

2025/06/12

SNOLAB Report

Jodi Cooley

Executive Director | SNOLAB

Professor of Physics | Queen's University

Adjunct Research Professor | SMU



2023-2024 Annual Report Now Available



Annual Report
2023-2024
Reaching New Heights, Deep Underground

SNOLAB

About SNOLAB

SNOLAB, the deepest-cleanest underground research facility in the world, has made Canada a leader in underground science, infrastructure, and expertise. Located two kilometres underground, our facility near Sudbury uses the Canadian Shield to protect experiments from the cosmic rays that constantly bombard the Earth's surface. Our experimental spaces have the lowest cosmic radiation flux in the world and the least possible interference from radioactivity.

This unique low-radiation environment enables delivery of our world-class astroparticle physics research program. Working with collaborators, we explore priority questions about the evolution of the universe, particularly the role of neutrinos and dark matter. We have also attracted experiments in life sciences and quantum technology to SNOLAB.

We are at a pivotal point in our evolution. International demand for access to our unique environment and capabilities has grown substantially while our organization has matured to meet it. The recent explosion in interest and investment around the world has intensified global competition in underground science. At the same time, our success has created enormous opportunities for international collaboration. To keep Canada and Canadians at the forefront of global science, we must capitalize on these opportunities or risk being left behind.

By hosting and enabling the world's most advanced and sensitive underground experiments, SNOLAB will bolster Canada's scientific reputation, attract new talent to Canada and Northern Ontario, train more highly skilled people, provide more opportunities for Canadian researchers to lead international projects, and generate economic benefits for all Canadians.

Page 16

Page 20

Page 21

Page 33

6

SNOLAB | 2023-2024 Annual Report

A Year in Pictures

Custom available

ABOVE: SNOLAB Executive Director **Jodi Cooley** (centre) and Minister of Industry **François-Philippe Champagne** celebrate a funding announcement on the SuperCDMS seismic platform surrounded by Sudbury MP **Viviane Lapointe**, Nickel Belt MP **Marc Serre**, former SNOLAB EDs **Clarence Virtue** and **Art McDonald**, CFI President **Roseann O'Reilly Runte**, Canada's Chief Science Advisor **Mona Nemer**, Queen's University VPR **Nancy Ross**, and members of the SuperCDMS collaboration.

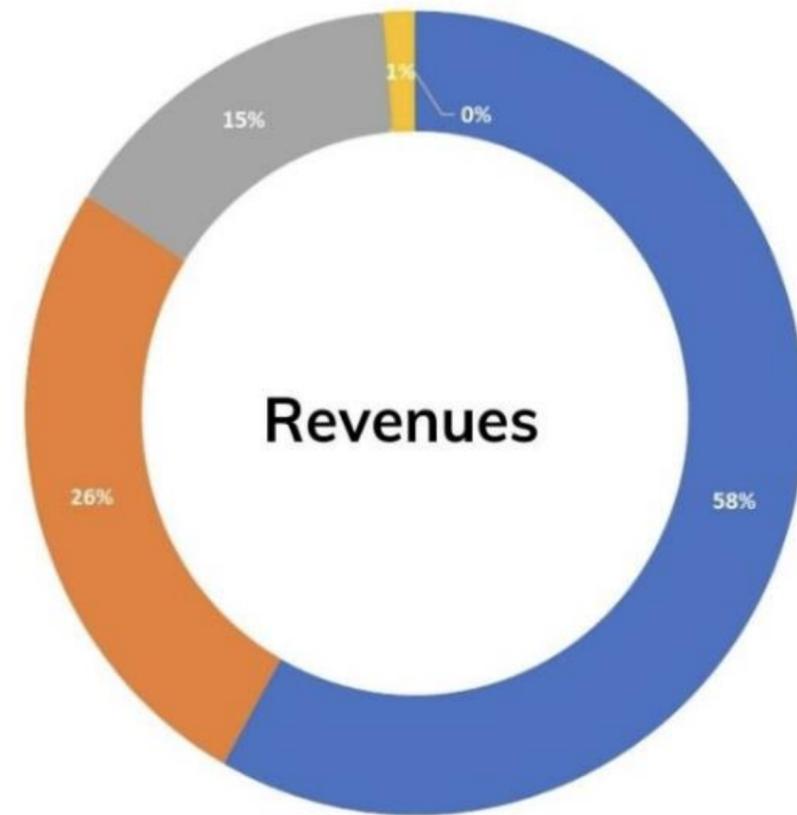
RIGHT: The leadership group from Great Britain's Boulby Underground Laboratory tour SNOLAB's underground lab. Boulby is expanding its lab and its experiment portfolio, and "are keen to see how things are done at SNOLAB," said director **Sean Paling**.

