

City of Alliance

Safety Manual

Safety Committee Members:

Al Lorensen, Chairperson	Fire Department	Employee Appointed
Kirby Bridge	Electric Department	Management Appointed
Ross Grant	Public Works Department	Management Appointed
Tim Morgan	Community Development	Employee Appointed
Lynn Placek	Airport	Management Appointed
Tad Prelle	Parks Department	Employee Appointed

ALLIANCE SAFETY MANUAL
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INTRODUCTION

Accident Prevention

No phase of operations is of greater importance than accident prevention. The degree of safety and the results accomplished are directly proportional to the effort expended to control the conditions, practices, and human actions that are responsible for accidents.

Purpose

The purpose of this manual is to assist in the elimination or prevention of accidents.

Effectiveness

- a) This manual shall be effective as of the date of issuance; compliance by every employee is mandatory and is considered a requirement for employment.
- b) Existing governmental codes, statutes, rules, and orders shall be considered a part of this manual and where any conflict exists between the two, those of governmental status shall prevail.

Emergency Conditions

In case of emergency involving hazard to life, a supervisor, foreman, or employee in charge of any work may modify or suspend such portion of this manual as may be considered temporarily necessary to permit proper handling of the specific emergency. In any such case, the person so acting shall be fully accountable for the reasonableness of their actions.

Occupational Safety and Health Requirements

The City of Alliance is responsible to have its employees comply with all aspects of Occupational Safety and Health Act rules (or as modified by the State) and may be subject to severe penalties for violation of these requirements by any employee. As stated in the Occupational Safety and Health act, "Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this act which are applicable to their own actions and conduct."

Those employees who do not abide by the safety rules of this manual or other City of Alliance safety requirements shall be subject to disciplinary action, which may include dismissal.

Supervisor Responsibilities

Supervisors shall be responsible not only for their own safety but also for the safe work performance of other employees under their supervision. Before assigning work to an employee, the supervisor shall be sure the employee knows and understands the hazards associated with the work and the proper procedures to perform the work safely.

Supervisors at all levels shall accept, in a cooperative manner, all reports of hazards; and employees shall not be reprimanded or penalized for reporting hazards.

Responsibility of Employees

Employees share with the employer the responsibility for safety. Each employee is responsible for their own safety, the safety of their fellow employees, and the general public. Employees shall become familiar with and use all protective devices provided for their protection.

Employees shall report all unsafe equipment, unsafe tools, and hazardous conditions that come to their attention.

Knowledge of Safety Rules

Every employee shall become thoroughly familiar with the contents of this manual as they apply to their work activities.

Conditions Not Covered

Although each employee is primarily responsible for their own safety, in all instances where conditions are not covered by this manual or the job is not completely understood, the employee shall obtain specific instructions from a supervisor before proceeding with the work.

Qualifications for Duty

Any supervisor or foreman having reasonable grounds to suspect that an employee under their jurisdiction is either mentally or physically unfit for the work assigned, shall prohibit such employee from working until satisfactory medical or other evidence indicating employee fitness is secured.

Care in Performance of Duties

Each employee shall use reasonable care in the performance of their duties and act in such a manner as to assure at all times maximum safety to themselves, their fellow employees, and the public.

Resources

The contents of this manual were developed from various sources which included the Occupational Safety and Health Act of 1970. To assist the user of the manual to obtain additional information concerning a specific section, the applicable Occupational Safety and Health Act (OSHA) standard reference number has been included in the respective section. Sections without reference numbers fall under the act's "General Duty Clause," which states that employees shall be provided a work place free of recognized hazards.

SECTION 1 - GENERAL RULES

101 Application

- a) Every employee shall carefully study (not merely read) those safety rules applicable to their assigned duties. Compliance with these safety rules is mandatory and is considered a requirement for employment.
- b) If an employee is called upon to perform work that could be considered hazardous and proper protection is not provided, the matter should be brought to the attention of the supervisor before starting the work. If questions arise, interpretation rests finally with the supervisor.
- c) These rules represent minimum requirements and are only intended to cover average conditions. Employees shall use good judgment in dealing with conditions not covered in these rules. Additionally, employees shall follow City of Alliance policies and procedures.

102 Employee's Responsibility for Safety

- a) Before beginning a job, employees shall satisfy themselves that they can perform the task without injury. If they are in doubt as to their ability to perform the work, they shall call this to the attention of their supervisor.
- b) Before starting a job, employees shall thoroughly understand the work to be done, their part in the work, and the safety rules that apply.

103 Reporting Employee Injuries and Near Misses

- a) Injuries, no matter how slight, shall be reported to the person in charge as soon as practical.
- b) All minor injuries shall be properly treated and reported to the employee's supervisor and a First Report of Alleged Occupational Injury or Illness form completed and submitted to the Human Resource Director. Completion of the Follow-up to Report of Accident, Injury and/or Near Miss will also need to be submitted to the Human Resource Director or Risk Manager.
- c) When professional medical services are necessary, such injuries shall be reported to management immediately and a First Report of Alleged Occupational Injury or Illness form completed and submitted to the Human Resource Director. Completion of the Follow-up to Report of Accident, Injury and/or Near Miss will also need to be submitted to the Human Resource Director or Risk Manager.
- d) In case of serious or fatal accidents to employees appropriate action, dictated by the specific circumstances of the event, shall be taken promptly. The accident shall be reported immediately to the department head or manager and a First Report of Alleged Occupational Injury or Illness form completed and submitted to the Human Resource Director. Completion of the Follow-up to Report of

Accident, Injury and/or Near Miss will also need to be submitted to the Human Resource Director or Risk Manager.

e) Near misses as well as actual injuries shall be reported. Completion of the Follow-up to Report of Accident, Injury and/or Near Miss needs to be submitted to the Human Resource Director or Risk Manager and will be reviewed by the Safety Committee.

104 Reporting City of Alliance Vehicle Accidents

a) The driver shall report accurately and immediately every accident involving a vehicle in their possession according to City of Alliance policy. Additional reports shall be made to the police or state authority as required.

b) The driver shall not discuss or argue the causes or results of an accident with other parties but shall secure all pertinent facts and information. Questions asked by proper authority shall be answered, but under no circumstances shall fault or negligence be admitted or any statement signed for anyone except the Risk Manager of the City of Alliance.

c) Should the other driver demand immediate action, referral shall be made to the employee's supervisor.

d) The driver, when involved in an accident, shall stop and give his/her name and address, and the employer's name and address. The driver shall also secure the name and address of others involved in the accident and of witnesses to the accident. The driver shall also note position of vehicle after the collision in reference to edge of road, sidewalk line, center of intersection, etc.

e) If any person is injured as the result of a vehicle accident, employees shall see that necessary emergency aid is provided.

f) Near misses as well as actual accidents shall be reported. Completion of the Follow-up to Report of Accident, Injury and/or Near Miss needs to be submitted to the Human Resource Director or Risk Manager and will be reviewed by the Safety Committee.

105 Reporting Hazardous Conditions

a) When a hazardous condition that may cause injury or property damage or interfere with services is observed, regardless of the department in which the condition exists, the employee shall report it promptly to a proper authority and when necessary guard the area.

b) An employee who receives a report of any hazardous emergency condition shall obtain the name of the informant, the exact location, and the nature of the trouble. The employee shall immediately refer this information to the person having responsibility for such matters.

106 Preparation

- a) Before commencing any work that may be hazardous, care shall be taken to establish a safe procedure. When more than one employee is engaged in the same job, all employees concerned shall understand the procedures to be followed and a tail board conference shall be conducted. Under no circumstances shall safety be sacrificed for speed.
- b) Employees shall always try to place themselves in a safe and secure position.

107 Practical Jokes

Employees shall not engage in practical jokes or "horseplay."

108 Guards

- a) No guard shall be removed from any machine or piece of equipment except to perform required maintenance.
- b) Guards removed to perform maintenance operations shall be replaced immediately, and the machine shall not be operated while the guards are removed (except for maintenance certification).
- c) For additional information concerning guarding requirements, refer to applicable federal and state laws, rules and regulations, and department policies.

109 Hazardous Energy Control/Lockout-Tagout

- a) Before starting work on any circuit, machine, belting, shafting, or other apparatus that is out of service, employees shall assure themselves that the apparatus is physically rendered inoperative and a standard Hold Card, tag, or lockout device is properly attached to the apparatus control.
- b) No switch, governor, valve, throttle, or other device used to put a circuit or equipment into service shall be operated while a Hold Card or similar device is attached to it.
- c) A Hold Card, or similar device, that has been placed for the protection of workers shall be removed only by authorization of the person in whose name it was placed and then only after the work has been completed and workers and tools are in the clear. (Follow City of Alliance operating instructions pertaining to the equipment involved.)
- d) Each employee in charge of work on any equipment shall have their Hold Card or similar device secured to the apparatus control.
- e) For additional information concerning Hold cards and tag requirements, refer to applicable federal and state laws, rules and regulations, and department policies.

110 Warnings

- a) Warning signs shall be heeded. Persons seen in a dangerous situation shall be warned without being startled. Employees not required to be near potentially dangerous places shall keep away from them.
- b) For additional information, concerning warning signs, refer to applicable federal and state laws, rules and regulations, and department policies.

111 Intoxicating Beverages and Drugs

Being under the influence of or using intoxicating beverages or drugs on City of Alliance premises, on the job, or during working hours is prohibited and shall be sufficient cause for disciplinary action. Any employee taking drugs prescribed by a physician or over-the-counter drugs that could impair assigned work shall report this fact to their supervisor.

112 Housekeeping

Work locations and both the inside and outside of vehicles and buildings shall be kept clean and orderly at all times.

- a) Combustible materials, such as oil-soaked rags, waste, and shavings, shall be kept in approved metal containers with metal lids. Containers shall be emptied as soon as practicable.
- b) Rags shall be kept in metal or metal-lined bins having metal covers.
- c) Flammable liquids shall be used only for their designed purpose.
- d) All solvents should be kept in approved, properly labeled containers. Gasoline, naphtha, lacquer thinner, and other solvents of this class shall be handled and dispensed only in UL-approved, properly labeled safety cans.
- e) Permanent floors and platforms shall be kept free of dangerous projections or obstructions and shall be maintained reasonably free from oil, grease, or water. Where the type of operation produces slippery conditions, mats, grates, cleats, or other methods shall be used to reduce the hazard from slipping.
- f) Stairways, aisles, permanent roadways, walkways, and material storage areas in yards shall be kept reasonably clear and free from obstructions, depressions, and debris.
- g) Materials and supplies shall be stored in an orderly manner to prevent their falling or spreading and to eliminate tripping and stumbling hazards.

- h) No matches shall be left in clothes placed in lockers. Rubbish and unused clothing shall not be allowed to accumulate in lockers.
- i) Paper and other combustible materials shall not be allowed to accumulate, and weeds or other range vegetation shall not be permitted to grow in or around the neighborhood of substations, pole yards, buildings, oil tanks, or other structures.
- j) UL-approved, properly labeled safety cans shall be used for the handling and use of flammable liquids such as gasoline, naphtha, and lacquer thinner and in quantities greater than one gallon. For quantities of one gallon or less, only the original container or UL-approved, properly labeled metal safety can, shall be used.
- k) Paragraph 112-(j) does not apply to kerosene and cleaning agents of the "Stoddard" solvent class; however, not more than one gallon of such liquids shall be kept in any open container. The container shall be provided with a proper cover and be kept securely covered except when in actual use.
- l) In any building, except one provided for their storage, no more than 25 gallons of flammable or combustible liquids shall be stored in a room outside of an approved storage cabinet. No more than 60 gallons of flammable or 120 gallons of combustible liquids shall be stored in any one storage cabinet. No more than three such cabinets may be located in a single storage area. Quantities in excess of this shall be stored in an inside storage room designed for storage of flammable and combustible liquids.
- m) When pouring or pumping gasoline or other flammable liquids from one container to another, metallic contact shall be maintained between the pouring and receiving containers. Transferring of flammable liquids from one container to another shall be accomplished only in properly ventilated spaces free from ignition sources.
- n) Flammable or combustible liquids shall not be stored in areas used for exits or stairways or areas normally used for the safe passage of people.
- o) Strict adherence shall be paid to "No Smoking" and "Stop Your Motor" signs at fuel dispensing locations.
- p) For additional information concerning housekeeping requirements, refer to applicable federal and state laws, rules and regulations, and department policies.

113 Smoking

Smoking or open flames shall not be permitted in areas such as oil rooms, hydrogen or acetylene storage areas, or similar areas where dangerous gases might be present. Neither shall smoking be permitted in storerooms, battery rooms, flammable liquid storage and use locations, or other areas

where quantities of combustible materials are kept. Absence of "No Smoking" signs shall not excuse smoking in dangerous places.

114 Clothing

- a) All employees shall always wear clothing and shoes that are suitable for the particular type of work which they are doing.
- b) Clothing, for the Electric Department employees, shall be non-synthetic material, cotton or wool preferred (at least 11 ounces per yard), with full-length sleeves rolled down and buttoned and an electrical safety hat shall be worn when working on or near live parts where the possibility of an electric arc exists. Clothing made of acetate, polyester, nylon or rayon (either alone or in blends) may not be worn unless it has been adequately treated or worn in such a manner as to eliminate the hazard.
- c) When work is performed in the vicinity of exposed energized parts of equipment, employees shall remove all exposed conductive articles, such as key or watch chains, rings, or wrist watches or bands, if such articles increase the hazards associated with inadvertent contact with the energized parts.
- d) Each employee shall wear gloves suitable for the work. Rubber-glove protectors shall not be used as work gloves.
- e) Finger rings or unnecessary jewelry shall not be worn while climbing on or off structures or vehicles or while performing any task where the ring might be caught under or snagged by a projecting item. Rings and wrist watches with metal case and watch bands shall not be worn while working on or near energized equipment or lines.
- f) Employees shall refer to City of Alliance policies for additional clothing requirements.

