazard Communication Program dictate that all containers of hazardous materials must be properly labeled. All containers of hazardous materials used must have, at a minimum, the original label provided by the manufacturer or a locally prepared label describing its contents and hazards involved.

## 1. Solvents

### a. Halogenated Solvents

Characteristics: These products are usually clear, rapidly evaporating solvents containing chlorinates. They generally exhibit low flammability and have the consistency of water. They have a mild odor and are used in painting, stripping and other operations. Examples of chlorinated solvents are 1,1,1 trichloroethane, perchloroethylene, methylene chloride, and Freon products.

Health Hazards: Most solvents are irritating to the eyes and upper respiratory tract. Excessive, repeated exposure to the skin may produce dermatitis and drying of the skin due to the defatting properties of the solvents. Most are toxic and may be harmful or fatal if swallowed.

Inhalation of excessive vapors may produce narcotic effects by depressing the central nervous system. Typical symptoms of overexposure include dizziness, nausea, and light-headedness in some individuals. Excessive repeated exposure to some solvents may produce chronic health effects on organs such as lungs, liver, kidney, and nervous system. Some solvents have been shown to produce cancer in laboratory animals. Compressed Freon products may produce "freeze burns" on the skin and eyes when released. Very high concentrations of vapors may be dangerous to life and health.

Personal Protective Equipment/Handling: Solvents should be handled with respect. Avoid any unnecessary exposure. Never wash hands in solvents. Wash with soap and water after using solvents. Avoid excessive skin contact. Use chemically resistant gloves if necessary. Avoid inhalation of vapors when possible. Use air-supplying respirators in areas of high concentration. Avoid contact with eyes. Use chemical goggles for protection. Provide ventilation when possible. Avoid contact with strong oxidizers (acids) and reactive metals (magnesium, aluminum powders).

Emergency/Special: In the event of eye contact, flush eyes for 15 minutes with water. Wash skin with soap and water. Remove soaked clothing and wash before reuse. Do not allow wet clothing to remain in prolonged contact with skin. If ingested, do not induce vomiting, and seek medical attention immediately. Excessive inhalation should be treated by removing to fresh air. Apply artificial respiration if necessary. In the event of a major spill, evacuate the area and call the fire department. Avoid drainage into water sewage system.

b. Organic Solvents

Characteristics: Usually clear, rapidly evaporating petroleum or alcohol based solvents. These solvents are usually highly flammable and may or may not mix with water. They usually have an alcohol or oil-like odor and are used in a variety degreasing, painting and stripping

operations. Examples of organic solvents are toluene, xylene, methyl ethyl ketone (MEK), acetone, and alcohols.

Health Hazards: Organic solvents evaporate very quickly and pose a great fire hazard. Because of this rapid evaporation and the natural penetrating nature of solvents, these materials can enter the body very rapidly through inhalation into the respiratory tract, and absorption through the skin and eyes. Exposures of these types may, in some instances, lead to skin irritation, eye irritation, and respiratory irritation. Solvents eventually enter the blood stream, and in cases of overexposure, may produce a variety of effects including nausea, headache, and dizziness. In very high concentrations, they may pose immediate threat to life and health.

Chronic, repeated overexposure to organic solvents has been documented to produce adverse effects on the heart, lungs, central nervous system, liver, blood, and skin. They products may be harmful or fatal if swallowed. Some solvents may produce allergic reactions in sensitive people.

Personal Protective Equipment/Handling: It is important to minimize your exposure to solvents. For example, avoid skin contact by wearing non-porous gloves. Cotton or leather gloves should never be used while working with solvents because they absorb the solvent and allow it to reach your skin. If you can't wear gloves in your particular job, find other ways to avoid contact with the solvents. For example, use tongs to hold parts while cleaning them with solvents.

Never wash your hands in a solvent - use soap or a waterless hand cleaner. Barrier creams may provide additional protection. Use ventilation systems when possible and avoid breathing solvent vapors. If your job requires it, wear a respirator. Use air-supplying respirators in areas of high concentrations. Protect your eyes with safety glasses or goggles. Avoid strong oxidizing agents. Ground and bond all containers when pouring or transferring chemicals.

Emergency/Special: In the event of eye contact flush eyes for 15 minutes with water. Avoid prolonged skin contact with any solvents. Wash skin with soap and water. Remove soaked clothing and wash before reuse. If ingested, seek medical help immediately - do not induce vomiting. If inhaled, move victim to fresh air and, if necessary, give artificial respiration. In the

event of a spill, eliminate ignition sources, evacuate the area, and contact the fire department. Avoid drainage into water or sewage system.

## 2. Adhesives

Characteristics: Adhesives are typically made up of resins composed of two reaction components: 1) the curing agent (hardener, catalyst, accelerator, activator or setting agent) and 2) the resin. The cured resins are generally found in a paste form, and the uncured resins are viscous liquids or solids.

Health Hazards: Some of the liquid uncured resins are skin irritants, sensitizers, or both. Solvents are often the major component of the uncured resins. They are primary skin irritants as a result of their ability to dry and remove natural oils from the skin. They may enhance the sensitizing effects of the dermatitis producing components discussed above.

Personal Protective Equipment/Handling: Because of the varying effects of these products, it is important that personal protective equipment be used. Safety glasses should be worn at all times. Impervious gloves and clothing should be worn. Remove and wash soaked clothing before reuse. If overexposure through inhalation occurs, remove the affected person to fresh air. Adhesives should only be used in well-ventilated areas. Air-purifying respirators may be necessary if ventilation is inadequate.

Emergency/Special: Keep all stored material away from heat and flames. Adequate ventilation should be provided if any of the liquid components spill. In the event of eye contact, flush with water for 15 minutes. If skin contact occurs, wash the affected area with soap and water. Do not induce vomiting if ingestion occurs. Seek medical attention immediately.

## 3. Paints & Dyes

### a. Water Based Acrylics, Latex Paints

Characteristics: These products are available in a variety of colors for many uses including interior and exterior painting of equipment, vehicles and structures. They are usually

nonflammable, but some may burn under extreme situations. They are all water soluble, and may contain some alcohol or ammonia solvents. They are pigmented with a variety of compounds, and usually have a thick, soupy consistency with a mild ammonia odor.

Health Hazards: Water based paints are generally considered non-hazardous. Some may contain solvents that may produce mild eye and/or nose irritation. Some of these products may produce limited skin irritations in extremely sensitive people. These products may be harmful if swallowed. Under normal working conditions, these products are generally considered safe for use.

Personal Protective Equipment/Handling: General ventilation should be sufficient, with exhaust ventilation necessary in confined spaces. Goggles or similar means of eye protection should always be used in any painting process. Gloves and protective clothing are recommended for extremely sensitive individuals. Avoid unnecessary exposure or contact. Do not freeze these products. Wash hands/skin with soap and water after use. Store in cool, dry place.

Emergency/Special: In the event of eye contact, flush with water for 15 minutes. Consult with physician if irritation persists. If excessive inhalation occurs, remove victim to fresh air. In the event of ingestion, give water and contact physician immediately. Wash soaked clothes before reuse. Use only soap and water to wash skin.

b. Lacquers, Primers, Non-Water Based Paint

Characteristics: These products come in a variety of colors and are used in various coating applications including painting, priming, and lacquering. They may contain both organic and halogenated solvents, and most have pigments that contain heavy metals. Some of the solvents and pigments that may be contained include acetone, diisobutyl ketone, xylene, methylene chloride, lead, chromium, and zinc compounds. They are usually highly flammable.

Health Hazards: Because of the high concentration of solvents in these paints, the health hazards are much like those discussed in category 1a and 1b, Solvents. These products also contain heavy metal compounds such as lead, chromium, and zinc. These heavy metals may

build up in the blood producing chronic effects such as lead poisoning, which is characterized by weakness, difficulties in concentrating, and sleep problems.

