

## **March – May 2022 Progress Report**

*Submitted June 13, 2022*

*Submitted to:*

*South Dakota Science and Technology Authority Board of Directors*

*Mike Headley*

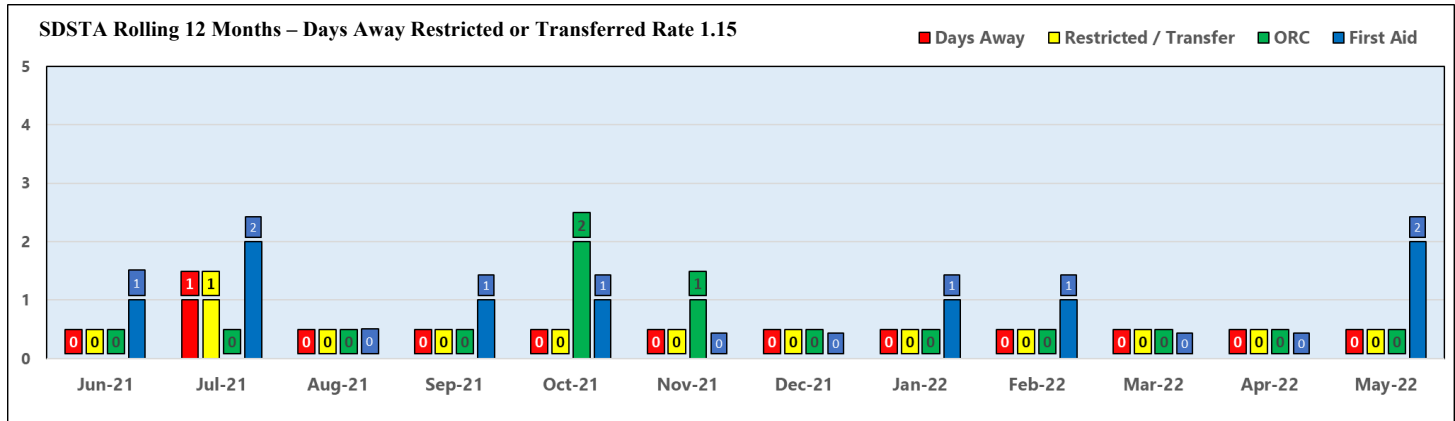
*SDSTA Executive Director*

*Sanford Underground Research Facility Laboratory Director*



## **Environment, Safety and Health (ESH) Status**

### **Health and Safety Status**



#### **March 2022 thru May 2022: Recordable Cases**

- No events to report

#### **March 2022 thru May 2022: First Aid Cases**

- 5/17 – SDSTA employee same level fall; evaluated by onsite Occupational Health Nurse – ice applied.
- 5/26 – SDSTA employee same level fall; evaluated by onsite Occupational Health Nurse – ice applied.

#### **ESH Support New Hires**

- Full-time Emergency Response Team (ERT) Members (3) – May.
- ESH Intern – May.
- Security Guards (2) – May.
- Environmental Manager – May.
- Environmental Coordinator – June.

#### **Work Accomplishments**

- Completed Human Performance Improvement investigations:
  - 1700L generator malfunction.
  - Ross South Skip slack rope event.
  - O<sub>2</sub> reduction levels in the Davis.
  - Ross Shaft inadvertent cage movement.
  - Ross power outage.
- Finalized ESH Standards:
  - Emergency Management Standard.
  - Incident Reporting and Notification Standard.
- Developed Bridge training for:
  - Emergency Management Standard.
  - Incident Reporting and Investigation Standard.
  - DOT training for Sanford Lab Homestake Visitor Center trolley drivers.
- Initiated a review/re-write of the Work Planning and Control Standard to align with ISO.
- Hosted the Office of Risk Management on-site for the Q1 assessment; no issues were noted in the Compliance Review Report.
- Achieved certification in Rope Rescue - 5 members of the ERT.
- Conducted 1st quarter drill/exercise. The exercise incorporated cybersecurity aspects. Planning is underway for 2nd quarter underground evacuation drill.
- Worked with the Fermilab Industrial Hygienist on qualitative fit testing to ensure our programs are aligned.
- Conducted in-person W65 and gas tester refresher training to affected personnel.
- Completed annual fire extinguisher and suppression inspections and certifications.
- Conducted noise and particulate sampling at the 4100L.
- Completed a trend analysis of the shaft and hoist incidents (2019-2022).
- Concluded an operations-wide safety stand down to discuss trending incident data.

- Attended dust control training that was facilitated by Fermi Research Alliance (FRA) and provided support for the Open Cut dust monitoring.
- Completed quarterly SCSR/W-65 inspections at the 4850L Davis Campus.
- Attended Long Baseline Neutrino Facility (LBNF) alternative method request review with City of Lead Building Inspector.
- SD National Guard conducted a chemical and biological weapons response exercise at SURF (April 26).
- Hours extended hours at the Yates Guard House; 5:00am – 5:00pm, Mon-Fri.
- The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) conducted an on-site inspection of SDSTA's surface magazine and approved SDSTA's exempt status.
- SD Mines Mine Rescue Team presented drill/exercises opportunities at SURF for this Fall.
- Conducted annual hearing and fit testing for SDSTA employees.
- Concluded the regular scheduled First Aid/CPR/AED classes; certified approximately 190 personnel.

### Upcoming Activities/Trainings

- Quarterly South Dakota Office of Risk Management assessment (June).
- Construction Safety Coordinator to attend Safety 22 Conference – American Society of Safety Professionals (June).
- Consolidated Services Contract personnel onsite visit (June).
- Quarter 2 underground evacuation drill/exercise (June).
- Radiation/Health and Safety Manager to attend annual Health Physics Society Meeting (July).

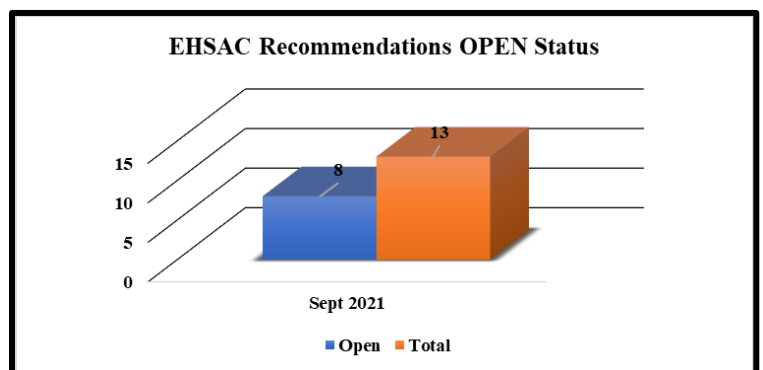
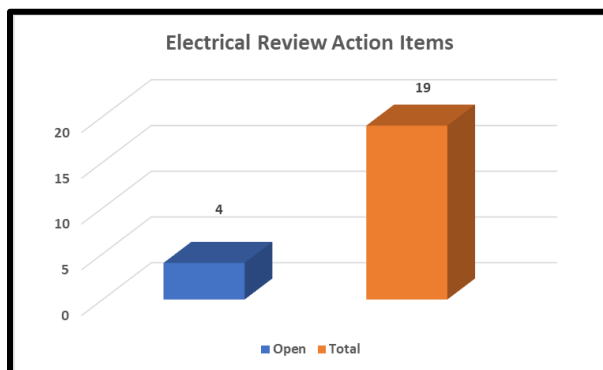
### Wellness Initiatives

- Walking the 17 National Labs Initiative (March 14 – April 22).
- Employee Gratitude Initiative (May 20 – June 3).
- Fruit In Your Water Fridays Initiative (June 3 – June 24).
- Onsite Health Fair (June 14).
- Onsite Blood Drive (July 26).

### Environmental Support

- The monthly Discharge Monitoring Reports for SD National Pollution Discharge Elimination System (NPDES) Permit were prepared and submitted to the state. There were no compliance issues.
- The 2nd Quarter Whole Effluent Toxicity (WET) Test was completed with passing results.
- The inhouse QA/QC lab work testing was completed by all operator with good results; all within 5% of known results.
- Storm water inspections were conducted per Storm Water Pollution Prevention Plan (SWPPP) requirements and any necessary changes were made to the established controls.

### Third Party Review Recommendations Status



## **Surface and Underground Operations Status**

### **Yates Shaft**

#### Work Accomplishments

- Top-Down Maintenance (TDM) resumed at the 2750L – 8 sets completed.
- Old Ross Shaft heater relocated to Yates Shaft after new concrete pad was poured.
- 200 cage guides replaced.
- Shaft survey completed 3 data sets to compare with baseline – very small movement documented.
- Safety standdown covering recent hoists and shafts incidents completed with all crews.
- Fiber and power installed in the Yates Shaft for CAT tracking system.

#### Upcoming Activities

- Resume TDM below the 2750L as funding allows.
- Continue skip guide replacement.

### **Ross Shaft**

#### Work Accomplishments

- TPI guide inspection completed.
- New Ross Shaft heater installed.
- Modifications to guide brackets in cage and skip compartments completed to provide sufficient clearance between the shaft guides and the conveyances.
- Safety standdown covering recent hoists and shafts incidents completed with all crews.
- Safely completed 60 slung loads (project to date).
- Ross cage hoist speed increased to 1,000 fpm upward only.

#### Upcoming Activities

- Install new cage counterweight.
- Install new skip guide runner wheels.
- Replace cage guide.
- Retorque remaining saddle bolts.

### **Hoist Maintenance**

#### Work Accomplishments

- Oil changed in hoist motor bearings.
- Bi-annual hoist rope NDT completed – no issues.
- Rope cuts completed on the Yates ore hoist ropes.
- Annual Seimag hoist inspections completed.

#### Upcoming Activities

- Ross ore hoist rope cut.
- Tile accelerometers tests to increase the cage speed (both directions) for people.
- Seimag hoist commissioning at higher speeds.
- Perform preventive maintenance activities ongoing.

### **Underground Hazard Mitigation**

#### Work Accomplishments

- Crews completed Phase #2 of the Water Wall Infrastructure Improvement project in the Ross Shaft.
- Installed ventilation stopping on the 3650L in the Ross pillar ramp.
- Began cleaning out the 3650L pump room sump.
- Continued installing ground support and installing base course on the 4100L.
- Began installing MineStar personnel tracking system in the Ross Shaft.

### Upcoming Activities

- Continue installing MineStar personnel tracking system in the Yates and Ross Shafts.
- Complete installation of on-demand regulator at the 2000L Oro Hondo bulkhead.
- Continue advancing the SIGMA-V project and installing ground support on the 4100L.
- Continue cleaning out dewatering sump on the 3650L.

## **Surface Operations and Utilities Support**

### **Facility Maintenance (Surface and 4850L) and Mobile Equipment**

#### Work Accomplishments

- New maintenance truck (#139) was put into service in May of 2022.
- Worked with Johnson Controls to complete Q2 Building Management Preventive Maintenance (PM) activities (underground and surface).
- Worked with Wolff's Plumbing to complete Q2 HVAC PM activities (underground and surface).
- Worked with Butler CAT to complete underground backup generator PM activities.
- Over 25 gaylords of recyclable items were processed this quarter.
- Various cleanup efforts to support 10-year anniversary of Davis Campus were completed.
- Environmental Property Technician position has been filled to prepare for upcoming retirement within department.

