

Getting Started with an Experiment at SURF

Jaret Heise, Science Director

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Sanford

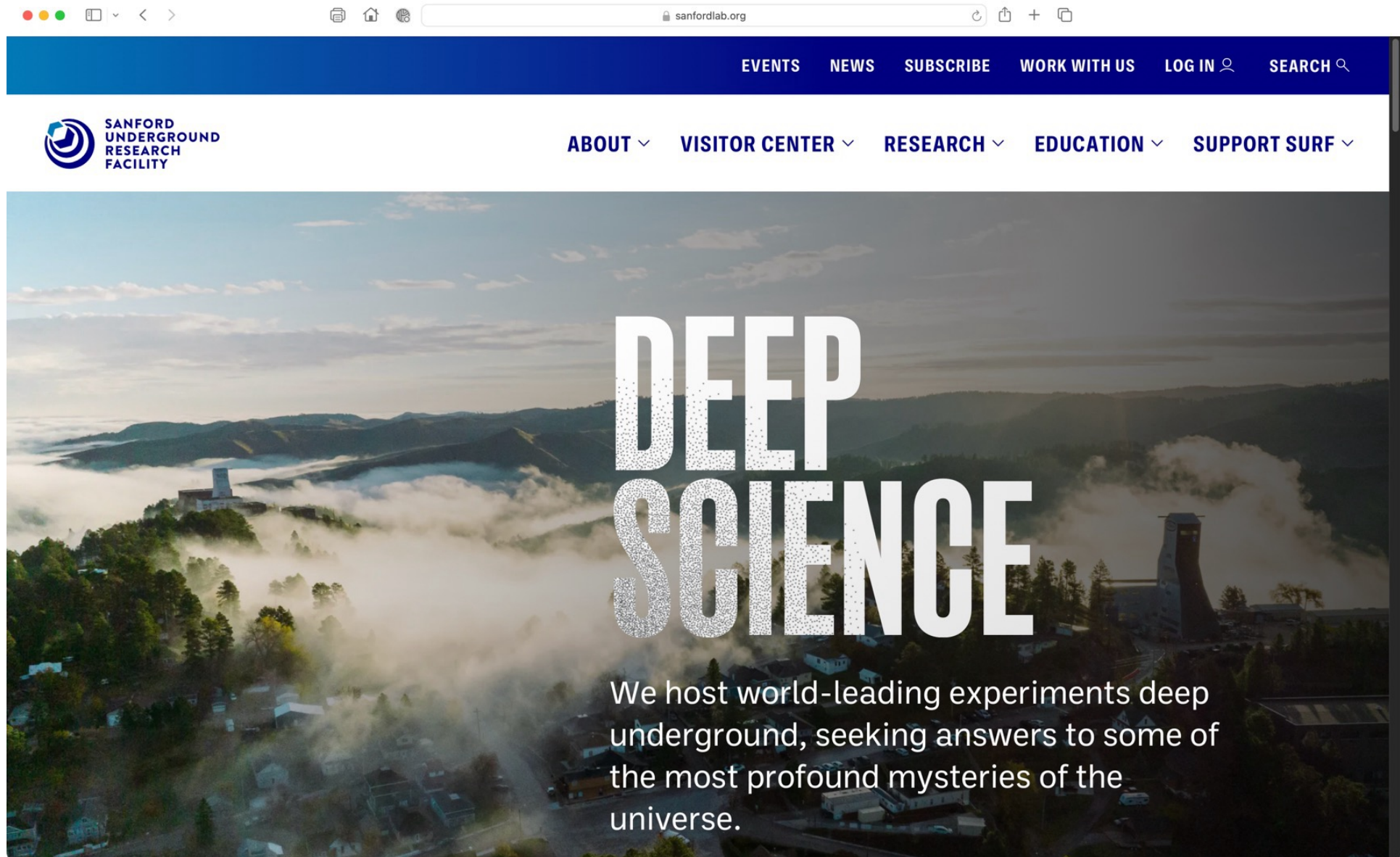
Underground Research Facility

South Dakota Science and Technology Authority

User Association "General Meeting" | May 16, 2024

Getting Started with a Project at SURF

<https://www.sanfordlab.org>



Getting Started with a Project at SURF

<https://www.sanfordlab.org/proposal-guidelines>



The screenshot shows a web browser window displaying the Sanford Underground Research Facility website. The browser's address bar shows the URL [sanfordlab.org/proposal-guidelines](https://www.sanfordlab.org/proposal-guidelines). The website header includes the Sanford Underground Research Facility logo and a navigation menu with links for ABOUT, VISITOR CENTER, RESEARCH, EDUCATION, and SUPPORT SURF. The main content area features a large heading for 'RESEARCH PROPOSAL GUIDELINES' and a sub-heading stating 'All proposals must follow these guidelines'. On the left side, there is a sidebar with 'RESEARCHER RESOURCES' including links for 'Proposal Guidelines', 'Science Liaison Office', 'SURF User Association', and 'Visitor information'. The main text area contains an introductory paragraph and a numbered list of five steps for the proposal process.

SANFORD UNDERGROUND RESEARCH FACILITY

ABOUT ▾ **VISITOR CENTER** ▾ **RESEARCH** ▾ **EDUCATION** ▾ **SUPPORT SURF** ▾

RESEARCH PROPOSAL GUIDELINES

All proposals must follow these guidelines

RESEARCHER RESOURCES

- [Proposal Guidelines](#)
- [Science Liaison Office](#)
- [SURF User Association](#)
- [Visitor information](#)

We are excited at Sanford Lab to contribute to cutting-edge science by providing the best environment for experiments that require unique underground facilities. We are glad to work with you to get your experiment running. To begin the process of approval and installation, follow the steps in the order listed below:

1. Read the [Experiment Implementation Program](#).
2. Read the [Experiment Integration and Support](#) document.
3. Complete a draft of the [Experiment Planning Statement](#) describing your project.
4. Contact the [SURF Science Director](#).
5. Complete the [User Agreement](#). The User Agreement references the SURF [waiver](#) required for underground access, the SURF [ESH Standards](#) and the SURF [Publication Policy](#).

Sanford Underground Research Facility

Where in the world is SURF? <https://sanfordlab.org/visitor-information>

The screenshot shows a web browser window displaying the Sanford Underground Research Facility (SURF) website. The browser's address bar shows the URL sanfordlab.org/visitor-information. The website header includes the SURF logo on the left and a navigation menu with the following items: ABOUT, VISITOR CENTER, RESEARCH, EDUCATION, and SUPPORT SURF. The main heading is "VISITOR INFORMATION" in large, bold, black letters. Below this heading is a sub-heading: "Visitor information for contractors, users and visitors". A prominent blue button with white text reads "CLICK FOR PUBLIC VISITOR INFORMATION". The page is divided into two main columns. The left column is titled "General Information" and contains a bulleted list of requirements for visitors. The right column is a blue sidebar titled "Sponsors" which explains the role of a sponsor. The overall design is clean and professional, using a blue and white color scheme.

SANFORD UNDERGROUND RESEARCH FACILITY

ABOUT ▾ VISITOR CENTER ▾ RESEARCH ▾ EDUCATION ▾ SUPPORT SURF ▾

VISITOR INFORMATION

Visitor information for contractors, users and visitors

[CLICK FOR PUBLIC VISITOR INFORMATION](#)

General Information

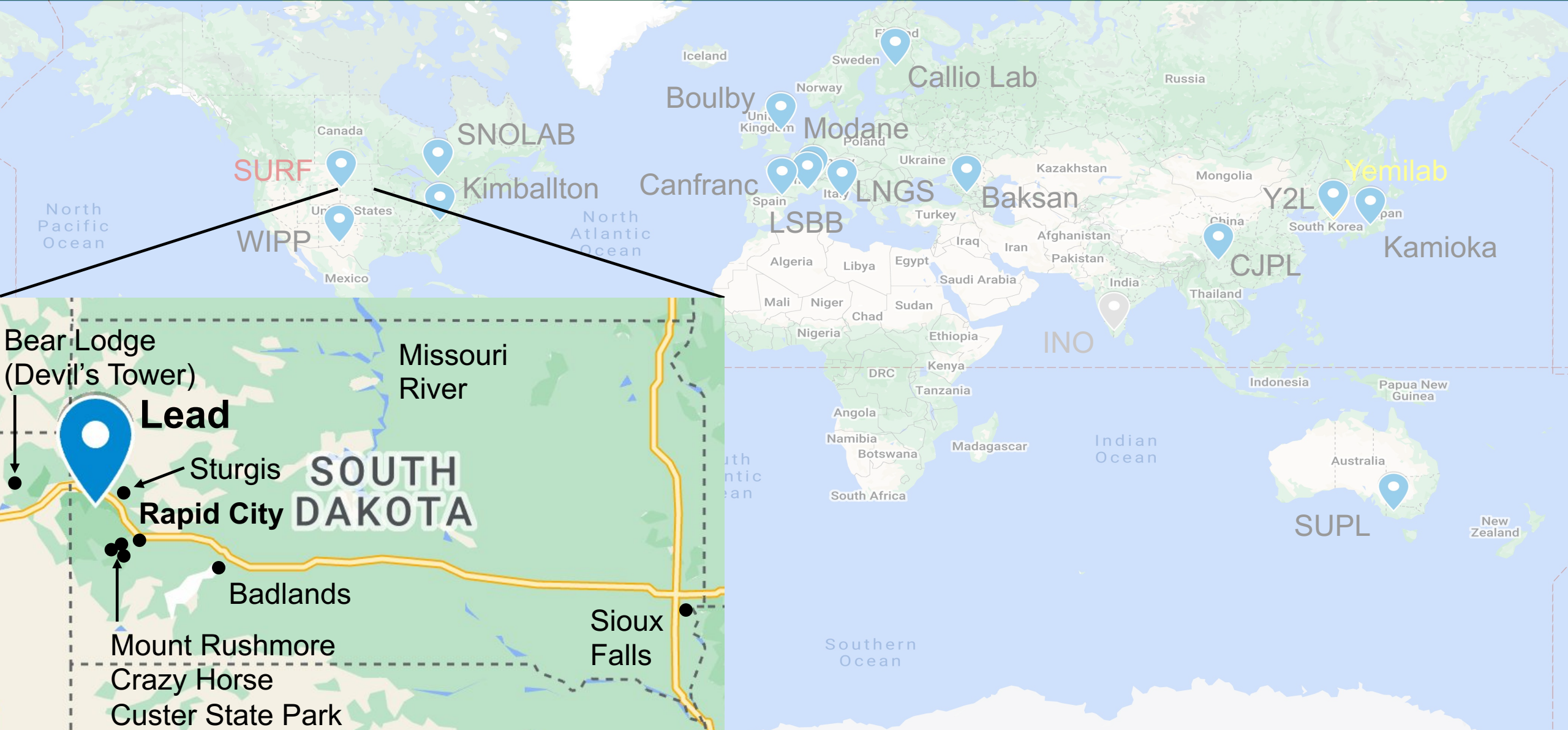
- All visitors must make an appointment with a *sponsor* prior to arrival.
- Appointments are verified upon arriving at the Yates or Ross Gate.
- Parking and check in information will be provided by Security at the Yates or Ross Gate.
- A REAL Identification (ID) Compliant Document – a government-issued identification that provides proof of identity – is required to check in at the Front Desk in the Yates Administration Building. ([How do I know if my license or identification card is REAL ID compliant?](#)) Alternative forms of identification may include:
 - A state-issued "Enhanced" driver's license may be an alternative for residents from Michigan, Minnesota, New York, Vermont, or Washington
 - US Passport or Passport Card
 - Permanent Resident Card
 - Non-U.S. citizens must present a valid passport or Permanent Resident Card
 - Homeland Security Presidential Directive 12 (HSPD-12) Personal Identification Verification (PIV) Card

Sponsors

Sponsors are SURF personnel that include SDSTA employees, project and experiment managers, or users who serve as a point of contact for individuals, groups or agencies visiting SURF. The *sponsor* is the host and responsible party for visitors during their time on site.

Sanford Underground Research Facility

Where in the world is SURF?



Sanford Underground Research Facility

Nation's deepest underground lab, advancing multi-disciplinary research



Ross Shaft

Yates Shaft



Administration Bldg



Rounds Operations Center

Surface Lab + RRS



Yates Hoistroom

Getting Started with a Project at SURF

Going Underground: Paperwork and training videos (non-work visit)

Rev. 01
EL-(1000-F)-71460
Acknowledgement of Risk Waiver

**South Dakota Science and Technology Authority (SDSTA) at
Sanford Underground Research Facility (SURF)
ACKNOWLEDGEMENT OF RISK**

In consideration for being permitted to enter upon the property of the South Dakota Science and Technology Authority (referred to in this document as the "Authority")

Rev. 01
EL-(1000-F)-71462
Release, Agreement not to Sue and Waiver

**South Dakota Science and Technology Authority (SDSTA) at
Sanford Underground Research Facility (SURF)
RELEASE, AGREEMENT NOT TO SUE AND WAIVER**

In consideration for being permitted to enter upon the property of the South Dakota Science and Technology Authority (referred to in this document as the "Authority") located in and near Lead, South Dakota, including both the surface property and the underground workings and facilities owned by the Authority (referred to in this document as the "Authority's Surface Property" or the "Authority's Underground Property" and collectively, the "Authority's Property"), which permission was granted at my request, I do hereby freely and knowingly state, declare and agree as follows:

(Initial) ____ 1. I have today been provided and have read and signed a form entitled "ACKNOWLEDGEMENT OF RISK," which describes in general terms the numerous apparent and unapparent risks of serious personal injury, death, or damage to my property, which exists on and in both the Authority's Surface Property, and the Authority's Underground Property.

(Initial) ____ 2. Being fully aware of the risks as described in the accompanying "ACKNOWLEDGEMENT OF RISK," I do hereby voluntarily, freely, and unconditionally release and agree not to sue the following persons and entities for any damage to my health, personal injury, death and/or damage to my property in any way associated with my entry, presence or activities upon, in, or around the Authority's Surface Property and/or the Authority's Underground Property, and I further hereby waive any such claims I may have against the following persons and entities. This release, agreement not to sue and waiver is given in favor of the following persons and entities:

(Initial) ____ (a). The State of South Dakota and its elected representatives and officers, unelected officers, employees, agents, consultants and representatives; and

(Initial) ____ (b). The South Dakota Science and Technology Authority and its officers, directors, employees, agents, consultants and representatives, and any visitor, contractor, consultant, or any other person (natural or otherwise) that the South Dakota Science and Technology Authority directs to, invites or permits upon, or authorizes to use the Authority's Property and its or their agents, representatives, consultants, lessees, licensees, and invitees; and

(Initial) ____ (c). Barrick Gold Corporation: any person, partnership, joint venture, corporation, or any other form of enterprise which directly or indirectly controls, is controlled by or is under common control with Barrick Gold Corporation; any officer, director, employee, agent or consultant of Barrick Gold Corporation; and any visitor, contractor, consultant, or any other person (natural or otherwise) that Barrick Gold Corporation directs to, invites, or permits upon or authorizes to use the Authority's Property and its or their agents, representatives, consultants, lessees, licensees, and invitees; and

South Dakota Science and Technology Authority Page 1 of 3 Form

IMS/ISO Awareness

Rev. 01
QA/QC-(1000-A)-189764
GSB-SO IMS Training Information

SDSTA has an Integrated Management Systems (IMS) inclusive of ISO 9001, 14001 & 45001 requirements.

SDSTA's Integrated Management System includes an IMS policy and scope, which are posted within the Administrative Building and can be found in DocuShare at:
[https://docs.sanfordlab.org/docushare/dsweb/Get/Document-173288/IMSM-\(A-520-001\)-173288%20IMS%20Policy-Scope.pdf](https://docs.sanfordlab.org/docushare/dsweb/Get/Document-173288/IMSM-(A-520-001)-173288%20IMS%20Policy-Scope.pdf)

SDSTA IMS Policy:
The South Dakota Science and Technology Authority (SDSTA) owns and operates the Sanford Underground Research Facility (SURF). SURF is a world-leading facility dedicated to the advancement of underground scientific research and education. SDSTA is committed to quality, environmental, and occupational health and safety delivered through an integrated approach to the fulfillment of Federal, State and Local requirements.

SDSTA IMS Scope:
It is the intent of Top Management to establish a system that will drive consistency, customer satisfaction and continual improvement. Documentation to support the system shall be created and will continue to be improved upon as we strive to meet customer and organizational needs. Top Management implements and maintains the Integrated Management System to ensure effectiveness and compliance to the requirements of ISO 9001:2015, ISO 14001:2015, AND ISO 45001:2018 standards.

SDSTA has developed relevant IMS Quality Objectives, Environmental Objectives, Occupational Health and Safety Objectives, and respective commitments to obtain these objectives which are posted within the Administrative Building and can be found in DocuShare at:
[https://docs.sanfordlab.org/docushare/dsweb/Get/Document-186922/IMSM-\(F-620-001\)-173318%20Objectives%20Planning%20Record%20\(CY2022\)%20-%20signed.pdf](https://docs.sanfordlab.org/docushare/dsweb/Get/Document-186922/IMSM-(F-620-001)-173318%20Objectives%20Planning%20Record%20(CY2022)%20-%20signed.pdf)

Quality Objective:

1. Convert current SDSTA documents into "Controlled Documents" with correct IMS formatting
2. Manage the CCBR process to ensure the on-time CCR approval of controlled documents in accordance with the DCCS

Environmental Objective:

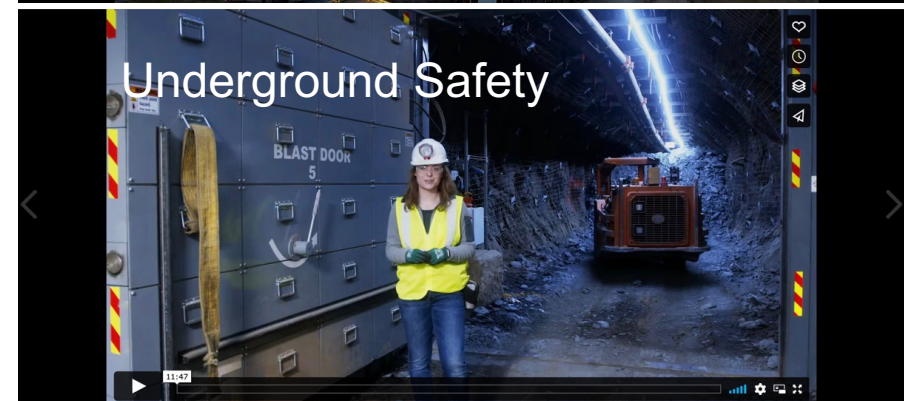
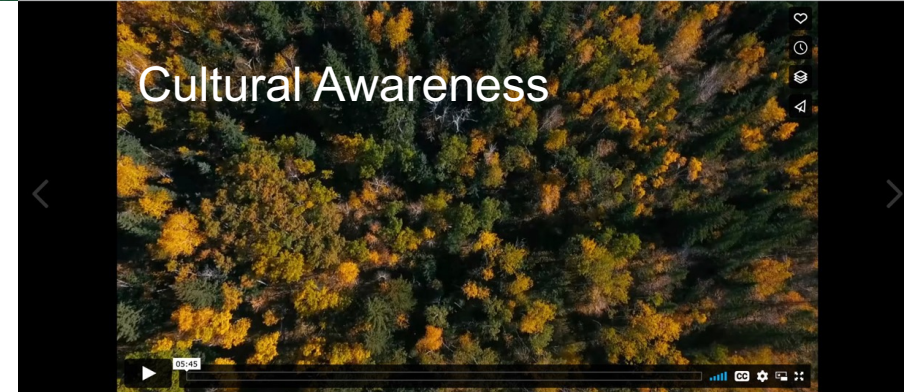
1. Reduce energy needed to run the WWTP (CY 2021 vs. CY 2022)
2. Comply with SD Surface Water Discharge Permit-NPDES Permit SD 0000043 Effluent limitation, monitoring requirements and reporting obligations
3. Minimize reportable (External) spills or unauthorized releases at the facility

Occupational Health and Safety Objective:

1. Reduce Days Away Restricted or Transferred (DART) injuries and illnesses
2. Establish a controlled process for management walk-downs

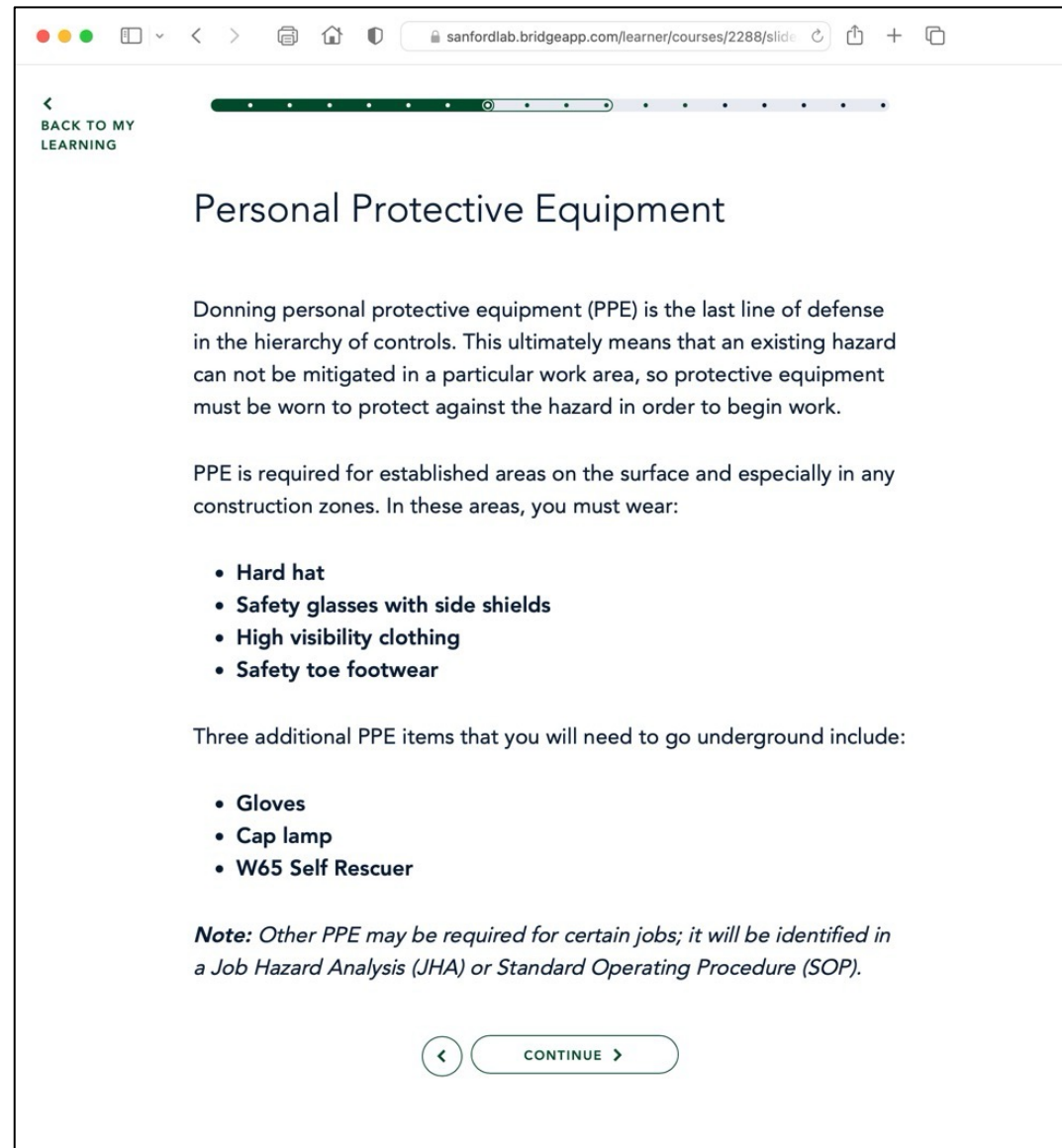
Your contribution to SDSTA's effective IMS includes reporting hazards and risks related to quality issues, environmental issues, and occupational health and safety issues as they are found or arise, which improves SDSTA's quality, environmental and occupational health and safety performance and aids in SDSTA's commitment to meet customer requirements, compliance obligations and legal requirements.