SNOLAB | 2023-2024 Annual Report

33

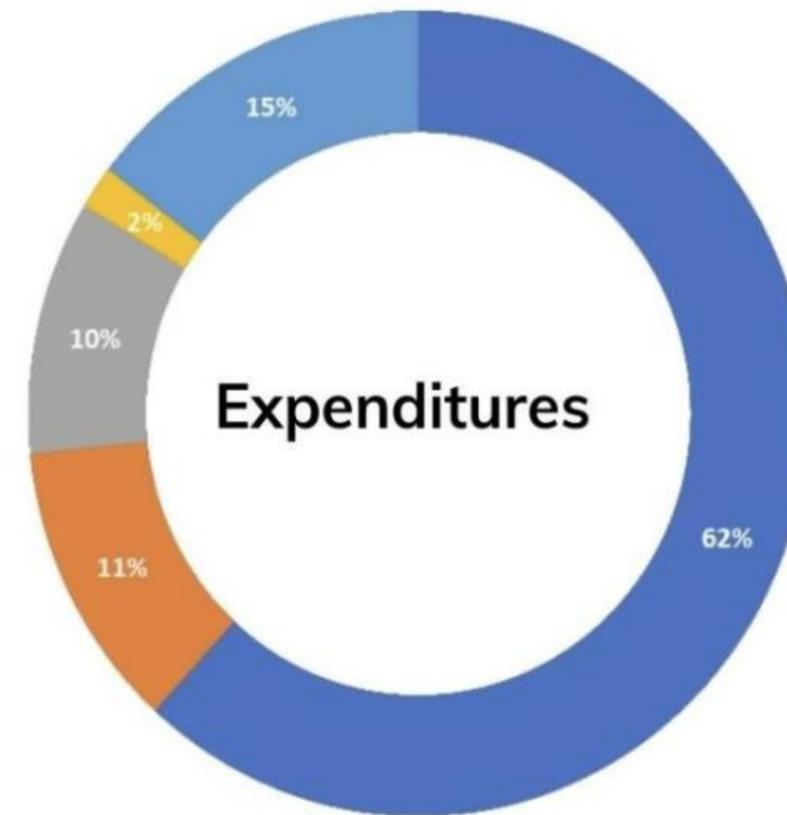
<https://www.snolab.ca/about/strategic-plan/>

FY24 Revenues and Expenditures



\$13,467,982	Canada Foundation for Innovation
\$6,000,000	Ontario MCU
\$3,389,106	Amortization of deferred capital
\$288,269	McDonald Institute
\$8,106	Other

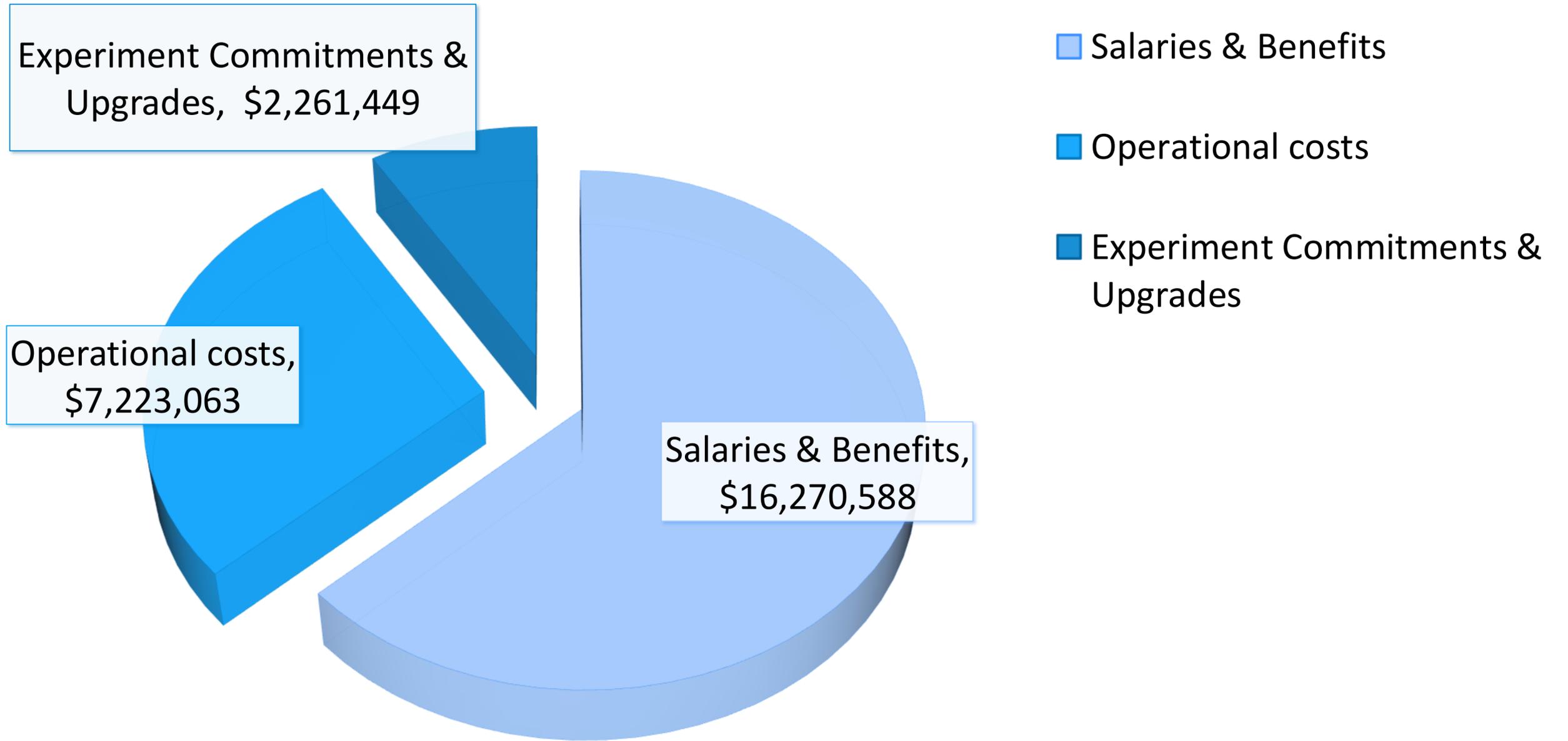
Total **\$23,153,463**



\$14,312,822	Salaries and Benefits
\$3,389,106	Amortization of capital assets
\$2,689,008	External Contracts
\$2,373,467	Equipment and Supplies
\$394,506	Travel

Total **\$23,158,909**

Budget for Fiscal Year 26



Total Budget: \$25,755,100

1

Excellent science

Drive breakthrough discoveries at the frontiers of underground science.

