

NKS-R Call for Proposals 2014

17 proposals for NKS-R activities were received before the deadline on October 14th. Of these, 8 were applications for continuation of ongoing activities.

The numbers of proposals submitted under the NKS-R areas of interest are as follows:

Area of Interest	No. of Proposals	Total budget for proposals under area of interest
Risk Analysis	5	3100 kDKK
Organisation and Safety Culture	4	1403 kDKK
Thermal Hydraulics	3	2272 kDKK
Severe Accidents	3	1300 kDKK
Plant Life Management	2	900.25 kDKK

The total amount requested was **8975.25 kDKK** from an expected budget of **3750 kDKK**.

NKS-B Call for Proposals 2014

18 proposals for NKS-B activities were received before the deadline on October 14th. Of these, 1 was an application for continuation of an ongoing activity.

The numbers of proposals submitted under the NKS-B areas of interest are as follows:

Area of Interest	No. of Proposals	Total budget for proposals under area of interest
Emergency Preparedness	7	2663 kDKK
Measurement Technology and Strategy	6	2630 kDKK
Radioecological Assessments	4	2273 kDKK
Waste and Discharges	1	610 kDKK

The total amount requested was **8176 kDKK** from an expected budget of **3750 kDKK**.

Peer-reviewed NKS paper in Radiation Regulator

The second of three papers informing on NKS activities has been published in the 3rd issue of the new free international e-journal 'Radiation Regulator', and is now available on the journal website (members area) <http://www.radiationregulator.net>. To see this you have to register free of charge (<http://www.radiationregulator.net/register.html>). This paper focuses on the activities of the R programme.

Recent Seminars

NKS-R DIGREL 2013

Seminar on reliability analysis of digital systems in PSA context

26th November 2013, VTT Digitalo, Espoo Finland

In 2007, the OECD/NEA CSNI directed the Working Group on Risk Assessment (WGRisk) to set up a task group (TG) to coordinate an activity on digital instrumentation and control (DIC) system risk. One of the recommendations was to develop a taxonomy of hardware and software failure modes of digital components for the purpose of probabilistic safety assessment (PSA). A new WGRisk TG was set up in 2010 to develop best practice guidelines on failure modes taxonomy for reliability assessment of digital I&C systems for PSA. This activity is supported by a parallel Nordic research project financed by NKS, Nordic PSA Group and the Finnish nuclear safety research programme SAFIR. The project will develop a technically sound and feasible failure mode taxonomy and best practice guidelines on the use of the taxonomy in modelling, data collection and quantification of digital I&C system reliability. In 2013, one of the focus areas has been the software reliability quantification.

In the NKS-R DIGREL seminar, results of the DIGREL task were presented to the Nordic end users. Previous years' work has been published in the NKS report series [NKS-230](#), [NKS-261](#) and [NKS-277](#).

For more information contact the hosts: tero.tyrvainen@vtt.fi (phone +358 40 7760841) or jan-erik.holmberg@riskpilot.se (phone +358 40 827 665) .

NKS-R Decommissioning Seminar 2013

A Nordic seminar on decommissioning of nuclear facilities

6-7th November in Halden, Norway

The previous NKS seminar on decommissioning was held at Studsvik in 2010. Since then there has been high activity in the field of decommissioning nuclear facilities and an influx of new people to the field. The new seminar provided an excellent opportunity to meet colleagues and exchange experiences from completed and on-going decommissioning projects as well as discuss the future.

The objectives of the seminar were:

- To survey international and national regulations, recommendations and guidelines for the decommissioning of nuclear facilities.
- To exchange experience in the field of nuclear decommissioning from both completed and on-going projects, as well as the latest research and development efforts.
- To identify gaps in current practice and regulation, and define key areas for future research and development.
- To gather and disseminate knowledge in decommissioning, clearance and disposal of waste from decommissioning projects.

The seminar was organized by Institutt for energiteknikk (IFE), Dansk Dekommissionering, Fortum, ndcon and Statens strålevern. More information is available on the seminar homepage: <http://projects.hrp.no/nks-decom-2013/>

Contact person is [Niels-Kristian Mark](#).

NKS-R EXAM HRA Project seminar

Evaluation of Existing Applications and Guidance on Methods for Human Reliability analysis

31 October, 2013, Stockholm, Radisson Blu Sky City Hotel, Arlanda airport

October 31, 2013, a project seminar was arranged to report the on-going work within EXAM-HRA phase 3a (2013). The phase 3a seminar focused on project results and the decision if the work shall continue with phase 3b (2014).

