Danish “Thule files”

- Permanent relocation of the local population in 1953 from Pituffik (Air Base) to Qaanaaq (100 km)
- Thule Air Base crash of a US B-52 bomber with 4 nuclear bombs
- The secret agreement between the Danish Prime Minister and US authorities regarding overflying of Danish territories with nuclear bombs (revealed in 1993)
Thule accident and long term follow-up

- 1968 – 1970  The accident and clean-up
- 1986 – 1995  Health status of Danish Thule workers and local population
- 2003 – 20?? Terrestrial environment
1968 – 1970: The accident and clean-up

- Sunday 21 January 1968, 4:39 pm
- Warning to Greenlanders to stay away
- USAF Broken Arrow
  - Disaster team arrived at Thule 2:52 am 22 January
  - Criticality ??
  - Transport on ice by Greenlandic dog sledges
  - Recovery of bombs ?? (28 January parts identified from all 4 bombs)
  - Aircraft and weapons debris picked up and stored at base for later movement to US
  - Ocean bottom survey by a research submersible in August
- 70 US agencies - Over 700 persons were at Thule - Maximum 565 persons
  14 February
1968 – 1970: The accident and clean-up
2 (4)

- Foreign Ministry in Copenhagen informed Sunday evening
- Decision Tuesday morning to send at once a scientific group to Thule representing the Danish Government
  - National Board of Health/National Institute of Radiation Protection
  - Danish Atomic Energy Commission (Risø)
  - Arrived at Thule Thursday 25 January (together with Danish and International press)
  - Additional experts and health physics arrived at 30 January
1968 – 1970: The accident and clean-up

3 (4)

- Danish scientific group focused on:
  - Collection of samples of snow and ice outside point of impact
  - Collection of water and bottom samples with regard to food chain
  - Collection of specimens of wildlife (walrus, seals, foxes)
  - Evaluation of ice conditions for the planning of recovery of contaminated ice and snow and to judge the danger of drift of contaminated ice
  - Preparation of summer expedition for checking the region of Wolstenholme Fjord for remaining contamination (August 1968)
Project Good Housekeeping
  - Agreed in Washington 5 February to remove contaminated snow and ice in the “black area” before the ice will brake up and afterwards to send it to US
  - Collected on the ice and stored in the “tank farm” with the assistance of Danish workers from Danish Construction Corporation under health physics surveillance
  - Send to US 13 September 1968
Project Crested Ice


- Overall conclusions:

  "No danger to man or animal and plant life was created by the Thule accident"
1986 – 1995: Health status of Danish Thule workers and local population

- 7 July 1986: Article published in Familie Journalen on the harmful health effects arising after the crash
1986 – 1995: Health status of Danish Thule workers and local population

- 3 December 1986: Prime Minister Poul Schlüter promises Thule workers a medical examination.

- 1986-1995: 300 newspaper articles, 100 questions posed in the Folketing and 30 newspaper editorials.

  National Board of Health/National Institute of Radiation Protection: Steering Group and Contact Group

- 1987: Registry study of the incidence of cancer and mortality and medical examinations of a few Thule workers at departments of occupational medicine.

1986 – 1995: Health status of Danish Thule workers and local population

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1989-1990</td>
<td>Systematic medical examinations of Thule workers at departments of occupational medicine</td>
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<td>1991</td>
<td>Registry study of fertility among Thule workers</td>
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<td>1992</td>
<td>Registry study of hospitals admissions among Thule workers</td>
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<td>1993</td>
<td>Follow-up study of the registry study of cancer and mortality</td>
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<td>March 1993</td>
<td>Prime Minister Poul Nyrup Rasmussen appoints an expert panel</td>
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<td>1995</td>
<td>Follow-up study of the registry study of cancer and mortality</td>
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1986 – 1995: Health status of Danish Thule workers and local population

- 7-8 October 1995  Public hearing on the Thule case in the Circus Building in Copenhagen

Summary:

The studies conducted so far had not been able to show that the Thule workers, the Inuit hunters or the local population had experienced harmful effects as a result of exposure to radiation

- November 1995  After decision in the Folketing persons present in the region in the period 21 January to 13 September 1968 receive 6.700 euro in lump-sum compensation
1986 – 1995: Health status of Danish Thule workers and local population

- **Addendum**

- **2002** Thule workers submit a dossier on the Thule accident to the Committee on Petitions at the European Parliament

- **6 October 2004** Prime Minister Anders Fog Rasmussen informs the Folketing that the registry study of cancer and mortality will be repeated

- **December 2005** National Institute of Public Health and Danish Cancer Society publish the follow-up study of the registry study of cancer and mortality

- **12 May 2007** European Parliament adopts a report from the Committee on Petitions criticizing Denmark
<table>
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<th>Details</th>
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<tr>
<td>6 October 2004</td>
<td>The studies carried out definitively reject the hypothesis that the Thule workers as a group have great excess mortality or strongly increased cancer incidence because of the crash. Population studies such as those performed here cannot find a few cases of disease that could be related to the crash if these are within the statistical uncertainty of the study.</td>
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<td>December 2005</td>
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- **Lessons learned**

  - **Identify and Register**, **Identify and Register** and **Identify and Register** all persons taken part in emergency and clean-up operations,
  
  and

  - **Document**, **Document** and **Document** in detail all activities, including measurements and given information for

  - Eventual later purposes
Before 2003
- Measurements winter 1968
- Extensive environmental monitoring programme summer 1986

Risø expedition in 2003 included some measurements on land (Narsaarsuk) showing spots with contamination
- Status report in august 2005
- Final report 2006
Follow-up on Risø Report from 2005/2006

- October 2005, the Greenlandic Premier visits Qaanaaq
- Liaison committee formed by the Health Directorate, Greenland Home Rule, and the Danish Ministry of Health and Prevention
- Pilot investigation in the Narsaarsuk area August 2006
Project proposal April 2007: Thule-2007 - Investigation of radioactive contamination on land

- Measurements (Risø)
  - On-site gamma-spectrometry with using of a portable NaI spectrometer
  - Soil sampling based on geostatistical considerations
  - Sampling of particles from surface of soil by vacuuming
  - Measurements of precipitation
  - Sampling of airborne particles by an active air sampler
  - Sampling of airborne particles by passive sticky foils

- Assessment of the risk to humans from inhalation of radioactive particles and the risk from activity in the areas investigated (SIS)
- International Peer Review of the Technical Content of the Project Proposal, January 2008

- Measurements planned for Summer 2007, but had to be extended to Summer 2008

- Final reports: 2009