115 Eye and Face Protection

Appropriate and approved eye and face protection shall be worn when an employee is engaged in any work activities that may produce flying particulates. Below is a list of examples which is not all-inclusive:

- a) Drilling or chipping stone, brick, concrete, paint, pipe coatings, or metal.
- b) Power grinding, buffing, or wire brushing.
- c) Flame welding, cutting, or burning. (Approved colored lenses shall be used.)
- d) Hand drilling or sawing of overhead objects.
- e) Use of powered tools such as drills, saws, or sanders.

- f) Dust or flying particles. Personal protective equipment must be used when utilizing compressed air for cleaning purposes.
- g) Gunnitng, pouring hot lead or hot compounds, or using other hot or injurious substances.
- h) Handling acids, caustics, chlorine, ammonia, or other similar liquids or gases, except when approved complete head coverings are worn. (Chemical goggles are necessary.)
- i) Brush chippers.
- j) Thermite (cadweld)-type welders.
- k) Flying particles caused by other workers, if employee is within the range of such particles. (A suitable screen around the work may be used instead.)
- l) Any other danger of injury to the eyes, or at the direction of a foreman or supervisor, or as directed by City of Alliance policy.
- m) Any time there is a possibility of electrical flash, safety glasses shall be worn.
- n) While using actuated tools.
- o) For additional information concerning eye and face protection requirements, refer to applicable federal and state laws, rules and regulations, and department policies.

116 Supplemental Breathing Equipment

- a) Approved breathing apparatus shall be used for the following:
 - (1) Entering or working in any confined or enclosed space or in any environment where an adequate supply of fresh air cannot be assured.
 - (2) Sandblasting.
 - (3) Exposure to any environmental condition that would be unhealthy.
- b) Supplemental breathing equipment shall not be used unless employee has been trained in its use, and it has been determined that the employee is physically able to perform the work and use the equipment.
- c) For additional information concerning supplemental breathing equipment refer to applicable federal and state laws, rules and regulations, and department policies.

117 Fall Protection

- a) When an employee is exposed to a fall in excess of 4 feet and protective measures such as catch platforms, guardrails, and safety nets are not practical, the employee shall be protected by the use of fall-arrest equipment or positioning devices such as body harnesses, lanyards, lifelines, and rope grabs. When choosing fall-arrest equipment or positioning devices, consideration should be given to type of work to be performed and limiting the shock load on the body of the wearer in the event of a free fall.
- b) Employees shall rig fall-arrest equipment so that they cannot free fall more than 6 feet or contact any lower object. When positioning devices are used, they shall be rigged to limit free fall to 2 feet. Anchorage points for fall-arrest equipment and positioning devices shall be capable of supporting a shock load and located above the employee's body belt or harness attachment point.
- c) Employees shall avoid the following lanyard snap-hook connections to help eliminate the possibility of accidental disengagement (roll-out):
 - (1) Snap-hooks without locks.
 - (2) Two (or more) snap-hooks connected to one D-ring.
 - (3) Two snap-hooks connected to each other.
 - (4) A snap-hook connected back on its integral lanyard.
 - (5) Improper dimensions of the D-ring, rebar, or other connection to the snap-hook dimension.
- d) Snaphooks may not be connected to loops made in webbing-type lanyards.
- e) When vertical lifelines are used, each employee shall be protected by a separate lifeline. The lifeline shall be properly weighted at the bottom and terminated to preclude a device such as a rope grab from falling off the line.
- f) Horizontal lifelines should be limited to two persons at one time between supports.
- g) Prior to each use, the employee shall visually inspect all fall-arrest equipment and positioning devices for cuts, cracks, tears or abrasions, undue stretching, overall deterioration, mildew, operational defects, heat damage, or acid or other corrosion. Equipment showing any defect shall be withdrawn from service.
- h) All fall-arrest equipment and positioning devices subjected to impacts caused by a free fall or by testing shall be removed from service.
- i) Employees should store all fall-arrest equipment and positioning devices in a cool dry place, which is not subjected to direct sunlight.
- j) Employees shall not use fall-arrest equipment or positioning devices until they have been

properly trained in their use.

- k) Fall arrest equipment shall be used on poles by qualified employees when such conditions as ice, high winds, design of structure (such as no hand holds) or the presence of contaminants exist that could cause the employee to lose his/her grip or footing. Fall arrest equipment is not required for qualified employees who are climbing or changing positions on poles, towers, or similar structures unless conditions such as those listed above exist. This exclusion does not apply to employees undergoing on-the-job training even though they may be considered qualified employees for other purposes.
- l) For additional information on fall-arrest equipment and positioning device requirements, refer to applicable federal and state laws, rules and regulations, and department policies.

118 Life Jackets

When working where there is a danger of drowning, employees shall wear an approved personal flotation device or be protected by a safety belt and lanyard or by a safety net.

119 Head Protection

- a) Approved safety head gear shall be worn by all employees in areas where falling objects, electrical contact, or other hazards may cause a head injury and when required by City of Alliance policy.
- b) Safety head gear or head band assembly shall not be defaced or altered in any manner without approval.
- c) Approved head shields or hoods shall be worn when welding with hydrogen, heliarc, or electric arc.
- d) For additional information concerning head protection requirements, refer to applicable federal and state laws, rules and regulations, and department policies.

120 Wearing Apparel

Each employee shall wear gloves and other clothing suitable for work performed. Rubber-glove protectors used in electrical work shall not be used as work gloves.

Appropriate footwear required for special work shall be worn as directed by employee in charge. All employees must wear appropriate footwear for assigned jobs that will ensure minimum protection. When safety-toe footwear is required, refer to applicable federal and state laws, rules and regulations, and department policies. (Other protective devices are to be used in specific types of work to provide adequate personal protection.)

Note clothing restrictions in section 114.

121 Hand Tools

- a) All tools, regardless of ownership, shall be of an approved type and maintained in good condition. (Tools are subject to inspection at any time. A foreman has the authority and responsibility to condemn unserviceable tools, regardless of ownership.)
- b) Defective tools shall be tagged to prevent their use, or they shall be removed from the job site.
- c) Employees shall always use the proper tool for the job performed. Makeshift and substitute tools shall only be used with proper authorization and under supervision.
- d) Hammers with metal handles, screwdrivers or knives with metal continuing through the handle, and metallic measuring tapes shall not be used on or near energized electrical circuits or equipment.
- e) Tools shall not be thrown from place to place or from person to person; tools that must be placed in tool buckets or firmly attached to hand lines.
- f) Tools shall never be placed unsecured on elevated places.
- g) As impact tools such as chisels, punches, drift pins, etc. become mushroomed or cracked, they shall be dressed, repaired, or replaced before further use.
- h) Chisels, drills, punches, ground rods, and pipes shall be held with suitable holders or tongs (not with the hands) while being struck by another employee.
- i) Shims shall not be used to make a wrench fit.
- j) Wrenches with sprung or damaged jaws shall not be used.
- k) Pipe shall not be used to extend a wrench handle for added leverage unless wrench was designed for such use.
- l) Tools shall be used only for the purposes for which they have been approved.
- m) Tools with sharp edges shall be stored and handled so that they will not cause injury or damage. They shall not be carried in pockets.
- n) Handles that are loose, cracked, or splintered shall be replaced. The handle shall not be taped or lashed with wire.

- | o) All cutting tools such as saws, wood chisels, drawknives, or axes shall be kept in suitable guards or in special compartments.
- p) Tools shall not be left lying around where they may cause a person to trip or stumble.
- q) When working on or above open grating, a canvas or other suitable covering shall be used to cover the grating to prevent tools or parts from dropping to a lower level where others are present, or the danger area shall be barricaded or guarded.
- r) The insulation on hand tools shall not be depended upon to protect users from shock.
- s) For additional information concerning hand tools, refer to applicable federal and state laws, rules and regulations, and department policies.

122 Portable Electric Tools

- a) The noncurrent carrying metal parts of portable electric tools such as drills, saws, and grinders shall be effectively grounded when connected to a power source unless:
 - (1) The tool is an approved double-insulated type, or
 - (2) The tool is connected to the power supply by means of an isolating transformer or other isolated power supply, such as a 24-V dc system.
- b) All powered tools shall be examined before use to ensure general serviceability and the presence of all applicable safety devices. The electric cord and electric components shall be given an especially thorough examination.
- c) Powered tools shall be used only within their capability and shall be operated in accordance with the instructions of the manufacturer.
- d) All tools shall be kept in good repair and shall be disconnected from the power source while repairs are being made.
- e) Electrical tools shall not be used where there is a hazard of flammable vapors, gases, or dusts.
- f) Tools connected to a central power supply, including portable and vehicle-mounted generators (not isolated) and not double-insulated shall be protected by a Ground Fault Interrupter (GFI) or by an "assured grounding system."
- g) For additional information concerning portable electric tools, refer to applicable federal and state laws, rules and regulations, and department policies.
- h) Any cord- and plug-connected equipment supplied by other than premises wiring shall comply

with one of the following:

- (1) Equipped with a cord containing an equipment grounding conductor connected to the tool frame.
- (2) Double insulated.
- (3) Connected to power supply through an isolating transformer with an ungrounded secondary.

123 Pneumatic Tools

- a) Compressed air and compressed-air tools shall be used with caution.
- b) Pneumatic tools shall never be pointed at another person.
- c) Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.
- d) Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.
- e) Compressed air shall not be used for cleaning purposes except when reduced to less than 30 psi and then only with effective chip guarding and personal protective equipment.
- f) Compressed air shall not be used to blow dust or dirt from clothing.
- g) The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded.
- h) The use of hoses for hoisting or lowering tools shall not be permitted.
- i) All hoses exceeding 1/2 inch inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of hose failure or disengagement or a connection.
- j) Before making adjustments or changing air tools, unless equipped with quick-change connectors, the air shall be shut off at the air supply valve ahead of the hose. The hose shall be bled at the tool before breaking the connection.
- k) Eye protection, foot protection, and other protective devices shall be worn when their use could reduce the possibility of injury.
- l) Pneumatic tools shall be operated only by competent persons who have been trained in their use.

- | m) A pneumatic tool used where it may contact exposed live electrical parts shall have a nonconductive hose and an accumulator to collect moisture.
- n) Employees shall not use any part of their bodies to locate or attempt to stop an air leak.
- o) For additional information concerning pneumatic tools, refer to applicable federal and state laws, rules and regulations, and department policies.

124 Hydraulic Tools

- a) Manufacturers' safe operating pressures for hydraulic tools, hoses, valves, pipes, filters, and fittings shall not be exceeded.
- b) Pressure shall be released before connections are broken unless quick-acting, self-closing connectors are used.
- c) Employees shall not use any part of their bodies to locate and attempt to stop a hydraulic leak.
- d) The fluid used in hydraulic-powered tools shall be fire resistant and shall retain its operating characteristics at the most extreme temperatures to which it will be exposed.
- e) All hydraulic lines longer than 35 feet should have check valves or provide for loss of insulating value due to partial vacuum when used where they may come into contact with exposed live parts.

125 Power Lawn Mowers, Edgers, etc.

- a) Employees shall ensure that all applicable guards are in place prior to using power lawn mowers.
- b) All power lawn mowers shall be equipped with adequate guards, which shall remain in place while mower is in use.
- c) Prior to making adjustments, inspections, or repairs, the employee shall turn off the mower and permit it to come to a complete stop.
- d) When operating a power mower, the employee shall perform the following:
 - (1) Remove any rocks, pieces of wire, or other foreign objects from the area to be mowed.
 - (2) Avoid placing the body in front of the discharge opening.
 - (3) Mow across the face of a slope or incline.
 - (4) Wear proper protective equipment to include, as a minimum, safety glasses or safety goggles and appropriate hearing protection. (Safety footwear should be worn.)

e) For additional information concerning power lawn mowers, edgers, etc., refer to applicable federal and state laws, rules and regulations, and department policies.

126 Actuated Tools

- a) Only those employees who are trained and qualified in their operation shall use actuated tools.
- b) Explosive charges shall be carried and transported in approved containers.
- c) Operators and assistants using these tools shall be safe-guarded by means of eye protection (safety eye goggles or face shields), a safety hat, and appropriate hearing protection.
- d) Tools shall be maintained in good condition and serviced regularly by qualified persons. The material upon which these tools are to be used shall be examined before work is started for the purpose of determining its suitability and eliminating the possibility of hazard to the operator and others.
- e) Prior to use, the operator shall ensure that the protective shield is properly attached to the tool.
- f) Prior to use, the operator shall inspect the tool to determine if it is clean, if moving parts operate freely, and if the barrel is free from obstructions.
- g) A defective tool shall be tagged and immediately removed from service.
- h) Actuated tools shall not be used in an explosive or flammable atmosphere.
- i) Tools shall not be loaded until just prior to the intended firing.
- j) Only cartridges with an explosive charge adequate for the job and with proper penetration shall be used.
- k) Tools and cartridges shall never be left unattended.
- l) In case of a misfire, the operator shall hold the tool in place for 30 seconds. He shall then try to operate the tool a second time and then wait another 30 seconds. Misfired cartridges shall be disposed of properly. (Place in metal container and return to supervisor.)
- m) Only powder charges, studs, or fasteners specified by the manufacturer for the specific tool shall be used.
- n) For additional information concerning actuated tools, refer to applicable federal and state laws, rules and regulations, and department policies.

