DRAFT

NKS(12)4
2012-05-16

Agenda for the board meeting in Copenhagen 29 May 2012

Place: Hotel Hilton, Ellehammersvej 20, DK-2770 Kastrup
Location: Orion
Time: 10:00 to 15:00

1 Opening

2 Practical remarks

- Meeting secretary.
- Information from chairman and host.

3 Approval of the agenda

4 Accounts 2011

- See distributed material: Financial Statements 2011, NKS(12)2 and Long-Form Audit Report, both dated 2012-04-24.
- Presentation by the auditor and the secretariat, discussion and decision.

5 Financial status for the current year

- See distributed material: Financial status report and financial programme specification, both dated 2012-05-14.
- Presentation, discussion.

6 Minutes of the last board meeting (Oslo, 2012-01-11)

- See draft minutes NKS(12)1 dated 2012-01-19.
- Review, discussion and decision.

7 News since last board meeting

- Report from the owners group.
- News from the board members' organisations.
- Administrative news. – "Handbook for NKS applicants and activity leaders", NKS(12)5 and update of the "NKS Administrative Handbook", NKS(12)3.

8 R-part: status

- See material from Karoliina Ekström: status report May 2012.
- Presentation by the programme manager.
- Discussion.

9 B-part: status

- See material from Kasper G. Andersson: status report May 2012.
- Presentation by the programme manager.
- Discussion.

10 Information activities

- The new website.
- Presentation by Karoliina Ekström.
- New pamphlet, NewsLetters, NewsFlashes etc.
- Discussion.

11 Fukushima seminar

- Presentation by the programme managers.
- Discussion.

12 Research activities in 2013

- Call for Proposals.
- Preliminary budget 2013.
- Funding 2013.
- Discussion, decision.

13 Next meeting

- Next meeting will be in Stockholm 8 January 2012.

14 End of meeting

The Secretariat

2012-04-24
NKS(12)2

Financial statements

for

The Nordic Nuclear Safety Research Programme
NKS Secretariat

2011

24 April 2012
Finn Physant
FRIT

Statement by Management

Today the NKS Secretariat and Group of Owners have discussed and approved the annual report of The Nordic Nuclear Safety Research Programme (in the following referred to as 'NKS') for the financial year 1 January 2011 - 31 December 2011.

In our opinion, the financial statements provide a true and accurate picture of the organisation's assets, liabilities and equity, financial position as at 31 December 2011 and the results of the organisation's activities for the financial year 1 January 2011 - 31 December 2011.

In our opinion, the management's review includes a fair review of the matters dealt with in the management review.

We recommend the financial statement for approval by the Group of Owners.

Roskilde, 24 April, 2012

NKS Secretariat:

Finn Physant

Copenhagen, 29 May 2012

Group of Owners:

Sigurður M. Magnússon
Chairman

Steen Cordt Hoe

Jorma Aurela

Ole Harbitz

Lars Gunsell

Independent Auditors' Report

To the group of owners of NKS

Report on the Financial Statements

We have audited the financial statements of NKS for the financial year 1 January to 31 December 2011, which comprise income statement, balance sheet and notes, including Financial Programme Specifikation. The financial statements are prepared in accordance with the agreements and generally accepted practices.

Management's responsibility for the financial statements

The Management is responsible for the preparation of financial statements that give a true and fair view in accordance with the agreements and generally accepted practices and for such internal control as the Management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error, and selecting and applying an adequate accounting policies and the making of accounting estimates which are reasonable under the circumstances.

In addition, Management is responsible for the transactions covered by the financial statements are consistant with the contribution, laws and other regulations, agreements and generally accepted practices.

Auditor's responsibility and basis of opinion

Our responsibility is to express an opinion on the financial statements based on our audit. We conducted our audit in accordance with International Standards on Auditing and additional requirements under Danish Audit regulation as well as the public accepted auditing standards. This requires that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatements of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to NKS's preparation of financial statements that give a true and fair view. In order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of NKS's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the Management, as well as the overall presentation of the financial statements.

The audit also involves an evaluation whether there are established procedures and internal controller that are supportive, for the transactions covered by the financial statements are consistant with the contribution, laws and other regulations, agreements and generally accepted practices.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

The audit has not resulted in any qualification.

Independent Auditors' Report

Opinion

In our opinion, the financial statements give a true and fair view of NKS's financial position at 31 December 2011 and of the results of NKS's operations for the financial year 1 January to 31 December 2011 in accordance with the agreements and generally accepted practices .

It is also our opinion that there are established procedures and internal controls that supports that the transactions are subject to the financial statements are consistent with the contributions, laws and other regulations, agreements and generally accepted practices.

Statement on the management's review

Pursuant we have read the Management's review. We have not performed any further procedures in addition to the audit of the financial statements. On this basis, it is our opinion that the information provided in the Management's review is consistent with the financial statements.

Dansk Revision Roskilde
Godkendt revisionsaktieselskab

Roskilde 24 April, 2012

Palle Sundstrøm
Partner, State-Authorised Public Accountant

Management's review

2011 has been characterised by planned work/operation of the R (Reactor Safety) - part and the B (Emergency Preparedness) - part.

At the beginning of the year, the R Part acquired a new programme manager.

In the course of 2011, the currency market for the Swedish, Norwegian and Danish currency as well as for the EURO has been relatively stable. The total currency exchange rate loss at the end of the year is at DKK 71,365/EURO 9,600.

Strålsäkerhetsmyndigheten (the Swedish Radiation Safety Authority) made an extra contribution of SEK 160,000 / EUR 17.954 in 2011.

The financial statements are presented in DKK, but the amounts are also stated in EURO in a separate Colum.

The financial statements show a profit of DKK 1.694.051 / EURO 227.873, which is consistent with decisions taken by the Board.

Subsequently, the equity as at 31 December 2011 constitutes DKK 8.140.246 / EURO 1.094.973.

In assessing the year's profit and equity as at 31 December 2011, consideration must be made of the contracts for the R Part of DKK 1,965,001 / EURO 264,319 and for the B Part of DKK 2,844,809 / EURO 382,665, which was calculated as at 31 December 2011,

It may also be indicated that NKS in accordance with programme managers' statements has received external funding of around DKK 4.64 million/ EUR 0.62 million in the form of un-charged contributions. The un-charged funding is the work performed in connection with the implementation of activities for which invoices will not be sent.

The year's interest income amounts to DKK 124,641/EURO 16,766.

Unused coordination and travel funds for programmes for the year 2010 are returned to the reserve as are unused common programme costs for a total of DKK 988.598 / EURO 132.980.

Sigurður M. Magnússon
Chairman

Income statement 2011

Income statement

				Rate
Grants and interest income				**7,4342**
Beredskabsstyrelsen DK	DKK	399.257,66	EURO	53.705,53
Arbets- och näringsministeriet FI	DKK	2.459.952,00	EURO	330.896,67
Geislavarnir ríkisins IS	DKK	172.755,12	EURO	23.237,89
Statens strålevern NO	DKK	1.191.750,00	EURO	160.306,42
Strålsäkerhetsmyndigheten SE	DKK	3.895.170,00	EURO	523.952,81
Additional funding	DKK	786.364,66	EURO	105.776,64
Distinct contribution	DKK	0,00	EURO	0,00
Interest income + other income-exch.adjustments	DKK	52.121,55	EURO	7.011,05
Total grants and interest income	**DKK**	**8.957.370,99**	**EURO**	**1.204.887,01**
Expenses				
R-Part	DKK	3.229.722,90	EURO	434.441,22
B-Part	DKK	2.720.316,67	EURO	365.919,22
Activity support	DKK	100.243,49	EURO	13.484,10
Fees	DKK	1.008.250,00	EURO	135.623,20
Common program expenses	DKK	195.975,47	EURO	26.361,34
Travels	DKK	8.811,82	EURO	1.185,31
Total expenses for the NKS programme	**DKK**	**7.263.320,35**	**EURO**	**977.014,39**
Income - Expenses	**DKK**	**1.694.050,64**	**EURO**	**227.872,62**

Balance sheet 2011

Balance sheet

Assets:				**Rate 7,4342**
Giro and bank accounts converted to DKK, Note 1				
FI-giro 800015-70837915	DKK	1.948.677,31	EURO	262.123,34
NO-giro 7874.07.06976	DKK	1.538.053,55	EURO	206.888,91
SE-giro 6 64 63-1	DKK	3.399.456,10	EURO	457.272,62
DK/IS-giro 918-9297	DKK	1.259.324,77	EURO	169.396,14
Giro account totals	DKK	8.145.511,73	EURO	1.095.681,01
Prepayment, Note 2	DKK	82.500,00	EURO	11.097,36
Total Assets	**DKK**	**8.228.011,73**	**EURO**	**1.106.778,37**

Liabilities:				
Equity:				
Retained from previous years	DKK	6.446.195,84	EURO	867.100,14
Result of this year	DKK	1.694.050,64	EURO	227.872,62
Total equity	**DKK**	**8.140.246,48**	**EURO**	**1.094.972,76**
Statement for new financial year, Note 3	DKK	87.765,25	EURO	11.805,61
Total Liabilities	**DKK**	**8.228.011,73**	**EURO**	**1.106.778,37**

Notes

Noter til regnskabet

				Rate
Note 1: Giro and bank accounts:				7,4342
FI-giro 800015-70837915				
Holding 31.01.2012	EURO	262.123,25		
Exchange equalisation		1.686.554,06		
Holding	DKK	1.948.677,31	EURO	262.123,34
NO-giro 7874.07.06976				
Holding 31.01.2012	NOK	348.351,51		
Giro deposits 31.01.2012		1.255.792,79		
Exchange equalisation		-66.090,75		
Holding	DKK	1.538.053,55	EURO	206.888,91
SE-giro 6 64 63-1:				
Holding 31.01.2012	SEK	4.075.109,21		
Exchange equalisation		-675.653,11		
Holding	DKK	3.399.456,10	EURO	457.272,62
DK/IS-giro 918-9297:				
Holding 31.01.2012	DKK	1.259.324,77		
Holding	DKK	1.259.324,77	EURO	169.396,14
I alt	**DKK**	**8.145.511,73**	**EURO**	**1.095.681,01**

Note 2: **Prepayments**
Agreement / R (12) 86 / 4 - VTT - Part 1 - Paid 31 January 2012

Note 3: **Statement for new financial year**
Contribution KSU 2012

Notes

Financial programme specification - 31 January 2012

	DKK							EURO	Rate 7,4342	
Total	Budget from 2010	Returned 2010	Budget 2011	Total budget 2011	Payments made	Contracts signed	Rest budget	Payments made	Contracts signed	Rest budget
R-Part	1.576.861	-346.861	4.200.000 1)	5.430.000	3.229.723	1.965.001	235.276	434.441	264.319	31.648
B-Part	2.992.832	-569.748	3.650.000	6.073.084	2.720.317	2.844.809	507.958	365.919	382.665	68.327
Activity support	110.000	-20.000	190.000	280.000	100.243	-10.243	190.000	13.484	-1.378	25.558
Fees	0	0	1.010.000	1.010.000	1.008.250	1.750	0	135.623	235	0
Common programme exp.	51.989	-51.989	250.000	250.000	195.976	0	54.024	26.361	0	7.267
Travels	0	0	10.000	10.000	8.812	0	1.188	1.185	0	160
Total	4.731.682	-988.598	9.310.000	13.053.084	7.263.321	4.801.317	988.446	977.014	645.842	132.959
	F_1	F_2	F_3	F	G	H_1	H_2	G	H_1	H_2

$F_1 + F_2 + F3 = F$
$F - G = H = H_1 + H_2$

1) In the budget 2011 figure of DKK 4.200.000 for the R-Part, an amount of DKK 200.000 of the B-Part's budget is included in the budget for the RASTEP activity

Notes

Detailed financial programme specification - 31 January 2012

	DKK							EURO	7,4342	
Specifikation:	Budget from 2010	Returned 2010	Budget 2011	Total budget 2011	Payments made	Contracts signed	Rest budget	Payments made	Contracts signed	Rest budget
R-Part: Common program.	153.142	-153.142	650.000	650.000	278.526	225.000	146.474	37.465	30.266	19.703
MANGAN	100.000	-100.000	0	0	0	0	0	0	0	0
Activity from 2008	1.230.000	0	3.450.000	4.680.000	2.939.999	1.740.001	0	395.469	234.054	0
CfP 2011 rest.	0	0	0	0	0	0	0	0	0	0
Travel young scientists	93.719	-93.719	100.000	100.000	11.198	0	88.802	1.506	0	11.945
B-Part: Common program.	127.433	-127.433	650.000	650.000	317.042	225.000	107.958	42.646	30.266	14.522
Preparedness	1.436.244	-250.215	650.000	1.836.029	867.500	968.529	0	116.690	130.280	0
Measurement	924.198	-27.143	1.030.000	1.927.055	880.775	1.046.280	0	118.476	140.739	0
Radioecology	441.250	-101.250	500.000	840.000	595.000	245.000	0	80.036	32.956	0
Waste	0	0	420.000	420.000	60.000	360.000	0	8.071	48.425	0
CfP 2011 rest.	0	0	300.000	300.000	0	0	300.000	0	0	40.354
Travel young scientists	63.707	-63.707	100.000	100.000	0	0	100.000	0	0	13.451
Website renewal	0	0	90.000	90.000	0	0	90.000	0	0	12.106
Fukushima	0	0	100.000	100.000	0	0	100.000	0	0	13.451
VAT support	20.000	-20.000	0	0	0	0	0	0	0	0
NKS history	90.000	0	0	90.000	90.000	0	0	12.106	0	0
NSFS 2011	0	0	0	0	10.243	-10.243	0	1.378	-1.378	0
Fee Secretariat	0	0	590.000	590.000	588.250	1.750	0	79.128	235	0
Fee Chairman incl. travels	0	0	420.000	420.000	420.000	0	0	56.496	0	0
Reports etc.	20.607	-20.607	30.000	30.000	23.149	0	6.851	3.114	0	922

Notes

Specifikation:	DKK Budget from 2010	Returned 2010	Budget 2011	Total budget 2011	Payments made	Contracts signed	Rest budget	EURO Payments made	7,4342 Contracts signed	Rest budget
Postage etc.	945	-945	10.000	10.000	11.778	0	-1.778	1.584	0	-239
Equipment	15.000	-15.000	15.000	15.000	11.863	0	3.137	1.596	0	422
Internet	8.750	-8.750	90.000	90.000	50.000	0	40.000	6.726	0	5.381
Auditing	-6.250	6.250	53.125	53.125	57.813	0	-4.688	7.777	0	-631
Information material	3.799	-3.799	30.000	30.000	15.127	0	14.873	2.035	0	2.001
Various	9.138	-9.138	21.875	21.875	26.246	0	-4.371	3.530	0	-588
Travels Chairman	0	0	0	0	0	0	0	0	0	0
Travels Secretariat	0	0	10.000	10.000	8.812	0	1.188	1.185	0	160
Diff.	0	0	0	0	-1	0	0	0	0	0
Total	4.731.682	-988.598	9.310.000	13.053.084	7.263.320	4.801.317	988.446	977.014	645.842	132.959
	F_1	F_2	F_3	F	G	H_1	H_2	G	H_1	H_2

$F_1 + F_2 + F3 = F$ $F - G = H = H_1 + H_2$

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The Nordic Nuclear Safety Research Programme (NKS)

Long-form audit report of 24 April 2012 regarding Financial Statements for 2011

Long-form audit report of 24 April 2012 regarding Financiel Statements for 2011

Contents

Long-form audit report of 24 April 2012 regarding Financiel Statements for 2011

1 Audit of the financial statements

1.1 Introduction

As the appointed auditors for The Nordic Nuclear Safety Research Programme (NKS), we have audited the financial statements for the financial year 1 January 2011 - 31 December 2011 prepared by the NKS Secretariat.

The financial statements show the following results, assets and equity:

DKK / EUR	Current year	Last year
Result for the year	1,694,051 / 227,873	582,425 / 78,132
Equity	8,140,246 / 1,094,973	6,446,196 / 864,750

1.2 Conclusion on the executed audit – auditor's report

The audit performed has not given rise to significant remarks to the financial statements.

If the financial statements are carried in the existing form and if further, significant information does not appear during management's processing, we will provide the financial statements for 2011 with an unmodified audit opinion.

The audit has not included the management's review, but we have read through the management's review. This has not given rise to remarks. On this background, it is our opinion that the information in the management's review is in accordance with the financial statements.

1.3 Scope and execution of the audit

The purpose, planning and execution of the audit, the auditor's responsibility and reporting as well as the board's responsibility have remained unchanged, which is why we refer to our letter of engagement dated 30 March 2011.

In previous year, changes have been made in the auditing standards we, as auditors, have to use in connection with the audit. Therefore, our statement will no longer be given according to the Danish auditing standards, as specified on pages 90-97 in our letter of engagement, but rather according to the international standards on quality management and audit as well as further requirements according to Danish auditor legislation. This change is not of fundamental importance to our work given that the previous Danish auditing standards were based on the international standards on quality management and auditing at that time as well as further requirements according to Danish auditor legislation.