#### Upcoming Activities

- Continue preventive maintenance activities.
- Stormwater inspections/repairs ongoing based on weather and need.
- Glycol system flush for boiler at Sanford Lab Homestake Visitor Center (SLHVC) to be completed in late June 2022.

## **Electrical / Cyber Infrastructure / Dewatering**

#### Work Accomplishments

- New power and fiber cables installed in Yates Shaft to support CAT/Minestar project.
- Worked with UMC to increase capacity of 3650L sump to support upcoming IIP.
- Repairs to 3650L pump column were completed.
- Newly designed intake screen fabricated and installed on Yates sump pump.
- Two additional industrial electrician positions were filled to backfill open positions.

#### Upcoming Activities

- Work with engineering on the 3650L pump room and pump replacement project.
- Work to install fiber and power installations in Ross Shaft for CAT/Minestar project.
- Support IT in phone upgrade project completion.

## **Wastewater Treatment Plant (WWTP)**

#### Work Accomplishments

- WWTP passed quarterly Whole Effluent Toxicity (WET) test.
- Team supported engineering lead Gravity By-pass project to completion.
- Team began disassembly of Yardney Filter Hoop Shed to prepare for replacement project.
- Team started process to improve 4850L WWTP including install of new UV light.

#### Upcoming Activities

- Work with Dewatering team to finish 4850L WWTP upgrades and bring system back online.
- Support project to replace Yardney Filter building replacement.

## **Operations Integration and Maintenance Planning**

### **Work Accomplishments**

- Department re-structure led to creation of Operations Integration Group. Positions created and filled: Operations Integration Supervisor and IMS Support Technician.
- Team supported QA/QC efforts to prepare for ISO audit.
- Worked with QA/QC to better understand inspection and calibration structure moving forward.

### **Upcoming Activities**

- Fill Facility Workflow Coordinator position to fully staff the group.
- Continue leading department preparation work for Stage 2 ISO audit.

## **Engineering Support**

### **Work Accomplishments**

- The Yates Shaft Rehabilitation Feasibility Study was completed in April. Follow-up work on the Ore hoist trade-off study and a new shaft cost comparison analysis is anticipated to continue into August 2022.
- The Ross/Yates Hoist Room Building Roof Drains & Re-Pointing Request for Proposal (RFP) was awarded to RCS Construction. Contractor to mobilize in early June.
- The Yates Shaft Collar Concrete inspection and assessment plan was finalized in early March. The top 300-feet of the Yates Shaft is concrete lined, some of which has been identified to be spalling with exposed rebar. A program to inspect the area to inform shaft collar concrete repairs is planned for June/July.
- An RFP was issued for the design phase of WWTP RBC replacement to TSP/Banner Engr. Received proposal and negotiated final fees. DOE Technical Review package completed and submitted the Contracting for award.
- An RFP was prepared and issued for Albertson Engineering to structurally evaluate proposed ERT Training Tower including completing scans, models, and drawings in support of the evaluation.
- Four members of the Engineering Department volunteered as judges for Regional Science & Engineering Fair.
- Graphics were created and measurements supplied for geologic formations above various experiment locations for Snowmass presentation.
- The 95% design was received for the East Switchyard Cable Replacement project. Anticipate completing the design and advertising in June.
- Oro Hondo Backup Fan completed the 90% design milestone. Expect contractor mobilization in June.
- The design of the 3650L Pump Room Rehabilitation project was completed. An RFP was issued for long lead time pump/motor package and proposals are under evaluations.
- A comprehensive inspection was completed with photo documentation and thermal imaging of all medium voltage equipment on the surface and underground as part of the Medium Voltage Condition Assessment study. A series of meetings was conducted with SURF electrical staff to apply condition assessment scores. The information was provided to the study consultant as part of the overall evaluation process.
- The first release of a new Geographic Information Systems for SURF was completed and deployed to SDSTA staff.
- Malfunctioning speed-control contactor troubleshooting took place on the Yates Cage Hoist MG set (vintage 1930s). A modernized speed-control contactor was researched and selected as a replacement.
- A plan was developed to carry out a new arc flash study on the power distribution system for Ross Complex.
- The final design for the Sacred Circle Garden was received in May. The project is on hold pending funding availability.
- The SURF Access Control Phase I project is on track for completion before the end of June. Phase II design scope of work was defined and issued to West Plains Engineering for proposal development.
- New SLHVC exhibit elements including mine model barrier and new graphic panels were installed.

## Quality Assurance / Quality Control Status

### Work Accomplishments

- Change Control Request Submittals and Approvals:

CCR #	Title	Status	Approval Date
517	Update Work Planning and Control Standard	Pending	
542	Admin Phone List Registers	Approved	3/1/2022
543	New IMSM Templates - Policy & Policy-Procedure	Approved	3/8/2022
544	QA/QC Project Report	Approved	3/7/2022
545	Update SURF to SDSTA - IMSM Procedures #2	Approved	3/15/2022
546	Update SURF to SDSTA - Form and Attachment	Approved	3/15/2022
547	Converting Documents	Approved	3/28/2022
548	QA-QC Project Report Matrix	Approved	3/9/2022
549	Crisis Communications Standard	Approved	3/28/2022
550	Roles and Responsibilities of Command Staff Forms	Approved	3/14/2022
551	P-851 Registers	Approved	3/29/2022
552	IMS Procedures and Form	Approved	3/29/2022
553	Changes to IMSM Docs	Approved	4/12/2022
554	Final IMSM Docs for IMS	Approved	4/12/2022
555	New ISO Document - Rigging Inspection Criteria	Approved	4/19/2022
556	Blast Permit	Approved	4/1/2022
557	QA-QC Documents Update and related IMSM Documents	Approved	4/26/2022
558	Updates to IMSM documents	Approved	4/19/2022
559	Trace-Identification WI and A updates	Approved	4/26/2022
560	Incident Reporting and Investigation Standard Update	Approved	4/19/2022
561	IC_ERT Timeline Log	Approved	4/25/2022
562	Change Order Request Form	Approved	4/22/2022
563	SDSTA Policy and Policy-Procedure Manual and Template	Approved	5/3/2022
564	Emergency Management Standard Update	Approved	4/27/2022
565	IMSM Procedure Documents Updates	Approved	5/3/2022
566	Upload of ESH documents to the SURF Website	Approved	4/27/2022
567	Correct Document ID #	Approved	4/27/2022
568	IMSM Documents Update F & P	Approved	5/3/2022
569	External Document Approval	Approved	5/3/2022
570	CCR for IT Standards	Pending	
571	Documents for Incident Standard	Approved	5/10/2022
572	Organizational Chart Updates	Approved	5/16/2022
573	Request for Bid Form	Approved	5/17/2022
574	New SDSTA Template	Pending	
575	IMSM Doc Updates per Organizational Chart Change	Pending	
576	IMSM Docs requiring updates	Pending	
577	Archive QA-QC Document	Approved	5/20/2022
578	Contractor Special Conditions Supplement	Approved	5/23/2022
579	Initial Revision of New User Introduction Sheet	Approved	5/25/2022

- Developed and Released ISO Section Training:

Developed and Released ISO Section Training		
Section	Title	Date Released
6	Planning	3/18/2022
8.1, 8.2 & 8.2.5	Operational Planning and Controls, Requirements for Products and Services & Emergency Preparedness and Response	4/14/2022
8.3 & 8.4	Design and Development of Products and Services and Control of Externally Provided Processes, Products and Services	4/14/2022
8.5 & 8.7	Production and Service Provisions and Control of Nonconforming Outputs	4/14/2022
	ISO Training - IMS Policy/Scope and IMS Objectives	4/14/2022

- Completed projects
  - Phase II Waterwalls Project
- Other completed activities
  - ISO Stage 1 Audit
  - Implementation of GAGEpack (Calibration Software)
  - Implementation of Trace-Identification tagging
  - Completion of Saddles Torquing 1,2 Locations

#### Upcoming Activities

- Upcoming development and release of ISO Section Training:

Upcoming Development and Release of ISO Section Training	
Section	Title
NA	NA

- Upcoming projects
  - Access Control Project (Phase I) (Started March)
  - 3650L Pump Room Rehabilitation Project
  - Oro Hondo Fan Project
  - WWTP Building Upgrade
  - Ross/Yates Hoist Rooms roof drains, tuckpointing Project
  - Completion of Saddles Torquing 5,6,7 Locations (Est. Date 8/2023)
- Upcoming activities
  - Stage 1 ISO Audit replies to Orion for Areas Of Concern (AOCs) and Opportunities For Improvement (OFIs)
  - Internal System Audit - Integrated Management System (IMS)
  - Internal Process Audit - Business Services
  - Management Review Meeting
  - Stage 2 ISO Certification Audit (July 11-14, 2022)
  - Hire Document Control Coordinator

## Science Support Status

- A whitepaper describing SURF's current status and capabilities as well as future plans was submitted in March as part of the Snowmass 2021 community planning process: <https://arxiv.org/abs/2203.08293> (also Societal Impacts: <https://arxiv.org/abs/2203.07995>). In addition to the survey data compiled in January, further details on SURF capabilities were submitted to Snowmass Underground Facilities frontier conveners. SURF representatives are planning to attend the Snowmass Community Summer Study being held July 17-26 in Seattle, WA.
- The SURF User Association ratified the membership expansion process, and a new registration form is available on the SURF public website (<https://www.sanfordlab.org/researchers/surfuserassociation>), with a formal roll-out to the underground science community expected soon. The User Association charter language was updated in consideration of some SURF Science Program Advisory Committee (SPAC) recommendations to increase the minimum number of non-physics representatives (SURF to formalize charter update). The annual general users meeting is being considered for the fall.
- The 4<sup>th</sup> Conference on Science at SURF (CoSSURF) was successfully held May 11-13, attended by ~125 people (77 talks, 27 posters), including SURF tours with 41 people: <https://indico.sanfordlab.org/e/CoSSURF2022>.
- A SURF poster was submitted to the XXX International Conference on Neutrino Physics and Astrophysics (Neutrino 2022).
- Plans are advancing for the international workshop on Low Radioactivity Techniques (LRT2022), co-hosted by SURF and SD Mines June 14-17, with tours of the SURF facility (approximately 90 people are expected to attend): <https://indico.sanfordlab.org/e/LRT2022>.
- Heise participated in a DOE/NSF review of the SuperCDMS-SNOLAB dark matter experiment as well as a review of seven Governor's Research Centers as part of the SD Research and Commercialization Council.
- Facility highlights: The radon detector (with progeny and water sampling capabilities) that was ordered ~1 year ago finally arrived at SURF (delays due to supply-chain issues).
- Interruptions: Underground access was restricted due to an April blizzard, and associated power outages briefly interrupted some Davis Campus operations, but there were no significant issues. There were a few intermittent issues with the Davis Campus chillers (both the blizzard and the separate chiller issue required the LZ cryocoolers to be turned off temporarily). The surface bulk liquid nitrogen (LN) tank was emptied due to vendor delivery issues (second time since 2011); no significant issues resulted for the experiment groups.

