

City of Decatur, Illinois

South Water Treatment Plant

Plant Safety Rules for Contractors

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1.0 Purpose Statement

The purpose of these Plant Safety Rules for Contractors is to help ensure that contractors, subcontractors and their employees are fully aware of the potential dangers at the South Water Treatment Plant. This awareness should lead to reduced risks for accidents, thus improving safety for both contractor's employees and the company's employees. This program applies to all contractors and subcontractors performing any type of maintenance, renovation and construction work at the South Water Treatment Plant.

2.0 Employer Requirements – OSHA 29 CFR 1910.120(iv)

An employer who retains the contractor or subcontractor services for work in hazardous waste operations shall inform those contractors, subcontractors, or their representatives of the site emergency response procedures and any potential fire, explosion, health, safety or other hazards of the hazardous waste operation that have been identified by the employer's information program.

3.0 Contractor Requirements – OSHA 29 CFR 1910.120(b)(1)

Contract employees must perform their work safely. This guidance is intended to help contractors and subcontractors look out for their own health and safety through informed use of South Water Treatment Plant existing Hazardous Communications Program. If you have any questions or concerns about South Water Treatment Plant contractor safety program, discuss them with the City's Designated Representative as soon as possible. Employers who use contractors and subcontractors to perform work in and around processes that involve highly hazardous chemicals will need to establish a screening process so that they hire and use contractors who accomplish the desired job tasks without compromising the safety and health of employees at a facility. Additionally, the employer must assure that the contractor has the appropriate job skills, knowledge and certifications.

Prior to starting work contractors must:

- A. Read and understand the South Water Treatment Plant Safety Rules for Contractors.
- B. Obtain and retain all applicable permits and insurance.
- C. Follow all state, federal and South Water Treatment Plant guidelines.
- D. Retain a copy of this manual and verification of government certifications during the duration of the project.
- E. Complete a "Pre-Job Planning Checklist" and "Pre-Job Planning Checklist." Submit a copy of the completed "Pre-Job Planning Checklist" to their designated South Water Treatment Plant representative.
- F. Sign in each day at their designated location before beginning work.

3.1 Pre-Job Planning

One of the most important elements of eliminating accidents is a clear understanding, by both South Water Treatment Plant employees and contractor employees, of the scope and type of work to be performed by the contractor. It is essential that a pre-job planning meeting take place between the designated South Water Treatment Plant designated representative and all

contractor employees and their designees. Contractor employees not attending the meeting must receive the full meeting agenda from an attending employee. In addition to the contents of this manual, the following items should be covered in the meeting:

- A. South Water Treatment Plant rules for access to the job site, contractor sign-in and identification, parking and storage areas.
- B. South Water Treatment Plant emergency procedures, alarms, etc.
- C. South Water Treatment Plant safety and health programs.
- D. Scheduled working days and times.
- E. Procedures and access for equipment and material delivery.
- F. Specific area limits of the plant in which work is to be performed in. Contractors are confined to this area.
- G. Any specific hazardous materials or processes near the work site.
- H. Any requirement for construction vehicles, high lifts, fork lift trucks, etc.
- I. Any materials or by-products brought on to the site by the contractor that could be health or environmental hazard.
- J. Any special safety precautions or equipment called for by the type of work performed.
- K. Certain jobs may require the contractor to have a written safety program. The contractor's written program should be reviewed in the pre-job meeting.

4.0 Hazard Communication

4.1 Safety Data Sheets

The South Water Treatment Plant maintains a Hazard Communication Program as a method of making employees aware of hazardous materials and how to protect themselves from these materials. Contractors must follow the South Water Treatment Plant program in the following three areas:

Warning Labels

Safety Data Sheets (SDS)

Employee Training

For hazardous materials brought on site, as defined in 29 CFR 1910.1200, the contractor must ensure that the above elements are complied with and presented to the South Water Treatment Plant contact person. In addition, the contractor must ensure that its employees are aware of the above three elements for hazardous materials on or near the worksite, especially with regard to warning labels and special safety instructions in the SDS. South Water Treatment Plant SDS are located in the Operations Lab.