Expected outcomes:

- Cementing of Canada's leadership in deep underground science
- A stronger, more competitive Canada in scientific discovery
- More Canadian researchers positioned as global leaders

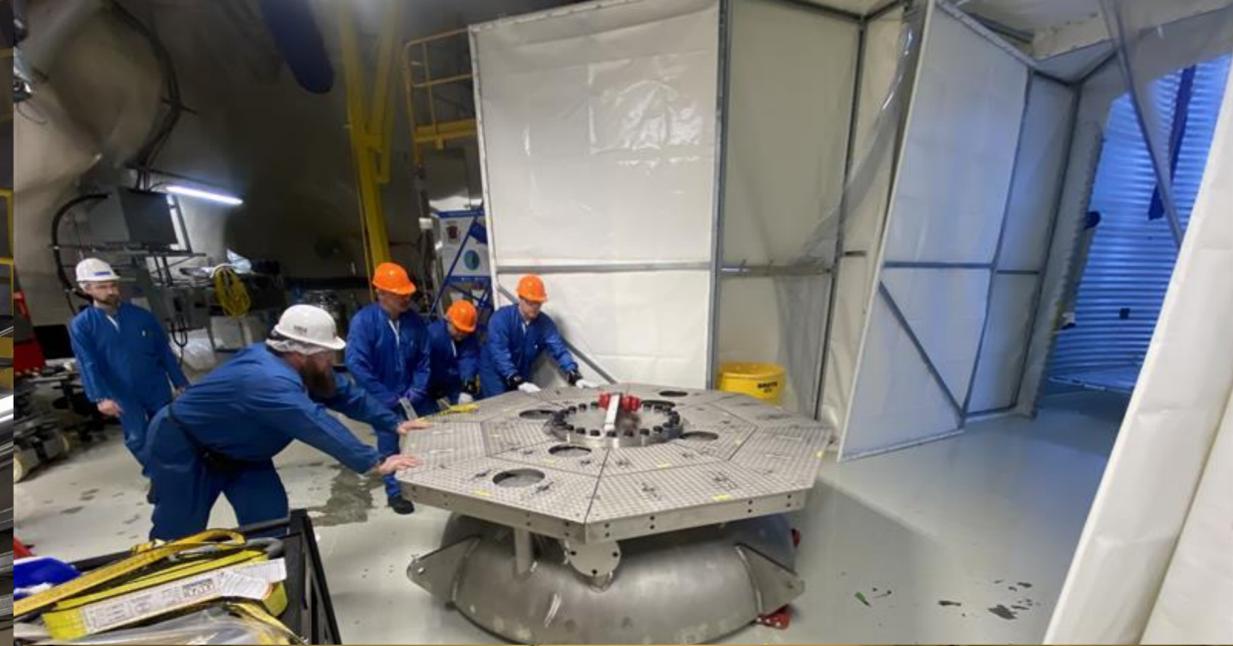
DEAP-3600 upgrades are complete, and operations have commenced



SuperCDMS construction is well underway, and expected to complete by summer



The PICO-500 welding has started, which is the result of sustained effort over many years



SNO+ is making substantial progress



Teleric Acid Purification Plant



DDA still commissioning

First drum of DDA arriving on surface

Second SNOLAB Underground Science Institute (SuSi) Lecture Program Underway!



**Dr. Roxanne
Guenette**



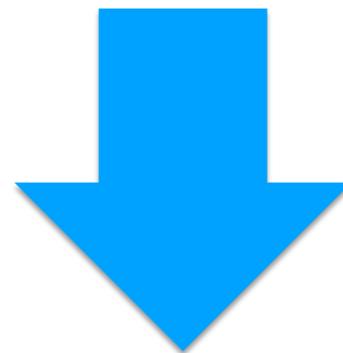
**Dr. Dan
Hooper**



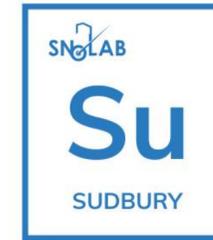
**Dr. Wouter van de
Pontseele**



<https://indico.snolab.ca/e/susi2025>



*On site next week for
lectures ...*



SNOLAB
**Underground
Science Institute**



**June 16 to August 15, 2025
Sudbury, Ontario**



Speakers include:

Roxanne Guenette
(University of Manchester)

Dan Hooper
(University of Wisconsin-Madison)

Wouter van de Pontseele
(Colorado School of Mines)

The SNOLAB Underground Science Institute (SuSi) Lecture Program is a training and development program centred on academic lectures delivered by leading experts. The program focuses on the dark cosmos, neutrino science, and quantum technology while allowing participants time to work on projects.

 <https://indico.snolab.ca/event/22/overview>

SuSi Indico page



Conferences and Workshops



2025 Future Projects Workshop

April 29, 2025 to May 1, 2025
SNOLAB
Canada/Eastern timezone

Enter your search term

- Overview
- Registration
- Call for Abstracts
- Venue - About SNOLAB
 - Visitor Information & Meeting Site
 - Virtual Tour of SNOLAB
 - Underground Tour Information
- SNOLAB 15-Year Plan
- Transportation - Shuttles

Registration AND abstract submission has been extended to Friday April 11, 2025.

As part of our long-term planning process, SNOLAB provides a community-wide review of potential future projects interested in access to the underground laboratory. The Future Projects Workshop (FPW) engage with collaborations that have an interest in using any space underground, including any of the large-scale experimental areas within SNOLAB, over the next five to ten years are invited to present their capabilities, R&D projects, status, plans, and infrastructure requirements.

Additionally, the workshop will cover SNOLAB's new 15-Year Plan framework introduced in the 2024 Canadian Federal Budget to support Major Research Infrastructures. (See 15-Yr Plan tab for further details).