127 Safe Supports and Scaffolds

- a) No employee, or any material or equipment, shall be supported or permitted to be supported on any portion of a tree, pole structure, scaffold, ladder, walkway, or other elevated structure, crane or derrick, etc., without it first being determined that such support is adequately strong and properly secured in place.
- b) Employees shall check all scaffolding before use to ensure it is of sufficient strength and rigidity to safely support the weight of persons and material to which it will be subjected.
- c) Employees shall not use a scaffold from 4 to 10 feet in height having a minimum horizontal dimension of less than 45 inches unless proper guardrails are present to provide employee protection.
- d) Employees shall not use a scaffold over 10 feet in height unless a standard guardrail, with mid-rail and toeboard, is present to provide adequate employee protection.
- e) Scaffold planks shall extend over their end supports by not less than 6 inches (unless cleated) nor more than 12 inches.
- f) Scaffolds shall not be moved without first removing all loose tools, materials, and equipment resting on the scaffold deck.
- g) All scaffolds shall be sufficiently secured and braced.
- h) The footing or anchorage points for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as barrels, boxes, loose brick, or concrete blocks shall not be used to support scaffolds or planks.
- i) Scaffolds shall not be altered or moved horizontally while being used or occupied except when specifically designed for such use. Movable scaffolds shall have the casters or wheels locked to prevent movement.
- j) The width of all scaffolds, ramps, and platforms shall be sufficient to prevent congestion of persons, materials, or equipment, and in no case shall they be less than 18 inches wide.
- k) Synthetic or natural fiber rope shall not be used as guardrails.
- l) Employees working on suspended scaffolds shall be protected by an independent lifeline, body harness, and a lanyard.
- m) Safe access shall be provided for all scaffolds. Structural members should not be used as a means of access.

n) For additional information concerning safe supports and scaffolds, refer to applicable federal and state laws, rules and regulations, and department policies.

128 Ladders--General

- a) Wooden ladders shall not be painted so as to obscure a defect in the wood; only a clear, nonconductive finish shall be used.
- b) All ladders shall be inspected frequently and regularly. Ladders with weakened, broken, or missing steps, broken side rails, or other defects shall be tagged and removed from service.
- c) Ladders and scaffolds shall be sufficiently strong for their intended use.
- d) Portable metal ladders shall not be used in the vicinity of energized electrical circuits.
(Exception: Such ladders may be used in specialized work, such as high voltage substations, where nonconductive ladders might present a greater hazard. These ladders shall be properly marked.)
- e) Ladders shall not be placed in front of doors opening toward the ladder unless the door is open, locked, or guarded.
- f) When ascending or descending ladders, employees shall have both hands free and shall face the ladder.
- g) Only one employee shall work from a ladder at one time (except for hook-type ladders). If two employees are required, a second ladder shall be used.
- h) Only City of Alliance owned ladders shall be used by employees.
- i) Ladders shall not be used as scaffold platforms unless specifically designed for that purpose.
- j) Boxes, chairs, etc., shall not be used as ladders.
- k) All ladders shall be capable of supporting at least 2.5 times the maximum intended load without failure.
- l) For additional information concerning ladders requirements, refer to applicable federal and state laws, rules and regulations, and department policies.

129 Straight Ladders

- a) Portable straight ladders shall not be used without nonskid bases.
- b) The ladder shall be placed so that the distance between the bottom of the ladder and the

supporting point is approximately one-fourth of the ladder length between supports.

- c) Straight ladders shall not be climbed beyond the third step from the top.
- d) When working from a portable ladder, the ladder must be securely placed, held, tied, or otherwise made secure to prevent slipping or falling.
- e) When dismounting from a ladder at an elevated position (such as a roof) the employee shall ensure that the ladder side rails extend at least 3 feet above the dismount position, or that grab bars are present.
- f) Employees shall belt off to a ladder whenever both hands must be used for the job or a possibility of the employee falling from an elevated position exists.
- g) Ladders shall not be spliced together to form a longer ladder, unless specifically designed to be used as a section ladder.
- h) A ladder shall not be placed against an unsafe support.

130 Step Ladders

- a) The top step shall not be used, except for platform ladders.
- b) Step ladder legs shall be fully spread and the spreading bars locked in place.
- c) Step ladders shall not be used as straight ladders.
- d) When an employee is working on a step ladder more than 10 feet high (except a platform ladder), the ladder shall be held by another person.

131 Material Handling and Storage

- a) An employee shall obtain assistance in lifting heavy objects or use power equipment.
- b) When two or more persons carry a heavy object that is to be lowered or dropped, there shall be prearranged signal for releasing the load.
- c) When two or more persons are carrying an object, each employee, if possible, should face the direction in which the object is being carried. Employees shall not attempt to lift beyond their capacity. Caution shall be taken when lifting or pulling in an awkward position. The right way to lift is easiest and safest. Crouch or squat with the feet close to the object to be lifted; secure good footing; take a firm grip; bend the knees; keep the back vertical; and lift by bending at the knees and using the leg and thigh muscles.

- d) Employees should avoid twisting or excessive bending when lifting or setting down loads.
- e) When moving a load horizontally, employees should push the load rather than pull it.
- f) When performing a task that requires repetitive lifting, the load should be positioned to limit bending and twisting. The use of lift tables, pallets, and mechanical devices should be considered.
- g) When using such tools as screw drivers and wrenches, employees should avoid using their wrists in a bent (flexed), extended, or twisted position for long periods of time. Employees should maintain their wrists in a neutral (straight) position.
- h) When gripping, grasping, or lifting an object such as a pipe or board, the whole hand and all the fingers should be used. Gripping, grasping, and lifting with just the thumb and index finger should be avoided.
- i) Materials stored near energized lines or equipment must meet the applicable federal and state laws, rules and regulations, and department policies.

132 Explosives

- a) Explosives are intentionally manufactured to explode, and when supplied with sufficient initiating energy will do so. Furthermore, explosives will not distinguish between initiating energy supplied purposely and initiating energy supplied accidentally. Therefore, the burden of protecting explosives from accidental sources of initiating energy must rest with those who handle and use explosives.
- b) Only persons authorized by the City of Alliance to do so, shall use explosives or explosive material. These persons shall be qualified by training and experience in the safe handling, transporting, storing, and use of explosives and shall have a working knowledge of applicable federal, state, and local laws. These persons shall be a minimum of 21 years of age; not addicted to narcotics, intoxicants, or similar types of drugs; and able to understand and given written and verbal orders.
- c) Explosives and blasting caps (detonators) shall not be transported on the same vehicle, except by permission of the authority having jurisdiction. Blasting supplies shall not be transported with other materials or cargoes.
- d) Explosives and detonators shall be carried and transported in the original manufacturer's container or other approved container.
- e) Vehicles transporting explosives, detonators, and other blasting supplies shall have any exposed spark-producing metal on the inside of the body covered with non-sparking material; be marked or placarded on both sides, the front, and the rear with approved "explosives" signs; equipped

with fire extinguishers in good mechanical condition; and driven by an appropriately licensed driver.

f) Motor vehicles or conveyances containing explosives, blasting agents, or blasting supplies shall not be taken inside a garage or shop. No repairs shall be performed on a motor vehicle or conveyance loaded with explosives, blasting agents, or blasting supplies.

g) Motor vehicles or conveyances containing explosives or blasting agents shall at all times be attended.

h) Because electric blasting caps, when not shielded by a closed metal box, have been known to be detonated by the operation of two-way radios in vehicles as well as by regular radio transmitter shall be allowed within 100 feet of blasting operations or exposed electric caps, while the transmitter is in operation.

i) When electric blasting caps are used, adequate signs warning against the use of mobile radio transmitters shall be prominently displayed.

j) The blaster, prior to connecting the charge or initiating the explosives, shall ensure the protection of both the public and City of Alliance employees through the use of warning signs and/or personnel stationed around the perimeter of the danger area.

k) Electrical connections shall be made only after the hole has been charged and the area is clear.

l) Before the blast is fired, a loud signal shall be given by the blaster who shall have made certain the area is clear of persons and extraneous materials. Blasting signals shall be posted as follows:

- (1) Warning Signal: A 1-minute series of long blasts given 5 minutes prior to blast signal.
- (2) Blast Signal: A short signal of blasts 1 minute prior to the shot.
- (3) All Clear Signal: A prolonged blast following the inspection of blast area.

m) Misfires. No person shall return to the blast area until permitted to do so by the blaster. Misfires shall not be inspected until a sufficient waiting period has elapsed. For nonelectric blasting, the minimum waiting period is 1 hour; for electric blasting, the minimum period is 30 minutes.

n) Blasting cap leg wires shall be kept short-circuited (shunted) until they are connected into the circuit for firing.

o) For additional information concerning explosives, refer to applicable federal and state laws, rules and regulations, and department policies.

133 Compressed Gases

- a) Care shall be exercised in handling all compressed-gas cylinders. They shall not be dropped, jarred, or exposed to temperature extremes.
- b) Cylinders shall have the valve cap or valve protection device in place at all times, except when in actual use or connected to a welding set.
- c) Cylinders shall not be rolled and shall not be lifted by the valve or valve cap; a suitable cradle or other device shall be used.
- d) Cylinders shall have their contents properly identified.
- e) Cylinders not having fixed hand wheels shall have keys, handles, or nonadjustable wrenches on the valve stems while the cylinders are in service.
- f) Compressed-gas cylinders, whether full or empty, shall be stored in an upright position and chained or otherwise secured so they cannot fall or be upset.
- g) When cylinders are transported by powered vehicles, they shall be secured in a vertical upright position with the valve cap or valve protection device in place.
- h) Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease) by a minimum distance of 20 feet or by a 5-foot-high noncombustible materials (especially oil or grease by a minimum distance of 20 feet or by a 5-foot-high combustible barrier.
- i) Cylinders shall not be placed where they might become part of an electric circuit or within 5 feet of an electrical outlet.
- j) Hydrogen and fuel gas cylinders shall not be stored inside any operating building. Separate storage buildings or sheltered storage areas shall be used.
- k) Employees shall never force connections that do not fit nor shall they tamper with the safety relief devices of cylinder valves.
- l) Before the regulator is removed from a cylinder, the valve shall be closed and all pressure released from the regulator.
- m) A leaking cylinder shall not be used. Such cylinders shall be taken outdoors away from sources of ignition. The supervisor shall be notified.
- n) A flame shall never be used to detect gas leaks.

- o) The recessed top of cylinders shall not be used as a place for tools.
- p) No attempt shall be made to mix gases in a cylinder or to transfer gas from one cylinder to another except by trained personnel.
- q) A sign "Danger--No Smoking, Matches, or Open Lights" or one with equivalent wording shall be conspicuously posted in rooms or at entrances to areas where fuel gas is used or stored.
- r) Hydrogen: Special precautions shall be taken when using hydrogen to avoid the possibility of fire and explosion. "Danger--No Smoking" signs shall be posted where hydrogen is used or stored.
- s) Oxygen: Oil, grease, or similar materials shall not be allowed to come in contact with any valve, fitting, regulator, or gauge of oxygen cylinders.
 - (1) Oxygen shall never be used as a substitute for compressed air.
 - (2) When an oxygen cylinder is in use, the valve should be opened fully to prevent leakage around the valve stem.
- t) Acetylene: Acetylene cylinders shall be properly secured and always used, transported, or stored in a vertical position. Cylinders shall be protected from sparks, flames, and contact with energized electrical equipment.
 - (1) An acetylene cylinder valve shall not be opened more than one and one-half turns of the spindle and preferably no more than three-fourths of a turn.
 - (2) Employees shall not use acetylene in a free state at pressures higher than 15 psi.
- u) Chlorine: Also see Paragraph 912.
 - (1) Chlorine containers shall be stored and properly secured in a cool place protected from moisture.
 - (2) Every precaution shall be taken to prevent accidental discharge of the gas, and protective equipment shall be readily available for use in an emergency.
 - (3) Only employees who have been properly trained and provided with the necessary protective equipment shall attempt to stop cylinder leaks.
 - (4) Should a chlorine leak develop, the cylinder shall be placed so that only "gas" escapes. Water should not be sprayed or poured on chlorine leaks.
 - (5) Chlorine cylinders shall never be used or stored near flammable materials.
 - (6) Dry chlorine shall be stored in an isolated area as mixing it with anything but water could cause a fire or explosion.
- v) See Paragraph 201, Hazardous Materials, for additional information concerning hazardous compressed gases.

w) For additional information concerning compressed-gas requirements, refer to applicable federal and state laws, rules and regulations, and department policies.