4.2 Warning Communication

Signs must physically designate the work site, using caution tape, barricades, construction fencing or chain link fencing. The type and degree of designation shall be a function of the type of work to be done and the degree of hazard presented. As a minimum, the area must be designated with signs stating "Caution: Construction Area: Authorized Personnel Only."

4.3 Exposure Evaluation

Prior to starting work, contractors are required to identify and evaluate the hazards in the work place; this evaluation will include a reasonable estimate of employee contractor exposures to hazards and an identification of the contaminant's chemical state and physical form. If

contaminant levels exceed permissible exposure limits, contractors are required to implement control methods to reduce and/or eliminate the hazards. Elimination or control of hazards may include engineering changes, administrative controls and/or the use of additional personal protective equipment (PPE) as is necessary to protect employees from potential hazards. Records of the job exposure evaluation will be recorded and kept by the contractor for the duration of the project.

4.4 Specific Hazards at South Water Treatment Plant

Their presence and use may not be obvious to contractors or visitors entering the facility. Specific hazards at South Water Treatment Plant include, but are not limited to, chlorine.

4.5 Process Safety Management

Purpose: The purpose of Contractor Guidelines is to help ensure that contractors and their employees are fully aware of the potential dangers involved with the systems covered by Process Safety Management. This awareness should lead to reduced risks for accidents, thus improved safety for both contractor's employees and the company's employees.

Scope: This program applies to all contractors performing any type of work (maintenance, renovation, etc.) on or in the vicinity of a PSM covered process. It is the contractor's responsibility to train and inform their employees.

Special

Hazards: Chlorine System

A chlorine gas system is used to disinfect process water. Chlorine liquid is stored in one-ton containers and is withdrawn and converted to gas in the evaporators. Chlorine gas under vacuum is fed into process water by means of ejectors.

Chlorine is a chemical element and a halogen. Neither the gas nor the liquid is explosive or flammable. Chlorine is only slightly soluble in water. The gas has a characteristic odor and greenish-yellow color and is about two and one-half times as heavy as air. Thus, if it escapes from a container or system, it will tend to seek the lowest level in the building or area in which the leak occurs. Liquid chlorine is amber in color and is about one and one-half times as heavy as water. At atmospheric pressure, it boils at about -29°F (-34°C) and freezes at about -150°F (-101°C). One volume of liquid chlorine, when vaporized, yields about 460 volumes of gas.

If working around chlorine, contact the City's Designated Representative and go over the South Water Treatment Plant Process Safety Management Program before work is started. A representative, knowledgeable the process area in which work is to be performed, will be assigned to accompany you to provide safety and operational coordination assistance.

In the event of a chlorine leak ALL contractors and vendors must evacuate upstream of the wind direction to the furthest part of the South Water Treatment property. A windsock is located on top of the South Water Treatment Plant Reservoir located in the northwest corner of the property.

FIRST AID

Exposure to Chlorine

This is the immediate temporary treatment given to an exposed individual before the services or recommendations of a physician are obtained. Prompt action is essential. Firmness and assurance will help to alleviate anxiety. Medical assistance must be obtained as soon as possible. Never give anything by mouth to an unconscious or convulsing person.

Liquid Chlorine Contact:

- Flush contaminated skin with copious amounts of tepid running water for at least 15 minutes. Remove clothes while in the shower to ensure irrigation of all contaminated skin. (Note: some employees may be reluctant to remove clothing in showers that do not provide privacy)
- Do not attempt chemical neutralization or apply any ointments to damaged skin. Apply dressing to protect affected area from contamination or further trauma
- Refer to a physician if irritation persists after irrigation or if skin is broken or blistered.
- If ingested or liquid chlorine has contacted the mouth, flush with copious amounts of tepid water for at least 15 minutes and determine presence or absence of burns.
- If severe burns occur in the mouth then esophageal burns may exist. Refer individual to physician or hospital for treatment for ingestion of corrosives.

Inhalation

Artificial Respiration. If breathing has apparently ceased, the victim must be moved to fresh air. Artificial respiration by accepted means, including mouth-to-mouth, should be started immediately. If breathing has not ceased, the exposed individual should be placed in a comfortable position. In severe cases, the patient should lie down with the head and trunk elevated to a 45°-60° position. Slow, deep breathing should be encouraged. Trained personnel should administer oxygen as soon as possible. If the heart has stopped, CPR should be started by a trained person.

