

Metro Water Services

Safety Rule Handbook

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MEMORANDUM

TO: Metro Water Services Employees

FROM: Scott A. Potter, Director

DATE: July 1, 2012

SAFETY RULE / HANDBOOK

This Safety Handbook is presented for the use of all employees throughout Metro Water Services (METRO WATER SERVICES) to assist in the administration of our safety program and to provide means and methods to aid in the performance of all assignments in a safe and efficient manner.

It is the intent of Metro Water Services to conduct its operations in a safe manner with the utmost regard for both employees and the public. Safety is an integral part of everyone's duties and responsibilities.

This Safety Handbook expresses the basic safety policies of Metro Water Services. Each employee is expected to make proper application of these rules to ensure a safe working environment for all.

This handbook has been compiled by the Water Services Safety Section and contains information affecting the entire Department and is the result of the efforts of many people. Special considerations are given for each division within the Department.

Please send any comments or suggestions in memo form to the METRO WATER SERVICES Safety Coordinator, 1600 Second Avenue North, Nashville, TN. 37208.

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SAFETY

The Occupational Safety and Health Act (OSHA) of 1970 and the Tennessee Occupational Safety and Health Act (TOSHA) of 1972 require Metro Water Services to provide a safe place to work, free from hazards that might injure, disable, or even be fatal. Safety on the job is vital and it is the law.

Safety is a big responsibility that must be shared by everyone. It is every employee's responsibility to act in a safe manner at all times, to observe all signs and notices, and to report all unsafe practices or conditions to a supervisor. The supervisor will provide specific instructions regarding hazards presented which are not covered in this handbook.

SAFETY POLICY

It is the policy of Metro Water Services (METRO WATER SERVICES) to develop and administer a comprehensive safety program to assure that all measures are taken to eliminate and/or control the exposure of Metro Water Services employees to hazards that may cause physical harm and loss of Metro Water Services property. To this end, every effort will be made by all levels of management to prevent injury and loss to our employees. Further, it is the policy of the Department to comply with all federal, state and local codes, laws and regulations.

Metro Water Services will implement this policy by:

1. Designating a Safety Coordinator to represent the Director and Assistant Directors in all matters of safety
2. Identifying and eliminating unnecessary hazards
3. Providing employees with the necessary training and, where required, specialized equipment, so the necessary tasks to operate and maintain essential water and wastewater services can be safely performed when a recognized hazard cannot be eliminated
4. Minimizing the undesirable effects of an accident by providing rescue equipment and training, first aid, and medical services
5. Establishing and maintaining records to identify and evaluate health and safety problems
6. Requiring each employees in the performance of their duties to follow all, appropriate safety standards, rules and regulations

The purpose of this policy is to identify and organize the requirements and responsibilities for the establishment and implementation of a comprehensive Metro Water Services Safety Program.

SAFETY RULE COMPLIANCE AND ENFORCEMENT

The safety rules set forth in this handbook apply to all Metro Water Services employees, regardless of position or classification. They apply in all Metro Water Services facilities and job sites. They apply whenever an individual is on duty in the services of the Metro Water Services.

Because supervisors and Managers are in leadership positions, they are expected to set an example by conducting themselves in a safe manner at all times. Failure of a supervisor or manager to comply with safety rules is a serious matter and shall be treated as such.

The supervisor will represent the Metro Water Services management in all matters of safety. Establishing job safety is an essential part of the supervisor's duties and responsibilities. Clearly, the supervisor has both the responsibility and authority to enforce safety rules.

It shall be the responsibility of every manager, supervisor, and employee to read and carry out these rules in the day-to-day performance of his/her job. Only by a high degree of interest and commitment by every employee can we ensure a high degree of safety in our work place.

SAFETY POLICIES

Upon any given work day, employees shall be equipped with proper OSHA safety equipment, such as safety glasses, hard hats, safety vests, safety (steel-toed) shoes and gloves, and shall be properly attired at all times. If these items are not in or on the possession of an employee, he/she may be sent home. Failure to follow this policy could be grounds for disciplinary action. The supervisors will be responsible for making sure all employees follow this policy.

Employees will be responsible for any personally used equipment such as gloves, hard hats, boots, and ear and eye protection that is assigned to them. The employees will be expected to replace or reimburse the department for any item(s) lost or stolen while placed in their care and responsibility.

Repeating safety violators may appear before their immediate safety coordinator and Human Resources representative for further instruction, training or disciplinary action. If IODs continue, the employee may be subjected to disciplinary action.

SAFETY PROTECTION ON THE JOB AS ADMINISTERED BY THE TENNESSEE OCCUPATIONAL SAFETY & HEALTH PROGRAM

The Revised TOSHA Act of 1972 provides safety and health protection for all workers, both public and private throughout Tennessee. The TOSHA Act of 1972 was implemented through the Tennessee Department of Labor, Occupational Safety and Health Program.

EMPLOYERS:

Each employer shall furnish to each of their employees a place of employment free from recognized hazards that are causing or are likely to cause death or serious physical harm. They shall also comply with occupational safety and health standards adapted and promulgated pursuant to the Occupational Health and Safety Act of 1972.

EMPLOYEES:

Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to TOSHA which are applicable to their own actions and conduct.

INSPECTION:

Compliance Officers conduct periodic inspections at places of employment to determine the cause of an incident or to prevent the occurrence of any occupational injury or illness.

COMPLAINT:

Employees or their representatives have the right to file a complaint with the Tennessee Occupational Safety and Health Program, Division of Compliance, and request an inspection if they believe unsafe or unhealthy working conditions exist in their work place. The names of the complaining parties will be withheld upon request.

Employees are protected by both state and federal law against discharge or discrimination for having filed safety and health complaints or for having exercised any other rights provided by the occupational safety and health laws. Any employee, public or private, who feels they have been discriminated against may file a complaint with the Commission of Labor within 30 days of the alleged discrimination. An employee in industry who believes they have been discriminated against may file a complaint with the nearest office of the U. S. Department of Labor, within 30 days of the alleged discrimination.

I. GENERAL SAFETY REQUIREMENTS

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I. GENERAL SAFETY REQUIREMENTS

A. EMPLOYEE SAFETY

1. RESPONSIBILITY OF THE SUPERVISOR

(INCLUDES FOREMEN OR OTHER PERSONS IN CHARGE OF WORK)

- a. The supervisors shall be responsible for the safety of the employees working under their direction and for the safety of the general public affected by their work. The authority and responsibility for actions necessary to prevent accidents are an integral part of the supervisor's job.
- b. The supervisor shall give new employees or transferred employees a safety orientation about the special hazards and precautions of new job.
- c. The supervisor shall conduct a "job briefing" prior to starting a job to acquaint employees with an unfamiliar type of work or procedure. An estimate of potential hazards shall be made at these briefings and needed safety equipment shall be issued.
- d. The supervisor shall plan the work, considering the dangers involved and the tools, the materials and safety devices available, and required to do the work in a safe manner. The supervisor shall instruct the employees how to do the work in a safe manner and to make sure the employee can understand and follow the instructions. Special instructions shall be given to new employees or other employees who may have been assigned new duties.
- e. The supervisor shall issue instructions necessary to meet local conditions not covered by rules in the Handbook.
- f. The supervisor shall be responsible for having necessary approved equipment, such as warning signs, barricades, guards, handrails, and lights properly placed when and wherever needed.
- g. If a difference of opinion arises with regard to the meaning or application of any of these rules, or as to the means necessary to carry them out, the decisions of the supervisor shall be followed.

2. RESPONSIBILITY OF THE INDIVIDUAL

- a. It is the responsibility of each employee to perform his or her assigned duties so as to provide:

- (1) Safety to himself or herself
 - (2) Safety to his or her fellow employees
 - (3) Protection of public and private property
 - (4) Protection of the Metropolitan Department of Water Service's property
- b. Each employee is expected to keep themselves fully informed of the contents of the appropriate section(s) of the Handbook and apply it to their daily job responsibilities.
 - c. Employees are expected, as a part of the job, to take an active part in the safety program and apply it in every day work.
 - d. If an employee is in doubt as to the safe performance of the work assigned, they shall request instructions from their supervisor.
 - e. Employees' clothing (including shoes and gloves) shall be suitable for the job to be performed. Employees shall avoid wearing clothing, jewelry, footwear, or other apparel which may endanger themselves or others' safety
 - f. Before attempting work under conditions which appear to be unsafe, the employee shall report the conditions to the supervisor in charge.
 - g. The employee shall report unsafe conditions or unsafe acts by employees or others that may affect the Metropolitan Department of Water Service's employees or property to the supervisor or safety coordinator.
 - h. It is not practical to include safety rules to meet all conditions. In the absence of specific instructions from the supervisor, the employee shall use their best judgment to do the work safely.

3. PERSONAL CONDUCT

- a. Each employee shall comply with safety and health standards and all rules, regulations, and orders which are applicable to their own actions and conduct. Violations shall be considered sufficient grounds for disciplinary action or discharge.
- b. Employees shall perform their work in a safe and alert manner and be aware of the possibility of unseen danger or situations. Employees are not expected to sacrifice their own or others' safety to perform their duties.

- c. An Employee shall avoid distracting the attention of another worker from their job until it is determined that no danger will result.
- d. A fellow employee should be cautiously warned , when seen in a dangerous situation, to avoid confusing, startling, or alarming them.
- e. Employees shall not use compressed air or other compressed gases for cleaning their clothing because of the dangers of flying particles and the possibility of forcing air through their pores into their bloodstream.
- f. Fighting, gambling, horseplay, and any and all drug abuse will not be tolerated and will be subject to disciplinary action.

4. PERSONAL PROTECTIVE EQUIPMENT (PPE)

- a. Personal equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barrier, shall be used and maintained in a reliable condition whenever it is necessary by reason of hazards of processes or environment, chemical hazards, mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.
- b. Employees shall use the personal protective equipment, protective devices, and special tools provided for their work. Before starting work, these items shall be inspected by the employee to Ensure that they are in safe conditions.
- c. Eye and face protection equipment shall be worn by all employees when machines or operations present potential eye or face injury from physical or chemical agents.
- d. The employee must pay for replacement PPE, when the employee has lost or intentionally damaged the PPE. All damaged PPE shall be presented to the supervisor for replacement.
- e. Hard hats shall be worn in any and all designated work areas and when instructed by a supervisor or safety coordinator.
- f. Hard hats shall be worn in areas where there is a possible danger of head injury from impact, falling or flying objects or from electrical shock and burns.
- g. Visitors at METRO WATER SERVICES facilities or job sites who do not have their own hard hats will be furnished a Metro Water Services hard hat. Visitors must comply with Metro Water Services' safety rules. The host employee is responsible for its visitors.

- h. Respirators, masks, or supplied-air equipment shall be used on jobs which require respiratory protection as determined by the supervisor and the safety coordination.
- i. Employees shall not use respiratory protection equipment until they have been certified by the following procedure:
 - (1) Medically tested
 - (2) Fit tested
 - (3) Trained in the use and limitations of the equipment
 - (4) And no facial hair
- j. Respiratory protection equipment shall be cleaned and disinfected by the user immediately after use before it is issued to another employee.
- k. ANSI Class 75 safety shoes shall be worn when hazards justify their use as determined by the supervisor and the safety coordinator.
- l. The supervisor shall issue approved hearing and eye protection devices for employees required to work where excessive noise levels and dust and foreign particles are encountered.
- m. Body harnesses and safety belts shall be used only for the safety of the employees.
- n. Working over or near water where the danger of drowning exists:
 - (1) Employees shall be provided with U. S. Coast Guard-approved personal flotation devices such as life jackets and life lines. Ring buoys may be needed in some instances.
 - (2) Prior to each use, such equipment shall be inspected for defects which would alter strength or buoyancy. Defective items shall be removed from service and replaced.

5. ACCIDENT REPORTING AND INVESTIGATION

- a. Injuries and illnesses shall receive prompt first aid attention.
- b. Employees shall report accidents and injuries to the supervisor immediately. No supervisor shall decline to accept a report of accident or injury.

- c. Supervisors shall verify that accident reports are filed on the day of occurrence for all accidents which result in injuries to employees, injuries to the general public, and property or equipment damage. The MWS employee and the supervisors must fill out a governmental form number 101, completely. Specific steps must be noted on how to prevent an account from recurring.
- d. Statement of Employee and Witness(es) should include:
 - i. Name, address, phone number, dob, SSA number, Employee ID number
 - ii. Section, date of hire, classification
 - iii. Date and time of accident, weather conditions
 - iv. Name(s) of witness(es)
 - v. Moving equipment involved
 - vi. Radio or hand signals used
 - vii. Any known defects in the equipment, last maintain date
 - viii. Type of Personal Protective Equipment (PPE) used, special clothing required
 - ix. Condition of work area and/or job site where accident occurred (debris, foreign objects involved, etc.)
 - x. If at night, was the area lighted and how
 - xi. If upkeep of the area was a factor, had it been reported previously? If so, to and by whom
 - xii. Locate other crew member(s) and witness(es) at the accident site
 - xiii. Were there any special instructions for the supervisor(s) to perform duties? If so, what were they?
 - xiv. Previous accident history or near missed noted
 - xv. Employee's employment history
- e. If the employee's family must be notified, the Supervisor shall contact their Assistant Director and the Assistant Director/Personnel who will notify the family or next-of-kin.
- f. Investigation Report:
 - i. List of employee(s) statements
 - ii. List of witness(es) statements
 - iii. Time, date, and weather conditions for accident
 - iv. What type of equipment was involved/was it motorized?
 - v. Description of point of accident – was it familiar to employee?
 - vi. Training (who, what, when, where, how and why)
 - vii. Particular circumstances involved
 - viii. Specific injury(ies) involved (accident/injury history)
 - ix. Damage to property
 - x. Contracts and/or third party(ies)
 - xi. Rules/laws violated
 - xii. Attachments: 101 Form, Police Report, Photography, Sketch of accident site, if applicable

- g. All accidents to persons or property shall be reported for the record and investigated to determine the cause. This investigation shall include personal work injury and illness as well as non-injury accidents and property damage incidents. First-line supervisors shall be responsible for preparing incident reports and investigations. Copies shall be distributed to the Section Head, the Plant Manager, and the Safety Coordinator for review.

In the event of a serious incident, the Safety Coordinator must be notified immediately after emergency aid has been summoned so that a more comprehensive investigation may be initiated at the earliest possible moment. The investigation shall be used to determine the cause so that corrective action(s) may be taken to prevent similar incidents.

