



Nordisk kernesikkerhedsforskning  
Norrcænar kjarnöryggisrannsóknir  
Pohjoismainen ydinturvallisuustutkimus  
Nordisk kjernesikkerhetsforskning  
Nordisk kärnsäkerhetsforskning  
Nordic nuclear safety research

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## **NKS-B Status Report**

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## Status summary

Overall the work in NKS-B is progressing well. Since the last NKS-B status report was made to the NKS-Board in January 2014, 4 new final reports from completed NKS-B activities have been published on the NKS website. All of the delayed NKS-B activities that commenced prior to 2012 are completed. One activity from 2012 (PUBPLUME) is still delayed. All of the 7 NKS-B activities commencing in 2013 have been completed. Of the 12 NKS-B activities that started in 2014, contracts have been agreed and signed with all. Activities that started in 2014 are all currently on schedule.

## NKS-B reports

The following NKS-B reports have been published on the NKS website since the last NKS-Board meeting.

### NOVE

P.Holm et al.

Novel neutron detection methods for nuclear security

### THYROID

A. Nyander Poulsen et al.

Assessment of accidental uptake of iodine-131 in emergency situations

### EMSEM

S.E. Pálsson et al.

Nordic sharing of experience from radiation emergency preparedness exercises

### COSEMA

M. Iosjpe et al.

Consequences of severe radioactive releases to Nordic Marine environment

### MUD

J. Havskov Sørensen et al.

Meteorological uncertainty of atmospheric dispersion model results MUD. Final report of the NKS-B MUD activity

## NKS-B activities from 2012 (January)

### **PUBPLUME**

Preparedness Organization at Nuclear Power Plants in the Nordic countries

Activity Leader: Jan Erik Dyve (NRPA)

NKS-B funding: **150 kDKK**

Milestones defined in contract:

1. Workshop/meeting
2. Final report

### Status

Videoconferences were held late in 2012 for coordination of national efforts for the final report (minutes received). Due to heavy work load up to a big international exercise on 14 March 2013, the final report was first delayed until 1<sup>st</sup> of June 2013. By the end of May 2013, it became apparent that the activity leader would not be able to deliver the final report at the agreed time, and a new revised time plan was agreed on, according to which the activity would be finalised by the 1<sup>st</sup> of November 2013. The activity leader was consulted up to this deadline, but explained that he had been busy with other, internal tasks in the autumn. However, he said that not very much was missing, but he would also like to include a newly approved 'Flagbook' for the acute phase. The new agreed revised plan was to produce the final report by the end of 2013. A rough draft version was delivered by this time, and commented on. It seems the activity leader has had difficulties – also in the spring of 2014 – getting contributions from partners to the report. He says he shares our concern and has decided to finish the work with internal resources instead. He says he has scheduled work with the report up to the Board meeting.

## **NKS-B activities from 2014 (January)**

### **NORCON**

Nordic nuclear accident consequence analysis  
Activity leader: Mark Dowdall (NRPA)

NKS-B funding: **600 kDKK**

Milestones defined in contract:

1. Kick-off meeting
2. Source term derivation - report
3. Dispersion and transport – report
4. Mid term meeting and final report of 1<sup>st</sup> year of the activity

### Status

Contract signed. Kick off meeting held and partner roles agreed. The work will focus on a German reactor and Ringhals. Progress on schedule.

### **FAUNA**

Fukushima accident: Uncertainty of atmospheric dispersion modelling  
Activity leader: Jan Havskov Sørensen (DMI)

NKS-B funding: **260 kDKK**

Milestones defined in contract:

1. Kick-off meeting
2. Literature study on source term estimates and atmospheric dispersion regarding the Fukushima Daiichi accident. The source term will be selected from this study for use by the atmospheric models.
3. HIRLAM meteorological forecast model ensembles generated for Japan and surroundings for the period covering the main atmospheric release of radionuclides from the accident. Corresponding meteorological analyses carried out for the periods of concern.

4. Status meeting
5. Selection of scenarios for which the atmospheric dispersion models will be applied, employing the meteorological ensembles, and uncertainty estimates will be derived.
6. Final report

### **Status**

Contract signed. Progress on schedule. Kick-off meeting held, to agree on who does what and when. Minutes received. At the 2014 MetNet meeting, both the FAUNA activity and results from the MUD activity were presented. MetNet started as an NKS-B activity, and has since then continued as an activity in the Nordic Meteorological collaboration NordMet.

### **NORMIN**

NORM related mining in the Nordic countries: Legislation, practices and case studies  
Activity leader: Dina Solatie (STUK)

NKS-B funding: **450 kDKK**

Milestones defined in contract:

1. Literature review, summer 2014.
2. Environmental sampling, summer 2014
3. Sample analysis, autumn 2014
4. Sampling and analysis results, Final report by end of 2014

### **Status**

Contract signed. Progress on schedule.

### **MOBELRAD**

Mobile measurement: Field exercise in fallout mapping in the Belarussian exclusion zone  
Activity leader: Mark Dowdall (NRPA)

NKS-B funding: **510 kDKK**

Milestones defined in contract:

1. Complete list of team members from each partner
2. Production of information material for the participants covering practicalities etc. Provision of technical information as to what equipment will be transported etc. for each team.
3. All visas, permits and such to be in place for all teams
4. Exercise and workshop in Belarus
5. Production of final report on the exercise
6. Production and submission of peer reviewed paper on the exercise

### **Status**

Contract signed. Activity leader was early in 2014 strongly advised by Belarussian contacts to postpone the expedition to Belarus until the political situation involving the Ukraine, EU, Russia and the United States improves. A new signal from the activity leader is 'The situation remains unclear but in the absence of a drastic worsening of the situation, I am assuming it will go ahead.

