SAFETY MANUAL

City of Fond du Lac - *Compiled by the City Safety Committee*

City of Fond du Lac

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Fond du Lac
First on the Lake

City of Fond du Lac

Safety Manual

Compiled by the **City Safety Committee**

Templates Provided by League Mutual Insurance

Chapters	Approved
Working in a Confined Space	November, 2014
Excavation Safety Program	November, 2014
Ladder Safety Program	January, 2014
Electrical Safety Program	February, 2014
Hazard Communication Program	June, 2014
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Lockout (Control of Hazardous Energy)	May, 2015
Emergency Action Plan	May, 2015
Fire Prevention Plan	May, 2015

LEAGUE OF WISCONSIN MUNICIPALITIES
MUTUAL INSURANCE

Administered by
United Heartland

Working in a Confined Space

For
City of Fond du Lac

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Only qualified City employees may be required to perform work in areas that are defined as "Confined Spaces", under state **Wisconsin Administrative Code SPS 332.28 (3)** and federal laws. **Title 29: Labor [29 CFR 1910.146]** Because work in these areas can present special safety problems, the state and federal government have passed specific laws which mandate certain precautions which must be taken before employees enter a confined space.

These laws were enacted because of serious injuries and fatalities which have occurred when employees have entered confined spaces that contain hazards such as contaminated air or structural dangers. The procedures outlined in this section are in compliance with state and federal requirements, and it is critical that employees adhere to them strictly when entering a confined space.

A. Definitions

1. **Attendant:** The individual(s) stationed outside one or more permit space who monitors the authorized entrant(s) and who performs all attendant's duties assigned in the employer's permits space program. The attendant may also serve as the entry supervisor or the person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned.
2. **Authorized Entrant:** An employee who has received adequate training to enter a permit-required confined space.
3. **Confined Space:** a space that:
   a) Is large enough and so configured that an employee can bodily enter and perform assigned work;
   b) Has limited or restricted means of entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, manholes, sewers, tunnels, pits, vats, degreasers, boilers, ventilation and exhaust ducts, and pipelines are space that may have limited means of entry.); and
   c) Is not designed for continuous employee occupancy

4. **Entry:** The action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space
5. **Entry Supervisor:** The employee responsible for determining if acceptable entry conditions are present within a permit-required confined space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this policy.

6. **Hazardous Atmosphere:** An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:
   a) Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);
   b) Airborne combustible dust at a concentration that meets or exceeds its LFL;
   c) Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
   d) Atmospheric concentration of any substance for which a dose or permissible exposure limit could result in employee exposure in excess of its dose or permissible exposure limit;
   e) Any other atmospheric condition that is immediately dangerous to life or health.

7. **Non-Permit Required Confined Space:** A confined space that does not contain or, with respect

to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm. Entrances to all non-permit required confined spaces will be marked with a sign that reads "Warning Non-Permit Required Confined Space"

8. **Permit-Required Confined Space:** A confined space that contains or has the potential to contain one or more of the following characteristics:
   a) Contains or has a potential to contain a hazardous atmosphere;
   b) Contains a material that has the potential for engulfing an entrant;
   c) Has the internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section: or
   d) Contains any other recognized serious safety or health hazard.

   Entrances to all permit-required confined spaces shall be posted with a sign that reads "Danger Permit-Required Confined Space, Do Not Enter".

9. **Permit-Required Confined Space Program:** The employer's overall program for controlling, and, where appropriate, for protecting the employees from, permit space hazards and for regulating employee entry into permit spaces.

B. Entry Into a Confined Space

Most confined spaces are easy to identify. Others may not be. For example, storage tanks with open tops may still contain hazardous gases which are heavier than air and have settled to the bottom of the storage facility. Employees should always exercise caution, and if in doubt regarding whether a work area classifies as a confined space, seek assistance from their supervisor or follow the procedures outlined in this chapter until you are certain the area is safe. You should be particularly cautious if there are foul or unusual odors coming out of the work area.

The employer will have posted signs reading "Danger Permit-Required Confined Space, Do Not Enter" at each permit-required confined space area. The employer will also post signs reading "Warning Non-Permit Required Confined Space" at the entry of all non-permit required confined spaces. **All confined spaces are considered permit-required confined spaces unless posted as a non-permit required confined space.**

Note: This requirement does not apply to open trenches or sewer repairs, as they often lack clear entry points and the hazard becomes clear immediately before the repair is needed.

1. **Pre-Entry Procedures For Permit-Required Confined Spaces**

   The City requires all qualified employees to follow the procedures outlined in this section before entering and while working in permit-required confined spaces. Failure to comply with these procedures could result in serious injury or even death of employees involved. Employees and their supervisors found not complying with these procedures will be disciplined. The procedures outlined in this section are for the safety and well-being of employees and must be strictly adhered to. State and federal law requires that employees take the precautions listed below before entering a permit confined space:

   - Complete a "City of Fond du Lac Confined Space Entry Permit" Form

- Sample the air within the confined space to determine if the air quality is within acceptable safe limits prior to entry.
- Continuous monitoring of the air while in the confined space.
- Use or make available specific rescue equipment such as a hoist, ropes, respirators and communications system.
  NOTE: This requirement may be impractical or unsafe in trench situations.
- Maintain the presence of an attendant when an individual is in a confined space which may have dangerous air contaminants or materials which may produce dangerous air contaminants.

a. **City of Fond du Lac Confined Space Entry Permit Form** – Prior to entering a permit-required confined space, authorized personnel are required to complete the "City of Fond du Lac Confined Space Entry Permit" Form (hereinafter "Entry Permit"). In order to be completed, the Entry Permit must include the following information
   i) The confined space to be entered;
   ii) The purpose of the entry;
   iii) The date and authorized duration of the Entry Permit;
   iv) The name of all authorized entrants for that Entry Permit;
   v) The name of all personnel serving as an attendant;
   vi) The name and signature of the entry supervisor who authorized the entry (this may be the same person as the attendant);
   vii) All potential hazards of the confined space to be entered;
   viii) Measures used to isolate the space and to eliminate or control space hazards;
   ix) Acceptable entry conditions;
   x) Results of any pre-entry and periodic atmospheric testing;
   xi) Any safety procedures and equipment used by entrants during entry;
   xii) Other permits that have been issued to authorize work in the confined space.

   NOTE: All confined spaced entry permits must be retained for a period of one year.

b. **Sampling** – In order to complete the Entry Permit, sampling of the air within the confined space must be completed and recorded. This is accomplished with sampling devices specifically designed for this purpose. Air sampling devices are available from your supervisor. You must be trained in the proper use of the device before you take it into the field. Your supervisor or other qualified personnel will provide this training before you are allowed to use the device.

   The sampling device will simultaneously test for hydrogen sulfide, oxygen, carbon monoxide, and combustible gases. The sampling devices are equipped with audible and/or visible warning devices which will indicate when the atmosphere of a confined space is considered hazardous for human occupancy. Specifically, the sampling device will be triggered if the atmosphere of the confined space contains:
   i) an oxygen content less than 19.5% or over 23.5%;
   ii) a hydrogen sulfide content of 10 parts/million or more;
   iii) a combustible (explosive) gas content of 10% or more of the lower explosive limits;
   iv) carbon monoxide contents of 35 ppm or more; and/or

v) other toxic substances which may be present at levels beyond safe exposure limits.

c. **Sampling Procedures** - Sampling devices must be carefully maintained. You should use only sampling devices that are given to you by your supervisor or by staff trained in their maintenance. When you are finished with a sampling device, it should be returned to an authorized staff member. Those people assigned to maintain sampling devices shall do so according to the standards listed below.

Prior to use, sampling devices must be:

i) Calibrated to the oxygen content of the ambient air at the time of the sampling. Calibration of the sampling device relative to the oxygen content shall be performed where the 20.9% natural content of oxygen in the air is most likely to occur.

ii) Calibration of sampling devices for combustible gases shall be conducted as often as necessary but no less than once every six months with a standardized combustible gas.

iii) Meters must be bump tested before each daily use to ensure the meters are functioning properly.

When using a sampling device in the field, employees must:

i) Sample of the atmosphere of a confined space for toxic substances by use of a multi-gas detector, such as the type furnished by the City.

ii) Use either a non-sparking probe attached to the sampling device or the sampling device itself should be used to sample the atmosphere of a confined space. When entry to a confined space is by means of a manhole, the probe shall be inserted through the pick hole of the manhole cover or the cover should be pried open on the down-wind side just enough to allow insertion of the probe.

iii) Sample the atmosphere at various levels to ensure there are no pockets of gas or other substances near the top or at the bottom of the confined space. The probe should be lowered 1 foot every 30 seconds.

iv) Wear an atmospheric monitoring device on his or her person when performing work within a confined space more than 10 feet from the space's point of entry.

The testing of the atmosphere of the "confined space" will determine whether it is safe for entry and under what conditions.

2. **Entry After Sampling Completed**

a. **No hazardous atmosphere present** – If sampling confirms that the confined space does not contain a hazardous atmosphere, authorized personnel may enter the confined space under the conditions set forth in the Entry Permit. However, no entry into a permit-required confined space is allowed without the following safety precautions:

i) There shall always be two employees present. Both employees must possess a valid card in Cardiopulmonary Resuscitation (CPR) and Multi-media First Aid.

ii) One person must remain outside of the confined space (attendant) and act as an observer while the other person is in the "confined space".

iii) All persons entering a "confined space" must monitor air quality in the employee's

immediate work area. Air quality must be monitored continuously while the employee is in the confined space. Forced ventilation of the area may not be used in lieu of monitoring devices.

iv) Any person entering the confined space must shut off and lock out any machinery, pumps, or other mechanical devices which are located in the confined space. If possible, remove residues or sludges in the confined space which may release harmful gases before entering. (Does not apply to open trench confined spaces.)

v) If there is a chance that flammable fumes and gases may become present in the confined space, employees must use spark-proof clothing and/or tools. All light sources within the confined space shall be explosion proof or low voltage. If at any time the alarm limits for combustible gases have been exceeded, the area should be vacated immediately and cannot be re-entered under any conditions until levels of combustible gases present have been restored to safe limits. (Does not apply to open trench confined spaces.)

vi) Employees must wear hard hats and safety glasses at all times when working in a confined space. Other personal protective equipment may also be required such as respiratory protection, face protection, ear plugs or muffs, and rubber gloves and boots depending on the nature of the work to be performed.

vii) If welding is to be performed in a confined space that contains or did contain combustible materials, all residues including dry seals must be removed before welding operations begin. (Does not apply to open trench confined spaces.)

viii) In case of an emergency, the observer must radio for help immediately and wait for assistance. Do not enter the confined space. (Does not apply to open trench confined spaces.)

ix) Entrances to confined spaces which are located in streets shall be guarded in accordance with the following:

1) Vehicle's 4-way flashers shall be activated.
2) Parking the vehicle in such a way that traffic flows in and where possible, the vehicle shall provide protection for the employee.
3) Vehicles' exhaust fumes shall not enter the confined space.
4) Barricades should be placed around the area and it should be marked with traffic cones when working on streets or other areas where traffic may present a hazard.
5) Traffic safety vests shall be worn when working in the streets or easement surface in the field.

x) Smoking is prohibited within a twenty foot (20') radius or inside of confined space.

xi) Fall protection must be used as needed.

b. Hazardous atmosphere present - If pre-entry sampling, other periodic sampling, or continuous entrant work area monitoring devices indicate that that the confined space actually contains a hazardous atmosphere the following procedures must be followed.

i) Removal of Hazard Without Entry

If the atmosphere is unsafe (i.e., alarm on testing device is triggered), an attempt should be made to bring the air quality of the area into the safe limits defined on the Entry Permit. This may be accomplished with proper ventilation by use of a portable air blower

or fan. Locate the blower itself in an area that is free of contamination. After ventilation, follow-up testing should be done to ensure that a safe atmosphere exists and the area must be continuously ventilated while employees work in the confined space. In addition to the safety requirement listed in section B.2.a. above, the following safety precautions are required during entry of a permit-required confined space that has tested for a hazardous atmosphere.

1) The employee entering the confined space must wear a Class 3 safety harness which is attached to a lifeline attached to a winch and/or a fall arrestor.
2) There must be at least one trained attendant located outside the confined space who shall control the lifeline and maintain communication with the employee inside the confined space. The attendant must contact the employee inside the confined space at least every five minutes by visual signals or voice contact.
3) The attendant must radio for help immediately in case of emergency and not attempt a rescue.
4) The attendant must never leave his post unless he is relieved by another trained observer or has entrant(s) in the confined space come out until he returns.

NOTE: For sewer or open trench confined spaces see section E "Special Circumstances – Open Trenches" below.

ii. Unsuccessful Removal of Hazard without Entry

If authorized personnel are unable to remove a hazardous atmosphere through mechanical ventilation or other means without entry into the space, then under no circumstances is anyone to enter the space. Personnel must inform their immediate supervisor of the issue so it can be remediated.

C. Permit Required Confined Space Entry Program Review

29 CFR 1910.146 states the permit space progam must be reviewed at least annually using canceled permits retained under paragraph (e)(6). The program should be revised as necessary to ensure that employees participating in entry operations are protected from permit space hazards.

NOTE: Employers may perform a single annual review covering all entries performed during a 12-month period. If no entry is performed during a 12-month period, no review is necessary.

D. Special Circumstances - Sewer Entry

Sewer Entry differs in two vital respects from other permit entries, there rarely exists any way to completely isolate the space. Second, because isolation is not complete, the atmosphere may suddenly and unpredictably become lethally hazardous from causes beyond the control of the entrant or employer. Therefore, all sewer entries are required to meet the safety precautions set forth in B.2.a & B.2.b.i.

E. Special Circumstances – Open Trenches

Although trenches over 4 feet in depth contain risks of hazardous atmospheres and engulfment, and therefore qualify as confined spaces, the need to move around moving equipment makes the requirements of harnesses and hoists cumbersome and, in some cases, dangerous. While requirements

for completing a permit, providing continual air monitoring and providing a means of egress still apply, hoist requirements may be waived by the trenching competent person.

THIS PERMIT MUST BE POSTED IN WORK AREA – GOOD ONLY ON INDICATED DATE

FOND DU LAC WCTS CONFINED SPACE ENTRY PERMIT

Space to be entered	Purpose of Entry
Location/Building	**Authorized Duration of Permit** **From:** **To:**

PERMIT SPACE HAZARDS

- ☐ Oxygen Deficiency (less than 19.5%)
- ☐ Oxygen Enrichment (greater than 23.5%).
- ☐ Flammable gases or vapors (greater than 10%)
- ☐ Carbon Monoxide (greater than 35 ppm)
- ☐ Hydrogen Sulfide (greater than 10 ppm)
- ☐ Airborne combustible dust
- ☐ Toxic gases or vapors
- ☐ Mechanical hazards
- ☐ Electric shock
- ☐ Materials harmful to skin
- ☐ Engulfment
- ☐ Other:

EQUIPMENT REQUIRED FOR ENTRY AND WORK
Specify as required:

Personal Protective Equipment: ☐ Gloves ☐ Safety Glasses ☐ Hearing Protection ☐ Hard Hat ☐ Other: _____

Respiratory Protection: ☐ SCBA ☐ SAR ☐ None ☐ Other: _____

Communication: ☐ Visual ☐ Voice ☐ Radio/Cell

Entry, Rescue, and Retrieval Equipment: ☐ Ladder ☐ Full Body Harness ☐ Rope ☐ Self Retracting Lifeline
Tripod Retrieval System: ☐ Yes ☐ No
☐ Other:

PREPARATION FOR ENTRY

☐ Notification of affected departments of service interruption

Isolation Methods:

☐ **Ventilate:** Continuous forced air ventilation must be utilized in instances where there is the likelihood of atmospheric hazards.
☐ Natural ☐ Local Exhaust ☐ Forced Air

☐ Atmospheric Test ☐ Barriers ☐ Purge/clean
☐ Blank/Blind ☐ Inert

Additional Permits required and/or attached:
☐ Hotwork ☐ Line Breaking ☐ Other:

AUTHORIZED ATTENDANT(S)
List by name or attach roster:

Personal Awareness:
☐ Pre-entry briefing on specific hazards and control methods
☐ Notify contractors of permit and hazard conditions
☐ Other: _____

Test For:	Acceptable Bump Test Values	Pre-Entry Results*	Entry Results	Entry Results	Entry Results	Initials
Flammability (LEL)	45-55%					
Oxygen	15.3 – 18.7%					
Hydrogen Sulfide (H_2S)	22.5 - 27.5 ppm					
Carbon Monoxide (CO)	90 – 110 ppm					
Time						

Sampling Equipment And Date Last Calibrated:

*Pre-Entry Measurements performed by Entry Attendant

Note: Determination of unacceptable conditions requires notification to the Laboratory Supervisor and Industrial Pretreatment Coordinator (920-322-3665) for additional guidance.

AUTHORIZED ENTRANT(S) (List by name or attach roster)	Time In	Time Out	Time In	Time Out
1				
2				

FOR EMERGENCY RESCUE CALL FOND DU LAC FIRE DEPARTMENT 911

AUTHORIZATION BY ATTENDANT

I certify that all required precautions have been taken and necessary equipment is provided for safe entry and work in this confined space.

SIGNATURE: **PRINT NAME:** **DATE:**

PERMIT REVIEWED BY:

SIGNATURE: **PRINT NAME:** **DATE:**

Revised 1/4/2013

City of Fond du Lac

Excavation Safety Program

Adopted
September, 2013
Revised: November, 2014

I. Introduction

As part of the City's safety and health program, an Excavation Safety Program has been established. The Excavation Safety Program is designed to keep employees safe and to comply with OSHA Construction Standards Subpart P.

II. Objective

This Excavation Safety Program has been developed to protect employees from safety hazards that may be encountered during work in trenches and excavations. This program is intended to assure that:

A. Employees who perform work in excavations are aware of their responsibilities and know how to perform the work safely.
B. A representative of the City of Fond du Lac Public Works Department will oversee to assure compliance with the requirements of this program.
C. The responsibilities of Responsible Person(s) and workers are clearly detailed.
D. All persons involved in excavation and trenching work have received appropriate training in the safe work practices that must be followed when performing this type of work.

III. Scope

The Excavation Safety Program applies to all departments where employees open excavations in the earth's surface. Excavations are defined to include trenches. Applicability of this policy includes but is not limited to the following examples:

A. Public Works and Utilities employees opening the earth to gain access to sanitary and storm sewer, water, electrical, gas appurtenances or other purposes.
B. Code Enforcement employees working in excavations on job sites they may be inspecting.
C. Note that excavations over 4-feet deep qualify as permit required confined spaces and must meet all atmospheric testing and egress provisions of that policy. Hoist and harness requirements may be waived by the trenching competent person.

IV. Responsibility

A. In administering the Excavation Safety Program, the City will:
   1. Monitor the overall effectiveness of the program.
   2. Provide atmospheric testing and equipment selection as needed.
   3. Provide personal protective equipment as needed.
   4. Provide protective systems as needed.
   5. Provide training to affected employees and supervisors.
   6. Provide technical assistance as needed.
   7. Preview and update the program on at least an annual basis, or as needed.

B. Program Coordinator

The Public Works Director, or his representative, acts as one of the competent persons for the City in reference to this program, and must assure that:

   1. The procedures described in this program are followed.
   2. Employees entering excavations or trenches are properly trained and equipped to perform their duties safely.
   3. All required inspections, tests, and recordkeeping functions have been performed.

C. Employees

   1. All employees, including contractor personnel, who work in or around excavations, must comply with the requirements of this program. Employees are responsible for reporting hazardous practices or situations to the City management, as well as reporting incidents that cause injury to themselves or other employees to Program Coordinator.