- h. In the case of an injury which is not of a critical nature, but which requires the services of a physician, the injured employees should be taken to the hospital.
- i. Because of the possibility of rabies or other infections, animal and/or insect bites shall receive immediate medical attention. Incidents must be properly reported to the supervisor and/or the Safety Office, immediately.
- j. An employee who is unable to perform their duties safely because of illness, the effect of medicines or drugs, or any other disability shall promptly report the condition to their supervisors.
- k. For "General Stress" Contact Metro Water Services Safety Office

6. PERSONAL HYGIENE

- a. Whenever working around wastewater or articles exposed to wastewater, the following rules shall be observed:
 - (1) Hands and fingers must be kept from nose, mouth, and eyes.
 - (2) Gloves are provided for the individual's protection against cuts, abrasions, and infections. They are to be worn when the job requires them or when a supervisor directs. Non-permeable type gloves should be used instead of leather (permeable) whenever possible.
 - (3) Special care shall be taken to keep the area covered where the skin is broken from any cause.

- (4) Before eating or smoking, after work, and any other time the occasion demands, hands shall be washed thoroughly with soap and hot water. When this is not possible, a waterless cleanser shall be used.
 - (5) Work clothing shall be changed when it becomes contaminated. Shoes, boots, and gloves should be cleaned when they become dirty. All employees issued work clothes should wear them and change before leaving work, if necessary.
 - (6) All washing and toilet facilities are to be left as clean as they were found.
 - (7) Kitchen areas or coffee bars are to be kept clean.
 - (8) Hair, beards, and mustaches shall be kept in such a manner that they not create a hazard to the employee.
- b. Spray application of herbicide:
- (1) The recommended protective clothing for use while mixing and applying herbicides includes:
 - (a) Chemical goggles.
 - (b) Respirator, with appropriate cartridge.
 - (c) Plastic-coated or rubber gloves
 - (d) Rain suits, either throw-away or reusable.
 - (2) After handling spray material and before leaving the job, the employee shall take a full shower and change clothing.

7. HAZARD REPORTING

- a. When any employee observes a hazardous condition that may cause injury, property damage, or interfere with Metro Water Services they shall immediately report it to the supervisor or safety coordinator. In an emergency, the employee shall guard or isolate the hazard.

8. ERGONOMICS (Cumulative Trauma Disorder)

- a. Risk factors
 - i. Reputation: The number of repetitive motions made per work day.
 - ii. Force: The exertion used to do the job.
 - iii. Posture: Awkward positions assumed while working.

- b. Principles of Prevention
 - i. Design tools and equipment to keep wrists in their natural, or “neutral,” position.
 - ii. Reduce excessive or unnecessary grasping force where possible.
 - iii. Reduce the number of hand repetitions.
 - iv. Eliminate direct pressure on the palm.
 - v. Isolate vibration.
 - vi. Insulate from cold.
- c. Ergonomics at the computer stations are very important:
 - i. Position monitor 20-24 inches from eyes.
 - ii. Adjust the seat height so upper arms hang vertically, elbow bent at 90 degrees.
 - iii. Adjust backrest to support the small of the back.
 - iv. Use a document holder next to the screen.
 - v. Use a footrest, if necessary, to adjust for height.
 - vi. There are also different stretching exercises for wrists, elbows and fingers one can do at one’s desk. Employees should ask their supervisor or safety office about them.

9. LIFTING AND CARRYING

- a. Proper lifting procedure:



- (1) Consider the size, weight, and shape of the object to be carried. Do not lift more than can be handled comfortably. If necessary, get help.
- (2) Set feet solidly; one foot can be slightly ahead of the other for increased effectiveness. Feet should be far enough apart to give good balance and

stability (approximately the width of the shoulders).

- (3) Get as close to the load as practicable. Bend legs about 90 degrees at the knees. Crouch; do not squat. It takes about twice as much effort to get up from a squat than a crouch.
 - (4) Keep the back as straight as practicable. It may be far from being vertical, but it should not be arched. Bend at the hips, not from the middle of the back.
 - (5) Grip the object firmly. Maintain the grip while lifting and carrying. Before changing or adjusting grip, set the object down again.
 - (6) Straighten the legs to lift the object, and at the same time bring the back to a vertical position. A good tip is to look up at the sky or ceiling when beginning a lift.
 - (7) Never carry a load that you cannot see over or around. Make sure the path of travel is clear. Carry the object close to your body.
 - (8) Never turn the waist to change direction or to put and object down. Turn the whole body and crouch down to lower the object. Grip the object firmly; keep it close, and keep the back straight (not arched). To keep hands from being pinched against the floor, put one corner of a box or similar object down first so that the fingers can be removed from under the sides.
- b. When lifting an object with another person, be sure that you both lift at the same time and let the load down together. One person should give the signals or orders.

10. LABORATORY SAFETY

- a. Only qualified personnel shall conduct laboratory tests.
- b. Appropriate clothing shall be worn at all times. Shorts, bare feet, and open-toed or cloth shoes are not permitted.
- c. Personnel should wear appropriate Personal Protective Equipment (PPE) as required.
- d. Do not leave open flames unattended.
- e. Eating shall only take place in designated areas.
- f. All containers should be properly labeled.
- g. Pipefitting by mouth is prohibited.
- h. Designated "spill" kits should be used to clean up chemical spills.

- i. Never add water to concentrated acids.
- j. Laboratory benches shall be kept neat, clean and dry.
- k. Safety inspections shall be conducted monthly.
- l. Report any unsafe actions or conditions to the immediate supervisor.
- m. MSDS sheets shall be read and understood before handling chemicals.

(See METRO WATER SERVICES Safety Laboratory Manual for details and further information regarding Lab Safety.)

11. EPA/RISK MANAGEMENT PROGRAM

The United States Environment Protection Agency (EPA) Accidental Chemical Release Prevention Provisions under the Clean Air Act (40 CFR Part 68), also known as Risk Management Program (RMP) regulations, were promulgated in the Federal Register on June 20, 1996. The intended purpose of these regulations is to:

- Encourage sources to reduce the probability of accidental
- Stimulate dialogue between industry and the public to improve accident prevention and emergency response practices.

The following are the elements of the RMP:

- A. Hazard Assessment:
 1. Worst case analysis
 2. Alternative release

- B. Prevention Program
 1. Process safety information
 2. Process hazard analysis
 3. Operation procedures
 4. Training
 5. Mechanical integrity
 6. Incident investigation
 7. Compliance audit
 8. Management of change
 9. Pre-startup review
 10. Contractors
 11. Employee participation
 12. Hot work permit

- C. Emergency Response Program
 1. Develop plan and program

- D. Risk Management Plan Contents
 1. Executive summary
 2. Registration
 3. Worst-case data
 4. 5-year accident history
 5. Prevention program data
 6. Emergency response plan
 7. Certification

12. DOMESTIC PREPAREDNESS PROGRAM

- A. In 1996, Congress enacted a law establishing the Domestic Preparedness Program. The program's purpose is to ensure that as a nation, we are prepared for a Nuclear, Biological and Chemical (NBC) weapons terrorist attack. They are also called weapons of mass destruction.

- B. Objectives:
 - 1. Call your attention to the threat of terrorism
 - 2. Understand and be aware that a NBC attack could happen
 - 3. Recognize and NBC terrorist attack
 - 4. Know what actions to take
 - 5. Have an annual evacuations review and drill

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I. GENERAL SAFETY REQUIREMENTS

B. FACILITY AND JOB SITE SAFETY

1. HOUSEKEEPING ON METRO WATER SERVICES FACILITIES AND JOB SITES

- a. Good housekeeping shall be maintained in shops, yards buildings, vehicles, and job sites. Supervisors shall be responsible for proper housekeeping in or around the work they are supervising.
- b. Walks, aisles, stairways, fire escapes, and other passageways shall be kept clear of obstructions and tripping hazards. Access to electrical panels, control valves, fire extinguishers, etc., shall be kept clear or obstructions.
- c. Tools and materials shall not be placed where they may cause tripping or stumbling hazards, or where they may fall and strike anyone.
- d. Puddles of oil, paint, water, etc., shall be cleaned up promptly. Absorbent material should be used as a cleanup aid when needed.
- e. Nails in boards, such as those removed from sheathing, scaffolds, forms, and packing boxes, shall be removed and the boards carefully stacked or stored if they are to be reused. If such boards are to be added to a scrap pile for burning, nails should be bent over or removed.
- f. Scrap containers, or scrap collection areas shall be provided where needed and used for storage of wood and metal scraps.
- g. Scrap materials of salvage value shall be properly stored until suitable arrangements are made.
- h. Dirty and oily waste rags, trash, and other waste materials shall be deposited in approved containers and disposed of as soon as practicable.
- i. Employees shall cooperate in keeping rest rooms, drinking fountains, locker rooms, and other facilities in a neat, clean, and sanitary condition.

2. FIRE PREVENTION AND PROTECTION

- a. Good housekeeping is one of the most effective aids to fire prevention. Waste paper, rags and other combustible materials shall not be allowed to accumulate.

- b. Matches, cigars, cigarettes, pipe tobacco, and ashes shall be disposed of in ashtrays or other non-combustible containers. Ashtrays shall be emptied into metal trash containers. Smoking debris shall not be emptied into wastepaper baskets.
- c. The growth of weeds, tall grass, or other vegetation shall be controlled in or around structures, yards, buildings, tanks, or storage areas. A regular procedure shall be provided for the periodic cleanup of these areas.
- d. Grease and rubbish shall not be allowed to accumulate in elevator shafts and pits.
- e. When temporary, combustion-type heating devices, such as salamanders or LP heaters are used:
 - (1) Adequate fresh air shall be available. Where fresh air is inadequate, mechanical ventilation shall be provided.
 - (2) They shall not be set directly upon wood floors or other combustible materials unless the heater is specifically designated for that purpose.
 - (3) They shall be located at least 10 feet from the vicinity of combustible materials such as tarpaulins, canvas, plastic film coverings, etc.
 - (4) They shall be set horizontally level, unless otherwise permitted by the manufacturer's markings, and shall be securely placed to prevent overturning and the spillage of fuel.
- f. Firefighting equipment shall not be used, tampered with or removed from designated locations for purposes other than firefighting or rescue operations.
- g. Fire doors shall be properly identified and maintained in good operating condition and checked periodically. Materials or equipment shall not be placed to obstruct the fire doors.
- h. Flame or excessive heat shall not be used near fire-detecting devices or automatic sprinkler heads in service. Eighteen (18) inches clearance shall be maintained between the top level of equipment or stored material and sprinkler heads or fire detectors.

- i. Defective or inadequate electric wiring shall be immediately repaired, removed, or replaced. Oversized fuses or oversized circuit breakers shall not be used. Fuse and circuit breaker boxes shall be kept closed except during maintenance or testing.
- j. Employees shall not use matches or open flames (and shall prevent electric sparks) in areas where combustible gases may exist until tests prove that combustible gases are not present. Such conditions may exist in confined spaces such as gas-filled electrical equipment, or in manholes, vaults, battery rooms, or in transformer or oil circuit breaker tanks.
- k. Open flames and smoking are prohibited in areas where flammable or combustible liquids or gases are stored or being used. Such areas shall be conspicuously posted with "No Smoking" signs, and more extensive safeguards shall be used where needed. Smoking in all Metro Government Buildings is prohibited except for designated areas.
- l. Flammable liquids, such as gasoline, benzene, naphtha, and lacquer thinner shall be kept in approved safety cans identified by proper markings. The quantity shall be kept to a minimum except in approved areas. Flammable liquids shall be kept in closed containers when not actually in used and stored in a rated fireproof cabinet. There should not be more than five (5) gallons of flammable or combustible liquids or five (5) pounds of extinguisher with a U.L. rating or no less than 10-B shall be provided within 50 feet.
- m. Flammable liquids shall not be used for cleaning purposes.
- n. When pouring or pumping flammable liquids for one container to another, metallic contact shall be maintained or an electrical bonding jumper connected between the containers to minimize the possibility of static spark ignition.
- o. Paint spray booths shall be properly ventilated, and adequate firefighting equipment shall be provided. "No Smoking" signs shall be conspicuously posted.
- p. Proper precautions shall be used in the presence of material in the form of dust or powder to prevent an explosion.

- q. Employees shall be familiar with the location and proper use of fire extinguishers in their work areas. Whenever a fire extinguisher is used, it shall be promptly replaced. The used fire extinguisher shall be recharged as soon as possible.
- r. Employees shall be instructed in the proper use of fire extinguishing equipment and methods of extinguishing fires (including clothing fires).
- s. Fire protecting equipment shall not be blocked or hidden from view. In large rooms and in certain locations where visual obstruction cannot be completely avoided, signs shall be conspicuously posted to show the location of such equipment.
- t. Portable Fire Extinguishers
 - (1) Extinguishers shall be inspected monthly, or at more frequent intervals when circumstances require, to ensure that they are in their designated places, to that they have not been actuated or tampered with, and to detect any obvious physical damage, corrosion, or other impairments. Extinguishers showing defects shall be given a complete maintenance check.
 - (2) Extinguishers shall have a durable tag securely attached to show the annual maintenance or recharge date and the initials or signature of the person who performed this service.
 - (3) Extinguishers shall be conspicuously marked to show location and intended use.
 - (4) Electric shock is possible if the person using CO₂ fire extinguishers on an electrical fire does not maintain a safe distance from the fire.
 - (5) The discharge horn of a CO₂ fire extinguisher becomes very cold during use and should not be touched.
 - (6) When a CO₂ extinguisher is used in an unventilated space, the user can become unconscious because of oxygen deficiency.
 - (7) Although dry chemical fire extinguishers are safe for the employee when used on electrical fires, if the powder becomes wet, a conducting solution is formed which could cause damage to electrical insulation.

- (8) Multi-purpose dry chemicals for Class A, B, and C fires shall not be mixed with dry chemicals intended for use on Class B and C fires only.

Ordinary Combustibles—Fires in paper, wood, drapes and upholstery require an extinguisher labeled A.

