GUIDELINES FOR WASTE AND WASTEWATER HANDLING IN GREENLAND RELATED TO MINERAL EXPLORING AND EXPLOITATION

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10 Marts 2021
INTERACT Seminar on Arctic contaminant monitoring and waste handling at INTERACT stations
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CONTENT

- Background and introduction to the guideline(s) for waste handling in temporary field camps in Greenland
MINERAL LICENSES IN GREENLAND

Legend

Mineral Applications
- Approval
- License Pending
- Under Review

Mineral Licences
- Small Scale Exclusive Licence (SSE)
- Mineral Exploration Licence (MEL)
- Special Exploration Licence (MEL-S)
- Mining Exploitation Licence (MIN)

Small-scale Reserved Areas

Greenland Hydrocarbon Licenses

No Go Areas

Towns and villages
- Village
- Town

https://asiaq.maps.arcgis.com/apps/webappviewer/index.html?id=819ff201b76f44f99b31da7e630c18e&locale=en
GUIDELINES FOR WASTE HANDLING AT TEMPORARY FIELD CAMPS IN GREENLAND

- Greenland guidelines for waste handling at temporary field camps in Greenland

- Apply for work camps > 300 person-days in one year.

- Follows principles of the use of the Best Available Technology (BAT) and Best Environmental Practice (BEP)

<table>
<thead>
<tr>
<th>Days</th>
<th>Persons</th>
<th>Person-days</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>30</td>
<td>10</td>
<td>300</td>
</tr>
<tr>
<td>100</td>
<td>10</td>
<td>1000</td>
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</tbody>
</table>
BAT - BEST AVAILABLE TECHNOLOGY
BEP – BEST ENVIRONMENTAL PRACTICE

BAT
“The latest stage of development (state of the art) of processes, of facilities or of methods of operation which indicate the practical suitability of a particular measure for limiting discharges, emissions and waste”

BEP
“The application of the most appropriate combination of environmental control measures and strategies”

BEP/BAT for a particular source will change with time
BEST AVAILABLE TECHNIQUES (BAT)

BAT-reference documents
• Treatment of waste
• Treatment of waste water
• Incineration of waste

GENERAL REQUIREMENTS OF WORK CAMPS

- Establishment and operation shall minimize surface disturbance and environmental impacts.
- Kept in neat and sanitary conditions.
- Products used in household, kitchen, etc. shall be env. friendly (Eco label or equivalent).
- After decommissioned, the area shall be reclaimed according to the activity permits.
- **Plan for handling** of wastewater, liquid and solid waste shall be submitted to authorities.
WASTEWATER HANDLING

Wastewater from food preparation, laundry, bath and latrines (sewage)

Marine discharge subsea with sufficient circulation

Freshwater discharge shall comply with criteria depending on person-days and sensitivity of recipient:

Monitoring water quality if e.g. the number of person-days or the sensitivity of the environment justifies this

Wastewater treatment plants shall meet EU/US standard and be CE marked (or equivalent).

Sludge may be delivered to approved waste handling or discharged to the sea (subsea and water circulation), or burial or seeping through the soil

Liquids containing harmful substances e.g. heavy metals, chemicals, flammable, explosive must be collected

* Upon approval by the Greenland authorities

BOD=Biological Oxygen Demand, COD= Chemical Oxygen Demand, N=Nitrogen, P=Phosphorous.

<table>
<thead>
<tr>
<th>Person-days</th>
<th>Criteria (an assessment of the sensitivity of the recipient determines the requirements)</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-999</td>
<td>No requirements or BOD (15 mg/l), COD (75 mg/l).</td>
</tr>
<tr>
<td>1000-9999</td>
<td>BOD (15 mg/l), COD (75 mg/l) or BOD (15 mg/l), COD (75 mg/l), Total-N (8 mg/l) and Total-P (1.5 mg/l).</td>
</tr>
<tr>
<td>10000-100000</td>
<td>BOD (15 mg/l), COD (75 mg/l), Total-N (8 mg/l) and Total-P (1.5 mg/l) or requirements to cleaning and discharge are set by EAMRA depending on location for the discharge to water.</td>
</tr>
<tr>
<td>&gt;100000</td>
<td>Requirements to discharge are set by EAMRA depending on location for the discharge to water.</td>
</tr>
</tbody>
</table>
SOLID WASTE AND OIL PRODUCTS

- Solid waste and oil products shall not be buried, spread in the terrain or disposed to streams, lakes or the sea.
- Food wastes, clean wood and paper products and oil may be burned on site*
- Incinerators* shall meet requirements to be approved in accordance with the relevant Greenland and EU regulation. Highest possible flue gas temperatures according to the specific plant.
- Food wastes, clean wood and paper products may be stored and transported to a permanent incinerator plant*.
- Environmentally harmful substances and non combustible substances shall be delivered to an approved waste handling facility.

* Upon approval by the Greenland authorities
SUMMARY

- Specific plans and assessment of waste and wastewater handling for each project
- Focus on household chemicals, use Eco labeled products
- Environmentally harmful substances and non combustible substances shall be delivered to an approved waste handling facility.
- The technology exists for handling waste and wastewater also in remote areas:
  - Small mobile unites for wastewater treatment
  - Small mobile units for waste incineration at relatively high temperatures
Links

https://naalakkersuisut.gl/~/media/Nanoq/Files/eamra/rules_for_fieldwork.pdf

Affald_10 April.indd (govmin.gl)

https://govmin.gl/exploration-prospecting/start-exploring/field-rules/