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

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 2015, 4 new final reports from completed NKS-B activities have been published on the NKS website. All NKS-B activities that commenced prior to 2014 are completed. Of the 12 activities starting in 2014, 10 have been completed, and 2 are expected to be nearing completion. Of the 10 NKS-B activities that started in 2015, contracts have been agreed and signed with all. Activities that started in 2015 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.

CONCORE
K. Breddam et al.
Characterisation of NORM Contaminated Objects: Reliable & Efficient

RAPID-TECH
J. Qiao et al.
Application of Rapid and Automated Techniques in Radiochemical Analysis

SEMUNARS
M. Gårdestig et al.
SemUnaRS – Seminar on Unmanned Radiometric Systems

STANDMETHOD
X. Hou et al.
Progress on Standardization of Radioanalytical Methods for determination of important radionuclides for environmental assessment and waste management in Nordic nuclear industry

NKS-B activities from 2014 (January)

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. The delay was caused by the coordinator's unforeseeable private problem. The above milestones have been covered, except final reporting, which is imminent.

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. A comprehensive literature study has resulted in long draft reports, which have circulated among activity participants. Since the activity leader has been assigned with new tasks at STUK from the beginning of 2015, she has had little opportunity to finalise the work, but has agreed to a revised deadline of 10th of June 2015.

NKS-B activities from 2015 (January)

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

NKS-B funding: **345 kDKK**

Milestones defined in contract:
1. Kick-off meeting
2. Select Fukushima source term and generate source files
3. Apply the dispersion models to the selected source term employing the meteorological ensemble data produced in 2014 for the first phase of FAUNA.
4. Apply the methodology for calculating and presenting uncertainties developed in the NKS-B activity MUD
5. Prepare the numerical results of FAUNA in a format which facilitates import in the ARGOS DSS, which will thereby host a demonstration of the FAUNA results.
6. Investigate implications of the uncertainty estimates for decision support

7. Organize an NKS workshop on the use of uncertainty estimates for decision making during a nuclear emergency
8. Report of the results of FAUNA as an NKS report and in a peer-reviewed scientific journal.

Status
Contract signed. The activity has been delayed a bit due to the coordinator's private problem this spring, but is now on schedule, and a workshop organisation committee is currently preparing an announcement of the workshop and establishing the list of persons to invite. An overall schedule for who does what in the activity has been agreed on. The activity leader has been prompted for information to announce the seminar.

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

NKS-B funding: **544 kDKK**

Milestones defined in contract:
1. Meeting February 2015
2. Meeting July 2015
3. Final report December 2015

Status
Contract signed. Progress on schedule.

STANDMETHOD (continued)
Standarisation 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: **317 kDKK**

Milestones defined in contract:
1. Project meeting Feb 2015
2. Intercomparison of radioanalytical methods for water samples.
3. Establishment of standard method for Ni-63 determination in waste, Aug. – Nov. 2015.
4. Establishment of a recommended method for simultaneous determination of Fe-55 and Ni-63 in waste samples, April-Sept. 2015.
5. Evaluation and proposal of a combined procedure for determination of multi-radionuclides in waste samples, April-Nov. 2015.
6. Project meeting for evaluation of the project progress and intercomparison results, Nov. 2015
7. Final report, Dec. 2015.

Status
Contract signed. Progress on schedule.

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

NKS-B funding: **408 kDKK**

Milestones defined in contract:

1. Analysis of consequences of hypothetical NPP and submarine reactor accidents in coastal Nordic marine environment on the basis of models improvement by more detailed modelling of the key processes for radioecological assessment.
2. Final report with contributions from all partners.

Status
Contract signed. Kick-off meeting held in Copenhagen 16/3 2015. Progress on schedule.