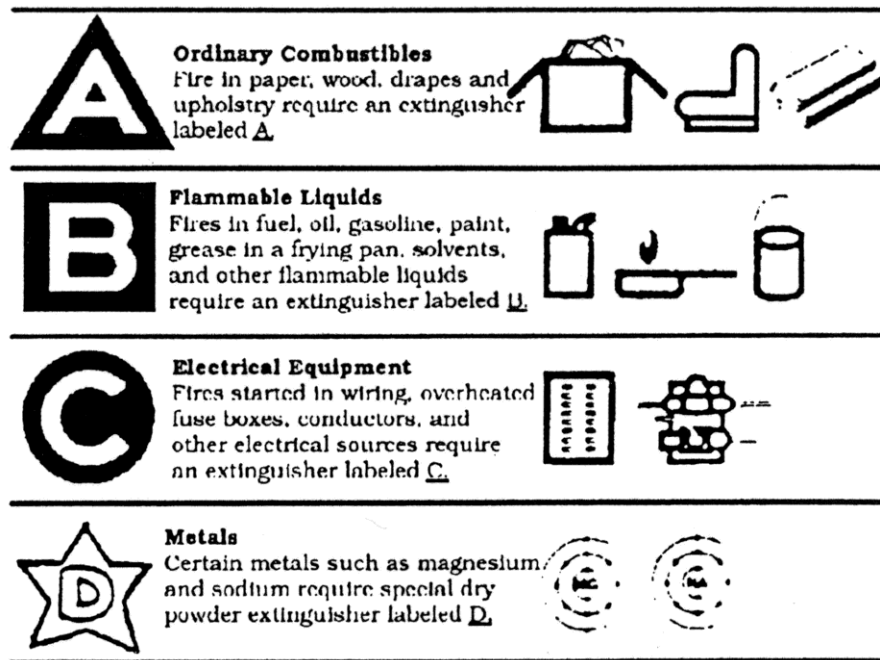
Flammable Liquids—Fires in fuel, oil, gasoline, paint, grease in a frying pan, solvents, and other flammable liquids require an extinguisher labeled B.

Electrical Equipment—Fires started in wiring, overheated fuse boxes, conductors, and other electrical sources require an extinguisher labeled C.

Metals—Certain metals such as magnesium and sodium require special dry powder extinguishers labeled D.

- u. Care and maintenance of fire prevention systems (sprinkler and standpipe systems).

The purpose of fire protection systems is to protect life and property by automatically or manually suppressing fire. If not properly maintained, these systems may become worthless. To maintain the system, attention must be given not only to the system itself, but also to other features that may affect the satisfactory control of fire by the system. (See figure).



3. RIGGING AND HOISTING

a. Operator and employee responsibilities during rigging and hoisting operations:

- (1) Cranes, derricks, and other materials handling equipment shall be operated only by authorized persons. Operators of such equipment shall use approved signals to warn persons of possible hazards.

Employees engaged in crane or hoisting operations shall use proper operating signals. The operator shall accept only one person's signal to start raising, lowering, or swinging a load. However, the operator shall stop immediately upon signal from anyone. There shall not be unnecessary conversation with the operators while equipment is in use.

- (2) Chain hoists, derricks, cranes and other hoisting and rigging equipment shall be inspected prior to use on each shift and as necessary during their use to ensure that they are safe. Defective equipment shall be removed from service, tagged, and not used until properly repaired or replaced.
- (3) Particular care shall be exercised to see that cables, chains, and other hoisting equipment are not unduly stressed by improper use. Ropes, chains, slings, etc..., shall be removed from service when they have worn or may be questionable in the judgment of the Supervisor.
- (4) Employees shall not work within contact distance of unprotected energized trolleys for cranes, hoists, etc..., unless the necessary precautions to guard against accidental contact have been taken.
- (5) When a crane is operated near energized lines or equipment, it should be grounded, and its boom, cables, or load shall not come closer than ten (10) feet to unprotected conductors.
- (6) Before moving a crane near overhead electric lines, the boom shall be lowered sufficiently to provide ample clearance.

- (7) Cranks on hand-operated winches shall be operated with care to prevent the employee from being struck by a rapidly revolving handle. Cotter keys or other devices used for securing the handle to the shaft shall be in place when the winch is in use. Ratchets and dogs shall be inspected frequently and kept in a safe operating condition.
 - (8) When a crane is in transit, the load line and hook shall be restrained so that it cannot swing freely.
 - (9) An approved fire extinguisher shall be kept in the cab of hoisting equipment.
 - (10) The rated load of the crane shall be plainly marked on each side of the overhead crane and this marking shall be clearly legible from the ground or floor. If the crane has more than one hoisting unit, each hoist shall have its rated load marked on it.
 - (11) All overhead and gantry cranes in use shall meet the applicable requirements for design, construction, installation, testing, maintenance, inspection and operation as prescribed in the ANSI B30.2 Safety Code for Overhead and Gantry Cranes.
 - (12) Load blocks and hooks on overhead cranes shall never be left at a height where a worker can bump into them.
 - (13) If the power to an overhead crane goes off, all switches shall be opened and all controllers moved to "Off" position.
 - (14) The operator of an overhead crane shall test the brakes each time a load approaching the rated capacity is handled by raising the load a few inches and then stopping it.
- b. Immobilizing and stabilizing hoisting equipment:
- (1) The operator shall see that hoisting equipment is properly hung and determine that the supporting member will carry the load before the load is lifted. Also before the load is lifted, a strain test shall be taken on the cable to recheck the hitch.
 - (2) To prevent overturning or capsizing while a mobile crane is in use, all ground jacks and outriggers will be used.

- (3) The manufacture's recommendations shall be followed when using outrigger-equipped hoisting equipment.
- (4) The manufacture's rated capacity shall be legibly marked on ground jacks and shall not be exceeded. Ground jacks shall have a positive stop to prevent over travel. When a firm foundation is not available, the base of the ground jack shall be blocked or cribbed.

c. Securing the load

- (1) The operator shall see that hoisting equipment is properly hung and shall determine that the supporting member will carry the load. Before the load is lifted, a strain test shall be taken on the cable to recheck the hitch.
- (2) Hoisting cables shall not be wrapped around the load. The load shall be attached to the hoisting cable with slings or other approved devices attached to the hook, shackle, etc.
- (3) Rigging and hoisting equipment hooks shall be equipped with a safety latch or shall be "moused" by an approved alternate method.
- (4) Hoisting equipment shall not be loaded beyond its rated capacity.
- (5) Employees shall familiarize themselves with the proper knots, ties, hitches, and safe working loads for ropes, cables, slings, and fittings, and proper methods of hooking and slinging required in their work.
- (6) Chains shall not be spliced or joined by makeshift means such as open links, bolts, or wire. New links shall be properly inserted by an approved method or the chain returned to the manufacture for repairs.
- (7) Wire ropes or cables shall not be allowed to kink, as this weakens them. Protective pads shall be used where cables are wrapped around sharp objects or corners.
- (8) When applying U-bolt clips to cables, the proper number shall be used and the bases shall bear on the pulling side of the loop.

- (9) The rating of hooks, rings, clevises, and other fittings used on chains or cables shall not exceed the carrying capacity of the chains or cables.
- (10) Side loading of hoisting booms shall be limited to freely suspended loads. Cranes shall not be used for dragging loads sideways.

d. Lifting the load

- (1) Operators shall not leave the controls of cranes, hoists, derricks, or other lifting devices while the load is suspended.
- (2) When using hoisting equipment, neither the load nor the boom shall be lowered below the point where less than two full wraps of cable remain on the respective drums.
- (3) Hoist and crane operators should avoid carrying loads over people, but when it becomes necessary to do so, an appropriate warning shall be sounded before the hoist is lowered, or moved with a crane, hook or any other approved method.
- (4) Employees shall not be under a suspended load or boom unless the nature of their work requires it. Extreme caution shall be used when working near cables or ropes under tension.
- (5) When guiding winch and hoist lines, ropes, wires, etc., while standing within reach of the drum or sheave, an employee shall use a suitable guiding device.
- (6) Mobile cranes shall not be moved with elevated booms except under the immediate direction of a designated employee who shall give his undivided attention to the movement.
- (7) When two or more cranes are used to lift a single load, a designated person shall be responsible for the operation.
- (8) When releasing a load line or other device which is used to lift or secure materials and equipment, it shall be determined that there is no strain on the line or device and that the load will not shift. Employees should be alert for unexpected shifting or springing of the load.

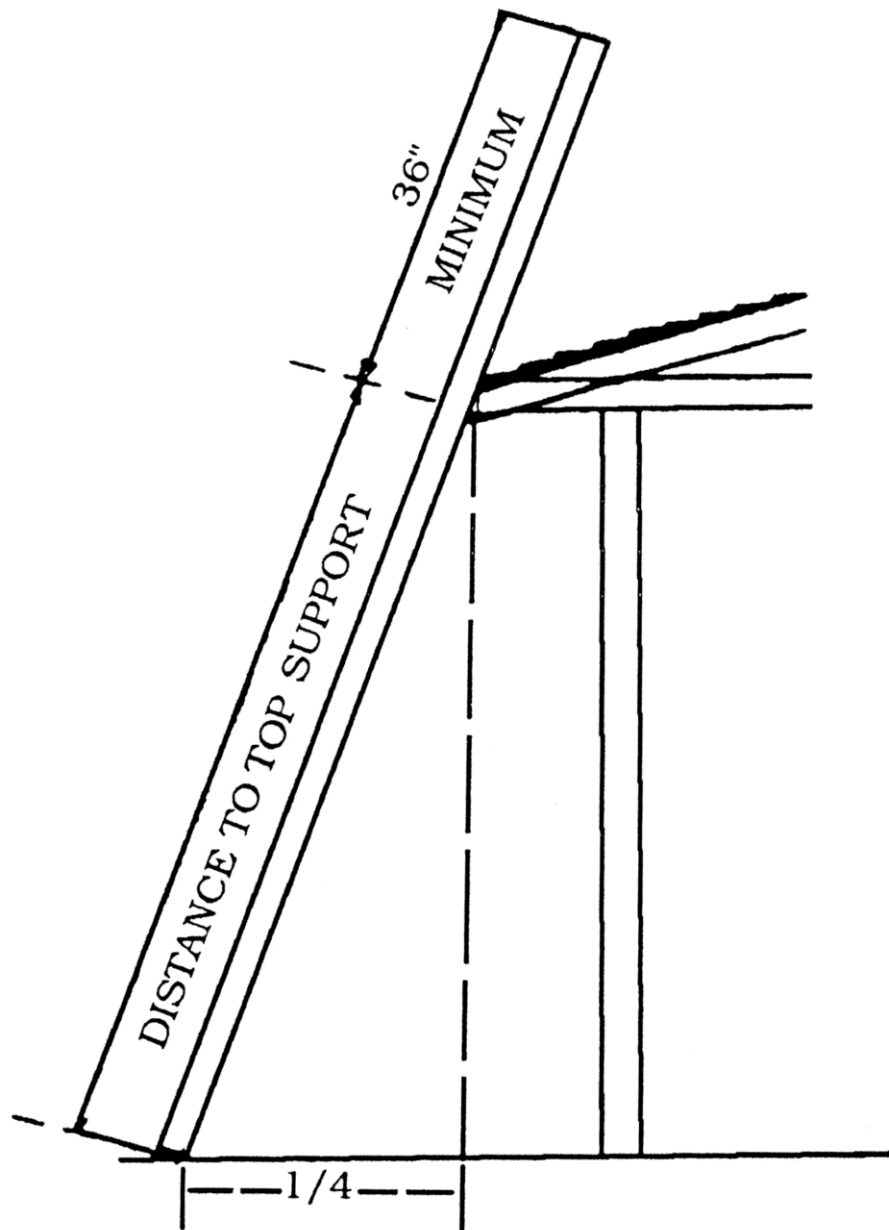
4. LADDERS AND SCAFFOLDS

a. Ladder Specification:

- (1) Ladders and scaffolds shall be inspected at frequent intervals and shall be properly maintained. Damaged, defective ladders shall be removed from service.
- (2) Portable ladders made of metal, fiberglass, epoxy, or other synthetic material shall equal or exceed the strength requirement of approved wood ladders.
- (3) Wood ladders should be given a suitable protective coating, such as clear varnish, shellac or linseed oil. Metallic paint or other electrically conductive coating shall not be used on wood ladders. A paint which hides the grain shall not be used because it hinders detection of defects. Identification markings may be painted or branded on ladder rails.
- (4) Portable ladders for general use shall be equipped with approved safety feet. Portable straight ladders shall be equipped with a top tie-off rope before being used. When portable ladders are used they shall be securely placed (which may include being held by another employee at the bottom or by tying off at the bottom) to prevent slipping. The tops of ladders shall be tied off whenever practicable.
- (5) Wood ladders shall not be stored outdoors or in areas subject to excessive heat or dampness.

b. Ladder Use:

- (1) Ladders placed near doorways, in passageways, or in driveways shall be protected by barricades or guards against being struck by door or traffic. They shall not be left unattended. Ladders shall be removed when not in use or attended.
- (2) The base of a portable ladder should be placed about $\frac{1}{4}$ of its working length from a wall or support. The feet shall be placed on a substantial base to prevent sinking or shifting. The side rails shall extend at least 36 inches above the landing. When this is not practicable, grab rails, which provide a secure grip for an employee moving to or from the point of access, shall be installed. (See figure next page).



- (3) To prevent collapse of extension ladders, the minimum overlap of each section shall be:
- (a) Three (3) feet on ladders up to and including 36 feet
 - (b) Four (4) feet on ladders over 36 feet, up to and including 48 feet.
 - (c) Five (5) feet on ladders over 48 feet, up to and including 60 feet.

Extension ladders should be equipped with positive stops which will ensure the overlap specified above. Extension ladders should be adjusted from the base before using.

- (4) When ladders with metal parts (including metal reinforcing of the rings) or metal scaffolds are being used in the vicinity of energized electrical equipment, precautions shall be taken to prevent the metal parts from contacting the energized equipment.
- (5) When using ladders, employees shall:
 - (a) Use the correct size ladder for the job. Two ladders should not be spliced together.
 - (b) Place the ladder as closed to the work as practicable to prevent over-reaching.
 - (c) Be sure that a stepladder is fully opened before using.
 - (d) Face the ladder, use both hands, and use each rung when going up or down the ladder.
 - (e) Not climb higher than the third rung from the top on straight or extension ladders or the second tread from the top on ordinary stepladders.
- (6) Personnel, tools, and material shall be removed from portable ladders or manually propelled mobile scaffolds before they are moved.
- (7) Only one person should be on a ladder at one time.
- (8) Ladders shall not be used in a horizontal position as platforms, runways, or scaffolds unless they have been designated for such use.
- (9) Ladders carried on vehicles shall be adequately supported and secured.

5. WELDING AND CUTTING

- a. The primary hazards during welding are electric shock, burns, radiant energy (including “flash), toxic fumes, fires, and explosions. Adequate precautions shall be taken to guard against these hazards.