We look forward to hosting you in-person at SNOLAB!



2025 Conference for Project Management Professionals - SNOLAB

May 13 – 14, 2025
SNOLAB
Canada/Eastern timezone

Enter your search term

- Overview
- Timetable
- Registration
- Venue - About SNOLAB
 - Visitor Information & Meeting Site
 - Underground Tour & Information
 - Virtual Underground Tour of SNOLAB
- Accommodations & Visiting Sudbury
 - Hotel Link
 - Dining & Cuisine Options Near Hotel
- Abstract & Poster Information
- Call for Abstracts

Contact Emails:
 ✉ erica.brunelle@snolab.ca
 ✉ mehwish.obaid@snolab....



2025 Conference for Project Management Professionals SNOLAB, Sudbury, Ontario on May 13th, 2025

The Canadian Laboratory Consortium Conference for Project Management Professionals was established in 2021 to share project management lessons learned and best practices between Canada's National Laboratories. This conference is an opportunity to showcase excellence in project management and collaboration and promote networking between the laboratories.

The theme of the 2025 Conference is Communication on R&D projects with presentations on:

- Effective Stakeholder Communication to Plan and Report with:
 - General Audience and
 - Research Scientists.

Join us for NNN25!



NNN25

International Workshop on Next Generation
Nucleon Decay and Neutrino Detectors

October 1-3, 2025



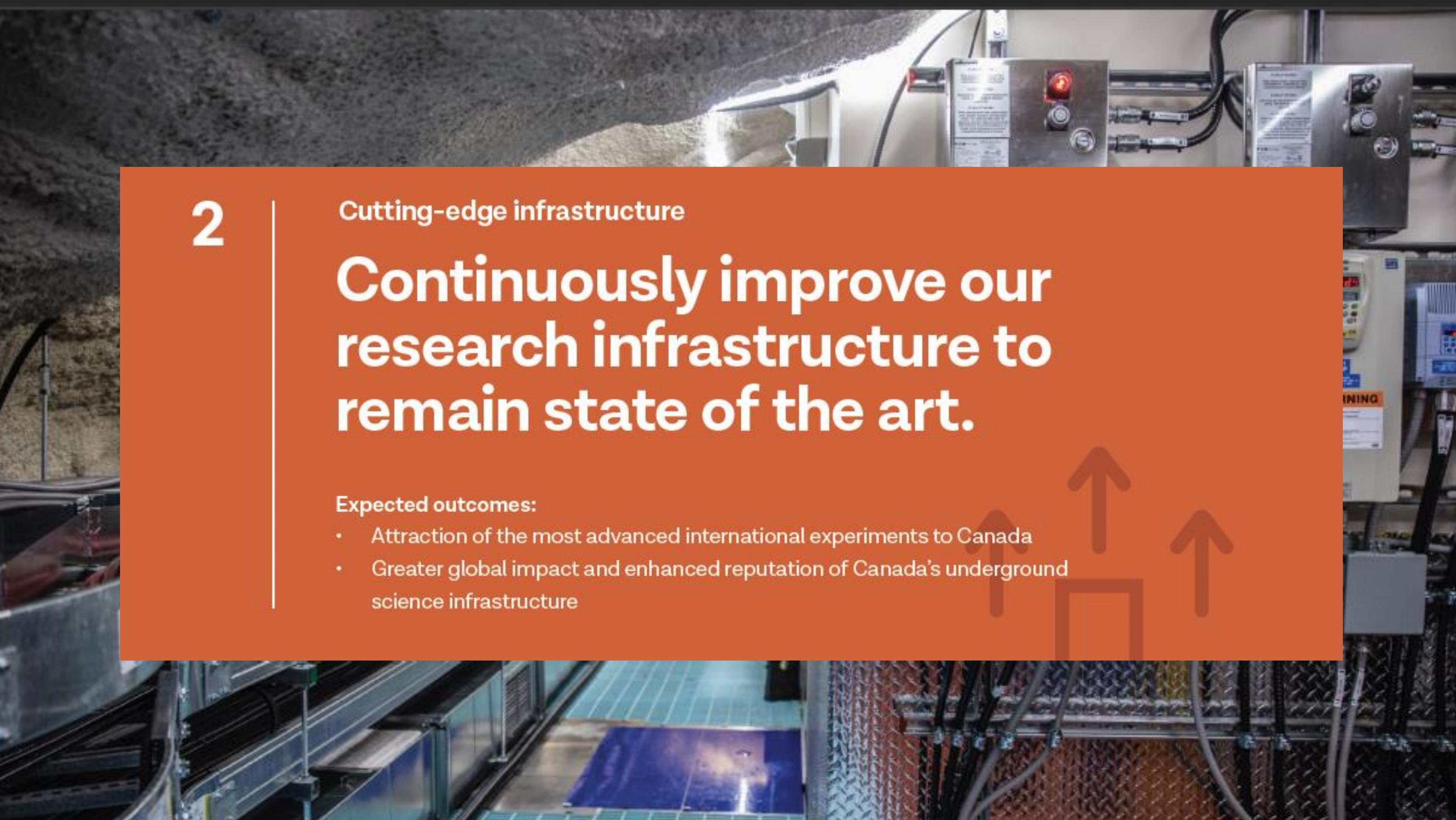
*Underground laboratory tours will be available for
all participants!*

Watch for registration opening soon!

<https://indico.snolab.ca/e/nnn25>



*A free pre-NNN neutrinoless double
beta decay workshop will be held at
SNOLAB on September 29-30. Stay tuned
for details!*



2

Cutting-edge infrastructure

Continuously improve our research infrastructure to remain state of the art.

