**Nunavut Research Institute / ᓄᓇᕗᑦ ᖃᐅᔨᓴᖅᑐᑦᑎᐊᖅᑐᑦ**
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## SCIENTIFIC RESEARCH LICENSE

LICENSE NUMBER 02 038 22N-A

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TITLE: Geological Mapping and Study of Hydrothermal Deposits and Gossans near Expedition Fiord, Axel Heiberg Island, Nunavut as Analogues for Mars

OBJECTIVES OF RESEARCH:
Gossans are surficial deposits that form through the chemical and physical weathering of bedrock. They can be preserved for thousands of years in the permafrost. In the Expedition Fiord area of Axel Heiberg Island, Nunavut, gossans are associated with ancient hydrothermal deposits that contain minerals also found on Mars. These minerals can preserve traces of microbial life but the way they formed is still unknown. Importantly, gossans in the Expedition Fiord area could be part of a network of fractures through which hydrothermal fluids have been circulating for millions of years. It is possible that these gossans have been formed through the interaction between the metal-rich bedrock and ancient deposits formed in a hydrothermal system. If such, this would have important implication in the search for life on Mars. It is highly probable that hydrothermal systems were active on Mars billions of years ago. These systems are key places to look for signs of ancient microbial life on Mars. Our main objective is to study gossans in the Expedition Fiord area as indicators of ancient hydrothermal systems on Mars at various spatial scales in the context of current and future Mars exploration missions.

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

DATA COLLECTION IN NU:
DATES: July 8,2022 to July 24,2022
LOCATION: Axel Heiberg Island

Scientific Research License 02 038 22N-A expires on December 31,2022
Issued at Iqaluit, NU on May 26,2022

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