- b. Approved welding goggles or helmets (hoods) with the proper shade lens shall be worn by welders and helpers. Proper eye protection shall be worn to guard against flying particles of scale when the helmet is raised; such eye protection shall be worn whenever shipping slag. Ear protection also should be worn when welding or cutting overhead.
- c. Gauntlet gloves shall be worn while welding or cutting. Outer clothes should be free of oil or grease. Clothing around the neck, wrists, and ankles should be fastened. In confined areas, flame-resistant clothing may be necessary and "Hot Work" permits completed.
- d. Adequate ventilation or respiratory protective equipment shall be provided while welding in confined space. Procedures must be followed while welding in areas where chlorinated solvents are in use, brazing, cutting or welding cadmium, beryllium, chromium, zinc, brass, bronze, galvanized, or lead-coated material. Pure oxygen shall NEVER be used for ventilation because of the danger of fire or explosion.
- e. Safety signs, shields, or barricades shall be placed around welding jobs when needed for the protection of employees from direct rays of electric arc, welding flame, or spatter.
- f. When employees are welding or cutting in elevated positions, precautions shall be taken to prevent hot metal from falling onto people, onto combustible material, or into equipment.
- g. Hot material shall be cooled or plainly chalk-marked "HOT" before leaving it unguarded. Such marking should be removed when material has cooled.
- h. Welding or cutting shall not be attempted in dusty or gaseous areas until the area has been ventilated sufficiently to eliminate the possibility of fire or explosions. Wetting down the area may also be necessary.
- i. When it is necessary to weld near energized high voltage circuits, solid protective barriers or other means shall be provided to prevent the ionized air or metallic vapor produced by welding from causing a flashover of the circuit.

- j. When flammable material cannot be removed from the danger of ignition from welding, it shall be protected by a shield of noncombustible, fire-resistant material, or positive means shall be taken to confine the heat, sparks and slag. A suitable fire extinguisher shall be readily available.
- k. Grease or oil shall not be allowed to come into contact with gas cylinders, regulators, valves, or connections of gas welding equipment. Oxygen should never be directed at oily surfaces, greasy clothes, into tanks or containers of combustible or flammable liquids. Oil or grease in the presence of oxygen may cause a violent explosion.
- l. Gas welding equipment connections shall be made without pipe thread sealant, gaskets or lubricants.
- m. Gas connections and fittings shall be checked for leaks with soap or standard testing solutions before using gas welding and cutting equipment in confined or poorly ventilated areas.
- n. Whenever work in an enclosed space requires the use of a gas torch, the cylinder valves (located outside of the enclosed space) shall be shut off, or the torch and hose shall be removed from the enclosed space when the torch is not actually being used.
- o. Matches or cigarette lighters shall not be used to light a torch. A torch shall not be re-lighted on hot work. An approved lighter shall be used.
- p. Flash guard check valves shall be installed between the hoses and an oxygen-acetylene torch to prevent a flashback in the hose. If a flashback occurs in a torch, the oxygen valve shall be shut off first and then the acetylene valve shall be closed. Torch, tip, hose, and gas pressure shall be checked before relighting the torch.
- q. Oxygen or acetylene shall not be used through a torch or other device having a shut-off valve unless the cylinder is equipped with a pressure regulator.
- r. When electrode holders are to be left unattended, the electrodes shall be removed, and the holders shall be so placed or protected that they cannot make electrical contact with employees or conducting objects.
- s. The employee doing arc welding or cutting shall turn off the equipment when he stops work or leaves his work area.

- t. Hoses, cables, and other equipment shall be kept clear of passageways, ladders, and stairs. When hoses or cables must cross such areas, they shall be placed so as to not cause an obstruction.
- u. Welding equipment, electrode holders, ground clamps, cables, etc., shall be maintained in safe working condition. Gas welding hoses shall not be repaired with tape.
- v. The wrench shall be left on the valve when a fuel cylinder is in used so that the valve can be turned off quickly in the event of an emergency. To permit quick closing, valves shall not be opened more than 1- ½ turns.
- w. Containers, such as workmen's gang boxes or cabinets, used for the storage of gas hose shall be ventilated.

6. STORAGE, USE AND TRANSPORT OF COMPRESSED GASSES

- a. Compressed gases and gas cylinders shall be stored, handled, and transported only by experienced or properly instructed personnel.
- b. Cylinders shall be securely stored in an upright position in a safe and well-ventilated place prepared and reserved for that purpose. They shall not be stored in any area where they can be knocked over and damaged.
- c. Oxygen and chlorine cylinders in storage shall be separated from fuel gas cylinders or combustible materials (especially oil or grease) a minimum distance of twenty (20) feet or by a noncombustible barrier at least five (5) feet high having a fire-resistance rating of at least one-half hour.
- d. Cylinders shall not be stored near sources of heat, such as radiators or furnaces. They should never be allowed to reach a temperature exceeding 125 degrees F.
- e. Cylinder valve protection caps, when provided for in the cylinder design, shall be in place and hand-tight, except when cylinders are in service.
- f. Empty cylinders shall be conspicuously marked "EMPTY" (or "MT") with chalk or soapstone. The valves shall be closed and the valve protection cap replaced. The cylinders shall be returned to their storage area as soon as practicable. They shall not be stored with full cylinders.

- g. To prevent rusting, cylinders stored outdoors should be protected from contact with the ground and against extremes of weather, such as accumulations of ice and snow in winter and continuous direct rays of the sun in summer.
- h. Cylinders shall not be dropped or allowed to strike each other violently.
- i. Cylinders containing oxygen or acetylene (or other fuel gas) shall not be taken into confined spaces. This does not apply to approve breathing apparatus.
- j. Leaking, damaged or defective cylinders, or accessories shall not be used. A flame shall not be used to detect gas leaks; a soap solution or other approved leak detecting solution or device shall be used. If an uncontrollable leak occurs in a flammable gas cylinder, they cylinder shall be moved to an outdoor, safe area and the valve opened to allow the gas to escape slowly.
- k. Employees shall not tamper with safety relief devices in cylinder valves or regulators.
- l. Employees shall not attempt to interchange regulators, hoses, or other equipment with similar equipment that has been used with other gases. They shall not force connections that do not fit properly.
- m. Smoking, welding, or open flames shall be prohibited at, or in the near vicinity of combustible compressed gas storage or operations. Such areas shall be conspicuously posed with "NO SMOKING" signs.
- n. When full gas cylinders are connected to a header or manifold with other cylinders, their temperatures should be approximately the same.
- o. Employees shall guard against suffocation in air heavily filled with either carbon dioxide or nitrogen without sufficient oxygen. Pure oxygen shall NEVER be used for ventilation.
- p. While releasing carbon dioxide from cylinders (including fire extinguishers), employees shall avoid direct contact with the gas and system fittings or piping in the gas expansion location. This expanding gas produces a refrigerating effect which may freeze any exposed portion of the human body.

- q. If the valve outlet of a cylinder becomes clogged with ice, it may be thawed with warm (not boiling) water. Flames shall not be used.
- r. A torch shall not be used in such a way that its flame is reflected from the work to the tank of the torch or that radiant heat from the can strike the tank. This may furnish sufficient heat to develop a dangerous pressure in the tank. If there is a possibility of heat being reflected, the tank shall be protected with a suitable heatproof shield.
- s. When cylinders are transported by powered vehicles, they shall be secured in a vertical position with the valve protection caps in place.
- t. Unless cylinders are firmly secured on a special carrier intended for this purpose, regulators shall be removed and valve protection caps put in place before cylinders are moved.
- u. Cylinders shall not be lifted with a magnet or choker slings. They shall never be lifted by the valve or valve protection cap. When cylinders must be handled by hoisting equipment, they shall be secured on a cradle, sling board, or pallet, and extreme care shall be taken to prevent them from being dropped.

7. PAINTING

- a. Employees using paints, lacquers, thinners or solvents should avoid inhaling the vapors or getting these material into their mouth and should wash their hands carefully before eating.
- b. Employees wearing clothing contaminated with paint or thinner shall not use or go near open flames.
- c. Spraying areas in which dangerous quantities of flammable vapors, mists, combustible residues, dusts, or deposits are present shall be provided with adequate mechanical ventilation which exhausts to a safe location. This ventilation shall be kept in operation while spraying operations are being conducted and for a sufficient time thereafter to allow vapors to be exhausted.
- d. Smoking, welding, open flames, or sparks shall not be permitted in areas where employees are spraying with a combustible or flammable material.

- e. "NO SMOKING" signs shall be conspicuously posted in spraying areas and on paint storage rooms.
- f. Approved portable safety lamps shall be used in paint spraying areas in which dangerous quantities of flammable vapors, mists, combustible residues, dusts, or deposits are present during spraying operations.
- g. Fire protection sprinklers for pain spray booths or spraying areas shall be kept as free from deposits as practicable by cleaning daily, if necessary, or by covering the sprinkler head with a very light weight plastic bag that would not interfere with the proper operations of the sprinkler.
- h. Suitable portable fire extinguishers shall be installed near paint spraying areas.
- i. An approved mask or respirator and eye protective equipment shall be worn by employees using spray painting equipment.

8. GUARDING WORK SITE

- a. Before engaging in work in public rights-of-way, warning signs or traffic control devices shall be placed conspicuously to approaching traffic. Where further protection is needed, suitable barricades shall be erected. Where the nature of work and traffic while the hazard exists. All employees working within 50 feet of a roadway shall wear a safety vest.
- b. In case openings or obstructions in the street, sidewalk, walkways, or on private property being worked on or left unattended during the day, danger signals, such as warning signs and flags, shall be effectively displayed.
- c. When working on customers' premises or public property, reasonable effort shall be made to avoid creating hazards to persons or causing unnecessary property damage. Signs, barricades, tools, equipment and excess materials shall be removed from the site when the job is complete.
- d. When it is necessary to leave equipment or other obstructions on a roadway overnight, the following precautions shall be taken:
 - (1) They shall not be left next to fire hydrants or directly in front of entrances to areas or buildings, such as parks, playgrounds, churches houses, and schools.

- (2) They shall be locked, blocked or otherwise secured.
- (3) Adequately approved warning devices shall be placed where needed.
- e. Employees shall not permit the public to assist in the performance of their work except in those emergencies when life is endangered.

9. CONFINED SPACES, TANK ENTRY AND RESCUE

(All Metro Water Services Confined Space Entry procedures, practices and policies will be strictly followed. See Metro Water Services Confined Space Entry Program).

- a. A “confined space” is a space having limited means of entry or exit and so enclosed that adequate ventilation cannot be obtained. Confined spaces encountered by Metro Water Services personnel include but are not limited to, pump wet wells, sludge digestion tanks, basins, regulators, vaults and manholes.
- b. Any space with limited access and limited ventilation shall be considered dangerous until tested and evaluated according to guidelines and procedures established by the Metro Water Services Safety Office.
- c. Before sending personnel into a confined space, the supervisor shall ensure that the work area is tested for oxygen deficiency, toxic gases, and the presence of combustible gases, and that a proper permit is executed.
 - (1) If an oxygen deficiency (O₂ less than 19.5%) is indicated, self-contained or supplied air respiratory protection shall be provided and/or ventilated to an acceptable level.
 - (2) If combustible, explosive, or toxic atmosphere is chemical substance may have caused the hazardous atmosphere, the supervisor shall be notified.
- d. If an employee suspects that a spill of a hazardous chemical substance may have caused the hazardous atmosphere, the supervisor shall be notified.
- e. A qualified employee may enter a confined space for a brief time for the purpose of inspection, housekeeping, taking readings, or similar work. If testing for oxygen deficiency, combustible gas, and suspected toxic substances has been performed with at least one-man standby, then entry is permissible.

A qualified employee is one who can demonstrate the ability to use proper instrumentation to sample the atmosphere and interpret the indications of the instruments.

- f. Life lines, harnesses, and other rescue equipment shall be provided at the work site and rigged according to the instructions of the supervisor in charge.
- g. It shall be the responsibility of the supervisor to arrange the work site personnel so that at no time will a worker be left alone or unattended in a confined space.
- h. Rescue procedures will vary according to the specific type of confined space. The following is a general guideline:
 - (1) Call 911.
 - (2) Employees must be certified to wear METRO WATER SERVICES respiratory equipment and be familiar with the METRO WATER SERVICES respiratory program.
 - (3) Rescuers must put on respiratory protection and other necessary equipment before entering the confined space but not without another standby person present.
 - (4) Upon reaching the victim rescuers must assess injury and the nature of the accident.
 - (5) Rescuers should administer first aid and prepare the victim for a safe exit.

10. MANHOLE ENTRY

- a. The atmosphere of any confined space shall be tested with an approved combined oxygen, toxic and combustibles indicator before entry. No work area atmosphere or environment is assumed to be safe.
- b. The supervisor must be notified immediately when a hazardous atmosphere is determined to exist. If the Supervisor suspects a hazardous chemical spill has occurred, they should follow notification procedures.
- c. The use of life support units is mandatory whenever an oxygen meter scale of less than 19.5% exists in any work area. Periodic oxygen level readings, with an approved gas meter, should be taken throughout the work day in the work area to determine the extent of existence of an oxygen deficient atmosphere, toxic materials, or combustibles present.

- d. No attempt shall be made to enter a work area containing a potentially explosive atmosphere or environment. The combustibles meter will determine if the work area is safe to enter, even if using the life support unit. Entry shall be made using the life support unit only after the work area involved has been properly and thoroughly ventilated and verifying combustibles meter readings indicate that there is no potential explosion hazard and proper permit executed.
- e. Never enter manholes, chambers, sewers or other confined structures without life lines, safety harnesses, or proper gas monitoring and ventilation equipment.
- f. Never smoke within a twenty foot radius of a manhole - NEVER!!!
- g. Never smoke in a manhole – NEVER!!!
- h. Everyone should check manhole steps carefully before using. If dangerous, use a rope ladder or some other approved means of entry.
- i. Rope ladders shall be inspected prior to each use. Defective ladders shall be removed from service. Rope ladders are to be securely tied-off to a sound point capable of supporting the weight of the personnel using the ladder.
- j. Bench walls and steps are to be considered slippery at all times.
- k. Persons entering a manhole shall carry nothing in their hands. Needed equipment shall be lowered only when the employee is at the invert and only when they ask for the equipment. Nothing is to be dropped or thrown into manhole.
- l. Personnel on the surface shall stay far enough away from the manhole so that no material may be accidentally kicked or dropped into the manhole.
- m. Persons in a manhole should be checked regularly as to how the process is going and how the conditions are in the manhole.
- n. At no times shall a person in a manhole be left unattended.