Expected outcomes:

- Attraction of the most advanced international experiments to Canada
- Greater global impact and enhanced reputation of Canada's underground science infrastructure

Liquid Nitrogen Plant Improvements



Pulse-tube Liquifier

- Additional process flow instrumentation
- Second stage refrigerant air dryer
- Higher capacity PSA molecular sieve columns.

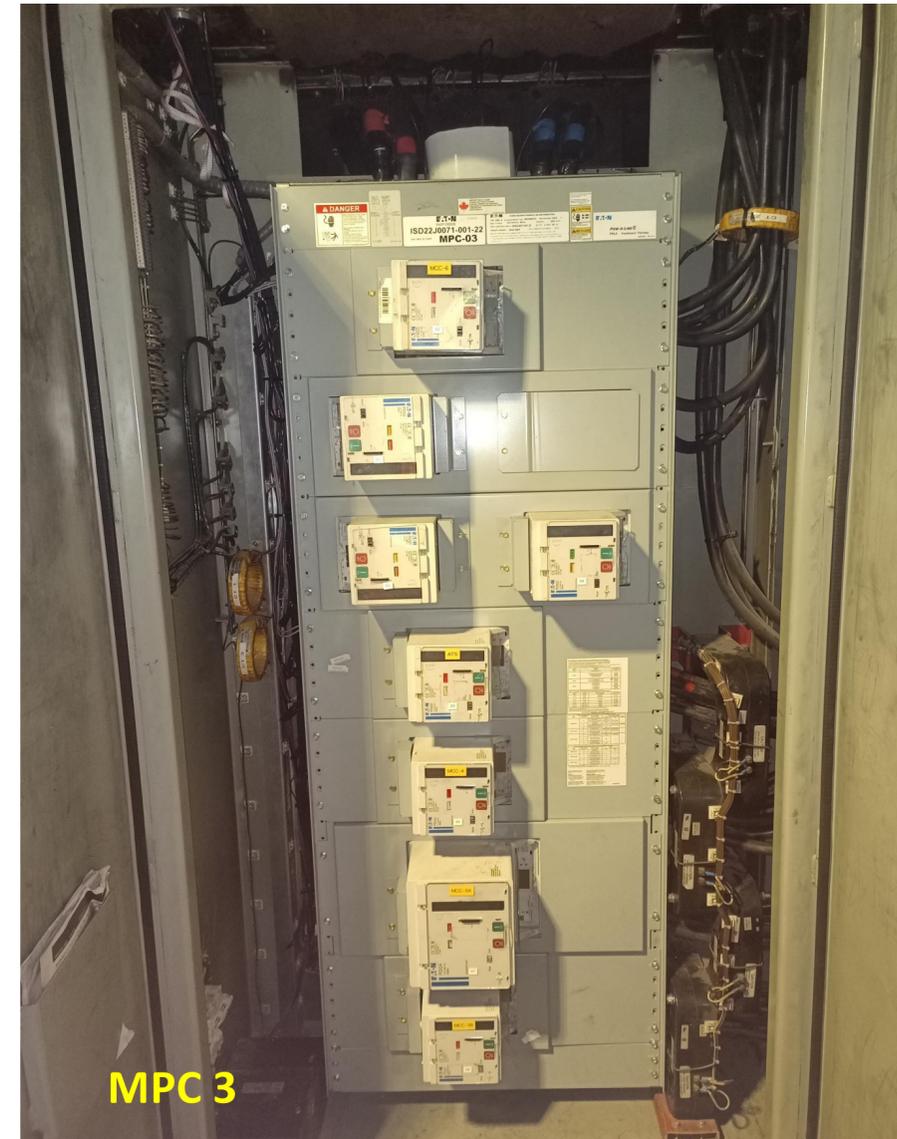
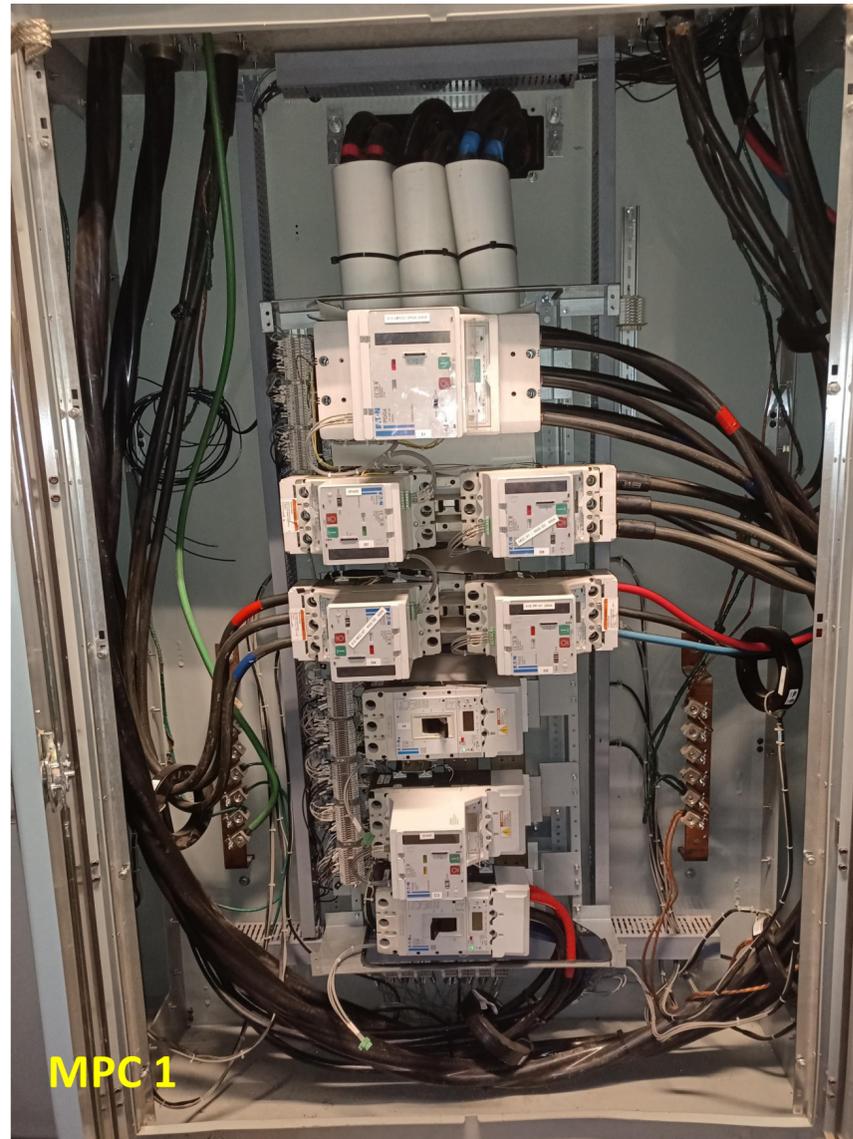