As preparation for the audit of the financial statements for 2011, we have discussed the expectations to the financial development for 2011 with the Secretariat, including risks related to the association's

Long-form audit report of 24 April 2012 regarding Financiel Statements for 2011

activities. We have, furthermore, discussed risks connected to the presentation of accounts and the initiatives the board has initiated for the management hereof.

On this background, we have prepared our auditing strategy with a view to targeting our work at significant and areas of risk. We have identified the following items and areas to which, according to our opinion, special risks of significant errors and insufficiencies in the financial statements are associated:

- Subsidy
- Project expenses
- Giro accounts

On other areas, the risk of error in the financial statements is assessed as normal and the execution of the audit has therefore had a lesser scope.

The audit was executed with a view to verifying whether the information and amount specifications in the financial statements are correct. Analyses, review and assessment of administrative procedures, internal control systems and control procedures have been performed as well as a review and assessment of bookkeeping items and documentation for this.

The audit has also included an assessment of whether the prepared financial statements fulfil the auditing regulations of legislation and articles of association. In this regard, we have assessed the selected accounting policy, the board's accounting opinion as well as, moreover, the information submitted by the board.

Furthermore, the audit has been planned and executed in accordance with generally accepted government auditing standards and, in addition to the financial audit, it also includes a review and assessment of whether due financial considerations have been taken with the administration of the funds covered by the accounts.

During the execution of the financial audit, we have checked whether the accounts are without significant errors or insufficiencies. We have also checked the financial statements' agreement with the underlying bookkeeping records as well as the financial statements' concordance with laws and regulations as well as with commenced agreements and usual practice.

The performance audit has been executed as an integrated and parallel part of the financial audit and, among other things, has included random reviews of agreements and contracts, reports, analyses of expense and income items as well as an analysis of budget deviations.

The audit has been executed in connection with the preparation of the financial statements.

2 The executed audit

2.1 Administration

Similar to last year, The NKS Secretariat is managed by FRIT ApS.

Agreement has been entered into on an extension of the agreement until 30 June 2013.

In connection with our audit we have established that in April 2011, the Secretariat had performed a single transfer between the bank accounts in the Nordic countries.

This was done to minimise the risk of foreign exchange loss in connection with possible foreign exchange increases and decreases.

2.2 Attestation procedures

We have performed a follow-up on NKS Secretariat's procedures and internal controls regarding attestation procedures and have found reason to state the following:

Project expenses

We checked on a sample basis whether the supporting documentation is duly approved by the programme manager or by chairman, Sigurður M. Magnússon. This review has not given rise to any comments.

In addition, we have established that the Secretariat regularly sends programme status to the programme managers. The programme status is forwarded approximately every second month and at the latest on 31 January 2012. The programme status includes, for example, a ledger card for project expenses so that the programme manager can see the individual payments on the project for the current year.

Secretariat expenses

Remuneration for the Secretariat is controlled as per agreement. We checked on a sample basis whether the invoices has been approved by Sigurður M. Magnússon. This review has not given rise to remarks.

2.3 Authorisation to sign

The accounts manager, Finn Physant, owner of FRIT ApS, and chairman, Sigurður M. Magnússon, have authority to make withdrawals on NKS' giro and bank accounts jointly or individually together with Claus Rubin, who is a consultant for FRIT ApS.

Our assessment is that the above terms and conditions for authorisation to sign, in consideration of the few staff members, is appropriately organised.

2.4 Use of IT

In connection with our audit, we have performed a general review and assessment of the association's administrative use of IT, including of system, data and operation security.

Our assessment is that the association is dependent on IT in the daily business processes. However, the association's use of IT is not assessed as being a risk.

2.5 Non-corrected misstatements

Pursuant to the international auditing standards, we must account for non-corrected misstatements that are not insignificant, to the association's senior management.

All amount errors and insufficiencies in the financial statements are corrected in cooperation with the NKS Secretariat.

2.6 Discussions with management on fraud

During the audit we have enquired the Secretariat about the risk of fraud and the Secretariat has informed us that according to their assessment, there is no particular risk that the financial statements can contain significant erroneous information as a result of fraud.

The Secretariat has, furthermore, reported that they do not have knowledge of fraud or investigations in progress for assumed fraud.

During our audit we have not established conditions that could indicate or arouse suspicion of fraud of significance to the information in the financial statements.

3 Comments to the audit and financial statements 2011

For the individual items in the income statement and balance sheet we can supplement the presented financial statements for the year 2011 with the following:

3.1 Received contribution/subsidy

In December 2011, NKS received an extra grant from Strålsäkerhetsmyndigheten to the value of SEK 160,000 / EUR 17,954.

3.2 Additional financiers

The additional financiers stated in the income statement may be analysed as follows:

	2011	2010	2009
Fortum Power and Heat Oy, Finland	162,804	154,783	154,973
TVO, Finland / Teollisuuden Voima Oyj, TVO	162,804	154,783	154,973
Fennovoima Oy	52,180	44,649	38,763
Forsmarks Kraftgrupp AB, Sweden	84,086	79,996	77,486
Kärnkraftsäkerhet och utbildning (KSU), Sweden	80,135	79,996	77,486
OKG Aktiebolag, Sweden	84,086	79,996	77,486
Ringhals AB, Sweden	80,135	79,996	77,486
IFE, Norway	80,135	79,996	77,486
Total additional financiers	786,365	754,196	736,139

The additional financiers are in accordance with the supporting documentation.

3.3 Interest income, exchange rate adjustments and other income

The item can be specified thus:

	2011	2010	2009
Interest income	124,641	31,363	21,346
Exchange rate adjustments	-72,519	372,559	105,066
	52,122	403,922	126,412

The exchange rate adjustments are mainly the result of foreign currency amounts being registered at the rate on 31/12/2010 throughout 2011. This gives deviations between the utilised rate and the actual rate.

We can report that the principle used does not affect the overall results, but just the allocation of the individual items in the income statement.

3.4 Budget balances brought forward from one year to the next

In the financial survey for 2011, budget figures for all expenses are specified. In addition, an amount transferred from 2010 of, in total, DKK 3,743,084; cf. the accounts pages 8 and 9, first two columns.

We draw attention to the fact that the remaining budget for joint programme expenses and joint trips, similar to previously, have not been transferred from 2010 to 2011 and are thus transferred to NKS' equity (reserve).

It is furthermore noted that the coordination and travel expenses as well as activity expenses granted to the programme managers for the year 2011 that are not used/allocated similar to last year will be

transferred to equity. Thus, only the allocated activity expenses for R Part and B Part will be transferred from the one year to the next.

The allocated funds for a Fukushima seminar and website renewal will also be transferred from 2011 to 2012.

4 Performance audit

In accordance with generally accepted government auditing standards, we checked, for a number of selected areas, whether NKS has established business processes to ensure appropriate management of allocated funds. We performed our audit procedures to obtain limited assurance as to whether the management is conducted in a financially appropriate manner and whether the performance numbers disclosed are documented and adequate to cover NKS' operations in 2011.

According to our information, the grants (except for the grants contributed by Fortum Power and Heat Oy and TVO) are not earmarked for specific projects but for NKS' programmes as such. Based on this information, our audit was conducted on the basis of NKS' activities as a whole. During our audit, we checked that the grants from Fortum Power and Heat Oy and TVO have been employed as intended.

During our audit, we established that expenses incurred relate to individual projects and that the supporting documentation is duly approved. We noted that the programme and Secretariat budgets are kept. Finally, we checked on a sample basis whether reports have been prepared for completed projects.

We are not in a position to say whether the individual projects could be carried out in a more economical manner. However, no matters have come to our attention that cause us to believe that this is the case.

As part of the performance audit, we must check whether the individual projects could be carried out in a more economical manner / efficiency. During our audit, no matters have come to our attention that cause us to believe that this is the case. However, we must state that our lack of technical expertise within nuclear safety means that we do not have the possibility to comment on this.

4.1 Management of funds

We have previously recommended the placement of available funds in another way than in giro accounts in order to achieve greater rate of return.

The year's interest income is calculated at TDKK 125, which is an increase of TDKK 94 compared to 2010. The large increase is due to excess available cash being placed in fixed-term deposit accounts in the various banks. On the date of the presentation of accounts, the rate of return on available cash accounts is the following:

Danske Bank, DK	0% p.a. on the entire deposit
DnB NOR, NO	Between 0.10% - 3.50% p.a. depending on the size of the deposit
Nordea, SE	Between 0.40% - 0.90% p.a. depending on the size of the deposit
SAMPO Bank Abp, FI	0% p.a. on the entire deposit

4.2 Agreement between bookkeeping records and financial statements

We noted that there is agreement between the performed bookkeeping and the prepared financial statements for the year 2011.

Similar to previous years, all deposits and payments in January 2012 have been included in the accounts as if they were settled before 31 December 2011. This utilised accounting policy does not affect the accounting result. Only the size of the cash available, receivables and debt are affected.

5 Statutory information, etc.

We have ascertained that on all essential areas, the association complies with the Danish Bookkeeping Act, including regulations on the storage of accounting records.

It is our opinion that the requirements of legislation on bookkeeping and storage of accounting records have been complied with. We have furthermore agreed that our archive material will be stored for 10 years after the expiry of the relevant financial year.

6 Economic crime

In accordance with the Danish Act on Approved Auditors and Audit Firms, we are obliged to check whether any management member has committed significant economic crime and under certain circumstances we must report our findings to legislative and enforcing authorities (primarily the Serious Economic Crime Squad).

During our audit we have not come across conditions or indications that any management member have committed economic crimes.

7 Other tasks

In this financial year we have provided the following other services to NKS:

- Assistance with the preparation of the financial statements

A fee for the audit of the financial statements has been agreed on, including assistance with the preparation of the financial statements, participation in accounting meetings and in board meetings as well as the translation to English of the accounts and long-form audit report, in the amount of DKK 44,000 excl. VAT. The amount has not been allocated as debt in the presented accounts.

Long-form audit report of 24 April 2012 regarding Financiel Statements for 2011

8 Statements in connection with the audit
8.1 The managements representation letter

As part of the audit of the financial statements, we have obtained confirmation from management of the financial statements' completeness, including that they contain all information on mortgages, guarantees, related parties, court cases, events after the balance sheet date as well as other complex auditable areas.

Management has further declared that all errors that have been presented to management are rectified in the financial statements. We have ascertained that the rectifications are included.

8.2 Auditor's statement

In compliance with the law regarding the approved auditors and audit firms, we state that:

- We comply with the statutory requirements for independence, and
- during the audit carried out, we have received all the information we have requested.

Roskilde, 24 April 2012
Dansk Revision Roskilde
Godkendt revisionsaktieselskab

Palle Sundstrøm
Partner, state-authorised Public Accountant

Presented at the board meeting on 29 May 2012

Sigurður M. Magnússon
Chairman

Steen Cordt Hoe

Jorma Aurela

Ole Harbitz

Lars Gunsell

Financial status - 14 May 2012

Incomes

DKK

Expected incomes this year	8.856.400	A = B + C
Received until now	8.513.089	B
Additional payments	343.311	C
Cash balance	12.120.542	D
Available funds	12.463.853	E = C + D

Budget and expenses

DKK

Total budget incl. transfer from earlier years	15.189.810	F = G + H
Paid until now	4.555.679	G
Rest budget incl. contracts	10.634.131	H

Available

DKK

Reserve available for the board	1.829.722	I = E - H

Financial programme specification - 14 May 2012

	DKK							EURO		
Total	Budget from 11	Returned 11		Budget 12	Total budget 12	Payments made	Contracts signed	Rest budget	Payments made	Contracts signed	Rest budget
R-Part	2.200.277	-235.276	1)	4.650.000	6.615.001	2.333.714	3.984.750	296.537	313.916	536.003	39.888
B-Part	3.352.767	-207.958		3.870.000	7.014.809	1.414.459	5.002.809	597.541	190.264	672.945	80.377
Activity support	179.757	10.243		100.000	290.000	0	0	290.000	0	0	39.009
Fees	1.750	-1.750		1.010.000	1.010.000	722.000	288.000	0	97.119	38.740	0
Common programme exp.	54.024	-54.024		250.000	250.000	82.368	0	167.632	11.080	0	22.549
Travels	1.188	-1.188		10.000	10.000	3.140	0	6.860	422	0	923
I alt	5.789.763	-489.953		9.890.000	15.189.810	4.555.681	9.275.559	1.358.570	612.800	1.247.688	182.746
	F_1	F_2		F_3	F	G	H_1	H_2	G	H_1	H_2

$F_1 + F_2 + F3 = F$

$F - G = H = H_1 + H_2$

1) In the budget 2012 figure of DKK 4.650.000 for the R-Part, an amount of DKK 200.000 of the B-Part's budget is included in the budget for the RASTEP activity

Detailed financial programme specification - 14 May 2012

	DKK							EURO	7,4342	
Specifikation:	Budget from 11	Returned 11	Budget 12	Total budget 12	Payments made	Contracts signed	Rest budget	Payments made	Contracts signed	Rest budget
R-Part: Common program.	371.474	-146.474	650.000	875.000	453.463	225.000	196.537	60.997	30.266	26.437
Activity from 2008	1.740.001	0	3.900.000	5.640.001	1.880.251	3.759.750	0	252.919	505.737	0
Travel young scientists	88.802	-88.802	100.000	100.000	0	0	100.000	0	0	13.451
B-Part: Common program.	332.958	-107.958	650.000	875.000	227.459	450.000	197.541	30.596	60.531	26.572
Preparedness	968.529	0	1.500.000	2.468.529	290.000	2.178.529	0	39.009	293.041	0
Measurement	1.046.280	0	860.000	1.906.280	441.000	1.465.280	0	59.320	197.100	0
Radioecology	245.000	0	760.000	1.005.000	216.000	789.000	0	29.055	106.131	0
Waste	360.000	0	0	360.000	240.000	120.000	0	32.283	16.142	0
CfP 2011 rest.	300.000	0	0	300.000	0	0	300.000	0	0	40.354
Travel young scientists	100.000	-100.000	100.000	100.000	0	0	100.000	0	0	13.451
Website renewal	90.000	0	0	90.000	0	0	90.000	0	0	12.106
Fukushima	100.000	0	100.000	200.000	0	0	200.000	0	0	26.903
NSFS 2011	-10.243	10.243	0	0	0	0	0	0	0	0
Fee Secretariat	1.750	-1.750	590.000	590.000	302.000	288.000	0	40.623	38.740	0
Fee Chairman incl. travels	0	0	420.000	420.000	420.000	0	0	56.496	0	0
Reports etc.	6.851	-6.851	30.000	30.000	8.830	0	21.170	1.188	0	2.848
Postage etc.	-1.778	1.778	10.000	10.000	1.486	0	8.514	200	0	1.145
Equipment	3.137	-3.137	15.000	15.000	0	0	15.000	0	0	2.018
Internet	40.000	-40.000	90.000	90.000	25.000	0	65.000	3.363	0	8.743
Auditing	-4.688	4.688	55.000	55.000	43.750	0	11.250	5.885	0	1.513
Information material	14.873	-14.873	30.000	30.000	0	0	30.000	0	0	4.035
Various	-4.371	4.371	20.000	20.000	3.302	0	16.698	444	0	2.246
Travels Secretariat	1.188	-1.188	10.000	10.000	3.140	0	6.860	422	0	923
Diff.	0	0	0	0	-2	0	2	0	0	0
Total	5.789.763	-489.953	9.890.000	15.189.810	4.555.679	9.275.559	1.358.570	612.800	1.247.688	182.746
	F_1	F_2	F_3	F	G	H_1	H_2	G	H_1	H_2

$F_1 + F_2 + F3 = F$ $\quad$ $F - G = H = H_1 + H_2$

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NKS(12)1
2012-01-19

Minutes of the board meeting in Oslo 11 January 2012

Present: Sigurður M. Magnússon (chairman), Lars Gunsell, Jorma Aurela, Ole Harbitz, Steen Cordt Hoe, Tarja Ikäheimonen, Finn Ugletveit, Synnöve Sundell-Bergman, Nici Bergroth, Atle Valseth, Kaare Ulbak, Justin Gwynn, Karoliina Ekström, Kasper Grann Andersson and Finn Physant (meeting secretary).

1 Opening

The chairman opened the meeting and welcomed all. The chairman expressed his warm thanks to the hosts Atle Valseth and IFE. A special welcome was given to the new programme manager Kasper Grann Andersson, and at the same time many thanks were given to his predecessor Justin Gwynn. Thanks also to three members, who are no longer members of the board. Leif Moberg, SSM has retired. Antti Daavittila has left VTT, and Lars Martiny has left Risø DTU.

2 Practical remarks

Practical remarks about the meeting were given by the host Atle Valseth. Finn Physant was appointed meeting secretary.

3 Approval of the agenda

The chairman requested that meeting item 14 – NKS at the NSFS conference 2011 - to be handled in connection with the administrative issues under item 5 c - under which the NKS costs of the conference were going to be presented. With this adjustment the agenda was approved.