Personal Protective Equipment/Handling: These products should be handled with care. Gloves are recommended for skin sensitive individuals. Goggles or safety glasses should be worn at all times. Mechanical ventilation and respirators may be required depending on size of operation and type of paint. Refer to specific SDS for information. Long sleeve shirts are recommended. Do not use thinners or other solvents to remove paints from hands. Use lava soap and water, followed by hand lotion to prevent drying of the skin. Remove and wash soaked clothing before reuse. Do not apply to hot surfaces. Avoid sparks or flames when using. Never smoke in areas where these paints are being applied. Avoid breathing vapors and paint mist. Ground and bond containers during transfers. Store in cool, dry place, preferably in a flammable liquid storage cabinet.

Emergency/Special: In the event of eye contact, flush with water for 15 minutes. Wash affected skin areas with soap and water. In the event of ingestion, do not induce vomiting; contact a physician immediately. Inhalation exposure should be treated by removing victim to fresh air. Apply artificial respiration if necessary. In the event of a spill, eliminate ignition sources, evacuate area, and contact fire department. Avoid drainage into water or sewage systems.

#### 4. Lubricants

##### a. Insoluble Oils and Greases

Characteristics: Commonly known as lubricating oils or greases, these oils are generally petroleum based hydrocarbon mixtures that contain no water. Appearance may range from clear light brown liquids to dark brown greases. Oils can be fire hazards because they are combustible. Examples of common oils and greases are multi weight motor oil, gear lubricating oils and cutting oils used in some machining operations.

Health Hazards: Petroleum based oils and greases are generally of low toxicity. Oil mists and vapors can be generated from sawing and metal forming operations. Inhalation of these mists may cause mild irritation of the nose and throat. The mist may also irritate the eyes.



Overexposure by inhalation, although rare, can cause headaches, nausea, or dizziness. The most common exposure to oils and greases is through the skin. Excessive or prolonged exposure of the skin to oils, especially used, dirty, or contaminated oils, may cause chronic skin conditions such as contact dermatitis. Ingestion of these substances may be harmful, depending on the purity of the oil, and the amount ingested

Personal Protective Equipment/Handling: Under most circumstances, inhalation overexposure to oil products is not common. If no local exhaust ventilation is available in operations that generate oil mist, a respirator with an organic vapor/particulate cartridge should be utilized. There is no substitute for safe work practices and good personal hygiene. Any practical way to reduce time and frequency of skin exposure to oils is recommended. Mild waterless hand cleaners are helpful in removing oil. **Never use solvents to clean the skin.** This will only increase the risk of unusual skin disorders and/or dermatitis. Oil resistant protective gloves should be used whenever feasible, and skin cream should be applied after washing to prevent drying. Safety glasses or goggles should be worn to prevent oil from splashing into the eyes.

Emergency/Special: Lubricating oils, like any other chemicals, should be handled with care. In the event of eye contact, flush with water for 15 minutes, and then seek medical attention. In case of accidental ingestion, do not induce vomiting, give milk or water, and seek medical attention. Any areas of skin contact should be washed thoroughly with mild soap and lukewarm water or waterless hand cleaner to reduce the risk of skin disorders.

b. Aerosol Spray Lubricants

Characteristics: Aerosol spray lubricants, unlike other oil based lubricants, generally contain a high percentage of halogenated solvents such as 1,1,1 trichloroethane. Examples of spray lubricants include gear oil and silicone spray.

Health Hazards: Refer to category 1A (Halogenated Solvents) for overall health hazards of aerosol spray lubricants.

Additional Information: Most of the aerosol sprays are usually extremely flammable because of

the propellants used (butane, propane, etc.). Phosgene gas, an extremely toxic gas, may be generated as a decomposition product of combustion if the spray lubricants come in contact with a flame (e.g., lighted cigarette, or welding operations) or a very hot metal. Phosgene gas can cause severe irritation to the nose, throat and eyes, even at extremely low concentrations. Exposure to moderate concentrations can cause a delayed onset of pulmonary edema (fluid in the lungs) that may progress to pneumonia.

Personal Protective Equipment/Handling: All solvent-based materials should be used in well-ventilated areas. Use a respirator if spraying moderate concentrations to avoid overexposure. Air-supplying respirators should be used if high concentrations are present. Avoid contact with the skin to reduce the risk of irritation and/or dermatitis. Use chemically resistant gloves for prolonged or repeated contact. Always wear safety glasses or goggles to prevent eye contact with the aerosol spray.

Emergency/Special: In the event of eye contact, flush with water for 15 minutes. Wash skin with soap and water. If ingested, do not induce vomiting and seek immediate medical attention. In case of overexposure by inhalation, remove the person to fresh air, seek medical attention, and apply artificial respiration if necessary. Containers should be stored in a clean, dry area. Avoid storing at temperatures above 80 degrees F. to reduce the risk of the aerosol containers bursting or exploding.

## 5. Compressed Gases

Characteristics: These gases are typically stored in cylinders. The gases are frequently stored in a liquid state and are utilized in a variety of applications such as welding (acetylene), oxidation (oxygen), fuel delivery (propane, butane), cryogenics (liquid helium, oxygen, nitrogen).

Health Hazards: Depending on the specific gas contained within the cylinder, the associated hazards exhibited can be similar to those of the substances described in previous categories. For example, anhydrous ammonia gas falls within the corrosive/caustic hazard category.

Asphyxiation is the primary hazard associated with compressed gases since they can displace

oxygen if there is a sudden and quick release, particularly in confined work areas. Compressed gases, either in liquid or vapor form, are cryogenic and will cause severe frostbite and burns if allowed to contact the skin.

Personal Protective Equipment/Handling: Self-contained or airline breathing apparatus should be worn in oxygen-deficient atmospheres. General ventilation is usually adequate to maintain sufficient oxygen level. Avoid skin contact with liquid gases. Avoid smoking or other sources of ignition around oxidizers and fuel gases. Compressed gas cylinders should always be handled with extreme care as serious accidents may result from the misuse, abuse or mishandling of cylinders.

Emergency/Special: In the event of a gas leak, evacuate all personnel from the danger area. Shut off the leak if it does not pose a grave risk. Ventilate the area of the leak and move the leaking container to a well-ventilated area. If inhalation overexposure occurs, remove victim to fresh air and give artificial respiration if necessary. If liquid contacts skin, flood the affected area with warm water and seek medical attention.

## **15 - Hazard Identification and Evaluation**

To assist in the identification and correction of hazards, DMVA has developed the following procedures. These procedures are representative only and are not exhaustive of all the measures and methods that will be implemented to guard against injury from recognized and potential hazards in the workplace. As new hazards are identified or improved work procedures developed, they will be promptly incorporated into our Safety Manual. The following methods will be utilized to identify hazards in the workplace:

- Loss analysis of accident trends
- Accident investigation
- Employee observation
- Employee suggestions
- Regulatory requirements
- Outside agencies such as the fire department and insurance carriers
- Periodic safety inspections

### Loss Analysis

Periodic loss analyses will be conducted by the Safety Director. These will help identify areas of concern and potential job hazards. The results of these analyses will be communicated to management, supervision, and employees through safety meetings and other appropriate means.

### Accident Investigations

All accidents and injuries will be investigated in accordance with the guidelines contained in this program. Accident investigations will focus on all causal factors and corrective action including the identification and correction of hazards that may have contributed to the accident.

### Employee Observation

Superintendents and foremen shall be continually observing employees for unsafe actions and taking

corrective action as necessary.

### Employee Suggestions

Employees are encouraged to report any hazard they observe to their supervisor. No employee of DMVA is to ever be disciplined or discharged for reporting any workplace hazard or unsafe condition. However, employees who do NOT report potential hazards or unsafe conditions that they are aware of will be subject to disciplinary action.

### Regulatory Requirements

All industries are subject to government regulations relating to safety. Many of these regulations are specific to our type of operations. Copies of pertinent regulations can be obtained from the Safety Director.

### Outside Agencies

Several organizations will assist us in identifying hazards in our workplace. These include state and federal safety officers from other organizations, insurance carrier safety and health consultants, the fire department, and OSHA consultation.

### Periodic Safety Inspections

Periodic safety inspections ensure that physical and mechanical hazards are under control and identify situations that may become potentially hazardous. Inspections shall include a review of the work habits of employees in all work areas. These inspections will be conducted by the Supervisor, Manager, Safety Director or other designated individual.

