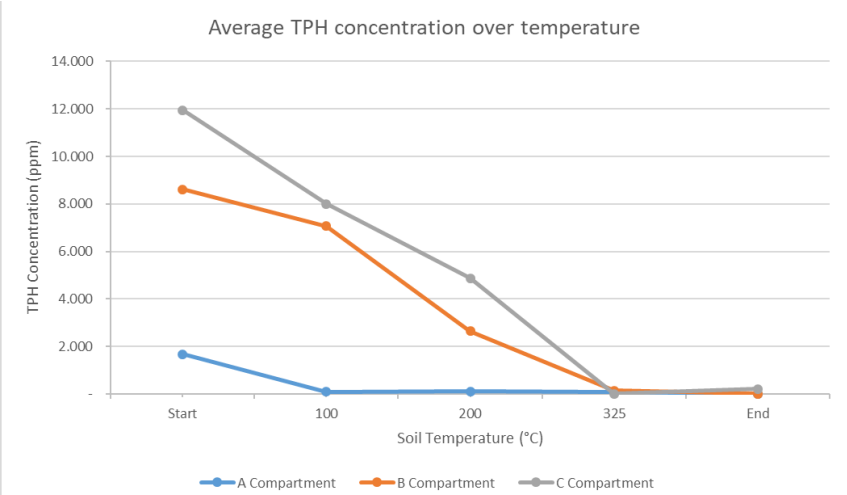
ESTD/ E-18-02
Grønnedal (GR)

Context & Project Description

The site is the former Grønnedal military base in Greenland. Three types of hydrocarbon contaminant were considered for the remediation: one was contaminated with C6-C15 hydrocarbons (helicopter fuel), the second one was contaminated with C10-C20 hydrocarbons (diesel fuel) and the third one was contaminated with C20-C35 hydrocarbons (heavy fuel/oil). In order to treat the tree types of contaminants, it had been decided to build a container made with sheet piles. The volume was divided in 3 parts to treat the three contaminated soils concurrently.

The operations started in July 2019 for the building of the container and ended in October 2019.



Conclusion

The treatment of the soil was complete after a total cumulated heating time of less than 20 days. The remediation was effective at most locations of the container at a rate of contamination reduction superior to 95% for all types of hydrocarbons, with respected gas emissions.

The ex-situ pilot project demonstrated to be a fast and reliable approach for the remediation of contaminated soil with hydrocarbons. Such technology and the way it is applied does not need much equipment to mobilize with a relatively low fuel consumption to heat the soil.

Key words

Contaminants
C6-C15 (helicopter fuel)
C10-C20 (diesel fuel)
C20-C35 (heavy fuel/oil)

Max. concentration
C6-C15 : 1.665 mg/kg
C10-C20 : 8.620 mg/kg
C20-C35 : 11.956 mg/kg

Volume
79 m³

Tonnage
142 Tons

Nb of heating tubes
6

Temperature Target
325°C

Heating duration
20 days

Treatment efficiency
C6-C15 : 95.7%
C10-C20 : 98.2%
C20-C35 : 99.9%

Location
Grønnedal, Greenland

Goal
Kinetic Study

Client
The Danish Defense Ministry

Partner
ARKIL

General Contractor
ARKIL

Date
2019