SANFORD UNDERGROUND RESEARCH FACILITY

SOUTH DAKOTA SCIENCE AND TECHNOLOGY AUTHORITY

Incident Management Standard

Table of Contents

Revision History

Rev	Date	Section	Paragraph	Summary of Change	Authorized by
05	5/29/2024	1, 2, 3, 4, 5, & 6	4.1, 4.2, 4.9, 4.9.1-4.9.4, 4.10.2, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 6.1, 6.5	Logo change, document title change, changes made per annual review	CCR 950
06	2/10/2026	2, 5 & 6	5.1-5.3, 5.5, 5.6 & 6.1-6.8	Updated document due to change to the document numbering of controlled documents due to the change from DocuShare system to SharePoint system	CCR 1221

1.0 Purpose

This standard establishes the requirements for reporting and responding to incidents. It also describes how all incidents, including emergencies, are categorized and investigated.

2.0 Scope

This standard applies to all personnel at Sanford Underground Research Facility (SURF). Initial reporting and overall response to emergency events are addressed in the ESH-6000-S-003 Emergency Management Standard.

3.0 Definitions

Contributing Factors – Events that, together with other causes, raised the likelihood of an incident but did not cause the accident by itself.

Corrective Actions – Items that are identified as a result of the investigation to eliminate the cause of a nonconformity and to prevent recurrence.

Emergency – A serious situation or occurrence that happens unexpectedly, poses an immediate risk to life, health, property or environment, and demands immediate action from either internal staff or outside assistance (fire, police or ambulance).

Flash Report – An initial electronic communication tool used to denote findings and lessons learned from recently reported incidents that can raise awareness to SDSTA personnel and associated stakeholders. Note: Flash reports are developed to communicate known findings only and are not intended to be a completed incident investigation report.

First Report – Required document completed by personnel to report injuries and other significant incidents to their supervisors and ESH.

Human Performance Improvement (HPI) – A systematic analysis tool used to determine the precursors and latent conditions associated in the performance of an unwanted outcome. The HPI process is the tool used by SDSTA to perform an incident causal analysis.

Immediate – Without an unreasonable delay (as soon as it is considered safe and feasible).

Incident – Any unplanned or unexpected event that results in or has the potential to result in an adverse safety, health, or environment outcome. This includes near miss events.

Incident Investigation – The systematic collection and analysis of information about suspected causes (direct cause, contributing factor, root cause) of an incident.

Investigation Report – Documentation that details findings obtained during the course of an incident investigation.

Lessons Learned – Notable findings found during the investigation that can be acted upon to mitigate future incidents.

Near Miss – An unplanned event that did not result in injury, illness or damage, but had the potential to do so. Also known as a close call.

Onsite Medical Professional – An onsite representative authorized to perform a medical assessment with a certification of Emergency Medical Technician (EMT) or above.

Reporting Person – Someone who has direct knowledge that an incident occurred.

Root Cause – A fundamental, underlying system-related reason why an incident occurred that identifies one or more correctable system failures. A cause that, if removed, will prevent the incident from occurring.

Work-Related – An event or exposure occurring in the work environment that either caused or contributed to the resulting condition, or significantly aggravated a pre-existing injury or illness.

4.0 Responsibilities

4.1. SDSTA Executive Director

    4.1.1. Reports incidents to the SDSTA Board of Directors in accordance with the requirements of this standard.

4.2. SURF Laboratory Director

    4.2.1. Arranges for an external investigation review for Category 1 incidents if needed.
    4.2.2. Approves all Category 1 incident investigation reports.
    4.2.3. Reports incidents to the funding agencies and other affected stakeholders in accordance with the requirements of this standard.

