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Statens Institut for Strålebeskyttelse

The Thule Accident

NKS NordThreat Seminar
Asker, 30 – 31 October 2008

Kaare Ulbak

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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)

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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

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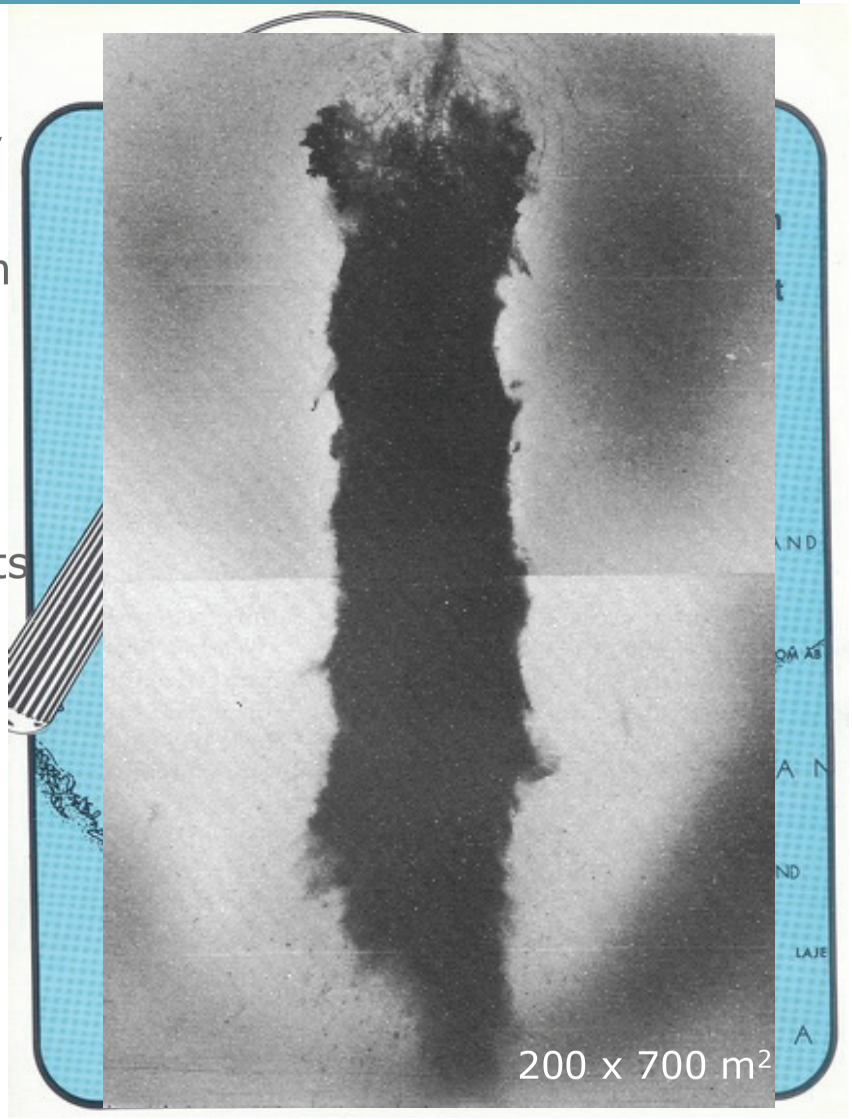
1968 – 1970: The accident and clean-up
1 (4)

- 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



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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)

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1968 – 1970: The accident and clean-up
4 (4)

- 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 surveilance
  - Send to US 13 September 1968

