

South Dakota Science and Technology Authority Board of Directors
Meeting Minutes
Thursday, March 24, 2022
Lead, South Dakota

The Board of Directors of the South Dakota Science and Technology Authority (SDSTA) convened at 8:00 AM Mountain Time (MT) on Thursday, March 24, 2022, in the Education and Outreach (E&O) Building Conference Room at the South Dakota Science and Technology Authority, 630 East Summit Street, Lead, South Dakota. A conference number was posted on the agenda with an invitation for members of the public to participate in the meeting by telephone.

MEMBERS OF THE BOARD IN ATTENDANCE

Dr. Ani Aprahamian (by phone)
Vice Chairperson Dana Dykhouse (by phone)
Dr. Chris Fall (by phone)
Secretary/Treasurer Patricia Lebrun (by phone)
Chairperson Casey Peterson (in person)
Vice Chairperson Ron Wheeler (by phone)
Dr. James Rankin, ex-officio (by phone)

MEMBERS OF THE BOARD ABSENT

Mr. Roger Musick

SDSTA STAFF PRESENT DURING ALL OR PART OF THE MEETING

Ms. Eileen Brosnahan, Human Resources Administrator (in person)
Ms. Christine Burger, Human Resources Manager (in person)
Mr. Tim Engel, Legal Counsel (in person)
Ms. Julie Ewing, Environment, Safety and Health (ESH) Director (in person)
Ms. Nancy Geary, Outgoing Chief Financial Officer (in person)
Mr. Brook Hanson, IT Support Technician (in person)
Mr. Mike Headley, Executive Director (in person)
Dr. Jaret Heise, Science Director (in person)
Ms. Kelly Kirk, Sanford Lab Homestake Visitor Center (SLHVC) Director (in person)
Ms. Mandy Knight, Administrative Services Manager (in person)
Mr. William McElroy, Deputy Director of Operations (in person)
Ms. Staci Miller, Sanford Underground Research Facility (SURF) Foundation Director (in person)
Mr. Terry Miller, Chief Financial Officer (in person)
Ms. Ashlyn Pearson, Human Resources Generalist (in person)
Ms. Wendy Straub, Hoists and Shafts Director (in person)
Ms. Constance Walter, Communications Director (by phone)
Ms. Natasha Wheeler, Administrative Assistant (in person)
Ms. Deb Wolf, Outreach and Culture Director (in person)

ALSO PRESENT DURING ALL OR PART OF THE MEETING

Mr. Clayton Hollowell, Department of Energy High Energy Physics Program Manager (in person)
Mr. Alex Portal, Black Hills Pioneer Journalist (in person)
Ms. Nicol Reiner, Education & Outreach Director (BHSU) (in person)

ITEM 1. CALL TO ORDER

Chairperson Casey Peterson called the meeting to order at 8:00 AM (MT). Roll call was held. Dr. Ani Aprahamian, Mr. Dana Dykhouse, Dr. Chris Fall, Ms. Pat Lebrun, Mr. Ron Wheeler and Dr. Jim Rankin were present by phone. Chairperson Peterson was present in person. Mr. Roger Musick was absent.

Chairperson Peterson then asked audience members to introduce themselves. Of note, Ms. Eileen Brosnahan and Ms. Nancy Geary were in attendance and will retire from SDSTA on April 15 and June 10, 2022, respectively. Mr. Headley thanked and recognized them for their contributions and said Ms. Brosnahan has completed 44 years of working with Homestake and SURF. The individuals in the room gave Ms. Brosnahan and Ms. Geary a standing ovation. The incoming CFO, Mr. Terry Miller, and the new Human Resources team, Ms. Christine Burger and Ms. Ashlyn Pearson, were also in attendance.

Chairperson Peterson said if anyone from the audience had any questions or comments for the board to address, to please complete the public comment form located at the sign-in table and time will be given at the end of the agenda to discuss. He reported no comment forms were submitted.