## LUX-ZEPLIN—LZ

- The first dark matter data run ended April 18 with 100+ days of data, and analysis results are expected in 2022.
- Extensive calibration activities followed the end of WIMP search data taking, including tritiated methane, Kr-83m, AmLi and the DD neutron generator. The getter purifier temperature was increased to improve tritium removal for CH<sub>3</sub>T injection source, and Cf-252 sources were deployed around the cavern to study where neutrons might be penetrating the water tank.
- The residual gas analyzer (RGA) for the stationary Xe sampling system failed and was replaced. Calibration of the new RGA is underway.
- The new SURF monitor is being used to sample radon in purified water supply.
- A series of activities prior to the next science data run are underway, including optimization of Xe flow in the detector, electronics upgrades and improvements to the water tank nitrogen purge. Consolidation of stored Xe was completed (~200 kg). The second science run is nominally expected to begin after completion of another calibration campaign (~mid-August).
- Two significant light emission episodes occurred in May (after the end of the first science run), associated with high voltage applied to wire grids inside the detector.
- A joint meeting between LZ and XENON/DARWIN collaborations is planned for June.

## MAJORANA DEMONSTRATOR—MJD

- The assay of Module 1 welded parts using Module 2 Ge detectors was completed mid-March, and the module was moved from the main shield.
- 15 kg of Ta-180m was installed in strings with natural Ge detectors. Initial cooling tests were performed in the glovebox prior to returning the module to the main shield and beginning the rare-decay search in early May. The goal for the rare-decay search is 12 kg-year exposure (15 kg for ~1 year).
- The calibration system and muon veto system for modules in the main shield are also active, and the first set of calibrations that were completed for the Ta-180m run looks very good in terms of background and data quality.

- Disassembly of Module #1 is underway, including unstacking Lead (Pb) shielding.
- Installation of the fourth copper electroforming bath is essentially complete. Following work in February, copper machining resumed in April, producing some replacements for current baths. With the backlog of machining new bath parts, only 1-2 Cu electroforming baths have been operating recently. Electrowinning activities continue at the surface WWTP.
- UPS battery preventive maintenance was rescheduled (again) by the vendor.
- The annual Los Alamos National Laboratory (LANL) inventory check was performed for items at SURF.

## Low-Background Counting

Black Hills State University Underground Campus—BHUC:

- Regular sample swaps continue using three Lawrence Berkeley National Laboratory (LBNL)-managed detectors (five of six detector systems are currently operating). SDSTA personnel continue to assist with data analysis and LN. Recent samples include materials associated with the protoDUNE, IceCube (neutrino) and CUPID (double-beta decay) projects.
- Ge-IV cooling system issues were resolved at the University of Alabama, and it is hoped that the Ge-IV detector will be repaired at the vendor in time for installation this summer. In the meantime, crates of Pb shielding have been transported to surface for storage until needed. Documentation was updated for the re-designed Ge-IV lifting device, and the associated load-rating label has been affixed.
- Background investigations for the Lawrence Livermore National Laboratory (LLNL) system are planned (such as directionality and effects of the nitrogen purge rate). Additional inner Cu shielding plates are also planned.
- The BHUC group and users have expressed interest in pre-WWII Pb from a New Jersey environmental lab that is being decommissioned.

## SIGMA-V

- After initial pressurization measurements conducted at several hole depths to determine test locations on the 4100L, fractures were established using fast and slow water pressurization methods at three different zones.
- Acoustic and optical geophysical logging activities were conducted in three 4100L holes. The LBNL SIMFIP tool was removed, disassembled and shipped offsite. An optical fiber system (DTS) was installed to measure temperature in various boreholes.
- Packers were installed in holes designated for water injection and production, and flow tests were conducted throughout May, including using chilled water and additional tracers.
- A program manager from the DOE Office of Science - Basic Energy Sciences Geosciences program visited the 4100L site (this may open opportunities outside of the current DOE EERE-GTO funding stream).

## Compact Accelerator System for Performing Astrophysical Research—CASPAR

- The first two of nine planned papers were recently published, including a write-up on the NaI gamma-ray-detector array used for various CASPAR measurements (<https://link.springer.com/article/10.1140/epja/s10050-022-00711-z>) and a paper regarding the oxygen-18 target results published in Physical Review Letters (high-impact journal): <https://link.aps.org/doi/10.1103/PhysRevLett.128.162701>. Two more papers have been submitted for publication.

## Other Current Research Activities

### Biology

- BHSU Biology: Faculty are looking for locations/opportunities to sample fine sediment on the 4850L in conjunction with BHSU REU program.

### Geology

- Dakota Gold: Small teams of geologists continue to access the surface Core Archive.
- 3D Distributed Acoustic Sensing: Crew successfully connected 3100-m fiber run to loaner laser system on 4100L. Data were collected for a few weeks (including magnitude 6.8 earthquake in Argentina on May 11) before the laser system was returned to the vendor. Future plans include improving the coupling of the fiber to the rock and possibly extending the amount of fiber deployed.

### Engineering

- Thermal Breakout: Recent activities were largely focused on collecting geophone data and establishing remote network connections (some VPN issues were resolved). Heater testing is planned for summer 2022 and testing is expected to continue into 2023.

- Other: Researchers expressed interest in core at SURF (Homestake archive or Thermal Breakout) to validate stress measurement techniques.

## **Quarterly Work Plan Variances**

- The Quarter (March- May) shows an overall overrun of \$583K. For the Department of Energy (DOE) SURF Operations Cooperative Agreement overall, the SDSTA has an underrun of \$408K.
- Labor for the three months shows an overrun of \$268K. This overrun is due in part for having a three-payroll month in May. Labor is back on track for this fiscal year.
- Nonlabor for the three months shows an overrun of \$315K. All items are on the FY22 Underrun Spend Plan to utilize unspent funds from previous quarters. This overrun was due to the arrival of various Ross hoist spare equipment (\$53K) as well as receiving ventilation Equipment that was planned in October to December (\$21K).

## **Financial Status**

Included in the Financial Report are the following:

- Cooperative Agreement SURF Services FY2022 (federal fiscal year) SPA Curve as of May 2022 (included as Appendix A at the end of the report)
- Financial Summary (included as Appendix B at the end of the report)
  - 1) Balance Sheet as of May 2022
  - 2) Comprehensive Statement of Income May 2022
  - 3) Comparative Balance Sheet – May 2022 vs. May 2021
  - 4) Comparative Statement of Income – May 2022 vs. May 2021
  - 5) Available Resources as of May 2022
  - 6) Operating Budget Summary

## **Cooperative Agreement (CA) SURF Services FY2022 Scheduled Performed Actual (SPA) Curve**

- The SPA curve presented in Appendix A provides a summary of the CA-SURF Services Award No. DE-SC0020216 scheduled financial performance compared to the actual costs. The report shows funding through September 2022 along with information related to Funded-to-Date dollars, Scheduled dollars and Actual dollars by month. Actual dollars represent actual invoices for the months sent to the DOE Office of Science for reimbursement. For May, the invoices totaled \$2,606,045 which is higher than the anticipated reimbursements of \$1,981,196 by \$624,849. Cumulative expenses are at \$61,216,337 which is higher than the budgeted \$60,997,337 by \$219,000. Large projects, purchasing and hiring are on track.

## **Balance Sheet Items**

- Cash in Local Checking—Total on hand May 2022 was \$5,682,708; up from last month by \$43,566. Funds on hand were necessary to pay operating expenses including employee salaries, medical/life/vision insurance, and other items. The balance also contains funds received from federal contracts late in the month on open accounts receivable.
- Cash with State Treasurer—Total balance of \$11,080,981; This amount remains unchanged from last month.
- Billed Accounts Receivable (A/R)—Billed A/R represents any open invoices based on contracts from sources such as the DOE Office of Science, LBNL, Fermilab, other smaller contracts from other universities/private entities, and Barrick-Homestake Mining Company. Total is at \$3,053,346; up from last month by \$942,372. Included in the balance are open invoices to LBNL for \$169,497, representing invoices for the LUX-ZEPLIN (LZ) experiment support contract and the SIGMA-V experiment support. Additional open invoices include \$392,145 from Fermilab primarily from the SURF Services subcontract and a contract for Ross Shaft Logistics Support. Furthermore, the open balance from the Cooperative Agreement is at \$2,410,470. Additionally, there are open invoices for \$1,324 from small university subcontracts, and \$25,041 from Barrick/Homestake, Dakota Territory Resource Corp (DTRC), and Thyssen Mining Inc. (TMI).
- Unbilled A/R—Current balance is \$32,303. The unbilled A/R represents items that have not been billed on various contracts. May's balance has decreased by \$790,313. These items will be billed in June before year end.
- Other A/R—Current balance of \$318,060. This balance represents any Interest Receivable and Miscellaneous Accounts Receivable. The balance increased by \$10,558. Activity for this month includes recording the interest accrual for May.

- Inventory/Supplies—Balance at \$3,230,230 for fixed assets being stored but not in service. This balance decreased from last month by \$20,240. This is a combination of items added, \$53,034 for Ross Spares and items placed in service, \$73,274.
- Inventory Warehouse/Personal Protective Equipment (PPE)—Current balance of \$312,999. This balance represents the warehouse inventory that was purchased by SDSTA prior to federal funding as well as the warehouse inventory purchased with federal funds. An additional inventory category for the SLHVC inventory is now included in this balance. The balance has decreased by \$32. All three inventories have separate account balances that are tracked. Yet they are summarized on the balance sheet under one category.
- Other Current Assets—This listing on the balance sheet represents the balances of both prepaid insurance—\$891,877 and prepaid other – \$199,564. Total balance of \$1,091,441 decreased from last month by \$104,257. This decrease is primarily due to recognizing insurance coverage expense in May.
- Fixed Assets—Current balance of \$90,508,764. Fixed assets activity since last month includes recording the Yates complex waterline and meter building purchased with DOE funds – \$1,594,419; the purchase of a Maestro flex mine regulator and air quality station purchased with DOE funds - \$20,513; various items that were placed into service from inventory of supplies - \$73,274; and assets that are no longer in service and surplus - \$15,450 net of depreciation. The net increase of \$1,431,997 since last month includes depreciation on SDSTA fixed assets. Depreciation for the DOE Property Transfer items is separated as this amount will not be included in our indirect cost recovery on contracts.
- Pension Deferred Outflows—This designation on our Balance Sheet reflects the requirements related to the Governmental Accounting Standards Board (GASB) No. 68 and No. 71 in reference to pensions. SDSTA is required to report the net pension asset or liability on the face of our financials along with related deferred inflows and outflows. The State's retirement system is now fully funded. The Net Pension Asset is a restricted asset. Thus, the equity created is also restricted. The balance Pension Deferred Outflows shown as a noncurrent asset is \$4,135,812 created by FY2021 final entries. The balance has increased from the previous year by \$1,139,997.
- Xenon Purchased—Balance of \$8,934,350 represents the value of xenon purchased for use by experiments. The xenon inventory is considered a non-current asset and includes all the purchases through fiscal year 2020. The processed xenon has all been shipped from Stanford University to SDSTA for use in the LZ experiment. It is now in their closed loop system.
- Total Assets—Total of \$128,380,994. This balance has increased from last month by \$1,513,651 which represents the net activity as listed above.
- Accounts Payable—Our Total Accounts Payable balance of \$2,034,965 at the end of the month compared to last month has increased by \$395,821. This is primarily due to invoices received from Howden Canada, Inc. for \$1,031,628 related to the upgrade of the Oro Honda Ventilation System, net against last month's invoice paid to Hoyden Canada, Inc. for \$515,814.
- Accrued Payroll Liabilities—Current balance of \$2,338,334 has decreased slightly by \$34,641 from last month. This represents the net change between earned vacation and vacation taken and other changes in employee benefit-related liabilities.
- Long Term Xenon Notes Payable—This designation represents \$2M of funding received from the South Dakota Community Foundation, \$2M received from the University of South Dakota Foundation, and \$2M received from the South Dakota State University Foundation. The \$6,000,000 balance was designated for purchasing xenon for experiment use at SURF. The balance is unchanged from last month.
- Pension Deferred Inflows—This classification reflects the requirements of GASB No. 68 and No. 71, as discussed earlier. The balance of \$3,467,899 represents our portion of the difference between projected and actual earnings on pension plan investments with the South Dakota Retirement System.
- Total Liabilities—Total Liabilities increased by \$361,180 (from \$13,480,018 to \$13,841,198), which reflects the net activity listed above.
- Total Equity—Increased to \$114,539,796 from the previous month \$113,387,325.
- Total Liabilities & Equity—Increase to \$128,380,994 from the previous month of \$126,867,343.