11. STORES AND WAREHOUSES

- a. Every floor should have a posted maximum load limit, so to ensure that the weight of stored material does not exceed the limit.
- b. Storage of materials shall not create a hazard. Bags, containers, bundles, etc., stored in tiers shall be stacked, blocked, interlocked, and limited in height so

that they are stable and secured against falling, sliding, or collapse.

- c. Storage areas shall be kept free from materials that are hazards for tripping, fire, explosion or pest harborage. Vegetation control shall be used when necessary.
- d. Permanent aisles and passageways shall be appropriately marked and kept clear of obstructions and tripping hazards.
- e. "NO SMOKING" signs shall be conspicuously posted, as needed, in areas where combustible or flammable liquids or materials are being used or handled.
- f. Employees shall be sure that stored materials do not obstruct exits or in-service items, such as sprinkler systems, fire extinguishers, fire alarm boxes, first aid equipment, lights, electrical control panels, and control valves.
- g. Employees required to work on stored material, such as coal, fly ash, or sand in silos, hoppers, tanks, and similar storage areas shall wear approved lifelines and shall have safety harness properly secured.
- h. Materials which may produce hazardous conditions when stored together shall be properly separated as outlined in material safety data sheets. Material safety data sheets are available from the Safety Office.
- i. Bagged materials shall be stacked by stepping back the layers and cross-keying the bags at least every 10 bags high.
- j. Special precautions (including wearing gloves or protective clothing) shall be taken when storing, handling, or shipping glass objects or materials.
- k. Special precautions shall be taken when storing, handling, or shipping acids, caustics, flammable liquids, toxic powders, etc. Materials and supplies which present hazards shall be properly identified and labeled as needed. Plant managers and section heads shall have copies of material data sheets on substances they use. Material data sheets can be obtained from the Safety Office.
- l. Reels, cylinders, and other rolling items shall be blocked or otherwise secured, as needed, to prevent unintentional rolling or shifting.

- m. Care shall be taken to avoid personal injury when opening or closing packing cases, crates, etc. Nails in loose boards shall be removed or bent over to prevent someone stepping on them or bumping into them. Approved carton openers shall be used for opening cardboard cartons.
- n. The following rules shall be observed in the storage of lumber:
 - (1) Nails shall be withdrawn from lumber before stacking.
 - (2) Lumber shall be stacked on level, and solidly supported sills.
 - (3) Lumber shall be so stacked as to be stable and self-supporting.
 - (4) Lumber piles shall not exceed 20 feet in height, provided that lumber to be handled manually shall not be stacked more than 16 feet high.
- o. Materials stored inside buildings under construction shall not be placed within six (6) feet of hoisting or floor openings, nor within 10 feet of an exterior wall that does not extend above the top of the materials stored.
- p. Quantities of materials or supplies in excess of those needed for immediate use shall be stored on scaffolds or runways.
- q. Adequate lighting shall be provided and maintained in warehouses and storage areas.
- r. Good housekeeping practices shall be maintained in storage areas.
- s. Each warehouse or storage area shall have adequate and properly maintained fire protection equipment. Fire doors and fire lanes shall be conspicuously marked and kept free from obstructions.
- t. Rigging equipment not in use shall be removed from the immediate work area so that it does not present a hazard.
- u. Operators and employee responsibilities during forklift operations:
 - (1) Only trained and certified operators shall be permitted to operate powered industrial trucks. The operator shall sit on the seat and keep arms and

legs inside the cab at all times.

- (2) There should be absolutely no passengers on the forklift! Under no circumstances is anyone allowed to ride on the forks of the forklifts.
- (3) Forklift trucks shall not be driven up to anyone standing between the forklift truck and a wall, table, or any other fixed object.
- (4) Don't walk or stand under the forks.
- (5) Before the start of each shift, each operator must properly check the vehicle of safety of operation.

v. Operating the forklift:

- (1) Do not take chances. If you do not know, ask for instructions from your supervisor.
- (2) An operator is not to use any forklift which is mechanically unsafe. An unsafe forklift should be reported to the supervisor and removed from service until repaired.
- (3) There should be no horse playing around a forklift.
- (4) When leaving the forklift truck:
 - (a) Lower forks.
 - (b) Put the truck in neutral.
 - (c) Shut the truck off.
 - (d) Set brake.
 - (e) If a truck is parked on an incline, block the wheels.
- (5) Fire aisles, access to stairways, and fire equipment must be kept clear.
- (6) Operators must keep the forklift under control at all times and operate at reduced speed when traveling in pedestrian aisles.
- (7) While fueling, the engine must be shut off. Spillage of oil or fuel must be completely washed away or completely evaporated before starting the engine.
- (8) No truck shall be operated with a leak in the fuel system.

- (9) Open flames must not be used for checking electrolyte level in storage batteries or the gasoline level in fuel tanks.

w. Lifting load with the forklift:

- (1) Handle only safe and stable loads:
 - (a) Be careful when handling off-center loads which cannot be centered.
 - (b) Make sure a load is secure.
- (2) Handle only loads within the rated capacity of the truck. Long or high loads which may affect capacity must be adjusted.
- (3) Forks must be placed under the load as far as possible and tilted back when possible.
- (4) Don't tilt forward when the load is elevated expect when depositing the load. When stacking, tilt back only far enough to stabilize the load.
- (5) When picking up loads:
 - (a) Keep forks spread so the load will not teeter.
 - (b) Always approach a load squarely and at slow speed so the pallet will rest squarely against heel of the forks to avoid jarring or spilling contents of load.
- (6) When lifting loads:

Make certain you have full clearance in every direction to lift loaded pallet. Be careful of overhead and aisle obstructions. Be sure there is ample space to turn with load. Always look behind you before backing up.

x. Traveling with the forklift:

- (1) All traffic regulations shall be observed.
 - (a) Speed limits must be observed.
 - (b) The truck must be under control at all times.
- (2) When vision is obstructed, the operator must slow down and sound the horn. If the load obstructs his

view, the operator must travel backwards and look in the direction of travel.

- (3) The operator must watch the road ahead at all times, watching for loose objects on the roadway surface. The operator must slow down for wet and slippery floors.
- (4) When on ramps or platforms, the operator must drive within a safe distance from each edge.
- (5) Ascend or descend grades slowly.
 - (a) If unloaded, forks should be downgrade.
 - (b) Forks and load should be tilted back and kept as low as possible.

12. OFFICE SAFETY

- a. Serious strains often results from improper handling of boxes and bundles of office supplies, ledgers, portable filing cases, and office machines. Lifting should be done with the back erect by using the more powerful leg muscles.
- b. Large boxes, bundles, or supplies shall be moved by a hand, truck, or be unpacked and delivered in smaller parcels.
- c. Bulky objects shall not be carried in such a way as to obstruct the view ahead or to interfere with the free use of handrails on stairways. Employees shall get help when necessary.
- d. Water, oil, or other substances spilled on floors present a dangerous slipping hazard and shall be cleaned up at once.
- e. When floors are polished or waxed, care shall be taken to prevent the creation of a slipping hazard.
- f. Loose objects, such as matches and pencils, shall not be left on stairs or floors.
- g. Electrical, communications, or other cords shall not be strung across aisles or walkways where someone may trip or fall over them.
- h. Employees shall not stand on boxes, chairs, or other make-shift supports to reach objects overhead. A ladder or stepstool shall be used when needed.

- i. Doors should be opened slowly to avoid striking someone on the other side. Swinging doors or other doors which present similar hazards should be equipped with see-through panels.
- j. Running in aisles, corridors, or on stairways is prohibited. Handrails should be used by employees when going up or down stairways.
- k. Desk drawers, file drawers, or drawer slides shall be closed when unattended or not in use.
- l. Care shall be used by employees when opening file cabinet drawers. Opening of heavily loaded upper drawers, particularly more than one at a time, may cause the cabinet to tip over. Where several tiers of cabinets are used at one location, they must be fastened together.
- m. When using electrically-operated office machines, employees shall avoid touching grounded metal objects (such as radiators or water pipes). Electrically defective machines or machines with defective cords shall be tagged out of service and not used.
- n. Straight pins shall not be used to fasten papers together. Employees shall use approved fasteners, such as paper clips, clamps, or staples for this purpose.
- o. Pointed objects, such as uncapped pens, pencils, knives, or scissors should be carried and stored in desk caddies so that they do not cause injury to anyone.
- p. Gummed strips of envelopes should be moistened with a suitable device, not with the tongue. Employees should avoid opening envelopes with their finger and sliding their hands along edges of paper.
- q. Razor blades shall not be used for cutting paper or sharpening pencils. Employees shall not keep razor blades or similar sharp instruments unprotected in desk drawers.
- r. Used pressurized containers (such as aerosol spray cans, fluorescent light tubes, broken glass, or other sharp objects) shall not be loosely discarded in wastebaskets but shall be wrapped and identified for safe removal.
- s. Sharp objects such as thumbtacks, pins, etc., shall be kept in proper boxes.
- t. When possible, secure all electrical cords in and around work locations and office work stations to avoid entanglement and trip hazards.

I. GENERAL SAFETY REQUIREMENTS

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I. GENERAL SAFETY REQUIREMENTS

C. EMPLOYEE SAFETY

1. HAND TOOLS

- a. Employees shall use only approved tools and equipment which are in safe condition. The supervisor shall be notified if proper and safe tools or equipment are not available.
- b. Hand tools similar equipment shall be inspected frequently and maintained in safe condition. Those which are found to be unsafe shall be removed from service, tagged, and not used again until repaired.
- c. Tools and equipment shall not be misused by unsafe practices, such as substituting a screwdriver for a hammer or chisel, or substituting a knife for a screwdriver or chisel.
- d. Impact tools, such as chisels, drills, hammers, and wedges with mushroomed heads shall not be used until they have been reconditioned. Pneumatic tool bits shall be used only in pneumatic tools and shall not be used as hand tools.
- e. Hammers, axes, shovels, and similar tools shall not be used if the handles are loose, cracked, splintered, or taped.
- f. Defective wrenches, such as open-end and adjustable wrenches with sprung jaws, or pipe wrenches with dull teeth shall not be used. Shims shall not be used to make a wrench fits. Adjustable wrenches shall be kept properly adjusted while being used.
- g. Pipe, or other extensions, should not be used on a wrench handle to increase the leverage unless the wrench is specifically designed for use of such extension.
- h. Metal rules, metal tape lined, or tape lines containing wires shall not be used near energized electric conductors or equipment.
- i. Sharp-edged or pointed tools shall be kept sharp. A tool is safer and more efficient than a dull one.
- j. Files, or other tools with pointed tangs, shall be equipped with suitable handles.

- k. Chisels, drills, pipes, etc. should be held with suitable holders or tongs (not with hands) while being struck with a hammer by another employee.
- l. When using a screwdriver, knife, or other tool, employees shall place themselves in such a position that they will avoid injury if the tool slips.
- m. Tools and material shall not be thrown from one employee to another, nor from one location to another. A suitable container should be used for raising or lowering small equipment or tools between different elevations.
- n. Tools shall not be placed on ladders, stairs, balconies, or other elevated places from which they might create a stumbling hazard or become dislodged and fall.
- o. Only non-sparking tools shall be used in locations where sources of ignition may cause a fire or explosion.
- p. When axes or scythes are used on a slope, the employee using these tools should be below or down slope from the work area. A safe distance shall be maintained between employees engaged in hand-cutting work.

2. PORTABLE POWER TOOLS

- a. Employees shall be instructed in the proper use and care of power tools, equipment, and machinery before using by their supervisor.
- b. When power-operated tools are designed to accommodate guards, they shall be equipped with such guards when in use. Guards shall be regularly inspected and maintained in safe working conditions.
- c. Power tools shall be inspected, tested, and determined to be in a safe operating condition prior to use.
- d. Power-activated tools shall be operated only by qualified personnel.
- e. Personal protection equipment shall be worn, as required, when using hand tools and portable power tools.
- f. The following rules shall be observed when operating an electric drill:
 - (1) The employee shall adequately secure the work by using a clamp, jig, or vise, and shall not hold small work in their hands.

- (2) Employees shall not sweep away chips with their bare hands.
 - (3) The need for adequate eye protection shall be considered whenever a drill is in use, especially when the work is near head level or overhead.
 - (4) Employees shall be sure that the chuck key or drift has been removed from the chuck before a drill is started.
- g. The following rules shall be observed when using portable electric cords:
- (1) Electrical extension shall not be looped, wrapped around and attached to any portion of the building structure.
 - (2) Electric cords shall be maintained in safe condition. Worn or defective plugs shall be repaired or replaced.
 - (3) Electric cords shall be disconnected by pulling on the plug and not the cord.
 - (4) Extension cord hand lamps used in an explosive – type dust or gaseous atmosphere shall be of the explosion-proof type.
 - (5) Extension cord hand lamps shall be of the molded composition type or other type approved for the purpose. Brass-shell, paper-lined lamp holders shall not be used. Hand lamps shall be equipped with a handle and a substantial guard over the bulb. Metallic bulb guards shall be grounded.
 - (6) When a portable hand lamp is used near energized electrical equipment or circuits, special precautions shall be taken to prevent accidental electrical contact.
 - (7) Extension cords used with portable electric tools and appliances shall be of the three-wire grounding type.
- h. Portable electric tools, equipment, and appliances shall meet one or more of the following requirements:
- (1) The exposed noncurrent-carrying metal parts of portable or plug-connected equipment which may become energized shall be grounded.

- (2) Use approved double-insulated type and it needs to be conspicuously marked as such.
- (3) Be completely self-contained battery-operated.
- i. Impact wrenches shall be provided with a locking device for retaining the socket.
- j. Pressure shall be shut off and exhausted from the line before disconnecting the line from any pneumatic tools or connection.
- k. Air hoses, pipes, valves, filters, and other fittings shall be pressure-rated by the manufacturer and this pressure shall not be exceeded. Defective hose shall be removed from service.
- l. Only approved hydraulic fluid power tools shall be used.
- m. Manufacturer's safe operating pressures for hydraulic hoses, valves, pipes, filters, and other fittings shall not be exceeded.
- n. All hydraulic or pneumatic tools which are used on or around energized lines or equipment shall have non-conducting hoses having adequate strength for the normal operating pressures.

