**MEMORANDUM OF UNDERSTANDING**

 **MOU – <yyyymm##>**

**BETWEEN**

**SOUTH DAKOTA SCIENCE AND TECHNOLOGY AUTHORITY**

**(Operator of the Sanford Underground Research Facility)**

**AND**

 **<Name>, <Affiliation> Spokesperson or Principal Investigator**

# Concerning the <Project Name> Project or Collaboration

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

**Purpose**

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

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

**Scope**

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

**The Parties have reached the following understanding:**

1. **Administrative**
	1. Personnel:
		1. The Collaboration will provide SDSTA’s Science Director with a list of personnel expected to participate in the Project and who may be spending time at SURF (Collaborators). The Collaboration will provide updates prior to the initial visit of new project personnel, as appropriate.
		2. A representative from each participating Project institution will agree in writing that Collaborators from his/her institution will abide by the terms in this MOU. An example is provided as Attachment II.
		3. At the conclusion of an individual’s participation in the Project, SURF must be informed, and all badges or keys issued to the individual must be returned to SURF.
		4. Collaboration institutions are responsible for ensuring their Collaborators have proper status and Visa(s) to support their assignment at SURF.
	2. Finances: The Collaboration will enter into a separate written agreement with the SDSTA as necessary to recover costs agreed to between the Collaboration and SDSTA for services or material provided by SDSTA in support of the Project. Such subsequent written agreements between the Parties will be separate from this MOU and may include sub-contract(s) or a General Services Agreement.
	3. Space:
		1. Access to areas as approved by SDSTA. Beneficial use and occupancy of specific areas is indicated on Attachment I to this MOU.
		2. Office, meeting, staging and storage space requirements shall be discussed and accommodated according to availability.

* + 1. Occupancy of shared laboratory space(s), including office and meeting space, will be coordinated by SDSTA.
	1. Communication Equipment: Requirements for communication equipment (e.g., telephones, networking and bandwidth needs, etc.) shall be discussed. SDSTA will provide a nominal level of service and equipment.
	2. Insurance Requirements: Prior to undertaking any activities under this MOU, and throughout the life of the Project, the Collaboration shall provide acceptable proof of insurance or an acceptable equivalent retained-risk plan or pool or acceptance of risk to the levels prescribed by the Sanford Lab risk-assessment process and Risk Transfer Protocols, including, but not limited to:
* Workers’ compensation insurance for all staff working at the Sanford Lab site, and
* Liability insurance/self insurance/acceptance of risk for all activities performed on the Sanford Lab site.

Additional details on insurance requirements are shown on Attachment III. The failure to provide and maintain insurance or its equivalent as required by SDSTA and to provide proof of the existence of that insurance or equivalent to SDSTA’s reasonable satisfaction will result in the denial of access by any Collaboration staff to SURF until such time as the failure is corrected.

SDSTA has procured liability insurance from a commercial insurer providing certain coverages to certain Experiments and Collaborations. The insurance procured by SDSTA provides coverage of up to $5,000,000.00 per occurrence and in the aggregate but does NOT include coverage for claims by one experiment or collaboration against another. The experiments covered by this insurance are LUX-ZEPLIN (LZ), MAJORANA DEMONSTRATOR (MJD), Compact Accelerator System for Performing Astrophysical Research (CASPAR), Black Hills State University Underground Campus, and SIGMA-V. The procurement of this insurance by SDSTA does not affect the Project’s or Collaboration’s responsibility to provide insurance coverage as provided in this subsection 1.5 or in a General Services Agreement or contract.

* 1. Acknowledgment of Risk and Release: Prior to undertaking any underground activities at SURF, any person associated with the Experiment or the Collaboration, whether a contractor, investigator, student, employee or otherwise, must execute and deliver to SDSTA the forms titled “Acknowledgment of Risk” and “Release, Agreement Not to Sue and Waiver”:

<http://sanfordlab.org/document/riskwaiver>.

* 1. Media, Documentation and Publications:
		1. Media: The manner in which SURF is identified in the media is important. The Collaboration will appropriately credit SDSTA copyrighted content and media, including photography, videography, articles and other content produced by the facility. Collaborations that wish to bring members of the media to SURF must coordinate such access with SDSTA. SDSTA appreciates notification of media publications or events so it can help with promotion, as appropriate. Additional information on SURF identify standards is available.
		2. Reporting of Progress and Results: The Collaboration will provide reports noting the progress in installing, operating or obtaining scientific results. Such reports will be provided on a frequency as mutually agreed by the Parties; at a minimum, a report including overall status as well as future plans/milestones and a list of publications is required annually (for projects lasting less than one year, a final report is required, including plans for subsequent publications).
		3. Publications and SURF Acknowledgement: The Collaboration will abide by the SDSTA Publication Policy:

 <http://www.sanfordlab.org/pubpolicy>.