South Dakota Science and Technology Authority Page 1 of 2 Attachment



Getting Started with a Project at SURF

Going Underground: Training (work trip)



sanfordlab.bridgeapp.com/learner/courses/2288/slide

BACK TO MY LEARNING

Personal Protective Equipment

Donning personal protective equipment (PPE) is the last line of defense in the hierarchy of controls. This ultimately means that an existing hazard can not be mitigated in a particular work area, so protective equipment must be worn to protect against the hazard in order to begin work.

PPE is required for established areas on the surface and especially in any construction zones. In these areas, you must wear:

- **Hard hat**
- **Safety glasses with side shields**
- **High visibility clothing**
- **Safety toe footwear**

Three additional PPE items that you will need to go underground include:

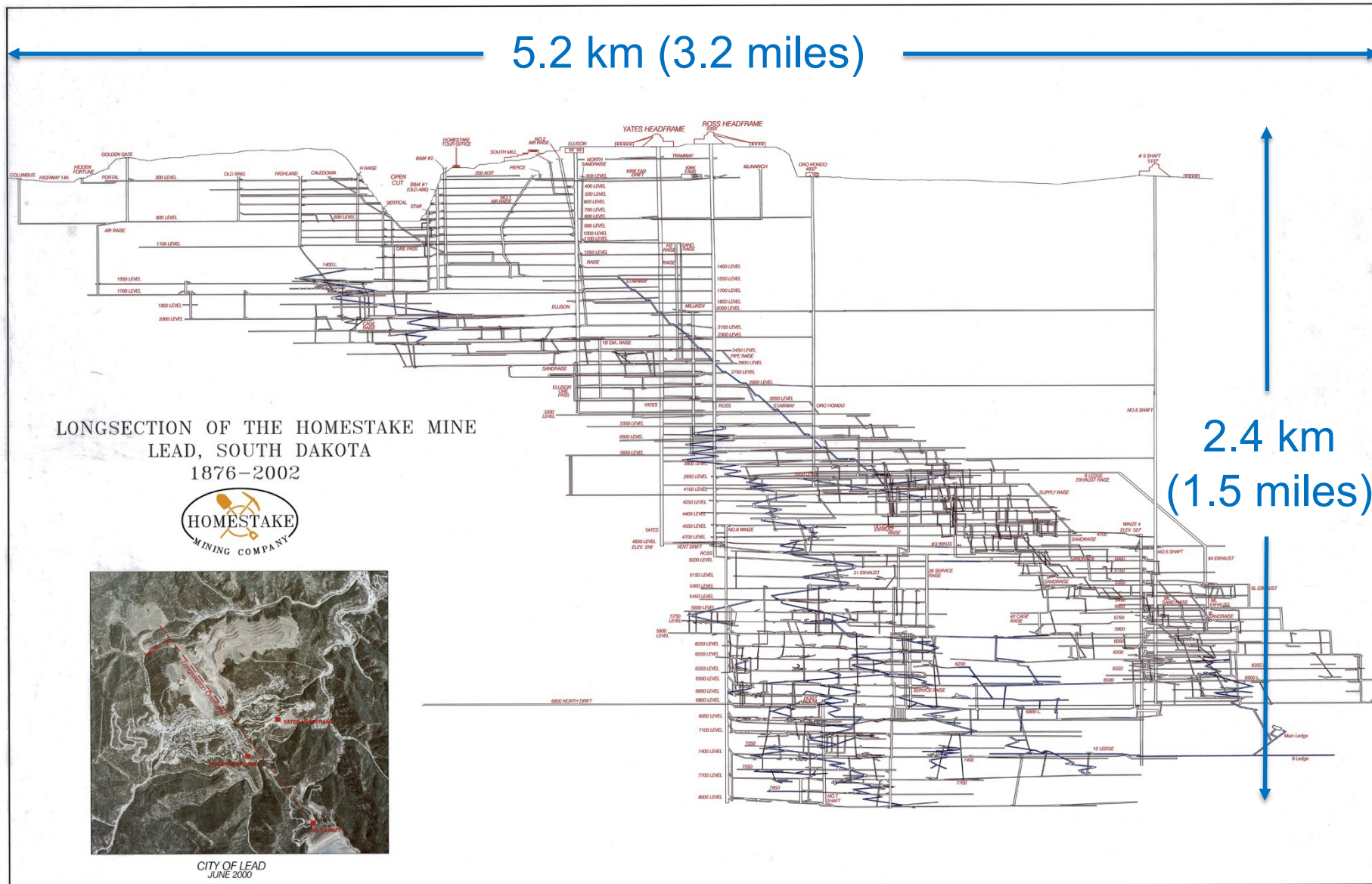
- **Gloves**
- **Cap lamp**
- **W65 Self Rescuer**

***Note:** Other PPE may be required for certain jobs; it will be identified in a Job Hazard Analysis (JHA) or Standard Operating Procedure (SOP).*

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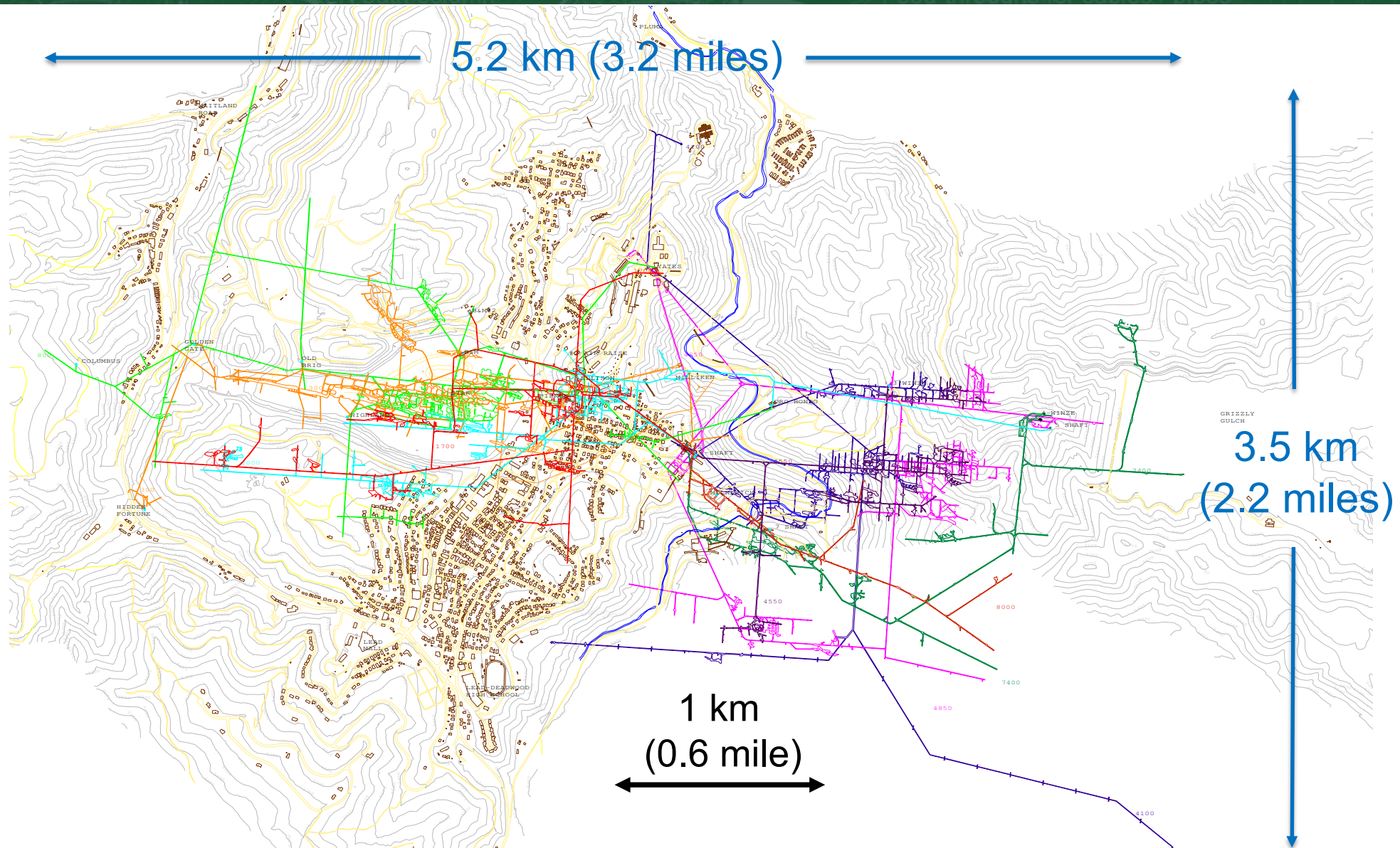
SURF Underground Lab Geography

Significant underground footprint for science



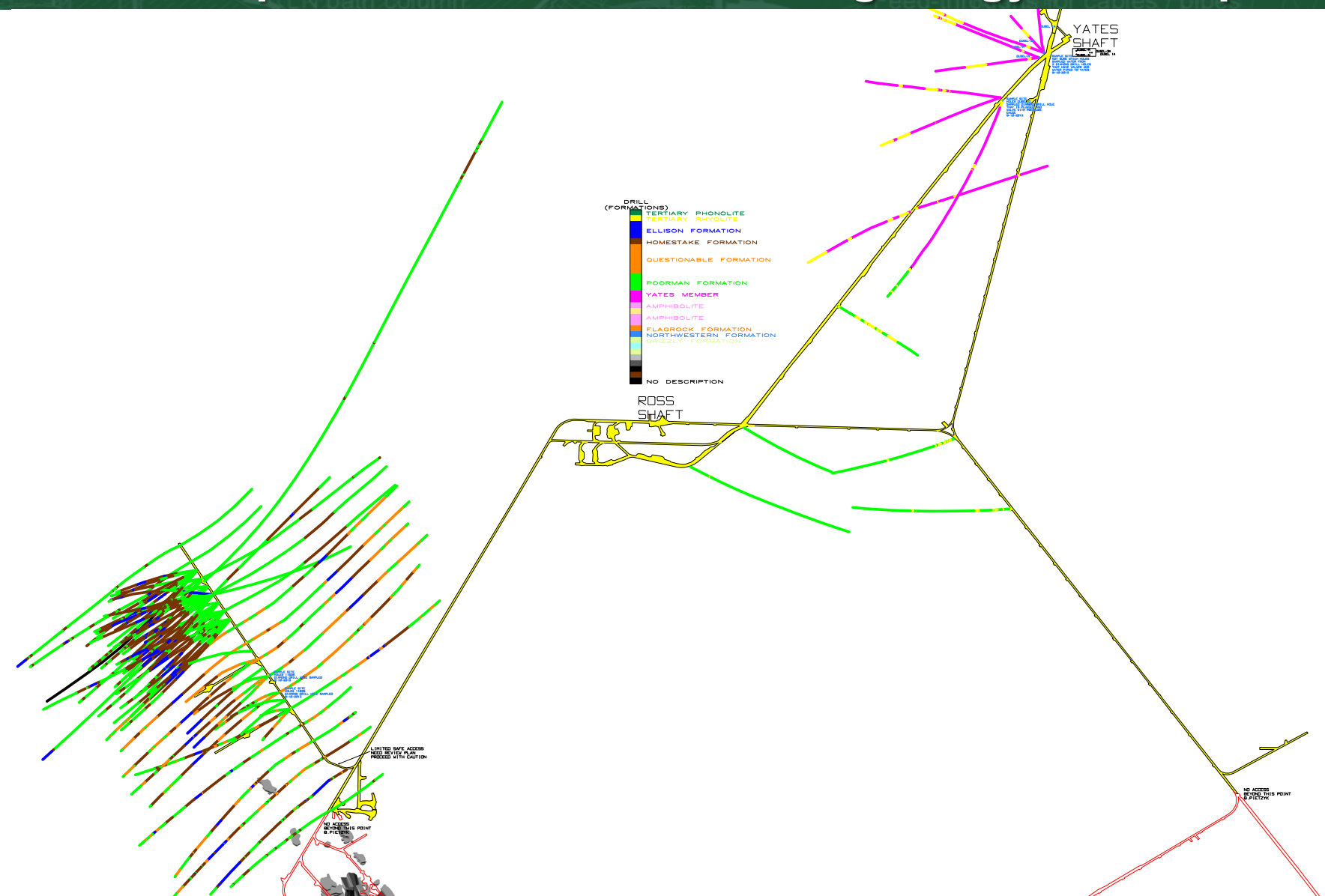
SURF Underground Lab Geography

Significant underground science footprint



SURF Underground Lab Geography

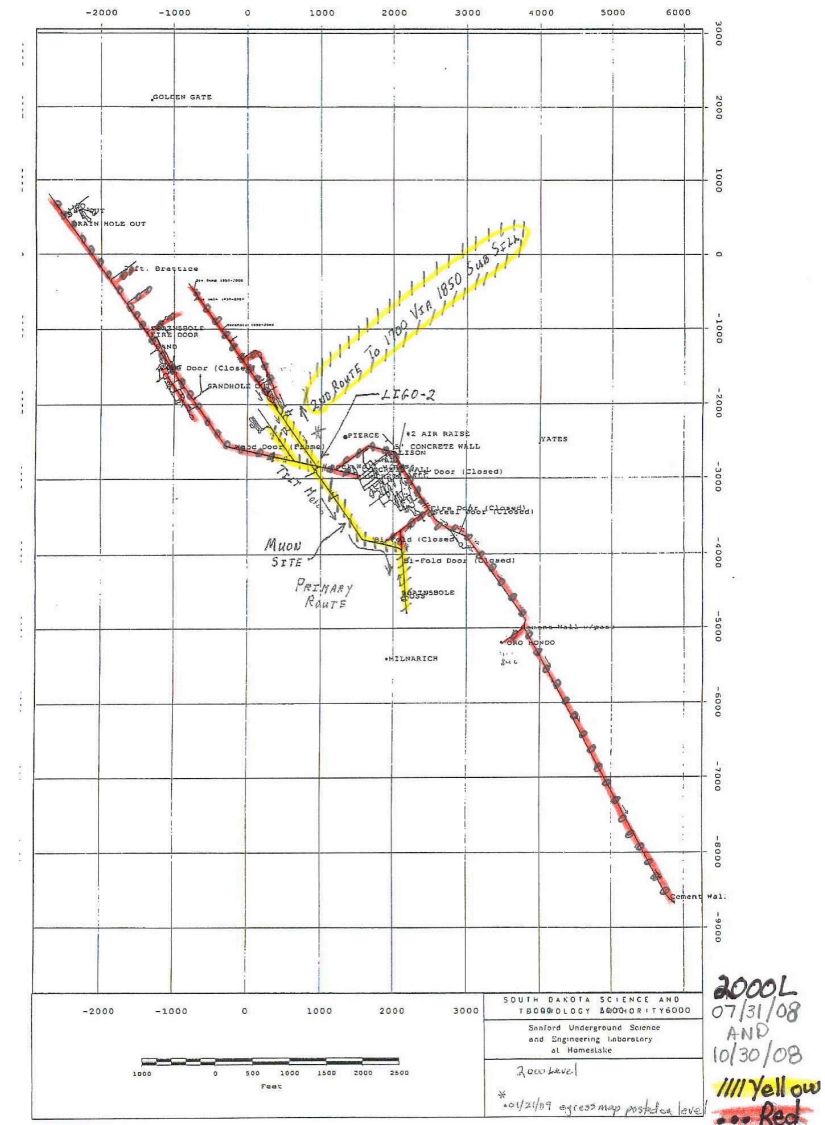
Other resources: Example: 4850L drill holes with geology and stopes



Getting Started with a Project at SURF

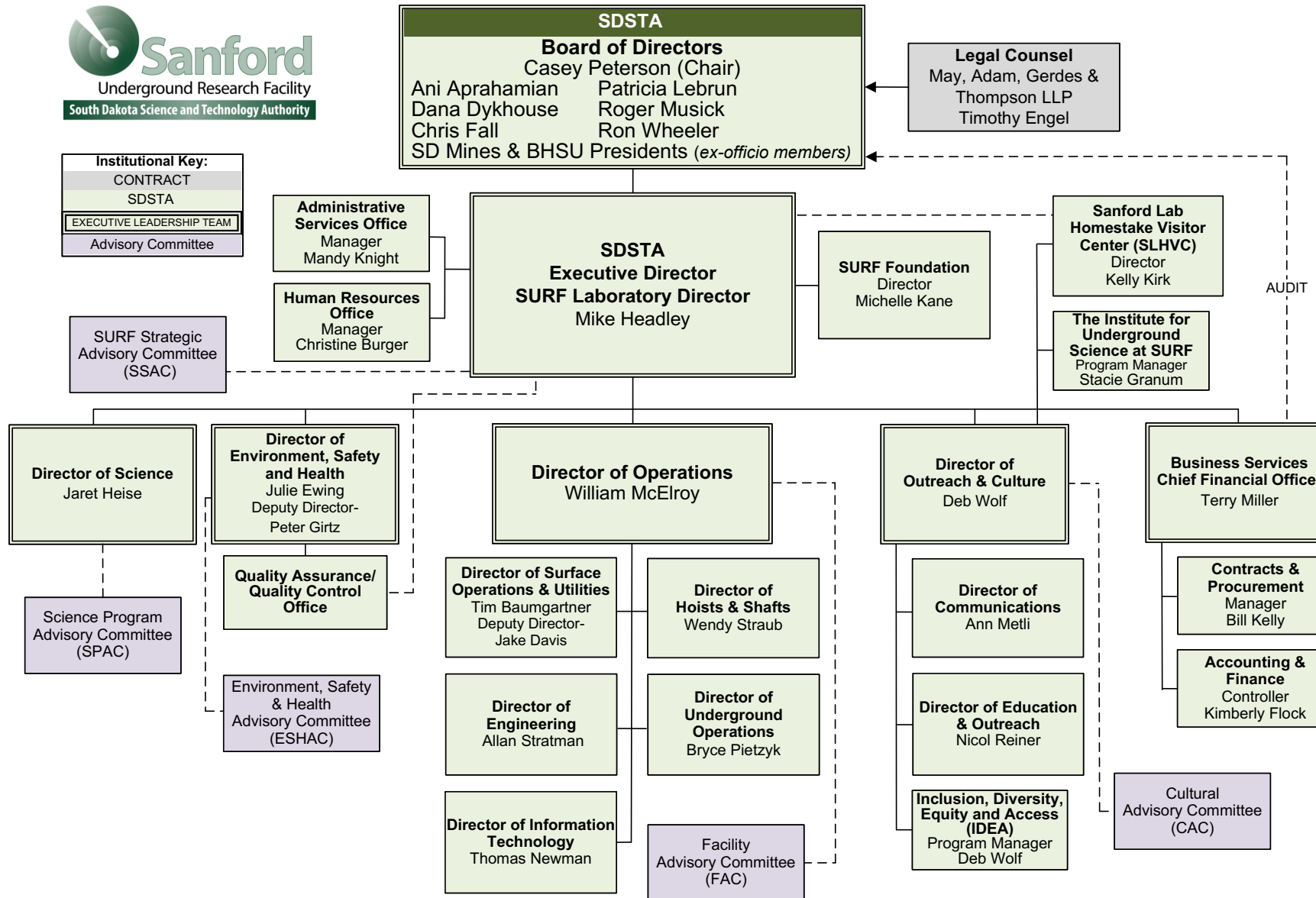
Frequently Asked Questions

- Can I go wherever I want to underground?
 - No, only a relatively small portion of the underground space is being maintained for safe access (~35 km)
- Can I access every underground level?
 - No, some levels may not be safe to access (or under water)
- Can I just show up at the Lab once my paperwork is completed?
 - No, we need to coordinate your visit with other activities and plan logistics to meet your needs:
 - Maximum UG occupancy = 274 people (all levels)
 - Maximum cage load = 30 people
 - Ross Shaft Schedule: **Down** = 7:30 AM, 12:00 PM; **Up** = 12:15 PM, 3:30 PM (non-4850L), 4:30 PM (evening/graveyard shifts possible)
 - Yates Shaft available again early 2025 (!)
- Can I go underground by myself?
 - No, an experienced Guide is necessary to ensure a safe visit; ratios depend on area (6:1, 12:1, 1 per Lab)



SDSTA Organization Structure

11 depts + 4 offices; also SLHVC, Institute, Foundation



SURF Organization – Science Staffing

Resources to enable safe and successful implementation of experiments



Markus Horn (PhD)
Research Scientist
- Surface + UG Campuses

Gavin Cox (MS)
Expt Support Scientist
- LZ Operations



Jaret Heise (PhD) - Director
- Manage dept and experiment implementation program



Mark Hanhardt (MS)
Expt Support Scientist
- Surface + UG Campuses



Julia Delgaudio (BS)
Expt Support Scientist
- LZ Operations



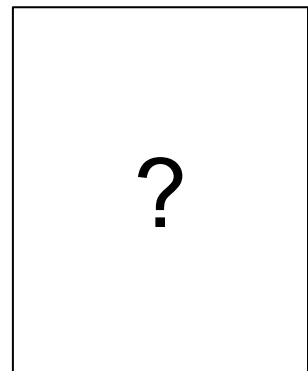
Robyn Weis - Lab Custodians (Surface + UG) - Dee Espinosa



Doug Tiedt (PhD)
Research Scientist
- Surface + UG Campuses

+ Many Others!
Engineering, ESH, OPS...

