Evesham Municipal Utilities Authority

Safety Manual

Revised August, 2017

The Evesham MUA Safety Manual

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Safety Policy Statement

The Evesham Municipal Utility Authorities (EMUA) Safety Committee has developed and distributed this manual to aid the members of the EMUA in implementing their own written health and safety program. As such rules set forth in this manual should be considered recommendations in establishing each program outlined within this manual. Furthermore this manual shall not relieve any employee from complying with present and future Federal, State, or Local regulations.

Disclaimer

The Evesham Municipal Utilities Authority is not responsible for the outside reproduction and use of safety procedures written within this manual.

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ALL SAFETY RULES SHALL BE FOLLOWED AT ALL TIMES

- An assignment should not be started until proper instructions have been received from the Supervisor and are understood by all employees involved.
- Any hazardous conditions, unsafe equipment, or unsafe working practices should be reported to the appropriate Supervisor immediately and corrected before work begins.
- All injuries, accidents or near misses should be reported to the immediate Supervisor.
- Running in the facilities is forbidden.
- Personnel that have not been properly trained should not attempt to operate any motorized or other moving equipment.
- Speed limits, traffic signs, and parking regulations should be observed at all times.
- Do not operate or attempt to operate any equipment if power transmission guards, point of operation guards and/or safety devices have been removed and/or rendered inoperable.
- All equipment shall be kept clean and properly maintained.
- Always use the correct tool in the proper manner for the particular task being performed.
- Use appropriate personal protective equipment to address the specific and/or potential hazards presented by the task(s) to be performed.
- Do not wear loose clothing or allow long hair to hang down as it might get caught in moving equipment.
- Good housekeeping controls shall be practiced/enforced at all times.
- Good personal hygiene habits should be observed at all times to avoid infection.
- Smoking is permitted in designated areas only.
- Practical jokes, rowdiness, and horseplay are prohibited.
- The use, possession or distribution of alcohol and/or controlled substances while at any Authority facility or function or while representing the Authority in an official capacity is prohibited.
- Employees are prohibited from reporting to work while under the influence of alcohol and/or a controlled substance.

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION - 2	**ACCIDENT/INCIDENT REPORTING AND INVESTIGATION**				
DATE ISSUED: 2017					
Revised	**Aug. 2017**				

PURPOSE

To establish minimum guidelines for reporting and investigating accidents/incidents as quickly and as thoroughly as safely possible following an occurrence.

RELATED REGULATORY STANDARDS

Accident Record Keeping Requirements
29 CFR 1904

DEFINITIONS

Accident - An unplanned event that results in injury to a person or persons and could also result in property damage. Contributing factors may include but are not limited to:

- Failure to explain or adhere to proper instructions, safe work practices or procedures;
- Improper use of tools or equipment;
- Failure to use or improper use of PPE;
- Lack of or improper supervision;
- Inexperience and/or poor judgment'
- Carelessness/complacency;
- Willful negligence

Reporting **-** Providing a detailed account of events following the occurrence of an incident for the purpose of assisting in the investigation and reporting process.
Investigation **-** Conducting a systematic examination through observation and/or research resulting in the identification of the potential cause or causes of an incident. The investigation into any incident shall always be fact finding and not fault finding.

STANDARD OPERATING PROCEDURES FOR ACCIDENT/INCIDENT REPORTING AND INVESTIGATING

Evaluate and secure the scene contact appropriate entities.

A. Accident that are life threatening emergencies

1. Contact 911 immediately.
2. Secure the area (e.g. direct traffic, limit exposure to the scene).
3. Contact your employer and inform them of the accident/ incident

B. Accidents/ incidents without life threatening emergencies

1. Secure the area (e.g. direct traffic, limit exposure to the scene).
2. Contact your employer who will direct the following tasks:
a. Determine what agencies need to be contacted
b. Arrange medical treatment as necessary through the Joint Insurance fund (JIF).
c. Conduct an internal investigation of the accident scene.
d. Complete all required report forms including but not limited to the following:

Employer's First Report of Accident Form and the JIF Accident/Incident Report Form – These forms are required of your employer and will serve to record the accident/incident and any resulting injuries and are

necessary to substantiate any future claims/compensation. To avoid duplication and unnecessary paperwork, this form should also be used by the supervisor/designee as the accident investigation form. Therefore, the forms must to be completed in their entirety by all persons involved in the accident/incident including but not limited to: any employees involved, employee(s) direct supervisor or designee, all witnesses, and the claims coordinator for the authority.

Investigation Forms – The Authority may require these forms be completed in addition to the forms required by the State and the JIF. When required, all persons involved in the accident/incident must provide the necessary data to complete the report. These forms, in addition to the aforementioned report forms will assist in determining the facts surrounding the accident/incident and aid in determining what steps are needed to prevent recurrence.

TRAINING

Will be provided to all supervisors and employees in the following areas:

- Safety Awareness; and
- Accident/Incident Prevention/Investigation/Reporting.
- Standard Operating Procedures

RESPONSIBILITIES

The Safety Director and/or his/her designee are responsible to conduct complete and thorough accident/incident investigations to determine the cause of accident and to develop corrective action plans to prevent reoccurrence and to provide and maintain report forms including but not limited to:

A. It is the responsibility of the Authority to:

1. Provide and maintain proper report forms including but not limited to:
2. OSHA 200 Log
3. Employers First Report of Accident/Incident Form
4. Conduct complete and thorough accident/incident investigations to:
    a. Determine cause of accident
    b. Develop corrective action plan

B. It is the Employee's responsibility to:

1. Report all accidents/incident immediately to your supervisor or designee in accordance with Authority Policy.
2. Report all near-miss incidents.
3. Report all unsafe conditions observed throughout the workplace.
4. Report all unsafe acts or omissions observed throughout the workplace.

Workers Compensation: - Work related injury:

- OSHA 300 Log; and
- First Report of Injury ("FROI"). {for electronic reporting to Joint Insurance Fund (JIF) Claims Administrator}

Evesham Municipal Utilities Authority:

- Auto Accidents are assigned the BLACK folder.
- Workplace Accidents are assigned the RED folders.
- Water Accidents are assigned the BLUE folders.
- Sewer Accidents are assigned the GREEN folders

Contact the Assistant Executive Director of Safety and Personnel to obtain the appropriate folder assignment.

Automobile Liability: Refer to: Evesham Municipal Utility Authority Accident and Report Tort Notice
Automobile Physical Damage: Refer to: Evesham Municipal Utility Authority Accident and Report Tort Notice
General Liability: Refer to: Evesham Municipal Utility Authority Accident and Report Tort Notice
Property: Refer to: Evesham Municipal Utility Authority Accident and Report Tort Notice

WORKERS COMPENSATION

Report/obtain appropriate first aid or medical treatment for all injuries. Medical treatment must be provided by a physician authorized by the Authority and/or JIF except when emergency care is required. The JIF has contracted the services of a Managed Care Provider ("MCP"). The MCP has established agreements with medical professionals and health care facilities for the benefit of the JIF, Authority, and its employees. The MCP will direct all care and treatment on behalf of the JIF.

REPORT ALL ACCIDENTS/INCIDENTS TO YOUR SUPERVISOR

- Major injury
- Minor injury - If not properly reported, it may be difficult to establish at a later date that a job-related injury actually occurred if no notice was given at the time of the injury.
- Near miss incidents – An unplanned and/or unanticipated event in which no injury occurred. Review and investigation of near miss incidents may help prevent future accidents/incidents.
- Motor vehicle accidents resulting in injuries

COMPLETE ALL REQUIRED REPORT FORMS

First Report of Injury (FROI) – This is required of the Authority and will serve to record the accident/incident and any resulting injuries and necessary information to substantiate any future claims/compensation. This form is located on the shared drive and has sections that need to be completed by the injured employee, immediate Supervisor and the Deputy Director for Regulatory Affairs and serves as the Supervisor's Accident Investigation Form.

Unless an injury is reported within the time frame established by the JIF, Authority, and/or the State of New Jersey, compensation and/or benefits for any injuries arising from the accident/incident could be prohibited under provisions of the Workman's Compensation Regulations.

TYPES OF LOSSES TO BE REPORTED

Any injury to an employee of the Authority arising out of and in the course of his/her employment for which medical treatment is required and/or any occupational exposure (injury occurring over a period of time as opposed to a traumatic injury).

CONTACTS TO BE MADE

A call must be placed to the MCP (QualCare @ 1-800-425-3222) to report the incident and to determine where medical treatment will be provided.

Should the injury be of a serious nature involving hospitalization or fatality, it must be reported orally and in writing within 8 hours of occurrence to the NJ Commissioner of Labor at 1-800-624-1644 and fax 1-609-292-4409.

AUTOMOBILE LIABILITY / PHYSICAL DAMAGE

Automobile Liability claims should be documented by completing the Evesham MUA Vehicle Accident Report when reporting the claim to QualLynx. Report all accidents to the appropriate Supervisor. All motor vehicle accidents resulting in property damage or injuries must be reported to the Police. A Supervisor or designee shall be called to the accident scene as soon as safely possible after the accident/incident to assist with the investigation.

MINIMUM INFORMATION TO REPORT

- Name of injured party
- Address of the injured party
- Social Security Number (if possible)
- Date, time and place of accident
- Brief facts about the accident
- Extent of injuries and damages, if possible
- Names of witnesses, if possible

TYPES OF LOSSES TO BE REPORTED

Any bodily injury and property damage liability claims arising out of the use of Authority vehicles for the purpose of conducting business on behalf of the Authority.

Contacts to be made

Once the information has been obtained and entered onto the Evesham MUA Vehicle Accident Report, the information should be forwarded to QualLynx via phone 609-653-8400 and fax 609-926-9270. Upon receipt, QualLynx will assign an adjuster to the claim and will send an acknowledgement letter to the Authority confirming receipt of the information and indicating the claim number and adjuster assigned to the claim. If repair estimates are available, a copy should be attached. In the event of a "total loss" QualLynx should be contacted immediately so that an adjustment can commence immediately.

Automobile Physical Damage claims should be documented by completing the ACORD Automobile Loss Notice when reporting the claim to QualLynx.

The JIF will pay for damages to Authority vehicles as a result of a collision or other covered event.

TYPES OF LOSSES TO BE REPORTED

- Any motor vehicle accident involving an insured vehicle that results in bodily injury, death or property damage to others.
- Damage to any owned vehicle (Automobile Physical Damage)

CONTACTS TO BE MADE

Once the information has been obtained and entered onto the ACORD Automobile Loss Notice, the information should be forwarded to QualLynx via phone 609-653-8400 and fax 609-926-9270. Upon receipt, QualLynx will assign an adjuster to the claim and will send an acknowledgement letter to the Authority confirming receipt of the information and indicating the claim number and adjuster assigned to the claim. If repair estimates are available, a copy should be attached. In the event of a "total loss" QualLynx should be contacted immediately so that an adjustment can commence immediately.

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION - 3	**BLOODBORNE PATHOGENS (Communicable Disease)**				
DATE ISSUED: 2017					
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PURPOSE

To establish minimum guidelines which employees can follow to protect them from the hazards of bloodborne diseases.

The Exposure Control Plan (ECP) shall be reviewed and updated at least annually and whenever necessary to reflect new or modified tasks and procedures, which affect occupational exposure, and to reflect new or revised employee guidelines regarding occupational exposure.

This ECP was developed with consideration to all employees of the Authority no matter what their status of employment, department, or level of exposure. It should be understood that any employee might at one time or another be exposed to bloodborne pathogens within the workplace. Therefore, each employee should be familiar with the ECP and how to assure that all employees use necessary precautions to ensure hi safety and the safety of their employees.

RELATED REGULATORY STANDARD

29CFR1910.1030 - Bloodborne Pathogens

DEFINITIONS

Bloodborne Pathogens (BBPs) - Are microorganisms such as viruses, bacteria or parasites that are present in the blood and other body fluids that can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).
Hepatitis B Virus (HBV) - Is the most commonly encountered BBP in the workplace. Hepatitis B can cause either an inflammation or chronic infection of the liver. There is an effective and safe vaccine available that can protect you from HBV infection.
Human Immunodeficiency Virus (HIV) - The virus that causes Acquired Immunodeficiency Syndrome (AIDS). Blood, semen, vaginal secretions, and other body fluids have been proven to spread HIV from persons infected with the virus. HIV is not spread by casual contact, such as working in the same office with a person that has AIDS, or by sharing cooking or eating facilities or bathrooms.

Other Potentially Infectious Materials (OPIM):

- Semen (sperm)
- Vaginal secretions
- Breast milk
- Cerebrospinal fluid (fluid surrounding the brain and spinal cord)
- Alveolar fluid (fluid from small air sacs in the lungs)
- Synovial fluid (fluid inside joints)
- Amniotic fluid (fluid inside the uterus during pregnancy)
- Pericardial fluid (fluid found in the sac around the heart)
- Tears
- Saliva
- Urine

TRAINING

Shall be provided annually to all employees to discuss recognition of potential exposures and the use of proper protective measures and universal precautions.

RESPONSIBILITIES

It is the responsibility of the Authority to insure that all occupationally exposed employees are provided with the appropriate personal protective equipment and related training to minimize the potential for accidental exposure, establish and maintain a written Exposure Control Plan (ECP) and provide additional training when changes such as modification of tasks or procedures or the institution of new tasks or procedures affects the employee's occupational exposure.

It is the responsibility of the Employee to observe proper hygiene practices and understand and follow the provisions of the Authority's policy and procedures relating to bloodborne pathogens.

PROGRAM ADMINISTATOR

The Assist Executive Director for Safety and Security or his/her designee is responsible for the implementation of the ECP and shall be identified as the Exposure Control Officer (ECO). It shall be the responsibility of the ECO to maintain and update the ECP at least annually and whenever necessary to include new or modified tasks and procedures. It shall be the responsibility of the ECO to ensure that all employees comply with the procedures and work practices outlined in the ECP, especially those employees reasonably anticipated to have contact with or exposure to potentially infected materials. The ECO will ensure that:

- Written housekeeping protocols are established and practiced and that approved disinfectants are purchased.
- All medical actions required are performed and that appropriate medical records are maintained.
- All training and documentation, and the written ECP are available to the employees, and OSHA, NIOSH, and PEOSH representatives.
- All department supervisors will maintain an adequate supply of and provide all necessary personal protective equipment (PPE), engineering controls, labels, and red bags as required by the standard.

EXPOSURE DETERMINATION

For the purposes of the ECP, the following is a list of all job classifications in which the employees may have occupational exposure to blood or other potentially infectious materials:

- Collection System Operators
- Electrical Technicians
- Laboratory Technicians
- Maintenance Mechanics
- Plant Operators

METHODS OF IMPLEMENTATION AND CONTROL

UNIVERSAL PRECAUTIONS

All employees will utilize Universal Precautions. Universal Precautions is an infection control method that requires employees to assume that all human blood and body fluids including other potentially infectious materials are infectious for HIV, HBV, and other bloodborne pathogens and must be treated accordingly.

Examples of work practice controls include, but are not limited to:

- Providing readily accessible hand washing facilities.
- Washing hands immediately or as soon as possible after removal of gloves.
- At non-fixed sites that lack hand washing facilities, providing interim hand washing measures, such as antiseptic towelettes and paper towels. Employees can later wash their hands with soap and water as soon as possible.
- Washing body parts as soon as possible after skin contact with potentially infectious materials occurs.
- Labeling
- Equipment decontamination
- Prohibiting eating, drinking, and smoking, applying cosmetics or lip balm and handling contact lenses in areas where there is a likelihood of occupational exposure.

- Prohibiting food and drink from being kept in refrigerators, freezers, shelves, cabinets or on counter tops or bench tops where potentially infectious materials are present.
- Requiring that all procedures involving potentially infectious materials be performed in such a manner as to minimize splashing, splattering, and generation of droplets of these substances.
- Placing specimens of other potentially infectious materials in a container which prevents leakage during collection, handling, processing, storage, transport or shipping.
- Examining equipment that may become contaminated with potentially infectious materials prior to servicing or shipping and decontaminating such equipment as necessary. Items will be labeled as required by the OSHA standard if not completely decontaminated.

STANDARD PRACTICES
PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal protective equipment must also be used if occupational exposure remains after instituting engineering and work practice controls, or if such controls are not feasible. Training will be provided in the use of the appropriate personal protective equipment for employees' specific job classification and tasks/procedures they will perform.

Personal protective equipment issued to and/or available to all employees includes but is not limited to:

- Gloves
- Gowns
- Laboratory coats
- Face shields
- Masks
- Eye protection (splash-proof goggles, safety glasses with solid side shields)
- Resuscitation bags and mouthpieces

All employees using PPE must observe the following precautions:

- Wash hands immediately or as soon as possible after removal of gloves or other personal protective equipment.
- Remove protective equipment before leaving the work area and after a garment becomes contaminated.
- Place used protective equipment in appropriately designated areas or containers when being stored, washed, decontaminated, or discarded.
- Wear appropriate gloves when it can be reasonably anticipated that he/she may have contact with potentially infectious materials and when handling or touching contaminated items or surfaces.
- Following any contact of body areas with potentially infectious materials, he/she must wash your hands and any other exposed skin with soap and water as soon as possible.
- Employees must also flush exposed mucous membranes (eyes, mouth, etc.) with water when necessary.
- Discard utility gloves when they show signs of cracking, peeling, tearing, puncturing, or deterioration.
- Never wash or decontaminate disposable gloves for reuse or before disposal.
- Wear appropriate face and eye protection such as a mask with glasses with solid side shields or a chin length face shield when splashes, sprays, splatters, or droplets of potentially infectious materials pose a hazard to the eye, nose, or mouth.
- If potentially infectious materials penetrate a garment, the garment must be removed immediately or as soon as possible.
- If the amount of exposure is such that the potentially infectious material penetrates the garment and contaminates the inner surface, not only is it impossible to remove the garment without exposure, but also the penetration itself would constitute exposure. In such cases, employees shall cut the contaminated garment(s) to aid removal and prevent exposure to the face.
- Potentially contaminated PPE shall be decontaminated or disposed of properly
    - Employees encountering potentially contaminated materials such as broken glass, needles, etc. or medical waste, shall isolate the area and report it immediately to a Supervisor.

DISPOSABLE GLOVES

An adequate supply of disposable gloves suitable for the exposures present and for the operations to be performed is available for use by employees.

- Gloves shall be worn whenever there is the possibility of exposure to potentially infectious materials.
- Two pairs of gloves shall be worn when deemed necessary by the employee(s).
- Gloves shall be removed from the inside out to prevent immediate contact with unprotected skin.
- After removal, contaminated gloves shall be properly disposed of to minimize the potential of secondary exposure.
- Contaminated gloves and other waste shall be removed from the scene and transported in a biohazard bag to the medical facility along with the source individual for proper disposal as regulated waste.
- The employee(s) shall thoroughly wash his/her hands with soap and warm water as soon as possible after removal of the gloves.
- An approved antiseptic hand cleaner, antiseptic towelettes, or other approved means shall be available for use in the absence of water.
- Employee(s) must wash his/her hands as soon as possible even if one of the alternate means listed above is used.

WASHING PROCEDURES

If unprotected hands or any other unprotected skin comes in contact with potentially infectious materials, the employee(s) shall wash the area immediately with soap and water. In the absence of soap and water, an approved alternate method can be used until soap and water becomes available.

- After removing his/her gloves or other personal protective equipment, employee(s) shall wash the hands and any other area of potential exposure with soap and water.
- Approved antiseptic hand cleaners and towelettes shall be available on all response vehicles for use when hand-washing facilities are not readily available.

EYE AND/OR MUCOUS MEMBRANE EXPOSURE PROTECTION

Masks and eye protection shall be used whenever there is a possibility of potentially infectious materials splashing or splattering.

Eyes or any other mucous membranes shall be thoroughly flushed with sterile water, saline solution, or water immediately following contact with potentially infectious materials.

LINEN, CLOTHING, AND OUTER GARMENTS

Laboratory coats, Tyvek, rain suits and/or other approved outer protective garments shall be worn whenever the possibility exists of exposure to potentially infectious materials.

- Any clothing contaminated with potentially infectious materials shall be removed as soon as possible.
- Care should be taken during removal of these garments to minimize the potential for secondary exposure.
- Gloves shall be worn at all times when handling these garments.
- Soiled linens, clothing, and garments shall be bagged at the exposure site. Red biohazard bags shall be used for transporting contaminated clothing or garments.
- Clothing or garments should be thoroughly washed with hot water or dry-cleaned in accordance with the manufacturer's recommendations.
- Boots and shoes shall be cleaned in a 10:1 solution of water and bleach.

OTHER EQUIPMENT

Vehicles and other equipment that become contaminated shall be thoroughly washed and sanitized. Documentation of the housekeeping and decontamination practices should be attached to the exposure control/incident report and a copy maintained on file.

Equipment shall be decontaminated in accordance with an approved disinfectant cleaner or a solution of a 10:1 water/bleach solution.

In the event that an incident takes place and results in contamination to a facility, then the area of contamination shall be barricaded and the area decontaminated as soon as safely possible using approved housekeeping practices and disinfectants. Approved personal protective equipment shall be worn during decontamination procedures. The protective equipment shall then be decontaminated or properly disposed of in accordance with general housekeeping procedures.

LABORATORY

- Food and drinks must NOT be stored in refrigerators or other areas where samples are stored.
- When handling samples, avoid splashing, spraying or splattering.
- Never use the mouth to pipette or suction sample fluids.
- All samples shall be handled, transported and labeled in accordance with standard laboratory procedures.

HOUSEKEEPING

Decontaminate work surfaces with an approved disinfectant after the completion of procedures or when the surface may have been exposed to or contaminated by potentially infectious materials.

When contamination is visible, clean and decontaminate immediately or as soon as safely possible after the incident.

Always use mechanical means (use tongs, forceps or dust brush and broom) to pick up or retrieve glassware that is broken and possibly contaminated.

LABELING

Warning labels shall be either fluorescent orange or orange-red in color. The warning label shall contain the biohazard symbol and the word “BIOHAZARD” in a contrasting color. Warning labels shall be attached to:

- Containers of regulated waste;
- Refrigerators and freezers containing potentially infectious materials;
- Laundry bags and containers;
- Contaminated equipment; and
- Other containers used to store, transport, or ship potentially infectious materials.

Labels are not required when:

- Red bags or red containers are used;
- Containers of blood, blood components, or blood products are labeled as to the contents and have been released for transfusion or other clinical use; or
- Individual containers of blood or other potentially infectious materials are placed in a labeled container during storage, transport, shipment, or disposal.

HEPATITIS B VACCINATION

The Authority will provide information on Hepatitis B vaccinations addressing its safety, benefits, efficacy, methods of administration and availability. The Hepatitis B vaccination series will be made available at no cost to employees who have occupational exposure to potentially infectious materials unless:

- The employee has previously received the series;
- Antibody testing reveals that the employee is immune;
- Medical reasons prevent taking the vaccination; or
- The employee chooses not to participate.

All employees are encouraged to receive the Hepatitis B vaccination series. If an employee chooses to decline the vaccination, then the employee must sign a statement (Declination Form) to this effect. Documentation of refusal for the vaccination will be kept with the employee's personnel file along with the employee's other medical and training records. It is understood that the employee reserves the right to request and obtain the vaccination at a later date at no cost to the employee.

Titer-tests shall be made available to employees within the protocols established by United States Public Health Service, and the Centers for Disease Control (CDC). As of the adoption of this plan, Titer tests will be given to employees within two months of the successful completion of a series of three vaccinations within the prescribed period of time. Should the results of the Titer test indicate that the antibodies are not active in the employees system; the employee will be offered to repeat the vaccination series, followed by another Titer test. Should the results of the second Titer test be negative or inconclusive, then the employee will be advised of such and will not be offered any additional vaccinations.

A Titer test may also be made available post exposure or at the request or discretion of the physician or the medical facility.

NEEDLES AND OTHER SHARPS

Protective gloves approved for use against sharps shall be used whenever there is the possibility of exposure to needles or sharps. All needles or sharps shall be considered contaminated and treated as infectious materials.

Should an accidental needle stick occur or other incidents occur with a sharp:

- Cause the area to bleed by squeezing or milking the wound.
- Immediately wash and sanitize the area of the puncture.
- Immediately report the incident to a Supervisor and the ECO so that a medical evaluation of the injured employee can be conducted.
- If the injury is not emergent, The ECO and/or his/her designee will contact the JIF's Managed Care Facilitator (Qual Care 1-800-425-3222). {see section 2, pages 4-7 for details}
- If the injury requires advanced emergency attention, then either contact 911 or transport the employee to a medical facility for evaluation. Once transported, the ECO and/or his/her designee will contact the JIF's Managed Care Facilitator (Qual Care 1-800-425-3222). {see section 2, pages 4-7 for details}
- The ECO and/or his/her designee will complete the Exposure Incident Report, a copy of which will be presented to the medical facility.

POST EXPOSURE EVALUATION

Should an exposure incident occur, the employee's immediate Supervisor should be contacted immediately along with the ECO. The ECO must document each employee exposure on an Exposure Report Form.

- If the injury is not emergent, The ECO and/or his/her designee will contact the JIF's Managed Care Facilitator (Qual Care 1-800-425-3222). {see section 2, pages 4-7 for details}
- If the injury requires advanced emergency attention, then either contact 911 or transport the employee to a medical facility for evaluation. Once transported, the ECO and/or his/her designee will contact the JIF's Managed Care Facilitator (Qual Care 1-800-425-3222). {see section 2, pages 4-7 for details}

The following elements will be performed as part of the evaluation:

- Document the routes of exposure and how the exposure occurred.
- Identify and document the source and/or source individual, unless the employer can establish that identification is infeasible or prohibited by State or local law.
- Obtain consent and test the source individual's blood as soon as possible to determine HIV and HBV infectivity and document the source's blood test results.

- If the source individual is known to be infected with either HIV or HBV, testing need not be repeated to determine the known infectivity.
- Provide the exposed employee(s) with the source individuals test results and information about applicable disclosure laws and regulations concerning the source identity and infectious status.
- After obtaining consent, collect exposed employee's blood as soon as possible after the exposure incident and test blood for HBV and HIV serological status.
- If the employee does not give consent for HIV serological testing during the collection of blood for baseline testing, preserve the baseline blood sample for at least 90 days.

POST EXPOSURE EVALUATION AND FOLLOW-UP REQUIREMENTS

- Documentation of exposure routes and how exposure incident occurred.
- Identification and documentation of the source and/or individual's infectivity, if possible.
- Collection and testing of employee's blood for HBV and HIV serological status ***(employee's consent required).***
- Post-exposure prophylaxis when medically indicted.
- Counseling
- Evaluation of reported illnesses

HEALTH CARE PROFESSIONALS

The ECO will also ensure that the Health Care Professional evaluating an employee after an exposure incident receives the following:

- A description of the employee's job duties relevant to the exposure incident;
- Route(s) of exposure;
- Circumstances of exposure;
- If possible, results of the source individual's blood test; and
- Relevant employee medical records, including vaccination status.

HEALTHCARE PROFESSIONAL'S WRITTEN OPINION

The ECO will provide the employee with a copy of the evaluating Health Care Professional's written opinion within 15 days after completion of the evaluation.

For Hepatitis B vaccinations, the Health Care Professional's written opinion will be limited to whether the employee requires or has received the Hepatitis B vaccination.

The written opinion for post-exposure evaluation and follow-up will be limited to whether or not the employee has been informed of the results of the medical evaluation and any medical conditions that may require further evaluation and treatment. All other diagnoses must remain confidential and not be included in the written report to ECO.

MEDICAL WASTE DISPOSAL

Medical waste shall be disposed of in accordance with N.J.A.C. 7:26-3A et seq. "Special Medical Waste."

Whenever possible, leave all contaminated or potentially contaminated materials (i.e. gloves, masks, glasses, garments, etc.) at a medical facility capable of disposing of said waste. All needles and sharps may be disposed of through the medical facility. Blood and or body fluids may be disposed of by pouring it down a drain connected to a sanitary sewer.

While disposing of waste, personal protective equipment will be worn as deemed necessary to minimize potential exposure.

RECORDKEEPING

Medical records shall be maintained for each employee with occupational exposure in accordance with 29 CFR 1910.20. The ECO is responsible to maintain the required medical records. The records will be kept in the administration offices for the Authority.

The medical records shall include at a minimum:

- The name and social security number of the employee;
- A copy of the employee's Hepatitis B vaccinations and any medical records relative to the employee's ability to receive the vaccination;
- A copy of all results of examinations, medical testing, and follow-up procedures as required by the standard; and
- A copy of all healthcare professional's written opinion(s) as required by the standard.

All medical records will be kept as confidential as possible and will not be disclosed or reported without the employee's expressed written consent to any person within or outside the Authority except as required by the standard or as may be required by law.

Medical records shall be maintained for the duration of the employee's employment, plus 30 years in accordance with 29 CFR 1910.20

Medical records shall be provided at the request of the employee or anyone having written consent of the employee within 15 working days.

TRANSFER OF RECORDS

If for some reason the Authority ceases to operate and there is no successive employer to receive and retain the records for the prescribed period, the Authority shall notify the Director of the National Institute for Occupational Health and Safety at least three (3) months prior to scheduled records disposal and prepare to transmit them to the Director.

EVESHAM MUNICIPAL UTILITIES AUTHORITY

HEPATITIS B VACCINE IMMUNIZATION RECORD

Employee Name: _____ ID Number: _____

Initial Vaccine Administration Dates (optional):

First vaccine: _____ Employee Initials: _____
Second vaccine (within 30 days): _____ Employee Initials: _____
Third vaccine (within 180 days): _____ Employee Initials: _____

Initial TITER Antibody Testing Results (optional):

Post-vaccine: Date: _____ Additional Vaccines Needed: Y N

Secondary Vaccine Administration Dates (optional):

First vaccine: _____ Employee Initials: _____
Second vaccine (within 30 days): _____ Employee Initials: _____
Third vaccine (within 180 days): _____ Employee Initials: _____

Secondary TITER Antibody Testing (optional):

Post-vaccine: Date: _____ Additional Vaccines Needed: Y N

Individual Completing Form: _____ Date: _____

DECLINATION STATEMENT

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

Employee Signature: _____ Date: _____

EVESHAM MUNICIPAL UTILITIES AUTHORITY

HEPATITIS B – EXPOSURE INCIDENT REPORT

Routes and Circumstances of Exposure Incident

Exposed Employee's Name: _____ SS#: _____/_____/_____
Date of Birth: _____/_____/_____ Age: _____ Job Title: _____
Home Phone: _____-_____-_____ Work Phone: _____-_____-____ Cell Phone: ____-____-____
Physical Location of Exposure Incident: _____

Exposed Employee Vaccination Dates

1st: _____ 2nd: _____ 3rd: _____ Date of booster vaccine if given: _____

Exposure Incident Information

Specific nature of the incident (auto accident, first aid, work place injury, etc): _____
_____

Describe what specific task(s) were being performed when the exposure occurred: _____
_____

What specific part(s) of the body was/were exposed and for how long: _____
_____

Was personal protective equipment (PPE) being worn: ___ Yes ___ No

___ Side Shield Eye Protection ___ Face Shield ___ Disposable Latex Gloves
___ Tyvek Suit ___ Other: _____

Did the exposure occur because the PPE failed: ___ Yes ___ No
If yes, please explain how the failure occurred: _____
_____

What body fluids, if any presented an exposure (blood or other potentially infectious material): _____
_____

If the incident occurred after being exposed to a specific individual's blood or other body fluids, indicate the name of the source: _____

Did a sharp (nail, needle, jagged metal, etc.) penetrate the body: ___ Yes ___ No
If yes, what part of the body did it penetrate and what was the object: _____
_____

Did you receive medical attention: ___ Yes ___ No Date of Treatment: _____
Where and by whom was treatment provided: _____

Individual Completing Form: _____ **Date:** _____

EVESHAM MUNICIPAL UTILITIES AUTHORITY

HEPATITIS B – DOCUMENTATION & IDENTIFICATION OF SOURCE INDIVIDUAL

Exposed Employee's Name: _____ SS#: _____/_____/_____
Date of Birth: _____/_____/_____ Age: _____ Job Title: _____
Home Phone: _____-_____-_____ Work Phone: _____-_____-____ Cell Phone: ____-____-____
Physical Location of Exposure Incident: _____
Date of Exposure: _____ Time of Exposure: _____ AM PM

Nature of Injury

___ Injury by contaminated or potentially contaminated sharp
___ Blood or body fluid splash onto mucous membrane or non-intact skin
___ Other (Describe)
_____

Report of Source Individual Evaluation

Name or medical record number of the source individual: _____

Chart reviewed by: _____ Date: _____

Consent to test source individual's blood: ___ Obtained ___ Denied

Source individual unknown – Researched by: _____ Date: _____

Check One

___ Identification of source individual is infeasible or prohibited by state law. Provide details: _____
_____

___ Evaluation of the source individual reflected no known exposure to bloodborne pathogens.
Provide details: _____

___ Evaluation of the source individual reflected possible exposure to bloodborne pathogens and a medical follow-up is recommended. Provide details: _____
_____

NOTE: Report the results of the source individual's blood tests to the medical provider named above who will inform the exposed employee. Do not report blood test results to the employer.

HIV-RELATED INFORMATION CANNOT BE RELEASED WITHOUT THE WRITTEN CONSENT OF THE SOURCE INDIVIDUAL.

Individual Completing Form: _____ **Date:** _____

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 4	**CHEMICAL HAZARD COMMUNICATION PROGRAM**				
DATE ISSUED: 2017					
Revised	**Aug. 2017**				

PURPOSE

To establish minimum guidelines to comply with the Public Employees Occupational Safety and Health Program Hazard Communication Standard (PEOSH HCS), N.J.A.C. 12:100-7, which New Jersey adopted with amendments, on May 3, 2004.

This written program applies to all work operations where employees are exposed or may be exposed to hazardous chemicals or conditions under normal working operations or during foreseeable emergency situations.

RELATED REGULATORY STANDARDS

New Jersey Worker and Community Right-To-Know (RTK) Act NJAC 8:59 29 CFR 1910.1200 Hazard Communication

DEFINITIONS

- Chemical Hazard - is any chemical that poses a threat to man, health and/or the environment.

RESPONSIBILITIES

As required under the PEOSH HCS, employees will be informed of the contents of this program, the location and availability of health and safety information about hazardous chemicals, the hazardous properties of chemicals with which they work, safe handling procedures for the hazardous chemicals, and measures they should take to protect themselves from the hazardous chemicals. This information will be provided during employee training sessions and/or safety meetings. Employees will also be informed of the hazards of non-routine tasks that may/may not involve the incidental use of hazardous chemicals.

Employees are responsible for:

- Adhering to all rules and regulations of the Hazard Communication Program. Including but not limited to:
    - Proper storage and use of chemicals
    - Spill control procedures
    - Disposal Procedures
    - Labeling of chemicals and use of containers
    - Proper use of PPE

TRAINING

Will include information about the hazardous chemicals in the workplace, the associated hazards, and the methods for controlling these hazards, with the following required elements addressed:

- A list of hazardous chemicals;
- Material Safety Data Sheets (MSDS) and Hazardous Substance Fact Sheets (HSFS) for hazardous chemicals;
- Labeled containers; and
- A training program for employees who work with or have a potential for exposure to hazardous chemicals.

Mandatory initial and refresher training on the safe use of those hazardous chemicals will be provided to every employee who works with or has the potential for exposure to hazardous chemicals under normal conditions of use or in foreseeable emergencies. The Deputy Director for Regulatory Affairs or his/her designee is responsible for providing the training. A training program that uses both audiovisual materials and classroom instruction has been prepared for this purpose. The documentation of training required by PEOSH HCS is maintained in the modular plant office.

The initial and refresher training programs for employees are reviewed annually by the Deputy Director for Regulatory Affairs, who will notify area supervisors of the training needs of their employees.

Whenever a new hazard is introduced into the work area, an additional training session should be provided prior to beginning work with the new material. The individual conducting the training is responsible for notifying employees about the training session.

The initial training session includes the following discussion items:

- An explanation of the PEOSH Hazard Communication Standard and this written program;
- Chemical and physical properties of the hazardous materials (e.g., flash point, reactivity) and methods used in this workplace to detect the presence or release of hazardous chemicals (including the chemicals in piping systems);
- Physical hazards of chemicals such as the potential for fire and explosion;
- Health hazards (both acute and chronic) associated with exposure to hazardous chemicals, signs and symptoms of exposure, and any medical condition that may be aggravated by exposure to the chemical, using MSDS and HSFS;
- Methods to protect against exposure to the hazard such as engineering and administrative controls, proper work practices, use of personnel protective equipment (PPE), and procedures for emergency response to spills and leaks;
- Standard operating procedures to assure protection when cleaning hazardous chemical spills and leaks;
- The location of and responsible person for maintaining MSDS, HSFS, Right-to-Know (RTK) Survey, RTK Hazardous Substance List (HSL), and other hazardous material information;
- An explanation of the applicable provisions of the Worker and Community Right To Know Act;
- How to read and interpret the information on PEOSH HCS and RTK labels, HSFS and MSDS, and how employees may obtain additional hazard information using the RTK Survey and RTK HSL; and
- A copy of the RTK brochure is handed out during training.

Refresher training is an abbreviated version of the initial training that is conducted every two years and includes a discussion of the following information:

- An explanation of any changes in the written program, PEOSH HCS, or RTK Act;
- Changes in products used or work processes that may cause exposure to hazardous chemicals;
- A review of health hazards, chemical and physical properties of the hazardous chemicals, and control methods of any routinely used hazardous materials and any new hazardous materials to which the employees may be exposed. The MSDS and HSFS will be used to review information on the hazardous chemicals;
- A review of the facility's health and safety policy and procedure manual; and
- A copy of the RTK brochure is distributed.

The Deputy Director for Regulatory Affairs is the program coordinator and has overall responsibility for the written program and responsibility for the annual review and update of the written program. The Deputy Director for Regulatory Affairs also makes available the written program to employees within three days of the request.

STANDARD PRACTICES

LIST OF HAZARDOUS CHEMICALS

The list of the hazardous chemicals (Right-to-Know Survey) for the Authority is continually updated as new products are received or existing products eliminated. A copy of the facility specific survey is provided in each location and central files are maintained at strategic locations. All files are readily accessible to employees.

MATERIAL SAFETY DATA SHEETS (MSDS) AND HAZARDOUS SUBSTANCE FACT SHEETS (HSFS)

MSDS and HSFS provide health and safety information on the specific hazardous products or chemicals employees use. In compliance with the PEOSH HCS, the MSDS are made readily accessible through facility specific files accessible to all employees. The Deputy Director for Regulatory Affairs, obtains the MSDS on all products containing hazardous chemicals and HSFS on all hazardous chemicals, places copies of the MSDS in a binder in each central and facility file and maintains a master file of all the MSDS, and HSFS in his/her office. If additional information is needed about a hazardous chemical or product, if a MSDS is missing, or if a MSDS has not been supplied with the initial shipment, the Deputy Director for Regulatory Affairs will contact the manufacturer or supplier. As a policy the Authority will provide an MSDS and HSFS to the requesting employee immediately upon request, or within 3 working days of the request if the MSDS or HSFS is not immediately available. The Supervisor or his/her designee of each department is responsible to maintain and assist with the facility specific file.

Any new procedures or products that are planned to be used in this workplace must be approved by the department Supervisor or his/her designee before use and to make sure the MSDS and HSFS are obtained before use.

LABELS AND WARNING SYSTEMS

The Deputy Director for Regulatory Affairs and each department Supervisor or his/her designee are responsible to ensure that each container of hazardous chemicals in the workplace is properly labeled as required by the PEOSH HCS, and update the labels as necessary if they should become illegible, fall off the container, or are obscured in any manner. Containers not bearing a PEOSH HCS label are not acceptable in the workplace.

Stationary containers in an area with similar contents and hazards have signs posted on or above them to convey the hazard information.

Employees transferring hazardous materials from a labeled container to a portable container intended only for immediate use during the work shift do not have to label the portable container. If the portable container is stored beyond the employee's shift or will be used by other workers, the employee shall label the portable container with the PEOSH HCS information from the properly labeled larger container.

HAZARDOUS NON-ROUTINE TASKS

Currently, there are no hazardous non-routine tasks performed by the employees. Should a hazardous non-routine task be performed, the department Supervisor is responsible to conduct a special training session to inform the employees about the hazardous chemicals to which they might be exposed and the proper precautions to take to reduce or avoid exposure.

CONTRACTOR EMPLOYEES

The Deputy Director for Regulatory Affairs and/or his/her designee shall advise outside Contractors of any chemical hazards that may be encountered in the normal course of their work on the site, the labeling systems in use, protective measures to be taken, the location and availability of MSDS, HSFS, and other health hazard information, and the safe handling procedures to be used for these materials.

Each outside Contractor who brings hazardous chemicals on the site will provide the Deputy Director for Regulatory Affairs and/or his/her designee with copies of appropriate MSDS for the hazardous chemicals, information on any special labels used, and precautionary measures to be taken while working with or around their hazardous chemicals or products.

All employees, or their designated representative, can obtain additional information on this written program, the PEOSH HCS, applicable MSDS and HSFS, and other chemical information from the Deputy Director for Regulatory Affairs.

EVESHAM MUNICIPAL UTILITIES AUTHORITY					
SECTION - 5	**CONFINED SPACE ENTRY**				
DATE ISSUED: 2017					
Revised	**Aug. 2017**				

PURPOSE

This program identifies the confined spaces and permit required confined spaces at the Evesham Municipal Utilities Authority. This program establishes the minimum requirements, including a permit system for safe entry and work in permit required confined spaces in accordance with PEOSH's Work in Confined Spaces Standards. This program also identifies those individuals who play an active role in the entry of permit of permit spaces, the type of equipment required to conduct entry operations and requirements for contractors who enter permit spaces at Authority facilities.

SCOPE

It is the intent of the Authority to establish procedures to protect its employees from the hazards of entry and work within a Confined Space. The procedures apply to all employees of the Authority and external support personnel (contractors) who are required to enter or attend or conduct air sampling in any permit required confined spaces at the Authority.

RELATED REGULATORY STANDARDS

- OSHA 29 CFR 1910.146 – Permit Required Confined Spaces
- OSHA 29 CFR 1910.132 – Personal Protective Equipment
- OSHA 29 CFR 1910.134 – Respiratory Protection
- OSHA 29 CFR 1910.147 – Control of Hazardous Energy Sources (Lockout/Tagout)
- OSHA 29 CFR 1910.336 – Electrical Safety Work Practices

DEFINITIONS

Acceptable Entry Conditions - Environmental conditions that must exist in a permit space to allow entry and to ensure that employees involved with a Permit-Required Confined Space entry can safely enter into and work within the space.

Attendant - An employee stationed outside one or more permit spaces who monitors the Authorized Entrants and who performs all attendant's duties assigned in the employer's permit space program.

Authorized Entrant - An employee who is authorized by the employer to enter a permit space.

Blanking or Blinding - The absolute closure of a pipe, line or duct by the fastening of a solid plate that completely covers the opening and that is capable of withstanding the maximum pressure of the pipe, line or duct with no leakage beyond the plate.

Confined Space - A space that:

- Is large enough and so configured that an employee can bodily enter and perform assigned work;
- Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and
- Is not designed for continuous employee occupancy.

Double Block and Bleed - The closure of a line, duct or pipe by closing and locking or tagging **two** in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

Emergency - An occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.

Engulfment - The surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction or crushing.
Entry - The action by which a person passes through or any part of the person's body breaks the plane of an opening into a permit-required confined space.
Entry Permit (permit) - The written or printed document that is provided by the Authority to allow and control entry into a permit space and identifies:

- The space to be entered;
- Purpose for entry;
- Date and time of authorized entry;
- Roster of authorized entrants;
- Designated attendants and supervisors;
- Hazardous conditions;
- Control Measures;
- Acceptable entry conditions;
- Atmospheric test results and meter calibration date(s);
- Emergency response and communication procedures; and
- Other necessary permits (i.e. hot-work permit).

Entry Supervisor - An Entry Supervisor may serve as an attendant or as an authorized entrant so long as that person is trained and equipped for the role he or she fills. The duties of Entry Supervisor may be passed from one individual to another during the course of an entry operation. The Entry Supervisor is responsible for:

- Determining if acceptable entry conditions are present at a permit space where entry is planned;
- For authorizing entry and overseeing entry operations; and
- For terminating entry.

