



# SANFORD UNDERGROUND RESEARCH FACILITY

**SOUTH DAKOTA SCIENCE AND TECHNOLOGY AUTHORITY**

## **Experiment Integration & Support**

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## **Revision History**

<b>Rev</b>	<b>Date</b>	<b>Section</b>	<b>Paragraph</b>	<b>Summary of Change</b>	<b>Authorized by</b>
01	9/6/2022	NA	NA	Initial Release	CCR 603
02	11/8/2022	2, 4, 5 & 6	2.0, 4.2.3, 4.4.1, 4.4.2, 4.4.3, 4.7.2, 4.7.3, 5.1.1, 5.1.2, 5.2.1, 5.2.2, 5.2.3 & 6.1-6.10	Clarifying Scope; Consolidate and modify Laboratory Coordinator responsibilities; Expand Director of Engineering responsibilities; Clarify General Support; Adding Machining Services; Adding reference to SURF Portal, site-specific training, ESH Manual webpage, First Report and Incident Investigation form and Emergency Management Standard; Clarify Experiment Point of Contact role; Include reference to User Association and Customer Satisfaction; Additional Related Documents, change order of listing;	CCR 642
03	12/19/2023	5 & 6	5.2.1, 5.2.2, 5.2.4 & 6.1- 6.16	Consolidate Attachment A and B; Reference IMS documents where applicable; Clarifications on Facility Access, SARF, Guide Training, Emergency Access; Clarification on Shipping, Work Planning and Shift reporting: Updating IT section	CCR 878
04	5/29/2024	NA	NA	Update Logo	CCR 946
05	6/25/2024	5 & 6	5.2.2 & 6.8	Update First Report and Incident Management information	CCR 962

## 1.0 Purpose

In partnership with research groups, the South Dakota Science and Technology Authority (SDSTA) aims to maintain a robust organization with resources to promote safe and successful experiment operations at the Sanford Underground Research Facility (SURF).

## 2.0 Scope

This document describes integration and support elements that apply to all experiments at SURF. It further summarizes SDSTA responsibilities regarding facilities and infrastructure necessary to conduct science at SURF.

## 3.0 Definitions

NA – Define the term this is specific for this document.

## 4.0 Responsibilities

### 4.1. SURF Laboratory Director

- 4.1.1. Allocates SDSTA resources from all departments to support experiments and associated facilities.

### 4.2. Director of Science

- 4.2.1. Manages the Experiment Implementation Program (see Section 6.1) including overall responsibility for support of experiments.
- 4.2.2. Assigns an individual to act as the Experiment Point of Contact (EPOC) for each experiment.
- 4.2.3. Assigns individuals to act as Laboratory Coordinator (LC).

### 4.3. Experiment Point of Contact (EPOC)

- 4.3.1. Member of the Science Department who assists with navigation of the Experiment Implementation Program (see Section 6.1), reviews project implementation documentation (Experiment Planning Statement, Hazard Assessments, inventories, etc.), reviews and approves procedures, and reviews documentation supporting authorization requests.
- 4.3.2. The EPOC acts in a coordination role for other SDSTA resources (e.g., marshalling necessary support from other departments as needed).

### 4.4. Laboratory Coordinator (LC)

- 4.4.1. SDSTA personnel designated by the Director of Science to act in a coordination role to communicate key information, facilitate access to facility resources, perform safety oversight for experiment personnel and activities and ensures site-specific orientation training as appropriate. LC observations are documented and may involve compiling some notes from others.
- 4.4.2. LCs are certified as a Facility Guide and are familiar with SDSTA emergency procedures, including emergency communication equipment and operation of underground refuge chambers. LCs may assume the role of Lead Guide and act in a leadership role in the event of an emergency or evacuation.

