University of Vermont
Department of Physical Plant
Job Hazard Analysis Program
in accordance with
OSHA 3071

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THE UNIVERSITY OF VERMONT
DEPARTMENT OF PHYSICAL PLANT
TRAINING AND COMPLIANCE OFFICE

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1.0 INTRODUCTION

This Job Hazard Analysis Program has been developed by UVM's Training and Compliance Office (TCO) to help ensure uncontrolled safety hazards encountered in the workplace are properly identified and employees are protected against the uncontrolled hazards. Controlling exposure to occupational hazards by utilizing hazard control measures is essential for protection of employees. After identifying uncontrolled hazards, the JHA will ideally help to eliminate or reduce them to an acceptable risk level.
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2.0 SCOPE

The University of Vermont's Physical Plant Department (PPD) Job Hazard Analysis Program shall apply to all Physical Plant employees who are potentially exposed to uncontrolled hazards when completing their job duties. While this program has been drafted for use by the PPD, it may prove useful for other UVM departments as well.

Contractors for the University of Vermont are required to comply with all applicable VOSHA regulations and are expected to address any uncontrolled hazards encountered by their employees while working on the UVM campus.

3.0 JHA DEVELOPMENT

3.1 Overview

The PPD is divided up into a series of Zones and Crews. Zones are made up of personnel from various disciplines and a management structure to execute operation and maintenance activities within a geographical area of the campus. Crews are made up of personnel that specialize in a specific skill or craft, their work is done throughout the campus of the University of Vermont. *Once an uncontrolled hazard is recognized then the process of formally developing a JHA should be initiated.*

The Job Hazard Analysis (JHA) Standard Operating Procedure is used to complete on-site job hazard analyses and is included under **Appendix A**. Each JHA is documented to provide information including individuals, job titles, zone and/or crews of the tasks being performed, hazards associated with the task(s) and controls implemented. The JHA should be completed using the JHA template included under **Appendix B**. **Appendix C** contains a completed sample JHA.

The following are general procedures for completing a JHA:

A. PPD personnel identify an uncontrolled hazard(s) associated with a job task.
B. PPD personnel assigned to the task work with their Supervisor to draft the written JHA. Once a Draft JHA is completed, the task should be performed pursuant to the Draft JHA.

C. Draft JHA is submitted to TCO for review. TCO will assign each JHA a numerical hazard rating.
D. Pursuant to Section 4.0 of this program, TCO will forward the Draft JHA to the appropriate management personnel for final approval.
E. TCO will be responsible to enter the JHA into the current training management software (e.g. Compliance Suite) and will also provide a link to all completed JHAs from the TCO homepage.

3.2 Distribution of JHA

Upon completion of the JHA, the JHA shall be distributed to and reviewed by the following:

A. UVM Training and Compliance Office (TCO)
B. All Position Descriptions (e.g. Facilities Repair Person) identified as completing the task covered by the JHA.
C. All PPD Zones/Crews identified as completing the task covered by the JHA.
D. Any other individual identified as completing the task covered by the JHA.

Appendix D is a flow chart depicting the steps of the completion and approval of a JHA.

Upon personnel review of a JHA, this review should be documented within the current training management software.

4.0 RESPONSIBILITIES

A. **Physical Plant Employees**

- All PPD employees are trained in recognizing uncontrolled hazards during the OSHA 10 hour training course.

- When an uncontrolled hazard is recognized the employee notifies their immediate supervisor to start the process of a JHA

- Participate in the process by being observed completing a task, potentially drafting the JHA for some tasks, offering input during the JHA process, including making suggestions to mitigate and eliminate uncontrolled hazards.

B. **PPD Supervisors**

- Supervisors are responsible for initiating a JHA when there is a recognized uncontrolled hazard. The Job Hazard Analysis Template (Appendix A) is used to document work tasks associated with the task under review. TCO Safety Coordinators are available to assist when needed.

- Supervisors are responsible to review each JHA with staff prior to assignment of work related to the JHA.