In particular, the Collaboration will acknowledge SURF in scientific publications, articles, conference proceedings, seminars or other public presentation of results, data or conclusions resulting from the Project described here by including a statement that the research was conducted at and supported by SURF. All such acknowledgments will use the full name “Sanford Underground Research Facility” or some variation thereof that includes the name “Sanford.” SDSTA appreciates notification at the time of publication and any opportunity to review documents that are planned for publication or public distribution.

* + 1. Intellectual Property: The protection and allocation of intellectual property resulting from activities carried out pursuant to this MOU will be addressed in separate written agreements between the Parties.
1. **Environment, Safety and Health**

SDSTA and each of the Collaborators are responsible for the safety and health of their employees and subcontractors in the workplace. SDSTA and the Collaboration are each responsible for implementation of requirements related to worker safety and health. Where inconsistencies in implementation are found, SDSTA and the Collaboration will work together to resolve any differences, but the final decision as to safety protocols and requirements for activities at SURF shall be made by SDSTA. The Collaboration agrees to adhere to the applicable requirements for working at SURF as defined in the SURF Environment, Safety and Health Manual: <http://www.sanfordlab.org/esh>.

See Attachment IV for additional information.

1. **Access, Material Handling and Operations**

See Attachment V.

1. **Physical Infrastructure**

See Attachment VI.

1. **Decommissioning**
	1. Removal of Equipment and Site Cleanup: Prior to undertaking any activities under this MOU, the Collaboration will provide a draft decommissioning plan. This plan will provide for the complete removal of all equipment and restoration of the site to its initial condition, unless a written agreement is reached with SDSTA prior to the completion of each phase of the project or the transfer of equipment to a subsequent use/project. A more detailed and comprehensive plan will be established prior to the commencement of Project decommissioning.
2. **General Provisions**
	1. The conduct of cooperative activities contemplated by the MOU is subject to the availability of funding, personnel and other resources.
	2. Each Party is responsible for the costs of its own activities under this MOU and continuation of this MOU is dependent on the approval of funds for both Parties.
	3. Cooperation under this may commence upon signature by both Parties and continue for the duration of the MOU.
	4. The MOU may be modified at any time in writing by the Parties’ mutual consent.
	5. It is understood and agreed that this MOU may not be assigned or otherwise transferred, without the prior written consent of the Parties.
	6. Each Party (in the case of the Collaboration, for itself and for the Collaborators) acknowledges that it is responsible for its own compliance with all U.S. export control laws and regulations; and each Party acknowledges that it will not knowingly export directly or indirectly, through its affiliates, licensees, or subsidiaries, any export controlled hardware, software, or technical data in the performance of this agreement without the required license/authority which will be obtained by the responsible Party from the appropriate U.S. authority. However, in the event that SDSTA is aware of export controlled areas requiring access by Parties or controlled information that is to be disclosed to Parties, SDSTA shall so advise of such status so that the disclosure may be avoided or necessary arrangements may be made for required protections pursuant to the Deemed Exported Rule.
	7. The Parties may discontinue their cooperation under this MOU at any time by mutual consent set out in writing.
	8. A Party that wishes to discontinue its participation in this MOU should endeavor to provide at least ninety (90) days written notice to the other Party.
	9. This MOU shall take effect upon the signature of the last Party to sign the MOU.

**Signed:**

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Mike Headley Date

Executive Director

South Dakota Science and Technology Authority

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<Authorized Project Signer> Date

<Signer Title>

<Institution>

**ATTACHMENT I—The Project**

1. Project Goals:

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

1. Space:

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

1. Collaboration Participation:
	1. Personnel List:

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

* 1. Start Date and Duration of the Program:

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

* 1. Scientific Review:

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

* 1. Funding Status:

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

* 1. Approval of Project:

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

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

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

**ATTACHMENT II—MOU Acknowledgement (Example)**

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

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

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Institution Rep                  Institution                  Signature        Date