ITEM 2. APPROVE AGENDA

Chairperson Peterson asked if there were any modifications to the agenda. Hearing none, Chairperson Peterson asked for a motion to approve the agenda.

Motion by Ms. Lebrun and seconded by Mr. Dykhouse to approve the agenda as presented. Motion passed unanimously.

ITEM 3. APPROVE MINUTES

Chairperson Peterson asked if there were any comments on the December 16, 2021 Minutes. Hearing none, he asked for a motion to approve the minutes.

Motion by Mr. Dykhouse and seconded by Mr. Wheeler to approve the December 16, 2021 minutes as presented. Motion passed unanimously.

Dr. Chris Fall joined the meeting at 8:05 AM.

ITEM 4. GENERAL CONFLICT OF INTEREST DISCLOSURE

SDSTA Legal Counsel Mr. Tim Engel invited members of the board to disclose anything that might be construed to be a conflict of interest with respect to items under consideration at today's meeting.

No conflicts of interest were disclosed.

ITEM 5. DISCLOSURES AND WAIVER UNDER SDCL CH. 3-23

Mr. Engel said he contacted all board members before the March 24, 2022, board meeting and asked them to make any disclosures related to SDCL CH. 3-23. He said no disclosures were reported.

ITEM 6. SURF FOUNDATION (SURFF) STATUS UPDATE

Ms. Miller shared an image of the new brochure cover for the Cangleska Wakan (Sacred Circle) Garden. She said the campaign goal for the garden is \$800,000.00, and to-date, the Foundation has raised over \$430,000 for the project. Ms. Miller said uses of the garden will include learning across generations: stargazing, gardening alongside master gardeners and presentations from subject matter experts; connecting our communities: a gathering space to bring people together and a stop for trolley tours; and cultivating cultural awareness: a space to learn about cultures of the region, caring for others and creating a better community. Ms. Miller said the Sacred Circle Garden campaign includes a new brochure, a 100% design underway and presentations being given to a variety of civic organizations and clubs. She said the current donor retention rate for the Foundation is 60% compared to the national

average of 43%, 27 new donors have been gained over the last quarter and recent Foundation events include the Fireworks Viewing event held in collaboration with the SLHVC with 60 people in attendance, the annual Donor Appreciation event hosted virtually with 28 people in attendance and the Mix & Mingle event held in collaboration with the Lead Chamber of Commerce with over 60 people in attendance. Ms. Miller said the annual Employee Giving Campaign will be in partnership with the Handley Center in Lead and will kick off on April 4, 2022.

Mr. Headley said progress for the Institute was slow over the last quarter due to several factors including the consultant being out of the office and SDSTA efforts being focused on the acquisition and transition of the SLHVC.

Mr. Dykhouse thanked Ms. Miller for giving several presentations in Sioux Falls for SURF, the SURF Foundation and the Sacred Circle Garden, noting the positive comments he's received.

ITEM 7. REPORT FROM THE AUDIT COMMITTEE

ITEM 7A. AUDIT COMMITTEE MEETING UPDATE

Ms. Lebrun said the Audit Committee met in February 2022, to review the Request for Proposal (RFP) for an outside auditor and the minutes are included in the board packet. She said the RFP is out for bid. Mr. Miller said proposals are due March 31, 2022, and questions were due March 10, 2022. He said questions were received from two potential audit firms, but proposals have not yet been received from those firms.

Ms. Lebrun said the State of South Dakota will no longer complete the audit for SDSTA, as the organization has become too large. The audit committee is seeking a third-party firm to complete the 2021-2022 fiscal year audit for submission to the State for review and approval.

Ms. Lebrun said the audit committee reviews the Audit Charter annually and they will review it before the June 16, 2022, board meeting. Chairperson Peterson suggested including the Audit Charter in the audit scope of work.

ITEM 7B. ACCEPTANCE OF AUDIT REPORT, FISCAL YEAR ENDED JUNE 30, 2021

Ms. Lebrun said the audit report was presented to the board at the December 16, 2021, meeting for discussion and is now presented for approval.

