

Northwestern

Incident Investigations

Environmental Health and Safety

Table of Contents

I. Purpose	2
II. Scope.....	2
III. Responsibilities	2
IV. Conducting Incident Investigations.....	3
V. Recordkeeping	6
VI. Regulatory Authority and Related Information	6
VII. Contact.....	6
Appendix A – Guidelines for Federal/Local/State Authority Inspections	7
Appendix B – Information Collection Questions.....	9
Appendix C – Example Inquiries to Identify Contributing Factors	10
Appendix D – Example Inquiries to Identify Root Cause	11

I. Purpose

The purpose of this program is to identify the conditions, behaviors, hazards, and root causes of incidents and to implement corrective actions that prevent similar occurrences through thorough incident investigations.

II. Scope

- A. This program applies to incidents that occur on and off campus property related to University programs, business, and operations. Incidents subject to investigation include, but are not limited to:
 - i. Injury, illness, or fatality of a staff or faculty member, student, contractor, or visitor,
 - ii. Damage to equipment or property owned by Northwestern, staff, faculty, students, contractors, or visitors,
 - iii. Environmental impacts (e.g., spills),
 - iv. Near-misses,
 - v. Fires or explosions, and
 - vi. Uncontrolled release of hazardous or toxic materials.
- B. Incidents will be investigated when available information indicates conditions that may pose a risk to people, the environment, property, or regulatory compliance. An investigation will also be initiated if corrective actions taken in response to an incident appear inadequate to prevent similar occurrences.

III. Responsibilities

- A. **Environmental Health and Safety (EHS)**
 - i. Adhere to the requirements of this program.
 - ii. Review and update this program, as necessary.
 - iii. Investigate incidents, at the discretion of the EHS Director or their designee, in collaboration with schools, units, contractors, and others, as necessary.
 - iv. Cooperate with the Occupational Safety and Health Administration (OSHA) and other federal, state, and local officials during inspections (see **Appendix A – Guidelines for Federal/Local/State Authority Inspections**).
 - v. Notify regulatory agencies (e.g., U.S. Coast Guard, Environmental Protection Agency, Metropolitan Water Reclamation District) as necessary.
 - vi. Notify OSHA at (847) 227-1700 or [online](#) under the following conditions:
 - a) Work-related fatalities within 8 hours.
 - b) Work-related in-patient hospitalizations, amputations, and losses of an eye within 24 hours.
- B. **Schools and Units**
 - i. Adhere to the requirements of this program.
 - ii. Report emergencies immediately by calling 911.
 - iii. Promptly report non-emergency incidents to EHS using one of the methods below:
 - a) [Online incident reporting portal](#)
 - b) Email: ehs@northwestern.edu
 - c) Phone: (847) 467-6342

- d) Any other effective means
- iv. Cooperate with EHS and others to support incident investigations, including but not limited to providing:
 - a) Records and documents pertinent to the investigation,
 - b) Access to spaces and areas necessary for the investigation, and
 - c) Access to faculty, staff, and students to conduct interviews.

C. Contractors

- i. Adhere to the requirements of this program and the [Northwestern Contractor Safety Program](#).
- ii. Report emergencies immediately by calling 911.
- iii. Promptly report non-emergency incidents to Northwestern project managers or representatives, and regulatory authorities (e.g., OSHA), if applicable.
- iv. Conduct incident investigations to identify the conditions, behaviors, hazards, and root causes of incidents and implement corrective actions to prevent similar occurrences.
- v. Provide incident investigation reports to Northwestern.
- vi. Cooperate with Northwestern and others to support incident investigations.

D. Staff, Faculty, and Students

- i. Adhere to the requirements of this program.
- ii. Cooperate with incident investigations (e.g., participating in interviews, providing witness statements).

IV. Conducting Incident Investigations

A. Safety

- i. Activities, such as maintenance, repair work, and events, must be stopped at the incident site, as necessary.
- ii. Before accessing the incident site, it must be safe and secure (e.g., de-energized and locked-out electrical circuits, barricades to prevent access).
- iii. If an incident site has potential hazards that could cause harm to staff, faculty, students, contractors, visitors, the general public, first responders, or others, EHS will collaborate with the necessary parties (e.g., Facilities, Northwestern Police, local fire department, Research Safety, contractors) to evaluate and establish control measures.
- iv. Appropriate personal protective equipment (PPE) must be worn at incident sites, as directed by EHS or other authorities, or a contractor, if a contractor-controlled incident site. Refer to the [Northwestern Personal Protective Equipment Program](#) for more information.

B. Preserve the Scene

- i. Preserve the scene to prevent material evidence from being removed or altered.
- ii. If the scene could potentially be disturbed before the investigator can arrive, investigators should engage a school or unit supervisor or other individual on-scene to take detailed pictures to document the incident site, so long as it is safe to do.