TBD
Support Associate
- Admin, User Association



SURF Experiment Implementation & Support

Main science program documents under IMS document control

Experiment Implementation Program (EIP)

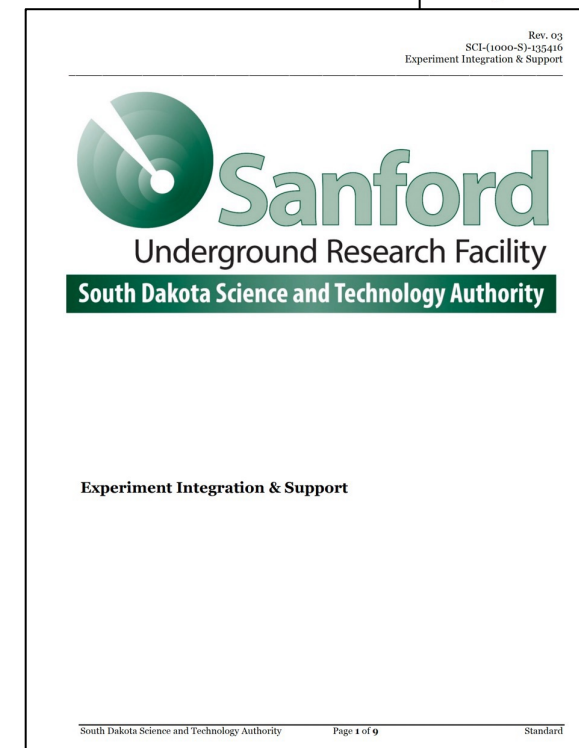
- Integral to the SDSTA institutional mission is advancement of compelling underground, multidisciplinary research
- EIP framework allows experiments to be implemented at SURF in **effective and efficient manner**
- References several key elements:
 - Experiment Planning Statement
 - User Agreement
 - Publication Policy
 - Experiment Decommissioning Statement

Experiment Integration & Support

- In partnership with research groups, SDSTA aims to maintain a **robust organization** with resources to promote **safe and successful** experiment operations at SURF
- References several key elements:
 - Several specific ESH Standards (incl Work Planning & Controls)
 - SURF Applications/Databases (TAP, SARF, etc)
 - Table of responsibilities (SDSTA and Experiment)
 - Perception Survey, Information for Researchers Wiki, etc



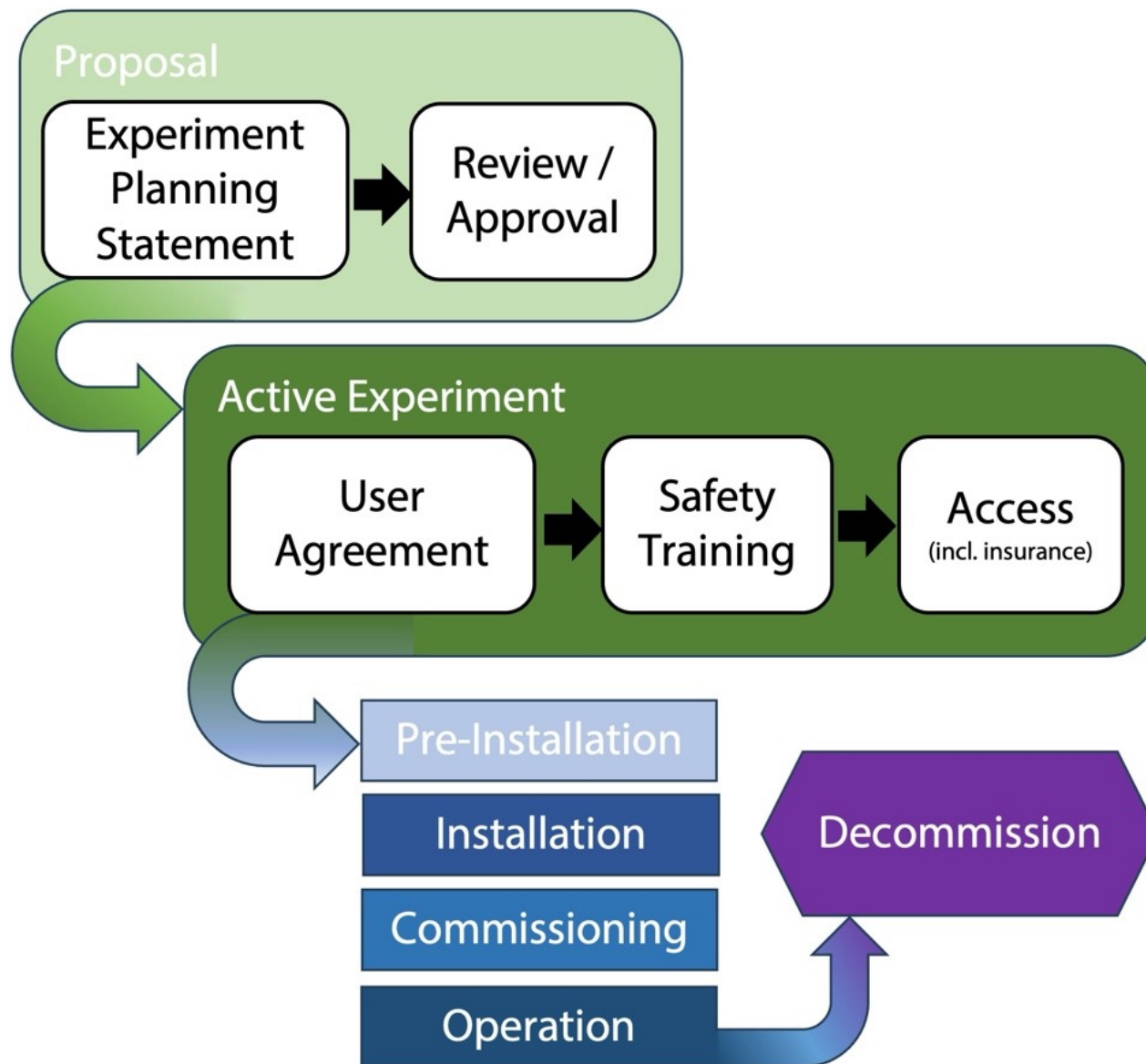
Experiment Implementation Program



Experiment Integration & Support

SURF Experiment Implementation Program

Identify interfaces and hazards within approval framework



<https://www.sanfordlab.org/proposal-guidelines>

The screenshot shows the **RESEARCH PROPOSAL GUIDELINES** webpage for the Sanford Underground Research Facility. The page includes a navigation menu, a list of researcher resources, a list of proposal documents, and a list of steps for the approval process.

RESEARCHER RESOURCES

- Proposal Guidelines**
- Science Liaison Office
- SURF User Association
- Visitor information

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PROPOSAL DOCUMENTS

SCI-(1000-S)-135416 Experiment Integration & Support.pdf 362.8 KB PDF	SCI-(1000-F)-69417 User Agreement 44.7 KB DOCX
SCI-(1000-F)-34460 Experiment Planning Statement 74.2 KB DOCX	SCI-(1000-F)-212612 User Agreement Acknowledgement.docx 31.8 KB DOCX
SCI-(1000-S)-186874 Publication Guidelines.pdf 255.3 KB PDF	Acknowledgement of Risk and Waiver 101.2 KB PDF
SCI-(1000-S)-34478 Experiment Implementation Program.pdf 1 MB PDF	

SURF Experiment Implementation Program

Identify interfaces and hazards within approval framework

- <https://www.sanfordlab.org/proposal-guidelines>
- **Project Documentation**
 - Expression of Interest, incl support letters
 - Experiment Planning Statement
 - *Add: Multi-stage evaluation and merit review process*
 - User Agreement [was MOU] (space commitment)
 - Access: Request form, risk waiver, insurance
 - Services Agreement(s), if applicable
 - General Services Agreement: Who provides what and who pays
 - Contract(s): Specific expenses, direct use of SURF staff
 - Experiment Decommissioning Plan
- **Environment, Safety & Health**
 - Hazard Analysis: Assessments/analyses, procedures, testing/certifications
 - Inventories: Chemical, electrical, hoisting & rigging, pressure, rad materials
 - Training: Sanford Lab modules, Expt training plan (incl equivalences), records
- **Reviews** (Commensurate with hazards)
 - Facility, walk-through inspections, monitoring, readiness reviews (safety, ops)
- **Authorization**
 - Work planning & controls, Authorization To Proceed for significant installation and associated significant hazards

The screenshot shows the Sanford Underground Research Facility website. The main heading is "RESEARCH PROPOSAL GUIDELINES". Below the heading, it states "All proposals must follow these guidelines". There are two main sections: "RESEARCHER RESOURCES" and "PROPOSAL DOCUMENTS".

RESEARCHER RESOURCES

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- SURF User Association
- Visitor information

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SURF Experiment Implementation Program

Experiment Planning Statement: Two-way communication

<https://www.sanfordlab.org/proposal-guidelines>

Rev. 02
SCI-(1000-F)-34460
SURF Experiment Planning Statement

Project Name _____ Date Submitted: mm/dd/yyyy

Status: Preliminary (Expression of interest, Support letter request) Formal implementation request Update

1. Project Summary

Discipline: Physics Biology

Project Description
Provide a brief project description, including purpose, scientific merit

IDEA – Inclusion, Diversity, Equity and Access
SDSTA is committed to creating a culture that centers on inclusion, and stakeholders embody SDSTA's commitment to IDEA as both a consideration in these areas.

South Dakota Science and Technology Authority

Expt Planning Statement (EPS)

Rev. 02
SCI-(1000-F)-34460
SURF Experiment Planning Statement

9. SDSTA Review Section – to be completed by SDSTA personnel

Research Category (SDSTA determination based on user input) Non-proprietary Proprietary

Experiment Implementation Program Requirements
Additional documentation requirements.

Required for all Experiments: User Agreement (UA) Insurance (General Liability, Workers' Compensation)

Services Agreements: General Services Agreement (GSA) Contract

Environment, Safety & Health Requirements
Based on the information provided in the Experiment Planning Statement, the following training, documentation, and reviews are warranted.

Hazard Analysis: (JHA/SOP required for most activities)

Minimum Training: Orientation (surface and/or underground) General Safety – Basic (and subsequent Annual Refresher Training (ART))

Other Training: SDSTA: _____ Non-SDSTA: _____

Inventories: Chemicals Electrical Hoisting & Rigging Pressure Vessels Radioactive Materials

Assessment Documents: Experiment Hazard Assessment Summary (EHAS), incl additional training Quantitative Analysis – Mechanical Quantitative Analysis – ODH Quantitative Analysis – Pressure

Reviews: Walk-through Inspection(s) Readiness Review(s) Merit Review

SDSTA Review	Name	Date	Signature
SCIENCE			
ENVIRONMENT, SAFETY & HEALTH			
ENGINEERING			
INFORMATION TECHNOLOGY			
HOISTS AND SHAFTS			
SURFACE OPERATIONS & UTILITIES			
UNDERGROUND OPERATIONS			

Other Review (If applicable)	Name	Date	Signature

SDSTA Acceptance	Name	Date	Signature
SURF LABORATORY DIRECTOR			

South Dakota Science and Technology Authority Page 11 of 12 Form

sanfordlab.org/proposal-guidelines

SANFORD UNDERGROUND RESEARCH FACILITY MENU

RESEARCH PROPOSAL GUIDELINES

All proposals must follow these guidelines

RESEARCHER RESOURCES

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- Science Liaison Office
- SURF User Association
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- SCI-(1000-S)-34478 Experiment Implementation Program.pdf 1 MB | PDF

Experiment Implementation Program

Experiment Planning Statement: Two-way communication

1. Project Summary

- Discipline, description (scope/merit), IDEA, category, funding, personnel

2. Expt Equipment

- General + various categories (chemicals, radioactive materials, etc)

3. Experiment Area and Infrastructure Needs

- Location, space, site preparations/environment/(trip?), services, logistics
- Guidance on cage dimensions, some electrical

4. Hazards and Integrated Safety Management

- Table of potential risks, identifies special training or permit requirements

5. Personnel Access:

- Personnel schedule and access requirements as function of time (max/min)
- Guidance on standard cage times

6. Experiment Schedule

- Experiment schedule, incl phase such as installation, commissioning, ops

7. Experiment Operations

- What-If... scenarios (access, ventilation, water, power, cyber, excavation...)

8. Decommissioning

Rev. 02
SCI-(1000-F)-34460
SURF Experiment Planning Statement

Project Name _____ Date Submitted: mm/dd/yyyy

Status: Preliminary (Expression of Interest, Support letter request) Formal implementation request Update

1. Project Summary

Discipline: Physics Biology Geology Engineering Other: _____

Project Description
Provide a brief project description, including purpose, scientific merit and scope. Add relevant citations or references as appropriate. If necessary, add additional space to this form.

IDEA – Inclusion, Diversity, Equity and Access
SDSTA is committed to creating a culture that centers on inclusion, diversity, equity and access (IDEA); see <https://sanfordlab.org/sdsta/inclusion-diversity-equity-and-access>. It is critical that all partners and stakeholders embody SDSTA's commitment to IDEA as both a moral imperative and a necessary ingredient for a successful collaborative scientific environment. Describe project efforts and considerations in these areas.

South Dakota Science and Technology Authority Page 1 of 12 Form

Experiment Implementation Program

Experiment Planning Statement: Two-way communication

1. Project Summary

- Discipline, description (scope/merit), IDEA, category, funding, personnel

2. Expt Equipment

- General + various categories (chemicals, radioactive materials, etc)

3. Experiment Area and Infrastructure Needs

- Location, space, site preparations/environment/(trip?), services, logistics
- Guidance on cage dimensions, some electrical

4. Hazards and Integrated Safety Management

- Table of potential risks, identifies special training or permit requirements

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- What-If... scenarios (access, ventilation, water, power, cyber, excavation...)

8. Decommissioning

Rev. 02
SCI-(1000-F)-34460
SURF Experiment Planning Statement

9. SDSTA Review Section – to be completed by SDSTA personnel

Research Category (SDSTA determination based on user input)		<input type="checkbox"/> Non-proprietary	<input type="checkbox"/> Proprietary
Experiment Implementation Program Requirements Additional documentation requirements:			
Required for all Experiments:		<input type="checkbox"/> User Agreement (UA)	<input type="checkbox"/> Insurance (General Liability, Workers' Compensation)
Services Agreements:		<input type="checkbox"/> General Services Agreement (GSA)	<input type="checkbox"/> Contract
Environment, Safety & Health Requirements Based on the information provided in the Experiment Planning Statement, the following training, documentation, and reviews are warranted.			
Hazard Analysis: <input type="checkbox"/> (JHA/SOP required for most activities)			
Minimum Training:		<input type="checkbox"/> Orientation (surface and/or underground)	<input type="checkbox"/> General Safety – Basic (and subsequent Annual Refresher Training (ART))
Other Training:		<input type="checkbox"/> SDSTA:	<input type="checkbox"/> Non-SDSTA:
Inventories:		<input type="checkbox"/> Chemicals <input type="checkbox"/> Electrical	<input type="checkbox"/> Hoisting & Rigging <input type="checkbox"/> Pressure Vessels <input type="checkbox"/> Radioactive Materials
Assessment Documents:		<input type="checkbox"/> Experiment Hazard Assessment Summary (EHAS), incl additional training	<input type="checkbox"/> Quantitative Analysis – Mechanical <input type="checkbox"/> Quantitative Analysis – ODH <input type="checkbox"/> Quantitative Analysis – Pressure
Reviews:		<input type="checkbox"/> Walk-through Inspection(s)	<input type="checkbox"/> Readiness Review(s) <input type="checkbox"/> Merit Review
SDSTA Review	Name	Date	Signature
SCIENCE			
ENVIRONMENT, SAFETY & HEALTH			
ENGINEERING			
INFORMATION TECHNOLOGY			
HOISTS AND SHAFTS			
SURFACE OPERATIONS & UTILITIES			
UNDERGROUND OPERATIONS			
Other Review (if applicable)	Name	Date	Signature
SDSTA Acceptance	Name	Date	Signature
SURF LABORATORY DIRECTOR			

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9. SURF Review

- Category (proprietary/non)
- MOU, insurance pre-checked
- ESH guidance
- SURF review, other review
- SURF Lab Director sign-off

SURF Experiment Implementation Program

Experiment Planning Statement – Expt/Facility Interfaces

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SURF Experiment Planning Statement

Project Name Date Submitted: mm/dd/yyyy

Status: Preliminary (Expression of interest, Support letter request) Formal implementation request Update

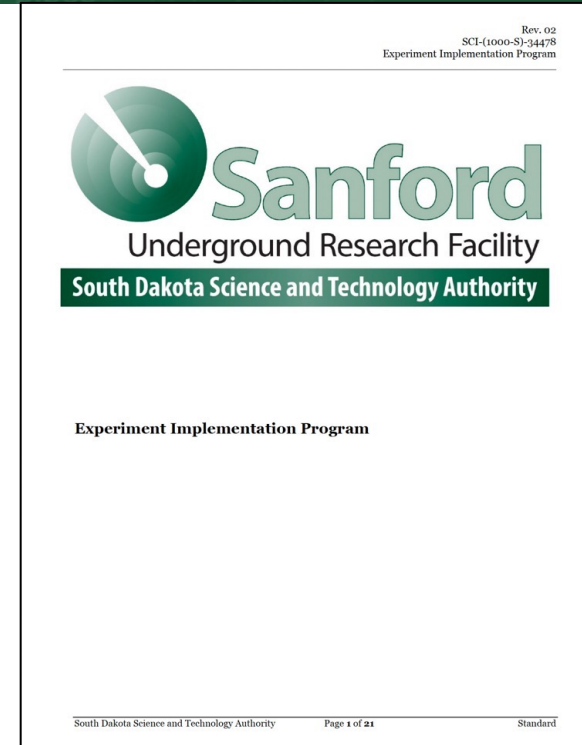
1. Project Summary

Discipline: Physics Biology Geology Engineering Other: _____

Project Description
Provide a brief project description, including purpose, scientific merit and scope. Add relevant citations or references as appropriate. If necessary, add additional space to this form.

IDEA – Inclusion, Diversity, Equity and Access
SDSTA is committed to creating a culture that centers on inclusion, diversity, equity and access (IDEA); see <https://sanfordlab.org/sdsta/inclusion-diversity-equity-and-access>. It is critical that all partners and stakeholders embody SDSTA's commitment to IDEA as both a moral imperative and a necessary ingredient for a successful collaborative scientific environment. Describe project efforts and considerations in these areas.

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EPS provides two-way communication:

- SURF needs expt details in several categories
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Experiment Planning Statement – Expt/Facility Interfaces

Funding Status:	
List funding sources (select all that apply), and indicate award durations as well as any pending proposals. If necessary, add additional space to this template.	
<input type="checkbox"/> DOE: Award No., duration	<input type="checkbox"/> Institutional: _____
<input type="checkbox"/> NSF: Award No., duration	<input type="checkbox"/> Other: _____
<input type="checkbox"/> Pending Proposal(s): Please add all relevant information.	


Personnel:	
List members associated with collaborating institutions, and indicate which institutions expect to have personnel participating in activities at SURF. If necessary, add additional space to this template.	
Institutional Personnel (including Position/Role)	Perform activities at SURF
Institution1: Person1 (faculty), Person2 (postdoc), Person3 (student), etc.	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Yes <input type="checkbox"/> No

SURF Experiment Planning Statement
 Revised: 09/16/2022
 Supersedes: 09/01/2021

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EPS provides two-way communication:

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Experiment Implementation Program

2. Experiment Equipment:

General Description:
Provide a description of equipment, systems and/or processes that will be used during the project at SURF. If necessary, add additional space to this template or provide separate documents.

[Empty space for General Description]

General Equipment / Hardware Description:
Provide a list of equipment, parts and tools required to perform activities at SURF. Include pictures, diagrams and manuals (and/or links to these items) where appropriate. If necessary, add additional space to this template in this section or the categories below.

