	Health and Safety Program Manual	Issue Date: 02/28/2025
	Hazard Identification, Risk Assessment and Control	Revision Date: 02/28/2025
		Page 1 of 10

1. PURPOSE

The purpose of this program is Hazard Identification, Risk Assessment and Control. The program should be used as a tool to help identify and evaluate both existing and potential hazards on worksites as well as methods to control and eliminate the hazards identified.


2. RESPONSIBILITIES

Supervisors

The supervisor or competent person shall start the hazard identification process before the job begins by identifying hazards that are known to exist on site and documenting them. By identifying hazards early, the supervisor or competent person may be able to implement controls before any workers arrive on site. Hazards should be identified, classified, and ranked according to a risk matrix or scale.

To ensure the process is thorough, the supervisor or competent person should:

- Be responsible for the Injury and Illness Prevention Program (IIPP)
- Post safety information on the company bulletin board
- Look at all aspects of the work.
- Include non-routine activities such as maintenance, repair, or cleaning.
- Look at accident/incident/near-miss records (including for workers who work "off-site" at home, on other job sites, drivers, etc.).
- All affected workers are actively involved in the risk identification and assessment process. The program must state at a minimum that hazards and risks are reviewed with all affected workers.
- Look at the way the work is organized or "done" (include experience and age of people doing the work, systems being used, etc.).
- Look at foreseeable unusual conditions (for example: possible impact on hazard control procedures that may be unavailable in an emergency, power outage, etc.).
- Examine risks to visitors or the public.
- Include an assessment of groups that may have a different level of risk such as young or inexperienced workers, etc.
- Look for continuous improvement process for lessons learned to be incorporated into hazard controls such as plan-do-check-act (PDCA) or other similar continuous improvement process.

	Health and Safety Program Manual	Issue Date: 02/28/2025
	Hazard Identification, Risk Assessment and Control	Revision Date: 02/28/2025
		Page 2 of 10

Employees

All NSI Employees must comply with “Safe Work Practices” as listed in this document. Employees are encouraged to report all safety hazards to their supervisor without fear of reprisal.

3. PROCEDURES

General


The hazard identification process is used for routine and non-routine activities as well as new processes, changes in operation, products, or services as applicable. All workers shall be trained in workplace hazards and how to identify, report, and control them. The assessment process must be completed prior to the start of all jobs to identify existing or potential hazards to workers and eliminate or control these hazards using engineering or administrative controls, proper training, or the use of personal protective equipment (PPE). All company workers should be trained in hazard identification and risk assessment.

All workers are required to take a proactive approach to managing and reporting hazards. When they observe a hazard, they are required to take steps to correct that hazard directly (provided they are adequately knowledgeable/trained to safely do so) and eliminate the hazard or get assistance from appropriate workers to do so whenever reasonably possible. Where hazards cannot be eliminated immediately, workers should take necessary steps to warn others of the hazard. Always report hazardous or potentially hazardous conditions and acts to a supervisor or competent person.

Risk Assessment

Neal Systems Inc. has a formal process for identifying potential hazards. Processes are in place to identify potential hazards using the NSI Job Hazard Analysis (JHA) Excel document (NSI JHA template.XLSX, stored. Information shall be collected, organized, and reviewed with workers to determine which workers may be exposed or potentially exposed. Risk assessments should be done at a minimum, prior to beginning work. A risk assessment must be conducted whenever changes occur that materially affect the work being undertaken e.g. weather change if work is outside, other contractors entering the work area.

Neal Systems Inc. provides processes to ensure workers are actively involved in the hazard identification process and hazards are reviewed with all workers concerned.

	Health and Safety Program Manual	Issue Date: 02/28/2025
	Hazard Identification, Risk Assessment and Control	Revision Date: 02/28/2025
		Page 3 of 10

Information that may be available at a customer’s facility may include, but not be limited to:

- Safety Data Sheets (SDS)
- Hazardous area classifications
- Inspection reports
- Records of previous injuries and illnesses
- Machinery and Equipment operating manuals

Classification


Hazards are classified and ranked based on severity. The program identifies that hazards are classified/prioritized and addressed based on the risk associated with the task. (See the risk analysis matrix outlining severity and probability). Ranking or prioritizing hazards is one way to help determine which hazard is the most serious and thus which hazard to control first.

Priority is usually established by considering the worker exposure and the potential for accident, injury, or illness. By assigning a priority to hazards, you are creating a ranking or an action list. Hazards are to be mitigated through a prescribed hierarchy of controls. The hierarchy of controls includes elimination as the preferred control followed by substitution, engineering, administrative, and personal protective equipment (PPE).