Hazardous Atmosphere - An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to escape unaided from a permit space, injury, or acute illness from one or more of the following causes:

- Flammable gas, vapor or mist in excess of 10 percent of its lower flammable limit (LEL);
- Airborne combustible dust at a concentration that meets or exceeds its LEL or if the dust obscures vision at a distance of 5 feet or less;
- Atmospheric oxygen concentration below 19.5 percent (deficient) or above 23.5 percent (enriched);
- Atmospheric concentration of any substances that could result in employee exposures in excess of its dose or permissible exposure limits (PELs); or
- Any other atmospheric condition that is immediately dangerous to life or health (IDLH).

Host Employer - Any employer who arranges to have the employees of another employer (contractor) perform work for them.
Hot Work Permit - A written authorization to perform heat generating tasks (riveting, welding, cutting, burning and heating) capable of providing a source of ignition.
Immediately Dangerous to Life or Health (IDLH) - Any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.
Inerting - The displacement of the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible. This procedure produces an IDLH oxygen-deficient atmosphere.
Isolation - The process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as:

- Blanking or blinding;
- Misaligning or removing sections of lines, pipes, or ducts;
- A double block and bleed system;
- Lockout or tag out of all sources of energy; or
- Blocking or disconnecting all mechanical linkages.

Line breaking - The intentional opening of a pipe, line or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas or any fluid at a volume, pressure, or temperature capable of causing injury.
Non-Permit Required Confined Space - A confined space that does not contain, or with respect to atmospheric hazards, does not have the potential to contain any hazard capable of causing death or serious physical harm.
Oxygen-Deficient Atmosphere - An atmosphere containing less than 19.5 percent oxygen by volume.
Oxygen-Enriched Atmosphere - An atmosphere containing more than 23.5 percent oxygen by volume.
Permit-Required Confined Space (permit space) - A confined space that has any of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere;
- Contains a material that has the potential for engulfing an entrant;
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section; or
- Contains any other recognized serious safety or health hazard.

Permit-Required Confined Space Program (permit space program) - The employer's overall program for controlling and where appropriate, for protecting employees from permit space hazards and for regulating employee entry into permit spaces.
Permit System - The employer's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.
Prohibited Condition - Any condition in a permit space that is not allowed by the permit during the period when entry is authorized.
Rescue Service - The personnel designated to rescue employees from permit spaces.
Retrieval System - The equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.
Testing - The process by which the tests that are to be performed in the permit space are specified and the hazards that may impact the entrants of a permit space are identified and evaluated.

TRAINING

Shall be provided as indicated in the training section of this guideline

RESPONSIBILITIES

The Assistant Executive Director and/or Department Supervisor is responsible for the oversight of this Confined Space Entry Program and for the approval of any revisions to the procedures contained herein.

The Authority is responsible for providing/arranging worker training and for ensuring that the required equipment is available to safely enter permit-required confined spaces.

The Assistant Executive Director for Security, along with the Safety Coordinator and supervisors are responsible for implementing this Confined Space Entry Program, for ensuring that personnel follow the procedures described in this program, and for verifying that the required equipment is available to safely enter permit-required confined spaces.

HAZARD EVALUATION FOR PERMIT SPACES

The Authority has conducted a hazard evaluation of the treatment facility and all areas of the collection system to identify the existence and location of permit-required confined spaces covered by this program.

PREVENTING UNAUTHORIZED ENTRY

To provide a safe work environment and to prevent exposed employees or other concerned parties from accidentally entering a permitted space, a placard with the language "DANGER—PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" has been placed at each point of entry.
No one will enter a permit-required confined space unless a confined space entry permit has been completed and signed by a qualified person (i.e., entry supervisor).

ENTRY PERMIT

The entry supervisor shall be responsible for completing the confined space entry permit. The entry permit will specify acceptable entry conditions for each permit space in the MPWC service area. Blank confined space entry permits are available in each affected department and shall be completed with the required information.

- A written confined space entry permit must be completed for each entry and posted at the entry so it is available to all Authorized Entrants and emergency response personnel.
- The supervisor must ensure that the atmospheric conditions are acceptable in accordance with the entry permit, follow the pre-entry isolation procedures required by the entry permit, and ensure that the protective clothing, ventilation equipment, and any other equipment required by the permit are available at the entry site.
- The duration of the permit may not exceed the time required to complete the assigned task identified on the permit.
- The Entry Supervisor shall terminate entry and cancel the entry permit when the operations have been completed or a condition that is not allowed under the entry permit arises in or near the permit space.
- Any problems encountered during an entry operation shall be noted on the permit so that appropriate revisions to the program can be made.
- The Authority shall retain each canceled entry permit for at least 1 year to facilitate the review of the program.

PRE-ENTRY EVALUATION AND AUTHORIZATION TO ENTER

All spaces will be evaluated prior to entry to determine if the conditions are safe for entry. The entry permit will be used as the evaluation mechanism.

Prior to entry into a confined space, the supervisor shall:

Complete section I of the entry permit.

- Ensure the confined space is isolated and locked out/tagged out in accordance with OSHA's
- Control of Hazardous Energy (Lockout/Tagout) Standard (29 CFR 191.147).
- Ensure that no significant pressure differential exists across the opening, no dangerous spillage occurs, and no harm to personnel occurs when the confined space is opened.
- When entrance covers are removed, the opening shall be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee when working in the space from foreign objects entering the space.
- Ensure that emergency communication equipment or personnel are readily available for the attendant. Specifically, telephone communication must be established between the designated response organization and the Entry Supervisor.
- Ensure that all requirements identified in the entry permit are implemented prior to the initial atmospheric testing of the space.
- Implement atmospheric testing and monitoring procedures in accordance with Section II of the entry permit.

Once the entry permit is complete, the Attendant will notify the appropriate supervisor via cell phone/text message/email that the observed levels are acceptable. The supervisor will approve that the attendant is qualified to determine satisfactory levels, **by authorizing entry**. Once entry is authorized, if the supervisor is not physically on location, the Attendant assumes responsibilities of the supervisor for the duration of the entry.

EVALUATION OF PERMIT SPACE ATMOSPHERIC CONDITIONS

The following procedures will be followed to evaluate atmospheric conditions in permit spaces before entry operations are conducted:

- Test conditions in the permit space to determine if acceptable entry conditions exist;

- Before entry is authorized to begin, and Before ventilation equipment is installed, except that, if isolation of the space is infeasible because the space is large or part of a continuous system (such as a sewer), pre-entry testing shall be performed to the extent feasible before entry is authorized.
- If entry is authorized, entry conditions shall be continuously monitored in the areas where authorized entrants are working.
- Test and monitor the space prior to opening and continuously to determine if acceptable entry conditions are being maintained during the course of entry operations. Procedures for testing and monitoring of atmospheric conditions in confined spaces are listed below.
- When testing for atmospheric hazards:
  - first test for oxygen,
  - then for flammable/combustible gases and vapors,
  - then for toxic gases or vapors.

INITIAL TESTING OF ATMOSPHERIC CONDITIONS

- Air sampling shall be performed by a qualified individual
- All appropriate procedures shall be followed when using air-sampling equipment.
- Air sampling shall be performed so as to obtain a representative sample of the space. This should be accomplished by using an approved extension hose or probe to obtain samples from the various levels/areas of the space.
- Initial sampling must be conducted at the top, middle and bottom ranges. For spaces deeper than 12 feet, testing occurs at increments of 4 foot depths.
- The date, time, instrument number, air quality sample results, and initials of the individual conducting sampling shall be recorded in the appropriate boxes on the entry permit.
- If all conditions are acceptable based on the limits specified on the entry permit, the "Yes" box should be checked under the "Acceptable Environmental Conditions" section of the entry permit.
- If all conditions are not acceptable based on the limits specified on the entry permit, the section titled “This permit has been cancelled for the following reason” shall be completed and no entry permitted.
- If the "No" box has been checked under the "Acceptable Environmental Conditions" section of the entry permit, the following steps shall be taken:
  - **STOP**
  - Notify the entry supervisor of the monitoring results.
  - If the space must be purged and ventilated, the supervisor must ensure that the requirements for ventilation of confined spaces are met. (see "Work Activities in Confined Spaces")
  - An attendant shall be posted at the opening of the space to prevent unauthorized entry. If no attendant is available, all work must cease.
- When air sampling meets acceptable entry conditions, the supervisor shall post a copy of the permit at the opening of the space and provide a copy of the permit to the entry attendant.

TESTING OF ATMOSPHERIC CONDITIONS

Upon initial entry into a permit space, atmospheric conditions must be monitored to ensure acceptable conditions. Procedures for continuous testing of the atmospheric conditions in confined spaces include the following:

- Continuous air monitoring will be performed until completion of any confined space entry.
- The continuous monitoring results shall be recorded on the entry permit at the intervals specified on the permit.
- If at any time, monitoring results exceed the acceptable limits specified on the entry permit, the supervisor or attendant shall instruct all entrants to exit the space immediately.

ENTRY INTO CONFINED SPACES HAVING UNACCEPTABLE ENVIRONMENTAL CONDITIONS

Employees of the Authority will not enter permit-required confined spaces which exhibit unacceptable environmental conditions. The entry permit shall determine acceptable entry conditions for each specific permit space.

If conditions in a permit space change during entry operations and conditions become unacceptable in accordance with the entry permit, entrants will be ordered to exit the space immediately. The cause of the unacceptable environmental conditions will then be determined by the entry supervisor, and the procedures outlined in this plan for the "reviewing entry operations" will be utilized.

WORK ACTIVITIES IN PERMIT-REQUIRED CONFINED SPACES

- The entry supervisor shall ensure that the entry permit is posted at the opening of the confined space.
- Prior to entry into a confined space, the attendant and all entrants shall be briefed on all sections of the permit.
- The attendant and all entrants shall ensure that the air quality has been tested within the periods specified on the permit and that the "yes" box under the "Acceptable Environmental Conditions" has been checked. There shall be no hazardous atmosphere within the space whenever employees are in the space.
- When electric power tools or equipment are used in confined spaces, the following guidelines apply:
    - Electric power tools or equipment shall not be used in a potentially flammable atmosphere unless approved for such use.
    - Electric power tools shall not be used in wet confined spaces unless equipped with a ground-fault circuit interrupter.
- When ventilation is required in permit spaces, the following requirements will be followed:
    - Continuous forced air ventilation shall be used until the forced air ventilation has removed any hazardous atmosphere.
    - The forced air ventilation shall be so directed as to ventilate the immediate area where an employee is or may be present within the space and shall continue until all employees have left the space.
- The air supply for the forced air ventilation shall be from a clean source and may not increase hazards in the space.
    - Ventilation equipment must be capable of producing 4 air changes per hour.

EQUIPMENT

- All equipment shall be maintained in working condition as recommended by the manufacturer through an internal preventive maintenance and inspection program.
- All supervisors, attendants and entrants will be trained for the proper usage of this equipment and are required to ensure that all equipment, including that used for personal protection, is used properly.

RESPONSIBILITIES

The duties and responsibilities for the Attendant, Authorized Entrant and Entry Supervisor should be listed on the entry permit/work order. The Duties of the Attendant, Authorized Entrant and Supervisor include, but are not limited to:

- Attendant: At least one attendant shall remain outside the permit space into which entry is authorized for the duration of the entry operations. There shall be a minimum of one attendant provided for each permitted entry operation and an attendant may only monitor one space at a time. The attendant shall also;
    - Know hazards that may be faced during entry;

- Aware of possible behavior effects of hazard exposure;
- Maintain accurate account of authorized entrants;
- Remain outside of confined space;
- Communicate with entrants as necessary;
- Monitor activities inside and outside of the space to determine if it is safe for entrants to remain in the space and orders the entrants to evacuate the permit space immediately under any of the following conditions:
  - If the attendant detects a prohibited condition;
  - If the attendant detects the behavioral effects of hazard exposure in an authorized entrant;
  - If the attendant detects a situation outside of the space that could endanger an authorized entrant; or
  - If the attendant cannot effectively and safely perform his/her duties.
- Summon rescue and emergency services when needed;
- Take appropriate action when unauthorized persons approach the work zone;
  - Warn the unauthorized persons that they must stay away from the permit space;
  - Advise unauthorized persons that they must exit immediately if they have entered the permit space;
  - Inform the supervisor and entrants if unauthorized persons have entered the space.
- Performs non-entry rescues;
- Perform no duties that might interfere with the attendant's primary duty to monitor and protect the entrant.

- Entrant: In addition to the requirements for attendants and entrants outlined in the "Work activities in Permit-Required Confined Spaces", entrants shall:
  - Know the potential hazards for each entry;
  - Use all required equipment properly;
  - Communicate with the attendant as necessary;
  - Alert attendant to any change in conditions that indicate exposure to a dangerous or prohibited condition or change in atmosphere;
  - Exit the space as quickly as possible whenever, an order to evacuate is given; detect the warning signs or symptoms of exposure to a hazard, detect a prohibited condition, an evacuation alarm sound.

- Entry Supervisor (If conditions require, the Attendant may serve as the Supervisor and will assume all of the duties and responsibilities of the Supervisor throughout the entry).
  - Knowledge of potential hazards for each entry.
    - Must be familiar with information on the mode, sign or symptoms and consequences of the exposure;
  - Verify that all of the entries on the permit are filled;
  - Verify that all tests specified by the permit have been conducted;
  - Terminate the entry and cancel the permit as necessary;
  - Verify that rescue services are available;
  - Removes unauthorized individuals from the permit space during operations;
  - Verify that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing the entry to begin;
  - Determines that entry operations remain consistent with the conditions of the permit.

ALTERNATE ENTRY PROCEDURES FOR RECLASSIFIED NON-PERMIT REQUIRED CONFINED SPACES

The alternate procedures may be used for entering a permit space if it can be demonstrated that the space contains only atmospheric or potential atmospheric hazards and that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry.

The Authority will reevaluate a space when there are changes in the use or configuration of a Non-Permit Required Confined Space that might increase the hazards to entrants and if necessary, reclassify it as a Permit-Required Confined Space.

Permit-Required Confined Spaces may be reclassified as a Non-Permit Required Confined Spaces under the following procedures:

- If the permit space poses no actual or potential atmospheric hazards, and if all hazards within the space can be eliminated (removed, locked out, etc.) without entry into the space, the space may be reclassified as a Non-Permit required Confined Space for as long as there are no atmospheric hazards; or
- If testing and inspection during the entry demonstrate that the hazards have been eliminated, the space may be reclassified as a Non-Permit Required Confined Space for as long as the hazards remain eliminated.

The basis for determining that all hazards in a permit space have been eliminated shall be documented with certification containing date, space location, and signature of the person making the determination. The certification shall be available to all Entrants. If any hazard arises, all Entrants must exit immediately and the space shall then be reevaluated to determine whether it must be reclassified as a permit space.

TRAINING PROGRAM

All employees that have the potential to enter or work around a Permit Required Confined Space shall be trained so that each acquires the understanding, knowledge and skills necessary for the safe performance of their assigned duties. Training shall include the following:

- The operation of the permit system.
- The specific duties of each person involved in permit space operations.
- The hazards of confined spaces including information on the mode, signs or symptoms, and consequences of exposure.
- The proper use of equipment required during permit space operations including: testing and monitoring equipment, ventilation equipment, communication equipment, personal protective equipment, lighting equipment, barriers and shields, ingress/egress equipment, rescue and emergency equipment used for non-entry rescue, and any other equipment necessary for safe entry into and rescue from permit spaces.
- The importance of communication between entrants and attendants.
- The conditions under which a confined space should be evacuated.
- The procedures for summoning rescuers.
- The procedures to be used for rescue.

Training shall be provided to each affected employee:

- Before the employee is first assigned duties under this program;
- Before changing assigned duties;
- Whenever there is a change in permit space operations presenting a new hazard not covered by previous training; or
- Whenever the Authority believes there are deviations from the entry procedures or there are inadequacies in the employee's knowledge or use of the procedures.

The Authority shall introduce new or revised duties into the training as necessary for compliance and shall confirm the training has been accomplished by maintaining documentation that includes:

- Employee names;
- Signatures or initials of the trainer(s); and
- Dates of training.

TRAINING FOR AUTHORIZED ATTENDANTS & ENTRANTS INCLUDES A REVIEW OF THE:

- Potential hazards that may be present within the space;
- Consequences of the exposure to the hazards;
- Modes, signs and symptoms of exposure to the hazards presented by the space;
- Proper use of equipment to be available and or used prior to and during an entry;
- Communication equipment to be used in conjunction with confined space entry and the proper procedures to use when summoning emergency assistance;
- Prohibited conditions that may arise requiring evacuation of the space;
- Evacuation procedures;
- Self-rescue techniques;
- Potential hazards that may be present within the space;
- Consequences of the exposure to the hazards;
- Modes, signs and symptoms of exposure to the hazards presented by the space;
- Accountability system to maintain an accurate count and the identity of the Authorized Entrants in the space ;
- Equipment to be available and or used prior to and during an entry;
- Communication equipment and procedures to be used in conjunction with confined space entry and the proper procedures to use when summoning emergency assistance;
- Prohibited conditions that may arise requiring evacuation of the space;
- Evacuation procedures;
- Rescue procedures (only if trained to do so and properly relieved by another Attendant);
- Necessary precautions to keep unauthorized employees out of or away from the space; and
- Procedures to use when notifying an Entry Supervisor or an Entrant of an unauthorized entry

TRAINING FOR ENTRY SUPERVISORS INCLUDES A REVIEW OF THE:

- Potential hazards that may be present within the space;
- Consequences of the exposure to the hazards;
- Modes, signs and symptoms of exposure to the hazards presented by the space;
- Permit verification showing that all pre-entry tests have been completed and documented;
- Equipment to be available and or used prior to and during an entry is in place and in proper working order;
- Process for summoning rescue services;
- Permit cancellation or termination process when work is complete or a condition outside the scope of the permit arises in or near the permit space;
- Process for removal of unauthorized personnel; and
- Transference of responsibility for the space from one Supervisor to another.

The training shall establish employee proficiency in the duties required of authorized entrants, attendants, entry supervisors, and members of the in-plant rescue team, and shall introduce new or revised procedures, as necessary.

Once trained, each employee serving as an authorized entrant, attendant or entry supervisor shall be certified. The certification shall include the employee's name, the name of the trainer, and the date of training. The certification shall be available for inspection by employees and their authorized representatives.

RETRAINING

Will occur annually or when a Supervisor has reason to believe that an employee has deviated from the procedure or that their knowledge seems inadequate or when the design or configuration of the space has changed.

RESCUE AND EMERGENCY SERVICES

The Authority employees and emergency response personnel from the communities within the service area will be used to perform rescue services in the event of a permit space emergency. The internal rescue team will receive training equivalent to that required of Entrants. At least one member of the rescue team will have a current certification for first aid and CPR. Rescue personnel should conduct a minimum of one practice drill every 12 months. The drill should include a simulated rescue using dummies or persons to simulate victims. With regard to rescue services from emergency response personnel, the Authority shall:

- Inform the rescue service of the hazards they may confront when called on to perform rescue at the Authority's facility; and
- Provide the rescue service with access to all permit spaces from which rescue may be necessary so that the rescue service can develop appropriate rescue plans and practice rescue operations.

When outside rescue services are used, it will be the Entry Supervisor's responsibility to communicate all information regarding the permitted space where the emergency has occurred. This includes a copy of the entry permit for the space. The Authority will also make itself available for review of the permit spaces by outside emergency services for the purpose of conducting simulated rescues.

The arrangement shall be accomplished by contacting the designated fire department on the day of the scheduled entry and informing him that a confined space entry is scheduled for this shift. The designated fire department will inform the MPWC / Outside Contractors at this time if they are available.

If the possibility exists that the designated fire department may be called to provide rescue services elsewhere all entry operation ceases. The confined space entry will be cancelled and rescheduled for a later time.

To facilitate non-entry rescue, retrieval systems or methods shall be used whenever an Authorized Entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the Entrant. The other end of the retrieval line shall be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the Attendant becomes aware that rescue is necessary. A mechanical device shall be available to retrieve personnel from vertical type permit spaces more than 5 feet deep.

Each Authorized Entrant shall use a full body harness, with a retrieval line attached at the center of the Entrant's back near shoulder level, or above the Entrant's head. Wristlets may be used in lieu of the full body harness if the Authority can demonstrate that the use of a full body harness is infeasible or creates a greater hazard and that the use of wristlets is the safest and most effective alternative.

If an Authorized Entrant is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other similar written information is available, then that MSDS or written information shall be made available to the medical facility treating the exposed Entrant.

EMERGENCY PROCEDURES

- All entrants shall immediately exit the confined space at the first indication of any hazard to their safety. These indications include, but are not limited to, the following:
    - Dizziness, fatigue, confusion, headaches, nausea, etc.
    - Chemical spills or discharges in the space.
    - Fire or explosion.
    - Alarms
    - Any other serious safety or health hazard.
- All entrants shall immediately exit the space if instructed to do so by the attendant or the entry supervisor.
- If an entrant becomes incapacitated in the confined space, other entrants exposed to similar hazards in the space shall exit the space immediately.
- In the event of an emergency, the attendant shall:

- Report the emergency by telephoning 911 or designated emergency number.
- Provide all information necessary for appropriate response organizations, (i.e., the local Fire Department).

- Under no circumstance shall any MPWC / Outside employees attempt to enter a confined space to perform a rescue. The Rescue Team shall handle all rescue operations that require entry into the confined space.

NON-ENTRY RESCUE

To facilitate non-entry rescue, retrieval systems or methods shall be used whenever an authorized entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. Retrieval systems shall meet the following requirements:

- Each authorized entrant shall use a chest or full body harness with a retrieval line attached at the center of the entrant's back near shoulder level, or above the entrant's head.
- A mechanical device shall be available to retrieve personnel from vertical permit spaces. If during the course of a permit space entry, an attendant becomes aware that an entrant needs assistance escaping from the confined space hazards, the attendant shall; summon rescue and begin Non-Entry Rescue Procedures.
- The retrieval line shall be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. Retrieval equipment must have a 4 to 1 mechanical advantage.

AFTER HOURS ENTRY PROCEDURES

- If a situation develops after hours requiring entry into a confined space. The employee receiving the notification from the answering service will contact the second on-call employee and notify the on-call supervisor.
- Once both on-call employees are on scene, entry will be made in accordance with the procedures established.
- The on-call supervisor will be notified prior to entry and upon completion of the assignment and cancellation of the permit.
- If any unusual or hazardous conditions exist, contact will be made with Evesham Fire Rescue to place them on stand-by for the duration of the entry.

MULTIPLE EMPLOYER ENTRY PROCEDURES

When the Authority arranges to have employees of another employer (Contractor) perform work that involves permit space entry, the Authority shall:

- Provide a copy of its Permit Required Confined Space entry procedure for review by all outside employers/contractors that enter our facilities to perform work in permit spaces;
- Inform the Contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting the OSHA regulations;
- Apprise the Contractor of the elements, including the hazards identified and the Authority's experience with the space, that make the space in question a permit space;
- Apprise the Contractor of any precautions or procedures that the Authority's has implemented for the protection of employees in or near permit spaces where Contractor personnel will be working;
- Coordinate entry operations with all Contractors when any combination of Authority personnel and/or Contractor personnel will be working in or near permit spaces; and
- Debrief the Contractor at the conclusion of the entry operations regarding the permit space program followed and regarding any hazards confronted or created in permit spaces during their entry operations.

In addition to complying with the permit space requirements that apply to all employers, each Contractor who is retained to perform permit space entry operations shall:

- Obtain any available information regarding permit space hazards and entry operations from the Authority;

- Coordinate entry operations with the Authority when the Authority's personnel and contractor personnel will be working in or near permit spaces; and
- Inform the Authority of the permit space program that the Contractor will follow and of any hazards confronted or created in permit spaces, either through a debriefing or during the entry operation.

POST-OPERATION PROCEDURES

Upon completion of work in a permit space, the permit shall be signed and dated (cancelled) and the permitted space secured.

REVIEW-PROCEDURES

The Authority will review and if necessary, revise the Permit-Required Confined Space Entry Program at least annually to ensure that all employees participating in entry operations are protected from permit space hazards. The canceled permits from the past 12 months are used as part of the review process and revise the program as necessary.

ENFORCEMENT

Constant awareness of and respect for Permit-Required Confined Space entry hazards and compliance with all safety rules are considered conditions of employment. Supervisors should enforce and monitor compliance with the program. Infractions should be noted so they can be addressed accordingly.

Permit-Required Confined Spaces located at the Authority's Water Pollution Control Facility:

<u>Woodstream Waste Water Treatment Plant</u>

- Pump Station 1 Wet Well
- Pump Station 2 Wet Well
- Influent Pump Station Wet Well
- Surge Tank
- Plant #1
- Plant #2
- Biofor Tanks 1, 2& 3 Underdrains
- Influent Pump Dry Well
- Mud Well Tank
- Clear Well Tank
- UV Disinfection Tank
- Biofor Meter Pit
- Various Chambers of the grease and grit removal unit
- Influent trap door manhole
- Pinch valve/flow meter pit
- Alum feed tank
- Secondary screening tank
- Biofor pump wet well
- Effluent UV and contact chambers
- All electrical and communications manholes
- Biofor drain access manhole
- Unused air scrubber tanks
- Old treatment tank used as a Koi pond

Elmwood Waste Water Treatment Plant

- Grit Collector Pit
- Influent Wet Well
- Orbal #1
- Orbal #2
- Clarifier #1 and #2
- Tanker Scum Pit
- Sludge Thickener Tank
- Cl2 Contact Tanks #1 & 2
- Cl2 Contact Tank Drain Pit
- Clarifiers #1 & 2 Telescopic Waste Pit

Kings Grant Waste Water Treatment Plant

- Effluent pump station vault
- Utility water pumps vault
- Acid feed box
- Micro C Pumps Manhole
- Scum pit check valves vault
- MLE tanks
- Influent flow meter vault
- Sanitary pump and check valves vault
- Electrical and communications manholes
- Equalization tank
- Sludge tank
- Distribution box
- Grit teacups
- UV disinfection channel
- Acid chemical tank
- RAS meter vault

ID#	Name	Address	Type
1	Pine Grove LS	8th Street	Lift Station
2	Kings Grant Golf Course LS	101 Majestic Way	Lift Station
3	Middle School LS	Marlton By-Pass	Lift Station
4	Tara LS	Stoneybrook Lane	Lift Station
5	Locust Avenue LS	Locust Avenue	Lift Station
6	Woodlands LS	49-51 Normandy Road	Lift Station
7	Greens LS	200 Marigold Ave	Lift Station
8	Country Farms LS	155 Country Farms Road	Lift Station
9	Cinelli Farms LS		Lift Station
10	Vineyards LS	8A Chablis Court	Lift Station
11	Stow Rd LS	13 Stow Road	Lift Station
12	Westerly LS	Westerly Drive	Lift Station
13	Cropwell LS	216 North Cropwell Rd	Lift Station
14	Briarwood LS	148 Washington Drive	Lift Station
14	Well 8 Altitude Pit	41 Plymouth Drive	Well
15	Church St Booster Vault	1151 Union Mill Road Mt. Laurel	Booster Station
16	Brick Rd Meter Pit Vault	139 Brick Rd	Booster Station

EMUA Confined Space Entry Permit #_____

Permit Space to be Entered (name & location of space): _____

Purpose of Entry: _____

Permit Date: _____	Work Shift: 1st___ 2nd___ 3rd___	Permit Expires: _____@_____am/pm
Time the Entry Supervisor Authorized Entry: _____am/pm		Pre-Job Tool Box Safety Meeting @ _____am/pm

Names trained, authorized individuals. ***NOTE - Supervisor must determine conditions are safe & authorize entry**

Entry Supervisor*: _____	Signature: _____
Entry Attendant: _____	Signature: _____
Authorized Entrant: _____	Signature: _____
Authorized Entrant: _____	Signature: _____

Written Rescue Plan in Place for Permit Space to be Entered? Yes_X_ No___

Name & Location of Space: _____

Summary of Rescue Plan/Method: Self/Attendant, 911/Evesham Fire Rescue

Rescue Team: Evesham Fire Rescue	Estimated Response Time: <15 minutes
Contact Person: _____	Phone/Contact means **911**
Back-up Rescue Team: Mt. Laurel FD	Estimated Response Time: _____ minutes
Contact Person: _____	Phone/Contact means 911

Pre-Entry Requirements:

Requirements Check Off	Done	Action Required - Notes
Permit Space Blown (ventilated how long?) _____		
Entrant & Attendant - How do they talk?		
Atm. Testing Meters Monthly Calibrations		Test Meter Manufacturer _____ Serial # _____
Atm. Testing Meters Pre-Entry Calibrations		
Test Meter Training - Super, Entrants, Attendants		
Tripod, fall arrest, harness, lifelines required?		
Intrinsically safe lighting required?		
Area Secured?		
PPE Required		

Confined Space Monitoring Results:		**Test 1**		**Test 2**		**Test 3**		**Test 4**	
Monitor Minimum of Every 4 Hours	**Permissible Entry Levels**	Time:		Time:		Time:		Time:	
		Name:		Name:		Name:		Name:	
Percent Oxygen	19.5% to 23.5%								
Combustible Gas	Less than 10% LEL								
Hydrogen Sulfide	Less than 10 ppm								
Carbon Monoxide	Less than 10 ppm								
Other									

Possible Hazards of Permit Space to be Entered - Check 1 or more

Lack of Oxygen _____	Fall Hazard _____	Electrical Hazard _____	Chemical Exposure _____	Other _____
Over 10% LEL _____	Engulfment _____	Microwave Hazard _____	Temperature Extremes _____	Other _____
Toxic Gases _____	Entrapment _____	Mechanical Exposure _____	Noise _____	Other _____

This Permit Has Been Cancelled for the Following Reason:

Work Completed _____ Terminated by Attendant _____ Other Termination _____ Time _____am/pm

Notes: _____

Supervisor's Signature: _____ Date/Time _____@_____am/pm

EVESHAM MUNICIPAL UTILITIES AUTHORITY				
SECTION - 6	**CONTROL OF HAZARDOUS ENERGY SOURCES (LOCKOUT/TAGOUT)**			
DATE ISSUED: 2017				
Revised	**Aug. 2017**			

PURPOSE

To establish minimum guidelines to protect employees from the hazards of the unexpected reenergization or start-up of machines and equipment, or the release of stored energy and all potentially hazardous energy sources.

DEFINITIONS

Affected Employee – an employee(s) whose job requires him/her to operate, work in the area of or use a machine or equipment on which service or maintenance is being performed that requires lockout or tagout.
Authorized Employee – a person who locks out or tags out machines or equipment in order to perform service or maintenance. An affected employee becomes an authorized employee when that employee's duties include performing service or maintenance.
Qualified Employee - a person who can demonstrate by experience or training the ability to recognize potentially hazardous energy and its potential impact on the workplace and has the knowledge to implement adequate methods and means for the control and isolation of such energy.
Lockout/Tagout - is the neutralization of energy sources by methods such as:

- Locking out
- Blanking and bleeding
- Disconnecting
- Securing
- Cribbing and bracing

Potentially Hazardous Energy - may include but are not limited to:

- Kinetic (conveyors, augers, pulleys, wheels)
- Electrical
- Stored (hydraulic, pneumatic, thermal, springs, process lines)

RESPONSIBILITIES

The Authority will provide training to Affected Employees to ensure that the employee's knowledge and skill level are appropriate for the safe application, usage, and removal of energy control devices, provide all equipment necessary for the implementation of the energy control program and have all potentially hazardous energy sources marked or labeled to identify the equipment supplied.

Qualified Employees are required to complete a survey to locate all potential hazardous energy sources using the Authority's Audit Form, identify and use all energy isolating devices needed for the lockout/tagout program and ensure that equipment is maintained and serviced in accordance with the manufacturer's specifications and make arrangements for the replacement of defective or lost energy isolating devices.

TRAINING

The Authority shall provide and document training and periodic retraining to ensure that all Affected Employees understand energy control procedures and maintain the knowledge and skills required for the safe application and removal of energy control devices. The Authority shall provide retraining annually and/or whenever a periodic inspection reveals there may be deviations or inadequacies in the energy control procedure.

STANDARD PRACTICES

- A Lockout/Tagout Procedure Form will be completed for each machine/equipment as determined by the Authority. The forms will be displayed in each area and will also be distributed to the affected departments. These forms are to be referenced each time the lockout/tagout policy is implemented.
- All Department and/or Shift Supervisors are responsible to maintain a current inventory of all lockout/tagout devices and are to record when such devices are used in the workplace.
- Whenever the energy disconnect and/or circuit breaker is used to terminate/isolate power, personnel are required to confirm that electrical energy has been terminated/isolated by testing the energy disconnect switch using a low impedance electrical metering device.
- No work shall be performed by an employee of the Authority on in excess of 440 volts.
- The services of a qualified, licensed and insured electrician will be used in all situations where work is required on equipment/machines in excess of 440 volts.
- Complete a survey of all potential hazardous energy sources to identify both primary and secondary energy sources (Authority's Procedural Form).
- Notify all Affected Employees that a lockout or tagout procedure is going to be utilized and explain the reason.
- If the machine or equipment is operating, shut it down by the normal stopping procedure.
- Energy isolation devices shall be used as follows:
    - Lockout devices shall be affixed in a manner that will hold the energy isolating device in a "safe" or "off" position and prevents reactivation.
    - Tagout devices shall be affixed in such a manner as to clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited.
    - Where a tag cannot be affixed directly to the energy isolating device, the tag shall be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.
- If more than one individual is required to lockout or tagout equipment, the Authority shall designate an Authorized Employee to coordinate the lockout/tagout procedure. Each employee shall place his or her own personal lockout and/or tagout device on the equipment.
- Attempt to activate normal operating controls after ensuring that primary and secondary energy sources are isolated.
    - **NOTE: Return operating controls to "neutral" or "off" before proceeding.**
- Stored energy (springs, elevated machine members, rotating fly wheels, hydraulic systems, air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as repositioning, blocking, bleeding down, etc.
- Before lockout and tagout devices are removed and energy is restored to the machine or equipment, the work area shall be inspected:
    - For removal of nonessential items;
    - To ensure that components are operationally intact; and
    - That all employees have been safely positioned or removed.
- A lockout and tagout device may only be removed by the employee who applied it, except when all the following conditions are met:
    - The individual is not on site;
    - An attempt has been made to contact the individual; and
    - The immediate Supervisor of the individual has ascertained that no one will be placed at risk by removal.

NOTE: Whenever a Supervisor removes a personal energy isolation device the individual that attached the device should be notified upon return to work.

COMPLIANCE WITH POLICY BY OUTSIDE CONTRACTOR'S

- Whenever outside servicing personnel (Contractor) are to be engaged in activities covered by this guideline, the Authority shall inform the Contractor(s) of the provisions of this lockout/tagout guideline.
- The Authority shall assure that the lockout/tagout procedures used by the Contractor(s) are compatible with existing guidelines.

- When lockout and tagout devices are used by a Contractor(s), the Affected Employees shall be afforded a level of protection equivalent to that provided by personal lockout and tagout devices.

GROUP LOCKOUT/TAGOUT

- Group lockout and tagout devices shall be used including, but not necessarily limited to, the following specific requirements:
  - Primary responsibility shall be vested in an Authorized Employee for a set number of employees working under the protection of a particular group lockout and tagout device;
  - Provision for the Authorized Employee to ascertain the exposure status of individual group members with regard to the lockout and tagout of the equipment or process; and
  - When more than one crew, craft, department, etc., is involved, the responsibility of the overall job-associated lockout/tagout control shall be assigned to an Authorized Employee designated to coordinate affected work forces and ensure continuity of protection.

CONTINUITY AMONG SHIFTS/TRANSFER OF CONTROL

- Specific procedures shall be implemented during shift or personnel changes to ensure the continuity of lockout and tagout protection. These procedures shall be developed:
  - For the orderly transfer of lockout and tagout devices between off going and oncoming employees, which will eliminate exposure to hazards from the unexpected reenergization, startup, or the release of stored energy of the equipment or process; and
  - To ensure that the equipment or process is being maintained in a safe condition so as to permit continued work by employees following the transfer of control over lockout and tagout devices.

PURPOSE

To establish minimal guidelines for preventing electric shock or other injuries resulting from direct/indirect electrical contacts to employees working on or near energized or deenergized parts. This guideline applies to all operations where employees may be exposed to live parts and/or those parts which have been deenergized.

RESPONSIBILITIES

All employees who are exposed to the risk of electric shock from working on or near energized or deenergized electrical sources must follow appropriate electrical/arc flash safety work practices including but not limited to the deenergizing of equipment, applying locks and tags, verifying deenergizing, and equipment reenergizing.

TRAINING

The goal of the Electrical/Arc Flash Safety Training Program is to ensure that all employees understand the hazards associated with electric energy and that they are capable of performing the necessary steps to protect themselves and their coworkers. Training shall include but not be limited to:

The Electrical Safety Training Program covers these basic elements:

- What electrical hazards are present in the workplace
- How to determine the degree of and to avoid exposure to each hazard
- How to minimize risk by body position
- Determining, selecting, inspecting and using proper PPE needed to complete assignments
- How to perform a hazard risk assessment, determine limited, restricted, prohibited approach and flash hazard boundaries
- Procedures for de-energizing circuits and equipment.
- Application of locks and tags.
- Verification that the equipment has been deenergized.
- Procedures for reenergizing the circuits or equipment.

All persons working on or near energized or deenergized electric sources shall be considered "QUALIFIED" to work safely with electrical energy as long as they have received the appropriate training to do so.

Qualified Person

- Is trained and knowledgeable of the construction and operation of equipment or a specific work method
- Can determine the nominal voltage of an electrical circuit by reading drawings, signs and labels on equipment
- Is able to recognize/avoid electrical hazards and determine if an exposed electrical conductor is energized
- Is capable of identifying exposed live parts, determining nominal voltages, and clearance distances and corresponding voltages
- Can determine what type and rating of PPE is required and why
- Can determine the necessary working clearance area dictated by the voltage present (see Table I and II)
- Have knowledge in and practices electrical work procedures set forth in the NFPA 70E Standard

HAZARD ASSESSMENT

Is conducted to identify equipment and operations that need to be included in the Electrical Safety Program. Requires the following questions be answered before work commences

- Does a shock hazard exist and will the worker be exposed to the shock hazard during the work task?
- What is the degree of the hazard and what personal protective equipment is necessary?
- Does an arc flash hazard exist?
- Will the worker be exposed to a thermal hazard during the work task?
- What is the degree of the arc flash hazards and what personal protective equipment is necessary?
- Does a co-occupancy hazard exist with another work group?
- What measures will be taken to minimize the impact of other work/workers?
- Will other workers be exposed to an electrical hazard because of the work task?
- What authorization is necessary to justify executing the work task while the exposed conductor(s) is (are) energized?
- What workers are required to be in an approach boundary?
- Are unqualified workers required outside the hazard areas to provide assistance?
- How will the voltage on the conductor (or nearby conductors) be determined?
- Is the risk of injury acceptable?

JOB BRIEFING

Must be held prior to beginning a work task associated with work **on or near live parts** and should include:

- Electrical hazards associated with the work task
- Procedures that must be followed while completing the task
- Any special precautions required by the working conditions
- Where and how to remove the energy source
- Emergency response and emergency communications
- Required PPE
- Other work in immediate physical area
- Other work associated with the same electrical circuits or equipment.

LOCKOUT AND TAGGING

All circuits, equipment and machines must be disconnected from all energy sources before work on them begins. Lockout and tagging devices must be used to prevent the accidental reenergization of this equipment. The safety procedures that make up the lockout and tagging program include these elements:

De-energizing circuits and equipment - Disconnect the circuits and equipment to be worked on from all electric energy sources and release stored energy that could accidentally reenergize equipment.

Application of locks and tags - Only Authorized Employees are allowed to place a lock and tag on each disconnecting means used to deenergize circuits, equipment and/or machines before work begins. Locks prevent unauthorized persons from reenergizing the circuits, equipment and/or machines and the tags warn of unauthorized operation of the disconnecting device.

Verification of deenergized condition of circuits and equipment - Prior to work on the circuit, equipment and/or machine, a Qualified Person must verify that the equipment is de-energized and cannot be restarted.

Re-energizing circuits and equipment - Before circuits or equipment are re-energized, the following must be observed:

- A Qualified Person tests and verifies that all tools and devices have been removed.
- All exposed employees are warned to stay clear of circuits and equipment.
- Authorized Employees remove their own locks and tags.

- Authorized Employees complete a visual inspection of the area to be sure all employees are clear of the circuits and equipment prior reenergization.

STANDARD PRACTICES

- All electrical installations and electrical utilization should conform to the National Electric Code.
- Only Qualified Persons may work in or near electrical circuit parts of equipment that have not been de-energized.
- Only Qualified Persons are permitted to maintain/work on electrical equipment and wiring.
- Follow all equipment/machine specific lockout/tagout procedures.
- Electrical equipment and lines should always be considered energized unless they are proven to be de-energized and grounded through the use of meters or other similar diagnostic equipment.
- The use of metal ladders is prohibited when working on electric equipment.
- Do not stand in water or on metal when working on electrical equipment or wiring.
- No electrical safety device should be made inoperative or bypassed.
- All tools should be insulated.
- Jewelry should not be worn when working with or near electric circuitry.
- All electric motors, switches, and control boxes should be kept clean at all times.
- Where there is a potential electrical hazard, employees must use protective equipment that is appropriate for specific parts of the body to be protected and for the work to be performed. This would include items such as:
    - Eye and head protection
    - Rated protective gloves
    - Protective sleeves and/or protective blankets
    - Fire rated clothing
    - Flash suits
    - Insulated tools

TABLE I

Working Clearance Table

Nominal Voltage to Ground	Minimum Clearance Distance for Condition in FEET		
	(a)	(b)	(c)
0 - 150	3	3	3
151 - 600	3	3.5	4

Conditions (a), (b) and (c) are as follows:

(a) Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by suitable wood or other insulating material. Insulated wire or insulated buss-bars operating at not over 300 volts are not considered live parts.
(b) Exposed live parts on one side and grounded parts on the other side.
(c) Exposed live parts on both sides of the workspace, not guarded as provided in Condition (a), with the operator between.

No one may approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown in Table II unless the person is insulated from the energized part with gloves, (and sleeves if necessary), rated for the voltage involved:

TABLE II

Approach Distance – Alternating Current

Voltage range (phase to phase)	Minimum approach distance
300V and less	Avoid contact
Over 300V, not over 750V	1 ft. 0 in. (30.5 cm)
Over 750V, not over 2kV	1 ft. 6 in. (46 cm)
Over 2kV, not over 15kV	2 ft. 0 in. (61 cm)
Over 15kV, not over 37kV	3 ft. 0 in. (91 cm)
Over 37kV, not over 87.5kV	3 ft. 6 in. (107 cm)
Over 87.5kV, not over 121kV	4 ft. 0 in. (122 cm)
Over 121kV, not over 140kV	4 ft. 6 in. (137 cm)

Electrical Safety Policy Overview

ESTABLISHING AN ELECTRICAL SAFE WORK CONDITION

If an electrically safe work condition exists, no electrical energy is in proximity of the work task(s). All danger of injury from an electrical hazard has been removed and neither protective equipment nor special training is required.

- Determine if all possible sources of electrical supply to the equipment have been identified and terminated.
- After properly interrupting the load current, open the disconnecting device(s) for each source.
- Wherever possible, visually verify that all the blades of the disconnecting devices are fully open or that drawout-type circuit breakers are withdrawn to the fully disconnected position.
- Apply lockout/tagout devices as required.
- Test each phase conductor or circuit part to verify they are de-energized. Test each phase conductor or circuit part both phase-to-phase and phase-to-ground.
- Where the possibility of induced voltages or stored electrical energy exists, ground the phase conductors or circuit parts before touching them.

WORKING ON OR NEAR LIVE PARTS

Live parts to which an employee might be exposed in excess of **50 volts** to ground shall be put into an electrically safe work condition before an employee works in or near them, unless the employer can demonstrate that de-energizing introduces additional or increased hazards or is infeasible due to equipment design or operational limitations.