- 4.4.3.** The LC may perform other duties associated to their SDSTA position, but activities that require significant attention for sustained periods may require that the LC role be re-assigned.
- 4.5.** Director of Environment, Safety & Health (ESH)
  - 4.5.1.** Ensures ESH resources for supporting experiments, nominally through the Radiation/Experiment Health & Safety Manager position.
  - 4.5.2.** Ensures technical and maintenance support for safety systems in facilities used by experiments.
- 4.6.** Radiation/Experiment Health & Safety Manager
  - 4.6.1.** Main ESH resource supporting experiments, reviews experiment implementation documentation (Experiment Planning Statement, Hazard Assessments, etc.), reviews and approves procedures.
- 4.7.** Director of Engineering
  - 4.7.1.** Ensures engineering support for the operation of laboratory facilities.
  - 4.7.2.** Ensures engineering support for technical assessments.
  - 4.7.3.** Ensures nominal level of engineering assistance to experiments for installation planning, and support for integration with the facility.
- 4.8.** Director of Information Technology
  - 4.8.1.** Manages the deployment, monitoring, maintenance, purchasing and support of all IT systems at SURF.
- 4.9.** Director of Surface Operations & Utilities
  - 4.9.1.** Ensures technical and maintenance support for facilities used by experiments, including the following systems: alarm systems, building management systems, fire suppression systems. Manages Facilities Technician(s) support of laboratory facilities and specific experiment activities.
- 4.10.** Director of Underground Operations
  - 4.10.1.** Ensures technical support for underground infrastructure maintenance and transportation of experiment personnel and equipment. Evaluates proposed locations for experiments. Manages Infrastructure Technician(s) support in areas approved for experiment access.
- 4.11.** Director of Hoists & Shafts
  - 4.11.1.** Ensures safe access to underground areas and coordinates access schedules, maintenance activities and construction efforts related to SURF hoists and shafts.
  - 4.11.2.** Approves and coordinates advance non-standard access requests (e.g., access on maintenance days/weekends, special cage times).
- 4.12.** Duty Officer
  - 4.12.1.** Approves and coordinates emergency access requests.

## 5.0 Instructions

- 5.1.** Experiment Support
  - 5.1.1.** General Support
    - Under the DOE Cooperative Agreement, SDSTA manages and operates SURF and provides basic support to all users of the facility, based on DOE guidelines (see Section 6.12):

- Provision of useable underground space that includes ventilation, power, water pumping.
- Volume of underground space should be appropriate to scientific need.
- Access to the underground for the installation, operation, decommissioning of experiments.
- Communication and networking services.
- Scientific and engineering liaison with users needed to help them meet the unique environment of SURF.
- Provision of usable above ground laboratory and setup space to prepare experiments.
- Needs beyond basic support are billed to experiments on a cost-recovery basis (via contract or General Services Agreement).
- A detailed list of general services is available in SCI-(1000-A)-189372 Experiment Integration & Support Attachment (see Section 6.3).
- Full cost recovery is required for proprietary experiments (those that do not publish results in open-access scientific journals). A fee structure based on the annual SDSTA budget (surface / UG) relative to non-proprietary researcher access and space footprints is updated annually and communicated via a contract or General Services Agreement:
  - Project access (per experiment person, per hour, based on location)
  - SDSTA personnel acting on behalf of a project (per SDSTA person, per hour)
  - Space occupancy and operations (monthly, based on annual budget and location)
- Some experiments will operate equipment in an unattended mode without having personnel onsite, and in those cases, cost recovery will be based on space occupancy and specific support by SDSTA personnel. Other experiments will not install equipment, in which case cost recovery will be based on access and specific support by SDSTA personnel.
- Each experiment will nominally receive support from Science, ESH, Engineering and Operations for the installation, operation and decommissioning of experiments. Specific personnel assignments for various science facilities (including surface and underground locations) and science experiments are managed within individual departments.

#### **5.1.2. Machining Services**

- The SURF Machine Shop is located at the Rounds Operation Center and provides personnel and tools for basic fabrication jobs on site. These include drill press, band and cold cut saws, punching tools and basic plasma cutting and MIG welding. A detailed list of equipment and capabilities is available, and inquiries can be made to the Director of Surface Operations & Utilities or Deputy.

