



SANFORD UNDERGROUND RESEARCH FACILITY

SOUTH DAKOTA SCIENCE AND TECHNOLOGY AUTHORITY

Work Planning and Control Standard

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Revision History

| Rev | Date | Section | Paragraph | Summary of Change | Authorized by |
|------------|-------------|----------------|--|---|----------------------|
| 04 | 5/29/2024 | 2, 3, 4, & 5 | 2.0, 3.0, 4.0, 5.1 | Simplified the scope, redefined Hazard and Risk Assessment definitions, removed QA/QC from responsibilities, added 4.6.8, added language around tasks involving work permits, removed bullets that are covered in work instructions, logo change | CCR 950 |
| 5 | 1/20/2026 | 4, 5 & 6 | 4.2.1,4.2.5,4.2.7, 4.3.7,4.3.8,4.4.6, 4.5.6,4.6.9,5.1,5.2,6.1.11 | Updated definitions, added language to responsibilities and instructions involving work permits and the Permit Number Tracking Register and Updated document due to change to the document numbering of controlled documents due to the change from DocuShare system to SharePoint system | CCR 1215 |

1.0 Purpose

This standard ensures that safety management systems described herein shall be used to systematically integrate safety into management and work practices while protecting personnel, the public, and the environment at Sanford Underground Research Facility (SURF). Worker safety is paramount.

2.0 Scope

This standard applies to all personnel when conducting non-administrative work on SURF property.

3.0 Definitions

Hazard – A condition, event or circumstance that could lead to, or contribute to, an unplanned or undesirable event. A hazard is the potential for harm. In practical terms, a hazard often is associated with a condition or activity that, if left uncontrolled, can adversely affect personnel, equipment or the environment.

Hazard Analysis (HA) – A process used to assess risk associated with work activities.

- Low Risk HA (LRA) – An informal HA that is either verbal or documented.
- High Risk HA (HRA) – A formal HA that is documented on a Job Hazard Analysis (JHA), or for routine/repetitive work, is documented on a Standard Operating Procedure (SOP).

Hierarchy of Controls – A means of determining how to implement feasible and effective control solutions.

Job Hazard Analysis (JHA) – Formal or informal documented process that focuses on a specific task and describes the standardized method to safely perform it. Typically, a JHA is developed for a single use task.

Job Site Walk Down – A component of a HA, used to evaluate the job site, to identify hazards, controls, and operational considerations.

Permits - A document issued by SDSTA for the purpose of authorizing performance of work based on single-shift or multi-shift durations. This permit contains a set of precautions and reminders to be followed and will be posted for inspection in a visible and accessible location near the work site.

Post-Job Review – A review of the work that has been performed that identifies improvements or conditions that should be recorded for future job planning efforts.

Pre-Job Briefing – Dialogue between those involved in the work which describes the scope of work, procedural steps, roles and responsibilities, and hazards and controls. i.e., Toolbox Talk, pre-shift meeting.

Pre-Use Inspection – An inspection required before the use of any equipment to ensure it is safe to operate.

Risk - Potential to cause harm or damage to a person, property, or the environment.

- Low Risk: General tasks performed on a normal daily basis
- High Risk: Tasks with an elevated potential to cause harm

Risk Assessment – The process of evaluating the risk(s) arising from a hazard(s), taking into account the adequacy of any existing controls, and deciding whether or not the risk(s) is acceptable.

Standard Operating Process (SOP) – Formal documented process that focuses on a specific task and describes the standardized method to safely perform it. Used for routine/repetitive work that focuses on the sequential steps of the task, the associated hazards, and their identified control.

Subject Matter Expert – Someone who, by their experience level, education, training, or background, is uniquely qualified to assess specific hazards and controls.

Workplace Inspection – An examination, required once per shift, of the working place that is completed by a competent person to evaluate conditions that may adversely affect safety and health.

Work Planning and Controls (WPC) – The use of a formal, documented process for identifying and mitigating risks when planning, authorizing, releasing, and performing work.

4.0 Responsibilities

4.1. SURF Laboratory Director

- 4.1.1. Ensures accountability of the requirements of this document with direct reports.

4.2. Environment, Safety, and Health (ESH) Department

- 4.2.1. Provides support in preparation of WPC documents and Permits.
- 4.2.2. Reviews WPC documents.
- 4.2.3. Develops and provides WPC training.
- 4.2.4. Maintains training documentation as required per this standard.
- 4.2.5. Reviews and approves equivalent to non-controlled WPC documents.
- 4.2.6. Issues permit numbers utilizing ESH-2000-WI-005 Permit Number Tracking Register Work Instructions
- 4.2.7. Retains WPC documents

4.3. SDSTA Department Directors

- 4.3.1. Ensure that direct reports are trained to perform the assigned work.
- 4.3.2. Ensure accountability of the requirements of this document with direct reports.
- 4.3.3. Follow QA-QC-(1000-S)-176565 Document Change Control Standard.
- 4.3.4. Identify work activities that require WPC documents.
- 4.3.5. Seek advice from the ESH Department, as needed.
- 4.3.6. Ensure any new or revised JHAs/SOPs are submitted to the ESH Department for review.
- 4.3.7. Provide a list of users to ESH that will use each SOP for training purposes.
- 4.3.8. Ensure all WPC documents are submitted to the ESH Department.