Only two explanations for not creating an electrically safe work condition are satisfactory:

- If de-energizing the electrical circuit would result in an increased or additional hazard, the task may performed with the circuit energized
  Example: An increased hazard might be that the loss of electrical power could result in an environmental spill.
- If de-energizing the electrical circuit is infeasible because of equipment design or operational limitations, the task may be performed with the circuit energized.
  Example: Infeasible due to equipment design might be that removing the source of voltage for a single instrument circuit would require a complete shutdown of a continuous process.

Elements of an Energized Electrical Work Permit

- A description of the circuit and equipment to be worked on and location
- Justification for why the work must be performed in an energized condition
- A description of the safe work practices to be employed
- Results of the shock hazard analysis
- Determination of shock protection boundaries
- Results of the flash hazard analysis
- Determination of the Flash Protection Boundary
- The necessary PPE to safely perform the assigned task
- Means to restrict the access of unqualified persons from the work area
- Evidence of completion of a job briefing, including a discussion of any job-related hazards
- Energized work approval (authorizing or responsible management, safety officer or owner, etc.) signatures

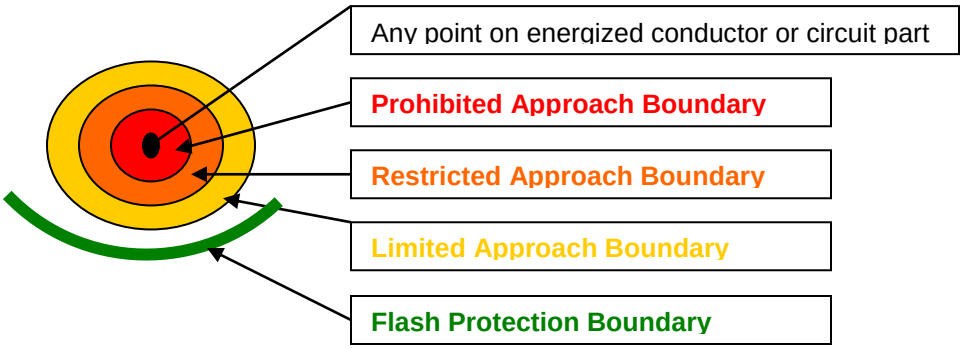
Exemptions

Work performed on or near live parts by qualified persons related to tasks such as troubleshooting, voltage measuring, etc. shall be permitted to be performed without an energized electrical work permit provided that appropriate safe work practices and PPE are provided and used.

Shock Hazard Analysis

Shall determine the voltage to which personnel will be exposed, boundary requirements and the PPE necessary in order to minimize the possibility of electric shock to personnel.

Approach Boundaries to Live Parts



Flash Protection Boundary

Can be determined by individual calculations at a specific point in a circuit or with the use of labels. Is intended to trigger the need for PPE that can protect the worker from potential thermal injury (2nd degree burn). For systems that are 600 volts or less a default Flash Protection Boundary of 4' has been established provided the system capacity does not exceed 300 kA cycles (5000 ampere seconds)

Flash Hazard Analysis

Is a review of an electrical circuit to determine its capacity to deliver sufficient energy to cause a thermal burn from an arcing fault. The primary purpose is to determine the distance from the arcing fault point that will expose a person to a second degree burn.

Personal Protective Equipment

Required to be used for the specific body part to be protected and for the work to be performed.

Subject	Number & Title
Head Protection	ANSI Z89.1 – Requirements for Protective Headwear for Industrial Workers, 1997
Eye & Face Protection	ANSI Z89.1 – Practice for Occupational and Educational Eye and Face Protection, 1998
Gloves	ASTM D 120-02 Standard Specification for Rubber Insulating Gloves, 2002
Sleeves	ASTM D 1051-02 Standard Specification for Rubber Insulating Sleeves, 2002
Gloves & Sleeves	ASTM F 496-02 Standard Specification for In-Service Care of Insulating Gloves and Sleeves, 2002
Leather Protectors	ASTM F 696-02 Standard Specification for Leather Protectors for Rubber Insulating Gloves and Mittens, 2002
Footwear	ASTM F 1117-98 Standard Specification for Dielectric Overshoe Footwear, 1998 ANSI Z41 – Standard for Personnel Protection, Protective Footwear, 1999
Visual Inspection	ASTM F 1236-01 Standard Guide for Visual Inspection of Electrical Protective Rubber Products, 2001
Apparel	ASTM F 1506-02a Standard Performance Specification for Textile Material for Wearing Apparel for use by Electrical Workers Exposed to Momentary Electric Arc and Related Thermal Hazards, 2002a
Rain Gear	ASTM F 1891-02a Standard Specification for Arc and Flame Resistant Raingear, 2002a
Face Protective Products	ASTM F 2178-02 Standard Test Method for Determining the Arc Rating of Face Protection Products, 2002

TABLE 130.7(C) (9) (A) Hazard/Risk Category Classifications

Task (assume Equipment is Energized, and Work is Done Within the Flash Protection Boundary)	High Risk Category	V-Rated Gloves	V-Rated Tools
Panelboards rated 240 V and Below – Notes 1 & 3			
Circuit Breaker (CB) or fused switch operations with covers on	0	N	N
CB or fused switch operation with covers off	0	N	N
Work on energized parts, including voltage testing	1	Y	Y
Remove/Install CBs or fused switches	1	Y	Y
Removal of bolted covers to expose bare energized parts	1	N	N
Opening hinged covers to expose bare energized parts	0	N	N
Panelboards or Switchboards Rated > 240 V and up to 600 V (with molded case or insulated case circuit breakers) – Notes 1 & 3	**High Risk Category**	**V-Rated Gloves**	**V-Rated Tools**
CB or fused switch operation with covers on	0	N	N
CB or fused switch operation with covers off	1	N	N
Work on energized parts, including voltage testing	**2***	Y	Y
600 V Class Motor Control Centers (MCCs) – Notes 2 (except as indicated) & 3	**High Risk Category**	**V-Rated Gloves**	**V-Rated Tools**
CB or fused switch or starter operation with enclosure doors closed	0	N	N
Reading a panel meter while operating a panel switch	0	N	N
CB or fused switch or starter operation with enclosure doors open	1	N	N
Work on energized parts, including voltage testing	**2***	Y	Y
Work on control circuits with energized parts 120 V or below, exposed	0	Y	Y
Work on control circuits with energized parts >120 V, exposed	**2***	Y	Y
Insertion or removal of individual starter buckets from MCC – Note 4	3	Y	N
Application of safety grounds after voltage test	**2***	Y	N
Removal of bolted covers to expose bare energized parts	**2***	N	N
Opening hinged covers to expose bare energized parts	1	N	N

Task (assume Equipment is Energized, and Work is Done Within the Flash Protection Boundary)	High Risk Category	V-Rated Gloves	V-Rated Tools
600 V Class Switchgear (with power circuit breakers or fused switches) – Note 5 & 6			
CB or fused switch operation with enclosure doors closed	0	N	N
Reading a panel meter while operating a meter switch	0	N	N
CB or fused switch operation with enclosure doors open	1	N	N
Work on energized parts, including voltage testing	**2***	Y	Y
Work on control circuits with energized parts 120 V or below, exposed	0	Y	Y
Work on control circuits with energized parts >120 V, exposed	**2***	Y	Y
Insertion or removal (racking) of CBs from cubicles, doors open	3	N	N
Insertion or removal (racking) of CBs from cubicles, doors closed	2	N	N
Application of safety grounds after voltage test	**2***	Y	N
Removal of bolted covers (to expose bare, energized parts)	3	N	N
Opening hinged covers (to expose bare, energized parts)	2	N	N

Other 600 V Class (277 V through 600 V, nominal) Equipment – Note 3	High Risk Category	V-Rated Gloves	V-Rated Tools
Lighting or small power transformers (600 V, maximum)	-	-	-
Removal of bolted covers (to expose bare, energized parts)	**2***	N	N
Opening hinged covers (to expose bare, energized parts)	1	N	N
Work on energized parts, including voltage testing	**2***	Y	Y
Application of safety grounds after voltage test	**2***	Y	N
Revenue meters (kW-hour, at primary voltage and current) Insertion or Removal	**2***	Y	N
Cable trough or tray cover removal or installation	1	N	N
Miscellaneous equipment cover removal or installation	1	N	N
Work on energized parts, including voltage testing	**2***	Y	Y
Application of safety grounds after voltage test	**2***	Y	N
NEMA E2 (fused contactor) Motor Starters, 2.3 kV Through 7.2 kV	**High Risk Category**	**V-Rated Gloves**	**V-Rated Tools**
Contactor operation with enclosure doors closed	0	N	N
Reading a panel meter while operating a meter switch	0	N	N
Contactor operation with enclosure doors open	**2***	N	N
Work on energized parts, including voltage testing	3	Y	Y
Work on control circuits with energized parts 120 V or below, exposed	0	Y	Y
Work on control circuits with energized parts >120 V, exposed	3	Y	Y
Insertion or removal (racking) of starters from cubicles, doors open	3	N	N
Insertion or removal (racking) of starters from cubicles, doors closed	2	N	N
Application of safety grounds after voltage test	3	Y	N
Removal of bolted covers (to expose bare, energized parts)	4	N	N
Opening hinged covers (to expose bare, energized parts)	3	N	N
Metal Clad Switchgear, 1 kV and Above	**High Risk Category**	**V-Rated Gloves**	**V-Rated Tools**
CB or fused switch operation with enclosure doors closed	2	N	N
Reading a panel meter while operating a meter switch	0	N	N
CB or fused switch operation with enclosure doors open	4	N	N
Work on energized parts, including voltage testing	4	Y	Y
Work on control circuits with energized parts 120 V or below, exposed	2	Y	Y
Work on control circuits with energized parts >120 V, exposed	4	Y	Y
Insertion or removal (racking) of CBs from cubicles, doors open	4	N	N
Insertion or removal (racking) of CBs from cubicles, doors closed	2	N	N
Application of safety grounds after voltage test	4	Y	N
Removal of bolted covers (to expose bare, energized parts)	4	N	N
Opening hinged covers (to expose bare, energized parts)	3	N	N
Opening voltage transformer or control power transformer compartments	4	N	N

Other Equipment 1 kV and Above	High Risk Category	V-Rated Gloves	V-Rated Tools
Metal clad interrupter switches, fused or unfused	-	-	-
Switch operation, doors open	2	N	N
Work on energized parts, including voltage testing	4	Y	Y
Removal of bolted covers (to expose bare, energized parts)	4	N	N
Opening hinged covers (to expose bare, energized parts)	3	N	N
Outdoor disconnect switch operation, (hookstick operated)	3	Y	Y
Outdoor disconnect switch operation (gang-operated from grade)	2	N	N
Insulated cable examination, in manhole or other confined space	4	Y	N
Insulated cable examination, in open area	2	Y	N

NOTES:

V-rated Gloves - Are rated and tested for the maximum line-to-line voltage upon which work will be done.
V-rated Tools - are rated and tested for the maximum line-to-line voltage upon which work will be done.
2* means that a double layer switching hood and hearing protection are required for this task in addition to the other Hazard/Risk Category 2 requirements of Table 103.7 (C)(10).
Y = Yes (Required)
N = No (Not Required)

NOTES:

1. 25 kA short circuit current available, 0.03 second (2 cycles) fault clearing time.
2. 65 kA short circuit current available, 0.03 second (2 cycles) fault clearing time.
3. For < 10 kA short circuit current available, the hazard/risk category required may be reduced by one number
4. 65 kA short circuit current available, 0.33 second (20 cycles) fault clearing time.
5. 65 kA short circuit current available, up to 1.0 second (60 cycles) fault clearing time.
6. For < 25 kA short circuit current available, the hazard/risk category required may be reduced by one number

TABLE 130.7 (C) (10) – Protective Clothing and Personal Protective Equipment

Protective Clothing and Equipment	Protective Systems for Hazard/Risk Category					
Hazard/Risk Category Number	**-1 Note 3**	**0**	**1**	**2**	**3**	**4**
Non-Melting (according to ASTM F 1506-00) or Untreated Natural Fiber						
T-shirt (short sleeve)	**X**			**X**	**X**	**X**
Shirt (long sleeve)		**X**				
Pants (long)	**X**	**X**	**X Note 4**	**X Note 6**	**X**	**X**
Fire Resistant Clothing (Note 1)						
Long sleeve shirt			**X**	**X**	**X Note 9**	**X**
Pants			**X Note 4**	**X Note 6**	**X Note 9**	**X**
Coveralls			**Note 5**	**Note 7**	**X Note 9**	**Note 5**
Jacket, parka or rainwear			**AN**	**AN**	**AN**	**AN**
Fire Resistant Protective Equipment						
Flash suit jacket (multilayer)						**X**
Flash suit pants (multilayer)						**X**
Head Protection						
Hard hat			**X**	**X**	**X**	**X**
Fire resistant hard hat liner					**AR**	**AR**
Eye Protection						
Safety glasses	**X**	**X**	**X**	**AL**	**AL**	**AL**
Safety goggles				**AL**	**AL**	**AL**
Face and Head Area Protection						
Arc rated face shield, or flash suit hood				**X Note 8**		
Flash suit hood					**X**	**X**
Hearing protection (ear canal inserts)				**X Note 8**	**X**	**X**
Hand Protection – Leather gloves (Note 2)			**AN**	**X**	**X**	**X**
Foot Protection – Leather work shoes			**AN**	**X**	**X**	**X**

AN = As needed **AR = As required** **AL = Select one in group** **X = Maximum required**

NOTES:

1. See Table 130.7 (C)(11) – Arc rating for garment is expressed in cal/cm^2
2. If voltage rated gloves are required, the leather protectors worn external to the rubber gloves satisfy this requirement.
3. Hazard Risk Category Number "-1" is only defined by Notes 3 or 6 of Table 130.7 (C) (9) (a).
4. Regular weight (minimum 12 oz/yd^2 fabric weight), untreated, denim cotton blue jeans are acceptable in lieu of FR pants. The FR pants used for Hazard/Risk Category 1 shall have a minimum arc rating of 4.
5. Alternate is to use FR coveralls (minimum arc rating of 4) instead of FR shirt and FR pants.
6. If the FR pants have a minimum arc rating of 8, long pants of non-melting or untreated natural fiber are not required beneath the FR pants.
7. Alternate is to use FR coveralls (minimum arc rating of 4) over non-melting or untreated natural fiber pants and T-shirt.
8. A face shield with a minimum arc rating of 8, with wrap around guarding to protect not only the face, but also the forehead, ears and neck (or alternatively, a flash suit hood) is required.
9. Alternate is to use 2 sets of FR coveralls (the inner with a minimum arc rating of 4 and the outer coverall with a minimum arc rating of 5) over non-melting or natural fiber clothing, instead of FR coveralls over FR shirt and FR pants over non-melting or natural fiber clothing.

TABLE 130.7 (C) (11) Protective Clothing Characteristics

Typical Protective Clothing Systems		
Hazard/Risk Category	**Clothing Description (Typical number of clothing layers is given in parentheses)**	**Required Minimum Arc Rating of PPE [J/cm^2 (cal/cm^2)]**
0	Non-melting, flammable materials (untreated cotton, wool, rayon or silk, or blends of these materials) with a fabric weight at least 4.5 oz/yd^2 (1)	N/A
1	FR shirt and FR pants or FR coverall (1)	16.74 (4)
2	Cotton underwear – conventional short sleeve and brief/shorts, plus FR shirt and FR pants (1 or 2)	33.47 (8)
3	Cotton underwear plus FR shirt and FR pants plus FR coverall, or cotton underwear plus two FR coveralls (2 or 3)	104.6 (25)
4	Cotton underwear plus FR shirt and FR pants plus multilayer flash suit (3 or more)	167.36 (40)

Requirements for Insulated Tools

Insulated tools shall be rated for the voltages on which they are used and shall be designed and constructed for the environment to which they are exposed and the manner in which they will be used.

Ropes and hand lines used near exposed live parts operating at 50 volts or more or used where an electrical hazard exists shall be non-conductive.
Portable ladders shall have non-conductive side rails if used where an employee or ladder could contact exposed live parts at 50 volts or more or where an electrical hazard exists.

Protective shields, protective barriers or insulating materials shall be used to protect employees from shock, burns or other electrically related injuries while the employee is working near live parts that might be accidentally contacted or where dangerous electric heating or arcing might occur.

Alerting Techniques

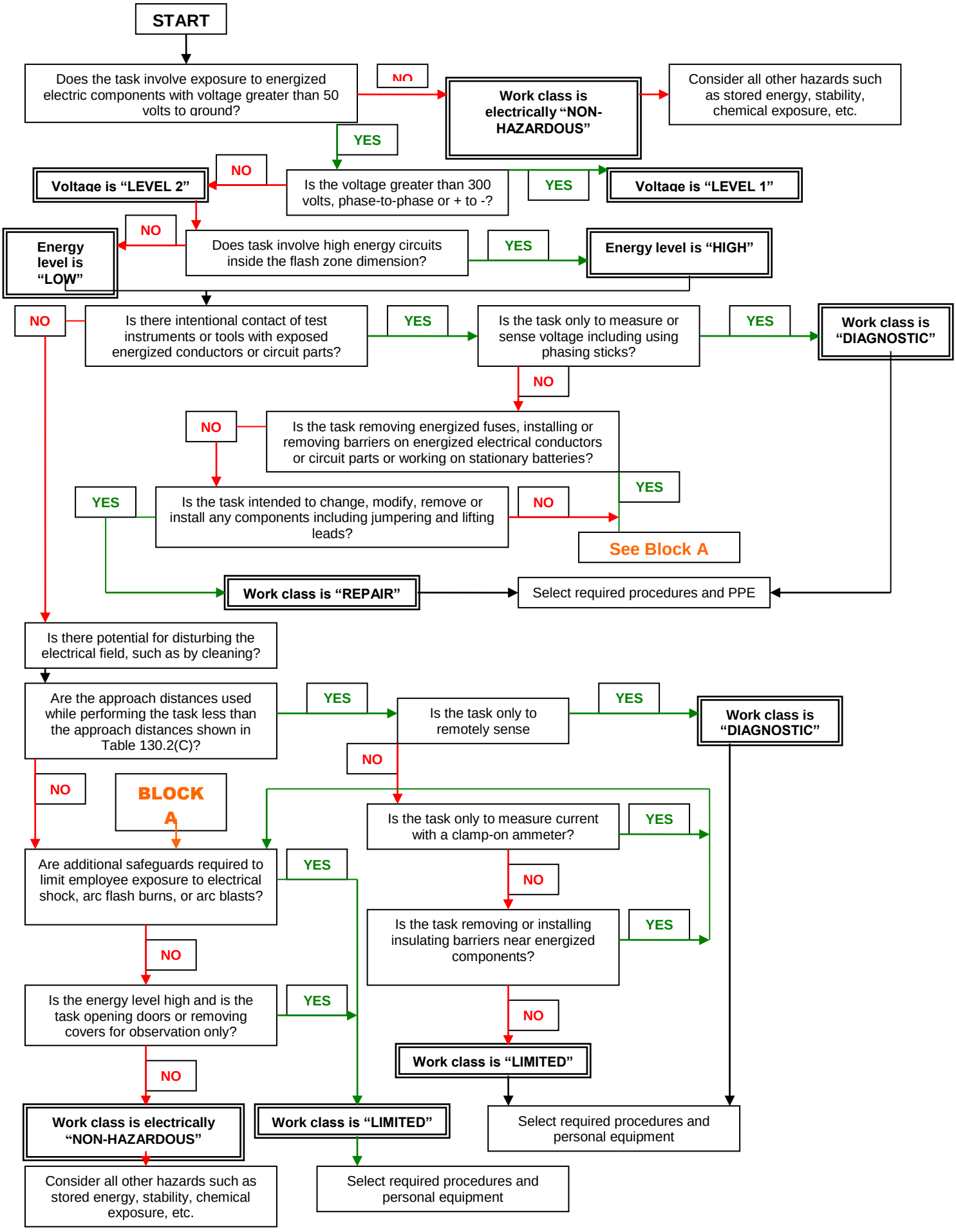
Safety signs, symbols or accident prevention tags shall be used where necessary to warn employees about electrical hazards that might endanger them.

Barricades shall be used in conjunction with safety signs where necessary to prevent or limit employee access to work areas containing live parts. Conductive barricades shall not be used where it might cause an electrical hazard.

Attendants shall be stationed to warn and protect employees if sign and barricades do not provide sufficient warning and protection from the electrical hazards.

Protective Equipment

Protective equipment includes but may not be limited to:
Ladders
Safety Signs and Tags
Blankets
Covers
Line Hoses
Line Hoses and Covers
Blankets
Fiberglass Tools/Ladders
Plastic Guards
Temporary Grounding
Insulated Hand Tools


START
Does the task involve exposure to energized electric components with voltage greater than 50 volts to ground?
NO
Work class is electrically "NON-HAZARDOUS"
Consider all other hazards such as stored energy, stability, chemical exposure, etc.
YES
Voltage is "LEVEL 2"
NO
Is the voltage greater than 300 volts, phase-to-phase or + to -?
YES
Voltage is "LEVEL 1"
Energy level is "LOW"
NO
Does task involve high energy circuits inside the flash zone dimension?
YES
Energy level is "HIGH"
NO
Is there intentional contact of test instruments or tools with exposed energized conductors or circuit parts?
YES
Is the task only to measure or sense voltage including using phasing sticks?
YES
Work class is "DIAGNOSTIC"
NO
NO
Is the task removing energized fuses, installing or removing barriers on energized electrical conductors or circuit parts or working on stationary batteries?
YES
YES
Is the task intended to change, modify, remove or install any components including jumpering and lifting leads?
NO
See Block A
Work class is "REPAIR"
Select required procedures and PPE
Is there potential for disturbing the electrical field, such as by cleaning?
Are the approach distances used while performing the task less than the approach distances shown in Table 130.2(C)?
YES
Is the task only to remotely sense
YES
Work class is "DIAGNOSTIC"
NO
NO
BLOCK A
Is the task only to measure current with a clamp-on ammeter?
YES
Are additional safeguards required to limit employee exposure to electrical shock, arc flash burns, or arc blasts?
YES
NO
Is the task removing or installing insulating barriers near energized components?
YES
Is the energy level high and is the task opening doors or removing covers for observation only?
YES
NO
NO
Work class is "LIMITED"
Work class is electrically "NON-HAZARDOUS"
Work class is "LIMITED"
Select required procedures and personal equipment
Consider all other hazards such as stored energy, stability, chemical exposure, etc.
Select required procedures and personal equipment

EVESHAM MUA – ELECTRICAL SAFETY JOB BRIEFING AND PLANNING CHECKLIST

Task to be performed: _____ Date: _____

Location: _____ Equipment: _____

Work Area Code: _____ Work Order #: _____

Identify	The hazards
	The voltage levels involved
	Level of skill required
	Any foreign or secondary voltage source
	Any unusual work conditions
	The number of people needed to do the job
	The shock protection boundaries
	The available incident energy
	The potential for arc flash
	The Flash Protection Boundary
Ask	Can the equipment be de-energized
	Are backfeeds of the circuits to be worked possible
	Is a standby person available
Check	The work plan for the assignment
	Any single-line diagrams and vendor prints available for review
	The status of the equipment to be serviced
	That the information on plant and vendor resources up to date
	Required safety procedures
	O&M manuals for equipment
	With individuals familiar with the equipment operation during trouble shooting
Know	What the task entails
	Who else needs to know what work will be done, when and why. COMMUNICATE
	Who is in charge of the work area
Think	About the unexpected event. "WHAT IF?" – Prepare for and expect the unexpected
	LOCK / TAG / TEST / TRY
	Test for voltage FIRST
	Use the right tools, equipment and PPE
	Install and remove grounds
	Install barriers and barricades
	What else DID YOU MISS?
Prepare for an Emergency	All personnel should be CPR trained
	Have the required emergency equipment available and onsite at the work area
	Identify the work location with physical barriers and signs and identify proximate hazards
	Know how the equipment should be terminated in an emergency
	Have a fire extinguisher available for use by the standby person

Reviewed By (initials): _____Date: _____

Supervisors Signature: _____ Date: _____

EVESHAM MUA – ENERGIZED ELECTRICAL WORK PERMIT

Work Order Number: _____ Date: _____

Description of circuit/equipment/work location: _____

Description of work to be completed: _____

Justify why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage:

_____

_____

TO BE COMPLETED BY THE ELECTRICALLY QUALIFIED PERSONS DOING THE WORK

		Check When Complete
List procedures to be used to complete assigned task: _____ _____		
List safe work practices to be used: _____ _____		
Results of the Shock Hazard Analysis: **See Arc Flash Warning label on cabinet**		
Determination of Shock Protection Boundaries: **See Arc Flash Warning label on cabinet**		
Results of the Flash Hazard Analysis: **See Arc Flash Warning label on cabinet**		
Required PPE to perform the task: **See Arc Flash Warning label on cabinet**		
Means to restrict access by unqualified persons from work area: _____ _____		
Completion of Job Briefing and discussion of hazards: _____ _____		
Do you agree the above work can be completed safely? (circle one)	**YES**	**NO**
If NO to above, explain what is needed to complete the task safely: _____ _____ _____		

Electrically Qualified Person doing work: _____ Date: _____

Electrically Qualified Person doing work: _____ Date: _____

Electrically Qualified Person doing work: _____ Date: _____

Electrically Qualified Person doing work: _____ Date: _____

Approval to Perform Work While Electrically Energized (must be signed by at least 1 person below)

Electrical Supervisor Signature: _____ Date: _____

Mechanical Maintenance Supervisor: _____ Date: _____

Operations Manager Signature: _____ Date: _____

Deputy Director for Regulatory Affairs: _____ Date: _____

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 8	**ENVIRONMENTAL HAZARDS**				
DATE ISSUED: 2017					
Revised	**Aug. 2017**				

PURPOSE
To establish minimum guidelines to minimize the risk of injury/exposure from environmental hazards.

DEFINITIONS
Environmental Hazards: include, but are not limited to the following:

- Poisonous Plants (Ivy, Oak, etc.)
- Insect Bites
- Lyme Disease
- Heat and Cold Stress
- Indoor Air Quality

TRAINING
Training shall be provided so that each employee understands the potential short and long term dangers associated with environmental hazards.

RESPONSIBILITIES
The Authority shall implement a program focusing on awareness and prevention of environmental illnesses.

Employees should make every attempt to identify and avoid environmental hazards when possible, use the proper personal protective equipment for the tasks to be performed and advise the Authority of any known allergic reaction(s) that may require medical attention.

STANDARD PRACTICES

POISONOUS PLANTS
- Includes but is not limited to poison ivy, poison oak, etc. that causes inflammatory rashes known as eczema. Eczema is typically red, itchy and scaly skin.
- Beware of poisonous plants in and around woods, fences, hedges, and all facilities.
- Care should always be taken when cutting and clearing brush that may contain poisonous plants as many poisonous plants may contain toxins, even in winter.
- Chemical weed killers are the best way to destroy poisonous plants and should only be applied by a licensed applicator when required by regulation or as specified by the manufacturer.
- Since dead poisonous plant leaves and vines are still toxic, you should protect all exposed areas of the skin when handling plant debris.

INSECT BITES
- Insect bites and stings generally are not serious.
- However, some individuals may experience an allergic reaction that requires medical attention.
- Whenever stung or bit, cleanse the site and continue to monitor for signs of infection that may not occur until several days later.
- If you suspect a systemic or allergic reaction, call a doctor or hospital immediately. Signs of allergic reaction include but are not limited to the following:
    - Lip and facial swelling;
    - Asthma-like symptoms;
    - Tongue swelling; or
    - Upper airway swelling.

- Items such as soft drinks and ripened fruits attract many kinds of insects, therefore keep the area clear of trash and keep all trash receptacles covered.
- If you must remove an insect nest or hive, you should first apply a high-pressure aerosol spray. The aerosol should contain Pyrethrum, an instant knockdown insecticide, and should shoot a high-volume stream a minimum of 10 to 15 feet. A stream of water may knock the nest down, but the insects may linger at the site for the rest of the day.
- Wearing long-sleeve shirts and long pants will help minimize skin exposure to poisonous plants and insects.

LYME DISEASE

Lyme disease is a bacterial disease acquired by humans through the bite of an infected tick. You can contract Lyme disease more frequently between April and November.

Stages of Lyme disease:

- The **first stage** of Lyme disease is characterized by a circular rash with large distinctive circular lesions and is first seen around the area of the bite (only 50-60% of infected patients experience this rash). The rash can "come and go" making disease documentation even more difficult. The incubation period (time from the bite to the onset of symptoms) is approximately 14 days. Other symptoms include malaise, fever, headache, muscle aches and swollen lymph glands (neck, armpits, or groin).
- In the **second stage** the victim may develop severe headaches, encephalitis (inflammation of the brain), facial paralysis or meningitis. It may also cause cardiac or respiratory difficulties such as dizziness, shortness of breath and irregular heartbeat.
- The **third stage** involves the onset of arthritis.

Although the disease can be treated at any stage with antibiotics, treatment is most effective during the first and second stages. If left until the third stage, the disease becomes more difficult to treat, and most patients must be hospitalized for intravenous treatment with antibiotics. The best defense against Lyme disease is to prevent transmission. The following guidelines should be considered:

- While in wooded areas wear long-sleeved shirts and long pants, preferable white or light colored. Ticks are much easier to spot on light-colored clothing.
- Tuck long pants into socks.
- Carefully inspect yourself when leaving areas known for tick habitation.

HEAT AND COLD STRESS

The human body has a complex regulating system that is responsible for controlling the delicate balance between heat production and loss. When conditions in the environment become too hot or humid and the body is unable to compensate, we become susceptible to heat illness such as:

- Heat Cramps
- Heat Exhaustion
- Heat Stroke

Heat cramps are usually associated with strenuous physical activity. They are the result of heavy sweating and loss of body salt (sodium). Symptoms are painful spasms of muscles in the extremities and the abdomen and the victim usually has a normal body temperature. Treatment involves moving the victim to the shade, massaging the cramped muscles and providing victims with small amounts of fluids. Popular sports drinks, (i.e., Gatorade or Squencher) are effective in restoring body fluids and salt. Persistent symptoms, despite fluid intake require a physician's evaluation to exclude a more serious heat illness.

Heat exhaustion is similar to heat cramps, but the victim is dehydrated. People who are sweating heavily and are flushed, clammy, dizzy, nervous or faint could be suffering from heat exhaustion. Symptoms include fatigue progressing to nausea, vomiting, headache, rapid heartbeat and lowered blood pressure. The victim's body temperature is usually normal, or only slightly elevated. Treatment involves moving the victim to a cool place with their feet raised and clothing loosened. Give victims small amounts of water and call a physician if symptoms persist or worsen.

Heat stroke is the most serious heat illness and a true medical emergency. Common symptoms include an elevated temperature, lack of sweating, dry hot skin and often unconsciousness. Treatment involves seeking medical attention immediately. While awaiting assistance, the victim should be moved to a cool location and cooled down by removing clothes and by applying water and fanning.

COLD INJURY

Persons working outdoors in low temperatures, especially at or below freezing temperatures are subject to cold injuries. Cold injury can occur at temperatures above and below freezing. Exposure to extreme cold for a short time may cause severe injury to the surface of the body. Areas of the body that are the most susceptible are the fingers, toes, and ears.

Hypothermia refers to the lowering of the body's core temperature. This is a medical emergency. Hypothermia is caused by exposure to freezing or rapidly dropping temperature. Symptoms include:

- Shivering;
- Apathy, listlessness, sleepiness;
- Occasionally, rapid cooling of the body to less than 95°F; or
- Unconsciousness, glassy stare, slow pulse, slow respiration.

Treatment involves moving the victim to a warm location, obtaining medical assistance and providing warm fluids.

Frostbite is a localized injury resulting from exposure to cold. Frostbite symptoms include:

- Blanching or whitening of skin.
- Skin is waxy or has a white appearance and is firm to the touch.

Treatment includes the following:

- Seek medical attention.
- Give a warm drink of water or juices. Not coffee, tea or alcohol!
- Prohibit the victim from smoking.
- Elevate the injured area and protect it from injury.
- Use sterile, soft, dry material to cover the injured areas.
- Keep victim warm.

DO NOT

- Allow any blisters to be broken.
- Rub the frostbitten part of the body (this may cause gangrene).
- Use gasoline, snow, ice or anything cold on the frostbitten area.
- Use heat lamps or hot water bottles to warm the affected part of the body.
- Place the affected part of the body near a hot stove.

NOTE: Frostbite should never be treated outside of a medical facility. Refreezing of thawed tissue will lead to an even greater injury.

INDOOR AIR QUALITY (IAQ)

To reduce heating and cooling costs, buildings have been made "airtight" with insulation and sealed windows, thereby reducing the amount of outside air introduced into buildings. In addition, more chemical containing products, office supplies, equipment, and pesticides have been introduced into the office environment increasing employee exposure. These changes in the workplace have created indoor air quality concerns.

Poor IAQ may be caused by:

- Lack of fresh air - If insufficient air is introduced into occupied spaces, the air becomes stagnant causing odors and contaminants to accumulate.
- Poorly maintained or operated ventilation systems - Mechanical ventilation systems must be properly maintained and operated.
- Disruption of air circulation throughout occupied spaces - If fresh air does not reach occupied areas or is blocked, it can become stagnant.
- Poorly regulated temperature and relative humidity levels - If the temperature and/or relative humidity levels are too high or too low, employees may experience a variety of discomforts.
- Indoor and outdoor sources of contamination - Chemical contaminants in an office environment either originate from indoor sources or are introduced from outdoor sources. They may include emissions from office machinery or photocopiers, cigarette smoke, insulation, pesticides, wood products, synthetic plastics, newly installed carpets, glues and adhesives, new furnishings, cleaning fluids, paints, solvents, boiler emissions, vehicle exhaust, roof renovations, and contaminated air from process equipment or exhaust stacks.

Additional Information

- Please refer to the Indoor Air Quality section of this manual for additional information regarding air quality.

- Please note: All injuries and exposures must be reported to a supervisor by the end of the employee's work day.

EVESHAM MUNICIPAL UTILITIES AUTHORITY					
SECTION - 9	**EXCAVATION SAFEGUARDS**				
DATE ISSUED: 2017					
Revised	**Aug. 2017**				

PURPOSE

To establish minimum guidelines to identify and correct hazards associated with excavation work.

RELATED REGULATORY STANDARDS

OSHA 29 CFR 1926 Subpart P – Excavations

DEFINITIONS

Competent Person **-** One who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Underground Installation - Any public or plant utility service (i.e., sewer, water, gas, fuel, electrical, etc.) or foundation that may be damaged in excavation and/or trenching operation.

Excavation **-** Any manmade cut, cavity, trench or depression in the earth's surface that is formed by earth removal.

Trench **–** A narrow excavation (in relation to its length) made below the surface of the ground with a depth greater than its width and the width (measured at the bottom) is not greater than 15'. If a form or other structure installed or constructed in an excavation reduces the distance between the form and the side of the excavation to 15' or less (measured at the bottom of the excavation), the excavation is also considered a trench.

Hazardous Atmosphere – An atmosphere that by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen-deficient, toxic or otherwise harmful may cause death, illness, or injury to persons exposed to it.

Protective Systems – A method of protecting employees from cave-ins from materials that could fall or roll from an excavation face or into an excavation and from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems and other systems that provide the necessary protection.

Shoring- A structure such as a metal hydraulic, mechanical or timber system that supports the sides of an excavation and which is designed to prevent cave-ins.

Support Systems **–** Structures such as underpinning, bracing and shoring that provide support to an adjacent structure or underground installation or to the sides of an excavation or trench.

Work Zone-A clearly defined and designated safe work area for all employees that speaks specifically to traffic safety controls and other such site specific hazards.

Confined Space-A space, which by design has limited openings for entry and exit, unfavorable natural ventilation which could contain or produce dangerous air contaminants and which is not intended for continued employee occupancy.

Trenching Log-Checklist prepared by a competent person that verifies inspection and authorization and specifies details critical to the safety and protection of all personnel assigned (To be completed for all trenching and excavation incidents).

OneCall-Underground notification system/procedure mandated prior to any digging/excavation taking place.

PPE-Personal protective equipment to be utilized during excavation and trenching operations. PPE includes, but is not limited to:

- Hard hat for impact or electrical hazard;
- Eye protection/shield
- Gloves appropriate for job hazard;
- ANSI-approved footwear;

- Respiratory protection as needed.

Surface Encumbrance-All surface obstacles, impediments or hindrances that are located so as to create a hazard to employees shall be removed or supported, as necessary, to safeguard employees and the operation.
Non-Emergency Operations-Trenching and excavation activities that are planned and scheduled in advance and such can be properly planned, assessed, staffed and monitored by key and critical competent persons.
Emergency Operations-Failure of underground infrastructure that requires immediate intervention by Authority personnel and/or resources as identified by a competent person. In the event of an emergency, the appropriate supervisor and/or on-call employee shall be dispatched to the scene for an initial assessment and to start the Trenching Log
Specific Hazards-Trenching and excavation operations pose specific hazards to workers that have often resulted in serious injury or death. The term "specific hazard" shall denote any/all hazards associated with trenching and excavations including, but not limited to:

- Cave-ins;
- Electrical or other utilities;
- Impact hazards;
- Atmospheric hazards;
- Heavy equipment operations and work zone safety;
- Improper ladder use;
- Power and hand tool use;
- Welding, cutting and burning;
- Chemical material exposure;
- Generator use;
- Noise;
- Silica Dust exposure;
- Discovery of unknown hazardous substances;

Protective Systems-Methods of protecting workers operating in trenches including:

- Benching-Excavating the sides of an excavation to form a series of horizontal levels or steps;
- Sloping-Cutting back the trench wall at an angle inclined away from the excavation;
- Shoring-Installing aluminum hydraulic or other types of support to prevent soil movement and cave-in;
- Shielding-Trench boxes or other types of support to prevent soil cave-ins.

Procedures:
No employee is permitted to participate in or support an excavation/trenching operation who has not been properly trained and authorized to do so. Employees permitted to participate in excavation/trenching operations shall comply with the policies and procedures contained herein.

SOIL MECHANICS

Soil mechanics is the discipline that applies principles of engineering mechanics, such as kinematics, dynamics, fluid mechanics and mechanics of material, to predict the mechanical behavior of soils. In regards to excavations, soil mechanics refers to a number of stresses and deformations can occur in an open cut or trench such as those produced by increases or decreases in moisture content that adversely affect the stability of a trench or excavation.
See Table Soil Mechanics

Tension Cracks – Usually form at a horizontal distance of .500 to .750 times the depth of a trench, measured from the top of the vertical face of the trench.
Sliding – May occur as a result of tension cracks.
Toppling – May occur as a result of tension cracks and usually occurs when the trench's vertical face shears along the tension crack line and topples into the excavation.

Subsidence and Bulging – Usually occurs in an unsupported excavation from an unbalanced stress in the soil, which causes subsidence at the surface and bulging of the vertical face of the trench. If left uncorrected this condition can cause face failure and entrapment of workers in the trench?
Heaving or Squeezing – Bottom heaving or squeezing is caused by the downward pressure created by the weight of adjoining soil. This pressure causes a bulge in the bottom of the cut. Heaving and squeezing can occur even when shoring or shielding has been properly installed.
Boiling – Is indicated by an upward water flow into the bottom of the cut and can occur even when shoring or trench boxes are used.
Unit Weight of Soils – Refers to the weight of one unit of a particular soil. The weight of soil varies with the type and moisture content. One cubic foot of soil can weigh from 100 to 140 pounds or more.

DETERMINATION OF SOIL TYPES

OSHA categorizes soil and rock deposits into four types, A through D.

Stable Rock – Is natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.
Type A-Soils – Cohesive soils such as clay, silty clay, sandy clay, clay loam, and in some cases silty clay loam and sandy clay loam. No soil is Type A if it is fissured, is subject to vibration of any type, has previously been disturbed, is part of a sloped, layered system where the layers dip into excavation on a slope of 4 horizontal to 1 vertical or greater or has seeping water.
Type B-Soils – Cohesive soils such as angular gravel, silt, silt loam, previously disturbed soils unless otherwise classified as type C, soils that are fissured or subject to vibration, dry unstable rock and layered systems sloping into trench at a slope less than 4 horizontal to 1 vertical.
Type C-Soils – Cohesive soils including granular soils such as gravel, sand and loamy sand, submerged soil, soil from which water is freely seeping and submerged rock that is not stable.
Type D-Layered Geological Strata – Where soils are configured in layers, the soil must be classified on the basis of the soil classification of the weakest soil layer.

NON-EMERGENCY OPERATIONS:

All planned and scheduled non-emergency events, shall require a Trenching Log to be initiated by a duly authorized competent person, who shall remain responsible for site management and the safety of all personnel throughout the operation unless relieved by someone of equal or greater authority/competence. The log shall be initiated and maintained throughout the incident.
It should be noted that non-emergency events can quickly turn into emergency events. Trenching and excavation operations are dynamic, changing constantly, requiring ongoing size-up and inspection. The "Competent Person" shall decide what protective systems are required and ensure that they are implemented prior to/during any entry or operations within trenches or excavations.

EMERGENCY OPERATIONS:

Unplanned, unscheduled breaches in the Authority's underground infrastructure constitute an emergency and warrant prompt and concise actions to properly and safely mitigate. The potential hazards still exist and will still require due diligence and attention by all personnel. The "Competent Person" shall prepare the Trenching Log. He/she shall also decide what protective systems are required and ensure that they are implemented prior to/during any entry or operations within trenches or excavations.

TRENCHING/EXCAVATION OPERATIONS

Pre-incident size-up is comprised of but not limited to; employee training, purchasing and maintenance of vehicles, tools, equipment, drafting traffic/work zone plans, mark-outs, applying for permits and pre-construction meetings. In essence, pre-incident size-up is everything that is being done prior to performing operations.

Initial Size-up is all information gathered at the scene/excavation site that would take place prior to work starting or as set-up is beginning. The initial size-up can be performed by any designated employee, however, the Trenching Log must be initiated and completed by the assigned “Competent Person”. The “Competent Person” shall also be responsible for specifying the appropriate protective systems to be employed for the operation.

Ongoing size-up will be everyone’s responsibility. Conditions generally can change rapidly, especially with significant water leaks, inclement weather, night time, poorly illuminated work zones, etc. Paramount to preventing injuries, it is the responsibility of all personnel to perform ongoing size-up while communicating to one another throughout the operation.

SCENE SAFETY

The steps to maintaining a safe work zone need to occur early in an incident by predicting the location and total area that would be needed to initiate and maintain a safe operation, allowing for the potential for incident escalation. This shall include, but not be limited to; establishment of work zone traffic plan, staging for vehicles, equipment & tools, assembling of a minimum level of staffing to support the operation, including flaggers, runners and support personnel.
Once the work zone is established, it should be isolated/designated by either cones, caution tape, vehicles or all of the above. Most certainly civilians and non-essential personnel shall be restricted from access and removed to outside the designated work zone. The competent person assigned shall retain the authority to request additional resources, as needed, as well as the authority to release resources.

TRIGGER NUMBERS TO CONSIDER

A properly created trench requires a skilled back hoe operator as well as a skilled Supervisor/Competent Person assisting with the creation. In breaching road surfaces, many hazards and obstacles can be found, including improperly marked-out infrastructure, poor soil conditions, poor surface conditions, access issues, overhead obstructions (electrical wires) to name a few. The following trigger numbers outlined by OSHA will be helpful in creating and working in trenches;

2 Feet	Required distance for spoils piles from edge of excavation/trench.
3 Feet	Length that ladder must extend above excavation or trench.
4 Feet	Depth at which a ladder or ramps is required for access and egress.
5 Feet	Depth at which mandatory shoring, benching and/or a protection system is required.
6 Feet	Depth at which fall protection is required for bridges, walkways across excavations or trenches.
20 Feet	Shoring designed by registered engineer required.
25 Feet	Maximum travel distance to an exit ladder.

GENERAL TRENCHING AND EXCAVATION RULES

- Keep heavy equipment away from trench edges
- Identify and remove other sources that may affect trench stability
- Keep spoil piles and other materials at least two (2) feet from trench edges
- Know clearly where all underground utilities are before digging.

- Employ AMD to test for atmospheric hazards (low oxygen, hazardous and toxic fumes) less than 4 feet
- Inspect trenches at the start of each shift/change in personnel
- Inspect trenches following a rainstorm or after other water intrusion and re-assess
- Do not work under suspended or raised loads and/or materials
- Inspect trenches after any occurrence or event that could have changed or affected conditions in the trench.
- Ensure that personnel wear their vests or other suitable high visibility clothing when exposed to vehicular traffic.