### **5.2. Experiment Integration**

Several resources are involved in integrating an experiment and its associated personnel into SDSTA operations and for maintaining and sustaining a strong relationship throughout the lifetime of the experiment. The Science Department maintains an internal website collecting information and links relevant for researchers regarding safety, communications, logistics and templates required for experiment integration at SURF, see Section 6.12.

#### **5.2.1. Facility Access**

- General
  - Facility Access requirements are defined by ESH-(1000-S)-73189 Facility Access Standard (see Section 6.4).
  - Internal Forms are available to gather basic personal information, sign-up for scheduled training classes and to receive Information Technology (IT) accounts (e.g., SURF Access Request Form (SARF), accessible via SURF Project Wide Applications (SURF Portal, see Section 6.13)). All SURF Users require training in accordance with

ESH-(12000-S)-73354 ESH Training Standard (see Section 6.5), which determines the level of access approved. E.g., once experiment personnel complete the “General Safety – Basic” training class, they are eligible to be issued a personal facility access badge with appropriate access permissions. Additional job-task or site-specific training and annual refresher training is required.

- Underground Access
  - SDSTA nominally offers access to the underground for Users via the Yates Shaft or the Ross Shaft and can accommodate 24-hour access as requested and availabilities allow. Cage schedules are maintained indicating specific times when experiment personnel can go down or up. Personnel and materials are transported via the Yates Shaft with limited availability via the Ross Shaft. Restrictions or changes to underground access or material transports, due to maintenance activities and construction efforts may occur. These changes will be communicated to and coordinated with affected experiment personnel.
- Facility Guides
  - Enhanced emergency response training is available to enable experiment personnel to be authorized as a Facility Guide, as outlined in the ESH-(1000-S)-79248 Guide and Guide Training Standard (see Section 6.6). This training allows groups additional scheduling flexibility, especially for facility holidays or non-standard shifts
- Emergency (Non-Standard) Access
  - SDSTA recognizes that conditions may arise requiring non-standard access to experiment equipment, and processes have been developed to accommodate experiment personnel. See ESH-(1000-S)-73189 Facility Access Standard, Section 6.4, for details.

### 5.2.2. Planning and Communication

- Shipping and Transport
  - SDSTA receives materials for many groups from many vendors. Guidelines for shipping materials to SURF are available (see Shipping Instructions listed in 6.12) and an online tool is available for scheduling transport underground (see Yates Manifest via SURF Portal (see Section 6.13)). For experiments with a significant amount of equipment (several pallets or more), a manifest is required with detailed information on equipment arriving at the SURF including a description of items, manufacturer/ supplier information, quantities, masses and dimensions of items and transport containers (pallet, crate, etc.); a manifest template is available (listed in 6.12). A dedicated form has been developed for high-value items to ensure expectations for both experiment and facility personnel are identified (listed in 6.12). Manuals for equipment used onsite are expected to be available.
- Work Planning
  - Details of experiment activities need to be communicated to SDSTA, including the proposed location(s), cage times, personnel names, work procedures, materials and any facility support that is required to accomplish the work. A daily work plan is required (template listed in 6.12), and used by SDSTA personnel to approve a trip and to enter the relevant details in the online Trip Action Plan database (TAP) available via the SURF Portal (see Section 6.13). Specific representatives from some experiment groups may interact directly with the TAP database. Changes to experiment activities will be updated in the TAP database as they are known. Experiment representatives will regularly review the status of personnel training and institutional insurance that are required to perform work on SURF property and regularly ensure the various inventories are up to date on an ongoing basis. Experiment personnel will conduct and document pre-job briefings for work involving approved procedures (see ESH-(2000-S)-73320 Work Planning and Control Standard (see Section 6.7). An experiment representative (e.g., Lead Researcher) releases the work to a specific crew

on a specific day (i.e., the experiment representative gives specific permission to perform authorized work).