Periodic safety inspections will be conducted:

- When new substances, process, procedures or equipment are used.
- When new or previously unrecognized hazards are identified.
- Periodically by the Supervisor.

- Periodically by the Safety Director.

These inspections will focus on both unsafe employee actions as well as unsafe conditions. The following is a partial list of items to be checked.

- The proper use, condition, maintenance and grounding of all electrically operated equipment.
- The proper use, condition, and maintenance of safeguards for all power-driven equipment.
- Compliance with the Code of Safe Practices.
- Housekeeping and personal protective equipment.
- Hazardous materials.
- Proper material storage.
- Provision of first aid equipment and emergency medical services.

Any and all hazards identified will be corrected as soon as practical in accordance with the DMVA hazard correction policy.

If imminent or life threatening hazards are identified, which cannot be immediately corrected, all employees must be removed from the area, except those with special training required to correct the hazard, who will be provided necessary safeguards.

#### Documentation of Inspections

Safety inspections will be documented to include the following:

- Date on which the inspection was performed.
- The name and title of person who performed the inspection.
- Any hazardous conditions noted or discovered and the steps or procedures taken to correct them.
- Signature of the person who performed the inspection.

One copy of the completed form should be sent to the Safety Director. All reports shall be kept on file

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for a minimum of three (3) years.

## **16 - Hazard Correction**

The following procedures will be used to evaluate, prioritize and correct identified safety hazards. Hazards will be corrected in order of priority: the most serious hazards will be corrected first.

### Hazard Evaluation

Factors that will be considered when evaluating hazards include:

- Potential severity - The potential for serious injury, illness or fatality
- Likelihood of exposure - The probability of the employee coming into contact with the hazard
- Frequency of exposure - How often employees come into contact with the hazard
- Number of employees exposed
- Possible corrective actions - What can be done to minimize or eliminate the hazard
- Time necessary to correct - The time necessary to minimize or eliminate the hazard

### Techniques for Correcting Hazards

1. Engineering Controls: Could include machine guarding, ventilation, noise reduction at the source, and provision of material handling equipment. These are the first and preferred methods of control.
2. Administrative Controls: The next most desirable method would include rotation of employees or limiting exposure time.
3. Personal Protective Equipment: Includes back support belts, hard toed footwear, hearing protection, respirators and safety glasses. These are often the least effective controls for hazards and should be relied upon only when other controls are impractical.

### Documentation of Corrective Action

All corrective action taken to mitigate hazards should be documented. Depending on the circumstances, one of the following forms should be used:



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- Safety Contact Report
- Safety Meeting Report
- Memo or letter
- Safety inspection form

All hazards noted on safety inspections will be rechecked on each subsequent inspection and notations made as to their status.

## **17 - Emergency Medical Services & First Aid**

DMVA will ensure the availability of emergency medical services for its employees at all times. We will also ensure the availability of a suitable number of appropriately trained persons to render first aid.

Supervisors will maintain a list of trained individuals and take steps to provide training for those that desire it.

### First-Aid Kits

Every work site shall have access to at least one first-aid kit in a weatherproof container. The first-aid kit will be inspected regularly to ensure that it is well stocked, in sanitary condition, and any used items are promptly replaced. The contents of the first-aid kit shall be arranged to be quickly found and remain sanitary. First-aid dressings shall be sterile and in individually sealed packages. The following minimum first-aid supplies shall be kept:

Adhesive dressings

Adhesive tape rolls, 1-inch wide

Eye dressing packet

2-inch gauze bandage roll or compress

4-inch gauze bandage roll or compress

Sterile gauze pads, 2-inch square

Sterile gauze pads, 4-inch square

Sterile surgical pads suitable for pressure dressings

Triangular bandages

Safety pins

Tweezers and scissors

First-aid textbook, manual or equivalent

### First Aid

The designated first aid person on each site will render appropriate first aid for injuries and illnesses. Proper equipment for the prompt transportation of the injured or ill person to a physician or hospital where emergency care is provided, or an effective communication system for contacting hospitals or other emergency medical facilities, physicians, ambulance and fire services, shall also be provided. The telephone numbers of the following emergency services in the area shall be posted near the job telephone, or otherwise made available to the employees where no job site telephone exists:

1. A DMVA authorized physician or medical clinic, and at least one alternate if available.
2. Hospitals.
3. Ambulance services.
4. Fire-protection services.

Prior to the commencement of work at any site, the Supervisor or Manager shall locate the nearest preferred medical facility and establish that transportation or communication methods are available in the event of an employee injury.

Each employee shall be informed of the procedures to follow in case of injury or illness through our employee safety orientation program, Code of Safe Practices, and safety meetings.

Where the eyes or body of any person may be exposed to injurious or corrosive materials, suitable facilities for drenching the body or flushing the eyes with clean water shall be conspicuously and readily accessible.

### Accident Procedures

These procedures are to be followed in the event of an employee injury in the course of employment.

1. **For severe accidents call 911 and request the Paramedics.**
2. **Employees must report all work related injuries to their Supervisor immediately. Even if they do not feel that it requires medical attention.** Failure to do so may result in a delay of Workers'

Compensation benefits and disciplinary action.

3. The Supervisor, employee, and first aid person, should determine whether or not outside medical attention is needed. When uncertainty exists on the part of any individual, the employee should be sent for professional medical care.
4. If medical attention is not desired or the employee refuses treatment, you must still fill out an accident report in case complications arise later.
5. In all cases, if the employee cannot transport himself or herself for any reason, transportation should be provided.
6. In the event of a serious accident involving hospitalization for more than 24 hours, amputation, permanent disfigurement, loss of consciousness or death, phone notification should be made with the DMVA Safety Office at 720-250-1507 and Human Resource Office at 720-250- 1520

## **18 - Fall Protection**

DMVA has the following requirements for fall protection at all of our worksites.

### Fall Protection is Required

When working where there is a hazard of falling more than 7 ½ feet from the perimeter of a structure, unprotected sides and edges, leading edges, through shaft ways and openings, sloped roof surfaces steeper than 7:12, or other sloped surfaces steeper than 40 degrees not otherwise adequately protected. Fall protection is also required when working in boom lifts.

### Fall Protection Types

One of the following four types of fall protection systems will be used when our employees are exposed to fall hazards in excess of 7 ½ feet:

1. Standard guardrails, cables or floor hole covers
2. Personal fall arrest system
3. Positioning devices
4. Fall restraint systems

### Standard Guardrails, Safety Cables, or Covers

These are the easiest and most cost effective methods of providing fall protection and have a very high success rate. Standard guardrails, safety cables, floor hole and sky light covers are our preferred means of fall protection on job sites. The following rules will be followed when using them:

1. Railings shall be constructed of wood, or in an equally substantial manner from other materials, and shall consist of a top rail not less than 42 inches or more than 45 inches in height measured from the upper surface of the top rail to the floor, platform, runway or ramp level and a mid rail. The mid rail shall be halfway between the top rail and the floor, platform, runway or ramp. "Selected lumber" free from damage that affects its strength, shall be used.
2. Wooden posts shall be not less than 2 inches by 4 inches in cross section, spaced at 8-foot or closer

intervals.