EXCAVATION/TRENCHING CAVE-IN OR EMERGENCY

Cave-ins pose the greatest risk to workers and are much more likely than other excavation-related accidents to result in fatalities. One cubic yard of soil can weigh as much as a car. An unprotected trench is an early and potential grave. Personnel shall only be permitted to operate within an excavation when deemed safe to do so by the "Competent Person".

A large percentage of injuries/fatalities that occur in trenching/excavation operations are to "would- be rescuers" who place themselves at extreme risks, attempting rescues without proper rescue/recovery training, equipment and personnel. For that reason, a trapped worker, regardless of extent, mandates the following:

- Isolate the area/deny entry
- Notify 9-1-1 and summon local FD/Rescue/EMS personnel
- Clear an access path for emergency personnel, if one has not already been established
- Maintain verbal communications with trapped victim, if possible
- Only attempt a rescue/removal under the authorization of the senior "Competent Person", who shall be responsible for dictating the procedures that would be authorized.
- Stabilize the site, to the best degree possible, using caution to not create additional cave-ins or damage to the site.
- Ensure Supervisory notifications have been made
- Await arrival of emergency response personnel, briefing same upon their arrival.

At all times it should be noted that employee safety is paramount and that the Authority will continue to provide any/all safety equipment, continue to train and development employees and expect 100% compliance regarding any/all safety policies, practices, guidelines or directives.

REPORTING

The trenching log shall be completed by the designated "Competent Person/Supervisor who shall also prepare an incident report that documents the incident, resources expended, personnel assigned and any other relevant or pertinent information. He/she shall attach a copy of the Trenching Log and forward it to the Assistant Executive Director for Safety, who shall review same with the Supervisor before filing. Once approved the report, same shall be filed. Accidents/Injuries shall be handled as specified by S.O.P.s.

RESPONSIBILITIES

The Authority is to ensure that a Competent Person in trenching and shoring procedures is available for excavation projects, confirm "One-Call" system has been contacted and markouts have been completed prior to any excavation, provide appropriate personal protective equipment to safeguard employees and provide appropriate protective shielding/shoring systems as necessary to safeguard the employee(s)

Employees are to utilize appropriate protective shielding/shoring systems as necessary to safeguard the work area; report ineffective shielding/shoring systems, wear appropriate personal protective equipment and follow the Authority's excavation policy and procedures as described in this document.

STANDARD PRACTICES
CALL BEFORE YOU DIG - 1-800-272-1000. IT'S THE LAW!

PRIOR TO ANY EXCAVATION

- Prior to beginning any excavation, a pre-construction review shall be conducted regarding job conditions and safety with the project supervisor and affected employees.
- Notify affected personnel of the location of any underground installations in the area where the excavation will be performed.
- Notify all customers and utility companies that may be affected at least three days prior to starting the job and request that mark outs be completed in accordance with New Jersey One Call law. **Excavation shall not commence until all mark outs are complete.**
- Provide barricade protection and lighting to prevent persons from falling into the trench or excavation. Access to trenching areas must be controlled and limited to those persons who are authorized.
- A Competent Person must supervise the placement of shoring, sheeting, shielding or sloping systems.
- The Competent Person shall perform an inspection prior to the start of work and as needed throughout the shift of the excavation, adjacent areas and protective systems for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions using the attached excavation checklist. The Competent Person shall approve and authorize personnel accessing the trench area.
- Where the Competent Person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.
- No person may enter a trench or excavation until the site has been inspected by a Competent Person and it has been determined that appropriate protection has been provided.
- Where the stability of adjacent structures (buildings, sidewalks, etc.) is endangered by excavation operations, a registered P.E. must:
    - Ensure that such structures are protected by a support system.
    - Determine that the structures will not be affected by the operations.
    - Ensure that employee safety will not be compromised.
- Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than 4 feet in depth.
- Adequate precautions shall be taken to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection and/or ventilation.
- Adequate precaution shall be taken such as providing ventilation, to prevent employee exposure to an atmosphere containing a concentration of a flammable gas in excess of 10 percent of the lower flammability limit of the gas.

- When controls are used that is intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to ensure that the atmosphere remains safe.
- Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, shall be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment shall be attended when in use.
- Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.
- Sufficient ramps or ladders must be provided for trenches or excavations greater than four feet to allow quick egress. Ladders may be placed no more than 25' apart, must be secured from shifting and must extend at least three feet above the landing point.
- Material (temporary spoils) removed from a trench or excavation must be placed far enough from the edge (at least 2' feet) to prevent it from sliding into the excavation and/or from stressing walls.
- No employee shall be permitted underneath loads handled by lifting or digging equipment.
- When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.
- If possible excavations should be covered or filled when unattended. Otherwise, strong barriers must be placed around the excavation and lighting must be provided at night if the excavation is near walkways or roadways.

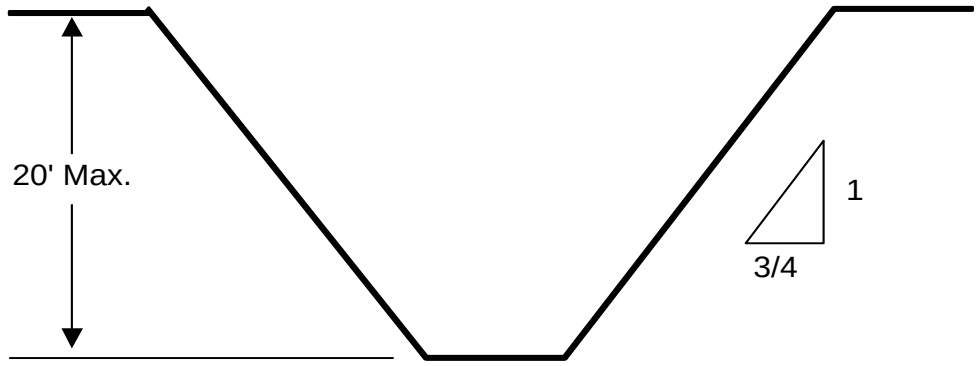
Excavation Diagrams

Slope Configurations

Excavations made in Type A Soil

Simple Slope - General

All simple slope excavation 20-feet or less in depth shall have a maximum allowable slope of **3/4:1**



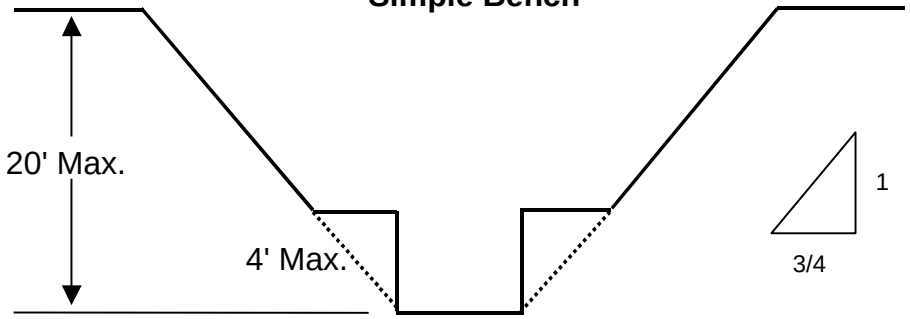
Simple Slope - Short Term

Exception: Simple slope excavations which are open 24 hours or less (short term) and which are 12 feet or less in depth shall have a maximum allowable slope of **½ : 1**

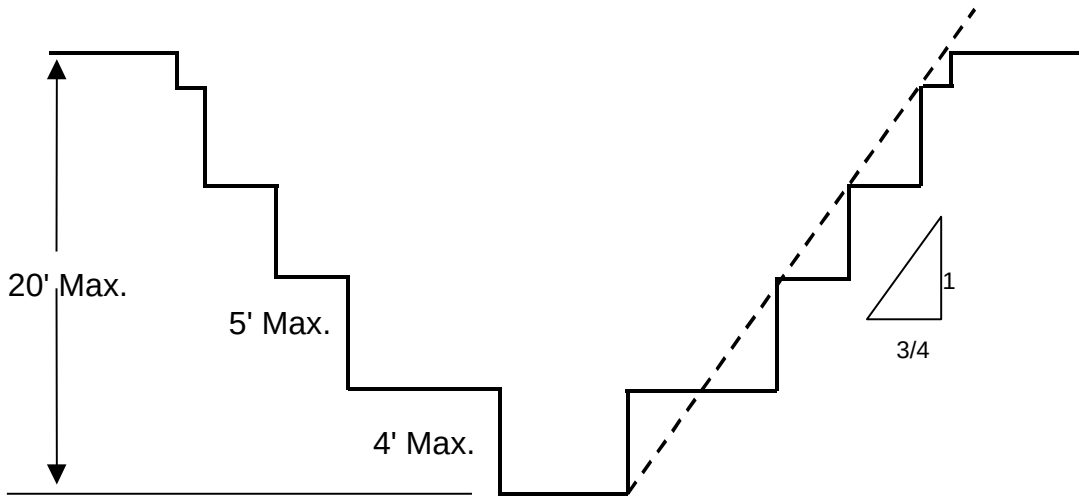
Benched Excavations

All benched excavations 20 feet or less in depth shall have a maximum allowable slope of **3/4 : I** and maximum bench dimensions as follows:

Simple Bench

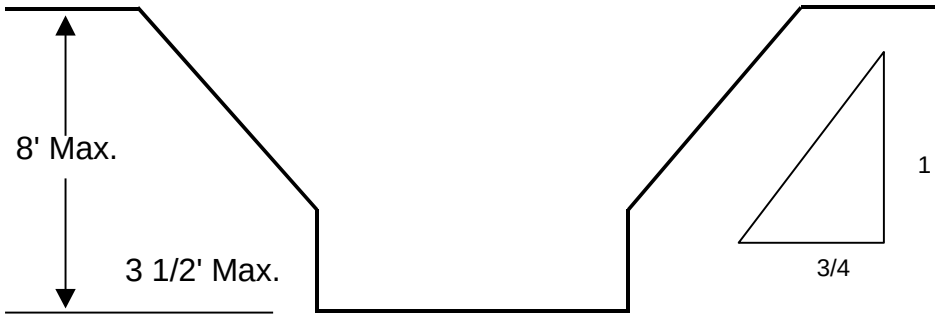


Multiple Bench

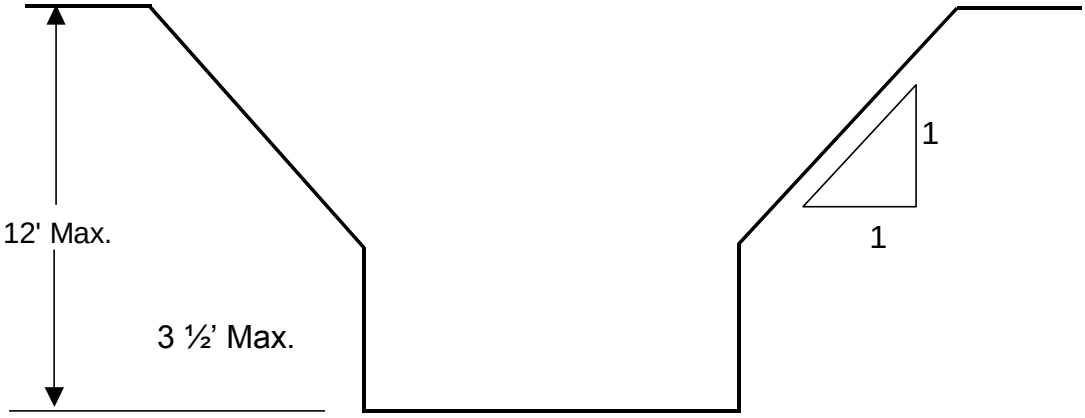


Unsupported Vertically Sided Lower Portion Maximum 8 Feet In Depth

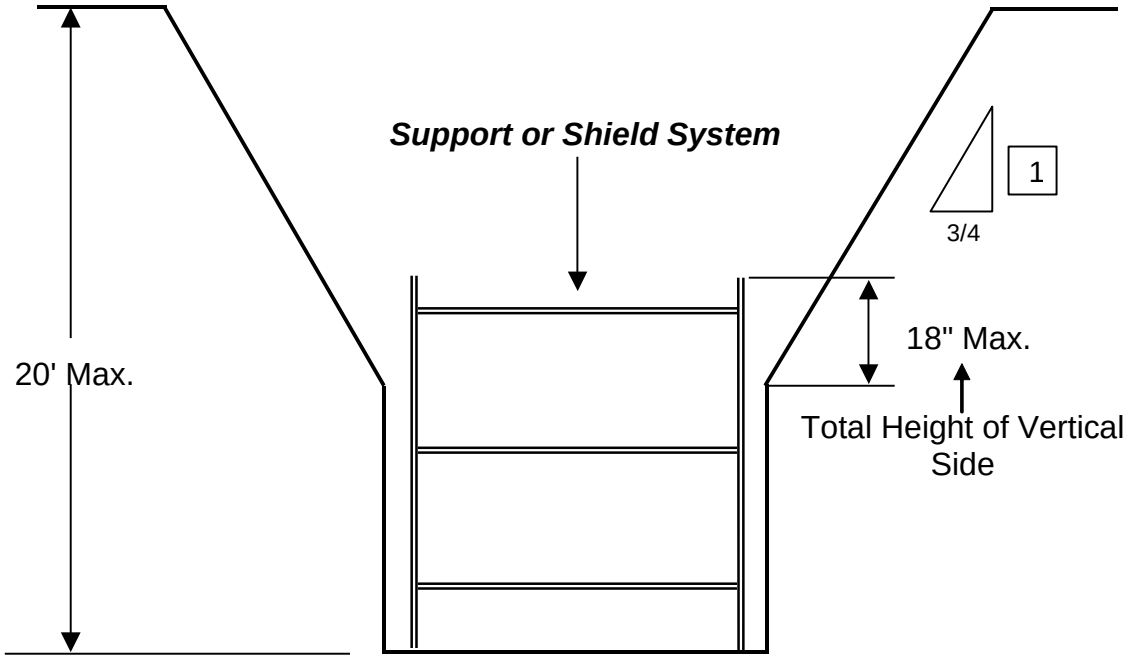
All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical side of 3 ½’



Unsupported Vertically Sided Lower Portion Maximum 12 Feet in Depth



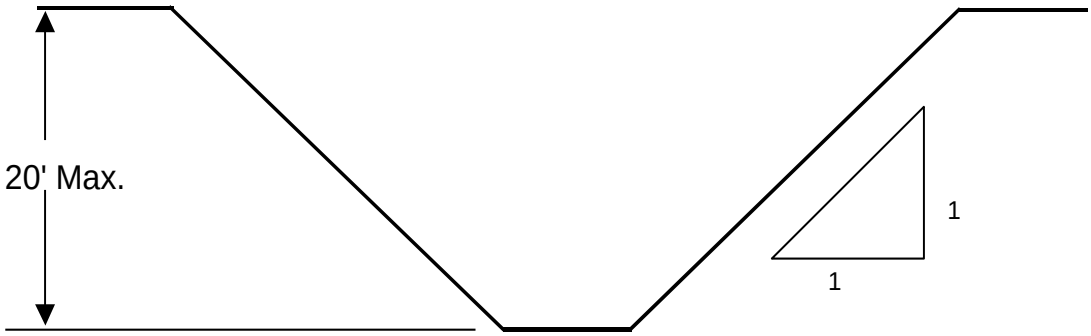
Supported or Shielded Vertically Sided Lower Portion



All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of **¾: 1**. The support or shield system must extend at least 18 inches above the top of the vertical side.

Excavations made in Type B Soil

Simple Slope

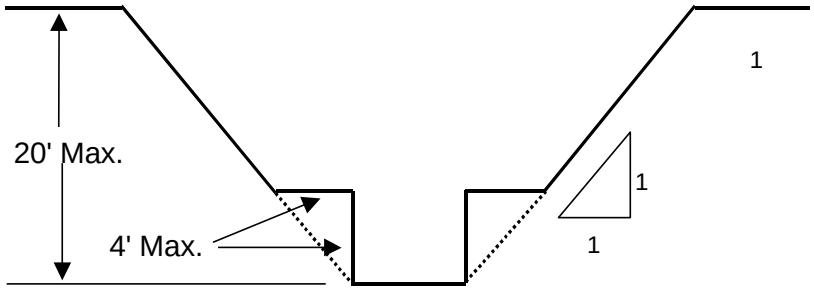


All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of **1 : 1**

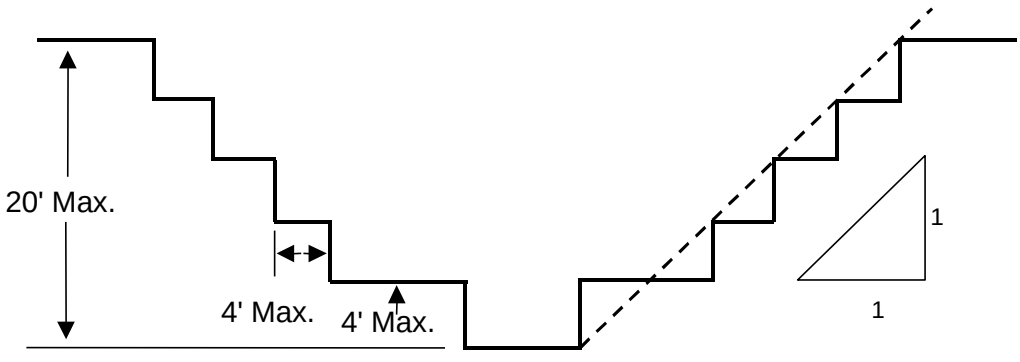
Single Bench

All benched excavations 20 feet or less in depth shall have a maximum allowable slope of **1 : 1** and maximum bench dimensions as follows:

This bench allowed in cohesive soils only

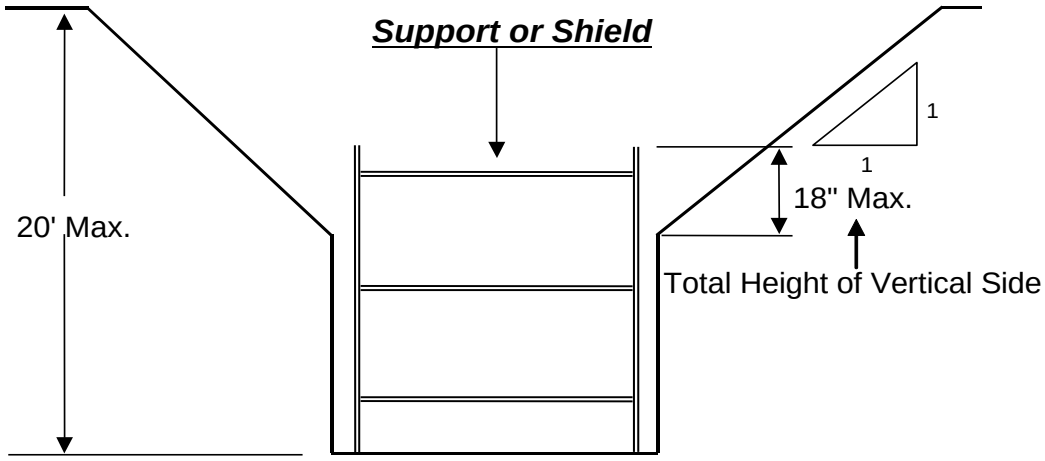


Multiple Bench



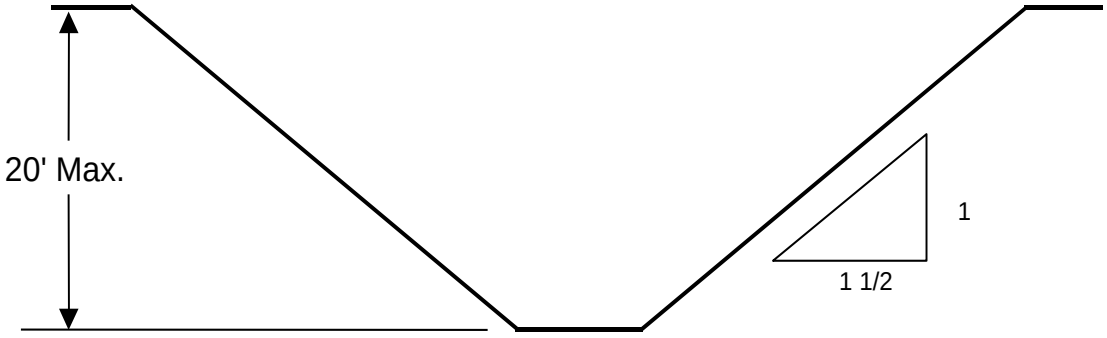
Vertically Sided Lower Portion

All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of **1 : 1**



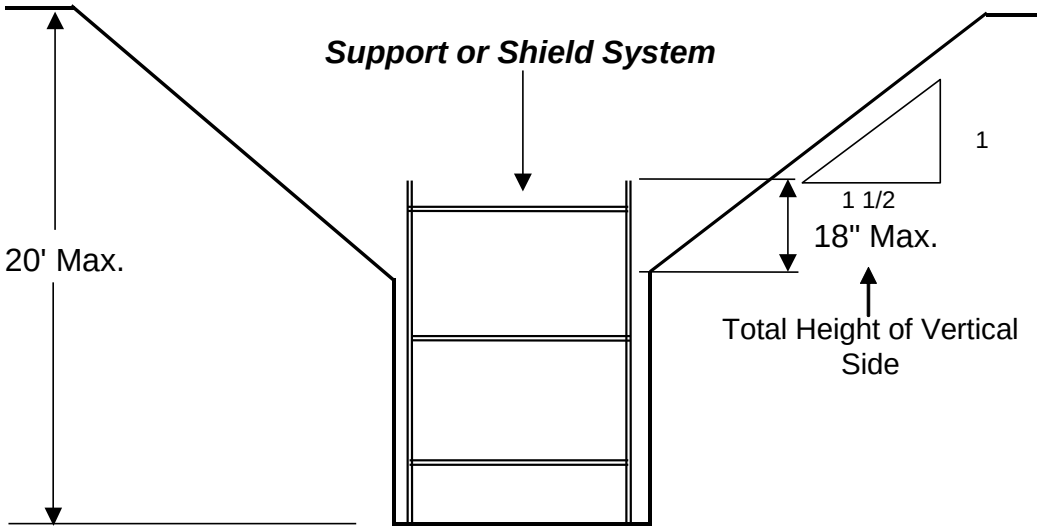
Excavations made in Type C Soil

Simple Slope



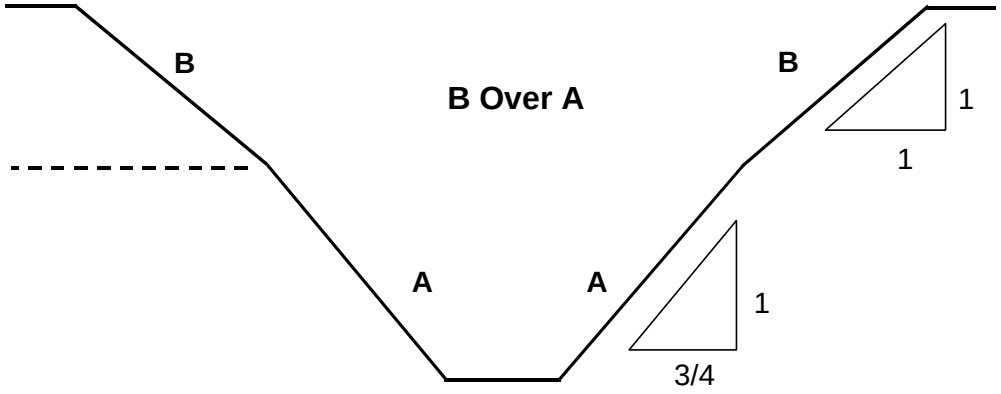
Vertical Sided Lower Portion

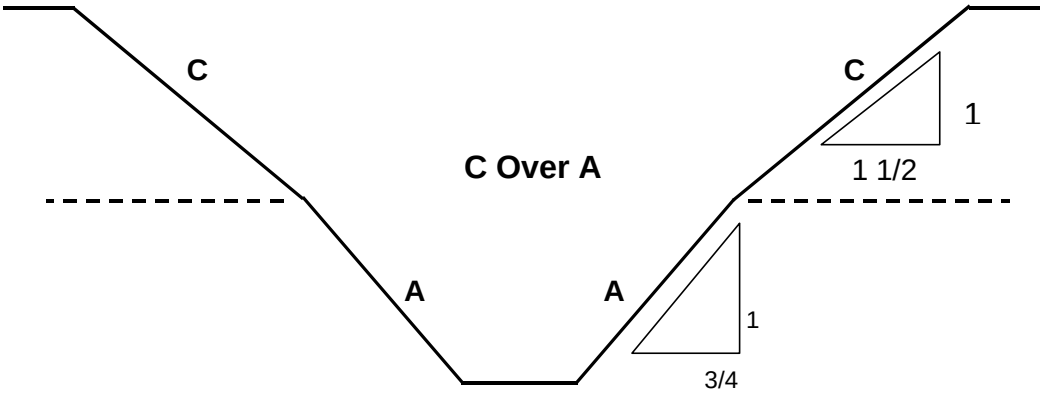
All excavations 20 feet or less in depth which have vertically sided lower portions shielded or supported to a height at least 18 inches above the top of the
All such excavations shall have a maximum allowable slope of **11/2 : 1**

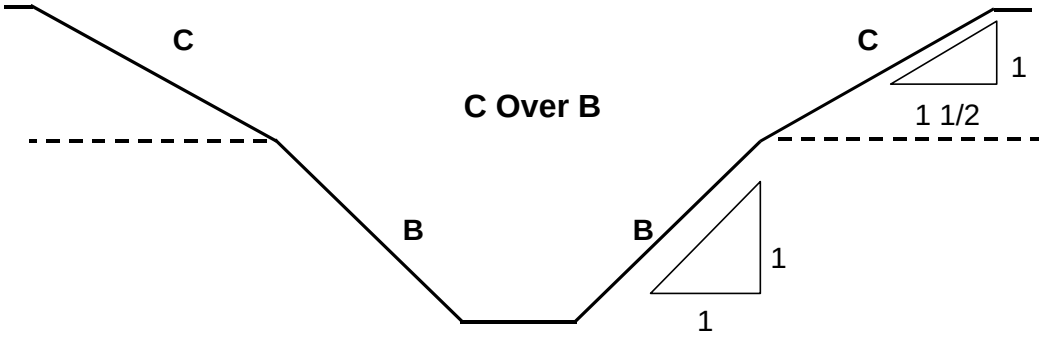


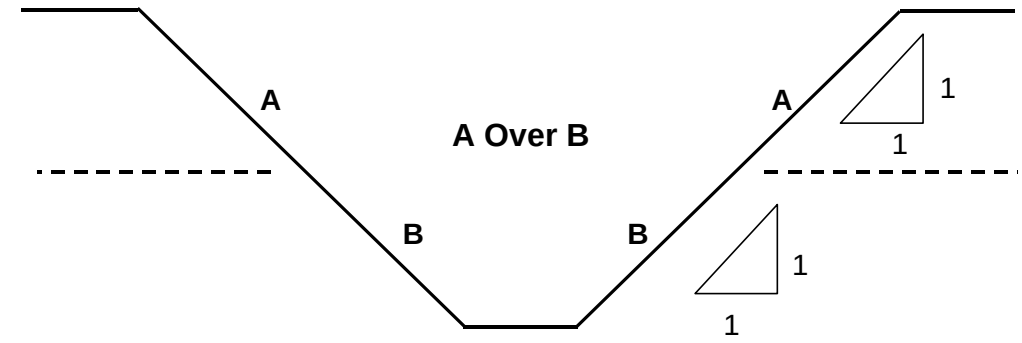
Excavations Made in Layered Soils

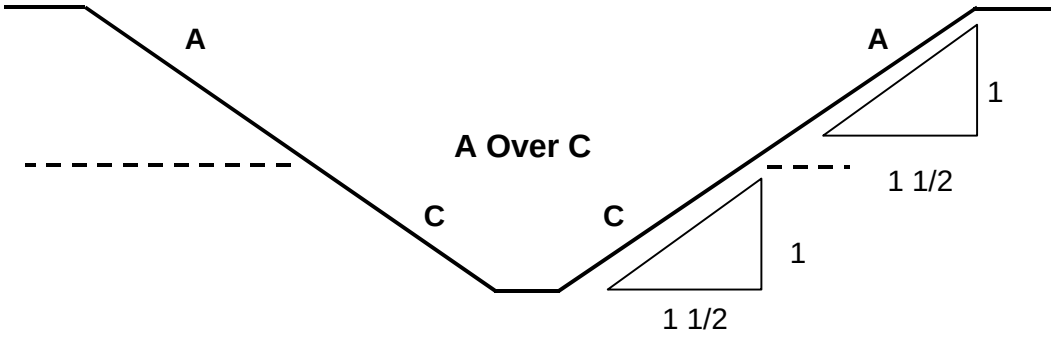
All excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as follows:

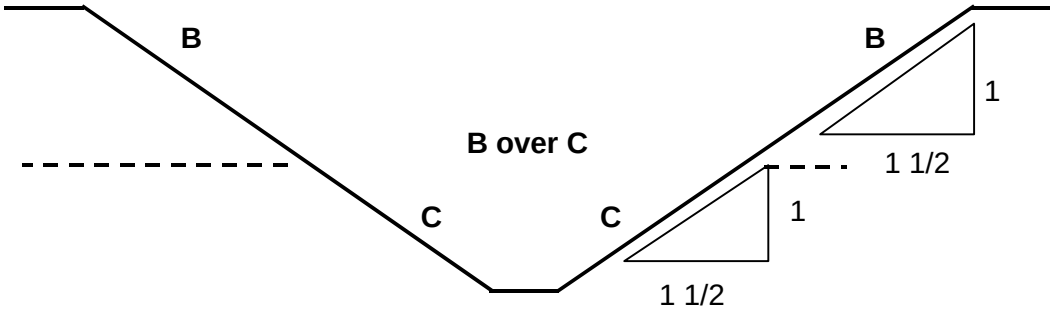







A
A Over B
A
1
1
B
B
1
1


A
A
1
A Over C
1 1/2
C
C
1
1 1/2


B
B
1
B over C
1 1/2
C
C
1
1 1/2

The Competent Person should complete the excavation checklist prior to and during the excavation!

EVESHAM MUNICIPAL UTILITIES AUTHORITY

COMPETENT PERSON CHECKLIST
The Competent Person should complete the excavation checklist at least daily and more often if deemed necessary -1926.651(k)

Contractor Performing Excavation: _____
Foreperson or Responsible Individual for Contractor: _____

Competent Person and Certification #:_____
Date: _____

1. Location of excavation: (Circle all that apply)
   A. Alongside traffic/pedestrian area B. Across traffic/pedestrian area
   C. Adjacent to structures D. Remote area

2. Purpose of excavation:
   Explain:
   _____

   Width: _____ Length: _____ Depth: _____

3. Soil classification: (Circle all that apply) **{1926 Subpart P Appendix A}**
   Stable Rock Soils Type: A B C

4. Is mobile equipment to be used within close proximity of the excavation?
   {} Yes {} No List
   Equipment: _____

5. If yes, establish a warning system to notify the operator when close to the edge of the excavation. **{1926.651 (f)}**

6. Have all spoils been removed or placed at a safe distance (minimum 2 feet) from the excavation? **{1926.651 (j)}**
   {} Yes {} No
   Explain: _____

7. What type of support system is provided? (Circle all that apply) **{1926.652}**
   Sloping Shoring Trench Box Other: _____
   Timber Aluminum Hydraulic Manufactured System

8. Is the support system installed in compliance with the OSHA standard and the manufacturer's specifications? **{1926.652}**
   {} Yes {} No
   Explain: _____

9. Is the manufacturer's data available for the manufactured system? **{1926.652}**
{} Yes {} No {} N/A

10. Is support system prohibiting material from falling into the excavation? **{1926.652}**
{} Yes {} No
Explain: _____

11. Is slope angle correct for type of soil? **{1926 Subpart P Appendix B}**
{} Yes {} No
Explain: _____

12. Are ladders used for access/egress and are they located within 25' of each other? **{1926.651 (c) (2)}**
{} Yes {} No
Explain: _____

13. If water is present in the excavation, is it being controlled? **{1926.651 (h)}**
{} Yes {} No
Explain: _____

14. If testing has detected a hazardous atmosphere, is it being controlled? **{1926.651 (g) (1)}**
{} Yes {} No
Explain: _____

15. Have confined space entry procedures been implemented? **{1926.651 (g) (1)}**
{} Yes {} No
Explain: _____

16. Is emergency rescue equipment available? **{1926.651 (g) (1)}**
{} Yes {} No
Explain: _____

17. Are employees prohibited from working below suspended loads? **{1926.651 (e)}**
{} Yes {} No

18. Is there documentation by a registered P.E. that adjacent structures will not be endangered? **{1926.651 (i)}**
{} Yes {} No {} N/A
Name of P.E.: _____

19. Where applicable, has the P.E. determined if bracing or underpinning is required of adjacent structures?
{} Yes {} No
Explain: _____

20. Were underground utility services located prior to excavation? **{1926.651 (a) (b)}**
{} Yes {} No
Explain: _____

21. Were underground utility services identified?
{} Yes {} No
Explain: _____

22. Are exposed utilities supported?
{} Yes {} No

23. Are all personnel at the work site wearing required personal protective equipment?
{1910 Subpart I}
{} Yes {} No

24. Where applicable/ have work zone and traffic control systems been incorporated?
{1926.651 (d)}

{} Yes {} No
Explain: _____

CALL BEFORE YOU DIG - 1-800-272-1000. IT'S THE LAW!

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 10	**FALL PROTECTION**				
DATE ISSUED: 2017					
Revised	**Aug. 2017**				

PURPOSE

To establish minimum guidelines to protect employees from the hazards of falling off, onto or through working levels and from being struck by falling objects.

DEFINITIONS

Anchorage – A secure point of attachment for lifelines, lanyards or deceleration devices.
Body Harness – Straps that may be secured about the person in a manner that distributes the fall-arrest forces across the body with a means for attaching the harness to other components of a personal fall arrest system.
Capacity – The maximum rated capacity of the individual components of the fall arrest/protection system. Capacity of the entire system is to be determined by the lowest maximum weight rating for any one component. Maximum weight rating shall include the weight of the individual, clothes, tools, PPE, etc.
Competent Person - A person who is capable of identifying hazardous or dangerous conditions in the personal fall arrest systems or any related components
Connector – A device that is used to couple (connect) parts of a personal fall arrest system or a positioning device system together.
Deceleration Device – Ay mechanism which serves to dissipate a substantial amount of energy during a fall arrest or otherwise limits the energy imposed on the body during a fall arrest.
Deceleration Distance – The additional vertical distance a falling person travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which a deceleration device begins to operate.
Fall Clearance – the clearance below the user to arrest a fall before the user strikes the ground or other obstruction. Fall clearance is determined by the following factors:

Elevation of anchorage	Connecting system length
Deceleration distance	Free fall distance
Working height	Movement of harness attachment element

Free Fall – The act of falling before the personal fall arrest system begins to apply force to arrest the fall. Personal fall arrest systems shall be rigged to limit the free fall to six feet. Rescue systems must be rigged so that no vertical free fall is possible.
Guardrail System – A barrier erected to prevent falls to a lower level.
Hole – A void or gap 2 inches or more in a floor, roof or other walking/working surface.
Lanyard – A flexible line with a connector at each end for connecting the body harness to a deceleration device, lifeline or anchorage.
Large Throat Opening Snap Hooks – Hooks designed for use on fixed structural elements such as rebar or cross members that are not shaped in a way that can capture the gate of the hook.
Lifeline – A component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline) or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline) and that serves as a means for connecting other components of a personal fall arrest system to the anchorage.
Personal Fall Arrest System – A system including but not limited to an anchorage, connectors and a body harness used to arrest an employee in a fall from a working level.
Positioning Device System – A body harness system rigged to allow an individual to be supported on an elevated surface and work with both hands free while leaning backwards.
Roll-Out – Occurs when interference between the hook and mating connector causes the hook gate to unintentionally open and release
Rope Grab – A deceleration device that travels on a lifeline and automatically, by friction, engages the lifeline and locks to arrest a fall.
Safety Monitoring System – A safety system in which a Competent Person is responsible for recognizing and warning employees of fall hazards.

Self-retracting Lifeline/Lanyard – A deceleration device containing a drum-wound line which can be slowly extracted from or retracted onto the drum under minimal tension during normal employee movement and which, after onset of a fall, automatically locks the drum and arrests the fall.
Snaphook – A connector consisting of a hook-shaped member with a normal closed keeper or similar arrangement which may be opened to permit the hook to receive an object and when released automatically closes to retain the object.
Toeboard – A low protective barrier that prevents material and equipment from falling to lower levels and which protects personnel from falling.

TRAINING

Shall be provided to each employee who might be exposed to fall hazards to instruct them how to recognize the hazards of falling and the procedure to minimize such hazards. Training shall include:

- Nature of fall hazards in the work area.
- The correct procedure for erecting, maintaining, disassembling and inspecting fall protection systems.
- The use and operation of guardrail systems, personal fall arrest systems, warning line systems, safety monitoring systems and controlled access zones.
- The role of employees in the safety monitoring system, when used.
- The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection.
- The role of the employees in the fall protection plans.

RESPONSIBILITY

Employees are to follow the Authority's guidelines for the use, implementation and maintenance of fall arrest systems and report damaged, worn and/or outdated fall arrest equipment.

STANDARD PRACTICES

Compatibility of Components

The Authority uses DBI/SALA equipment. All fall protection must be compatible with DBI/SALA components and subsystems. There shall be no substitutions or replacements made with non-approved or compatible components or subsystems as this may affect the safety and reliability of the complete system.

COMPATIBILITY OF CONNECTORS

- Connectors are considered to be compatible with connecting elements when they have been designed to work together in such a way that their sizes and shapes do not cause their gate mechanisms to inadvertently open regardless of how they become oriented.
- Connectors (hooks, carabiners and D-rings) must be capable of supporting at least 5,000 pounds.
- Connectors must be compatible with the anchorage or other system components.
- Connectors must be compatible in size, shape and strength.
- Self locking snap-hooks and carabiners are required.
- Non-compatible connectors may unintentionally disengage.

MAKING CONNECTIONS

- Only use DBI/SALA self-locking snap hooks and carabiners with this equipment.
- Only use connectors that are suitable to each application.
- Ensure that all connectors are compatible in size, shape and strength.
- Ensure that all connectors are fully closed and locked.
- DBI/SALA snap hooks and carabiners should not be connected:
    - To a D-ring to which another connector is attached;
    - In a manner that would result in a load on the gate;

- To large throat opening snap hooks which will result in a load on the gate if the hook or D-ring twists or rotates;
- In a false engagement, where features that protrude from the snap hook or carabiner catch on the anchor and without visual confirmation, seems to be fully engaged to the anchor point;
- To each other;
- Directly to webbing or rope lanyard or tie-back; or
- To any object which is shaped or dimensioned such that the snap hook or carabiner will not close and lock, or that roll-out could occur.

DO NOT USE EQUIPMENT THAT IS NOT COMPATIBLE

CONNECTING SUBSYSTEMS

- Connecting subsystems (self retracting lifeline, lanyard, rope grab and lifeline) must be suitable for the application.
- Use a self locking carabiner to connect to a web loop.
- Do not use snap hooks to connect to web loops.
- Ensure the carabiner cannot cross-gate load (load against the gate rather than along the backbone of the carabiner).

PLANNING

- Inspect all components of the fall arrest system prior to each use.
- Plan your system before each use and consider all factors that will affect user safety during use of the equipment.
- Select an appropriate anchorage.
- Avoid working where the system components may be in contact with or abridge against unprotected sharp edges.

DONNING

Don the vest style harness as follows:

- Locate the back D-ring held in position by the D-ring pad and lift up the harness and hold by the D-ring:
  - Ensure the straps are not twisted.
- Grasp the shoulder straps and slip harness onto one arm.
- D-ring should now be located on your back side:
  - Ensure the straps are not tangled and hang freely.
- Slip free arm into harness and position shoulder straps on top of shoulder:
  - Ensure straps are not tangled and hang freely.
- The chest strap with pass through buckle will be positioned on front side when worn properly.
- Reach between the legs and grasp blue strap on your left side.
- Bring strap up between legs and connect to buckle attached to yellow strap.
- Connect right leg strap.
- Attach chest strap by passing male buckle through female buckle.
- Chest strap should be six inches down from the top of the shoulders.
- Pass excess strap through loop keepers.
- Adjust shoulder straps to snug fit.
- Left and right sides of shoulder straps should be adjusted to the same length and the chest strap should be centered on lower chest, six inches down from shoulders.
- Center the back D-ring between the shoulder blades.
- Adjust leg straps to a snug fit:
  - At least three inches of webbing must extend past parachute adjuster buckle when used on leg straps.
- Adjust the waist belt (if provided).
- Center retrieval D-rings on top of shoulders.

- For fall protection applications, connect the D-ring or attachment element on your back, between shoulder blades:
  - Shoulder retrieval D-rings are for rescue or retrieval applications only.
- Ensure that roll-out cannot occur when using a hook to connect to an anchorage or when coupling components of a system together.
- Self locking snap hooks and carabiners should be used to reduce the potential of roll-out.
- After fitting the full body harness the user may then connect to other system components.

DO NOT USE HOOKS OR CONNECTORS THAT WILL NOT COMPLETELY CLOSE OVER THE ATTACHMENT OBJECT

INSPECTION

- The equipment and hardware should be inspected before and after each use for mildew, wear, damage or other deterioration. Defective components shall be removed from service if their strength or function may be adversely affected.
- The harness and related components must be inspected annually by a Competent Person and the inspection documented.
- Harness hardware (buckles, D-rings, back pad, loop keepers, etc.) must not be damaged, broken and/or distorted and must be free of sharp edges, burrs, cracks, worn parts or corrosion.
- PVC coated hardware must be free of cuts, rips, tears, holes, etc. in the coating to ensure conductivity.
- Ensure that buckles work freely.
- Inspect parachute buckle spring.
- Inspect webbing:
  - Material must be free of frayed, cut or broken fibers.
  - Check for tears, abrasions, mold, burns or discoloration.
- Inspect stitching:
  - Check for pulled or cut stitches.
  - Broken stitches may be an indication that the harness has been impact loaded and must be removed from service.
- All labels must be present and legible.
- Record the inspection date and results on the attached inspection and maintenance log.

CLEANING

- Clean full body harnesses with water and mild soap solution:
- Do not use bleach or bleach solutions.
- Wipe off hardware with a clean, dry cloth and hang to air dry:
- Do not force dry with compressed air or heat.

MAINTENANCE

- All maintenance and service other than general cleaning must be completed by a factory authorized service center.

STORAGE

- Store body harnesses and related equipment in a cool, dry, clean environment out of direct sunlight.
- Avoid areas where chemical vapors may exist.

ATTENTION

THOROUGHLY INSPECT THE FULL BODY HARNESS AFTER EXTENDED STORAGE

Personal fall arrest systems and components subjected to the forces of impacting loading (arresting a fall) shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a Competent Person to be undamaged and suitable for use.

Personal fall arrest systems and components identified as unsuitable for use after such inspection must be removed from service and destroyed.

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 11	**FIRE SAFETY**				
DATE ISSUED: 2017					
Revised	**Aug. 2017**				

PURPOSE

This plan establishes minimum guidelines to address fire emergencies reasonably anticipated to occur within the Authority's facilities. This includes:

- Major workplace fire hazards and their proper handling and storage procedures.
- Potential ignition sources for fires and their control procedures.
- The type of fire protection equipment or systems that can control a fire.
- Regular job titles of personnel responsible for maintenance of equipment and systems installed to prevent or control ignition of fires and for control of fuel source hazards.

RELATED REGULATORY STANDARDS

- 29 CFR 1910.3 Fire Prevention Plan
- 29 CFR 1910.157 Fire Extinguishers
- 29 CFR 1910.106 Flammable and Combustible Liquids
- New Jersey Uniform Fire Code

DEFINITIONS

Fire Extinguisher – A device that holds an extinguishing agent such as water or chemicals that is labeled and symbolized according to what classes of fire it can control or extinguish while in the incipient stage. The classes are:

- **Class A** - Normal combustibles such as wood, cloth, paper, rubber and plastics.
- **Class B** - Flammable and combustible liquids, oils, greases, tars, oil-based paints, lacquers and flammable gases.
- **Class C** - Energized electrical source.
- **Class D** - Combustible metals, such as magnesium, titanium, zirconium and sodium.