New CA Dryer



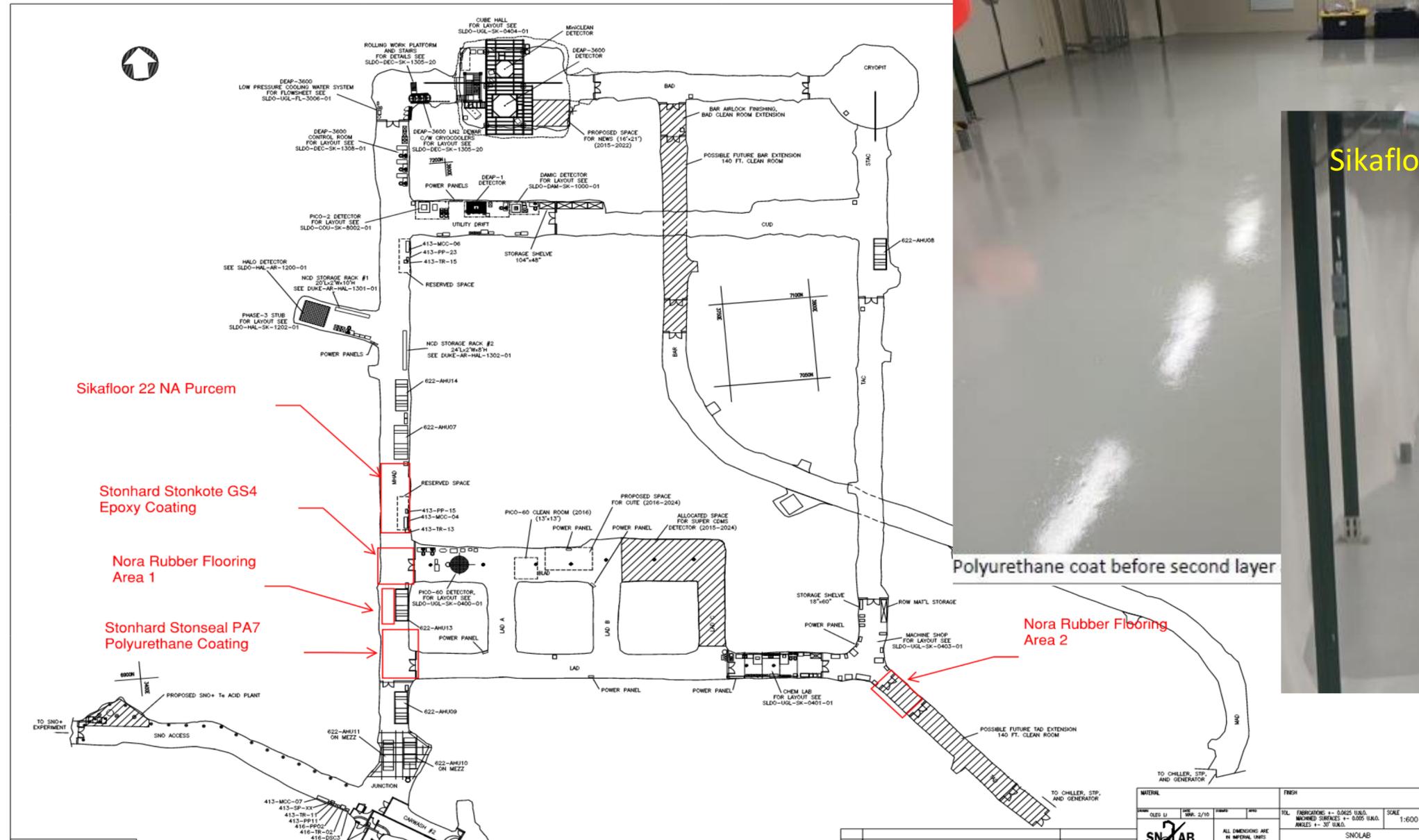
New PSA Columns

MPC Remote Breakers



- Modernization of power distribution!

Underground Flooring Pilot Project



- Installed four different products/preparations throughout lab.