C. Document the Scene

- i. Document the scene by taking photographs and videos from multiple angles of the incident site, equipment, tools, vehicles, PPE, and any other objects involved in the incident.
- ii. If necessary, sketch the scene using computer programs (e.g., Microsoft PowerPoint) to illustrate the details of the incident.
- iii. Document the environmental conditions at the time of the incident (e.g., lighting, noise, wind, rain, snow, ice).

D. Collect Information

- i. Collected incident information through interviews, document reviews, and other means.
- ii. Document the incident facts using **Appendix B – Information Collection Questions** as a guide to ensure all information pertinent to the incident is collected.
- iii. Have all witnesses complete a [Witness Accident Statement Form](#) or [Witness Accident Statement Form \(Workers' Compensation\)](#).
- iv. Interviews
 - a) Interviews provide detailed, useful information about an incident and must be conducted as promptly as possible.
 - b) An incident investigation typically involves interviewing and possibly re-interviewing some of the same or new witnesses as more information becomes available. Carefully question witnesses to solicit as much information as possible related to the incident. Utilize completed witness accident forms as a guide to expand upon what was witnessed, and to obtain clarification on missing information and inconsistencies.
 - c) Since some questions will need to be designed around the interviewee, each interview will be a unique experience. When interviewing injured workers and witnesses, it is crucial to reduce their possible fear and anxiety and to develop a good rapport. When conducting interviews, investigators should:
 - (1) Conduct the interview respectfully and professionally.
 - (2) Conduct the interview in the language of the employee/ interviewee; use a translator if needed.
 - (3) Clearly state that the purpose of the investigation and interview is fact-finding, not fault-finding.
 - (4) Emphasize that the goal is to learn how to prevent future incidents by discovering the root causes of what occurred.
 - (5) Establish a climate of cooperation and avoid anything that may be perceived as intimidating or in search of someone to blame for the incident.
 - (6) Let employees know they can have a representative (e.g., labor representative) present, if available/appropriate.
 - (7) Ask individuals to recount their version of what happened.
 - (8) Do not interrupt the interviewee.
 - (9) Take notes and/or record the responses; interviewee must provide proof of permission prior to being video or audio recorded or photographed.

- (10) Have blank paper and or sketch available for the interviewee to use for reference.
- (11) Ask clarifying questions to fill in missing information.
- (12) Reflect back to the interviewees the factual information obtained; correct any inconsistencies.
- (13) Ask the individuals what they think could have prevented the incident, focusing on the conditions and events preceding the incident.

v. Additional resources include, but are not limited to:

- a) Equipment manuals,
- b) Industry guidance documents,
- c) Company policies and records,
- d) Maintenance schedules, records, and logs,
- e) Training records,
- f) Historical meteorological data,
- g) Closed-circuit television (CCTV) footage,
- h) Audit and follow-up reports,
- i) Enforcement policies and records, and
- j) Previous corrective action recommendations.

E. Determine Contributing Factors and Root Cause

- i. Upon completion of information collection, identify the contributing factors using **Appendix C – Example Inquiries to Identify Contributing Factors**.
- ii. Determine the root cause of the incident (i.e., the underlying reason why the incident occurred), using **Appendix D – Example Inquiries to Identify Root Cause**. Finding the root cause goes beyond the obvious proximate or immediate factors, as it is a deeper evaluation of the incident. The main goal must always be to understand how and why the existing barriers against the hazards failed or proved insufficient, not to find someone to blame. The root cause will be one of the following categories:

Root Cause Category	Description	Example
Chemical	Caused by contacting a chemical (e.g., splash)	Skin rash from a chemical splash
Environmental	Caused by the work environment	Injury sustained from slipping on ice, or heat illness from high temperatures
Equipment	Caused by equipment, tools, or machines	Hand laceration from a rotating saw blade
Human	Caused by a mistake or unsafe act	Choosing not to follow procedures and sustaining an injury
Method / Procedures	Caused by the absence of, or improper, procedures	Burn from utility steam not properly isolated and locked/tagged out

F. Identify Corrective Actions

Once the root cause has been identified, corrective actions must be identified to address the root cause of the incident. Develop corrective actions in partnership with schools and units to ensure feasibility and establish timelines and target completion dates.

G. Reporting

- i. Utilize the [Incident Investigation Form](#) or other effective means to document all relevant information.
- ii. Incident investigations must be approved by the EHS Director or their designee.
- iii. Communicate reports to relevant parties (e.g., schools or unit supervisors, Risk Management).

H. Corrective Action Follow-Up

It is the responsibility of the investigator to follow up on corrective action implementation, target completion dates, and update the investigation as necessary.

I. Completion

- i. Once all corrective actions have been completed, the incident investigation must be closed by updating the incident investigation report, if used, including any additional documents, training records, receipts, or photos necessary to demonstrate that the corrective actions have been completed.
- ii. The investigator must notify all relevant parties that the incident investigation is closed and that all corrective actions have been completed.