TRAINING

Employees will be informed annually of the plan's purpose, proper operation of each type of fire extinguisher in the workplace, preferred means of reporting fires and other emergencies, and the elements of its Emergency Action Plan. Initial and annual training will include the following:

- What to do if employee discovers a fire;
- Demonstration of alarm systems;
- How to recognize fire exits;
- Evacuation routes;
- Assisting employees with disabilities;
- Measures to contain fire (e.g., closing office doors, windows, etc. in immediate vicinity);
- Head count procedures (see EAP for details);
- Return to building after the "all-clear" signal;
- Types of fires;
- Types of fire prevention equipment;
- Location of fire prevention equipment;
- How to use fire prevention equipment;
- Limitations of fire prevention equipment; and
- Proper care and maintenance of assigned fire prevention equipment.

RESPONSIBILITIES

The Authority will ensure that an Emergency Action Plan is in place and practiced by all employees and that fire extinguishers are inspected and maintained in accordance with prevailing regulations. Appropriate record keeping needs to be maintained to confirm employee training, maintenance and inspection period of the fire alarm system, fire detection system, fire suppression systems and portable fire extinguishers.

Employees are responsible to report discharged or damaged fire extinguishers and follow the Authority's Emergency Action Plan.

Certain equipment is often installed in workplaces to control heat sources or to detect fuel leaks. Employees and Supervisors should be aware of the specific type of control devices on equipment involved with combustible materials in the workplace and should make sure, through periodic inspection or testing, that these controls are operable. Manufacturer's recommendations should be followed to assure proper maintenance procedures.

POTENTIAL FIRE HAZARDS

Combustible and Flammable Liquids

- Oil based Paints
- Stains
- Paint thinners
- Turpentine
- Solvents
- Cleaners
- Degreasers
- Gasoline
- Kerosene
- Motor oil and waste oil
- Certain pesticides
- Any material in a container marked FLAMMABLE

Volatile Fumes

Volatile fumes may build up when certain materials and chemicals are used or stored in poorly ventilated areas. This includes any material or chemical in a container that warns against use in poorly ventilated areas or where sources of ignition are present.

Chemical Reactions

Explosion and/or fire can result when certain chemicals come in contact with other chemicals or water. This includes any material in a container that warns against REACTIVITY.

Spontaneous Combustion

Rags, paper and other combustible materials including but not limited to those contaminated with flammable liquids such as paint, oil, and kerosene for example, can ignite from rapid oxidation of its own constituents without heat from external sources.

Faulty Electrical Devices and Wiring

Overloaded circuits, faulty outlets and switches, defective electrical devices and other electrical problems can potentially cause a fire. Authority employees must report these conditions to a Supervisor for correction immediately upon discovery.

Faulty Gas Fired and Electrical Heaters

If not properly maintained and inspected, heating equipment can cause fire.

Smoking in the Workplace

Employees smoking in areas marked "NO SMOKING" and/or in the presence of flammable or volatile vapors are a threat to themselves and others. Improper disposal of butts and ashes can also lead to fire.

Potential Ignition Sources

Flammable or combustible materials may not ignite on their own without an external source of ignition.

FIRE PROTECTION EQUIPMENT

Fire protection equipment in use includes fire extinguishers located throughout the facility and on every vehicle to protect from the various types of fire hazards.

MAINTENANCE OF FIRE PROTECTION EQUIPMENT

Fire safety equipment must be inspected monthly to make sure it continues to function properly.

FIRE SAFETY CONTROLS

Housekeeping

- Avoid the accumulation of large amounts of rags, paper, cardboard and other combustible items.
- Rags contaminated with paint, oil, gasoline or other combustible or flammable materials must be disposed of promptly in an approved container or other approved method.
- Work areas must be swept and cleaned on a regular basis to avoid buildup of litter and debris.
- Oil and combustible liquid spills must be cleaned up immediately with absorbent material or other approved materials and the waste disposed of promptly.
- Exit doors must be kept unblocked at all times.

Storage of Flammables

When not in use, all flammables must be stored in a NIOSH approved cabinet labeled: **FLAMMABLE-KEEP FIRE AWAY**

When not in use, all combustible liquids should also be stored in an appropriately labeled NIOSH approved cabinet.

Painting

When painting always evaluate the need for adequate ventilation

Reporting Hazardous Conditions

Every employee is required to report hazardous conditions and situations in the workplace to his/her Supervisor. The Supervisor should, if possible, correct the hazardous condition and/or communicate the condition to the Safety Coordinator.

Smoking

- Employee smoking must be limited to designated areas.
- Smoking in any part of the facility marked “NO SMOKING” or in the presence of combustible, flammable and volatile materials, both indoors and outdoors is prohibited.
- Employees who smoke are required to thoroughly extinguish their butts and ashes and dispose of them in a safe manner.

STANDARD PRACTICES

IN THE EVENT OF A FIRE

- **DO NOT PANIC**
- Warn others and sound the fire alarm and call the fire department.
- Follow the proper procedures to evacuate the building.
- In cases where the fire is large and beyond the capability of extinguishment with a single fire extinguisher, the total and immediate evacuation of all employees is necessary.
- In smaller fires, a partial evacuation of nonessential employees with a delayed evacuation of others may be necessary for continued plant operation.

- When an evacuation is ordered, the Supervisor and/or individual calling for the evacuation should instruct the employees in the facility where they are to assemble so that a head-count of personnel can be completed.
- **GET OUT OF THE BUILDING AS QUICKLY AS POSSIBLE**
- If you are caught in smoke, take short breaths, breathe through your nose, and stay as close to the floor as possible by crawling to the nearest escape.
- Maintain a safe distance from the incident.
- Once you are out of the building, do not re-enter.

BE FAMILIAR WITH THE FOLLOWING

- Fire exits
- Fire extinguishers
- Escape routes
- Fire alarm locations
- Store all flammable or combustible liquids in approved and labeled containers or UL approved cabinets.
- Store oily rags and waste in a covered metal container.
- Observe "No Smoking" rules in the facility.

P-A-S-S METHOD – WHEN USING A FIRE EXTINGUISHER

When using a portable fire extinguisher, be familiar with the type and limitations. Follow the P-A-S-S method:

- **PULL** - Pull the pin. Some units require the releasing of a lock latch, pressing a puncture lever, or other motion.
- **AIM** – Aim the extinguisher nozzle (horn, or hose) at the base of the fire.
- **SQUEEZE** - Squeeze or press the handle.
- **SWEEP** - Sweep from side to side at the base of the fire until it goes out. Shut off the extinguisher if necessary.

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 12	**FIRST RESPONDER AWARENESS**				
DATE ISSUED: 2017					
Revised	**Aug. 2017**				

PURPOSE
To establish minimum guidelines for employees that may be involved in hazardous material emergencies.

RELATED REGULATORY STANDARDS
29 CFR 1910.120 Level One Awareness - Hazardous Waste Operations and Emergency Response

DEFINITIONS
Emergency Response - a response effort by employees from outside the immediate release area or by other designated responders to an occurrence which results, or is likely to result, in an uncontrolled release of a hazardous substance.

First Responder - a person who in the course of their normal duties may be the first on the scene of an emergency involving hazardous materials. A First Responder at the awareness level is expected to recognize the presence of hazardous materials, protect them self, call for trained personnel, and secure the area.

NOTE: An employee of the Authority will take no further action beyond notifying the authorities during an uncontrolled release of a hazardous substance.

TRAINING
An employee trained to the awareness level shall have sufficient training including but not limited to the following:

- An understanding of what hazardous materials are and the risks associated with them at the scene.
- An understanding of the potential outcomes associated with an emergency created when hazardous materials are present.
- The ability to recognize the presence of hazardous materials in an emergency.
- The ability to identify hazardous materials containers and placards.
- An understanding of the U.S. Department of Transportation's Emergency Response Guidebook and the Authority's Response Plan including site security and control.
- The ability to realize the need for additional resources and to make notification to the appropriate authorities.

RESPONSIBILITIES
The Authority shall develop a Hazardous Material Response Plan and provide training to affected employees at the First Responder Awareness Level.

Employees shall be capable of implementing the necessary actions as outlined in this Plan.

STANDARD PRACTICES
NO AUTHORITY EMPLOYEE IS TO TAKE ANY DEFENSIVE OR OFFENSIVE ACTION AT THE SCENE OF A HAZARDOUS MATERIAL INCIDENT

DO NOT STOP IN THE IMMEDIATE VICINITY OF THE INCIDENT

MAKE EVERY EFFORT TO REMAIN AS FAR AWAY AND UPWIND FROM THE INCIDENT

- Survey a hazardous materials scene **ONLY** from a safe distance/location; identify the name, UN/NA identification number, and/or type of placard applied for any hazardous materials or warnings.
- Initiate the notification process specified in the Authority's Hazardous Material Response Plan and the Authority's Standard Operating Procedures.
- Collect hazard information from the current edition of the Emergency Response Guidebook.

MAINTAIN A SAFE DISTANCE AND DO NOT ENTER THE SPILL AREA.

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 13	HAND AND POWER TOOLS				
DATE ISSUED: 2017					
Revised	Aug. 2017				

PURPOSE
To establish minimum guidelines for the safe use and storage of equipment and tools.

TRAINING
Will be provided for employees in the safe operation, maintenance, and storage of tools and equipment.

RESPONSIBILITIES
The Authority shall permit only trained employees to operate powered equipment and shall provide for inspection of workshops and ensure that all equipment is properly secured, guarded, stored and maintained as required by manufacturer.

Employees shall wear appropriate personal protective equipment when operating power equipment and tools, observe the limitations and operating procedures for power equipment and tools as designated by the manufacturer, report to their Supervisor any damaged tools or power equipment and place all equipment back in its appropriate storage locations once a task is complete.

STANDARD PRACTICES
ALWAYS WEARS APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT WHEN USING HAND TOOLS OR OPERATING ANY TYPE OF POWER EQUIPMENT!

HAND TOOLS
- Select the appropriate tool for the job and use the tool properly.
- Always inspect tools for damage before and after use.
- Set up workbenches securely and maintain good housekeeping practices. Keep working surfaces and tools clean and oil free.
- Use insulated tools when working around electricity and follow lockout/tagout procedures.

CROWBARS
- Watch the position of your hand and body to avoid pinching when using crowbars.

FILES
- Never use a file without a handle attached to it.
- Direct a file forward against the cutting edge of a tool so that the burr is only on the other side. Turn the tool over and continue in a forward motion.
- Clean files frequently during operation to reduce the possibility of slipping.
- The correct way to hold a file is to grasp the handle firmly in one hand and use the thumb and forefinger of the other hand to guide the post.

STRIKING TOOLS
HAMMERS
- Always strike a blow squarely with the hammer's face parallel with the surface being struck.
- Never use a hammer to strike another hammer.
- Never use a hammer with a loose or damaged handle.
- Never use a hammer that shows cracks, dents, chips or mushrooming. Redressing is not recommended.

- Keep the faces of claw hammers well dressed.
  - Use soft metal, plastic, wood or rawhide hammers on hardened steel or machined surfaces.

SLEDGE HAMMERS

- Never attempt to strike with a sledge at or above shoulder height.
- The person holding stake, nail, pin, wedge, etc., shall stand at right angles to direction of sledgehammer and use a holding device to grip the item being driven.

PICKS

- Keep points on picks and pick axes sharp and properly dressed.
- When using any "swinging" type of tool, make sure you have sufficient clearance in the swing to avoid injury to yourself and others.
- Spread the legs apart on secure footing; avoid swinging too close to the feet.
- Proper eye protection should be worn at all times.
- These tools should be stored by either hanging them or lay them across a rack.

PLIERS & CUTTERS

- Always wear appropriate eye and face protection, especially when cutting short ends of wire as there is a potential for flying particles.
- Do not use pliers as a substitute for wrenches.
- When using a wire cutter, guard against fingers being pinched or crushed.
- When cutting wire under tension, grasp wire close to the cutter and stand so that the other end cannot strike you when the tension is suddenly released.
- Handles of electrician's pliers shall be insulated. Make certain that insulation on handles will protect you against the electric load to which you are exposed.

PORTABLE POWER TOOLS

- Guard against electric shock by using properly grounded and double insulated equipment.
- A Ground Fault Circuit Interrupter (GFCI) should be used with all portable electric power tools.
- Always disconnect the tool from the power source when changing accessories.
- Follow appropriate lockout/tagout procedures when conducting repairs.
- Do not carry portable power tools by their hoses or cords.
- Be sure on/off switches work properly.
- When using portable power tools make sure that the material being worked on is stable and secure.

PUNCHES & CHISELS

- Never use a punch or chisel with a mushroomed head (redress mushroomed heads).
- Do not expose chisel to excessive heat.
- Ensure cutting edges of chisels are sharpened and dressed.
- Discard any chisel or punch that is bent, cracked or chipped.

SAWS

HACK SAWS

- Select a saw blade that is suitable for the materials to be cut.
- Place the blade in the frame so the teeth point toward the end of the frame and away from the handle.
- Tighten the blade rigidly and be sure the frame is in proper alignment.
- Too much pressure or twisting when using a hacksaw may cause the blade to break, and result in an injury.

- Place one hand on the upper portion of the frame, and the other hand on the handle, cut away from your body using long straight steady strokes using practically the entire length of the blade.
- To avoid dulling the teeth, ease pressure on the backward stroke.

HANDSAWS

- Hang saws in a proper storage location when not in use.
- To start a saw cut safely, gently draw the saw on the upstroke, guiding the saw with the thumb, and then move the hand aside to a safe distance.

ELECTRIC SAWS

- Do not force the saw to cut faster than it can.
- Do not remove the guards.
- Do not saw stock freehand; always secure to a work surface.
- Never reach in front of a moving saw blade.
- Never adjust saw guard or fence gauge while the saw is running.
- Stop and unplug the power before the operator leaves it.

SCREWDRIVERS

SCREW DRIVERS ARE NOT SUBSTITUTES FOR PUNCHES, HAMMERS, WEDGES, PRIES, CHISELS, NAIL PULLERS OR SIMILAR USES

- Ensure the handle or blade is not bent, broken, split, dull or misshapen.
- Select a screwdriver tip that fits the screw.
- Redress tip to its original shape if necessary.

WRENCHES

- Be prepared for the possibility of a wrench slipping off the fastener, a fastener suddenly turning free, a wrench breaking free or a fastener breaking.
- Brace yourself properly to ensure against loss of balance or sudden movements when fastener breaks free or wrench slips.
- Pull the wrench towards you.
- Do not grind wrenches to change their size.
- Box and socket wrenches are designed for heavy-duty turning, as they are less likely to slip. Open-end wrenches are not designed for heavy duty turning.
- Never overload the capacity of a wrench by using a pipe or "cheater bar" for increased leverage.
- Never strike the handle of a wrench with a hammer, unless the wrench is equipped with a striking face.
- Keep sockets clean and dirt free. Grime accumulated in the socket will prevent it from seating properly.
- Seat a socket wrench securely and squarely over the nut or bolt. Never hammer a socket onto the fastener.
- Pliers are considered a general-purpose tool and are not recommended as a substitute for wrenches!

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 14	**HEARING CONSERVATION**				
DATE ISSUED: 2017					
Revised	**Aug. 2017**				

PURPOSE

To establish minimum guidelines to provide employees with a safe and healthful working environment to reduce, and eventually eliminate hearing loss caused by workplace noise exposures.

DEFIINITIONS

Action Level – an eight hour time-weighted average of 85 dBA. When employees are exposed to noise levels above the action level, they must comply with a Hearing Conservation Program.
dBA – Unit of sound level intensity in decibels measured on the "A" scale
Hearing Protection Devices – Barriers that reduce the amount of noise transmitted through the ear. Two types of devices are:

- Aural inserts or earplugs, which are inserted into the ear: and
- Earmuffs which fit over the entire ear.

High Noise Area – Any area having sound levels equal to or greater than 85 dBA. These areas shall be posted accordingly to alert that hearing protection must be worn.
High Noise Equipment – Equipment as identified as contributing to the high noise area or equipment used outside that has the potential to create noise equal to or greater than 85 dBA.
Permissible Noise Exposure – The maximum sound levels to which employees may be exposed. This level varies according to the exposure time.
Standard Threshold Shift – A change in hearing threshold relative to the baseline audiogram of an average 10dB or more at 2000, 3000 and 4000 Hz in either ear.

TRAINING

Shall be provided annually to all employees to discuss the recognition of potential noise exposures and the use of adequate engineering and environmental controls to reduce exposure.

RESPONSIBILITIES

It is the responsibility of the Authority to ensure that all of their employees exposed to noise levels equal to or greater than 85 dBA have access to appropriate hearing protective devices in the work area. The Authority and its designees are responsible for enforcing the use of hearing protective devices and engineering and administrative controls in designated noise hazardous areas.

Management, supervisory, and employee commitment to hearing conservation and positive attitude are important aspects of the overall Hearing Conservation Program. The key elements of the Authority's Hearing Conservation Program are:

- Noise exposure measurements;
- Engineering and administrative noise exposure control;
- Personal hearing protection;
- Audiometric testing and follow-up; and
- Education.

Employees are responsible for wearing and maintaining hearing protective devices as instructed. Employees exposed to excessive levels of noise must also participate in annual training programs and the biennial medical surveillance program which includes audiometric testing.

PERMISSIBLE NOISE EXPOSURES

Duration per day in hours	Sound level (dBA)	Duration per day in hours	Sound level (dBA)
8	90	6	92
4	95	3	97
2	100	1.5	105
.5	110	.25	115

A noise level of 140dB is considered dangerous

When the sound levels listed above are exceeded, feasible administrative or engineering controls will be instituted. If the controls fail to reduce the sound levels to less than those listed above, hearing protection will be provided and used to reduce the sound levels to an acceptable level. In addition, OSHA requirements dictate that whenever employee noise exposures equal or exceed an 8-hour time-weighted average (TWA) of 85 dBA, slow response, a continuing effective hearing conservation program shall be instituted.

The primary goal of the Hearing Conservation Program is to reduce, and eventually eliminate hearing loss because of workplace noise exposures. The program includes the following elements:

- Work environments will be surveyed to identify potentially hazardous noise levels and personnel at risk.
- Environments that contain or equipment that produces potentially hazardous noise should, wherever it is technologically and economically feasible, be modified to reduce the noise level to acceptable levels.
- Where engineering controls are not feasible, administrative controls and/or the use of hearing protective devices will be employed.
- Periodic hearing testing will be conducted to monitor the effectiveness of the Hearing Conservation Program. Early detection of temporary threshold shifts will allow further protective action to be taken before permanent hearing loss occurs.

NOISE EXPOSURE MEASUREMENT

The success of the Authority's Hearing Conservation Program depends on an accurate knowledge of the existing noise environment. Effective noise exposure measurement prevents possible loss of hearing by detecting work areas where employees must wear hearing protectors and must be tested. Therefore, detailed noise surveys will be conducted using sound level meters that meet the appropriate ANSI standard. The initial area survey was performed using measurement techniques prescribed in the OSHA regulations. Measurements are made at employees' normal working positions. This procedure allows an accurate estimation of the employees' daily exposure except in instances where an employee is required to move from one working location to another in his/her daily routine, or when an employee's instantaneous noise exposure levels vary markedly during the shift because of machine cycling. In these cases, noise dosimetry is performed. Follow-up measurements are made whenever changes in work practices or methods may change workplace noise exposures. The results of all measurements are recorded, and employees are notified of their exposure level.

TRAINING

Affected employees will be trained at least annually. The educational program consists of an initial presentation concerning the need for an effective Hearing Conservation Program, including an explanation of Authority policy regarding requirements of wearing hearing protective devices. Topics covered include:

- The effects of noise on hearing;
- The purpose of hearing protectors;
- The advantages, disadvantages, and attenuation of various types of hearing protectors;

- Instructions on the selection, fitting, use, and care of protectors; and
- The purpose and procedures of audiometric testing.

All areas where hearing protection is required are posted with appropriate signs to alert employees to the need for wearing protective devices.

HEARING PROTECTION

Until such time as engineering and/or administrative controls reduce the amount of noise exposure to or below the allowed limits, appropriate personal hearing protective devices are made available and issued to noise-exposed employees. The use of these devices is considered a temporary solution to the problem of overexposure until feasible controls are provided.

As with all safety equipment, the wearing of hearing protection in required areas is mandatory. All Supervisors must enforce hearing protection requirements.

AUDIOMETRIC TESTING PROGRAM

This program includes audiograms at time of hire, an initial survey of the existing work force whose exposures equal or exceed a TWA of 85 dBA in order to establish baselines, and termination audiograms when possible. All affected employees will receive a biennial audiometric test as part of their physical.

The effectiveness of the Hearing Conservation Program with regard to each individual employee is evaluated by comparing audiograms to the baseline audiogram. Audiogram review is performed by an audiologist or physician, and recommendations regarding the audiometric results are followed.

ENGINEERING AND ADMINISTRATIVE NOISE CONTROLS

The feasibility of such controls is carefully considered. Because of the complexity of some machinery used by the Authority and in view of economic limitations, some noise levels cannot currently be reduced to below acceptable limits. As an interim solution, the Authority has considered possible redesign of existing machinery, the building of partial or total enclosures, and other engineering noise control procedures for reducing the existing noise levels, where such procedures are deemed technologically and economically feasible.

Within the limitation of work schedules and employee skills and training background, administrative controls have been considered. Where feasible, over-exposed employees are moved to other areas having noise levels below the required levels. In addition, operational procedures are modified as necessary so that during any one twenty-four hour period the allowed exposure times will not be exceeded.

Engineering and administrative controls are being considered and implemented where feasible on a continuing basis.

HEARING PROTECTION

Noise levels are measured in two ways:

- Loudness (decibels – dB) - A potential for hearing loss exists if you are exposed to an average of more than 90 dB over an 8-hour time period.
- Pitch or Frequency (Hertz - Hz) – High-frequency shrill noises such as whistles are more likely to harm your hearing than low-frequency noises.

Noise that is both **loud and high-pitched** has the worst effect on hearing as it can actually break down parts of the ear.

Signs of excessive noise levels include:

- Noise or ringing in the ears.
- Trouble hearing when people speak.
- Difficulty hearing certain high or soft sounds (watch ticking).
- When you have to raise the volume of a television or radio to hear it and other people complain about the noise.

Ear Plugs:

- Seal the ear canal and prevent noise from reaching delicate parts of the ear.
- Available in standard sizes and individually molded.
- Can be custom fitted to the exact shape of the ear because of the pliable material.

Canal Caps:

- Soft pads on a headband.
- Seals the entrance to the ear canal without actually entering it.

Ear Muffs:

- Have three parts – a headband, ear cups and ear cushions.
- Cups must be fitted snugly.
- One size fits all.

Hearing protection shall be worn any time that sound levels exceed those deemed to be acceptable by the Supervisor or employee or if the area has been posted indicating the need for hearing protection. Hearing protection must **always be available** when noise levels produced by a process, machinery or equipment in a given area are at or above **90 db**.

Some examples are as follows:

- Chain Saw - 100 dB;
- Gasoline Power Mower - 87 dB to 92 dB;
- Riding Mower - 90 dB to 95 dB; and
- Pneumatic Drill – 100dB.

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 15	**HOUSEKEEPING**				
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PURPOSE
To establish minimum guidelines to inform employees about the hazards associated with poor housekeeping practices.

RELATED REGULATORY STANDARDS
29 CFR 1910.22 and 1910.141

DEFINITIONS
Housekeeping – The practice of maintaining all places of employment, including offices, passageways, storerooms and workrooms in a clean, orderly and sanitary condition.

TRAINING
Each employee shall be informed of the importance of housekeeping procedures to maintain an orderly workplace.

RESPONSIBILITIES
The Authority shall provide materials and equipment to maintain a clean and safe working environment and shall conduct periodic inspection of its facilities.

Employees are to maintain a clean, safe, orderly work area and record and report all deficiencies regarding cleanliness and/or improper storage of materials to his/her Supervisor or designee.

STANDARD PRACTICES

STORAGE
- All equipment should have a designated storage location and it should be kept in that location when not in use.
- Maintain clear access to emergency equipment, aisles, and exits at all times. Do not block fire escapes, fire equipment, or electrical panel boxes.
- Provide appropriate containers for trash, scrap, and other waste. Trash and garbage containers should have a lid or be self-closing and must be emptied at least daily or more often if necessary to reduce potential fire hazards.
- All materials, tools, or equipment are to be stored or located in such a manner that they are stable, fixed and secured to prevent toppling.

FLAMMABLE AND COMBUSTIBLE MATERIAL STORAGE
- Oily rags and waste must be stored in covered metal safety cans and emptied every 24 hours.
- Flammables and combustibles should be stored in approved, appropriately labeled containers away from electrical service lines, open flames or sparks, heat producing devices or other potential sources of ignition. Flammable liquids, in excess of 25 gallons, must be stored in a rated flammable storage cabinet.
- Smoking is permitted in designated areas and butts must be properly disposed of to prevent fires.
- Dispose of all refuse in appropriately marked containers to insure sanitary conditions and to minimize potential fire hazards.

WALKING - WORKING SURFACES
- Spills or leaks should be cleaned up and disposed of immediately.

- Aisles and stairways must be kept clear of stock, skids, equipment, etc., at all times.
- Aisles/walkways must have a minimum of thirty-two inches of passage space.
- Do not leave equipment lying in your work area. Keep your work area clean and orderly.

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
	INDOOR AIR QUALITY				
DATE ISSUED: 2017					
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POLICY AND ADMINISTRATION

This notice is to inform employees that our agency complies with the Public Employees Occupational Safety and Health (PEOSH) Program, Indoor Air Quality (IAQ) Standard (N.J.A.C. 12:100-13)(2007), which was proposed on December 18, 2006 and adopted on May 21, 2007.

We recognize that good indoor air quality is essential to employee's health and productivity. We have established the following policies to promote good indoor air quality for employees in our buildings. These policies follow the requirements established by the PEOSH IAQ Standard as it applies to our workplace. This Written Indoor Air Quality Program applies to the following buildings/locations:

Elmwood WWTP
Woodstream WWTP
Kings Grant WWTP

DESIGNATED PERSON

As required by the New Jersey PEOSH Indoor Air Quality Standard, a person has been designated as the person responsible for the Evesham Municipal Utilities Authority's compliance with the standard.

The designated person is the person who has been trained and given the responsibility by the Evesham Municipal Utilities Authority to make routine visual inspections, oversee preventive maintenance programs, and maintain required records in order to ensure compliance with the IAQ Standard. The designated person is also assigned to receive employee concerns/complaints about indoor air quality, conduct investigations, facilitate repairs or further investigation as necessary, maintain required records, and update the written program annually.

Preventive Maintenance Schedule

Preventive maintenance schedules that follow manufacturers' specifications are in place for heating, ventilation and air conditioning systems (HVAC) systems in this workplace. A copy of the preventive maintenance schedule is attached. Damaged and inoperable components will be repaired or replaced as appropriate and a work order to show actions taken will be completed.

RECORDKEEPING

Documentation of preventive maintenance and repairs to the ventilation system are retained for at least 3 years and include the following information:

- Date that preventive maintenance or repair was performed
- Person or company performing the work
- Documentation of:
    - Checking and/or changing air filters
    - Checking and/or changing belts
    - Lubrication of equipment parts
    - Checking the functioning of motors
    - Confirming that equipment is in operating order
    - Checking for microbial growth in condensate pans or standing water

Documentation of preventive maintenance and work orders for repairs are maintained by the designated person.

INDOOR AIR QUALITY COMPLIANCE DOCUMENTS

Our agency will make reasonable efforts to obtain and maintain copies of IAQ compliance documents. Available IAQ compliance documents will be maintained by the Designated Person and will be available to PEOSH during an inspection. These documents include:

1. As-built construction documents
2. HVAC system commissioning reports
3. HVAC systems testing, adjusting, and balancing reports
4. Operations and maintenance manuals
5. Water treatment logs
6. Operator training materials

INVESTIGATING COMPLAINTS

If employees begin to experience health symptoms that they believe are related to poor indoor air quality, they should notify the Designated Person so that their concerns can be investigated.

The Designated Person has been trained and given the authority to conduct basic indoor air quality complaint investigations. In many cases IAQ complaints can be resolved by the Designated Person.

RESPONDING TO SIGNED EMPLOYEE COMPLAINTS TO PEOSH

If we receive a written notification from PEOSH that a signed employee complaint has been filed with PEOSH, we will conduct an inquiry into the allegations. The findings of the initial inquiry and any planned actions will be provided in a written response to PEOSH within fifteen (15) working days of receipt. Copies of all responses to PEOSH will be maintained by the Designated Person.

Notification of Employees

The Designated Person will notify employees at least 24 hours in advance, or promptly in emergency situations, of work to be performed on a building that may introduce air contaminants into their work area. This notification will be in writing and will identify the planned project and the start date. The notification will also include information on how to access Material Safety Data Sheets (MSDS) or other hazard information. The Designated Person will maintain records of this notification for compliance recordkeeping purposes.

CONTROLLING MICROBIAL CONTAMINATION

Uncontrolled water intrusion into buildings (roof leaks, flooding, pipe condensation, plumbing leaks, or sewer backups) has the potential to support microbial growth. All employees should routinely observe their workplace for evidence of water intrusion (i.e. roof leaks, pipe leaks). Employees should notify the Designated Person immediately if they observe evidence of water intrusion so that corrective action can be taken. Ceiling tiles, carpet, and wall boards not dried within 48 hours may be removed as directed by the Designated Person.

CONTROLLING AIR CONTAMINANTS

<u>Outside air</u>

The Designated Person will identify the location of outside air intakes and identify potential contamination sources nearby, such as loading docks or other areas where vehicles idle, nearby exhaust stacks, or vegetation. Periodic inspections will be conducted to ensure that the intakes remain clear of potential

contaminants. If contamination occurs, the Designated Person will eliminate the contaminant source or make arrangements to relocate the intake.

Point Source Contaminants

The Designated Person will identify point sources of contaminants and arrange to capture and exhaust these sources from the building using local exhaust ventilation. Exhaust fans will be periodically inspected to ensure that they are functioning properly and exhausting to areas located away from outside air intakes.

RESPONSE TO TEMPERATURE AND CARBON DIOXIDE

Temperature

Where a mechanical ventilation system capable of regulating temperature is present, facilities personnel strive to maintain office building temperatures within the range of 68 to 79 degrees Fahrenheit. If outside this range, the Designated Person should be contacted. The Designated Person will ascertain whether the HVAC system is operating properly. If not, the system must be repaired. The IAQ Standard does not require the installation of new HVAC equipment to achieve this temperature range.

Carbon Dioxide

If the room is equipped with non-mechanical ventilation systems such as operable windows, stacks, louvers, the Designated Person should ensure that these areas are clear and operable to allow the flow of air. If carbon dioxide (CO2) concentrations exceed 1,000 parts per million (ppm), and the room is not equipped with operable windows, the Designated Person will conduct an inspection to ensure that the mechanical HVAC system is operating properly.

MAINTAINING INDOOR AIR QUALITY DURING RENOVATION AND CONSTRUCTION PROJECTS

Renovation work and/or new construction projects that have the potential to result in the diffusion of dust, stone and other small particles, toxic gases or other potentially harmful substances into occupied areas in quantities hazardous to health will be controlled in order to minimize employee exposure. The Designated Person will utilize the following protocol to assure that employees' exposure to potentially harmful substances is minimized:

- Obtain MSDS for all products to be utilized on the project and maintain on-site throughout the duration of the project.
- Choose the least toxic product that is technically and economically feasible.
- Consider performing the renovation/construction project when building is least occupied.
- Consider temporarily relocating employees to an alternate worksite.
- Notify potentially affected employees, in writing, at least 24 hours prior to commencement of chemical use or dust generation.
- Isolate the work area from occupied areas.
- Use mechanical ventilation and local exhaust ventilation to maintain a negative pressure gradient between the work area and occupied areas.

Before selection and use of paints, adhesives, sealants, solvents or installation of insulation, particle board, plywood, floor coverings, carpet backing, textiles, or other materials in the course of renovation or construction, the designated person will check product labels or seek and obtain information from the manufacturer of those products on whether or not they contain volatile organic compounds such as

solvents, formaldehyde or isocyanates that could be emitted during regular use. This information should be used to select the least volatile/hazardous products and to determine if additional necessary measures need to be taken to comply with the objectives of this section. The Designated Person will maintain records of this evaluation for compliance recordkeeping purposes.

Management and the Designated Person will consider the feasibility of conducting renovation/construction work using appropriate barriers, during periods when the building is unoccupied, or temporarily relocating potentially affected employees to areas of the building that will not be impacted by the project.

Temporary barriers will be utilized to provide a physical isolation between the construction area and occupied areas of the building.

Mechanical ventilation (i.e. fans, portable blowers, or existing HVAC equipment) will be used to maintain a negative pressure gradient between the work area and occupied areas to ensure the safety of employees. Renovation areas in occupied buildings will be isolated and dust and debris shall be confined to the renovation or construction area.

If work is being performed by an outside contractor, the Designated Person will maintain communication with contractor personnel to ensure they comply with the requirements of the PEOSH IAQ standard.

Employees who have special concerns about potential exposures during or after renovation/construction/repair work should consult with their supervisor. If despite these preventive actions, employees are exposed to air contaminants resulting in health effects, employees will be instructed to report any work-related health symptoms to one person (e.g., the nurse, human resources, designated person) so that they can be accurately assessed and investigated when indicated. All exposures should also be reported to their supervisor and the designated person.

Obtaining Permits and Performing Work in Accordance with the New Jersey Uniform Construction Code (N.J.A.C. 5:23)

Permits for renovation and construction-related work will be obtained as required by the New Jersey Uniform Construction Code (NJUCC), (N.J.A.C. 5:23). All work requiring a permit will be performed in compliance with N.J.A.C. 5:23. Additional information concerning the NJUCC can be obtained from the NJ Department of Community Affairs, Division of Codes and Standards (www.state.nj.us/dca/codes, 609-984-7609)

Maintaining Natural Ventilation in Buildings without Mechanical Ventilation

In buildings not equipped with mechanical ventilation, the Designated Person will identify the location of non-mechanical ventilation systems, such as stacks and operable windows. Periodic inspections will be conducted to ensure that these systems are operable and the surrounding areas remain clear of obstructions and potential contaminants.

EMPLOYEE RESPONSIBILITIES

Employees have a role in maintaining good indoor air quality within their workplace. Employees should ensure that they do not introduce unauthorized chemicals (i.e. fragrances, air fresheners, cleaning solvents, ozone generators) into the workplace. In addition, if employees observe situations which may lead to poor indoor air quality (i.e. inoperable windows, water leaks, visible mold) they should notify Chris Vandenberg at (856) 229-4984 of the situation so that it can be addressed promptly.

Employees are responsible for maintaining mechanical and passive ventilation systems by ensuring that louvers and diffusers remain clear to allow the free flow of air. Intentionally blocking, diverting, or otherwise manipulating components (i.e. thermostat,) of the ventilation system may result in disruption of the ventilation system in the immediate area or other occupied areas of the building.

PERIODIC REVIEW AND UPDATE

The Written Indoor Air Quality Program will be updated at least annually to reflect changes in policies, procedures, responsibilities, and contact information. A full copy of this plan including contact information for the designated person, certifications, and yearly reviews, is located at each of the applicable facilities.

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 17	**INDUSTRIAL TRUCK/HEAVY EQUIPMENT**				
DATE ISSUED: 2017					
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PURPOSE

To establish minimum guidelines to help protect employees from hazards associated with the operation and maintenance of industrial vehicles such as forklifts, transporters, pallet jacks, front-end loaders, cranes, and other types of powered industrial equipment used to handle and move material.

RELATED REGULATORY STANDARDS

- 29 CFR 1910.178 Powered Industrial Trucks
- US DOT 49 CFR Federal Motor Carrier Safety Regulations
- ANSI (ASME) B56.1d - 1992 Low Lift and High Lift trucks - (Powered Industrial Trucks)
- USDOT 49 CFR

DEFINITIONS

Qualified operator - A person who can demonstrate by experience or training the ability to recognize hazards associated with the operation of industrial trucks.
Industrial trucks - Includes but is not limited to forklifts, loaders, backhoes, tractors, crane trucks, and motorized hand trucks.

TRAINING

Shall be provided initially and periodically thereafter for qualified industrial truck operators to include the following:

- Proper inspection procedures set forth by DOT and OSHA regulations;
- Preventive maintenance;
- General operating principles including limitations of the vehicle and the use of controls;
- Hands-on proficiency testing;
- Environmental conditions relative to safe operation (e.g. soil and/or water hazards during trenching and excavation);
- Operator, co-worker and pedestrian safety;
- Lockout/tagout and safeguarding procedures for maintenance tasks;
- Personal protective equipment;
- Identification and hazards associated with utilities both above and below ground;
- Over-the-road transportation and towing; and
- Training should be specific to the equipment and operations at each location.

RESPONSIBILITIES

The Authority shall provide operators with initial and periodic re-training on both equipment operation and safety procedures and provide for routine maintenance of equipment. Pre and/or post-use inspections shall be conducted and documented and shall ensure that forklifts have a nameplate affixed to the equipment that is legible, and accurately states the weight of the truck and its rated capacity.

Employees shall be familiar with the operation and function of all controls and instruments, be familiar with unusual operating conditions that may require additional safety precautions or special operating instructions, know that personnel shall stand clear of the swing or maneuvering range of any industrial truck, and know to report all accidents involving personnel, structures and equipment to his/her Supervisor.

STANDARD PRACTICES
GENERAL – ALL INDUSTRIAL EQUIPMENT

- No employee is to operate a powered industrial vehicle unless they have been properly trained and authorized to do so by a Supervisor.
- No person except the operator shall be transported on powered industrial vehicles (unless the vehicle is equipped with additional seating).
- Never transport anyone on the forks of a lift-truck, or in a bucket or crane. Arms and/or legs shall remain in the vehicle at all times.
- Operators are to use caution when going around blind corners or where visibility is limited. Horns will be used as a warning signal only.
- Power must be shut off whenever an operator exits the equipment.
- When a powered industrial truck is left unattended, the forks, bucket, hoe, etc., shall be fully lowered, controls neutralized, power shut off, brakes set and wheels or tracks blocked.
- Enter and exit all vehicles at designated points and maintain at least three points of contact at all times. Never jump from or onto the vehicle.
- All powered industrial vehicles shall be inspected and documented for defects and safe operation, prior to use.
- Vehicle operators must remain at the controls of the vehicle at all times when any portion of the vehicle is in a raised position, unless during maintenance while following required lockout/tagout procedures. During maintenance, barricades shall be provided to prevent unauthorized entry into the work area.
- No person shall pass or stand under the elevated portion of any truck, whether loaded or empty unless proper lockout/tagout procedures have been conducted.
- Loads shall not be passed over workers or any vehicle.
- No material is to be loaded onto or removed from a pallet that is elevated.
- Backhoes shall be operated on level ground whenever possible with stabilizers in position.
- All loads must be secured from shifting during transportation by using the proper tie-downs and stake-points.
- Industrial trucks shall be kept in a clean condition, free of excess oil and grease.
- Industrial trucks must be operated a safe distance from the edges of ramps, platforms, excavations or any area that could cause the vehicle to rollover.
- Truck forks, buckets, hoes, etc., are to be kept as low as possible whether loaded or unloaded for maximum stability during operation.
- If the load being carried obstructs forward view, the operator shall travel with the load trailing.
- Whenever a lift truck is used to elevate personnel, fall protection shall be used.
- Means shall be provided whereby personnel on the platform can shut off power to the truck.
- Care shall be taken not to contact overhead installations, such as lights, wiring, pipes, sprinkler systems, etc.
- Extreme caution shall be used when operating shovels, backhoes, cranes, forklifts or any industrial truck near utilities.
- If electric lines have not been de-energized, be sure the swing of the bucket, boom, etc., is never within ten feet of high voltage lines.
- The operators of any motorized equipment are required to wear safety belts at all times.
- Smoking is prohibited during refueling operations.
- All vehicles shall be shut down during refueling.
- All industrial trucks shall be equipped with a permanently mounted fire extinguisher.
- Industrial trucks should be equipped with audible backup alarms.
- The rated load capacity of the vehicle shall not be exceeded.

TRANSPORTATION OF EQUIPMENT

- Pre-trip vehicle inspections are particularly important for over-the-road transportation as falling debris from the vehicle and/or trailer could severely damage other vehicles or injure persons.

- When coupling vehicles for towing, no one should go between the vehicles when either vehicle is in motion. The driver shall not move the vehicle(s) until it has been verified that the area is clear.
- Trailers about to be loaded must be positioned on firm level ground and the wheels blocked to prevent movement.
- Transporting vehicles over the road also requires pre-planning for weight limits and height restrictions of bridges and overpasses.
- Tow bars shall be used when towing vehicles or equipment.

BACKHOES

- Before operating the backhoe, lower the stabilizer so that the rear wheels are just off the ground and the machine is level and the loader bucket should be lowered to the ground.
- Always operate the backhoe from the correct seated position, NEVER from the ground.
- Never under dig the stabilizers; a cave-in may result or swing the bucket over the truck cab.
- When operating the backhoe on a slope, swing to the uphill side if possible.
- If downhill dumping is necessary, swing only as far as required to dump the bucket.
- Always dump soil a sufficient distance from the trench to prevent cave-ins. Be sure your machine is level, not tilted to the slope angle.
- When using the backhoe to lift and place objects, such as pipes, do so over the back end of the unit, **NEVER TO THE SIDE** as excessive weight to the side could tip the machine.
- **OVERLOADING IS DANGEROUS**. The Operator shall make certain the equipment is operated within the safe load and work radius limitations of the backhoe and on solid, level ground before lifting any load.
- When lifting, be sure the load is properly balanced and use a tag line so the load does not sway or swing around.
- Never leave a load suspended; place it down as soon as possible and prohibit the operator from leaving the machine while a load is suspended.
- Never dismount from your machine until it is fully stopped and always face the machine when getting off, using the grab handles, handrails and steps. Never jump off the machine, dismount carefully and beware of slippery conditions on steps and on the ground.

FORK LIFTS

- No employee is to operate a powered industrial lift truck unless they have been properly trained, evaluated and authorized to do so by a Supervisor.
- No person except the operator shall be transported on a powered industrial lift truck (unless the vehicle is equipped with additional seating).
- Never transport anyone on the forks of a lift-truck.
- The operator's arms and/or legs shall remain in the vehicle at all times.
- When a powered industrial lift truck is left unattended, the forks shall be fully lowered, controls neutralized, power shut off, brakes set and wheels or tracks blocked.
- All powered industrial lift trucks shall be inspected and documented for defects and safe operation, prior to use.
- No material is to be loaded onto or removed from a pallet that is elevated.
- All loads must be secured from shifting during transportation by using the proper tie-downs and stake-points.
- Truck forks are to be kept as low as possible whether loaded or unloaded for maximum stability during operation.
- If the load being carried obstructs forward view, the operator shall travel with the load trailing.
- The HARLO lift truck shall not be used to elevate personnel even if a cage and fall protection is available.

FRONT-END LOADERS

- While driving a front-end loader on the roadway or around the plant, the bucket should not be more than 18 inches above the roadway.

- When operating a front-end loader where there is a possibility of pot holes, large stones and other obstructions in the area carry the bucket in a higher position, but not so high that it obstructs the operator's vision.
- When operating a front-end loader exercise extreme care in making maneuvers so that the operation will be smooth and slow as the machine is easily tipped by a quick maneuver, especially when the bucket is loaded.
- When operating a front-end loader near an open excavation or other areas where there is a "drop-off', the operator shall have someone guide him in the operation.
- Riding, standing or being lifted in the bucket of the loader is prohibited.

WHEEL CHOCKS

- Carry two chock blocks on all vehicles of two-ton capacity or over, including cranes, graders, etc.
- Use chock blocks while changing tires, wheels, or when equipment is raised for any reason.