- Shift Reports
  - Each experiment group will document their activities after completion of a shift according to the shift report template (listed in 6.12). In particular, the shift report includes a summary of the experiment activities, any comments, recommendations, irregularities, near-misses, or incidents. Recording acts of safety is strongly encouraged. The personnel hours recorded in the experiment shift reports are compiled by the SDSTA and serve several purposes, including safety statistics.
- Incident Reports
  - Injuries or significant operational upsets qualify as an incident and must be reported to the SDSTA using ESH-(3000-F)-173324 First Report form (see Section 6.8). All incidents, including injuries or unusual occurrences such as significant equipment failures, must be reported verbally to SDSTA personnel. Injuries must be evaluated before a worker can return to work. Failure to report an injury in a timely manner may jeopardize the processing of any associated Workers' Compensation claims. SDSTA personnel will assist with investigations as necessary. Summary details from relevant facility or other experiment incidents will be shared with experiment personnel.
- Evacuation Drills
  - SDSTA is committed to conducting regular evacuation drills that involve facility staff and experiment personnel. SDSTA recognizes that it is important to minimize the impact these drills have on experiment activities and in particular the Laboratory does not want to compromise valuable progress and/or equipment. Guidelines for conducting evacuation drills are outlined in the ESH-(6000-S)-185207 Emergency Management Standard (see Section 6.9).

### 5.2.3. Science Integration

- Project Mailing List
  - A project mailing list called "Project Team" is intended as a way of communicating information on various general topics to all SURF stakeholders. Experiment personnel who regularly visit the SURF site are encouraged to register; instructions are listed in Section 6.12.
- Science Integration Meeting
  - Regular meetings are held between facility representatives (including representatives from Science, Operations, ESH and management) and representatives from the main experiment groups to discuss both facility and experiment logistics items. Key elements from recent shift reports are shared with the group; the experiment representatives are expected to communicate important items with their respective collaborations.
- Laboratory Coordinator
  - Laboratory Coordinators (LCs) are present on a regular basis at facilities where the activities of one group may impact another group such as at the main underground campuses. To that end, the LC facilitates a daily coordination meeting to discuss activities and logistics for the day, including identifying requests for specific resources (e.g., common space, staff such as Facilities Technicians, etc.).
  - LC perform workspace walkthrough inspections and post shift reports including observations and suggestions, as well as notes from the custodians and facility technicians.
  - Update personnel accounting tools (TAP, whiteboards, etc.) as appropriate.
  - Coordinate and conduct informal table-top evacuation exercises as appropriate.
- Experiment Point of Contact



- The Experiment Point of Contact assists with navigation of the Experiment Implementation Program (see Section 6.1) and can help identify points of contact within other SDSTA departments as needed (ESH, Operations, etc.). The nominal ESH point of contact for experiment groups is the Radiation/Experiment Health & Safety Manager; however other ESH resources may be required.
- Management Meetings
  - Regular meetings are held between facility management (including the SDSTA Director of Science, the SURF Laboratory Director and SDSTA Executive Director) and experiment management/PIs for the main experiment groups to identify and resolve any critical issues that arise.
- User Association
  - An organization intended to serve SURF researchers and the wider underground science community. The User Association provides an avenue for two-way communication on topics important to researchers, promotes a sense of community, and articulates and promotes the scientific case for underground science (see Section 6.10).
- User Surveys
  - A survey will be conducted on a regular basis (nominally annually) in which experiment personnel participating in activities at SURF are polled on their perceptions of experiment support, among other topics (see Section 6.1).
  - The User Association may also conduct user surveys.

#### 5.2.4. Information Technology

- Science Services and Support
  - The SDSTA IT department has developed a plan for IT services and support, see Section 6.10, including an overview of the SURF IT network and a process for troubleshooting issues.