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26

Thats All Folks !
FRIDAY
13 SEP 68

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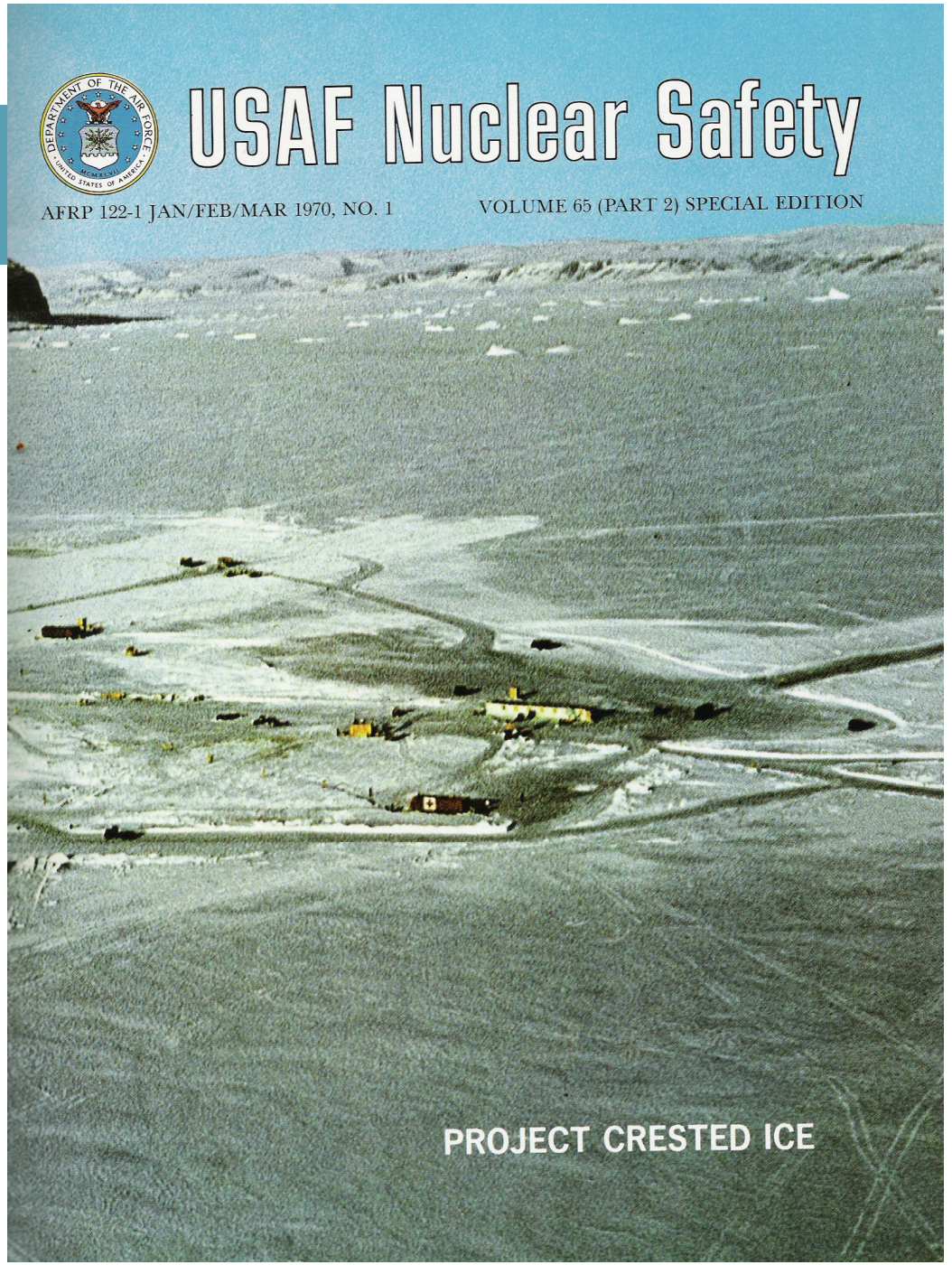
Project Crested Ice

- A Joint Danish-American Report on the Crash Near Thule Air Base on 21 January 1968 of a B-52 Bomber Carrying Nuclear Weapons, February 1970

- Overall conclusions:

  "No danger to man or animal and plant life was created by the Thule accident"



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1986 – 1995: Health status of Danish Thule workers and local population
1 (6)

- 7 July 1986: Article published in *Familie Journalen* on the harmful health effects arising after the crash

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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
- 1988 — The National Institute of Radiation Protection and Risø National Laboratory study plutonium elimination in urine among selected Thule workers and Greenlanders

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

- 1989-1990 — Systematic medical examinations of Thule workers at departments of occupational medicine
- 1991 — Registry study of fertility among Thule workers
- 1992 — Registry study of hospitals admissions among Thule workers
- 1993 — Follow-up study of the registry study of cancer and mortality
- March 1993 — Prime Minister Poul Nyrup Rasmussen appoints an expert panel
- 1995 — Follow-up study of the registry study of cancer and mortality

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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

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

5 (6)

- 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

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

5 (6)

- Addendum
- 2002
- 6 October 2004
- December 2005

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.