#### Statement of Income Items

- On the SDSTA's Statement of Income, the DOE Subcontracts are consolidated into one line on the report. Included in this amount are various subcontracts from LBNL, Fermi National Accelerator Laboratory (FNAL), the Cooperative Agreement with the DOE Office of Science, as well as a small contract for the MAJORANA project with Oak Ridge National Laboratory. Total revenue through May is \$35,745,023 (increase from April of 3,529,065).

- Interest income recorded for the current fiscal year on State Funds is at \$102,182. This represents interest accruing at 1% on the cash held by the state on behalf of the SDSTA.
- Direct Costs are then listed on the Statement of Income. The classifications for Unallowable Costs and Indirect Costs are listed as well on this report to follow the federal contracting format. Direct Costs/Unallowable Costs are at \$22,042,640 for the current fiscal year. Indirect Costs including fringe benefits are at \$15,612,733. Costs are higher than revenue by \$1,806,248.
- Other Income is at \$516,419 which primarily represents miscellaneous income received from Thyssen Mining Inc (TMI), Caterpillar Inc., scrap metal receipts and small amounts from Barrick.
- Miscellaneous Expenses and Donations is at \$(8,692,735) for current year fixed assets that were purchased on federal funds through the Cooperative Agreement, the acquisition of the SLHVC building and other assets, and other misc. income items.
- Net gain through May after Reclass Increase in Net Assets is at \$794,068.

### **Comparative Balance Sheet**

- Total in Local Checking is higher by \$407,294 due to receiving more funds from contracts in Accounts Receivable when comparing the two-time frames. Payments on the Cooperative Agreement are being received on a much quicker basis than from SDSTA's other contracts.
- Total Cash with State Treasurer is lower by \$591,188 from this time last year as funds have been used for the construction of the Rounds Operations Center (ROC) along with using Experiment funds for xenon related expenses.
- Fixed Assets are higher by \$10,558,256 when comparing the two-time frames, particularly due to including the fixed assets purchased on the Cooperative Agreement federal funds as well as finalizing the Yates Complex waterline, meter building, and the Yates Hoist MG set refurbishment. Also included is the cost of the new ROC that was completed in June 2021, as well as the acquisition of the SLHVC land, building and other assets.
- Work in Process has decreased by \$4,610,741 when comparing the two-time frames, as the work performed on building the ROC is complete.
- Pension Deferred Outflows is higher by \$1,139,997 due to fiscal year 2021 entries.
- In summary, Total Assets have increased by \$7,495,498.
- Total Current Liabilities are slightly higher by \$493,152 when comparing the two-time frames. Total Accounts Payable is higher due to an increase in activity on projects, particularly for the upgrade of the Oro Hondo Ventilation System.
- Other Liabilities—Pension Deferred Inflows have also increased for fiscal year 2021 entries – increase of \$2,201,313.
- Total Restricted Funds are lower by \$1,840,353 due to the use of these funds for related expenses.
- Investment in General Fixed Assets has increased by \$10,570,756 for the various additions of fixed assets and projects purchased on federal funds, the completion of the ROC funded by State Future Funds, and for the SLHVC acquisition.
- Unrestricted Funds are lower by \$3,929,369 when comparing the two-time frames.
- Total Equity has increased by \$4,801,033 from this time last year.
- In summary, Total Liabilities & Equity have increased by \$7,495,498.

### **Comparative Profit/Loss**

- Total Revenue for year-to-date May 2022 compared to year-to-date May 2021 has increased by \$3,531,501. This increase is due to increased activity on DOE contracts. Direct Costs and Indirect Costs for year-to-date May 2022 compared to this time last year show a combined increase of \$5,549,318 (a 17.3 percent increase). Net Income/Loss for the comparative time periods shows a decrease in income of \$1,745,440.

### **Available Resources**

- This report reflects SDSTA's available cash/accounts receivable after noting the restricted cash balances in the Indemnification, Mine Closure, and funds held for Experiments—interest for investors. This report reflects available cash and (short term) accounts receivable as compared to current liabilities including accrued payroll liabilities. After noting current obligations, \$5,634,529 is available. It is also important to note that the accrued payroll liabilities include accrued vacation and sick pay. Therefore, the report reflects SDSTA's available resources compared to current obligations.

## **Operating Budget Analysis**

- This report is separated into three sections: SDSTA-funded activities, Federal, State, and Commercial funded activities and Indirect expenses that benefit various activities. Total operating expenses are over budget for May by \$660,157.
- Year-to-date figures are under budget by \$796,978.
- With the finalization of the construction for the ROC, the capital expenditure budget has been eliminated all together going into FY2022. Therefore, all expenses related to interest payments to xenon foundation investors will be included in the SDSTA Operating Budget Analysis going forward. The current FY2022 budget includes these expenditures.

## **Human Resources**

The SDSTA currently has 182 full time employees and 19 temporary staff. New hires in March, April and May include: Security Guard – Colton Hanson; ERT Members – Don Werner, Cassidy LeMons and Carter Jones; Industrial Electricians – Ryan Hudson and Lawrence Gould; Administrative Assistant – Kristen Riley, Part-time Environmental Manager – Bonita Goode; SLHVC employees – Mariana Pitlick (part-time Seasonal Tour Guide) and Wayne Karpinen (Troller Driver); IT Systems/Security Administrator – Sean Crooks; Communications Marketing Specialist– Elena Dagit; Contracts Specialist – Caroline Jones; HR Manager – Christine Burger; and Summer Interns in various areas.

Resignations included: Timm Comer, Troy Finn, Mathew Peters, David St. Pierre and Deb Meyer.

Retirees included: Jerry Hanker, Jaye Conrad, Charles Roth, Eileen Brosnahan and Martin Brosnahan.

## **Professional Staff Services - Subcontract No. 607915**

## **Long-Baseline Neutrino Facility (LBNF) and Deep Underground Neutrino Facility (DUNE)**

- Working with the LBNF/DUNE collaboration, the Roof Penetration Mobile Gantry in-house design was progressed which included developing the Roof Penetration mounting hardware.
- Research, recommendations and design review were completed for the electrical installation of a bridge crane in front of the Ross Shaft station at the 4850L.

## **LZ Operations Phase I - Subcontract No. 7525117**

## **Other Experiment Support**

### **LUX-ZEPLIN (LZ)**

- The design and drawings were completed and additional sliding shield was installed over the water tank center cover.
- Xenon Circulation Compressor vacuum pump out lines were installed for Xe cleanliness.
- Working with the LZ collaboration, the Dark Box/Water Tank Nitrogen Purge System was upgraded. Upgrades included additional pressure transducers, an electronic nitrogen flow meter, an additional nitrogen purge tube to the Water Tank and backer flanges to fix a leak in the flanged connection between the Water Tank and Dark Box.

## **Indirect Funded Activities Status**

## **Contracts Status**

### DOE subcontracts to SDSTA

- SDSTA submitted a request for construction funding for the Ross and Yates Hoists Roof Drains and Tuckpointing (IPP Project).
- SDSTA submitted a budget modification proposal at the request of the DOE for LZ Operations Support – which will be a direct grant to the SDSTA.
- SDSTA submitted two budget modification requests for the Cooperative Agreement: one to fund replacing the Yardney Building at the WWTP, and the other for additional rock bolts for the Top-Down Maintenance program at the Yates Shaft.

### Fermi Research Alliance

- SDSTA received Supplemental Agreement (SA) No. 6 on contract No. 674969 LBNF Logistics Support Services to clarify material handling.
- SDSTA submitted a cost proposal for additional services on contract No. 674969 LBNF Logistics Support Services.

### Oak Ridge National Laboratory

- SDSTA received Modification No. 1 to extend contract No. 4000185715.

### Lawrence Berkeley National Laboratory

- SDSTA submitted an additional funding request and extension modification for the LZ Subcontract No. 752117.

### **Summary of Contracts Awarded by SDSTA March 2022 – May 2022:**

<b>Contract No.</b>	<b>Contractor/Vendor</b>	<b>Type</b>	<b>Project</b>
2019-20	ATI Consulting	CO #4	Risk Assessment Consulting
2020-30	Fat Boy Consulting	CO #2	SURF Strategic Advisory Committee
2022-13	Murdock ‘Gil’ Gilchriese	New	SURF Strategic Advisory Committee
2022-14	Liesl Chatman	New	SURF Strategic Advisory Committee
2021-23	ATEN	New	DRUPAL Website Development and Maintenance
2022-16	Betzendahl Gas Consultants LLC.	New	Xenon Market Study
2022-18	Christina Salem	New	Book/Manuscript Editing
2017-13	Professional Mapping & Surveying	CO #12	General Services – Surveying & Mapping
2018-11	Safety-Kleen	CO #5	Hazardous Waste Recycling
2021-10	Sandbox Studios	CO #12	Social Media Landing Page AGE
2022-17	Mountain Plains Audiology Inc	New	Audiological Testing
2022-20	Pantheon Web Hosting	New	Web Hosting
2017-38	Paradigm (Alaris Group)	CO #12	Occupational Medicine Support
2021-23	ATEN	CO #1	Neutrino Day Branding
2022-21	Johnson Controls	New	Security Access
2015-29	Amick Sound	CO #10	Wire Sensors to Alarm Panel
2019-28	Jacobs Welding	CO #20	Skip Runner Rebuild
2020-16	Western States Fire and Protection	CO #8	Service Fire Extinguishers from 2022 Inspections
2020-16	Western States Fire and Protection	CO #9	Servicing 2022 Deficiencies
2015-29	Amick Sound	CO #10	Wire Sensors to Alarm Panel
2020-06	TSP	CO #2	A/E Consultation Services

2020-06	TSP	TSK #2.1	Consulting for Hoist Roof Repairs
2019-32	Pro-Steam	CO #3	Carpet Cleaning
2020-34	Stantec	CO #7	Yates Feasibility
2022-09	FKL	RFP	Ross Cage Design
2020-05	West Plains	CO #1	A/E Consultation Services
2022-19	West Plains	RFP	Consulting for Access Control Phase 2
2022-11	Albertson	RFP	ERT Training Structure
2021-32	Formations	CO #2	SLHVC Science Panel Updates
2022-01	RCS	New	Hoist Roof Repairs
2020-06	TSP	Task #3	Engineering Consulting Services
2019-32	Pro-Steam	CO #4	Cleaning Services
2022-09	FKL	RFP	Ross Cage Modifications
2020-34	Stantec	CO #7	Yates Feasibility
2020-05	West Plains	CO #6	Engineering Consulting Services
2016-22	BlackMesh	CO# 5	Web Hosting
2021-14	Fastenal	New	PPE Vending Machines
2022-08	Caitlin Hill	New	Manuscript Consultant
2020-16	Western States Fire	CO# 7	Fire Suppression Additional Building
2019-29	CVD	CO# 53	Window Cleaning Admin-EO
2012-32	Pacific Steel	CO #8	Salvage Waste From Ross
2019-05	Servall	CO #11	Linen Services for SLHVC
2020-29	Bradley's	CO #5	Yates Generator Refurbishment
2020-32	Johnson Controls	CO #2	On-call Maintenance for SLHVC
2021-16	Sander Sanitation	CO #2	Garbage Services for SLHVC
2021-19	RCS	CO #3	Piping for WWTP
2020-06	TSP	RFP	Engineering Design Consulting
2019-28	Jacobs Welding	CO# 17	Ross Collar Screens
2019-28	Jacobs Welding	CO# 18	Low Boy
2019-28	Jacobs Welding	CO# 19	Ross Counterweight Guide Modification
2015-17	Butler CAT	CO# 9	Replace Batteries in Backup Generators

- Purchase Orders (POs): 589 POs were issued March 1 – May 31 totaling \$620,856.41.
- Warehouse Inventory: Warehouse inventory as of May 31, 2022 totaled \$293,731.79.

