Background:

Hazard identification, assessment and control is the foundation of an effective occupational health and safety (OHS) program. It has been proven that hazard identification and control lead to reduced injuries and illnesses in the workplace. Reporting hazards is the first step towards eliminating injuries.

Hazard Identification Process:

The hazard assessment and control process help to build and safe and healthy workplace. The process provides a consistent approach for the Division and employees to identify and control hazards at our worksites. It allows everyone to identify and develop employee training, safe work practices and procedures, inspection requirements, emergency response plans, personal protective equipment requirements, etc. specific to our operations.

The hazard Identification Process consists of 5 steps:

Procedure:

1. **Step 1 - Identify Health and Safety Hazards**

    1.1. Definition of Hazard: A situation, condition or thing that, if left uncontrolled, has the potential to cause injury, illness or loss.

1.2. Types of Hazards:

Hazards can be categorized into two main types:

1 Health Hazards	*Include hazards that could affect the level of efficiency of the functioning of an individual's body. A good state of health indicates a lack of illness, pain, or injury. (Examples of conditions caused by health hazards are cancer, respiratory illness, hearing loss, chronic pain from repetitive movements etc. - health hazards often take a longer time to show their effects).*
2 Safety Hazards	*Includes hazards where an individual was not protected against something that can cause harm or lead to undesirable events. (Examples include injury such as trauma or burns, falls, personal choices leading to injury – safety hazards often cause immediate harm or damage).*

Health hazards can be influenced by an employee's genetics and lifestyle. In contrast, safety hazards affect all people equally, assuming their physical fitness levels are equal. Both health and safety hazards will be considered when conducting assessments of the Divisions work activities, process, and tasks. This will involve specifically looking for hazards of each type.

The priority is hazards that affect the health and safety of people. However, hazards that can affect property, processes, our neighbors, and community are also important.

1.3. Hazard Categories:

Hazards can be categorized into the following groups:

Physical/ Ergonomic *Includes any physical factor, material object or environment that can transfer energy by direct or indirect contact. Ergonomic hazards are physical factors within the environment that harm the musculoskeletal system.*	• Contact with moving parts • Electricity • Awkward body movements • Poor lighting • Excessive humidity, noise, dust • Excessive hot/ cold temperatures • Inadequate PPE • Slippery surfaces, poor housekeeping • Repetitive movement • Manual Handling • Workplace design

Chemical *Include any substance that, due to its intrinsic properties or how it is handled, has the potential to cause harm or loss.*	• Drugs and alcohol • Fumes (welding) • Solvents, fuel, cleaners, battery acids, • Toxic gases (H2S, CO, etc.) • Dust (from grinding, asbestos removal, sandblasting.)
Biological *Include any organism or substance derived from an organism that has the potential to cause harm or loss by direct contact.*	• Hanta virus • Molds, fungus, mildew • Parasites • Viruses (colds) • Allergens • Sewage • Exposure to blood/ bodily fluids
Psycho-Social *Any situation that may cause mental or physical health problems. Also called workplace stressors*	• Excessive workload • Bullying • Violence / harassment • Work/ life balance

1.4. Tools for Hazard Identification:

Potential hazards must be identified before they trigger a loss-related event. A hazard assessment must identify improvements with tools, equipment, work procedures, employee training, and work site conditions.

There are many ways to perform hazard assessments. Two of the most common methods: Formal assessments and Site-Specific hazard assessments. These two types of assessments may work separately but are most effective when they are used together.

A **formal hazard assessment** takes a close look at the overall task performed in our operations to identify hazards, measure risk (to help prioritize hazards) and develop, implement, and monitor related controls. Employees' jobs or types of work are broken down into separate tasks. This hazard assessment is detailed and will involve many people within the Division including the Safety Coordinator, Human Resources, Supervisors and affected employees.

1.5. Formal Hazard Assessment Process:

1.5.1. **Job Inventory**: Using organizational charts, compile / inventory a list of job positions performed throughout the division. Obtain copies of position descriptions from Human Resources where available

1.5.2. **Task Inventory:** For each position identified in Step 1, create a task inventory by listing the associated task performed for each position,

1.5.3. **Hazard Identification**: Identify both the health and safety hazards of each task identified in Step 2 Note: A single hazard assessment can be performed to represent a group of employees that perform similar tasks (i.e., secretary, principal, science teacher, educational assistant, electrician, etc.)

1.5.4. **Eliminate/ Control Hazards**: Using the Risk Matrix (Table 1), evaluate all identified health and safety hazards for relative risk level and prioritize hazard elimination or control. The risk-rating matrix uses likelihood of exposure and consequence.

1.5.5. **Implement Controls**: Identify and implement the appropriate hazard controls starting with the highest risk tasks / activities.