2. As a host to private contractors the City is required to abide by OSHA standards and must advise contractor of any permit spaces, compel compliance, inform of hazards and notify contractor if problems are observed. Host employers and contractors have overlapping and interlocking responsibilities toward each other. Each must communicate information concerning confined space entry operations to the other, each must consider and evaluate confined space hazards, and each must take an active role in controlling those hazards.
3. Some employees may be trained to the level of competent person and will be in charge of the work at jobsites.

V. Training

A. Training Schedule

1. All personnel involved in trenching or excavation work shall be trained in the requirements of this program. Training will be coordinated with the appropriate supervisors.
2. Training shall be performed before employees are assigned duties in excavations.
3. Retraining will be performed when work site inspections indicate that an employee does not have the necessary knowledge or skills to safely work in or around excavations, or when changes to this program are made.
4. Training records will be maintained by the Program Coordinator, and shall include:
   a. date of the training program;
   b. name(s) of the instructor(s) who conducted the training;
   c. a copy of the written material presented; and
   d. name(s) of the employee(s) who received the training.

B. Training Components

The training provided to all personnel who perform work in excavations shall include:

1. The work practices that must be followed during excavating or working in excavations.
2. The use of personal protective equipment that will typically be required during work in excavations, including but not limited to safety shoes, hardhats, and fall protection devices.
3. Procedures to be followed if a hazardous atmosphere exists or could reasonably be expected to develop during work in an excavation.
4. The OSHA Excavation Standard, 29 CFR 1926, Subpart P.
5. Emergency and non-entry rescue methods, and the procedure for calling rescue services.
6. The City policy on reporting incidents that cause injury to employees.

C. Training and Duties of Program Coordinator

The Program Coordinator shall receive the training detailed in this program as well as training on the requirements detailed in the OSHA Excavation Standard. The Program Coordinator shall:

1. Coordinate, actively participate in, and document the training of all employees affected by this program.
2. Ensure on a daily basis, or more often as detailed in this program, that worksite conditions are safe for employees to work in excavations.
3. Determine the means of protection that will be used for each excavation project.
4. Make available a copy of this program and the OSHA Excavation Standard to any employee who requests it.

VI. Definitions

A. Benching - is a method of protecting employees from cave-ins by excavating the sides of an excavation to form a series of horizontal levels or steps.

B. Competent Person - is one who has attended a certified training program and 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 the authority to stop the work and take prompt corrective measures to eliminate them.

C. Hazardous Atmosphere - is an atmosphere which by reason of being explosive, flammable, poisonous, corrosive, irritation, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.

VII. Excavation Requirements

A. Underground Work – Digger's Hotline utility locating organization shall be contacted three days prior to starting the work and asked to establish the location of the underground utility installations. In the event of an emergency, excavation work may not proceed until a Digger's Hotline ticket clears – typically one hour. If the work is more complicated than usual a joint meet may be setup so the City can explain in further detail to the utilities the full scope of the project. These take place at the construction site.

B. Protection of the Public
   1. Barricades, walkways, lighting, and posting shall be provided as necessary for the protection of the public prior to the start of excavation operations.
   2. A standard railing as specified in 29 CFR 1926.502 (b) or other approved guard or barricade shall be provided at or near the edge of an excavation as soon as possible, except where the installation of the safeguard will interfere with the excavation or other work.
   3. Guardrails, fences, or barricades shall be provided on excavations adjacent to walkways, driveways, and other pedestrian or vehicle thoroughfares
   4. Night Guarding – All excavations to which persons may be exposed at night shall be protected with reflective warning devices along the exposed side where the excavation adjoins a public thoroughfare. Sidewalks to be barricaded and closed.
   5. Wells, holes, pits, shafts, and all similar hazardous excavations shall be effectively barricaded or covered and posted as necessary to prevent unauthorized access. All temporary excavations of this type shall be backfilled as soon as possible.
   6. Walkways or bridges protected by standard guardrails shall be provided where employees and the general public are permitted to cross over excavations. Where workers in the excavation may pass under these walkways or bridges, a standard guardrail and toeboard shall be used to prevent the hazard of falling objects. Information on the requirements for guardrails and toeboards may be obtained by contacting your supervisor or the Program Coordinator.
   7. Access & Egress - a stairway, ladder, ramp or other safe means of egress shall be located in trench excavations of four (4) feet or more.

C. Employees exposed to vehicular traffic shall be provided with, and shall wear warning vests or other suitable garments marked with or made of reflective or high-visibility material. Emergency lighting, such as spotlights or portable lights, shall be provided as needed to perform work safely. See the Traffic Exposure Safety Program.

D. No employee may work in any trench, shaft, tunnel, caisson or appurtenance over 4 feet in depth without another person being present at the surface.

E. Exposure to Falling Loads - No employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded.

F. Warning System for Mobile Equipment - When mobile equipment is operated adjacent to an excavation, a warning system shall be utilized such as barricades, hand or mechanical signals.

G. Hazardous Atmospheres - To prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions it may be necessary to do air testing.

1. Where oxygen deficiency containing less than 19.5 percent 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 four (4) feet in depth.
2. Adequate precautions shall be taken to prevent employee exposure to atmospheres containing <19.5% oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection, ventilation, or not permitting entry.
3. Adequate precaution shall also be taken to prevent employee exposure to an atmosphere containing a concentration of a flammable gas in excess of 20% of the lower flammable limit of the gas.
4. When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to ensure the atmosphere remains safe.
5. Emergency Rescue Equipment - equipment such as breathing apparatus and safety harness and line, shall be available where hazardous atmospheric conditions exist or could reasonably expect to develop during excavations.

H. Protection from Hazards Associated with Water Accumulation
   1. Employees shall not work in excavations where there is accumulated water in excavations in which water is accumulating, unless precautions have been taken to protect employees. Precaution may include special support or shield systems to protect from cave-ins, water removal systems, use of a safety harness and life lines, or not permitting entry.
   2. If excavation work interrupts the natural water drainage, diversion ditches or dikes shall be used to prevent surface water from entering the excavations.

I. Stability of Adequate Structures
   1. Where the stability of adjoining buildings or structures is endangered additional support systems shall be used.
   2. Excavations below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard shall not be permitted except when:
      a. a support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or
      b. the excavation is in stable rock

J. Protection from Falling Objects and Loose Rocks or Soil
   1. Loose rock or soil shall be removed from the top of the hole.
   2. Materials and equipment should be placed at least two (2) feet from of the excavations or held back by retaining devices.

K. Inspections
   1. Daily inspections shall be made by a competent person prior to the start of work if an excavation was left open overnight, or for an extended period of time during or after a rain event. A Trenching/Excavation Inspection Checklist shall be completed prior to entering the excavation.
   2. When the competent person detects a hazard, employees shall not be allowed to enter the excavation until the hazard is contained or eliminated.

L. Fall Protection - Where employees or equipment are required or permitted to cross over excavations, walkways, or bridges with handrails shall be used.

VIII. Requirements for Protective System

A. Protection of Employees in Excavations

Each employee in an excavation shall be protected from cave-ins except when:

1. Excavations are made entirely in stable rock; or
2. Excavations are less than five (5) feet in depth and examination of the ground by a competent person provides no indication of a potential cave-in.

B. Design of Sloping and Benching Systems

1. Excavations shall be sloped not steeper than 34 degrees from the horizontal. The excavation shall be sloped at an angle not steeper than 1.5:1 horizontal to vertical.
2. Soil Type Determination is provided for guidance (See Appendix A).
3. Protection Methods (Appendix B) provides guidance on appropriate sloping or shoring recommended for various soil conditions.
4. A professional engineer (P.E.) may also design a sloping or benching system.

C. Design of Support Systems, Shield Systems, and other Protective Systems - The systems used by the City shall be designed using the manufacturer's recommendations.

D. Materials and Equipment - Shall be free from damage and replaced or repaired if it can not function properly.

E. Installation and Removal of Support

1. Support systems shall be installed and removed in a manner that protects employees from cave-ins, structural collapses or other hazards.
2. Removal of support systems shall begin at, and progress from, the bottom of the excavation.
3. Backfilling shall progress together with the removal of support systems from excavations.

F. Trench Box Systems

1. Trench boxes shall be installed to prevent movement in the hole.
2. Employees are not allowed in shields when they are being installed, removed, or moved vertically.
3. Excavating earth no more than two (2) feet below the trench box is allowed only if there are no indications of loose soil caving in below or behind the shield.

G. Retrieval Procedures

1. Should an employee be overcome by atmospheric conditions in a trench, the attendant must radio for help immediately and not attempt a rescue. The City of Fond du Lac Fire Department is equipped to perform rescues in these situations.
2. Should an employee become engulfed by trench materials, the attendant must radio for help immediately and not attempt a rescue. A special retrieval team must be called in for such a rescue.

IX. Soil Classification

You must know the type of soil when using sloping, benching, timber shoring or aluminum hydraulic shoring systems. A competent person can identify and test the soil to know its type. See Appendix A for definitions of soil types.

APPENDIX A - Soil Classification

A. Definitions:
   1. Cemented Soil - soil held together by a chemical agent, where a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.
   2. Cohesive Soil - is clay or soil with high clay content. Includes clay silt, sandy clay, clay and organic clay.
   3. Dry Soil - does not exhibit visible signs of moisture content.
   4. Granular Soil - is gravel, sand or silt with little or no clay; cannot be molded.
   5. Moist Soil - looks and feels damp, can be molded.
   6. Stable Rock - is a natural solid mineral that can be excavated and the vertical sides remain intact.
   7. Type A - cohesive soil such as clay, silty clay, sandy clay and some cemented soils. However, no soil is type A if:
      a. open cracks exists in the surface,
      b. it is subject to traffic vibration,
      c. it has been previously disturbed.

   8. Type B - cohesive soil with an unconfined compressive strength .5 - 1.5 tons per square foot, or
      a. is crushed rock, silt, or some silty clay, or
      b. is a previously disturbed soil except those classed as Type C,
      c. is a Type A soil that's subject to vibration or exhibits open cracks,
      d. in a dry unstable rock.

   9. Type C means:
      a. cohesive soil with an unconfined compressive strength of .05 tsf or less, or
      b. granular soils including gravel and sand, or
      c. submerged soil or soil from which water is freely seeping, or
      d. submerged rock that is not stable.

B. Requirements - classification of soil and rock deposits. Each soil and rock deposit shall be classified by a competent person as stable rock, Type A, Type B, or Type C.
   1. Basis of classification - it shall be based on the results of at least one visual and at least one manual analysis.
   2. Visual and manual analysis - the visual and manual analysis.
   3. Layered systems - the system shall be classified according to its weakest layer.

C. Acceptable Visual & Manual Tests
   1. Visual Tests - Qualitative Information
      a. Observe soil samples in and adjacent to excavation.
      b. Observe soil as it's excavated. Soil that remains in clumps is cohesive. Soil that breaks up easily and does not stay in clumps is granular.
      c. Observe excavation and adjacent are for utilities.
      d. Observe the area adjacent to the excavation for evidence of surface water.
      e. Observe the excavation for stability; no vibration.

   2. Manual Tests - Quantitative and Qualitative Information.
      a. Cohesive soil can be rolled in to threads.
      b. If soil is dry or crumbles easily it's granular.
      c. Type A soils can be indented by a thumb, but hard to penetrate.
      d. Type C soils can be easily penetrated several inches.

APPENDIX B - Protection Methods

A. Sloping & Benching Requirements
   1. Definitions
      a. Distress - means the soil is in a condition where a cave-in is likely.
      b. Short Term Exposure - means a period of < 24 hours of open excavation.

   2. Specific Requirements
      a. Soil must be classified.
      b. The maximum allowable slope is determined:
         i. Type B soils it is 45° or 1:1
         ii. Type C soils it is 34% or 1-1/2:1.

      c. All simple slope excavations in Type C soil 20 feet or less in depth shall have a maximum allowable slope of 1-1/2:1.

B. Timber Shoring For Trenches
   1. In order to use timber shoring for trenches the trench cannot exceed 20 ft. in depth and the soil classification must be known.
   2. There are tables located in the OSHA excavation standard. Using the depth and width of the trench one can find out the size of timber to use for shoring.

C. Aluminum Hydraulic Shoring For Trenches
   1. In order to use aluminum hydraulic shoring for trenches, the trench can not exceed 20 ft. in depth and the soil classification must be known.
   2. There are tables located in the OSHA excavation standard. Using the depth and width of the trench, one can determine the size of the cylinder, vertical and horizontal spacing.
   3. Protective systems for use in excavations more than 20 ft. in depth must be designed by a registered professional engineer.

Daily Worksite Checklist for Trenching / Excavation Sites

Project:			Date:
Trench Depth:	Length:	Width:	Weather:
Prepared By:			

Yes	No	N/A	Excavation
			Trench is greater than 5 ft. and requires a protective system
			Trench box inspected for damage or defects and pins and spreaders are securely installed
			Protective system is in place, based on depth, soil type and loads
			Trench box not more than 2 ft. from bottom
			If other soil protective systems are used, they are installed according to manufacturer's instructions
			All employees at worksite are trained in trenching safety procedures
			Surface encumbrances such as utility poles or heavy equipment are supported or removed.
			Heavy equipment safety zone at least 1.5 times depth of trench
			Employees protected from loose rock or soil
			Spoils, materials and equipment set back a minimum of 2' from edge of excavation
			Water removal equipment (pumps) utilized
			Ladders in place if trench is >4 feet
			All workers are within 25 feet of ladder or means of access and exit
			Backfilling progresses with removal of support
			Barriers or warning device in place to protect all openings and excavation
			Barriers, fences available to secure area if left overnight
Yes	**No**	**N/A**	**Personal Protective Equipment**
			Hard hats worn by all employees
			Work boots or safety shoes worn by all employees
			Eye protection worn by all employees (if applicable)
			Hearing protection worn by all employees (if applicable)
			Warning vests, or other highly visible PPE worn by employees exposed to vehicular traffic
Yes	**No**	**N/A**	**Other**
			Diggers Hotline has cleared, all utility lines well marked
			Inspection made after a rainstorm
			Hazardous atmospheric conditions require air testing

ALLOWABLE SLOPES:		
Soil Type	**Height/Depth Ratio**	**Slope Angle**
Stable Rock	Vertical	90°
Type A	3/4 : 1	53°
Type B	1 : 1	45°
Type C	1-1/2 : 1	34°
Type A (short term) (For a maximum excavation depth of 12 ft.)	1/2 : 1	63°

Soil: 110-140 lbs./cf

A → clay, no thumb indent

B → thumb < nail width

C → sand, thumb easily in

INSPECTIONS: Inspection shall be made by a competent person and should be documented. The following guide specifies the frequency and conditions requiring inspections.

- Daily and before the start of each shift
- As dictated by the work being done in the trench
- After every rainstorm
- After other events that could increase hazards, e.g. snowstorm, thaw, etc.
- When there is a change in the size, location or placement of spoil pile
- When fissures, tension cracks, sloughing, undercutting, water seepage, bulging at bottom, or other similar conditions occur

EMERGENCY PROCEDURES FOR TRENCH CAVE-IN

- **GET ALL OTHER EMPLOYEES OUT OF THE TRENCH!!**
- **CALL 911**
- **NOTIFY COMPETENT PERSON**
- **Note time**
- **Note location of trapped worker(s)**
- **Leave all victims hand tools in place**
- **Shut down all heavy equipment**
- **Stop nearby traffic that may cause vibration**
- **Keep everyone back from trench at least 50 feet**
- **Gather information for rescue team**
- **WAIT for rescue team. Do not attempt to rescue.**

Note: Do not attempt to dig the person out using hand tools or heavy equipment. This could cause the trench to collapse further and cause further injuries!!!

Updated August, 2013
City of Fond du Lac "Competent Persons" employees:

Water Utility Division:
- Dan Dowland
- Rod Baumann
- Tom Burton
- Tim Curran
- Jason Meyer
- Chris Wendler
- Chris Semenas

Construction & Maintenance Division:
- Jack Mohr
- Steve Nelson
- Mark Stuart
- Bob Lavigne
- Greg Kramer

Administered by
United Heartland

Ladder Safety Program

For

The City of Fond du Lac

Adopted

January 2014

LC-1022b
Rev. 2/12

United Heartland is the marketing name of United Wisconsin Insurance Company.
United Heartland
P.O. Box 3026, Milwaukee, WI 53201-3026
262-787-7700 • Toll Free 800-258-2667 • Fax 262-787-7701

I. Introduction

The City of Fond du Lac recognizes that employees use ladders on a regular basis for a variety of work tasks. Employees should choose an appropriate ladder for each work task and never use chairs, boxes, or other improvised climbing devices. Misuse of ladders can result in serious injuries from falls.

II. Objective

The objective of this Ladder Safety Program is to prevent occupational injuries related to the use of ladders. The program is intended to comply with the OSHA Standards contained in 29 CFR 1910.25-27.

III. Scope

The Ladder Safety Program covers the minimum requirements for the care and use of ladders used by City employees. All City employees who might be expected to use a ladder during the course of work should be trained on ladder safety. This program covers all types of ladders including step, extension, and fixed ladders. Ladder users must be able to recognize and avoid ladder hazards and be aware of safe practices in setting up, storing, moving, and working from this equipment.

IV. Roles & Responsibilities

The Ladder Safety Program assigns responsibilities to employees, supervisors, and management. Management is responsible for overall coordination and implementation of this program.

A. Management
   1. Provide the appropriate type(s) of ladders in each department.
   2. Establish ladder inspection guidelines.
   3. Ensure that employees are properly trained on ladder safety.
   4. Ensure that employee training records are properly maintained.
   5. Conduct periodic audits of the ladder safety program.

B. Supervisors
   1. Provide specific training for all employees who use ladders.
   2. Ensure that ladders are inspected at predetermined intervals.
   3. Ensure that ladders are removed from service if found to be defective.
   4. Ensure that ladder safety requirements are being followed by the employees.
   5. Conduct periodic inspections of the work areas.

C. Employees
   1. Attend ladder safety training program.
   2. Comply with the requirements of this program.
   3. Inspect ladders for defects or possible hazards prior to use.
   4. Tagging any defective ladder as out of service and reporting defects to their supervisor.

V. Ladder Selection

Management is responsible for selecting and providing the appropriate type(s) of ladders in each department. Management will verify that all ladders meet OSHA design specifications or ANSI standards.

Employees should be made aware that ladders have different weight capacities. ANSI requires that a duty rating sticker must be placed on the side of a ladder. When selecting a ladder, the employee must verify that the combined weight of the user and material falls within the duty rating.

The ladder duty ratings are as follows:

- Type IA (Extra Heavy Duty Industrial): 3 to 20 feet for extra heavy duty; 300 pounds load capacity
- Type I (Industrial): 3 to 20 feet for heavy duty; 250 pounds load capacity
- Type II (Commercial): 3 to 12 feet for medium duty; 225 pounds load capacity
- Type III (Household): 3 to 6 feet for light duty; 200 pounds load capacity

Employees should choose a ladder of the correct length to do the job. A ladder that is too long or too short will force the user to overreach, adversely affecting their balance.

When considering what length of ladder to use for a job, employees must keep in mind that the ladder length and the maximum working length (extension ladders) or highest standing level (stepladders) are not the same.

The highest permitted standing level on a stepladder is two steps down from the top. An employee standing higher may lose their balance and fall. An employee's maximum safe reaching height is approximately 4' higher than the height of the ladder. For example, a typical person can safely reach an 8' ceiling on a 4' ladder.