### **Inclusion, Diversity, Equity and Access (IDEA) Status**

- IDEA is conducting an engagement pulse survey to follow up from last year's full engagement survey to determine areas of success and additional areas of need. The pulse survey will help guide the IDEA team's work going forward and will be distributed in June via Culture Amp.
- The IDEA and Education & Outreach (E&O) teams continue to collaborate to create teacher professional development that embeds IDEA practices and content.
- With E&O, developing an intentional outreach plan to increase reach and connections with tribal schools and schools serving primarily Native students.
- Outreach and Culture Director Deb Wolf and IDEA Program Lead Rochelle Zens began working on their underground guide status to help facilitate additional tours for staff and visitors in the future.
- Management training efforts continue, with plans to solidify the next year of trainings. Trainings will be expanded to additional non-managerial staff, with managers recommending staff who would benefit from the trainings.
- IDEA developed a shared document with contact information for relevant tribal groups, agencies, and annual events for communications and outreach purposes.

- IDEA convened the first meeting of the Star Knowledge Working Group, at the request of the Cultural Advisory Committee. The group is tasked with researching and incorporating the intersections of Native Ways of Knowing and Western Science with public outreach opportunities at SURF. The group will continue to meet quarterly, and is currently comprised by SDSTA Communications, SLHVC, E&O, Science and IDEA with plans to expand membership to external experts in their field.
- IDEA is working with Human Resources and IT to reconfigure the onboarding and orientation processes at SURF. Goals include incorporating additional technical training and a streamlined orientation process, with additional focuses on incorporating belonging practices in onboarding.
- Plans have been made to backfill for the Culture and Outreach Coordinator, with plans to post the position in June. Revisions to the position description were made to consider the future needs of SURF in cultural outreach and IDEA work.
- In collaboration with the SURF Foundation, Communications, and IDEA, a new Sacred Circle Garden brochure was created. In addition, a clear description of Sacred Circle Garden uses has been created and clarified.

## **Education and Outreach (E&O) Status**

### **K-12 Education and Outreach**

#### Curriculum units

- Curriculum unit usage remains strong. During the 2021-22 school year, 79 curriculum kits have been used in districts in South Dakota, North Dakota, and Wyoming. Curriculum units have impacted 3,683 students this year.
- After Miller High School and their curriculum resources were impacted by an explosion this spring, the E&O team connected with one of the high school science teachers and provided kits and materials for learning for their students.

#### Field trips (onsite)

- The spring quarter was the first full season of field trips since before the pandemic. The E&O team hosted 11 schools for field trips from South Dakota, North Dakota and Wyoming.
- Additional field trips are scheduled in June for Campbell County (WY) high school science club, American Indian Services summer camp, SD Mines summer camp and the Davis-Bahcall Scholars.
- The E&O team has collaborated with the Sanford Lab Homestake Visitors Center (SLHVC) staff to integrate and utilize the SLHVC and its resources as an integral part of offerings for students who come for field trips.

#### Classroom presentations (includes virtual field trips)

- In March, April and May the team visited 41 schools in 26 school districts and interacted with 3,495 students. The majority of classroom presentations have been face-to-face with a few schools (such as Luverne, MN) electing virtual presentations.
- The E&O team has surpassed the goal of interacting with 12,000 students this year. Since July 1, 2021, the team has interacted with over 19,000 students.

#### Professional Development (PD)

- E&O team members facilitated the third learning retreat of the SDMath/SDSci Teacher Leadership program in partnership with the SD Department of Education. The program is on its fifth cohort, and the current cohort includes 18 educators from 15 counties in South Dakota.
- In March, April and May, E&O team members provided professional development to educators and showcased SURF E&O resources through the following: Computational Thinking workshop in collaboration with BHSU, the Technology and Innovation in Education Conference, the SD Early Childhood Educators Conference, the SD Counselors Association Conference, and two hybrid online STEM courses through BHSU: Powerful and Productive Mathematical Discourse and Supporting and Sustaining Three-Dimensional Science Instruction.
- The E&O team has focused its efforts this spring on planning summer professional development opportunities. The E&O team has developed content for and/or will facilitate the following professional development opportunities for K-12 science teachers during summer 2022: four face-to-face SD EPSCoR workshops, 8 virtual SD EPSCoR workshops, a face-to-face residential week-long Place-Based Science workshop, a virtual week-long Implementing 3-Dimensional Teaching workshop, a residential week-long Applied Mathematics workshop and two week-long Computational Thinking in Elementary STEM workshops.

## Undergraduate

- In March, the E&O team hosted BHSU undergraduates in their K-8 science methods course for a tour, engineering challenge, and discussion about best practices in teaching and learning science.

## Other

- E&O team members interacted with students at career fairs and STEM events in Spearfish, Sturgis, Huron, the Women in Science conference at BHSU and at the Ellsworth Air Force Base Airshow in the STEAM hangar.
- E&O Director Nicol Reiner visited the Exploratorium with the SLHVC Director and SDSTA's Outreach and Culture Director in April to build capacity in the area of creating informal science learning opportunities in a museum/visitor center setting. Consequently, several collaborative events are planned with the SLHVC and the E&O team to host summer and fall activities to interact with families at the SLHVC.
- Refer to Table 1 below for data related to student interactions for March, April and May 2022.
- Table 2 shows the annual numbers from fiscal year 2016 to present.

**Table 1. Student/Educator Impact – March 2022 – May 2022**

Category of Work	No. of Programs	No. of School Districts	No. of Schools	K-12 Students	K-12 Educators	Undergrad Students
Curriculum Units	28	13	19	1066	28	0
Onsite Field Trips	12	10	10	419	39	12
Presentations	117	26	41	3495	182	0
Other K-12	28	6	15	378	17	169
Professional Development	10	N/A	N/A	0	100	0

- Table 2 shows the annual numbers from fiscal year 2016 to present.

**Table 2. K-12 Students: Fiscal year final numbers (July 1 – June 30)**

	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022 *
Curriculum Units	934	3504	2286	3598	3236	3384	3683
Presentations	8734	8157	6304	6704	3704	2005	14037
Field trips	595	660	796	1117	254	58	419
Other	10	891	825	1055	918	298	1468
Total	10273	13212	10211	12474	8112	5745	19607

*\*July 1, 2021 through May 31, 2022*

## Communications Status

- Elena Dagit, marketing specialist, joined the SDSTA Communications team in April.
- The Communications team participated in virtual science writing training.
- Communications developed advertising and print materials for Neutrino Day and SLHVC.
- Communications is working with the website vendor, Aten, to develop a new website.
- Communications is working with SLHVC to develop a strategic marketing plan.
- Communications Director Constance Walter edited portions of Steve Mitchell's new manuscript.
- Communications participated in the Interactions Collaboration meetings in March, April and May.

## Community Outreach/Media/Site Visits/Presentations

- Deep Talks events were held at the Opera House and SLHVC, more than 150 people attended:
  - March 10: “The Price of Gold” exhibit with SDSTA Communications Specialist Erin Broberg and former SDSTA summer intern and employee Nick Hubbard.
  - April: SURF update with SDSTA Executive Director Mike Headley and three members of the field staff.
  - May: “Ethnobotany in the Black Hills” with Rylan Sprague.
- March 15-16 and May 11: Constance and Erin presented at the 2022 Women in Science conferences at South Dakota Mines.
- March 16: Constance was a panelist at Elevate Rapid City’s panel discussion: “Building the Future of Defense Tech in the Black Hills.”
- April 21: SURF hosted the South Dakota Leadership group; included a presentation and tour of the hoistroom.
- May 13: American Physical Society Historic Sites dedication (10 members of the Davis Family attended).
- May 14-15: SURF hosted a booth at the Ellsworth Air and Space Show.
- May 20: 10<sup>th</sup> anniversary of the Davis Campus.

## Upcoming Community Outreach/Media/Site Visits/Presentations/

- Planning for 2022 Neutrino Day continues. The event will take place at SURF, the SLHVC, the Handley Center and the Historic Homestake Opera House in Lead.
- Members of Sen. Rounds’ staff visited SURF.
- Media visits included:
  - April 19: NewsCenter1 met with scientists, E&O, the SURF Foundation and SLHVC.
  - April 26: A reporter with the New Yorker interviewed Hugh Lippincott, LZ (LUX-ZEPLIN) spokesperson.
  - April 27-28: Wired Video met with scientists from several experiments to create a video about the experiments at SURF.
  - May 20: Pioneer TV visited SURF to interview scientists and engineers for its “Engineering Reborn” program.

## Video, Web, Graphics

- Communications completed a rack card for the SLHVC.
- Communications continues to create new video and animations to illustrate articles that are used on a variety of platforms, including social media, PowerPoint Presentations and the website.
- New features are being created and all experiment pages are being updated for the Sanford Lab website.
- Fresh content is being created weekly for all social media platforms.
- Albums in the Sanford Lab Photo Gallery may be viewed at: <http://pics.sanfordlab.org>.
- General web maintenance, digital signage content; media assistance to science collaborations and educational institutions are ongoing.

Photos of recent events/milestones are included as Appendix C.

## News Coverage

- [A “Rock Star” System for Geothermal Energy](#), by Mary Ann Showalter, PNNL News, Feb. 28, 2022.
- [Underground science lab in Black Hills reaches 9 billion gallons of treated water](#), by Laura Johnson, South Dakota Public Broadcasting, March 15, 2022.
- [A Stunning Image Shows Stars Aligned for the James Webb Space Telescope](#), by Elizabeth Howell, Scientific American, March 23, 2022.
- [Sacred Circle Garden will honor cultural diversity](#), by Wendy Pitlick, Black Hills Pioneer, April 4, 2022.
- [A miner, a physicist and an astronaut walk onto a cage](#), by Constance Walter, Black Hills Pioneer, April 1, 2022.
- [Astronomers reveal first image of the black hole at the heart of our galaxy](#), Event Horizon Telescope, May 12, 2022.
- [SURF designated as American Physical Society Historical Site](#), by Wendy Pitlick, Black Hills Pioneer, May 16, 2022.