4.4. Project Managers

- 4.4.1. Ensure accountability of the requirements of this document with contractors/subcontractors.

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- 4.4.2.** Ensure that contractors/subcontractors are trained to perform the assigned work, including all equipment and tools, and in the use of WPC.
 - 4.4.3.** Follow the Document Change Control Standard.
 - 4.4.4.** Identify work activities that require WPC documents.
 - 4.4.5.** Seek advice from the ESH Department, as needed.
 - 4.4.6.** Ensure all WPC documents are submitted to the ESH Department.

4.5. Supervisors

- 4.5.1.** Ensure that direct reports are trained to perform the assigned work, including all equipment and tools, and in the use of WPC.
- 4.5.2.** Follow the Document Change Control Standard.
- 4.5.3.** Identify work activities that require WPC documents.
- 4.5.4.** Ensure accountability of the requirements of this document with direct reports.
- 4.5.5.** Seek advice from the ESH Department, as needed.
- 4.5.6.** Ensure all WPC documents are submitted to the ESH Department.

4.6. Workers and Users

- 4.6.1.** Participate in development of the WPC documents.
- 4.6.2.** Review and sign WPC documents prior to start of work.
- 4.6.3.** Complete pre-shift/pre-use inspections as required.
- 4.6.4.** Participate in a pre-job briefing with co-workers who share in the work performance before work begins.
- 4.6.5.** Perform work in accordance with the WPC documents.
- 4.6.6.** Contact your supervisor or ESH Department with any questions on the WPC documents.
- 4.6.7.** Ensure training on applicable equipment and tools is complete and current prior to performing work.
- 4.6.8.** Follow the hierarchy of controls.
- 4.6.9.** Ensure all WPC documents are submitted to the ESH Department.

5.0 Instructions

All work is subject to work planning and control at SURF. All personnel have the right and responsibility not to perform tasks or activities they feel pose undue risk to themselves, co-workers, or the environment. Stop work actions take precedence over all other priorities and procedures. Reference the ESH-2000-S-003 Stop Work Standard.

The Work Planning and Control process involves a Hazard Analysis as described in this section.

5.1. Hazard Analysis Process ESH-2000-FD-001 Hazard Analysis Process Flow Diagram

- Jobsite Walk Down
 - An evaluation of the jobsite shall be conducted from where it can be safely accessed. This evaluation shall be conducted prior to developing the WPC documents to ensure all hazards are identified and addressed.
- Assess Risk

o Risk Level

- ◆ The supervisor and their personnel perform an assessment of the risks in accordance with ESH-2000-A-001 Guidelines for Formal Hazard Analysis.
- ◆ Refer to the ESH-2000-A-002 Risk Matrix for JHAs and SOPs to determine the level of risk.
- ◆ If the task involves two or more of the low-risk general hazards; or one or more high-risk hazards in the Guidelines for Formal Hazard Analysis, a written JHA/SOP shall be completed.
- ◆ If the task is outside the normal duties and responsibilities for your group and involves one or more hazards from the Guidelines for Formal Hazard Analysis, a written JHA/SOP shall be completed.
- ◆ If the task requires a work permit contact an ESH representative for appropriate permit and tracking documentation.
- ◆ The Hierarchy of Controls shall be utilized to maximize the effectiveness of mitigation measures.
 - ◊ Hierarchy of Controls
 - ❖ Controlling exposures to occupational hazards is the fundamental method of protecting workers. Following this hierarchy normally leads to the implementation of inherently safer systems, where the risk of illness or injury has been substantially reduced.
 - ❖ For eliminating hazards and reducing risks, follow the hierarchy of controls as identified:
 - Elimination
 - Substitution
 - Engineering controls
 - Administrative controls (e.g., Training)
 - Use of Personal Protective Equipment (PPE)

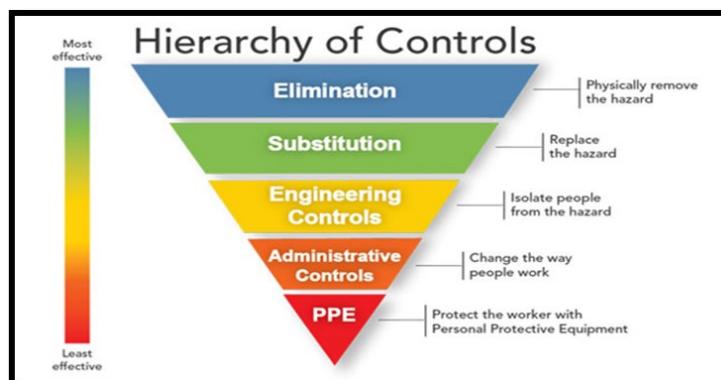


Figure 1: Hierarchy of Controls

- JHA/SOP
 - o ESH-2000-F-002 Job Hazard Analysis Form
 - ◆ Follow ESH-2000-WI-003 Creating and Revising Job Hazard Analysis