Extension ladders should be 7 to 10 feet longer than the highest support or contact point, which may be the wall or roof line. This will allow enough length for proper setup, overlap of ladder sections, height restrictions of the highest standing level, and where appropriate, the extension of the ladder above the roof line. The highest standing level is four rungs down from the top.

Do not use a metal ladder for any electrical work or other tasks in the vicinity of energized electrical lines.

VI. Ladder Inspection & Maintenance

Employees should inspect ladders for possible defects or hazards prior to each use. Ladders should be inspected by a supervisor at least semi-annually and after any incident that could affect its safe use. The supervisor performing the inspection should complete the Ladder Inspection Checklist. The checklist is found in Appendix A of this program. The supervisor is responsible for maintaining a record of the inspection checklists.

Inspections should cover the following points:

- Wooden parts shall be free of sharp edges, splinters, cracks, or decay. Metal ladders shall be free of slivers or dents that would compromise structural integrity.
- Joints between the steps/rungs and sides must be tight. Rungs should not move when twisted by hand.
- Hardware and fittings shall be securely attached.
- Moveable parts must operate freely (lubricate, if necessary), but without undue play.
- Rope, if present, must be replaced if frayed or badly worn.
- Safety feet shall be in place and unbroken. Metal ladders must have insulating, non-slip foot pads.
- Rungs/steps shall be free of grease, oil, or other slippery substances. Remove any buildup of dirt or mud, as well. Rungs on metal ladders must be corrugated, knurled, dimpled, or coated with a slip-resistant material.
- No rungs/steps shall be missing or defective.
- Ladders may not be painted or coated with any material that might hide defects. Labels should be placed on only one face of side rails.
- Step ladders must have a metal spreader or locking device of sufficient size and strength to securely hold the ladder in an open position. Any sharp points on the spreader must be covered or removed.

Ladders should be maintained in good condition at all times. Defective ladders shall be removed from service immediately and marked with a tag reading "DANGEROUS - DO NOT USE!" The supervisor should determine whether a defective ladder will be repaired or replaced. Any repairs must comply with OSHA specifications.

VII. General Work Practices With Ladders

A. Safe Ladder Setup
   1. All ladders must be placed on firm ground.
   2. Do not set ladders on boxes, blocks or other objects that might move.
   3. Do not lean or reach out while standing on ladders.
   4. Position the ladder so that the side rails extend at least 3 feet above the landing.
   5. Secure the side rails at the top to a rigid support and use a grab device when 3 foot extension is not possible.
   6. Portable ladders should be used so that the base is a distance from the vertical wall equal to one-fourth the working length of the ladder.
   7. Do not use ladders in high wind or during inclement weather conditions.
   8. Never use metal ladders near exposed electrical wires.
   9. Never set up ladders in front of or around doors, unless the door is posted and blocked, guarded, or locked.

B. Climbing and Standing on Ladders
   1. Use safety shoes or other rubber sole shoes when climbing a ladder.
   2. Make sure shoes are free of mud, grease, or anything slippery.
   3. Always face a ladder when climbing up or down.
   4. Use at least one hand to grasp the ladder when climbing. Maintain at least three points of contact with the ladder (two feet and one hand or two hands and one foot).
   5. Avoid carrying materials or tools when climbing a ladder.
   6. Only one person should be on a ladder at one time.
   7. Climb the ladder first then pull up the materials with a rope.
   8. Rungs and steps should be clear of grease, oil, wet paint, snow, and ice before climbing.
   9. Do not climb onto a ladder from the side.
   10. Do not slide down a ladder.
   11. Climb or stand on a ladder with your feet in the center of the rung; do not overreach or lean too far to one side.
   12. Do not move, shift, or extend ladders while in use.
   13. Never sit on a ladder.

C. Step Ladder Safety
   1. Never use a stepladder over 20 feet in length.
   2. Always open a stepladder completely and make sure the spreader is locked before use.
   3. Do not stand higher then the second step from the top of a step ladder.
   4. Do not straddle a stepladder.

D. Extension Ladder Safety
   1. The sections of an extension ladder should overlap enough to retain the strength of the ladder.
   2. Never splice or tie two short ladders together.
   3. When using a ladder for access to a landing, it must extend 3 feet above the landing.
   4. The top of an extension ladder should rest against a flat, firm surface.
   5. Elevate and extend these extension ladders only from the ground.
   6. When practical, secure extension ladders at both the base and the top.

E. Extension Ladder Setup
   1. Lay the ladder on the ground when it is collapsed.
   2. Have someone foot the ladder or make sure it is braced against something.
   3. Starting at the top, lift the ladder over your head and walk under the ladder moving your hands rung to rung as you go.
   4. When the ladder is vertical and the top touches the wall, pull the base out so that the distance from the wall is one-fourth the height to the point of support.
   5. If possible, tie the ladder off or have someone steady the ladder as you climb it.

F. Fixed Ladder Safety
   1. Fixed ladders must be secured to the object they are attached to.
   2. Fixed ladders over 20 feet must have a safety cage surrounding the ladder.
   3. The safety cage should have 15" clearance to all points from the center.
   4. Defects in fixed ladders should be repaired as soon as possible.
   5. When a defect is not repairable the ladder must be taken out of service.

VIII. Ladder Storage

When not in use, ladders should be stored in a designated location out of direct sunlight and not exposed to harmful elements that may cause decay/damage. Never store materials on a ladder. Ladders should be secured when stored to prevent from falling over or tipping which could injure employees in the area. In addition, ladders must be secured when in transit.

IX. Training

All employees should be trained prior to the use of ladders by their supervisor or department manager. Employees should be trained in the following:

- The proper use and placement of ladders.
- The maximum intended load capacities of ladders used.
- The inspection, safe climbing procedures, and storage of ladders.
- The recognition of possible hazards associated with ladder use, maintenance, and safety precautions.

Employees should be retrained as necessary to maintain their understanding and knowledge on the safe use of ladders.

Ladder Inspection Checklist

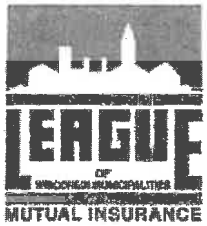
Department: _____ Location/Building: _____

Inspected By: _____ Date: _____

Types of Ladders Inspected: _____

	YES/NO	COMMENTS
Wooden ladders free of splinters, cracks or decay. Metal ladders free of slivers or dents that would weaken?		
Rungs/steps missing or damaged so as to make them unsafe?		
Surfaces free of mud, oil, grease, or slippery materials (if metal ladder, rungs must be corrugated, knurled, or coated with non-slip coating)?		
Joints between steps and side rails tight and rungs do not move by hand?		
Hardware and fittings securely attached?		
Moveable parts operate freely without binding or undue play?		
Safety feet and other auxiliary equipment in good condition?		
Are ladders painted or coated with materials to obscure defects?		
Are proper labels on face of side rails?		
Rope, if present, in good condition (not frayed/worn)?		
Spreader on step ladder in good condition?		
Are extension locks on extension ladder defective?		
Is cage for fixed ladder in good condition and there is no deterioration of metal parts?		
If determined to be defective; has warning tag been attached and ladder withdraw from service?		

Comments:



Administered by
United Heartland

Electrical Safety Program

For

City of Fond du Lac

Adopted

February 2014

LC-1005
Rev. 2/12

United Heartland is the marketing name of United Wisconsin Insurance Company.
United Heartland
P.O. Box 3026, Milwaukee, WI 53201-3026
262-787-7700 • Toll Free 800-258-2667 • Fax 262-787-7701

I. Introduction

As part of the City of Fond du Lac's overall safety and health program, an Electrical Safety program has been established. The program is designed to assist in compliance with Occupational Safety and Health Administration's (OSHA) Electrical Training, Selection and Use of Work Practices, Use of equipment, and Safeguards for personnel protection standards, 29 CFR 1910.332 – 1910.335.

II. Objective

To establish minimum requirements to prevent injury to personnel working on or near exposed energized parts of electrical equipment and to achieve compliance with OSHA final rule 1910 Subpart S. Our intention is to comply with the final rule and raise the awareness level of electrical hazards for all City employees.

III. Scope

This program applies to employees engaged in maintenance and repair of electric utilization systems, including electric equipment and installations used to provide electric power and light for employee workplaces. It also applies to employees who may be exposed to unguarded electrical installations.

It does not apply to OSHA's 29 CFR 1910.269 - Electric Power Generation, Transmission, and Distribution.

IV. Definitions

A. Qualified Person – One who has skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training on the hazards involved. Examples of safety training include, but are not limited to, training in the use of special precautionary techniques, personal protective equipment, including arc flash, insulating and shielding materials, and insulated tools and test equipment. A person can be considered qualified with respect to certain equipment and methods but still be unqualified for others.

B. Unqualified Person – those with little or no training working on, near, or with electrical wiring or optical fiber cable (where such installations are made along with electrical conductors).

V. General Requirements

A. This procedure, including the training requirements, applies to both qualified and unqualified persons who work on, near, or with exposed energized parts. This procedure applies only when energized parts are exposed (i.e. not reduced to a safe level by the electrical installation requirements of 1910.303 through 1910.308) and only to exposed energized parts operating at 50 Volts or more.

B. Work excluded from the provisions of this procedure for qualified persons includes: generation, transmission, and distribution installations; communications installations; installations in vehicles; and railway installations.

C. Only persons who have the skills, knowledge, and required training (including task specific training) are considered "qualified" and may work on or near any circuit parts or equipment that have not been de-energized. These qualified persons must:
   1. Be capable of working safely on energized circuits
   2. Be familiar with the proper use of special precautionary techniques
   3. Know how to select, use, and inspect appropriate personal protective equipment
   4. Know how to use insulating and shielding materials
   5. Understand the proper selection and use of insulated tools

VI. Training

A. Training is required for both qualified and unqualified persons who face a risk of electric shock that is not reduced to a safe level by the electrical installation requirements of 1910.303 through 1910.308.

B. Training shall be classroom and/or on-the-job type. The degree of training provided shall be determined by the risk to the employee. All training must be documented.

C. Training of qualified persons must include at the minimum the following:
   1. The safety-related work practices required by 1910.331 through 1910.335 that pertain to their respective job assignments.
   2. The ability to distinguish live parts from other parts of electrical equipment.
   3. The ability to determine the nominal voltage of live parts.
   4. The knowledge of clearance and/or approach distances when working on or near exposed energized parts, as described in 1910.333 (c).

D. Training of unqualified persons must include at the minimum the following:
   1. The safety-related work practices required by 1910.331 through 1910.335 that pertain to their respective job assignments.
   2. The inherent hazards of electricity, such as high voltage, electric current, arcing, grounding, and lack of guarding.
   3. Any electrically related safety practices not specifically addressed by 1910.331 through 1910.335 that pertain to their respective job assignments.
   4. It is recommended that all employees receive unqualified person training during the new hire orientation process.

VII. Selection & Use of Work Practices

A. Live electrical parts are to be put into an electrically safe work condition before a potentially exposed employee works on them unless:
   1. The employer can demonstrate that de-energizing introduces additional or increased hazards. Examples include:
      a. Interruption of life-support equipment.
      b. Deactivation of emergency alarms systems.
      c. Shutdown of hazardous-location ventilation equipment.
      d. Removal of illumination for an area.

   2. The employer can demonstrate that de-energizing is infeasible due to equipment design or operational limitations. Examples of work that may be performed because of infeasibility include:
      a. Testing of electric circuits that can only be performed with the circuit energized (troubleshooting).
      b. Work on circuits that form an integral part of a continual industrial process.

   3. De-energized parts require lockout/tagout accordance with 1910.333 and 1910.147 as well as the lockout/tagout program, unless otherwise exempted.

B. An electrically safe work condition will be achieved when utilizing the energy control procedure and verified by the following process:
   1. Determine all possible sources of electrical supply to the specific equipment. Check applicable up-to-date drawings, diagrams, and identification tags.
   2. After properly interrupting the load current, open the disconnecting device(s) for each source.

3. Wherever possible, visually verify that all blades of the disconnecting devices are fully open or that drawout type circuit breakers are withdrawn to the fully disconnected position.
4. Apply lockout/tagout devices in accordance with local lockout procedure.
5. Use an adequately rated voltage detector to 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. Before the test, determine that the voltage detector is operating properly. When used on 600v and above the voltage detector must be tested before and immediately after each test.
6. Where the possibility of induced voltages or stored electrical energy exists, ground the phase conductors or circuit parts before touching them. Where it could be reasonably anticipated that the conductors or circuit parts being de-energized could contact other exposed energized conductors or circuit parts, apply ground connecting devices rated for the available fault duty.

C. If live electrical parts are not placed in an electrically safe work condition (i.e., for the reasons of increased or additional hazards or infeasibility), then work being performed shall be considered energized electrical work and shall be performed by written permit only (Energized Work Permit). – See Attachment A

   Work performed on or near live parts by qualified persons related to tasks such as testing, troubleshooting, and voltage measuring shall be permitted to be performed without an energized work permit, provided appropriate safety work practices and proper personal protective equipment is utilized.

D. Only qualified persons shall be allowed to work on energized parts or equipment.
E. If work is to be performed near overhead lines (inside or outside of a building), the lines and ground must be de-energized or other protective measures must be taken such as guarding, isolation, or insulation. Minimum distances for qualified and unqualified persons and vehicles are described in 1910.333 (c) (3). Under no circumstances may an unqualified person come within 10 feet of overhead lines (and greater in some instances).
F. Appropriate illumination must be provided for employees who work on exposed energized parts. At a minimum 300 lux / 30 footcandles should be maintained in the task work area. However, additional lighting may be required for more detailed tasks. This can be obtained by a combination of general lighting plus specialized supplementary lighting.
G. Conductive materials and equipment that are in contact with any part of an employee's body shall be handled in a manner that will prevent them from contacting exposed energized parts (conduit, piping, jewelry, cloth with conductive thread, metal headgear, etc.).
H. Portable ladders (metal) may not have conductive side rails where the employee or the ladder could contact exposed energized parts.
I. Cleaning and the use of electrically conductive cleaning materials (steel wool, metalized cloth, conductive liquids, etc.), may not be used in proximity to energized parts unless procedures are followed which will prevent electrical contact.
J. Only a qualified person may defeat an electrical interlock, and then only temporarily and when following the requirements under 1910.333 (c).

   Note: Defeating interlocks is only allowed by a qualified person and only for calibrating or troubleshooting equipment.

VIII. Use of Equipment

A. Cord and plug-connected equipment, including extension cords:
   1. Shall be handled in a manner which will not cause damage, such as raising and lowering by the flexible cord, or fastening extension cords with staples.

2. Shall be visually inspected before each use, and if damaged, removed from service.
3. Shall be approved for high-conductive (wet, etc.) work locations where required. Employees' hands may not be wet when plugging and unplugging equipment.
4. A ground fault circuit interrupter must be used when (1) using an electric powered hand tool with an extension cord; (2) in a wet location.

B. Load rated switches, circuit breakers, or the equivalent (load-break type) shall be designed for opening, closing, and reversing circuits under load conditions.
C. When a circuit is de-energized by a circuit protection device, the circuit may not be manually re-energized until it has been determined it can be done so safely (unless the design allows it to be determined an overload condition rather than a fault condition).
D. Overcurrent protection of circuits and conductors may not be modified, even on a temporary basis.
E. Only qualified persons may perform testing work on electrical circuits or equipment. Test instruments shall be visually inspected before use (over 600v the equipment must be checked before and immediately after the test) and shall be rated and designed for their use.

IX. Safeguards for Personal Protection

A. Electrical protective equipment shall be provided and used when necessary such as non-conductive headgear, eye or face protection where electric arcs or flashes or flying objects may be present, insulated tools and handling equipment, protective barriers, and insulating materials, etc.
1. Employees shall wear Flame-Resistant (FR) clothing wherever there is possible exposure to an electric arc flash above the threshold incident-energy level for a second-degree burn 5 J/cm^2 (1.2 cal/cm^2).
2. To determine which level of personal protection is necessary, employees should refer to the electrical equipment on which they will be working. The label on the equipment or the applicable tables in NFPA 70 E will specify the level of PPE required. The requirements follow below:

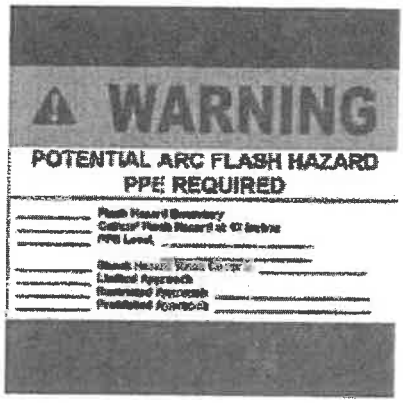
Level	Required PPE
0	FR Shirt – Long sleeve FR Pants Safety Glasses
1	FR Shirt – Long sleeve (see note 1) FR Pants (see note 1) Hard Hat Safety Glasses Leather Gloves (see note 2)
2	Non-melting or natural fiber t-shirt Non-melting or natural fiber long pants FR Shirt – Long sleeve FR Pants Hard Hat with arc-rated face shield or flash suit hood Safety Glasses or Safety goggles Hearing Protection Leather Gloves (see note 2) Leather Shoes
3	Non-melting or natural fiber t-shirt Non-melting or natural fiber long pants FR Shirt – Long sleeve FR Pants FR Coverall Flash Suit Hood

	Hearing Protection Hard Hat Safety Glasses or Safety goggles Leather Gloves (see note 2) Leather Shoes
4	Non-melting or natural fiber t-shirt Non-melting or natural fiber long pants FR Shirt – Long sleeve FR Pants Flash Suit (multilayer) Flash Pants (multilayer) Flash Suit Hood Hearing Protection Hard Hat Safety Glasses or Safety goggles Leather Gloves (see note 2) Leather Shoes
Note 1 - Alternate is to use FR coveralls (minimum arc rating of 4) over non-melting or untreated natural fiber pants and T-shirt. Note 2 - If voltage-rated gloves are required, the leather protectors worn external to the rubber gloves satisfy this requirement.	

3. It is critical when selecting the appropriate PPE that at a minimum all required elements of the level are worn. In addition, it is necessary to add the arc thermal protective value (ATPV) rating for each layer of clothing to ensure that it exceeds the arc flash rating on the equipment.
4. Voltage rated gloves shall be worn when ever the prohibited approach boundary will be crossed. They shall be rated adequately for the task, and be provided with leather over protection.

B. Protective equipment shall be maintained in a safe, reliable condition and shall be periodically inspected or tested as required by 1910.137.
C. Safety signs, tags, barricades, and attendants shall be used as necessary to warn and protect employees from electrical hazards.

It is recommended that signs reading "WARNING: Arc Flash and Shock Hazard Appropriate PPE Required" be posted on all individual machine panels, power distribution panels, and unit substations, distribution panels, and plant switch gears that are likely to require examination, adjustment, servicing, or maintenance while energized to warn qualified persons of the potential electric arc flash hazards.



X. Limits of Approach & Arc Flash Hazard Analysis

A. Observing a safe approach distance from exposed energized electrical conductors or circuit parts is an effective means of maintaining electrical safety. As the distance between a person and the exposed energized conductors or circuit parts decreases, the potential for electrical accident increases.

B. Limits of Approach Definitions (See Illustration 1 and Table 1-1)

1. Flash Protection Boundary – A boundary to be crossed only with appropriate personal protective equipment to protect against electrical arc flash. The boundary is nominally located at a distance from the energized parts where the incident energy from an anticipated arc is reduced to 1.2 cal / cm2. For systems less than 600V, the boundary is 4 feet unless a flash hazard analysis has been performed.

   Persons not considered electrically qualified (unqualified), as defined in this document, may enter the FPB but shall not be allowed to perform tasks within the FPB. Unqualified persons must not cross the FPB unless they are wearing appropriate personal protective clothing and are under the close supervision of a qualified person.