4 Minutes of last board meeting (Copenhagen, 31 May 2011)

The minutes were approved.

5 News since last board meeting

a) Report from owners group meeting held 10 January 2012
The owners had met the day before and were pleased with the way NKS is operating. Vacancies in the board will be filled before the May board meeting.
b) News from board members organisations

The members informed each other about relevant news.
c) Administrative news
-Steen Cordt Hoe was very pleased to present and introduce to the board the new B-part programme manager Kasper Grann Andersson from Risø DTU, the Technical University of Denmark. Steen has worked with Kasper for more than 20 years. Kasper holds a PhD (thesis title: Urban contamination and decontamination), and has over several decades worked on numerous projects in the fields of emergency preparedness, radioecology and aerosol physics, also addressing the contamination problems in the former Soviet Union following the Chernobyl accident. He has among other things worked much on the dose modelling tools in the ARGOS and RODOS decision support systems.
-Finn Physant informed, how a question, if NKS can accept ”requisitions” in stead of ”invoices” from some Swedish universities in order to achieve VAT exemption, had been dealt with. The view of SSM is: VAT exemption is possible if it is a contribution, which is paid. This can be paid through a requisition. No services / goods have to be delivered, but a statement or a report about how the money is spent is acceptable. Reports / results have to be public – exactly like the NKS-reports and other results. – The conclusion approved by the auditor is that NKS under these circumstances can accept to issue payments based on requisitions.
-Justin Gwynn expressed his and the coordination group’s view on the status of the two policy documents (both Swedish and English version) and the administrative handbook. All the documents need to be updated, and the conclusion was that the existing documents should be transformed into the following three new documents: a very short and concise policy document, an extensive user’s guide focused on information for (new) applicants and a new administrative handbook focused on internal functional use for participants. The coordination group will go ahead with work on these documents aiming at reporting for the next board meeting. This was approved by the board.
-NKS’ participation in the NSFS conference in Reykjavik 2011 was reported by Finn Physant with reference to the meeting document describing this. Among the specific outcomes of the conference were invitations, which have resulted in two papers. An article on NKS for StrahlenschutzPraxis SSP1-2012 by Justin Gwynn and the coordination group, and an NKS abstract for the IRPA 2013 congress by Kasper Grann Andersson and the coordination group. Following the conference there has been expressed an interest from IAEA and NEA in NKS activities. The board took note of the report, and the outreach activities that have followed. The board concluded that it is of value for NKS to participate in such event but that these need to be carefully selected on a case by case basis. The chairman asked for the board’s approval of spending DKK 10.243 on the conference fee. – The board gave its approval.

6 Financial status

Finn Physant presented the distributed material: Financial status report and financial programme specification, both dated 15 December 2011. The extraordinary contribution from SSM of SEK 160.000 received in December was included and the reserve just before the start up of the new fiscal year 2012 was estimated to approximately 2.4 MDKK. – The board took note of the positive financial situation.
Finn Ugletveit asked for a clearer use of the two terms of ”rest”: the rest available for the board and the rest (available for the PC’s etc.). – A proposal will be presented, when the auditor participates in the next board meeting.

Finn Ugletveit noted an inconsistency between the R- and B-part 2011 budgets of DKK 4.200.000 / 3.650.000 (in the programme specification) and DKK 4.000.000 / 3.850.000 (as actual 2011 budget in the 2012 budget proposal. – This inconsistency appears since there was a crossover activity RASTEP funded in the approved 2011 budget with DKK 200.000 from the R-part and DKK 200.000 from the B-part. In the programme specification the B-part of the funding has been transferred to the R-part for bookkeeping reasons. Hence the inconsistency appears. For future crossover activities this will be clearly noted in the material presented to the board.

7 Agreements

The following agreements were prepared for the board's decision:
-R-part programme manager 2012 with Fortum
-B-part programme manager 2012 with Risø DTU
-secretariat until 30 June 2013 with FRIT and
-auditing for the accounts of 2011 with Dansk Revision.
All the agreements were approved.

8 R-part: status and new activities

Karoliina Ekström presented the status of the ongoing activities. All projects are running according to plan – especially for 2010 have all activities been invoiced and reported. Karoliina Ekström presented the evaluation results and funding recommendation for CfP 2012 – a total of 14 proposals were received. The board agreed to fund the following activities in 2012 (all amounts in kDKK):

ENPOOL	590
DECOSE	500
DIGREL	300
POOLFIRE	360
MOREMO	500
SADE	500
AIAS	500
Nordic-Gen4	250
RASTEP	200

The total budget for these 9 activities is 3700 kDKK. RASTEP is an cross over R and B activity.

9 B-part: status and new activities

Justin Gwynn first presented a status report for ongoing activities. Of the activities that started in January 2010, only MareNuc has yet to be completed. Of the activities that started in 2011, contracts have been agreed with all but one activity – PONPP2. All activities that commenced in 2011 are on schedule. Justin Gwynn then presented his recommendations for activities and financing for 2012. 14 proposals were received altogether for 2012.
The NKS board agreed to finance the following activities in 2012 (all amounts in kDKK)

GammaWorkshops	360
NordEx12	420
GASMAT	350

MUD	300
PUBPLUME	150
THYROID	280
MOMS	500
BERMUDA	250
COSEMA	510
RASTEP	200

The total budget for these 10 activities will be 3320 kDKK. RASTEP is an cross over R and B activity.

10 Budget for 2012

Finn Physant presented the distributed budget of 2 January 2012 from the coordination group. – All contributions were noted to and confirmed by the owners' and co-financiers' representatives. The budget approved by the board is attached in appendix A.
Nici Bergroth asked for a listing of the amount of the last 5 years co-financiers' contributions – this will be provided by the secretariat for the chairman's funding invitation to co-financiers for 2012 in late August / early September.

11 Information activities

Karoliina Ekström presented the new website: main tabs, slide show (new pictures are always welcome), latest news, sign up for news, welcome text, the new logo etc. – At this stage the reports part with filters, search function etc. still hasn't been finalized, but expected to be so soon. - The board took note of and was very pleased with the development of the new website. – The opening of the new website will be announced in a NewsFlash.
Finn Physant informed the board about the status of the present website, NewsLetters etc.

12 Evaluation of NKS research activities 2006-10

The chairman informed the board that careful considerations had been given to a possible evaluation, and the conclusion at this stage was: we don't see a pressing need for an external evaluation, but it may be relevant in a few years. – The board approved this conclusion.

13 Fukushima seminar

Kasper Grann Andersson presented the proposal of the programme managers. - The board strongly supported the proposal, and regarding the timing and place of the seminar January 2012 in connection with the board meeting in Stockholm was discussed. The PC's will co-chair the proposed program group, which should be composed with balance between the R- and B-part. The board concluded that the target audience should be: Nordic Authorities and regulators on different levels, representatives of the Nordic nuclear installations and advisors and experts on technical issues and communication. The PC's are urged to establish the program group ASAP, begin the planning and prepare an advanced draft proposal for the next board meeting.
The board granted DKK 100.000 more for the seminar (together with the 2011 grant of DKK 100.000 a total of DKK 200.000).

14 Other issues

NKS at the NSFS conference 2011 – see item 5 c.

15 Next meeting

Next meeting will be in Copenhagen 29 May 2012.

16 End of meeting

Many thanks for a good meeting – especially to the hosts IFE – were expressed by the chairman. – Special sincere thanks were given to Justin Gwynn for all his work, enthusiasm and cooperation as B programme manager over the last 4 years.

Sigurður M. Magnússon
Chairman

Finn Physant
Meeting secretary

Appendix A

Budget decision for 2012 - 11 January 2012

Budgets - proposed / actual	**Proposed budget for 2012**	**Proposed budget for 2012**	**Actual budget for 2011**
	EURO	**DKK**	**DKK**
R-part			
Activities	497.700	3.700.000	3.250.000
Fee PC	60.531	450.000	450.000
Travels PC	13.451	100.000	100.000
Coordination	13.451	100.000	100.000
Young scientists' travel	13.451	100.000	100.000
R total	**598.585**	**4.450.000**	**4.000.000**
B-part			
Activities	443.894	3.300.000	3.100.000
Fee PC	60.531	450.000	450.000
Travels PC	13.451	100.000	100.000
Coordination	13.451	100.000	100.000
Young scientists' travel	13.451	100.000	100.000
B total	**544.780**	**4.050.000**	**3.850.000**
VAT			
Reserve	0	0	0
VAT reserve total	**0**	**0**	**0**
Common			
Common various according to specification	33.628	250.000	250.000
Website renewal	0	0	90.000
Fukushima	13.451	100.000	100.000
History	0	0	0
Common total	**47.080**	**350.000**	**440.000**
Others			
Fee Secretariat	79.363	590.000	590.000
Fee Chairman incl. travels	56.496	420.000	420.000
Travels Secretariat	1.345	10.000	10.000
Others total	**137.204**	**1.020.000**	**1.020.000**
TOTAL	**1.327.648**	**9.870.000**	**9.310.000**
Expected incomes according to app. 1	**1.191.305**	**8.856.400**	**8.905.252**
Surplus	**-136.343**	**-1.013.600**	**-404.748**

Any deficits to be covered by the reserve: the rest available for the board according to the financial status report of 15 December 2011: ca. 2.400.000 DKK. Funding reserved for use in 2011, but not used will amount to ca. 400.000 DKK. Furthermore reserved funding for programme activities more than 3 years old will be returned to the reserve - for activity agreements earlier than 2009 this amounts to ca. 0 DKK.

Total reserve January 2012 - ca. 2.800.000 DKK or ca. 375.000 €

Specification of "Common" for 2012

	Proposal for 2012	**Proposal for 2012**	**Actual for 2011**
	EURO	**DKK**	**DKK**
Common			
Reports, materials etc.	4.035	30.000	30.000
Postage, fees	1.345	10.000	10.000
Equipment	2.018	15.000	15.000
Internet	12.106	90.000	90.000
Auditing, consulting	7.398	55.000	53.125
Information material	4.035	30.000	30.000
Various expenses	2.690	20.000	21.875
Common total	**33.628**	**250.000**	**250.000**

Appendix 1 for budget decision for 2012

Pledge for funding in 2012 - confirmed at the board meeting on 11 January, 2012 - Incomes

	Proposal for 2012	Proposal for 2012	Actual for 2011
	EURO	**DKK**	**DKK**
SSM	510.561	3.795.610	3.895.170
TEM	330.000	2.453.286	2.459.952
BRS	55.200	410.368	399.258
GR	24.000	178.421	172.756
NRPA	161.214	1.198.500	1.191.750
Total EURO / DKK	**1.080.975**	**8.036.185**	**8.118.886**

SSM contribution SEK	4.550.000	plus included in 2011 extraordinary contribution SEK 160.000
NRPA contribution NOK	1.250.000	

	EURO	**DKK**	**DKK**
Fortum	22.500	167.270	162.804
TVO	22.500	167.270	162.804
Fennovoima	7.000	52.039	52.181
IFE	11.000	81.776	80.135
KSU	11.825	87.909	80.135
Forsmark	12.400	92.184	84.086
Vattenfall	11.825	87.909	80.135
OKG	11.280	83.858	84.086
Total EURO / DKK	**110.330**	**820.215**	**786.366**
Complete EURO / DKK	**1.191.305**	**8.856.400**	**8.905.252**

Exchange rates 2012:

DKK	100,0000
EURO	7,4342
NOK	0,9588
SEK	0,8342
SEK 2011	0,8270
EUR 2011	7,4544
NOK 2011	0,9534

NKS(12)5
2012-05-10
DRAFT

HANDBOOK FOR NKS APPLICANTS AND ACTIVITY LEADERS

May 2012

TABLE OF CONTENTS

1 INFORMATION FOR APPLICANTS

1.1 Who can apply?

Establishments such as universities, research centres, institutes and companies in the Nordic countries can apply for NKS funding for research activities. The activity should involve organisations from at least 3 Nordic countries (in some special cases, involvement of only 2 Nordic countries has been accepted in the NKS-R programme).

1.2 What kind of work would be funded?

NKS funds work related to nuclear safety, including emergency preparedness, radioecology, measurement strategies and waste management, considered to be of importance to the Nordic community. The work should be of interest to the owners and financing organisations of NKS. The results must be of relevance, e.g., practical and directly applicable. The work can be in the form of scientific research, including experimental work, or joint activities producing seminars, workshops, courses, exercises, scientific articles, technical reports and other type of reference material. Examples of research topics can be found in the NKS-R and NKS-B Framework documents, available on the website; NKS-R framework, NKS-B framework.

1.3 Criteria for NKS activities

The entire NKS program as well as the various activities shall fulfil the following criteria:

- Demonstrated compatibility with the current framework program
- A clear Nordic added value, including
  - creating and maintaining Nordic networks
  - dissemination and increase of Nordic competence within the program area in question
- Current interest in and high international standard of the technical/scientific work
- Comprehensive and transparent activities open to the widest possible range of participants, including young scientists
- Active participation of organisations in at least three Nordic countries in all major activities (occasionally, two countries may be acceptable)
- Distinct and measurable goals
- Relevance to financiers and end users
- The practical results shall be presented
  - at conferences, seminars, workshops etc
  - in technical reports and scientific articles in refereed journals
  - as recommendations, manuals, handbooks, checklists
  - in electronic form such as DVDs, CD-ROMs, websites
  - in the form of educational and information material
- Results for NKS activities are publicly available for free

1.4 What do I have to do in return for the money

The activity partners are expected to report for the work carried out each year. The most common type of output is a scientific report at the end of the year. A report is expected even if the activity continues the next year. Other forms of reporting can be for example presentations and proceedings

from a seminar. All material produced must be available for publishing on the NKS webpage, where they are free to be downloaded by anyone.

1.5 How is the money paid?

The NKS funding is granted for one year at a time. The first 50% of the contribution is paid when an activity is started and the rest 50% when the final results of one year's work are available. The first part of the funding can be invoiced when a contract has been made between NKS and the activity leader.

1.6 Working language

The main working language in NKS is English. Applications for NKS funding as well as final reports and other material should be submitted in English. However, each working group determines its own language for meetings.

1.7 How do I apply 1 – the need for Nordic partners and how to find them

It is up to the applicants themselves to find collaboration partners in the Nordic countries. The programme managers can help with getting into contact with Nordic organisations. NKS seminars are good places for networking. More information on ongoing research and all the published reports are available on the NKS website.

1.8 How do I apply 2a – the practicalities of applying

NKS funding is announced in the annual Call for Proposals. It is usually organised in September - October. All the necessary information, material and instructions are distributed on the NKS website. The Call for Proposals is also announced in the NKS electronic newsletter. The applicant is requested to fill in an application form. A voluntary annexe with further details about the proposal may also be handed in. Detailed instructions on how to fill in the application form will be available when the Call for Proposal opens. The applicant is encouraged to read these instructions carefully.

1.9 How do I apply 2b - budgets

The applicants are expected to demonstrate that at least half of the necessary funding of the activity in question will be supplied by the participating organisations. In other words, the participants are expected to put in the same amount of money in the project as they are applying from NKS. These contributions may be work hours, travel expenses, laboratory resources etc. and should be clearly specified in the proposal form.

Please note that all funding by NKS includes possible VAT

1.10 What happens next

The proposals received before the deadline are evaluated by the NKS board members. The board members have the right to use the help of external experts in the evaluation process if needed. Each proposal will be given marks based on how well the proposal fulfils the NKS criteria. Based on the evaluation results and the available budget, the programme manager makes a suggestion for the next year's programme. The suggestion is discussed at the January board meeting and the final decision of successful applicants is made by the board. The applicants are informed of the outcome as soon as possible after the board meeting.

1.11 Useful links for applicants

NKS webpage
Information about NKS
Owners and supporting financiers of NKS
The NKS-B programme
The NKS-R programme
Information about the Call for Proposals, NKS-B programme
Information about the Call for Proposals, NKS-R programme
NKS Seminars
NKS Reports
Travel support for young scientists: NKS-B, NKS-R

2 INFORMATION FOR ACTIVITY LEADERS

2.1 Contract

The Activity Leader will shortly after the Board's grant decision receive a contract template from the manager of the relevant NKS Programme, which is to be filled in with information on the activity deliverables or stages of work to be done, *always* including the submission of a final activity report (normally by the end of the funding year). In the contract template, the Activity Leader must also include a budget for each of the various activity partners, in line with the Board's decision. The contract is valid when signed by an authorised representative of the Activity Leader's organisation and by the Programme Manager. The NKS Programme Manager will have provided the contract template with a reference number (format: AFT/{R or B}({year}) {serial number}). This reference number is the identifier of the activity, and must be stated in all official management documents concerning the project (contracts, invoices, etc.). Contracts are generally for one year's work, and further continuation of activities is subject to submission and approval of a new proposal.

2.2 Invoices

When the contract is duly signed by both parties, the Activity Leader should inform the participants that they can invoice NKS for 50 % of their total contractual amount. When the work has been completed and the final report of the activity has been approved by the Programme Manager, the Activity Leader should inform the participants that NKS can be invoiced for the remaining 50 % of the amount. All invoices are to be addressed to the NKS Secretariat, but mailed to the relevant Programme Manager (NKS-R or NKS-B).