Motion by Ms. Lebrun and seconded by Mr. Dykhouse to accept the Audit Report for the Fiscal Year Ended June 30, 2021, as reviewed and discussed at the December 16, 2021, board meeting. Motion passed unanimously.

ITEM 8. FINANCIAL REPORT

ITEM 8A. FEBRUARY FINANCIAL STATEMENTS

Mr. Miller said the February 2022, financial statements are included in the board packet. He said last quarter, SDSTA purchased the SLHVC which appears in the capital items on the statement. Mr. Miller said the transaction included the building, land, SLHVC sign, Davis Ring, gift shop inventory and trolley, and SDSTA is now full owner and operator of the SLHVC. Ms. Geary noted that certain of the SLHVC assets were originally purchased by SDSTA and the transaction represents the value being returned to SDSTA.

Chairperson Peterson asked if the SLHVC items conveyed to SDSTA were valued at cost or fair market value. Ms. Geary replied that the items were recorded at cost.

Mr. Miller said four Dodge pickup trucks, previously leased, have been purchased by SDSTA.

ITEM 8B. CHECKS RESOLUTION NO. 2022-01

Chairperson Peterson asked for a motion to adopt Resolution No. 2022-01, making changes to the signatories for SDSTA checks. He said Ms. Geary will be removed and Mr. Miller added. Mr. Headley said the number of required board member signatures will be reduced from all seven voting board members to the Chairperson and the Secretary/Treasurer, and he will remain as a signatory under this resolution.

Motion by Mr. Dykhouse and seconded by Dr. Fall to adopt Resolution No. 2022-01. Motion passed unanimously.

Motion by Mr. Wheeler and seconded by Mr. Dykhouse to accept the financial report as presented. Motion passed unanimously.

ITEM 9. REPORT FROM THE EXECUTIVE DIRECTOR

ITEM 9A. DECLARATION OF SURPLUS – (5)

Mr. Headley directed the board to the five Declarations of Surplus included in the board packet and asked for questions or comments. None were raised.

ITEM 9B. SDSTA QUARTERLY UPDATE

Mr. Headley said SDSTA is now in the third year of execution for the SURF Operations Cooperative Agreement (CA). He said Fiscal Year 2022 (FY22) Department of Energy (DOE) funding is \$30 million, minus a Small Business Innovation Research reduction of \$900,000.00, leaving \$29.1 million available. He said the current CA operations budget is \$23.8 million, with an infrastructure improvement budget of \$5.3 million.

Mr. Headley said a DOE independent review is planned for late June 2022, as a midpoint review for the CA, chaired by Mr. Hollowell, and with a successful review, SDSTA hopes to submit an application to become a DOE user facility. Mr. Headley said the significance of becoming a user facility is an increase in stature and awareness of SURF. Dr. Fall said the designation provides entry into a higher level of interaction with investigators and creates more opportunity for SURF.

Mr. Headley said International Organization for Standardization (ISO) certification preparations are advancing, with the Stage 1 audit set for early May, followed by a 90-day period to address any issues raised by the audit. Mr. Headley reminded the board that obtaining ISO certification is a requirement of the Cooperative Agreement.

Mr. Headley made note of the aforementioned purchase of the SLHVC, completed on January 7, 2022, and said the initial transition is complete.

Mr. Headley said SDSTA 24-hour/7-day-a-week support to Long Baseline Neutrino Facility (LBNF) construction is proceeding according to plan, SDSTA is continuing to transport personnel and material loads to the 3650L and 4850L, and SDSTA engineering and ESH staff are assisting with investigation of dust mitigation options.