2. Limited Approach Boundary – An unqualified person may cross the limited approach boundary only when continuously escorted by a qualified person and wearing proper PPE. Again, an unqualified person may not perform any tasks within the LAB.
3. Restricted Approach Boundary – A shock protection boundary to be crossed by only electrically qualified persons (at a distance from an energized part see table 1-1.) which, due to its proximity to a shock hazard, require the use of shock protection techniques and equipment. Qualified employees crossing the restricted approach boundary must have an Energized Work Permit, use appropriate PPE, and keep the body out of the prohibited space and maintain proper body position.

   Under no circumstance may an unqualified person cross into the Restricted Approach Boundary.

4. Prohibited Approach Boundary – A shock protection boundary to be crossed by only electrically qualified persons (at a distance from an energized part see Table 1-1) which, when crossed by a body part or object, requires the same protection as if direct contact is made with a live part. Require the use of proper equipment, PPE, and an Energized Work Permit.

   Illustration 1

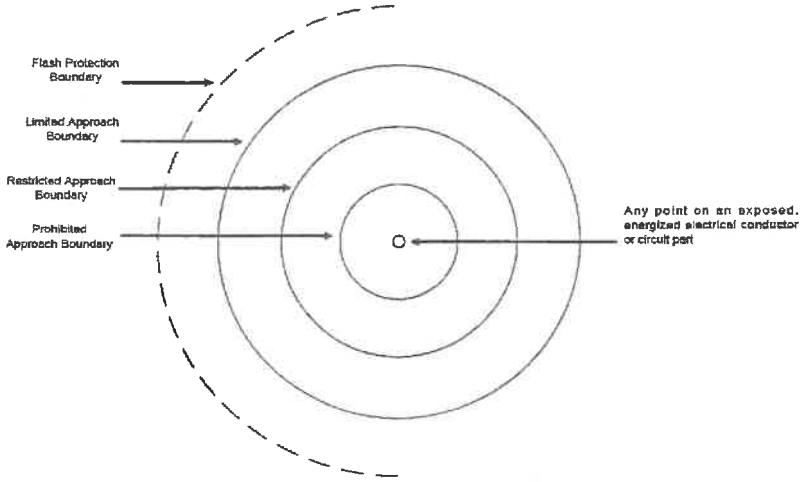


Table 1-1 Limits of Approach

Voltage Phase to Phase	Limited Approach Boundary Exposed Fixed Part	Limited Approach Boundary Exposed Movable Part	Restricted Approach Boundary	Prohibited Approach Boundary
0 to 50	Not Specified	Not Specified	Not Specified	Not Specified
51 to 300	3 ft. 6 in	10 ft. 0 in	Avoid Contact	Avoid Contact
301 to 750	3 ft. 6 in.	10 ft. 0 in	1 ft. 0 in.	0 ft. 1 in.
751 to 15 kV	5 ft. 0 in.	10 ft. 0 in	2 ft. 2 in.	0 ft. 7 in.
138 kV to 145 kV	10 ft. 0 in.	11 ft. 0 in	3 ft. 7 in.	3 ft. 1 in.
230 kV to 242 kV	13 ft. 0 in.	13 ft. 0 in	5 ft. 3 in.	4 ft. 9 in.

C. An arc flash hazard analysis shall be done on order to protect personnel from the possibility of being injured by an arc flash. The analysis shall determine the Flash Protection Boundary and the personal protective equipment that people within the FPB will use.
D. Arc flash hazard analysis should be done before a person approaches any exposed electrical conductor or circuit part that has not been placed in an electrically safe work condition.
E. The recommended arc flash analysis method will be IEEE Std. 1584.

XI. High Voltage

A. High Voltage shall be any voltage greater than 600 volts nominal or greater than 300 volts to ground. Additionally, power supplies with low voltage, high current (greater than 50 amps) shall be considered high voltage.

B. The minimum clear working space in front of electric equipment such as switchboards, control panels, switches, circuit breakers, motor controllers, relays, and similar equipment may not be less than specified in Table 1-2.

Table 1-2: Minimum Depth of Clear Working Space in Front of Electric Equipment

	Conditions[2a] (ft)		
Nominal voltage to ground	**(a)**	**(b)**	**(c)**
601 to 2,500	3	4	5
2,501 to 9,000	4	5	6
9,001 to 25,000	5	6	9
25,001 to 75kV[1a]	6	8	10
Above 75 kV[1a]	8	10	12

1a Minimum depth of clear working space in front of electric equipment with a nominal voltage to ground above 25,000 volts may be the same as for 25,000 volts under Conditions (a), (b), and (c) for installations built prior to April 16, 1981.

2a 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 materials. Insulated wire or insulated busbars 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. Concrete, brick, or tile walls will be considered as grounded surfaces. (c) Exposed live parts on both sides of the workspace not guarded as provided in Condition (a) with the operator between.

C. There shall be a written procedure for common tasks involving high voltage. These tasks can include voltage measurements, circuit disconnection by fuse cutouts, inspection of high voltage cable, etc. The procedure should include preparation for work, PPE requirements, steps to perform the task, special tools or instruments required, etc.
D. A mandatory job meeting must be conducted to plan and review the required work and the procedures to perform the work. This meeting should include a supervisor and those who will be involved in the work.
E. A minimum of two people (buddy system) will be required when performing any tasks that involve high voltage.

   Exceptions would include:
   1. Routine switching of circuits, if the employer can demonstrate that conditions at the site allow this work to be performed safely.
   2. Work performed with live-line tools if the employee is positioned so that they are neither within reach of nor otherwise exposed to contact with energized parts.
   3. Emergency repairs to the extent necessary to safeguard the general public.

F. A list should be developed and maintained of equipment that operates or have components that operate or have the potential of over 600 volts. Examples of equipment are: switchgears, motor control centers, power factor correction capacitors, unit substations and primary switches.
G. Training
   1. All employees that can be involved in the maintenance of equipment with high voltage as defined above shall be trained on the hazards and proper work practices. Low voltage safety training is a prerequisite before an employee can receive high voltage training.
   2. Training should include the following areas:
      a. Dangers associated with high voltage that is not usually a problem with voltages less than 600 volts
      b. Testing Methods
      c. Performance of voltage checks
      d. Dangers of induced voltages and currents

e. Safety grounds
f. Work space around equipment
g. Buddy system
h. PPE requirements and how to determine proper PPE and available PPE
i. Work planning and job meetings
j. Levels of high voltage available within the plant
k. Review of the plant power distribution one line diagram

3. High voltage re-training must be provided annually.

XII. Sources of Information

A. 29 CFR 1910.331 through 1910.335 – Electrical Safety-Related Work Practices
B. OSHA Instruction STD 1-16.7
C. 29 CFR 1910.147 – Lockout/Tagout Standard
D. NFPA standard 70E

Attachment A

Energized Work Permit

(To be completed by the Qualified Employee and submitted for approval)

Person(s) Performing the Job: _____

Date: _____

Time: _____ to _____

Description of the circuit and equipment to be worked on and location:

_____

_____

_____

Why is it necessary to perform the work with the equipment energized?

_____

_____

RESULTS OF SHOCK HAZARD ANALYSIS Voltage: _____

Check appropriate voltage level / Nominal System Voltage	Limited Approach Boundary: Exposed Moveable Conductor	Limited Approach Boundary: Exposed Fixed Circuit Part	Restricted Approach Boundary	Prohibited Approach Boundary
___ Less than 50V	Not Specified	Not Specified	Not Specified	Not Specified
___ 50 to 300V	10 ft 0 in.	3 ft 6 in.	Avoid Contact	Avoid Contact
___ 301 to 750V	10 ft 0 in.	3 ft 6 in.	1 ft 0 in.	0 ft 1 in.
___ 751 to 15kV	10 ft 0 in.	5 ft 0 in.	2 ft 2 in.	0 ft 7 in.
___ 46.1kV to 72.5kV	10 ft 0 in.	8 ft 0 in.	3 ft 3 in.	2 ft 1 in.

RESULTS OF FLASH HAZARD ANALYSIS

Flash Protection Boundary: _____ ft / inches

Incident Energy Exposure: _____ cal/cm2 @ _____ inches

PPE Required

Check required PPE		Min. arc rating (cal/cm2)			Min. arc rating (cal/cm2)
_____	FR Shirt	_____	_____	Multi-Layer Flash Suit	_____
_____	FR Pants	_____	_____	FR Face Shield	_____
_____	FR Coveralls	_____	_____	Multi-Layer Switching Hood	_____
_____	Hearing Protection	NA			

How will non-qualified or affected personnel be kept beyond the Limited Approach Boundary?

Check those protective measures to be used:

_____ Barricades _____ Barriers _____ Lookout

List the step-by-step outline of the work and safe work practices employed:

_____

_____

_____

_____

_____

_____

_____

Signatures of attendees at the Job Briefing, which included identification of job specific hazards:

_____ _____

_____ _____

_____ _____

Approvals: **Date:**

Crew Manager	_____	_____
Maintenance Manager	_____	_____
Power Eng. / Eng. Manager	_____	_____
Safety Department	_____	_____

B. Tanks and Process Vessels

Any tanks or other vessels which routinely store bulk chemical products shall be labeled in the following manner:

1. Name of contents (chemical and/or common name)
2. Appropriate hazard warning
3. National Fire Protection Association (NFPA) 704 M diamond, Hazard Identification

Where necessary, commercially available warning labels will be purchased. If no standard commercial labels are available for a specific hazardous chemical, a proper label is prepared internally. Safety Data Sheets will provide the necessary information for hazardous warnings. The Division Safety Leader is responsible for assuring that tanks and process vessels are appropriately labeled.

C. Temporary Storage Tanks

Temporary storage tanks normally do not have permanently fixed warning labels. To insure employees know of the vessel contents, temporary labels should be applied to the tanks which also identify the hazard(s) of the chemical(s) contained.

Employees having questions about labeling should contact their immediate supervisor.

D. Portable Containers

All portable containers of hazardous chemicals require labeling. The exception to this policy is that portable containers of hazardous chemicals do not have to be labeled if they contain chemicals transferred from a labeled container, and are intended only for the immediate use by and remain the constant control of the employee who performs the transfer. Any unused material should be disposed of in the appropriate manner or returned to the original labeled container. All other portable containers and usage will require labeling. Employees who have questions about portable container labeling should contact their immediate supervisor. The employee who uses the portable container is responsible for placing the label on the container, and the Division Safety Leader is responsible to see that labeling is done.

E. Piping Systems

Labeling of chemical pipes is not specifically required by the Hazard Communication standard, but employees must be aware and informed of the contents in chemical pipes. This can best be accomplished by labeling all piping used to transfer the same hazardous chemicals. The latest American National Standard Institute (ANSI) standard (ANSI 13.1-1981), Scheme for Identification of Piping Systems, is used as a guide for location and design of pipe labels. Basic guidelines for piping systems are as follows:

1. Legends should be brief, informative and simple for greatest effectiveness.
2. The number and location of labels should be based on the particular system. For example: labels must be clearly visible, near valves or other connections, on each side at wall where pipe penetrates, where pipe changes direction and reasonable intervals on long runs of pipe. (Example: one identification label per 50 linear feet of pipe).
3. Color can be used to identify characteristics of contents but only in combination with legends. Refer to ANSI standard referenced above for proper color schemes.
4. Attention should be given to visibility of pipe markings, contrast of legend with background and lettering size. The contents and hazards associated with unlabeled chemical pipes in the work area will be transmitted to employees by their immediate supervisor. Safety Data Sheet(s) will be available on contents of unlabeled chemical pipes.

Employees, who have questions about piping systems labels and/or content hazards, should contact their immediate supervisor.

F. Update and Review
The Program Coordinator is responsible for reviewing the labeling system annually and updating if necessary. Changes in the labeling system will be transmitted to affected supervisors and employees.

Employees who have questions about the precautionary labeling system should contact their immediate supervisor.

VII. Safety Data Sheets(SDS)

A. SDS Format
SDS's are written or printed material concerning product hazard determination, which are prepared and distributed with chemicals by chemical manufacturers and distributors. SDS's are written in English and contain the following information:

1. Identity of the chemical as provided on the container label
2. Hazard(s) Identification
3. Composition/Information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls/personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information (non-mandatory)
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information

B. Obtaining SDS
All hazardous chemicals utilized shall have a SDS on file in the appropriate Safety Data Sheet Book. If it is the first time that a chemical is being used an SDS should be requested with the material.

In the event a SDS is not available, the Division Safety Leaders will use the following procedures to obtain SDSs:

1. The supplier will be contacted by telephone.
2. If a supplier should not satisfy the first request within 30 days, a written request for a SDS should be sent to the supplier.

Ultimately, if a Safety Data Sheet cannot be obtained for a product, the material should not be used.

C. Review of SDS
The Division Safety Leader is responsible for reviewing all incoming safety data sheets for new and significant health/safety changes. Any new information will be communicated to affected employees.

XIII. EMPLOYEE RIGHTS

Except as provided if an employee has requested information about a toxic substance or pesticide and has not received the information required to be provided the employee may refuse to work with or be exposed to the toxic substance or pesticide until such time as the employer supplies the information to the employee who has made the request. This does not apply when:

- An employer who has requested from the manufacturer or supplier of a toxic substance any information required to be provided, but who has not received and does not already have that information, is not required to provide the information but shall notify any requesting employee or employee representative that the employer has requested, has not received and does not otherwise have the information.

No employer may discharge or otherwise discipline or discriminate against any employee because the employee has exercised any rights related to this program.

Sample Forms – This section may be deleted or the forms not used may be removed

CHEMCIAL INVENTORY LIST

DEPARTMENT NAME: _____

INVENTORY PERFORMED BY: _____ **DATE:** _____

MATERIAL NAME	SUPPLIER NAME

Hazard Communication Training Log

INSTRUCTOR: _____ DATE: _____

I have trained the employees listed below on the **Hazard Communication Standard, 29 CFR 1910.1200**. A copy of the training outline is attached.

INSTRUCTOR'S SIGNATURE: _____

I have received information on the above-mentioned topic. I understand the information and have no further questions on this topic.

EMPLOYEE'S NAME (PRINT)	EMPLOYEE'S SIGNATURE	DEPARTMENT	DATE

Product-Specific Hazard Communication Training

INSTRUCTOR: _____ DATE: _____

I have trained the employees listed below on the following:

1. The physical properties of the product (color, smell etc.) and how to detect a spill.
2. How to safely work with the material, and clean up any spills.
3. The use of personal protective equipment, and the measures employees should take to protect themselves from hazards.
4. Signs and symptoms of over exposure, affects of exposure on any target organs (eyes, lungs, skin, etc.), and emergency first aid treatment for same.
5. How to read, understand, and use the information on SDS's and labels (manufacturer's and in-house).

Product(s) Covered: _____

_____

_____

INSTRUCTOR'S SIGNATURE: _____

EMPLOYEE'S NAME (PRINT)	EMPLOYEE'S SIGNATURE	DEPARTMENT	DATE

SDS REQUEST LOG

SUPPLIER NAME	TELEPHONE NUMBER	PRODUCT NAME	DATE	CONTACT

Date

Client Name
Facility Address
Facility City, State Zip Code

Dear Sir or Madam:

The Federal Hazard Communication Standard, 29 CFR 1910.1200, issued by the Occupational Safety and Health Administration, has made it mandatory for all manufacturers, suppliers, importers, and distributors of hazardous materials to evaluate the hazards of their products, and then to prepare and supply Safety Data Sheets (SDS's) for each product they supply to their customers.

This is the **SECOND REQUEST** for your company to send the SDS for the product(s). The SDS must contain all the information as required by the standard set forth in 29 CFR 1910.1200 (g)(2). If we do not hear from you within five working days, we will remove your product from our facility and use an alternate supplier.

Sincerely,

Administered by
United Heartland

Hearing Conservation Program

For

City of Fond du Lac, WI

Adopted
December 4, 2014

LC-1011b
Rev. 11/14

United Heartland is the marketing name of United Wisconsin Insurance Company.
United Heartland
P.O. Box 3026, Milwaukee, WI 53201-3026
262-787-7700 • Toll Free 800-258-2667 • Fax 262-787-7701

I. Introduction

As part of Organization's overall safety and health program, a Hearing Conservation Program has been established. The program is designed to comply with the Occupational Safety and Health Administration (OSHA) Occupational Noise Exposure standard (1910.95).

II. Objective

The objective of the program is to prevent work related hearing loss, through compliance with 1910.95

III. Scope

This program applies to all employees who are exposed to occupational noise at or above 85 decibels (dBA) as measured on the A-weighted scale, slow response.

IV. Responsibilities

A. The Director of Public Works or his/her designee is the Hearing Conservation Program Coordinator, and is responsible for the following:
   1. Develop and administer the written Hearing Conservation Program.
   2. Conduct, or contract a professional group to perform, a sound level survey of the facility to determine what areas (departments), and which employees may be exposed to noise at or above 85 dBA.
   3. Post warning signs that state hearing protection is required in areas that have documented noise levels at or above 85 dBA.
   4. Perform, or contract a professional group to perform, annual audiometric testing for designated employees exposed to noise levels at or above 85 dBA and as defined in Section VI Audiometric Testing, Paragraph A. Ensure that employees take the necessary precautions to meet the 14-hour minimum requirement without exposure to excessive non-occupational and occupational noise before their audiometric testing. (Hearing protection may be used to satisfy this requirement.)
   5. Annually train, or contract a professional group to train, all employees who are required to work in areas where noise levels equal or exceed 85 dBA. Ensure that all area supervisors and employees have been trained in the selection, fit, use, and care of hearing protection, as well as the effects of noise on hearing.
   6. Enforce the use of hearing protection in required areas.
   7. Investigate feasible engineering and administrative controls when employee exposure to noise equals or exceeds 85 dBA.
   8. Post a copy of the OSHA 1910.95 - Occupational Noise Exposure Standard in a prominent location for all employees to view.

B. Supervisors are responsible for the following:
   1. Ensure that employees take the necessary precautions to meet the 14-hour minimum requirement without exposure to excessive non-occupational and occupational noise before their audiometric testing. (Hearing protection may be used to satisfy this requirement.)
   2. Ensure that all employees under their supervision, that are covered by the Hearing Conservation Program, have been trained on the selection, fit, use, and care of hearing protection, as well as the effects of noise on hearing.
   2. Ensure the availability of suitable hearing protection (ear plugs, fitted ear plugs, ear muffs).
   3. Enforce the use of hearing protection in required areas.
   4. Wear hearing protection at all times in areas designated as hearing protection required.

C. All Employees are responsible for the following:
   1. Participate in annual hearing conservation training sessions as required.
   2. Wear hearing protection at all times in areas designated as hearing protection required.

3. Participate in annual audiometric testing if required.
4. Comply with the 14-hour minimum requirement without exposure to excessive non-occupational and occupational noise before their audiometric testing. (Hearing protection may be used to satisfy this requirement.)
5. Immediately notify your supervisor and/or the Hearing Conservation Program Coordinator of any problems encountered with hearing protection or their hearing.