**ATTACHMENT III—Insurance Requirements**

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

1. Minimum Insurance: Prior to commencement of work, the Project Sponsor will procure and maintain the following insurance:
2. General liability insurance. Such insurance shall name as additional insureds: Barrick Gold Corporation, Homestake Mining Company of California, and the Affiliates of Barrick and Homestake and each of its and their representatives (collectively, the “Homestake Indemnifided Parties”); the South Dakota Science and Technology Authority, its officers, agents, employees and representatives; and the United States Government. All additional insureds coverage must include current and completed operations. In cases when adding additional insureds is prohibited, those specific institutions participating in the Project may request a language waiver from SDSTA.
3. Business automobile liability insurance. Such insurance shall include coverage for owned, non-owned and hired automobiles.
4. Workers’ compensation insurance as required by South Dakota law.
5. Special Provisions Applicable to All Coverages: Self-insured retentions and/or deductibles greater than $50,000.00 must be declared and approved by the Authority.
6. Special Provisions Applicable to the Commercial General Liability Insurance and Equivalent Self- Insurance:
7. Provide contractual liability coverage at least as broad as Insurance Services Office (ISO) form CG 00 01 12 07, or its equivalent.
8. Waive the insurer’s right of subrogation against the Homestake Indemnified Parties.
9. State that it is primary and non-contributory and shall apply without consideration for other policies carried by the Homestake Indemnified Parties.
10. Include a provision that the insuer will not raise any coverage defense based on the statutory immunity of the State of South Dakota, the South Dakota Science and Technology Authority, or the Homestake Indemnified Parties.
11. Notice of Cancellation or Material Change in Coverage/Condition: The Project Sponsor must provide 30 days’ notice of cancellation/material change.
12. Evidence of Insurance: Prior to commencement of work, the Project Sponsor shall furnish the South Dakota Science and Technology Authority with certificates evidencing compliance with the insurance requirements above.
13. Acceptability of Insurers: Insurance shall be placed with insurers acceptable to the South Dakota Science and Technology Authority. Acceptable insurance coverage may be provided by a commercial carrier or through self-insurance or an acceptable assumption of risk.
14. Subcontractors (where applicable): Project Sponsor shall require subcontractors to provide general liability insurance and business automobile liability insurance that complies with the requirements stated herein.

**ATTACHMENT IV—Environment, Safety and Health**

1. SDSTA will provide:
2. A safe working environment in which the Collaboration may conduct its experimental and operational activities while onsite at SURF.
3. Life safety and emergency response, as follows:
	* 1. Ready access to maintained first aid kits.
		2. Personal Protective Equipment (PPE) related to underground safety and training for its proper use. Specialized PPE for experiment-related processes will be provided by the Collaboration but will be approved by SDSTA.
		3. Secondary egress maintained compliant with applicable requirements.
		4. An Emergency Response Team staffed to respond 24/7.
		5. Clear instructions for proper response by all personnel to emergency situations.
4. In the event of personal injury, provide transportation to the surface and to a local health provider.
5. Information related to the hazards of working in the applicable SURF locations. This will be partially completed through site access training; however, SDSTA will also provide information as needed for planning purposes.
6. Basic environmental monitoring instrumentation for underground areas, and limited capabilities for additional workplace monitoring (e.g. lead smearing and analysis). Costs associated with providing this service must be negotiated between the Parties in a separate agreement.
7. Personnel to inspect and test hoisting and rigging equipment. Cost associated with providing this service must be negotiated between the Parties in a separate agreement.
8. Arrangements for regular pressure vessel inspections. Costs associated with providing this service must be negotiated between the Parties in a separate agreement.
9. All personnel working onsite must complete training specified by SDSTA. Some training may be provided by SDSTA at no cost to Project personnel.
10. The Collaboration will:
11. Abide by all of the regulations and operational requirements developed by SDSTA while on SDSTA property.
12. Notify SDSTA in the event of a chemical spill. SDSTA will be responsible for providing further notifications, if warranted. The Collaboration will provide spill kits and other supplies necessary to respond to spills of the materials stored and used in project-related laboratories and storage spaces. The Collaboration will assure their project personnel are appropriately trained to respond to spills.
13. Notify SDSTA in the event of a spill or dispersal of cryogenic fluids. The Collaboration will assure and document that their project personnel are appropriately trained to respond to such spills or events.
14. Require all personnel present on SDSTA property to be subject to SDSTA safety training requirements, including site-specific training and annual refresher training.
15. Develop hazards analyses for review by SDSTA personnel. Costs associated with mitigation of the hazards (e.g. ventilation for cryogenic boil-off or fume hood exhaust) will be negotiated prior to the introduction of the new hazard in a separate agreement.
16. Maintain, and update as necessary, an inventory of hazardous materials to be brought onto SDSTA property and will receive authorization from SDSTA prior to materials being shipped to the site. This includes the following:
	* 1. Providing current Safety Data Sheet (SDS) information to SDSTA concurrently with the inventory list, and
		2. Developing hazard-communication and chemical-hygiene programs in compliance with SURF requirements.
17. Comply with SURF radiation safety program, including coordinating transportation of radioactive materials to and from SURF, maintaining appropriate inventories and developing appropriate procedures as required by SDSTA.
18. Maintain, and update as necessary, an inventory of electrical equipment and follow the requirements of SURF electrical safety program.
19. Maintain, and update as necessary, an inventory of pressure vessels.
20. Maintain, and update as necessary, an inventory of hoisting and rigging equipment.
21. Waste Handling:

The Collaboration is responsible for the management of the wastes at the Project site. Management includes transfer from experimental containers, containment, neutralization, and temporary storage at the site of generation.

SDSTA is responsible for the transfer of the wastes from the Project site to the surface, temporary storage and disposal.

Any commitment of funds addressing waste handling will be the subject of a separate agreement to be negotiated between the Parties.

**ATTACHMENT V—Access, Material Handling and Operations**

1. SDSTA will provide:
2. Upon completion of the initial training requirements, a picture ID badge will be issued by SDSTA and shall be worn at all times by the person to whom it is issued while on SDSTA property (including surface and underground).
3. A limited shuttle service for personnel transportation on surface.
4. Coordination of transport of material through SDSTA personnel on surface.
5. Assistance with transportation and assembly of equipment both above ground and underground will be coordinated, as well as ongoing operations and maintenance support that might be provided by SDSTA in support of the Project.
6. Design or other specialized support services for the Collaboration on an appropriate re-charge basis.
7. List of cage sizes and compartment/station clearances (for material to be slung below cages).
8. Processing of receipt of Collaboration material shipments and delivery to appropriate site.
	* 1. A list will be supplied by the project for all materials brought onsite by members of the Collaboration or by shipping companies.
		2. The Collaboration recognizes that hazardous materials must be transported properly to the site.
		3. SDSTA has the right to refuse materials to be brought onto the site, or to mandate special handling, storage or security measures as appropriate for materials where this is deemed necessary by SDSTA.
9. The Collaboration will:
10. Keep SDSTA personnel aware of the location of all onsite Collaboration personnel.
	* 1. Collaboration personnel will check-in as required (e.g., reception at Administration building) or identify themselves on rosters.
11. Follow the facility access policy, including the brass tag procedures for work underground. Collaboration personnel will not be allowed underground without the appropriate SDSTA-approved guides.
12. Drive vehicles (owned, non-owned or hired) within on-site right-of-ways identified by SDSTA and shall park vehicles only in authorized parking spots on surface.
13. Underground: The Collaboration will recognize that unlimited and on-request access to underground areas is not possible.
	* 1. Cage access and times will be scheduled to best handle the needs of the construction and maintenance crews and Collaboration personnel.
		2. Specialized Collaboration needs for personnel or equipment transportation at underground levels will be requested, based on schedule and equipment availability.
		3. Transport of material will be coordinated through SDSTA personnel.
14. Inform SDSTA of any materials being brought on to SDSTA property as well as any materials being shipped to or from the site.
15. Distribute an inventory list of high-value or controlled property to SDSTA personnel.
16. Provide SDSTA with a list of consumables required by the Project, including inventories, and needed reserves to prevent damage to the experiment by un-replenished depletions.
	* 1. Agreement will be reached between the Parties as to the costs for acquisition of consumables, and for the logistics, schedule and costs for delivery of these materials to the Project site(s) in a separate agreement, as necessary.

**ATTACHMENT VI—Physical Infrastructure**

1. SDSTA will provide:
2. Adequate sanitary facilities as close as practical to the experimental areas:
3. Portable toilets are located in many locations according to need and availability.
4. The Collaboration will:
5. Provide SDSTA with a list of the anticipated instrumentation and equipment to be installed and the proposed location(s).
6. Provide SDSTA with a list of the amount of underground space required for the Project including the dimensions of caverns.
	* 1. This list will cover the environmental requirements including depth, ventilation (special needs for hazard mitigation or emergency situations), power (voltage, current, consequences of power interruption), lighting, cleanliness, water.
7. Provide SDSTA with a list of requirements for communications and data-flow from underground, and for wider distribution, including bandwidth and specific hardware needs.
8. Develop their own strategies for reducing radon in the actual experimental enclosures to levels acceptable to the Project.
9. Provide an itemized list of special equipment required for conduct of Project, such as water purification, special cleanrooms, etc.
	* 1. The Parties agree that responsibilities and costs associated with operation and maintenance of these systems will be negotiated in a separate agreement.