Facility Improvements

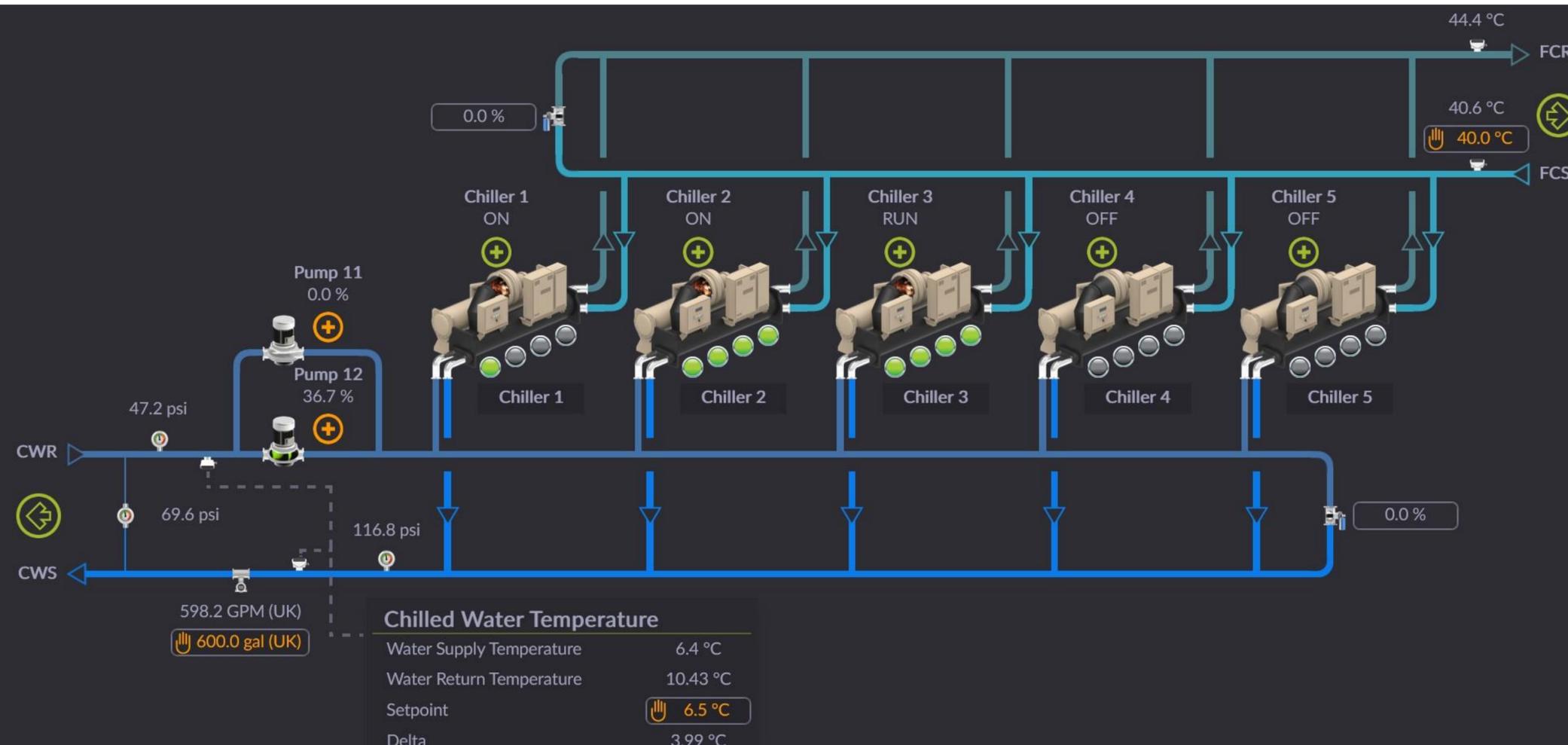


New Compressed Air Skid



New Kitchen

Facility Improvements



Improved chiller performance and increased chiller capacity

Upgraded underground laboratory workstations

FY26 SNOLAB Experiment and Infrastructure Initiatives



APPROVED POG PROJECTS for FY26

POG PROJECT #		GATEWAY
	Imminent Safety Issues and Facility Emergency Repairs	
	Facility Operations	
	Executive Requirements	
	Experiment Operations (HALO, CUTE, DAMIC, FLAME, REPAIR, Xe-Still, SNO+, NEWS-G, SENSEI, PICO-40, Low Background Measurements, HC Environmental Monitoring Station, DEAP)	GW-3
P2102C	Information Security	GW-2
P2104	MPC Breaker Upgrade	GW-2
P1806	SuperCDMS	GW-2
P2101	PICO-500	GW-2
P2204	SNO+ Te	GW-2
P2511	CUTE Cryogenic Fridge Enhancement	GW-2
P2007	CTBT Counter	GW-2
P2105	SBC	GW-1
P1902	nEXO	GW-0
P2512	IceCube DOM Test	GW-0
P2206	OSCURA	GW-1
P1903	LEGEND-1000	GW-0
P2505	Underground Monitoring Security	GW-0
P2501	Argon Removal from LN2	GW-0
P2506	Underground Monuments	GW-0
P2503	Underground Flooring Pilot	GW-2
P2205	Denka Boom	GW-2
P2608	Automated Radon Trap for Assays*	GW-0
P2609	Cleanliness: Particle Counters*	GW-0
P2603	DT Generator Repair and Upgrades*	GW-0
P2602	Electronics Workstations*	GW-0
P2611	EV Charging Trade Study*	GW-0
P2605	General Use Neutron Detector*	GW-0
P2606	Metal Assay and Production Laboratory using Electroforming (MAPLE)*	GW-0
P2601	Power Reliability Study*	GW-0
P2604	Radioactive Isotope Measurement Program at SNOLAB (RAMPS)*	GW-0
P2613	TAD Extension - Floor and Block Wall*	GW-0
P2607	Tellurium Acetylacetonate Solid Double Beta Decay Target*	GW-0
P2612	Underground High-Density Storage*	GW-0
P2610	Underground Pressure Zones & Differential Pressure Study*	GW-0

- 13 operating experiments
- 9 experiments under design or construction.
- 21 initiatives to upgrade instrumentation and infrastructure including:
 - High density storage underground
 - Power reliability study
 - New capabilities for material fabrications, isotope measurements, electronics repair
 - Next steps in TAD expansion

	Responsive Requirements
	Internal Projects
	Science Programme

3

Skilled people

Foster and develop diverse talent in an inclusive environment.