V. Sound Level Survey

A. The Hearing Conservation Program Coordinator will ensure that a sound level survey will be performed at least every five years, or when there is a change in operations or upon receiving an employee complaint regarding the possibility of excessive noise. Sound level monitoring will determine what areas and which employees may be exposed to noise at or above 85 dBA.
B. Employees will be notified in writing of the sound level survey results.
C. Sound level survey procedure:
   1. A Type II sound level meter set on the A-weighted scale, slow response or other equivalent device will be used to determine noise levels. All sound level measuring equipment will be calibrated in accordance with the manufacturer's instructions before and after each use. The equipment will be factory calibrated as per the manufacturer's recommendation.
   2. A facility layout map may be used to document the noise level readings. All machines, air handlers, fans, and other equipment that are in operation and are contributing to the noise level in the area should be noted on the map.
   3. All continuous, intermittent, and impulse noises from 80 to 130 dBA will be integrated into the noise level measurement.
   4. Variations of noise at intervals of one second or less are considered continuous.
   5. Exposure to impulse or impact noise will not exceed 140 dBA.
   6. Using a noise dosimeter, individual or job position exposure monitoring will be performed, where necessary, on all employees whose noise exposure equals 85 dBA or more. This monitoring will establish an eight-hour time-weighted average (TWA) exposure to noise. Employees who are exposed at or above an eight-hour TWA of 85 dBA will be notified of the noise level monitoring results in writing. Where circumstances such as high worker mobility, significant variations in noise level, or a significant component of impulse noise make area sampling inappropriate, representative (personal) sampling will be used to determine noise levels.

VI. Audiometric Testing

A. Audiometric testing will be provided for all designated employees whose exposure to occupational noise equals or exceeds an eight-hour TWA of 85 dBA. Audiometric tests will be provided to employees at no cost. Designated employees will be tested as follows:

   Regular Full Time Employees – annually
   New Hires (regular) – audiometric test at time of hire, then annually except as noted below under exemptions
   New Hires (long-term seasonal) – audiometric test at time of hire, then annually
   Short-Term Seasonal – no audiometric test at time of hire
   *Employees exempt from annual testing are those who work almost exclusively in an office environment. These positions may include the Director of Public Works, Division Heads, Administrative Assistants, Bus Drivers, Office Clerks, Engineers, Engineering Technicians, and GIS Coordinators/Technicians. These employees shall be notified of the annual audiometric testing and can participate if desired. These positions should be reassessed periodically to ensure that new duties are accounted for which may require periodic testing.

B. Audiometric tests will be performed by technicians who are certified by the Council of Accreditation in Occupational Hearing Conservation. These tests will be pure tone, air conduction, and hearing threshold examinations with test frequencies including as a minimum 500, 1,000, 2,000, 3,000, 4,000, and 6,000 Hertz. Tests at each frequency will be taken separately for each ear.
C. Evaluation of audiogram:
   1. Each current audiogram will be compared to their baseline audiogram to determine if a Standard Threshold Shift (STS) has occurred. An STS is a change in the current audiogram compared to the baseline of an average of 10 dB or more (and at least 25 dB above audiometric zero) at the 2,000, 3,000, and 4,000-Hertz levels in either ear.
   2. If the annual audiogram shows that the employee has suffered an STS, or significant improvement over their baseline audiogram, the employee will be re-tested within 30 days. The re-test will be substituted for the annual audiogram, if it confirms a persistent STS or indicates significant improvement over the baseline audiogram.

D. Audiogram follow-up:
   1. After the comparison of the current audiogram to the baseline is complete, the employee will be informed of the audiometric test results in writing within 21 days of the determination. The information will include their current hearing status, a comparison of the current audiometric test to the previous test and baseline, and notification of an STS if one has occurred.
   2. If the follow up audiologist determines that an STS is work-related or aggravated by occupational noise, the following steps will be taken:
      a. Employees not using hearing protection will be fitted with hearing protection, trained in its use and care, and required to use it.
      b. Employees already using hearing protection will be refitted and retrained in its use, and provided with hearing protection that offers greater protection if necessary.
      c. Employees may need to be referred for a clinical audiological evaluation or an ontological examination if additional testing is necessary, to determine if there is a medical pathology of the ear that is caused or aggravated by wearing the hearing protection. Additional tests will be provided at no cost to the employee.

E. If an employee is diagnosed as having an STS of 10 dB or more in either ear, this will be recorded on the facility's OSHA 300 Log of Occupational Injuries and Illnesses. Occupational hearing loss is recorded on the illness side of the Log in column M5 – Hearing Loss.

VII. Hearing Protection

A. A variety of suitable hearing protection (ear plugs, fitted ear plugs, ear muffs, etc.) will be made available to all employees who:
   1. Are exposed to an eight-hour TWA of 85 dBA or greater;
   2. Have not yet established a baseline audiogram;
   3. Have experienced an STS; or
   4. Want to wear hearing protection to protect their hearing.

B. Hearing protection will be provided to employees at no cost and replaced as necessary.
C. Hearing protection will be evaluated for the specific noise environments in which it will be used, and will reduce noise exposure to less than 85 dBA. To evaluate the effectiveness of hearing protection for a given job, subtract seven from the Noise Reduction Rating (NRR), listed by the manufacturer on the hearing protection package, and then apply a 50% safety factor. Then subtract the remainder from the TWA determined during the sound level survey. The final value will be less than 85 in order to assure employee exposure to noise is less than 85 dBA. If the result is more than 85, hearing protection with a higher NRR rating or dual hearing protection will be required for the job.

D. All managers and area supervisors will ensure that employees working in areas where noise levels are 85 dBA or more, employees who have not yet established a baseline audiogram, or employees who have experienced an STS, wear hearing protection.

VIII. Employee Training

A. All employees who are exposed to noise at or above an eight-hour TWA of 85 dBA will participate in annual hearing conservation training.
B. The Hearing Conservation Program Coordinator will ensure the training includes the following:
   1. The harmful effects of noise on hearing.
   2. The results of the initial and 5 year workplace sound level survey.
   3. The purpose of hearing protection, advantages, noise reduction ratings of various types, instruction on the selection, fit, use, and care of hearing protection.
   4. The purpose, procedure, and explanation of the baseline audiogram and annual audiometric testing.

C. Copies of the facility's written Hearing Conservation Program and any other related materials will be made available to all affected employees.
D. All training sessions will be documented on a training log. The documentation will include the employee's name, signature, department, name of the instructor, date of the training, and an outline of what was presented by the instructor.

IX. Recordkeeping

A. The Hearing Conservation Program Coordinator will retain all sound level survey information including dosimetry results indefinitely. The records will include the following:
   1. Location, date, time of measurement, person performing the noise level measurements, and results of the noise level readings.
   2. Name of the employee and job title or classification (if dosimetry was performed).
   3. Type, model, serial number, and date of calibration of noise level measuring equipment.

B. Audiometric testing records will be maintained for each employee indefinitely. A record will be established for each employee and contain the following information:
   1. The employee's name, job classification or title, noise exposure level, baseline audiogram, and most recent audiometric information.
   2. Location, date, and name of the person administering the audiometric test.
   3. The hearing acuity levels obtained at each frequency.
   4. A systematic analysis, preferably using computerized techniques, comparing results of the current audiogram to the previous audiogram, including the baseline.
   5. Percent of hearing loss (STS) for each ear.
   6. The model, make, and serial number of the audiometer, the standard to which it was calibrated, and date of last calibration.
   7. Personal and work histories indicating significant noise exposure(s) prior to employment with the Organization and record of non-occupational noise exposure.
   8. An interpretive summary of the physician's findings and recommendations, whenever follow-up medical evaluations are recommended.

C. The audiogram will become part of the employee's permanent or medical record. Noise abatement records documenting the effectiveness and cost of engineering controls designed to reduce workplace noise, and documenting process/equipment changes that made an impact on noise exposure levels will be maintained even if controls were never installed, or if noise reduction was not the primary reason for the project. These records will include:
   1. Workplace noise levels before and after abatement.

2. Cost of design, purchase, installation, operation, and maintenance of the engineering controls implemented and process/equipment changes made.

Employee Sound Level Survey Results

Employee Name: _____

Job Title: _____ Shift: _____

Sound Level: _____ Date of Monitoring: _____

Pursuant to the Occupational Safety and Health Administration Standard, 29 CFR 1910.95, a sound level survey was performed in your work area. The results of the sound level survey indicate that the **noise level you are exposed to is at or above 85 dBA**. This notice is to inform you that you will participate in the Hearing Conservation Program. This program includes, but is not limited to, annual audiograms and training on the use of hearing protection.

I acknowledge that I have received the sound level survey results for my work area.

Employee's Signature: _____ Date: _____

Surveyor's Signature: _____ Date: _____

Audiometric Testing Results

I have been shown the results of my recent audiometric test along with any information regarding any threshold shift. I understand the information and have no further questions on this matter.

Signed: _____ Dated: _____

Hearing Conservation Training Log

Instructor: _____ Date: _____

I have trained the employees listed below on the **Occupational Noise Exposure Standard, 29 CFR 1910.95**. A copy of the training outline is attached.

Instructor's Signature: _____

I have received training in this topic, understand the information and have no further questions regarding this information.

Employee's Name (Print)	Employee's Signature	Department	Date

Administered by
United Heartland

Bloodborne Pathogens Program

For

City of Fond du Lac

Adopted
April 2, 2015

LC-1020b
Rev. 2/12

United Heartland is the marketing name of United Wisconsin Insurance Company.
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I. Introduction

As part of the City of Fond du Lac's overall safety and health program, a bloodborne pathogen program has been established. This is designed to comply with the Occupational Safety and Health Administration (OSHA) Bloodborne Pathogen Standard (29 CFR 1910.1030).

II. Objective

The objective of the Bloodborne Program is to prevent occupational illnesses related to exposure to blood and other potentially infected body fluids by educating employees about workplace hazards and controls.

III. Scope

This program applies to all employees who may, in the course of their normal employment, be required to handle, come in contact with, or dispose of any materials containing contaminated or potentially contaminated blood and/or body fluids. For the purpose of this program all undiluted blood and body fluids are considered to be contaminated. Pool water and wastewater treatment and collection systems may contain heavily diluted volumes of these fluids, and should establish specific policies to safely and effectively handle such material.

IV. Responsibilities

A. Director of Public Works or his/her designee is the Bloodborne Pathogens Program Coordinator, and is responsible for the following:
   1. Develop and administer all aspects of the Bloodborne Pathogens Program.
   2. Assure training for all affected employees and maintain documentation records indefinitely.

B. All **Division Managers** are responsible for the following:
   1. Assure that all employees in the department who are trained in **First Aid/CPR attend annual training sessions.**
   2. Assure that only trained employees perform first aid or clean up procedures.

C. All affected Employees are responsible for the following:
   1. Attend and actively participate in scheduled annual training.
   2. Report any exposure to their direct Supervisor and participate in required follow up procedures.

V. Exposure Determination

The City has employees who may be potentially exposed to blood and/or body fluids. An exposure determination has been performed to determine which job classifications and job tasks have potential exposure. The Division Heads will determine which employees will be at risk of exposure and should require training.

VI. Engineering & Work Practice Controls

A. All blood, body fluids, and other potentially infectious materials will be handled as a hazardous material, unless those precautions interfere with the proper delivery of first aid/CPR, health care, or create significant risk to the personal safety of the employee.

B. Following contact with blood and/or body fluids, employees will wash their hands with soap (antiseptic cleaner) and water immediately, or as soon as possible after removing gloves or other personal protective equipment.

C. Used needles and other sharps will not be sheared, bent, broken, or re-sheathed by hand. They will be placed in a closable, puncture resistant, disposable, leak proof container, designed for the purpose.

VII. Personal Protective Equipment

A. Where there is a potential for occupational exposure to blood and/or body fluids, the following personal protective equipment will be used:
   1. Disposable Gloves - will be worn when there is a potential for the hands to have contact with blood and/or body fluids. Gloves will be worn when treating an injured employee, no matter how minor the cut or injury, or when cleaning contaminated or potentially contaminated surfaces. Disposable gloves will be used only once and will not be washed or disinfected for reuse. Only disposable gloves that are constructed of latex, vinyl, or nitrile will be used, and are stored in the First Aid Kits.
   2. Utility Gloves - will be used for cleaning purposes only, and may be disinfected for reuse if the integrity of the glove is not compromised. If the utility gloves become cracked, torn, punctured, or otherwise deteriorated, they will be thrown away with other contaminated waste.
   3. Masks and eye protection will be worn when there is a potential for splashes, sprays, spatters, droplets, or aerosols of blood and/or body fluids that may be generated and there is a potential for eye, nose, and mouth contamination. Masks and eye protection are stored in or with the select First Aid Kits.
   4. Resuscitation equipment such as pocket CPR masks will have one way mouthpieces. They are stored in select First Aid Kits.

B. First aid kits containing the above personal protective equipment for use in emergency are available at various locations throughout the City's facilities. Each Division shall inform its employees of these kits' location(s).

C. All soiled or used personal protective equipment will be removed from the work area immediately or as soon as possible, and placed in an appropriate container.

D. All personal protective equipment that is re-usable such as eye protection or CPR masks will be disinfected and returned to the area for reuse as soon as possible.

E. After removing gloves or other personal protective equipment or in cases where direct contact with blood and/or body fluids may have occurred unexpectedly, hands and other skin surfaces will be washed with soap (antiseptic cleaner) and water immediately or as soon as possible after removing protective equipment.

VIII. Housekeeping

A. All surfaces will be properly cleaned and disinfected immediately or as soon as possible after contact with blood and/or body fluids. Surfaces will be disinfected using material which is approved for use as a disinfectant, or a mixture of one (1) part sodium hypochlorite (household bleach) diluted with ten (10) parts water.

B. Contaminated broken glass will not be picked-up by hand, but will be cleaned up using a brush and dust pan, vacuum, cotton swab, or tweezers, depending upon the situation.

C. When emptying trash receptacles, avoid using the hands to remove the trash. Pour or dump trash receptacles into bins or dumpsters to avoid the possibility of needle pricks due to the unauthorized improper disposal of sharps or needles.

D. All reusable items contaminated with blood and/or body fluids will be disinfected using material which is approved for use as a disinfectant, or a mixture of one (1) part sodium hypochlorite (household bleach) diluted with ten (10) parts water.

E. All contaminated or potentially contaminated wastes such as gloves, towels, swabs, band aids, gauze pads, shop rags, broken glass, etc. will be disposed of in appropriate biohazard containers.

IX. Clean-Up Procedures

All spills of potentially infectious materials such as blood, vomit, urine, etc. will be treated as if known to be infected with HBV or HIV and will be cleaned up using an appropriate disinfecting solution.

X. Infectious Waste Disposal

A. All infectious or potentially infectious wastes will be disposed of using an appropriate biohazard container, which is a closable, leak proof container.

The container will be labeled with a biohazard label. If the outside of the container is contaminated, or contamination is likely to occur, a bag will be placed over the container to prevent further contamination during handling, storage, or transportation. To avoid overfilling, the containers will be routinely replaced and not allowed to over fill.

Any employee's personal clothing that is contaminated with another's blood and/or body fluids must be removed before the employee leaves. The clothing will be sent to be cleaned, laundered, or replaced and paid for by the City.

B. All contaminated or potentially contaminated waste must be disposed of in accordance with all federal, state, and local hazardous waste laws. The Public Works Director or designated appointee will retain all waste disposal records indefinitely.
   1. At this time feminine hygiene products are not considered to be a hazardous waste by the Environmental Protection Agency (EPA) and can be disposed of in the regular garbage.
   2. Contaminated or potentially contaminated wastes are not covered by the 90-day waste accumulation provision under the EPA.

XI. Signs & Labels

A. Biohazard warning labels will be attached to all containers of infectious and/or potentially infectious materials, refrigerators and freezers containing blood and/or body fluids, and all other containers that are used to transport or store blood and/or body fluids.

B. Labels will be fluorescent orange (red/orange) with the biohazard symbol in a contrasting color.

C. The label will be attached to the container by string, adhesive, wire or by other means to prevent its loss or unintentional removal.

D. Bags that are used for disposal or transportation of materials that are potentially contaminated with blood and/or body fluids will be or red/orange with a Biohazard symbol on them.

XII. Hepatitis B Vaccination

A. All full-time or long term seasonal employees who have been identified as having exposure to blood and/or body fluids will be offered the Hepatitis B vaccine, at no cost to the employee within Public Works. These employees will include WCTS personnel, sanitary flushing crew, restroom cleaning personnel, and those who replace or repair sanitary sewer pipes. The vaccine will be offered within 10 working days of their initial assignment to work involving the potential for occupational exposure

to blood and/or body fluids, unless the employee has previously had the vaccine, is allergic to the vaccine, or wishes to submit to antibody testing which shows the employee to have sufficient immunity.

B. Employees who decline the Hepatitis B vaccine will sign a copy of the attached waiver.
C. Employees who initially decline the vaccine but who later wish to have it may then have the vaccine provided at no cost.
D. An employer may elect to postpone the administration of the Hepatitis B vaccine if the following conditions exist:
   1. The primary job assignment of such designated first aid providers is not the rendering of first aid.
   2. Any first aid rendered by such persons is rendered only as a collateral duty responding solely to injuries resulting from workplace incidents, generally at the location where the incident occurred.
   3. Full training and personal protective equipment shall be provided to these employees.
   4. Provision for a reporting procedure that ensures that all incidents involving the presence of blood or other body fluids will be reported to the supervisor before the end of the work shift during which the first aid incident occurred.
   5. The report must include the names of all first aid providers who rendered assistance, regardless of whether personal protective equipment was used and must describe the first aid incident, including the time and date.
   6. Provision for the full Hepatitis series to be made available as soon as possible, but in no event later than 24 hours, to all unvaccinated first aid providers who have rendered assistance in any situation involving the presence of blood or other potentially infections materials regardless of whether or not a specific "exposure incident," as defined by the standard, has occurred.
   7. In the event of a bona fide exposure incident, the portion of the standard relating to post-exposure evaluation and follow-up would apply.

E. The HBV vaccination will be administered by a City's selected physician and paid for by the City.
   1. The HBV vaccination given pre-exposure will consist of a series of 3 injections given over a 6-month period. It has an 85 - 97% effectiveness rate.
   2. The Hepatitis B Immune Globulin (H-BIG) vaccination given post-exposure has a 75% effectiveness rate.
   3. The HBV vaccination does not prevent HIV (AIDS).

F. If at a future date a booster dose is recommended, it will be provided at no cost to the employee.

XIII. Post-Exposure Evaluation & Follow-Up

All employees who have had an exposure incident to blood and/or body fluids such as a splash to the eyes, mouth, or contact with exposed abraded skin, will be offered a confidential medical follow-up evaluation, vaccination, and post-exposure medical management at no cost. The follow-up must be performed under the direction of the City's chosen physician, clinic, or personal physician according to the following provisions:

A. Human resources will provide the physician with a copy of the OSHA, 29 CFR 1910.1030 Bloodborne Pathogens Standard and a description of the employee's duties.
B. The physician will be requested to complete the Bloodborne Pathogens Exposure Incident Record. This record will be used to document the route(s) of exposure, HBV and HIV antibody status of the source patient(s) if known, the circumstances under which the exposure occurred, and all follow-up actions taken.
C. If the source patient can be determined, permission will be obtained before collecting and testing the source patient's blood. The testing will determine the presence of HBV or HIV. Any

information obtained from the evaluation of the source patient's blood will remain strictly confidential.

NOTE: We recognize that the source patient can refuse to submit to any blood tests at this time.

D. The exposed employee's blood will be tested for HBV and HIV status as soon as possible after exposure. Actual antibody or antigen testing of the blood serum may be done at that time or at a later date, if the employee requests.

E. Human Resources will obtain and provide to the exposed employee a copy of the physician's written report within 15 working days of completion. The evaluation should include specific findings or diagnoses which are relevant to the employee's ability to receive the HBV vaccination. The treating physician will be requested to discuss the HBV symptoms and methods of treatment with the employee. All other findings or diagnoses will remain confidential.

F. The affected employee must sign the Bloodborne Pathogens Exposure Incident Record, stating that they have been informed of the results of their medical evaluation.