4.3. Director of Environment, Safety, and Health (ESH)

    4.3.1. Assigns significance categories for reported incidents.
    4.3.2. Notifies the SDSTA Executive Director/SURF Laboratory Director and other applicable outside stakeholders of reported incidents in accordance with the reporting requirements of this standard.
    4.3.3. Determines the investigation requirements for all incidents.
    4.3.4. Assembles the incident investigation team and oversees the investigation for incidents.
    4.3.5. Approves final investigation reports for all Category 2, 3 and 4 incidents.
    4.3.6. Advises the SURF Laboratory Director in the selection of an external review committee for Category 1 incidents.
    4.3.7. Ensures that the incident notification process is completed once knowledge of an incident is received.
    4.3.8. Selects a lead incident investigator of the incident along with an investigation team.
    4.3.9. Oversees the team to complete the incident review, including preparation of reports and development of corrective actions within the required timeframes.
    4.3.10. Maintains copies of all incident investigation reports.
    4.3.11. Coordinates medical care upon receiving notice of an injury.
    4.3.12. Maintains the action tracking system for corrective actions from the investigation process.

4.4. Director of Science

4.4.1. Communicates information related to incidents to science collaborations.

4.5. Duty Officer

4.5.1. Initiates the incident notification process by contacting the Director of ESH, or designee, when made aware of an incident.

4.6. Lead Incident Investigator

4.6.1. Directs incident investigation team in the completion of the investigation process.
4.6.2. Obtains the review and approval of final documentation from applicable parties.
4.6.3. Maintains training in the causal analysis technique used in the incident investigation.

4.7. Incident Investigation Team

4.7.1. Assists Lead Incident Investigator in the investigation and report development process.
4.7.2. Reviews the preliminary report draft prior to management review.

4.8. Project Manager

4.8.1. Ensures contractors under their supervision understand the requirements of this standard.
4.8.2. Assists contractors in the incident investigation notification and reporting process.
4.8.3. Participates in any incident investigations involving contractors under their supervision.
4.8.4. Provides information requested by an incident investigator on a timely basis.
4.8.5. Ensures that contractors under their supervision implement corrective actions from any previous incident.

4.9. Site Medical Evaluator

4.9.1. Provides an initial medical evaluation for injured or ill personnel.
4.9.2. Provides medical treatment to injured or ill personnel within the certification level of the evaluator.
4.9.3. Records data of evaluation for placement in employee medical file, if applicable.
4.9.4. Provides referral to 3rd party medical facility for additional treatment or testing and arranges for appropriate transportation to/from the facility.

4.10. Supervisor for Injured Employee or Incident Scene

4.10.1. Notifies Director of ESH of incidents within the time periods specified in this standard.
4.10.2. Ensures that employee(s) complete a First Report prior to ending the work shift.
4.10.3. Assists in the completion of further incident review including preparation of reports and development of corrective actions within the required timeframes.
4.10.4. Assists the incident investigation team to develop and complete incident corrective actions.

4.11. All SURF Onsite Personnel

4.11.1. Report all incidents as specified in this standard, including submitting a First Report.
4.11.2. Participate in incident reviews and investigations.
4.11.3. Provide signatures on reports if involved in an incident involving employee injury or significant property damage.

5.0 Instructions

5.1. Initial Response

- Emergency Incidents

  o Further details on emergency response can be found in the ESH-6000-S-003 Emergency Management Standard.

- Other Than Emergency Incidents

  o Incidents that do not meet the criteria of an emergency for the purpose of this standard are required to take the actions specified below.

- Personnel Injuries and Illnesses

  o If a person is injured during work, the injury must be reported to their designated work lead or supervisor as soon as possible. The same requirements exist for any person that becomes sick at work and feels the illness is work-related. If the supervisor or work lead is not available, the person may contact their department director or ESH.

  o All persons injured while working at SURF, or injured offsite while on official business, will be immediately evaluated and treated as necessary by a medical professional before returning to work. The Director of ESH or the SDSTA Executive Director/SURF Laboratory Director may waive this requirement for minor first aid cases. An injured person shall be accompanied by an onsite medical professional or designee to and from the medical facility unless otherwise instructed by the site medical evaluator.