134 Welding and Cutting--General

a) Welding and cutting shall be performed only by experienced and properly trained persons. Before welding or cutting is started, the area shall be inspected for potential fire hazards.

b) When welding or cutting in elevated positions, precautions shall be taken to prevent sparks or hot metal from falling onto people or flammable material below.

c) Suitable fire extinguishing equipment shall be immediately available at all locations where welding and cutting equipment is used.

d) Matches and compressed gas lighters shall not be carried by welders or their helpers when engaged in welding or cutting operations.

e) A fire watch shall be maintained wherever welding or cutting is performed in locations where combustible materials present a fire hazard. A fire check shall be made of the area 1/2 hour after completion of welding.

f) Where combustible materials such as paper clippings or wood shavings are present, the floor shall be swept clean for a radius of 35 feet before welding. Combustible floors shall be kept wet or protected by fire-resistant shields. Where floors have been wetted down, personnel operating arc-welding or cutting equipment shall be protected from possible shock.

g) To protect eyes, face, and body during welding and cutting, the operator shall wear an approved helmet or goggles, proper protective gloves, and clothing. Helpers or attendants shall wear an approved helmet or goggles, proper protective gloves, and clothing. Helpers or attendants shall wear proper eye protection. Other employees shall not observe welding operations unless they use approved eye protection.

h) Proper eye protection shall be worn to guard against flying particles when the helmet or goggles are raised.

i) Machinery, tanks, equipment, shafts, or pipes that could contain explosive or highly flammable materials shall be thoroughly cleaned and decontaminated prior to the application of heat.

j) In dusty or gaseous spaces where there is a possibility of an explosion, welding or cutting equipment shall not be used until the space is adequately ventilated.

k) Welders shall place welding cable, hoses, and other equipment so that they are clear of

passageways, ladders, and stairways.

- l) Where the work permits, the welder should be enclosed in an individual booth or shall be enclosed with noncombustible screens. Workers or other persons adjacent to the welding areas shall be protected from rays by shields or shall be required to wear appropriate eye and face protection.
- m) After welding or cutting operations are completed, the welder shall mark the hot metal or provide other means of warning other workers.
- n) Potentially hazardous materials in fluxes, coatings, covering, and filler metals are released to the atmosphere during welding or cutting operations. While welding or cutting, adequate ventilation or approved respiratory protection equipment shall be used. Special precautions shall be taken when using materials that contain cadmium, fluorides, mercury, chlorinated hydrocarbons, stainless steel, zinc, galvanized materials, beryllium, and lead. Employees shall refer to the City of Alliance hazard communication program for specific requirements pertaining to the above listed hazardous materials.
- o) Employees welding or cutting in confined spaces shall conform to the requirements of Paragraph 202.
- p) Gas welding and cutting: Only approved gas welding or cutting equipment shall be used.
 - (1) Approved back flow check valves shall be used on gas welding rigs in both gas and oxygen lines.
 - (2) Welding hose shall not be repaired with tape.
 - (3) Matches shall not be used to light a torch; a torch shall not be lighted on hot work. A friction lighter or other approved device shall be used.
 - (4) Oxygen or fuel gas cylinders shall not be taken into confined spaces.
 - (5) Refer to Paragraph 133 for additional requirements concerning specific gases, and compressed gas cylinder use, care, and storage requirements.
- q) Electric Welding: Only approved electric welding equipment shall be used.
 - (1) The electric welding machine shall be properly grounded before use.
 - (2) Rules and instructions supplied by the manufacturer or affixed to the machine shall be followed.
 - (3) Welders shall not strike arc with an electrode, whenever persons are nearby who might be affected by the arc.
 - (4) 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 contacts with employees or conducting objects.
 - (5) When the welder must leave the work or stop work for any appreciable length of time, or when the welding machine is to be moved, the power supply switch to the equipment shall be opened.

r) For additional information concerning the requirements for welding and cutting, refer to applicable federal and state laws, rules and regulations, and department policies.

135 Acids and Caustics

a) Acids and Caustics - Storage

- (1) Acids, in any quantity, shall be kept in an approved carboy or other container, prominently labeled. These containers shall not be used for any other purpose.
- (2) Acids shall not be stored near heaters, steam pipes, or other sources of heat.
- (3) Acid containers shall be securely stoppered or covered.
- (4) Acids kept on shelves shall not be stored higher than waist level.
- (5) If acids or caustics are spilled, they shall be flushed away with an ample supply of water--never wiped up.
- (6) Employees handling acids, caustics, or other corrosive, toxic chemicals shall wear approved gloves, aprons, eye and face protection and shall take precautions to prevent personal injury.
- (7) The use and toxic quality of new materials shall be investigated thoroughly, and personnel shall be advised of any hazards involved.
- (8) Chemical pumps shall be decontaminated externally before repacking or performing maintenance work.
- (9) Storage areas for acids and caustics shall be posted with appropriate warning signs.
- (10) Areas where acid cleaning is to be done shall be barricaded by suitable means, and no smoking or open flames shall be permitted.
- (11) Suitable procedures shall be established to avoid explosions from released hydrogen or injuries from the chemicals.

b) Acids and Caustics - Handling

- (1) Only reliable, dependable, and properly trained employees or suppliers' personnel shall operate valves or other equipment that control the movement of chemicals.
- (2) Approved protective equipment and clothing shall be worn whenever acids or caustics in harmful quantities may spill, splash, fly, or drip upon the person handling them. The quantity of acid or caustic handled shall determine the kind and quantity of clothing and equipment. Minimum protection shall be chemical goggles, acid proof gloves, and apron.
- (3) Should any acid, caustic or other chemical come in contact with the eyes, they shall be thoroughly washed with large amounts of running water and a physician consulted as soon as possible. DO NOT RUB THE EYES.
- (4) Employees shall not handle acids or caustics unless there is access to an adequate supply of water for quick drenching and flushing of the eyes and body.
- (5) Employees shall take a shower to avoid skin irritation after handling large quantities of

- caustics, if contamination is suspected.
- (6) Before lifting or moving a carboy or other acid container, it shall be examined carefully to see that it is not in a leaky or defective condition. The wire holding the carboy stopper in place shall be checked to see that it has not corroded and that the stopper is secure. All movements shall be made slowly to avoid excessive agitation of the acid.
 - (7) Before starting to unload a tank car or tank truck of acid, the acid storage tank shall be gauged to see if there is adequate space inside the tank to contain the acid being added without overflowing.
 - (8) When tank cars or trucks are unloaded, warning signs shall be prominently posted and barriers placed so as to warn all personnel of the impending danger.
 - (9) Only approved methods, tools, and equipment shall be used to extract acids and caustics from a container.
 - (10) Acid in railroad tank cars or tank trucks shall be unloaded in accordance with the regulations of the Interstate Commerce Commission and the recommended practices of the Manufacturing Chemists Association.

c) Acids and Caustics - General

- (1) When mixing acid or caustic with water, the acid or caustic shall be poured into the water, not the water into the acid or caustic.
- (2) If it is necessary to enter a tank or vat to clean it, the person entering shall wear approved hard hat or hood; rubber gloves; rubber or plastic outer clothing and boots, and shoes, or wooden clogs. They shall also wear a supplied-air mask and a lifeline. At least one worker shall remain outside the tank or vat to man the lifeline. Refer to Paragraph 202 for additional confined-and enclosed-space requirements.
- (3) Hydrazine, Morpholine and other are highly toxic and caustic materials shall never be handled without adequate ventilation. Skin or clothing contact and the breathing of fumes shall be avoided.
- (4) All small containers such as bottles or jars shall be washed thoroughly when emptied. Carboys, steel drums, tank trucks, or tank cars shall not be washed but shall be completely drained of all acid before returning to the acid supplier.
- (5) Open flames and smoking are prohibited when working with or near acid in metal containers, such as tanks, condensers, or boilers. Sparkproof tools shall always be used where there is a danger of accumulated hydrogen.

Note: Certain acids in contact with metal produce explosive hydrogen.

d) Chlorine

- (1) When it is necessary to work on chlorine lines or equipment, all sources of chlorine shall be turned off at the chlorine cylinders and the lines safely discharged and purged with dry air (to normal path of usage, not to atmosphere) before any connection or pipe is opened. (See Paragraph 109 for Hold Card procedure.)

- (2) In the event a chlorine cylinder leaks, only properly trained employees with the necessary personal protective equipment shall attempt to stop the leak. If the leak cannot be stopped, the cylinder shall be moved to the open air and placed a safe distance from all personnel. Leaky cylinders shall be turned so that the leak is on top.
- (3) Only employees who have been properly trained shall perform work on chlorine lines or equipment.
- (4) Portable gas cylinders in storage shall have roof or shield covers for protection against the weather.
- (5) Chlorine system enclosures shall be posted with signs restricting entry and warning of hazard to health and the hazards of fire and explosion.
- (6) The number of personnel shall be limited to those necessary to accomplish the task safely.
- (7) Emergency repair kits shall be available near the shelter or enclosure to allow for the prompt repair of leaks in chlorine lines, equipment or containers.
- (8) Before repair procedures are started, chlorine tanks, pipes and equipment shall be purged with dry air and isolated from other sources of chlorine.
- (9) For more information on Hazardous Waste Operations and Emergency Response, refer to applicable federal and state laws, rules and regulations, and department policies.

136 Tree Trimming

a) General

- (1) When tree trimming, tree felling, brush loading or brush disposal operations are under way on street, highway or any other area accessible to the public, "People Working" signs, cones, red flags or flares, barricades and other warning devices (or combinations thereof) shall be used to protect vehicular and pedestrian traffic
 - (1) Climbers with pole gaffs shall not be used in trees.
 - (2) Dead or rotted limbs, regardless of size, shall not be used by employees for support.
 - (3) No work shall be done in a tree until employee is securely tied in or belted to the tree.
 - (4) The climbing rope shall be crotched in such a manner as to prevent its "working out" on a lateral limb.
 - (5) When working in a multiple trunk tree the climbing rope shall preferably be crotched around a main trunk other than the one on which the employee is working.
 - (6) Employee shall crotch their climbing rope in two places if a single crotch does not adequately protect them from falling into energized lines or falling back into the trunk of tree.
 - (7) The climbing rope shall not be used as a pull rope or as a hand line to lower limbs or branches.
 - (8) The ground end of a climbing rope shall not be allowed to dangle over roadways and shall be kept free from obstructions, passing vehicles, etc.
 - (9) The taut-line hitch shall not be released until the climber is on the ground.

- (11) Branches or other material shall not be dropped unless the immediate area has been cleared so that there is no possibility of injury to persons or damage to property. If such a possibility exists a rope shall be used to lower branches or other materials.
- (12) When lowering heavy tree members employees shall not tie fall lines around hands or bodies.
- (13) Employees shall not attempt to clear limbs or brush from under the side of the tree where the climber is working.
- (14) Employees shall obtain assistance or use power equipment, if available, when lifting logs or other heavy loads.
- (15) When loading brush onto truck employees shall not stand on or straddle the loaded brush.
- (16) Brush shall be hauled away promptly or otherwise disposed of to avoid presenting an attractive nuisance and to prevent injury to persons or damage to passing vehicles.
- (17) When hauling brush care shall be taken that it does not extend over the sides of the truck.
- (18) When it is necessary to work in the vicinity of poison ivy, poison oak or poison sumac employees shall keep sleeves rolled down and wear gloves.
- (19) Tree trimming and tree-felling work should terminate and employees should be moved to a place of safety during electrical storms and periods of high winds or other unusual weather conditions that are dangerous to employees.

b) Working Near Energized Conductors

- (1) Before any employee climbs, enters, or works around any tree a close inspection shall be made to determine whether an electric conductor passes outside a safe distance of the electrical conductor. If it does not fall outside a safe distance the conductor will either be discharged by a trained person capable of such work or the tree work will be completed by a person trained to handle tree work within close proximity of an electric conductor.
- (2) Wires in proximity to tree trimming shall be considered as energized unless proven to be dead and are grounded.
- (3) Broken or fallen wires shall not be handled except by persons experienced in such work.
- (4) When working near wires the employee shall have their climbing rope secured so that in the event they slip or a limb breaks they will swing free and clear of the wires.
- (5) Tree limbs shall not be dropped on conductors.
- (6) Ropes shall not be thrown over conductors or cross arms for the purpose of using the conductor or cross arm as a support or hitch.
- (7) Dry ropes shall be used in trees through which energized conductors pass.

c) Tree Felling

- (1) The employee felling the tree shall plan a clear retreat path before a cut is started.
- (2) The feller shall appraise the situation for dead limbs, the lean of the tree to be cut, wind conditions and other hazards and exercise proper precautions before the cut is started.
- (3) When felling a tree an undercut shall be made about 1/3 the diameter of a tree to guide the tree in the direction to fall and reduce the possibility of splitting. A back or felling cut shall be made parallel to the inner edge of the undercut and approximately 2 inches higher than the undercut.
- (4) The feller shall shut off his saw before he starts his retreat.
- (5) On terrain where trees are likely to slide or roll fellers shall fell trees from the uphill side.
- (6) No one shall be allowed to work in a tree located near a tree that is being felled if there is any danger of its being struck by any part of the falling tree. The recommended distance between workers is twice the height of the trees being felled.
- (7) All persons not engaged in the felling operation shall be kept clear of guide ropes and other rigging.
- (8) Clear warning shall be given to all employees in the area when trees are to be felled or heavy tree members are to be dropped.
- (9) Once the felling of a tree has been started it shall be completed before leaving the job.

d) Care and Use of Tools and Rope

- (1) Ropes shall be inspected at least daily. Damaged sections shall be cut out and destroyed or the rope replaced.
- (2) Ropes shall be kept away from fire, acids, oil, chemicals and all sources of excessive heat.
- (3) Dragging ropes over rough surfaces and sharp objects, such as rocks, shall be avoided. Ropes shall be stored separately from sharp-edged cutting tools.
- (4) The cutting edge of tools shall be suitably sheathed or guarded except while in actual use. Cutting tools shall be kept sharp and properly shaped.
- (5) When not in actual use the trimmer's saw shall be returned to the scabbard.
- (6) Axes shall not be used in trees or carried on the shoulder.
- (7) Tools shall not be thrown into or dropped from a tree. They shall be raised or lowered by a suitable rope line.
- (8) A pruner shall not be laid on a limb, in a crotch or hooked on a wire or rope. It shall be hooked over a limb strong enough to hold its weight.
- (9) Ladders shall be removed from the base of the tree when not in use.

e) Powered Trimming Equipment

- (1) Employees operating powered trimming equipment shall wear suitable eye and face protection. Chaps for leg protection will be available for employee use and shall be used according to Department Head directions.
- (2) For hearing protection requirements refer to Section 203.