## **Information Technology Status**

### **Projects**

- Wrote Clean Desk Standard.
- Welcomed new IT Systems/Security Administrator Sean Crooks to the team in April.
- Power monitoring and Airflow monitoring virtualized and brought online in Datacenter.
- IT hardware and software for Access Control project in place and functioning.
- Completed first draft of Cyber Incident Response Plan.
- Began initial work to implement a patch management solution.
- IT Software Register uploaded to DocuShare.
- IT portion of ArcGIS support plan completed.
- New SDSTA portal planned rollout in June. All SURF custom applications have been migrated, new security functions, and separated logic from DocuShare.
- The deployment and communication with the first MineTech switch was completed on the Yates side.

### **Daily Activities**

In addition to work order activity, IT monitors and reviews wireless and general network activity and counts, network hardware readiness, VPN Remote Access logs, Firewall logs, and establishes new VPN and DocuShare accounts for individuals and user groups, as requested.

### **March – May 2022 Events**

- The Administrative Services team registered 778 visits March 1 through May 31. Access badge requests continued to be processed and monthly badging reports distributed.
- The Visitor Registration Monthly Reports were submitted electronically to the SD Fusion Center/Homeland Security utilizing the SURF database reporting tool.
- The Monthly SURF Foreign National Visits Reports and Restricted Party Screening Audits were generated and distributed.



**Number of New Visitors, Users and Contractors On-Site**

### **Administrative Services Activities**

- Laboratory Receptionist Amanda Berry continued work on the following activities: Purchase orders invoiced and closed in ManagerPlus; monthly office supply orders received and sorted; documents scanned and laminated for various departments; access badges printed and logged; monthly reports uploaded to DocuShare; breakroom and espresso machine regularly cleaned; conference rooms scheduled; researcher hours tracked; safety waivers witnessed; addresses and postage applied to packages; and visitors logged in the database. Amanda and Mandy attended 9000C-Cure System training for the new access control system.
- Administrative Assistant Natasha Wheeler worked with the Neutrino Day planning committee and sent invitations for booth/activity participants and event volunteers; continued to assist ESH reviewing Bridge training courses; and served as occasional backup to reception. Natasha continued to provide administrative support to SURF Foundation Director Staci Miller including: staffing an informational booth at SD CEO; crafting messaging and planning for employee engagement; labeling and shipping limited edition prints; continued to assist in creating and editing various communications and grant application materials; and updating/maintaining donor information in the tracking software.

- Amelia Pearson transitioned from Admin Services to the ESH Department as an ESH Support Associate. She is continuing to help at the front desk as needed until her backfill starts on June 13.
- Administrative Services Manager Mandy Knight continued to assist with the Entrepreneurial Operating System (EOS) workshops with Consultant Mike Roth and the SDSTA Executive Leadership team. The EOS quarterly summit on March 30 was conducted onsite at SURF. The next annual planning summit is scheduled offsite at BHSU July 6-7. Neutrino Day planning is also underway. Several IMS documents were completed to support the ISO process (Position Descriptions, Organizational Charts and SDSTA Policy and Policy-Procedure Manual). The Administrative Services team continues to scribe for several SURF weekly department leadership meetings (L10s).
- The Administrative team provided logistical support for the following events:
  - March 7 ORM quarterly site visit
  - March 24 SURF Foundation Board Meeting
  - March 31 Quarknet Class
  - April – May school field trips (E&O)
  - April 12 SURF All Hands meeting; Cultural Advisory Committee (held virtually due to inclement weather)
  - April 20 Senator Rounds' Staff site visit
  - May 4-5 Stage 1 ISO Audit
  - May 5 & 12 ERT training
  - May 10 & 13 Conference on Science at SURF (CoSSURF) site visits (conference held at SD Mines)
  - May 12 Deep Talks
  - May 13 APS Plaque Dedication and luncheon
  - May 17 Summer Intern Introduction luncheon
  - May 18-19 Facility Advisory Committee (FAC) Review
  - May 20 Davis Campus 10-Year Anniversary Celebration (reception held at SLHVC)
  - May 23-24 SURF Strategic Advisory Committee (SSAC) Review (held virtually)
- The SDSTA Board of Directors regularly scheduled meeting was held on March 24, 2022. Board material and meeting minutes were posted to the Boards & Commissions portal. Preparations began for the annual SDSTA Board of Directors meeting to be held on June 16. Several policies have been updated, reviewed by legal counsel and included in the June board packet for approval: Employment Policy, Leave Policy, Personal Protective Equipment Reimbursement Policy, Use of SDSTA Technology Resources and Internet Policy and Travel Approval and Reimbursement – Employees Policy. Several procedures were also updated and approved by Mike Headley. Lastly, the SURF Logo mark has been successfully registered (renewed).

## **SANFORD LAB HOMESTAKE VISITOR CENTER**

## **Sanford Lab Homestake Visitor Center (SLHVC) Status**

### **Programming**

- Deep Talks presentations occurred in April and May, the first in-person Deep Talks events since spring of 2020.
- In conjunction with the April Deep Talks, an Employee Appreciation event was held at SLHVC. Many staff took advantage of the employee discount offered on purchases.
- SLHVC hosted the dedication luncheon for the Ray Davis family in recognition of the Davis Campus being named a Historic Site in Physics by the American Physical Society.
- SLHVC hosted a reception celebrating 10 years in the Davis Campus. Many current and former employees attended the event.
- Road Scholars visit every Monday. This organization brings 30-40 individuals who attend a presentation by SURF personnel, then explore the exhibits and shop.
- Diamond Tours visit every Tuesday and Thursday. This bus tour brings 50-200 people through SLHVC each day, dependent on the number of tours.
- SLHVC Director Kelly Kirk visited the Exploratorium Museum in San Francisco, CA with the E&O Director and the Outreach and Culture Director in April to build capacity in creating informal science learning opportunities in a museum/visitor center setting. Consequently, several collaborative events are planned with the SLHVC and E&O teams to host summer and fall activities to interact with families at the SLHVC.
- Field trips were coordinated through April and May with the E&O team, welcoming students of all ages to SLHVC.
- Supported city-wide activities such as: mayoral candidate forum, mayoral elections and city-wide informational meetings.
- SLHVC is a stop on the Phoebe Apperson Hearst Library Summer Story Walk.

### **Other Updates**

- Updated science exhibit panels installed. Additional changes to exhibits scheduled for completion in July.
- Seasonal staff have been hired and trained, and in preparation for summer trolley tours, trolley drivers and supervisors have undergone DOT training.
- Significant expansion of merchandise options at museum store have occurred.

Work has continued on deferred maintenance, including bathroom repairs and updates, resealing the floors, boiler repairs, and fixing building and roof leaks.

**SURF FOUNDATION**  
**501(c)(3)**

## **SURF Foundation Status**

### Work Accomplishments

- Sacred Circle Garden Campaign:
  - The campaign continues with a total of \$449,771.59 raised for the Sacred Circle Garden
  - Nine grants were written for a total amount of \$147,500
  - 95% design of the Sacred Circle Garden is complete
  - SURF Foundation hosted a booth at the SD CEO luncheon event in Spearfish, SD
  - NewsCenter 1 ran a story on the Sacred Circle Garden
  - South Dakota Public Broadcasting ran a story on the Sacred Circle Garden
  - Spring Annual appeal letters were mailed with a focus on the Sacred Circle Garden
  - The SURF Foundation hosted a Sacred Circle Garden booth at the final Deep Talks event
  - A \$10,000 grant from SD Community Foundation was received for the Sacred Circle Garden
  - A \$5,000 grant from Black Hills Energy was received to support the Sacred Circle Garden
- 2022 Neutrino Day sponsorship letters were sent
- The donor retention rate is at 51% compared to the national average of 43% as of May 24, 2022
- SURF Foundation Director Staci Miller presented to the following civic organizations on the Sacred Circle Garden and SURF Foundation
  - Spearfish Rotary
  - SD Community Connections
  - SDNTA Wak'hályapin Hours
- The donor stewardship matrix has been followed with thank you phone calls, handwritten thank you notes, 30-day and quarterly impact letters as well as donor-versary letters being sent to all donors
- Three new Board of Directors will be joining the SURF Foundation Board in June
  - Adam Gollofson – Bozeman, MT
  - Justin Varland – Bend, OR
  - Sandra Stash – Whitefish, MT
- A \$25,000 grant from John T. Vucurevich Foundation was received to support SURF's teacher professional development program

### Upcoming Activities

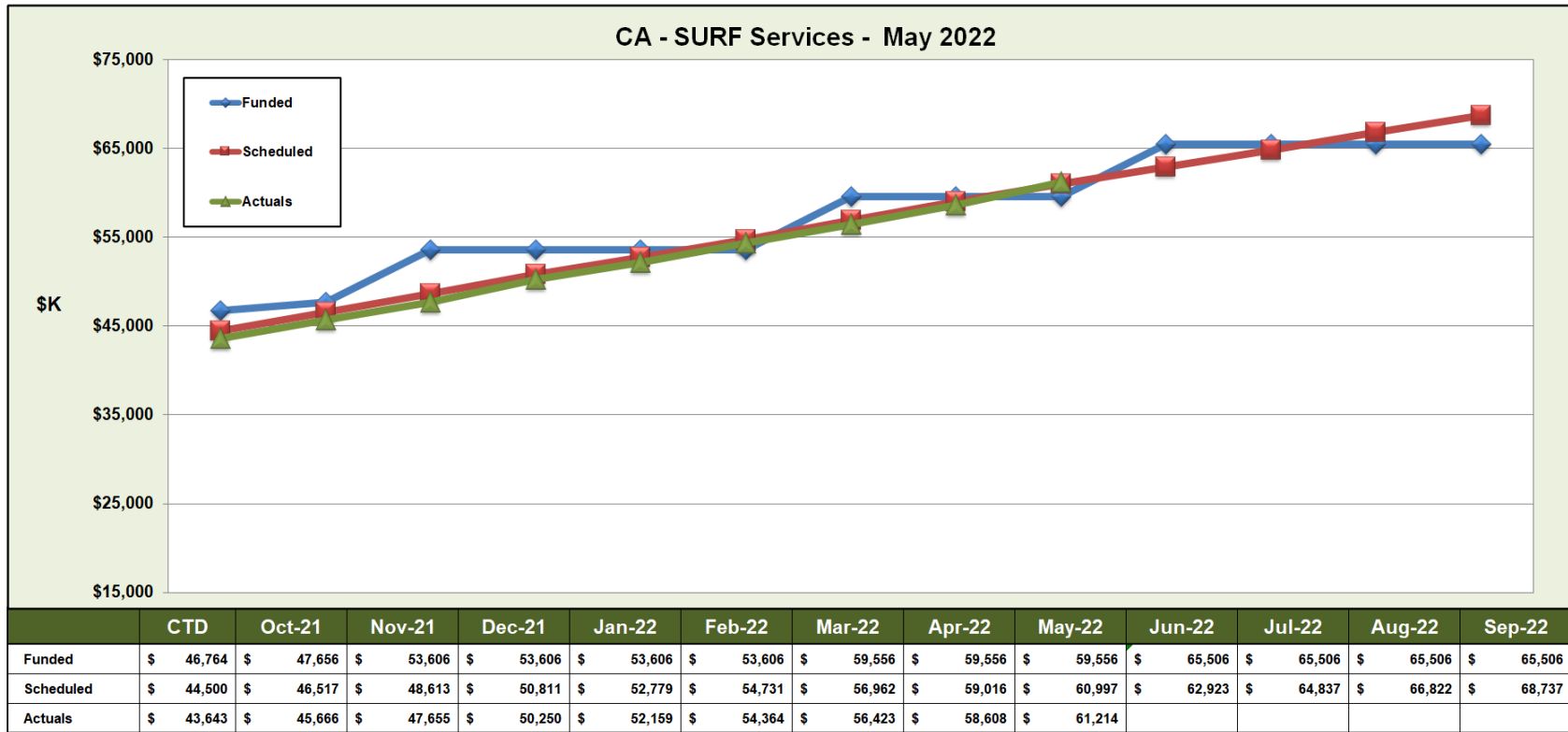
- SURF Foundation, in collaboration with Lead Chamber of Commerce, will be holding a 4<sup>th</sup> of July event at the Sanford Lab Homestake Visitor Center
- Staci will travel to Sioux Falls June 27-30, 2022 to meet with potential donors and present to Sioux Falls Downtown Lions Club