Name of equipment / part / tool	Dimensions	Mass	Detail / Notes
1			
2			
3			
4			
5			

Chemical Description:
List chemicals, including some detector components (e.g., crystals, gasses, scintillator, etc.) or hazardous materials (e.g., lead for shielding); flammability ratings are required for plastics. All chemicals must have a safety data sheet (SDS) and must be approved by SURF before they are brought onto SURF property. Note: the experiment is required to maintain an inventory of chemicals, including storage and usage locations as well as dates of arrival and departure from SURF.

Name of chemical (incl manufacturer if known)	Quantity	Detail / Notes (incl container type such as glass, flammability, etc.)	Waste Expected?
1			<input type="checkbox"/> Yes <input type="checkbox"/> No
2			<input type="checkbox"/> Yes <input type="checkbox"/> No
3			<input type="checkbox"/> Yes <input type="checkbox"/> No
4			<input type="checkbox"/> Yes <input type="checkbox"/> No
5			<input type="checkbox"/> Yes <input type="checkbox"/> No

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Electrical Equipment Description:			
List electrical equipment and associated specifications. Equipment should be approved by a nationally-recognized testing lab (NRTL). Low-smoke zero-halogen (LSZH) jacketed cables are required for underground use at SURF. Note: the experiment is required to maintain an inventory, including inspection dates.			
Name of electrical equipment / tool (incl manufacturer, model # if known)	Voltage (Volts)	Current (Amps)	Certifications (e.g. UL, CSA, etc.)
1			
2			
3			
4			
5			

Hoisting and Rigging Equipment Description:	
List hoisting & rigging equipment, including hoists, cranes as well as rigging gear such as slings and shackles, etc. Note: Experiment-owned hoisting and rigging equipment may need to be inspected on a regular basis, so the experiment is required to maintain an inventory.	
Name of hoisting & rigging equipment (incl manufacturer, model # if known)	Detail / Notes (incl manufacture / purchase date)
1	
2	
3	
4	
5	

Pressure Vessel Description:	
List pressure vessels. Note: Pressure vessels (including owned, leased and/or rented units) need to be inspected regularly, so the experiment is required to maintain an inventory.	
Name of pressure vessel equipment (incl manufacturer, model #, national board # if known)	Detail / Notes (incl manufacture / purchase date)
1	
2	
3	
4	
5	


Radioactive Material Description:	
List radioactive materials. Transportation of radioactive sources to or from SURF property must be coordinated with the SURF Radiation Safety Officer (RSO), and only individuals approved by the SURF RSO are authorized to handle radioactive materials on SURF property. Note that new radioactive sources may need to be added to the SURF NRC license, which can take up to 90 days. Note: the experiment is required to maintain an inventory.	
Name of radioactive material (incl isotope, manufacturer, activity if known)	Detail / Notes (incl purpose, physical description)
1	
2	
3	
4	
5	

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Experiment Implementation Program

3. Experiment Area and Infrastructure Needs:

Location: Indicate preferred project site(s) from the main accessible underground elevations (feet below surface) and SURF facilities (underground and surface) listed below.			
<input type="checkbox"/> 300L	<input type="checkbox"/> 2000L	<input type="checkbox"/> 4850L	<input type="checkbox"/> Surface
<input type="checkbox"/> 800L	<input type="checkbox"/> 4100L	<input type="checkbox"/> Davis Campus <input type="checkbox"/> Ross Campus <input type="checkbox"/> West Drift	<input type="checkbox"/> Surface Lab <input type="checkbox"/> Core Archive
<input type="checkbox"/> 1700L	<input type="checkbox"/> Not sure	<input type="checkbox"/> 17 Ledge <input type="checkbox"/> Other: _____	<input type="checkbox"/> Other: _____
<input type="checkbox"/> Other Level(s): _____			
Main site considerations: _____			<input type="checkbox"/> Site selection visit requested Proposed date: _____ Number of people: _____
Space: Provide information regarding the footprint of the experiment setup (including any height considerations). Also provide storage, staging and office needs. If warranted, add drawings and diagrams.			
		Storage: <input type="checkbox"/> N/A <input type="checkbox"/> Cold <input type="checkbox"/> Heated	<input type="checkbox"/> Office space requested
		Staging: <input type="checkbox"/> N/A <input type="checkbox"/> Surface <input type="checkbox"/> UG	<input type="checkbox"/> Other: _____
Site Preparations: Include any special project site requirements (some charges may apply). If necessary, add additional space to this template.			
		<input type="checkbox"/> No site preparations required	<input type="checkbox"/> Cost estimate requested
		<input type="checkbox"/> Concrete (e.g. floor, pedestal, etc)	<input type="checkbox"/> Site / equipment enclosure
		<input type="checkbox"/> Hoist	<input type="checkbox"/> Drilling (holes, mounting, etc)
		<input type="checkbox"/> Water mgmt. (e.g. sump, pipe, filtration, etc)	<input type="checkbox"/> Ground support (e.g. rock bolts, mesh)
		<input type="checkbox"/> Electrical / network	<input type="checkbox"/> Other: _____
Site Environment: Indicate significant project sensitivities to various environmental parameters. If necessary, add additional space to this template.			
<input type="checkbox"/> No significant environmental sensitivities			
		<input type="checkbox"/> Temperature Require range: _____ C	<input type="checkbox"/> Humidity Require range: _____ %
		<input type="checkbox"/> Dust	<input type="checkbox"/> Pressure changes
		<input type="checkbox"/> Vibration (e.g. drilling, blasting)	<input type="checkbox"/> Radiation (also radon)

EPS provides two-way communication:


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SURF Experiment Implementation Program

Experiment Planning Statement – Expt/Facility Interfaces

Services: <small>List requirements. Include a description of any other facility support requested. Costs of providing some services may be passed on to the experiment.</small>		
<input type="checkbox"/> No Services Required	<input type="checkbox"/> Power <small>(provide detail in separate table below)</small>	<input type="checkbox"/> IT Services <small>(provide detail in separate table below)</small>
<input type="checkbox"/> Compressed Air <small>(detail pressure and duration required)</small>	<input type="checkbox"/> Compressed Gases <small>(detail cylinder size, quantity and expected usage)</small>	<input type="checkbox"/> Cryogenics <small>(detail vessel size, quantity and expected usage)</small>
<input type="checkbox"/> Water <small>(detail quantity and quality)</small>	<input type="checkbox"/> Transportation of Hazardous Items, incl chemicals <small>(detail items and expected frequency)</small>	<input type="checkbox"/> Material Assays <small>(provide # samples and sensitivity required)</small>
<input type="checkbox"/> Other Services <small>(list items and relevant details):</small> _____		
Electrical Service: <small>Provide information regarding required electrical service based on the equipment and associated power requirements listed in Section 2. SURF provides necessary electrical connections (some charges may apply). SURF can provide 3-phase power: 480V / 208 V / 120 V (a transformer may be required for other voltages). If extension cords are necessary, use heavy-duty or extra heavy-duty 12 AWG (minimum); GFCI also required. Experiment provides conditioned or UPS backup power (several power blips occur per year due to weather). If necessary, add additional space to this template.</small>		
		Electrical service: <input type="checkbox"/> No <input type="checkbox"/> Yes <small>(Note: SURF provides)</small> <input type="checkbox"/> 120 V: # circuits: _____ # outlets: _____ at _____ amps <input type="checkbox"/> 208 V: # circuits: _____ # outlets: _____ at _____ amps <input type="checkbox"/> 480 V: # circuits: _____ # outlets: _____ at _____ amps
		Other: <small>(Note: Expt provides)</small> Extensions cords: <input type="checkbox"/> No <input type="checkbox"/> Yes Quantity: _____ Power strips: <input type="checkbox"/> No <input type="checkbox"/> Yes Quantity: _____ UPS: <input type="checkbox"/> No <input type="checkbox"/> Yes Quantity: _____
Information Technology Service: <small>Provide information regarding network and computer resources (below, check all that apply). Where indicated below, provide estimates of quantities. SURF provides necessary network hardware (some charges may apply) so that it can manage and maintain the equipment. Experiments provide their own computer resources (for servers in the SURF IT Server Room, there are specification guidelines). If necessary, add additional space to this template.</small>		
		Network service: <input type="checkbox"/> No <input type="checkbox"/> Yes <small>(Note: SURF provides)</small> Network type: <input type="checkbox"/> Wired, # ports _____ <input type="checkbox"/> Wireless, # connections _____ Network access: <input type="checkbox"/> Onsite <input type="checkbox"/> Offsite (requires VPN, static IP) Network minimum data transfer bandwidth: _____ Mbps
		Computer resources: <input type="checkbox"/> No <input type="checkbox"/> Yes <small>(Note: Experiment provides)</small> Computer type: <input type="checkbox"/> Laptop, # _____ <input type="checkbox"/> Desktop/server, # _____ Computer location: <input type="checkbox"/> Expt site <input type="checkbox"/> Surface (e.g., IT Server Room)
		Other service / resources: <input type="checkbox"/> Phone <small>(SURF provided)</small> <input type="checkbox"/> Timing <small>(Expt provided)</small> <input type="checkbox"/> Other: _____
<small>SURF Experiment Planning Statement Revised: 09/16/2022 Supersedes: 09/01/2021</small>		
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EPS provides two-way communication:

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Experiment Planning Statement – Expt/Facility Interfaces



Experiment Implementation Program

Equipment Logistics:
Describe how materials will arrive at SURF and associated logistics for transportation and handling. Highlight large, heavy, or sensitive/high-value items from the equipment list in Section 2. Items are transported underground (cage) and on the level (rail) by SURF personnel. Estimate # loads; shipments up/down will be coordinated with SURF (restrictions may apply). Note: Yates South Cage max cargo dimensions: 139 cm (W), 377 cm (L), 258 cm (H); max load weight = 4808 kg (same max capacity as SURF forklifts); options exist for items that exceed nominal dimensions (up to 732 cm, 4536 kg).

Delivery to SURF:	<input type="checkbox"/> Expt personnel	<input type="checkbox"/> Mail / courier	<input type="checkbox"/> Freight
Equipment Packaging:	<input type="checkbox"/> Palletized	<input type="checkbox"/> Crated (wood)	<input type="checkbox"/> Boxed (cardboard)
Handling at SURF:	<input type="checkbox"/> Expt personnel (i.e., hand-carry or backpack) <input type="checkbox"/> Forklift (surface and/or UG) <input type="checkbox"/> Rail transport (UG), incl staging on rail truck(s) on surface <input type="checkbox"/> Dolly / cart / wagon (surface and/or UG) <input type="checkbox"/> Staging for assembly / system checkout (surface and/or UG) <input type="checkbox"/> Hoisting required, max mass: _____ tons (surface and/or UG) <input type="checkbox"/> Sensitive / high-value transport (<i>special form required</i>)		

4. Hazards and Integrated Safety Management (ISM)

Potential Hazards & Risk Assessment:
Check experiment-related hazards. Note that most activities require a separate written Hazard Analysis. For experiments with significant or numerous hazards, an Experiment Hazard Assessment Summary (EHAS), quantitative analyses, walk-through inspections and readiness reviews may be required. The experiment is required to manage (and may need to provide some) training for collaboration personnel.

<input type="checkbox"/> Fall exposures > 4 feet*	<input type="checkbox"/> Working above others	<input type="checkbox"/> Ladder use	<input type="checkbox"/> Scaffold use	<input type="checkbox"/> Scaffold erection*	<input type="checkbox"/> Confined space entry*
<input type="checkbox"/> Heavy equipment operation (e.g. crane, excavator, etc.)*	<input type="checkbox"/> Fork lift operations / powered industrial trucks*	<input type="checkbox"/> Hoisting & rigging*	<input type="checkbox"/> Boom lift operations	<input type="checkbox"/> Electrical equipment maintenance (if > 50 V may req. training)	<input type="checkbox"/> Lockout / tagout (LOTO) activities*
<input type="checkbox"/> Rotating equipment	<input type="checkbox"/> High noise levels	<input type="checkbox"/> Waste generation (may req. training)	<input type="checkbox"/> Discharges to sanitary system	<input type="checkbox"/> Potential impact to storm water / UG water	<input type="checkbox"/> Potential spill to environment
<input type="checkbox"/> Air emissions (incl. equipment/generators)	<input type="checkbox"/> General demolition	<input type="checkbox"/> Trenching / excavation	<input type="checkbox"/> Excessive dust	<input type="checkbox"/> Potential silica exposure*	<input type="checkbox"/> Potential asbestos exposure*
<input type="checkbox"/> Chemical use (req. safety data sheet, may req. training)	<input type="checkbox"/> Pressurized air/fluids & compressed gases* & vacuum	<input type="checkbox"/> Cryogenics*	<input type="checkbox"/> Potential oxygen deficiency (ODH)*	<input type="checkbox"/> Lead (Pb) work*	<input type="checkbox"/> Use of refrigerants (req. safety data sheet)
<input type="checkbox"/> Radiation – ionizing (incl exempt-quantity, may req. amendment)*	<input type="checkbox"/> Radiation – nonionizing (e.g. lasers, RF)*	<input type="checkbox"/> Biological hazards (e.g. animal/insect bites/stings, mold, etc.)	<input type="checkbox"/> Installation of power – temporary or permanent*	<input type="checkbox"/> Welding / cutting / brazing (req. permit)*	<input type="checkbox"/> Fire / explosion / extreme temperature (req. permit / fire watch)*
<input type="checkbox"/> Ergonomics (lifting > 50 lbs, etc.)	<input type="checkbox"/> Soldering (permit not req.)	<input type="checkbox"/> Work in hot/humid environment	<input type="checkbox"/> Cord-and-plug tools	<input type="checkbox"/> Limited/impaired communication	<input type="checkbox"/> _____

*Denotes Special Training, Permit and/or Competent Person required

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5. Personnel Access Requirements

Personnel Schedule:
List expected onsite experiment personnel as function of time and project phase, including maximum and minimum numbers.

Personnel Access:
List number of onsite work hours expected per day and per week (steady-state and maximum, underground and surface). Personnel require a badge when on SURF property (training is required before a personal badge is issued). Standard underground access via the Yates shaft for day shift is as follows: 6:30am, 7am, 7:30am, 11:30am [Down]; 11:45am, 4pm, 4:30pm and 5pm [Up]. Standard Yates Shaft UG access is 4 days per week (alternating Mon-Thu, Tue-Fri); access via the Ross Shaft may be coordinated (with access up to 6 days per week). Limited periods of 24-hour coverage up to 7 days per week with shifts up to 12.5 hours can be accommodated (shifts beyond 12.5 hours in duration are managed under the SURF fatigue management policy). Additional access guidelines may apply.

6. Experiment Schedule

Experiment Schedule:
Provide a schedule of experiment activities, including different phases of the project such as installation, commissioning, operation and decommissioning. If necessary, add additional space to this template.

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7. Experiment Operations

What-if... Scenarios:

List results and consequences to experiment and any mitigation measures that are planned or that are being considered.

Topic Area	What if...	Result / Consequences (List different scenarios if applicable)	N/A
Access	What if access to experiment equipment was restricted for longer than one day?		<input type="checkbox"/>
Ventilation	What if the laboratory temperature rose above or fell below the specified limits?		<input type="checkbox"/>
	What if the laboratory humidity rose above or fell below the specified limits?		<input type="checkbox"/>
	What if the laboratory exhaust system went down?		<input type="checkbox"/>
Water	What if purified water became unavailable?		<input type="checkbox"/>
	What if chilled water became unavailable?		<input type="checkbox"/>
	What if potable water became unavailable?		<input type="checkbox"/>
	What if industrial water became unavailable?		<input type="checkbox"/>
	What if the fire water system was triggered and fire water/mist came in contact with your experiment?		<input type="checkbox"/>
	What if fire water/mist did not activate when needed?		<input type="checkbox"/>
	What if there was a water leak within the laboratory?		<input type="checkbox"/>
Water Inflows	What if the laboratory began filling with water because of a catastrophic water inflow (storm) event?		<input type="checkbox"/>
Water	What if the waste water collection system inside the laboratory overflowed because pumps weren't working?		<input type="checkbox"/>
Compressed Air	What if the compressed air system provided by the facility became unavailable?		<input type="checkbox"/>
Power	What if normal power goes down? Would your experiment be damaged if it was unpowered for an extended period of time?		<input type="checkbox"/>
	What if standby power generators ran out of power (nominally for fire & life safety), assuming normal power is still down? (96 hours of standby is the requirement)		<input type="checkbox"/>
	What if power quality fluctuated outside of specified limits: voltage drop, harmonic distortion, etc.?		<input type="checkbox"/>
	What if the experiment-provided UPS fails?		<input type="checkbox"/>

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Topic Area	What if...	Result / Consequences (List different scenarios if applicable)	N/A
Electromagnetic Interference (EMI)	What if EMI became unacceptable?		<input type="checkbox"/>
Cyberinfrastructure	What if network connections outside of the laboratory became disabled?		<input type="checkbox"/>
	What if network connections inside of the laboratory became disabled?		<input type="checkbox"/>
	What if connection to external data processing became unavailable?		<input type="checkbox"/>
	What if connection to internal data processing became unavailable?		<input type="checkbox"/>
	What if network time protocol (NTP) was unavailable?		<input type="checkbox"/>
Transportation	What if material handling systems were unavailable (rail cars, hoists/cranes, etc.)?		<input type="checkbox"/>
	What if material handling systems became disabled while in transport? (for example, cryogenics in transport on rail cars)		<input type="checkbox"/>
Fire & Life Safety	What if an evacuation was conducted due to a hazardous event (e.g., fire)? Describe situations where you would keep the experiment running or shut it down?		<input type="checkbox"/>
Excavation	What if there was excessive disturbance of the experiment due to blasting/excavation activities nearby?		<input type="checkbox"/>
	What if geotechnical repairs needed to be made to the rock structure above or near the experiment?		<input type="checkbox"/>
Other	What if...? <i>Name scenario critical to the experiment.</i>		<input type="checkbox"/>

8. Decommissioning Plan

Decommissioning Plan:
Provide initial details regarding how the experiment will be decommissioned. If necessary, add additional space to this template.

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9. SDSTA Review Section – to be completed by SDSTA personnel

Research Category (SDSTA determination based on user input)		<input type="checkbox"/> Non-proprietary	<input type="checkbox"/> Proprietary
Experiment Implementation Program Requirements <small>Additional documentation requirements.</small>			
Required for all Experiments:		<input type="checkbox"/> User Agreement (UA)	<input type="checkbox"/> Insurance (General Liability, Workers' Compensation)
Services Agreements:		<input type="checkbox"/> General Services Agreement (GSA)	<input type="checkbox"/> Contract
Environment, Safety & Health Requirements <small>Based on the information provided in the Experiment Planning Statement, the following training, documentation, and reviews are warranted.</small>			
Hazard Analysis: <input type="checkbox"/> (JHA/SOP required for most activities)			
Minimum Training:		<input type="checkbox"/> Orientation (surface and/or underground)	<input type="checkbox"/> General Safety – Basic (and subsequent Annual Refresher Training (ART))
Other Training:		<input type="checkbox"/> SDSTA: _____	<input type="checkbox"/> Non-SDSTA: _____
Inventories:		<input type="checkbox"/> Chemicals <input type="checkbox"/> Electrical	<input type="checkbox"/> Hoisting & Rigging <input type="checkbox"/> Pressure Vessels <input type="checkbox"/> Radioactive Materials
Assessment Documents:		<input type="checkbox"/> Experiment Hazard Assessment Summary (EHAS), incl additional training	<input type="checkbox"/> Quantitative Analysis – Mechanical <input type="checkbox"/> Quantitative Analysis – ODH <input type="checkbox"/> Quantitative Analysis – Pressure
Reviews:		<input type="checkbox"/> Walk-through Inspection(s)	<input type="checkbox"/> Readiness Review(s) <input type="checkbox"/> Merit Review
SDSTA Review	<i>Name</i>	<i>Date</i>	<i>Signature</i>
SCIENCE			
ENVIRONMENT, SAFETY & HEALTH			
ENGINEERING			
INFORMATION TECHNOLOGY			
HOISTS AND SHAFTS			
SURFACE OPERATIONS & UTILITIES			
UNDERGROUND OPERATIONS			
Other Review (if applicable)	<i>Name</i>	<i>Date</i>	<i>Signature</i>
SDSTA Acceptance	<i>Name</i>	<i>Date</i>	<i>Signature</i>
SURF LABORATORY DIRECTOR			

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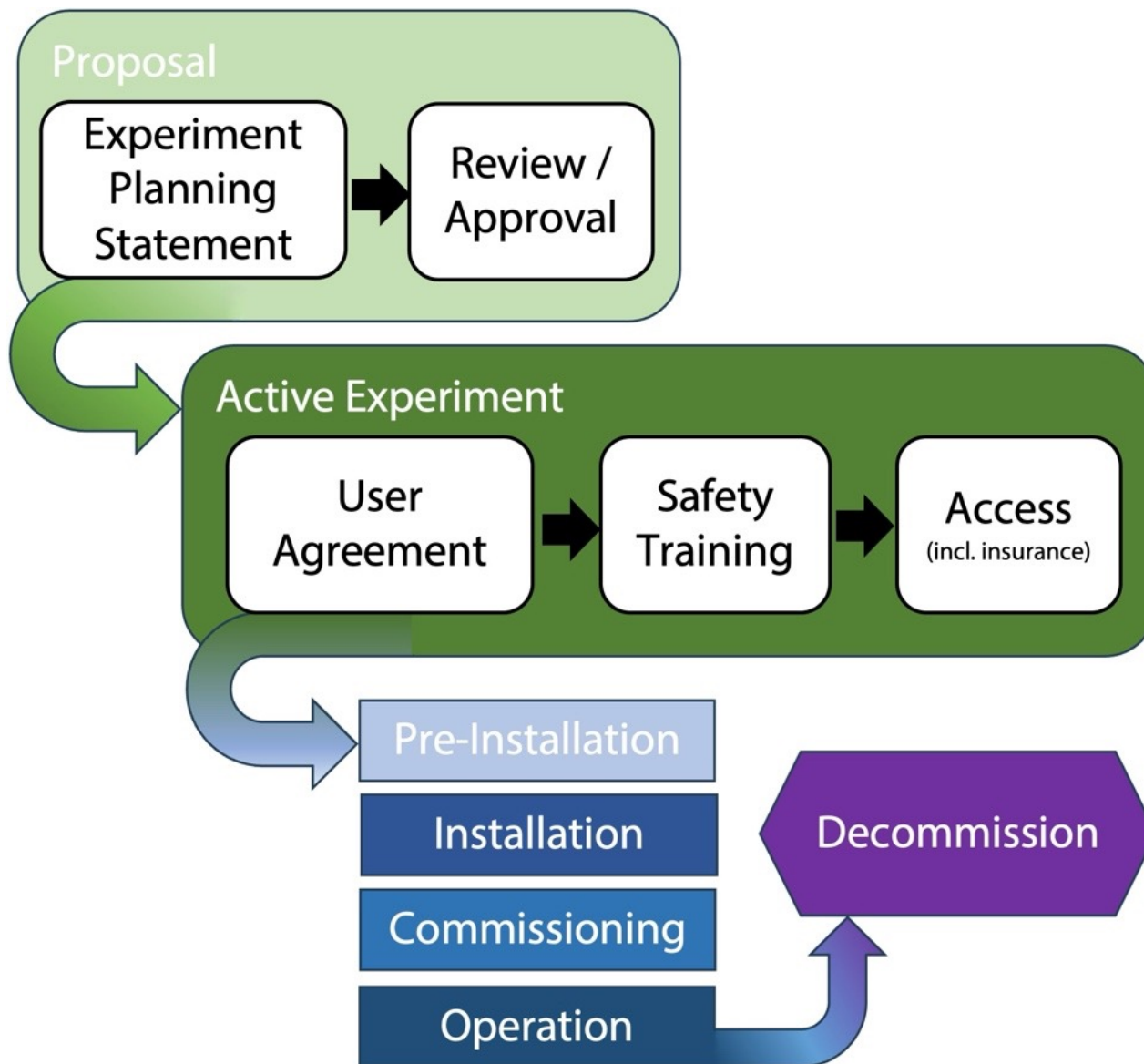
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SURF Experiment Implementation Program

Identify interfaces and hazards within approval framework



<https://www.sanfordlab.org/proposal-guidelines>

The screenshot shows the 'RESEARCH PROPOSAL GUIDELINES' page from the Sanford Underground Research Facility website. The page includes a navigation menu, a title, and a list of researcher resources. A list of five steps for the approval process is provided, along with a section for proposal documents.