- (3) Chain-saw operators shall inspect the saw before each use to assure that all handles and guards are in place and tight, that all controls function properly and that the muffler is operational.
- (4) Chain-saw operators shall follow manufacturer's instructions on operation and maintenance.
- (5) Power saws weighing more than 15 pounds that are used in trees shall be supported by a separate line unless the work is performed from an aerial lift or no supporting limbs are available.
- (6) When starting a chain saw it shall be placed on or against a solid support and the area cleared of all co-workers.
- (7) The operator shall grip the chain saw with both hands during the entire cutting operation.
- (8) Saw bumpers shall be against the tree or limb before starting a cut.
- (9) Chain-saw operators shall, when necessary, clear the immediate area around their work to make certain that brush will not interfere with either the chain saw or operator.
- (10) All chain saws shall be equipped with dead-man controls (control cannot lock in "on" position).
- (11) The chain-saw engine or motor shall be stopped for the following:
 - (a) When working on any part of the chain or cutting bar.
 - (b) While the saw is being moved from one location to another, including being carried up into the tree.
 - (c) While unit is unattended.
- (12) Gasoline-driven chain-saw engines shall be stopped when being refueled. If gas is spilled on chain saw during refueling it shall be wiped off before engine is started. Chain saws shall not be started within 10 feet of a fueling area.
- (13) A gasoline-driven chain saw shall not be used above shoulder level or at a distance that would require the operator to relinquish a safe grip on the saw.
- (14) Employees shall not approach chain-saw operator within the reach of the saw while the saw is in operation.
- (15) Employees shall never hand a pneumatic or hydraulic pruner or saw to another employee unless it is disconnected.
- (16) Powered tools shall not be left unattended if connected to a power source.
- (17) Powered tools shall not be adjusted or repaired while connection to power source.

f) Chippers

- (1) Access panels for maintenance and adjustment of the chipper blades and associated drive train shall be in place and secure during operation.
- (2) Chippers shall never be parked directly under tree being trimmed.
- (3) Employees shall not permit spectators to stand near machine while feeding brush into chipper.

- (4) Approved safety glasses with side shields shall be worn by an employee when feeding brush into chipper.
- (5) Employee shall never place hands or other part of body into brush hopper while chipper is in operation.
- (6) Tools or other mettalic objects shall not be used to push brush into chipper.
Sweepings, which may contain foreign objects such as stones and nails, shall be loaded on truck and not fed into the chipper.
- (7) Ignition key shall be removed when chipper is left unattended.
- (8) Hearing protection will be worn during operation.
- (9) Only wrist-length (non-gauntlet) gloves shall be used by employees feeding a chipper.
- (10) Trailer chippers detached from trucks shall have their wheels chocked.

g) Right-of-Way Clearing and Maintenance

- (1) When two or more employees are cutting brush, they shall be separated by at least 10 feet.
- (2) Under no circumstances shall anyone, except the operator, ride on a bulldozer or any other heavy equipment used in land clearing.
- (3) Bulldozer operators shall wear seat belts.
- (4) Employees shall not anchor equipment to railroad tracks, fences or structures belonging to others.
- (5) When emerging from right-of-way, prior to road travel, employees shall test brakes.

137 Shoring

- a) All trenches and excavations deeper than five feet (5') shall be shored using the shoring units, or the sides shall be placed with the proper angle of the repose or otherwise supported by means of sufficient strength to protect the employees working therein. For all excavations and trenches deeper than five feet (5') near large buildings, box shoring shall be used.
- b) For all excavations or trenches in unstable ground deeper than five feet (5'), the shoring shall be used or the side shall be sloped with the proper angle of repose. Unstable ground shall include soft, sandy, or filled area or water logged areas, or areas wet from ground water or water line leaks.
- c) The angle of the repose shall be as stated in OSHA Safety and Health Standards (29C F R 1926/1910) No. 2007 dated 1985. Such standards and additional information contained in such standards are made a part hereof by this reference.

SECTION 2 - HEALTH AND ENVIRONMENTAL CONTROL

This section deals with general health areas and depicts some of the control methods that employees must use for their protection. The general principles outlined in this section are applicable to all work activities. However, specific control measures applicable to a specific work activity are covered in the section dealing with that work activity.

Work processes and work locations can present health hazards to the employee. Because most of these health hazards do not pose an immediate danger, they are frequently not given the attention that is necessary.

In order for employees to be fully protected, they must become as knowledgeable as possible of potential health hazards. Thorough understanding of the principles of this section is essential.

201 Hazardous Materials

- a) To reduce the risks of working with hazardous materials, manufacturers of hazardous materials are required to convey hazard information to the users of their products. This is accomplished through the use of Material Safety Data Sheets and container labeling. Employees shall refer to the City of Alliance's Hazard Communication Program for specific requirements for working with hazardous materials.
- b) Employees can obtain a list of hazardous materials known to be in their work area from their supervisor.
- c) The Material Safety Data Sheet is the main vehicle for communicating the hazards, safe handling requirements, and emergency procedures for each hazardous material. Employees shall know the location of the Material Safety Data Sheets for all hazardous materials known to be in their work areas.
- d) Material Safety Data Sheets shall be made available to contractors working on City of Alliance property.
- e) Employees shall not use materials they find in unlabeled containers. Employees shall report unlabeled containers and containers with damaged labels to their supervisor.
- f) Employees shall not transfer a hazardous substance from a labeled container to an unlabeled container unless the unlabeled container will be under the exclusive control of the employee.
- g) Employees shall take special precautions as defined in the City of Alliance's Hazard Communication Program when working on or around unlabeled pipes.
- h) Employees shall report all hazardous material spills to their supervisor. Employees shall not

attempt to control or clean up spills unless they have been properly trained and have the required personal protective equipment.

i) For additional information concerning the requirements for working with hazardous materials, refer to applicable federal and state laws, rules and regulations, and department policies.

202 Confined or Enclosed Spaces

- a) Only employees who have been properly trained on the hazards associated with confined- or enclosed-space work shall be allowed to enter a confined or enclosed space.
- b) Employees who enter enclosed spaces or who serve as attendants shall be trained in the hazards of enclosed space entry, enclosed space entry procedures and enclosed space rescue procedures.
- c) Before any entrance cover to a confined or enclosed space is removed, it shall be determined that there are no temperature or pressure differences, or other hazardous conditions that may injure the employees removing the cover.
- d) When covers are removed from confined or enclosed spaces, the opening shall be guarded by a railing, temporary cover, or other temporary barrier.
- e) Before entering a confined or enclosed space, all levels of the space shall be tested for lack of oxygen and then for the presence of flammable or toxic gases and vapors. Monitoring instrumentation must be calibrated.
- f) If a hazard-increasing work activity is to take place in a confined or enclosed space (i.e., welding, painting, working with solvents and coating), the air in the space shall be continuously tested for the presence of flammable or toxic gases and vapors or insufficient oxygen. Forced ventilation shall be used as required.
- g) If flammable or toxic gases or vapors are detected or if an oxygen deficiency is found, the space shall be continuously tested and forced ventilation shall be used to maintain oxygen at a safe level and to prevent a hazardous concentration of flammable or toxic gases and vapors.
- h) While work is being performed in an enclosed space, a person with CPR and basic first aid training shall be immediately available to render emergency assistance if there is reason to believe that a hazard may exist in the space or if a hazard exists because of traffic patterns in the area of the opening used for entry. If work is to be performed in a confined space, the City of Alliance's written permit system shall be followed. A properly trained attendant shall be stationed outside the confined space. The attendant shall maintain continuous communication with the employees authorized to be in the confined space. The attendant shall be able to recognize confined-space hazards and changing conditions in the confined space that could affect employees in the space. In the event of an emergency, the attendant shall not enter the confined space but shall be able to summon emergency

and rescue services.

- i) Entry into a confined or enclosed space with an unsafe atmosphere shall be avoided if at all possible. Employees required to enter a confined or enclosed space with an unsafe atmosphere shall be equipped with a fresh-air breathing apparatus, body harness, and lifeline monitored by a properly trained attendant. Necessary rescue personnel and equipment shall be available in the event of an emergency.
- j) Electric welding, gas welding, cutting, or any other hot work shall not be performed on the interior, exterior, or near the openings of any confined or enclosed space that may contain flammable or explosive gases or vapors until the space has been properly cleared.
- k) Compressed-gas bottles shall not be taken into a confined space, other than self-contained breathing apparatus.
- l) Safe access to the confined space shall be maintained at all times. If possible, all cords, hoses, leads, etc., shall be routed through an entrance other than the employee access into the confined space.
- m) Before employees are allowed to enter a confined space, all electrical and mechanical energy sources that could affect the employees working in the space shall be physically rendered inoperative, locked out, and tagged. If required, the space should be drained, vented, and cleaned.
- n) For additional information concerning confined-space requirements, refer to applicable federal and state laws, rules and regulations, and department policies.

203 Noise

Table 2.1 Permissible Noise Exposures

Duration per day, hours: Sound Level dBA slow response

8	90
6	92
4	95
3	97
2	100
1-1/2	102
1	105
1/2	110
1/4 or less	115

Note: Exposure to excessive noise can cause a gradual decay in hearing ability. Advancements are being made in the reduction of noise, but during the interim period, the employee shall wear proper ear protection when exposed to excessive noise.

- a) Ear protection must be worn when there is a possibility of hearing damage, which can occur during continuous exposure to noise or impulse exposure to loud impact noise. When exposed to noise of 90 dBA (decibels) for more than 8 hours, 95 dBA for more than 4 hours, 100 dBA for more than 2 hours, or 105 dBA for more than 1 hour, proper ear protection must be worn.
- b) Specific areas where the noise level is greater than 90 dBA shall be identified, and time limits stated. Employees shall wear proper protective devices when exposed beyond posted limits.
- c) Proper ear protection may consist of any of the following: ear muffs, ear plugs, molded ear protectors, or wax-type ear plugs. Plain cotton is not acceptable. Ear protective devices shall be worn properly to provide the required protection and kept clean to reduce the possibility of ear infection.
- d) For additional information concerning noise, refer to applicable federal and state laws, rules and regulations, and department policies.

204 Lighting

Where natural illumination is not sufficient, artificial lighting shall be used. Temporary lighting (excepting battery powered) shall be protected with approved guards. In areas where flammable or combustible vapors, liquids, gases, dust, or fibers may be present, only equipment approved for the hazardous location shall be used.

205 Asbestos

Note: Asbestos fibers that are airborne (suspended in the air) in a significant quantity can cause bodily harm if the fibers are inhaled. Whenever it is known that asbestos is in a facility, it is strongly recommended that an EPA-approved contractor be consulted.

- a) Only those employees who have been properly trained and equipped with the necessary personal protective equipment shall handle asbestos.
- b) Insofar as practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state unless this procedure would render the product useless.
- c) Asbestos cement, mortar, coating, plaster, etc., shall not be removed from the shipping container unless it is wetted, enclosed, or ventilated.
- d) Negative-air enclosures or other engineering controls (e.g. glove bags) that reduce the concentration of airborne asbestos fibers shall always be used when working with asbestos.
- e) Personal protective equipment: Proper protective equipment, including clothing, must be worn when working in an area where there is a significant amount of airborne asbestos fibers.

- (1) Respirators: Approved respirators shall be worn when there is a possibility of airborne concentrations of asbestos fibers. The type of respirator required shall be based on the airborne concentrations of asbestos fibers. At no time shall less than a half mask air purifying respirator with a high efficiency filter be used.
 - (2) Special Clothing: Employees who are exposed to airborne concentrations of asbestos fibers that exceed the action level shall use special clothing such as coveralls, head coverings, gloves, and foot coverings. Clothing shall be changed only in the designated location and shall be kept separate from street clothes. Contaminated clothing shall be properly cared for or disposed of and kept separate from other laundry or disposed materials; it shall be transported in sealed, impermeable bags or similar containers and properly labeled to identify the possible hazard.
- f) Housekeeping:
- (1) All external surfaces shall be maintained free of accumulations of asbestos fibers.
 - (2) Asbestos waste and materials contaminated with asbestos, which may produce airborne concentrations, shall be collected and disposed of in sealed impermeable bags at least 6 mils thick or similar containers. Bags or containers shall be evacuated of all air before sealing and all bags shall be double bagged and properly labeled.
- g) See Paragraph 201, Hazardous Materials, for additional information concerning asbestos.
- h) For additional information concerning asbestos requirements, refer to applicable federal and state laws, rules and regulations, and department policies.