Oxygen Administration. Oxygen should be administered by first aid attendants trained in the use of the specific oxygen equipment. Suitable equipment for the administration of oxygen should be available either on site or at a nearby facility. Such equipment should be periodically tested. More sophisticated inhalation equipment is available in most emergency facilities.

Contact with Skin or Mucous Membranes

If chlorine has contaminated the skin or clothing, the emergency shower should be used immediately. Contaminated clothing should be removed under the shower. Flush contaminated skin with copious amounts of running water for 15 minutes or longer. Do not attempt chemical neutralization or apply any salves or ointments to damaged skin. Refer to a physician if irritation persists after irrigation or if skin is broken or blistered.

Contact with the Eyes

If even minute quantities of chlorine enter the eyes, or if the eyes have been exposed to strong concentration of chlorine, they should be flushed immediately with copious quantities of tepid

running water or a direct stream of water for at least 15 minutes. Never attempt to neutralize with chemicals. The eyelids should be held apart during this period to ensure contact of water with all accessible tissue of the eyes and lids. Medical assistance must be obtained as soon as possible. If a physician is not immediately available, eye irrigation should be continued for a second 15-minute period. No oils, oily ointments or any medication should be applied unless ordered by a physician.

Potential Health Effects Associated With Acute Chlorine Exposure

Exposure to lower levels (less than 3-5 ppm) may cause:

- Skin irritation with discomfort or pain,
- Eye irritation with discomfort, tearing, or blurring of vision,
- Irritation of the upper respiratory passages manifested by coughing, throat burning and choking sensation.

Exposures to higher levels (greater than 3-5 ppm) or to liquid may lead to the following effects:

- Skin burns and ulceration,
- Eye corrosion with corneal or conjunctival ulceration,
- Corrosion of mucosal surfaces with respiratory irritation manifested by coughing, discomfort, difficulty in breathing, or shortness of breath. Laryngeal edema may produce hoarseness and stridor.
- High or prolonged exposures may cause delayed lung edema.
- Death.

4.6 Personal Protective Equipment (PPE)

The South Water Treatment Plant requires contractors to follow federal, state, and local procedures for the proper use of all PPE. The contractor must determine the appropriate level of personal protective equipment necessary for the specific job and provide all necessary personal protective equipment. The following devices should be used by the contractor when engineering controls are not possible or are not sufficient to reduce exposure.

- A. Steel toe shoes that comply with ANSI standards must be worn.
- B. Protective clothing includes gloves, aprons, goggles, boots, face shields, respiratory protection and any other materials worn as protection. It should be made of material designed to resist the particular chemical being used.

5.0 Emergency Action and Fire Prevention – OSHA 29 CFR 1910.38

The Designated Administrator of South Water Treatment Plant Contractor Safety Program is the Water Production Maintenance Supervisor. Designated Representatives will function as an assistant to the Water Production Maintenance Supervisor for their specific areas of responsibility. It will be the responsibility the Designated Representative to initiate the Emergency Action Plan when becoming aware of an emergency situation. All contractors will cooperate fully with all elements of this plan.

5.1 Emergency Escape Routes and Procedures

Contractors will be notified of an emergency through the alarm system and through verbal communication from the City's Designated Representative, other representatives and/or through the public address system. All contractors who evacuate from the building will assemble in the predetermined area established during the Pre-Job Meeting. Contractor Supervisors or Lead Persons will account for all contractor personnel and will quickly determine if anyone is still inside the facility. Under no circumstances will any contractor re-enter an area or the facility once it has been evacuated until authorized by South Water Treatment Plant management.

In the event of an emergency, contractors will do the following:

- A. When an emergency situation warrants a partial or total evacuation of the facility, affected contractors will take immediate action when receiving appropriate notification.
- B. Upon hearing the emergency alarm and the need for evacuation, contractors will proceed in an orderly manner to the nearest building exit. All building exits are clearly marked above exit doors.
- C. Contractors who are designated to operate or shut down critical equipment will do so in a quick and orderly manner according to procedures. Upon completion of shutdown requirements and if required, those contractors will evacuate the area and report to the designated meeting location.