EXAM-HRA is a Nordic, German and Swiss project which assesses human reliability analysis (HRA) applications in existing probabilistic safety analysis (PSA) studies. The overall project objective is to provide guidance for a state of the art HRA for purposes of PSA, to ensure that plant specific properties are properly taken into consideration in the analysis. This shall also provide means to improve the experience feedback on plant features based on HRA and PSA results. The project is performed in several consecutive phases.

The on-going 3rd phase shall maintain and extend the assessments of existing HRA application and continue the analysis to provide interpretation of important plant features and identify good operational practices. Phase 3 shall provide an overview of the assessments done by developing guidance on scope of HRA applications and choice of methods for HRA applications.

For further information please contact Gunnar Johansson (gunnar.johansson@eskonsult.se).

NKS-B GammaTest 2013

A series of linked workshops on gamma spectrometry

17-19 September, 2013, FOI, Umeå, Sweden

A new series of workshops for users of gamma spectrometry was held 17th-19th September 2013 at FOI Umeå, Sweden.

The purpose of the GammaTest (as for the earlier GammaSems and GammaWorkshops) was to enable the users to address the problems in gamma spectrometry they find most pressing, through lectures and practical exercises in addition to sharing their experience with others in a similar position. The main topics at this year's workshops were:

-Intercomparisons on 1) soil sample(s); 2) sample spectra; and 3) on peak identification in complicated spectra. The results of the intercomparisons seem helpful in identifying current shortcomings.

In addition, there were:

- One invited lecturer (Professor Octavian Sima, Physics Department University of Bucharest),
- Practical exercise(s) on 'complicated' spectra,
- Lessons learned from the intercomparison(s),
- Possibilities for participants to share their experiences in the implementation of e.g. coincidence summing correction and self-absorption correction.

The arrangement group consisted of: Elisabeth Strålberg (IFE), Sigurður Emil Pálsson (IRSA), Henrik Ramebäck (FOI), Sven P. Nielsen (DTU) and Seppo Klemola (STUK). Further information, including the detailed agenda and links to technical background material is available on the *GammaWiki* web site: <https://www.gr.is/wiki/GammaWiki>. Activity leader was Henrik Ramebäck (henrik.ramebeck@foi.se).

NKS-B Radioanalysis

Workshop on Radioanalytical Chemistry

2-6 September, 2013, Roskilde, Denmark

This was the 2nd Nordic Workshop on Radioanalytical Chemistry following the 1st workshop held Nov. 2009 in Roskilde, Denmark. The workshop was organised by the Technical University of Denmark, in collaboration with University of Helsinki; Norwegian University of Life Sciences, Royal Institute of Technology, and Swedish Radiation Safety Authority; supported by Nordic Nuclear Safety Research (NKS).

The objectives of this workshop were:

- 1) To provide the participants with an overview of radiochemical analytical methods for determination of various radionuclides (mainly beta and alpha emitting) relevant to environmental radioactivity and waste management
- 2) To provide an opportunity to the participants getting knowledge and practical (hands-on) experience of state-of-the-art measurement techniques used for the determination of different radionuclides by participating in practical training in the laboratory (experimental demonstration and analysis of real samples)

3) To provide a forum for knowledge exchange of analysis of various radionuclides and discussion of present radiochemical procedures for individual radionuclides.

The workshop aimed to strengthen the education of MSc/PhD students and young scientists in radiochemical analysis for environmental radioactivity, radiation monitoring, waste management, decommissioning of nuclear facilities, and other relevant areas, and to increase competence of staff involved in radiochemical separation and determination of radionuclides.

The workshop included two parts:

- 1) Invited lectures and presentations of the participants (for 2 days);
- 2) Laboratory training/practice (for 3 days).

A total of 8 invited lectures were given by experienced senior researchers from all over the world in the field of radiochemistry and radioecology. A total of 27 oral presentations and a handful of poster presentations were given. The participants could participate in all lectures/presentations, and 2 of 3 laboratory practices.

The three laboratory practices were:

- (1) Radiochemical separation of Pu and ICP-MS measurement of Pu isotopes;
- (2) Radiochemical separation of ^{210}Po and ^{226}Ra and their alpha spectrometry measurement.
- (3) Radiochemical separation of ^{55}Fe , ^{63}Ni , ^{90}Sr and their LSC measurement.