2.3 Activity progress reporting and communication

If deviations are foreseen from the agreed activity work schedule, the Activity Leader must immediately notify the Programme Manager so that any problems may be solved and contingency plans implemented if necessary. On request, the Activity Leader is also obliged to inform the Programme Manager of the state of progress at various stages of the activity.

2.4 Progress documentation if applying for continued funding

If participants in an activity wish to apply for funding for continuation of the activity, they should document significant progress with the ongoing work well in time before the NKS Board receives the application for continuation. The progress could ideally be summarised and referred to by the Activity Leader in an annexe file to the new application.

2.5 Advertisement of dissemination activities

Events like seminars, workshops, courses and exercises connected to NKS activities need to be advertised timely and efficiently to be successful. NKS Programme Managers can help Activity Leaders in advertising these, e.g., through NewsFlashes sent to subscriber lists and posted on the NKS internet site http://www.nks.org/en/news/subscribe_to_our_newsletter/. It is however the responsibility of the Activity Leader and partners to plan and execute all aspects of the activities. Seminars should generally be open and not held exclusively for a closed circle of participants.

2.6 Travel support for dissemination activities

NKS particularly encourages participation of young scientists in NKS events to maintain a high level of competence in the longer perspective, and can offer travel support for this purpose (http://www.nks.org/en/nksr/travel_assistance/). All other costs for NKS in connection with NKS activities are to be covered by the amount approved in the contract.

2.7 Final reporting of the activity

All NKS activities, regardless of their nature, must produce a final report that should be in the standardised NKS report format (see template/instructions: report template). Note that Activity Leaders must also supply a filled-in bibliographic datasheet (http://www.nks.org/en/this_is_nks/administration/) together with the final report. Final reports from research activities or exercises aimed at filling knowledge gaps or developing methodologies should be in line with standards expected for scientific publications. Final reports from exercise activities in the form of intercomparisons or proficiency tests should seek to address any discrepancies or problems highlighted by the exercise, to increase knowledge and competencies where necessary. Final reports from seminar or workshop activities should take the form of conference proceedings, containing extended abstracts from each presenter as well as a final overview of any discussions and conclusions. Presentation slides should not be presented in final reports. Final reports for educational and training courses should contain all course documents presented as well as feedback from participants. The conclusion of any NKS activity (and thus the final payment) is subject to the approval of the final report by the Programme Manager. In addition to the final report, activity participants are urged to disseminate activity results (with due credit to NKS) in scientific journal articles as well as at conferences, seminars and workshops. The Programme Manager in charge of the activity should be notified of any dissemination efforts.

2.8 Internet hosting of NKS activity material

All final reports of NKS activities are hosted on the NKS internet site (http://www.nks.org/en/nks_reports/). In connection with NKS events like seminars and workshops it is encouraged that the Activity Leader seeks the permission of the participants to publish presentations (slides) on the NKS internet site (http://www.nks.org/en/seminars/presentations/presentations.htm). Also information on other available software (e.g., as downloads) or hardware generated by NKS activities can be hosted on the NKS internet site (http://www.nks.org/en/nksb/supporting_material/). For further information contact the relevant Programme Manager.

NKS(12)3
2012-05-03
Draft

Nordic nuclear safety research

NKS Administrative Handbook

Introduction

This is the NKS Administrative Handbook. The Handbook is aimed at the coordination group for internal programme use. The Handbook describes the most important administrative functions and procedures within the programme. The overall objective is to document the procedures of NKS so that continuation can be maintained. It is also the objective to ensure uniformly efficient routines and thereby a streamlined administration of all parts of the programme. The Handbook is intended as a reference work and as a source of answers to practical questions. The attachments include examples of various documents, etc. The current version of the Handbook will be available on www.nks.org and will be updated by the Secretariat as required. In addition to the Administrative Handbook, you find the general presentations of NKS on http://nks2011.odeum.com/en/this_is_nks/ and the pamphlet “nks”.

Content:

10 NKS websites

11 NewsLetters

12 Areas of responsibility and work

13 The NKS Calendar Year

Attachments

1. Bibliographic data sheet
2. Example of NKS report front page
3. Information on seminars
4. NKS agreement with programme Managers' organisations

4.1 Attachment to Programme Manager agreement

5. Practical information about call for proposals
6. Contract check list
7. Areas of responsibility and work
8. The NKS Calendar year

1. **Working language**
   The NKS working language is English.

2. **Reporting**
   Currently, NKS is running two programmes/major activities: the R (reactor safety) Programme and the B (emergency preparedness) Programme. It is given high priority that the activity reporting reaches the largest number of stakeholders possible. Reporting on the activities takes the form of final reports, technical reports and status reports made by the Programme Managers for the Board. The Programme Managers determine the form in which the activities are to be finally reported. All reports must be submitted in appropriate electronic format by the author to the Programme Manager, who approves and forwards the report to the Secretariat. A bibliographic data sheet must be filled in by the author and submitted together with the report (see Attachment 1).
   All reports being published under the auspices of NKS should contain an acknowledgement by NKS of the financing and participating organisations/persons. This may be worded as follows:

   Acknowledgment:
   NKS conveys its gratitude to all organisations and persons who by means of financial support or contributions in kind have made the work presented in this report possible.

   The name of all participating organisations must be set clearly on the title sheet.

   All reports being published under the auspices of NKS must contain a disclaimer, which may be worded as follows:

   Disclaimer:
   The views expressed in this document remain the responsibility of the author(s) and do not necessarily reflect those of NKS. In particular, neither NKS nor any other organization or body supporting NKS activities can be held responsible for the material presented in this report.

2.1 Final activity reports

- All activities must culminate in a suitable final report.
- For major activities a separate final report must be published.
- The publication of the final report and a number of the activity's technical reports in appropriate media must be considered (primarily the NKS website). During the programme, the Programme Manager should therefore store all relevant contributions to allow such publications.

A general guide:

It is practical to prepare a preliminary table of contents for the final report at an early stage in the programme and to use this outline when deciding on programme initiatives.

Content and target group
In the final report, the results of the work should be presented to a professionally qualified circle of stakeholders and an Executive Summary should be included for readers with a general interest in NKS's areas of activity. It must also be possible to utilise the final report in the promotion of the programme's results and NKS's activities. The report must include a complete list of publications published since the start of the activity. The target group should be both as large and international as possible.

Language and wording
The report must be written in English and include a summary. The report should be written in clear language. If needed reports must be proofread. The costs must be covered by the programme and be included in the activity budget already at the planning stage.

Illustrations
Good illustrations increase interest in the report. It must be ensured that illustrations are understandable and of high (graphic) quality.

Library routines
Reports are provided with an ISBN number by the NKS Secretariat. The activity manager is responsible for ensuring that the author completes the bibliographic data sheet (Attachment 1).

Printing and international distribution
If a report is to be printed, the Secretariat will assist in this process. A print-ready manuscript must be submitted to the Secretariat.
Special distribution lists must be prepared for each report. The Programme Manager should prepare distribution lists for stakeholders internationally. The lists should include those responsible for activities, activity participants, participating institutions and organisations, end users, sponsors and other involved parties. The library/information department in the author's organisation may also contribute its own distribution list.

General distribution
The Secretariat takes care of mandatory submission to The Royal Library in Denmark which handles registration in the national Danish bibliography. An agreement has also been entered into with Risø DTU's library on the submission of NKS publications to appropriate international databases. All reports are uploaded to the NKS website where they are fully searchable and available for download in PDF format.

Electronic newsletters
Information on any reports is sent out in the form of *NewsLetters* and *NewsFlashes* – see Section 11.

Coverage in magazines
The author should ensure that the programme is covered in relevant magazines which should also provide information on where the reports can be found.

2.2 Technical reports, etc.
Technical reports should be published under the auspices of NKS, but may in exceptional cases be published as part of the performing organisation's own series of reports. Documents should contain a reference to the NKS programme and be given an NKS number (see below). The report should be given an NKS front page (see Attachment 2). The Programme Manager should approve the report.
All reports must include a bibliographic data sheet (Attachment 1) which is to be completed by the author.
Complete collections of the programme's working documents, scientific publications, lectures, etc. must be kept by the Programme Manager who determines which documents should also be held by the NKS Secretariat. These documents are sent to programme participants, the Chairman and other stakeholders as required.
Technical reports should usually – as agreed orally with the Secretariat – be published in the special 'NKS series'. Usually, they are only published in electronic format. If the Programme Manager decides, that this is appropriate, a technical report may also be published in printed form. If so, the print-ready manuscript must be distributed together with address lists and a covering letter signed by the Programme Manager. Printing and dispatch costs are to be covered by the programme. Additional copies may be kept by the Secretariat.
The NKS Secretariat provides all technical reports, etc. with an ISBN number.

2.3 Status reporting
The Programme Managers present status reports at the board meetings. Status reports must include:

- a comparison between plans and results with an explanation of any deviations
- financial reporting – budget and results
- list of reports, articles, etc. that have been published
- list of seminars, major meetings, etc.

Contributions must be submitted electronically in accordance with the NKS Secretariat directive.

3. Numbering and layout of NKS documents, reports and contracts

3.1 The numbering system
All final and technical reports must be published in a common, numbered series. Other relevant documents like evaluations, history documents, etc. will also be published in this series. The number of each report is allocated by the NKS Secretariat. The report number consists of the letters 'NKS' plus a serial number.

Example: NKS-1

A uniform numbering system for joint documents (Board agendas, minutes, etc.) help to provide an overview and to refer to or find earlier documents and papers. The document number consists of the letters 'NKS' plus year and serial number, e.g. NKS(12)2. Joint agreements and contracts relating to Programme Managers, Secretariat, accounting, etc. are numbered by the Secretariat, e.g. NKS/AFT(12)3.

R and B Programme contracts with participating organisations are to be numbered by the respective Programme Manager, e.g. NKS/AFT/B(12)4. Other documents are not covered by the numbering system, but should be carrying the NKS logo, which can be downloaded from www.nks.org (link)

3.2 Layout and logo

As mentioned NKS's logo can be found on the NKS website (link to www.nks.org). It should be used where practically possible. Only the official NKS logo may be used. The NKS Board has decided that Arial should be used as the title font. A green cover may only be used for publications/documents numbered by the Secretariat – please contact the Secretariat.

Reports – a standard report front page must be used (see Attachment 2). This will be provided by the Secretariat and can be placed as an additional front page in reports being published in the institutions' own series of reports.

4. Meetings and minutes

4.1 Meetings

The owners meet as required. Board meetings are called by the Chairman. The Programme Managers and the Secretariat participate in board meetings to report on their activities. Invitations containing agenda proposals are sent out by the Secretariat. Board meetings are usually held twice a year (in January and in May or June).

Coordination meetings with participation of the Chairman, the Programme Managers and the Secretariat are usually held twice a year in November/December and April/May. Agenda proposal is sent out by the Secretariat. The main objects for these meetings are budget and activity proposals for the Board in November/December and activity status and finalisation of last year's accounts in April/May.

Programme meetings are prepared by the Programme Manager or by a person appointed by the Programme Manager. The Programme Manager sends out the agenda to participants.

4.2 Minutes

A notetaker from the Secretariat is appointed to take the minutes of the Board meetings. The minutes are sent to the members of the Board by e-mail no later than two weeks after the meeting, and the members of the Board should then comment on the minutes within another two weeks. Based on the comments, amendments to the draft are prepared by the Chairman and the notetaker, if needed. A silent procedure of two weeks for further comments involving all members is then carried out. Following the silent procedure the draft should be ready for uploading on the open website. The Board will be informed by the Secretariat when the draft has been uploaded. "Draft" will be erased, when the Board approves the minutes during the following meeting. The chairman and notetaker sign the original minutes which are archived by the Secretariat.

For coordination meetings a secretary is appointed to take the decision minutes and distribute them to the participants for approval.

For programme meetings a secretary can be appointed to take the minutes and distribute them to participants.

5. Seminars, activity meetings, etc.

Each programme should organise a suitable number of seminars. NKS seminars should usually be open and not held exclusively for a closed circle of participants. The person responsible for any seminar should ensure that it is advertised on the NKS website under News. Non-Nordic participants must be approved by the Programme Manager in advance.

Purpose

The purpose of the seminars is, for example, to give the Programme Managers the opportunity to present their results to a circle of specialists: programme participants, Nordic safety authorities and other stakeholders who are not themselves involved in the activities/programme.

Practical questions
Suitable time should be set aside for discussion. This can be achieved by the seminar running for more than one day. It should be agreed with the speakers how detailed their talks should be. A detailed timetable for the seminar should also be in place.

Finance
The NKS programmes may cover the travel costs, transport, hotel expenses, etc. of invited participants/guest speakers. As a rule, other participants cover their own travel expenses. If a participant fee is charged, it should be collected in advance. The fee may include accommodation, food, local transport and contributions to other expenses, e.g. documentation and preparatory work. For the programme seminars the Programme Manager has access to free funds from the coordination account.

The Secretariat is able to assist to some degree in the organisation of seminars (see Attachment 3).

6. Administration and financial functions

6.1 Certification rules and authorisation
Certification rules and authorisations are prepared in partnership with NKS's accountant.

Activities, contracts and regular outgoings for e.g. travel, meetings and seminars:
The Programme Manager signs off on these. If the activity is carried out by the Programme Manager's own institution, the chief accountant carries out budget checks and certification.

Programme Managers, contracts and regular outgoings for e.g. travel, meetings and seminars:
The Chairman signs off on these. If the Programme Manager comes from the Chairman's own institution, the chief accountant carries out budget checks and certification.

The Secretariat, contract and daily operations:
The Chairman signs off on these, the chief accountant signs off on invoices related to the daily operations of the Secretariat if the invoice does not exceed DKK 20,000, e.g. postage, printing, telephone, etc.

Chairman:
The chief accountant carries out budget checks and certification.

The Chairman may delegate certification rights to the chief accountant in special circumstances, e.g. the Programme Managers' travel expenses.
The Secretariat manages the payment of certified invoices.
The Chairman and the Secretariat's chief accountant have the authority to withdraw funds from the NKS giro and bank accounts together or separately with one additional person appointed by the Board.

6.2 NKS grants
It is the Board that grants NKS funds to activities proposed by the Programme managers. Unused funds from current activities are usually carried forward to the next financial year. Unused funds from completed activities are usually transferred to reserves and are allocated by the Board.

6.3 Agreement between NKS and the Programme Manager organisations

The Chairman or chief accountant enters into agreements on behalf of NKS with the Programme Managers' organisations to ensure that the Programme Managers are available and to determine the scope of and costs involved in their initiatives. A schedule for this is shown in Attachment 4. The cooperation agreement should be described in detail in an attachment to the agreement (Attachment 4.1). NKS's Chairman must be informed in due time by the Programme Manager's organisation if the Programme Manager due to leave or other planned absence will not be able to carry out his/her NKS work for a limited period. In the event of lengthy absence, the appointment of a new Programme Manager may be required.

6.4 New activities

Proposals for new activities are presented to the Programme Managers, usually in conjunction with the *Call for Proposals* (see Attachment 5 and www.nks.org). Proposals are assessed by the Programme Managers and Board members. The Programme Manager recommends them to the Board at its January meeting for a final decision. Approved activities must be commenced as soon as possible within six months and a first status report should be submitted to the Board at the next board meeting.

6.5 The Programme Managers' contracts for work funded by NKS

When entering into contracts for work, consultancy services, etc., the Programme Manager must ensure that NKS funding is used efficiently and services in kind are provided in accordance with Section 6.5. Applicable national/government rules must be followed.

Work is to be agreed when the Programme Manager enters into the contract with the performing person's organisation. The contract should include a detailed description of the project, the work, the anticipated results, deadlines, payment and reporting. Contracts may also cover participation in task group meetings, etc. (see Check List, Attachment 6). If NKS is to pay VAT, the amount must be clearly stated in the contract. For further information on VAT please contact the Secretariat.

The contract must state the year(s) it covers. On signing the contract, the programme Manager must oblige all programme participants to comply with the guidelines of the NKS Administrative Handbook.

The Programme Manager must either submit a hard copy of the signed contract to the Secretariat or file a hard copy and submit a copy to the Secretariat.

The Programme Manager may enter into similar agreements on programme initiatives which do not require NKS funding. The scope of these initiatives must form part of the Programme Manager's summary of all the initiatives contained in the programme.

Payment and transfer of funds

Payment should be made in the currency of the performing country.

The Programme Manager determines the payment terms. Standard payment terms for amounts exceeding approx. DKK 100,000 may be:

- 50% after acceptance and confirmation of the contract
- 50% when work has been finally approved by the Programme Manager

It is the Programme Manager who authorises the payment of funds from the programme budget. All invoices must be signed by the Programme Manager with the completion of a stamped table prior to submission to the Secretariat.

The Secretariat ensures the transfer of funds as directed by the Programme Manager. For NKS-funded participation in meetings, etc. the Programme

Manager signs the invoice from the organisation concerned and forwards it to the Secretariat for payment.