## APPENDIX



**Business Services Department  
Appendix A**



**DOE SDSTA Fiscal Year 2022 SPA Curve**



# APPENDIX B - FINANCIAL SUMMARIES

REPORT DATE 06/10/2022

SOUTH DAKOTA SCIENCE & TECHNOLOGY

13:00

PAGE 0001

DIVISION: ALL

BALANCE SHEET

## ASSETS

AS OF  
05/31/22

### CURRENT ASSETS

First Interstate Checking	\$	5,682,707.86
		-----
Total in Local Checking		5,682,707.86
SD Treas: Indemnification		7,500,000.00
SD Treas: Mine Closure		1,520,425.48
SD Treas: Operating		1,304,075.96
SD Treas: Experiments		756,479.22
		-----
Total with SD Treasurer		11,080,980.66
Billed A/R		3,053,345.63
Unbilled A/R		32,303.28
Other A/R		318,060.12
Inventory - Supplies		3,230,230.03
Inventory - Warehouse		312,998.94
Other Current Assets		1,091,440.74
		-----
Total Current Assets		24,802,067.26

### FIXED ASSETS

Land, Underground & Other		12,743,473.13
Bldgs & Infrastructure		19,386,433.19
Improvements		62,813,135.62
Computer Equipment		339,633.81
Equipment & Fixtures		10,728,351.78
DOE Property Transfer		6,328,277.05
Accum Depr & Amort		(21,351,509.26)
DOE Prop. Accum Deprec.		(479,030.83)
		-----
Total Fixed Assets		90,508,764.49

### OTHER ASSETS

Work in Process		-
Pension Deferred Outflows		4,135,812.00
Xenon Purchased		8,934,350.39
		-----
Total Other Assets		13,070,162.39

### TOTAL ASSETS

=====

\$ 128,380,994.14

=====

DIVISION: ALL

## BALANCE SHEET

## LIABILITIES &amp; EQUITY

		AS OF 05/31/22
		<hr/>
CURRENT LIABILITIES		
Accounts Payable	\$	2,022,977.02
Other Payables		11,988.45
		<hr/>
Total Accounts Payable		2,034,965.47
Accrued Payroll Liab		2,338,333.96
		<hr/>
Total Current Liabilities		4,373,299.43
OTHER LIABILITIES		
LT Xenon Notes Payable		6,000,000.00
Pension Deferred Inflows		3,467,898.62
		<hr/>
Total Other Liabilities		9,467,898.62
EQUITY		
Restricted: Indemnificati		7,500,000.00
Restricted: Mine Closure		1,520,425.48
Restricted: Pension		667,913.38
Restricted: Experim. Int.		756,479.22
Restricted: Foundation		-
		<hr/>
Total Restricted Funds		10,444,818.08
Investment in Gen FA		90,521,264.49
Unrestricted Funds		13,573,713.52
		<hr/>
Total Equity		114,539,796.09
		<hr/>
TOTAL LIABILITIES & EQUITY	\$	128,380,994.14
		<hr/>

ALL

## STATEMENT OF INCOME

FOR THE PERIOD ENDING 05/31/22

	YR-TO-DATE
</PAGE_HEADER>	
REVENUE	
DOE Subcontracts	\$ 35,745,023.44
NSF/NASA Subcontracts	-
State Revenue	-
Checking Interest	1,918.43
Interest Income	102,182.30
	-----
TOTAL REVENUE	35,849,124.17
DIRECT COSTS	
Direct Labor	8,328,738.50
Board of Directors	7,481.10
Capital Outlay >\$5K	4,686,874.15
Contractual Svcs	3,997,052.35
Inventory	281,865.95
Supplies	1,956,186.63
Travel - Domestic	42,605.55
Travel - Foreign	-
Utilities	2,224,032.14
Other Direct Costs	168,570.93
Unallow/Unbill Costs	349,232.60
	-----
TOTAL DIRECT COSTS	22,042,639.90
INDIRECT COSTS	
Fringe Benefits	6,449,024.62
Overhead	9,163,707.91
	-----
TOTAL INDIRECT COSTS	15,612,732.53
	-----
GROSS PROFIT/LOSS ( )FROM OPERATIONS	(1,806,248.26)
	-----
OTHER INCOME	
Water Treatment	192,956.86
Miscellaneous Income	129,869.23
Other Operating Income	193,593.20
	-----
TOTAL OTHER INCOME	516,419.29
OTHER EXPENSES	
Misc. Expenses & Donations	(8,692,735.33)
Loss (Gain) on Sale of FA	11,849.29
Other Unallowable Expense	302,908.83
Reclass Incr Net Assets	6,294,080.27
	-----
TOTAL OTHER EXPENSES	(2,083,896.94)
	=====
NET INCOME/LOSS ( )	\$ 794,067.97
	=====

DIVISION: ALL

## COMPARATIVE BALANCE SHEET

## ASSETS

	AS OF 05/31/22	AS OF 05/31/21	\$ CHANGE	% CHANGE
<b>CURRENT ASSETS</b>				
First Interstate Checking	\$ 5,682,707.86	\$ 5,273,993.34	\$ 408,714.52	7.75%
First Interstate Other	-	1,420.64	(1,420.64)	-100.00%
	-----	-----	-----	-----
Total in Local Checking	5,682,707.86	5,275,413.98	407,293.88	7.72%
SD Treas: Indemnification	7,500,000.00	7,500,000.00	-	0.00%
SD Treas: Mine Closure	1,520,425.48	1,497,441.53	22,983.95	1.53%
SD Treas: Operating	1,304,075.96	1,116,445.61	187,630.35	16.81%
SD Treas: Sanford Gift #2	-	6,569.97	(6,569.97)	-100.00%
SD Treas: Spec Sess - Lab	-	660,845.00	(660,845.00)	-100.00%
SD Treas: Experiments	756,479.22	890,866.75	(134,387.53)	-15.09%
	-----	-----	-----	-----
Total with SD Treasurer	11,080,980.66	11,672,168.86	(591,188.20)	-5.06%
Billed A/R	3,053,345.63	1,867,150.83	1,186,194.80	63.53%
Unbilled A/R	32,303.28	777,747.50	(745,444.22)	-95.85%
Other A/R	318,060.12	844,996.00	(526,935.88)	-62.36%
Inventory - Supplies	3,230,230.03	3,261,322.97	(31,092.94)	-0.95%
Inventory - Warehouse	312,998.94	27,118.37	285,880.57	1054.20%
Other Current Assets	1,091,440.74	668,163.24	423,277.50	63.35%
	-----	-----	-----	-----
Total Current Assets	24,802,067.26	24,394,081.75	407,985.51	1.67%
<b>FIXED ASSETS</b>				
Land, Underground & Other	12,743,473.13	12,633,473.13	110,000.00	0.87%
Bldgs & Infrastructure	19,386,433.19	9,707,365.56	9,679,067.63	99.71%
Improvements	62,813,135.62	64,637,443.82	(1,824,308.20)	-2.82%
Computer Equipment	339,633.81	570,932.90	(231,299.09)	-40.51%
Equipment & Fixtures	10,728,351.78	10,610,504.96	117,846.82	1.11%
DOE Property Transfer	6,328,277.05	1,748,086.07	4,580,190.98	262.01%
Accum Depr & Amort	(21,351,509.26)	(19,801,252.74)	(1,550,256.52)	7.83%
DOE Prop. Accum Deprec.	(479,030.83)	(156,045.32)	(322,985.51)	206.98%
	-----	-----	-----	-----
Total Fixed Assets	90,508,764.49	79,950,508.38	10,558,256.11	13.21%
<b>OTHER ASSETS</b>				
Work in Process	-	4,610,740.57	(4,610,740.57)	-100.00%
Pension Deferred Outflows	4,135,812.00	2,995,814.75	1,139,997.25	38.05%
Xenon Purchased	8,934,350.39	8,934,350.39	-	0.00%
	-----	-----	-----	-----
Total Other Assets	13,070,162.39	16,540,905.71	(3,470,743.32)	-20.98%
	=====	=====	=====	=====
<b>TOTAL ASSETS</b>	<b>\$ 128,380,994.14</b>	<b>\$ 120,885,495.84</b>	<b>\$ 7,495,498.30</b>	<b>6.20%</b>
	=====	=====	=====	=====

DIVISION: ALL

## COMPARATIVE BALANCE SHEET

## LIABILITIES &amp; EQUITY

	AS OF 05/31/22	AS OF 05/31/21	\$ CHANGE	% CHANGE
CURRENT LIABILITIES				
Accounts Payable	\$ 2,022,977.02	\$ 1,645,797.93	377,179.09	22.92%
Other Payables	11,988.45	11,083.62	904.83	8.16%
	-----	-----	-----	-----
Total Accounts Payable	2,034,965.47	1,656,881.55	378,083.92	22.82%
Accrued Payroll Liab	2,338,333.96	2,223,265.48	115,068.48	5.18%
	-----	-----	-----	-----
Total Current Liabilities	4,373,299.43	3,880,147.03	493,152.40	12.71%
OTHER LIABILITIES				
LT Xenon Notes	6,000,000.00	6,000,000.00	-	0.00%
Pension Deferred Inflows	3,467,898.62	1,266,585.88	2,201,312.74	173.80%
	-----	-----	-----	-----
Total Other Liabilities	9,467,898.62	7,266,585.88	2,201,312.74	30.29%
	-----	-----	-----	-----
TOTAL LIABILITIES	13,841,198.05	11,146,732.91	2,694,465.14	24.17%
EQUITY				
Restricted: Indemnificati	7,500,000.00	7,500,000.00	-	0.00%
Restricted: Lab	-	660,845.00	(660,845.00)	-100.00%
Restricted: Mine Closure	1,520,425.48	1,497,441.53	22,983.95	1.53%
Restricted: Sanford Gift2	-	6,569.97	(6,569.97)	-100.00%
Restricted: Pension	667,913.38	1,729,228.87	(1,061,315.49)	-61.38%
Restricted: Experim. Int.	756,479.22	890,866.75	(134,387.53)	-15.09%
Restricted: Foundation	-	219.45	(219.45)	-100.00%
	-----	-----	-----	-----
Total Restricted Funds	10,444,818.08	12,285,171.57	(1,840,353.49)	-14.98%
Investment in Gen FA	90,521,264.49	79,950,508.38	10,570,756.11	13.22%
Unrestricted Funds	13,573,713.52	17,503,082.98	(3,929,369.46)	-22.45%
	-----	-----	-----	-----
TOTAL EQUITY	114,539,796.09	109,738,762.93	4,801,033.16	4.37%
	=====	=====	=====	=====
TOTAL LIABILITIES & EQUITY	\$ 128,380,994.14	\$ 120,885,495.84	\$ 7,495,498.30	6.20%
	=====	=====	=====	=====