    ♦ If an ambulance is dispatched for the incident, transport via ambulance is mandatory unless the site medical evaluator deems unnecessary.

  o For non-life-threatening injuries occurring on day shift, the injured person will be first evaluated by the On-Site Occupational Health Nurse located in the Administration Building. For more severe injuries or injuries occurring on night shift, the injured person will be evaluated and treated either by onsite Emergency Response Team (ERT) medical personnel or through a local medical facility.

  o In addition to verbal notification, an ESH-3000-F-001 First Report must be completed for all work-related injuries and illnesses when notifications are complete and proper care has been administered. This form may be completed by:

    ♦ Any injured person who is physically able to complete the form,

    ♦ Any person who observes an incident, or

    ♦ Any person with sufficient information to provide an initial description of an incident.

  o The ESH-3000-F-001 First Report must be submitted to either the injured person's supervisor, Lab Coordinator, Department Director, or ESH staff before leaving SURF. Personnel who have experienced a workplace injury must seek onsite medical attention prior to seeking medical attention at an off-site facility except for emergencies and other injuries that may require an immediate trip to the emergency room (e.g., a wound that may require sutures but is not life threatening). In these cases, the ESH-3000-F-001 First Report must be submitted as soon as reasonably possible. It is the responsibility of the supervisors to ensure these reporting requirements are met. All incident reports will be signed by management (or the supervisors of those involved in the incident) signifying the report accurately describes the event. If the incident involves an employee injury or significant property damage, the employee(s) involved in the incident must sign the report.

  o Supervisors, Lab Coordinators or Department Directors must contact the Director of ESH as soon as possible when they are notified of an injured or ill person.

- Incidents Other Than Injuries of Illnesses

  o Personnel must record all non-injury incidents on the ESH-3000-F-001 First Report. Examples include damage to equipment, equipment failures, power outages, fuel spills, other environmental releases and near miss accidents. In addition to recording these events,

personnel must also verbally report any incidents to their supervisor or Lab Coordinator as soon as possible after the incident, but before leaving the facility. If the supervisor or Lab Coordinator is not available, the person may contact the department director or ESH Representative.

5.2. Incident Reporting and Communication

- Internal Reporting and Notification

    o Internal incident reporting and notification is performed as follows:

    ♦ The reporting person is to verbally notify their immediate supervisor as soon as possible. If the supervisor cannot be reached, notify the Duty Officer, the Director of ESH, or the Department Director.

    ♦ The reporting person then completes the ESH-3000-F-001 First Report before the end of the work shift.

    ♦ Preserve the scene of the incident along with any involved equipment. Forward any incident information (emails, photos, timelines, and other notes) to the ESH Department when you are able.

    ♦ If an injury has occurred, the injured person is required to undergo a medical evaluation that is performed by a medical professional either onsite or offsite. Prior to commencing work, the injured person must be evaluated by the On-Site Occupational Health Nurse or designee.

    ♦ If initial reports denote findings and lessons learned that can be helpful to large portions of the site and associated stakeholders, a flash report may be developed and sent electronically to affected personnel. Flash reports are developed to communicate known findings only and are not intended to be a completed incident investigation report. Upon closure of the incident investigation, information regarding incident causes, actions taken, and lesson learned may be communicated in a developed follow-up to the flash report.

    o Further details may be found in ESH-3000-FD-001 Incident Notification Process Flow Diagram.

- Incident Types and Significance Categories

    o SDSTA has defined significance categories for incidents. Every reported incident is assigned a significance category, which determines the notification, investigation, and reporting requirements. For classification and reporting purposes, incidents at SURF are grouped into four categories related to their severity. The significance categories consider the impact on safe facility operations, employee or public safety and health, regulatory compliance, or public/business interests and are:

    ♦ Significance Category 1: catastrophic impact

    ♦ Significance Category 2: significant impact

    ♦ Significance Category 3: moderate impact

    ♦ Significance Category 4: minor impact, i.e., incidents that do not meet the threshold of a category 3 incident, and near misses.

    o Tables providing guidance for selecting the appropriate significance category based on type of incident are found in ESH-3000-A-003 Reportable Incidents and Significance Categories.