## 6.0 Documented Information/Related Documents

- 6.1. IMSM-(P-912)-173277 Customer Satisfaction
- 6.2. SCI-(1000-S)-34478 Experiment Implementation Program
- 6.3. SCI-(1000-A)-189372 Experiment Integration & Support Attachment
- 6.4. ESH-(1000-S)-73189 Facility Access Standard
- 6.5. ESH-(12000-S)-73354 ESH Training Standard
- 6.6. ESH-(1000-S)-79248 Guide and Guide Training Standard
- 6.7. ESH-(2000-S)-73320 Work Planning and Control Standard
- 6.8. ESH-(3000-F)-173324 First Report
- 6.9. ESH-(6000-S)-185207 Emergency Management Standard
- 6.10. IT-(4000-S)-208927 Information Technology Science Services and Support Plan
- 6.11. SURF User Association: <https://www.sanfordlab.org/researchers/surfuserassociation>
- 6.12. DOE Office of Science User Facility Definition – <https://sc.osti.gov/User-Facilities/Policies-and-Processes/Definition>
- 6.13. SURF Project Wide Applications (SURF Portal): <https://portal.sanfordlab.net> (access account required)
- 6.14. Information for Researchers: <https://docs.sanfordlab.org/docushare/dsweb/View/Wiki-272>

SDSTA will provide the general services listed below to all experiments, subject to the availability of funding. As indicated in the Standard, full cost recovery is required for proprietary groups. Special services may be documented separately in a Service Agreement.

1. General	SDSTA	Experiment
General Facility	<ul style="list-style-type: none"> <li>• For all phases of an Experiment, maintain safe access, including ventilation and dewatering (and associated utilities) as appropriate.</li> </ul>	
Support	<ul style="list-style-type: none"> <li>• Nominal level of engineering, scientific and operations support for Experiment implementation.</li> </ul>	<ul style="list-style-type: none"> <li>• Costs for dedicated use of SDSTA staff.</li> </ul>
Communication Equipment	Equipment, maintenance, costs, and management of nominal needs for: <ul style="list-style-type: none"> <li>• Network switches.</li> <li>• Standard VoIP phones and similar devices.</li> <li>• Wireless access point(s).</li> </ul>	<ul style="list-style-type: none"> <li>• Costs for IT equipment above nominal level provided by SDSTA.</li> <li>• Intercom system(s).</li> <li>• Conferencing phones or systems.</li> <li>• Internal cabling from Experiment equipment.</li> </ul>
IT Resources	<ul style="list-style-type: none"> <li>• Space in environmentally controlled room for Experiment-maintained equipment.</li> <li>• Some training.</li> </ul>	<ul style="list-style-type: none"> <li>• Rack: equipment including rails, installation including any electrical costs.</li> <li>• All cabling including ethernet.</li> <li>• All CPUs and primary storage.</li> <li>• All uninterruptable power supplies.</li> <li>• Backup system: media, quality assurance, restorations.</li> <li>• Experiment system maintenance, including security patches.</li> </ul>
Electrical Equipment	<ul style="list-style-type: none"> <li>• Perform inspections of electrical equipment.</li> <li>• Some training.</li> </ul>	<ul style="list-style-type: none"> <li>• Costs associated with receiving or shipping.</li> <li>• Coordination with SDSTA regarding shipping/receiving and inspections of any electrical items.</li> <li>• Some training, as appropriate.</li> </ul>
Chemical/Hazardous Waste	<ul style="list-style-type: none"> <li>• Transportation and disposal arrangements.</li> <li>• Reporting to State.</li> <li>• Waste containers. Transportation vehicles.</li> <li>• ESH oversight and some training.</li> </ul>	<ul style="list-style-type: none"> <li>• Waste handling equipment, storage, and disposal costs.</li> <li>• Coordination with SDSTA regarding shipping/receiving and inspections of any chemicals.</li> <li>• Some training, as appropriate.</li> </ul>
Industrial Hygiene	<ul style="list-style-type: none"> <li>• Monitoring and equipment that can be provided by SDSTA, as available.</li> <li>• ESH oversight.</li> </ul>	<ul style="list-style-type: none"> <li>• Costs for services and equipment beyond what the SDSTA can provide.</li> </ul>