1.5.6. **Communication**: Communicate the hazard assessment to affect staff.

1.5.7. **Monitor**: Monitor controls – are they effective?

1.5.8. **Review**: Review and revise the hazard assessment as needed – our workplace continually changes. To keep workers healthy and safe review and revise the hazard assessment every 3 years or at reasonably practicable intervals to prevent unsafe / unhealthy work conditions:

- When a new or unique work is introduced.
- When new job positions are created.
- When work processes, job conditions or operations change.
- Before the construction of significant additions or alterations to a work site, or
- When an inspection, investigation or site-specific hazard assessment identified a new hazard.

1.6. Hazard Assessments

Documented hazard assessments are a tool used to complement the formal job hazard assessment process. They do not reassess all job tasks but focus on the differences in the job due to the introduction of different tools or environments that are not always part of the regular job. For example, they should be used for field trips, staff redeployed to working from home, use of a tool never used before, conducting a non–routine tasks (i.e., before purchase of a new lab equipment, repairing a motor etc.).Hazard assessments must be completed prior to the commencement of the activity/ work and signed off by the administrator/ supervisor to ensure all hazards are identified and appropriate controls are in place.

The person in charge of the activity leads the hazard assessment involving all affected employees. Those leading the process should understand the goal of the assessment, the potential hazards introduced into the environment and the experience/skill level of those involved. If hazards are identified, employees may need directions on how to proceed and what controls need to be in place before the task or activity begins.

1.7. Hazard Assessment Process

1.7.1. Supervisors and the staff members involved or who may be affected by the activity/work will discuss the activity/work to be done on the day of the activity/work prior to the start of the activity/work. Together they:

- identify the activity/work tasks and steps
- identify the hazards associated with each step and assess the level of risk for each hazard.
- identify and put in place the controls to effectively eliminate or control the risks BEFORE THE ACTIVITY OR WORK PROCEEDS.

1.7.2. The Person in Charge / Supervisor:

- Prepares and leads the discussion determining what activity/ work will take place. This must be done before the activity/ work proceeds.
    - Documents this information on the appropriate form:
    - Maintenance or Industrial type work should use Form 0430 - Field level Hazard Assessment (FLHA).
    - School based activity (non-industrial) should use the Form 0435 - Activity Risk Assessment Form (ARA).

- Ensures affected employee(s) understand the assessment and sign off on the form; and
- Keeps copies of the form for analysis and review.

1.7.3. Employee:

- Ensure they clearly understand the task and are physically/mentally prepared to do the task.
- Reviews the hazard assessment to identify ways to reduce hazards and risk on an ongoing basis.
- Stops and thinks about hazards, risks and controls while working and adjusts as necessary; and
- Reports to their person in charge / supervisor about any difficulties, hazards or injury that may have arisen during the activity/work.

2. **Step 2 – Risk Assessment & Prioritization**

Risk refers to the chance that harm or loss will occur, and how severe the outcomes will be because of the hazard. All hazards have risk, but some hazards pose a greater risk than others do. Once the degree of risk for each hazard has been assessed, the hazard can be prioritized. Hazards with greater risk must be assigned a higher priority for eliminating the hazard or developing effective control measures for it. The Division Risk Matrix prioritizes hazards based on how often a task is performed (frequency of exposure), how likely it is to result in a loss (probability), and how great the potential loss could be (severity/ consequence).

Consideration for controlling the identified hazards should be given to the hierarchy of controls. The risk control measure selected must be the highest practical option within the hierarchy to reduce the risk to the lowest level as reasonably practicable. Existing controls should be re-evaluated to determine if the most appropriate control measure is in place. In many cases, it will be necessary to use more than one control. Back-up controls, such as PPE, should only be used as a last resort.

2.1. Assignment of Risk

2.1.1. When hazards are identified, the level of risk posed by the hazards must be measured using a Risk Matrix. Table 1 – Risk Matrix provides in depth description of the likelihood and consequences of injury / loss occurrence to

provide consistency to the process. The matrix provides guidance to quantify overall risk and assurance that the hazard controls selected will effectively mitigate residual risk to acceptable levels.

2.1.2. Likelihood Description: The hazard likelihood is defined by 'how likely is it that the hazard will be realized under reasonable conditions using a ranking system from 'rare' to 'almost certain'.

2.1.3. Potential Consequence Description: The potential consequence is defined by 'if a hazard is realized, how severe can the consequences be under reasonable conditions using a ranking system from insignificant to catastrophic.

- Specific definitions are in Table 1.

2.1.4. Risk Priority Guideline: In events where residual risk remains, the required approval authority for residual risk level is detailed below in the risk classification portion of the risk matrix.

