The NKS website

On the NKS website 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. www.nks.org

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 contact the NKS secretariat. nks@nks.org

NKS DVD

NKS has produced a fully searchable DVD with reports from all activities completed between 1981 and 2009. Order a free copy from the NKS secretariat nks@nks.org

Contact

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

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Nordic nuclear safety research

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Decommissioning Risø's research reactor 2, Danish Decommissioning

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Nordic nuclear safety research

DENMARK FINLAND ICELAND NORWAY SWEDEN

Our nuclear environment

There is a common Nordic interest to co-operate in the field of nuclear safety since there are nuclear facilities within the Nordic countries as well as in neighbouring countries that include nuclear power plants, research reactors, fuel manufacturing facilities and waste depositories.

Nordic solutions for Nordic problems

A Nordic utility, authority or laboratory needs to solve a problem concerning nuclear safety. Is the issue common to other Nordic countries? Can colleagues in other Nordic countries contribute to the solution? If the answer is yes, you could apply for funding from NKS (Nordic nuclear safety research) to start an activity to help find a solution to the problem.

Between neighbours

Through Nordic co-operation, problems can be tackled quicker and cheaper than if each Nordic country were to find its own solutions and without the difficulties that large international projects can sometimes bring. Problems are identified, solutions are developed and thereafter results are presented and ready to use.

NKS activities give the answers

For over fifty years of Nordic co-operation in nuclear safety, hundreds of engineers, researchers and authority representatives have gathered in research projects, seminars and other activities. Common to all NKS activities is that the results should be beneficial and made available to concerned end users in all Nordic countries.

Gathered competence for tailor made results

NKS is a platform for improving Nordic competence within nuclear safety, radiation protection and nuclear emergency preparedness. Just as importantly, NKS plays a role in establishing informal networks between Nordic counterparts. Through such actions, solutions based on identified needs can be used in decision making processes by ministries, authorities and power companies.

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
- Reactor physics
- Risk analysis & probabilistic methods
- Organisational issues and safety culture
- Decommissioning, including decommissioning waste
- Plant life management and extension

NKS-B programme:

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

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Nordic nuclear safety research

Some recent examples of NKS activities

- **Development of guidelines for reliability analysis of digital systems**
  Digital protection and control systems are appearing as upgrades in older nuclear power plants and are commonplace in new plants. To assess the risk of nuclear power plant operation and to determine the risk impact of digital systems, there is a need to quantitatively assess the reliability of the digital systems in a justifiable manner. Practical guidelines for analysis and modelling of digital systems in probabilistic safety assessment for nuclear power plants are developed in this activity. (NKS-R DIGREL)

- **Experimental and numerical studies on suppression pool issues**
  Rapid steam condensation processes in boiling water reactor suppression pools are modelled, using both experimental and computational methods. Experiments are conducted in a test facility using the latest measurement technology such as particle image velocimetry and a modern high speed camera. The goal is to produce high quality measurement data which is used for development and validation of simulation tools. (NKS-R ENPOOL)

- **In-vivo whole body measurement of internal radioactivity**
  The activity was aimed at harmonising the calibrations of whole body measurement equipment in the Nordic region and to evaluate the quality status of measurements by means of a proficiency test exercise. The exercise consisted in determining the activity of a phantom filled with certified radioactive material, homogeneously distributed inside the phantom (NKS-B PIANOLIB).

- **Radiochemical analysis for nuclear waste management in decommissioning**
  An effort has been made to maintain and improve the Nordic competence in analysis of radionculides in decommissioning waste samples. New and more sensitive methods have been developed for various radionuclides, employing, e.g., liquid scintillation counters and mass spectrometry based equipment (NKS-B Radwaste).

How to apply

Nordic companies, authorities, organisations 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 an idea for a nuclear safety related activity? Contact us at nks@nks.org

Financing of NKS activities

NKS is mainly financed by Nordic authorities, with additional contributions from Nordic organisations that have an interest in nuclear safety. The budget for NKS in 2012 was approximately more than 8 million Danish kroner (€ 1.1 million). In addition to the funding sought from NKS, participating organisations are asked to provide a similar amount of in-kind contributions. This may take the form of working hours, travelling time 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
- Nuclear Training and Safety Centre AB (KSU), Sweden
- OKG AB, Sweden
- Ringhals AB, Sweden