RESEARCHER RESOURCES

- Proposal Guidelines
- Science Liaison Office
- SURF User Association
- Visitor information

We are excited at Sanford Lab to contribute to cutting-edge science by providing the best environment for experiments that require unique underground facilities. We are glad to work with you to get your experiment running. To begin the process of approval and installation, follow the steps in the order listed below:

1. Read the [Experiment Implementation Program](#).
2. Read the [Experiment Integration and Support](#) document.
3. Complete a draft of the [Experiment Planning Statement](#) describing your project.
4. Contact the [SURF Science Director](#).
5. Complete the [User Agreement](#). The User Agreement references the SURF [waiver](#) required for underground access, the SURF [ESH Standards](#) and the SURF [Publication Policy](#).

PROPOSAL DOCUMENTS

SCI-(1000-S)-135416 Experiment Integration & Support.pdf 362.8 KB PDF	SCI-(1000-F)-69417 User Agreement 44.7 KB DOCX
SCI-(1000-F)-34460 Experiment Planning Statement 74.2 KB DOCX	SCI-(1000-F)-212612 User Agreement Acknowledgement.docx 31.8 KB DOCX
SCI-(1000-S)-186874 Publication Guidelines.pdf 255.3 KB PDF	Acknowledgement of Risk and Waiver 101.2 KB PDF
SCI-(1000-S)-34478 Experiment Implementation Program.pdf 1 MB PDF	

SURF Experiment Implementation Program

User Agreement (Was Memorandum of Understanding)

General:

- **Administrative:** Personnel, finances, space, communication equipment, insurance, acknowledgement of risk and release, documentation and publications; also general provisions
- **Environment, Safety & Health:** SURF ESH Manual, SURF makes final decision for safety protocols/requirements for activities on SURF property
- **Decommissioning:** General removal and restoration
- **Project Description:** High-level description of project/expt, collaboration, schedule
- **Lab and Expt Responsibilities:** ESH; Access, Material Handling and Operations; Physical Infrastructure
- MOU document is **formal allocation of space**, review every 5 years (at least). Occupancy of shared laboratory space(s) coordinated by SURF.

LZ Specific (for example):

- **LZ Space Allocation:** Surface Lab, Surface Storage Facility (Foundry), 4850L Davis Campus
- **LZ Infrastructure and Xenon Procurement:** Design, construction mods for surface + underground, 1.5M L Xe
- **Initial Decommissioning Plan:** Some resources, schedule
- **Lab and Expt Responsibilities:** Electrical Safety (LBNL electrical safety program, inspections incl conditional, some arc flash), Pressure Safety (LBNL PUB 3000)

MEMORANDUM OF UNDERSTANDING
MOU-20150301-Rev2
BETWEEN
SOUTH DAKOTA SCIENCE AND TECHNOLOGY AUTHORITY
(Operator of the Sanford Underground Research Facility)
AND
Prof. Carter Hall (University of Maryland) Spokesperson
Concerning the LUX-ZEPLIN (LZ) Experiment

This Memorandum of Understanding (MOU) is entered into by and between the South Dakota Science and Technology Authority (SDSTA), which operates the Sanford Underground Research Facility (referred to as the Sanford Laboratory), and Carter Hall, University of Maryland who represents the body of the Experiment collaborators, see Attachment I, (the Collaboration) in this MOU with SDSTA.

Purpose

The purpose of this MOU is to document a good faith effort on the part of both Parties concerning the Experiment.

The SDSTA and the Sanford Laboratory enter into this Memorandum of Understanding for the above-named Experiment (representing the Collaboration) to establish the initial expectations and resources for this research program at the Sanford Laboratory.

Scope

The following items identify the activities covered by this MOU. Specific documents for each activity shall be generated, reviewed and approved prior to commencement of the activity. Areas requiring such special documentation will be identified in this MOU.

The Parties have reached the following understanding:

1.0 Administrative

1.1 Personnel:

- 1.1.1 The Collaboration will provide the Sanford Laboratory's Science Director with a list of personnel expected to participate in the Experiment and who may be spending time at the Sanford Laboratory site (Collaborators). The Collaboration will provide updates prior to the initial visit of new Experiment personnel, as appropriate.
- 1.1.2 A representative from each participating Project institution will agree in writing that Collaborators from his/her institution will abide by the terms in this MOU. An example is provided as Attachment II.

SURF Experiment Implementation Program

User Agreement – Space, insurance, publications, media, etc

Rev. 01
SCI-(1000-F)-69417
User Agreement

USER AGREEMENT (Non-Proprietary)
UA - <yyyymm##>

BETWEEN

SOUTH DAKOTA SCIENCE AND TECHNOLOGY AUTHORITY
(Operator of the Sanford Underground Research Facility)

AND

<Name>, <Affiliation> Spokesperson or Principal Investigator

Concerning the <Project Name> Project or Collaboration

This User Agreement (UA) is entered into by and between the **South Dakota Science and Technology Authority (SDSTA)**, which operates the Sanford Underground Research Facility (SURF), and **<Name>, <Affiliation>**, who represents the body of the Project collaborators, see Attachment I, (the Collaboration) in this UA with SDSTA.

Purpose

The purpose of this UA is to document a good faith effort and agreement on the part of the Parties concerning the Project.

The SDSTA enters into this UA for the above-named Project to establish the initial expectations and resources for this research program at SURF.

Scope

The following items identify the activities covered by this UA. Specific documents for each activity shall be generated, reviewed and approved as appropriate prior to commencement of the activity. Areas requiring such special documentation will be identified in this UA.

The Parties have reached the following understanding:

1.0 Administrative

1.1 Personnel:

1.1.1 The Collaboration will provide SDSTA's Science Director with a list of personnel expected to participate in the Project and who may be spending time at SURF (Collaborators). The Collaboration will provide updates prior to the initial visit of new project personnel, as appropriate.

1.1.2 A representative from each participating Project institution will agree in writing that Collaborators from his/her institution will abide by the terms in this UA. An example is provided as Attachment II.

1.1.3 At the conclusion of an individual's participation in the Project, SURF must be informed, and all badges or keys issued to the individual must be returned to SURF.

South Dakota Science and Technology Authority Page 1 of 12 Form

Rev. 01
SCI-(1000-F)-69417
User Agreement

Signed:

Mike Headley
Executive Director
South Dakota Science and Technology Authority

Date


<Authorized Project Signer>
<Signer Title>
<Institution>

Date

UA signed by lead institution/PI on behalf of collaboration. UA Acknowledgement signed by all institutions with personnel at SURF

South Dakota Science and Technology Authority Page 5 of 12 Form

Rev. 02
SCI-(1000-SI)-34478
Experiment Implementation Program



Sanford
Underground Research Facility
South Dakota Science and Technology Authority

Experiment Implementation Program

South Dakota Science and Technology Authority Page 1 of 21 Standard

SURF Experiment Implementation Program

User Agreement – Space, insurance, publications, media, etc

Rev. 01
SCI-(1000-F)-69417
User Agreement

ATTACHMENT I—The Project

A. **Project Goals:**

<1-2 paragraphs, indicate previous activity as appropriate>

B. **Space:**

<Indicate specific areas of beneficial use and/or occupancy proposed by the Project>

C. **Collaboration Participation:**

1. **Personnel List:**

<List name, institutional affiliation and position for each project participant, list documents relevant to Collaboration membership and its governance>

2. **Start Date and Duration of the Program:**

<Indicate the anticipated start date and duration of the Project, including previous milestones as appropriate. If the Project is phased, indicate the dates for each phase. Dates beyond the scope of this document can be included for informational purposes, but this distinction should be made clear>

3. **Scientific Review:**

<List relevant Project reviews that have either been completed or that are anticipated>

4. **Funding Status:**

<List sources and status of current funding and/or pending proposals>

5. **Approval of Project:**

The Collaboration recognizes that SDSTA requires safety and engineering reviews and approvals of all project elements before granting Authorization to Proceed. The requirements for these reviews are contained in SURF procedures. Authorization to Proceed will be obtained prior to commencement of onsite activities by the Collaboration.

Concurrent with agreement of this UA, and correlated with the state of maturity of designs, SDSTA will call for internal and/or external reviews of safety and hazard-identification and mitigation plans, and where necessary engineering reviews of components.

Once the UA has been executed, technical and safety reviews may be called for each stage of the project. When reviews and corrective actions have been completed, then Authorization to Proceed will be issued for that stage of the project.

Rev. 01
SCI-(1000-F)-69417
User Agreement

ATTACHMENT II—UA Acknowledgement (Example)

I have read and understood the User Agreement between the South Dakota Science and Technology Authority and the Project and agree to abide by all applicable requirements while working at SURF.

I further acknowledge that all Collaborators of my institution are aware of the applicable requirements while working at SURF.

Institution Rep Institution Signature Date

ATTACHMENT III—Insurance Requirements

As required by the Property Donation Agreement between the Barrick Gold Corporation and the South Dakota Science and Technology Authority (SDSTA), as well as the requirements of agencies providing support for Sanford Underground Research Facility (SURF) operations, Project collaborators will comply with the requirements listed below:

A. **Minimum Insurance:** Prior to commencement of work, the Project Sponsor will procure and maintain the following insurance:

1. **General liability insurance.** Such insurance shall name as additional insureds: Barrick Gold Corporation, Homestake Mining Company of California, and the Affiliates of Barrick and Homestake and each of its and their representatives (collectively, the "Homestake Indemnified Parties"); the South Dakota Science and Technology Authority, its officers, agents, employees, and representatives; and the United States Government. All additional insureds coverage must include current and completed operations. In cases when adding additional insureds is prohibited, those specific institutions participating in the Project may request a language waiver from SDSTA.
2. **Business automobile liability insurance.** Such insurance shall include coverage for owned, non-owned and hired automobiles.
3. **Workers' compensation insurance** as required by South Dakota law.

B. **Special Provisions Applicable to All Coverages:** Self-insured retentions and/or deductibles greater than \$50,000.00 must be declared and approved by the Authority.

C. **Special Provisions Applicable to the Commercial General Liability Insurance and Equivalent Self- Insurance:**

1. Provide contractual liability coverage at least as broad as Insurance Services Office (ISO) form CG 00 01 12 07, or its equivalent.
2. Waive the insurer's right of subrogation against the Homestake Indemnified Parties.
3. State that it is primary and non-contributory and shall apply without consideration for other policies carried by the Homestake Indemnified Parties.
4. Include a provision that the insurer will not raise any coverage defense based on the statutory immunity of the State of South Dakota, the South Dakota Science and Technology Authority, or the Homestake Indemnified Parties.

Rev. 02
SCI-(1000-SI)-34478
Experiment Implementation Program



Experiment Implementation Program

SURF Experiment Implementation Program

Publication Policy – SURF acknowledgments, etc



Publication Guidelines

1.0 Purpose

- The purpose of this standard is twofold:
- To establish high standards of excellence for publications by encouraging appropriate review for all scientific, technical and engineering publications related to Sanford Underground Research Facility (SURF) research and technical activities prior to publication; and
 - To ensure South Dakota Science and Technology Authority (SDSTA) is notified of all publications that are based on work performed in whole, or in part, at SURF.

2.0 Scope

This standard concerns collaborating research partners (“Users”), employees, contractors and visitors working at SURF or with SDSTA. This standard applies to all publications that are based on work performed in whole, or in part, at SURF.

3.0 Definitions

Publication – For the purpose of this standard, any document (in whatever form) such as abstracts, manuscripts and technical papers printed in a professional journal, popular periodical, published as a book or portion of a book (including electronic versions) and is made available to the public. The term includes materials subject to patents or copyrights.

4.0 Responsibilities

- 4.1. SDSTA**
- 4.1.1.** Is not responsible for the validity, opinions, findings, conclusions or methods of the research performed by Users at SURF.
- 4.2. Users at SURF, author(s), or other person(s)**
- 4.2.1.** All requirements of any relevant investigator institution’s review processes are met.
 - 4.2.2.** Findings adhere to scientific community standards of ethics and values.
 - 4.2.3.** All requirements of any applicable funding agencies are met.
 - 4.2.4.** The publication contains the appropriate credits, oral acknowledgements, legal disclaimers and patent or copyright notices.
 - 4.2.5.** The publication complies with all applicable patent, copyright, intellectual property, and other applicable laws, as well as the requirements of the SURF User Agreement with the SDSTA.

5.0 Instructions

- 5.1. Acknowledgements**
- To the extent possible, publications must contain the appropriate acknowledgement, including the funding source(s) (note that acknowledgement of the Department of Energy (DOE) should always include two levels of organization, such as “the Office of Science of the Department of Energy”); the DOE or other agency contract number; any applicable facility (non-DOE or non-NSF contract number); and/or a disclaimer must appear in the publication of any material whether copyrighted or not, based on or developed under the project, as follows:
- 5.1.1.** Credit line for publications with restricted word counts:

This material is based upon work supported by the U.S. Department of Energy, Office of Science, Office of High Energy Physics [or list other funding agencies and supporting institutions] and resources of the Sanford Underground Research Facility (SURF), which is a federally-sponsored research facility under Award Number DE-SC0020216.

- 5.1.2.** Full credit line for research developed with DOE funding (no restricted word count):
The research supporting this work took place in whole or in part at the Sanford Underground Research Facility (SURF) in Lead, South Dakota. Funding for this work is supported by the U.S. Department of Energy, Office of Science, Office of High Energy Physics under Contract Number DE-SC0020216. This research was also supported by [INSERT FUNDING AGENCIES AND GRANT/CONTRACT NUMBERS HERE]. The assistance of SURF and its personnel in providing physical access and general logistical and technical support is acknowledged.
- 5.1.3.** Disclaimer:
This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.
- 5.1.4.** Oral acknowledgements—Funding agency support and contributions of SURF should also be acknowledged during all news media interviews including popular media such as radio, television and news magazines as well as during presentations of papers at conferences, seminars, colloquia, public outreach presentations, workshops or other proceedings.
- 5.2. Notifications**
Publications produced as a result of research conducted at SURF are one of the measures of the lab’s success. Authors can help by notifying SDSTA of new publications for SURF. SDSTA will make every effort to make publications available through the SURF website (www.sanfordlab.org). For publications that are not available in the public domain (i.e., published in a journal or other publication with copyright restrictions), the abstract of the publication with information concerning where the full publication can be obtained will be provided through the SURF website.

6.0 Documented Information/Related Documents

NA

SURF Governance

Informs SURF ESH Manual

- **Intergovernmental Agreement (IGA)** created in 2011 between SDSTA and state of South Dakota **Office of Risk Management (ORM)** for worker health and safety oversight at SURF:
 - Roles & responsibilities, incl site inspections and enforcement authority
 - Agreement on specific regulations, codes and standards that best support safe operations at SURF
 - Reviewed and approved annually
- Key IGA regulations include:
 - **OSHA:** General worker health (1910) and safety/construction activities (1926)
 - **MSHA:** Shaft and hoisting operations, ventilation, ground control (30 CFR Part 57), diesel particulate (Part 7)
 - **NFPA:** Electrical (70E), fire alarm (72), life safety (101), etc
 - **NEPA:** (10 CFR 1021)
 - **DANR:** South Dakota Dept of Agriculture and Natural Resources oversees environmental regulation compliance, also ionizing radiation-producing machine registration
 - **City of Lead** is AHJ for building, fire and life safety codes
- NRC regulates radioactive material
 - License since 2013, amended 2018 for broad scope

INTERGOVERNMENTAL AGREEMENT
BETWEEN THE
BUREAU OF ADMINISTRATION,
OFFICE OF RISK MANAGEMENT
OF THE STATE OF SOUTH DAKOTA
AND THE
SOUTH DAKOTA SCIENCE AND TECHNOLOGY AUTHORITY

This INTERGOVERNMENTAL AGREEMENT (“AGREEMENT”) is made and effective the 1st day of July, 2017, between the South Dakota Bureau of Administration, Office of Risk Management, 1429 E. Sioux Avenue, Pierre, South Dakota 57501 (“ORM”), and the South Dakota Science and Technology Authority, 630 E. Summit, Lead, South Dakota, 57754 (“SDSTA”) pursuant to SDCL Ch. 1-24 and in particular SDCL 1-24-8.

Introduction and Purpose

The State of South Dakota established SDSTA to facilitate the development of the former Homestake gold mine into an underground science laboratory (“the Sanford Laboratory”) and to lead the operation of the Sanford Laboratory. The mission of the SDSTA is “to enable compelling underground, multidisciplinary research in a safe work environment and to inspire and educate through science, technology, and engineering.”

When operating as an active mine, the Homestake gold mine was regulated by the U.S. Mine Safety and Health Administration (“MSHA”) and the South Dakota Department of Environment and Natural Resources (“DENR”). SDSTA received title to the Homestake site in 2006 from Homestake Mining Company of California after the 2003 closure of the mining facility.

MSHA and DENR continued to administer and enforce safety and environmental programs until 2008, at which time the SDSTA sought to clarify MSHA’s regulatory role. MSHA determined at that time it no longer had regulatory jurisdiction over the safety and health operations at the Homestake site due to the completion of mining reclamation and the new function of the site.

The U.S. Occupational Safety and Health Administration’s (“OSHA”) 29 CFR 1926¹ and 29 CFR 1910² are considered the most applicable of the available standards for safety and health for most activities conducted in support of the development of the underground laboratory. MSHA’s 30 CFR³ standards are employed as a best practice for underground activities when the OSHA standards do not sufficiently address a given hazard.

Although OSHA standards are being applied to the work conducted at the Sanford Laboratory, OSHA does not have jurisdictional authority for enforcement of those regulations because SDSTA is for the purposes of OSHA standards and regulation a “political subdivision”

¹ Title 29 Code of Federal Regulations Part 1926, “Safety and Health Regulations for Construction”

² Title 29 Code of Federal Regulations Part 1910, “Occupational Safety and Health Standards”

³ Title 30 Code of Federal Regulations Parts 1-199, “Mineral Resources”

SURF Experiment Implementation Program

General Services Agreement

General:

- **Lab/Experiment Responsibilities:** Costs and effort associated with equip & materials (incl consumables), delivery/ transport, maintenance, monitoring, inspections and oversight. Generally, facility mods billed on cost-recovery basis
- **Elements:** Communication/IT, electrical inspections, chemical/hazardous waste, industrial hygiene, pressure systems, gases & cryogenes, radiation safety (incl dosimetry), hoisting & rigging, transportation, storage, procurement, PPE, access, cleaning, utilities/services
- **Fees:** Indirect rate (56.18%), fee structure for proprietary users based on annual SURF budget and average basic researcher access
- **Renewal:** Annually, some in conjunction with associated (but separate) subcontracts

LZ Specific (for example):

- **Facilities:** Surface Lab (+ RRS, water system), Surface Storage (Foundry), Davis Campus (+ water system)
- **Cleanroom Cleaning:** Dedicated 0.5 day/week
- **Electrical Inspections:** Per LZ MOU
- **Xenon:** Nominal return 2027

General Services Agreement: FY24 (October 1, 2023 – September 30, 2024)

This document establishes the General Services Agreement for the period October 1, 2023 through September 30, 2024 between the **South Dakota Science and Technology Authority (SDSTA)**, operator of the Sanford Underground Research Facility (SURF) and the **LUX-ZEPLIN (LZ) Collaboration** (Experiment). For reference, the initial expectations and resources required for the project are outlined in a Memorandum of Understanding (MOU-20150301-Rev2). The SDSTA provides general services to all experiments as indicated in the Experiment Integration and Support standard (<https://sanfordlab.org/researchers/proposal-guidelines>); in addition, SDSTA was awarded a DOE grant to support LZ-specific operations at SURF through February 2027.

