



nks

nordic nuclear safety research

DENMARK

FINLAND

ICELAND

NORWAY

SWEDEN

A common Nordic view

Nordic problems need Nordic solutions. NKS aims to facilitate a common Nordic view on nuclear safety and radiation protection including emergency preparedness. This requires common understanding of rules, practice and measures, which may vary between countries, as well as with time. The work builds on a foundation of over sixty years of Nordic collaboration on related issues. Non-Nordic participation may be allowed under certain circumstances. Please contact the secretariat for information.

Securing Nordic competence and knowledge building

Through collaborative NKS activities, Nordic competence and capabilities are maintained and strengthened, and solutions to Nordic problems are disseminated through a sustained informal network. NKS publications are available cost-free on the internet. A special effort is made to engage young scientists and students, to ensure knowledge and expertise for the future.

Strengthening response capacities

By maintaining vital informal networks between Nordic authorities, nuclear power companies, scientists and other stakeholders, the region's potential for a fast, coordinated and targeted response to urgent issues is strengthened. Thereby, problems can be tackled quicker, more efficiently and consistently and at lower cost than if they needed to be addressed on a national scale.

Addressing current societal questions

NKS keeps an open eye to societal changes and events that might influence requirements and perception of nuclear safety, radiation protection and emergency preparedness in the Nordic countries. For instance the Fukushima accident prompted the arrangement of an NKS joint reactor safety and emergency preparedness seminar on lessons learned and future implications for Nordic society.

NKS activities

These can take the form of research activities, test exercises or information collation/review exercises. Alternatively they can aim to harmonize approaches to common problems or spread and distribute knowledge and results through seminars, workshops and educational/training courses. Common to all NKS activities is that the results should be beneficial and made available to concerned end users in all Nordic countries. Aspects of nuclear safety, radiation protection and emergency preparedness may be combined in one activity.

Research areas

Areas of interest covered by NKS activities fall under two main programmes, NKS-R and NKS-B, which cover the following specified research areas.

NKS-R programme:

- Thermal hydraulics
- Severe accidents
- Risk analysis & probabilistic methods
- Organizational issues and safety culture
- Decommissioning
- Plant life management and extension

NKS-B programme:

- Emergency preparedness
- Measurement strategy, technology and quality assurance
- Radioecological assessments
- Wastes and discharges

The logo for NKS (Nordic Nuclear Safety Research) features the lowercase letters 'nks' in a bold, dark blue, sans-serif font. The letters are closely spaced, with the 'n' and 'k' sharing a vertical stem.

Nordic nuclear safety research

Some recent examples of NKS activities

Addressing off-site consequence criteria using Level 3 PSA

The Level 3 Probabilistic Safety Analysis (Level 3 PSA) activity is seeking to deepen Nordic understanding about the merits and limitations of probabilistic off-site consequence analysis for nuclear facilities. Risk metrics including health, environmental, and economic effects have been studied in the first year of the activity. The aim is to produce a guidance document for Level 3 PSA (NKS-R L3PSA).

Maximizing human performance in maintenance

Maintenance is a key safety function in any complex sociotechnical system, such as a nuclear power plant. Human performance tools are often used to prevent human errors. How well do these tools perform in reducing the number of maintenance-related errors? This activity will provide knowledge of the impacts of the human performance programmes and support the implementation of effective human performance tools in Nordic NPPs (NKS-R HUMAX).

Novel neutron detection methods for nuclear security

The activity compares conventional and novel techniques for detection of neutrons. Neutron detection capabilities in Nordic organizations have been analysed, and measurements have been performed in special field conditions. The activity thus provides a knowledge building platform and compares experimental results obtained with different techniques (NKS-B NOVE).

Consequences of severe radioactive releases to Nordic marine environment

The potential consequences of hypothetical accidental releases to the Baltic sea and the North Atlantic ocean were modelled. The highest estimated annual doses from consumption of sea food (from a local area) were found to potentially amount to tens to hundreds of millisieverts. Contributions from Cs-134, Cs-137 and I-131 were estimated to constitute some 96 % of this dose (NKS-B COSEMA).

How to apply

Nordic companies, authorities, organizations and researchers can submit proposals for NKS activities under the NKS-R and NKS-B programmes. Usually at least three of the five Nordic countries should participate in an activity. Activities submitted under annual calls for proposals are assessed according to criteria important to the objectives of NKS, with final funding decisions made by the NKS board.

Do you have suggestions for a nuclear safety or radiation protection related activity? Contact us via www.nks.org

Financing of NKS activities

NKS is mainly financed by Nordic authorities, with additional contributions from Nordic organizations that have an interest in nuclear safety. The budget for NKS in 2013 exceeded 9 million Danish kroner (€ 1.2 million). In addition to the funding sought from NKS, participating organizations are asked to provide a similar amount of in-kind contributions. This may take the form of working hours, travel expenses or laboratory resources. Without these in-kind contributions it would not be possible to carry out NKS activities.

Main financiers

- Danish Emergency Management Agency
- Ministry of Employment and the Economy, Finland
- Icelandic Radiation Safety Authority
- Norwegian Radiation Protection Authority
- Swedish Radiation Safety Authority

Co-financiers

- Fennovoima Oy, Finland
- Fortum Power and Heat Ltd, Finland
- TVO, Finland
- Institute for Energy Technology (IFE), Norway
- Forsmark Kraftgrupp AB, Sweden
- OKG AB, Sweden
- Ringhals AB, Sweden

The NKS website

On the NKS website (www.nks.org) information is available on funding opportunities, travel support for young scientists, current activities and upcoming seminars. Presentations from seminars held are available for download as are reports from all completed NKS activities. It is also possible to discover more information on NKS and the history of Nordic co-operation in nuclear safety. You can also reach the NKS website using the QR code.



How to apply for NKS funding



NKS email list

NKS sends out newsflashes and newsletters throughout the year providing information on call for proposals, upcoming seminars and published reports. If you wish to join the NKS email list please sign up at www.nks.org or scan the QR code.



NKS Mobile Reports

All NKS reports from all completed activities can be reached conveniently also with your mobile devices at mobile.nks.org or simply by scanning the QR code.



Contact

If you wish to learn more about NKS and NKS activities visit our website or contact the NKS secretariat.

nks@nks.org

Telephone +45 4677 4041

NKS Secretariat

P.O. Box 49

DK-4000 Roskilde, Denmark

Karin Andgren, NKS-R programme manager

Kasper Grann Andersson, NKS-B programme manager

Sigurður M Magnússon, NKS chairman

Finn Physant, NKS secretariat

nks

Nordic nuclear safety research

Reactor tank with fuel at Ringhals nuclear power plant, reactor 1.
Photo: Börje Försäter