- Supervisor will review the JHAs with staff once every 3 years or if there is a change in the task process.

- Supervisors approve JHAs with a Risk Rating of 1, 2 or 3.

- While drafting a JHA, if an Immediately Dangerous to Life or Health (IDLH) situation is observed, the Supervisor must stop work immediately until IDLH hazards can be minimized.

- Documentation of the review and or observation of the JHA will be recorded in the required training management system. Each JHA will be entered as a Course and each review will be entered as a Class. A reminder will be sent to the Supervisor and the Employee prior to the three year re-training (review) of the JHA.

C. **Managers and Leadership Team** (the Leadership Team consist of the Director, Assistant Directors and any other personnel with Physical Plant Director appoints).

- Managers work with supervisor in the development of JHAs

- Managers review with the Leadership Team all draft JHAs presented for approval at the 1st Manager's meeting of each month that have a Risk Rating of 1 to 9.

- If a JHA has a Risk Rating of 10 or greater, the Leadership Team will forward the JHA to the Chief Risk & Public Safety Officer with recommendations' to review and approve or make changes to reduce the risk.

D. Enterprise Risk Management

- Chief Risk & Public Safety Officer will be asked to review, by the Leadership Team, any JHA with a Risk Rating of 10 or higher and advocate for additions resources, if appropriate, based on the recommendations'.

E. Training and Compliance Office

- TCO is responsible for maintaining the written Job Hazard Analysis program and JHA reports for zones, crews, job titles, specific individuals and the department as a whole.

- TCO will assist in the writing of a JHA upon request.

- TCO personnel will facilitate the approval process. Based on the Risk Rating, supervisors, managers, Director's Leadership Team, and on rare occasion the Chief Risk/Public Safety Officer with sign off on the JHA.

- TCO personnel will offer recommendations throughout the approval process to lessen or reduce the Risk Rating through Elimination or Substitution, Engineering Controls, Administrative Controls and PPE when needed.

- TCO recommendations will be documented in the current training management software.

- TCO personnel will review each JHA every 3 years to ensure the JHA is still valid as written. TCO will make recommendations to eliminate or change the JHA based on new technology, regulation changes or other pertinent considerations. This will facilitate the approval process again for the revised JHA.

5.0 CONTROLLING HAZARDS

Once uncontrolled hazards are identified for employees, it is the responsibility of the supervisor or TCO (if being conducted by TCO) to evaluate each hazard and determine the appropriate control method. The following hierarchy of hazard controls must be considered to mitigate workplace hazards.

1. **Elimination/Substitution**: If the hazard can feasibly be removed from the workplace or can be substituted by a less hazardous operation, this is the first option. Elimination of the hazard ensures the worker will not be exposed and the injury/illness risk is eliminated along with the hazard.

2. **Engineering Controls**: Utilizing design and engineering, the hazard is mitigated and does not present an exposure hazard to the employee. An example of engineering controls is the use of ventilation (fume hood, snorkel vent) to evacuate hazardous fumes, mists, or vapors from the workplace preventing inhalation by employees.

3. **Administrative Controls:** Administrative controls minimize the identified hazard by implementing specific standard operating procedures into the workplace. An example of an administrative control is worker rotation to prevent repetitive motion injuries.

4. **Personal Protective Equipment (PPE**): The use of PPE is considered a last defense against workplace hazards. However, certain job duties require the use of PPE as the only measure of protection against a hazard. If PPE is the chosen method of protection, it must be selected, provided and utilized as outlined in this program.

6.0 PERSONAL PROTECTIVE EQUIPMENT

PPE must be selected to ensure an appropriate level of protection is provided to employees to protect them against known hazards in the workplace. To properly select PPE, conduct and document a PPE assessment for each work task or job duty.

Select PPE appropriate for the hazard identified. PPE must comply with applicable American National Standards Institute (ANSI) requirements. When selecting PPE for protection against a job hazard, the following should be considered.