Cranes, Hoists and Rigging	<ul style="list-style-type: none"> <li>• Maintenance for SDSTA equipment at SURF. Maintenance for Experiment equipment that can be provided by SDSTA staff.</li> <li>• Inspections per ESH Manual (certified inspector).</li> <li>• Some rigging as needed on a temporary basis that can be provided by SDSTA.</li> <li>• ESH oversight and some training.</li> </ul>	<ul style="list-style-type: none"> <li>• Costs associated with Experiment equipment.</li> <li>• Rigging not covered by SDSTA operations as appropriate.</li> <li>• Inspections per ESH Manual (operator).</li> <li>• Any specialized equipment required for the Experiment.</li> </ul>
Pressure Systems	<ul style="list-style-type: none"> <li>• Manage regular pressure vessel inspections.</li> <li>• ESH oversight.</li> </ul>	<ul style="list-style-type: none"> <li>• Costs for Experiment pressure vessel inspections beyond regular schedule.</li> <li>• Some training, as appropriate</li> </ul>
Gases & Cryogenes	<ul style="list-style-type: none"> <li>• Delivery/supply arrangements for all gases/cryogenes.</li> <li>• Transportation to designated area, including any special transport vehicle(s).</li> <li>• ESH oversight and some training.</li> </ul>	<ul style="list-style-type: none"> <li>• All regulators, flow, monitoring devices, distribution equipment and carts for movement in designated areas.</li> <li>• Liquid nitrogen: all consumption, storage, and distribution system costs.</li> <li>• All non-liquid nitrogen gases, cryogenes, including dewar/cylinder rental costs.</li> <li>• Some training, as appropriate</li> </ul>
Radioactive Sources and Equipment	<ul style="list-style-type: none"> <li>• Access to exempt sources owned by SDSTA (as available).</li> <li>• Storage</li> <li>• ESH oversight, including approving Radiation and/or Authorized Users.</li> <li>• Basic regulatory monitoring equipment.</li> <li>• Training</li> </ul>	<ul style="list-style-type: none"> <li>• Costs associated with receiving or shipping radioactive sources.</li> <li>• Required sources and any deployment equipment.</li> <li>• Coordination with SDSTA RSO on shipping/receiving of any radioactive materials.</li> </ul>
Radiation Dosimetry	<ul style="list-style-type: none"> <li>• Coordination and management of program, including initial setup and ongoing shipping costs for all badges.</li> <li>• Notification for all program participants.</li> <li>• Costs for processing SDSTA personnel badges.</li> </ul>	<ul style="list-style-type: none"> <li>• Enrollment per the SDSTA program.</li> <li>• Costs for processing Experiment personnel badges as authorized by Experiment.</li> <li>• Costs for processing Experiment laboratory area badges per agreement between Experiment and SDSTA RSO.</li> <li>• Costs and maintenance of any other personal radiation monitors.</li> </ul>
Reviews	<ul style="list-style-type: none"> <li>• Time &amp; effort, travel expenses for SDSTA personnel for some reviews.</li> </ul>	<ul style="list-style-type: none"> <li>• Expenses for non-SDSTA personnel.</li> </ul>
General Staging, Preparation & Storage (Surface)	<ul style="list-style-type: none"> <li>• Receiving, shipping.</li> <li>• Approval for heated/cold staging, preparation &amp; storage of equipment and materials as appropriate and as space available.</li> </ul>	<ul style="list-style-type: none"> <li>• Costs, packing.</li> <li>• Coordination and advance information on all shipments.</li> <li>• Request approval for staging, preparation &amp; storage space.</li> </ul>
General Staging, Preparation & Storage (Underground)	<ul style="list-style-type: none"> <li>• Receiving (some), shipping arrangements.</li> <li>• Approval for staging, preparation &amp; storage of equipment and materials as appropriate and as space available.</li> <li>• Maintenance of space.</li> </ul>	<ul style="list-style-type: none"> <li>• Costs, packing, specialized storage (except as noted), including maintenance.</li> <li>• Provide advance information on all shipments.</li> <li>• Request approval for storage.</li> </ul>