XIV. Medical Records

A. All post-exposure records with respect to this program will be maintained for the period of employment plus thirty (30) years.
B. The medical file will include the following:
   1. A copy of the employee's Hepatitis B vaccination record and medical records relative to the employee's ability to receive the vaccination.
   2. A copy of the Bloodborne Pathogens Exposure Record, the physician's examination, medical testing, and all follow-up reports.

XV. Training Requirements

A. Any employees who may be occupationally exposed to blood, body fluids, or other potentially infectious materials will be trained.
B. Training will be performed by a person knowledgeable with the standard, this program and common sources of exposure in the employees work area. Any person who performs the training must have documentation he/she has received specialized training on bloodborne pathogens.

C. Training will include the following:
   1. A review of the OSHA, 1910.1030 Bloodborne Pathogens Standard and a brief explanation of its contents.
   2. A general explanation of the epidemiology and symptoms of bloodborne diseases, modes of transmission, infection control, and the appropriate steps to take to avoid contact with blood, body fluids or other potentially infectious materials.
   3. Information on the location, type, and use of personal protective equipment available and proper disposal and decontamination of this equipment after use.
   4. Information on the Hepatitis B vaccination and what type of medical evaluation/follow-up is available after exposure.
   5. An explanation of the biohazard warning labels and signs.
   6. An explanation of the post exposure procedure, who to report exposure incidents to, and other accident information.

D. All training sessions will be documented on the Bloodborne Pathogens Training Log, with an attached outline of the training contents. The training records will be retained by Human Resources for 3 years from the date on which the training occurred.

XVI. OSHA Recordkeeping

Exposure incidents in which the employee is exposed to blood and/or body fluids will be entered on the facility's OSHA 300 Log and Summary of Occupational Injuries and Illnesses, in column M6 - All other illnesses. Exposure incidents may include, but are not limited to: human bites; needle sticks; blood or body fluid splash to eyes or other mucous membranes; or contact with unprotected, abraded skin.

BIOHAZARD LABEL

Hepatitis B Vaccine Declination Form

I understand that due to my occupational exposure to blood and/or other potentially infectious materials I may be at risk of acquiring the 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 vaccination at this time. I understand that by declining this vaccination I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood and/or other infectious materials and want to be vaccinated, I can receive the Hepatitis B vaccination series at no cost to me.

_____ _____

Employee's Signature Date

_____

Employee's Name (Printed or Typed)

_____ _____

Witness' Signature Date

Witness' Title

Bloodborne Pathogens Exposure Incident Record

Name of Exposed Employee: _____

Department: _____

Pre-Exposure Hepatitis Vaccination: Date Given: _____

Date Refused: _____

Date Booster Given: _____

Date and Location of Exposure Incident: _____

Route of Exposure: _____

Description of Incident: _____

_____

_____

What Personal Protective Equipment was used? _____

Serological Testing for HBV or HIV Dates:
1st: _____ 2nd: _____ 3rd: _____

Medical Evaluation Date: _____

Name of Source Individual: _____

Source Individual Tested for HBV or HIV Date: _____

Date of Written Medical Opinion: _____

Medical Opinion Performed by: _____

Exposed Employee's Signature: _____

Bloodborne Pathogens Training Log

Instructor: _____

I have trained the employees listed below on the **Occupational Safety and Health Administration, 29 CFR 1910.1030 Bloodborne Pathogens Standard**. A copy of the training outline is attached.

I have also included a copy of my qualifications of as the instructor of this course.

Instructor's Signature: _____ Date: _____

I have received training on this topic. I understand the information provided and have no further questions on this topic.

Employee's Name (Print)	Employee's Signature	Job Title	Date

Administered by
United Heartland

Lockout
(Control of Hazardous Energy)

For

City of Fond du Lac

Adopted
May 7, 2015

LC-1017b
Rev. 2/12

United Heartland is the marketing name of United Wisconsin Insurance Company.
United Heartland
P.O. Box 3026, Milwaukee, WI 53201-3026
262-787-7700 • Toll Free 800-258-2667 • Fax 262-787-7701

Introduction

As part of Organization's overall safety and health program, a lockout program has been established. The program is designed to comply with the Occupational Safety and Health Administration (OSHA) Control of Hazardous Energy Standard.

I. Objective

The objective of the program is to prevent occupational injuries and illnesses related to the unexpected energizing of equipment during maintenance or servicing activities. It is intended to meet the requirements of OSHA 29 CFR 1910.147.

II. Scope

This program covers the servicing and maintenance of machines and equipment in which the unexpected energizing or start up of the machines or equipment, or release of stored energy could cause injury to employees. This program establishes minimum performance requirements for the control of such hazardous energy.

III. Program Coordinator

Director of Public Works is the Lockout program coordinator for the Organization.

IV. Applicability

This policy applies to all Organization employees. Visitors, contractors, subcontractors and vendors working for the Organization will utilize this program unless their own internal program offers an equal or greater amount of protection. When these individuals choose to utilize a program that substantially deviates from this program, they shall communicate their lockout/tagout procedures to the Organization's Lockout Program Coordinator prior to the start of work.

V. Penalty for Non-Compliance

Each employee is expected to work safely as a condition of employment. Failure to comply with established safety regulations and safe practices may result in disciplinary action. Willful disregard for safe practices, which results in serious injury or property damage, may be grounds for termination.

VI. General

This procedure covers the servicing and maintenance of machines and equipment in which the "unexpected" energizing or start up of the machines or equipment, or release of stored energy could cause injury to employees. This procedure establishes minimum performance requirements for the control of such hazardous energy. Maintenance and/or servicing which takes place during normal production operations is covered by this procedure only if,

- an employee is required to remove or bypass a guard or other safety device;
- an employee is required to place any part of his or her body into an area on a machine or piece of equipment at the point of operation or where an associated danger zone exists during a machine operating cycle.

The exception to this is minor tool changes and adjustments and other minor servicing activities, which take place during normal production operations. These activities include those that are routine, repetitive, and integral to the use of the equipment for production, provided that the work performed uses alternative measures, which provide effective protection for the employee.

This procedure does not apply to work on cord and plug connected electric equipment if the employee has exclusive control of the disconnected cord and plug.

Lockout or tagout devices shall not be used on machinery or equipment that is designated to be removed from service. Equipment that has been removed from service shall be locked or tagged using materials specified for that purpose.

VII. Definitions

A. Affected Employee: An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.
B. Authorized Employee: A person who locks or implements a tagout system procedure on machines or equipment to perform the servicing or maintenance on that machine or equipment. An authorized employee and an affected employee may be the same person when the affected employee's duties also include performing maintenance or service on the equipment they operate.
C. Energized: Connected to an energy source or containing residual or stored energy.
D. Energy Isolating Device: A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: A manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and in addition, no pole can be operated independently; a slide gate; a slip blind; a line valve; a block; and any similar device used to block or isolate energy. The term does not include a push button, selector switch, and other control circuit type devices.
E. Lockout: The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.
F. Lockout device: A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment.
G. Maintenance and/or Servicing: Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or un-jamming of machines or equipment, and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.
H. Tagout: The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed. Tagout alone can only be used when a machine is not capable of being locked out. This is generally very rare and should be avoided.
I. Tagout device: A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

VIII. Energy Control Program

Authorization - Only authorized employees who have been trained in the type and magnitude of the energy, the hazards of the energy, the methods or means of isolating and/or controlling energy, the means of verification of effective energy control, and the purpose of the procedures to be used may begin to perform maintenance or servicing of machinery or equipment under lockout/tagout procedures.

IX. Special Procedures for Multiple Energy Sources

Where machinery or equipment with multiple energy sources exist, a procedure shall be developed to lockout these specific machines or equipment. A Zero Energy State Procedure (ZESP) is a procedure established for machinery or equipment with two or more energy sources. The ZESP is intended to guide authorized employees through multiple lockout methods required to achieve a zero energy state. Each ZESP shall include instructions on the existing energy sources and their location, method(s) to isolate the energy, and the steps required to verify that a zero energy state has been achieved.

A. ZESP Development

Departments possessing machinery or equipment that utilizes two or more energy sources shall develop a ZESP for each of these specific machines and equipment. The ZESP shall be developed prior to the installation of the equipment, or as soon as practical after installation.

The ZESP shall be developed by the **Program Coordinator and the Department** where the machine or equipment exists. (See Appendix 2, 3 and 4)

The ZESP will be made available to all authorized employees by attaching the ZESP to the machine or equipment.

Each department possessing machinery or equipment that utilizes two or more energy sources shall maintain a ZESP file. The ZESP file shall be available for review at all times by authorized and effected employees or OSHA Compliance Officers.

B. ZESP for Authorized Employees

In situations where multiple energy source machinery or equipment requires maintenance or servicing, the authorized employee shall follow the procedures listed below:

1. Identification of the ZESP - before lockout or tagout procedures begin, the authorized employee shall determine that a ZESP is needed for the equipment they will be working on. The authorized employee shall locate the ZESP on the machine or equipment. If no ZESP is found, the department supervisor shall be notified immediately. No work shall be performed on equipment that requires a ZESP, until a ZESP has been developed.
2. Use the ZESP to apply energy controls - before the energy on machinery or equipment is isolated, review the information on the ZESP so that you are familiar with the type and location of the energy sources, the method to control each energy source, and how to verify that each energy source is isolated. Then, follow the procedure for Application of Lockout or Tagout.
3. Verify that no other energy sources exist - inspect the machine or equipment to ensure that there are no additional energy sources to be controlled.
4. Perform required servicing or maintenance work.
5. Release the energy controls - when the servicing or maintenance work is complete, follow the procedure for Release from Lockout or Tagout.

X. Hardware & Materials

The hardware and materials used for the lockout/tagout of equipment shall conform to the following requirements.

A. Lockout devices must be identified as such and not used for any other purpose.
B. Each lock will have an plastic identification label attached. The label will indicate the employee's first and last name.
C. All locks, tags, chains, blocks, clips, or other hardware will be supplied by the authorized employee's department.
D. Both lockout and tagout devices must be capable of withstanding environmental conditions in the workplace (locks should not rust or tags deteriorate).
E. All identification devices will be standard with "DO NOT OPERATE" warning.
F. Each authorized employee will an ample supply of locks to secure equipment. Each lock will only have one key.

XI. Periodic Inspection

Periodic inspections will be conducted, at least annually, to ensure compliance with this program. The authorized employee's supervisor or the Program Coordinator will perform these inspections. The inspection will be conducted to ensure that Organization's procedure and the requirements of 29 CFR 1910.147 are being complied with. If any deviations or inadequacies are identified, retraining shall occur for all authorized employees. If deficiencies in the ZESP are identified, the procedure must be corrected and authorized employees must be made of aware of the correction. **Note this must be done with in ninety days or before the next shut down of the unit.**

The inspection will be conducted to assess the authorized employee's knowledge of their responsibilities and the procedures under the energy control procedure being inspected. The inspector shall certify that the periodic inspection was completed using the Lockout Periodic Inspection form. The certification will be filed with Program Coordinator, along with comments regarding where problems may exist and/or where additional training may be necessary. (See Appendix 5)

All ZESP shall be reviewed each year to ensure they remain appropriate for the equipment.

XII. Training

Training will be provided to employees as follows:

A. Authorized Employees

Authorized employees will be trained in recognition of the type and magnitude of hazardous energy sources, the hazards of the energy, the methods or means necessary for isolating and/or controlling energy, the means of verification of effective energy control, and the purpose of the lockout/tagout procedures to be used. (See Appendix 1)

Training will also be provided concerning the tagout system and the limitations associated with tag outs, including:

1. Only those tags which have been approved by the Organization will be used as a part of the program;
2. Tags are warning devices and do not provide the physical restraint that is provided by a lock;
3. Tags are to be removed only by the authorized employee responsible for the tags, and they shall never be bypassed, ignored, or otherwise defeated;
4. Tags must be legible and understandable to all employees in order to be effective;
5. Tags and their means of attachment must be able to withstand environmental conditions encountered in the workplace;
6. Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program;

7. Tags must be securely attached to energy isolating devices so that they cannot be detached during use.
8. Tagout device attachment means shall be non-reusable, attachable by hand, and self-locking with a minimum unlocking strength of no less than 50 pounds.
9. A tag shall never be used in place of a lock on an energy-isolating device that is capable of being locked.

B. Affected Employees

Affected employees will be instructed in the purpose and use of this energy control procedure. They will also be instructed not to defeat or remove any lockout or tagout device.

C. Other Employees

Those who work in an area where energy control procedures may be utilized shall be instructed about the purpose of this procedure and prohibition on tampering or attempting to restart or reenergize machines or equipment which have been locked out or tagged out.

Employee retraining will be accomplished:

1. Whenever there is change in job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures;
2. Whenever a periodic inspection reveals or whenever there are deviations from or inadequacies in an employee's knowledge or use of the energy control procedures;
3. To reestablish employee proficiency or to introduce new or revised control methods and procedures.

All training will be certified by employee name and date of training. Records will be maintained by the Program Coordinator.

XIII. Energy Isolation - Application Of Lockout Or Tagout

The following information relates to the steps to be followed before work on equipment or machinery has been started. Application of lockout or tagout shall be performed in the following sequence:

A. Notification: before lockout or tagout procedures begin, employees who operate the machine or equipment or those who work in the area around the machine or equipment must be notified that a procedure under lockout or tagout will be performed on their machine or equipment. The notification may be made by the employee performing the work or by a designated Organization employee.

B. Preparation for Shutdown: Before a machine or piece of equipment is isolated, the employee(s) who will perform the lockout or tagout must have the knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, the method or means of isolating and/or controlling the energy, the means of verification of effective energy control, and the purpose of the procedures to be used.

C. Machine or Equipment Shutdown: The machine or equipment must be shutdown in an orderly fashion in order to avoid any additional or increased hazard(s) to employees or damage to the machine or equipment as a result of the de-energizing.

D. Machine or Equipment Isolation: All energy isolating devices that are needed to control the energy to the machine or equipment must be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).

E. Applying Lockout or Tagout Devices: A lockout device must be attached to each energy-isolating device by the person(s) performing the lockout. These must be placed in a manner so that they will hold the energy isolating devices in a safe or off position.
   1. If tagout devices are used, they must clearly indicate that the operation or movement of energy isolating devices from the safe or off position is prohibited.

2. A tag shall never be used in place of a lock on an energy-isolating device that is capable of being locked.
3. If a tag cannot be attached directly to an energy isolating device, it must 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.

F. Stored Energy: Following the application of lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy must be relieved, disconnected, restrained or otherwise controlled. If there is a danger that the stored energy will re-accumulate to a hazardous level, you must continue to verify isolation until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.

G. Verification of Isolation: Before starting work on a machine or equipment, the authorized employee must verify that the isolation and de-energizing of the machine or equipment has been effective. This includes but is not limited to:
1. Mechanical: checking the position for valves and blanking lines, utilizing pressure gauges to determine if supply is under pressure or in a vacuum state, and ensuring blocks or other devices are in place to isolate movement.
2. Electrical: A qualified person shall use test equipment to test the circuit elements and electrical parts that are exposed to verify that parts are de-energized; determine if any energized condition exists from inadvertently induced voltage or back-fed voltage even though specific circuits are presumed to be de-energized; and if testing over 600 volts nominal, test equipment shall be checked immediately before and after test.

XIV. Release from Lockout or Tagout

The following information relates to the steps to be followed once the work or activity on equipment or machinery has been completed and the unit is to be placed in service. Release from Lockout or Tagout shall be performed in the following sequence:

Inspect the Work Area: ensure that all non-essential items and employees have been removed or safely positioned, and machine or equipment components are operationally ready.

Removal of Lockout or Tagout Devices: each lockout or tagout device shall be removed by the employee who applied the device.

Employee Notification: after lockout or tagout devices have been removed and before the machine or equipment is started, affected employees shall be notified that the lockout or tagout device(s) have been removed.

Follow the machine or equipment's specific startup procedures.

XV. Lockout Removal Procedure when the Employee Who Applied the Device is Not Available

If the authorized employee who applied the lockout device is not available to remove it, the device may be removed by the supervisor as long as:

A. The authorized employee who applied the device is not in the building;
B. A reasonable effort is made to contact the employee to advise them of the device removal;
C. The employee has been advised before they resume work;
D. The supervisor removes the employee's lock and applies their own lock in its place;
E. The supervisor notifies the employee that their lock was removed as soon as they return to work.
F. All other Release From Lockout or Tagout Procedures are followed

XVI. Testing or Positioning Machines and Equipment

In situations where lockout or tagout devices need to be temporarily removed from the energy isolating for testing or positioning, the procedure below shall be followed:

A. Inspect the Work Area: ensure that all non-essential items and employees have been removed or safely positioned, and machine or equipment components are operationally ready.
B. Removal of Lockout or Tagout Devices: each lockout or tagout device shall be removed by the employee who applied the device.
C. Employee Notification: after lockout or tagout devices have been removed and before the machine or equipment is started, affected employees shall be notified that the lockout or tagout device(s) have been removed.
D. Energize and proceed with testing or positioning, **using all required personnel protection equipment for all hazards present.**
E. Re-apply lockout or tagout devices: de-energize all systems and re-apply locks and tags following the energy control procedures for the application of lockout/tagout. Disregard this step if the equipment functions properly, and no further maintenance activities will be occurring.

XVII. Group Lockout

When maintenance and/or service work is performed by more than one employee or in conjunction with another department, group, or contractor, a procedure shall be utilized which affords each employee a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device. The following requirements apply for group lockout or tagout:

A. When machine or equipment maintenance or servicing involves more than one employee and/or more than one crew (including contractors) or department each employee shall place their own lockout/tagout device on all energy isolation points. When an energy isolation device cannot accept multiple locks or tags, a multiple lockout or tagout device may be used.
B. If lockout is used, a single lock may be used at each energy isolation point to lockout the machine or equipment, with the key(s) for the lock(s) being placed in a lockout box or cabinet which allows for each employee to secure the box or cabinet.
C. As each employee completes their tasks, they will remove their lock(s) or tag(s) from the machine or lockout box or cabinet.

XVIII. Shift or Personnel Changes

Employees who have not completed their designated maintenance duties, but whose shift is ending shall follow the following procedure:

A. The employee shall notify the on-coming employees about the equipment under lockout.
B. The employee shall remove their lockout/tagout device(s), they shall be immediately replaced by the on-coming employee(s) locks.

The employee who then assumes continued responsibility for the lockout/tagout of the equipment must verify that all energy sources are properly controlled.

XIX. Outside Contractors

Outside contractors will be informed of the Organization's Lockout program requirements and are expected to follow the same basic program. The Organization's Program Coordinator will coordinate this activity with the contractor. Any contractor who performs work on machinery or equipment at an Organization facility, which has the potential of containing or storing hazardous energy will be required to document that their (contractor) employees have been trained in standard lockout/tagout procedures. In addition, the contractor is required to provide each of their authorized employees with approved lockout/tagout devices. If an outside contractor utilizes a hazardous energy control program that deviates from the Organization's program, they shall provide a copy of their program to the Program Coordinator prior to the start of work.