- Incident Notification to Senior Management and External Stakeholders

o Initiating the formal incident notification process is the responsibility of the Director of ESH. The level of categorization determines the urgency for reporting an incident to senior management, funding agencies, and regulatory agencies. Notification requirements are as follows:

♦ Details for incident notification requirements specified by the current Cooperative Agreement may be found in ESH-3000-A-002 CA Reporting Requirements

◊ The general notification steps are as follows:

❖ When making notifications by the Director of ESH or designee, all information should be clear and concise, avoiding any jargon. Uncommon or site- or facility-specific abbreviations and acronyms should be fully described. If the incident is re-categorized, prompt notification should be performed under the requirements of the new category.

❖ Follow-up notification is required if there is further degradation of the occurrence or other worsening conditions subsequent to the previous notification.

5.3. Incident Investigation Process

- After the incident significance category has been determined, the need for further reporting requirements and investigation is established. Incident investigations are performed using the ESH-3000-A-001 Incident Investigation Overview.

- General Requirements

o General investigation requirements are as follows:

♦ Significance Category 1 – catastrophic and Category 2 – significant impact

◊ Appointment of an Investigation Team.

◊ Root cause analysis utilizing an approved hazard analysis technique (to be determined by the Director of ESH).

◊ The incident scene must be preserved until the Investigation Team has released the area.

◊ An external review may be utilized for Category 1 or Category 2 incidents. (The SURF Laboratory Director, with input from the Director of ESH, makes this determination).

♦ Significance Category 3 – moderate impact and Category 4 – minor impact

◊ The ESH Department will assess the incident and determine the need for further investigation and reporting. The technique used is based on the severity of the incident.

◊ For events determined to be a near miss, an ESH-3000-F-002 Risk-Based Near Miss Screening Form may be completed by the investigation team and included with the ESH-3000-F-001 First Report. For events determined to be a category 4 under the near-miss category, the ESH Department will determine further action, if any, to be taken.

- Investigation Teams

o Investigation Teams will include a designated lead investigator for all incidents deemed of sufficient severity or potential significance to require a detailed impartial analysis (i.e., Category 1 and 2 incidents). Other cases may be investigated in this manner at the discretion of the Director of ESH. Lead investigators have been trained in incident investigation, root cause analysis, and have been appointed or approved by the Director of ESH.

o The Director of ESH will select the investigation team for an incident. Team members will be selected based upon their knowledge of the incident and expertise in the task or area involved with the incident.

- Obtaining and Analyzing Information

  o SDSTA utilizes root cause analysis, such as the Human Performance Improvement (HPI) method for both collecting and analyzing incident information. This process involves gathering information related to the event(s) to understand what occurred and the causal factors involved. In some cases, information gathered may need to be analyzed by a third party. Further details for performing an HPI incident analysis may be found in the ESH-3000-WI-001 HPI Process for Incident Investigation.

  o Information that is obtained during the investigation is considered confidential and is only available to internal investigation teams and recipients of any final report. Outside of the final report, all other notes and documentation obtained from the investigation are available to the internal ESH Department only.

  o Examples of information obtained during an incident investigation include, but are not limited to:

    ♦ Interviews of the injured, witnesses, and subject matter experts.

    ♦ Pictures and video of the incident site.

    ♦ Equipment/materials taken out of service.

    ♦ Documentation provided to the Investigation Team for review.

    ♦ Samples taken from the site for testing and analysis.

  o After the information gathering process is complete, the analysis of the information can begin. Common steps for analysis include:

    ♦ Review incident description/timeline with incident investigation team.

    ♦ Determine error precursors.

    ♦ Determine any HPI tools to implement.

    ♦ Determine any other contributing factors or lessons learned.

    ♦ Determine corrective actions. (Corrective actions are mandatory.)