3. CHAIN SAWS AND CUT – OFF SAWS

- a. Only qualified, properly trained employees shall operate chain saws and cut- off saws.
- b. When a chain saw is started it shall be placed on or against a solid support. The saw bumper shall be against the tree or limb before starting a cut. To prevent accidents, stand with your weight evenly distributed on both feet. Hold saw firmly with both hands. The proper grip will protect you if the saw kicks.
- c. Always stop the engine and pull the spark plug wire off before working on the saw.
- d. Never set a saw down while the blade is engaged.
- e. Never refuel while the engine is running. Always move away from the fueling spot before starting the engine. Do not smoke while refueling.
- f. Prepare the immediate cutting area by cleaning out undergrowth likely to interfere with the operator or the saw.

- g. Remove dead material, which could cause a fire, from cutting area.
- h. Chain saws shall not be operated above shoulder level.
- i. Keep all bystanders away from the work area.
- j. Other workers should remain within hailing distance in case you need help.
- k. Select a clear path of safe retreat when felling trees.
- l. Employees shall wear the assigned (orange) hard hats with mesh face shield, safety glasses and ear protection. Employee shall not wear jewelry, scarves, or loose fitting clothing. Suitable (safety-toe shoes are recommended) shall be worn. Open-toed shoes, tennis shoes, etc., do not give adequate protection and shall not be worn.

4. MACHINES AND MACHINE GUARDS

- a. Machine operators shall wear approved personal protective equipment as required by the operations.
- b. Do not operate any machinery, equipment, valve or switch which has been locked or tagged out of service.
- c. Do not operate any machinery or equipment unless all guards are in place.
- d. Machine guards removed for maintenance or repairs shall be replaced as soon as maintenance or repairs have been completed.
- e. Do not fuel, lubricate, or service moving machinery unless it is so designated.
- f. The following rules shall be observed when operating grinding wheels:
 - (1) Employees using abrasive wheels shall wear a face shield, goggles, or safety glasses.
 - (2) When installing a grinding wheel, the employees shall be sure that the rated speed of the wheel exceeds the maximum speed of the spindle. They shall also closely inspect the wheel and give it a "ring" test by supporting it free and tapping it lightly with a wooden object. If the wheel is not defective, it should produce a clear, metallic tone.
 - (3) Most defective wheels break when first started. New wheels shall be run at full operating speed for at

least one minute before work is applied. Employees shall stand to one side away from the wheel each time a grinder is started and see the immediate area in front of the wheel is clear before starting the device.

- (4) Work rests shall be rigidly supported and kept at a distance no more than 1/8 inch from the grinding surface of a wheel. Work rests shall NEVER be adjusted while a wheel is in motion.
- (5) Tongue guards shall be adjusted to within ¼ inch of the surface of the wheel.
- (6) Employees shall not grind on the side of the grinding wheel unless it is designed for side grinding.

5. BUILDING & GROUNDS (B & G) TOOLS

- a. Before starting powered B & G tools, make sure all guards are in place.
- b. Always check the fuel and the oil levels of a four-cycle engine. Do not fill gasoline tank while engine is running. There is no smoking during refueling of the engine.
- c. Stand clear of grass discharge chute and keep hands and feet from under blade housing when starting mower.
- d. Before using any powered B & G tool, make sure you have been properly instructed on controls of the tools by your supervisor.
- e. Before mowing an area, inspect the area and remove stones, branches, and other foreign objects from the area. Look ahead of the mower as you move.
- f. When mowing on a steep slope, never mow up and down. Mow across the face of the slope.
- g. Use extreme caution when pulling a mower toward you and do so only for short distances.
- h. Make sure other personnel are kept at a safe distance.
- i. Do not distract the attention of a person who is mowing.
- j. Do not leave the engine running while a powered B & G tool stands unattended.
- k. Shut off the mower before moving across paved, gravel, or dirt areas.

- l. Stop the engine and disconnect spark plug wire before working on the mower or unplugging the grass chute. Disconnect the power cords of electric tools.
- m. Always assume the exhaust pipe and the mower engine are hot until proven otherwise. Use of gloves will help keep hands from getting burned.
- n. No passengers are allowed on the tractor-type mowers or on any tractor.
- o. Hard hats, safety shoes, and eye protection shall be worn by all persons when using B & G tools. Hearing protection shall be made available in the warehouse.

I. GENERAL SAFETY REQUIREMENTS

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COMMERCIAL DRIVERS LICENSE (CDL)

You must have a Commercial Driver License (CDL) to operate any of the following Commercial Motor Vehicles (CMVs):

1. A single vehicle with a gross vehicle weight rating (GVWR) of more than 26,000 pounds.
2. A trailer with a GVWR in excess of 10,000 pounds.
3. A vehicle designated to transport more than fifteen passengers, including the driver.
4. Any size vehicle which is used in the transportation of hazardous materials requiring placards.

I. GENERAL SAFETY REQUIREMENTS

D. VEHICLES

1. DRIVER QUALIFICATIONS AND RESPONSIBILITIES

- a. Only employees with a valid state operator license may drive METRO WATER SERVICES vehicles. The valid license must be presented to METRO WATER SERVICES for record purposes. METRO WATER SERVICES may deny driving privileges in METRO WATER SERVICES vehicles to employees who have unsatisfactory driving records demonstrated by the accumulation of points on the state records or other observations.
- b. Authorization to drive vehicles other than passenger cars and small pick-up trucks will be determined, not only by the employee's possession of a state CDL operator's license, but also by the employee's successful completion of training and testing in the safe operation of the type of vehicle. Evidence of physical capability to drive safely as determined by the Metro physician may be required to continue to drive METRO WATER SERVICES vehicles.

2. VEHICLE INSPECTIONS BY DRIVERS

- a. The driver of a utility vehicle shall conduct a safety check each day using the Driver's Vehicle Inspection Book. If the vehicle is used on more than one shift or by several drivers on a shift, each driver shall complete an inspection using the Driver's Vehicle Inspection Book. At the end of each shift, the vehicle must be cleaned out for debris. The completed checklist shall submit each day and reviewed by the supervisor. If vehicle defects are noted, the vehicle shall be sent to Equipment Maintenance for attention. Vehicles failing to meet minimum safety standards shall not be driven. (See checklist on next page).
- b. Employees with permanently assigned passenger vehicles are responsible for routine care and maintenance of their vehicles. If vehicle defects are noted, an employee shall send the vehicle to Equipment Maintenance for repair.
- c. MWS drivers shall be responsible for reporting vehicle defects to their supervisor. Supervisors shall be responsible for making random inspections on all vehicles in their section, to assure employees are properly completing and noting vehicle deficiencies in the vehicle inspection books.

OPERATOR'S INSPECTION GUIDE AND TROUBLE REPORT GENERAL PURPOSE VEHICLES				DATE
Use this form as a guide when performing operational inspection. Initial to certify items have been inspected. A check () denotes items that require service by maintenance personnel. Describe on back of form.				
VEHICLE TYPE		MILEAGE HOURS	VEHICLE REGISTRATION NO	
INITIAL OR CHECK SHIFT OPERATOR			ITEMS TO BE CHECKED	
1	2	3		
			1 DAMAGE (Exterior/Interior/Mission Components)	
			2 LEAKS	
			3 TIRES; SPARE JACK; LUG WRENCH	
			4 FUEL; OIL; COOLANT (Level)	
			5 BATTERY	
			6 HORN	
			7 LIGHTS; REFLECTORS	
			8 INSTRUMENTS	
			9 WINDSHIELD WIPERS	
			10 CLEAN WINDSHIELD (Operator)	
			11 CARGO, MOUNTED EQUIPMENT	
			12 CLEAN VEHICLE INSIDE AND OUT (Operator)	
			13 STEERING	
			14 SAFETY DEVICES (Safety Belts & Warning Devices)	
			15 DRIVE BELTS; PULLEYS	
			16 BRAKES	
			17 LUBE; OIL CHANGE	
			18. PROPER FIRST AID KIT; FIRE EXTINGUISHER	
			19 CLEAN VEHICLE AFTER EACH SHIFT	
			20	
REMARKS				
SIGN OF SHIFT CHIEF		SIGN OF SHIFT CHIEF		SIGN. OF SHIFT CHIEF

3. VEHICLE OPERATIONS (GENERAL)

- a. It is the responsibility of every employee who drives a vehicle to know and obey all traffic regulations for the area in which they drive. The driver shall be familiar with, and abide by, rules and policies relative to the driving of METRO WATER SERVICES vehicles. They shall be personally responsible for fines and other penalties.
 - (1) Texting while operating a MWS vehicle is prohibited.
 - (2) Making cellular phone calls while driving is prohibited. Rather than making a call yourself, pull over or have the passenger call for you.
 - (3) No music ear bugs are allowed in vehicles or while working in the field.
- b. Vehicles shall be operated within the legal speed limit at all times or at a lower speed where conditions warrant. Rotating yellow lights do not exempt the driver from this law.
- c. Employees shall use seat belts when the vehicle is in motion.
- d. A driver shall not operate a MWS vehicle when they know that their driver license has been suspended, revoked or medically, physically, and mentally unfit to drive. Failure of the employee to report such conditions shall result in disciplinary action or discharge.
- e. Supervisors shall not permit unauthorized employees or other unauthorized persons to drive vehicles.
- f. Vehicle drivers shall not transport unauthorized persons.
- g. The driver shall be familiar with the capacity and required clearances for the safe use of the vehicle.
- h. Windshields and windows of vehicles shall be kept clean and clear of unnecessary items that may obstruct the drivers' vision.
- i. Drivers shall not permit more than two (2) additional persons in the front seat of a vehicle while it is in motion. The vehicles must be equipped with factory seat belts for each passenger.
- j. Objects or persons being transported shall be located so that the driver's view is not obstructed and the safe operation of the vehicle is not hindered.

- k. The following precautions shall be observed when fueling a vehicle:
- (1) The engine shall be shut off.
 - (2) The fuel hose nozzle shall be kept in contact with the vehicle fuel tank fill pipe to avoid static sparks.
 - (3) Radio transmitters shall not be used.
 - (4) Smoking and open flames shall not be permitted in the fueling area.
 - (5) Overfilling of fuel tanks shall be avoided.
- l. Drivers shall practice defensive driving. Make every effort to avoid an accident even though the other party may be in error. Do not insist on the so-called right-of-way.
- m. Drivers of vehicles shall not permit anyone to ride on the running boards, fenders, or any part of the vehicle except the seats or inside the body walls. Passengers shall not stand up in moving vehicles.
- n. Except in an emergency, drivers shall park their vehicles only in locations permitted by law.
- o. Where work requires that vehicles or equipment be parked on a street or highway, or immediately adjacent thereto, traffic control procedures shall be used. Work crews shall place flagmen, barricades, or cones to regulate, warn, or guide traffic in accordance with our standard procedures for control of traffic through METRO WATER SERVICES work areas.
- p. To change a tire or make other necessary repairs along a highway, the driver shall pull off of the pavement as far as possible. If driving on the interstate with a flat tire, the driver may find it necessary to proceed to the next exit and pull off. Flashing or rotating lights shall be turned on if they are available. Traffic control procedures shall be used as needed.
- q. When a vehicle with manual transmission is parked on a hill, the driver shall be sure that the brakes are properly applied, that the vehicle is in gear, other than reversed traveling uphill, that the engine is shut off, doors are closed, and that the vehicle's front wheels are turned at an angle to the adjacent curb, or otherwise blocked to prevent rolling. A vehicle with automatic transmission shall be placed in "park."

- r. Occupants should enter or leave a parked vehicle on the curb side. If doors must be opened on the road side, extreme care should be exercised to avoid being struck by other vehicles.
- s. When an occupied vehicle is parked with the engine running, the windows shall be left partially open for adequate ventilation to prevent asphyxiation from carbon monoxide.
- t. A driver shall not operate a gasoline or diesel fuel engine in any enclosed structure unless adequate ventilation is provided
- u. The driver should try to plan driving and parking to avoid backing. Before backing a vehicle, the driver shall determine that adequate clear space is available and back slowly, keeping a constant lookout during the entire time.
- v. When a driver is backing a vehicle and another employee is available, the employee shall be stationed to warn the driver of danger and to assist in maneuvering the vehicle. If alone, the driver shall be out and check conditions, when necessary, before backing.
- w. Speed affects the stopping distance of a vehicle and is an important factor in determining whether a driver can avoid an accident. See figures on next page for approximate stopping distances. Added weight also increases stopping distance. A heavily loaded truck will travel further than a lightly loaded truck or a passenger care after the brakes are applied.
- x. Music headsets are prohibited in all vehicles.
- y. Small Pick-up trucks and automobiles should not be left running and unattended at any time.
- z. Larger vehicles, after initial warm up, on METRO WATER SERVICE premises, should not be left unattended. Wheel chocks should be used and brakes set anytime the vehicle is left running.

4. VEHICLE OPERATION (HEAVY, OVER-THE-ROAD)

- a. Regulations governing lights, markers, length, width, weight, and the loading of vehicles shall be complied with. This includes regulations pertaining to explosives, flammable or combustible liquids, or other hazardous materials.

- b. Before a truck or a trailer is moved, it shall be carefully inspected to see that materials and equipment are properly loaded and secure so that they will not shift.
- c. Loads on trucks and trailers shall not exceed rated capacities.
- d. Where material extends beyond the rear of a truck or trailer, the projecting end shall be marked with a red flag or red light.
- e. Trailers, while being towed, shall be securely coupled to the towing vehicle. Trailers, except those attached to a tractor by a "fifth wheel," shall be blocked.
- f. Before a truck is loaded or unloaded, the brakes shall be securely set or the wheels shall be blocked.
- g. While a truck is being loaded by a "high lift," power shovel, crane, or other loading equipment, the truck should be positioned so that the load does not pass over the driver. If a truck cannot be so positioned, the driver shall stand clear of the truck and the loading equipment.
- h. The capacity of booms, derricks, or other hoisting equipment mounted on trucks shall not be exceeded.
- i. Heavily loaded trucks proceeding down steep grades shall be shifted into a lower gear.
- j. Trucks equipped with booms, derricks, elevating platforms, aerial buckets, or similar equipment shall not be moved unless such equipment has been placed in the stored position, except under the immediate direction of a designated employee who shall give his undivided attention to the movement.
- k. Towing and moving wheeled equipment. Before towing:
 - (1) All stabilizing legs must be up and locked.
 - (2) A Ball- typed hitch must be hand-tight and secure. Pintle types must have a proper in positively locked.
 - (3) All safety chains should be properly installed and should not touch the ground.

- (4) If lights are provided, they should be checked and plugs properly hooked in.
- (5) Special Note: When backing a heavy vehicle AT ANY TIME, one man must be at the rear to direct the driver. This applies not only to towing vehicles but to any vehicle or Pick-up class or larger.