All health hazards will be identified by conducting qualitative exposure assessments and reviewing worker medical records. Health hazards include:

- Chemical
- Physical
- Biological
- Ergonomic Risk Factors

The program requires a process for hazard identification such as process hazard (PHA), JHA JSA, daily hazard assessments, pre-task plans, pre-job hazard assessments, or workplace hazard inspections.

	Health and Safety Program Manual	Issue Date: 02/28/2025
	Hazard Identification, Risk Assessment and Control	Revision Date: 02/28/2025
		Page 4 of 10

The following factors play an important role:

- Percentage of workforce exposed
- Frequency of exposure
- Degree of harm likely to result from the exposure

Risk determination

Ranking hazards requires knowledge of the workplace activities, urgency of situations, and most importantly, objective judgment based on experience and training. It should be undertaken only by an experienced service technician or engineer. Within NSI, a hazard analysis can be done by anyone with the following job titles: service technician, senior service technician, field service manager, engineer, senior engineer, principal engineer or engineering manager / director. The following procedure should be used:

Step 1: Define the potential severity (ranked 1 to 5)


Step 2: Define the likelihood of an accident occurring (ranked 1 to 5)

Step 3: Multiply the severity by the likelihood (1-25) and rank the overall risk

Step 4: Take precautions commensurate with the overall risk number by applying proactive risk management strategies to reduce the risk is required and opportunities to modify or eliminate risks.

Severity Index:

- Level 5 Fatality OR Property Damage Exceeding \$200,000, for example working on an enclosure with live 480V or working in an unsafe pit / ditch.
- Level 4 Employee admitted to hospital or permanently disabled OR property damage between \$50,000 and \$200,000, for example removing a fitting from a high-pressure line without confirming that the line is empty and non-pressurized.
- Level 3 Employee visit to the emergency room or not able to perform their regular duties for 6+ days OR property damage between \$20,000 and \$50,000, for example falling off a high ladder or receiving third degree burns.
- Level 2 Employee not able to perform all their regular duties for 1 - 5 days OR property damage between \$2,000 and \$20,000, falling off a low ladder, banging head leading to concussion on overhead pipes.

	Health and Safety Program Manual	Issue Date: 02/28/2025
	Hazard Identification, Risk Assessment and Control	Revision Date: 02/28/2025
		Page 5 of 10

- Level 1 Employee affected but able to perform all their regular duties OR property damage less than \$2,000 for example receiving first degree burns or sustaining a minor cut that is fixed without requiring stitches.

Likelihood of occurrence:

- 5 - Highly likely to occur at any time
- 4 - Occurrence is probable but the timeline on that occurrence is unpredictable
- 3 - Occurrence is not unlikely and is expected if just one thing goes wrong
- 2 - Occurrence is possible but not expected
- 1 - Remotely possible and unlikely to happen

For the activity being examined, determine the most likely reasonable level of severity (levels 1 through 5 in the above example). Then determine how likely (the probability) the injury would be (1 through 5 For example, being hit by a low-speed car is most often a level 2 injury but is barely possible for someone who works a kitchen job (level 1). However, put that same worker wearing all black on the roadside at night replacing roadside light bulbs and the probability increases to level 5 and the severity to 5 (fatality reasonably likely).


Risk Definitions

Risk is the chance or probability that a worker will be harmed or experience an adverse health effect if exposed to a hazard. It is calculated by multiplying the Risk severity by the likelihood of occurrence and comparing the result to the table below.

Risk = Severity x Likelihood is on a scale of 1 to 25 and the results ranked as follows:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Very low				Low				Medium				High				Extreme								

- 1 – Very low risk activities contain little to no risk and are unlikely to occur. Field personnel can proceed with these activities as planned.
- 2 - Low risk activities contain minimal risk and may occur occasionally. Application of proactive risk management strategies to reduce the risk is advised and opportunities to modify or eliminate risks should be undertaken.