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 18	**JETTING / VACUUMING OPERATIONS**				
DATE ISSUED: 2017					
Revised	**Aug. 2017**				

PURPOSE
To establish minimum guidelines for the safety of employees, pedestrians, and motorists when conducting jetter or vacuuming operations.

RELATED REGULATORY STANDARDS
OSHA 29 CFR 1900 General Duty Clause

TRAINING
Shall address the minimum operational and safety requirements including:
- The operational safeguards suggested by the manufacturer.
- The maintenance requirements suggested by the manufacturer.
- The pre-trip inspection required for commercial vehicles and as suggested by the manufacturer.
- The personal protective equipment required for the employees.
- The required work zone safety procedures for the protection of employees, pedestrians and motorists.
- The number of employees required for each operation.

RESPONSIBILITIES
The Authority shall provide training annually for employees performing jetting and vacuuming operations.

Employees are responsible to know and follow the proper operational procedures to minimize the potential for injury and/or equipment damage.

JETTING SAFEGUARDS
- All required personal protective equipment (PPE) must be worn.
- Hose guides should be used at all times.
- A leader hose should be used to minimize damage to the main section of hose.
- The pressure hose and fittings should be inspected after each use to identify any damage requiring repair or replacement of the hose.
- Special attention should be given to the fittings to make sure they are tight and that the hose isn't pulling out from the fitting.
- To minimize excessive stretching, the hose should be rotated on the reel. The frequency of rotation will depend on the frequency of use for the jetter.
- A chart indexing the various tips should be kept with the vehicle. The various tips and their uses should be clearly defined on the index.
- The manufacturer's recommended operating pressures should never be exceeded.
- Establish effective work zone/traffic safety precautions for the work area.

VACUUMING SAFEGUARDS
- Inspect all parts and making certain they are free of damage.
- All required personal protective equipment (PPE) must be worn.
- Personnel should stay clear of the suction hose when in operation.
- Keep feet clear of the suction tube should it happen to fall unexpectedly.
- Operators should be cautious while driving the vehicle because of the top-heavy nature of the machine. This is especially true when quantities of weight, such as water and debris have been drawn into the machine.
- The vacuum hose and accessories should be secured when traveling.

- The boom should always be secured, even when traveling short distances.
- When raising the boom or box, remain at least 10 feet from overhead power lines.
- When raising the boom or box, care should be taken to avoid overhead obstructions.
- When the box is raised for cleaning purposes, the end gate should be blocked or locked before the employee enters the area between the box and the end gate.
- Never exceed the manufacturer's recommended operating pressure.
- Bleed off the pressure from the handgun prior to disconnecting it from the high-pressure system.
- Do not go beneath the vehicle while it is running.
- Establish effective work zone/traffic safety precautions for the work area.

GENERAL OPERATIONS

- All warning lights and other appropriate devices should be used as safeguards to alert motorists and pedestrians of a work area.
- The parking brake should be applied prior to exiting the cab.
- A minimum of two tire chocks should be placed by the rear wheels to minimize the potential that the vehicle/equipment could move while the jetting or vacuuming operation is taking place.

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 19	LABORATORY OPERATIONS				
DATE ISSUED: 2017					
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PURPOSE

This guideline establishes procedures to help protect employees from hazards in the laboratory.

DEFINITIONS

Carcinogen – A substance or agent capable of causing cancer.
Combustible Liquid – Any liquid having a flashpoint at or above 100°F (37.8°C), but below 200°F (93.3°C)
Compressed Gas:

- A gas or mixture of gases having, in a container, an absolute pressure exceeding 40psi at 70°F (21.1°C);
- A gas or mixture of gases having, in a container, an absolute pressure exceeding 104psi at 130°F (54.4°C) regardless of the pressure at 70°F (21.1°C); or
- A liquid having a vapor pressure exceeding 40 psi at 100°F (37.8°C).

Designated Area – A hood, portion of a laboratory and/or an entire laboratory room, which may be used for work with carcinogens, reproductive toxins and/or substances that have a high degree of toxicity.
Explosive – A chemical that causes an almost instantaneous release of pressure, gas and heat when subjected to sudden shock, pressure or high temperature.
Flammable Gas – A gas that at ambient temperature and pressure forms a flammable mixture with air at a concentration of 13% by volume.
Flammable Liquid – Any liquid having a flashpoint below 100°F (37.8°C).
Flashpoint – The minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite.
Permissible Exposure Limits (PEL) – Limits set for employee exposure to hazardous air contaminants. Unless noted, they are based on an eight-hour time-weighted average.
Reactive Substance – A chemical which in the pure state, or as produced or transported will vigorously polymerize, decompose, condense or will become self-reactive under conditions of shock, pressure or temperature.
Reproductive Toxins – Chemical which affect the reproductive capabilities including chromosomal damage and effects on fetuses.
Vapor Pressure – Pressure (pounds per square inch) exerted by a vapor from a liquid.

TRAINING

The Authority shall provide training to employees regarding the hazards associated with laboratory operations.

RESPONSIBILITIES

The Authority will provide appropriate personal protective equipment to protect employees from chemical hazards and monitor chemical storage and usage to insure compliance with the Hazard Communication Standard.

Employees shall follow the provisions of this guideline and general acceptable laboratory safety standards and comply with the Hazard Communication Standard as it relates to the identification, storage, use and disposal of chemicals.

LABORATORY SUPERVISOR

- Shall also serve in the capacity of Chemical Hygiene Officer responsible for the following:
- Ensuring that facilities and training are adequate for the handling and use of all materials used in the laboratory.
- Enforcing policies and safety practices to employees, contractors and visitors.
- Assisting with the development of safe work practices.
- Ensuring that engineering controls and equipment are operating properly and that repairs are performed as needed. Recommending improvements and/or upgrades to engineering controls, work practice guidelines and PPE to reduce employee exposure.
- Monitoring employee exposure to hazardous substances.
- Monitoring procurement, storage, use and disposal of all chemicals.
- Maintaining chemical inventory and Right-to-Know station in laboratory.

- Determining the required types and levels of personal protective equipment (PPE) required for the tasks to be performed.
- Ensuring that PPE is available for use by employees.
- Assuring that safety inspections of the laboratory are conducted and that records are maintained.
- Performing quarterly and annual inspections of hood performance.
- Reviewing this plan annually to assure that it corresponds to current procedures in the laboratory.
- Reviewing this plan with new employees upon initial assignment and annually thereafter.
- Performing regular safety and housekeeping inspections, including emergency equipment.

STANDARD PRACTICES

GENERAL SAFETY

A. GENERAL RULES OF SAFETY

- Running, jumping or horseplay of any form is prohibited.
- Employees shall not work alone in the laboratory or chemical storage area when performing a task considered “unusually hazardous” by the Laboratory Manager.
- Spills shall be contained and cleaned immediately when safe to do so. (See Laboratory Emergency Response section).
- Water spills create a slipping hazard and the potential for instrument damage and should be cleaned immediately.
- Proper lifting techniques (lifting with the legs, not the back) shall be followed.
- It is the responsibility of personnel working in the lab to clean up after themselves.
- All personnel should know what chemicals they are working with and should know what cleaning/neutralizing materials are on hand and readily available.

B. PERSONAL HYGIENE

- Wash promptly whenever a chemical has contacted the skin.
- Proper foot protection must be worn at all times. Sandals, open toed shoes and clogs are prohibited.
- Lab coats are available for personnel to be used when needed to offer protection from splashes and spills and should be fastened closed while working in the lab.
- Lab coats should not be worn in rest rooms or break facilities.
- Inhalation is one of the four modes of entry for chemical exposure. Therefore “sniff testing” is prohibited.
- Always use a bulb pipette. Never pipette by mouth.
- Drinking, eating, smoking or applying cosmetics in the laboratory or chemical storage areas is prohibited as cross contamination between these items and chemicals or samples is an obvious hazard and should be avoided.

C. HOUSEKEEPING

- The laboratory and work stations must be kept as clean as the work allows.
- Each employee is responsible for maintaining the cleanliness of his/her work station.
- Reagents and other items should be returned to their proper place after each use.
- Contaminated or dirty glassware should be placed in specific cleaning areas and not allowed to accumulate.
- Chemicals, especially liquids should never be stored on the floor, except in closed door cabinets suitable for the material to be stored.
- Reagents, solutions, glassware or other apparatus shall not be stored in hoods as they reduce available work area and may interfere with the proper air flow pattern and reduce the effectiveness of the hood as a safety device.
- Stored items, glassware and equipment shall not project beyond the face of shelf or counter limits.
- Access to fire extinguishers and exit doors shall be maintained at all items. Fire extinguishers shall not be used as a storage area for materials and equipment.
- Mats and floor surfaces shall be kept clean, dry and in good condition as the work allows.
- All containers must be labeled to comply with the New Jersey Hazard Communication Standard.

D. ELECTRICAL

- All electrical equipment shall be properly grounded, U.L. listed and/or F.M. approved.
- All circuit breakers, fuses and electrical panels must be labeled to indicate what appliances, room, outlets, switches and/or power disconnects are served.
- Equipment, appliances and extension cords shall be maintained in good condition.
- Multi-outlet plugs shall not be used unless they have a built-in circuit breaker.

E. HANDLING GLASSWARE

- Discard all broken, chipped, starred or badly scratched glassware.
- Use appropriate hand protection when picking up broken glassware.
- Lubricate tubing with glycerin or water before inserting into rubber stoppers or rubber tubing.
- Protect hands with gloves when inserting glass tubing.
- Conventional laboratory glassware must never be pressurized.

SAFETY EQUIPMENT

A. FIRE EXTINGUISHERS – CLASSES OF FIRE

- **Class A**- Normal combustibles such as wood, cloth, paper, rubber and plastics.
- **Class B**- Flammable and combustible liquids, oils, greases, tars, oil-based paints, lacquers and flammable gases.
- **Class C**- Energized electrical source.
- **Class D**- Combustible metals, such as magnesium, titanium, zirconium and sodium.
    - Fire extinguishers shall never be blocked by storage or concealed from view.
    - Use of a fire extinguisher must be immediately reported to the Laboratory Manager.
    - The Laboratory Manager shall also be informed of extinguishers found to be discharged or that have a pressure gage indicating low pressure.

B. SAFETY SHOWERS

- Employees shall be familiar with the location and operation of safety showers.
- When needed, safety showers should be used to cleanse the affected area for a minimum of 15-minutes.
- If a corrosive liquid spill is involved, then the affected portion of clothing should be removed while under the shower to reduce contamination and injury.

- The Laboratory Manager must be notified as soon as possible if an employee required the use of a safety shower so that appropriate medical assistance can be rendered and an incident form completed.
- Shower units will be flow tested monthly and the inspection recorded.

C. EYEWASH FOUNTAINS

- Employees shall be familiar with the location and operation of eyewash fountains.
- Always flood the eyes for at least 15-minutes to be sure there is no residue of the contaminant.
- The Laboratory Manager must be notified as soon as possible if an employee requires the use of an eyewash fountain so that appropriate medical assistance can be rendered and an incident form completed.
- Eyewash fountains will be flow tested monthly and the inspection recorded.

D. FIRST AID KITS

- Are to be used in response to work place injuries.
- First Aid Kit is located in the first floor main hall.

E. LABORATORY HOODS

- The primary purpose of a fume hood is to keep irritating vapors and fumes out of the laboratory work area and to serve as a shield between the technician and the equipment/material being used when there is the possibility of a reaction.
- A fume hood is not a storage cabinet and should not be used to store chemical or unused items.
- Hoods shall be used at all times when work involves hazards and noxious materials which are toxic, odoriferous, volatile or harmful.
- The sash of the hood shall be kept at the designated height to provide the minimum face velocity required (100 linear ft/min).
- A mark shall be placed on the hood so the sash can be lowered to a point where 100 linear ft/min can be achieved.
- High flow rates in excess of 125 ft/min can cause turbulence and should be avoided.
- Always check to assure the fan is on before initiating the work.
- Work should be performed as deeply in the fume hood as possible and equipment, reagents and glassware should be placed as far back in the hood as practicable without blocking the rear baffle.
- Each hood should have a clearly marked “safety zone” in which no work should be conducted or equipment placed.
- Only items necessary to perform the present work should be in the hood as the more equipment in the hood, the greater the air turbulence and the chance for gaseous escape into the lab.
- When used, all instrumentation in the hood should be elevated a minimum of two inches from the hood base to facilitate proper air movement.
- Hoods shall not be used as a means of disposing toxic chemicals.
- When not in use, the sash shall be kept closed.

F. FLAMMABLE LIQUIDS STORAGE CABINETS

- Are designed for the storage of flammable liquids and should only be used for that purpose.
- Store only compatible materials inside the cabinet.
- Do not store paper, rags or other combustible materials in the cabinet.
- Do not exceed the manufacturer’s recommended quantity limits for flammable liquid storage.
- Smoking is prohibited in and around all flammable liquids cabinets.
- There should be no open flames or other sources of ignition in the vicinity of a flammable liquids cabinet.

G. SAFETY SHIELDS

- Safety shields should be used for protection against possible explosions, implosions or splash hazards.

- Laboratory equipment should be shielded on all sides so there is no line-of-sight exposure of personnel.
- Portable shields can be used to protect against hazards of limited severity such as small splashes, heat and fire.

PERSONAL PROTECTIVE EQUIPMENT

A. EYE AND FACE PROTECTION

- Side shield eye protection is required in all areas of the laboratory.
- Goggles and/or face shields shall be worn if there is a need for protection of the entire face and throat from splashes or corrosive liquids or flying particles.
- Whenever a face shield is used, side shield eye protection and/or goggles must be worn under the face shield
- Visitors shall follow the same eye protection requirements as the employees. It is the responsibility of the Laboratory Manager or designee interacting with the visitors to insure compliance and that visitors are issued eye protection.
- Persons fitted with prescription eyewear are required to wear appropriate protection over the eyewear to minimize potential injuries.
- Contact lenses will be permitted to be worn by employees, however, they should be aware of the following:
    - If a corrosive liquid splashes in the eye, the natural reflex is to clamp the eyelids shut, making it very difficult to remove the contact lens before damage is done.
    - The plastic used in contact lenses is permeable to some of the vapors found in the laboratory. These vapors can be trapped behind the contact lenses and cause extensive damage.
    - The lenses can prevent tears from removing the irritant. If goggles are worn by contact wearers, they should fit loosely around the eyes and have no vents for access by vapors.
- If chemical vapors contact the eyes while wearing contact lenses, these steps should be followed:
    - Immediately remove the lenses.
    - Proceed to the nearest eyewash fountain.
    - Continuously flush the eyes for at least 15 to 30 minutes.
    - Have someone immediately report the incident to the Laboratory Supervisor, Regulatory Compliance Officer and/or plant office so that medical attention can be provided.
- In the event of an accidental splash/splatter injury involving the eye, face and/or throat, the following shall occur:
    - The injured employee shall proceed immediately to the nearest eyewash fountain.
    - Continuously flush the affected area for at least 15 to 30 minutes
    - Have someone immediately report the incident to the Laboratory Supervisor, Regulatory Compliance Officer and/or plant office so that medical attention can be provided.

B. CLOTHING

Lab coats shall be worn at all times whenever performing hazardous laboratory functions. When uncertain, review the material safety data sheet for a chemical to determine if specific clothing is needed for adequate protection.

Aprons - Plastic or rubber aprons and/or a long-sleeved calf or ankle length coat shall be worn whenever corrosive liquids are being used.

Gloves – There is no glove available that will protect an individual from every chemical. Wear the appropriate protection for the chemical(s) being used.

- Natural Rubber, Neoprene or Nitrile Gloves – Shall be worn when interacting with acids, alkalis and organic solvents.
- Leather or Nomex Gloves – Shall be worn when handling hot objects. These gloves should be kept in the vicinity where they will be used.

- Insulated Gloves – Shall be worn when handling very cold objects.
- Non-disposable gloves should always be rinsed with a compatible solvent, soap and water after use and allowed to dry.

HAZARD COMMUNICATION

A. CHEMICALS

All chemical spills shall be reported in writing.

- Report any unsafe conditions, practices, malfunctioning or damaged equipment to the Laboratory Manager immediately.
- Clean up spills immediately.
- Handle all chemicals according to the manufacturer's recommendations and always wear appropriate personal protective equipment.
- Use the exhaust/fume hoods when working with any volatile, toxic, or flammable material.
- Always add acid to water and not the reverse.
- For a spill of an acid, dilute with large quantities of water and neutralize with sodium bicarbonate or other base until effervescence stops.
- For a spill of a base, dilute with large quantities of water and neutralize with saturated boric acid solution.
- Check glassware for chips or cracks prior to use.
- All chemical compounds should be considered toxic unless known to be otherwise.
- Storage of chemicals should be to the manufacturer's instructions.
- Large bottles of corrosive liquids should be stored below head level.
- Before performing any procedure, you should be familiar with all associated chemicals via their MSDS or Fact Sheets.

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 20	LADDERS AND SCAFFOLDING				
DATE ISSUED: 2017					
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PURPOSE
To establish minimum guidelines for the identification, use and storage of ladders and scaffolding.

RELATED REGULATORY STANDARDS

- OSHA 29 CFR 1910.26 Portable Metal Ladders
- OSHA 29 CFR 1910.25 Portable Wood Ladders
- OSHA 29 CFR 1910.27 Fixed Ladders

TRAINING

Will be provided for employees in the safe use, maintenance, and storage of ladders and scaffolding.

RESPONSIBILITIES

The Authority will make available ladder types that meet the needs of their facility and require that ladders be inspected for compliance with OSHA standards and maintained in accordance with the manufacturer's recommendation.

Employees shall choose the appropriate ladder required for the assigned task, observe the ladder height and weight limitations designated by the manufacturer, report all damaged ladders and return all ladders to the designated storage area.

STANDARD PRACTICES

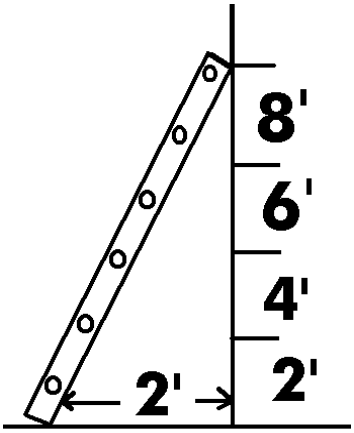
- All ladders must be marked with an appropriate American National Standards Institute (ANSI) warning label that identifies height and weight limitations.
- Use a ladder constructed from nonconductive material when working around any source of electricity.
- Select a ladder that is high enough or long enough for the job. Extension ladders should be long enough to extend at least four rungs above any elevated surface to be reached.
- Inspect all rungs, bolts, nuts, screws, welds, feet and supports for cracks or defects. A damaged ladder must be tagged for repair or replacement, taken out of service and reported to a supervisor.
- Place the ladder on a solid, level surface with the bottom of the ladder about one fourth of its length away from the wall.
- Never use the top three rungs of a straight ladder or the top two steps of a stepladder as a place to stand.
- Face the ladder when climbing or descending. As you climb keep either two hands and one foot, or one hand and two feet in contact with the ladder (three-point contact).
- Tools used while on a ladder shall be carried by means of a belt or pouch, or raised and/or lowered by using a bucket. Tools or equipment should not be purposely dropped or thrown from the ladder or thrown up to an employee standing on a ladder.
- Do not over reach. Never lean back or lean out at an angle.
- If you need to shift the position of the ladder, climb down and move it.
- Whenever possible securely fasten the top and bottom of a straight ladder to prevent slipping.
- Store ladders where they will not be exposed to the weather and where there is good ventilation.
- To prevent warping, ladders should be hung horizontally on a wall with hangers no more than six feet apart.
- Do not place a ladder in front of a door unless the door has been locked, blocked or guarded.
- Allow only one person at a time on a ladder.

- Never lean a stepladder against a wall to be used as a straight ladder. Ensure spreaders are locked when using a stepladder.
- Do not lean a straight ladder against unsecured backing, such as loose boxes or drums for support.
- Do not splice or lash short ladders together.

NEVER TRY TO SHIFT A LADDER WHILE SOMEONE IS ON IT
NEVER LEAVE AN ERECT LADDER UNATTENDED

SCAFFOLDING

- Install guardrails and toe boards on all open sides and ends of platforms more than 10 feet above the ground floor to prevent accidental falls.
- Guardrails shall be 2 x 4 inches, or the equivalent, approximately 42 inches high, with a midrail, when required. Supports shall be at intervals not to exceed 8 feet. Toe boards shall be a minimum of 4 inches in height.
- Scaffolds and their components shall be capable of supporting at least four times the maximum intended load.
- All planking of platforms shall be overlapped (minimum 12 inches), or secured to prevent movement.
- To provide adequate footing, extend scaffold planks over their end supports not less than 6 inches or more than 12 inches.
- Suspend two-point suspension scaffolds by wire, synthetic or fiber ropes, capable of supporting at least 6 times rated load. All other components shall be capable of supporting at least four times the rated load. Two-point suspension scaffold platforms shall not be less than 20 inches nor more than 36 inches wide overall.
- On suspension scaffolds designed for a working load of 750 pounds, permit no more than three employees to work at one time.
- Protect each employee with an approved safety life belt attached to a lifeline.
- Secure the lifeline to substantial members of the structure (not the scaffold or its supporting members or devices), or to securely rigged lines which will safely suspend the employee in case of a fall.



EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION - 21	**LIFTING AND MATERIAL HANDLING**				
DATE ISSUED: 2017					
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PURPOSE

To establish minimum guidelines to protect employees from the hazards associated with improper lifting and/or material handling.

TRAINING

Shall be provided to all employees as a review of appropriate lifting and/or material handling techniques.

A. Upon initial assignment employees shall receive

1. Training concerning proper lifting techniques
2. Training concerning proper handling of materials
3. Training concerning proper use of mechanical lifting devices and back supports

B. Upon exposure change employees shall receive

1. Refresher training.

RESPONSIBILITIES

The Authority or its designee will provide and implement a program focusing on back injury prevention in an attempt to minimize the potential for back injury that could result from improper lifting and/or material handling techniques.

Employees shall practice appropriate lifting and/or material handling techniques and when necessary, identify the need for and properly use mechanical lifting devices to minimize the potential for a bodily injury.

PREPARING FOR THE LIFT

- Stretch or warm up to avoid muscle strain
- Check the entire path of travel to make sure footing will be solid. If practical remove any obstructions in your path.
- Shoes should provide good balance, support, and traction.
- When practical, remove all obstacles along the path of travel.
- Determine if personal protective equipment (PPE) is required and obtain and don as necessary.
- Carefully attempt to lift a corner of the object to check its weight and center of gravity to determine if it can be lifted or if assistance or mechanical means is required.

"IF YOU CAN'T TIP IT, DON'T TRY TO LIFT IT!"

"IF YOU CAN'T GRIP IT, YOU CAN'T LIFT IT!"

PERFORMING THE LIFT

- **EMPLOYEES' SHOULD NEVER ATTEMPT TO LIFT BEYOND HIS/HER PHYSICAL LIMITATIONS!**

- Position square to the object and get close to the object prior to initiating a lift.
- Balance with the feet shoulders width apart.
- Squat down, bend at the knees and keep the back slightly arched.
- Grip the object firmly. If you can't grip it, you cannot lift it!
- Inhale and hold your breath in and tighten the abdomen.
- Use the legs to return to a standing position, while keeping the back slightly arched.
- Make the lift as one smooth movement without quick, jerking motions.
- Keep the load as close to the body as possible.
- Keep balanced and don't twist the body while lifting.
- Take small steps and don't obstruct the line of sight.

WHEN LOWERING AN OBJECT

- Put things down in the reverse order of the above.
- Use care when placing the load to keep fingers and toes clear of pinch points.
- Arch the back slightly and tighten your abdomen.
- Bend at the knees to lower the object to the proper position.

ALTERNATIVES TO LIFTING

- Ask a co-worker for help.
- Obtain mechanical means such as a hand truck, pushcart, or other material-handling device.
- Push a load whenever possible, avoid pulling.
- When pushing, stay as close to the load as safely possible:
  - Don't lean forward.
  - Use both arms to push the object applying the same amount of force with both arms.
  - Keep the stomach muscles tight.
- If pulling an object:
  - Clear the path of travel to avoid obstructions and tripping hazards.
  - Face the object squarely with one foot at least 12 inches in front of the other.
  - Keep the back straight and bend slightly at the knees.
  - Pull with one smooth motion.

TIPS FOR LIFTING

- Whenever possible, don't lift objects over the head.
- Don't twist the body when lifting, carrying, or placing an object.
- Don't reach over another object or a hazard to lift an object. Remove the obstacle or hazard before attempting the lift.
- Keep a comfortable pace to avoid fatigue when performing repetitive lifts or heavy lifting, especially during excessive heat or cold.
- Use material handling devices whenever possible.

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 22	**MOTOR VEHICLE OPERATION**				
DATE ISSUED: 2017					
Revised	**Aug. 2017**				

PURPOSE

To establish minimum procedures and guidelines for the safe operation of Authority vehicles and promote driving safety awareness for all EMUA employees.

POLICY

The Authority shall maintain motor vehicles in accordance with State/Federal regulations and implement a procedure for completing pre-trip inspections of commercial vehicles prior to use. The Authority shall make arrangements for the repair of any condition(s) identified during the pre-trip inspection that would prohibit the safe operation of the vehicle and maintain written records and other appropriate documentation of vehicle inspections and maintenance.

Employees are responsible to be knowledgeable of all laws pertaining to the operation of motor vehicles, abide by provisions of this policy, complete a pre-trip inspection of commercial vehicles to identify, document and report any unsafe conditions, report all motor vehicle accidents or citations **immediately** to a Supervisor and report any loss of motor vehicle driving privileges immediately to the Authority.

GENERAL STANDARDS

- Only authorized personnel may operate or travel in Authority vehicles.
- All operators of Authority vehicles must possess a valid New Jersey driver's license certified for the type of vehicle being operated. **ALL EMPLOYEES MUST NOTIFY THE AUTHORITY IMMEDIATELY IN THE EVENT THAT THERE IS A CHANGE OF STATUS OF THEIR DRIVERS LICENSE.**
- Operators that utilize a commercial driver's license when conducting Authority tasks must participate in a random and pre-employment alcohol/drug screening program as required by the Omnibus Transportation Act and in accordance with the Authority's policy.
- All traffic and speed limit signs must be obeyed. In rain, snow or other poor operating conditions, all drivers shall adjust their speed accordingly to keep the vehicle under control.
- Headlights are to be used whenever windshield wipers are required.
- Personnel must be seated and secured inside the vehicle and shall not be supported by the bumper, running board, tailgate, fenders, or any part of the vehicle not designated for their safe transportation.
- **Standing in a moving vehicle is prohibited.**
- All vehicles must come to a complete stop before a passenger enters or exits a vehicle.
- Drivers shall be attentive at all times and maintain adequate following distances. Tailgating causes rear-end collisions and reduces visibility of traffic situations ahead. Keep your eyes moving and prepare for potential and/or actual hazards.
- Always provide communication to other drivers of your intentions and use defensive driving techniques such as:
    - Signal lane changes and turns well in advance.
    - Use amber dome lights or other warning lights as necessary.
    - Yield the right-of-way and make concessions to avoid collisions.
    - Make turns from the proper lane.
    - Before passing, make sure that the pass is safe, necessary and legal.
    - When approaching an intersection, use caution and be prepared to stop.

- Avoid backing a vehicle whenever possible. The first choice is to park so a backing maneuver is not necessary. If backing cannot be avoided, it should be performed when arriving at the work location, not when leaving.
- Before leaving a parked vehicle:
    - Set the emergency brake;
    - Lock all doors and windows; and
    - Always remove the ignition key to prevent theft or unauthorized use of the vehicle.
- Leave and enter vehicles on the curbside whenever possible.
- A driver must park a vehicle only in locations permitted by ordinance.
- All vehicles must be maintained as per the State of New Jersey Motor Vehicle Inspection System's criteria.
- Seatbelts shall be present in all motor vehicles and properly maintained and utilized at all times by occupants of the vehicle.
- Drivers shall make certain each passenger is seated and their seatbelt and shoulder harness secured before proceeding.
- Vehicles used to transport employees shall have seats adequate for the number of employees to be carried and such seats must be firmly secured.
- Windshields, window glass and mirrors must be kept clean at all times. No one should affix any sticker, decal, or any other item to any portion of the glass area.
- All heavy or bulky loads must be:
    - Secured with rigging and tarped to prevent movement.
    - Within the limits of the vehicles' load capacity.
    - Contained within the sides of the vehicle.
    - Marked with a red flag when extending beyond the rear to alert motorists of a protruding hazard.
    - Not obstructive to the driver's vision.
- The following shall be followed when refueling vehicles:
    - The vehicle must be shut off
    - The fuel hose nozzle must be kept in contact with the fill pipe to avoid static sparks.
    - Smoking and open flames are not permitted while dispensing fuel.
    - The operator may not leave the pump unattended while fueling a vehicle.
    - Do not attempt to "top off" the fuel tank.
- Prior to use, the operator must inspect the vehicle to ensure the vehicle is in a safe condition to be operated on the roadway.
- The inspection is to be conducted using the Authority's written pre-trip inspection form.
- The completed form shall be returned to the appropriate Supervisor and clearly indicate any unsafe conditions that requires repair.
- The following inspection sheets must be maintained in vehicles over a GVW of 26,000 lbs. at all times in conformance with applicable standards:
    - Driver's Daily Inspection

VEHICLE/FLEET SAFETY

SEATBELTS MUST BE WORM AT ALL TIMES WHEN THE VEHICLE IS IN MOTION

- Employees must have a valid New Jersey driver’s license in their possession when operating a motor vehicle and conform to Title 39 of the New Jersey Motor Vehicle Law.
- It is the driver's responsibility to complete a safety checklist and sign for the vehicle.
- All deficiencies whether safety related or not, must be reported.
- Once the vehicle leaves, the driver is solely responsible for the vehicle.
- As a matter of courtesy and safety, Authority employees shall give the right-of-way to others at all times and should never press for the right-of-way.
- All traffic signs must be obeyed.
- Do not park vehicles as to obstruct the view of vehicular traffic, traffic signs or intersections.
- Employees should never drive when sick, excessively fatigued, intoxicated, using a controlled substance, taking a medication that might impair driving skills or when not fully alert and capable of driving safely.

- The employee shall keep the vehicle under control at all times.
- No equipment shall be operated on the traveled roadway "against" traffic except when one-lane traffic is maintained by flagmen.
- When a vehicle is operated in reverse, a spotter should assist the driver by flagging traffic and directing the movements of the vehicle. Refer to the paragraph titled **Proper Spotter Use and Safety**.
- If it is necessary to drive slowly, then travel on the right shoulder and activate all amber warning lights.
- Slow moving equipment such as loaders, mowing equipment, etc., must have and use amber flashers and/or amber dome lights.
- Vehicles setting up lane closings must always unload and place the equipment traveling in the direction of traffic.
- Should it become necessary to carry cargo, which extends beyond the tailgate, red flags shall be attached to the end of the load.
- All loads shall be properly secured while in transit.
- Only Authority employees or representatives on official business with the Authority are permitted to drive or ride in department vehicles.
- No one shall ride on the hood, engine, fenders, tops, bed, and sides of cab or in any position where arms or legs hang over the sides of the truck body or tailgate.
- Avoid "tailgating"; use safe following distances.
- If involved in an accident, call the police and notify your Supervisor immediately. Written notes should be made or an accident report filled out completely, if provided.

OPERATIONS

Inspections

- Thoroughly inspect your vehicle prior to departure to ensure that all necessary equipment is in proper operating condition.
- Complete any required vehicle logs.
- Report any defective, missing or malfunctioning equipment immediately.

Defensive Driving

- Employees operating Authority vehicles should at all times be aware of their surroundings, utilize sound judgement and anticipate and be prepared to react to any unexpected hazardous condition or occurrence.

School Zones and School Bus

- Reduce speed and proceed with caution when approaching any school, playground, park or recreation facility where elevated pedestrian activity may likely occur.
- Look for and obey all direction from crossing guards.
- Never pass a stopped school bus accepting or discharging occupants.

Emergency Vehicles

- Yield the right of way to all emergency vehicles operating their emergency lights and sirens as soon as safely possible.
- Do not attempt to follow immediately behind emergency vehicles.

Speed Control and Hazardous Conditions

- Operators are to obey all posted speed limits unless traffic, weather, diminished visibility or other conditions that require reduced speed are present.
- In the event conditions become extremely hazardous, pull off the roadway to a safe location, stop and wait until conditions improve.

Following Traffic

- Never follow another vehicle so closely that safe driving is impaired.
- Leave a minimum of 3 to 4 seconds between your vehicle and the vehicle in front of you to allow for ample stopping distance.

Maintenance

- Employees are to report any vehicle defect or maintenance need to the appropriate supervisor in a timely manner.
- No employee shall operate any Authority vehicle that is unsafe or in need of immediate maintenance.

Accident Response

- Stop-Failure to stop at the scene of an accident in which you are involved is a violation of the motor vehicle code and could result in criminal charges. Failure to stop at the scene of an accident in which you are involved will result in disciplinary action up to and including termination.
- Notify the appropriate law enforcement agency.
- Protect the Scene-Turn on the emergency flashers and any other auxiliary emergency lighting for the vehicle you are operating. When appropriate, deploy traffic cones or flares. When operating a commercial vehicle, deploy emergency reflectors in accordance with DOT regulations (one warning device 100 feet in each direction from the scene and one 10 feet from the rear of the trailer-set the signals further out but no more than 500 feet if the accident occurs near a curve or hill crest).
- Assist the injured-In the event notify emergency medical assistance and first responders via 9-1-1. Keep injured parties as warm and quiet as possible until assistance arrives. In no event should you attempt to move an injured person unless absolutely necessary to prevent further harm.
- Maintain a professional demeanor-Identify yourself as an employee of the Authority. Have your license and the registration and insurance documents readily available. Do not discuss or make any statements regarding the accident to anyone other than law enforcement or other Authority Personnel.
- Do not leave Authority equipment or property unattended except in an extreme emergency.
- Hit and run-If you are the victim of a hit and run or if the other party refuses to remain at the scene of an accident or provide you with identifying information, notify law enforcement as soon as possible and provide them with all of the details you possibly can.
- If you are injured-If you are injured or taken to a hospital, notify or see that someone notifies the Authority immediately of what happened and where you were taken.
- Reporting-When reporting an accident, make sure to contact the appropriate person supervisor as soon as possible.
- Provide a specific location, description of the damage and the existence and extent of any injuries.
- Complete any required paperwork and return it to the appropriate supervisor as soon as possible.

RESPONSIBILITIES

Safety Director

- Responsible for directing and administering the vehicle safety program.
- Investigates and prepares all incidents and reports of loss.
- Investigate and review any motor vehicle accident reports.
- Conduct periodic reviews of driver's abstracts.
- Maintain records pertaining to the safe operation of Authority vehicles.
- Perform pre-employment check of all prospective employee driving records.

Safety Coordinator

- Track vehicle inspection reports.
- Coordinate training related to vehicle operations.
- Assist in monitoring compliance with safety practices.

Supervisors

- Implement and reinforce the Authority's vehicle safety practices in their assigned areas of responsibility.
- Provide assistance and the resources necessary to implement and maintain the safety programs.
- Document and report any serious safety violations or incidents of unsafe vehicle operation to the Safety Director.
- Report all accidents involving any Authority vehicle.
- Forward all accident reports along with any supporting documentation to the designated person.

Operators

- Operate all vehicles in accordance with the Authority's policies and procedures as well as all local, State and Federal laws.
- Maintain a valid driver's license and associated endorsements for the class of vehicle operated.
- Maintain vehicle according to established maintenance standards; report any defects or maintenance needs to the appropriate person in a timely manner.
- Ensure all occupants use seatbelts prior to departure.

Spotter Responsibilities

- Inspect the backing area and all other sides of the vehicle checking for hazards before allowing the vehicle to move-be sure also to check overhead clearance.
- Communicate any observed hazards with the driver to determine whether the move can be performed safely, if at all.
- Place yourself ten to fifteen feet away from and on the driver side of the vehicle. Keep clear of both the vehicle and any fixed objects. Make sure your pathway is clear of any tripping hazards and do not walk backwards. Stop the vehicle anytime you need to reposition yourself.
- Establish visual and verbal contact with the driver. Continue eye to eye contact in the driver side rear view mirror at all times. An air-horn should be used, driver's window should be rolled down and radio turned off.
- Be familiar with established hand signals and ensure that the driver understands the hand signals before allowing backing maneuvers to begin.
- Stop the driver if any hazards are observed or if you are uncertain of the direction that the driver is maneuvering. Give the driver sufficient time to respond to your stop signal (min 5 ft recommended).
- The spotter should maintain situational awareness at all times and not multi-task. Using a cell phone or performing other tasks that can reduce the awareness of a spotter is prohibited.
- Inspect the backing area and all other sides of the vehicle checking for hazards before moving the vehicle-be sure to also check overhead clearance.
- Communicate any observed hazards with the spotter to determine whether the move can be performed safely, if at all.
- Ensure that the spotter is positioned at a safe distance from the vehicle and on the driver's side.
- Continue eye-to-eye contact with the spotter in the driver side rear view mirror at all times. Stop the vehicle if you lose sight of your spotter or if your spotter turns away to get repositioned.
- Be aware of the meaning of established hand signals and maintain a safe speed.
- Stop the vehicle anytime your spotter signals you to do so. Your spotter may see something you don't. Failure to do so may result in progressive discipline.

TRAINING

Shall be provided so that each employee understands the safe operation and maintenance of motorized vehicles as well as specialized vehicles used by the Authority.

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 23	**OFFICE SAFETY**				
DATE ISSUED: 2017					
Revised	**Aug. 2017**				

PURPOSE
To establish minimum guidelines for providing a safe office environment.

DEFINITIONS
Office Safety **-** Is an awareness of the conditions or circumstances that may exist in an office environment. It includes but is not limited to, knowledge and safe operating practices of:

Workplace Organization	Office Equipment
Lifting	Eyestrain
Muscle Stress and Strain	Ergonomics
Indoor Air Quality	Housekeeping
Emergency Procedures	Physical Hazards

TRAINING
Shall be provided to affected employees in the following areas:
- Ergonomics
- Lifting
- Fire Safety
- Video Display Terminal (VDT)

RESPONSIBILITIES
The Authority shall provide adequate office space for the proper storage and operation of equipment and materials necessary to conduct normal office duties.

Employees are required to maintain his/her work area in a clean, orderly and safe condition.

STANDARD PRACTICES
WORKSTATION ORGANIZATION
- Organize the elements of your workplace to fit your individual needs.
- Have sufficient area that allows you to position your keyboard, mouse, display terminal, document holder and other items (such as telephone) in the way that is comfortable and minimizes reaching.
- Organize your desk to reflect the way you use the materials and equipment by placing the things that you use most regularly, such as a mouse or telephone, within the easiest reach.
- Vary your tasks and take short periodic stretch breaks as this helps to reduce the possibility of discomfort or fatigue.

LIFTING
NEVER ATTEMPT TO LIFT BEYOND YOUR PHYSICAL LIMITATIONS.
IF YOU CAN'T TIP IT, DON'T LIFT IT!
- After test lift, determine whether assistance or mechanical means will be needed.
- Use the proper Personal Protective Equipment.
- Properly position yourself close to the load prior to initiating a lift.
- Bend at the knees and establish a firm grip.
- Lift slowly with a fluid motion.
- Avoid quick lifts that cause a jerking motion.

- Keep your back straight.
- Use your leg muscles.
- Lift by standing up.
- Keep the load as close to the body as possible.
- Keep well balanced; don't twist your body while lifting.
- Take small steps and don't obstruct your vision.
- Put things down in the reverse order of the above.

WORKSTATION POSTURE

- When sitting or standing, keep the three natural curves of your spine in their normal, balanced alignment. (Your back is balanced when your ear, shoulder and hip are in line.) A balanced back keeps the spinal muscles actively sharing the load that gravity places on bones, ligaments and discs.
- Adjust your chair height so that you sit with your feet flat on the floor.
- Sit so the back of the chair supports your lower back.
- Avoid cradling the phone receiver between your head and shoulders. Use a headrest or speakerphone if you need your hands free while on the phone.
- Arrange your workstation so that frequently needed materials can be reached without twisting, stooping down or overreaching.
- Relieve pressure on the lower back by taking occasional stretch breaks. Stand up and walk a little to increase circulation. A few simple exercises, such as neck stretches and shoulder shrugs, can also relieve tension when performed every hour for just one minute per exercise.

EYESTRAIN

- Position your VDT so that neither you nor the screen faces a window.
- Keep your VDT screen 18 to 28 inches from your eyes, and no higher than eye level when you're seated in your chair. Document holders should be at the same height.
- Use dimmer lighting around your VDT.
- Contrast controls and screen brightness should be adjusted for your best comfort.
- Choose color options that are the easiest for your eyes. Green or amber text on black background is recommended.
- Exercise your eyes one-minute for every 20 minutes of work.
- Change your focus by glancing across the room or out a window at an object at least 20 feet away.
- Occasionally, cup your eyes with your palms and relax your eyes for 60 seconds.
- Keep your monitor screen clean.

MINIMIZING SLIP/TRIP/FALL HAZARDS

- Be sure the walkway is clear and well-lit at all times.
- Close desk and file drawers completely after each use.
- Avoid twisting, bending, and leaning backward while sitting.
- Remove wires, extension cords and electrical cords from walkways.
- Use a stepladder to reduce overhead reaching.
- Report loose carpeting or damaged flooring.
- Don't run indoors.

ERGONOMICS

- Adjust office furniture so that you can keep your wrists straight while typing.
- Position your chair so that your elbows are even with or slightly above your keyboard while typing.
- At least once each hour of keyboarding, take a short break and shake out your hands.
- Periodically drop your hands to your sides and shake them gently as though you were trying to shake off drops of water. This helps restore circulation and reduce carpal tunnel compression.
- Get a soft foam ball, hold it in your hand, and with your palm turned up gently squeeze ten to fifteen times. Do this several times a day with each hand. As with any exercise, do not do this if it hurts.

HOUSEKEEPING, STORING OR STACKING MATERIALS

- Keep material off radiators, especially paper.
- Keep windowsills clear.
- Extension and office equipment electrical cords should be in good condition and secured so that they will not be under foot.
- Avoid stacking, get into a habit of storing materials inside cabinets and files.
- Keep piles low and easy to reach.
- If you must get something from the top of a cabinet that's beyond arm's length, do not use furniture to climb on, use a stepstool or stepladder.
- Test drawers in unfamiliar cabinets to see if they have locking devices to avoid inadvertently pulling the drawer onto you.
- Prevent toppling of cabinets by securing them properly and distribute weight in file cabinets to prevent top-heavy condition.
- No more than one file drawer should be open at any time.
- When emptying drawers of file cabinets, empty top drawers first.

INDOOR AIR QUALITY

- Some office equipment, copiers and printers, can emit small amounts of ozone or irritating chemicals. Therefore, the equipment should be located away from normally occupied workstations.
- Read and follow the manufacturer's instructions when using cleaning solutions and solvents.
- Smoke only in designated areas.

FIRE SAFETY

- Smoke only in designated areas:
    - Always use ashtrays.
    - Extinguish all butts.
    - Allow ashtrays to cool before emptying.
- Keep heat-producing equipment such as copiers, coffee makers, etc., away from all flammable or combustible materials.
- Be sure to turn off all electrical appliances at the end of the day.
- Use only grounded appliances plugged into grounded outlets.
- Disconnect and/or replace cracked, frayed or broken electrical cords.
- Keep extension cords clear of traffic areas where they can be stepped on or damaged.
- Never plug one extension cord into another.

EMERGENCY PROCEDURES

DO NOT USE THE ELEVATOR DURING DRILLS OR EMERGENCY EVACUATIONS!

- Know the location of all exits, fire extinguishers, etc., in your area.
- Keep stairways clean and clear.
- Watch and walk where you are going – Don’t Run!
- Keep alert for safety hazards in your area. Report them to your Supervisor and the Employee Safety Committee Representative.
- Periodically review the evacuation instructions in case of fire, drill and/or other emergency.