GAMFAC
Advanced in-situ gamma spectrometry field activity - Chernobyl
Activity leader: Mark Dowdall (NRPA)

NKS-B funding: **417 kDKK**

Milestones defined in contract:

1. Establishment and signing of contracts with Belarus - March 2015
2. Dissemination of preparatory information and practical information – final participant lists – April 2015.
3. Invitation letters and permit in place – June 2015.
4. Necessary visas obtained by all teams – August 2015.
5. Preparatory work ncomplete in Belarus – August 2015.
6. GAMFAC activity – Sep. / Oct. 2015.
7. Final report – December 2015.

Status
Contract signed. Progress on schedule.

RAPID-TECH (continued)
Application of rapid and automated techniques in radiochemical analysis
Activity leader: Jixin Qiao (DTU)

NKS-B funding: **317 kDKK**

Milestones defined in contract:

1. Meetings and planning
2. Sample preparation and distribution for inter-comparison
3. Performance of inter-comparison and inter-exchange exercises
4. Results evaluation and summary
5. Final report

Status
Contract signed. Progress on schedule.

NORCOP-COAST
Nuclear icebreaker traffic and transport of radioactive materials along the Nordic coastline: response systems and cooperation to handle accidents.
Activity leader: Inger M. Eikelmann / Anna Nalbandyan (NRPA)

NKS-B funding: **145 kDKK**

Milestones defined in contract:
1. Preparations to the workshop. Feb. – May 2015. Each project partner will prepare a country overview on emergency preparedness systems, laws and capabilities in their country with regards for accident types mentioned in the project description. Partners jointly will prepare workshop program
2. Workshop: a 2-day workshop in Tromsø, Norway. Each partner will hold presentations and participate on joint discussions.
3. Joint report preparation: Nov. – Dec. 2015. A joint report will be written that will summarise each participated country's preparedness system, results of joint discussions and trategy for further cooperation in the project area.

Status
Contract signed. Initial planning work done. Workshop date set to 13-14 October 2015. Workshop has been announced in NewsFlash and on NKS website. Progress on schedule.

IDEA
Internal dosimetry exercise for enhanced ability
Activity leader: Mats Isaksson (Gothenburg Univ.)

NKS-B funding: **181 kDKK**

Milestones defined in contract:
1. IMBA-course with participants from the Nordic countries – planning and preparations by all partners
2. Construction and distribution of scenario exercises – contributions from all partners.
3. Analysis of results and feedback to participants – contributions from all partners
4. Final report with contributions from all partners

Status
Contract signed. Progress on schedule. Course announced in NewsFlash and on NKS website. Workshop/ course held successfully on 18-19 June 2015, with about 20 participants. Focus on dose estimation. Lectures given and possibilities for 'hands-on' training using the IMBA model from PHE (UK) for internal dose estimation. Programme available on activity web page.

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

NKS-B funding: **363 kDKK**

Milestones defined in contract:
1. Third project meeting. Feb. 2015
2. All samples retrieved. April 2015.

3. Analytical start-up. April 2015
4. Fourth project meeting: presentation and discussion of results, Nov. 2015
5. Dissemination, for example, using posters and/or presentations at international meetings, Dec. 2015
6. Guideline for the characterisation of NORM and NORM contaminated equipment for operators and competent authorities, Dec. 2015
7. Final report, Dec. 2015

Status
Contract signed. Progress on schedule. Third meeting held. All needed samples received (water and tubes). Analysis in progress.

NUFORNOR
Nuclear forensics within a Nordic context
Activity leader: Ole Christian Lind (NMBU)

NKS-B funding: **363 kDKK**

Milestones defined in contract:

1. Project meeting, key focus on status in the Nordic countries and at respective participating laboratories
2. Application of some selected analytical techniques to relevant samples available in the participating laboratories
3. Seminar in Norway: 'Analytical techniques for nuclear forensics in Nordic countries with focus on novel techniques' with invited speakers.
4. Report with guidelines 'Recommended procedures and analytical techniques for specific nuclear forensic purposes in the Nordic countries'.

Status
Contract signed. Progress on schedule. Activity leader prompted for information to announce the seminar.