I. While towing:

- (1) Do not tow vehicles on rough, off-the-road terrain at more than five (5) miles per hour. Use discretion. Check any questionable terrain on foot before moving a vehicle into it.
- (2) Keep regular, critical observation of a towed vehicle at all times.
- (3) When passing another vehicle, allow plenty of room before returning to cruising lane. USE YOUR TURN OR HAND SIGNAL.
- (4) When on residential streets, check overhead clearance to ensure against damage to wires or trees, or overhead structures.
- (5) High-speed and sharp turns can topple a towed vehicle and possibly the towing vehicle--AVOID THEM.

m. Moving wheeled equipment by hand:

- (1) When unhooking from a towing vehicle, unhook the ball hitch first, then the safety chains. Also, make sure the front stabilizer is in the down position, and be sure the brake and taillight connections are not damaged.
- (2) Before attempting to move trailer equipment, make sure you have enough help to move it and also to control the movement--especially on any sloped terrain.
- (3) Before attempting to pick up towing tongue, make sure both stabilizing legs are up and locked.

5. VEHICLE OPERATION (HEAVY, OFF-THE-ROAD)

Off-the-Road Trucks, Backhoes, Front Loaders

- a. Service braking systems shall be maintained in a condition capable of stopping and holding equipment when fully loaded.

- b. Employees shall not use equipment having an obstructed view to the rear unless:
 - (1) The equipment has a reverse signal alarm audible above the surrounding noise level;
 - (2) The equipment is backed up only when an observer signals that it is safe to do so.
- c. Tools and material shall be secured to prevent their movement when transported in the compartment with employees.
- d. Before starting the engine, be sure all operating controls are in neutral.
- e. Never operate any of the controls from any position except seated in the operator's seat or at operator's control panel.
- f. Keep the vehicle in gear when going down steep grades.
- g. Drive at a speed slow enough to ensure safety and complete control, especially over rough terrain.
- h. Reduce speed when making a turn, going downhill, or applying brakes.
- i. Do not drive too close to the edge of a ditch or creek.
- j. Never shift to low gear when operating at high speed.
- k. Never leave any vehicle or engine running while the equipment is unattended.
- l. Never permit persons other than the operator to ride on the equipment. Never allow riders on a moving crawler or its drawn equipment.
- m. Never stand between a tractor and a machine when hitching unless all the controls are in neutral and the brakes are locked.
- n. Do not oil, grease, or adjust equipment when the engine is running.
- o. Carry the bucket as low as possible at all times, especially when working on a hillside or backing up a steep incline.

- p. Do not use a loader as a battering ram.
- q. Never allow anyone to work, walk, or stand under a raised bucket.
- r. Block the wheels securely and lower the loader bucket or backhoe bucket to the ground if the machine is parked on a hillside.
- s. Do not attempt to repair or tighten hoses when they are under pressure, when the boom is raised, or when the engine is running.
- t. Check overhead clearance carefully before driving under power lines, guy wires, bridges, low hanging branches, or when entering or leaving buildings, etc.
- u. Always carry a “charged” fire extinguisher and a first aid kit.
- v. When loading off-the-road vehicles for over-the-road transit, the following safety factors must be considered:
 - (1) Centering the vehicle on trailer or low-boy.
 - (2) Proper tie-downs.
 - (3) Blocking and chocking.
 - (4) Position of buckets, booms, etc.
- w. Always wear seat belts while vehicle is in motion.

6. VEHICLE ACCIDENT REPORTING, INVESTIGATION, AND REVIEW

- a. Employees shall not discuss any accident with other individuals unless directed to do so by Metro or METRO WATER SERVICES legal/staff members.
- b. Employees shall not admit responsibility for an accident, offer to make any kind of settlement, or sign any statements at the scene of an accident. Authorized METRO WATER SERVICES personnel or the Metro Claims Department will represent METRO WATER SERVICES.
- c. These instructions shall be followed by an employee if involved in a traffic accident while on duty:
 - (1) STOP—Call 862-8600, if injuries are not life threatening; however, if the accident is serious, call 911 immediately as well as your supervisor and METRO WATER SERVICES Safety Office.

- (2) Whenever a police investigation of the accident is indicated, do not move the vehicle until directed to do so by the police.
 - (3) Do not leave the scene of an accident. Render assistance if needed.
 - (4) Assist injured persons as far as you are able. Do not move seriously injured persons unless it is necessary for their protection against further injury. Report the accident to police and inform them of any injuries.
 - (5) Flagmen should be used if needed. Set flags or other traffic control devices, if available, and if they are considered to be necessary.
 - (6) Notify the METRO WATER SERVICES Fleet Manager, your supervisor, and the Safety Office as soon as possible.
 - (7) Obtain the name, address and license number of the other driver; the vehicle license number, the insurance company, and name of the vehicle owner; the names and addresses of witnesses and the names of the passengers in the other vehicle, as well as other information needed on the accident report form.
 - (8) When requested, give your name, address, and driver's license information. The Metro Claims Department shall provide accident report forms and/or information about the insurance carrier.
 - (9) If the accident involves damage to any unattended vehicle or a fixed object, take reasonable steps to locate and notify the owner. If the owner cannot be found, leave a notice in a conspicuous place on the vehicle or object, listing your name, address, METRO WATER SERVICES, and a brief description of the accident.
 - (10) METRO WATER SERVICES – owned vehicles should be taken to the Equipment Maintenance Garage for appraisal of the damage as soon as practical after the accident.
- d. The Supervisor, upon receiving notice of an accident, bodily injury or property damage, shall immediately notify the Safety Office and his/her Plant Manager, Section Head, or Assistant Director. A completed 105 (Accident) form and 101 Injury Form (if necessary) shall be filled out and submitted to the Safety Office as soon as possible.
 - e. If a fire extinguisher or first aid kit is used, it shall be refilled or replaced as soon as practical.

STOPPING ABILITY OF STANDARD PASSENGER CARS
ON DRY, CLEAN, LEVEL, PAVEMENT

SPEED	(1)	(2)	(3)
	DRIVER REACTION DISTANCE	BRAKING DISTANCE 15-85 PERCENTILE RANGE	TOTAL STOPPING DISTANCE RANGE
mph	ft	ft	ft
20	22	18-22	40-44
25	28	25-31	53-59
30	33	36-45	69-78
35	39	47-58	86-97
40	44	64-80	108-124
45	50	82-103	132-153
50	55	105-131	160-186
55	61	132-165	193-226
60	66	162-202	228-268
65	72	196-245	268-317
70	77	237-295	314-372
75	83	283-353	366-436
80	88	334-418	422-506

1. Driver reaction distance is based on a reaction time of $\frac{3}{4}$ seconds, which is generally considered average for the typical driver under normal driving conditions.
2. The braking ability of any passenger care can vary widely owing to the type and condition of the pavement surface, the type of tires, the condition of the tires and brakes, and other factors. The values in the table above show a braking distance range from the 15 percentile to the 85 percentile level and are based on tests conducted by the U. S. Bureau of Public Roads as 20 mph on dry, level pavement. Since extensive test data are not available in the upper speed ranges, distances for higher speeds were computed by the use of formulas that allow for findings based on limited test data.
3. Stopping distance as used here includes driver reaction distance and braking distance.

I. GENERAL SAFETY REQUIREMENTS

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I. GENERAL SAFETY REQUIREMENTS

E. HAZARDOUS MATERIALS

1. HAZARDOUS MATERIALS

- a. Employees who handle or use chemicals, compressed gases, poisons, corrosives, flammable liquids, or other harmful substances shall have trained in methods of safe handling, use and control. They will be instructed in potential hazards, personal hygiene, and protective measures required.
- b. Information is available through supervisors or from Material Safety Data Sheets and technical bulletins. For other chemicals or substances, call the Safety Office.
- c. Use only approved containers to store and handle liquids, chemicals or flammable and combustible liquids. All containers shall be clearly marked to identify their contents.
- d. Chemicals, compressed gases, flammable liquids and combustible liquids shall be stored only in approved, designated areas.
- e. When transporting chemicals, compressed gases, flammable liquids and combustible liquids, following all regulations and safety requirements. If you aren't sure of applicable requirements, call your supervisor or the Safety Office.
- f. Personal protective equipment shall be properly worn and used when specified.
- g. Hazardous materials used in METRO WATER SERVICES operations include: fuels, solvents, herbicides, chlorine, acetylene, oxygen, liquid oxygen, acids, alkalies, ammonia, polymers, caustics, chemical grout, explosives, polychlorinated, biphenols (PCBs), water plug and mercury.

2. METRO "RIGHT-TO-KNOW" LAW COMPLIANCE PROGRAM

All departments in which employees use or could be exposed to hazardous chemical will be required by law to comply with this program designated to bring Metropolitan Government of Nashville and Davidson County into compliance with the "Hazardous Chemical Right-to-Know Law."

The Safety Coordinator at the affected department will be responsible to see that their department is in compliance. In order to obtain compliance, the following steps must be taken:

- a. A notice informing employees of their rights under the “Hazardous Chemical Right-to-Know Law” must be posted in the area or areas where notices are normally posted.
- b. Mater Safety Data Sheets
 - (1) Material Safety Data Sheets will be maintained in the department for all hazardous chemicals used. These M.S.D.S. may be obtained from the manufacturers or distributors from which the chemicals were purchased.
 - (2) The M.S.D.S. shall be readily available, upon request, for review by employees or their designated representatives.
 - (3) An employee shall not be required to work with a hazardous chemical for which he requested to see a M.S.D.S and was not allowed to do so.
- c. Container Labels
 - (1) Existing labels on containers of hazardous chemicals shall not be removed or defaced.
 - (2) Employees shall not be required to work with a hazardous chemical from an unlabeled container except for a portable container intended for the immediate use by the employee who placed the hazardous chemical into the portable containers.
- d. The Department shall provide an education and training program for its employees who use or handle hazardous chemicals. This program shall include the following:
 - (1) Information on interpreting labels and M.S.D.S. and the relationship between these two methods of hazard communications.
 - (2) The location and availability of the workplace chemical list and M.S.D.S.
 - (3) Any operation in the employee’s work area where hazardous chemicals are present.
 - (4) The physical and health hazards of the hazardous chemicals in the work area.

- (5) Protective measures that employees shall use to protect themselves from these hazards, including appropriate work practices, emergency procedures, and personal protective equipment.
- (6) General safety instructions on the handling, cleanup, and disposal of hazardous chemicals.

A record of the dates of training sessions given to employees will be kept.

In case of a chemical leak or substantial hazard, all plants should refer to the respective Process Safety Management (PSM) plans, and if necessary, use the evacuation plan.

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II. SPECIAL DIVISION CONSIDERATIONS

A. MAINTENANCE DIVISION

1. EXCAVATING, TRENCHING, AND SHORING

- a. An excavation is defined as a man-made cavity or depression in the earth's surface, including its sides, walls or faces, formed by earth removal and producing unsupported earth conditions by reasons for the excavation. If installed forms or similar structures increase the depth-to-width relationship, an excavation may become a trench.
- b. A trench is defined as a narrow excavation made below the surface of the ground. In general, the depth is greater than the width, provided the width is less than 15 feet. (If the width, is greater than 15 feet, the "trench" becomes an "excavation.")
- c. Before performing work requiring excavating, trenching, drilling, boring, etc., the employee shall consider the probability of contacting hidden hazards, such as voids under pavements and walks, electric cables, communication lines, gas lines, water lines, etc. Special precautions shall be taken to protect these facilities. Any damage to them shall be promptly reported. Check with the supervisor in charge and make sure you know where to start digging. (Employee should Contact 811 or 800-351-1111 prior to any digging).
- d. Employees shall be on the alert for possible hazards, such as wire, glass, and scrap metal, that may be found in the sidewalls of excavations and trenches.
- e. Materials used for sheathing, bracing and shoring shall be in good serviceable condition. Timbers used shall be sound and free from large or loose knots and shall be installed to the bottom of the excavation or trenches.
- f. The walls and faces of excavations or trenches in which employees are exposed to danger from moving ground shall be guarded by a shoring system, sloping of the ground, or some other equivalent means.
- g. Walkways shall be kept clear of excavated material or other obstructions. They shall not be undermined unless properly shored.

- h. Excavations or trenches in which employees may be exposed to danger of moving earth shall be frequently inspected by a qualified person, particularly after rains or freezing and thawing conditions.
- i. In excavations or trenches which employees may be required to enter, excavated or other material shall be effectively stored and retained at least two (2) feet from the edge of the excavation or trench. An effective barrier or other retaining devices may be used as an alternative to the two (2) foot clearance to prevent excavated or other material from falling into the excavation or trench.
- j. When heavy equipment, material, or other objects are operated or placed near an excavation or trench, the side of the excavation or trench shall be shored, sheathed, and braced as necessary to prevent cave-ins.
- k. Suitable fire extinguishers shall be readily available whenever the probability of fire exists while employees are working in an excavation or trench.
- l. Excavation or trench banks more than five (5) feet high shall be shored, laid back to a stable slope, or provided with some other equivalent means or protection where employees may be exposed to moving ground or cave-ins.

Excavations or trenches less than five (5) feet in depth shall also be effectively protected when examination of the ground indicates hazardous ground movement may be expected.

- m. When employees are required to be in excavations or trenches more than four (4) feet deep, adequate means of exit, such as a ladder or steps, shall be provided and located so as to require no more than 25 feet of lateral travel by the employees.
- n. The size and shape of excavations or trenches shall be made so that covers (steel plates, etc.), whenever needed, can be used in a safe manner.

2. OPERATION OF VEHICLE REPAIR AND GARAGE FACILITIES

- a. Gasoline shall not be used for cleaning or degreasing purposes.
- b. Employees shall be trained in the proper used of testing equipment before using.

- c. Compressed air shall not be used for cleaning purposes.
- d. Care shall be used by employees to prevent injury when lifting, moving, and handling large parts or heavy tire assemblies.
- e. When vehicles or equipment are raised for working underneath, they shall be adequately blocked or cribbed to prevent their falling or shifting.
- f. The manufacturer's rated capacity shall be legibly marked on jacks and shall not be exceeded. Jacks shall have a positive stop to prevent over travel. When it is necessary to provide a firm foundation, the base of the jack shall be blocked or cribbed. Where there is a possibility of slippage of the metal cap of the jack, a wood block shall be placed between the cap and the load.
- g. Trucks with dump bodies shall be equipped with positive means of support permanently attached and capable of being locked in position to prevent accidental lowering of the dump body while maintenance or inspection work is being done.
- h. A safety tire rack, cage, or equivalent protection shall be provided and used when employees are inflating tires installed on split rims or rims equipped with locking rings or similar devices.
- i. Adequate ventilation shall be provided for garages, repair shops, and other enclosed areas to prevent the accumulation of fumes.
- j. Air hoses shall be maintained in safe condition. They shall be returned to their rack or be properly stored after each use.
- k. Employees shall use care to avoid being burned when removing pressurized radiator caps while a vehicle engine is hot.
- l. Batteries:
 - (1) Storage batteries give off hydrogen while being charged and may create an explosive gas mixture. Enclosed areas used to charge batteries shall be adequately ventilated.