3. Wooden top railings shall be smooth and of 2-inch by 4-inch or larger material. Double, 1-inch by 4-inch members may be used for this purpose, provided that one member is fastened in a flat position on top of the posts and the other fastened in an edge-up position to the inside of the posts and the side of the top member. Mid rails shall be of at least 1-inch by 6-inch material.
4. The rails shall be placed on the side of the post that will afford the greatest support and protection. All guardrails, including their connections and anchorage, shall be capable of withstanding a load of 13 pounds per linear foot applied either horizontally or vertically downward at the top rail.
5. Railings receiving heavy stresses from employees trucking or handling materials shall be provided additional strength by the use of heavier stock, closer spacing of posts, bracing, or by other means.
6. Floor, roof and skylight openings shall be guarded by a standard railing and toe boards or cover. Covering shall be capable of safely supporting the greater of the weight of a 200-pound person or the weight of worker(s) and material(s) placed thereon.
7. Coverings shall be secured in place to prevent accidental removal or displacement, and shall bear a pressure sensitized, painted, or stenciled sign with legible letters not less than one inch high, stating: "Opening--Do Not Remove." Markings of chalk or keel shall not be used.
8. Ladder way floor openings or platforms shall be guarded by standard railings with standard toe boards on all exposed sides, except at the entrance to the opening, with the passage through the railing either provided with a swinging gate or so offset that a person cannot walk directly into the opening.
9. Floor holes, into which persons can accidentally walk, shall be guarded by either a standard railing with standard toe boards on all exposed sides, or a floor hole cover of standard strength and construction that is secured against accidental displacement. While the cover is not in place, the floor hole shall be protected by standard railings.
10. Wall openings, from which there is a drop of more than 4 feet, and the bottom of the opening is less than 3 feet above the working surface, shall be guarded with either a standard rail or intermediate rail or both.

11. An extension platform outside a wall opening onto which materials can be hoisted for handling shall have side rails or equivalent guards of standard specifications. One side of an extension platform may have removable railings in order to facilitate handling materials.
12. Wall opening protection barriers shall be of such construction and mounting that, when in place at the opening, the barrier is capable of withstanding a load of at least 200 pounds applied in any direction (except upward).
13. A full body harness and lanyard are required when using boom lifts.

#### 14. Personal Fall Arrest Systems

Personal fall arrest systems consist of a full body harness and a shock-absorbing lanyard attached to suitable anchorage. They are also an effective means of preventing fall accidents. The system does not actually stop you from falling, but catches you and safely stops you from hitting the level below. Fall arrest systems will be our preferred means of protection when standard guardrails, safety cables, or covers are not practical. The following rules, in addition to the manufacturer's requirements and OSHA regulations, will be observed:

1. Ropes and straps (webbing) used in lanyards, lifelines, and strength components of body harnesses shall be made from synthetic fibers except when they are used in conjunction with hot work where the lanyard may be exposed to damage from heat or flame.
2. Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds per employee attached, or shall be designed, installed, and used as part of a complete personal fall arrest system which maintains a safety factor of at least two; and under the supervision of a qualified person.
3. The attachment point of the body belt shall be located in the center of the wearer's back. The attachment point of the body harness shall be located in the center of the wearer's back near shoulder level, or above the wearer's head.
4. Where practical, the anchor end of the lanyard shall be secured at a level not lower than the

employee's waist, limiting the fall distance to a maximum of 4 feet.

5. Harnesses, lanyards, and other components shall be used only for employee protection as part of a personal fall arrest system and not to hoist materials.
6. Personal fall arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.
7. Supervisors shall provide for prompt rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves.
8. Personal fall arrest systems shall be inspected prior to each use for wear, damage and other deterioration, and defective components shall be removed from service.
9. Any lanyard, safety harness, or drop line subjected to in-service loading, as distinguished from static load testing, shall be immediately removed from service and shall not be used again for employee safeguarding.
10. Personal fall arrest systems shall not be attached to guardrails, unless the guardrail is capable of safely supporting the load.
11. Each personal fall arrest system shall be inspected not less than twice annually by a competent person in accordance with the manufacturer's recommendations. The date of each inspection shall be documented.
12. Personal fall arrest systems will be rigged such that an employee can neither free fall more than 4 feet, nor contact any lower level.
13. Personal fall arrest systems will bring an employee to a complete stop. They will also limit maximum deceleration distance an employee travels to 3.5 feet and have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of 6 feet, or the free fall distance permitted by the system, whichever is less.

#### Positioning Device Systems

Positioning device systems are designed to allow employees to work with both hands free at elevated



locations. By their very nature, they provide some level of fall protection. They are not as effective as railings or fall arrest systems. Positioning device systems may be used together with a fall arrest system for greater safety. Their use shall conform to the following provisions:

1. Positioning devices shall be rigged such that an employee cannot free fall more than 2 feet.
2. Positioning device systems shall be inspected prior to each use for wear, damage, and other deterioration and defective components shall be removed from service.
3. Body belts, harnesses, and components shall be used only for employee protection (as part of a personal fall arrest system or positioning device system) and not to hoist materials.
4. The use of non-locking snap hooks is prohibited.
5. Anchorage points for positioning device systems shall be capable of supporting two times the intended load or 3,000 pounds, whichever is greater.

#### Personal Fall Restraint

Fall restraint systems are designed to prevent the wearer from reaching the edge or danger area and thus prevent them from falling. Body belts or harnesses may be used for personal fall restraint.

1. Body belts shall be at least one and five-eighths (1 5/8) inches wide.
2. Anchorage points used for fall restraint shall be capable of supporting 4 times the intended load.
3. Restraint protection shall be rigged to allow the movement of employees only as far as the sides of the working level or working area.

Note: All safety belts, harnesses and lanyards placed in service or purchased on or before February 1, 1997, shall be labeled as meeting the requirements contained in ANSI A10.14-1975, Requirements for Safety Belts, Harnesses, Lanyards, Lifelines and Drop Lines for Construction and Industrial Use.

All personal fall arrest, personal fall restraint and positioning device systems purchased or placed in service after February 1, 1997, shall be labeled as meeting the requirements contained in ANSI A10.14-1991 American National Standard for Construction and Demolition Use, or ANSI Z359.1-1992 American National Standard Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components.

## **19 - Electrical Safety & Lock-out / Tag-out Program**

DMVA has developed the following procedures to protect our employees and reduce the risk of accidents. We will also conduct a periodic review of electrical safety, energy control procedures, and lock-out / tag-out, at least annually, to ensure that the procedure and the requirements of this section are being followed.

This procedure is binding upon all employees. All employees will be instructed in the significance of electrical safety, energy control procedures, and lock-out / tag-out. Each new employee shall be instructed by their Supervisor in the purpose and use of these procedures.

### All Equipment and Installations

1. Only trained, qualified, and authorized employees will be allowed to make electrical repairs or work on electrical equipment or installations.
2. All electrical equipment and systems shall be treated as energized until tested or otherwise proven to be de-energized.
3. All energized equipment and installations will be de-energized prior to the commencement of any work. If the equipment or installation must be energized for test or other purposes, special precautions will be taken to protect against the hazards of electric shock.
4. All equipment shall be locked out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy-isolating device bearing a lock.
5. Safety grounds shall always be used where there is a danger of shock from back feeding or other hazards.
6. Polyester clothing or other flammable types of clothing shall not be worn near electrical circuits. Cotton clothing is much less likely to ignite from arc blast. Employees working on live circuits shall be provided fire resistant clothing.
7. Suitable eye protection must be worn at all times while working on electrical equipment.

8. Always exercise caution when energizing electrical equipment or installations. Take steps to protect employees from arc blast and exploding equipment in the event of a fault.
9. All power tools will be grounded or double insulated. Tools with defective cords or wiring shall not be used.
10. Suitable temporary barriers or barricades shall be installed when access to open enclosures containing exposed energized equipment is not under the control of an authorized person.

#### Energized Equipment or Systems

Work shall not be performed on exposed energized parts of equipment or systems until the following conditions are met:

1. Responsible supervision has determined that the work is to be performed while the equipment or systems are energized.
2. Involved personnel have received instructions on the work techniques and hazards involved in working on energized equipment and appropriate equipment to perform the job has been provided.
3. Suitable personal protective equipment has been provided and is used. Suitable insulated gloves shall be worn for voltages in excess of 300 volts, nominal.
4. Suitable eye protection, including face shield and safety glasses or goggles, has been provided and is used.
5. Fire resistant clothing such as Nomex suits is worn.
6. Where required, suitable barriers, barricades, tags, or signs are in place for personnel protection.