Eye and Face Protection: Employees must be provided eye protection when there is a potential for eye/face injury from flying particles, toxic chemicals, thermal or radiation hazards, and lasers. PPE must be adequate to protect the worker from the hazard present and meet the ANSI Z87.1-1989 standard.

Hand Protection: When there is a potential for cuts, lacerations, punctures, chemical/thermal burns, temperature extremes, biological/infectious materials, and absorption through the skin by chemicals, the employee must be provide appropriate hand protection to prevent injury. Hand protection must be selected according to the hazard present and shall afford the appropriate level of protection to the employee.

Foot Protection: Employees working in areas where there is a danger of slipping, objects falling on or compression injuries, piercing the sole and where feet may be exposed to electrical or chemical hazard, the employer must provide foot protection. Foot protection shall provide adequate means of injury prevention from the hazards encountered in the workplace.

Body Protection: Work duties presenting hazards, which may contact the employee's body, should be addressed through appropriate body protection. This may include chemically resistant aprons, disposable suits, lab coats, electrical safety clothing, and cut resistant materials. Protective body equipment must be selected to provide protection against the identified hazard.

Hearing Protection: Employees exposed to excessive noise as part of their job duties may be required to wear hearing protection. If worker is expected to be exposed to excessive sound levels, their supervisor must contact TCO to ensure sound level and dosimetry measurements are conducted or on file and the employee is enrolled in the Hearing Conservation Program.

Respiratory Protection: Employees exposed to respiratory/inhalation hazards may be required to wear a respiratory as a means of protection against the hazard. Any employee required to wear a respirator must be enrolled in the UVM Respiratory Protection Program through TCO. TCO will ensure the proper respirator is chosen for the hazard present, conduct fit testing for the employee and provide training.

Fall Protection: Employees exposed to fall hazards shall comply with the UVM Fall Protection Program. A competent person, assigned under the Fall Protection Program must be involved in decisions related to fall hazards.

Training: Once hazards are identified through the walkthrough survey and the hazard is mitigated through elimination, engineering controls, administrative controls, and/or the selection of PPE, all affected employees must receive appropriate training relating to the hazards identified. Training can be provided through TCO for most circumstances. Additional training may be provided by the department as necessary.

Once the appropriate PPE is selected, the employer/supervisor/TCO must properly communicate the selection with the employees, provide the PPE to the employee free of charge ACCORDING THE OSHA STANDARD, provide and document training, and ensure PPE is properly worn in the workplace.

Training must be documented and provided to each affected employee to address proper PPE use, care and maintenance of PPE, and limitations of PPE.

7.0 RECORDKEEPING

1. **Record Retention:**

   TCO retains records of all JHA's completed by Supervisors/TCO for identified job titles, zones and crews as well as the whole department for PPD on Campus. JHA's training conducted by supervisors or others in UVM departments/Zones/Crews should be entered into the TMS by the Office Support Generalist.

2. **Review of the JHA Program**

   This Program is reviewed once every three years or when a deficiency has been noted.

8.0 HAZARD CATEGORIES

The following are basic hazard categories and specific hazard descriptions to be considered during the JHA process. Typical hazard categories and descriptions include, but are not limited to:

Chemical (Toxic): A chemical that exposes a person by absorption through the skin, inhalation, or through the blood stream that causes illness, disease, or death. The amount or chemical exposure is critical in determining hazardous effects. Check Safety Data Sheets (SDS), and/or OSHA 1910.10000 for chemical hazard information.

Chemical (Flammable): A chemical that, when exposed to a heat ignition source, results in combustion. Typically, the lower a chemical's flash and boiling point, the more flammable the chemical. Check SDS for flammability information.

Chemical (Corrosive): A chemical that, when it comes into contact with skin, metal, or other materials, damages the materials. Acids and bases are examples of corrosives.

Explosion (Chemical Reaction); Self explanatory.

Explosion (Over Pressurization): Sudden and violent release of a large amount of gas/energy due to a significant pressure difference such as rupture in a boiler or compressed gas cylinder.