The workshop programme and abstracts have been published as a NKS report (with ISBN number).

Organizers were:

Prof. Xiaolin Hou (xiho@dtu.dk)

Dr. Sven P. Nielsen (spni@dtu.dk)

Prof. Jukka Lehto (jukka.lehto@helsinki.fi)

Prof. Mats Jonsson (mats@kth.se)

Dr. Lindis Skipperud (lindis.skipperud@umb.no)

Dr. Mats Eriksson (Mats.Eriksson@ssm.se)

NKS-B EmSem/NordEx-12

A seminar following up the experience of the Swedish REFOX exercise (2012) and other recent Nordic exercises - Lessons learned and the way forward

27-29 August 2013, Hotel Park Inn, Solna Centrum, Stockholm, Sweden

Nordic authorities and research institutes within the field of radiation safety, radiation research and emergency preparedness were invited to participate in EmSem. The seminar discussed and followed up experiences from the Radiological Emergency Field Operative Exercise, REFOX 2012, and other recent exercises in the Nordic countries (NKS activity NordEx-12). The objectives of EmSem were to:

1. Recapitulate and describe major parts of the REFOX 2012 exercise and encouraging participants to present their experiences, equipment, methods, measurement results and conclusions. The intention is to produce a comprehensive report from the exercise.
2. Present and discuss experiences from the NKS-B activity NordEx-12.
3. Collect ideas and discuss the way forward, thereby identifying needs and ways for future research and development of methods, experimental procedures, exercises, education and training, some of which might lead to future Nordic cooperation and perhaps NKS activities. A number of concrete suggestions for future activities were identified and will hopefully lead to new NKS-B activities in the future.

The NKS EmSem project was led by Sigurður Emil Pálsson, formerly of Icelandic Radiation Safety Authority, Iceland and organized in cooperation with the Swedish Radiation Safety Authority (SSM) and the Department of Medical Radiation Physics, Lund University.

Contact person: Robert.Finck@ssm.se.

NKS-B NOVE

Seminar on neutron detection in the Nordic countries at present and in the future

13-16 May 2013, Geislavarnir Ríkisins, Reykjavík, Iceland

Participants gave an overview on their operational neutron detection capabilities. Preliminary results of tests performed with novel technologies were also presented. An upcoming laboratory intercomparison of detection methods is planned during the seminar. The two-day seminar was preceded by two days of measurements in Iceland. Measurements in the Icelandic low background radiation environment were performed and the so called ship effect was studied. The latter was performed in co-operation with the Icelandic Coast Guard.

The participating organizations were:

Finnish Radiation and Nuclear Safety Authority, STUK

Icelandic Radiation Safety Authority, GR

University of Lund, Sweden

Norwegian Radiation Protection Authority, NRPA

Icelandic Coast Guard (participation on one measurement day)

Contact persons:

Sigurður Emil Pálsson (sep@gr.is) and Kari Peräjärvi (kari.perajarvi@stuk.fi)

New Publications

The following NKS-R report is available free of charge: Download by clicking the appropriate link.

NKS-293	Oct. 2013	Michael Knochenhauer, Vidar Hedtjärn Swaling, Francesco Di Dedda, Frida Hansson, Stina Sjökvist, Klas Sunnegård: Using Bayesian Belief Network (BBN) Modelling for Rapid Source Term Prediction – Final Report	RASTEP	View document
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The following NKS-B reports are available free of charge: Download by clicking the appropriate link.

NKS-292	Oct. 2013	Xiaolin Hou (ed.): NKS Workshop on Radioanalytical Chemistry - Final report	RADIOANALYSIS	View document
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NKS-294	Dec. 2013	Tuukka Turtiainen, Minna Brunfeldt, Tiina Rasilainen, Lindis Skipperud, Lene Valle, Jelena Mrdakovic Popic, Per Roos, Synnöve Sundell-Bergman, Klas Rosén, Robert Weimer: Doses from natural radioactivity in wild mushrooms and berries to the Nordic population	BERMUDA	View document
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NKS-295	Dec. 2013	Henrik Ramebäck (ed), Elisabeth Strålberg, Óskar Halldórsson Holm, Sigurður Emil Pálsson, Seppo Klemola, Sven P. Nielsen: GammaTest 2013 Proceedings	GAMMA-TEST	View document
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