



SANFORD UNDERGROUND RESEARCH FACILITY

SOUTH DAKOTA SCIENCE AND TECHNOLOGY AUTHORITY

Severe Weather Management Standard

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Revision History

Rev	Date	Section	Paragraph	Summary of Change	Authorized by
03	5/29/2024	NA	NA	First Report title change	CCR 947
04	1/22/25	3, 4, 5, 6	4.1, 4.2, 4.4, 4.6, 5.1, 5.2, 6.1	Content changes per annual review	CCR 1063

1.0 Purpose

This document describes the processes to be implemented when severe weather is approaching or present at Sanford Underground Research Facility (SURF) to ensure that risks associated with severe weather to personnel and infrastructure are managed to the lowest practicable level.

SDSTA complies with the following:

- <https://www.weather.gov/safety>
- https://www.osha.gov/dts/weather/winter_weather/windchill.html
- <https://www.nfpa-780-m.4.2>
- <https://www.nfpa-780-34> Standard 8: Protection of Structure Housing of Explosive Materials 8.1.3 (1,2)
- SDSTA-(Manual)-187303 SDSTA Policy and Policy-Procedure Manual

2.0 Scope

This document applies to all personnel when present on SURF property who may be impacted by severe weather.

3.0 Definitions

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

Severe Weather – Any dangerous meteorological phenomenon with the potential to cause damage, serious social disruption or loss of human life.

Suspend – To temporarily pause an activity.

Trigger Action Response Plan (TARP) – A predetermined list of controls aligned with escalating levels of risk.

4.0 Responsibilities

4.1. SURF Laboratory Director

- 4.1.1. Ensures accountability of the requirements of this document with direct reports.
- 4.1.2. Approves and issues formal communication needs.
- 4.1.3. Supports communication efforts.

4.2. Department Directors

- 4.2.1. Follows all requirements as specified in this standard.
- 4.2.2. Ensures direct reports and departmental staff follow the requirements as specified in this Standard.
- 4.2.3. Assists with environmental inspections as requested.

4.3. Director of Surface Operations and Utilities

- 4.3.1.** Ensures response equipment and resources are properly maintained for severe weather events.

4.4. Environment Safety & Health (ESH) Department

- 4.4.1.** Ensures direct reports and departmental staff follow the requirements as specified in this standard.
- 4.4.2.** Develops and implements training requirements.
- 4.4.3.** Coordinates with the SURF Laboratory Director and the Director of Communications on formal communication requirements.
- 4.4.4.** Reviews and revises the standard for compliance with applicable regulations.
- 4.4.5.** Complete inspections per the ESH-(8000-A)-209187 Stormwater Pollution Prevention Plan.

4.5. Director of Communications

- 4.5.1.** Coordinates with the SURF Laboratory Director and the Director of ESH on formal communication requirements.

4.6. Emergency Response Team (ERT)

- 4.6.1.** Notifies affected personnel of severe weather alerts in coordination with the Duty Officer.
- 4.6.2.** Responds to severe weather events as necessary.
- 4.6.3.** Assists with environmental inspections as requested.

5.0 Instructions

SDSTA utilizes TARPs that are designed to provide a proactive and consistent approach to protecting personnel and property in the event of severe weather.

The TARPs utilize three color-coded alert phases to address escalating and de-escalating levels of risk that include pre-determined trigger points that are assigned a corresponding response associated with each color. The alert shall be cancelled once the threat no longer exists.

Color categories are comprised of blue, yellow and red, with blue being the least serious and red being the most serious. Events can be initiated within any color category and can escalate or de-escalate depending on the severity. Specific responses for surface and underground are listed within each escalating level of risk category and are described in ESH-(6000-A)-219630 Severe Weather TARPs.

5.1. Severe Weather TARPs

- Air Quality
 - Allergens
 - Dust Storms
 - Fog
 - Smoke
- Cold Temperatures
 - Ice Storms
 - Snow/Blizzard
- Heat Index

- High Wind
- Lightning
- Thunderstorms
 - Hail
 - Heavy Rains
- Tornado
- Visibility
 - Dust Storms
 - Fog
 - Rain
 - Smoke
 - Snow/Blizzard
 - Wind

TARPS may interact with each other for a comprehensive response plan. For example, if a severe weather event is a blizzard, its components can be found in the cold temperatures and visibility TARPs. Multiple TARPs may be utilized during severe weather event(s), in this case, the most stringent controls will be utilized.

Severe weather events shall be considered during work planning. Refer to ESH-(2000-S)-73320 Work Planning and Control Standard for appropriate documents for work planning.

5.2. Training

- Personnel shall be provided with training in Severe Weather Management, including:
 - General Safety Basic Training: SDSTA employees, researchers, and contractors, who meet the training requirement, shall complete this training as part of General Safety Basic Training.
 - Annual Refresher Training: SDSTA employees and researchers shall complete this training as part of the Annual Refresher Training.

6.0 Documented Information/Related Document

- 6.1.** ESH-(6000-A)-219630 Severe Weather TARPs.
- 6.2.** ESH-(5000-S)-73375 Explosive Material Management Standard
- 6.3.** ESH-(3000-F)-173324 First Report
- 6.4.** ESH-(2000-S)-73320 Work Planning and Control Standard
- 6.5.** ESH-(8000-A)-209187 Stormwater Pollution Prevention Plan
- 6.6.** <https://www.AirNow.gov>