All invoices must include information on activity/programme number and the applicable contract.

If the Programme Manager authorises payment to his/her own organisation, the payment must also be authorised by the Chairman or chief accountant.

The Secretariat ensures that funds are transferred to the participating organisation. Funds are mainly withdrawn from the NKS giro account in the participating organisation's country.

Programme Managers
The Programme Managers' administrative initiatives are invoiced in accordance with the instalments set out in the agreement between the Programme Manager's organisation and NKS. The Programme Manager's organisation sends the invoice to the Chairman or chief accountant for signature in accordance with the agreement after which the invoice is paid by the Secretariat.

The technical/scientific initiatives which the Programme Managers carry out themselves with NKS funding are covered by the activity budget, and the amount is entered as an independent item in the budget.

As it is the NKS Secretariat's bookkeeping which is officially applicable, it is in the Programme Managers' own interest and it is their responsibility at least quarterly to reconcile their own accounts with the Secretariat's, see Section 8.2. The NKS Secretariat provides the relevant documentation to make this reconciliation possible.

6.6 Services in kind and other contributions

Reporting
In connection with annual accounts reporting the Programme Managers each year report the amount of external funding received for the activities. An estimate is reported to the Secretariat, and this estimate is announced in the NKS annual financial statement under review of the year.

6.7 Travel expenses

Travel rules
Travel costs must be kept as low as possible. Travel expenses are usually covered by the participating organisations. Any exceptions to this must be agreed in advance by the Programme Manager concerned or (in the case of the Secretariat) with the Chairman. Travel expenses are usually calculated in accordance with the participant's national government rules. The Programme Manager may, however, determine other payment frameworks, e.g. when meetings include half or full board paid by the programme. NKS does not cover travel expenses for activities and seminar participants outside the Nordic countries unless participants have been specifically invited. Usually, NKS does not support business (activities, meetings, etc.) which take place outside the Nordic Countries. In exceptional circumstances, the Board or Chairman may approve seminars and meetings in the Baltic states.

As a rule, NKS refunds travel expenses through the participants' institution. If payment is to be made to a participant's private account, this must be agreed in advance with the Programme Manager concerned or the Chairman, and national government rules must be complied with and all receipts attached.

Programme participants
Travel expenses involved in programme work are mainly covered by national funds. Where this is not possible, they may be included in the programme

budget. Where programme participants' travel expenses are covered by NKS funds, the sum must form part of the contract provided by the Programme Manager.

Travel expenses which have been authorised by the Programme manager in advance, but which are not included in an agreement on the work involved, are covered by the participant's organisation. This organisation submits an invoice (documentation/verification is not required) to the Programme Manager stating date and meeting location for each trip, activity number, purpose and total travel expenses. The Programme Manager approves the expenses by signing the invoice and forwarding it to the Secretariat for payment.

Programme Managers, Secretariat
Travel expenses incurred by the Programme Manager and the Secretariat which are to be covered by the NKS budget must be contained in the budget for the Programme Manager and Secretariat in accordance with Board decisions.

Others (owners, Board)
Travel expenses incurred by owners and members of the Board are not usually covered by NKS. This also applies to representatives of other financiers and other commercial organisations on the Board. Travel that has been authorised in advance by the Chairman to be covered by the Secretariat is to be settled by the meeting participant's organisation, unless otherwise agreed, submitting an invoice for the travel expenses stating the date and meeting location for each trip, programme/activity number, purpose and total travel expenses. The invoice is sent to the chief accountant who then authorises the amount for payment.

6.8 Other meeting expenses
For local expenses (meeting rooms, refreshments, etc.) related to meetings paid for by the programme an invoice is sent to the Programme Manager who signs off on the invoice and then forwards it to the Secretariat for payment. The invoice must include dates, purpose and names of all participants. The same rules apply to seminars, but the names of all participants are not required. The Programme Manager has a coordination account at his/her disposal to cover these expenses.

6.9 Financial summaries
The programme's bookkeeping is in DKK and the accounts are in DKK and EUR. Conversion is carried out by the Secretariat at the exchange rate applicable at the beginning of each calendar year. The current year's exchange rate can be found on
http://www.nks.org/en/this_is_nks/administration/currency.htm

NKS may, however, decide that conversion should take place every six months.

The Programme Manager retains an overview into allocated NKS funds and agreed national initiatives – partly through own notes and partly through material provided by the Secretariat.

The Secretariat regularly sends out statements for expenses paid and contracts. The Programme Manager reconciles the statement with his/her own summary.

6.10 Invoices and VAT
Different invoice and VAT practices apply. Please contact the Secretariat.

7. Central accounts, financial management

The Secretariat manages the funds that are made available to the programme, instructs invoices to be paid directly from the giro accounts set up by the owners and manages the overall accounts.

7.1 Transfer of funds

NKS has accounts in Denmark, Finland, Norway and Sweden. For Iceland, the Danish account is used. At the request of the NKS Secretariat, the owners and other financiers transfer funds to these accounts.
Funding requests are sent out in January immediately after the Board meeting at which the annual budget is determined and the exchange rate for the year is known.

A Programme Manager applies for funds by sending a signed invoice which includes programme/activity number to the Secretariat. The Secretariat checks that the budget is able to cover the amount and pays the amount as instructed by the Programme Manager. In the event that the programme goes over budget, the Chairman is informed by the Secretariat's chief accountant.

As regards Secretariat funds, these are authorised by the Chairman. The Chairman may delegate certification rights to the Secretariat's chief accountant as required.

As all the funds are deposited in giro accounts, all invoices should be marked with the giro number to which the funds are to be transferred. If the amount is required transferred to a bank account, the bank's full address and account number must be shown on the invoice.

The Secretariat allocates the funds in such a way as to ensure that expenses for currency exchange are avoided where possible.

The disbursed amount is credited in the applicable currency to the programme account and an exchange rate adjustment is booked on the same account which means that the sum of the two booked amounts corresponds to the sum in DKK.

7.2 Bookkeeping

The Secretariat is responsible for NKS's bookkeeping. This includes all the income and expenditure for which NKS funds are used. The bookkeeping also includes deposits in each account and financial liabilities that have been entered into, e.g. in the form of contracts. The Secretariat ensures that all documentation is kept for ten years. Copies of the documentation with certification of their authenticity can be made available to the owners.

The Secretariat prepares an account plan and keeps accounts for each programme. The account plan must reflect the Board's and the Programme Managers' requirement for a clear and practically usable submission of accounts.

Bookkeeping for the programme's running costs is in DKK while the national accounts are in the currency of the country concerned.

The Secretariat provides the owners with statements showing the disbursements made from the national accounts. These statements take the form of audited annual accounts. The audit is carried out by a state-certified accounting firm.

The Secretariat assists the Programme Managers by retaining a financial overview. At the beginning of each year, the Secretariat sets out the exchange rates that are to apply throughout the year. At each Board

meeting, the Secretariat prepares an financial overview for use in onward planning in NKS.

7.3 Closing of accounts
Accounts are closed at the end of the year and include only invoices dated and sent during the financial year. All other invoices are included in the new year.

Determination of the budget for the following year takes place as decided by the Board in January based on proposals from the Chairman and depends on the previous year's expenditure. Unused funds from on-going activities in the R and B Programmes will usually be carried forward to the following financial year. Unused funds from completed R and B activities and the Secretariat will usually be transferred to the reserves and be allocated by the Board.

7.4 Audits
NKS's accounts are subject to checks by the Danish Rigsrevisionen. Rigsrevisionen may wish to review the accounts. The NKS accounts are audited annually by a state-certified auditor on the basis of all documentation *(verifications)* and account statements. The auditors are entitled to unannounced inspection of the NKS Secretariat accounts.

At the auditors' request, the owners provide information about the amounts that have been transferred to the NKS accounts.

In the event that it is desirable to audit the use of national NKS funds in each country, this is done using the certified documentation *(verifications).*

Auditor's reports and annual accounts are discussed by the Board and approved by the owners. The original accounts and the long-form audit reports are kept by the NKS Secretariat.

8. Programme assessment
The owners or Board determine the criteria and dates for assessment of the programme or parts thereof.

9. List of addresses
The address list is available on an NKS password-protected web page. The NKS Secretariat must obtain the personal consent of each person on the address list.

The Secretariat maintains the address database for owners and Board while the Programme Managers regularly report changes relating to the programme participants in their own area. The Secretariat then updates the database.

10. NKS websites
NKS hosts a website which is updated by the Secretariat and the Programme Managers and run by the Secretariat. The URL is: www.nks.org. NKS also hosts a closed, password-protected website for internal use by programme participants – further information can be obtained from the Secretariat.

Some activities also have their own programme web pages. Instructions from the NKS Board on policy, content and execution must be complied with.

It is recommended that the websites be updated often.

11. NewsLetters

NewsLetters are sent out twice a year by the Secretariat, usually before the Board's biannual meetings and contain information on new reports, seminars, etc. The main recipients of the newsletters are the Board, financiers, libraries, programme managers, people responsible for activities, activity participants and their institutions and organisations as well as other interested parties who have signed up for the news group on the website. Additional newsletters (*NewsFlashes*) with topical news are sent out as required. Subscription to *NewsLetters* and *NewsFlashes* is free. Please contact the NKS Secretariat.

The Programme Managers put together the news material about the R and B Programmes and send it to the Secretariat which completes the newsletters and distributes them. The Chairman is the publisher responsible for the newsletters.

12. Areas of responsibility and work

The division of areas of responsibility and duties between NKS Owners, Board, Chairman, Secretariat and Programme Managers is described in Attachment 7.

13. The NKS Calendar Year

For reasons of overview and in order to facilitate continuation the main procedures and routines of NKS have been described in Attachment 8.

Attachment 1

Bibliographic Data Sheet **NKS-XXX**

Title	xx
Author(s)	xx
Affiliation(s)	xx
ISBN	978-87-7893-xxx-x
Date	xx
Project	NKS-xx
No. of pages	xx
No. of tables	xx
No. of illustrations	xx
No. of references	xx
Abstract max. 2000 characters	xx
Key words	xx

Available on request from the NKS Secretariat, P.O.Box 49, DK-4000 Roskilde, Denmark.
Phone (+45) 4677 4041, e-mail nks@nks.org, www.nks.org.

Attachment 2

NKS-261
ISBN 978-87-7893-333-1

Guidelines for reliability analysis of digital systems in PSA context - Phase 2 Status Report

Stefan Authén (1)
Johan Gustafsson (2)
Jan-Erik Holmberg (3)

1. Risk Pilot AB, Sweden
2. Royal Institute of Technology, Sweden
3. VTT, Finland

February 2012

Attachment 3

Things to consider when

ARRANGING SEMINARS, PROJECT MEETINGS, ETC.

A successful seminar is one of the best ways of disseminating information about the work NKS does and the results it achieves. But seminars require a great deal of planning and preparation. A list of tips can be found below.

- Produce a check list showing distribution of responsibilities and a realistic timetable: who does what when? Appoint someone with overall responsibility (preferably the person responsible for the activities). Update the list regularly.
- Define objective and target group.
- Choose a suitable title (catchy and relevant). Use a more detailed subtitle, if required.
- Determine content in broad terms (sub-areas, important key words). Determine whether the seminar should include
  - invited speakers
  - parallel sessions
  - poster session(s)
  - panel discussion(s)
  - group work
- Take into account experiences from previous seminars in the same or similar areas.
- Decide on dates:
  - Be in good time – major events may require planning up to a year in advance.
  - Coordinate with other, similar events, particularly within NKS.
  - Attempt to avoid clashes with competing events or major events which are already scheduled (e.g. audit periods at nuclear power stations).
- Choose a suitable location:
  - Think about where most of the participants will be coming from.
  - If it is a large conference: Visit a few conference facilities, assess their options, negotiate terms.
  - Is the conference facility able to handle the anticipated number of participants? Are the meeting rooms large enough? Are there enough group meeting rooms? Hotel rooms? Sufficient room for posters? Break rooms? Technical equipment? Support?
  - Choose conference facilities, sign agreement.
- Decide which of the tasks below should be handled by the central NKS Secretariat, by a local coordinator/co-organiser and (for larger events) by a professional conference organiser:
  - receipt and confirmation of registrations
  - creation of participant list
  - finance (participant fees, invoices, bookkeeping, etc.)
  - hotel reservations, room bookings, if applicable
  - maps, signage, decorations, etc.
  - secretariat services in general
  - handling any study visits
  - entertainment programme (e.g. conference dinner, entertainment and excursions)
  - transport
  - registration on the first day of the seminar
  - liaison with the conference facility about rooms, technical equipment, consumables, meals, coffee, etc.
  - copying/printing of materials for the seminar and any subsequent documentation
- Produce a budget outline as early as possible and revise it when costs become clearer. Include a reasonably large item for unforeseen expenses. Agree the budget with the Board as required.

- Try to find sponsors/co-financiers for the conference.
- Decide (as early as possible) how large the participant fee should be and the share of the costs to be covered by NKS funds and any sponsor funds or other contributions. Adjust the participant fee to the participants' circumstances, e.g. media representatives are often not able to pay very much.
- Determine how the participant fee should be paid. This should be done in advance. Cash payment on registration is not advisable. Use e.g. post giros, bank giros, bank account, cheque, payment order or credit cards. If payment is to be made on registration, credit cards are easiest, but the administrative fee charged by the credit card companies is relatively high.
- Produce a detailed seminar programme as soon as possible. Identify your meeting reporter, session facilitators, etc. and confirm in writing. Include a sufficient number of long breaks – they are an important part of the event as they generate contacts and represent an informal discussion forum.
- Send out invitations for the seminar:
  - Produce a detailed analysis of the target group and choose the people and organisations you wish to invite.
  - Attach the information required for participants to decide whether they want to register. Ensure that it is made clear that this is an NKS event.
  - Attach a comprehensible registration form (binding).
  - Upload the invitation, programme, background material and registration form on the NKS website. Update as soon as new material becomes available.
  - Decide on the highest and lowest number of participants. Determine the date you need to decide whether the seminar will go ahead.
- Contact the invited speakers, if appropriate:
  - Choose suitable candidates.
  - Agree well in advance their participation, subject and content of their presentations as well as financial and other terms for their participation. Confirm in writing.
  - Monitor and follow up on all speakers' preparations (e.g. abstracts, reports or lectures/papers).
  - Gather all advance material in one place.
- Does any prior information need to go out to local or other media, e.g. in the form of a press release? Appoint someone with media contacts to handle this.
- Decide whether evaluation and follow-up of the seminar is to be carried out:
  - Should participants leave their view of the seminar by completing a form (*questionnaire*)? If so, prepare a questionnaire.
  - Should an assessment/final report be written? How should it be shaped and who is responsible?
  - Should the seminar be reported to the Board? If so: by whom, when and how?
- On arrival at the conference facility:
  - Registration of the participants. Designate at least one person for this and allow approx. one minute per participant.
  - Distribution of conference material in the form of a map, binder, etc. (including programme and participant list).
  - If name tags are used: ensure that the name is printed clearly in large letters. The person's name is most important – not the seminar title or organiser's logo.
- Make sure you are as quick as possible in following up with any promised documentation, e.g. report from the conference or copies of images presented.
- Carry out the agreed follow-up/assessment of the seminar, and amalgamate the responses from the forms (*questionnaire*) for the benefit of the participants. Were the goals achieved? Were the budget and timetable kept to? What was good? What was less good? Lessons for the future? Etc.

Attachment 4

NKS/AFT(XX)X

Agreement

between XX (hereinafter called XX) and Nordic Nuclear Safety Research (hereinafter called NKS) for the period 1 January – 31 December XX

XX shall hereby undertake management responsibility for the NKS R/B Programme area as defined by the decision by the NKS Board in the period set out above. XX shall make XX available for this purpose as NKS's programme manager. Should she/he for any reason be unable to fulfil this task, XX shall find a qualified replacement to be made available to NKS at no additional cost to NKS. NKS shall approve the new programme manager. The Chairman of NKS shall be informed well in advance of any prolonged absence of the programme manager so that suitable measures may be taken. The responsibility and authority involved in this appointment shall be set out in the attachment to this agreement. XX shall thus undertake to comply with the rules and timeframes and the budget determined by the Board of NKS for the work as programme manager and the associated activities.

Fortum certifies that XX has accepted the job as programme manager for the NKS R/B Programme and that she/he is able to work on the R/B Programme for approximately 50% of a full-time position. The cost to NKS for her/his participation shall be

* DKK XX for the period 1 January – 31 December XX

This amount shall include any VAT and working hours and breaks, office services, expenses, etc. Travel expenses and subsistence shall not be included. A separate budget for work-related travel shall be determined separately by the Board of NKS.

The agreed remuneration shall be paid by NKS in the following instalments of the total annual sum on the presentation of an invoice from XX as follows:

* 50% after the signing of this agreement after the new year XX
* 50% after the Board's approval of the status report in January XX.

Invoices shall be submitted to NKS no later than 30 days after the date indicated by the payment plan above.