V. Recordkeeping

EHS is responsible for maintaining incident investigations for a minimum of 5 years, unless otherwise directed by the Northwestern Office of General Counsel. Investigations must be kept for as long as the condition or hazard persists, or, if a minor is involved, for at least 5 years beyond the minor's age of majority.

VI. Regulatory Authority and Related Information

Northwestern and its contractors will comply with the Occupational Safety and Health Administration's (OSHA) standards and any other applicable codes and standards, including:

[OSH Act of 1970 Section 8 – Inspections, Investigations, and Recordkeeping](#)
[OSHA Incident Investigations](#)
[Northwestern University Contractor Safety Program](#)

VII. Contact

For questions, contact Environmental Health and Safety at ehs@northwestern.edu.

Appendix A – Guidelines for Federal/Local/State Authority Inspections

Below are guidelines for when federal, local, or state authorities conduct an inspection related to Northwestern incidents.

- A. Cooperate with compliance officers during inspections, and always act in a professional, businesslike manner.
- B. When informed that federal, local, or state officials are planning to visit, are on campus, or have opened an incident inspection, notify:
 - i. Northwestern Director of Environmental Health and Safety (EHS), or their designee
 - ii. Northwestern Office of General Counsel, and
 - iii. Other relevant Northwestern stakeholders, as necessary (e.g., vice presidents, Risk Management).
- C. If a compliance officer arrives on Northwestern property:
 - i. Request to see their identification, and
 - ii. Inform the compliance officer that Northwestern leadership must be contacted prior to starting the inspection.
- D. Request an opening conference with Northwestern management, legal counsel, and the compliance officer(s) to discuss the reason for the inspection, rights, and responsibilities. Take detailed notes about everything discussed.
- E. Retain all publications and documents provided by the compliance officer.
- F. Do not volunteer information or provide statements, documents, photographs, tools, or equipment to compliance officers without direct, expressed consent from Northwestern's Office of General Counsel or other legal counsel, if applicable.
- G. During interviews with compliance officers:
 - i. Ensure Northwestern General Counsel or other legal counsel is present during all management interviews.
 - ii. For union employees, ensure the union representative is notified; union employees may elect to have a union representative present during interviews.
 - iii. Prior to answering, ensure the questions are understood; request the compliance officer to restate questions, if in doubt.
 - iv. State only facts and not opinions.
 - v. Answer questions based on your knowledge only; do not guess or speculate.
 - vi. Do not admit to a violation.
 - vii. Do not lie to a compliance officer.
 - viii. Take detailed notes on all questions and responses.
- H. Documents related to incidents may be designated as "Privileged" and/or "Confidential" as directed by Northwestern's Office of General Counsel; do not share documents with these designations without direct, expressed consent from Northwestern's Office of General Counsel.
- I. An EHS representative must escort compliance officers when on Northwestern property; never leave compliance officers unattended; take detailed notes and photographs of everything seen, discussed, and performed by the compliance officer.
- J. If the compliance officer is taking photographs, an EHS representative must take the same photographs and retain them on file.
- K. If PPE or special procedures or permits (e.g., confined space entry permit) are necessary for the worksite inspection, ensure the compliance officer adheres to all requirements.

- L. If the compliance officer asks questions related to work being performed by a contractor, refer those questions to the contractor's management.
- M. Do not allow students, staff, or faculty to perform demonstrations for the compliance officer without direct, expressed consent from Northwestern's Office of General Counsel.
- N. Request that the compliance officer inform EHS of all suspected violations and standards involved in the inspection.
- O. During the closing conference with compliance officers:
 - i. Ensure relevant Northwestern management and legal counsel are present,
 - ii. Take detailed notes of everything discussed, and
- P. Ensure all violations are clearly explained by the compliance officer.

Appendix B – Information Collection Questions

Who	Where
Who was injured? Who saw the incident? Who was working with the employee? Who had instructed/assigned the employee? Who else was involved? Who else can help prevent recurrence?	Where did the incident occur? Where was the employee at the time? Where was the supervisor at the time? Where were fellow workers at the time? Where were other people who were involved at the time? Where were witnesses when the incident occurred?
What	Why
What was the incident? What was the injury? What was the employee doing? What was the employee told to do? What tools was the employee using? What machine was involved? What operation was the employee performing? What instructions had the employee been given? What specific precautions were necessary? What specific precautions was the employee given? What protective equipment should the employee have been used? What protective equipment was the employee using? What had other persons done that contributed to the incident? What problem or questions did the employee encounter? What did the employee or witnesses do when the incident occurred? What extenuating circumstances were involved? What did the employee or witnesses see? What will be done to prevent recurrence? What safety rules were violated? What new rules are needed?	Why was the employee injured? Why and what did the employee do? Why and what did the other person do? Why wasn't protective equipment used? Why weren't specific instructions given to the employee? Why was the employee in the position? Why was the employee using the tools or machine? Why didn't the employee check with the supervisor when the employee noted things weren't as they should be? Why did the employee continue working under the circumstances? Why wasn't the supervisor there at the time?
	When
	When did the incident occur? When did the employee start that job? When was the employee assigned the job? When was the employee made aware of the hazards? When was the employee's supervisor last check on the progress of the job? When did the employee first sense something was wrong?
	How
	How did the employee get injured? How could the employee have avoided it? How could fellow workers have avoided it? How could supervisor have prevented it; could it be prevented?