## COMPARATIVE STATEMENT OF INCOME

FOR THE PERIOD ENDING 05/31/22

	YEAR TO DATE	PRIOR YEAR TO DATE	\$ CHANGE	% CHANGE
REVENUE				
DOE Subcontracts	\$ 35,745,023.44	\$ 32,188,252.27	\$ 3,556,771.17	11.05%
NSF/NASA Subcontracts	-	1,967.60	(1,967.60)	-100.00%
State Revenue	-	5.10	(5.10)	0.00%
Checking Interest	1,918.43	1,388.51	529.92	38.16%
Interest Income	102,182.30	126,010.00	(23,827.70)	-18.91%
	-----	-----	-----	-----
TOTAL REVENUE	35,849,124.17	32,317,623.48	3,531,500.69	10.93%
DIRECT COSTS				
Direct Labor	8,328,738.50	7,855,827.65	472,910.85	6.02%
Board of Directors	7,481.10	4,560.84	2,920.26	64.03%
Capital Outlay >\$5K	4,686,874.15	2,549,816.33	2,137,057.82	83.81%
Contractual Svcs	3,997,052.35	3,434,609.31	562,443.04	16.38%
Inventory	281,865.95	164,413.70	117,452.25	71.44%
Supplies	1,956,186.63	1,176,620.67	779,565.96	66.25%
Travel - Domestic	42,605.55	17,530.27	25,075.28	143.04%
Travel - Foreign	-	(149.16)	149.16	0.00%
Utilities	2,224,032.14	2,054,679.57	169,352.57	8.24%
Other Direct Costs	168,570.93	19,906.25	148,664.68	746.82%
Unallow/Unbill Costs	349,232.60	270,210.06	79,022.54	29.24%
	-----	-----	-----	-----
TOTAL DIRECT COSTS	22,042,639.90	17,548,025.49	4,494,614.41	25.61%
INDIRECT COSTS				
Fringe Benefits	6,449,024.62	6,114,992.23	334,032.39	5.46%
Overhead	9,163,707.91	8,443,035.99	720,671.92	8.54%
	-----	-----	-----	-----
TOTAL INDIRECT COSTS	15,612,732.53	14,558,028.22	1,054,704.31	7.24%
	-----	-----	-----	-----
GROSS PROFIT/LOSS ( )	(1,806,248.26)	211,569.77	(2,017,818.03)	517.81%
	-----	-----	-----	-----
OTHER INCOME				
Water Treatment	192,956.86	226,145.64	(33,188.78)	-14.68%
Miscellaneous Income	129,869.23	23,018.80	106,850.43	464.19%
Other Operating Income	193,593.20	83,666.38	109,926.82	131.39%
	-----	-----	-----	-----
TOTAL OTHER INCOME	516,419.29	332,830.82	183,588.47	55.16%
OTHER EXPENSES				
Misc. Expenses & Donations	(8,692,735.33)	(1,500,308.53)	(7,192,426.80)	479.40%
Loss (Gain) on Sale of FA	11,849.29	104,445.33	(92,596.04)	-88.66%
Other Unallowable Expense	302,908.83	156,045.32	146,863.51	94.12%
Reclass Incr Net Assets	6,294,080.27	(755,289.90)	7,049,370.17	-933.33%
	-----	-----	-----	-----
TOTAL OTHER EXPENSES	(2,083,896.94)	(1,995,107.78)	(88,789.16)	4.45%
	=====	=====	=====	=====
NET INCOME/LOSS ( )	\$ 794,067.97	\$ 2,539,508.37	\$ (1,745,440.40)	-68.73%
	=====	=====	=====	=====

**South Dakota Science & Technology Authority**  
**Available Resources**  
**5/31/2022**

Cash Total Checking	\$ 5,682,708
Cash With State Treasurer	<u>\$ 11,080,981</u>
Total Cash	\$ 16,763,689
Less: Restricted Funds	
Indemnification/Mine Closure	\$ (9,020,425)
Experiments (Xenon, Interest, Infrastructure)	<u>\$ (756,479)</u>
Total Cash Available for Infrastructure Upgrades and Authority Operations	\$ 6,986,785
Plus: Accounts Receivable Billed	\$ 3,053,346
Accounts Receivable Unbilled	\$ (32,303)
Less: Current Liabilities (Accounts Payable & Accrued Payroll)	<u>\$ (4,373,299)</u>
(not including accts. pay. For MSF funding)	
Available Cash and Receivables	<u><u>\$ 5,634,529</u></u>

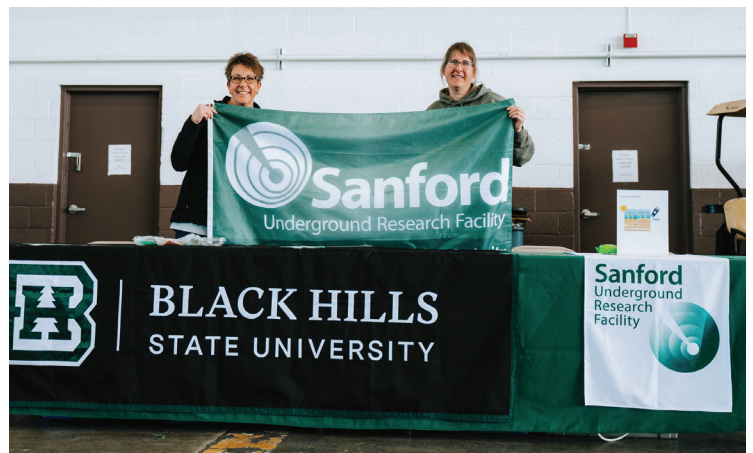
# SDSTA Operating Budget Summary FY2022

Actual vs Budget  
May 2022 & YTD

	May 2022	Budget	\$ Over/Under Budget	% of Budget	Actual YTD	YTD Budget	\$ Over/Under Budget	% of Budget	% Remaining
									100%
SDSTA (Authority) Direct Charges									
Board of Directors	\$18,728.00	\$19,334.00	\$606.00	96.87%	\$216,870.00	\$226,667.00	\$9,797.00	95.68%	4.32%
Executive Office	\$160,586.00	\$49,481.00	-\$111,105.00	324.54%	\$1,282,329.00	\$848,424.00	-\$433,905.00	151.14%	-51.14%
Science Center E & O	\$8,455.00	\$16,483.00	\$8,028.00	51.3%	\$62,242.00	\$71,000.00	\$8,758.00	87.66%	12.34%
Science Liaison	\$1,726.00	\$0.00	-\$1,726.00	100.0%	\$35.00	\$0.00	-\$35.00	100.00%	0.00%
SLHVC (Visitor Center)	\$73,031.00	\$48,573.00	-\$24,458.00	150.35%	\$271,367.00	\$203,424.00	-\$67,943.00	100.00%	0.00%
Subtotal	\$262,526.00	\$133,871.00	-\$128,655.00	196.1%	\$1,832,843.00	\$1,349,515.00	-\$483,328.00	135.81%	-35.81%
Federal/State Funding - Direct Charges									
Fermi C#671265 Prof. St.Services	\$7,263.00	\$5,000.00	-\$2,263.00	145.26%	\$53,630.00	\$63,000.00	\$9,370.00	85.13%	14.87%
Fermi C#685922 Op Serv Support	\$0.00	\$0.00	\$0.00	0.0%	\$5,122.00	\$5,500.00	\$378.00	93.13%	6.87%
Fermi C#674969 Ross Logist.Supp.	\$340,238.00	\$370,000.00	\$29,762.00	91.96%	\$2,661,981.00	\$3,198,325.00	\$536,344.00	83.23%	16.77%
Fermi Misc. Contracts	\$0.00	\$0.00	\$0.00	0.0%	\$3,942.00	\$35,000.00	\$31,058.00	11.26%	88.74%
Office of Science Coop.Agree	\$1,736,461.00	\$1,322,508.00	-\$413,953.00	131.3%	\$15,338,180.00	\$14,537,949.00	-\$800,231.00	105.50%	-5.50%
Office of Science IIP Projects	\$1,067,232.00	\$1,067,232.00	\$0.00	100.0%	\$6,191,437.00	\$6,191,438.00	\$1.00	100.00%	0.00%
LBNL SIGMA-V C#7371823	\$11,967.00	\$10,000.00	-\$1,967.00	119.67%	\$196,777.00	\$250,000.00	\$53,223.00	78.71%	21.29%
LBNL LZExp.Operat.C#7525117	\$35,618.00	\$55,000.00	\$19,382.00	64.76%	\$456,589.00	\$570,000.00	\$113,411.00	80.10%	19.90%
MJD (Majorana) ORNL144149	\$1,065.00	\$2,000.00	\$935.00	53.25%	\$14,213.00	\$22,000.00	\$7,787.00	64.60%	35.40%
* Kiewit/Thyssen/DakotaT.	\$2,025.00	\$4,000.00	\$1,975.00	50.63%	\$27,608.00	\$44,700.00	\$17,092.00	61.76%	38.24%
* Caterpillar Inc.	\$0.00	\$0.00	\$0.00	0.0%	\$94,997.00	\$94,997.00	\$0.00	100.00%	0.00%
RESPEC Thermal Breakout	\$0.00	\$0.00	\$0.00	0.0%	\$11,522.00	\$30,000.00	\$18,478.00	38.41%	61.59%
Subtotal	\$3,201,869.00	\$2,835,740.00	-\$366,129.00	112.91%	\$25,055,998.00	\$25,042,909.00	-\$13,089.00	100.05%	-0.05%
Indirect Expenses									
Indirect Charges Personnel	\$487,579.00	\$416,460.00	-\$71,119.00	117.08%	\$4,707,973.00	\$5,508,371.00	\$800,398.00	85.47%	14.53%
Indirect Charges Other	\$646,193.00	\$551,939.00	-\$94,254.00	117.08%	\$5,333,554.00	\$5,826,551.00	\$492,997.00	91.54%	8.46%
Subtotal	\$1,133,772.00	\$968,399.00	-\$165,373.00	117.08%	\$10,041,527.00	\$11,334,922.00	\$1,293,395.00	88.59%	11.41%
Totals	\$4,598,167.00	\$3,938,010.00	-\$660,157.00	116.76%	\$36,930,368.00	\$37,727,346.00	\$796,978.00	97.89%	2.11%
* Private Corporations (Commercial Group)									



## Communications Department Photo Appendix C



*Top left: Ashley Armstrong and a student participating in “A day in the life” activity during a field trip to SURE.*

*Top right: Infrastructure Technician Will Hover operates a jackleg drill in the Yates Shaft.*

*Center two photos: SURF staffed two booths at the South Dakota Air Show at Ellsworth Air Force Base in May.*

*Bottom: Ray Davis’s family members gather for a photo on the ring outside the Visitor Center.*





*Bottom: SDSTA Board Member Pat Lebrun signs a proclamation dedicating the Davis Cavern as an American Physics Society Historic Site.*