The SDSTA overhead rate projected for the agreement period is **56.18%** and will be applied to all allowable costs as required by 2 CFR Part 225. The rate of indirect charges is formally reviewed on an annual basis and established using an audit process. The Experiment will be notified of any rate change. Due to the process of establishing the rate, the final overhead rate may not be available at the time of billing, in which case retroactive adjustments may be applied to future billing.

The services described herein will be provided by the SDSTA, subject to the availability of funding. This document may be modified by the mutual consent of the SDSTA and the LZ Collaboration.

1. General	SDSTA	Experiment
IT Resources	<ul style="list-style-type: none">• Inspections and maintenance of Experiment network fibers.	<ul style="list-style-type: none">• Costs associated with dedicated network fibers.
Electrical Equipment	<ul style="list-style-type: none">• Perform inspections per LZ MOU and SDSTA policy and procedures.	<ul style="list-style-type: none">• Perform inspections per LZ MOU.
Pressure Systems		<ul style="list-style-type: none">• Experiment-specific ESH evaluation.
Radiation Dosimetry	<ul style="list-style-type: none">• Costs for processing SDSTA personnel badges (except entry-mode).	<ul style="list-style-type: none">• Costs for processing Experiment and SDSTA entry-mode personnel badges as authorized by LZ.
PPE		<ul style="list-style-type: none">• Some fall restraint barriers to support Experiment activities.
Xenon	Provide up to 1.5M liters SDSTA xenon for Experiment use.	<ul style="list-style-type: none">• Purification to meet Experiment specifications.• Return SDSTA inventory to SDSTA after use, nominally by the end of 2027 (latest by early 2028).
2. Surface Laboratory	SDSTA	Experiment

Page 1 of 3

GSA general aspects incorporated in Experiment Integration & Support document

SURF Experiment Implementation Program – Future DOE User Facility User Agreement (similar to existing SURF UA & GSA docs)

DOE template promotes best practices in agreement composition and consistency across user facilities:

- Facilities and Scope of Work
- Term of Agreement (5 years for some)
- Cost, Billing and Payment of Expenses
- Admission Requirements
- Property and Materials
- Scheduling
- Indemnity and Liability
- Patent Rights
- Rights in Technical Data
- Lab Site Access, Safety and Health
- Personnel Relationships
- Export Controls
- Publications
- Disputes
- Conflict of Terms
- Termination

DOE Waiver

ARTICLE XVI. TERMINATION***

Either Party may terminate this Agreement for any reason at any time by giving not less than thirty (30) days prior written notice to the other Party. Notice will be deemed made as of the day of receipt. The obligations of any clause of this Agreement, which by their nature extend beyond its termination, shall remain in full force and effect until fulfilled.

FOR THE CONTRACTOR: Stanford University

BY: Azeb Amii
Authorized Stanford/SLAC Officer

SIGNATURE: _____

TITLE: VUE Center Coordinator
SLAC National Accelerator Laboratory

DATE: _____

FOR THE USER: _____

BY: _____
(Name of Authorized Officer, typed)

SIGNATURE: _____

TITLE: _____

DATE: _____

ADDRESS: _____

TELEPHONE: _____

EMAIL: _____

Non-Proprietary User Agreement

BETWEEN

Leland Stanford, Jr., University ("CONTRACTOR")
National Accelerator Laboratory (hereinafter "Laboratory")
Department of Energy ("DOE") Contract No. DE-AC02-76-SFO0515

AND

("USER Institution")

CONTRACTOR and USER are collectively, "the Parties")

Any DOE Contractor may be transferred to and shall apply to the Contractor continuing the operation of the DOE Non-Proprietary User Agreement.

SCOPE OF WORK

Not applicable to employees, consultants and representatives of USER at certain Laboratory Non-Proprietary User Facilities, which may include equipment, information and other material, with or without Laboratory scientist participation as described in the experiment proposal accepted and conducted at the Laboratory. Additional future experiments referencing this Agreement may be conducted at the Laboratory and purposes during the term of this Agreement. Experiment proposals will be considered to be part of this Agreement. CONTRACTOR. Each accepted and approved experiment shall be within the defined Scope of Work of a specific project, including deliverables, milestones and schedule.

CONTRACTOR if it intends to conduct any proprietary research at the Laboratory, the Non-Proprietary User Agreement can be first put into place.

Information provided by CONTRACTOR shall be considered proprietary information and shall be publicly disclosed only with the prior written consent of CONTRACTOR.

AGREEMENT

This Agreement shall become effective as of the date on which it is signed by the last of the Parties in accordance with the terms herein, this Agreement shall have effect from the effective date. The agreement can be renewed for additional terms as mutually agreed upon by the Parties.

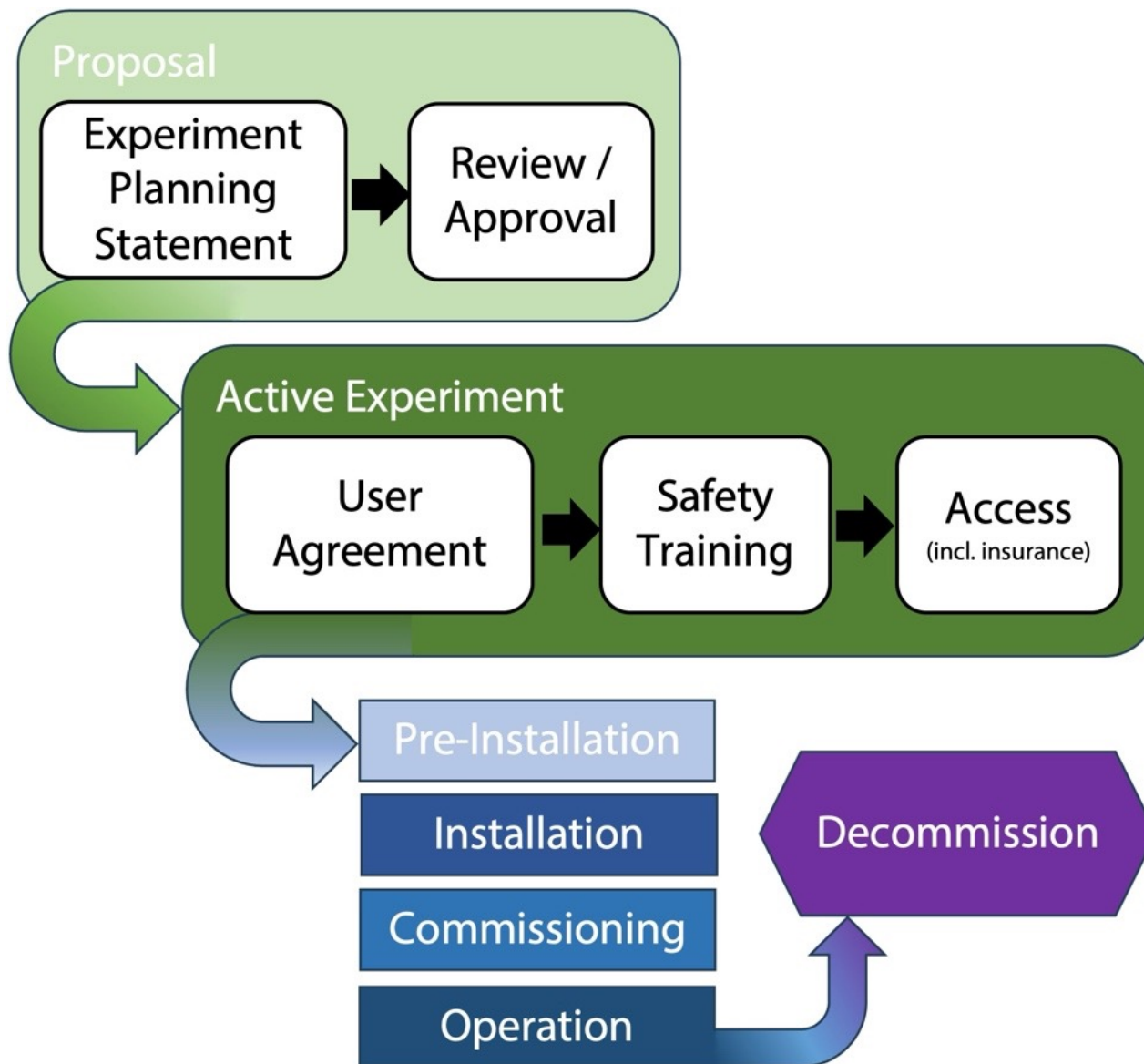
Non-proprietary User Agreement example (SLAC)

NPU 10/13/2009

9

SURF Experiment Implementation Program

Identify interfaces and hazards within approval framework



<https://www.sanfordlab.org/proposal-guidelines>

The screenshot shows the 'RESEARCH PROPOSAL GUIDELINES' page from the Sanford Underground Research Facility website. The page includes a navigation menu, a list of researcher resources, a list of proposal documents, and a list of steps for the approval process.

RESEARCH PROPOSAL GUIDELINES

All proposals must follow these guidelines

RESEARCHER RESOURCES

- Proposal Guidelines
- Science Liaison Office
- SURF User Association
- Visitor information

We are excited at Sanford Lab to contribute to cutting-edge science by providing the best environment for experiments that require unique underground facilities. We are glad to work with you to get your experiment running. To begin the process of approval and installation, follow the steps in the order listed below:

1. Read the [Experiment Implementation Program](#).
2. Read the [Experiment Integration and Support](#) document.
3. Complete a draft of the [Experiment Planning Statement](#) describing your project.
4. Contact the [SURF Science Director](#).
5. Complete the [User Agreement](#). The User Agreement references the SURF [waiver](#) required for underground access, the SURF [ESH Standards](#) and the SURF [Publication Policy](#).


PROPOSAL DOCUMENTS

SCI-(1000-S)-135416 Experiment Integration & Support.pdf 362.8 KB PDF	SCI-(1000-F)-69417 User Agreement 44.7 KB DOCX
SCI-(1000-F)-34460 Experiment Planning Statement 74.2 KB DOCX	SCI-(1000-F)-212612 User Agreement Acknowledgement.docx 31.8 KB DOCX
SCI-(1000-S)-186874 Publication Guidelines.pdf 255.3 KB PDF	Acknowledgement of Risk and Waiver 101.2 KB PDF
SCI-(1000-S)-34478 Experiment Implementation Program.pdf 1 MB PDF	

SURF Experiment Implementation Program

Access: User Request Form (submitted via DocuShare by Sponsor)

Not Secure — docs.sanfordlab.org/cfide/user_request.cfm/

 SDSTA/Science/Contractor
10-12-2020 04:40 PM

New Access Request

First Name*:	<input type="text"/>	Last Name*:	<input type="text"/>	Middle Initial:	<input type="text"/>
Institution*:	<input type="text"/>	Project*:	<input type="text"/>	Start Date*:	<input type="text"/>
Phone*:	<input type="text"/>	Email*:	<input type="text"/>	Sponsor*:	Jaret Heise
Job Title:	<input type="text"/>	Term Date:	<input type="text"/>		
Country of:					
Citizenship*:	USA	Birth*:	USA	Visual Compliance:	

Additional Contact Information

Supervisor Name:	<input type="text"/>	Supervisor Phone:	<input type="text"/>	Supervisor Email:	<input type="text"/>
Emergency Name:	<input type="text"/>	Emergency Phone:	<input type="text"/>	New Badge*:	<input type="text"/>

Resource Allocation

DocuShare*:	No	VPN*:	No	Work Location*:	Offsite Only	Initial Brass*:	No
Is your work location onsite and more than 40hrs:	No	Date Onsite:	<input type="text"/>	PPE*:	No		

Comments/Additional Information

Training requests sent to ESH (*those who have taken GSB can complete ART and not re-take GSB)

Training	Site Specific	Task Specific
<input type="checkbox"/> Videos-Cultural and/or Safety	<input type="checkbox"/> Davis	<input type="checkbox"/> Pb
<input type="checkbox"/> Surface Orientation	<input type="checkbox"/> Ross	<input type="checkbox"/> Radiation
<input type="checkbox"/> Underground Orientation	<input type="checkbox"/> Sawmill	<input type="checkbox"/> Fall Protection
<input type="checkbox"/> General Safety Basic* <input type="text"/>	<input type="checkbox"/> Surface Lab	<input type="checkbox"/> Cryogenics
<input type="checkbox"/> Annual Refresher Training	<input type="checkbox"/> Machine Shop	<input type="checkbox"/> LOTO
<input type="checkbox"/> Guide	<input type="checkbox"/> Lower Foundry	
<input type="checkbox"/> Waiver	<input type="checkbox"/> Motor Repair	
<input type="checkbox"/> Unescorted Access	<input type="checkbox"/> U/G Non-Laboratory	
<input type="checkbox"/> Guide Trainer		

Next Step: Science Director Approval; SDSTA/Contractor requests sent to IT/ESH

SURF Experiment Implementation Program

Access: Insurance

- Insurance (liability, auto, Workers' Compensation) required by Barrick/Homestake Property Donation Agreement
 - Amounts typically **\$1M**, can vary by risk: higher for construction (say \$5M), some academic institutional carry less and we can usually accommodate if risk is low
- Formal insurance language captured in UA (all institutions required to **acknowledge** MOU, incl awareness of insurance requirements)
 - Commercial and self-insurance acceptable
 - Separate memo available to facilitate communications
- Waivers are possible (also mentioned in UA), ~~SDSTA carries extra insurance in case of gaps for higher-risk groups~~
 - Some institutions (incl US) have policies that do not allow additional insureds (i.e., other entities making a claim on their insurance policy)
 - Some (non-US) institutions do not have insurance



South Dakota Science and Technology Authority 630 E. Summit St. Lead, SD 57754

March 3, 2020

Subject: SURF experiment collaborator insurance requirements

To Whom It May Concern,

SDSTA insurance requirements for research groups at SURF are included in the Memorandum of Understanding (MOU) that is signed with SDSTA on behalf of the experiment or project. For an experiment consisting of multiple collaborating institutions, the MOU directs representatives from collaborating institutions to sign a document acknowledging the MOU (including the insurance requirements).

While SURF experiments or projects may choose to formalize collaboration relationships using a subcontract, SDSTA does not require that insurance requirements for non-construction (low-risk) work scope be explicitly included in the subcontract language. The MOU with SDSTA and the associated acknowledgements are sufficient.

Note that typical levels of insurance coverage for non-construction (low-risk) activities include:

- \$1M general liability
- \$1M auto
- Workers Compensation coverage meeting the requirements of South Dakota law.

Sincerely,

Matt Symonds
Business Services & Contracts Manager
Sanford Underground Research Facility

Certificate of insurance
(each institution with
personnel at SURF)

SURF Experiment Implementation Program

Access: Insurance

- Insurance (liability, auto, Workers' Compensation) required by Barrick/Homestake Property Donation Agreement
 - Amounts typically **\$1M**, can vary by risk: higher for construction (say \$5M), some academic institutional carry less and we can usually accommodate if risk is low
- Formal insurance language captured in UA (all institutions required to **acknowledge** MOU, incl awareness of insurance requirements)
 - Commercial and self-insurance acceptable
 - Separate memo available to facilitate communications
- ~~Waivers are possible (also mentioned in UA), SDSTA carries extra insurance in case of gaps for higher-risk groups~~
 - Some institutions (incl US) have policies that do not allow additional insureds (i.e., other entities making a claim on their insurance policy)
 - Some (non-US) institutions do not have insurance

ACORD [®]		CERTIFICATE OF LIABILITY INSURANCE		DATE (MM/DD/YYYY)		
				4/14/2021		
<p>THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.</p> <p>IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).</p>						
PRODUCER Lockton Companies 1185 Avenue of the Americas, Suite 2100 New York, NY 10036 646-572-7300		CONTACT PHONE: _____ FAX: _____ E-MAIL: _____ ADDRESS: _____ INSURER(S) AFFORDING COVERAGE INSURER A: National Union Fire Ins Co Pitts, PA 19445 INSURER B: AllU Insurance Company 19399 INSURER C: New Hampshire Insurance Company 23841 INSURER D: _____ INSURER E: _____ INSURER F: _____				
INSURED 1437521 Brookhaven Science Associates Building 400B Upton NY 11973						
COVERAGES		CERTIFICATE NUMBER: 17482833	REVISION NUMBER: XXXXXXXX			
THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.						
FORM	TYPE OF INSURANCE	ACORD NUMBER	POLICY NUMBER	POLICY EFF. DATE	POLICY EXP. DATE	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAMS-MADE <input type="checkbox"/> OCCUR <input type="checkbox"/> POLICY <input type="checkbox"/> PERIOD <input type="checkbox"/> LDC OTHER: _____ GEN'L AGGREGATE LIMIT APPLIES PER: _____ <input type="checkbox"/> POLICY <input type="checkbox"/> PERIOD <input type="checkbox"/> LDC	Y	3980297	1/1/2021	1/1/2022	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (EA ACCIDENT) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMPROP AGG
A	<input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED <input type="checkbox"/> HIRED ONLY <input type="checkbox"/> HIRED <input type="checkbox"/> AUTOS ONLY <input type="checkbox"/> SCHEDULED <input type="checkbox"/> AUTOS-LEASED <input type="checkbox"/> AUTOS ONLY	Y	4888819	1/1/2021	1/1/2022	COMBINED SINGLE LIMIT (EA ACCIDENT) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per Acc'dnt)
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> EXCESS LIAB <input checked="" type="checkbox"/> RETENTIONS: 10,000	N	0311-1059	1/1/2021	1/1/2022	EACH OCCURRENCE AGGREGATE
B	<input checked="" type="checkbox"/> WORKERS COMPENSATION <input checked="" type="checkbox"/> AND EMPLOYERS LIABILITY ANY PROHIBITORY PARTNER/EXECUTIVE (Mandatory in NH) If we should hire DESCRIPTION OF OPERATIONS below	N/A	58240134/NY,CT,DC,MD,IL,VA 58240133/MA,ND,OH,WA,WY	1/1/2021 1/1/2021	1/1/2022 1/1/2022	<input checked="" type="checkbox"/> PERM <input type="checkbox"/> TEMP <input type="checkbox"/> E&L EACH ACCIDENT <input type="checkbox"/> E&L DISEASE - EA EMPLOYEE <input type="checkbox"/> E&L DISEASE - POLICY LIMIT
DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required) Barrick Gold Corporation, Homestake Mining Company of California, and the Affiliates of Barrick and Homestake and each of its and their representatives; the South Dakota Science and Technology Authority, its officers, agents, employees and representatives; and the United States Government are included as additional insureds as required by written contract.						
CERTIFICATE HOLDER				CANCELLATION		
17482833 Evidence of Insurance				SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE <i>Michael A. Calabrese</i>		
ACORD 25 (2016/03)				© 1988-2015 ACORD CORPORATION. All rights reserved. The ACORD name and logo are registered marks of ACORD		

Certificate of insurance (each institution with personnel at SURF)

SURF Experiment Implementation Program

Access: Insurance

- Insurance (liability, auto, Workers' Compensation) required by Barrick/Homestake Property Donation Agreement
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 - Some institutions (incl US) have policies that do not allow additional insureds (i.e., other entities making a claim on their insurance policy)
 - Some (non-US) institutions do not have insurance

CERTIFICATE OF COVERAGE
THE PUBLIC ENTITY POOL FOR LIABILITY (PEPL FUND*)

South Dakota Office of Risk Management Phone 605.773.5879
1429 East Sioux Ave Fax 605.773.5880
Pierre, SD 57501

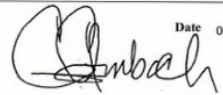
Covered Party: **EMPLOYEES OF THE STATE OF SOUTH DAKOTA**

Certificate Holder: This Certificate Issued Regarding:

SDSTA For South Dakota School of Mines and
630 E Summit St. Technology personnel to conduct
Lead, SD 57754 research and educational activities at
the Sanford Underground Research
Facility.

**THIS CERTIFIES THE PEPL FUND PROVIDES
THE FOLLOWING COVERAGES:**

TYPE OF COVERAGE	EXPIRATION DATE	LIMITS (PER OCCURRENCE)
General Liability	06/30/2022	\$1,000,000.00
Automobile Liability	06/30/2022	\$1,000,000.00

Authorized Representative  Date 06/28/2021

*The PEPL Fund is a liability pool established under SDCL 3-22. All coverage certified hereunder is subject to limitations, terms and conditions of the Participation Agreement between PEPL and the State of South Dakota. For questions, call PEPL's Executive Director at (605) 773-5879.

Certificate of insurance
(each institution with
personnel at SURF)

SURF Experiment Implementation Program

Access: Insurance

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MUTSAERTS
VERZEKERINGEN & PENSIËN


Certificate of Insurance

This is to certify that we, Mutsaerts B.V. and Chubb European Group SE, have effected the following liability insurance:

Policy number	CA252430
Insured	Stirling Cryogenics B.V.
Activities	Owner/operator of a business engaged in the design, manufacture, sale and repair of products, supplies and machinery for liquefaction, re-liquefaction, transport and storage of liquefied gases, as well as the provision of technical and other services in the cryogenic and related fields. (as per policy)
Limits of liability	€ 10.000.000,- any one claim and € 10.000.000,- aggregate per annum
Conditions	According to policy wording NBA2014 including all applicable special conditions and endorsements
Territory	The whole world including USA/Canada
Period	From 01-01-2022 until 01-01-2023 with tacit renewal for 12 months
Insurer	Chubb European Group SE
Broker	Mutsaerts B.V.

This certificate is subject to the terms, conditions and limitations of policynummer CA252430 issued in the Dutch language. In the event of claims or disputes the policy wording, terms and conditions, will be binding.