Appendix 1 - Training Authorized Employees

A competent person or organization, as determined by the Program Coordinator, will give the training for authorized employees. The outline of topics included in the training is as follows:

1. Introduction and purpose
   a. OSHA 29 CFR 1910.147
   b. Organization Lockout Policy
   c. Goals and objectives

2. Organization responsibilities
3. Employee responsibilities
4. Lockout/Tagout definitions
5. Energy identification: electrical, hydraulic pressure, pneumatic pressure, other forms of pressure, potential energy, thermal energy, kinetic energy, chemical energy, and radiation.
6. Tag limitations
7. Energy control procedures
   a. Application of lockout or tagout
   b. Release from lockout or tagout

8. Testing or positioning machines and equipment
9. Group lockout or tagout
10. Shift or personnel changes
11. Special procedures for multiple energy sources
12. Zero energy state procedures (ZESP)
13. Outside contractors
14. Periodic inspection
15. Responsibility
16. Review of materials
17. Written evaluation

Performing the Evaluation

Each department possessing machinery or equipment which will require the use of multiple lockout/tagout methods to achieve a zero energy state shall develop procedures for the lockout and/or tagout of those specific machines and/or equipment. This *Zero Energy State Procedure* (ZESP), could include any combination of sources such as electrical, hydraulic, pneumatic, potential, thermal, kinetic, chemical, radiation, or other forms of energy.

The following sections contain information regarding the different types of energy sources along with questions to be answered when evaluating machinery or equipment. This will assist supervisors and industrial engineers in developing ZESP for multiple energy source machinery and equipment in their departments.

Electrical (E)

Definition: Electrical energy is a system for moving electrons through wires to perform work. A magnetic field is produced whenever electrons move through a wire. A magnetic field can generate an electric current when the field moves across a wire.

Examples: Examples of electrical energy systems, in addition to line voltage and current, include rectifiers, amplifiers, transistors, motors, circuit panels, lights, controls, computers, heaters, and batteries.

Potential Hazards: Hazards associated with electrical energy include the potential for electrocution and injuries, primarily burns, due to the discharge of current through the body or arcing of the electrical energy.

Questions to Ask When Developing a ZESP:

1. Is there one or more sources of electricity serving the machine?
2. Have the electrical energy source(s) been totally isolated?
   a. pulling or locking out the main disconnect
   b. breaker panels locked
   c. plug-in removed and locked in a can
   d. battery back-up disconnected
3. Has all electrical energy been isolated or bled off? Capacitors discharged
4. Can transformers be energized from welding operations on the load side?

Hydraulic Pressure (H)

Definition: Hydraulic energy is a system of pumps, valves, hoses, etc. delivering fluid under pressure to perform work. Hydraulic energy performs work through two major routes: cylinders and pumps.

Examples: Examples of hydraulic energy systems include trash compactors, presses, bailers, and forklifts.

Potential Hazards: Hazards associated with hydraulic energy include the potential for crushing and injuries due to the exposure to high-pressure fluid leaks. Amputation and injection of hydraulic fluid into body tissue are additional hazard potentials.

Questions to Ask When Developing a ZESP:

1. Are other sources of hydraulic energy used on this machine?
2. Have the hydraulic energy source(s) been totally isolated?
   a. closing all valves
   b. blocking all lines
   c. opening all residual accumulators
   d. blocking cylinders or pumps

3. Has all residual energy or pressure been isolated or bled off?
4. Can pressure re-accumulate in the system?

Hydraulics components can create a hazard. Pumps can be started accidentally; accumulators maintain a given pressure within the system; check valves can trap pressure in the system; weight on a cylinder will introduce pressure to the system. Common methods of isolating and locking out pressurized circuits are closing and locking valves, blanking pipes and breaking pipes. After closing and locking a valve, means must be available for bleeding residual pressure from the lines.

Pneumatic Pressure (A)

Definition: Pneumatic energy is a system of pumps, valves, hoses and cylinders to deliver air pressure to perform work. Pneumatic components create the same type of hazards as hydraulics.

Examples: Examples of pneumatic energy systems include plant air, air operated presses, lifts, air actuated over-hydraulics, compressors, conveyors, and air powered hand tools.

Potential Hazards: Hazards associated with pneumatic energy include the potential for crushing and injuries due to exposure to high pressure air. Additional hazards include injection of air into the bloodstream which can result in crippling and death due to air embolism, as well as injection of particulates into body tissue.

Questions to Ask When Developing a ZESP:

1. Is there one or more air systems serving the machine?
2. Have the pneumatic source(s) been totally isolated?
   a. closing all valves
   b. blocking all lines
   c. opening all residual accumulators
   d. blocking cylinders or pumps

3. Has all residual pressure been isolated or bled off?
4. Can pressure re-accumulate in the system?

Other Forms of Pressure (OP)

Definition: Other mediums that can create pressure within lines and machinery similar to hydraulic and pneumatic systems.

Examples: Examples of other forms of pressure systems are gases (hydrogen, nitrogen, carbon dioxide, acetylene, oxygen), natural gas (boilers, cafeteria equipment), water (domestic water supply, heat exchangers, chilled water, return water supply), or steam (boilers, heaters, steam traps, heat exchangers, presses or lifts).

Potential Hazards: Hazards associated with other forms of pressure include the potential for crushing and injuries due to exposure to the medium. Hazards from various media can include thermal burns, fire, asphyxiation, and injection of the medium into the body tissue and/or bloodstream.

Questions to Ask When Developing a ZESP:
1. Is there one or more pressure systems serving the machine?
2. Have all sources of pressure been totally isolated?
   a. closing all valves
   b. blocking all lines
   c. opening all residual accumulators
   d. blocking cylinders or pumps
3. Has all residual pressure been isolated or bled off?
4. Can pressure re-accumulate in the system?

Potential Energy (PE)
Definition: Simply defined, potential energy is the energy of rest or position.

Examples: Springs (S) held in compression or under tension, pins, linkage, hydraulics, pneumatics, vacuum and magnetic systems can release the positioned components and allow them to move.

Gravity (G) by the failure of springs, Pons, linkage, etc. can cause machine components or materials to fall (dump trucks, forklifts).

Potential Hazards: Hazards associated with potential energy include the uncontrolled release of this energy which can cause machinery components or materials to go ballistic and cause punctures or penetration injuries, dismemberment, or *caught between* situations.

Questions to Ask When Developing a ZESP:
1. Is there one or more springs, pins, linkage systems, chains, etc., serving the machine?
2. Have all sources of potential energy been totally isolated, removed or blocked?

Common methods of controlling potential energy are: blocking, pinning, chaining, or lowering.

Thermal Energy (TE)
Definition: Thermal energy is the motion of particles at the molecular or particulate level. It involves both hot and cold systems and the transfer of this energy through mediums.

Examples: Welding, torch work, chemical reactions, heat exchangers, boilers, and cryogenic systems.

Potential Hazards: Hazards associated with thermal energy are burns, heat stress, or frozen tissue.

Questions to Ask When Developing a ZESP:
1. Must the employee work in close proximity to the heat or cold?
2. Are means available to bring the temperatures above or below the action levels?
3. Is appropriate personal protective equipment (PPE) available for use?

Kinetic Energy (KE)
Definition: Kinetic energy is the energy of machinery or equipment due to its motion.

Examples: Rotating flywheels and spinning shafts create both a contact hazard and point of operation hazard (a spinning flywheel on a press could cause a press cycle when working on the clutch controls).

Potential Hazards: Hazards associated with forms of kinetic energy include *caught in, caught on,* and *caught between* situations for employees.

Questions to Ask When Developing a ZESP:
1. Has all energy of motion been stopped?
2. Are means available to block spinning or rotating machine or equipment parts to prevent them returning to motion?

Chemical Energy (CE)
Definition: Chemical energy is the energy associated with chemical reactions such as decomposition, synthesis, or replacement reactions.

Examples: The plating tanks and associated piping, and chemical storage tanks.

Potential Hazards: Heat of reaction, uncontrolled reactions, fires and explosions are the primary hazards with chemical energy.

Questions to Ask When Developing a ZESP:
1. Have pipes and tanks been blocked and/or bled?
2. Have system tanks and piping been purged or made inert?
3. Has the residual chemical been neutralized or inactivated?

Radiation (R)
Definition: The emission and propagation of waves or particles.

Examples: X-ray units.

Potential Hazards: Irritation or exposure to alpha, beta, or gamma particles which can cause radiation burns, radiation sickness, and death.

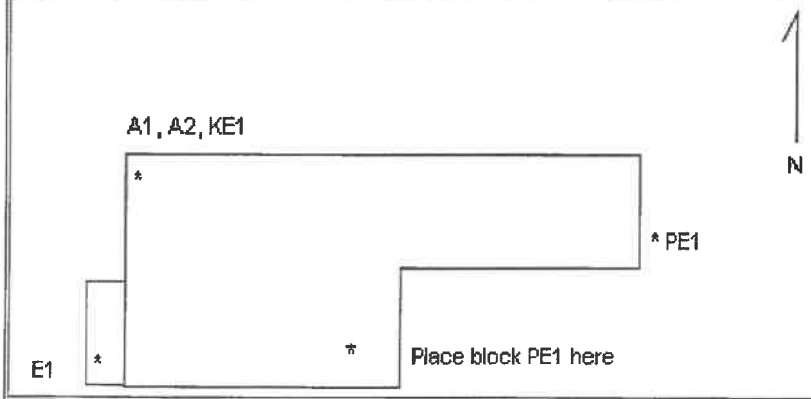
Questions to Ask When Developing a ZESP:
1. Is there a radiation source associated with this machine or equipment?
2. What is the type of radiation?
3. Is PPE available for alpha or beta exposure?

Zero Energy State Procedure

Appendix 3

Machine: _____

Locks Required	Machine/Equipment Identification	Column Location
2	Example 101	Maintenance Building



Shut Machine Down by Normal Methods Before Locking Out

Energy Source	Energy Source	Energy Source	Energy Source
Flywheel	KE1	Apply flywheel brake by opening valve KE1.	Visually check to make sure flywheel has stopped.
Gravity	PE1	Insert block under elevator.	Lower elevator onto block by bleeding airline.
Air	A1, A2	Close and lock valve A1. Bleed residual pressure by opening valve A2.	Elevator should lower onto block.
Electric	E1	Pull main disconnect and lock.	Push main machine start button.

Completed by: _____ Date: _____

Zero Energy State Procedure

Appendix 4

Machine: _____

Locks Required	Machine/Equipment Identification	Column Location

Shut Machine Down by Normal Methods Before Locking Out

Energy Source	Location	Method	Verify

Completed by: _____ Date: _____

Appendix 5 – Periodic Inspection

Lockout/Tagout Periodic Inspection

Date: _____ Time: _____

Name of Inspector: _____ Title: _____

Machine or Equipment: _____

Location: _____

Maintenance/Services Conducted: _____

_____

_____

Authorized Employee(s): _____

Affected Employee(s): _____

Inspection Procedure **Satisfactory?**

1. General review of responsibilities and procedures (See LO/TO Procedure Card) ☐ Yes ☐ No

Comments: _____

_____

2. Knowledge of machine/equipment energy types ☐ Yes ☐ No

List Energy Types: _____

Comments: _____

_____

3. Knowledge of machine/equipment control methods ☐ Yes ☐ No

List required controls: _____

Comments: _____

_____

4. Other comments or deficiencies identified: _____

_____

_____

5. Recommend refresher training? ☐ Yes ☐ No

Certification

I hereby certify that an inspection was performed on the Lockout/Tagout procedure utilized by the employee(s) indicated above on the aforementioned machine and/or equipment to ensure the procedure and requirements of OSHA 29 CFR 1910.147 (Control of Hazardous Energy Lockout/Tagout) are being satisfied. The findings of this inspection have been reviewed with the employee(s) performing the servicing and/or maintenance work being inspected.

Inspector: _____ Date: _____

Authorized employee(s): _____ Date: _____

_____ Date: _____

_____ Date: _____

Program Coordinator _____ Date: _____

Upon Completion Send to: Program Coordinator

Administered by
United Heartland

Emergency Action Plan

For

City of Fond du Lac

Adopted
May 7, 2015

LC-2007
Rev. 2/12

United Heartland is the marketing name of United Wisconsin Insurance Company.
United Heartland
P.O. Box 3026, Milwaukee, WI 53201-3026
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I. Introduction

The purpose of the Emergency Action Plan is to assure the safety of the employees during emergencies and to prepare the City of Fond du Lac to deal effectively with emergency situations. Each Department should fill in the yellow highlighted areas before issuing to department personnel.

II. Objective

This policy is designed to set forth procedures for the general employee base to follow in event of an emergency. This plan is not intended to be used by the City's emergency response departments such as police, fire and EMS. The emergency response departments have their own protocols for dealing with emergencies.

As municipal employees we are obligated to work and act in times of emergencies affecting our city.

III. Scope

This plan discusses disaster planning, procedures to be followed, drills or "practices" to be followed, and prevention. It was designed to cover basic emergencies and is not considered an all inclusive training program for all possible emergencies. The basic information will cover emergency situations such as the following:

A. Fire/Explosion
B. Tornado
C. Severe Weather
D. Hazardous Chemical Release or Spill
E. Threats
F. Personal Injury

IV. Types/Locations of Alarms & Communications

In the event of an emergency situation, the phone paging system will be the primary means of notifying personnel. Alternate means of communication will be through the utilization of the hand-held radios, cell phones and pagers. Contractors informed of a situation shall notify personnel in their immediate vicinity by voice or radio to ensure they have been properly notified. In the event of a total loss of phone and radio communications, at the discretion of the supervisor in charge, runners may be utilized.

General Response

Employees must be immediately evacuated or seek shelter from risks and threats in their work areas. All employees are to remain out of the way of emergency response personnel. All employees must be quickly and quietly accounted for and reported to the supervisor or to a designee.

Facility emergency *evacuation* might be due to the following situations:

- Fire/Explosion
- Chemical Releases or Spills
- Bomb Threat
- Radiation Leak

Facility emergency *shelter* might be due to the following:

- Tornado
- Severe Weather

V. Responsibilities

A. Supervisors

The supervisors will assume primary responsibility for the safety and well being of employees in their work areas, including the direction of personnel during all emergency situations. If the supervisors are unable to provide direction, the senior employee will assume responsibility. Supervisors will be responsible for the following issues:

1. Training of employees
2. Safe evacuation of employees
3. Headcount
4. Spot checks

The supervisors will be trained and authorized to conduct training for their shift employees. The supervisors must be familiar with the types of alarm systems, escape routes, emergency shelter locations, headcount locations other facts pertaining to this plan.

B. Employees

Employees are responsible for proper response to alarm signals during emergency situations. Employees should also be familiar with the facility layout, emergency maps and locations, physical directions, location of emergency plans and who to contact during emergency situations. This will be accomplished by review of our policies during training, review of our facility layout evacuation maps, participation during emergency training exercises and by asking questions of their immediate supervisor.

Employees will be responsible for the safe evacuation when the signals are given for such response. Employees must avoid all associated hazards during emergency evacuation such as downed power lines, fires, chemical releases or other potentially harmful situations.

C. Contractors

Contractor Management will be responsible for appropriate notification of their employees and accurate head count of the contracted labor on site. The contractor will then report their situation to the supervisor or Incident Commander. Each contractor employee must follow the City's Emergency Action Plan.

D. Others

Persons with visitors to city facilities will be responsible for the safe evacuation of the visitors and an accurate headcount when alarm systems are activated. The city employee should report to the

status to the City Manager or supervisor.

VI. Procedures

The facility emergency evacuation and shelter maps of each area and each floor will be located in all rooms which may be occupied by the public and near each primary entrance/exit location. These layout drawings will be reviewed with each employee. Each emergency exit in the facilities should be identified with "EXIT" signs and additional emergency lighting is provided in strategic locations around the facilities. All emergency exits must remain unlocked.

Employees must contact their immediate supervisor during potential emergency situations. Employees must remain calm, and report the pertinent information to their supervisor so that he or she may take the appropriate action.

The following type of information should be reported to the Supervisor:

- What type of situation is it?
- What happened?
- What was released? If so, How much?, Where?, When?, What caused the release?...etc.
- What can city staff do?
- Where is the emergency situation?
- How involved is the emergency?
- What are your recommendations?

Refresher training will be conducted on an annual basis and evaluations should be conducted of the annual mock drills.

VII. Emergency Evacuation

The primary evacuation route is the normal means of entrance and egress into an area. The secondary evacuation route is the backup or alternate means of escape. The primary assembly point will be dependant upon wind conditions:

Each Department and building supervisor is responsible for establishing designated meeting locations. Consideration should be taken for wind direction, and 2 designated areas, depending on wind conditions, should be established.

If the wind is from the northerly regions, the assembly point is as follows: _____
If the wind is out of the regions to the south, the assembly point is as follows: _____

Each supervisor will be responsible for the headcount of his/her employees or this task should be delegated during an emergency.

If someone is missing, the supervisor shall be notified and the rescue workers (fire or police) will be notified. A Rescue Team may attempt a rescue; **no other people shall attempt to re-enter the facility once they have evacuated.**

Mock drills and refresher training should be conducted on an annual basis and evaluations should be conducted of the mock drills.

VIII. Location of Emergency Shelters

The following is a list of the emergency shelters: Each Department and Building Supervisor will establish designated Emergency Shelter areas. Exhibit A below is an example. Supervisor shall fill in the additional chart below with the pertinent information:

Exhibit A- Example

General Area	Location of Emergency Shelter
Office	Inner Restrooms or Locker Rooms
Water Production	Under North Pre-Cast Concrete Stairs
Engineering	Conference Room – under tables

General Area	Location of Emergency Shelter

IX. Distribution and Training

All employees may have a copy of this policy and training procedure upon request. This policy and procedure shall be posted in locations accessible to all employees. All employees shall receive training at the following intervals:

A. Initial employment;
B. Before their first assignment of duties; and
C. Annual thereafter.

Training will ensure employees fully understand the policies and procedures contained herein and can fully implement these instructions.

All new employees will receive a copy of the training document and procedure at the time of hire and will be trained to ensure the new employee is knowledgeable and capable of performing the policies and procedures.

X. Evacuation Route General Requirements

The following evacuation procedures will aid in the prevention of injuries in the event it becomes necessary to order an evacuation.

A. All exit doorways shall remain unlocked and free of obstruction at all times.
B. Each route of egress shall be continuously maintained free of obstruction.
C. Every exit shall be clearly visible or the route to reach it shall be conspicuously indicated in such manner that every occupant will readily know the direction of escape from any point, and each path of escape. Exit signs shall have the word "EXIT" in letters six (6) inches high and the strokes of the letters three/fourths (3/4) inch wide. All exits will discharge to a safe area.

D. All doorways and passageways not constituting an exit or way to an exit shall be so arranged and marked to minimize possible confusion. These shall be identified by a sign reading "NOT AN EXIT" or a sign indicating the actual room use such as: restroom, storeroom, closet, etc.
E. Adequate and reliable illumination shall be provided for all exit facilities.
F. Doors provided as means of exit shall be of the side-hinged, swinging type. Exits swing in the direction of exit travel.
G. Flammables, combustibles, and oxidizers shall not be stored in egress aisles, adjacent to egress aisles or under stairs.
H. Snow and other impediments to egress shall be kept cleared of all exits.
I. Egress aisles will be continuously maintained free of all impediments which may cause slipping, tripping, falling, or injury to an employee while attempting to egress during an actual emergency.

XI. Fire/Explosion

The following is a list of the basic duties for the employees and the Supervisor at the time of a fire. The relative importance sometimes differs according to the existing conditions.

A. Employees' Responsibilities
   1. Do not Panic!
   2. Immediately call 911 and report the fire and then evacuate the building.
   3. Use a fire extinguisher only if you are trained to do so and you believe the fire is small enough to contain with it and still get yourself out of the building.
   4. Follow your supervisor's instructions.
   5. Report to your designated meeting point for head count.

B. Supervisor Responsibilities
   1. Ensure that 911 has been contacted.
   2. Sound the alarm for employees to evacuate the facilities.
   3. Shut off equipment, power and fuel supplies, or instruct one of the employees to do so if conditions permit.
   4. Take employee head count.
   5. Meet and direct the fire department to the location.

