A boost to radiation protection by the Nordic co-operation.

Sigurður M Magnússon

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GEISLAVARNIR RÍKISINS
ICELANDIC RADIATION SAFETY AUTHORITY

A boost to radiation protection.

- a historical overview of Nordic co-operation for more than 60 years

demonstrating that

- the co-operation has given and continues to give a boost to radiation protection at the national, regional and international level.

The beginning of a long journey.

- The nuclear age had entered after WW2
  - a new and potentially unlimited source of energy for the future.
  - The Nordic countries were all interested in peaceful uses of atomic energy.

- Sporadic contacts in the nuclear arena from 1947 and nordic nuclear meetings from 1949.

- Atmospheric nuclear tests began in 1950.

The Authorites

- Radioactive fallout in the Nordic countries – growing concern, nordic contacts and meetings from 1955 initiated by Rolf Sievert.
- Strong concentration of radionuclides in lichen was of particular concern.
- Saltholmen late 1958 – drinking water (rain water) contaminated by radioactive fallout, big concern, sveral meetings and a joint Nordic statement (1st.)
- Atomospheric nuclear tests culminated in 1958.

The Nordic Council of Ministers

- A permanent committee „Nordisk Kontaktorgan for Atomenergifrågor, NKA" established by the Nordic Council of Ministers in 1957.
  - focus on atomic energy and industrial co-operation in development of reactors.
- Members of NKA were high ranking officials from the ministries for energy/industry and the Foreign ministries.
- NKA was political and the officials in charge.

A deep thinker emerges.

- **Bo Lindell** was one of the scientific secretaries at UNSCEAR in 1957 and worked on the first UNSCEAR report.
- His task was to assess the impact of the atmospheric nuclear testing on future generations. To do that he developed the concept of ***the dose commitment***
- Later ***the dose commitment*** was used to take account of long-term, long-distance accumulation when regulating radioactive emissions and the need to regulate on the basis of the equilibrium level, not just the level due to 1 year release

The Nordic Society.

- Nordic Society for Radiation Protection established on 10 June 1964. Rolf Sievert was elected as the 1st president.

- Sievert and Bo Lindell were among the founding fathers of IRPA.

- IRPA was founded 19 June 1965 and the Nordic Society became a member of IRPA at the end of 1965.

The Authorities – cont.

- Regular meetings of experts with focus on radioactive fallout but after 1965 there was more focus on other areas.

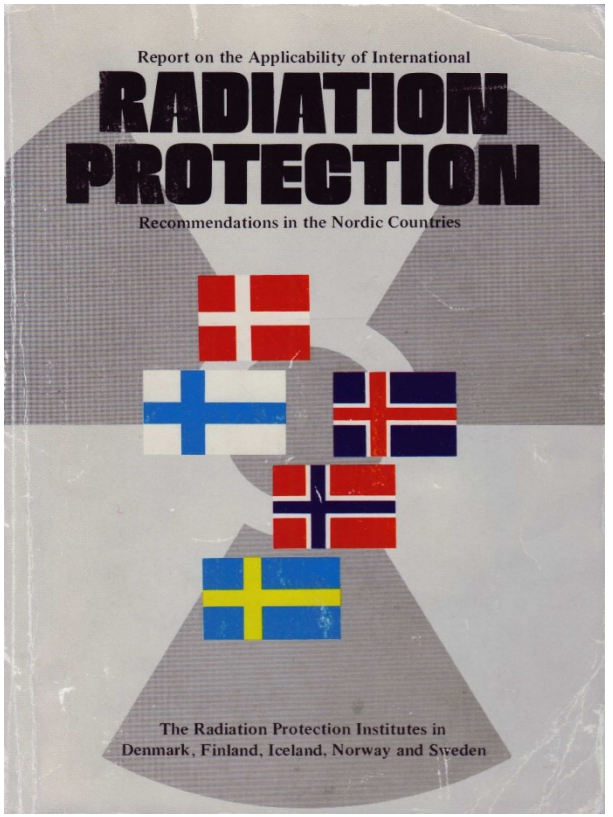
- Co-operation between the Authorities progressed very well and led to Nordic publications – the Flagbooks – addressing international recommendations on radiation protection adapted to Nordic conditions.