Mr. Headley said the LUX-ZEPLIN (LZ) experiment commenced data taking in December 2021, and long-term planning has been advancing for science and the facility. He said the SURF Science Program Advisory Committee held its first review in January 2022, the 4850L science lab space planning study was completed in February, 2022, and the Yates Shaft refurbishment and hoist upgrade study will be complete in April, 2022. Mr. Headley said a whitepaper was submitted to Snowmass (particle physics community planning exercise) to highlight SURF and the local impacts SURF has in the community.

Mr. Headley shared several slides provided by Fermilab, illustrating 22% completion of total excavation for the LBNF/Deep Underground Neutrino Experiment (DUNE) project. He said two of the three pilot drifts are complete, and the third pilot drift is 50% complete. Mr. Headley shared photos of the South Access Drift, a Copco Jumbo Machine used for drilling, and a 512 CT Bolter, which is one of the largest pieces of equipment of its kind.

Chairperson Peterson asked about the access control system project mentioned in the board packet. Mr. Headley said proxy-card readers are used onsite at SURF for access control, but each door unit is a stand-alone unit, not connected to the whole system. He said a new access control system product was selected during the headframe upgrade project, new proxy-card readers have been installed at the headframes, and SDSTA is in the process of buying the system that will connect the readers. He said five additional buildings above and below ground will be outfitted with new proxy-card readers.

ITEM 9C. YATES SHAFT UPDATE

Ms. Straub shared a schematic of the Yates Shaft, illustrating the layout of the north and south cages, north and south skips, runabout cage and the ladders and pipe and electrical compartments. She said damage was discovered during a routine weekly inspection, a Stop Work was issued, and the area was secured for inspection. She said an initial inspection was done between the 1700L and the 2300L, a Top-Down Maintenance (TDM) schedule was created for that area, and an inspection of the 2300L to the 2600L was added, extending the outage of the Yates Shaft.

Ms. Straub shared a photo at set 251 where a set sag measurement tag had been placed. She said, during routine inspection, lacing was found out of place in the skip compartment and during repair of the lacing, a broken wall plate was observed in the rear panel of the northeast utility compartment.

Ms. Straub explained that TDM includes building work platforms, removing lacing, cleaning out old timber and debris, scaling the walls, cutting and removing legacy pipe, replacing structural timber and J-hooks, installing turnbuckles, screening, rock bolting and replacing exterior lacing panels. She said, prior to June 28, 2021, TDM was mostly complete in the skip panels to the 4850L, complete to within 19 sets of the 4850L for the cage panels with approximately 3 weeks of work left in that section, and turnbuckle installation was complete every eight sets in the skip and cage compartments between the 1100L and the 2900L. She said at that point in time, the utility panels were mostly untouched, and no turnbuckles had been installed in the utility compartments.

Ms. Straub said initial utility compartment rehabilitation was completed September 2, 2021, pipe was removed from the 800L to the 1700L and TDM was performed from the 1700L to the 2300L. She said once the upper area of the shaft was secured, further inspection revealed pipe separations and additional compromised timber between the 2300L and just below the 2600L, causing project completion to shift to December 2021, to perform TDM from the 2300L to below the 2600L.

Ms. Straub shared several photos to illustrate the improvements made using before and after images and said 150,000 pounds of legacy steel and approximately 580 tons of wood were removed from the shaft during the project.

Ms. Straub thanked the Yates shaft crews, acknowledging that the project was also made possible by the support of the Ross shaft crews, SDSTA leadership and others.

Ms. Straub said Stantec (a third-party architectural engineering firm) has been contracted to conduct the Yates Shaft Rehabilitation study, with a contracted scope and schedule to span approximately eight months to evaluate hoisting equipment, headframe and shaft configuration options, shaft rehabilitation options, and costs to replace the existing wooden and timber structures with steel sets. She said the contract deliverables include shaft configuration and compartment use options, phased construction

concepts, cost and schedule options, and a final report to document the study. She said this study and report will be used to inform lab management and science sponsors with the DOE on the cost and schedule for rehabilitating the Yates shaft structure and to subsequently plan, budget and schedule for future detailed design, procurement, and construction of the project.

