

Northwestern
Incident Investigation
Environmental Health and Safety

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I. Purpose

The purpose of this program is to identify the conditions, behaviors, hazards, and root causes of an incident, and identify and implement corrective actions necessary to prevent similar occurrences. Incident investigations focus on identifying and correcting root causes, not establishing fault.

II. Scope

This program applies to all Northwestern staff, faculty, students, contractors, and visitors. Incidents subject to investigation by Environmental Health and Safety include, but are not limited to:

- A. Injury, illness, or fatality of a staff or faculty member, student, contractor, or visitor,
- B. Damage to equipment or property owned by Northwestern, staff, faculty, students, contractors, or visitors,
- C. Environmental impacts,
- D. Near-misses,
- E. Fires or explosions, and
- F. Uncontrolled release of toxic materials.

III. Responsibilities

A. Environmental Health and Safety (EHS)

- i. Investigate incidents as necessary.
- ii. Update and maintain this program.
- iii. Cooperate with the Occupational Safety and Health Administration (OSHA) and other regulatory officers during investigations (see **Appendix 1**).
- iv. 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. Northwestern Staff, Faculty, Students, and Contractors

- i. Immediately notify EHS of incidents.
- ii. Cooperate with EHS staff during incident investigations.
- iii. Provide EHS with:
 - 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.

IV. Notifications

- A. For all emergency situations and incidents, call 911 or dial 456 from any University phone.
- B. EHS must be immediately notified of all incidents identified in **Section II** by using the contact information in **Section VII**. Non-emergency incidents may also be reported by visiting the [EHS website](#).

V. Requirements

A. Safety

- i. Before conducting an investigation, Northwestern departments and units, or contractors if in control of the site, are responsible to ensure the incident site is safe and secure for entry and investigation.
- ii. If an incident site has potential hazards that could cause harm to staff, students, contractors, or the general public, EHS will collaborate with the necessary parties (e.g., Facilities, Northwestern Police, Evanston Fire Department, Research Safety, contractors) to evaluate and establish control measures.
- iii. Wear appropriate personal protective equipment (PPE) at incident sites.

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, have a supervisor or other individual on-scene take detailed pictures to document the incident site.

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, wind, rain).

D. Collect Information

Collected incident information through interviews, document reviews, and other means. Document the incident facts using **Appendix 2** to ensure all information pertinent to the incident is collected.

- i. Have all witnesses complete a [Witness Accident Form](#) or [Witness Accident Form \(Non-Workers Compensation\)](#).
- ii. **Interviews**
 - a. Interviews provide detailed, useful information about an incident and must be conducted as promptly as possible when the site is both safe and secure.
 - b. An incident investigation always 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 in the language of the employee/ interviewee; use a translator if needed.
2. Clearly state that the purpose of the investigation and interview is fact-finding, not fault-finding.
3. Emphasize that the goal is to learn how to prevent future incidents by discovering the root causes of what occurred.
4. Establish a climate of cooperation, and avoid anything that may be perceived as intimidating or in search of someone to blame for the incident.
5. Let employee know they can have an employee representative (e.g., labor representative) present, if available/appropriate.
6. Ask individuals to recount their version of what happened.
7. Do not interrupt the interviewee.
8. Take notes and/or record the responses; interviewee must provide proof of permission prior to being video or audio recorded or photographed.
9. Have blank paper and or sketch available for the interviewee to use for reference.
10. Ask clarifying questions to fill in missing information.
11. Reflect back to the interviewees the factual information obtained; correct any inconsistencies.
12. Ask the individuals what they think could have prevented the incident, focusing on the conditions and events preceding the incident.

iii. **Additional Resources**

In addition to interviews, investigators may find other sources of information useful, such as:

- 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 the Root Cause**

Upon completion of information collection, identify the contributing factors using **Appendix 3**. Determine the root cause(s), or the underlying reason why the incident occurred, of the incident using **Appendix 4**. 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:

- i. Chemical,
- ii. Environmental,

- iii. Equipment,
- iv. Methods/Procedures, or
- v. Human.

F. Identify Corrective Actions

Once the root cause(s) has been identified, corrective actions must be identified that address the root cause(s) of the incident. Partnership with supervisors and managers to develop corrective actions will ensure feasibility and help establish timelines and target completion dates. Corrective actions must always be supported by senior management.

G. Obtain Approval

All incident investigations, which include root cause(s) and corrective action(s), must be approved by the Director of Environmental Health and Safety, or designee.

H. Communicate

Upon approval, all incident investigations, which include root cause(s) and corrective action(s), must be communicated to relevant parties, including superiors and management, by the investigator.

