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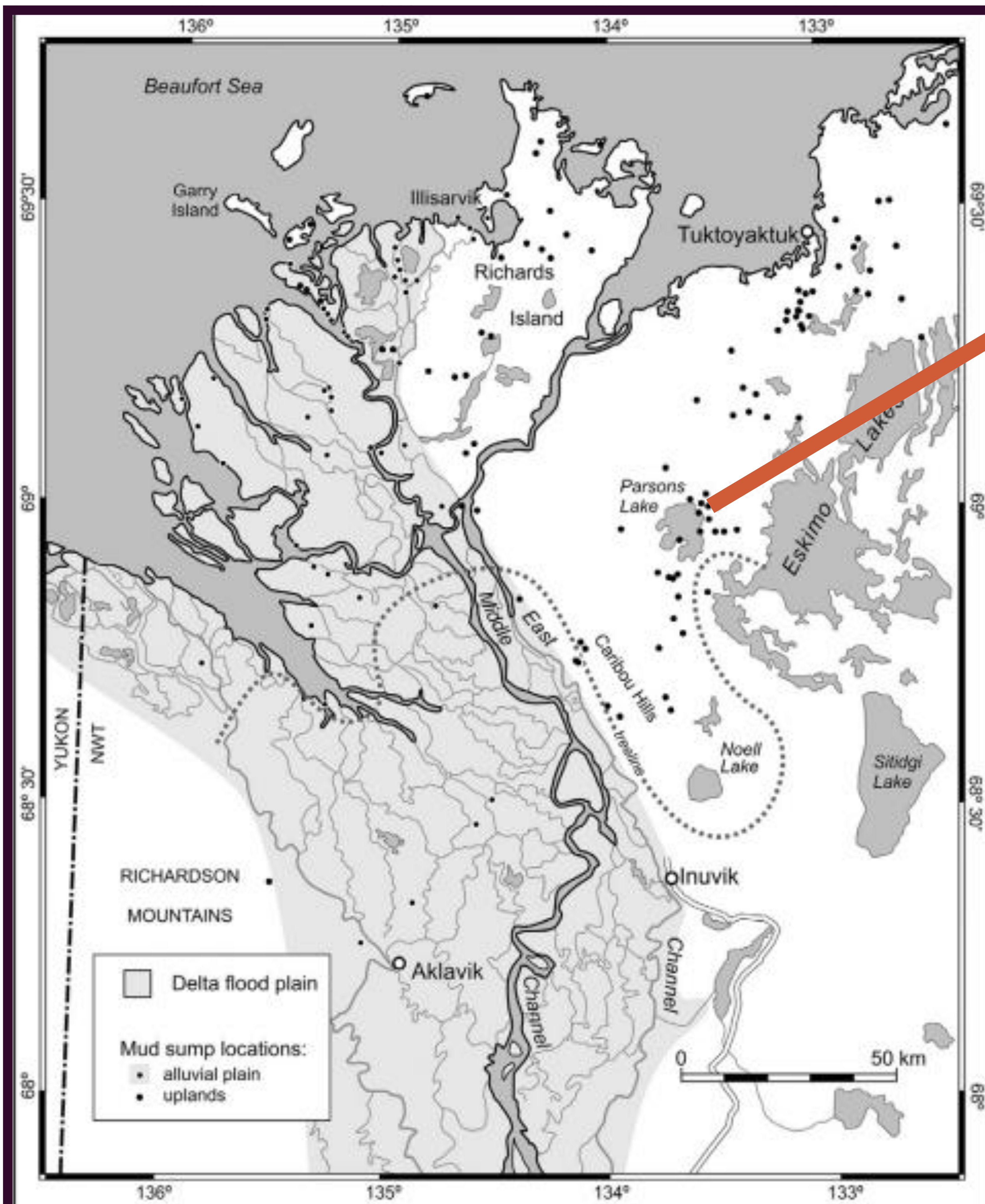
# Stability analysis of drilling waste sumps, western Arctic Canada



## Background

- Petroleum development projects in the western Arctic excavated large pits in permafrost to dispose of primarily industrial waste assumed to be stored in frozen ground
- Over 170 sumps in the Mackenzie Delta Region
- Climate change threatens the stability of sumps