- Investigation and Corrective Action Reports

  o All formal and informal incident investigations will be led by an incident investigation team lead with assistance from management, supervisors, ESH, and subject matter experts. Once analysis is complete, the investigation team will complete an incident investigation report.

  o An incident investigation report should include a summary of the incident, the investigation findings, root causes, contributing factors, corrective actions, and any lessons learned. Reports for incidents that result in an Occupational Safety and Health Administration (OSHA) recordable must include a discussion on why the incident was considered an OSHA recordable (i.e., the criteria used). When necessary, the report may include attachments containing photographs, flow charts and analysis charts.

  o Upon completion, the original signed incident investigation report must be kept in the incident file.

5.4. Corrective Actions and Lessons Learned

- Any corrective actions identified in the investigation reports will be recorded and tracked until completed. Lessons learned may be communicated to employees either through e-mail, toolbox talks, "All Hands Meetings", or similar communications. Corrective actions are assigned to

specific individuals and tracked to completion. The status of corrective actions is reviewed on a routine basis.

5.5. Incident Recordkeeping

- All reported incidents will have an associated incident file, prepared and maintained by the ESH Department. All paperwork, forms and reports associated with the investigation will be kept in the file, including the ESH-3000-F-001 First Report, the finalized investigation report, and any additional correspondence or hand-written notes. Physical evidence provided at the discretion of the incident investigation team will be retained for one year, then discarded after photos are added to documentation.

- The ESH Representative shall validate that the ESH-3000-F-001 First Report is signed when submitted. If signature(s) are missing, the ESH Representative shall contact the submitter of the form and obtain the proper signature(s).

5.6. Incident Investigations for Non-SDSTA Operational Tasks

- In the event of an incident, contractors shall report the incident in written form to the SDSTA Project Manager or Safety Point of Contact. Contractors are expected to conduct an incident investigation in accordance with their own policies. The investigation should include preparing a written report summarizing the results of the investigation, corrective actions taken to prevent a reoccurrence, and any lessons learned.

- Incidents are to be reported and investigated using the following minimum requirements:

  o Notify the supervisor, work lead, or ESH Department.

  o Seek immediate medical attention for any injury. Onsite advanced first aid capabilities are available through the On-Site Occupational Health Nurse or onsite ERT medical personnel, both of whom may provide immediate care. For extended care purposes, the patient may be required to seek care from an external medical provider.

  o Preserve the area for future investigation if needed.

  o Provide a written initial report before the end of the affected work shift. The initial report may use the ESH-3000-F-001 First Report or another preapproved format, which must contain the following information:

    ♦ Job title of affected person(s).

    ♦ Type of incident.

    ♦ Location of incident.

    ♦ Date and time the incident occurred.

    ♦ Description of incident.

    ♦ Estimated cost of property damage, if known.

    ♦ If an injury/illness, type of medical treatment provided.

  o The SDSTA Director of ESH will determine if the incident category requires a written investigation report containing at a minimum the following elements:

    ♦ Description of the incident, response, and investigation findings.

    ♦ Root cause analysis tool used (if Category 3 or higher).

    ♦ Cause(s) of the incident.

♦ Contributing Factors.

♦ Lessons Learned.

♦ Corrective Actions.

◊ Provide follow-up to ESH Department for any corrective actions that affect future onsite activities.

o Lagging indicators, such as incident rates, will be recorded under the affiliation with the funding status of the project associated with the incident. For example, if a sub-contractor used for multiple onsite projects experiences an injury/illness, it will be recorded under the specific project that was being worked on when the incident occurred. This practice applies to contracted SDSTA employees who perform work for a project in the capacity of a user or contractor.

6.0 Documented Information/Related Documents

6.1. ESH-3000-A-001 Incident Investigation Overview
6.2. ESH-3000-A-002 CA Reporting Requirements
6.3. ESH-3000-A-003 Reportable Incidents and Significant Categories
6.4. ESH-3000-F-001 First Report
6.5. ESH-3000-F-002 Risk-Based Near-Miss Screening Form
6.6. ESH-3000-FD-001 Incident Notification Process Flow Diagram.
6.7. ESH-3000-WI-001 HPI Investigation Process Work Instruction
6.8. ESH-6000-S-003 Emergency Management Standard