The present agreement shall apply from 1 January XX to 31 December XX (inclusive) on condition that the owners of NKS make sufficient funds available. The present agreement may be unilaterally terminated by either party with a notice period of six months. In the event of material breach of contract by either party, the agreement may be terminated unilaterally by the other party. NKS shall then pay remuneration for the period in which the programme manager worked up to the date of termination.

The present agreement shall be governed by Danish law.

The present agreement has been created in two original copies. Each party shall retain one original. XX shall undertake to ensure that XX is provided with a copy of the signed agreement and associated attachment.

For XX	For NKS
Date:.....	Date:.....
.....	.....
XX	XX Chairman

Attachment 4.1

Attachment to agreement NKS/AFT(XX)X:

Responsibility and authority for Programme Manager NKS R/B Programme in the period 1 January – 31 December XX

The programme manager must in her work comply with the terms of this agreement, the decisions made by the owners and Board of NKS and applicable parts of the latest edition of the policy document NKS(08)3 and the Administrative Handbook, NKS(11)4.

The programme manager is responsible for ensuring that:

- the programme and its activities are run in accordance with NKS objectives
- the programme's technical/scientific quality is assured
- information about the programme and its activities is disseminated to the appropriate people in an adequate way
- set timetables and cost levels are met
- current rules for planning, budgeting, status reports and final reports are complied with

Duties and responsibilities can be delegated, but the overall responsibility for the programme rests with the programme manager. The Chairman and person responsible in the home organisation must immediately be notified of any signs of significant deviation from the timetable and/or budget.

The job further involves that the programme manager

- participates in board meetings and reports directly to the NKS Board
- coordinates work with other programme managers and the Chairman
- informs the Chairman and NKS Secretariat well in advance about all major seminars, project meetings, etc. within the programme
- at the request of the Board or Chairman participates in meetings within the NKS programme framework
- keeps a record of the national initiatives in DKK or EUR and reports on the accumulated national financing in all status reports and – for each programme – in all final reports

The programme manager organises her/his own travels within the Nordic countries within a set budget frame. For travels outside the Nordic countries, oral approval is required in advance from the Chairman. All the programme manager's travel expenses must be signed by the programme manager and signed off by the Chairman or chief accountant before they can be reimbursed.

Current national government rules (or equivalent) for expenses and entertainment must be complied with both by the programme manager and other activity participants. Travel accounts must be produced by the traveller's employer or agreed with the programme manager in advance.

Attachment 5

Practical information about call for proposals

This attachment aims to describe and explain how a Call for Proposals (CfP) is carried out. The guidelines below reflect a combination of past experience and decisions and relate to an annual CfP held in the autumn. The financial framework is assumed to be determined by the Board.

The CfP year starts with the coordination meeting which is usually held in April / May before the May / June Board meeting. The timeframe for the CfP is determined at the April / May coordination meeting. The usual start date falls in the end of August or the beginning of September with the final application deadline in mid-October. Past experience shows that the final deadline should be mid-week as a final date on a Friday, for example, attracts enquiries about whether it is possible to submit on the Sunday night. Before the start of the CfP, the website is updated and the documents that were required for the latest CfP were:

- The framework programme for the respective B and R Programmes
- Application form
- Application instructions

Prior to CfP, the website will provide information about the opening date for applications. When CfP starts, links are provided to the documents, and when CfP opens, a NewsFlash is sent out to NKS stakeholders as a reminder of the start of CfP.

The naming and numbering of submitted applications follow a certain structure: NKS_(R or B)_(CfP year)_serial number, e.g. NKS_R_2010_85. The serial number is not managed centrally, but must be entered by the respective programme manager. Applications are only allocated a number once. This means that activities that run for several years retain their original number and that applications which have been rejected and are submitted the following year also retain their original number.

When applications are received, confirmations of receipt are sent out. When the application deadline has passed, applications are assessed. Since CfP 2010, this assessment has been carried out by NKS Board members using resources in their own organisations. The applications are uploaded to a home page where Board members are able to download the applications as well as assessment forms and instructions. The assessment must be ready prior to the coordination meeting in November / December which takes place before the January Board meeting.

After the assessment and at the Board meeting it is decided which proposals should be allocated funds. After the Board meeting, these decisions are communicated to stakeholders. The activities for which funds are allocated can be presented in a NewsFlash, if appropriate. The activities which are rejected are contacted directly by e-mail or telephone: mass e-mails about these decisions are not appropriate. Any available feedback on the assessment must be provided.

As soon as possible after the January Board meeting contracts are prepared and signed with the parties and coordinators concerned.

Attachment 6

Checklist for contracts, agreements etc.

All contracts / agreements should be written on the programme manager's NKS stationery; see the graphic profile.

- NKS activity number
- Date
- Name of the contracting party
- Activity title
- References (e.g. quotes, meetings, protocols)
- Activity/work description
- Responsible person(s)
- Milestones (e.g., work to be carried out before certain deadlines specified by exact dates) and deliverables
- Estimated total cost (national funding + NKS funding) in DKK or local currency
- Total cost for NKS in DKK or in local currency
- VAT guidelines and how to address and send invoices (contact the NKS Secretariat for details)
- Part payments to be defined
- Cancellation clause to be defined if milestones are not met
- Intellectual property rights

The following should be considered in all contracts/agreements:

The rules and practices stipulated in the current NKS policy document are to be followed by the activity leader and the activity participants.

Intellectual property rights
Copyright to any research results produced shall vest jointly and equally in (organisation) and NKS so that each of the parties may enjoy and exercise their rights independently of the other parties, including the right to modify the material, create derivative works, and publish it in any way, shape or form. Use of the NKS logo requires approval by the NKS programme manager or the NKS Secretariat. Similarly, NKS may not publish the material using the other parties' logo(s) without permission. The author(s) shall upon request to NKS have the first right of publishing the result in refereed journals or similar publications, and NKS shall in that event refrain from publishing said material before the author(s) do.

This order is valid when signed in two copies by the NKS programme manager and the contracting party.

_____	_____
NKS Programme Manager	The contracting party

Attachment 7

Areas of responsibility and duties

(From the policy document NKS(08)2: NKS policy, Framework and procedures)

Owners

- Regularly enter into written agreements on continued partnerships, their financing and other terms and conditions.
- Elect the Chairman of the Board and appoint other members of the Board, programme managers, assessors, etc.
- Are the top policy body.
- Determine guidelines for structure, work methods and general administrative issues.
- Secure the majority of the financing.
- Approve the accounts.
- Delegate projects and responsibilities at an appropriate level as required.
- Appoint the Chairman.
- Appoint the programme managers for a set period on terms set out in written agreements.

The Board

- Decides issues of prioritisation, programme, budget and activities.
- Puts forward proposals for policy changes to the owners and approves NKS's official policy document.
- Continuously monitors quality and efficiency, assesses the technical/scientific results of the activities and approves activities for which final reports have been submitted.
- Determines the general guidelines for external and internal information, communication and results dissemination and identifies the most important target groups.
- Carries out the tasks as instructed by the owners as well as tasks set out in the Administrative Handbook.
- Delegates projects and responsibilities at an appropriate level as required.
- Appoints the Secretariat for a set period on terms set out in a written agreement

The Chairman

- Appointed by the owners.
- Responsible for the NKS programme being carried out in accordance with set plan and budget.
- Calls meetings with the owners as required and keeps in regular contact with the owners and the Board.
- Part of the Board, chairs its meetings and monitors that its decisions are implemented.
- Acts as NKS's official spokesperson, is responsible for information and is the publisher and editor responsible for the newsletters and represents a shared resource for NKS as a whole.
- Follows the work in the various areas of the NKS programme, including international activities as well as administrative work, including accounts and auditing.
- Monitors the coordination of the programme areas and participates in coordination meetings with the programme managers and Secretariat as required and chairs these meetings.
- Ensures that

  - Board meetings are prepared and the required documentation for the Board is completed (budget proposals, annual accounts, audit protocol, evaluation directive and other bases for decisions)
  - NKS's structure and administrative routines are revised as required
  - the policy document and the Administrative Handbook are reviewed as required
- Enters into agreements as required, signs letters and signs off on certain invoices.
- Carries out other tasks as instructed by the owners and Board and the tasks set out in the Administrative Handbook.

The Secretariat

- Appointed by the Board for a set period on terms set out in a written agreement.

Regular duties

- Represents an administrative support function for NKS as a whole, participates in Board meetings and takes minutes at these meetings as required.
- Distributes material (reports, invitations to meetings, bases for meetings, etc.) to the Board, programme managers and others as required.
- Is responsible for financial management, handles bookkeeping and disbursements for the whole programme, orders auditing of the accounts, handles agreements, reservations, contracts, etc.
- Compiles financial reports to the owners, Board and programme managers.
- Handles filing of documents and bookkeeping documentation as well as organisation of reference library and library services.
- Requires funds from the owners and other financiers according to agreements.
- Processes and edits NKS reports such as technical reports, final reports and evaluation reports.
- Distributes both printed and electronic reports.
- Handles printing contacts, procures printing services, collects report material.
- Maintains and updates the NKS website and sends out the NKS electronic newsletters (Newsletter and NewsFlash).
- Participates in the review of administrative routines, including contract and VAT issues. Further develops the Administrative Handbook in partnership with the Chairman and programme managers. Creates and updates lists of addresses and other administrative documents. Participates in meetings with the Chairman and programme managers a couple of times a year. Participates in telephone conferences with the parties concerned as required.
- Assists in the work on minor seminars which are organised within the R and B Programmes (dispatch of information material, uploading and updating websites, etc.).
- Carries out various tasks which (within the framework of NKS) are required by the owners, the Board and the Chairman as well as tasks set out in the Administrative Handbook.

The following tasks are carried out as required and by separate agreement

- Participates in further development of the NKS website.
- Works on the publication of periodical material (DVDs, CD-ROMs, etc.).
- Participates in the work on NKS seminars (preparation, organisation, follow-up).
- Participates in the work on separate R and B seminars (preparation, organisation, follow-up).

The programme managers

- Appointed by the owners for a set period on terms set out in a written agreement.
- Expected to work part-time, the equivalent of approx. 50% of full-time.
- Manage and/or participate in activities and propose new activities to the Board.

- Ensure that the programme is implemented in accordance with the framework programme, other Board decisions and objectives and lead the work on *Call for Proposals* and propose new activities to the Board.
- Maintain active contact with relevant Scandinavian professional environments and end users to anchor NKS's work, bring actors and stakeholders together and identify requirements and trends at an early stage.
- Coordinate activities and maintain regular contact with the Chairman and Secretariat.
- Maintain regular contact with the persons responsible for the activities and ensure that the activities are implemented and reported on in compliance with set plans and lead and monitor information activities in the programme area concerned.
- Report directly to the Board and participate in Board meetings.
- Are responsible for dissemination of results to the parties concerned in the form of seminars, scientific articles, reports, documents, work materials, etc. in accordance with the guidelines set out in the Administrative Handbook.
- Disseminate information from the board meetings to persons and organisations concerned.
- Carry out various tasks (within the framework of NKS) required by the owners and the Board as well as the tasks set out in contract that have been entered into and orders, set programme and activity plans and the Administrative Handbook.

Attachment 8

The NKS Calendar Year

January: Board meeting early January – the Board approves the new year's activities and budget. – A NewsLetter is published approximately one week before the Board meeting, and a NewsFlash is published approximately one week after the meeting.

January/February: New programme activity agreements are signed, and the new activities start. End and start of NKS's fiscal year.

February/March/April: Preparation of last year's accounts.

March/April: A NewsFlash presentation of new programme activities including reports, seminars etc.

April/May: Coordination meeting with follow-up after the January Board meeting and preparation and planning of the upcoming May/June Board meeting.

May/June: Board meeting with status reports from the programmes and presentation and approval of last year's accounts. Plans are made for this year's call for proposals (CfP). – A NewsLetter is published approximately one week before the Board meeting, and a NewsFlash is published approximately one week after the meeting.

August/September: CfP for next year's activities is started with a combined website and NewsFlash release.

October: deadline for CfP.

October/November: Evaluation of new proposals.

November/December: Coordination meeting with preparation of the January Board meeting, new proposals/activities, new budget etc.

NKS(08)3 Rev3
2008-011-19

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

NKS Policy, Framework and Procedures

Note: The official NKS policy document, NKS(08)2, is in Swedish. See www.nks.org. This is an abridged and adapted translation for those preferring an English overview.

Introduction

Nordic Nuclear Safety Research (NKS) is a platform for Nordic cooperation and competence in nuclear safety and related radiation protection issues including emergency preparedness and protection of the environment. The work is financed and supported by Nordic authorities, companies and other organizations. Information on NKS activities is disseminated through seminars, reports, electronic newsletters and the NKS website, www.nks.org. They are used by financiers and other participating organizations in their decision making processes and information efforts, and are available free of charge to anyone interested in NKS activities.

This is an abridged version of the official policy document NKS(08)2 which is written in Swedish and available on the NKS website. Should the two versions conflict or give rise to interpretations, the Swedish version takes precedence over the English one. The main difference between the two versions is that the Swedish document is more specific as regards practical work, detailed instructions, responsibilities and tasks at the different levels of the organization.

Practical NKS work is governed by an administrative handbook in Danish, also available at www.nks.org. Reviews and updates of the policy document and the handbook will be brought to the Board for approval; smaller changes will be decided by the chairman.

Divided into three main chapters, this document gives background information on NKS and its structure; a presentation of the current scientific framework program; and guidelines for practical work and how to join it. The target group is first and foremost active NKS participants; but it is hoped that any organization or individual wishing to learn what NKS stands for and how work is conducted will find the document useful.

This document sets out to answer questions like:

- What is NKS all about?
- How is NKS and its work organized?
- Who pays?
- What are the main areas of work?
- Do I have to live in one of the Nordic countries to participate?
- How do I join?
- What is a Call for Proposals?
- Can I suggest new activities?
- What criteria must proposals meet?
- How do I get NKS funding?
- How is the quality of the work evaluated?
- How are NKS results communicated?

If, after reading this document, any of your questions remain unanswered, please contact the appropriate Program Manager or the Secretariat at nks@nks.org.

This is NKS

Scope and Objectives

NKS (Nordic Nuclear Safety Research) is a platform for Nordic cooperation and competence in nuclear safety and related radiation protection issues including emergency preparedness and protection of the environment. The work centers around nuclear power related issues and is divided into two main areas:

- Reactor Safety (NKS-R)
- Emergency Preparedness (NKS-B)

In addition, some activities will be identified as being cross-disciplinary, i.e., belonging to both NKS-R and NKS-B.

Normally, the NKS program does not include safeguards; transport of nuclear or radioactive materials; general radiation protection; or external threats.

The hallmark of NKS is a spirit of sharing – all results are available free of charge, not only to NKS participants but worldwide. When quoting NKS material or work supported by NKS, a reference to the source shall be made.

The Nordic Perspective

NKS is an informal forum, serving as an umbrella for Nordic initiatives and interests. Its purpose is to carry out joint activities producing seminars, exercises, scientific articles, technical reports and other types of reference material. Special efforts are made to engage young scientists. The work is financed and supported by Nordic authorities, research institutions, power companies, contractors and other organizations. The results are used by participating organizations in their decision making processes and information efforts. To ensure that the Nordic perspective prevails, all major activities should include representatives from at least three Nordic countries.

The region in question is the five Nordic countries, i.e., Denmark (including the Faroe Islands and Greenland), Finland, Iceland, Norway and Sweden. With a total population of some 25 million people, and a common cultural and historic heritage, the Nordic countries have cooperated in the field of nuclear safety for approximately half a century. Informal networks for exchange of information have developed throughout the years, strengthening the region's potential for fast, coordinated and adequate response to nuclear threats, incidents and accidents. NKS has served well as a platform for such activities.

Major Nordic Nuclear Installations

The Nordic interest in cooperation and pooling of resources via NKS is due to the large number of nuclear installations and activities in the region. There are four nuclear power reactors in operation in Finland, and one (Olkiluoto 3) is under construction. Sweden has 12 nuclear power reactors. Of these, 10 will continue operation and two have been permanently shut down (Barsebäck 1 and 2). The Barsebäck reactors are being decommissioned. There are research reactors in Denmark, Finland, Norway and Sweden. The three Danish reactors have been closed and decommissioning work has started. The reactors in Finland and Norway are still in operation. The two Swedish research reactors have been shut down and face decommissioning. In Sweden there is also a nuclear fuel production plant in operation. All five Nordic countries have interim storages for radioactive waste. Finland, Norway and Sweden have final repositories in operation for low and medium level waste. In Finland and Sweden work is in progress

to allow construction of final repositories for spent fuel. Apart from nuclear installations in the Nordic countries, there are commercial, research and naval nuclear reactors and other nuclear installations in surrounding eastern and western countries.