I. Implement and 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.

J. Complete

The incident investigation must be approved by the Director of Environmental Health and Safety, or designee for closure, once all corrective actions have been completed. The investigator must notify all relevant parties, including supervisors and managers, that the incident investigation is closed and that all corrective actions have been completed.

VI. Recordkeeping

Northwestern injury and illness records and incident investigations will be kept on file by EHS in the Origami database.

VII. Contact

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

Appendix 1 – Guidelines for Federal/Local/State Authority Inspections

Below are guidelines when federal, local, or state authorities conduct an inspection related to an incident on Northwestern property:

- A. Cooperate with compliance officers during inspections, and always act in a professional, businesslike manner.
- B. When informed that federal, local, or state officials have opened an incident inspection, notify Northwestern's:
 - i. [Office of General Counsel](#),
 - ii. Director of Environmental Health and Safety (EHS), or designee, and
 - iii. Senior Associate Vice President, Chief Risk and Compliance Officer, or designee.
- C. If a compliance officer arrives on Northwestern property:
 - i. Request to see their identification, and
 - ii. Inform the compliance officer that Northwestern leadership (e.g., EHS Director) must be contacted prior to starting the inspection.
- D. Request an opening conference with Northwestern management, legal counsel, and the compliance officer to discuss the reason for the inspection, rights, and responsibilities. Take detailed notes of 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 outside legal counsel, if applicable.
- G. During interviews with compliance officers:
 - i. Ensure Northwestern General Counsel or outside counsel are 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 of 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 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 Northwestern leadership and legal counsel are present,
 - ii. Take detailed notes of everything discussed, and
 - iii. Ensure all violations are clearly explained by the compliance officer.

Appendix 2 – Information Collection Questions

Who	Where
<p>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?</p>	<p>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?</p>
What	Why
<p>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?</p>	<p>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?</p>
When	How
<p>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?</p>	<p>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?</p>

Appendix 3 – Example Inquiries to Identify Contributing Factors

1. If a procedure or safety rule was not followed, why not?
2. Was the procedure out of date or safety training inadequate?
3. 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?
4. Was the machinery or equipment damaged, or did it fail to operate properly? If so, why?
5. 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?
6. 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?
7. 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?
8. 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 4 – Example Inquiries to Identify the Root Cause

1. Did a written or well-established procedure exist for employees to follow?
2. Did job procedures or standards properly identify the potential hazards of job performance?
3. Were there any hazardous environmental conditions that may have contributed to the incident?
4. Were the hazardous environmental conditions in the work area recognized by employees or supervisors?
5. Were any actions taken by employees, supervisors, or both to eliminate or control environmental hazards?
6. Were employees trained to deal with any hazardous environmental conditions that could arise?
7. Was sufficient space provided to accomplish the job task?
8. Was there adequate lighting to properly perform all the assigned tasks associated with the job?
9. Were employees familiar with job procedures?
10. Was there any deviation from the established job procedures?
11. Were the proper equipment and tools available and being used for the job?
12. Did any mental or physical conditions prevent the employee(s) from properly performing their jobs?
13. Were there any tasks in the job considered more demanding or difficult than usual (e.g., strenuous activities, excessive concentration required)?
14. Was there anything different or unusual from normal operations (e.g., different parts, new or different chemicals used, recent adjustments/maintenance/cleaning on equipment)?
15. Was the proper personal protective equipment specified for the job or task?
16. Were employees trained in the proper use of any personal protective equipment?
17. Did the employees use the prescribed personal protective equipment?
18. Was personal protective equipment damaged or not properly functioning?
19. Were employees trained and familiar with the proper emergency procedures, including the use of any special emergency equipment, and was it available?
20. Was there any indication of misuse or abuse of equipment and/or materials at the incident site?
21. Is there any history of equipment failure, were all safety alerts and safeguards operational, and was the equipment functioning properly?
22. If applicable, are all employee certification and training records current and up-to-date?
23. Was there any shortage of personnel on the day of the incident?
24. Did supervisors detect, anticipate, or report an unsafe or hazardous condition?
25. Did supervisors recognize deviations from the normal job procedure?
26. Did supervisors and employees participate in job review sessions, especially for those jobs performed on an infrequent basis?
27. Were supervisors made aware of their responsibilities for the safety of their work areas and employees?
28. Were supervisors properly trained in the principles of incident prevention?
29. Was there any history of personnel problems or any conflicts with or between supervisors and employees or between employees themselves?
30. Did supervisors conduct regular safety meetings with their employees?
31. Were the topics discussed and actions taken during the safety meetings recorded in the minutes?
32. Were the proper resources (i.e., equipment, tools, materials) required to perform the job or task readily available and in proper condition?
33. Did supervisors ensure employees were trained and proficient before assigning them to their jobs?