ERDC GRL CERL SITREP
EXPEDITION ARCHIE September 2025

Team ERDC in Greenland for Arctic Water Solutions

The ERDC combined Operational Water Logistics laboratories demonstration including GRL and CERL

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Why: Site demonstration and training of the Deployable Resilient Installation water Purification and treatment System (DRIPS) was conducted and installed for emergency use/redundance for near high tier water production at the Pituffik Space Base 22 SOPS DET7 [POGO (Polar Orbiting Geophysical Observatory)] Greenland at the request of the 821st Space Base Group and 21 CES of Space Operations Command (SpOC) Space Base Delta 1 (SBD1) for demonstration technology transfer of the DRIPS stemming from the FY25 Flex4 T2 DRIPS project and an ICE PPR (International Cooperative Engagement Program for Polar Research) Cooperative Activity Project (CAP) called Expedition ARCHIE (Arctic Resource Conservation Hydration Innovation Experiment). The collaboration was among members of the US Army ERDC, USSF, and Danish Defence Estate Agency (DDEA) also known as ETK Forsvaret, etablissement og terrænkommandoen. Multiple demonstrations and training occurred over the course of the team's temporary duty. Additional, site inspections of DET7, 12 SWS (12th Space Warning Squadron-Facility), multiple emergency shelters, landfill, scrap yard, contaminant soil piles, and source water supply to the base and base water treatment plant were conducted with USSF SPoC Delta 1's annual environmental assessments. Multiple discussions were had between the US and Danish SMEs about information about plumbing connections, electrical/power requirements, water quality analysis techniques, and tools used related to the DRIPS and in field use of water equipment. The team is coordinating a joint 10-year MOA as well as proposed FY27-31+ support efforts to conduct installation demonstrations/ improvements (soil bioremediation; water and wastewater, emergency shelters)/training with ERDCs modular liquid logistics total water systems to aid in the base meeting future Joint Arctic Priorities and Requirements in NORTHCOMS AOR. The team discussed infrastructure and operation challenges and will identify solutions towards these improvements in the areas of aging supply water infrastructure, contaminated soil removal/remediation, air and subsurface drone capabilities for water, facility infrastructure inspections, and near shore bathymetry mapping.

Who: Pituffik Space Base (PSB) 821st Space Base Group (SBG) MSG Calimlim, Air Force Civil Engineers Support Squadron MSG Timme, CPT Heiser, US Space Force (USSF) Carly Jorgensen, ERDC, Greenlandic Defence Support/Inussuk, Denmark's Danish Defence State Agency Maren Hostrup and Karen Schleiss.

What: Liquid Logistics of Total Water Systems for preparation of wastewater, graywater, and near high tier potable water: Expedition ARCHIE (Arctic Resource Conservation Hydration Innovation Experiment)

Where: Top of the World, 750 miles north of the Arctic Circle and 947 miles from the North Pole on the northwest coast of Greenland. To support Pituffik Space Base Detachment 1 (PSB) DET7 POGO – 22nd Space Operations Squadron for Phase I, FY25 and 12 SWS FY26/27. Planning with USSF SBD1, 821st SBG/Civil Engineering Support Squadron, and NORTHCOM for FY27-31+ Project coordination will include the base management contract through USSF SBD1 Environment Inspection Team Lead, contracting operations representatives, and the base contractor, Inussuk.

When: Planning for Summer 25/ Coordinated Agreement with USSF SPoC 21 CES SBD1. Coordination with Air Transport and via Pacer Goose.

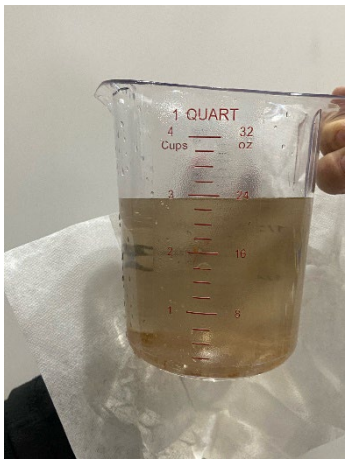
How: USSF 821st Space Base Group/NORTHCOM


UNITED STATES
SPACE FORCE
ERDC
POGO
THULE TRACKING STATION
76.5°N 68.6W
EXPEDITION
2025
ERDC
ARCHIE
Arctic Resource Conservation Hydration Innovation Experiment
DET7

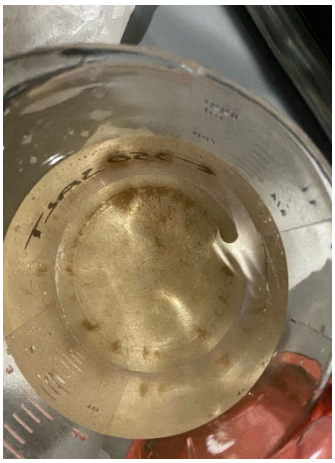

PITUFFIK
SPACE BASE
The Top of the World

Source water pulled from facility outside storage tank
Stored in 500-gallon storage tank inside facility

Pre-Treatment 100 um filtration



Pre-Treatment 50 um filtration



Post Pre-filtration, GAC, UVC, ElectroChloro to Distribution:
Near High Tier Water Out: pH 7.5; [Chlorine] ~0.6ppm
post >24 hrs contact time