XII. Tornado

In the Midwest tornadoes do develop quite frequently in the spring and fall seasons, and in some cases they may develop very quickly, with little or no warning.

A. Tornado Watch

   A tornado watch indicates that weather conditions may cause tornadoes or severe thunderstorms to develop in or near the watch area. A watch does not mean that a tornado has been sighted. Watches usually are issued for periods of six hours or less.

B. Tornado Warning

   Tornado warnings are issued when a tornado has been sighted or indicated on radar. A warning may cover periods less than one hour and are issued for small areas, usually by county. The warning will indicate where the tornado was detected and the area through which it is expected to move.

   A tornado warning means that persons in the expected path of the storm should take shelter immediately.

   In the event of a tornado employees should proceed to the emergency shelter areas. The employees will be notified by the county emergency warning system or their supervisor.
   1. Shut down and secure all the machines in your work area as directed by your supervisor.

2. Proceed to the designated shelter area.
3. If time does not permit, take cover in a ditch or ravine. Office personnel might take cover under a desk.
4. If in a vehicle and a tornado is approaching, leave the vehicle and take cover in a ditch, ravine or road culvert.
5. The supervisor will account for all employees.
6. The supervisor will be monitoring the radio network to stay apprised of all updates and the all clear signal.
7. Do not return to regular work or leave your designated area until authorized to do so by the supervisor or person in charge.

XIII. Thunderstorms

A. Severe Thunderstorm Watch

A Severe thunderstorm Watch means weather conditions are favorable to high winds, heavy rains, severe lightning and damaging hail.

When the National Weather Service issues a Severe Thunderstorm Watch.

1. Supervisors should begin notifying their staff.
2. Continue normal operations.

B. Severe Thunderstorm Warning

A Severe Thunderstorm Warning means weather conditions are likely to produce high winds, heavy rains, severe lightning and damaging hail.

When the National Weather Service issues a Severe Thunderstorm Warning.

1. The Control Center Operator and the Dispatcher will begin notifications.
2. Employees exposed to the elements will seek shelter and continue to perform duties as possible.
3. Employees working within sound buildings and structures will continue to perform their duties.

C. Additional Responsibilities

1. The supervisor will account for all employees.
2. The supervisor will be monitoring the radio to stay apprised of all updates and the all clear signal.
3. Do not return to regular work outdoors or leave your designated area until authorized to do so by the supervisor or person in charge.

XIV. Hazardous Material Release or Spill

In the event of a hazardous material spill:

A. Notify your supervisor immediately.
B. Stay clear of the area, establish a perimeter and do not let other persons in the area. The hazards of the material must be fully understood before cleanup is attempted.
C. Do not key your radio microphone, turn on or turn off switches or produce any other sparks or sources of ignition.
D. Evacuate building via primary evacuation route unless the route is blocked by fire or chemical release. Use the secondary route of evacuation if the primary is blocked.
E. Employees must proceed to the designated assembly point for head count.
F. If any person has been exposed to the material, recommendations found on the label or in the Material Safety Data Sheet must be followed.
G. If the material cannot be safely cleaned up by the city personnel, outside help must be obtained. Disposal of the material must follow the guidelines of the applicable federal, state, or local

requirements.

H. Employees must not return to regular work area or leave the designated area until authorized to do so by the supervisor, or person in charge.

Do not reenter the building for any reason.

For chemical spills and/or releases, the Department of Transportation (DOT) and the Environmental Protection Agency (EPA) have established requirements for reporting these releases to the appropriate authorities. Release reporting requirements are different for many chemicals, compounds, or mixtures. The reporting requirements are bases on the reportable quantity (RQ) which has been established by the EPA.

XV. Threat

Information Collection

There are many ways a threat can be directed at the City. It can be a threat of contamination to the water supply, a bomb threat or even a threat of violence to a city employee or official.

Reporting or calling in a threat may be due to several reasons:

- The caller has knowledge or has information concerning a device or situation and they want to minimize personal or property damage.
- The caller wants to create an atmosphere of anxiety and panic which will disrupt normal city activities.

A. The person taking the call should attempt to gather as much information from the caller as possible, and at the conclusion of the call report the information about the call to their supervisor. Please reference the "Threat Checklist" for further detail. All threatening calls should be recorded if possible. Use a different phone to call your supervisor and for making other calls.

B. All threats will be taken seriously and the police department will be notified. In case of a bomb threat the facility will be evacuated.

C. Bomb threats should involve at a minimum the local police officials and possible the Bureau of Alcohol Tobacco & Firearms (BATF) and FBI. Outside agency contact will be made by the Police Chief.

D. Threats to the water supply and the water distribution system should involve local police officials and the Wisconsin DNR.

E. The Threat Checklist in Appendix A must be completed and given to your supervisor.

XVI. Personal Injury

What happens in the first few minutes of a medical emergency can mean the difference between life and death. First aid kits are provided in most buildings and vehicles. Properly trained employees can make a difference.

A. Minor injury: Does not require Doctor or Hospital visits.
   1. Employee:
      a. Administer first aid if needed.
      b. Notify Supervisor

   2. Supervisor:
      a. Report incident to Worker Compensation Claims Coordinator
      b. Perform Incident Investigation

B. Major Injury: Requires Doctor or Hospital visit
   1. Employee/Co-worker:
      a. Call 911.(if a medical emergency)

b. Administer first aid if needed.
c. Notify Supervisor.

2. Supervisor:
   a. Notify Manager
   b. Get employee treatment either at doctor or ER if required.
   c. Coordinate with Human Resources, for notification of employee's family (if necessary).
   d. Perform Incident Investigation

3. Claims Coordinator:
   a. Schedule doctor appointment if not an emergency.
   b. Assist employee with physician, hospital and insurance issues, etc.
   c. File First Report of Injury with worker compensation carrier
   d. Follow appointments forward medical notes to Work Comp carrier forms.
   e. Be a point of contact for supervisor, employee, doctor and work comp carrier.

APPENDIX A
Phone Threat Identification Checklist

Please follow the below procedures in the event you are the recipient of a threatening phone call. Try to keep the caller on the line to obtain as much information as possible. Remain calm and courteous. Listen; do not interrupt the caller. Record as much information as possible, including:

1. What kind of threat is posed?
   A. Contamination: *What kind of poison?* _____
      How much? _____
   B. Physical Damage: ☐ *What kind of damage?* _____
      What kind of device? _____
   C. Bomb? _____
2. Where? _____
3. When? _____
4. Why? _____
5. By whom? _____
6. What is the *(caller's)* name? _____
7. What is the *(caller's)* affiliation, if any? _____
8. What is the *(caller's)* address/phone#? _____

What is the exact wording of the threat? _____

9. Is the caller ☐ male ☐ female ☐ well spoken ☐ illiterate ☐ foul
   ☐ irrational ☐ incoherent ☐ coherent
10. Is the caller's voice ☐ calm ☐ angry ☐ slow ☐ rapid ☐ soft
    ☐ loud ☐ laughing ☐ crying ☐ deliberate ☐ normal ☐ slurred
    ☐ nasal ☐ clear ☐ lisping ☐ stuttering ☐ deep ☐ high
    ☐ cracking ☐ rational ☐ emotional ☐ excited ☐ young
    ☐ old; approx. age_____
    ☐ familiar - *who did it sound like?* _____
    ☐ accented – *what nationality, region?* _____
11. Was the connection clear? ☐ Yes ☐ No
    (*Could it have been a wireless or cell phone?*) ☐ Yes ☐ No
12. Is there background noise? ☐ Street noises – *what kind?* _____

☐ Machinery – *what type?* _____
☐ Voices – d*escribe* _____
☐ Children – *describe* _____
☐ Animals – *what kind?* _____
☐ Computer keyboard/office _____
☐ Music – *what kind?* _____
☐ Trains ☐ Airplanes ☐ Party atmosphere ☐ Quiet
☐ Other _____

Who received Call? _____ Date: _____ Time: _____ ☐am ☐ pm

Notification Personnel

Supervisor (___) ___-____
Dept. Manager
City Manager
Police (As directed by City Manager) Phone: 911

EMERGENCY PHONE NUMBERS

	CONTACT	PHONE
City Manager	Joseph Moore	Ext. 3406 Cell (920) 539-6756
Public Works	Jordan Skiff	Ext. 3472 Cell (920) 273-5309
Police Chief	Bill Lamb	Ext. 3702 Cell (920) 375-6063
Fire Chief	Peter O'Leary	Ext. 3802 Cell (920) 251-9806
Engineering	Paul DeVries	Ext. 3473 Cell (920) 517-7890
Water operations	Kathy Scharf	Ext. 3682 Cell (920) 960-5458
Wastewater operations	Jeremy Cramer	Ext. 3662 Cell (920) 539-7353
Construction & Maintenance	*Foreman on-call*	Cell (920) 322-3565

Alliant-Electric Company	1-800-255-4268
Alliant-Natural Gas	1-800-255-4268
Construction Maintenance	(920) 322-3565
Dispatch Center	(920) 906-5555
Nat. Response Center (chemical spill)	1-800-424-8802
Poison Center	1-800-222-1222
Wisconsin Spills Hotline DNR	1-800-943-0003

Administered by
United Heartland

Fire Prevention Plan

For

City of Fond du Lac

Adopted
May 7, 2015

LC-1021b
Rev. 2/12

United Heartland is the marketing name of United Wisconsin Insurance Company.
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262-787-7700 • Toll Free 800-258-2667 • Fax 262-787-7701

I. Introduction

As part of the City of Fond du Lac's overall safety and health program, a fire prevention plan has been established. The Fire Prevention Plan is designed to comply with the Occupational Safety and Health Administration's (OSHA) rule 29 CFR 1910.39.

II. Objective

The objective of the Fire Prevention Plan is to eliminate the causes of fire, prevent loss of life and property by fire and to educate employees on recognizing, reporting, and controlling fire hazards.

III. Scope

This Fire Prevention Plan serves to reduce the risk of fires within the organization's facilities in the following ways:

A. identifies materials that are potential fire hazards and their proper handling and storage procedures;
B. distinguishes potential ignition sources and the proper control procedures of those materials;
C. describes fire protection equipment and/or systems used to control fire hazards;
D. identifies persons responsible for maintaining the equipment and systems installed to prevent or control ignition of fires;
E. identifies persons responsible for the control and accumulation of flammable or combustible material;
F. describes good housekeeping procedures necessary to insure the control of accumulated flammable and combustible waste material and residues to avoid a fire emergency; and
G. provides training to employees with regard to fire hazards to which they may be exposed.

The Organization's separate Emergency Action Plan spells out the procedures for responding to fires.

IV. Responsibility

All employees should know how to prevent and respond to fires.

A. Program Administrator

The program administer is: Division Chief of Fire Prevention. The Program administrator shall manage the Fire Prevention Plan for the Organization, and shall maintain all records pertaining to the plan. The Program Administrator shall also:

1. Develop and administer the Organization's fire prevention training program.
2. Ensure that fire control equipment and systems are properly maintained.
3. Control fuel source hazards.
4. Conduct fire risk surveys (see Appendix A) and make recommendations.

B. Supervisors

Supervisors are responsible for ensuring that employees receive appropriate fire safety training, and for notifying the appropriate program administer when changes in operation increase the risk of fire. Supervisors are also responsible for enforcing the Organization's fire prevention and protection policies.

C. Employees

All employees shall:

1. Complete all required training before working without supervision.
2. Conduct operations safely to limit the risk of fire.
3. Report potential fire hazards to their supervisors.
4. Follow fire emergency procedures.

V. Plan Implementation

A. Good Housekeeping

To limit the risk of fires, employees shall take the following precautions:

1. Minimize the storage of combustible materials.
2. Make sure that doors, hallways, stairs, and other exit routes are kept free of obstructions.
3. Dispose of combustible waste in covered, airtight, metal containers.
4. Use and store flammable materials in well-ventilated areas away from ignition sources.
5. Use only nonflammable cleaning products.
6. Keep incompatible (i.e., chemically reactive) substances away from each other.
7. Perform "hot work" (i.e., welding or working with an open flame or other ignition sources) in controlled and well-ventilated areas.
8. Keep equipment in good working order (i.e., inspect electrical wiring and appliances regularly and keep motors and machine tools free of dust and grease.
9. Ensure that heating units are safeguarded.
10. Report all gas leaks immediately. The program administrator shall ensure that all gas leaks are repaired immediately upon notification.
11. Repair and clean up flammable liquid leaks immediately.
12. Keep work areas free of dust, lint, sawdust, scraps, and similar material.
13. Do not rely on extension cords if wiring improvements are needed, and take care not to overload circuits with multiple pieces of equipment.
14. Ensure that required hot work permits are obtained.
15. Turn off electrical equipment when not in use.

B. Maintenance

The supervisor will ensure that equipment is maintained according to the manufacturers' specifications. The Organization will also comply with requirements of the National Fire Protection Association (NFPA) codes for specific equipment. Only properly trained individuals shall perform maintenance work.

The following equipment is subject to specific maintenance, inspection, and testing procedures:

1. equipment installed to detect fuel leaks, control heating, and control pressurized systems;
2. portable fire extinguishers, automatic sprinkler systems, and fixed extinguishing systems;
3. detection systems for smoke, heat, or flame;
4. fire alarm systems; and
5. emergency backup systems and the equipment they support.

VI. Types of Hazards

The following sections address the major workplace fire hazards at the Organization's facilities and the procedures for controlling the hazards.

A. Electrical Fire Hazards

Electrical system failures and the misuse of electrical equipment are leading causes of workplace fires. Fires can result from loose ground connections, wiring with frayed insulation, or overloaded fuses, circuits, motors, or outlets.

To prevent electrical fires, employees shall:

1. Make sure that worn wires are replaced.
2. Use only appropriately rated fuses.
3. Never use extension cords as substitutes for wiring improvements.

4. Use only approved extension cords [i.e., those with the Underwriters Laboratory (UL) or Factory Mutual (FM) label].
5. Check wiring in hazardous locations where the risk of fire is especially high.
6. Check electrical equipment to ensure that it is either properly grounded or double insulated.
7. Ensure adequate spacing while performing maintenance.

B. Portable Heaters

All portable heaters shall be approved by the program administrator. Portable electric heaters shall have tip-over protection that automatically shuts off the unit when it is tipped over. There shall be adequate clearance between the heater and combustible furnishings or other materials at all times.

C. Office Fire Hazards

Fire risks are not limited to the Organization's industrial facilities. Fires in offices have become more likely because of the increased use of electrical equipment, such as computers and fax machines. To prevent office fires, employees shall:

1. Avoid overloading circuits with office equipment.
2. Turn off nonessential electrical equipment at the end of each workday.
3. Keep storage areas clear of rubbish.
4. Ensure that extension cords are not placed under carpets.
5. Ensure that trash and paper set aside for recycling is not allowed to accumulate.

D. Cutting, Welding, and Open Flame Work

The supervisor will ensure the following:

1. All necessary hot work permits have been obtained prior to work beginning.
2. Cutting and welding are done by authorized personnel in designated cutting and welding areas whenever possible.
3. Adequate ventilation is provided.
4. Torches, regulators, pressure-reducing valves, and manifolds are UL listed or FM approved.
5. Oxygen-fuel gas systems are equipped with listed and/or approved backflow valves and pressure-relief devices.
6. Cutters, welders, and helpers are wearing eye protection and protective clothing as appropriate.
7. Cutting or welding is prohibited in sprinklered areas while sprinkler protection is out of service.
8. Cutting or welding is prohibited in areas where explosive atmospheres of gases, vapors, or dusts could develop from residues or accumulations in confined spaces.
9. Cutting or welding is prohibited on metal walls, ceilings, or roofs built of combustible sandwich-type panel construction or having combustible covering.
10. Confined spaces such as tanks are tested to ensure that the atmosphere is not over ten percent of the lower flammable limit before cutting or welding in or on the tank.
11. Small tanks, piping, or containers that cannot be entered are cleaned, purged, and tested before cutting or welding on them begins.
12. Fire watch has been established.

E. Flammable and Combustible Materials

The supervisor shall regularly evaluate the presence of combustible materials at the Organization (see Appendix D).

Certain types of substances can ignite at relatively low temperatures or pose a risk of catastrophic explosion if ignited. Such substances obviously require special care and handling.

1. Class A combustibles.

These include common combustible materials (wood, paper, cloth, rubber, and plastics) that can act as fuel and are found in non-specialized areas such as offices.

To handle Class A combustibles safely:

a. Dispose of waste daily.
b. Keep trash in metal-lined receptacles with tight-fitting covers (metal wastebaskets that are emptied every day do not need to be covered).
c. Keep work areas clean and free of fuel paths that could allow a fire to spread.
d. Keep combustibles away from accidental ignition sources, such as hot plates, soldering irons, or other heat- or spark-producing devices.
e. Store paper stock in metal cabinets.
f. Store rags in metal bins with self-closing lids.
g. Do not order excessive amounts of combustibles.
h. Make frequent inspections to anticipate fires before they start.

Water, multi-purpose dry chemical (ABC), and halon 1211 are approved fire extinguishing agents for Class A combustibles.

2. Class B combustibles.

These include flammable and combustible liquids (oils, greases, tars, oil-based paints, and lacquers), flammable gases, and flammable aerosols.

To handle Class B combustibles safely:

a. Use only approved pumps, taking suction from the top, to dispense liquids from tanks, drums, barrels, or similar containers (or use approved self-closing valves or faucets).
b. Do not dispense Class B flammable liquids into containers unless the nozzle and container are electrically interconnected by contact or by a bonding wire. Either the tank or container must be grounded.
c. Store, handle, and use Class B combustibles only in approved locations where vapors are prevented from reaching ignition sources such as heating or electric equipment, open flames, or mechanical or electric sparks.
d. Do not use a flammable liquid as a cleaning agent inside a building (the only exception is in a closed machine approved for cleaning with flammable liquids).
e. Do not use, handle, or store Class B combustibles near exits, stairs, or any other areas normally used as exits.
f. Do not weld, cut, grind, or use unsafe electrical appliances or equipment near Class B combustibles.
g. Do not generate heat, allow an open flame, or smoke near Class B combustibles.
h. Know the location of and how to use the nearest portable fire extinguisher rated for Class B fire.

Water should not be used to extinguish Class B fires caused by flammable liquids. Water can cause the burning liquid to spread, making the fire worse. To extinguish a fire caused by flammable liquids, exclude the air around the burning liquid. The following fire-extinguishing agents are approved for Class B combustibles: carbon dioxide, multi-purpose dry chemical (ABC), halon or equivalent extinguishing substances. (NOTE: Halon has been determined to be an ozone-depleting substance and is no longer being manufactured. Existing systems using halon can be kept in place.)

F. Smoking

Smoking is prohibited in all Organization buildings. Certain outdoor areas may also be designated as no smoking areas. The areas in which smoking is prohibited outdoors are identified by NO SMOKING signs.

VII. Training

The Supervisor will coordinate with the Program Administrator to present basic fire prevention training to all employees upon employment, and shall maintain documentation of the training, which includes:

A. review of 29 CFR 1910.38, including how it can be accessed;
B. this Fire Prevention Plan, including how it can be accessed;
C. good housekeeping practices;
D. proper response and notification in the event of a fire;
E. instruction on the use of portable fire extinguishers (as determined by company policy in the Emergency Action Plan); and
F. recognition of potential fire hazards.

Supervisors shall train employees about the fire hazards associated with the specific materials and processes to which they are exposed, and will maintain documentation of the training. Employees will receive this training:

- at their initial assignment;
- annually; and
- when changes in work processes necessitate additional training.

VIII. Program Review

The Supervisor with assistance of the Program Administrator shall review this Fire Prevention Plan at least annually for necessary changes.