Expected outcomes:

- Canadian leadership in advancing EDI in research facilities
- A new generation of HQPs prepared to discover and innovate in a global economy
- Greater access to STEM skills and opportunities in Northern Ontario

EDI Committee

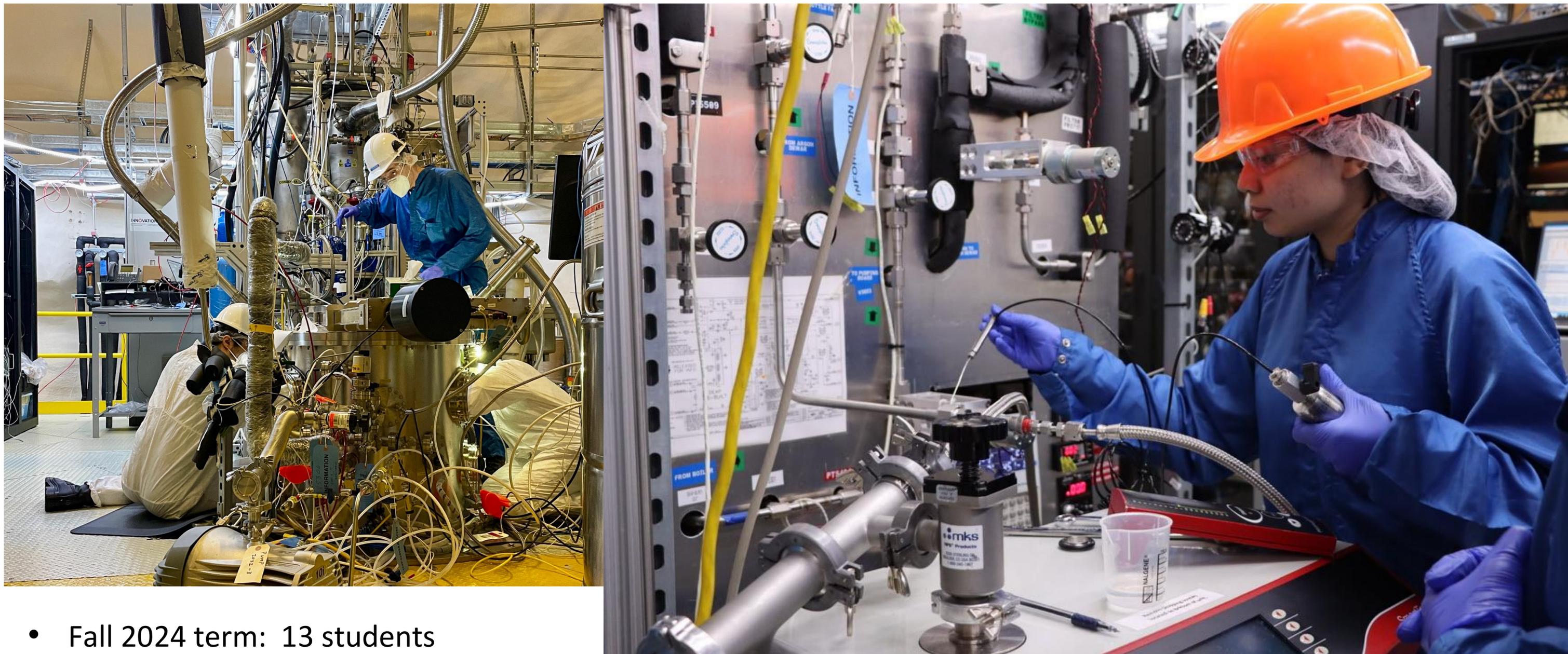


The EDI Committee is established under the authority of the Executive Director to support a vision of an equitable, diverse, and inclusive laboratory. The EDI committee assesses SNOLAB policies and processes to ensure that equity, diversity, and inclusion are central to SNOLAB decision-making. The EDI Committee provides guidance to the SNOLAB Executive Director on the development, implementation, and ongoing improvement of SNOLAB's EDI action plan.

Thank you to the members:

Ezri Wyman
Olivia Lobban
Lorna Nolan
Keegan Paleshi
Erica Caden
Matt Stukel
Alexandra Pedersen
Nasim Fatemighomi
Mehwish Obaid
Miriam Diamond

SNOLAB coop program still in high demand



- Fall 2024 term: 13 students
- Winter 2025 term: 9 students
- Summer 2025 term: 19 students

The SEEDLING Program was Funded!

- Science & Engineering Experiments at Depth: LearnING
- NSERC PromoScience grant to provide \$225,000 over 3 years
- Grade 4 – 8 scientific inquiry program to support students/classes to propose small experiments underground
- Pilot planned for Sept 2025 launch



Planning for the Future

CFI Request for a 15-Year Plan



- CFI has requested SNOLAB to produce a 15-year under three budget scenarios by September 15, 2025.
 1. Maintaining current levels of operation
 2. Fully supporting the needs of the Canadian research community
 3. Increasing global competitiveness
- Engagement with SNOLAB staff occurred in December and January.
- Various engagements with SNOLAB community.
 - February 4th SEF meeting
 - Future Projects Workshop at SNOLAB Apr 29 – May 1
 - **Special Session at CAP *this Friday 8:00 am, Health Sciences RM 1150***
 - MI meeting Aug. 6-8



**Thank you!
Questions?**