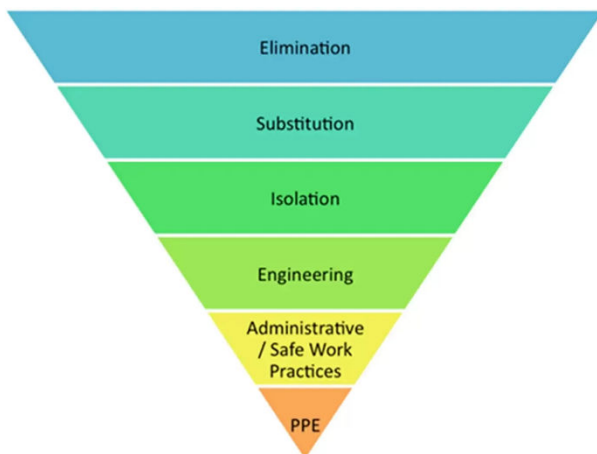
	Health and Safety Program Manual	Issue Date: 02/28/2025
	Hazard Identification, Risk Assessment and Control	Revision Date: 02/28/2025
		Page 6 of 10

- **3** - Medium risk activities contain minor to serious risks that may occur if circumstances change. Application of proactive risk management strategies to reduce the risk is required and opportunities to modify or eliminate risks must be undertaken.
- **4** - High risk activities contain unacceptable levels of risk, including catastrophic and critical injuries. High risk activities should not be undertaken without express agreement with Neal Systems management in consultation with the customer. If agreed that they can occur, then the application of proactive risk management strategies to reduce the risk is required and opportunities to modify or eliminate risks must be undertaken.
- **5** - Extreme risk activities are not permitted to be undertaken. Any requested activity falling into this category should be reported to Neal Systems service management or company leadership and must be discontinued immediately. Management will either discuss activity modifications with the customer or refuse to undertake that work.

Once the risk has been assessed, the appropriate controls shall be put into place. The following describes how identified hazards/risks are addressed and mitigated.


The main ways to control a hazard include:

These methods are also known as the "hierarchy of control" because they should be considered in the order presented (it is always best to try to eliminate the hazard first, etc.).



- **Elimination:** Completely remove the hazard from the workplace e.g. LOTO to remove 480V presence.
- **Substitution:** Substitute the hazard for a lower risk one (either lower severity or less likelihood) e.g. scaffolding instead of ladder)
- **Isolation:** Use demarcation / barriers to prevent people not directly associated with the work out of danger

e.g. putting a barrier and signs around an open manhole.

	Health and Safety Program Manual	Issue Date: 02/28/2025
	Hazard Identification, Risk Assessment and Control	Revision Date: 02/28/2025
		Page 7 of 10

- Engineering Controls: includes designs or modifications to plants, equipment, ventilation systems, and processes that reduce the source of exposure. This is unlikely to be achievable without advance discussions and is probably relevant to level 4 or 5 risk severities.
- Administrative Controls: controls that alter the way the work is done, including timing of work, policies and other rules, and work practices such as standards and operating procedures (including training, housekeeping, and equipment maintenance, and personal hygiene practices).
- PPE: equipment worn by individuals to reduce exposure such as contact with chemicals or exposure to noise, examples would be safety glasses, steel toed boots, hard hat, ear defenders, mask or portable gas detector.

Controls are placed:

- At the source (where the hazard "comes from")
- Along the path (where the hazard "travels")
- At the worker

Control at the source and control along the path are also known as engineering controls.


Neal Systems Inc. shall make sure investigations go into all workplace incidents (such as injuries, illnesses, near misses, and stop work) to identify the root cause to prevent future occurrences.

Administrative controls limit workers' exposure by implementing other "rules," such as training, supervision, shorter shifts in high-risk areas, etc. These control measures have many limitations because the hazard itself is not actually removed or reduced. Administrative controls are not generally favored because they can be difficult to implement and maintain and are not a reliable way to reduce exposure.

PPE includes items such as respirators; protective clothing such as gloves, face shields, eye protection; and footwear that serves to provide a barrier between the wearer and the chemical or material. It is the final item on the list for a very good reason.

PPE should never be the only method used to reduce exposure except under very specific circumstances because PPE may "fail" (stop protecting the worker) with little or no warning.

For example: "Breakthrough" can occur with gloves, clothing, and respirator cartridges.

	Health and Safety Program Manual	Issue Date: 02/28/2025
	Hazard Identification, Risk Assessment and Control	Revision Date: 02/28/2025
		Page 8 of 10

Once it has been decided what the best and most practical control for a particular hazard is, this needs to be documented. The safe work procedure for the job needs to be written based on those risks and controls. Using the example from earlier with the car striking a worker, the kitchen work procedure for garbage removal should include something about having the dumpster near the back door to the kitchen and not across the parking lot.