**GAMMAUSER 2014**

Workshop for users of gamma spectrometry

Activity leader: Òskar Halldórsson Holm (IRSA)

NKS-B funding: **370 kDKK**

Milestones defined in contract:

1. Planning meeting in March
2. First announcement of seminar /intercomparison in March/April
3. Seminar held in the late summer/early fall of 2014
4. Final report delivered in December 2014

**Status**

Contract signed. Planning meeting held (minutes received). Seminar announced in NewsFlash and on NKS website. Seminar will take place in Helsinki on 7-8 October 2014. Progress on schedule.

**NOVE (continued)**

Novel neutron detection methods for nuclear security – dynamic testing

Activity leader: Kari Peräjärvi (STUK)

NKS-B funding: **330 kDKK**

Milestones defined in contract:

1. Preliminary local testing, e.g., local preparations for the dynamic intercomparison measurements to be organized at the Finnish Radiation and Nuclear Safety Authority, STUK.
2. Dynamic neutron intercomparison measurements at STUK using well characterised Cf-252 and Am/Be sources.
3. Seminar at the NRPA: ‘Outcome of the intercomparison measurements at STUK’.
4. Report on the intercomparison measurements and conclusions. Minutes of the seminar will be attached to the final report as appendix.

**Status**

Contract signed. Progress on schedule. The dynamic measurements exercise will be held at STUK in September/October (over a two weeks period). The seminar in Norway is scheduled for November. Since the work will produce some results that are too sensitive for public disclosure (or reporting), participation in the seminar will be by invitation only and thus not announced through the normal channels. Of course all Nordic authorities are welcome.

**RAPID-TECH**

Application of rapid and automated techniques in radiochemical analysis

Activity leader: Jixin Qiao (DTU)

NKS-B funding: **350 kDKK**

Milestones defined in contract:

1. Kick-off meeting and planning.
2. Exchange experiences and summarise challenges.
3. Experimental device and material purchase

4. Summarise experimental experience and progress
5. Final report of first year

### **Status**

Contract signed. Progress on schedule.

### **THYROIDSEM**

Seminar: Assessment of accidental uptake of radioiodine in emergency situations

Activity leader: Asser Poulsen / Henrik Roed (NIRP/SIS)

NKS-B funding: **230 kDKK**

Milestones defined in contract:

1. Invitation of speakers and relevant stakeholders.
2. Distribution and collection of data from questionnaires
3. Seminar day with invited speakers, discussion on THYROID report results, questionnaire outline
4. Proceedings of the seminar

### **Status**

Contract signed. Initial planning work done. The seminar will take place in Copenhagen on the 29<sup>th</sup> of September 2014. Seminar announcement in NewsFlash and on NKS website is imminent. Progress on schedule.

### **SEMUNARS**

Seminar on unmanned radiometric systems

Activity leader: Magnus Gårdestig (Linköping Univ.)

NKS-B funding: **200 kDKK**

Milestones defined in contract:

1. First call for participants
2. Second call for participants
3. Deadline for abstracts and registration, September
4. The seminar, October, organised by LiU with support from STUK and NRPA
5. Seminar report, December, jointly edited by LiU, STUK and NRPA

### **Status**

Contract signed. Progress on schedule. Seminar announced twice in NewsFlash and on NKS website. Seminar will take place in Linköping on 2-3 October, 2014.

### **STANDMETHOD**

Seminar: Standardisation of radioanalytical methods for determination of important radionuclides for environmental assessment and waste management in Nordic nuclear industry

Activity leader: Xiaolin Hou (DTU)

NKS-B funding: **350 kDKK**

Milestones defined in contract:

1. Initial project meeting
2. Evaluation of the present methods used in the Nordic labs
3. Intercomparison of radioanalytical methods for determination of Ni-63 in water samples
4. Establishment of Nordic network in radioanalysis
5. Project meeting for evaluation of intercomparison results
6. Journal article on present status of radioanalysis in Nordic countries
7. Final report

### **Status**

Contract signed. Progress on schedule. Kick-off telephone meeting held on 27 March (minutes received). A sample intercomparison is being organised.

### **CONCORE**

Characterisation of NORM contaminated objects: reliable and efficient  
Activity leader: Charlotte Nielsen (NIRP/SIS)

NKS-B funding: **400 kDKK**

Milestones defined in contract:

1. Initial project meeting. April 2014
2. All samples retrieved. April 2014.
3. Analytical start-up. April 2014
4. Second project meeting: presentation and discussion of results, Sept. 2014
5. Public Nordic NORM guidance. Existing guide revised in accordance with project results, Dec. 2014
6. Communication plan for oil/gas industry established (to be communicated to all relevant stakeholders during 2015), Dec. 2014
7. Final report, Dec. 2014

### **Status**

Contract signed. Progress essentially on schedule. Contaminated pipes were delivered somewhat late, but this slight delay will be overcome over summer.

### **EFMARE**

Effects of dynamic behaviour of Nordic marine environment to radioecological assessments  
Activity leader: Mikhail Iosjpe (NRPA)

NKS-B funding: **450 kDKK**

Milestones defined in contract:

1. Work report on development and implementation of a modelling approach and computer code for description of the ingestion of selected radionuclides by marine organisms
2. Work report on testing of the modelling approach from stage 1 on the basis of the hypothetical severe nuclear NPP and submarine reactor cases, analysed in the previous COSEMA activity of the NKS-B research program for the Baltic Sea, the Iceland and Faroese coastal waters.
3. Final report with contributions from all partners

### **Status**

Contract signed. Kick-off meeting held in Oslo, 17-18 March 2014. Progress on schedule.