Nunavut Research Institute / ᓄᓇᕗᒻᒥ ᖃᐅᔨᓴᖅᑐᓕᕆᔨᒃᑯᑦ
959A Nunavut Dr. Iqaluit, NU X0A 3H0 phone:(867) 979-7279 email:mosha.cote@arcticcollege.ca

SCIENTIFIC RESEARCH LICENSE

LICENSE NUMBER 02 023 24R-M

ISSUED TO: Lyle Whyte
Dept. of Natural Resource Sciences
McGill University
21,111 Lakeshore Road
St. Anne de Bellevue, Quebec
H9X3V9 Canada

TEAM MEMBERS: C.Davies,L.Stolov,C.Lang,D.Manik

TITLE: Developing new technologies to access and investigate the hypersaline, subzero Devon Island Subglacial Lake System, a unique Mars and icy moon analogue

OBJECTIVES OF RESEARCH:
The main goal of this project is to characterize a unique terrestrial analogue environment of these icy worlds: the recently discovered hypersaline lake complex under the Devon Ice Cap of Nunavut, Canada. The Devon Island subglacial lakes consist of 3 lakes lying beneath 560-740m of ice; modelling indicates temperatures of -12ºC and high salinities of ~ 15% salt. Due to their hypersaline nature, the Devon subglacial lake complex is a particularly tantalizing analogue for brine bodies inferred to exist on Europa, Enceladus, and Mars, and make it a compelling site to address fundamental questions about how life persists at terrestrial extremes of darkness, temperature, salinity, and pressure. Our 3-year CSA FAST application is the first step to access the Devon Island lakes directly by testing and optimizing an ice drilling system, collecting ice samples overlying the lakes for microbiological analyses and optimizing 2 biosignature detection prototypes, and to further constrain geomorphological parameters of the system.

TERMS & CONDITIONS:
The holder of the licence will be bound by the terms and conditions of the Nunavut Impact Review Board Screening Decision Report (22YN036) and the Department of Culture & Heritage archaeological sites terms and conditions. These terms and conditions will form part of this licence.

DATA COLLECTION IN NU:
DATES: May 1,2024 to August 15,2024
LOCATION: Devon Ice Cap,Devon Island

Scientific Research License 02 023 24R-M expires on December 31,2024
Issued at Iqaluit, NU on April 12,2024

Jamal Shirley
Science Advisor

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