2.1.5. Prioritization: Priority when controlling hazards must always be given to hazards that have the greatest potential for compromising a workers' health and safety.

Table 1: Risk Matrix

***Risk** is the chance of loss occurring, a measure of the probability and the potential severity of* harm or loss.

CONSEQUENCES – If a hazard is realized, how severe can the consequences be under reasonable conditions?	**LIKELIHOOD** – How likely is it that any hazard will be realized under reasonable conditions?				
	RARE Will only occur in exceptional circumstances	**UNLIKELY** Could occur in some circumstances	**MODERATE** Should occur sometimes	**LIKELY** Probably will occur in most circumstances	**ALMOST CERTAIN** Expected to occur in most circumstances
INSIGNIFICANT No injuries, insignificant financial loss	Low	Low	Low	Low	Low
MINOR In-house first aid may be required, on site release immediately, low financial loss	Low	Low	Medium	Medium	Medium
MODERATE Medical treatment required, outside assistance required, on site release, medium financial loss	Medium	Medium	Significant	Significant	High
MAJOR Extensive injuries, hospitalization, loss of operational capability, high financial loss	Medium	Medium	High	High	High
CATASTROPHIC Death or severe injury, hospitalization, major financial loss.	Medium	High	High	High	High

Risk Priority Guideline:

Low	Some risk controls / mitigation measures may be justified. Represents an acceptable level of risk as it is unlikely to cause accidents, and even if it does, it will only result in negligible damage. Monitor and reduce risk where possible.
Medium	Do something about his risk as soon as possible. This risk may cause an impact but not a serious or catastrophic loss. The activity/ task requires steady awareness and safe work procedures. For school activities, review the USIC Activity List for any restrictions, follow SPHEReS Guidelines. Efforts to reduce this risk to a low level should be made. Review the activity/ task to be performed, review or develop procedures for the activity/ task, ensure controls are in place to eliminate harm to people or damage to property.
Significant	Do something about this risk immediately, management involvement is required. Review the USIC Activity List for any restrictions, follow SPHEReS guidelines. A documented hazard assessment may be required if there is no other guiding document. An Activity Risk Assessment may be required for activities that involve students and is not listed in an existing guidance document. Ask if this activity / task should be done? Ask if the proposed way must be done? Only use competent workers, with proven controls in place. All efforts must be made to reduce this level of risk.
High	Not recommended, stop activities. Do something about this risk immediately, tasks/ activity should not be started or must be stopped immediately and re-evaluated. A review of the activity / task is required. A hazard assessment is required. A Activity Risk Assessment is required for activities that involve students. Ask if this activity / task should be done? Ask if the proposed way must be done? Only use competent workers, with proven controls in place. All efforts must be made to reduce this level of risk. Management approval is required for work to proceed.

Procedure:

1. Identify the hazards associated with the activity, tasks, location, etc.
2. Quantify the risk using the risk matrix
3. Identify who is at risk and inform them
4. Identify controls measures to reduce the risk to a reasonable or acceptable level
5. Quantify the risk using the risk matrix (once the controls are in place)
6. Record the assessment on the Risk Assessment Summary
7. Implement the control measures

Risk Assessment Summary

School _____ Additional Comments: _____

Class _____ _____

Activity / Task _____ _____

Completed By: _____ _____

	Hazard	Risk (before controls are in place)	Those at Risk	Controls to be implemented	Special Training Required	Emergency Action	Risk (after controls are in place)
1.		☐ L ☐ M ☐ S ☐ H					☐ L ☐ M ☐ S ☐ H
2.		☐ L ☐ M ☐ S ☐ H					☐ L ☐ M ☐ S ☐ H
3.		☐ L ☐ M ☐ S ☐ H					☐ L ☐ M ☐ S ☐ H
4.		☐ L ☐ M ☐ S ☐ H					☐ L ☐ M ☐ S ☐ H
5.		☐ L ☐ M ☐ S ☐ H					☐ L ☐ M ☐ S ☐ H
6.		☐ L ☐ M ☐ S ☐ H					☐ L ☐ M ☐ S ☐ H
7.		☐ L ☐ M ☐ S ☐ H					☐ L ☐ M ☐ S ☐ H

3. **Step 3 – Hazard Control**

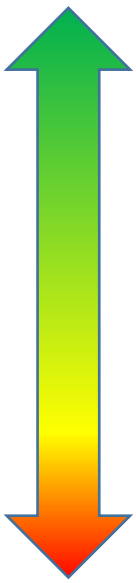
Hazard Control Hierarchy

3.1. When the risk level of a hazard has been calculated, the next step is to verify that adequate control measures have been implemented. Then, determine whether the hazard(s) can be controlled at the source through elimination or substitution. If elimination or substitution is not possible, the introduction of controls or barriers between the source and the worker must be considered. When this is not feasible, hazards must be controlled at the worker level.