After the required work on an energized system or equipment has been completed, an authorized person shall be responsible for:

1. Removing from the work area any personnel and protective equipment.
2. Reinstalling all permanent barriers or covers.

#### De-energized Equipment or Systems

A qualified person shall be responsible for completing the following **before** working on de-energized electrical equipment or systems, unless the equipment is physically removed from the wiring system:

1. Notifying all involved personnel.
2. Locking the disconnecting means in the "open" position with the use of lockable devices, such as padlocks, combination locks or disconnecting of the conductor(s) or other positive methods or procedures which will effectively prevent unexpected or inadvertent energizing of a designated circuit, equipment or appliance.
3. Tagging the disconnecting means with suitable accident prevention tags.
4. Effectively blocking the operation or dissipating the energy of all stored energy devices which present a hazard, such as capacitors or pneumatic, spring-loaded and like mechanisms. This may require the installation of safety grounds.
5. Testing the equipment to ensure it is de-energized.

#### Energizing (or Re-energizing) Equipment or Systems

A qualified and authorized person shall be responsible for completing the following before energizing equipment or systems that have been de-energized:

1. Determining that all persons are clear from hazards which might result from the equipment or systems being energized including arc blast or explosions caused by unexpected faults.
2. Removing locking devices and tags. Only the employee who placed them may remove locking devices and tags. Locking devices and tags shall be removed upon completion of the work and after the installation of the protective guards and/or safety interlock systems.

#### Accident Prevention Tags

Suitable accident prevention tags shall be used to control a specific hazard. Such tags shall provide the following minimum information:

1. Reason for placing tag.

2. Name of person placing the tag and how that person may be contacted.
3. Date tag was placed.

### Lock-out / Tag-out

Machinery or equipment capable of **movement** shall be stopped and the power source de-energized or disengaged, and locked out. If necessary, the moveable parts shall be mechanically blocked or secured to prevent inadvertent movement during cleaning, servicing or adjusting operations unless the machinery or equipment must be capable of movement during this period in order to perform the specific task. If so, the hazard of movement shall be minimized.

Equipment or power driven machines equipped with lockable controls, or readily adaptable to lockable controls, shall be locked out or positively sealed in the "off" position during repair work and setting-up operations. In all cases, accident prevention signs and/or tags shall be placed on the controls of the equipment or machines during repair work.

DMVA will provide a sufficient number of accident prevention signs or tags and padlocks, seals or other similarly effective means that may be required by any reasonably foreseeable repair.

### Sequence of Lockout Procedure

1. Notify all affected employees that a lockout is required and the reason therefore.
2. If the equipment is operating, shut it down by the normal stopping procedure (such as: depress stop button, open toggle switch).
3. Operate the switch, valve, or other energy isolating devices so that the energy source(s) (electrical, mechanical, hydraulic, other) is disconnected or isolated from the equipment.
4. Stored energy, such as that in capacitors, springs, elevated machine members, rotating fly wheels, hydraulic systems, and air, gas, steam or water pressure, must also be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down.
5. Lockout energy isolating devices with an assigned individual lock.
6. After ensuring that no personnel are exposed and as a check on having disconnected the energy

sources, operate the push button or other normal operating controls to make certain the equipment will not operate. CAUTION: Return operating controls to neutral position after the test.

### Procedure Involving More Than One Person

If more than one individual is required to lock out equipment, each shall place his/her own personal lock on the energy isolating device(s). One designated individual of a work crew or a Supervisor, with the knowledge of the crew, may lock out equipment for the whole crew. In such cases, it may be the responsibility of the individual to carry out all steps of the lockout procedure and inform the crew when it is safe to work on the equipment. Additionally, the designated individual shall not remove a crew lock until it has been verified that all individuals are clear.

### Testing Equipment during Lockout

In many maintenance and repair operations, machinery may need to be tested, and for that purpose energized, before additional maintenance work can be performed. This procedure must be followed:

1. Clear all personnel to safety.
2. Clear away tools and materials from equipment.
3. Remove lockout devices and re-energize systems, following the established safe procedure.
4. Proceed with tryout or test.
5. Neutralize all energy sources once again, purge all systems, and lockout prior to continuing work.

Equipment design and performance limitations may dictate that effective alternative worker protection be provided when the established lock-out procedure is not feasible.

### Restoring Equipment to Service

After the work is completed and the equipment is ready to be returned to normal operation, this procedure must be followed:

1. Remove all non-essential items.

2. See that all equipment components are operationally intact, including guards and safety devices.  
Repair or replace defective guards before removing lockouts.
3. Remove each lockout device using the correct removal sequence.
4. Make a visual check before restoring energy to ensure that everyone is physically clear of the equipment.



## 20 - Confined Space Operations

Occasionally in our work, we may encounter confined spaces. Confined space work requires special safety precautions to ensure that employees are not overcome by dangerous air contaminants or oxygen deficiency. In some cases, there may be fire or explosion hazards in confined spaces that do not exist in open areas. Many workers have been killed or seriously injured in confined spaces. To avoid this, DMVA employees must adhere to the following rules. This section prescribes **minimum** standards for preventing employee exposure to dangerous air contamination and/or oxygen deficiency in confined spaces. In some cases, extra precautions may be necessary. As always, if you are unsure, ask for assistance.

### Definitions

A **confined space** has the following properties:

1. Existing ventilation is insufficient to remove dangerous air contamination and/or oxygen deficiency that may exist or develop.
2. Ready access or egress for the removal of a suddenly disabled employee is difficult due to the location and/or size of the opening(s).
3. The area is not designed for continuous human occupancy.

**Dangerous air contamination** means an atmosphere presenting a threat of causing death, injury, acute illness, or disablement due to the presence of flammable and/or explosive, toxic, or otherwise injurious or incapacitating substances.

Dangerous air contamination due to the **flammability** of a gas or vapor is defined as an atmosphere containing the gas or vapor at a concentration greater than 20 percent of its lower explosive (lower flammable) limit.

Dangerous air contamination due to a **combustible particulate** is defined as a concentration greater than 20 percent of the minimum explosive concentration of the particulate.

Dangerous air contamination due to the **toxicity** of a substance is defined as the atmospheric concentration immediately hazardous to life or health. This definition of dangerous air contamination due to the toxicity of a substance does not preclude the requirement to control harmful exposures to toxic substances at concentrations less than those immediately hazardous to life or health.

**Oxygen deficiency.** An atmosphere containing oxygen at a concentration of less than 19.5 percent by volume.

**Oxygen rich.** An atmosphere containing oxygen at a concentration of more than 22 percent by volume. This creates additional fire hazards.

Typical Confined Spaces:

- Vaults
- Pits
- Tubs
- Vats
- Ducts
- Boilers
- Silos
- Sewers
- Compartments

Prior to Confined Space Entry:

1. Written, understandable operating and rescue procedures shall be developed and shall be provided to affected employees. The operating procedures shall include provision for the surveillance of the surrounding area to avoid hazards such as drifting vapors from tanks, piping and sewers.
2. All employees, including standby persons if needed, will be trained in the operating and rescue procedures, including instructions as to the hazards they may encounter.
3. Any lines, pipes or hoses which may convey flammable, injurious, or incapacitating substances into

the space shall be disconnected, blinded, or blocked off by other positive means to prevent the development of dangerous air contamination and/or oxygen deficiency within the space. The disconnection or blind shall be so located or done in such a manner that inadvertent reconnection of the line or removal of the blind are effectively prevented.

4. The space shall be emptied, flushed, or otherwise purged of flammable, injurious or incapacitating substances to the extent feasible.
5. The air shall be tested with an appropriate device or method to determine whether dangerous air contamination and/or an oxygen deficiency exists and a written record of such testing results shall be made and kept at the work site for the duration of the work. Affected employees and/or their representative shall be afforded an opportunity to review and record the testing results.
6. Where interconnected spaces are blinded off as a unit, each space shall be tested and the results recorded. The most hazardous condition found shall govern the entry procedures to be followed.

#### Confined Space Entry if Tests Show No Hazard

If dangerous air contamination and/or oxygen deficiency does not exist within the space, as demonstrated by tests performed in accordance with the pre-entry procedures, entry into and work within the space may proceed subject to the following provisions:

1. Air testing, in accordance with the pre-entry procedures, shall be conducted with sufficient frequency to ensure that the development of dangerous air contamination and/or oxygen deficiency does not occur during the performance of any operation.
2. Work stops, employees exit, and additional precautions are taken if dangerous air contamination and/or oxygen deficiency does develop.