Financial Support

Only activities of interest to financing organizations and other end users are carried out. The results must be of relevance, e.g., practical and directly applicable. The owners and main financiers are:

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

Additional financial support is obtained from these organizations:

- Fennovoima Oy in Finland
- Fortum Power and Heat Oy in Finland
- TVO in Finland
- IFE in Norway
- Forsmarks Kraftgrupp AB in Sweden
- Nuclear Training and Safety Center AB (KSU) in Sweden
- OKG Aktiebolag in Sweden
- Ringhals AB in Sweden

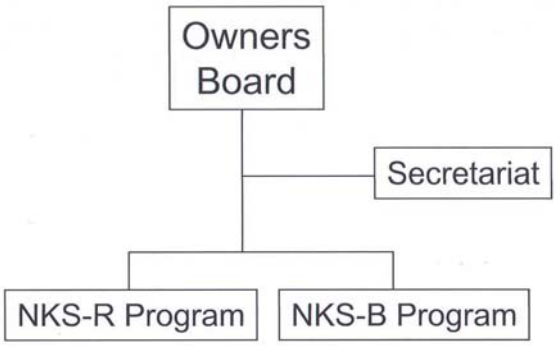
In 2007 the contributions of the owners together with support from the additional financiers above totalled some 7.9 million Danish crowns (1.1 million euros). To this should be added in-kind contributions by participating organizations, e.g., work hours, travel expenses, and laboratory and other resources. These contributions are expected to be worth approximately as much as the actual NKS budget, and the program is highly dependent on them. Hence, all activity proposals are expected to offer at least a 50/50 in-kind contribution by the applicants.

All decisions on budgetary matters are made by the Board, usually for a period of one year at a time. NKS only supports the work of Nordic organizations, although international participation is sometimes accepted granted that external funding is provided by the foreign organizations, fully covering their costs. Non-Nordic participation in the cooperation is welcomed whenever relevant to the overall objectives of NKS and in line with the current program and policy; it will however not be supported financially by NKS. An exception is that travel costs to NKS seminars and workshops can be reimbursed for especially invited participants (e.g., key lecturers).

Organization

The owners and main financiers of NKS are four central authorities and one ministry in the Nordic countries. Together with a number of experts appointed by the owners they constitute the NKS Board. Decisions on financing, program activities, NKS policy etc. are made by the owners and the Board. All major activities are handled by the two program managers, one responsible for reactor safety (NKS-R), one for emergency preparedness (NKS-B). The Board will decide on a case-by-case basis where cross-disciplinary activities belong. A secretariat handles administrative duties such as economy, electronic media, publishing of reports etc.

Organization of NKS:



Presently, the following organizations form the NKS Board:

Denmark	Danish Emergency Management Agency (DEMA)
	Danish Radiation Protection Authority (SIS)
Finland	Ministry of Employment and the Economy (TEM)
	Finnish Radiation and Nuclear Safety Authority (STUK)
	Fortum Nuclear Services Ltd
	Technical Research Center of Finland (VTT)
Iceland	Icelandic Radiation Protection Institute
Norway	Norwegian Radiation Protection Authority (NRPA; two persons)
	Institute for Energy Technology (IFE)
Sweden	Swedish Radiation Safety Authority (two persons)
	Vattenfall AB

Fortum Nuclear Services Ltd and Vattenfall AB represent the nuclear industry in the countries.

Overall Framework Program

Program Areas

Nuclear safety and emergency preparedness have been major Nordic priorities for many years. Two of the greatest challenges are the complexity of the systems and the need integrate knowledge from many different areas (reactor technology, nuclear physics, measurement techniques, environmental sciences, radiobiology, information and communication technology to mention a few). Continuous development and improvement is necessary: new knowledge must be gathered and tools created and kept operational. Optimized use of national resources and the potential need for cooperation and assistance between neighboring countries is of the essence; so is communication with media and individual members of the public. Common Nordic views and approaches are important in order to maintain public confidence in authorities and other actors in the nuclear field.

Therefore, in 2007 the NKS Board adopted a dynamic scientific framework program, divided into two main areas, each led by a program manager:

- NKS-R: Reactor Safety
- NKS-B: Emergency Preparedness

Some activities will be identified as **cross-disciplinary**, i.e., belonging to both NKS-R and NKS-B. The main part of the research program is constituted by NKS-R and NKS-B activities, whereas cross-disciplinary activities are expected to be more sporadic. Financial support is to be given fairly evenly to NKS-R and NKS-B in a long-time perspective.

Activities

The work is divided into activities of varying size and duration and may consist of **studies** (research, investigations, exercises etc.) or **dissemination of information** (conferences, seminars, workshops, courses, websites, scientific papers, technical reports etc.), or (usually) a combination of both. The aim is to maintain and build up **competence** and to develop close informal **networks**. In order to make seminars more valuable, participants should also take part in the preparations and follow-up work, e.g., writing the final report. Care should be taken to use other related Nordic, European and other international seminars for exchange of information and networking, where appropriate.

In many cases the issues at hand generate considerable public interest. Activities on information strategies, management and technologies in relation to NKS-R and NKS-B will therefore be included in the program, when appropriate.

The contents, time frames and budget of the program and its many activities are decided by the Board, in accordance with the NKS-R and NKS-B frameworks outlined below. The criteria summarized in a later section are applied when evaluating the proposals. The program is flexible since the results of ongoing work are evaluated at the biannual Board meetings in May and November. Changes in work plans are made when called for. Activities may be expanded, reduced, or aborted; new activities may be added. The program is constantly renewed through an annual (in exceptional cases, biannual) procedure of **Call for Proposals**, which is open to all relevant Nordic organizations and results in an expansion of the program. When an activity has been finished and the final

report accepted by the Board, the results will be disseminated and can be implemented by the end users.

Young Scientists

In order to maintain a high level of competence in the longer perspective, it is important to ensure that enough young people choose to specialize in nuclear safety, radiation protection and related studies. In most Nordic countries, the number of experts is limited. The university sector plays an important role and must be stimulated to offer courses and relevant thesis projects, and to carry out research projects. Competence can be strengthened by NKS through education in different ways, e.g., by organizing and supporting joint Nordic M.Sc. and Ph.D. courses. It is also beneficial if NKS work is relevant for individual students and their NKS participation can aid in their studies. Other forms of educational activities can also be considered, e.g.,

- Workshops of various types, with invited lecturers, preferably producing proceedings in a refereed publication
- Training programs and exchange visits between research organizations

NKS-R Framework: Reactor Safety

R1 Priorities and Challenges

The research activities within the reactor safety part of the NKS program have changed from time to time depending on subjects of interest. This chapter gives a guidance to which areas will be prioritized for financing in years to come. Research activities may be of different kinds, such as developing new knowledge; compilation of knowledge in a systematic manner aiming to support applications; or a pilot project demonstrating the use of new knowledge or techniques. It could also be seminars or courses to spread knowledge.

NKS funding is limited, roughly only one percent of the total Nordic funding in the area of reactor safety, phase-out and waste treatment. The funding can therefore not be expected to be of vital importance for the development in these areas. In addition to the expected result of a research activity in terms of knowledge, it will also be prioritized based on its contribution to the overall NKS criteria, e.g., a Nordic common view on nuclear safety. Priority will also be based on the importance to the safety of existing reactors. Non-safety operational issues as well as economical issues are given low priority. If a proposed activity supports or duplicates other national or international activities, this will also affect the NKS decision on funding.

The nuclear power industry and regulatory bodies have a number of challenges of particular interest where research activities are essential and will be prioritized. The areas are safety upgrade of older reactors comparable to modern standard; harmonization of reactor safety; power upgrade; ageing/life management; phase-out and dismantling of nuclear facilities; waste treatment and final storage.

R2 Main Research Areas and Program Contents

The following main areas are judged to be of current interest and examples are given for each area:

Abbreviations used:

BWR	Boiling Water Reactor
CFD	Computational Fluid Dynamics
HR	Human Reliability
NDT	Non-Destructive Testing
PSA	Probabilistic Safety Analyses
RI-ISI	Risk-Informed In-Service Inspection

Reactor Physics and Thermo-Hydraulics
Examples:

- Core instability/oscillations in BWR high burn-out fuel
- Reactor physics and dynamics
- Thermo hydraulic and CFD calculations
- Integration of different models

Modernization, Introduction of New Techniques and New Demands
Examples:

- Digital control rooms; new demands
- Power up-grades

Ageing of Nuclear Facilities
Examples:

- Thermal and mechanical fatigue
- Radiation induced defects on reactor vessels
- Ageing of concrete containments
- NDT technology and validation of methods
- RI-ISI, strategies and application of methods
- Ageing managing program and ageing mechanisms
- Ageing properties of new materials

Severe Accidents
Examples:

- Chemical behavior of iodine and halogens during severe accidents
- Core – concrete interaction

Probabilistic Methods
Examples:

- Application of PSA in safety assessments
- Clear presentation of PSA results
- Assessment of uncertainties
- Assessment of defense in depth using PSA
- Nordic harmonization of demand on PSA for different applications
- Reference library for rules and guides
- Harmonization of definitions in PSA

Organization, Man and Safety Culture
Examples:

- Models and methods for safety review
- Safety culture significance in occurred events
- Actions taken as a result of event analyses

- Benchmarking between nuclear industry and other industries with high potential risks
- Safety assessment of organizational changes
- Safety culture and assessment of organizations
- Safety aspects on using subcontractors in nuclear power plants
- Introduction of new techniques and new working procedures
- Application of HR methods in nuclear power plants

Phase-Out and Decommissioning of Nuclear Facilities
Examples:
- Phase-out and decommissioning of research reactors
- Stakeholder involvement in the Nordic countries
- Regulatory demands by Nordic authorities on decommissioning projects
- Experience from decommissioning projects

Common Seminars for Reactor Safety and Emergency Preparedness
Examples:
- PSA, severe accidents and emergency preparedness
- Phase-out and demolition of nuclear facilities including release of protection of area
- Environmental Impact Assessments

The list of subjects given above is not complete, and other proposals that can be associated with any of the eight categories above will also be considered in the evaluation process. More specific priorities regarding subjects to be covered can be given in connection with each "Call for Proposals".

NKS-B Framework: Emergency Preparedness

B1 Aim and Challenges

The aim of the NKS-B program is to strengthen Nordic work concerning
- radiological emergency preparedness
- management of radioactive waste and discharges
- radioecology and environmental assessments

In addition to the threats from potential nuclear accidents, threats related to the possibility of malicious uses of radioactive or nuclear substances is now seen as a major concern. The case of polonium-210 poisoning and contamination in London in November 2006 is an example of an unexpected situation that demonstrates new challenges related to, e.g., special competence regarding measurement/analytical techniques and radiation protection assessments.

During the last 30 years or so, a lot of experience and knowledge regarding consequences of radioactive discharges, fallout and environmental radioactivity have been gained. The research has to a large extent focused on the behavior of a few important radionuclides. This competence and knowledge must be maintained and further developed to include a wider range of relevant radionuclides.

In the past, radiation protection criteria were developed only for humans, and it was assumed that by protecting man, other species would be protected to an acceptable

degree. In recent years several problems have been identified with this existing tenet, with the result that systems for protection of flora and fauna, *per se*, are being developed and tested. Several knowledge gaps relating to this have already been identified, especially with regard to radionuclide uptake, transfer and biological response indicators. Furthermore, there is a need to obtain more experience in the practical application of environmental protection frameworks in typical Nordic environments.

Since 2004, uranium prices have increased sharply, leading to a higher interest in uranium prospecting, and also thorium, in several Nordic countries. Mining and milling for uranium and thorium, and also some other metals, give rise to waste rock and tailings with enhanced concentrations of radioactive substances from the natural series. A wide range of monitoring and measurement techniques will be needed for the risk assessments.

The program is structured into three basic fields: Research activities, investigations, exercises etc.; Seminars; and Education. Work performed within the first of these fields should be focused on maintaining and building up competence. Seminars should aim at building and maintaining both competence and networks. Education should help building competence in the individual countries with the aim of reaching the common goals.

When evaluating proposals for activities they will be judged against how well they seem to fulfil the aims of the respective fields, as well as against their scientific and pedagogical merits.

B2 Main Research Areas and Program Contents

E Emergency Preparedness (in general, as well as specific tools)
Examples of activities:

- Recent nuclear and radioecological emergencies and incidents causing public interest: lessons learned and implications for emergency preparedness
- Potential malicious uses of radioactive substances: security and emergency response
- Exercises and harmonization of activities
- Dose assessments and biodosimetry
- Countermeasures: effectiveness and practicability
- Information and communication: further development of systems and methods
- Decision support systems: integration of existing knowledge

W Waste and Discharges
Examples of activities:

- Waste and discharges from decommissioning activities
- Cost assessments of decontamination measures and remediation
- NORM waste from mining and milling (NORM: Naturally Occurring Radioactive Material)
- Interventions and clean-up operations
- Disposal of radioactive sources

R Radioecological Assessments

Examples of activities:

- Transport and ecological transfer of radionuclides in terrestrial environments
- Radioactivity in natural produce and foodstuffs produced in contaminated areas: temporal trends and seasonal effects
- Dose assessments from artificial and natural radionuclides
- Radiation effects in biota: studies of reference ecosystems and reference species for Nordic environments
- Case studies at locations with elevated concentrations of radionuclides
- Marine environments of special importance
- Syntheses of earlier radioecological studies of Nordic interest

M Measurement Strategy, Technology and Quality Assurance

Examples of activities:

- Implementation of international standards and regulations in Nordic countries (e.g., foodstuffs, bulk materials)
- Sampling/measurement strategies for contaminated material, - areas, - foodstuffs
- Systems for mobile measurements
- Validation of methods for sampling and preconcentration of radionuclides
- Radionuclide analytical techniques and intercomparisons

The list of subjects given above is not complete, and other proposals that can be associated with any of the four categories above will also be considered in the evaluation process. More specific priorities regarding subjects to be covered can be given in connection with each “Call for Proposals”.

Cross-Disciplinary Activities

In the near future issues regarding decommissioning of nuclear installations and waste management will demand increased attention. This will include analyses of technical safety aspects, volumes and properties of radioactive waste, radioactive releases and protection of the environment. Hence, activities in a number of fields will not always be strictly R or B related but may be relevant to both programs. The Board decides whether such an activity will be handled under the R or B program, or if it should be treated in some other way.

Some examples of possible areas for cross-disciplinary activities:

- Decommissioning and waste management
- Common seminars covering both R and B activities
- Information and communication activities targeting media and the general public

Guidelines

From Proposal to Final Report

Call for Proposals

During an annual (in exceptional cases, biannual) procedure of Call for Proposals the R and B program managers invite the Nordic nuclear community to submit activity proposals and apply for NKS funding. Usually this takes place in the fall, with a possible extra opportunity in the spring. Relevant information on the procedure (time schedule; deadline for applications; information to be supplied; criteria to be met; evaluation of the proposals; formalities including forms to be used; etc.) is made available well in advance on the NKS website and distributed to the subscribers of the electronic newsletter. The applicants are expected to demonstrate that at least half of the necessary funding of the activity in question will be supplied by the participating organizations, usually in the form of in-kind contributions.

All applications received before the deadline is evaluated by a group of specialists, chaired by the program manager in question. The proposals are evaluated for compliance with the NKS criteria below. The evaluation results are compiled by the program manager together with any recommendations, and a report is sent to the Board members. At its next meeting, the Board decides what activities are accepted, the size of the NKS funding supplied, and any special conditions to be met. The program manager and the various activity leaders then sign individual contracts regarding each activity. This should be done before the subsequent Board meeting, when progress will be scrutinized and continued work approved or aborted. It is the responsibility of the NKS program manager to ensure that the time schedule and budget of the individual activities are kept, together with any conditions specified in the contract, and to report the status of the activity to the Board at its meetings, until the activity is finally finished and the results are accepted by the Board. The results may then be officially published and handed over to the financiers, participating organizations and end users for information and implementation. The Board should initiate an evaluation of activities once they have been concluded and approved.

Proposals turned down by the Board should be listed for future reference and the activity leaders informed on the Board's decision as soon as possible after the Board meeting. In some cases the Board may indicate that a refused proposal should or could be completed and submitted at a later occasion for renewed assessment.

Silent Procedure

On special occasions the Board may decide to go ahead with an activity even though it has not followed the normal Call for Proposals procedure. The Board will then decide on any special conditions for that particular activity. E.g., in urgent cases the chairman may initiate a Silent Procedure where an activity proposal and pertaining information is distributed electronically to the Board members, together with a suggested decision on the further handling of the proposal. Members who agree with the suggested action need not answer; those opposed must submit their comments before a specified date. If no objections are received, the suggested action is taken.

Criteria for NKS Activities

The entire NKS program as well as the various activities shall fulfil the following criteria:

- Demonstrated compatibility with the current framework program
- A clear Nordic added value, including
    - creating and maintaining Nordic networks
    - dissemination and increase of Nordic competence within the program area in question
- Current interest in and high international standard of the technical/scientific work
- Comprehensive and transparent activities, open to the widest possible range of participants, including young scientists
- Active participation and/or declared interest in the expected results of organizations in at least three Nordic countries in all major activities (occasionally, two countries may be acceptable)
- Distinct and measurable goals
- Relevance to financiers and end users
- The practical results shall be presented
    - at conferences, seminars, workshops etc
    - in technical reports and scientific articles in refereed journals
    - as recommendations, manuals, handbooks, checklists
    - in electronic form such as DVDs, CD-ROMs, websites
    - in the form of educational and information material

NKS work is dependent on in-kind contributions worth on the average at least as much as the NKS funding. These contributions may be work hours, travel expenses, laboratory resources etc. and should be clearly specified in all proposals submitted under the Call for Proposals procedure.