3.2. Controls must be developed in accordance with the Hierarchy of Controls (Table 2) and to meet legislative requirements. Employees affected by the hazards must be included in the control process. Once a hazard is controlled and meets these requirements it must be monitored and evaluated regularly.

Table 2: Hazard Control Hierarchy

These are listed in order of effectiveness and must be selected as such. Only when it is deemed impractical can we look at the next lower level of control.

Most Effective  **Least Effective**	☐	**Eliminate** • *Can the task, equipment, chemical, or act that is causing the hazard be removed, not performed, or replaced? For example, replace a chemical with a less hazardous chemical*
	☐	**Substitute:** • *Can we change the work process, person, substance, tool, or equipment for a less hazardous one? For example, replace oil-based solvents with water-based solvents).*
	☐	**Engineering Controls** • *These control the hazard at the source by isolating the hazard and by physically directing actions to reduce the chance of human error.* • *Can we design the work site, equipment, or process to minimize, eliminate, or contain the hazard? For example, adding railings, restricting access to areas (with locks), installing no touch hand sanitizing stations, etc.)*
	☐	**Administrative Controls:** • *These controls change the way employees interact through altering how the work is done through policies, procedures, training, and education.* • *Can we limit the employees' exposure to the hazard through safe work procedures, policies, training, and education? For example, increase cleaning and disinfecting, follow safe work procedures, follow rules, take training, install signage, conduct inspections, etc.*
	☐	**Personal Protective Equipment:** • *Used as a last resort to protect an employee from exposure to a hazard and should not be relied on exclusively (i.e., other controls must be in place as noted above). For example, wear gloves, eye protection, safety footwear, etc.*

4. Step 4 – Implement Control Measures
   4.1. Once identified, existing or new control measures must be implemented promptly. If several jobs or processes are hazardous, they should be prioritized. The main approach to hazard control is to follow the 'hierarchy of control' as noted in Step 5.

   4.2. Factors to consider when implementing controls:

      4.2.1. Allocating Resources

         - Management must allocate sufficient money, staff, and materials to implement effective controls.

      4.2.2. Training

         - Management must communicate changes and provide training to employees on any controls introduced (i.e., orientation to new or modified equipment, training on a revised safe work procedure, training on a piece of equipment, training on wearing personal protective equipment, etc.).

      4.2.3. Coaching and Mentoring

         - Supervisors must reinforce the proper use, care, and maintenance of controls through observation and feedback, discussion during staff meetings, etc.

      4.2.4. Evaluating Effectiveness

         - Once controls have been implemented, supervisors need to continue to determine their effectiveness to prevent future incidents.

5. **Step 5 - Monitor and Review**

5.1. It is essential to establish a follow-up and review process for monitoring the effectiveness of the control measures implemented following the workplace hazard assessment. This should be completed shortly after the control measures have been implemented. Items to identify during the follow up should include:

- Ensure new hazards have not been created
- Seeking feedback from employees performing the job
- Ensure employees are following the procedures and practices required by the workplace hazard assessment
- Assess the need for a revised workplace hazard assessment
- Implement continuous improvements

5.2. Annual review is useful to ensure components of the workplace hazard assessment remain current and functional and that employees are following the procedures and practices as recommended by the hazard assessment. A need for a repeat workplace hazard assessment may arise when:

- A new job is created
- An existing job is changed
- Equipment or processes are changed

6. **Hazard Reporting**

6.1. Ongoing hazard reporting consists of employees and supervisors recognizing and documenting hazards and deficiencies during a task or process. Unlike formal hazard assessments and site-specific hazard assessments, hazard reporting occurs after the work has started. A hazard report is used to document any new hazard that was not previously identified in a formal hazard assessment or site-specific hazard assessment, but which requires a risk analysis and may require the implementation of control measures.

6.2. All Division employees must verbally report any new hazards immediately to their supervisor and document them in Hour Zero (Risk/ Hazard Menu).

6.3. All reported hazards will be reviewed, and action will be taken to mitigate them. If the hazard is deemed to be high risk, it will be investigated.

7. **Detecting Hazard through Inspections**

Formal and informal inspections of our facilities, equipment, vehicles, and tools provide opportunities to detect hazards. Our safety program features scheduled inspections and informal observations to ensure that our equipment, tools, and facilities are functioning safely and properly.

Regular workplace inspections help us to identify and monitor hazards on an ongoing basis. Inspections also enable us to observe employees to verify whether they are using the specified hazard controls and to determine whether the hazard controls are effective.