Nunavut Research Institute / ᓄᓇᕗᑦ ᖃᐅᔨᓴᖅᑐᑦᑕᓕᕆᔨᒃᑯᑦ
Box 1720, Iqaluit, NU X0A 0H0 phone:(867) 979-7279 fax: (867) 979-7109 e-mail: mosha.cote@arcticcollege.ca

SCIENTIFIC RESEARCH LICENSE

LICENSE NUMBER 04 001 24N-M

ISSUED TO: Cian Sherwin
Real Ice Development Company LTD.
29 Lon Ogwen
Bangor, Gwynedd
LL57 2UD United Kingdom

TEAM MEMBERS: A.Ceccolini,A.Woods,J.Panting,F.Ypma

TITLE: Real Ice-January Field Test in Cambridge Bay, Canada

OBJECTIVES OF RESEARCH:

The project is testing scientific and engineering work around the preservation and restoration of sea ice in the Arctic Ocean. The importance of the Arctic sea ice for global climate as well as for local populations is well documented scientifically. We want to demonstrate that sea ice can be thickened up using simple devices incorporating a submersible water pump, and only using zero-emission energy. This is our second field test, after we completed, in February 2023, a test in Nome, Alaska, using a battery powered pump. In this phase we introduce hydrogen, as energy storage and a fuel cell, to transform the hydrogen to electricity and power and electric water pump. With the use of hydrogen, we can extend the operating time of the water pump. The submersible pump will be lowered through an ice hole (drilled with an ice auger) into sea water, and will pump a large amount of water on top of existing sea ice. This sea water will quickly freeze to thicken up the existing ice layer, potentially flooding any existing snow, and increasing the conductivity between the cold air and the sea ice itself, which will support additional ice accretion over the following period.

TERMS & CONDITIONS:
The holder of the licence will be bound by the terms and conditions of the Nunavut Impact Review Board Screening Decision Report 11YNO25 and by the Department of Culture & Heritage's archaeological sites terms and conditions. These terms and conditions will form part of this licence.

DATA COLLECTION IN NU:
DATES: January 15,2024 to March 31,2024
LOCATION: Cambridge Bay

Scientific Research License 04 001 24N-M expires on December 31,2024
Issued at Iqaluit, NU on November 3,2023

Jamal Shirley
Science Advisor

NUNAVUT SCIENTISTS ACT
SCIENTIFIC RESEARCH LICENCE