Electrical (Shock/Short Circuit): Contact with exposed conductors or a device that is incorrectly or inadvertently grounded, such as when a metal ladder comes into contact with power lines. 60Hz alternating current (common house current) is very dangerous because it can stop the heart.

Electrical (Fire): Use of electrical power that results in electrical overheating or arcing to the point of combustion or ignition of flammables, or electrical component damage.

Electrical (Static/ESD): The moving or rubbing of wool, nylon other synthetic fibers, and even flowing liquids can generate static electricity. This creates an excess or deficiency of electrons on the surface of material that discharges (spark) to the ground resulting in the ignition of flammable or damage to electronics or the body's nervous system.

Electrical (Loss of power): Safety-critical equipment failure as a result of loss of power.

Ergonomics (Strain): Damage of tissue due to overexertion (strains and sprains) or repetitive motion.

Ergonomics (Human Error): A system design, procedure, or equipment that is error-provocative, (A switch goes u to turn something off).

Excavation (Collapse): Soil collapse in a trench or excavation as a result of improper or inadequate shoring. Soil type is critical in determining the hazard likelihood.

Fall (Slip, Trip): Conditions that results in falls impacts) from height or traditional walking surfaces (such as slippery floors, poor housekeeping, uneven walking surfaces, exposed ledges, etc.)

Fire/Heat: Temperatures that can cause burns to the skin or damage to other organs. Fires require a heat source, fuel and oxygen.

Mechanical/Vibration (Chaffing Fatigue): Vibration that can cause damage to nerve endings, or material fatigue that results in a safety-critical failure. (Examples are abraded slings and ropes, weakened hoses and belts).

Mechanical Failure: Self-explanatory; typically occurs when devices exceed designed capacity or are inadequately maintained.

Mechanical: Skin, muscle, or body part exposed to crushing, caught-between, cutting, tearing, shearing items or equipment.

Noise: Noise levels (>85 dBA 8 hr. TWA) that result in hearing damage or inability to communicate safety-critical information.

Radiation (Ionizing): Alpha, Beta, Gamma, neutral particles, and X-rays that cause injury (tissue damage) by ionization o cellular components.

Radiation (Non-Ionizing): Ultraviolet, visible light, infrared, and microwaves that cause injury to tissue by thermal or photochemical means.

Struck By (Mass Acceleration): Accelerated mass that strikes the body causing injury or death. (Examples are falling objects ad projectiles.)

Struck Against: Injury to a body part as a result of coming into contact of a surface in which action was initiated by the person. (An example is when a screwdriver slips).

Appendix A
Job Hazard Analysis (JHA)
Standard Operating Procedure (SOP)

Purpose:

The Purpose of this SOP is to identify safety hazards associated with each step of any job or task that has the potential to cause injury or harm.

Procedures:

1. **Conduct a Preliminary Job Review**

Supervisors should discuss with their employees the hazards (and associated tasks) they know exist in their current work and surroundings. The following types of jobs should be given a priority:

A. Jobs with the highest injury or illness rates
B. Jobs with the potential to cause sever or disabling injuries or illness, even if there is no history of previous accidents;
C. Jobs in which one simple human error could lead to a sever accident or injury;
D. Jobs that are new to your operation or have undergone changes in processes and procedures; and
E. Jobs complex enough to require written instructions.

2. **Using a blank JHA form (Appendix B), complete the following steps:**

A. In the **Task/Steps** column, write down each step (or task) required to complete the job.

B. In the **Hazards** column, write down all the hazards associated with each task. Consider all types of potential hazards
   a) *Physical* – Pinch points, moving parts, blades, heavy lifting, etc.
   b) *Chemical* – Fuels, paints, solvents, cleaners, gases
   c) *Environmental* – Temperature extremes, insects/animal bites/stings, dangerous terrain or spaces

C In the **Controls** column**,** write down all the possible controls and PPE from each of the hazards identified in each of the steps involved. There may be several controls or forms of PPE that can be used. The following are some examples:
   a. Use proper lifting techniques
   b. Wear nitrile gloves
   c. Fill tank no less than ½ inch from the top