5.2 Means of Reporting Fires and Other Emergencies

Any contractor who becomes aware of or suspects an emergency situation will immediately report the information to the City's Designated Representative identified during the Pre-Job Meeting. Emergency situations may include such situations as:

Fires (all types/sizes)	Medical Emergency
Chemical Spill/Release	Severe Weather
Major Utility Loss	Accidents (all types)

Any requests for outside assistance (fire department, ambulance, police, etc.) shall be made by the City's Designated Representative or other representative identified during the Pre-Job Meeting.

5.3 Medical Emergencies

Medical emergencies requiring advanced medical assistance shall be treated by trained emergency responders such as the fire department or an ambulance service. It will be their responsibility to properly evaluate, package and transport the patient to a medical facility. All contractors must immediately report any work-related injuries or illnesses to the City's Designated Representative or other representative identified during the Pre-Job Meeting.

Basic first aid supplies are available through the South Water Treatment Plant Designated Representative.

5.4 Chemical Emergencies

When there is an emergency spill or release, contractors will immediately evacuate the area and notify the City's Designated Representative identified during the Pre-Job Meeting. No action by

contractors will be taken to plug, patch, or otherwise stop the leak. In the event of a release, contractors will do the following:

- A. Report any chemical spill or release to the City's Designated Representative identified during the Pre-Job Meeting immediately.
- B. Emergency spills (those that require specialized clothing, equipment and training for clean-up) will not be handled by South Water Treatment Plant contractors.
- C. Emergency spills will be handled by trained outside emergency response groups such as the fire department.

Incidental spills or releases that can be absorbed or cleaned up without the need for specialized equipment, clothing, or equipment and that do not present any physical or health hazards to contractors, are not classified as emergency spills or releases.

5.5 Severe Weather Emergencies

Contractors will shut down their equipment and proceed to their designated tornado shelter area.

5.6 Property Damage Accidents

Any accidents involving damage to property will be immediately reported to the City's Designated Representative identified during the Pre-Job Meeting. In the event of property damage accidents, contractors will attempt to preserve the accident scene until all appropriate investigations have been made. Contractors will not disturb accident scenes until directed to do so by the City's Designated Representative identified during the Pre-Job Meeting will investigate all property damage accidents and determine the accident cause and remedial action. A written report will be prepared for further review and action. Equipment involved in an accident will be taken out of service, property tagged and will remain out of service until appropriate repairs are made.

6.0 Fire Prevention Program

Fire extinguishers will be visually inspected on a monthly basis to ensure they are in their proper location, there are no visible signs of damage, the unit is properly sealed and they are not obstructed. The control of potential fire hazards and ignition sources is the best way to prevent a fire from occurring. It is the policy of South Water Treatment Plant to ensure that all fire hazards are minimized or eliminated on a regular basis to prevent fires from happening. All contractors who use flammable items are required to follow control methods as specified on the supplied SDS.

Potential ignition sources such as smoking, welding, spark-producing equipment, chemical processes and spontaneous ignition are controlled in the following manner:

- A. Welding, Cutting, Soldering and Brazing: Only permit authorized contractors who are properly trained will perform hot work. All hot work will be performed in accordance with policies and procedures governing cutting, welding and brazing operations.
- B. Special fire protection is required for hot work (See South Water Treatment Plant "Hot Work Permit Program".)
- C. The contractor must provide fire protection suitable for construction site fire hazards.
- D. At least one 30-pound ABC rated extinguisher must be placed within 10 feet of specific hazards (high concentration of flammables). The maximum walking distance to an

extinguisher is 50 feet. There must be at least 1 unit per 4,000 square feet of construction site area. Mobile equipment should be equipped with one 10-pound ABC unit.