## Study Area – western Arctic



## Sump Anatomy

- Failed Sump - Parsons Lake



## Study Design

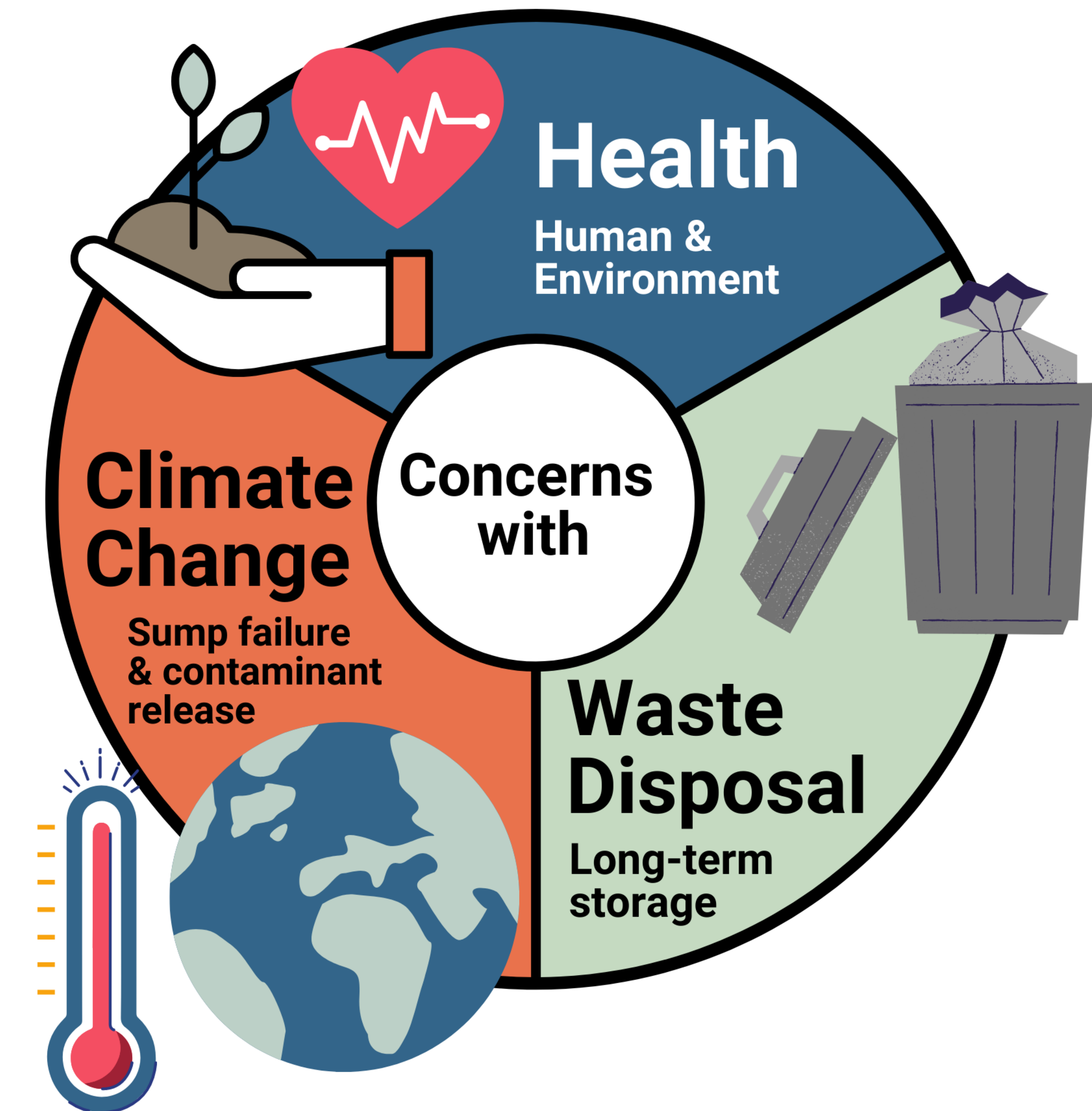
Thermistors      Soil Sampling



Electromagnetic Surveys



## This research aims to address:



## Risks associated with failed sumps

- Uncontrolled contaminant release into surrounding soils
- Migration of contaminants into surface water bodies
- Sea level rise causing flooding of landmass and dispersion of sump waste into the Ocean