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SCIENTIFIC RESEARCH LICENSE

LICENSE NUMBER 04 009 26N-M

ISSUED TO: Bing Chen
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TEAM MEMBERS: X.Song, B.Zhang

TITLE: ArcSolution: Arctic Pollution in a One Health Perspective–from Complex Challenges to Sustainable Solutions

OBJECTIVES OF RESEARCH:
The Arctic is warming at roughly twice the global average, driving permafrost thaw, changing ice regimes, and more extreme weather that together alter contaminant transport, transformation, and persistence. These changes, combined with both long-range inputs and local sources such as fuel handling, shipping activity, and lagoon retention, increase the exposure risk from emerging pollutants in Cambridge Bay. The key contaminants of concern include microplastics, PFAS, oil-derived compounds from fuels and related activities, and flame retardants such as PBDEs that are persistent, bio accumulative, and linked to endocrine, immune, and developmental effects. Many of these substances travel long distances, resist degradation in cold environments, and magnify in traditional food chains, posing both ecological and human-health risks. Building on prior Northern Contaminants Program work that uncovered widespread flame retardants, (PBDEs) in nearby sub-Arctic communities, this project, collaborating with Arctic Research Foundation, aims to identify which emerging contaminants are present around Cambridge Bay, how seasonal and climate-driven dynamics affect their fate, and whether they accumulate in culturally and nutritionally important species.

TERMS & CONDITIONS:
The holder of the license will be bound by the terms and conditions of the Nunavut Impact Review Board Screening Decision Report (NIRB File # 25YN073)and the Department of Culture & Heritage archaeological sites terms and conditions. These terms and conditions will form part of this license.

DATA COLLECTION IN NU:
DATES: May 1,2026 to December 31,2026
LOCATION: Cambridge Bay Surrounding Areas

Scientific Research License 04 009 26N-M expires on December 31,2026
Issued at Iqaluit, NU on January 30,2026

James Shirley
Science Advisor

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