- 12 May 2007

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

- **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

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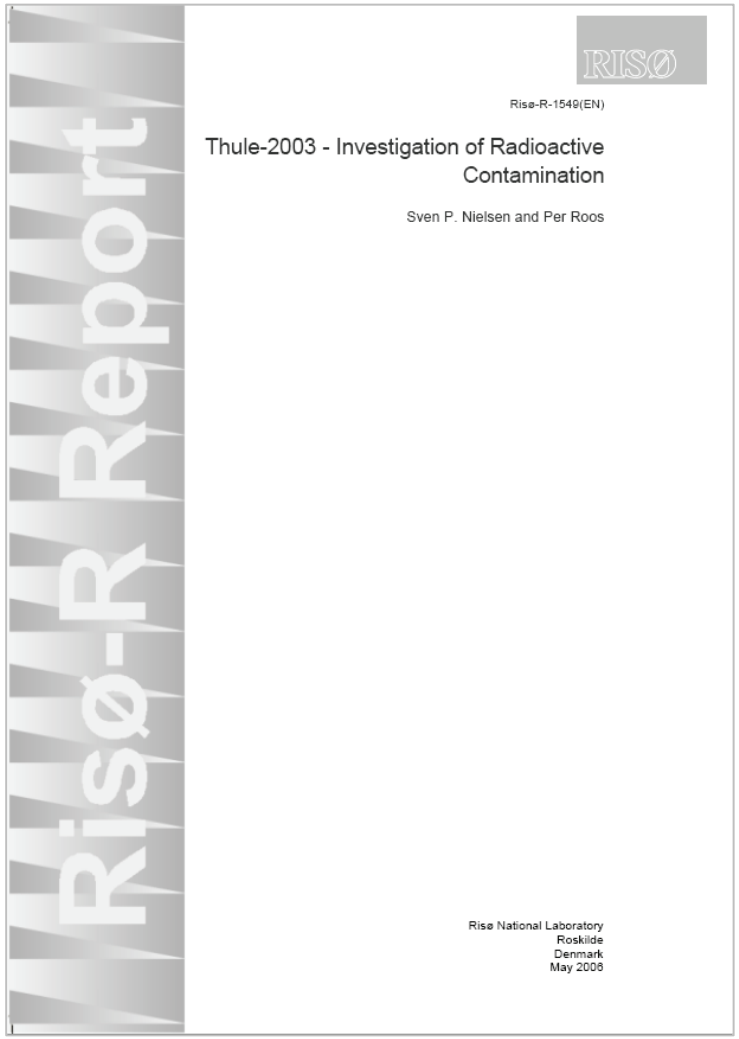
2003 – 20??: Terrestrial environment
1(4)

- Before 2003
  - Measurements winter 1968
  - Extensive environmental monitoring programme summer 1986
  - Risø expeditions for monitoring primarily in marine environment 1970, 1974, 1979, 1984, 1991 and 1997

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



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# 2003 – 20??: Terrestrial environment
2(4)

- 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

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2003 – 20??: Terrestrial environment
3(4)

- 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)

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# 2003 – 20??: Terrestrial environment
4(4)

- 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

INTERNATIONAL PEER REVIEW
OF THE TECHNICAL CONTENT
OF THE PROJECT PROPOSAL
"THULE-2007 – INVESTIGATIONS OF RADIOACTIVE
CONTAMINATION ON LAND"

INTERNATIONAL ATOMIC ENERGY AGENCY
Vienna – 2008