Chairperson Peterson asked Ms. Straub to address the recent winch failure, and she said no damage or injury occurred related to the incident. She said although pre-use inspections are regularly performed, abnormalities are hard to identify in the type of synthetic nylon rope that was being used and the rope failed. She said an investigation revealed that winches in place were not installed correctly for the way they were being used to bring beams out of the shaft for transport through the cavern. Ms. Ewing said that load ratings were within limits for the winches, the problem is being addressed and that ESH and SDSTA are confident that the issue has been successfully resolved. Ms. Straub said a rail-mounted tugger, owned by SDSTA, with a safety rating of five has been installed for future work.

ITEM 9D. SCIENCE UPDATE

Dr. Heise said the SURF User Association was launched in December 2020, a second round of executive committee elections was completed in late 2021 with 2-year terms going forward, a successful long-term vision workshop was held in September 2021, with follow-up items on workshop topics, a general SURF meeting was held in late September 2021, and a process for expanding membership is underway.

Dr. Heise said the Science Program Advisory Committee has 14 members including national and international experts, their first meeting was held in January 2022, and a second meeting is being planned for the upcoming year.

Dr. Heise noted the whitepaper previously mentioned by Mr. Headley that was submitted to Snowmass, as well as upcoming conferences at SD Mines including the Conference on Science at SURF and Low Radioactivity Techniques.

Dr. Heise gave an overview of experiments currently hosted at SURF, including completed commissioning of LZ which now has WIMP-search data underway, significant calibration efforts in place, and two SDSTA employee experiment support scientists (supported by LZ) who started in January 2022. He said LZ plans to operate for approximately five years, and meetings are in progress for next-generation liquid xenon experiments as well as other low-mass dark matter projects. Dr. Heise said Majorana Demonstrator dismantled Module #1 to recover welded copper components to perform a background assay of those parts using Module #2, a fourth copper electroforming bath is being installed at the Davis Campus, and the upcoming LEGEND experiment may require up to eight baths. Installation starts this week for DEMONSTRATOR experiment infrastructure, and a double-beta decay summit held in October 2021 resulted in an agreement for a 1-ton scale experiment in North America and in Europe. Dr. Heise said Black Hills State University Underground Campus (BHUC) and SDSTA continue to perform sample swaps, data analysis, and liquid nitrogen support at the Davis Campus. BHUC has five of six counter systems currently operating and expects their nEXO Ge-IV experiment to be online by summer, 2022. He said BHUC plans to have all six detector systems operational and wants to discuss returning to the Ross campus following LBNF construction, possibly in FY24.

Dr. Heise also highlighted several other research groups currently associated with SURF, including SIGMA-V, CASPAR, 3D DAS, several small geologist teams, a biology team, a thermal breakout research team and a group doing post-blast monitoring. Dr. Heise shared graphs of researcher hours onsite at SURF and said they are expected increase for several major experiments in the near future. Chairperson Peterson noted SIGMA-V is an impressive site and Dr. Heise said over \$10 million dollars have been invested in the project and nine national labs are involved in the research.

Chairperson Peterson requested photos of the SIGMA-V site to be shared with the SDSTA Board of Directors.

Motion by Mr. Wheeler and seconded by Ms. Lebrun to accept the Executive Director's report as presented. Motion passed unanimously.

ITEM 10. EXECUTIVE SESSION

Motion by Mr. Dykhouse and seconded by Dr. Fall to enter into executive session to discuss personnel matters and to consult with legal counsel concerning legal and contractual matters as permitted by SDCL 1-25-2(1), (3) and (4) and SDCL 19-19-502. Motion passed unanimously.

The board recessed at 9:17 AM for a ten-minute break followed by executive session.

The board reconvened in open session at 10:29 AM.

ITEM 11. REPORT FROM EXECUTIVE SESSION

Chairperson Peterson reported that the board discussed personnel matters and consulted with legal counsel concerning legal and contractual matters. No action was taken.