It could also include instruction to the workers to ensure that they report any burnt-out exterior lights. Some may add requirements to put on a reflective vest when taking out the garbage at night. The groundskeeper changing light bulbs need to have a safe work procedure that includes only working during the day in high visibility clothing and with proper traffic control barriers. Parking a service vehicle in the road ahead of the worker to act as a substantial physical barrier would further reduce the risk.

Communicate the Controls and Train the Workers

All workers will be trained in the hazard identification process, including the use and care of proper PPE.


Once the control has been put into place, Neal Systems Inc. will train workers on how to use it. This applies whether it is an engineering control such as a guard or interlock, an administrative control such as a safe work procedure for cold weather, or particular PPE when handling a chemical. Training records are required to show that the workers have been made aware of the hazards and the controls.

Simultaneous Operations (SIMOPS)

This procedure outlines the processes and general plan for conducting SIMOPS to provide for the safety of workers and protection of the environment and equipment. SIMOPS are situations in processes where two or more operations or activities occur at the same time and place. They may interfere or clash with each other and may involve risks that are not identified when each activity is considered by itself. Thus, they can increase the risks of the activities or create new risks.

Work Activities Covered by the SIMOPS Procedure

Whilst Neal Systems does not perform major works, there are occasions when calibration or commissioning of instrumentation or PLC systems is done amongst other contractors performing significant work. SIMOPS is applicable for any work that is significant in nature such as large construction jobs, change-out of major rotating

	Health and Safety Program Manual	Issue Date: 02/28/2025
	Hazard Identification, Risk Assessment and Control	Revision Date: 02/28/2025
		Page 9 of 10

equipment, naked flame and hot works in restricted areas, blasting and painting works, radiography, entry into confined space, rigging or lifting.


SIMOPS is also applicable for any work that poses a significant hazard such as working in areas where there is a risk of toxic or explosive gases being present, activities where special chemicals are utilized, work in which multiple workers are involved. This work list is not inclusive and other work activities may also be covered under the SIMOPS Procedure.

SIMOPS often involves work in the same area by companies or multi-disciplinary workers whose work may overlap and/or interact. SIMOPS shall be coordinated through joint planning efforts by the separate operations, such as development, construction, and operations managers/supervisors/engineers who plan and direct activities.

All SIMOPS' work must be coordinated with the main contractor performing that work and must follow the procedures laid out by the customer for whom the work is being performed.

At a minimum, Neal Systems Inc. shall:

- Agree a mechanism for the review of proposed activities (meetings, toolbox talks, etc.) to identify department and subcontractor participation.
- Agree a matrix of responsible workers who shall authorize such simultaneous activities.
- Participating in ensuring simultaneous activities are controlled and performed in a safe manner by agreeing with the responsibilities of all workers involved in the tasks.
- Appointing a Simultaneous Operations Leader (SOL) to coordinate the activities between the different organizations.
- Communicate with the contractor / customer any additional preventive safety measures, which could be implemented prior to commencement of the simultaneous activities.
- Work with the contractor / customer to limit the number of simultaneous activities in any given area.
- Participate in open communication channels with all parties involved in the work.
- Participate in any additional training that the contractor / customer requires for any specified workers involved in the tasks.

	Health and Safety Program Manual	Issue Date: 02/28/2025
	Hazard Identification, Risk Assessment and Control	Revision Date: 02/28/2025
		Page 10 of 10

Neal Systems Inc. shall, whenever practical, restrict workers’ access to areas where simultaneous activities may be taking place, for example by scheduling work in other areas first to avoid SIMOPS from being necessary. Neal Systems Inc. shall adhere to all contractor / customer specific instructions for securing operations and assembling workers in an emergency. All workers involved in SIMOPS tasks must be aware of the specifics of simultaneous operations and emergency procedures and if the contractor / customer does not make these instructions clear then work should not proceed until such time as clarity has been achieved.

4. COMMUNICATION

Communication shall be established among all workers involved in SIMOPS with a communications system, such as intercom, or radios, shall be set up to facilitate communication. The contractor / customer supervisor or competent person shall communicate with responsible workers from the various operations to discuss the expected activities at the commencement of work, at the beginning of each shift, and at other times during the operation, as conditions require, and to resolve any conflicts due to SIMOPS. The supervisor or competent person shall inform all parties involved of any special problems that might be encountered and the appropriate actions to take if such problems should occur. If this does not happen, the Neal Systems workers should bring this to the attention of the contractor / customer and refrain from working in the SIMOPS area until this issue has been suitably rectified.

5. REVIEW

Repeat the Hazard Assessment process when site conditions change, when new tasks are added, or when new workers join the crew order to prevent the development of unsafe working conditions.