#### Confined Space Entry if Tests Show Hazards are Present or are Likely to Develop

Where the existence of dangerous air contamination and/or oxygen deficiency is demonstrated by tests performed in accordance with the pre-entry procedures or if the development of dangerous air contamination and/or an oxygen deficiency is imminent, the following requirements shall also apply:

1. Existing ventilation shall be augmented by appropriate means.
2. When additional ventilation has removed dangerous air contamination and/or oxygen deficiency as demonstrated by additional testing conducted (and recorded), entry into and work within the space may proceed.
3. No source of ignition shall be introduced until the implementation of appropriate provisions of this section have ensured that dangerous air contamination due to flammable and/or explosive substances does not exist.
4. Whenever oxygen-consuming equipment such as welding torches, furnaces and the like are to be used, measures shall be taken to ensure adequate combustion air and exhaust gas venting.
5. To the extent feasible, provision shall be made to permit ready entry and exit.
  6. Where it is not feasible to provide for ready exit from spaces equipped with automatic fire suppression systems employing harmful design concentrations of toxic or oxygen-displacing gases, or total foam flooding, such systems shall be deactivated. Where it is not practical or safe to deactivate such systems, the use of respiratory protective equipment, such as SCBA, shall apply during entry into and work within such spaces.

Confined Spaces Where Dangerous Air Contamination Cannot be removed by Ventilation

It is the policy of DMVA to only work in a confined space if it can be made safe by the means listed above. We will not work in confined spaces where there is an ongoing hazard of air contamination or oxygen deficiency. These operations require extra measures and precautions beyond our immediate ability to perform. If such work does become necessary, a separate program will be developed.

## **21 - Respiratory Protection**

Occasionally our work may necessitate the use of respirators to protect against air contaminants. Due to the limitations of respirators and their uncomfortable nature, DMVA will make every effort to provide other means of protection, such as local exhaust ventilation, or substitution of less hazardous material, prior to requiring employees to wear them.

When it is clearly impractical to remove harmful dusts, fumes, mists, vapors, or gases at their source, or where emergency protection against occasional and/or relatively brief exposure is needed, DMVA will provide, and the employee exposed to such hazard shall use, approved respiratory equipment.

Whenever respirators are required to be used to control harmful exposures, only respiratory equipment approved for that purpose shall be used and such equipment shall be approved by the National Institute for Occupational Safety and Health (NIOSH). Only parts approved for the specific respirator system shall be used for replacement.

### General Respiratory Protection Guidelines:

1. Atmospheric contamination will be prevented wherever feasible through engineering controls such as enclosure or confinement of the operation, general and local exhaust ventilation, or substitution of less toxic materials. When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used.
2. DMVA shall identify and evaluate the respiratory hazard(s) in the workplace; this evaluation shall include a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form. Where we cannot identify or reasonably estimate the employee exposure, the atmosphere shall be considered to be immediately dangerous to life or health (IDLH).
3. Respirators shall be provided when such equipment is necessary to protect the health of the employee.
4. Only NIOSH-certified respirators shall be used. The respirator shall be used in compliance with the conditions of its certification.

5. DMVA will provide respirators that are applicable and suitable for the purpose intended. We shall select and provide an appropriate respirator based on the respiratory hazard(s) to which the worker is exposed and workplace and user factors that affect respirator performance and reliability.
6. Respirators shall be selected from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.
7. A Program Administrator will be appointed who is qualified by appropriate training or experience that is commensurate with the complexity of the program to administer or oversee the respiratory protection program and conduct the required evaluations of program effectiveness.
8. DMVA will provide respirators, training, and medical evaluations at no cost to the employee.
9. DMVA will provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace. We may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.
10. DMVA will ensure that employees using a tight-fitting face piece respirator pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT).
11. DMVA will establish and implement procedures for the proper use of respirators. These requirements include prohibiting conditions that may result in face piece seal leakage, preventing employees from removing respirators in hazardous environments, taking actions to ensure continued effective respirator operation throughout the work shift, and establishing procedures for the use of respirators in IDLH atmospheres.
12. We shall provide each respirator user with a respirator that is clean, sanitary, and in good working order. The Supervisor or Manager shall ensure that respirators are cleaned and disinfected.
13. All filters, cartridges and canisters used in the workplace must be legibly labeled and color-coded with the NIOSH approval label that must not be removed.
14. Training and information will be provided to employees who are required to use respirators. The training will be comprehensive, understandable, and recur annually or more often if necessary.

15. Supervisors shall conduct evaluations of the workplace to ensure that the written respiratory protection program is being properly implemented, and to consult with employees to ensure that they are using the respirators properly.
16. Written information regarding medical evaluations, fit testing, and the respirator program shall be retained indefinitely. This information will facilitate employee involvement in the respirator program, assist us in auditing the adequacy of the program, and provide a record for compliance determinations by OSHA.
17. Where respirator use is not required by a particular standard or hazard, DMVA may provide respirators at the request of employees or permit employees to use their own respirators, if we determine that such respirator use will not in itself create a hazard. If voluntary respirator use is permissible, we shall provide the respirator users with the information contained in Appendix D of section 5144 8CCR. ("Information for Employees Using Respirators When Not Required Under the Standard.")

#### Respirator Selection Requirements

The proper respirator for the job and hazard shall be selected. This selection will be made in accordance with OSHA or ANSI Z88.2-1980 standards. The correct respirator shall be specified for each job. The individual issuing them shall be adequately instructed to insure that the correct respirator is used.

The manufacturers' recommendations and literature will also be reviewed to determine if the respirator provides protection against the expected contaminants. For instance, dust masks do not provide protection against gasses or vapors.

The Program Administrator or another qualified individual shall review and approve all breathing air compressors and installations for compliance with appropriate OSHA regulations and safety procedures prior to use.

#### **Respirators for IDLH atmospheres.**

We shall provide the following respirators for employee use in IDLH atmospheres:

- A full face piece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes, or
- A combination full face piece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.
- Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.
- All oxygen-deficient atmospheres shall be considered IDLH.

**Respirators for atmospheres that are not IDLH.**

DMVA shall provide a respirator that is adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations. The respirator selected shall be appropriate for the chemical state and physical form of the contaminant.

**For protection against gases and vapors:**

- An atmosphere-supplying respirator, or
- An air-purifying respirator, provided that the respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant; or if there is no ESLI appropriate for conditions in the workplace, we will implement a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life.

**For protection against particulates:**

- An atmosphere-supplying respirator; or
- An air-purifying respirator equipped with a filter certified by NIOSH under 30 CFR part 11 as a high efficiency particulate air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH under 42 CFR part 84; or
- For contaminants consisting primarily of particles with mass median aerodynamic diameters



(MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.

### Medical Evaluation Procedures

1. Employees shall not be assigned to tasks requiring the use of respirators unless it has been determined that they are physically able to perform the work while using the required respiratory equipment.
2. DMVA shall identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations.
3. The medical evaluation shall include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.
4. Medical questionnaires and examinations shall be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee.
5. The employee shall have an opportunity to discuss the examination results with the PLHCP.
6. The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:
  - The type and weight of the respirator to be used by the employee;
  - The duration and frequency of respirator use (including use for rescue and escape);
  - The expected physical work effort;
  - Additional protective clothing and equipment to be worn; and
  - Temperature and humidity extremes that may be encountered.
7. DMVA shall provide the PLHCP with a copy of this written respiratory protection program and a copy of the OSHA regulations if they do not already have them.
8. In determining the employee's ability to use a respirator, DMVA shall obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation shall provide only the following information:

- Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator;
  - The need, if any, for follow-up medical evaluations; and
  - A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.
9. If the respirator is a negative pressure respirator and the PLHCP finds a medical condition that may place the employee's health at increased risk if the respirator is used, DMVA shall provide a powered air purifying respirator (PAPR) if the PLHCP's medical evaluation finds that the employee can use such a respirator; if a subsequent medical evaluation finds that the employee is medically able to use a negative pressure respirator, then we are no longer required to provide a PAPR.
10. DMVA shall provide additional medical evaluations that comply with the requirements of this section if:
- An employee reports medical signs or symptoms that are related to ability to use a respirator;
  - A PLHCP, supervisor, or the respirator program administrator informs the employer that an employee needs to be reevaluated;
  - Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation; or
  - A change occurs in workplace conditions (e.g., physical work effort, protective clothing, and temperature) that may result in a substantial increase in the physiological burden placed on an employee.