Appendix C – Example Inquiries to Identify Contributing Factors

- A. If a procedure or safety rule was not followed, why not?
- B. Was the procedure out of date or safety training inadequate?
- C. Was there anything encouraging deviation from job procedures, such as incentives or speed of completion? If so, why had the problem not been identified or addressed before?
- D. Was the machinery or equipment damaged, or did it fail to operate properly? If so, why?
- E. Was a hazardous condition a contributing factor (e.g., defects in equipment/tools/materials, unsafe condition previously identified but not corrected, inadequate equipment inspections, incorrect equipment used or provided, improper substitute equipment used, poor design or quality of work environment or equipment)? If so, why was it present?
- F. Was the location of equipment/materials/worker(s) a contributing factor (e.g., employee not supposed to be there, insufficient workspace, “error-prone” procedures or workspace design)? If so, why?
- G. Was lack of personal protective equipment (PPE) or emergency equipment a contributing factor (e.g., PPE incorrectly specified for job/task; inadequate PPE; PPE not used at all or used incorrectly; emergency equipment not specified, available, properly used, or did not function as intended)? If so why?
- H. Was a management program defect a contributing factor (e.g., a culture of improvisation to sustain production goals, failure of supervisor to detect or report hazardous condition or deviation from job procedure, supervisor accountability not understood, supervisor or worker inadequately trained, failures to initiate corrective actions recommended earlier)? If so, why?

Appendix D – Example Inquiries to Identify Root Cause

- A. Did a written or well-established procedure exist for employees to follow?
- B. Did job procedures or standards properly identify the potential hazards of job performance?
- C. Were there any hazardous environmental conditions that may have contributed to the incident?
- D. Were the hazardous environmental conditions in the work area recognized by employees or supervisors?
- E. Were any actions taken by employees, supervisors, or both to eliminate or control environmental hazards?
- F. Were employees trained to deal with any hazardous environmental conditions that could arise?
- G. Was sufficient space provided to accomplish the job task?
- H. Was there adequate lighting to properly perform all the assigned tasks associated with the job?
- I. Were employees familiar with job procedures?
- J. Was there any deviation from the established job procedures?
- K. Were the proper equipment and tools available and being used for the job?
- L. Did any mental or physical conditions prevent the employee(s) from properly performing their jobs?
- M. Were there any tasks in the job considered more demanding or difficult than usual (e.g., strenuous activities, excessive concentration required)?
- N. Was there anything different or unusual from normal operations (e.g., different parts, new or different chemicals used, recent adjustments/maintenance/cleaning on equipment)?
- O. Was the proper personal protective equipment specified for the job or task?
- P. Were employees trained in the proper use of any personal protective equipment?
- Q. Did the employees use the prescribed personal protective equipment?
- R. Was personal protective equipment damaged or not properly functioning?

- S. Were employees trained and familiar with the proper emergency procedures, including the use of any special emergency equipment, and was it available?
- T. Was there any indication of misuse or abuse of equipment and/or materials at the incident site?
- U. Is there any history of equipment failure, were all safety alerts and safeguards operational, and was the equipment functioning properly?
- V. If applicable, are all employee certification and training records current and up-to-date?
- W. Was there any shortage of personnel on the day of the incident?
- X. Did supervisors detect, anticipate, or report an unsafe or hazardous condition?
- Y. Did supervisors recognize deviations from the normal job procedure?
- Z. Did supervisors and employees participate in job review sessions, especially for those jobs performed on an infrequent basis?
- AA. Were supervisors made aware of their responsibilities for the safety of their work areas and employees?
- BB. Were supervisors properly trained in the principles of incident prevention?
- CC. Was there any history of personnel problems or any conflicts with or between supervisors and employees or between employees themselves?
- DD. Did supervisors conduct regular safety meetings with their employees?
- EE. Were the topics discussed and actions taken during the safety meetings recorded in the minutes?
- FF. Were the proper resources (i.e., equipment, tools, materials) required to perform the job or task readily available and in proper condition?
- GG. Did supervisors ensure employees were trained and proficient before assigning them to their jobs?