Mutsaerts B.V.,
Tilburg, 08-02-2022



MUTSAERTS Ringlaan West 24D Postbus 9702 5000 HC Tilburg T 013 594 28 28 E info@mutsaerts.nl mutsaerts.nl

KVK 180207480000 AFM 1200237 IBAN: NL53 ABNA 0522 2169 89

Certificate of insurance
(each institution with
personnel at SURF)

SURF Experiment Integration & Support

Overview

- **General:**

- In partnership with research groups, SDSTA aims to maintain a robust **organization with resources** to promote **safe and successful** experiment operations at SURF

- **Responsibilities:**

- **Experiment Point of Contact:** Science dept representative assigned to assist in navigating the experiment implementation process and help identify points of contact within other SURF departments as needed
- **Laboratory Coordinator:** Communication, safety oversight, emergency response
- **Radiation/Experiment Health & Safety Manager:** ESH dept point of contact for experiment groups (+ support by others)
- **Operations:** Support for access and facilities (incl engineering, electrical, IT, maintenance, etc); also nominal support for expt installation/integration planning

- **Other Elements:**

- **Support:** Formalize and provide details regarding basic experiment support (per DOE guidance); also machining services
- **Facility Access:** Typical schedules, facility guides, emergency access
- **Planning & Communication:** Shipping & transport, work planning, shift reports, incident reports, evacuation drills



SURF Experiment Integration & Support

Basic support, responsibilities and expectations for SURF and Experiment

Rev. 03
SCI-(1000-A)-189372
Experiment Integration & Support Attachment

Rev. 03
SCI-(1000-A)-189372
Experiment Integration & Support Attachment

Rev. 03
SCI-(1000-A)-189372
Experiment Integration & Support Attachment

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

South Dakota Science and Technology Authority Page 3 of 6 Attachment

Rev. 03
SCI-(1000-A)-189372
Experiment Integration & Support Attachment

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Experiment Integration & Support Attachment

Rev	Date	Section	Paragraph	Summary of Change	Authorized by
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

South Dakota Science and Technology Authority Page 6 of 6 Attachment

SURF Experiment Integration & Support

DOE Cooperative Agreement Guidance

- **Basic Support for Non-Proprietary Experiments:**

- General terms:

- 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; and
- Provision of usable above ground laboratory and setup space to prepare experiments.
- Needs beyond basic support billed on cost-recovery basis (via contract or GSA)

- **Full Cost Recovery for Proprietary Experiments:**

- Fee structure based on SURF budget (surface / UG) relative to non-proprietary researcher access & space footprint (updated annually, via contract or User Agreement or General Services Agreement):

1. **Project access** (per experiment person, per hour, based on location)
2. **SURF personnel** acting on behalf of a project (per SURF person, per hour)
3. **Space occupancy and operations** (monthly, based on annual budget and location)

- Unattended operation: cost recovery based on space occupancy, specific support by SURF personnel

- No equipment installed: cost recovery based on access, specific support by SURF personnel

SURF Experiment Integration & Support

Integration

- **Communication:** Communication to all stakeholders, incl Project Team, website, All Hands meetings
- **Science Integration Meeting:**
 - Weekly meeting with Expt and SURF reps to plan upcoming activities, coordinate schedules, identify required resources and resolve conflicts
 - Compile information from daily shift reports submitted by all expts (incl suggestions, observations, acts of safety, etc)
 - Subcommittees as required (e.g., cleanliness, radiation)
- **Lab Coordinator:**
 - Science dept representative assigned to act in a coordination role to facilitate access to facility resources as well as perform facility oversight for experiment activities
 - Laboratory Coordinators 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
 - Host daily 4850L coordination meetings for multiple cage times
- **Experiment Point of Contact:**
 - Science dept representative assigned to assist in navigating the experiment implementation process and help identify points of contact within other Sanford Lab departments as needed
 - ESH point of contact for experiment groups is Radiation/Experiment Health & Safety Manager
- **SURF-Experiment Management Meetings:**
 - Regular meetings held between facility management (including the Science, Laboratory and Executive Directors) and experiment management/Pis identify and resolve any critical issues
 - SURF User Association: annual general meetings + quarterly Executive Committee meetings

SURF Experiment Integration & Support

Shipping Forms (Incoming and Outgoing)



SURF Incoming Shipping Information

Use this form when you are having something shipped to the Sanford Underground Research Facility.

Please address shipments to:

Experiment Name
Attn: Name
Sanford Lab / SDSTA
651 Ellison St.
Lead, SD 57754

Main phone number: (605) 722-8650

Important information:

- Any shipments over 150 lbs must be shipped by freight.
- Delivery date guarantees from most shipping companies are ramp-to-ramp, not door-to-door (the ramps for FedEx and UPS are in Sioux Falls, SD).
- Freight from Sioux Falls to Rapid City is only sent every Tue & Fri (weather permitting).

Your name (First and Last) *

Your answer

Your email address (and additional email addresses for notification) *

Add additional email addresses separated by commas.

Your answer

With what collaboration or institution is the shipment associated? *

Black Hills State University Underground Campus

From where does the shipment originate? *
Name of vendor or institution on the origin address.

Your answer

To whom is the package addressed? *
Person at SURF receiving the package.

Your answer

Please list the package contents *

Your answer

Please give the approximate package dimensions and weight. *
(Large packages or deliveries with multiple packages [totalling ~1 cubic meter] may require a Yates Manifest entry for transport underground. Please inform the experiment onsite contact.)

Your answer

Electrical Items

Does the shipment contain any non-battery-powered electrical items? *
Electrical items must be inspected before being used onsite. Unless indicated otherwise in the special handling instructions, shipments will be opened in the receiving warehouse for inspection before being sent to their delivery destinations.

- Yes
 No

Has an institutional inspection been performed on the electrical items before shipping? If so, please list the institution that performed the inspection.

Your answer

Tracking number
Important! If not immediately available, reply-all to notification email with updated information once the tracking number is available.

Your answer

Please give the approximate arrival date *

MM DD YYYY
_ / _ / _

Where should the package be delivered? *

- Hold at Warehouse
 Davis Campus @ 4850L
 Ross Campus @ 4850L
 EGS/SIGMA-V @ 4850L
 EGS/SIGMA-V @ 4100L
 Surface Lab
 Lower Foundry
 Admin Building
 Motor Repair Shop
 Sawmill
 Other: _____

Special handling instructions

- Fragile
 Open in cleanroom environment only
 Temperature sensitive - Keep warm
 Humidity/Moisture sensitive - Keep dry
 Keep upright
 Other: _____

Submit

Clear form

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SURF Experiment Integration & Support

High-Value Equipment Handling Form, Enhanced Coordination



High-Value Equipment Handling Form

This form is intended to formalize expectations for handling high-value items and may be used by all Sanford Laboratory personnel as well as contractors and science collaborators.

Experiment Information:

Expt Name:	Contact Name:	Contact Phone Number:
Science Dept Contact/Phone:	Operations Dept Contact/Phone:	

High-Value Equipment:

Equipment Description (incl weight):		
Special Precautions:		
Equipment <u>Pick Up</u> Location:	Expt Rep Required to be Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	(Expt Rep Initials)
Equipment <u>Delivery</u> Location:	Expt Rep Required to be Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	(Expt Rep Initials)
Additional Comments:		

Equipment Preparation (Packing, Staging, Etc):

Packing (Name, Organization, Date, Description):			
Equipment Staging Status (on ground, on rail vehicle, etc):			
Equipment Ready For Transport:	(Expt Rep Initials)	Date	Time

Pre-Transport Preparations:

Packing appears adequate and in good condition: <input type="checkbox"/> Yes (SURF Rep Initials) <input type="checkbox"/> No (SURF Rep Initials)
JHA/Transport Procedure: <input type="checkbox"/> No <input type="checkbox"/> Yes Comment:
Special Rigging for Transport: <input type="checkbox"/> Yes (if yes explain) <input type="checkbox"/> No
Planned Route (path description, shaft, etc):
Pre-Transport Inspection Comments (eg., track/switch inspections, etc):
Transportation Equipment:

Transportation & Handling:

Procedure based on Operations Procedure: SOP-0026 Transporting Personnel & Material in Underground Levels and Ramps	
Transport Personnel Name:	
Special Precautions:	
Planned Pick Up Date/Time:	Planned Delivery Date/Time:
Actual Pick Up Date/Time:	Actual Delivery Date/Time:
In case of unusual circumstances – IMMEDIATELY call your supervisor, the Science Contact or the Expt Contact	

Equipment Handling Plan Acceptance:

Experiment Rep (signature):
SURF Rep (signature):

Document-82438
 Revised: (08/17/2016) A hard copy of this document may not be the version currently in effect. The current version is always the version contained within
 Supersedes: (03/20/2012) Sanford Lab's document management system, DocuShare (<https://docs.sanfordlab.org>).

SURF Experiment Integration & Support

Yates Manifest (Load/Shipment Management)

Sanford Underground Research Facility
DocuShare

< April 2017 >

	S	M	T	W	T	F	S
W	26	27	28	29	30	31	1
W	2	3	4	5	6	7	8
W	9	10	11	12	13	14	15
W	16	17	18	19	20	21	22
W	23	24	25	26	27	28	29
W	30	1	2	3	4	5	6

Yates Shaft Manifest Schedule [List Report](#) | [Print](#) | [Reports](#)

1) Click on an available time to create a new material move request in the Yates Shaft.
 2) Your request will change to a pending status until approved. Your status will then change to Scheduled.
 All approval and request steps will be communicated through automated emails.

Dates with this color represent available times:

Times with this color represent small loads (<= 5ft) that have multiple loads available for the same time:

Cage Dimensions 54.75" wide x 120" long x 108" high

Unavailable = Not an available time.

Start Date: End Date:

ID	Time	Status	From	To	Material Type	Requester	Special Conditions
	12:00 AM	Unavailable					
	12:30 AM	Unavailable					
	01:00 AM	Unavailable					
	01:30 AM	Unavailable					
	02:00 AM	Unavailable					
	02:30 AM	Unavailable					
	03:00 AM	Unavailable					
	03:30 AM	Unavailable					
	04:00 AM	Unavailable					
	04:30 AM	Unavailable					
	05:00 AM	Unavailable					
	05:30 AM	Unavailable					
	06:00 AM	Unavailable					
	06:30 AM	Unavailable					
	07:00 AM	Unavailable					
	07:30 AM	Unavailable					
6603	08:00 AM	Scheduled 1/2-UP	4850	Surface	LN	Cabot-Ann Christofferson	Hoist LN yellow top dewar
	08:00 AM	Available 1/2-UP					
	08:00 AM	Available-Down					
6573	08:30 AM	Scheduled 1/2-DOWN	Surface	4850	LN	Cabot-Ann Christofferson	Lower LN yellow top dewar
	08:30 AM	Available 1/2-Down					
8246	08:30 AM	Scheduled-UP	4850	Surface	Other	Dick Goetz	porta-pots
8483	09:00 AM	Scheduled-DOWN	Surface	4850	Supplies/Materials	Dick Goetz	Duane's toolbox
8250	09:00 AM	Scheduled-UP	4850	Surface	Supplies/Materials	Dick Goetz	garbage
	09:30 AM	Available					
	10:00 AM	Available					

SURF Experiment Integration & Support

Trip Action Plan (UG + Cage Occupancy)

Trip Plan Start Date: 2024-05-17

End Date: 2024-05-17

Time Down	12:00AM	5:30AM	6:00AM	6:30AM	6:30AM	7:00AM	7:00AM	7:30AM	7:30AM	11:30AM	Spec:AM	12:00PM	3:45PM	4:15PM	5:15PM	5:30PM	6:00PM	6:30PM	6:30PM	7:00PM	Spec:PM	
BHUC	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
CAT	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXP TMI	0	0	0	11	0	2	0	0	0	0	0	1	0	0	0	0	0	0	10	0	0	0
KAJV	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
LZ	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0
Other Expt	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
SDSTA	0	8	0	0	0	0	0	0	5	0	0	3	0	0	0	8	0	0	0	0	0	0
TMI	0	0	22	5	0	1	0	0	0	0	0	0	0	0	0	0	17	0	1	0	0	0
TAP Total(29 Max per Cage)	0	8	22	16	0	6	3	0	13	0	0	22	0	0	0	8	17	0	11	1	0	
TAP Total UG(269 Max)	0	8	30	46	46	52	55	55	68	61	61	83	71	71	64	72	81	61	72	59	37	

4850L-Davis Campus (ID:57137); Last Update:05-17-2024 (Include in List Report)

[Clone](#)

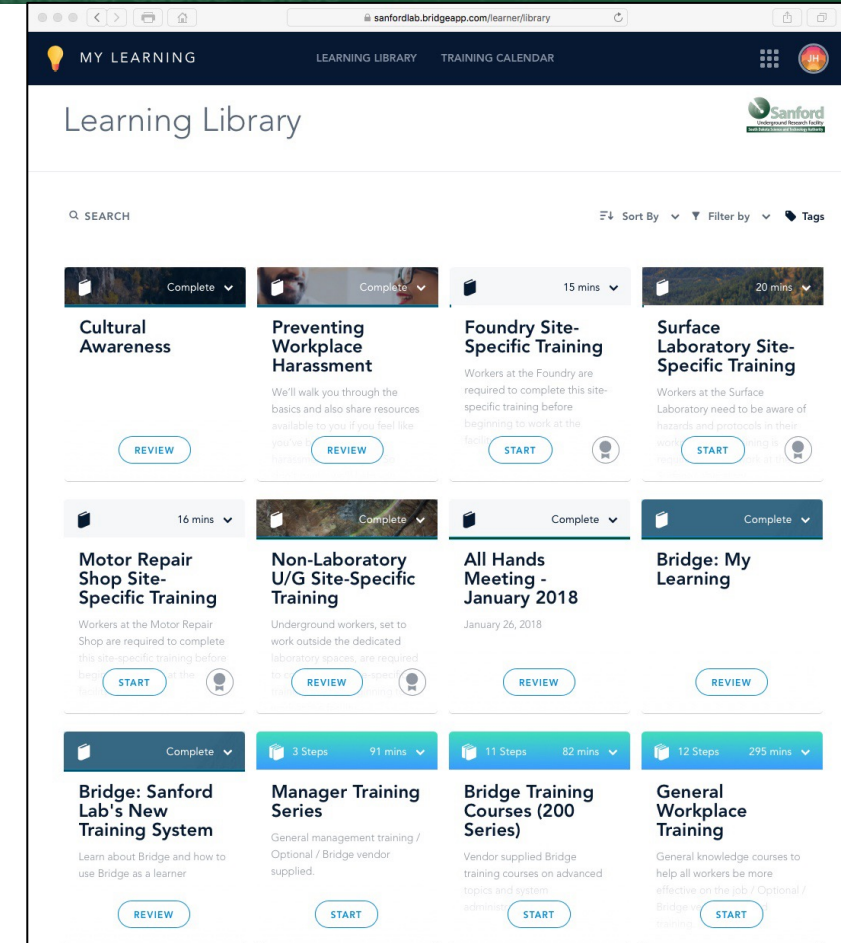
CoSSURF 2024. Total of 17 visitors and 2-3 guides

Name	Guide	Affiliation	Date Down	Time Down	Date Up	Time Up
Aobo Li		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Biswaranjan Behera		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Christopher Jackson		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Franklin Lemmons		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Gregory Pawloski		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Guide	Guide	SDSTA	2024-05-17	12:00PM	2024-05-17	Spec:PM
Jaret Heise	Guide	SDSTA	2024-05-17	12:00PM	2024-05-17	Spec:PM
Joshua Barrow		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Konstantinos Mavrokoridis		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Krishan Mistry		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Markus Horn	Guide	SDSTA	2024-05-17	12:00PM	2024-05-17	Spec:PM
Michela Lai		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Min Zhong		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Nicole Rocco		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Noah Everett		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Roberto Mandujano		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Shawn Westerdale		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Sowjanya Gollapinni		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Stephen Hughes		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Suchismita Sahoo		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM
Zhicheng Qian		Other	2024-05-17	12:00PM	2024-05-17	Spec:PM

Time Up	12:15AM	6:00AM	6:15AM	6:45AM	6:45AM	7:15AM	7:45AM	8:00AM	8:15AM	11:45AM	Spec:AM	12:15PM	3:30PM	4:00PM	4:30PM	4:30PM	5:00PM	6:00PM	6:15PM	6:45PM	6:45PM	Spec:PM	
BHUC	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CAT	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
EXP TMI	0	0	10	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	11	1	
KAJV	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	
LZ	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	5	0	0	0	0	0	0	
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	
Other Expt	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
SDSTA	0	8	0	0	0	0	0	0	0	0	0	1	2	0	0	2	0	8	0	0	0	3	
TMI	0	0	18	0	0	0	0	5	0	0	0	0	2	0	0	0	0	0	20	0	1	0	
TAP Total(29 Max per Cage)	1	8	28	0	0	0	0	7	0	0	0	6	6	0	0	7	0	8	20	0	14	22	

SURF Experiment Integration & Support Training

- **General Safety – Basic Training (~4 hrs; Zoom possible)**
 - Researchers are “Lab Workers” in SURF Training policy
 - In-person class offered 2x monthly (see public website for schedule), possible flexibility in dates
 - Allowance for < 40 hrs per year on property
- **Site-Specific Training (most online Bridge)**
 - General surface and underground (video)
 - Area-specific (e.g., 4850L Davis Campus, Surface Lab, Sawmill, Foundry, etc)
- **Task-Specific Training**
 - Procedures (Job Briefing Attendance)
 - Hazard training (e.g., chemical, electrical, pressure, cryogen, radiation, etc)
 - On-the-Job training, SURF/Expt (eg., hoisting & rigging)
- **Refresher Training (most online Bridge)**
 - SURF: Refresher training required for GSB (i.e., Annual Refresher Training) and area-specific (laboratory, oxygen deficiency hazard, SCSR, etc)
 - Expt training may have required refresh frequency
- **Record Keeping (online Bridge)**
 - SURF database for SURF-administered training
 - Experiment-managed training matrices capture SURF training + Experiment training



SURF Experiment Integration & Support

Desk space for researchers (now open cubicles)



SURF Experiment Integration & Support

~~Desk space for researchers (now open cubicles)~~



SURF Call for Letters of Interest

Ensuring SURF used to its fullest scientific potential

Significance:

- First formal call to UG science community since March 2008! (Note: 2008 call strongly leveraged earlier 2005 call for LOIs)
- Initial calls selected strong physics anchors for Davis Campus: MJD and LUX (which led to current LZ)
- 2024 call is opportunity for SURF to refine science strategic plan development currently underway

Summary:

- Open to all disciplines: Physics, Geology, Biology, Engineering
- Identifies specific existing space on 4850L and 4100L, other undeveloped areas may be available now
- 4850L Expansion started Mar 17, 2024, space available ~2030 (nominally two detector caverns: 100m L x 20 m W x 24 m H, LOIs and subsequent discussions will inform final design)
- Submissions will be reviewed by SURF Science Program Advisory Committee
- Deadline for LOIs (+ EPS): **Fri May 17, 2024 at 11:59 PM MT**



South Dakota Science and Technology Authority 630 E. Summit St. Lead, SD 57754

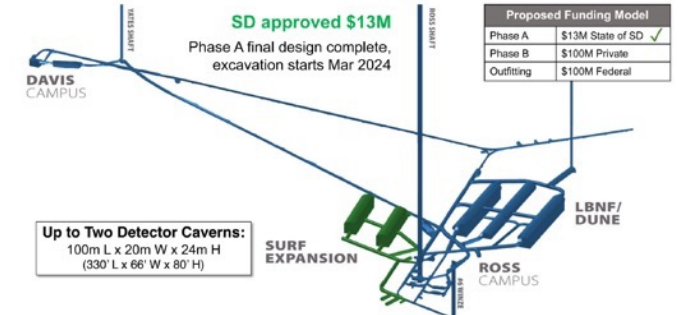
March 22, 2024

SURF Request for Letters of Interest 2024-01

Dear Researcher,

In support of our mission to advance world-class science, the Sanford Underground Research Facility (SURF) is seeking input from the global underground science community to ensure that scientific priorities are being accommodated and that SURF is being used to its fullest scientific potential.

SURF has a strong science program that currently comprises 29 experiment groups. Programs in some of our key 4850L laboratories are expected to complete in the next 1-4 years, which presents an opportunity to survey the community for new prospects. SURF is tremendously excited about new large laboratories that are being developed on the 4850L, with initial construction underway and space available on the timeframe of ~2030.



Leading into recent U.S. long-range planning, the SURF User Association held a Vision Workshop (<https://indico.sanfordlab.org/e/Vision2021>) and SURF participated in nuclear physics town halls and the particle physics Snowmass community input processes. As a result, SURF featured prominently in the strategic plans for both Nuclear (red) and High Energy Physics (red) communities. With the physics community long-range plans in-hand, SURF has set up a Steering Committee to distill opportunities and key elements relevant to the organization's science strategic plan (non-physics disciplines will also be addressed to inform the comprehensive strategic plan, but at a later date).

To help inform this process, we are inviting collaborations and scientists to submit short letters of interest (LOIs); maximum 3 pages. The information requested in the LOIs includes science goals, collaboration composition, facility requirements, access requirements, and timelines. Submitters are also invited to complete a SURF Experiment Planning Statement (EPS), supplemental to the LOI, that provides some additional experiment details as well as offering some SURF facility details: <https://sanfordlab.org/researchers/proposal-guidelines>.

Summary

- SURF direct DOE funding helps science
 - Funding both for SURF operations and infrastructure promotes reliability
 - SURF has DOE mandate to support experiments with basic level of support
- SURF processes ensure world-class service to the UG science community:
 - SURF Experiment Implementation Program: Identifies interfaces and hazards within an approval framework commensurate with experiment hazards
 - SURF Experiment Integration & Support: Partnership with experiments and leveraging organization resources to promote safe and successful experiment operations at SURF
 - SURF processes ensure facilities meet demands of experiments
- SURF has proven track record of enabling experiments to deliver high-impact science

Sanford Underground Research Facility

Thank You!