- E. Contractor personnel must be trained in extinguisher selection and use.
- F. A contractor must never take fire protection systems out of service. South Water Treatment Plant employees taking a fire protection system out of service must follow the South Water Treatment Plant "Sprinkler system Impairment" procedure.
- G. Alarm systems must never be taken out of service.
- H. For new building construction, sprinkler systems must be immediately shut off in case of fire.
- I. Contractors will maintain a work area that is free from accumulations of flammable and combustible materials. Lead Persons will monitor work areas to ensure accumulations of flammable and combustible materials are minimized and properly controlled. There must be no accumulation of combustible or flammable liquids in areas where spark-producing equipment is used.
- J. All electrical equipment including wiring, motors, switches, lamps, tools, fuses, etc. must be maintained in good working order and free from defect. Circuits must not be overloaded.
- K. Machinery and equipment must be kept in good working condition. Worn bearings, misaligned or broken parts or improper adjustment can cause high frictional heat.
- L. Keep hot surfaces caused by heaters, furnaces, hot ducts or flues, electric lamps, heating elements and hot metal parts away from combustible materials.
- M. Keep the worksite free and clean of waste paper and other combustible oily waste and deposits in ducts and flues should be cleaned regularly.
- N. Avoid open flame devices such as space heaters, etc.
- O. All flammable liquids will be stored in approved containers.
- P. All oily rags will be stored for the work shift in proper containers. At the end of each work shift, all oily rags must be removed for cleaning or disposal.
- Q. All exists will remain clear and free from obstructions.

6.1 Grounding and Bonding

The following grounding and bonding rules will apply in all areas for the control of flammable and combustible materials:

- A. Grounding/bonding cables are to braided wire, not solid wire.
- B. The wires must be checked for fraying on a regular basis.
- C. Be sure to have a good grounding/bonding connection.
- D. Continuity of wires must be done regularly.
- E. All grounding/bonding clamps are to be the pliers type. They must have single point contact on each jaw. These clamps must be checked regularly to ensure that they are suitable.

6.2 Container Filling

- A. Only metal containers should be used. These containers must be grounded and bonded.
- B. Plastic liners are not to be used. These cannot be grounded or bonded.
- C. When dispensing liquids into containers, liquids should be dispensed down the side wall of the container.
- D. Do not let liquid free fall.

- E. When transporting any flammable liquid, the container must be sealed.
- F. Use carts, dollies, hand trucks, drum lift, etc. to move containers of flammable liquids or any other containers, pallets, etc. in a flammable area.
- G. All containers must be secured before transporting.
- H. Do not slide or roll any containers, pallets, or any other material in any area where flammable materials are stored.

7.0 Record Keeping

Maintaining a site injury and illness log for contractors is another method employers must use to track and maintain current knowledge of work activities involving contract employees working on or adjacent to covered processes. Injury and illness logs of both the employer's employees and contract employees allow an employer to have full knowledge of process injury and illness experience. This log will also contain information which will be of use to those auditing process safety management compliance and those involved in incident investigations.

The South Water Treatment Plant maintains and retains written information regarding contractor safety training and monitoring. This information will assist the South Water Treatment Plant in auditing the adequacy of the program and provide a record of compliance determinations by OSHA.

8.0 Safety Guidelines for Specialized Contractor Work

Considering that contractors often perform very specialized and potentially hazardous tasks such as confined space entry activities and non-routine repair activities, it is important that their activities be controlled while they are working on or near a process. Contractors must be properly trained and follow applicable OSHA guidelines for specialized work. Such work includes, but is not limited to:

- ✓ Confined Space Entry
- ✓ Electrical Safety
- ✓ Lock-out/Tag-out
- ✓ Cutting, Welding and Burning (Hot Work Permits)
- ✓ Ladders, Scaffolding, High Work
- ✓ Process Safety Management of Highly Hazardous Chemicals (PSM)
- ✓ Power Tools
- ✓ Fall Protection
- ✓ Construction Vehicles – Fork Lifts

8.1 Confined Space Entry – OSHA 29 CFR 1910.146

- A. Confined spaces are areas with insufficient oxygen, toxic or flammable atmospheres, physical or mechanical hazards or limited ingress and egress.
- B. All such spaces created by the contractor at South Water Treatment Plant must be analyzed as to the hazard and equipped with warning signs.
- C. Only personnel aware of and trained in the hazards of confined spaces may enter such spaces.
- D. The contractor must provide and utilize suitable atmospheric testing equipment.