OFFICE SAFETY CHECK SHEET

ITEMS/CONDITIONS TO INSPECT	YES	NO	N/A	ACTION NEEDED
Means of egress readily accessible and unobstructed.				
Minimal use of extension cords or outlet strips.				
Walking surfaces free of Slip/Trip/Fall hazards.				
Emergency evacuation plans and emergency phone numbers posted.				
Emergency lights operational.				
Exit lights and/or signs visible and adequate.				
Elevator inspection certificates current.				
Elevator entrance signs posted "In Case Of Fire, Do Not Use."				
Housekeeping including storage of materials.				
Heaters clear of combustible/ flammable materials.				
Water heater provided with safety relief valve and piped toward floor.				
Stairway handrails in good condition and tightly secured.				
Stair treads in good condition.				
Store materials at least 18 inches from sprinkler heads.				
Outlet/switch covers secure.				
Storage in or around stairways cause obstructions.				
Coffee Pots, Copiers, Portable Heaters in good condition and shut off after hours.				
Filing cabinets secured.				
Surge protector on computers.				
First Aid Kit.				
Illumination adequate throughout.				

OFFICE SAFETY CHECK LIST

ITEMS/CONDITIONS TO INSPECT	YES	NO	N/A	ACTION TAKEN
Doors, functional				
Windows, cracked				
Exit signs				
Paper, accumulation				
Fire Extinguishers, unobstructed, inspected, functional				
Safety Showers, functional, inspected, clean, unobstructed				
Eye Wash Stations, functional, inspected, clean, unobstructed				
Material Safety Data Sheets available				
Emergency Telephone Numbers, posted and legible				
Electrical cords to equipment frayed, condition				
Electrical Extension Cords				
Do they disappear behind equipment				
Are they pinched				
Are they a Tripping hazard				
Electrical Outlets				
Are they overloaded				
Are adapters used				
Office Chairs, condition				
Flammable liquids, properly stored				
Stairways, unobstructed, handrails				
Hand Protection, available when required (gloves)				
Eye Protection, available when required				
Respirators, available, clean, good condition				
Filing Cabinets, heavy items in bottom drawers				
Cabinets, heavy items on lower shelves				
Desk Drawer, contents check for sharp objects				
Weather Precautions, walk shoveled, sand/salt available				
Heat Producing Appliances, located away from combustibles				
Coffee Pot				
Hot Plate				

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 24	**PERSONAL PROTECTIVE EQUIPMENT (PPE) INCLUDING RESPIRATORY PROTECTION**				
DATE ISSUED: 2017					
Revised	**Aug. 2017**				

PURPOSE

To establish minimum guidelines for the selection, use and care of personal protective equipment to minimize the potential for personal injuries.

EMPLOYEE TRAINING

Will be provided to affected employees requiring the use of personal protective equipment (PPE) and retraining will be provided annually or if any Supervisor has reason to believe an employee does not have the understanding or skill required to use the PPE, the employee will be retrained.

RESPONSIBILITIES

The Authority will provide a safe working environment for its employees by identifying and correcting hazardous conditions through the implementation of administrative and engineering controls.

Employees shall adhere to the provisions of this policy and are not to perform work without donning appropriate PPE to protect them from the hazards they may encounter in the course of that work.

GENERAL REQUIREMENTS

All personal protective equipment supplied to or used by Authority personnel, Contractors, Sub-contractors or employees of a temporary agency shall meet all current American National Standards Institute (ANSI), National Institute for Occupational Safety and Health (NIOSH) or Occupational Safety and Health Administration (OSHA) requirements.

HAZARD ASSESSMENT

A hazard assessment of the workplace was conducted to identify what hazards exist or have the potential to exist and to identify what controls need to be implemented to minimize the potential for injury to employees and reduce the dependency on PPE.

The Authority will reassess the workplace, as necessary, to identify and evaluate new equipment and processes and to review accident records and reevaluate the suitability of previously selected PPE. Elements considered during the initial assessment and any reassessments included but were not limited to:

- Adequacy of PPE program
- Levels of exposure (exposure monitoring)
- Adequacy of training/fitting of PPE
- Coordination with overall safety and health program
- Recommendations for improvement and modification
- Accident and illness experience
- Adequacy of equipment selection
- Program costs
- Adequacy of program records

SELECTION GUIDELINES

The PPE should be comfortable and well fitting. The employees will be instructed on proper care and use of the PPE. The employees will be made aware of all warning labels for and limitations of their PPE.

Personal Protective Equipment includes but is not limited to:

Side Shield Eye Protection	Splash Goggles
Full Face Shield	Safety Glasses
Hard Hat	Hearing Protection
Hand Protection (proper glove type)	Safety Shoes & Boots
Chemical Resistant Coveralls	Respirators

NON-COMPLIANCE BY AUTHORITY PERSONNEL

An employee, who does not comply with this program, will be disciplined for noncompliance as follows:

Offense	Remedial Action By Authority
First Offense	Verbal warning accompanied by retraining
Second Offense	Written reprimand and documentation placed in the employee's personnel file
Third Offense	Suspension (term of suspension based on severity of infractions) without pay and documentation placed in the employee's personnel file
Fourth Offense	Dismissal

Offenses to this policy will be recorded each year starting January 1 and terminating December 31. A report detailing an employee's offenses for that period will be presented to the Deputy Director for Plant Operations as part of the employee's annual performance review process.

Section 34:15-7 of the New Jersey Workers Compensation Code states the following:

"Benefits shall be provided from the employer to the employee in all cases except when the injury is intentionally self-inflicted, or when intoxication or the unlawful use of controlled substances or willful failure to make use of a reasonable and proper personal protective equipment device or devices furnished by the employer, which has or have been clearly made a requirement of the employee's employment by the employer and uniformly enforced and which an employer can properly document that despite repeated warnings, the employee has willfully failed to properly and effectively utilize, is the natural and proximate cause of injury or death."

The Authority will strictly apply the provisions of the above statute.

CLEANING AND MAINTENANCE

- PPE is to be inspected, cleaned, and maintained by employees at regular intervals as part of their normal job duties. Supervisors are responsible for ensuring compliance with cleaning responsibilities by employees.
- If PPE is for general use, the user of the equipment has responsibility for cleaning and maintenance after each use.
- If PPE is in need of repair or replacement, it is the responsibility of the employee to bring it to the attention of his or her Supervisor.
- PPE that is in disrepair or not able to perform its intended function or provide adequate protection is not to be used.
- Employees must return worn or damaged PPE when obtaining new or replacement equipment. Contaminated PPE that cannot be decontaminated will be disposed of in a manner that protects employees from exposure to hazards.

PPE SPECIFIC INFORMATION

Eye and face protection – Includes side shield eye protection, goggles and face shields.

All applicable employees working in designated work areas and/or job assignments are required to wear ANSI approved side shield eye protection/goggles/face shields to help prevent eye and face injuries, including those resulting from flying particles, molten metal, liquid chemicals, acids or caustic liquids,

chemical gases or vapors, or light radiation, etc. It is the responsibility of said agency to ensure all their employees report to their temporary assignment wearing approved side shield eye protection/goggles/face shields.

Proper protection must be worn when there are known to be, or there is a potential for eye and/or face hazards in the workplace. Protective eye and face protection will be worn by employees, in the treatment facility, collections system and laboratory. These tasks include, but are not limited to:

Chipping/grinding/drilling	Grass/weed cutting
Dusty conditions/tasks that generate dust	Welding
Sawing/sanding	Chemical handling
Tarping trailers/truck	Using aerosols/liquids
Working/repairing mechanical equipment	Energized equipment/electric flash

PRECAUTIONARY MEASURES

- Eye and face protection will be properly maintained by employees and are not to be abused.
- A maximum of three pairs of side shield eye protection will be made available to each employee during the course of the year.
- Side shields may be worn as an addition to prescription eyewear and are available upon request. Goggles are also available to fit over the prescription eyewear and are available upon request.
- Whenever a face shield is required, side shield eye protection must be worn underneath the face shield as primary eye protection. This includes but is not limited to exposure to splash/splatter from liquids, aerosols, and feed and discharge lines, grinding, cutting operations, etc.
- Eye wash stations and/or deluge showers will be provided when eye and/or body splashes from a chemical are possible.
- Eye and face protection shall be inspected before and after each use by the wearer to ensure that the equipment is not damaged. This includes, but is not limited to:
- Loose hinges
- Discoloration
- Cracks/scratches
- Distortion
- Selection of shaded eye protection for brazing, cutting and welding shall be based on ANSI Standard Z89 Related Standard Section (Table I).

NOTE: These tables are to be used as guidelines and do not necessarily reflect the policies and standards of the Authority.

TABLE 1

WELDING OPERATION	SHADE NO.
Shielded metal-arc welding - 1/16-, 3/32-, 1/8-, 5/32-inch electrodes	**10**
Gas-shielded arc welding (nonferrous) 1/16-, 3/32-, 1/8-, 5/32-inch electrodes	**11**
Gas-shielded arc welding (ferrous) 1/16-, 3/32-, 1/8-, 5/32-inch	**12**
Shielded metal-arc welding 3/16-, 7/32-, 1/4-inch electrodes 5/16', 3/8-inch electrodes	**12 - 14**
Atomic hydrogen welding	**10-14**
Carbon arc welding	**14**
Soldering	**2**
Torch brazing	**3 or 4**
Light cutting, up to 1 inch	**3 or 4**
Medium cutting, 1 inch to 6 inches	**4 or 5**
Heavy cutting, 6 inches and over	**5 or 6**
Gas welding (light) up to 1/8 inch	**4 or 5**
Gas welding (medium) 1/8 inch to ½ inch	**5 or 6**
Gas welding (heavy) 1/2 inch and over	**6 or 8**

FOOT PROTECTION-SAFETY SHOES

All applicable employees working in designated work areas and/or job assignments are required to wear steel-toed or other approved safety shoes to help prevent foot injuries, ankle injuries, slips, and falls. It is the responsibility of said agency to ensure all their employees report to their temporary assignment wearing approved safety shoes.

Those employees who work in non-designated areas and vendors and visitors will be allowed to walk through the designated work areas without safety shoes so long as they remain in outlined aisles or walkways.

HAND PROTECTION - GLOVES

All applicable working in designated work areas and/or job assignments are required to wear gloves to help prevent hand injuries, including cuts, burns, chemical exposure, etc. It is the responsibility of said agency to ensure all employees report to their temporary assignment wearing appropriate hand protection. All employees required to wear protective gloves must routinely inspect and properly care for their assigned gloves (if the gloves are not disposable).

All Supervisors and managers are responsible for ensuring that employees under their charge are in compliance with this policy.

HEAD PROTECTION - HARD HATS

All applicable employees working in designated work areas and/or job assignments are required to wear ANSI approved hard hats. It is the responsibility of said agency to ensure all their employees report to their temporary assignment wearing appropriate head protection. All employees required to wear hard hats must routinely inspect and properly care for their hard hats.

Hard hats must be worn in areas where there is a known hazard or where the potential for a head injury exists. This includes, but is not limited to:

- All construction sites with risk of impact;
- Working below ladders/scaffolds;
- Working below grade;
- Posted hard hat work areas; and
- Working in close proximity or energized components.

Precautionary Measures

- Hard hats must be worn with the suspension system installed according to the manufacturer's directions.
- No objects may be placed between the shell and the suspension.
- Hard hats may not be altered by drilling holes, painting, or any disfiguration that may affect the impact protection or electrical rating.
- Hard hats must worn to prevent them from falling off when work involves climbing, bending, stooping, crawling or working at elevations.
- Employees must inspect the hard hat before and after each use to ensure that it is not damaged. This damage includes, but is not limited to:

Cracks	Scratches/gouges in shell
Holes	Suspension torn or stretched
Deformations	Chemical contamination

HEARING PROTECTION

Noise levels are measured in two ways:

- Loudness (decibels – dB) - A potential for hearing loss exists if you are exposed to an average of more than 90 dB over an 8-hour time period.
- Pitch or Frequency (Hertz - Hz) – High-frequency shrill noises such as whistles are more likely to harm your hearing than low-frequency noises.

Noise that is both **loud and high-pitched** has the worst effect on hearing as it can actually break down parts of the ear.

Signs of excessive noise levels include:

- Noise or ringing in the ears.
- Trouble hearing when people speak.
- Difficulty hearing certain high or soft sounds (watch ticking).
- When you have to raise the volume of a television or radio to hear it and other people complain about the noise.

Ear Plugs:

- Seal the ear canal and prevent noise from reaching delicate parts of the ear.
- Available in standard sizes and individually molded.
- Can be custom fitted to the exact shape of the ear because of the pliable material.

Canal Caps:

- Soft pads on a headband.
- Seals the entrance to the ear canal without actually entering it.

Ear Muffs:

- Have three parts – a headband, ear cups and ear cushions.
- Cups must be fitted snugly.
- One size fits all.

Hearing protection shall be worn any time that sound levels exceed those deemed to be acceptable by the Supervisor or employee or if the area has been posted indicating the need for hearing protection. Hearing protection must **always be available** when noise levels produced by a process, machinery or equipment in a given area are at or above **90 db**.

Some examples are as follows:

- Chain Saw - 100 dB
- Gasoline Power Mower - 87 dB to 92 dB
- Riding Mower - 90 dB to 95 dB
- Pneumatic Drill – 100dB

A NOISE LEVEL OF 140dB IS CONSIDERED DANGEROUS

RESPIRATORY PROTECTION

Respirators are to be used when engineering control of respiratory hazards is not feasible or is ineffective. Employees that may be exposed to dusts, fumes, vapors and gases, shall be required to use a respirator to provide protection from respiratory hazards that may be present.

Employees must read and follow all instructions provided by the manufacturer on use, maintenance, cleaning and care as well as warnings regarding respirator limitations.

Only respirators certified for use to protect against the contaminant of concern will be used. A NIOSH label or statement of certification should appear on the respirator or respirator packaging.

A respirator is not to be worn into atmospheres containing contaminants for which the respirator is not designed to protect against.

RELATED REGULATORY STANDARDS

29 CFR 1910.134 Respiratory Protection

RESPIRATORY PROTECTION PROGRAM

INTRODUCTION

Policy

It is the policy of the Evesham Municipal Utility Authority to maintain comprehensive occupational safety and health programs based upon sound engineering, education, and enforcement. This document establishes company policy, responsibilities, and requirements for the protection of employees whose job requires the use of respiratory protection.

This document will also provide assistance to the employee in the use and care of respiratory protection.

Frank Locantore, Assistant Executive Director of Personnel, Safety and Security is the Program Administrator. He is solely responsible for all facets of this program and has full authority to make necessary decisions to ensure the success of this program. The Program Administrator will develop written detailed instructions covering each of the basic elements in this program, and is the sole person authorized to amend these instructions.

RESPIRATOR SELECTION

The types of respirators available for use includes:

- Particulate Masks (dust or fume masks): Cover the mouth and nose to form a barrier. Particulate contaminants are made of tiny particles or droplets of a material. Particulate masks may only be worn in an oxygen sufficient atmosphere. The mask must be replaced when breathing becomes difficult.
- Chemical Cartridge Respirators: Can be used for organic gasses, pesticides and paint/solvent vapors. These units can be half-masked or have a full face piece fitted with one or two chemical cartridges.
- Full Face: Commonly referred to as SCBA (Self Contained Breathing Apparatus). Covers the entire face and provides positive pressure compressed breathing air in hazardous environments.

The Evesham Municipal Utility Authority requires employees to use respirators while performing jobs as described in the following table:

PLANTS

Task description	Respirator manufacturer	Respirator type (e.g. half-face full-face, N-95, etc.)	Model No. and NIOSH Approval Number	Cartridge type (organic vapor, HEPA, combination, etc.)
Chlorine Leak	Honeywell	Full-Face	North#76008A	Compressed Air
Housekeeping	Siedman Assoc.	Dust Mask	RS-500	Disposable

MAINTENANCE

Task description	Respirator manufacturer	Respirator type (e.g. half-face full-face, N-95, etc.)	Model No. and NIOSH Approval Number	Cartridge type (organic vapor, HEPA, combination, etc.)
Asphalt/Conc. Cutting	Moldex	Half-Face N95	#84A-3167	HEPA
Pipe Cutting	Moldex	Half-Face N95	#84A-3167	HEPA
Housekeeping	Siedman Assoc.	Dust Mask	RS-500	Disposable

FLEET AND GROUNDS

Task description	Respirator manufacturer	Respirator type (e.g. half-face full-face, N-95, etc.)	Model No. and NIOSH Approval Number	Cartridge type (organic vapor, HEPA, combination, etc.)
Asphalt/Conc. Cutting	Moldex	Half-Face N95	#84A-3167	HEPA
Pipe Cutting	Moldex	Half-Face N95	#84A-3167	HEPA
Housekeeping	Siedman Assoc.	Dust Mask		

WELLS

Task description	Respirator manufacturer	Respirator type (e.g. half-face full-face, N-95, etc.)	Model No. and NIOSH Approval Number	Cartridge type (organic vapor, HEPA, combination, etc.)
Chlorine Leak	Honeywell	Full-Face	North#76008A	Compressed Air
Housekeeping	Siedman Assoc.	Dust Mask	RS-500	Disposable

WATER DISTRIBUTION

Task description	Respirator manufacturer	Respirator type (e.g. half-face full-face, N-95, etc.)	Model No. and NIOSH Approval Number	Cartridge type (organic vapor, HEPA, combination, etc.)
Asphalt/Conc. Cutting	Moldex	Half-Face N95	#84A-3167	HEPA
Pipe Cutting	Moldex	Half-Face N95	#84A-3167	HEPA
Housekeeping	Siedman Assoc.	Dust Mask	RS-500	Disposable

COLLECTIONS

Task description	Respirator manufacturer	Respirator type (e.g. half-face full-face, N-95, etc.)	Model No. and NIOSH Approval Number	Cartridge type (organic vapor, HEPA, combination, etc.)
Asphalt/Conc. Cutting	Moldex	Half-Face N95	#84A-3167	HEPA
Pipe Cutting	Moldex	Half-Face N95	#84A-3167	HEPA
Housekeeping	Siedman Assoc.	Dust Mask	RS-500	Disposable

TRAINING

Employees required to wear respirators are trained upon initial assignment. Training is repeated on an annual basis. Certified Health and Safety Services, LLC conducts the training sessions. Training shall cover the following information:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
- What the limitations and capabilities of the respirator are;
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
- How to inspect, put on and remove, use, and check the seals of the respirator;
- What the procedures are for maintenance and storage of the respirator;
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and
- The general requirements of the PEOSH Respiratory Protection Standard.

- Respiratory hazards to which employees are potentially exposed during routine and emergency situations.
- Proper use of respirators, including putting on and removing them, any limitations on their use and their maintenance.
- Changes in the workplace or the type of respirator render previous training obsolete.
- Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill.

- Any other situation arises in which retraining appears necessary to ensure safe respirator use.

SEVEN BASIC ELEMENTS

Employees must be able to demonstrate knowledge of these seven elements:

- Why the respirator is necessary and how improper fit, usage or maintenance may compromise the protective effect of the respirator.
- The limitations and capabilities of the respirator.
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.
- How to inspect, put on, remove, use and check the seals of the respirator.
- The procedures for maintenance and storage of the respirator.
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
- The general requirements of 29 CFR 1910.134.

ADMINISTRATIVE DUTIES

The Deputy Director for Regulatory Affairs will serve as the Respiratory Protection Program Administrator. His/her authority includes purchasing equipment necessary to implement and operate the program, develop a written policy covering each of the basic elements in the program and to review the program periodically and suggest appropriate improvements when necessary to ensure its effectiveness.

RESPIRATOR SELECTION

Respirators are selected on the basis of respiratory hazards, which the employees are or may potentially be exposed to including the user factors that affect respirator performance and reliability.

SELECTION PROCEDURE CHECKLIST

The Authority will identify and evaluate the respiratory hazard(s) in the workplace, including a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form. If employees cannot identify or reasonably estimate their exposure to a hazard, they are to consider the atmosphere to be **"Immediately Dangerous to Life or Health (IDLH)".**

All oxygen-deficient atmospheres will be considered to be IDLH unless it can be demonstrated that under all foreseeable conditions, the oxygen concentration can be maintained within the ranges specified in Table II of 29 CFR 1910.134.

The Authority will provide for or select for use by employees:

- Respirators based on respiratory hazard(s) which employees are exposed and workplace and user factors that affect respirator performance and reliability.
- Respirators that are National Institute for Occupational Safety and Health (NIOSH) certified respirators.
- Respirators from a sufficient number of models and sizes so that the respirator is acceptable to, and correctly fits, the user.

For IDLH atmospheres, employees shall use:

- A full facepiece pressure demand self-contained breathing apparatus (SCBA) certified by NIOSH for a minimum service life of thirty minutes.
- A combination full facepiece pressure demand supplied-air respirator self-contained breathing apparatus (SAR) with auxiliary self-contained air supply.

For non-IDLH atmospheres, employees shall use:

- A respirator that is adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements under routine and reasonably foreseeable emergency situations.
- Respirators appropriate for the chemical state and physical form of the contaminant.

GAS AND VAPOR PROTECTION

Chemical Cartridge Respirators are used for organic gases, pesticides and paint/solvent vapors and must be suitable for the specific contaminant. There are no universal cartridges. These respirators are for contaminants that have good warning properties like odor, taste or irritation when the cartridge fails. Do not use cartridges against gases that are highly toxic (e.g., hydrogen sulfide) or in oxygen deficient atmospheres.

Atmosphere-supplying respirators or an air-purifying respirator for protection against gases and vapors, shall be used provided they are equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant.

If there is no ESLI appropriate for conditions in the Authority workplace, a change schedule for canisters and cartridges shall be implemented that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life.

PARTICULATE PROTECTION (DUST OR FUME MASK)

Particulate filter respirators cover the mouth and nose to form a barrier. Particulate masks may only be worn in oxygen sufficient atmospheres greater than 19.5%. The mask must be replaced when breathing becomes difficult.

Particulate contaminants are made of tiny particles or droplets of a material. There are three types of particulates:
Dusts - Are solid particles produced by such processes as grinding, crushing, and mixing of powder compounds. Examples are sand and polymer dust.
Mists - Are tiny liquid droplets given off whenever a liquid is sprayed, vigorously mixed, or otherwise agitated, such as, acid mists generated while metal cleaning and oil mists during pump lubrication.
Fumes - Are tiny metallic particles given off when metals are heated. Fumes are found in the air near soldering, welding, and brazing operations.

An atmosphere-supplying respirator or an air-purifying respirator equipped with a NIOSH certified filter shall be used for protection against particulates.

MEDICAL EVALUATIONS

Medical evaluation will be provided to employees before they are fit tested for respirator use. Virtua At Work will provide medical evaluations. Medical evaluation procedures are as follows:

Medical examinations to determine the employee's ability to wear a respirator will be provided by Virtua At Work.

Employees will receive follow-up medical evaluations as required by the PEOSH Respiratory Protection Standard, and/or as deemed necessary by Virtua At Work.

Upon request, the employee will have the opportunity to speak with the health care professional about their medical evaluation.

The Program Administrator has provided Virtua At Work with a copy of this program, a copy of the PEOSH Respiratory Protection Standard, information on the type and weight of the respirator used by the employee, information on the frequency and length of respirator use, potential temperature and humidity extremes, the expected physical work effort, and additional protective clothing and equipment to be worn.

Additional medical evaluations will be provided to employees under the following circumstances:

- The employee reports signs and/or symptoms related to their ability to wear or use a respirator, such as shortness of breath, dizziness, chest pains, or wheezing;

- Virtua At Work, health care provider or supervisor informs the Program Administrator that the employee needs to be reevaluated;

- Information from this program, including observations made during fit testing and program evaluation, indicates a need for reevaluation.

All examinations and questionnaires are to remain confidential between the employee and the health care provider. All medical records and completed questionnaires will not be kept by the Evesham Municipal Utilities Authority. The medical records and questionnaires will be under the control of Virtua At Work.

Virtua at Work will provide the Program Administrator with a written recommendation regarding the employee's ability to wear a respirator. Only the following information will be provided:

- A statement on the employee's ability to wear a respirator

- The need for follow-up medical evaluation if any are necessary, and

- A statement that the medical provider has provided the employee with a copy of the recommendation.

Medical records will be maintained in compliance with the PEOSH Access to Employee Exposure and Medical Records (29CFR1910.1020).

The Evesham Municipal Utilities Authority will provide employees access to their medical records. Access means the right and opportunity to examine and copy records.

A MEDICAL PROVIDER MUST CLEAR THE USER OF A RESPIRATOR AS FIT PRIOR TO THEM BEING ASSIGNED A RESPIRATOR.

FOLLOW-UP MEDICAL EXAMINATION

A follow-up medical examination will be provided if a positive response is given to any question among questions 1 through 8 in Section 2, Part A of the questionnaire or if an employee's initial medical examination demonstrates the need for a follow-up medical examination. A follow-up medical examination will include tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

The Authority will provide additional medical evaluations if:

- An employee reports medical signs or symptoms that are related to inability to use a respirator.
- A PLHCP, Supervisor, or the Respiratory Program Administrator informs the employer that an employee needs to be reevaluated.
- Information from the Respiratory Protection Program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation.
- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, and temperature) that may result in a substantial increase in the physiological burden placed on an employee

RECORDKEEPING

Medical Evaluation Results Forms will be maintained by Virtua At Work.

Completed fit test records will be maintained by Virtua At Work. Each employee will receive a copy of his/her fit test record.

Employee training records will be maintained by Frank Locantore, Assistant Executive Director of Personnel, Safety and Security.

SUMMARY OF RESPIRATORY PROTECTION PROGRAM RECORDS

Type of Record	**Keep Records For**
Medical Evaluation	Length of employment , plus thirty years
Fit Test	1Year
Training	5 Years

RESPIRATOR TYPES AND USES

The Authority provides the following respirators:

Types	**Situation used**
Survivair Cougar Self-Contained Breathing Apparatus (SCBA) and/or a supplied air respiratory (SAR) equipment	Confined space entry, IDLH atmospheres or any other situation where such respiratory protection would be deemed necessary for the protection of personnel
Survivair full-facepiece air purifying respirator	Non-IDLH atmospheres where respiratory hazards are present and eye and face protection is required
Survivair half-face respirator	Non-IDLH atmospheres where respiratory hazards are present

The air-purifying respirators will be assigned to individual workers for their exclusive use. The Authority makes N-95 masks available for VOLUNTARY use by employees should they wish to wear same.

RESPIRATOR USE RESTRICTIONS

The following are special situations that may be encountered in the wearing and use of respirators:

- Facial Hair:
    - Facial hair between the wearer's skin and the sealing surface of the respirator will prevent a good seal. A respirator that permits negative air pressure inside the facepiece during inhalation may allow leakage and, in the case of positive pressure devices, will either reduce service time or waste breathing air. Employees must not enter a contaminated work area when conditions prevent a good seal of the respirator facepiece to the face.
- Eye Glasses:
    - Ordinary eyeglasses shall not be used with full-facepiece respirators. Eye glasses with temple bars or straps that pass between the sealing surface of a full-facepiece and the employee's face will prevent a good seal, and cannot be used. Supervisors must ensure that corrective lens inserts are mounted inside a full-facepiece respirator for those employees that wear glasses. These inserts are available from the manufacturers of full-facepiece respirators.

- Contact Lenses:
    - Follow the manufacturer's recommendations and those of NJDOH when the user of a respirator wears contact lenses.
- Facial Deformities:
    - Facial deformities, such as scars, deep skin creases, prominent cheekbones, severe acne, and the lack of teeth or dentures, can prevent a respirator from sealing properly. Negative pressure respirators cannot be used in these instances.
- Cleaning and Maintenance:
    - The cleaning and maintenance of respirators must strictly follow the recommendations of the manufacturer.
- Medical Clearance:

RESPIRATOR FIT TESTING AND SEAL CHECK

Each employee must pass face piece fit-test prior to using a respirator. The Evesham Municipal Utilities Authority uses the **Qualitative OSHA 29 CFR 1910.134 fit test** in accordance with the protocol described in Appendix A of the PEOSH Respiratory Protection Standard. See the Appendix of this program for the fit test fit-test record used by The Evesham Municipal Utilities Authority.

EFFECTIVE SEAL REQUIRED

An effective face-to-face piece seal is extremely important when using respiratory protective equipment. Minor leakage can allow contaminants to enter the face piece. The face piece must seal tightly against the skin, without penetration or interference by any protective clothing or other equipment. Nothing can be between the sealing surface of the mask and the face of the wearer, including but not limited to, eyeglasses, protective hoods, and beards or other facial hair.

Employees shall perform a seal check prior to every respirator use, including the annual fit test. The respirator can only be worn when an adequate seal is achieved. The Evesham Municipal Utilities Authority follows the **Manufacturer's Recommended User Seal Check Procedures** described in Appendix B-1 of the PEOSH Respiratory Protection Standard.

The Authority will not permit respirators with tight-fitting face pieces to be worn by employees who have:

- Facial hair that comes between the sealing surface of the facepiece and the face, or that interferes with valve function.
- Any condition that interferes with the face-to-facepiece seal or valve function.

If an employee wears corrective glasses or goggles or other personal protective equipment, such equipment shall be worn in a manner that does not interfere with the face-to-facepiece seal of the user.

Employees must perform a negative and positive seal check each time they put on the respirator.

FIT TESTING PROCEDURES

If a tight seal is not maintained between the facepiece and the employee's face, contaminated air will be drawn into the facepiece and be breathed by the employee. Fit testing seeks to protect the employee against breathing contaminated ambient air. Quantitative fit tests (“QNFT”) will be performed for all employees that may have the occasion to wear or are required to wear respiratory protection.

A QNFT protocol will be used to fit test a tight-fitting half facepiece respirator that must achieve a fit factor of 100 or greater, or a tight-fitting full facepiece respirator that must achieve a fit factor of 500 or greater, or tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators if tested in the negative pressure mode. Once the respirator has been properly selected and fitted, its protection efficiency must be maintained by proper use, care and storage.

The Authority ensures that employees are fit tested at the following times with the same make, model, style and size of respirator that will be used:

- Before any employee is required to use any respirator with a negative or positive pressure tight-fitting facepiece.
- Whenever a different respirator facepiece (size, style, model, or make) is used.
- At least annually.
- Whenever the employee reports, or the PLHCP, Shift Supervisor or Respiratory Program Administrator makes visual observations of changes in the employee's physical condition that could affect respirator fit.
    - Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.
- When the employee, after passing a QNFT, notifies the Authority Respiratory Program Administrator, Supervisor or PLHCP that the fit of the respirator is unacceptable, that employee will be retested with a different respirator facepiece.

CONTINUING RESPIRATOR EFFECTIVENESS

Surveillance must be maintained of work area conditions to determine if there is a change in work area conditions or degree of exposure or stress that may affect respirator effectiveness.

Employee(s) must leave the respirator use area:

- If they detect vapor or gas breakthrough, changes in breathing resistance or leakage of the facepiece.
- To replace the respirator or the filter, cartridge or canister elements.

PROCEDURES FOR IDLH ATMOSPHERES

IDLH Procedures shall ensure that:

- One employee or, when needed, more than one employee is located outside the IDLH atmosphere.
- Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere.
- The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue.
- The Shift or Entry Supervisor or designee is notified before the employee(s) located outside the IDLH atmosphere enters the IDLH atmosphere to provide emergency rescue.

Employee(s) located outside the IDLH atmospheres are to be equipped with pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator (SAR) with auxiliary escape pack with a 10-minute duration.

MAINTENANCE AND CARE PROCEDURES

CLEANING & DISINFECTING

Each employee is responsible to maintain the respiratory protective equipment in a clean, sanitary condition and in good working order.

Respirators will be cleaned and disinfected using the procedures below:

Respirator type	Are cleaned and disinfected at the following interval
Issued for the exclusive use of an employee	As often as necessary to be maintained in a sanitary condition
Issued to more than one employee	Before and after being worn by different individuals
Maintained for emergency use	After each use
Used in fit testing and training	After each use

STORAGE

Storage of respirators must be proper to ensure that the equipment is protected and not subject to environmental conditions that may cause deterioration by keeping them in a sealed plastic storage bag. All respirators shall be stored so that they are protected against direct sunlight, dust accumulation, severe temperature changes, excessive moisture, fumes, and damaging chemicals. Care is to be taken so that the means of storage does not distort or damage rubber or elastomeric components.

INSPECTION

In order to assure the continued reliability of respirator equipment, a respirator must be inspected regularly, based on the following frequency:

Respirator type	Inspected at the following frequencies
All types used in routine situations	Before each use and during cleaning
Maintained for use in emergency situations	At least monthly and in accordance with the manufacturer's recommendations, and checked for proper function before and after each use
Emergency escape-only respirators	Before being carried into the workplace for use

Inspection of the equipment will include:

- **For respirator function -** Tightness of connections, and the condition of the various parts including, but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges, canisters or filters.
- **For electrometric parts - F**or pliability and signs of deterioration.
- **For self-contained breathing apparatus -** In addition to the above, maintain air and oxygen cylinders in a fully charged state and recharge when the pressure falls to 90% of the manufacturer's recommended pressure level and determine that the regulator and warning devices function properly.
- **For respirators maintained for emergency use –** The Authority certifies the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator.

SCBA INSPECTION

Each Self-Contained Breathing Apparatus unit stored for emergency use shall be inspected monthly to ensure proper operation. The following items noted below are suggested inspection procedures. Since there are numerous types of SCBAs available from different manufacturers, refer to the instructions specified in the owner’s manual for proper operating procedures.

The Authority shall assign a responsible person(s) to conduct a monthly inspection of each SCBA unit and record the results on a copy of the Monthly Maintenance Checklist Form as follows:

- After breaking the seal, open the case and check the date on the plastic bag. If the mask has not been serviced within one year, consult safety personnel.

- Inspect the hose by stretching it and looking for cracks or holes; check hose connections for deterioration. Place the mask in a new bag and seal it with a rubber band.

- Examine the air cylinder pressure gauge for proper air pressure; check the tightness of the high-pressure air-hose connection at the cylinder. Ensure that the yellow valve on the regulator in on and fully open, that the red bypass valve is closed, and that the selector is in the demand or off position.

- Open the air cylinder valve to pressurize the regulator; check that the regulator pressure gauge has approximately the same pressure as the cylinder gauge. Then close the air cylinder valve to

see whether the pressure goes down. A noticeable decrease in pressure (within one to two minutes) indicates a defective regulator or hose.

- Cup one hand over the regulator outlet and inhale. The regulator should deliver air during each inhalation. Next, try blowing into the regulator outlet; if air can be blown into the outlet, the regulator is defective.

- Open the red bypass valve slightly--air should flow. Then, close the bypass valve, bleed the air out slowly using the "on-off" lever. Watch the regulator pressure gauge to see whether the alarm sounds when the pressure reaches about 500psi.

- Check the harness, backpack, and air cylinder for wear or damage.

- After inspecting the SCBA unit, fill out the Monthly Maintenance Checklist Form found in or on the case. The records should be marked to reflect the month and day of inspection and the inspector's initials.

- After the inspection, the case or cabinet shall be secured with a seal.

- Should defective equipment be found or servicing the unit be required, the inspector shall take immediate action to correct any deficiencies.

INSPECTION SCHEDULE

Respirators shall be inspected after each use. A respirator inspection shall include a check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to:

- the face piece;
- head straps;
- valves;
- cartridges, canisters or filters; and
- a check of elastomeric parts for pliability and signs of deterioration.

After each inspection, the respirator(s) determined to be unfit for use shall be taken out of service, and tagged with a description of the particular defect.

In the event replacement or repair of respirator components is necessary, it shall be performed according to manufacturer's instructions and only by persons trained and certified by the manufacturer or returned to the manufacturer's service facility.

Employees will not subject respirators to unnecessary abuse due to neglect and/or carelessness. Caution must especially be exercised to protect the face piece section of the mask from being scratched or damaged.

Each respirator shall be cleaned and disinfected after each use. Only cleaning/sanitizing solutions for respiratory equipment will be used for cleaning and disinfection. (NOTE: The Evesham Municipal Utilities Authority follows the ***(list the specific cleaning/sanitizing procedure used)*** described in Appendix B-2 of the PEOSH Respiratory Protection Standard.

REPAIRS

Respirators that fail an inspection or are otherwise found to be defective are to be removed from service and are to be repaired or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and only with the respirator manufacturer's NIOSH-approved parts designed for the respirator.
- Repairs must be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed.

- Reducing and admission valves, regulators and alarms must be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.
- The Authority will replace or repair the respirator before allowing anyone to use the respiratory equipment.

DISCARDING OF RESPIRATORS

Respirators that fail an inspection or are otherwise not fit for use and cannot be repaired must be returned to the Respiratory Program Administrator to be discarded.

AIR QUALITY PROCEDURES

When atmosphere-supplying respirators are being used, it is essential to ensure that the air being breathed is of sufficiently high quality.

COMPRESSED AIR USED FOR RESPIRATORS

Compressed breathing air must meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:

- Oxygen content (%/v) of 19.5-23.5%.
- Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less.
- Carbon monoxide (CO) content of 10 ppm or less.
- Carbon dioxide content of 1,000 ppm or less.
- Lack of noticeable odor.

BREATHING AIR COUPLINGS

Employees must ensure that breathing air couplings are **incompatible** with outlets for non-respirable worksite air or other gas systems. **No asphyxiating substances are to be introduced into breathing airlines.**

FILTERS, CARTRIDGES, AND CANISTERS

Employees must ensure that all filters, cartridges and canisters used in the workplace are labeled and color-coded with a NIOSH approval label and that the label is not removed and remains legible.

PROGRAM EVALUATION

The program evaluation involves conducting evaluations of the workplace as necessary to ensure that the provisions of the written program are being effectively implemented and continues to be effective. It also includes consulting with employees required to use respirators to assess their views on program effectiveness and to identify any problems. Any problems identified during this assessment must be corrected. Factors to assess include, but are not limited to:

- Respirator fit (including the ability to use the respirator without interfering with effective workplace performance).
- Appropriate respirator selection for the hazards to which the employee is exposed.
- Proper respirator use under the workplace conditions the employee encounters.
- Proper respirator maintenance.

EVALUATION REQUIREMENTS

The effectiveness of the respirator program shall be evaluated and corrective actions taken to ensure the respiratory protection program is properly implemented. The Evesham Municipal Utilities Authority will regularly consult with employees to assess their views on the effectiveness of the program and to identify any problems.

The evaluation will be conducted by Rich Foley, Safety Coordinator. The evaluation will ensure:

- procedures for purchasing of approved equipment are in place;

- all employees are being properly fitted with respiratory protection;
- all employees are properly trained;
- the proper equipment, cleaning, inspection, and maintenance procedures are implemented;
- the required records are being kept; and
- changes are implemented to correct deficiencies.

PROGRAM MONITORING

Periodic monitoring of the respiratory protection program is necessary to ensure that all employees are adequately protected. Random inspections shall be made by the Evesham Municipal Utilities Authority to ensure that the provisions of the program are being properly implemented.

APPENDIX

FIT TEST RECORD

Date: (of fit test): _____

Employee name: _____

Respirator Manufacturer: _____

Model: _____

NIOSH Approval Number: _____

Facepiece Size
Small_____ Medium_____ Large_____

Conditions which could affect respirator fit:
☐ Clean Shaven ☐ Facial Scar ☐ Dentures Absent
☐ 1 -2 Day Beard Growth ☐ 2+ Day Growth
☐ Moustache ☐ Glasses

Comments: _____

Fit Test Protocol Used _____
☐ Pass ☐ Fail

Comments: _____

_____

_____

Employee Acknowledgment of Test Results:

Employee Name (Print):_____

Employee Signature_____ Date: _____

Test Conducted By (Print :):_____

(Signature):_____

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 25	SHOPS & GROUNDS				
DATE ISSUED: 2017					
Revised	Aug. 2017				

PURPOSE
To establish minimum guidelines for the safe operation of shop and grounds equipment.

TRAINING
Will be provided to all affected employees to review the safe operation, maintenance, and storage of shop and grounds equipment.

RESPONSIBILITIES
The Authority shall permit only trained employees to operate shop and grounds equipment and require that employees follow the manufacturer's recommendations for the proper guarding, operation, maintenance and storage of equipment.

Employees shall wear appropriate personal protective equipment when operating shop and grounds equipment, observe the limitations and operating procedures for shop and grounds equipment as designated by the manufacturer, report any damaged equipment and place all equipment back in its appropriate storage locations once a task is complete.

STANDARD PRACTICES - SHOP
GENERAL SAFETY
- Observe good housekeeping in all areas and keep the floors clean and free of grease, oil etc.
- Periodically inspect the garage to identify and correct any unsafe conditions.
- All extension cords shall be of the three-wire type and shall be ground fault protected.
- Flammable and combustible liquids are to be kept only in approved and properly labeled containers in appropriate storage facilities.
- Place used oil and paint rags in approved metal containers and empty daily.
- Do not wear loose clothing and secure long hair when working near moving machinery.
- Never leave cutting, burning or welding equipment powered while unattended.
- Secure fuel cylinders in an upright position with protective caps or collars in place.
- Do not operate internal combustion powered equipment in closed areas without adequate ventilation.
- Do not grease or oil equipment while it is in motion.
- Do not operate any equipment until all protective guards are in place.
- Use blocks or jacks while working under any equipment that is hydraulically controlled.
- Use absorbent compounds/pads/booms on shop floors to contain and absorb corrosives, spills of gasoline, hydrocarbon, kerosene, and diesel fuel.
- Get help or use a hoist, or other appropriate lifting equipment when moving heavy or bulky items.
- Immediately remove clothes that become saturated with combustible or flammable liquids.

AIR COMPRESSORS
- Before starting air compressors, be certain all hand-operated valves for pressure gauges are open.
- Inspect air compressor tank gauge to make sure it is registering.
- Check shut-off pressure to be sure it is normal.
- Never attempt to adjust safety valve of shut-off.
- Stand clear of hose connections and make sure they are secure before releasing full pressure to the hose.

- Close the valve at the compressor end of the hose to release air before releasing full pressure to the hose.
- Couple all hose connections with a safety chain or other approved device in addition to the standard couplings.
- Inspect the nozzle adapter on sandblast equipment periodically to make sure the screw threads are in good shape and not excessively worn so that they won't fly off under pressure.

BENCH & SHOP POWER TOOLS

- Ensure guards are in place prior to operation of any powered bench or portable tool.
- Ensure anti-kick back dawgs and blade breaks are in place and functioning properly on table saws.
- Do not cut until saw is moving at full speed.
- Keep fingers and hands away from cutting edges or point of operation.
- Do not wear loose clothing or jewelry around moving equipment.
- Use push sticks and/or guards as recommended by the manufacturer.
- Machines designed for a fixed location shall be securely anchored to prevent walking, moving or toppling.
- Only operate bench grinders with protective hoods in place (hood must cover 270° of grinder wheel).
- The protective fragment tongue at the top of the wheel must be adjusted to within 1/4 inch of grinding surface of wheel.
- A tool rest must be present and securely adjusted to within 1/8 inch of the grinding surface of the abrasive wheel.
- Flanges must cover at least 1/3 the diameter of the wheel and torqued to proper setting as established by manufacturer.
- Conduct a ring test of the grinding wheel prior to installation as required by the manufacturer.
- Remove and replace cracked or chipped grinding wheels immediately.
- Do not strike objects against the working face of a grinding wheel, apply steady easy pressure.
- Never grind objects on the side of the wheel.
- Stand to the side of the bench grinder when starting and allow the wheel to come to full speed prior to use.
- Routinely use a dressing tool on grinding wheels to remove glaze or material from the wheel.
- Benches or shop areas where this equipment is operated shall have permanently posted signs that identify the mandatory use of appropriate PPE.

CARBON MONOXIDE

- Carbon monoxide is colorless, tasteless, and odorless, giving no hint of its presence.
- Guard against carbon monoxide gas from the exhaust of running engines by insuring adequate ventilation at all times.

GAS CYLINDERS

- Identify the contents of cylinders by reading the manufacturer’s/supplier’s label to ensure that you select and use the proper gas for the operation to be performed.
- Always handle cylinders carefully and be careful not to drop or otherwise jar them.
- Protect outdoor loading and storage platforms with a suitable cover from the weather, ice, snow and direct rays of the sun.
- Tag and store full and empty cylinders of each type of gas separately.
- Store cylinders so that they will not be knocked over or damaged by falling objects, passing vehicles or persons.
- Do not store cylinders near radiators, stoves or any other source of heat.
- Do not store cylinders containing oxygen close to acetylene cylinders or other dissimilar gasses unless they are separated by a fire resistant wall five feet high with a 1/2 rating or a 20-foot separation.
- All cylinders must be adequately secured in the upright position during use and storage to minimize the potential they will topple.

