Cold weather (Arctic) Engineering for mining

COWI Mining services

- Engineering consultancy and construction design (including buildings, roads, ports, airports, runways, tunnels and facilities)
- Legislation and permitting processes
- Environmental impact assessment (EIA)
- Social impact assessment (SIA)
- Navigational safety investigation (NSI)
- Geoscientific investigations
- Green energy solutions
- Sustainability compliance
- Management of wastewater and hazardous waste

COWI

Airports in Greenland

COWI carried out design of three airports in Greenland with the expansion of the existing airport in Nuuk, and construction of new airports in Ilulissat and Qaqortoq.

The projects included constructing runway, construction of apron area, and site development, extension of the existing access road, establishment of new parking area and relocation of utilities.

The expansion of the new airport in Nuuk (picture) was opened by the end of November 2024.

Project period: 2017–2023
Client: Kalaallit Airports Holding A/S

Photo: Inuplan A/S

COWI

Improving Harbour Activities in Nuuk

Nuuk Port masterplan and trawler-terminal

In 2009 COWI prepared a masterplan for the expansion of the port in Nuuk. The harbour included a new container port, a deep-water harbour and a cutter quay. It includes areas designated for offshore activities and related service industries in addition to facilities for the fishing industry, such as cold storage, processing and other related facilities.

From 2022-2024 COWI was responsible for delivering all services in the planning phase of the port expansion with a 200-300 m long trawler terminal located south of the existing container terminal. Port layout and concepts for quay structures were prepared together with a construction program and construction budget.

Project period: 2009-2024

Client: Kommuneqarfik Sermersooq (Nuuk), Greenland

.

COWI

Pier design, Southwest Greenland

Floating bulk pier design, Greenland

For the Seqi Olivine Mine loading facility, COWI in 2005 designed a temporary mooring system for bulk carriers in the inner part of Fiskefjorden. Taking into account wind velocity, the solution featured a layout with three bollards on the shore and three anchored mooring buoys in the water at depths of 25-35 metres.

Considering the need for speedy completion and subsequent easy decommissioning, it was decided to use standard ship anchors and standard ship anchor chains for the mooring buoys, thus providing a simple and cost-effective solution.

Project period: 2005
Client: Seqi Olivine A/S

COWI

Mary River iron mine in Nunavut, Canada

Upgrading of existing facilities and infrastructure at Milne Port including a new Freight Dock, Causeway, and a new quay wall will increase the capacity of the port from 4.2 to 12 million tonnes of iron ore per year.

Key components of the project included a causeway to provides access to the new ore dock, foundations for ship loaders, conveyors and gangways, along with the quay wall itself including mooring point structures and capstans, fenders and fixation system, among other details.

Project period: 2018-Ongoing
Client: Baffinland Iron Mines Corp.

Photo: Baffinland Iron Mines Corp.

COWI

Photo: Greenland Resources Inc.

Renewable energy generation

Malmbjerg Molybdenum project, East Greenland

Consulting on various disciplines listed below on the Malmbjerg Molybdenum Project. The International Agency named molybdenum as a critical mineral for the green energy transition in 2021.

- Scoping for EIA and SIA
- Critical Habitat mapping
- Sustainability Compliance
- Navigational Safety Investigations (NSI)
- Onshore biological baseline sampling
- Renewable energy generation/Wind and solar study
- Waste water from tailings deposit

Project period: 2020-Ongoing
Client: Greenland Resources Inc.

COWI