206 Exhaust Ventilation

- a) Exhaust systems, when provided at the work location, shall be used.
- b) When an exhaust system does not provide adequate protection, other protective means, such as an approved respirator, shall be used in addition to (or in lieu of) the exhaust system.
- c) For additional information concerning ventilation requirements, refer to applicable federal and state laws, rules and regulations, and department policies.

207 Respirators

Note: When various types of respirators are available, care must be taken in proper selection. The respirator must provide adequate protection against the anticipated hazard. Whenever there is doubt, the more protective device must be used. Respirator use requires training specific to the type of respirator used.

Types of respirators include the following:

(1) Air purifying respirators:

- (a) Particulate removing--single-use and reusable.
- (b) Gas and vapor removing--single-use and reusable.

(2) Atmosphere supplying respirators:

- (a) Powered-air purifying respirator.
- (b) Continuous flow.
- (c) Demand.
- (d) Pressure demand.
- (e) Supplied air.
- (f) Hose mask with/without blower.

a) Only employees who have been properly trained and have been determined physically able to perform the work and wear the respirator shall be assigned a task that requires the use of a respirator.

b) When respirators are provided for a particular work activity, they shall be used.

c) Use of a respirator shall follow the manufacturer's instructions.

d) Only employees trained in their use shall use respirators.

e) Persons using air line respirators or similar respirator devices in an enclosed area shall be equipped with a safety harness and life line or other equivalent means of rescue. At least one person with suitable self-contained breathing apparatus shall be at the nearest fresh-air base for emergency rescue.

f) Approved respirators shall be worn when:

- (1) Applying paint or toxic liquids with pressure spray equipment inside buildings, except in shops where special approved rooms or booths are provided for this purpose.
- (2) Buffing creates an abnormal amount of dust.
- (3) Welding or cutting involving hazardous materials without adequate ventilation.
- (4) Handling lime or other toxic or caustic powdered chemicals.
- (5) Exposed to abnormal amounts of coal dust.
- (6) Sandblasting.
- (7) Handling acids or caustics, when atmosphere conditions warrant use.
- (8) Handling asbestos.
- (9) Exposed to nuisance dusts.
- (10) Handling fly or bottom ash.

- (11) Exposed to known radiation hazards.
 - (12) Entering or working in areas of unknown air quality.
 - (13) Required by the respiratory protection program or supervision.
- g) Respirators shall be cleaned after use and stored in sanitary containers. Records of a respirator maintenance program shall be kept.
- h) For additional information concerning respirator requirements, refer to applicable federal and state laws, rules and regulations, and department policies.

SECTION 3 - VEHICLE OPERATIONS

301 General

- a) Only specifically authorized employees who possess a valid license or permit for the equipment being used shall operate City of Alliance owned motor vehicles or personally owned vehicles on City of Alliance business. All vehicle loading and operation shall be done according to applicable state and federal Department of Transportation rules and regulations.
- b) Drivers shall know and obey all state and local motor vehicle laws applicable to the operation of their vehicle.
- c) The driver shall drive at safe speeds no greater than that permitted by law. Traffic, road, and weather conditions shall be given consideration in determining the safe speed within the legal limit at which the vehicle shall be operated.
- d) A driver shall not permit unauthorized persons to drive or operate a City of Alliance vehicle.
- e) Passengers in City of Alliance vehicles will only be allowed as specified by the City of Alliance.
- f) If seat belts are provided, they shall be used by all occupants.
- g) Employees shall not permit anyone to ride on the running boards, fenders, or any part of the vehicle except on the seats or inside the body walls. Passengers shall not stand in moving vehicles.
- h) Employees shall not ride on trailers.
- i) Employees shall not jump on or off vehicles in motion.
- j) Cell phone usage, including texting, is prohibited while driving for company purposes.

302 Inspection of Equipment

- a) The driver shall determine that brakes are in a safe operating condition before operating equipment. If brakes are not working properly, they must be corrected before vehicle is used.
- b) The driver shall inspect windshield wipers frequently and see that they are in good operating condition and that the windows and windshield give sufficient visibility for safe operation of vehicle.
- c) All vehicle lights and reflectors shall be inspected by the employee; if found defective, they shall be repaired immediately.

- d) The driver shall report any defects that may have developed during the day. If the brakes are not working properly, they shall be adjusted or repaired before the vehicle is put in operation. Other items that affect safety shall be repaired prior to continued vehicle operation.

303 Exhaust Gas

The driver shall not operate the motor in any garage except when driving in or out, and then the motor shall be operated as little as practicable. The motor shall not be warmed up inside a garage nor shall the driver test motor operation in a garage unless the exhaust gas is carried directly to outside atmosphere, or doors and windows are open so that adequate ventilation exists.

304 Operation

- a) The operator of a motor vehicle shall clearly signal intention of turning, passing, or stopping.
- b) Upon a signal from a vehicle approaching from the rear, the driver of a City of Alliance vehicle shall yield the right-of-way.
- c) Drivers shall be prepared to stop and yield the right-of-way in all instances when necessary to avoid an accident.
- d) The driver of a vehicle shall be courteous toward other operators and pedestrians. The vehicle shall be operated in a safe manner, and the driver shall yield the right-of-way to pedestrians and other vehicles when failure to do so might endanger any person or another vehicle.
- e) The driver shall maintain sufficient distance behind another vehicle to safely stop the vehicle in the clear distance ahead.
- f) Drivers shall exercise added caution when driving through residential and school zones.
- g) When entering or leaving any building, enclosure, alley, or street where vision is obstructed, a complete stop shall be made and the driver shall proceed with caution.
- h) Trucks on which derricks or booms are erected above traveling height shall not be moved except under the immediate direction of a designated employee, who shall give his undivided attention to the movement.
- i) Before a vehicle is driven under or adjacent to energized equipment, especially in substation areas, the clearance shall be checked, especially that of the radio antenna, in order to ensure that proper clearances will be maintained between the vehicle and energized equipment.
- j) All ignition systems shall be turned off and no smoking permitted while refueling.

k) When proceeding down grade, the clutch shall not be disengaged. Trucks, particularly if heavily loaded, shall be in a lower gear on steep grades.

305 Parking

a) When vehicles must be parked on the roadway, they shall be parked on the right-hand side facing in the direction of traffic flow, whenever possible.

b) When parking on a roadway, vehicles shall park off the traveled road surface, whenever possible. When vehicles must park closer than 10 feet to the traveled road surface, appropriate warning devices shall be used.

c) Trucks or trailers stopped on any public roadway shall be protected by proper warning lights, reflectors, or red flags in accordance with state or local requirements.

d) Vehicles shall not be parked on bridges or over culverts except when necessary for work.

e) When it is necessary to park on an incline, the driver shall make sure the vehicle is left in a safe position. The engine shall be turned off, the vehicle placed in the lowest gear, or "park" position, the parking brake set. The front wheels shall be cut into the curb or if a curb is not present, the rear wheels shall be chocked.

306 Backing

a) Whenever possible, the vehicle shall be positioned to avoid the necessity of backing later.

b) Extreme caution shall be exercised when backing a vehicle, to avoid injury to persons and to prevent property damage. Another employee, if present, shall be stationed at the rear of the vehicle to assist the driver in backing the vehicle safely.

c) When backing a vehicle, which has an obstructed view to the rear, take the following precautions:

- (1) A reverse signal (back-up alarm) audible above the surrounding noise level shall be used, or
- (2) An observer shall signal that it is safe to back.
- (3) Back slowly.
- (4) Watch both sides but do not depend entirely on mirrors.
- (5) In any difficult backing situation, enlist the help of another person on the ground as a guide, when such help is available.

307 Stopping on Highway

- a) Stopping on the highway shall be avoided.
- b) When it is absolutely necessary to stop on the highway, use extreme caution. Warning signals and lights shall be used.
 - (1) Rotating beacon shall be used, if vehicle is so equipped.
 - (2) Tail lights/emergency flashers shall be used.
 - (3) Flares or reflectors shall be placed to give adequate advance warning.
 - (4) If work is in progress, traffic control devices (together with flagmen, where necessary) shall be used in accordance with the manual on uniform traffic control.

308 Hauling Poles or Ladders

- a) Poles, ladders, pipe, etc., shall be loaded parallel with the truck length. Such material shall not extend beyond the normal sides of the vehicle.
- b) Materials shall be securely fastened to prevent a hazard due to shifting.
- c) Material that extends more than 4 feet beyond the front or back of the truck or trailer shall have warning devices attached. During the day, reg flags shall be used; at night and during periods of poor visibility, red lights shall be used.
- d) When a vehicle hauling long poles must enter congested areas or heavy traffic, escort vehicles displaying suitable warning signs should be used.
- e) Refer to Paragraph 618 for additional pole-handling requirements

309 Industrial Trucks--Fork Lifts

- a) Industrial trucks shall be operated only by authorized persons who are qualified and trained in their use.
- b) Brakes and controls shall be tested before use. Equipment with faulty brakes or mechanical or electrical defects shall not be operated. Needed repairs shall be completed or reported immediately.
- c) Equipment shall always be operated at a safe speed for existing conditions.
- d) Before moving the equipment, the operator shall make sure that no person or objects are in the path of the vehicle. Clearances in all directions shall always be checked, particularly overhead clearances.

- e) Industrial trucks shall not be fueled with the engine running.
- f) When picking up a load, forks shall be set squarely and as far as possible under the load. Loads should not be raised or lowered while traveling. Loaded or empty, forks should be carried as low as possible, but high enough to clear uneven surfaces.
- g) Loads shall not be suspended or swung over other persons. No one should be allowed to stand, walk, or work under elevated forks.
- h) The operator shall always face in the direction of travel.
- i) On inclines, all types of loaded lift trucks shall be driven with the load on the upgrade side of the driver whether ascending or descending.
- j) Sudden stops, which might spill the load, shall be avoided.
- k) All loads shall be securely fastened or safely positioned to prevent tipping or falling.
- l) Lift bars on fork lift trucks that are movable or replaceable shall be firmly in place by a proper securing pin. Jury-rigged devices, such as using a threaded bolt, shall not be permitted.
- m) Only attachments provided by or approved by the manufacturer may be used. Such attachments shall be properly secured. Improvised methods shall not be used.
- n) No one shall be allowed to ride the truck, fork lift, or other equipment other than the operator, except when seats are provided for this purpose.
- o) When an industrial truck is left unattended (operator is 25 feet away or the vehicle is not in his view), the load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off, and brakes set. Wheels shall be chocked when the truck is parked on an incline.
- p) Equipment with internal combustion engines shall not be operated in enclosed areas for prolonged periods of time so as not to exceed the allowable levels of carbon monoxide.
- q) When loading or unloading trucks or railroad cars, approved dockboards that are properly secured shall be used. The wheels of the truck or railroad car shall be blocked.
- r) For additional information concerning industrial trucks, refer to applicable federal and state laws, rules and regulations, and department policies.

310 Cranes, Derricks, Hoisting Equipment

- a) Only authorized persons shall be permitted in the cab or on the equipment. Only those

designated persons who are trained and qualified shall operate the hoisting equipment.

- b) No person shall be permitted to ride the hook, sling, or load of any hoisting equipment.
- c) Load limits as specified by the manufacturer shall not be exceeded under any circumstances.
- d) Operating and maintenance procedures as specified by the manufacturer shall be followed.
- e) The following are the minimum checks, which shall be made daily before use:
 - (1) All control mechanisms for maladjustment interfering with proper operation.
 - (2) All safety devices for malfunction.
 - (3) Deterioration or leakage in air or hydraulic systems.
 - (4) Hooks, hoist lines, slings, and load attachment devices.
 - (5) Fire extinguisher available (5BC or larger).
- f) Before a lift is attempted, the lifting mechanism shall be level, firmly supported with the hoist line centered over the center of gravity of the load to be lifted.
- g) No load shall be lifted until its weight has been determined.
- h) For the first lift of each day, the load shall be test-lifted and the brakes checked (load lifted several inches and then tested).
- i) With every load, the slings and bindings shall be checked and shall be readjusted as necessary to ensure safety and stability.
- j) Signals to the equipment operator shall be given by one person designated to perform this task. The operator shall, however, obey a "Stop" signal given by anyone.
- k) When mobile hoists, cranes, or similar lifting devices are used near energized lines or equipment, the lifting devices shall be
 - (1) Properly grounded, or
 - (2) Insulated, or
 - (3) Isolated, or
 - (4) Considered as energized.
- l) No employee shall be under a suspended load or inside the angle of a winch line. No employee shall stand or work near a cable, chain, or rope under tension unless the nature of their work requires it.
- m) Winch lines, ropes, or wire cables shall not be guided by hand when standing within reach of the drum or sheave.