General Transportation	<ul style="list-style-type: none"> <li>Shipping arrangements to designated areas using existing transport vehicles.</li> <li>Regulatory shipping guidance and preparations that can be provided by SDSTA staff.</li> </ul>	<ul style="list-style-type: none"> <li>Packing (with regulatory exceptions).</li> <li>Specialized transport vehicles (except as noted).</li> <li>Provide advance information on all incoming and outgoing shipments.</li> <li>Costs associated with shipping goods.</li> </ul>
Procurement	<ul style="list-style-type: none"> <li>As appropriate and as requested (subject to overhead).</li> </ul>	<ul style="list-style-type: none"> <li>Approved by Experiment PI or designee.</li> </ul>
Security	<ul style="list-style-type: none"> <li>System maintenance and access management.</li> </ul>	<ul style="list-style-type: none"> <li>Compliance with SDSTA access requirements and ensuring personnel status updated.</li> </ul>
Emergency Support	<ul style="list-style-type: none"> <li>Emergency Response Team (ERT) staffing for 24-hour coverage.</li> <li>Refuge Chamber: equipment, training and capacity, as appropriate.</li> <li>Standby power (diesel generator) for fire and life safety, as appropriate</li> </ul>	
PPE	<p>Equipment, maintenance, and training as appropriate for:</p> <ul style="list-style-type: none"> <li>General underground PPE: cap lamp, hard hat (with cap lamp mounting hardware as required), non-prescription safety glasses with side shields, coveralls, utility belt or small backpack.</li> <li>Clean PPE: Hard hat (with cap lamp mounting hardware as required).</li> <li>Self-rescuer.</li> <li>Self-contained self-rescuer.</li> <li>Fall arrest and fall restraint equipment.</li> <li>Some specialized PPE (e.g., COVID-19, LBNF construction): Surgical face mask, face shield, gloves, respirator and filters (as available).</li> <li>Respirator fit tests and medical evaluations as requested (with employer equivalence memo).</li> </ul>	<ul style="list-style-type: none"> <li>Compliance with SDSTA PPE policy and inventory control system.</li> <li>General underground PPE: safety-toe footwear, prescription safety glasses with side shields.</li> <li>Clean PPE: all except items provided by SDSTA, including safety-toe footwear.</li> <li>Self-rescuer: compliance with monitoring program.</li> <li>Specialized cleanroom PPE: All, including dedicated hard hats for Experiment-specific clean spaces as necessary.</li> <li>Costs for enrolling Experiment members in SDSTA prescription glasses program.</li> <li>Specialized PPE beyond what SDSTA requires and can provide.</li> </ul>

<b>2. Research Areas – Surface or Underground (as appropriate)</b>	<b>SDSTA</b>	<b>Experiment</b>
Facility	<ul style="list-style-type: none"> <li>• Maintain safe access, inspections of general Experiment area.</li> <li>• Interfacing of Experiment equipment to the facility as possible.</li> <li>• Maintenance and common facility AHU filters.</li> <li>• Common facility equipment (some ladders, pallet jack).</li> <li>• Common clean laboratory supplies (tacky mats, some boot covers).</li> <li>• Assistance with installation that can be provided by SDSTA staff at a nominal level.</li> <li>• Maintain stable HVAC conditions within Experiment spaces (differential pressure, cleanliness, temperature, relative humidity). Notification of related issues.</li> <li>• Notification of pending work, disruptions, or personnel changes due to construction and installation of neighboring experiments.</li> <li>• Pest control.</li> </ul>	<ul style="list-style-type: none"> <li>• Costs for interfacing Experiment equipment to the facility, including labor if not provided by SDSTA.</li> <li>• Adequate notification of needs for SDSTA personnel.</li> <li>• Clean laboratory supplies as part of Experiment-specific cleanliness protocols.</li> <li>• Any capital improvements or specialized equipment.</li> <li>• Filters for any Experiment-purchased equipment.</li> </ul>
Safety Systems and Equipment	<ul style="list-style-type: none"> <li>• Fire suppression: manage maintenance and inspections.</li> <li>• Safety shower: manage testing, maintenance.</li> <li>• Eye wash stations: manage testing, maintenance.</li> <li>• Fire extinguishers: equipment, maintenance, inspections.</li> <li>• First-aid kits: equipment, maintenance.</li> <li>• AED: equipment, maintenance.</li> <li>• Proper signage of safety systems.</li> </ul>	<ul style="list-style-type: none"> <li>• Any special process safety equipment, including spill kits and chemical testing equipment.</li> <li>• Assistance with maintenance and inspections in clean spaces as required.</li> </ul>
Cleaning Services	<ul style="list-style-type: none"> <li>• General cleaning, assistance receiving items into clean laboratory area.</li> <li>• General laboratory cleaning supplies.</li> <li>• Cleanroom-style cleaning by arrangement.</li> <li>• Laundry equipment (including maintenance), supplies and assistance with laundry by arrangement.</li> <li>• Trash removal.</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain tidiness, cleanliness above what cleaning service provides.</li> <li>• Cleaning inside cleanrooms other than provided by SDSTA.</li> </ul>
Cleanroom Supplies	<ul style="list-style-type: none"> <li>• Cleanroom supplies in general areas as required: tacky mats, boot covers.</li> </ul>	<ul style="list-style-type: none"> <li>• Specialized cleanroom supplies for Experiment-specific areas.</li> </ul>