SURF Plans to Become DOE User Facility

Benefits:

- Expands DOE User Facility portfolio to incl underground lab, raises SURF's stature within DOE community.
- Promotes underground science in U.S., increases funding opportunities.
- Enhances SURF's role in global science community.
- Communicates SURF is open to a broad range of science and users and that we have a standard process, accepted by DOE, for hosting science.

Main Requirements:

- Facility open to users regardless of nationality or institution.
- Allocation of facility resources determined by merit review.
- Facility resources for users to conduct work safely and efficiently.
- The facility supports a formal user organization.

Status:

- User Association and Science Program Advisory Cttee established.
- Application draft near final, expect DOE invitation to submit soon.

The screenshot shows the DOE Office of Science User Facilities website. The page features a blue header with navigation links: Home, About, Laboratories, Science Features, Universities, User Facilities, Funding, and Initiatives. Below the header, there is a search bar and a list of programs. The main content area is titled "User Facilities" and includes a paragraph describing the facilities: "The Office of Science national scientific user facilities provide researchers with the most advanced tools of modern science, including accelerators, colliders, supercomputers, light sources and neutron sources, as well as facilities for studying the nano world, the environment, and the atmosphere." Below this text, there are six featured facility cards, each with a "Read more" button: ACR User Facilities, BES User Facilities, BER User Facilities, FES User Facilities, HEP User Facilities, and NP User Facilities. The left sidebar contains links for "User Facilities at a Glance", "User Resources", "User Statistics", "Policies and Processes", "Frequently Asked Questions", and "User Facility Science Highlights".

SURF Science & Education Opportunities

Summer Internships (Bozied/Bauer/Headley)

- Openings for science, engineering, operations, environmental science and communications, incl underrepresented groups
- <https://www.sanfordlab.org/internships>

Davis Bahcall Scholars Program

- Multidisciplinary studies at U.S. & European labs, industry
- <https://www.sanfordlab.org/features/davis-bahcall-scholars>

Local faculty and collaborators:

- SD Mines:
 - Christofferson, Martinez Caicedo, Keenan, McCormick, Piper, Reichenbacher, Roberts, Roggenthen, Sani, Schnee, Shearer, Shende, Stetler, Strieder, Tukkaraja, Uzunlar, Wang, Ward
- BHSU:
 - Anderson, Babbitt, Bergmann, Domagall, Jensen, Lamb, Mount, Reiner, Sarver, Saylor

Research Experiences for Undergraduates

- Multidisciplinary program through BHSU (physics, chemistry, biology)
- <http://www.bhsu.edu/research/reu>

BHSU Underground Campus

- Promoting undergraduate research (multi-disciplinary efforts resume FY24)



SURF Science & Education Opportunities

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Local faculty and collaborators:

- SD Mines:
 - Christofferson, Martinez, Reichenbacher, Reiter, Stetler, Strieder
- BHSU:
 - Anderson, ...

Program	Description	Location(s)	Funding Source	Status
NuPUMAS: Neutrino Physics for Undergraduate Minority Advancement in Science	Student diversity in STEM (Univ Houston / Texas Physics Consortium)	SURF 4850L (potentially various)	DOE Reaching a New Energy Sciences Workforce (RENEW-HEP)	Awarded 2022, onsite Jul 2023; program continues for 2 more years. https://nupumas.physics.uh.edu
Renew Midwest: From the Underground to the Cosmos	Student diversity in STEM (BHSU, Univ Michigan, Benedictine)	SURF 4850L (potentially various)	DOE Reaching a New Energy Sciences Workforce (RENEW-HEP)	Awarded Aug 2023, program lasts 3 years. https://www.bhsu.edu/about-bhsu/news-events/2023/09/BHSU-Michigan-Benedictine-DOE-Grant

Undergraduates

Program through BHSU (physics, chemistry, biology)

www.sanfordlab.org/research/reu

Bh Underground Campus

- Promoting undergraduate research (multi-disciplinary efforts resume FY24)



SURF Supports Science

Variety of resources to ensure safe and successful science

- **Science**

- Main point of contact for researchers, coordinate and marshal Lab resources to meet expt needs
- Oversight of expt implementation process, scientific/technical expt support (collab members, LBC ops)

- **Operations**

- Maintain infrastructure and access to surface and underground facilities, incl hoists, shafts, drifts, services (power, network, etc); also experiment site preparation
- Transportation of personnel and materials: 24-hr access as needed, typically 10-20 ppl/day for science

- **Environment, Safety & Health (and Security)**

- Manage Safety Manual, incl policies, forms (e.g., oxygen deficiency, hazard analysis/WPC, etc)
- Safety resource (e.g., reviews, training, monitoring, waste, radiation, record keeping, ERT); prox access

- **Engineering**

- Participate in understanding expt requirements, oversight of lab development, contract management, engineering support for Operations (access and maintenance)
- Assessments (incl equip design/certifications, ODH), system process design and troubleshooting

- **Admin / Business Services / Finance / IT**

- User access & support (incl badging, event planning), contracts/rebilling, shipping/receiving, procurement, IT support (VPN, document mgmt, network data/phone), training accounts

- **Communications / Education & Outreach**

- Interface with media and other groups, coordinate public meetings, outreach showcasing research/ scientists at local, state and national levels (e.g., Neutrino Day), student internships (incl Science interns)

SURF Science Support – Work Planning & Controls

Performing work at SURF

- **SURF Work Planning & Controls (WPC)**

- SURF ESH Manual via public website (<https://www.sanfordlab.org/esh>), also DocuShare.
- WPC is systematic process for completing tasks safely and efficiently (applies to all):
 - Identify scope of work and methods for performing work
 - Hazard analysis and work authorization
 - Pre-job briefing and work release

- **Hazard Analysis**

- For all tasks, identify work requirements and corresponding hazards and mitigations.
- Written procedure required if task involves **2 or more low-risk hazards** or **1 or more high-risk hazards** (see chapter appendix for table). *Most tasks require written procedures.*
- SURF has JHA/SOP forms, other procedure formats allowed subject to SURF acceptance.
- Some level of detail necessary to identify hazards, commensurate with complexity of task.

- **Work Authorization**

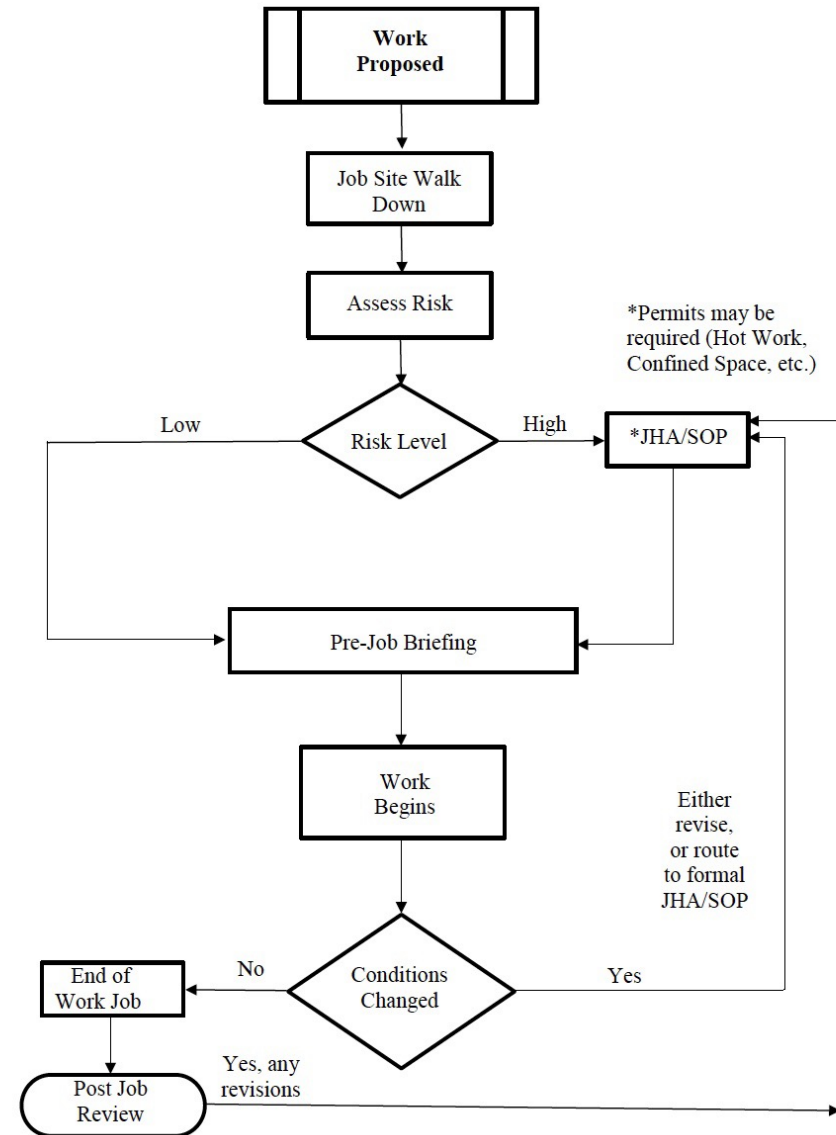
- All written Experiment procedures are reviewed by **ESH, Author/Owner, Science Dept & Experiment representative**; Science Dept will coordinate reviews by additional Subject Matter Experts as applicable (ESH, Engineering, Operations, et al.).
- SURF & Experiment signatures authorize procedure to be performed by qualified workers.

- **Work Release**

- Pre-job briefing required for all tasks: **verbal** for tasks with low-risk hazards not requiring written procedure; **written** Toolbox Talk form for tasks requiring written procedure.
- Experiment signature on Toolbox Talk form releases authorized procedure to be performed by individuals who have reviewed the procedure and have necessary training, permits, etc.
- SURF has Toolbox Talk form, other formats allowed subject to SURF acceptance.

SURF Science Support – Work Planning & Controls

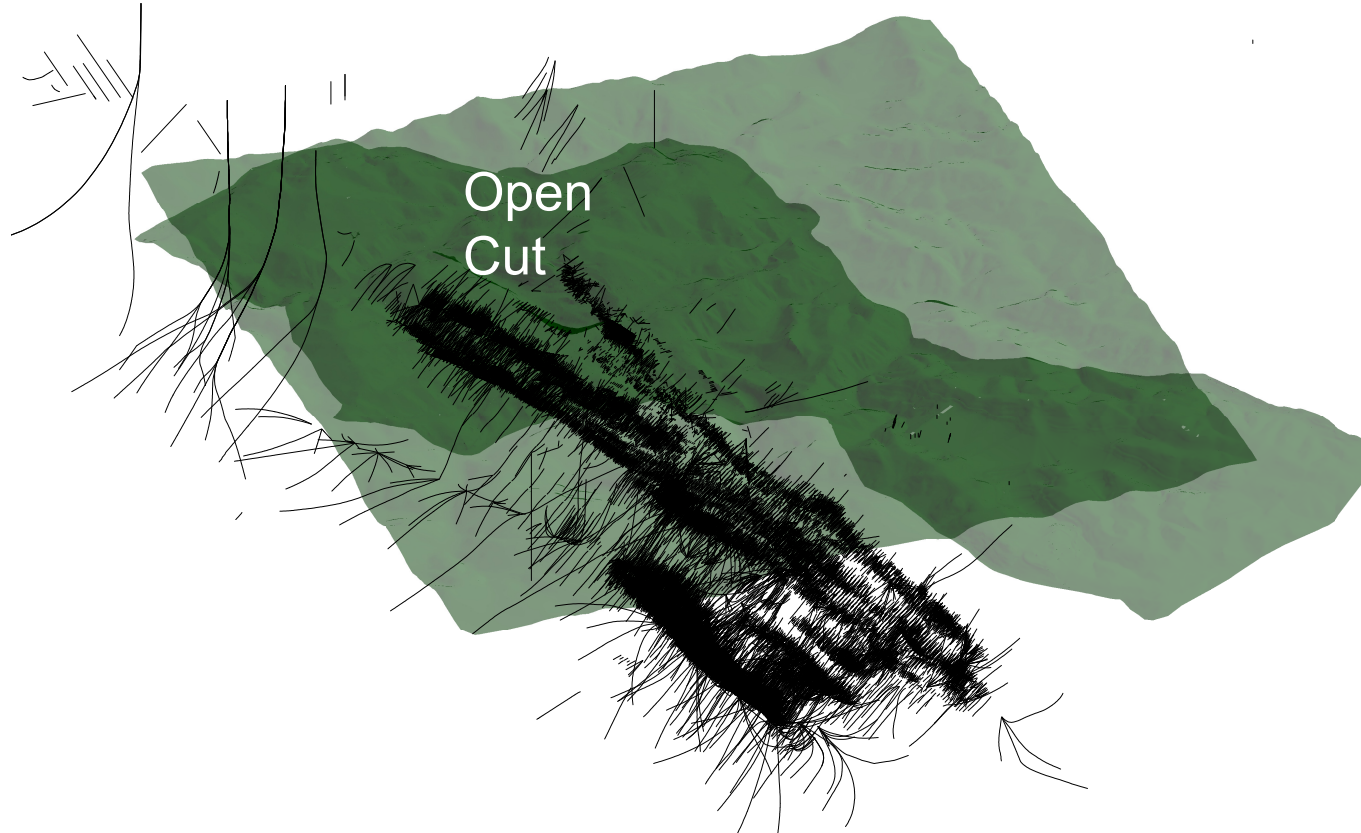
Performing work at SURF



SURF Science Opportunities – Drill Core

Core repository

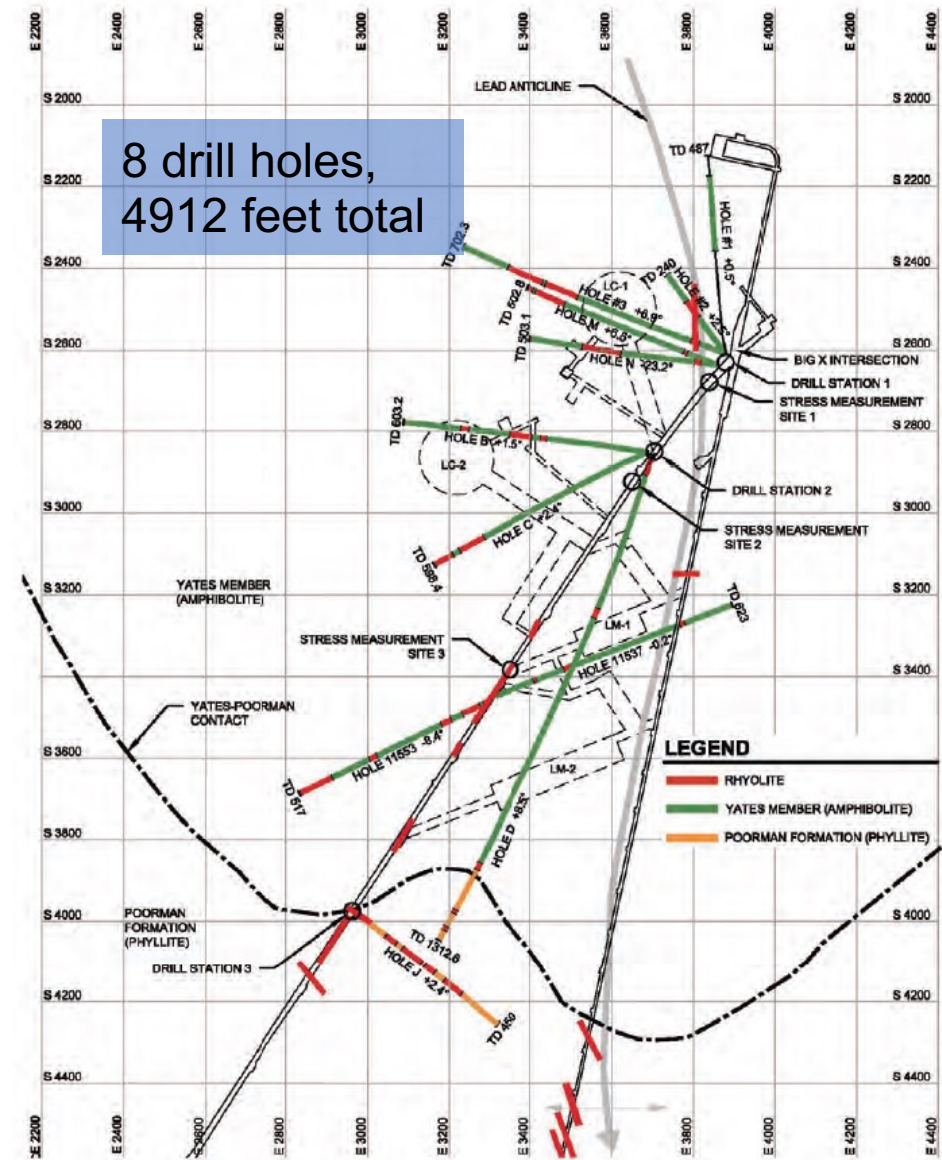
- Total of 27,870 drill holes (+ others) on Homestake property
- Portion of core retained and donated to SDSTA: 39,760 boxes of core for 2,688 drill holes (91 km!), SDGS initial help with stewardship
- SDGS database with 58,000+ entries, representing 1,740 drill holes:
<http://cf.sddenr.net/homestake/>



SURF Science Opportunities – Core Holes

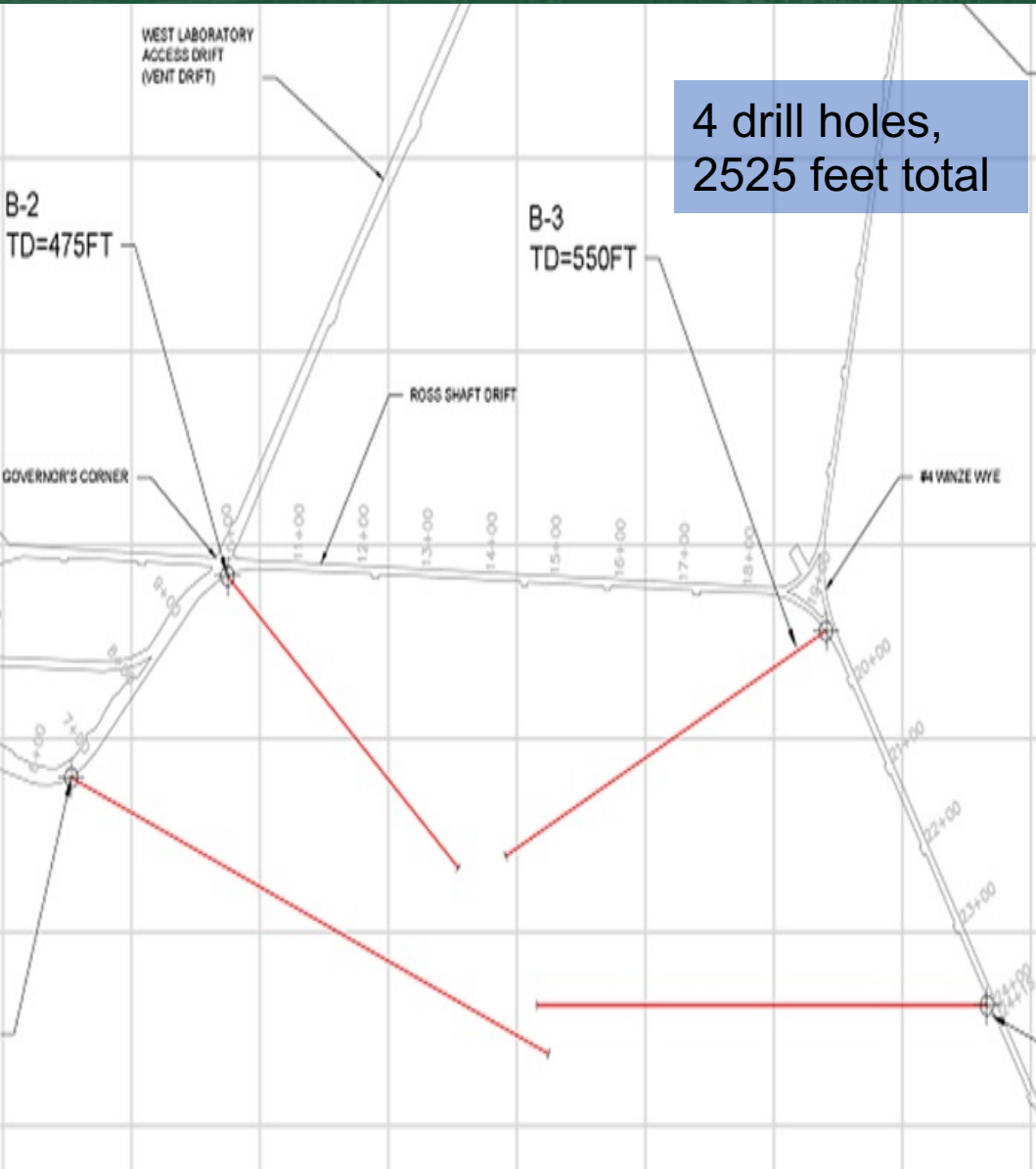
DUSEL Preliminary Design Core Holes

8 drill holes,
4912 feet total



SURF Science Opportunities – Core Holes

LBNF Geotechnical Core Holes



SURF Biology in Action

Biology / Geology / Engineering (Multiple Levels)



SURF Biology in Action

Biology / Geology / Engineering (Multiple Levels)



SD Mines Biologists in Action

Biology / Geology / Engineering (Multiple Levels)



BHSU Biologists in Action

Biology / Geology / Engineering (Multiple Levels)



The Institute for Underground Science at SURF

Goal: The Institute for Underground Science at SURF constructed by Sep 2035

<https://institute.surf>
(Also: <https://vimeo.com/834559440>)