- E. A confined space emergency and rescue plan must be developed by contractor.
- F. The plan must contemplate all foreseeable emergencies.
- G. Appropriate rescue equipment must be provided by the contractor and trained personnel available.
- H. The contractor is required to have a written confined space entry procedure and entry permit.

8.2 Electrical Safety – OSHA 29 CFR 1910.137 and 1910.269

The following rules will apply to all contractors work with electrical materials:

- A. Conductors and equipment must be of a mechanical strength and durability sufficient for the environment and use.
- B. Worn, abraded, or broken insulation or other components must be replaced.
- C. Live parts of electrical equipment must be guarded against accidental contact.
- D. Over-current protection must be provided per National Electric Code standard.
- E. Do not work in damp areas around an electrical source.
- F. Extreme caution is necessary when working near power lines. At least 10 feet must be maintained between the power line and any object that could come into contact with the power line.
- G. Ensure that power cords are the right size and rating for the tool used.
- H. Grounding posts from 3 prong plugs must not be removed.
- I. Power cords must be protected against foot, equipment and vehicle traffic.

8.3 Lockout/Tag-Out – OSHA 29 CFR 1910.269 and 1910.333

The contractor shall establish a program consisting of energy control procedures, employee training and inspections to ensure that before any employee performs any serving or maintenance on a machine or equipment where the unexpected energizing startup or release of stored energy could occur and cause injury, the machine or equipment shall be isolated from the energy source and rendered inoperative. All site energy sources on machinery and equipment must be analyzed and properly guarded prior to starting work. Every effort should be made to maintain guards in place. However, if it is necessary to remove a guard, all hazardous energy sources must be disabled and locked and tagged out per OSHA standards. The contractor must follow a written lockout/tag out program per 29 CFR 1910.147. Depending on the job and exposure, the contractor may not be allowed to work at South Water Treatment Plant without a written program.

8.4 Cutting, Welding and Burning (Hot Work Permits)

- A. **ANY WORK INVOLVING CUTTING, WELDING, BURNING OR OTHER SPARK PRODUCING ACTIVITIES REQUIRES AUTHORIZATION THROUGH A HOT WORK PERMIT.**
- B. There are **NO EXCEPTIONS.**
- C. Contact the City's Designated Representative identified during the Pre-Job Meeting to review the Hot Work Permit requirements and to obtain a Hot Work Permit.

8.5 Fall Protection

Contractors must determine whether walking or working surfaces are structurally safe and capable of supporting workers safely before starting work. Before conducting any elevated work, contractors must be properly trained and understand OSHA fall protection standards. For more

complete information, refer to the actual OSHA standard under 29 CFR 1910.28, 1910.66, 1926.501

8.6 Ladders, Scaffolding, High Work – OSHA CFR 1910.23, 1917.119, 1926.1053

- A. Use the 4-1 ladder rule.
- B. Extension ladders must have safety feet.
- C. Never climb past the second rung from the top of stepladders or the third rung on straight ladders.
- D. Make sure the spreader on stepladders is locked in place before climbing.
- E. Never reach beyond the base of support.
- F. Straight ladders should be tied off and should extend at least 3 feet past the support point.
- G. Lock doorways or barricade walkways when ladders are positioned in these areas.
- H. Make sure that all components of ladders are in good condition. Wood ladders that are broken, splintered or contaminated with oil or grease should not be used.
- I. Work in elevated areas must be avoided around overhead power lines or energized electrical equipment.
- J. Never use metal ladders around live electrical parts.
- K. All scaffolds must be able to support the design load with a safety factor of 4.
- L. All planking must be scaffold-grade and in excellent condition.
- M. Plank span and thickness must be suitable for the working load.
- N. Safety nets to be installed as close as practical under the walking/working surface, but in no case more than 30 feet below such level.
- O. Safety nets are to extend horizontally outward from the outermost edge of the working surface 8 to 13 feet depending on the vertical distance to the net.
- P. After installation there is a drop test requirement.
- Q. Safety nets are to be inspected at least weekly. Defective nets are not to be used.
- R. Any scrap, material, or tools in the net are to be removed as soon as possible.
- S. The maximum net mesh opening shall not exceed 36 square inches and not be longer than 6 inches on any side.
- T. Connections between safety net panels shall not be spaced more than six inches apart.