- (2) Smoking, welding, and open flames shall not be permitted in enclosed areas used for the storage of batteries. "No Smoking" signs shall be conspicuously posed in such areas. Adequate fire protection shall be available.
- (3) Changing and charging storage batteries (for automotive-type battery charging installations and in-vehicle charging of batteries) shall be performed according to the following guidelines:
 - (a) Battery charging installation shall be located in areas designated for that purpose.
 - (b) In-vehicle charging shall be done in areas designated for that purpose.
 - (c) Facilities shall be provided for flushing electrolyte from the eyes and skin with water. An adequate water supply shall be within twenty-five (25) feet of any part of the areas designated above.
 - (d) A face shield shall be provided and available at each charging unit. The face shield shall be worn while connecting and disconnecting vehicle or charger leads to the battery terminals and while adding or pouring electrolyte.
 - (e) Tools and other metallic objects not in actual use shall be kept away from the top terminal section of the battery.
 - (f) The following instructions shall be posted at each charging installation and on each battery charger. WEAR FACE SHIELD (batteries may explode). TURN OFF CHARGER TO CONNECT OR DISCONNECT BATTERY.
 - (g) If battery acid gets into an employee's eye, the eye shall be flushed immediately with water. The eye should not be rubbed. The employee shall be given medical treatment promptly.
 - (h) If battery acid contacts an employee's clothing or body, the employee should remove the clothing and wash the body with water.

II. SPECIAL DIVISION CONSIDERATIONS

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II. SPECIAL DIVISION CONSIDERATIONS

B. WASTEWATER TREATMENT DIVISION

1. ALL METRO WATER SERVICES WORK CREWS

a. Field Work Areas

(1) Traffic Control

- (a) Always place barricades or traffic cones and position vehicles to protect the personnel on the site.
- (b) Use yellow rotating lights and emergency flashers when a vehicle is stopped in the roadway, median or shoulder.
- (c) Post flagmen as necessary, especially if a field site is just over the crest of a hill or near a sharp bend in the road.

- (2) Only, approved, American National Safety Institute (ANSI) Hi Vis Class 2 Mesh reflective vests shall be worn by all flagmen and above ground worker when exposed to traffic.

b. Manhole Entry

c. Fixed Site Crews

- (1) Sampling trailer. When possible, place a trailer in a well-lighted position, safe from traffic and in close proximity to the sample point(s).

- (a) Trailer doors should be kept locked at all times for security.
- (b) Maintain strict radio reporting procedure.
- (c) Properly prepare sample point(s) to prevent a safety hazard.

(2) Gas heating and lighting

Most fixed sites use L.P. for heat and light. Extreme caution must be exercised to ensure that this equipment is operated correctly.

- (a) Inspect equipment before lighting. Report any irregularities.
- (b) Provide adequate ventilation at all times.

- (c) Following directions when lighting, extinguishing flames and changing storage cylinders.

(3) Personal Hygiene

Many times a fixed site will not have adequate sanitary facilities. In order to maintain personal hygiene:

- (a) Provide sufficient portable water in portable container for drinking and washing purposes.
- (b) Use water proof gloves while sampling.
- (c) Carry an extra change of uniform or white disposable coveralls in the event of excessive contamination.
- (d) Wear waterproof boots when standing or wading in sewage or drainage.

d. Safety Equipment Locations

- (1) Fire extinguishers are located in each vehicle and trailer.
- (2) First aid kits are located in each vehicle and/or trailer.
- (3) Self-contained breathing units are maintained in the store room and are assigned on an "as needed" basis (check with your supervisor first).

e. Smoking and Hard Hat Areas

- (1) Personnel are to observe the smoking protection, ear protection, and eye protection, and hard hat regulations of the facility.
- (2) Smoking is prohibited in all Metro Water Services facilities and vehicles.

2. TECHNICAL SERVICES AND OFFICE SERVICES

a. Laboratory (See Laboratory safety rules)

- (1) Only qualified personnel shall conduct laboratory tests.
- (2) Heating apparatus such as burners and hot plates shall be placed to prevent reaching across them to perform an operation.

- (3) Always add concentrated acids or bases to water.
Never add water to concentrated acids or bases.
- (4) Concentrated acids and bases are to be separated.
- (5) Volatile solvents or chemicals with noxious fumes are to be used only in a well-ventilated room.
- (6) Fume hoods should be checked frequently with a velocimeter.
- (7) Pipette only by mechanical means never by mouth.
- (8) Contents of unlabeled containers should be identified or disposed of properly.
- (9) Face masks or goggles shall be worn where there is a danger of splashing chemicals or flying particles and when handling chemicals.
- (10) A container of an appropriate neutralizer is to be on hand when pouring acids, bases and corrosives.
- (11) There should be no eating or drinking in the laboratory.

b. Safety Equipment Location--Laboratory

- (1) An emergency eye wash is located in each laboratory.
- (2) A fire extinguisher is located in each laboratory.
- (3) An emergency shower is located in the laboratory.
- (4) A first aid kit is located in the lab.
- (5) A canister-type respirator is located in the lab.
- (6) Heat protector gloves are located in each laboratory.

c. Smoking and Hard Hat Areas--Laboratory

- (1) No smoking is allowed in any laboratory.

d. Stores and Warehouses

- (1) Warehouse safety.
- (2) Fork Lift Areas

All areas of the warehouse site are capable of fork lift traffic with the exception of certain office areas. Consult with your supervisor for specific areas.

- e. Office Safety
- f. Smoking and Hard Hat Areas--Storerooms
 - (1) Smoking is prohibited in all Government Buildings except in outside designated smoking areas.
 - (2) Hard hats shall be worn on all MWS jobsites.
- g. Safety equipment can be obtained through your immediate supervisor.

II. SPECIAL DIVISION CONSIDERATIONS

C. WASTEWATER TREATMENT DIVISION

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II. SPECIAL DIVISION CONSIDERATIONS

C. ADMINISTRATIVE DIVISION

1. EMERGENCY PROCEDURES

- a. Communication. In the event of an emergency requiring the evacuation of the office building, such as a fire or bomb threat, the person discovering the problem should communicate this information to the Security Office, Safety Office, immediate supervisor or Department Head to determine whether to contact Metro Police or Fire Division, or both for assistance.
- b. Alarm Systems. The building alarm system shall be used whenever tests, drills, or emergency evacuation of the building are necessary.
- c. Evacuation Assignments
 - (1) Persons in the offices shall USE THE STAIRWAY, which is marked with an illuminated Exit sign.
 - (2) Maintenance teams shall be responsible for first aid, firefighting, and salvage operations.
- d. Evacuation Procedures. When the alarm system is sounded, **Floor Monitors** direct employees to move quickly to their designated **Exit stairway**. During the evacuation, remember the following:
 - (1) MOVE QUICKLY AND QUIETLY.
 - (2) DO NOT RUN DOWN STAIRS.
 - (3) Assist disabled personnel and visitors to Stairway.
 - (4) DO NOT USE THE ELEVATORS.
 - (5) CLOSE ALL OFFICE DOORS.
- e. Supervisors and floor monitors shall ensure the safe movement of people during the evacuation and prevent the use of elevators by non-emergency personnel.
- f. Severe Weather Procedure. In the event of a severe weather condition, building occupants shall:
 - (1) Immediately leave the outer perimeter offices and close all doors.
 - (2) Assemble in the central core of the building or evacuate to the Designated area.

2. FIRE PROTECTION EQUIPMENT

- a. The Main Office fire alarm is rated as a “Local Alarm System.” This means that fire and trouble signals are not transmitted beyond the building property. The primary purposed of this alarm system is to alert the building occupants to a fire or other serious emergency.
- b. The office alarm system contains equipment and devices that will provide the following alarm services:
 - (1) Manual fire alarm
 - (2) Automatic smoke detection
 - (3) Automatic fire detection
 - (4) Water flow alarm
 - (5) Voice activated weather alert system
 - (6) Voice activated chemical alert system
- c. The “Fire Zone Directory,” posted by the Fire Alarm Control Panel, provides detailed information concerning fire alarm service in each zone.

3. LOCATION OF SAFETY EQUIPMENT

- a. Security Guard Office
 - 1 - 24-unit First Aid Kit
- b. Each MWS Building has at least
 - 1 - 24-unit First Aid Kit on each floor

4. EMERGENCY ORGANIZATION

- a. The Main Office Emergency Organization’s functions are to:
 - (1) Locate and identify emergency situations
 - (2) Call for help – 911
 - (3) Take proper first aid action/locate certified individual(s).
 - (4) Make sure that protection equipment is operational

(5) Assist Public Emergency Response Agencies

(6) Carry out salvage assignments

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II. SPECIAL DIVISION CONSIDERATIONS

D. ENGINEERING DIVISION

1. CONSTRUCTION INSPECTORS

a. Sewer Lines

- (1) Sewer lines under construction and sewer lines on which construction is complete, but which have not yet been put in service, are considered “confined space” under some circumstances. An estimate of the situation by the construction inspector should include evaluation of available ventilation and monitoring for oxygen deficiency and presence of combustible and toxic atmospheres. Detection and monitoring equipment are available from the office of the supervisor, section head, plant manager, or Safety Office.
- (2) If an inspector enters a dead-end tunnel under construction, ventilation such as air blowers should be operating before entry.
- (3) Inspectors should not enter un-shored trenches.

b. Traffic, Safeguarding the Public

- c. Hard Hats/Steel-toed Safety Shoes: Construction inspectors shall wear hard hats and steel-toed safety shoes on all construction sites.

2. SURVEY CREW

- a. Survey party members working in or near traffic shall wear reflective vests.

- b. When working around heavy equipment on construction sites, party members shall ensure that equipment operators or safety spotters know where they are.

c. Confined Space

- (1) Shafts and tunnels are confined spaces. Precautions in Confined Spaces shall apply.
- (2) Manholes and sewer lines are confined spaces. Before entry employees shall follow atmosphere testing procedures in Confined Spaces.

d. Field Operations

- (1) Personnel must wear heavy leather gloves when climbing fences and cutting briars and bushes. If the skin is pierced or broken, immediately apply approved first-aid procedures.
- (2) Employees who frequently work in the field should take advantage of tetanus antitoxin inoculations. An accident report shall be completed immediately whenever an injury occurs.

II. SPECIAL DIVISION CONSIDERATIONS

E. ELECTRICAL SAFETY

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II. SPECIAL DIVISION CONSIDERATIONS

E. ELECTRICAL SAFETY

Electric shock frequently causes serious injury, especially where the hazard of a ground and moisture are present. Do not attempt to repair electrical equipment unless you know for certain what you are doing and are authorized to do this type of work.

Lockout/Tagout procedures shall be used on all electrical circuits or equipment whenever it is out of service for repair. Tags must indicate the date of the lock out and signature of the person responsible for the lock out. In some cases, electrical equipment should be kept locked to all but qualified and authorized electrical workers. This is a particular hazard to collection system workers when involved with any street excavation. They should not attempt to work in public right-of-ways without checking with the proper agencies and location maps of all underground utilities.

1. Electrical repairs shall be performed by electricians only.
2. Personal protection equipment shall be worn, i.e., ANSI-approved hard hats, hard-toed footwear, rubber gloves.
3. When necessary to work (hot) energized circuits for testing, all safety precaution shall be taken.
4. Prior to working on motors, etc., equipment shall be locked out at the source and red-tagged.
5. Approved gloves and hot sticks shall be used while working on 2300, or more, volt equipment, even though it is de-energized and grounded.
6. Metal ladders are prohibited while working on electrical equipment.
7. Wearing of jewelry is prohibited while working on electrical equipment.
8. Electricians will not be allowed to work alone in isolated areas.
9. All circuits will be de-energized prior to performance of work.
10. All extension cords will be periodically checked for insulation damage.

11. Electrical and mechanical maintenance crews will hold "Tail-gate" Safety Meetings.

Red-Tagged and Lock-Out Controls

Anyone other than the employees responsible for locking out and tagging a piece of equipment who removes tagging and/or lock may be subject to immediate dismissal, as serious injury could be caused to maintenance personnel working on tagged equipment.

TELEPHONE NUMBERS

DIRECTOR	862-4505
ASSISTANT DIRECTOR ENGINEERING	862-4909
FINANCE MANAGER	862-4547
ASSISTANT DIRECTOR OPERATIONS	862-4584
HUMAN RESOURCE MANAGER	862-4530
ASSISTANT DIRECTOR METRO WATER SERVICES SYSTEM SERVICES	862-4847
ASSISTANT DIRECTOR CUSTOMER SERVICE	862-4626
SAFETY OFFICE	862-4862
OCCUPATIONAL HEALTH OFFICE	862-4860
CENTRAL WASTEWATER TREATMENT PLANT LAB <i>(IN CASE OF HAZARDOUS SPILLS AND/OR LEAKAGE)</i>	862-4900
CENTRAL WASTEWATER TREATMENT PLANT	862-4963
WHITES CREEK WASTEWATER TREATMENT PLANT	862-7233
INDUSTRIAL COMPLIANCE	862-4596
DRY CREEK WASTEWATER TREATMENT PLANT	862-8577
K. R. HARRINGTON WATER TREATMENT PLANT	862-8570
OMOHUNDRO WATER TREATMENT PLANT	862-7243
WATER & SEWERAGE SECURITY	862-4968
SYSTEM SERVICES BILLING & COLLECTION DISPATCHER	862-4600
EMERGENCY PHONE NUMBER	911 OR
<i>(FIRE, POLICE, AMBULANCE)</i>	862-8600
POISON CONTROL CENTER	936-2034

MY SAFETY COMMITTEE REPRESENTATIVE(S) IS/ARE:

This will acknowledge that I have received a copy of the
METRO WATER SERVICES Safety Rule Handbook:

DATE _____

SIGNATURE _____

DATE _____

SUPERVISOR'S
SIGNATURE _____