- o IMS-T-752-009 SDSTA Standard Operation Process Template
 - ◆ Follow ESH-2000-WI-004 Creating-Revising-Approving Standard Operating Process
- o External JHA/SOP or Toolbox Talk formats from non-SDSTA organizations are allowed, provided the above elements are sufficiently addressed and acceptable to SDSTA.
 - ◆ Approved external WPC documents are not subject to the Document Change Control Standard.
- o If a written JHA or SOP exists, it must be reviewed and revised as appropriate for current jobsite conditions and to incorporate previous work experience and lessons learned prior to the commencement of work.
- Pre-Job Briefing
 - o In all cases, a pre-job briefing is required.
 - o The individuals performing the job shall discuss the work plan to ensure everyone is aware of how the job will proceed including the hazards, training and equipment involved. This requires a review of the JHA/SOP and any other documents specific to the work.
 - ◆ For low-risk tasks not requiring a written JHA/SOP, the pre-job briefing may be a verbal exchange or documented on the LRA.
 - ◆ For high-risk tasks that require a written JHA/SOP, an ESH-2000-F-003 Toolbox Talk or an equivalent formal pre-job briefing, is required at the beginning of shift.
 - ◊ To complete a Toolbox Talk form follow instructions in accordance to ESH-2000-WI-002 Completing Toolbox Talk.
 - ◊ Applicable JHA/SOP shall be referenced on the Toolbox Talk Form for the work being performed.
 - ◊ All who participate in the pre-job briefing will document the review by signing the Toolbox Talk Form. This will release the work to be performed.
- Begin Work
 - o WPC documents shall be readily available in the work area to those performing the work.
 - o Anyone entering the worksite must be informed of the hazards prior to entering the work area.
 - o Complete pre-shift/pre-use inspections as required.
 - o Work activity shall stop immediately if:
 - ◆ There is a change in the work scope.
 - ◆ Work conditions change.
 - ◆ New hazards are identified.
 - ◆ The controls prove inadequate or ineffective.
 - o If any of the above occur, changes or potential hazards shall be reviewed with affected personnel.
 - ◆ If a revision or modification occurs, follow:
 - ◊ ESH-2000-WI-003 Creating and Revising Job Hazard Analysis Work Instruction
 - ◊ ESH-2000-WI-004 Creating-Revising-Approving Standard Operating Process Work Instruction

- o Emergency situations requiring immediate deviations from a JHA/SOP still require a hazard analysis before work is performed. Though that analysis may be verbal, the principle is to keep all participants aware of the situation and to provide a reasoned collaborative approach. When the situation is no longer emergent, the analysis will be documented.
- End of Work
 - o Work area shall be secured and free of hazards.
 - o Work planning documents (e.g., permits, toolbox talks, and JHAs) shall be submitted to the ESH department for retention.
- Post-Job Review
 - o Evaluate all lessons learned, including positive lessons learned, and incorporate into future work activities or WPC documents as appropriate.

5.2. WPC Record Retention

- All WPC documents will be retained by the ESH department for minimum of one year. SOPs are controlled by the QA/QC-1000-S-001 Document Change Control Standard.
- Contractor JHA records are not required to be retained by SDSTA.
- Training records for SOPs will be retained within the Learning Management System. The acknowledgement of training for JHAs is indicated by signing the signature page.
- WPC permits are tracked using the ESH-1000-R-001 Permit Number Tracking
 - o Confined Space Permits will be retained per the ESH-4000-S-002 Confined Spaces Standard.

6.0 Documented Information/Related Document

- 6.1.1.** IMS-T-752-009 SDSTA Standard Operation Process Template
- 6.1.2.** ESH-2000-S-003 Stop Work Standard
- 6.1.3.** ESH-2000-WI-002 Completing Toolbox Talk
- 6.1.4.** ESH-2000-WI-003 Creating and Revising Job Hazard Analysis
- 6.1.5.** ESH-2000-WI-004 Creating-Revising-Approving Standard Operating Process
- 6.1.6.** ESH-(2000-WI)-005 Permit Number Tracking  Register Work Instruction
- 6.1.7.** ESH-2000-F-002 Job Hazard Analysis Form
- 6.1.8.** ESH-2000-F-003 Toolbox Talk Form
- 6.1.9.** ESH-2000-FD-001 Hazard Analysis Process Flow Diagram
- 6.1.10.** ESH-2000-A-001 Guidelines for Formal Hazard Analysis
- 6.1.11.** ESH-2000-A-002 Risk Matrix for JHAs and SOPs
- 6.1.12.** ESH-1000-R-001 Permit Number Tracking
- 6.1.13.** ESH-4000-S-002 Confined Spaces Standard
- 6.1.14.** QA/QC-1000-S-001 Document Change Control Standard