### Fit Testing

1. Supervisors shall ensure that an employee using a tight-fitting face piece respirator is fit tested prior to initial use of the respirator, whenever a different respirator face piece (size, style, model or make) is used, and at least annually thereafter.
2. We shall conduct an additional fit test whenever the employee reports, or the employer, PLHCP,

supervisor, or program administrator makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

3. If after passing a QLFT or QNFT, the employee subsequently notifies the program administrator, supervisor, or PLHCP that the fit of the respirator is unacceptable, the employee shall be given a reasonable opportunity to select a different respirator face piece and to be retested.
4. The fit test shall be administered using an OSHA-accepted QLFT or QNFT protocol.

#### Usage Rules

1. Supervisors shall not permit respirators with tight-fitting face pieces to be worn by employees who have:
  - Facial hair that comes between the sealing surface of the face piece and the face or that interferes with valve function; or
  - Any condition that interferes with the face-to-face piece seal or valve function.
2. If an employee wears corrective glasses or goggles or other personal protective equipment, we shall ensure that such equipment is worn in a manner that does not interfere with the seal of the face piece to the face of the user.
3. For all tight-fitting respirators, we shall ensure that employees perform a user seal check each time they put on the respirator.
4. Appropriate surveillance shall be maintained of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, we shall reevaluate the continued effectiveness of the respirator.
5. Respiratory equipment shall not be passed on from one person to another until it has been cleaned and sanitized. Respirators individually assigned should be marked to indicate to whom it was assigned. This mark shall not affect the respirator performance in any way. The date of issuance should be recorded.

6. When not in use, respirators shall be stored to protect against dust, sunlight, extreme temperatures, excessive moisture, or damaging chemicals. Plastic zip lock bags are suitable for storage.
7. Supervisors shall ensure that employees leave the respirator use area:
  - To wash their faces and respirator face pieces as necessary to prevent eye or skin irritation associated with respirator use; or
  - If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece; or
  - To replace the respirator or the filter, cartridge, or canister elements.
8. If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece, we will replace or repair the respirator before allowing the employee to return to the work area.
9. For all IDLH atmospheres, supervisors shall ensure that:
  - One employee or, when needed, more than one employee is located outside the IDLH atmosphere;
  - Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere;
  - The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue;
  - The Supervisor or designee is notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue;
  - The Supervisor or designee authorized to do so by «Company\_Name», once notified, provides necessary assistance appropriate to the situation;
  - Employee(s) located outside the IDLH atmospheres are equipped with pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either appropriate retrieval equipment for removing the

employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry; or equivalent means for rescue where retrieval equipment is not required.

Maintenance, Inspection and Care of Respirators.

1. The employer shall ensure that respirators are cleaned and disinfected using procedures recommended by the respirator manufacturer, provided that such procedures are of equivalent effectiveness to OSHA regulations. The respirators shall be cleaned and disinfected at the following intervals:
  - Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition;
  - Respirators issued to more than one employee shall be cleaned and disinfected before being worn by different individuals;
  - Respirators maintained for emergency use shall be cleaned and disinfected after each use; and
  - Respirators used in fit testing and training shall be cleaned and disinfected after each use.
2. All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be packed or stored to prevent deformation of the facepiece and exhalation valve.
3. Emergency respirators shall be:
  - Kept accessible to the work area;
  - Stored in compartments or in covers that are clearly marked as containing emergency respirators; and
  - Stored in accordance with any applicable manufacturer instructions.
4. All respirators used in routine situations shall be inspected before each use and during cleaning;
5. All respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacturer's recommendations, and shall be checked for proper function

before and after each use; and

6. Emergency escape-only respirators shall be inspected before being carried into the workplace for use.
7. Supervisors shall ensure that respirator inspections include the following:
  - A check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the face piece, head straps, valves, connecting tube, and cartridges, canisters or filters; and
  - A check of elastomeric parts for pliability and signs of deterioration.
8. In addition to the requirements above, self-contained breathing apparatus shall be inspected monthly.
9. Air and oxygen cylinders shall be maintained in a fully charged state and shall be recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. The employer shall determine that the regulator and warning devices function properly.
10. For respirators maintained for emergency use, supervisors shall:
  - Certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator; and
  - Provide this information on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information shall be maintained until replaced following a subsequent certification.
11. Repairs. Supervisors shall ensure that respirators that fail an inspection or are otherwise found to be defective are removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:
  - Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and shall use only the respirator manufacturer's NIOSH-approved

parts designed for the respirator;

- Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed; and
- Reducing and admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer, or a technician trained by the manufacturer.

### Training

1. Supervisors shall ensure that each employee required to use a respirator can demonstrate knowledge of at least the following:
  - Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
  - What the limitations and capabilities of the respirator are;
  - How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
  - How to inspect, put on and remove, use, and check the seals of the respirator;
  - What the procedures are for maintenance and storage of the respirator;
  - How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and
2. The training shall be conducted in a manner that is understandable to the employee.
3. The training shall be provided prior to requiring the employee to use a respirator in the workplace.
4. Retraining shall be administered annually, and when the following situations occur:
  - Changes in the workplace or the type of respirator render previous training obsolete;
  - Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or
  - Any other situation arises in which retraining appears necessary to ensure safe respirator use.

### Program Evaluation

1. Safety office shall conduct evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.
2. Supervisors shall regularly consult employees required to use respirators to assess the employees' views on program effectiveness and to identify any problems. Any problems that are identified during this assessment shall be corrected. Factors to be assessed include, but are not limited to:
  - Respirator fit (including the ability to use the respirator without interfering with effective workplace performance);
  - Appropriate respirator selection for the hazards to which the employee is exposed;
  - Proper respirator use under the workplace conditions the employee encounters; and
  - Proper respirator maintenance.

### Recordkeeping

1. Supervisors shall establish a record of the qualitative and quantitative fit tests administered to an employee including:
  - The name or identification of the employee tested;
  - Type of fit test performed;
  - Specific make, model, style, and size of respirator tested;
  - Date of test; and
  - The pass/fail results for QLFTs or the fit factor and strip chart recording or other recording of the test results for QNFTs.
  - Fit test records shall be retained for respirator users until the next fit test is administered.
3. Program records shall be made available upon request to affected employees and to the Chief of the Division of Occupational Safety and Health or designee for examination and copying.



Procedures for Cleaning Respirators.

1. Remove filters, cartridges, or canisters. Disassemble face pieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard and replace any defective parts.
2. Wash components in warm (43 deg. C [110 deg. F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
3. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain.
4. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:
  - Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43 deg. C (110 deg. F); or,
  - Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43 deg. C (110 deg. F); or,
  - Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.
5. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on face pieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
6. Components should be hand-dried with a clean lint-free cloth or air-dried.
7. Reassemble face piece, replacing filters, cartridges, and canisters where necessary.
8. Test the respirator to ensure that all components work properly.

## **22 - Mandatory Information for Employees Using Respirators When Not Required**

### Appendix D to Section 5144

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

## **23 - Ergonomics**

Studies have shown over the years that poorly designed and arranged work areas, awkward work postures and repetitive motions can lead to a variety of injuries including carpal tunnel syndrome and tendonitis, which are often referred to as repetitive motion injuries (RMI's). As with cancer, heart disease, and many other ailments, there are risk factors that increase an individual's likelihood of developing RMI's. If the risk factors are reduced, so are the chances of being injured. While some of these risk factors, such as family history, cannot be controlled in the employment setting, many can. Including:

- The force used to perform a task,
- Posture while performing tasks,
- The number of repetitions performed in a given time period, and
- Mechanical stresses such as hard surfaces.

DMVA has developed the following program designed to minimize RMIs. The program includes worksite evaluations, control of exposures that have caused RMIs and training of employees.