- n) Wire rope loops shall be made by proper splicing or mechanical clamping of the tail section. Wire rope clips shall not be used to form eyes in wire rope bridles or slings.
- o) When U-bolt wire rope clips are used to form eyes in winch lines, the number used and the spacing provided shall be in accordance with Figure 3.1. The U-bolt shall be applied so that the U section is in contact with the dead end of the rope.
- p) Operators shall not leave their position at the controls of cranes, hoists, derricks, or other lifting devices while the load is suspended.
- q) Operators of cranes, derricks, hoists, and other hoisting equipment shall exercise extreme caution when in close proximity to energized lines or equipment.
 - (1) When performing power transmission or distribution construction, refer to electrical section for applicable clearance requirements.
 - (2) When work does not involve power transmission or distribution construction and maintenance, minimum clearance distances shall be the following (numbers are expressed as phase to ground):

Up to 50 kV: 10 feet

Over 50 kV: 10 feet plus 0.4 in. for each 1 kV over 50 kV

- r) Trucks on which derricks or booms are erected above traveling height shall not be moved except under the immediate direction of a designated employee, who shall give his undivided attention to the movement.
- s) For additional information concerning cranes, derricks, and hoisting equipment, refer to applicable federal and state laws, rules and regulations, and department policies.

311 Rigging Equipment

- a) All rigging equipment shall be sufficient strength, proper type, and safe for its intended use.
- b) Rigging equipment shall not be loaded beyond its rated capacity.
- c) Before each use, all sling, fastenings, and attachments shall be inspected for damage or defects by a qualified person. Damaged or defective equipment shall be immediately removed from service.
- d) Makeshift lifting devices formed from bolts, rods, or reinforcing steel shall not be used.
- e) Slings shall not be shortened with knots, bolts, or other make-shift devices.

- f) Slings used in a basket hitch shall have the load balanced to prevent slippage.
- g) Slings shall be securely attached to the load by the use of hooks with retaining devices or the use of shackles or other positive latching device.
- h) Slings shall be padded or protected from the sharp edges of their loads.
- i) A sling shall not be pulled from under a load when the load is resting on the sling.
- j) Slings shall be long enough to provide the maximum practical angle between the sling leg and the horizontal plane of the load.
- k) Shackle pins shall never be replaced with bolts or other non-approved devices.
- l) Only hooks with approved retaining devices shall be used. Hooks shall never be rigged so that they are point loaded at the tip of the hook. The load shall be securely seated in the saddle of the hook.
- m) When eye bolts are used, care shall be taken to ensure the bolt is not side loaded.
- n) For additional information concerning rigging equipment, refer to applicable federal and state laws, rules and regulations, and department policies.

312 Aerial Devices

- a) Only authorized persons who are properly trained and qualified shall use or operate aerial devices.
- b) The operating and maintenance instruction manuals issued by the manufacturer shall be followed.
- c) Load limits of the boom and basket shall not be exceeded. Shock loading (sudden stops or starts) of the equipment shall be avoided.
- d) Aerial devices shall not be "field modified" unless such modification is certified by the manufacturer. The insulated portion shall not be altered in any manner that might reduce its insulating value.
- e) Prior to use, the equipment shall be given a warm-up period. The hydraulic system and the lift controls shall be checked and tested daily before use to determine if such features are in safe working condition. Malfunctions or unsafe operational conditions shall be reported. Equipment that is not in proper operational condition shall not be used.
- f) Articulating boom and extensible boom platforms, primarily designed as personnel carriers,

shall have both platform (upper) and lower controls. Lower level controls shall not be operated unless permission has been obtained from the employee in the lift, except in case of emergency.

g) The truck shall not be moved unless the boom is lowered, the basket cradled and secured, and the outriggers retracted.

h) Employees shall not ride in the bucket while the truck is traveling. (Exceptions: Employees may ride in the basket for short moves at the work location if the basket is returned to the cradled position for each move and the employees face the direction of travel.)

i) When employees are in the bucket of an aerial lift, the emergency brake of the vehicle shall be set. Wheel chocks or outriggers shall be used to provide added protection. When the vehicle is on an incline, wheel chocks shall be used regardless of whether outriggers are used. The truck should sit approximately level when viewed from the rear.

j) When outriggers are used, they shall be set on pads or a solid surface. Outriggers shall not be extended or retracted outside of clear view of the operator unless all employees are outside the range of possible equipment motion.

k) Employees shall not belt to an adjacent pole or structure. When working from an aerial lift, a body belt or harness shall be worn and a lanyard attached to the boom.

l) Safety rules governing the use of hot-line tools, rubber goods, personal protective equipment, and general safe practices shall also apply to work done from aerial baskets. (Exception: Different rules apply when performing "live-line bare-hand" work.)

m) When a boom must be maneuvered over a street or highway, necessary precautions shall be taken to avoid accidents with traffic and pedestrians.

n) The operator shall always face in the direction in which the basket is moving and shall see that the path of the boom or basket is clear when it is being moved.

o) Employees shall not stand or sit on top or edge of the basket or on ladders placed in the basket. Employees' feet shall be on the floor of the basket the entire time they are in it.

p) Climbers shall not be worn by employees while in the basket.

q) When two employees are in the basket or baskets, one of them shall be designated to operate the controls. One employee shall give all signals, which shall be thoroughly understood by all persons concerned.

r) When two employees are working from the basket, extreme care shall be taken to avoid one employee contacting poles, cross-arms, or other grounded or live equipment while the second

employee is working on equipment at a different potential.

- s) In no case shall more than one energized conductor or phase be worked at one time.
- t) Clearances: The aerial lift, together with the employee in the basket and all tools and equipment shall maintain proper clearances from unprotected energized conductors. If it is difficult for the operator to determine the distance between the equipment and the energized parts accurately, another person shall observe the clearance and give timely warnings when minimum clearance distance is approached. (Exception: Direct contact may be made when performing "live-line bare-hand" work.) Refer to Tables 6-1 and 6-2 for clearance requirements.
- u) When using pneumatic or hydraulic tools in a bucket, the operator shall be sure that hoses or lines do not become entangled in the operational controls.
- v) Unless the vehicle is equipped with lower boom and pedestal insulation rated for the voltage being worked, aerial basket vehicles working adjacent to energized primary shall be properly grounded or barricaded and treated as energized.
- w) For additional information concerning aerial lifts, refer to applicable federal and state laws, rules and regulations, and department policies.

313 Reporting City of Alliance Vehicle Accidents

See Paragraph 104.

314 Portable and Vehicle Mounted Generators

- a) The generator may only supply equipment located on the generator or the vehicle and cord-and plug-connected equipment through receptacles mounted on the generator or the vehicle.
- b) The noncurrent carrying metal parts of equipment and the equipment grounding conductor terminals of the receptacles shall be bonded to the generator frame.
- c) In the case of vehicle mounted generators, the frame of the generator shall be bonded to the vehicle frame.
- d) Any neutral conductor shall be bonded to the generator frame.

SECTION 4 - WORK AREA PROTECTION

401 General

- a) Work area protection is the adequate safeguarding or protecting of pedestrians, motorists, City of Alliance workers, and equipment by the use of adequate barriers, warning signs, lights, flags, traffic cones, high-level standards, barricade rope, flagmen, etc., on approaches to work areas, excavations, open manholes, parked equipment, etc.
- b) Work area protection is accomplished by the use of good informative and protective devices, keeping in mind that a safe installation requires the use of these devices in relation to the location of the workers and the equipment involved. The use of these devices must be coupled with proper planning, design, installation, inspection, maintenance, and the use of good common sense. It is of the utmost importance that the work area be properly identified and that warning devices clearly convey the message to the traveling public well in advance of arrival at the work area.
- c) The public must be warned in advance, then regulated and guided safely through or around the work area. Proper work area protection shall be planned to ensure the safety and protection of the public, the worker, and the equipment.
- d) The possibility of accidents occurring is greatly minimized by proper planning, design, installation, operation, and maintenance, coupled with the use of common sense.
- e) See "Manual on Uniform Traffic Control Devices."
- f) For additional information concerning work area protection, refer to applicable federal and state laws, rules and regulations, and department policies.

402 Equipment

- a) Only those signs, standards, barricades, flags, and cones that conform to state or local codes shall be used.
- b) All state and local traffic codes shall be followed when providing work area protection.
- c) During night operations or in periods of reduced visibility, special precautions shall be taken. Adequate warning equipment, which may include flashing lights, flares, or area illumination, shall be used.
- d) Warning devices and equipment shall be removed as soon as the hazard is eliminated.
- e) Warning devices and equipment not in use shall be stored in a proper manner or shall be

removed from the work area.

403 Flagmen

- a) Flagmen or other appropriate traffic controls shall be used to supplement protection provided by signs, signals, and barricades whenever necessary.
- b) Flagmen shall wear a red or orange warning vest or other garment. Warning garments worn at night shall be of a reflectorized material.
- c) Flagmen using hand-signaling equipment shall ensure signals provide sufficient warning to protect themselves and the worksite. The use of sign paddles are preferred and should be used if available.
 - (1) Signal flags shall be red and at least 24 inches square.
 - (2) Sign paddles (Stop and Slow) shall be on a 6-foot staff.
 - (3) In periods of darkness or reduced visibility, red lights shall be used.
- d) Flagmen shall place themselves in a protected position to reduce possibility of injury from traffic.
- e) Flagmen shall ensure they can fully observe the operation and shall guide vehicular traffic in such a manner as to minimize the possibility of accidents or injury.
- f) When flagmen are used at both ends of a jobsite, reliable communications or prearranged signals shall be used to ensure proper traffic flow.
- g) Flagmen shall face traffic when giving signals.
- h) Flagmen shall give positive, direct signals that leave no doubt as to their meaning.

SECTION 5 - FIRE PROTECTION

501 Fire Protection and Emergency Plans

- a) Employees shall become familiar with and follow all City of Alliance emergency procedures and plans.
- b) Employees shall familiarize themselves with the emergency exits, alarm signals, and escape procedures when working inside a building or structure.
- c) In buildings or structures, all fire exits and escape routes shall be visibly marked and shall be kept free of obstructions. Fire exits or doors shall not be locked, chained, or barricaded at any time.
- d) Employees shall be familiar with both the location and the operation of all fire protection equipment in the vicinity of their work area.
- e) Fire protection equipment shall be properly located at all times. Except for actual use, employees shall not move or remove such equipment without proper authority.
- f) Only properly trained employees equipped with the necessary protective equipment shall attempt to extinguish or contain a fire.
- g) Fire brigade members shall follow the City of Alliance's established policies and procedures.
- h) For additional information concerning fire protection and emergency plans, refer to applicable federal and state laws, rules and regulations, and department policies.

502 Fire Extinguishers

- a) One 2-1/2 lb ABC fire extinguisher shall be kept in each City vehicle. All trucks shall carry a 5 lb ABC extinguisher.
- b) All City buildings shall be equipped with fire extinguishers.
- c) Extinguishers shall be located near entrances to buildings when possible.
- d) All employees that may be expected to use an extinguisher must be trained to properly select and use an extinguisher. For quick reference in the use of extinguishers employees should remember the word "PASS".
 - P – Pull the pin
 - A – Aim the nozzle at the base of the fire
 - S – Squeeze the handle
 - S – Sweep the discharge at the base of the fire

e) Extinguishers are required to be inspected regularly to ensure that the pressure gauge is in the green zone, the pin is in place and sealed, the hose is not blocked and all hardware is ready for immediate use. The initials of the inspector and the date should be marked on the inspection tag.

Annually each extinguisher should be inspected by a person knowledgeable in full extinguisher maintenance. As a minimum the regular monthly check should be performed, the unit turned upside down and hit several times on the side with a rubber mallet. This will help loosen the powder that may tend to become compacted due to settling. A new inspection tag should be placed on the extinguisher.

503 Hydrants, Standpipes, and Hose Stations

a) Vegetation, snow, and stored equipment shall be kept away from hydrants, hydrant houses, and valve and hose stations.

b) Control valves shall be tested frequently and shall be maintained in the proper position.

c) Connections should be checked with the fire department to be sure that they are of a size and thread that will fit their equipment.

d) Only lined hose shall be used for hose stations.

e) Fire hose station hose and nozzles shall not be used for any other purpose.

f) When water flows through a fire hose and nozzle, the reverse action of the nozzle, called "nozzle reaction," can be considerable, tiring a person in a short period of time. A minimum of two persons should be available to eliminate this effect.

g) All movements involving an operating hose line shall be accomplished with slow deliberate movements.

h) The hose line should be kept straight in line with the direction of stream flow. A sharp bend directly behind the nozzle will cause severe pressure to turn the nozzle and create excessive work and potential danger to the user.

i) After use, all hose shall be thoroughly dried and properly racked in the hose station.

j) For additional information concerning hydrants, standpipes, and hose stations, refer to applicable federal and state laws, rules and regulations, and department policies.

504 Sprinkler Systems

a) Sprinkler system valve stations shall be kept free of all obstructions.

- b) Valves for sprinkler systems shall be maintained in the proper position.
- c) A minimum clearance of 36 inches shall be kept between the top of material storage and a sprinkler head deflector.
- d) For additional information concerning sprinkler systems, refer to applicable federal and state laws, rules and regulations, and department policies.