Mr. Engel said he has a business relationship with one of the interested parties discussed during executive session and wanted his disclosure to be on the record, but neither he nor the board believe a conflict of interest exists. Mr. Wheeler said he is comfortable with Mr. Engel's statement that there is no conflict of interest.

Motion by Mr. Wheeler and seconded by Ms. Lebrun to approve the executive session report. Motion passed unanimously.

ITEM 12. SDSTA POLICIES AND PROCEDURES

Mr. Headley said there are several updates to policies and procedures, including an update to the Alcohol, Controlled Substances and Testing policy to reflect that SDSTA now operates a trolley and DOT regulations need to be taken into consideration; an update to the Firearms, Explosives and Other Weapons policy to reflect the addition of the SLHVC; minor changes to the Open Door policy to update the purpose section and formatting; and an update to the Record Retention policy to revise dates for various ESH documents.

Motion by Mr. Wheeler and seconded by Dr. Aprahamian to approve the following updated policies: 1) Alcohol, Controlled Substances and Testing, 2) Firearms, Explosives and Other Weapons, 3) Open Door and 4) Record Retention Policy. Motion passed unanimously.

ITEM 13. SELECTING NOMINATING COMMITTEE

Chairperson Peterson said he asked Mr. Dykhouse to chair the nominating committee and he agreed. Chairperson Peterson noted that he will reach out to Mr. Musick to request his service on the committee also. He said the nominating committee will report to the board at the June 16, 2022, board meeting.

Chairperson Peterson mentioned the election of officers will be held at the annual board meeting on June 16, 2022.

ITEM 14. CONFIRM DATE AND TIME OF NEXT MEETING

Chairperson Peterson reminded the board of the next meeting, scheduled for Thursday, June 16, 2022, at 8:00 AM (MT) in the E&O Conference room and via Zoom.

ITEM 15. PUBLIC COMMENTS

Chairperson Peterson said he did not receive any public comment request forms and there were no questions from the audience.

ITEM 16. BOARD COMMENTS

Dr. Aprahamian, being recently reappointed to the board, said she would like to say, “We’ve come a long way, baby!”

Mr. Dykhouse said he carries two things with him, the SURF Economic Impact report and recently the article about the Brosnahan’s retirement because it speaks to the human part of work done at SURF. He said he would like to share SDSTA’s list of funding priorities and requested that it be sent to the board members.

Ms. Lebrun said she seconds Dr. Aprahamian’s and Mr. Dykhouse’s comments, and she looks forward to receiving a funding priority list. She said “good work” to the staff for all they do to move the project forward.

Mr. Wheeler said thank you to Ms. and Mr. Brosnahan and Ms. Geary and to be sure to convey appreciation to them. He said Ms. Brosnahan was at SURF when he started and she’s been marvelous, as has Ms. Geary.

Mr. Rankin said he appreciates the opportunity to join in the meeting via Zoom, there’s always good information, and he looks forward to attending in person in June.

Mr. Engel said this is enjoyable work, he appreciates the opportunity, and looks forward to what comes next.

Mr. Headley thanked the board for their continued support, Mr. Engel for his support, as well as the SDSTA team. He said several retirees were mentioned by name, but 10 people will retire from SDSTA by the end of June and SDSTA is seeing prior Homestake staff going on to play after working at the lab.

Chairperson Peterson said he appreciates everyone involved in this project and thanked the board for picking up on the priority list. He said it’s important to address those projects as well as the Institute, which will be a multi-decade effort that will take a lot of thinking, creativity and enthusiasm. He said, please keep those energies up and let us (the board) know what we can to accomplish those goals. He said thank you to the board and to the staff.

ITEM 16. ADJOURN

Chairperson Peterson called for a motion to adjourn.

Motion by Mr. Dykhouse and seconded by Mr. Wheeler to adjourn. Motion passed unanimously.

Meeting adjourned at 10:38 AM.