### Worksite Evaluation and Exposure Reduction.

Each job, process, or operation of identical work activity that has resulted in at least two RMI's or a representative number of such jobs, processes, or operations shall be evaluated for exposures that have caused RMIs. DMVA may request assistance from outside consultants for this purpose.

Any exposures that have caused RMIs shall, in a timely manner, be corrected or if not capable of being corrected have the exposures minimized to the extent feasible. We shall consider engineering controls, such as work station redesign, adjustable fixtures or tool redesign, and administrative controls, such as job rotation, work pacing or work breaks.

### Training

Affected employees shall be provided training that includes an explanation of:

- DMVA program;
- The exposures which have been associated with RMIs;
- The symptoms and consequences of injuries caused by repetitive motion;
- The importance of reporting symptoms and injuries to their supervisor; and
- Methods used to minimize RMIs.

This training may be conducted as part of the regular safety meetings.

## 24 - Forklifts

Each year about 100 workers are killed and almost 95,000 injured in industrial truck accidents across the country. To properly protect our employees from such accidents, DMVA has adopted the following Forklift Safety Program.

### General

Supervisors will ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely, as demonstrated by the successful completion of the training and evaluation specified below.

Prior to permitting an employee to operate a powered industrial truck (except for training purposes), Supervisors shall ensure that the employee has successfully completed a training program.

### Training Program Implementation.

Trainees may operate a powered industrial truck only:

- Under the direct supervision of persons who have the knowledge, training, and experience to train operators and evaluate their competence; and
- Where such operation does not endanger the trainee or other employees.

Training shall consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace.

All operator training and evaluation shall be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence.

*Note: This section does not require that the training be given by any particular individual or organization. The trainer must only be able to demonstrate that they have appropriate knowledge, training and experience to train others and evaluate their competence.*

Training Program Content.

Powered industrial truck operators shall receive initial training in the following topics.

- Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate;
- Differences between the truck and the automobile;
- Truck controls and instrumentation: where they are located, what they do, and how they work;
- Engine or motor operation;
- Steering and maneuvering;
- Visibility (including restrictions due to loading);
- Fork and attachment adaptation, operation, and use limitations;
- Vehicle capacity;
- Vehicle stability;
- Any vehicle inspection and maintenance that the operator will be required to perform;
- Refueling and/or charging and recharging of batteries;
- Operating limitations;
- Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.
- Workplace-related topics:
  - Surface conditions where the vehicle will be operated;
  - Composition of loads to be carried and load stability;
  - Load manipulation, stacking, and unstacking;
  - Pedestrian traffic in areas where the vehicle will be operated;
  - Narrow aisles and other restricted places where the vehicle will be operated;

- Hazardous locations where the vehicle will be operated;
- Ramps and other sloped surfaces that could affect the vehicle's stability;
- Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust;
- Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation;
- The requirements of this section.

#### Refresher Training and Evaluation.

Refresher training, including an evaluation of the effectiveness of that training, shall be conducted to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely.

Refresher training in relevant topics shall be provided to the operator when:

- The operator has been observed to operate the vehicle in an unsafe manner;
- The operator has been involved in an accident or near-miss incident;
- The operator has received an evaluation that reveals that the operator is not operating the truck safely;
- The operator is assigned to drive a different type of truck; or
- A condition in the workplace changes in a manner that could affect safe operation of the truck.

An evaluation of each powered industrial truck operator's performance shall be conducted at least once every three years.

#### Avoidance of Duplicative Training.

If an operator has previously received training in a topic specified above, and such training is appropriate to the truck and working conditions encountered, additional training in that topic is not

required if the operator has been evaluated and found competent to operate the truck safely.

*Note: This section reduces the training requirement for previously trained operators provided we can demonstrate that the operator knows the material. Since some of the required training is unique to the area where the lift will be operated, we must still cover these areas even if the employee was previously trained.*

Certification.

Supervisors shall certify that each operator has been trained and evaluated as required by this paragraph (I). The certification shall include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.



## 25 - Fire Prevention and Emergency Action Plan

DMVA has developed the following emergency plan to cover those designated actions that must be taken to ensure employee safety from fire and during other emergencies. Any questions about this plan should be directed to the Safety Director at 720-250-1507 or david.callahan@dmva.state.co.us.

### Office, Shop & Warehouse Emergency Evacuation and Fire Prevention

Supervisors are responsible for ensuring the following:

1. That all required emergency exits are clearly identified in the office, shop, and warehouse and that all required fire fighting and emergency equipment is available and in good condition.

The following items will be maintained:

- First aid kit
  - Drinking water
  - Flashlight
  - Portable battery powered radio and batteries
  - Fire extinguishers
  - Wrench to shut off the main gas valve
  - Pry bars, axes, saws, tools or similar devices for employee rescue
2. Creating a facility map designating all emergency evacuation routes and the locations of all fire fighting equipment and emergency supplies and equipment. These maps will be posted in at least two locations in the facility.
  3. Training all exposed employees on the procedures to be followed in the event of a fire or other emergency including how to properly notify other affected employees.
  4. Identifying potential fire hazards in the office, shop and warehouse and ensuring that adequate steps are taken to prevent fires.

5. Ensuring that combustible trash and materials are removed promptly from the facility, and that all flammable and combustible liquids are properly stored and handled.

#### During an Emergency

In the event of an emergency such as fire, all employees are expected to evacuate the premises immediately. Supervisors may assign some employees the task of shutting off the gas or electricity, if needed. At no time will any employee be expected to jeopardize their own safety to do this.

Employees will be notified of emergencies through one of the following:

- Fire alarm
- Intercom
- Emergency horn
- Direct voice communication

After the emergency evacuation has been completed, a head count will be taken to ensure everyone is out of the building.

If necessary, supervisors may assign some employees to rescue trapped employees.

#### Fire Prevention in Shops and Warehouses

The following procedures will be used to prevent fires in shops and warehouses.

1. All accumulated combustible trash and debris will be removed as soon as practical.
2. Flammable liquids will only be stored and dispensed from UL approved safety containers designed for that purpose.
3. All rags soaked with flammable or combustible liquids will be properly stored in closed metal containers.
4. Appropriate precautions will be taken to prevent fires when torch cutting, welding or soldering.
5. Compressed gas cylinders containing flammable or explosive gasses will be properly stored in the

upright position with their caps on and protected from heat or puncture. Fuel gas and oxygen shall be separated at least 20 feet when stored.

6. Smoking or open lights are prohibited within 50 feet of flammable liquid or gas storage and dispensing areas.
7. Flammable solvents will not be used for cleaning purposes.
8. A fire extinguisher, rated not less than 2A, shall be provided for each 3,000 square feet of the floor area, or fraction thereof. Where the floor area is less than 3,000 square feet, at least one extinguisher shall be provided.
9. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 75 feet.
10. At least one fire extinguisher, rated not less than 2A, shall be provided on each floor. In multi-story buildings, at least one fire extinguisher shall be located adjacent to the stairway at each floor level.
11. A fire extinguisher, rated not less than 10B, shall be provided within 50 feet of wherever more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas are being used on the job site. This requirement does not apply to the integral fuel tanks of motor vehicles.
12. Portable fire extinguishers shall be inspected monthly, or at more frequent intervals by the employer, and serviced at least annually by a person licensed or registered by the State Fire Marshal. NOTE: Inspection is a "quick check" that an extinguisher is available and will operate. It is intended to give reasonable assurance that the extinguisher is fully charged and operable. This is done by seeing that it is in its designated place, that it has not been actuated or tampered with, and that there is no obvious or physical damage or condition to prevent operation.
13. Suitable fire control devices, such as portable fire extinguishers, shall be available at locations where flammable or combustible liquids are stored.
14. At least one portable fire extinguisher, having a rating of not less than 20-B units, shall be located outside of, but not more than 10 feet from, the door opening into any room used for flammable liquid storage.
15. At least one portable fire extinguisher, having a rating of not less than 20-B units, shall be located

not less than 25 feet, nor more than 75 feet, from any flammable liquid storage area located outside.