SECTION 10 - OFFICE SAFETY

1001 Office Safety

- a) Employees shall report all injuries, regardless of severity, to the person in charge.
- b) Employees shall walk cautiously up and down stairs; the handrail shall be used whenever possible.
- c) Caution shall be exercised when walking around blind corners.
- d) Drawers of desks and file cabinets shall be kept closed when not in use.
- e) Only one drawer of a file cabinet shall be pulled out at a time in order to avoid overbalancing, unless the cabinet is securely fastened to the wall or to other cabinets.
- f) Do not sit on the edge of a chair. Do not tilt back when sitting in a straight chair.
- g) Boxes, chairs, etc., shall not be used in place of ladders.
- h) The floor shall be kept free of tripping hazards such as telephone cords, electric extension cords, and paper cartons.
- i) Employees mopping or waxing floors shall place warning signs to alert co-workers of the potential for slippery floors. All liquid spills shall be immediately cleaned up.
- j) Material shall be stored on shelves in a manner to prevent falling; heavy objects shall be placed on lower shelves.
- k) Hallways and aisles shall be kept clear of all obstructions.
- l) All emergency exits and emergency equipment such as fire extinguishers and fire hose racks shall be kept clear of all obstructions.
- m) Employees shall not use ventilation fans unless they are guarded or securely placed at least 7 feet above the floor.
- n) Solvents and other volatile or toxic substances shall be used only with adequate personal protection or in well-ventilated areas. Refer to Paragraph 201, Hazardous Material.
- o) Employees shall not attempt to clean, oil, or adjust any machine that is running. If the machine is not equipped with a starting switch that can be locked in the "off" position, it shall be disconnected

from its power source.

- p) Unsafe electrical cords, faulty electrical or other equipment, or any other hazardous condition shall be reported and taken out of service.
- q) Safety shall be considered in what employees wear on the job. Loose-fitting clothing, dangling bracelets, rings, and ties may cause serious injury to employees operating or working around power-driven machines and shall not be worn.
- r) Broken glass and other sharp objects shall not be placed in wastepaper containers.
- s) Cigarettes, cigars, and other burning materials shall not be placed in wastepaper containers.
- t) Common or sharp-pointed pins shall not be used for fastening paper together. Staples, paper clips, or other approved fasteners shall be used.

1002 Video Display Terminals

- a) Employees using video display terminals for extended periods of time shall consider the following:
 - (1) Keep back straight with feet resting firmly on the ground.
 - (2) Use a back-support cushion for lower back.
 - (3) Position video display terminal so the operator's eyes are level with the top of the screen.
 - (4) Position the video display terminal directly in front of the user and adjusted to avoid glare.
 - (5) Adjust the height of the chair or keyboard so that shoulder-elbow-arm angle is at 90 degrees.
 - (6) Use a cushioned wrist rest to keep user's hands and fingers in the same plane as the forearm.
- b) Video-display-terminal users shall adjust position frequently to avoid muscle stiffness.

SECTION 11 - FIRST AID

Introduction

The material in this section is intended to act as an overall guide to first-aid activities. It is not designed as a self-teaching course, but merely reviews some aspects of first-aid techniques for those who have received training in first aid.

The information given is very generalized. Specific action that must be taken at the scene of an emergency cannot be pre-determined and will necessarily be modified by the situation. It is important that employees be familiar with the contents of this section and local emergency procedures so as to be better prepared to assist fellow employees in the event of an accident. Details for first-aid treatment may be found in the American Red Cross Textbook on First Aid and the U.S. Bureau of Mines First-Aid Manual.

1101 General

- a) Due to potential hazards associated with blood-borne pathogens that cause diseases such as hepatitis B and AIDS, when administering any type of first aid, care shall be taken to limit or eliminate contact with blood and body fluids. Use of rubber gloves, goggles or safety glasses, and a specialized mask for administering CPR is recommended. Employees shall wash hands and other potentially contaminated body areas and remove all contaminated clothing immediately after administering first aid. Employees shall immediately report all exposure to blood and body fluids to their supervisor so post-exposure care can be initiated.
- b) Employees shall be familiar with the basic techniques for first aid so that they may provide emergency treatment to fellow employees. Personnel should be knowledgeable of the treatment for traumatic shock, means of giving artificial respiration, and control of bleeding. Preplanning for a potential emergency situation is most valuable. All employees should be aware of the medical services available and how to obtain them.
- c) Personnel engaged in overhead line work shall know the essential elements of pole top rescue. They should also be familiar with resuscitation techniques and how to apply such techniques in an elevated position.
- d) Where first-aid kits are supplied, employees shall be familiar with the location, the contents, and the instructions given with the first-aid kit. Each employee shall learn to use this equipment, so they can render treatment when needed. Except for minor injuries, the services of a physician shall be obtained.
- e) The contents of the first-aid kits shall be inspected each week and expended items replaced.
- f) For additional information concerning first-aid requirements, refer to applicable federal and

state laws, rules and regulations, and department policies.

1102 Wounds and Control of Bleeding

- a) A person can bleed to death in a very short time--less than 1 minute. Therefore, in the event of an injury that results in significant bleeding, immediate steps must be taken to prevent the loss of blood.
- b) Bleeding may be controlled by the following methods:
 - (1) Direct Pressure: Application of pressure directly on the wound. Use of a sterile dressing is preferred. In an emergency, use any dressing.
 - (2) Indirect pressure or pressure points: Application of pressure on the arterial pressure points in the arm or leg. Pressure points may be combined with direct pressure to restrict severe bleeding.
 - (3) Elevation: Loss of blood can be slowed by raising the wound above the level of the heart.
 - (4) Tourniquet: Massive Hemorrhage from an extremity that cannot be controlled with the previous mentioned methods will require the use of a tourniquet. In military & civilian studies since 2001 have shown that a properly applied tourniquet will control an exsanguinating hemorrhage 80% or better. Limb loss is a REMOTE possibility but given the choice between a limb or loss of life the answer is clear, SAVE the LIFE!

Preferred tourniquets are commercially made & approved by an authorizing government agency having jurisdiction but an improvised tourniquet is acceptable if no other means are available to save the life. Tourniquet should be at least 1.5 inches wide & made of a material strong enough to withstand the torsional forces applied to it when applying & thereafter as it continues to significantly control the hemorrhage for an undetermined amount of time.

Application of Tourniquet should be just above a joint closest to the hemorrhage (IE crushed & hemorrhaging lower forearm / wrist & hand, Tourniquet would be placed 1-2 fingers width above the elbow on the injured arm) & tourniquet tightened until the hemorrhage is either significantly slowed & manageable or has completely stopped. Multiple Tourniquets are acceptable but additional tourniquets should only be applied above the first one & Do Not stack them (one on top of another). Do not cover the tourniquets (but they can be applied over light clothing if only necessary for speed & delayed access patients or self-aid cases), if possible note the time it was applied & make sure that information is received & understood by EMS / Air Ambulance or receiving Hospital, DO NOT remove a tourniquet that has been applied. Applying a tourniquet will be painful for the patient, once committed to the tourniquet option & it is being applied DO NOT stop until the hemorrhage is controlled, the initial pain will subside.

Further information can be found in a Stop the Bleed class, First Aid class, EMT class, Online @ PHTLS.org. All information current & excerpted from PHTLS/ NAEMT 8th edition 2016

- c) Hemorrhagic Shock will be present in all cases of sever bleeding & must be treated in a timely & aggressive manner to prevent death.

1103 Shock

a) Shock is a general term for specific organ and tissue/body systems that are compromised by various illnesses, injuries and psychosomatic events. For the purposes of this Safety Manual we are primarily concerned with the three that are readily treatable in the field in an emergent situation. Hypovolemic, Neurogenic & Cardiogenic Shock. Hypovolemic shock simply means the patient is losing blood, either internally (lacerated liver due to impact from a steering wheel during a Motor Vehicle crash) or externally (severe laceration with massive hemorrhage) and is having a medical emergency. Neurogenic Shock involves the spinal column & nerves (patient who fell off a ladder and landed on their shoulders and neck), this simply means signals are being sent to the organ systems that are wrong due to an injury or illness and the patient is now experiencing a medical emergency that must be treated. Cardiogenic shock is the failure of the heart's pumping activity (patient who was involved in a Motor Vehicle crash who struck the steering wheel with their chest) and also is a medical emergency and must be treated as such. Activation of the 911 system is imperative, do it early & do not doubt doing so!

b) Shock is easier to prevent than to cure. Every injured person is potentially a shock victim and should be treated as such, whether the symptoms of shock are present or not.

c) Signs of Shock (refer to 1103 b)

	Hypovolemic	Neurogenic	Cardiogenic
Skin temp/quality	Cool Clammy	Warm Dry	Cool Clammy
Skin Color	Pale, Blue/Grey	Pink/Normal	Pale, Blue/Grey
Level of Consciousness	Altered	Lucid/Normal	Altered (Altered means confused, anxious, agitated, or anything that is not considered "normal")
Pulse	Weak and Fast	Normal/Weakening	Weak (Losing or a marked difference in a pulse from say the Carotid (neck) as compared to a Radial (wrist) pulse.)

Breathing If breathing begins to slow or become erratic in pattern this is a serious sign and needs to be addressed immediately!	Fast and Shallow	Fast and Shallow	Fast and Shallow
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d) Recommended treatment for shock includes the following:

- (1) Keep patient warm and comfortable but do not move patient if spinal injury is possible unless to do so would cause further harm to patient.
- (2) Keep Patient horizontal but elevate the legs about 6-8 inches, avoid rough handling of patient especially if injury to spine is possible. Exception to this would be a victim who has obvious chest trauma, in that case elevate legs as normal if possible and also incline the patient's torso to the point where they are able to breathe easier and keep them securely supported at this position until breathing worsens then increase the incline slowly. Breathing supersedes spinal injury but if spinal injury is probable, do what you can to protect spinal column.
- (3) Clear the victim's mouth of all foreign bodies and make sure he is breathing properly.
- (4) Loosen tight clothing at the neck, the chest, and the waist.
- (5) Proper transportation is never more imperative than in the case of a person who may develop shock. It constitutes the most important single measure in the prevention and treatment of shock. Use an ambulance, if possible. If other means must be used, follow the above points as closely as possible.

1104 Eye Injuries

a) Foreign bodies:

- (1) When a small foreign body, such as dust or a wood flake, is on the eye or eyelid, moderate efforts may be made to remove it. The edge of a clean handkerchief or some similar device may be used. Never use a match-stick, knife, or other such instrument that might damage the eye.
- (2) Objects imbedded in the eye must not be removed, except by a physician. Both eyes of the injured should be bandaged loosely and the employee taken to the doctor immediately. The injured employee should be told to relax and try not to move his eyes.

b) Chemical burns, acid or caustic: Immediate irrigation of the eye with large quantities of clean water is mandatory whenever a chemical substance enters the eye. Flushing of the eye with running water should continue for 15 minutes.

- c) All eye injury cases, regardless of first-aid measures taken, should be taken to a physician to be checked, and applicable treatment administered.

1105 Artificial Respiration and Cardiopulmonary Resuscitation (CPR)

Whenever a person is found unconscious, check to determine if the person is breathing. If the person is not breathing, rescue breathing is to be started as soon as possible without endangering the rescuer. The City encourages certification in artificial respiration and CPR procedures and will provide training and the opportunity to become certified annually.

- a) In electric shock cases, do not rush in and become a casualty yourself. If possible, de-energize or insulate the power source. Remove victim from electric lines with a dry, nonconductive material. When safe to do so, start rescue breathing.
- b) Attempt to stop any serious flow of blood.

1106 Pole-Top Rescue

Electric contacts may occur at elevated locations. When such a contact does happen, immediate rescue is necessary.

Rescue operations will vary, depending upon the prevailing situation. The information in this section is intended to serve only as a guide.

Preplanning and training for a possible emergency is important.

- a) Size up the situation. The rescue effort will be far more effective if a few seconds are devoted to full identification of the situation.
- b) Radio for help. Prepare the equipment you will need.
- c) Protect yourself. Apply necessary protective equipment. Use necessary personal protective devices. Then clear the victim from the hazards.
- d) Position yourself for rescue.
- e) Proceed with rescue or resuscitation as dictated by the conditions.
 - (1) If victim is conscious:
 - (a) Reassure the injured.
 - (b) Be watchful for shock.
 - (c) Help injured descend the pole.
 - (d) Administer first aid.

- (2) If victim is unconscious and breathing:
 - (a) Watch breathing closely.
 - (b) Lower injured to ground.
 - (c) Give first aid.
 - (d) Summon medical assistance.
- (3) If victim is unconscious and not breathing:
 - (a) Give victim two full breaths.
 - (b) Lower the victim to the ground as soon as possible and initiate CPR.

NOTE: If it becomes apparent that the victim cannot be lowered to the ground in a short period of time, it may become necessary to apply pole-top resuscitation.

- f) Pole-top resuscitation:
 - (1) Mouth-to-mouth artificial respiration should normally be used. The method is similar to that described above, except for the position of the victim.
 - (2) An alternate method is the Oesterreich Method performed by compression of the victim's abdomen by a hugging action directed toward the victim's chest cavity.
- g) Lowering victim from the pole.
 - (1) For field expediency, the following method is presented:
 - (a) Place hand-line on cross-arm, preferably 2 or 3 feet from pole.
 - (b) Make one wrap of line. Do not cross load line over fall line.
 - (c) Pass Hand-line under armpits.
 - (d) Tie three half-hitches.
 - (e) Cinch line tightly around victim.
 - (f) Remove slack in line.
 - (g) Cut victim's safety.
 - (h) Lower victim.
 - (2) Depending upon the situation, alternate hitching or lowering methods might be more desirable.

1107 After Rescue

All victims of electric contact shall be transported to a doctor or a hospital for examination and disposition.

1108 Training

All employees engaged in electrical work shall receive training in resuscitation and in rescue from their working environment. (Poles, structures, manholes, boilers, aerial baskets, confined in enclosed spaces, etc.)