- Close the valves and install valve protection caps before cylinders are moved or placed in storage.
- Use and store all cylinders in an upright position.
- Do not place cylinders in or near locations where sparks or flame from hot work or other heat sources can contact them.
- To minimize the potential for explosive reactions, keep oil and greasy substances away from oxygen cylinders, valves, hoses and appurtenances.
- Do not use oxygen or acetylene cylinders unless they are equipped with proper regulators, reducing valves and flash back prevention valves.
- While acetylene cylinders are in use, keep the valve key wrench in place on the valve spindle.
- Do not tamper with the fusible safety plug or relief valves on pressurized cylinders.
- Use warm water to remove ice from around the outlet valve of an acetylene cylinder.
- Never use a pressurized cylinder if it is leaking at the valve or any of the in-line connections or hoses.
- When uncontrollable leaks are present, move the cylinder to an open area where good ventilation exists and away from any source of ignition and keep the valve slightly open to permit the gas to escape slowly.
- Call for assistance from the Fire Department and keep all persons away from leaking cylinders.
- Keep acetylene at a pressure greater than 15 pounds per square inch.
- Keep the hoses in good condition at all times and always check for leaks or defects.
- Protect hoses from damage by trucks or falling objects.
- Place the hose so that it will not create a tripping hazard.
- Properly repair or replace defective hoses and fittings.
- The oxygen and acetylene hose lines should be of different colors. (green for oxygen, red for acetylene)
- Oil and grease should not be used to make connections.
- Operators should not stand in front of the gauges on the regulator when opening the discharge valve of the tank as hidden pressure may destroy the gauge and blow out the glass and parts.

HOISTING & LIFTING EQUIPMENT

ALWAYS WEAR APPROPRIATE TIGHT-FITTING HAND PROTECTION WHEN USING HOISTING/LIFTING EQUIPMENT

WINCHES

- When removing slings or chains caught beneath a load, stand clear to avoid being struck when the sling/chain is released.
- Be sure that the ratchet is engaged when using a hand-operated winch.
- If you lose control when lowering a load, stand clear of the revolving crank handle.
- Prohibit anyone from passing under a suspended load.
- Use sufficient guidelines to control the load or object being pulled or lifted.

CHAINS

- Inspect hoisting chains frequently and carefully to detect small cracks or deformations.
- Never use chains if twisted or kinked.
- Avoid sudden shocks and overloading.
- Place the hook completely over a link so the chain cannot slip and the hook will not bend.
- Fasten the hook as far from the load as possible, so that the pull is on the back of the hook.
- Always begin with a straight steady pull.
- After hitching chains to logs, poles, stumps, machinery, etc., stand clear (a distance equal to or farther than the length of chain being used) so that the end of the chain will not strike if it is accidentally released.

CABLES

- Inspect all cables frequently and replace any that are worn, frayed or partially broken.
- Straighten out all cables before placing them on the shelves.
- Once a kink is formed in a cable, do not use it for lifting, pulling or hoisting purposes.
- The proper method of applying a clamp is to always have the U-bolt over the short end, carrying the load.

ROPE

- Inspect ropes frequently for broken strands, cuts, and worn or frayed spots.
- Replace unsafe rope immediately.
- Do not weaken a rope by overloading it or strain a rope with a kink in it.
- Do not drag rope over the ground, rough or sharp objects, or constantly across another rope.
- Rope should be dried thoroughly after use.
- Do not pile frozen or wet rope against pipes or other heat sources.
- Coil and properly store rope in a dry place when not in use to prevent deterioration.

Breaking Strength for Manila Rope and Safe Working Load

Rope Size Diameter (in inches)	Breaking Strength (in pounds)	Safe Working Load (in pounds)
¼	600	120
3/8	1350	270
½	2650	530
5/8	4400	880
¾	5400	1080
7/8	7700	1540
1	9000	1800

BLOCKS AND HOOKS

- When using blocks and hooks for loading and unloading, be sure they are properly designed and rated to lift the load without overstraining.
- Care shall be taken not to catch fingers or hands between block, hook or load.

JACKS

- Jacks shall be of sufficient rated capacity to do the job.
- Securely chock the vehicle and set parking brake before starting operations.
- Set jacks on firm footing and have good bearing on both base and load to prevent tipping or shifting of load.
- To prevent possible movement when using bumper jacks, block the opposite diagonal of the wheel being lifted.
- After each jacking operation and when not in use, leave handles of wheel jacks in a raised position.
- Detach removable jack handles after placing jack under load.
- Use metal stands for blocking whenever practicable.
- Place metal stands or wood blocks (cribbing), whenever there is a need to work under equipment being supported by jacks.
- Do not lean over a jack handle while under load.

HYDRAULIC LIFTS

- Before raising or lowering a hydraulic lift, check to be sure there is sufficient clearance and that everyone is off the lift.
- Place the safety pin or leg in place before working under lift.

MACHINE GUARDING

- One or more methods of machine guarding shall be provided to protect the operator and other employees from hazards created at the point of operation and nip points, or by rotating parts, flying chips and sparks.
- Guards shall be affixed to the machine at the point of operation when possible. If a guard cannot be placed at the point of operation, then the guard must be secured to a location which will prevent operator access to that point of operation.
- Equipment 7 feet or more from the floor, or an employee access way, does not require guarding from moving parts, but thought should be given as to possible hazards during unusual work activity in the area (e.g. maintenance).
- The maximum opening in a guard in any direction shall not exceed 1/2" unless the distance from the guard to point of operation exceeds 3 1/2".
- Guards should be painted a color that allows personnel to distinguish them from the machine itself.
- When guards are removed from equipment for repair work, they are to be replaced before equipment is returned to service.
- Equipment with a guard removed is to be locked out of service, or temporary guarding provided.

PNEUMATIC (COMPRESSED AIR) TOOLS & LIFTS

- Never turn a blast of air toward a fellow worker.
- Never stand directly in front of an operator of power tools.
- Always shut air off at the source when making repairs or adjustments to pneumatic tools.
- Never raise loaded trucks or cars on lifts.
- Employees shall not remain in vehicles while vehicles are on lift.
- Be sure everyone is in the clear before backing off lift.

PORTABLE GRINDERS

- Equip portable grinders with retaining hoods covering at least half of the grinding wheel.
- Stand out of line before starting motor.
- Do not use a chipped or cracked grinding wheel.

WHEEL CHOCKS

- Carry two chock blocks on all vehicles of two-ton capacity or over, including cranes, graders, etc.
- Use chock blocks while changing tires, wheels, or when equipment is raised for any reason.

STANDARD PRACTICES - GROUNDSKEEPING

FORKS, HOES, RAKES & SHOVELS

- Never leave forks, hoes, rakes and shovels lying around with teeth or blades in an upright position as exposed blades or prongs, when stepped on, may cause puncture wounds and/or cause handles to fly up and strike you in the face.
- Keep long-handled tools such as forks, hoes, rakes, shovels, etc., in an upright position when not in use or placed on the ground away from walk areas so that tripping hazards may be avoided.
- When lifting with a long-handled tool, such as a fork, shovel, etc., grip one hand close to the load to lessen strain.

LANDSCAPING POWER TOOLS

- Inspect the area that you will be working in prior to beginning the job. Remove any objects that can be thrown damaging equipment or property.
- Be alert for private property that could be damaged or pedestrians that could be injured nearby your operating area.

- Always turn off the machine and remove the key and/or disconnect the spark plug prior to removing any guard to access a mower blade or moving part.
- Follow all lockout/tagout procedures during repair and maintenance.
- Never bypass factory installed safeguards.
- While power equipment is in operation, no one but the operator should be nearby. If someone approaches, turn the machine off.
- Never walk up behind someone using power equipment.
- Always push a mower - don't pull it towards you.
- Any mower or tractor traveling along roadways must be equipped with a slow moving vehicle placard.
- Do not carry passengers on a riding mower.
- Never attempt to reach under the deck of a mower or through guards while the machine is running.
- Do not make adjustments, lift or tip a mower while it is running.
- Never refuel a piece of equipment while it is running.
- Bump caps should be used when using a riding mower or tractor around brush and trees.
- When using a chain saw, shut it off when moving from one location to another.
- Start chain saws on the ground; not against your body or by "Drop" starting.
- Do not place hot saws in dry tree litter or brush.

WHEEL CHOCKS

- Carry two chock blocks on all vehicles of two-ton capacity or over, including cranes, graders, etc.
- Use chock blocks while changing tires, wheels, or when equipment is raised for any reason.

CHAIN SAWS

- Wear goggles, safety glasses ***AND*** a face shield, chaps, ear protection and proper hand protection when operating a chain saw.
- Do not smoke when filling the gasoline tank.
- Before you start the motor, make sure the cutting chain is free from all obstruction.
- While starting the motor, stand with legs well apart or stand to one side of unit. If kickback occurs, you will not be struck on legs.
- Do not wrap the starting cord around your hand or wrist.
- Shut the motor off before making adjustments or replacing the chain in the guide rail.
- Check the chain for tension approximately every hour during use.
- Never leave a chain unattended while it is running.
- Securely lash and cover power saws while transporting them in the body of a truck.
- Provide a guard for the tail stock and use it.
- Plan work thoroughly including working signals before making cuts, because power saws operate much faster than a handsaw.
- Make the felling cut at a convenient height; make the flush cut after the tree has been felled.
- Remove twigs, stones loose bark, and other debris from the base of the tree before making a flush cut.

Basic Chain Saw Safety and Use

CHAIN SAW SAFETY FEATURES

Front hand guard - A bar in front of the top handle designed to stop a slipping hand from coming in contact with the chain.
Chain brake (gasoline only) - Designed to stop a moving chain in a fraction of a second if kickback occurs, reducing the chances of severe injury. It may also function as a front hand guard.
Throttle trigger lockout - Helps prevent the accidental opening of the throttle. The throttle trigger is locked in the idling position when the lockout is not engaged by the proper hand grip on the handle.
Stop switch - The switch should be located so that it can be activated easily by your right thumb without losing your grip on the rear handle of the saw.

Rear hand guard - The lower part of the rear handle on the chain saw is designed to protect the hand from a broken or jumping chain.
Chain catcher - Found on the bottom of the saw engine as far forward as possible. It is designed to catch a broken or jumping chain.
Vibration damping - Rubber bushings between the handle and saw body or on the engine mountings help reduce the operator's exposure to vibration.
Muffler - Designed to decrease the noise level and direct hot exhaust gases away from the operator and may be combined with the spark arrester.
Spark arrester - Keeps sparks from being ejected by the exhaust. The sparks occur when carbon deposits in the cylinder break lose and are ignited by the exhaust gases. Spark arresters are required in many areas.

The U.S. Consumer Product Safety Commission (in accordance with American National Standards Institute Standard B175.1) classifies gasoline-powered chain saws into two groups based on engine displacement: those under 3.8 cubic inches (62.3 cubic centimeters) are intended primarily for consumer or homeowner use and may be called nonprofessional saws while those saws with larger displacement are considered professional saws. There are different requirements for the two groups of saws. Similar classification and requirements have been established for electrically powered saws.

Avoid Situations That Can Cause Kickback

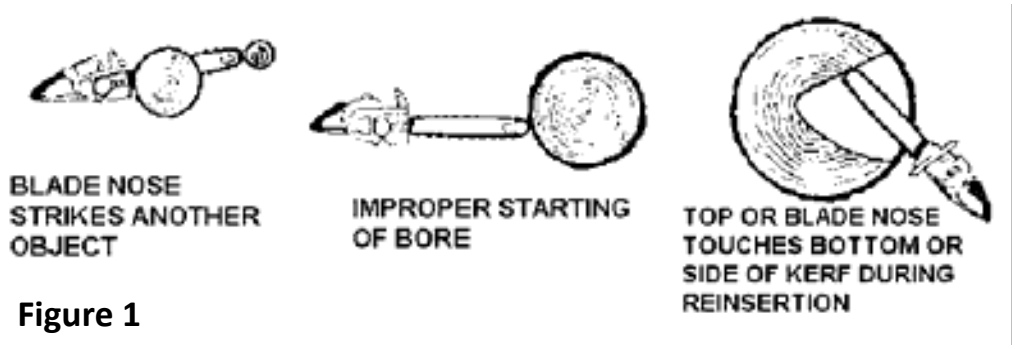

Figure 1

KICKBACK

One of the major differences between professional and consumer saws is that consumer saws must be equipped with low-kickback chain (or safety chain) when they are purchased. These chains are required on all saws that have an engine smaller than 3.8 cubic inches. They are also available for larger saws and are highly recommended. Kickback occurs when the upper tip of the guide bar touches an object or when the wood closes in and pinches the saw chain in the cut. (See Figure 1 above) This contact may cause a lightning-fast reverse action of the guide bar back toward the operator. Results of kickback include severe upper body, neck, and facial lacerations or death. Safety chain (and other features) minimize the dangers of kickback but do not eliminate the hazard.

Figure 2
Parts of a cutting chain.

SAW CHAIN

The cutting chain is composed of drive links and cutters (See Figure 2 above). The drive links ride in the groove on the saw bar and engage the sprocket on the motor. The cutters may be one of three styles: chipper, chisel or safety. Safety chain has features designed to reduce saw kickback such as a guard link (See Figure 2 above). When purchasing replacement chain for an existing saw, note that a chain with a blue label meets the low kickback standard and can be used on any saw. Chains with a yellow label are recommended for professional use only. Some yellow-label chain can be used on certain saws less than 3.8 cubic inches. Remember, the larger, professional saws may not have additional safety features that might be desirable.

GUIDE BARS

The guide bar on a saw is intended solely to provide a guide track for cutting chain. It is not intended to be used as a pry bar, lever or crow bar. Some guide bars are equipped with a sprocket nose that is designed to reduce friction as the chain passes around the nose of the saw. Since the tendency toward kickback increases as the radius of the guide bar nose increases, reducing the radius of the kickback zone can be accomplished using an asymmetric nose guide bars, or "banana bars," which are available from some manufacturers.

Consider the following points when selecting a saw.

ELECTRIC-POWERED SAWS

- Should be listed by Underwriters' Laboratories (UL).
- Require a nearby, convenient source of electricity.
- Need no fuel.
- Run quietly.
- Start easily and instantly.

- Are limited in guide bar length (usually under 14 inches).
- Can be used indoors.
- Have potential for shock hazard.
- Usually cost less.
- Vibrate less.
- Have no exhaust fumes.

GASOLINE-POWERED SAWS

- Can be used anywhere; not limited by electric cord.
- Use gasoline-oil mixture as fuel.
- Are relatively noisy and smoky.
- Require some effort to start.
- Are available in many engine and guide bar sizes.
- Are intended for outdoor use.
- Have potential for fire or burn hazard.

Match the bar size to the type of job you expect to do most often. Use Table 1 as a guide for selecting the right bar size for your needs. As a general rule, do not attempt to cut material that is larger than the guide bar of the saw.

Table 1 Selecting a chain saw

Mini or lightweight saws

- Guide bar length of 8 to 14 inches
- Light and occasional use for limbing, cutting small logs and felling small trees

Midweight saws

- Guide bar length of 14 to 20 inches
- Frequent log cutting and felling of small to medium diameter trees

Heavyweight saws

- Guide bar length of more than 20 inches
- Professional use — not recommended for consumers

If the guide bar is substantially longer than the material you are cutting, accidental contact between the guide bar tip and a branch, the ground, or another piece of wood could result in a serious kickback injury. If the guide bar is too short, you will have to bury the tip of the guide bar in the cut. Although most manufacturers indicate that a saw can cut a log twice as thick as the length of the guide bar, losing sight of the tip of the guide bar can also result in serious kickback injuries.

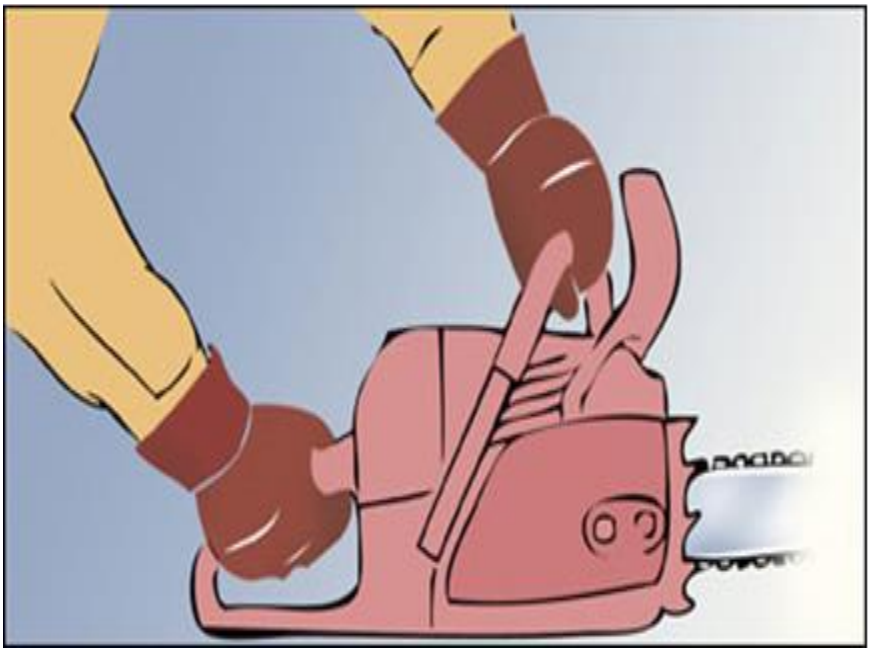

Figure 3
Proper clothing and equipment can reduce injury.

YOU AND THE SAW

Before operating the saw, read and study the operator's manual. Even if you are an experienced operator, it is good practice to review the manual occasionally. Make sure that all safety features on the saw are functional.

Proper clothing and personal protective equipment is as important in reducing the risk of injury as knowing the specifications and operating parameters of the saw. Use the following list as a guide:

- Clothing should be well-fitted and free of dangling or ragged edges that could become entangled in either the saw or brush (See Figure 3 above).
- The specialized protective clothing that is available is intended for occasional saw operators as well as professionals. This includes protective chaps or leggings that cover the area from the groin to about 2 inches above the ankles. Many of these chaps wrap around the leg and protect the calf area as well. These chaps are made from synthetic fabrics that are designed to prevent the running saw chain from coming in contact with your legs. Remember, with some of the newer saws, the chain can be running at speeds of 4,000 to 5,000 feet per minute (45 to 55 miles per hour).
- A properly fitted hard hat protects your head from serious head injury from falling limbs or other debris.
- Side shield eye protection or goggles must be worn along with a full faceshield to prevent injury from flying wood chips, sawdust, or twigs. When wearing a faceshield, side shield eye protection must also be worn under the faceshield.
- Ear muffs or plugs to protect your ears from the 90+ decibel noise level of the saw. The muffs or plugs will have a decibel noise reduction rating assigned to them, the higher the rating the better. Complete sets of hard hats, muffs, and eye shields are available in the collection office.
- Hand protection should be worn to protect your hands from abrasions, splinters and cuts. Special woodcutter's gloves have slip-resistant palms and use the same fabric on the backs of the gloves that is used in the chaps and leggings described above.
- A pair of shoes with high tops will protect your ankles in case of accidental contact with the moving saw chain. Steel toes will help protect your feet from injury from falling limbs or logs as

well as from accidental contact with the moving chain. Some shoes use the same fabric that is used in the protective chaps or gloves. Your safety shoes or boots should have a nonskid sole.

PREPARE THE SAW

A properly maintained saw is safer and easier to operate than one that has been poorly maintained. Preventive maintenance will allow you to cut more wood quickly and safely. Maintenance includes sharp teeth, correct chain tension, proper lubrication, a properly tuned engine, and functioning safety equipment. Check your operator's manual for specific information.

A PROPERLY SHARPENED CHAIN

If you notice that the saw is cutting crooked, the cut shows fine sawdust instead of chips, you find yourself pressing down hard to keep cutting, or smell burnt wood, your saw chain needs sharpening. Contact with dirt, rocks, or metal will quickly dull and nick the cutting teeth on the chain.

Follow the instructions outlined in your owner's manual when sharpening the chain. If you do your own sharpening, use the proper tools. Wear gloves or place a rag over the chain to protect your hands from the sharpened cutters. Chain manufacturers recommend that the depth gauge (see Figure 2) be lowered every third filing. The difference in height between the top plate of the cutter and the top of the depth gauge determines how well the saw cuts.

CORRECT CHAIN TENSION

To ensure good cutting action and a long chain life, check chain tension. If the chain is too loose, it will come off; if too tight, the chain will bind and overheat.

All chains stretch with use. Most of the stretch occurs during the first half hour of operation. Follow the manufacturer's recommendation on chain tension. Soak a new chain in SAE 30 oil overnight before installing. Check the guide bar and sprocket before placing a new chain on the saw. A worn sprocket can ruin a chain quickly. Most manufacturers recommend that a cold chain be tightened to where the chain tie straps hang away from the bar about 1/32 inch at the center of the bar. A warm chain should be adjusted to a 1/8-inch gap. Chains should be somewhat tighter on a guide bar fitted with a sprocket nose tip.

PROPER LUBRICATION

Lubrication will prolong a chain's useful life. In the summer, either SAE 30 or bar and chain oil can be used; in the winter, use SAE 10 oil or bar and chain oil. Do not use crankcase or other reclaimed oil as the waste oils can corrode the oil pump and have reduced lubricating properties.

Saws that are fitted with automatic oilers are designed to match the capacity of the fuel tank with that of the oil tank so that when you run out of fuel, you haven't quite run out of oil. Saws that have manual oilers need to be checked more frequently.

If the bar-oiling mechanism is not operating properly, serious damage to the chain and bar can occur in a short time. If the chain smokes while operating, there is not enough lubrication. When the saw is started, make sure that the oil pump is functioning and that oil is lubricating the bar by holding the saw tip above a light-colored surface and accelerating the engine. Oil should spatter on the surface if the oiler is operating properly. If not, shut the saw off, remove the guide bar and check the chain oil discharge slot. Sometimes it becomes clogged with sawdust and must be cleaned out.

The guide bar can become damaged as a result of poor lubrication, improper chain tension, or prolonged cutting with a dull saw. The owner's manual should be consulted for proper maintenance of the guide bar. Don't forget to check the drive sprocket as well. It can also become worn or damaged by improperly fitted chains.

FUNCTIONING SAFETY EQUIPMENT

Many chain saws are equipped with a "chain brake" that is designed to stop the chain almost instantaneously. It is either manually activated or triggered by the inertial forces of the kickback itself. Refer to the owner's manual for the proper way to check the chain brake on the saw. Maintenance on this feature is critical and repairs should be done by properly trained service technicians.

See the "Chain Saw Troubleshooting Guide" below for explanations of symptoms and possible mechanical problems and corrections.

CHAIN SAW TROUBLESHOOTING GUIDE

Difficult or poor cutting	
Problem	**Correction**
Chain dull	Sharpen chain
Improperly sharpened chain	Check chain
Chain installed backward	Turn chain around
Improper chain tension	Correct chain tension
Bar and chain aren't being lubricated	Fill oil tank, adjust oiler
Damaged guide bar	Inspect guide bar
Exhaust ports dirty	Clean muffler and exhaust ports
Fuel filter dirty	Clean filter
Improperly adjusted carburetor	Adjust carburetor

Oiler not working	
Problem	**Correction**
Out of oil	Fill oil tank
Oil hole plugged	Clean oil supply hole
Oil strainer dirty	Clean oil strainer
Oiler adjusted incorrectly	Adjust oiler
Plugged vent on oil tank cap	Clean vent

Engine won't start	
Problem	**Correction**
Switch off	Turn switch on
Improper starting procedure	Follow correct procedure
Fuel tank empty	Fill fuel tank
Engine flooded	Clean spark plug
Carburetor adjustment incorrect	Adjust carburetor
Spark plug fouled	Clean or replace plug

Engine dies or accelerates poorly	
Problem	**Correction**
Fuel tank empty	Fill fuel tank
Air cleaner dirty	Clean air cleaner
Spark plug fouled	Clean or replace plug
Carburetor adjustment incorrect	Adjust carburetor
Plugged vent of fuel tank cap	Clean vent on fuel tank cap

BASIC OPERATING PROCEDURES

Refueling the engine
Never refuel a hot engine; always allow the engine to cool before refueling. Make sure that the area around the refueling site is free from combustible materials. Clean sawdust and debris away from the fuel and oil caps before opening so that the debris does not fall into the fuel or the oil tank.

DO NOT SMOKE and keep away from open flames or other potential sources of ignition during fueling or refueling. Gasoline is a flammable liquid; a pint of gasoline has the explosive power of a stick of dynamite.

Each time you refuel the saw, refill the oil tank as well, check the chain tension, and make sure that all the nuts and bolts are tight.

Starting the engine
Place the saw on level ground in an area free from rocks. Make sure that the bar and chain assemblies are out of the dirt. Make sure the saw is turned on. With one foot placed in the hand guard at the rear of the saw, grip the top handle of the saw firmly with one hand and use the other hand to pull the starting rope. Some small saws may not have room in the rear hand guard for your boot, so make sure that the saw is held firmly on the ground.

Never drop start the saw as this creates a significant hazard as you can only hold the saw with one hand and will have no control whatsoever over the swinging action that the bar will make.

Planning
Before starting the saw, make sure that you know what you are going to do. Do not walk around revving the motor while you figure out your next cut. Prior planning prevents poor performance of the equipment and should reduce accidents. When felling a tree, figure out where the tree is going to fall before you start. What obstacles are in the way? Are there heavy branches in the crown? Is the wind blowing? Are there dead branches in the crown that might fall on you when you start to cut? (These are called widow makers for a good reason.)

If you are limbing some standing trees, **do not cut above the level of your shoulders**, you simply do not have good control over the saw in that situation.

Plan escape routes to the rear or sides of the tree so you know where to go if something goes wrong.

Check the operator's manual as this will also give guidelines on safe and efficient operation.

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 26	**TRAFFIC/WORK ZONE PROTECTION**				
DATE ISSUED: 2017					
Revised	**Aug. 2017**				

PURPOSE

To establish minimum guidelines to maintain the safety of work zones while protecting employees and pedestrians from the hazards of vehicular traffic.

RELATED REGULATORY STANDARDS

- NJAC 19:9-1.2 Speed limits
- NJAC 19:9-1.3 Traffic control
- Manual on Uniform Traffic Control Devices (MUTCD) For Streets and Highways 2003 Edition

DEFINITIONS

Traffic Control Plan – A detailed diagram of the work area showing the placement of all traffic control, road closure and detour devices.
Traffic Control Device **-** Any sign, signal, marking or other device used to regulate, warn or guide traffic through or around the work zone and protect employees.
Traffic Protection **-** Any traffic control device used to close shoulders, lanes and roadways to provide for the safety of employees.
Pedestrian **-** Any person(s) passing through, around or over the work zone.

TRAINING

Shall be provided to all affected employees responsible for maintenance and repair of the distribution and/or collection system.

RESPONSIBILITIES

The Authority shall provide traffic control and traffic protection devices that comply with the Manual on Uniform Traffic Control Devices (MUTCD) so that a safe work zone can be established for the protection of the employees and require that traffic control plans are developed prior to establishing a work zone.

Employees shall be responsible to adhere to the requirements of the traffic control plans established by the Authority, work in and maintain the area designated as the work zone and report deficiencies in the traffic control plan or traffic control and traffic protection devices to their Supervisor.

STANDARD PRACTICES

- Unless deemed an emergency, work requiring the closure of any route of travel should be scheduled through the Police Department.
- In the event of an emergency and/or conditions beyond the control of the Authority, lane closings may take place at any time.
- When possible, closings should be scheduled at least twenty-four (24) hours in advance.
- When a work zone encroaches into any route of travel, that route of travel should be closed.
- All work zones shall be established as required by the traffic control plan and in consideration of advice from the Police Department.
- All traffic control and traffic protection devices shall comply with the Manual on Uniform Traffic Control Devices (MUTCD).
- Unless necessary, no more than one lane in a route of travel should be closed at any one time.
- The closing and reopening of all lanes should include the assistance of the Police Department.
- Vehicles setting up lane or shoulder closings must always unload and place the equipment traveling in the direction of traffic.

- When removing traffic control and traffic protection devices, equipment will be removed backing against traffic.
- Amber flashers must be operated during all these operations until normal speed is attained.
- When necessary, the Police Department should provide traffic control during the installation and removal of all traffic control and traffic protection devices.
- Traffic control and traffic protection devices and related equipment should conform to the MUTCD.
- Amber flashing lights used on traffic control and traffic protection devices shall be securely mounted and aimed.
- Traffic cones should have two reflective collars affixed when required. Cones must always be placed neatly and accurately.
- Whenever signs are not being used for traffic control or traffic protection purposes, the messages must be concealed from traffic.
- Lighted sign panels stands should be removed from the roadway or turned off to minimize confusion for the motorist.
- Traffic control or traffic protection signs, cones and lights, should be placed in advance of and around a work zone to provide adequate warning for approaching motorists.
- The use of Emergency Speed Warning Signs (ESWS) in advance of the work zone is not necessary unless conditions warrant their use.

SHOULDER CLOSINGS

- Left or right shoulder closings shall be permitted subject to the approval of the Police Department,
- The simultaneous closing of both right and left adjacent shoulders in the same roadway should not be permitted.
- Equipment and vehicles used in conjunction with shoulder operations should be staged within the defined work zone.
- Whenever any equipment occupying a shoulder will be positioned or operated within three feet of a traveled lane, the lane adjacent to the shoulder shall also be closed.
- Stabilizing attachments such as outriggers may extend to the shoulder line without requiring the closing of the adjacent lane.
- When work on a median requires an adjacent lane closing because of the three foot rule, only the lane adjacent to the narrower of the two shoulders should be closed.
- All equipment and materials shall be stored on the side of the median on which the lane is closed.
- When work is to be conducted in a median U-turn or a Z-turn, both adjacent shoulders shall be closed.

LANE CLOSINGS

- Temporary traffic protection for routine daylight work during fair weather conditions when the operation is less than two hours duration may use limited protection as described in the MUTCD. These temporary procedures are not appropriate for closings to the center lane nor should they be used during times of limited daylight, limited visibility or during inclement weather.
- Very often, right lane closings will interfere with entry and exit drives and cross streets. Place cone or sign arrangements in such a way as to not impede the flow of traffic. Adequate attention must be given when identifying and directing exit and entry traffic through right lane closings.
- Lane closings are generally not permitted in inclement weather unless an emergency exists. The Police Department or authority having jurisdiction should be contacted for permission to establish a lane closing during inclement weather.

CHANNELIZATION

- The single most important element, within the system of traffic control devices commonly used in construction and maintenance areas (where a reduction in pavement width is involved), is the taper rate that is provided for the channelization of traffic with the use of traffic cones.

- A minimum desirable taper rate is expressed in the formula L=S x W, or L (length) = (equals) S (posted speed limit) x (times) W (width of offset in feet).
- The minimum desirable length derived from the rates indicated above applies to roadway conditions of relatively flat grades and straight alignment. The proximity of interchange ramps, crossroads, hills and curves, etc., to the work may dictate the need for adjustments.

ROADWAY CLOSINGS

- If numerous work areas exist within the same roadway, or if the work proposed affects more than one lane, an entire roadway may be closed to expedite the work only after approval from the Police Department, Executive Director or authority having jurisdiction.
- The closing of the roadway must be done with assistance of the Police Department.
- All vehicles and equipment operating in a closed roadway should always stay to the right in the direction of travel and observe appropriate speed controls to maintain the safety and integrity of the work zone. All vehicles and equipment should operate with headlights, four way flashers and rotating amber flashing lights activated.

EMERGENCY SITUATIONS

- The Police Department is required to investigate all motor vehicle accidents. Should a motor vehicle accident occur in proximity to a work zone, then the Police should be summoned immediately.
- If properly trained and if safely possible, personnel should render assistance to any injured parties and attempt to control vehicular traffic through or around the accident scene.
- Personnel assisting at an accident should not place themselves at undue risk. All vehicles and equipment should be parked in locations where they will not be exposed to oncoming traffic, present an obstruction hazard, and are not exposed to a potential fire or explosion hazard.

PEDESTRIANS (Employees in the work zone)

- All employees in the work zone will have the right of way and will wear retro-reflective vests.
- If it is necessary to walk along the edges of the work zone adjacent to the flow of traffic, walk facing the direction of traffic behind the protection afforded by the traffic control devices.

EXCAVATIONS AND EXCAVATED MATERIALS

- Timber or concrete barriers must protect any excavation that constitutes a hazard to traffic, whether it is in a traffic lane, in a shoulder, or any other route of travel within thirty feet of the edge of pavement.
- Mandatory requirements for barrier use includes any excavation of a traffic lane or shoulder below six inches, or any other opening in a roadway or adjacent area which would be dangerous if a vehicle were to roll into it. Barriers must be installed prior to starting excavation.
- Drainage inlets and junction boxes do not require the placement of barriers.

FLAGGERS & TRAFFIC DIRECTORS

- Flaggers must be physically and mentally qualified to carry out their responsibility. **BE ALERT AT ALL TIMES.**
- Flaggers are required to wear a retro-reflective vest and a hardhat.
- Do not leave your flagging position until relieved by another flagger.
- Be sure your substitute understands all flagging signals and procedures.
- Always stand alone where motorists can readily identify you.
- Stand just outside the approaching traffic lane, **NEVER STAND IN AN OPEN TRAFFIC LANE**.
- Be ready to stand clear of any approaching vehicles in case they do not stop.
- Flaggers shall place themselves so that approaching traffic can see them from a distance of at least 500 feet.
- Be alert for emergency vehicles and confused motorists.

- Make all signals clearly and calmly.
- Be alert to traffic from either direction even when paired with another flagger.
- In areas where there are hills and curves additional flaggers may be necessary.

STARTING/STOPPING TRAFFIC

- When signaling traffic to start, stand parallel to the traffic movement.
- Wave the flag in a horizontal position across the traffic lane so that the full area of the flag hanging below the staff is visible.
- Bring traffic to a halt by raising the free hand as in a standard stop signal with the palm facing oncoming traffic.

EVESHAM MUNICIPAL UTILITIES AUTHORITY SAFETY MANUAL					
SECTION – 27	**WELDING, CUTTING AND BRAZING**				
DATE ISSUED: 2017					
Revised	**Aug. 2017**				

PURPOSE

To establish minimum guidelines for the safe use, handling and storage of equipment designed for welding, cutting and brazing operations ("Hot Work").

RELATED REGULATORY STANDARDS

OSHA 29 CFR 1910 General Industry, Subpart Q Welding, Cutting and Brazing

DEFINITIONS

Hot Work - Gas or electric welding, cutting, burning, brazing or any task that may produce sparks heat or slag capable of causing fire.

TRAINING

Shall be provided so that each affected employee is aware of the potential hazards associated with hot work.

DUTIES AND RESPONSIBILITIES

The Authority shall designate separate areas and procedures for hot work.

The Authority has appointed the Maintenance Supervisor or designee as the responsible party for authorizing permits for hot work when working in areas not specifically designed for that operation and to advise all Contractors conducting hot work about flammable materials or hazardous conditions of which they may not be aware.

Employees shall follow proper procedures for the safe handling and use of the cutting or welding equipment, determine if combustible materials or hazardous areas are present or likely to be impacted by the hot work and take necessary precautions to protect these areas.

STANDARD PRACTICES

GENERAL

All flammable and combustible liquids and products must be protected from ignition by the following means:

- Have the work moved to a location free from dangerous combustibles.
- If the work cannot be moved, have the combustibles moved to a safe distance from the work or have the combustible shielded against ignition.
- Ensure that plant operations that might expose combustibles or flammables to ignition are not started in the proximity of the cutting or welding.
- To prevent the potential for fire or explosion, never open a cylinder valve in the vicinity of open flames, sparks or other ignition sources.
- Eliminate small fires by closing the valve if safe to do so.
- Evacuate the area if a large fire is present.
- When cutting, welding or brazing outside of a designated hot work area, secure authorization from a Supervisor for the Hot Work Permit.
- Have a fire watch available during the hot work and have the area patrolled for at least 30 minutes after the hot work is complete.
- Determine that fire-extinguishing equipment is located at the site of the hot work.

STANDARD OPERATING PROCEDURES

GENERAL

- Local exhaust hoods and/or sufficient natural or mechanical ventilation must be provided at the site of the welding or cutting operation so that contaminants are kept away from the welder's breathing zone and below maximum allowable concentrations.
- Always complete a Hot Work Permit and have a fire watch when not working at a designated welding area.

GAS WELDING/CUTTING/BRAVING

- Never use compressed gases to clean off clothes.
- All welding carts must be equipped with a multi-purpose (A, B, C) Dry Chemical Fire Extinguisher.
- Always handle compressed gas cylinders as if full and with caution.
- Do not accept cylinders with defects such as cracks, broken welds, seams, or excessive rust, cylinders with broken, bent or missing valve protection caps or safety relief devices.
- Store cylinders in an upright position and secure them from being toppled.
- Oxygen cylinders must be stored at least 20 feet from Acetylene and flammables, or separated by a 5-foot high, one-half hour rated firewall.
- Always keep the protective valve cover in place when the cylinder is not in use.
- Leaking cylinders must be taken out of service immediately, tagged, and removed to an outdoor area to vent. Post to keep ignition sources away and contact a Supervisor.
- Do not permit sparks, molten metal, electric currents, excessive heat or flames to contact a cylinder or its attachments.
- An oxygen cylinder shall not be emptied below 25 – 50 psig. Contaminants may enter the cylinder if positive pressure is lost causing a potential fire/explosion threat.
- Acetylene may not be used at above an operating pressure of 15 psig.
- Never bring cylinders or welding machines into confined spaces or unvented areas.
- Make sure the threads on a regulator or union correspond with those on the cylinder outlet. Do not force connections that do not fit.
- Before making a connection to the valve outlet, "crack" the valve for an instant to clean the opening of particles or dirt.
- Test regulator connections, hoses and the torch frequently for leaks.
- Remove leaking regulators and damaged hoses from service immediately for repair/replacement.
- Before removing a regulator, close the cylinder valve and release the gas from the regulator. Close all cylinder valves when work is complete.
- Regulator gauge face glass must be replaced when cracked, cloudy or missing.
- Never use oil or grease to lubricate valves or attachments on oxygen cylinders. Keep oily hands, clothes and rags away from oxygen cylinders.
- Torches shall only be ignited by friction lighters.
- Where practicable the torch and hose shall be removed from a confined space when not in use for an extended period of time.
- In order to eliminate the possibility of gas escaping through leaks or improperly closed valves when gas cutting or welding, the torch valves must be closed and the gas supply to the torch positively shut off whenever the torch is not being used.
- Inspect check valves and flash arrestors regularly as recommended by the manufacturer to ensure they function as intended.
- Do not leave pressure in a regulator when not in use. Close the cylinder valves; drain the hose in a safe location.
- Do not clean torches with matches or toothpicks; always use a cleaning tool.

ELECTRIC ARC WELDING

- A welding curtain must be used when arc-welding around other personnel.
- When arc welding is to be suspended for a period of time (e.g. lunch, overnight) the electrodes must be removed from the holders and the holders located so that accidental contact cannot occur and the machine be disconnected from the power source.
- Never change electrodes on arc-welders with bare hands, wet gloves or when standing on wet floor or grounded surfaces. Always ground the frame of the welding unit.
- A suitable means of control for varying the welding current over the specified welding range should be provided.
- Welding cables and equipment must be placed so that it is clear of passageways, ladders and stairways.
- Worn cables that expose bare conductors must be tagged out of service and repaired/replaced.
- Never coil or loop welding cable around your body.
- Wear protective colored goggles with side shields under the hood for protection against harmful rays when an arc is struck and for protection against flying chips and scale. The lens should be #2 or #3 shade.
- Wear rubber gloves under welding gloves when work is being done in wet or damp locations or when the welder is perspiring excessively.

GENERAL REQUIREMENTS FOR PERSONAL PROTECTIVE EQUIPMENT:

- Fire resistant clothing.
- Fire resistant gauntlet gloves.
- Flame resistant aprons (e.g. leather).
- Flame resistant leggings (e.g. leather).
- Ankle length shoes with safety toe cap.
- When working overhead use a shoulder cape and flame resistant skull cap.
- Use ear plugs for noisy jobs (e.g. high velocity plasma torches).
- Helmets with the appropriate shaded lens must be used during all arc cutting or welding operations.
- Goggles must be used during all gas welding or oxygen cutting operations.

Recommended shade selection of filter type lens

AMPERES	SHADE #		ROD DIAMETER = INCHES	SHADE #
Blow 30 Amperes	6 OR 7		1/16	10
30 to 75 Amperes	8		3/32	10
75 to 200 Amperes	10		1/16 – 5/32	10
200 to 400 Ampere	12		3/16 – ¼	12
Over 400 Amperes	14		5/16 – 3/8	14

EVESHAM MUNICIPAL UTILITIES AUTHORITY
HOT WORK PERMIT

This permit has been issued in accordance with NFPA 51B. The Supervisor or appointee issuing the permit certifies that necessary precautions have been implemented to prevent a potential fire or explosion. Upon completion of the Hot Work, return this permit to the authorizing Supervisor. The Supervisor will sign and date where appropriate indicating the job has been completed in accordance with the permit requirements.

Location of Hot Work: _____
Work to be Performed: _____

FIRE WATCH	**YES**	**NO**	**NA**	
Is a Fire Watch required? (If yes, it must be maintained for a minimum of 30- minutes after completion of operation.)				
Has an appropriately sized fire extinguisher been provided? (Min 2-A:10-B:C)				
HOT WORK AREA	**YES**	**NO**	**NA**	
Has the work area and equipment been made free of flammable, combustible or hazardous liquids or materials or have they properly covered?				
Does adjoining equipment, operations or work areas present a hazard?				
If yes, have they been isolated or evacuated?				
HOT WORK AREA – ENCLOSED OR CONFINED	**YES**	**NO**	**NA**	
Has a confined space permit been issued? (If yes, all confined space procedures must be followed.)				
When in enclosed or confined spaces, has the area been purged of flammable vapors and gases?				
Are lockout/tagout precautions needed, including blanking, blinding or bleeding of lines?				
EQUIPMENT	**YES**	**NO**	**NA**	
Is equipment in good condition and well maintained?				
Has GFCI protection been incorporated where necessary?				
FIRE WATCH – PERMIT CLOSURE	**YES**	**NO**	**NA**	
Was the work area monitored for a minimum of 30-minutes after completion of operations?				

_____ _____
Signature of Supervisor or Appointee Date

Permit terminates at end of shift or completion of operation.

EVESHAM MUNICIPAL UTILITIES AUTHORITY
HOT WORK PERMIT

This permit has been issued in accordance with NFPA 51B. The Supervisor or appointee issuing the permit certifies that necessary precautions have been implemented to prevent a potential fire or explosion. Upon completion of the Hot Work, return this permit to the authorizing Supervisor. The Supervisor will sign and date where appropriate indicating the job has been completed in accordance with the permit requirements.

Location of Hot Work: _____
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Is a Fire Watch required? (If yes, it must be maintained for a minimum of 30- minutes after completion of operation.)				
Has an appropriately sized fire extinguisher been provided? (Min 2-A:10-B:C)				
HOT WORK AREA	**YES**	**NO**	**NA**	
Has the work area and equipment been made free of flammable, combustible or hazardous liquids or materials or have they properly covered?				
Does adjoining equipment, operations or work areas present a hazard?				
If yes, have they been isolated or evacuated?				
HOT WORK AREA – ENCLOSED OR CONFINED SPACES	**YES**	**NO**	**NA**	
Has a confined space permit been issued? (If yes, all confined space procedures must be followed.)				
When in enclosed or confined spaces, has the area been purged of flammable vapors and gases?				
Are lockout/tagout precautions needed, including blanking, blinding or bleeding of lines?				
EQUIPMENT	**YES**	**NO**	**NA**	
Is equipment in good condition and well maintained?				
Has GFCI protection been incorporated where necessary?				
FIRE WATCH – PERMIT CLOSURE	**YES**	**NO**	**NA**	
Was the work area monitored for a minimum of 30-minutes after completion of operations?				

_____ _____
Signature of Supervisor or Appointee Date

Permit terminates at end of shift or completion of operation.