Personal Fall Arrest Systems: OSHA 29 CFR 1910.140

- A. Only locking type snap-hooks will be permitted.
- B. Waist Type Body Belt: When stopping a fall, the body belt will be limited to a maximum arresting force of 900 lbs.
- C. Body harness: When stopping a fall, the harness will be limited to a maximum arresting force of 1,800 lbs.
- D. The dee-ring attachment point for a body belt shall be located at the center of the wearer's back. The dee-ring attachment point for a body harness shall be located at center of the wearer's back near shoulder level.
- E. Connector means a device that is used to couple/connect part of the personal fall arrest system together. Examples are snap-hook, dee-ring, carabiner, and etc.
- F. Connectors shall be drop-forged, pressed or formed steel, or made of equivalent material. Connectors shall have corrosion resistant finish and all edges shall be smooth to prevent damage to interfacing parts of the system.

- G. Anchorage means secure point of attachment for lifelines/lanyards, or deceleration devices. Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting 5,000 pounds per employee attached. Do not attach connectors to ladder rungs, guard rails C-clamps, or electrical conduit.
- H. Horizontal lifelines shall be installed and used under the supervision of a qualified person as part of a complete fall arrest system which maintains a safety factor of at least two.
- I. Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds.
- J. Components of a personal fall arrest system shall not be used to hoist materials.
- K. Personal fall arrest systems shall be inspected prior to each use for wear, damage and other deterioration. Defective parts are to be removed from service.
- L. Positioning Devices (double dee-ring belts – one dee-ring on each hip) Positioning devices shall be rigged such that an employee cannot free fall more than two feet.
- M. Anchorage points for positioning belts shall be capable of supporting at least twice the potential impact load of an employee's fall or 3,000 pounds, whichever is greater.
- N. Free Fall Distance: A worker must be able to calculate the length of a possible free fall. The free fall distance equals the length of the lanyard PLUS (or minus) the location of the anchorage point.

Training Requirements:

- A. Employer to provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed.
- B. Contractor to provide a written certification record of the training.

8.7 Power Tools

The following rules will apply to all contractors working with power tools:

- A. Contractors are prohibited from using South Water Treatment Plant tools and equipment.
- B. Tools must be used for their intended purpose only and no other.
- C. The owner's manual for each tool must be read and understood.
- D. Tools should be inspected before each use and repaired or replaced if worn or damaged.
- E. Ensure that the power switch is turned to "off" prior to plugging in or unplugging the tool.
- F. Never clean tools while the power is on.
- G. Inspect screws, nuts, bolts and moveable parts to ensure they are tight.
- H. Electric power tools must either have double insulated casings or must have third wire power cord grounding with a three-prong plug.
- I. Keep guards in place and in working order.
- J. Use clamps or a vice to secure work - never use hands.
- K. Never over reach when using a tool - maintain proper balance and footing.
- L. Remove all adjusting keys and wrenches before turning the tool on.
- M. Always disconnect tools when not in use.
- N. Property store tools where they won't fall or cause a trip hazard.

8.8 Construction Vehicles – Mobile Equipment

Only trained personnel may operate mobile equipment. Equipment must be operated in a safe manner within specified limits. Reckless operation is not permitted. All contractors using mobile equipment must:

- A. Maintain a maximum speed of 5 mph for all vehicles on site.
- B. Observe maximum load limits and balance points.
- C. Operate cranes and hoists in accordance with OSHA 29 CFR 1910.179.
- D. Operated man lifts, vehicle mounted platforms and powered platforms in accordance with OSHA 29 CFR 1910.66.
- E. Provide mobile equipment with back-up alarms.
- F. Do not allow riders or extra passengers on construction vehicles unless specifically designed for that purpose.
- G. Take care not to exceed maximum carbon monoxide levels (30 ppm) for mobile equipment powered with internal combustion engines.
- H. Use only LPG tanks that comply with D.O.T. standards.
- I. Do not fill LPG tanks on South Water Treatment Plant property.