Monitoring	Maintenance, management, monitoring, and costs associated with facility items: <ul style="list-style-type: none"> <li>• Portable gas testers.</li> <li>• Fire alarm.</li> <li>• Oxygen monitors.</li> <li>• CO sensors.</li> <li>• Any additional sensors required and installed by the SDSTA.</li> </ul>	Any other monitoring.
Utilities/Services	Maintenance, management, and costs associated with facility items: <ul style="list-style-type: none"> <li>• Potable and industrial water.</li> <li>• Fire suppression water supply.</li> <li>• Precooler/dehumidification system.</li> <li>• HVAC, including filter replacements and associated costs.</li> <li>• Drinking water.</li> <li>• Gray and black water, toilet facilities.</li> <li>• Power: 480/208/110 VAC, unconditioned, diesel generator (mainly fire and life safety).</li> </ul>	<ul style="list-style-type: none"> <li>• Uninterruptable power supplies as required.</li> <li>• Change orders and material costs for new additional services, labor costs if not provided by SDSTA staff.</li> </ul>
Snow Removal	<ul style="list-style-type: none"> <li>• Approaching roadways and access pathways to the Yates Headframe.</li> </ul>	<ul style="list-style-type: none"> <li>• Any areas in the vicinity for storage/staging.</li> </ul>

3. Other Considerations	SDSTA	Experiment
Experiment Equipment and Other Experiment Personal Property	<p>Liabile for damages of property in the care, custody, or control of, or arising out of handling by, the SDSTA or SDSTA personnel or contractors, but only in the amount covered by existing SDSTA general liability policies, and not to exceed \$2,000,000.00 for any one occurrence and \$2,000,000.00 in any calendar year.<sup>1</sup></p>	<p>Liabile for damages due to handling by Experiment collaborators or their agents such as sub-contractors or equipment service personnel.</p>
General Liability Insurance Coverage		<p>Coverage (from a commercial insurance company or self-insurance acceptable to SDSTA) with limits of liability as determined by the SDSTA using its risk assessment process and in conformity with its Risk Transfer Protocols.</p>

<sup>1</sup> In no event shall SDSTA be liable to the Experiment or any other person or entity for any property damages in excess of the Two Million Dollars (\$2,000,000.00), or for any indirect, incidental, exemplary, or punitive damages arising from any property damage claim, whether such claim is based on warranty, contract, tort (including negligence or strict liability or willful or intentional breach) or otherwise, even if an authorized representative of the Experiment is advised of the possibility or likelihood of the same.

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**Revision History**

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<b>Rev</b>	<b>Date</b>	<b>Section</b>	<b>Paragraph</b>	<b>Summary of Change</b>	<b>Authorized by</b>
02	11/08/2022	NA	NA	Fix typos, clarification of topics	CCR 642
03	12/19/2023	3	NA	Remove reference to additional insurance policy, rename document to remove A and B	CCR 878