The Authorities cont.

- Work on the big Nordic Flagbook – the Nordic Basic Safety Standards – began in 1969 under leadership of Bo Lindell.
- Several working groups were involved.
- Impressive work that was concluded in 1976.
- " a Nordic BSS ", 21 Chapters and 349 pages.

The Nordic BSS.

- A major achievement of Nordic cooperation.
- A major contribution towards a common Nordic view on Radiation Protection.
- A **major boost** to radiation protection in the Nordic countries.



Bo Lindell and ICRP 26

Bo Lindell played a central role in Development of the current ICRP system of radiological protection, based on justification, optimisation and dose limitation as presented in ICRP 26, published in 1977.

Bo Lindell and ICRP, cont.

- Bo Lindell´s deep concern for future generations and the collective good was expressed by his work on dose commitment, collective dose and use of cost-benefit methods laying the foundation for the ethical basis of the ICRP system.
- Discussions with Nordic colleagues helped to shape his ideas that led to the current ICRP system of radiological protection.

The Nordic Council of Ministers cont.

- In 1976 the NCM approved a research proposal from NKA with focus on radioactive waste, radioecology, and quality assurance.
  - „ Nordisk kärnsäkerhetsforskning, NKS „ was established as the research arm of NKA.
  - The first research program began in 1977 and finished in 1981. Considered to be a great success.
  - These 4 year research programs were continued for more than 25 years.
  - Outcomes of NKS research have given a boost to radiation and nuclear safety in Nordic countries.

Nordic co-operation after Chernobyl

- The authorities increased their co-operation and established new WG´s on EP&R and detection of airborne radioactivity.

- Chernobyl had a lasting impact on the co-operation between the Authorities and the NKS research program.

- The authorites were praised for their excellent co-operation after Chernobyl by the NCM.

Nordic co-operation after Chernobyl cont.

- After Chernobyl the situation for NKA/NKS in NCM became impossible for political reasons.
- NKA was terminated in June **1989** after more than 30 years of existence.The NKS research was considered important and continued outside of NCM.
- NKS continues to operate by a voluntary agreement between the Nordic authorities and is as important now as it was 30 years ago.

The authorities and HERCA.

- With a new actor on the scene, HERCA , the co-operation is now more outward looking.
- HERCA (Heads of the European Radiological protection Competent Authorities) was established in **2007** to meet the need for a forum to address regulatory radiation protection issues in Europe.
- The Nordic´s are very active within HERCA and very influential through the Nordic cooperation.

Fukushima

- The Fukushima accident in **2011** had a major impact on the co-operation between the authorities and the NKS research program.

- How can we deal with a major nuclear accident in Europe or closer to home in a Nordic country ?

- The Nordic cooperation (authorities, NKS) has improved EP&R in all the Nordic countries

The co-operation today …

- The co-operation between the authorities continues to be very useful.
- Nordic documents on issues of common interest such as the **2014** Flagbook: **Protective Measures in Early and Intermediate Phases of a Nuclear or Radiological Emergency** are still developed.
- The 2014 Flagbook was very well received by the international community which underscores the importance of the Nordic co-operation.

Nordics and international co-operation.

- The Nordics have played and continue to play an important role in key international organizations such as UNSCEAR, ICRP and the IAEA.
  - The Nordic countries acting together are much more influential than each country alone.
  - The Nordic co-operation strengthens the Nordic voices internationally and influences the global development of radiation protection and nuclear safety.

Conclusions ...

- The Nordic radiation protection and nuclear safety co-operation for more than 60 years has:
  - been of great value for all the Nordic countries.
  - contributed to better radiation protection and nuclear safety in the Nordic countries.
  - stood the test of Chernobyl and Fukushima.
  - adapted well to changing national needs and available resources.

Conclusions cont.

- The Nordic co-operation has given a big boost to radiation protection
  - At the national level
  - At the regional level
  - At the international level

- The Nordic co-operation will continue to be of great importance in the future and will continue to provide a big boost to radiation protection.

Thank you very much
for your attention.

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