NKS aims at an approximately even overall distribution of funding between the R and B programs as well as between participating Nordic countries and organizations within the various activities. Gender neutrality and participation of young scientists shall be encouraged. When possible and relevant, M.Sc. and Ph.D. support should be included in ongoing or proposed activities and NKS activities coordinated with international projects. Measures should be taken to ensure cost-efficiency, save resources and protect the environment, e.g., by substituting travels and business meetings with electronic contacts and virtual meetings.

Quality Assurance

The quality of the work performed and the activities at large is constantly being surveilled and assured through

- evaluation of applications received during the Call for Proposals
- participation of end users throughout the entire process: planning, execution, deliverables, reporting, implementation, and evaluation
- reporting and discussions at Board meetings
- publication of results in reports and refereed journals
- dissemination and discussions of NKS results in Nordic and international fora (conferences, seminars, topical meetings, workshops etc.)

- regular evaluations of the entire technical/scientific program and the administrative support structure

International Cooperation

There is no formalized NKS cooperation with other international organizations. Participation in international projects is to follow decisions and conditions given by the Board. NKS should strive to create and maintain relevant international contacts and keep the international audience informed on its progress. Whenever feasible and desirable, NKS activities should be coordinated with similar Nordic and international activities in order to increase efficiency and improve exchange of results and experience. When needed, NKS can be used as a platform for international coordination and promotion of Nordic views. Non-Nordic cooperation in NKS activities must be approved by the relevant program manager beforehand and will not be supported financially by NKS.

Communication and Dissemination of Information

NKS communication activities (including information and dissemination of results) shall be planned, systematic and in compliance with directives laid down by the Board. The target groups shall be informed about the possibilities offered by NKS as regards cooperation, funding, and exchange of knowledge. The communication efforts shall help establish a picture of NKS as a competent and active organization – nationally, regionally and internationally. The results of NKS work shall be presented openly and free of charge so as to render them useful and easy to implement. When quoted, due credit should be given to the proper NKS sources and a link to the NKS website www.nks.org given.

The major channels for distributing NKS information are:

- the NKS website
- electronic newsletters and newsflashes
- electronic and (occasionally) printed reports and pamphlets
- conferences, seminars, workshops and international cooperation projects
- scientific articles in refereed journals
- internal NKS correspondence and communication

NKS newsletters are normally published biannually, prior to the regular NKS Board meetings in May and November. The newsletters come without attachments of any kind, and the object is to give links to material on the NKS website for more information on new reports, invitations to seminars and similar events. The material referred to can be downloaded free of charge. In addition to the biannual newsletters, brief newsflashes will be distributed as soon as new reports have appeared or when new information is available on upcoming seminars etc. Anyone wishing a free subscription to the newsletters and newsflashes should contact the Secretariat at nks@nks.org.

NKS(08)2 rev 5
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Nordisk kernesikkerhedsforskning
Norrænar kjarnöryggisrannsóknir
Pohjoismainen ydinturvallisuustutkimus
Nordisk kjernesikkerhetsforskning
Nordisk kärnsäkerhetsforskning
Nordic nuclear safety research

NKS-programmet: Ramar, riktlinjer och genomförande

Introduktion

Nordisk kärnsäkerhetsforskning (NKS) är en plattform för nordisk kompetens inom kärnsäkerhet och härtill relaterat strålskydd med särskild inriktning på beredskap och skydd av miljön. Se www.nks.org. Genom samarbete i forskningsaktiviteter, seminarier och liknande skapas och sprids nytt kunnande och kontaktnät vidgas, både nordiskt och internationellt. Arbetet finansieras av nordiska myndigheter, företag och andra organisationer. Resultaten används som beslutsunderlag för de medverkande organisationerna och för information om kärnsäkerhet.

Detta är det officiella policydokumentet för NKS-verksamheten, NKS(08)2, och ger i de tre huvudavsnitten *Detta är NKS*, *Ramprogram* och *Riktlinjer* bakgrundsinformation om NKS och vägledning i hur NKS-arbetet läggs upp, styrs och genomförs. Det finns även en engelsk version av detta dokument, NKS(08)3, men det är en förkortad version. Vid eventuella tolkningsproblem eller oklarheter är det den svenska versionen som gäller.

Syftet med policydokumentet är att i systematisk form presentera mål, struktur, organisation, finansiering, uppföljning, genomförande, kvalitetssäkring, avrapportering och utvärdering av NKS-arbetet. Målgruppen är i första hand NKS-kretsen, det vill säga de personer som aktivt deltar i NKS-verksamheten. Därutöver vänder sig dokumentet till andra personer bland de organisationer som är finansiärer, beställare eller slutanvändare av resultaten av NKS-arbetet och som kan ha intresse av att känna till NKS.

Dokumentet svarar på frågor som:

- Vad är NKS?
- Hur är NKS och dess arbete organiserat?
- Hur finansieras arbetet?
- Vilka är de viktigaste arbetsområdena?
- Måste man bo i Norden för att få delta?
- Hur kommer man med i NKS-arbetet?
- Vad är en *Call for Proposals*?
- Vem kan föreslå nya aktiviteter?
- Vilka aktivitetskriterier gäller?
- Hur får man NKS-finansiering?
- Hur utvärderas kvaliteten på arbetet?
- Hur sprids resultaten?

Den som efter avslutad läsning av detta dokument har ytterligare frågor rekommenderas att kontakta berörd programchef eller NKS-sekretariatet på nks@nks.org.

Detta är NKS

Mål

Nordisk kärnsäkerhetsforskning (NKS) ska förbättra förutsättningarna för en nordisk samsyn inom kärnsäkerhetsområdet. Denna samsyn ska inkludera insikten om att regler, praxis och åtgärder kan variera länderna emellan, och förutsätter att dessa olikheter då kan förklaras.

Vidare har NKS som mål

- förbättrad kärnsäkerhet och härtill relaterat strålskydd med särskild inriktning på beredskap och skydd av miljön
- höjd kompetens och fördjupade kunskaper
- samarbete, nätverksbyggande och spridning av information

Forskningsprogrammet är centrerat kring frågor som uppkommer vid användningen av kärnkraft och därmed sammanhängande nukleär verksamhet i Norden och dess närområde. NKS-arbetet är därför inriktat på kärnsäkerhetsfrågor som de definierats i målen ovan, och ska sprida framkomna resultat i förståelig form till myndigheter, kraftbolag och övriga berörda. Det ska vidare stärka de nordiska ländernas förutsättningar att delta i internationell debatt och internationellt samarbete inom sakområdet. Särskilda satsningar ska göras för att engagera unga forskare.

Hur målen ska uppnås

NKS ska vara ett brett forum för flexibelt samarbete mellan nordiska specialister. Dessa kan komma från säkerhets-, strålskydds- och beredskapsmyndigheter samt forskningsinstitutioner, kärnkraftrelaterade företag och andra organisationer i Norden. Forskning ska bedrivas kring frågor om kärnsäkerhet av centralt, gemensamt intresse för de nordiska länderna, särskilt vad gäller reaktorsäkerhet och beredskap mot olyckor.

Samarbetet innebär att NKS skapar ny kunskap, sammanställer befintligt vetande på ett ändamålsenligt sätt, medverkar i övningar, utväxlar data och sprider information om kärnsäkerhet.

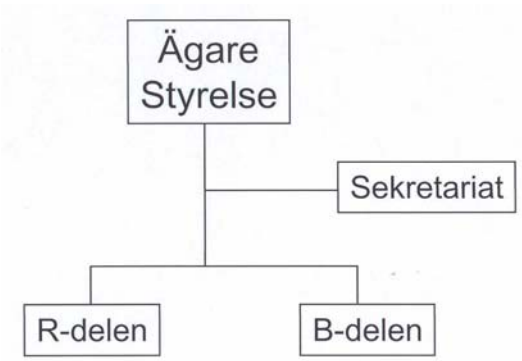
Resultaten ska vara öppet och kostnadsfritt tillgängliga och praktiskt användbara för alla. NKS blir därigenom ett serviceorgan för sina intressenter och erbjuder en plattform för beslutsfattare och experter inom kärnsäkerhetsområdet i och utanför Norden. När NKS-rapporter citeras eller NKS-arbete omnämns i olika sammanhang ska ett erkännande av NKS' bidrag göras.

NKS' struktur

Kärnan i NKS' styrelse utgörs av de fem ägarna, som är huvudfinansiärer av NKS-arbetet. Varje ägare har därutöver rätt att utse ett antal styrelseledamöter. Ägarna utser ordföranden för NKS och programcheferna för den teknisk/vetenskapliga verksamheten. Denna är uppdelad i en reaktordel (R) och en beredskapsdel (B) samt gränsöverskridande aktiviteter som är både R och B. Ett sekretariat svarar bl a för ekonomi, rapportutgivning, adresslistor, nätplats *(hjemmeside)* och allmänna administrativa göromål. Sekretariatet tillsätts av styrelsen.

Programcheferna deltar normalt i styrelsens möten och rapporterar direkt till styrelsen om sin verksamhet.

Organisationen framgår av följande figur.



Förutsättningar

I NKS ingår organisationer från samtliga fem nordiska länder. Den normala samarbetsformen är en programverksamhet, där det nordiska perspektivet i allmänhet säkras genom att representanter för minst tre nordiska länder ingår i vardera programområdet och att normalt minst tre länder visar intresse för de flesta större aktiviteter, antingen genom aktivt deltagande eller som användare av slutresultaten.

NKS-arbetet bygger på en nordisk säkerhetskultur, gemensamma nordiska problemställningar och en strävan till effektivisering genom samverkan och informationsutbyte. Så långt möjligt tas hänsyn till enstaka länders och organisationers behov och önskemål vad gäller inriktning och genomförande av aktiviteter.

Finansiering och budget

Ägarna svarar för huvuddelen av NKS-finansieringen. De utgörs av

- Beredskabsstyrelsen i Danmark
- Arbets- och näringsministeriet i Finland
- Geislavarnir ríkisins i Island
- Statens strålevern i Norge
- Strålsäkerhetsmyndigheten i Sverige

Ytterligare ekonomiska bidrag kommer från följande organisationer:

- Fennovoima Oy i Finland
- Fortum Power and Heat Oy i Finland
- TVO i Finland
- IFE i Norge
- Forsmarks Kraftgrupp AB i Sverige
- Kärnsäkerhet och utbildning AB (KSU) i Sverige
- OKG Aktiebolag i Sverige
- Ringhals AB i Sverige

Till detta kommer eventuella riktade medel från en eller flera organisationer till stöd för en viss aktivitet eller grupp av aktiviteter samt eventuell EU-finansiering av vissa aktiviteter.

Utöver de kontanta medel som NKS disponerar via sin budget, tillkommer nationell finansiering av enskilda aktiviteter (*in kind*, till exempel genom odebiterade arbetsinsatser, laboratorieresurser och reskostnader). En sådan medfinansiering beaktas vid utvärderingen av insända aktivitetsförslag och förväntas normalt vara lika stor som den begärda NKS-budgeten för att aktiviteten ska få NKS-stöd.

Styrelsen fattar beslut om NKS' budget efter förslag från ordföranden. Budgeten fastläggs för ett år i taget och grundas på ägarnas åtaganden vad gäller bidragen till NKS. Styrelsen kan göra budgetmässiga avsiktsförklaringar för flera år i sänder, dock alltid med förbehållet att en förutsättning är att ägarna skjuter till de nödvändiga medlen.

Styrelsens sammansättning

Ägarna tillsätter NKS' styrelse. Den består för närvarande av representanter för följande organisationer:

Danmark	Beredskabsstyrelsen
	Statens institut for strålebeskyttelse
Finland	Arbets- och näringsministeriet
	STUK
	Fortum
	VTT
Island	Geislavarnir ríkisins
Norge	Statens strålevern (två personer)
	IFE
Sverige	Strålsäkerhetsmyndigheten (två personer)
	Vattenfall

Styrelsemedlemmarna från Fortum och Vattenfall är representanter för kärnkraftindustrin i respektive land.

Ramprogram

Programområden

NKS' verksamhet bedrivs i två dynamiska programområden enligt ett ramprogram som fastställs av styrelsen. Vid styrelsens möten läggs nya aktiviteter till, genomförda aktiviteter avrapporteras vartefter de är klara, och pågående aktiviteter kan förlängas, utökas, minskas eller avbrytas. Detta medför både flexibilitet och ett inslag av konkurrens om forskningsmedlen.

Efter en utvärdering 2006 av de fyra senaste årens resultat av verksamheten har ett nytt ramprogram utarbetats och godkänts av styrelsen i november 2007. Den nuvarande programstrukturen består av följande två huvudområden:

- Reaktorsäkerhet (R-delen)
- Beredskap (B-delen)

Det är styrelsen som fattar beslut om innehållet, tidsramarna och budgeten för de olika aktiviteterna. När aktivitetsförslag utvärderas följer man riktlinjerna i ramprogrammet för R- och B-delarna samt de kriterier som presenteras i ett senare avsnitt. Den finansiella fördelningen bör i ett längre tidsperspektiv vara cirka 50/50 mellan R- och B-delen. En programchef leder arbetet för R- respektive B-delen. Programcheferna har löpande kontakter med ordföranden och sekretariatet, samt rapporterar direkt till styrelsen.

Vissa aktivitetsförslag faller utanför den ordinarie uppdelningen i R och B, eller omfattar både R och B. Vid sådana gränsöverskridande aktiviteter fattar styrelsen beslut från fall till fall om aktivitetsansvarig, budget, tidsplaner etc.

Aktiviteter

Generella aspekter

NKS-programmet genomförs i form av
dels kunskapsutveckling i form av forskningsaktiviteter, utredningar, faktainsamling, övningar etc
dels resultatspridning genom seminarier, temamöten, utbildning etc

Kunskapsutvecklingen syftar till att upprätthålla och utveckla nordisk kompetens och vetande inom kärnsäkerhetsområdet. Seminarieverksamheten ska skapa och utveckla såväl kompetens som nätverk. Utbildningsinsatserna ska hjälpa till att bygga upp kompetens i de deltagande länderna med syftet att uppnå gemensamma NKS-mål.

När aktivitetsförslag utvärderas tar man hänsyn till hur väl de uppfyller kraven på kunskapsutveckling och resultatspridning såväl som förslagens teknisk/vetenskapliga och pedagogiska förtjänster.

De två huvudsakliga arbetsområdena R och B presenteras i var sitt avsnitt nedan, följt av ett avsnitt om gränsöverskridande aktiviteter.

Forskningsarbetet inom programområdena indelas i aktiviteter av varierande innehåll, längd, budget och medverkande. Processen från aktivitetsförslag (ansökningar i samband med *Call for Proposals*) till genomförd aktivitet beskrivs i ett separat avsnitt, och kriterierna för NKS-aktiviteter finns i ett annat avsnitt. Se även nätplatsen för mera detaljer för R- respektive B-delen. Alla större aktiviteter bör vara väl förankrade i den fackliga miljön med – som regel – intresse från minst tre nordiska länder, antingen i form av aktivt deltagande eller genom att man avser att använda slutresultaten. För mer begränsade aktiviteter kan dock bilateral medverkan godkännas. När arbetet inom en aktivitet är klart avrapporteras det till programchef och styrelse, och slutanvändarna kan implementera resultaten.

För att långsiktigt upprätthålla en hög kompetensnivå är det viktigt att få tillräckligt många unga forskare att specialisera sig på kärnsäkerhet. I de flesta nordiska länder är det totala antalet experter begränsat. Universitets- och högskolevärlden spelar här en viktig roll och måste stimuleras att erbjuda relevanta kurser, avhandlingsarbeten och forskningsprojekt.

Vid planering av motåtgärder eller i händelse av ett skarpt läge utgör optimal användning av nationella resurser och det eventuella behovet av assistans från grannländerna ytterligare utmaningar. Detta gäller även kommunikationen med media och allmänheten. Nordisk samsyn och ett likartat arbetssätt är viktigt för att behålla allmänhetens förtroende. Detta bör i tillämpliga fall avspeglas i NKS-arbetet.

Innehållsmässiga aspekter
De följande avsnitten innehåller ramprogram för R och B samt några riktlinjer för gränsöverskridande aktiviteter. Eftersom R och B skiljer sig väsentligt på några punkter (till exempel vad gäller typen av deltagande organisationer och slutanvändare av resultaten) kommer även uppläggningen av ramprogrammen, arbetet och resultatspridningen att delvis skilja sig åt mellan de båda delarna.

De förteckningar över arbetsområden som ges nedan i avsnitten om R- respektive B-delen ger typexempel och är alltså inte kompletta. Varje förslag som passar in i NKS-programmets ramar kommer att delta i evalueringsprocessen. Eventuella särskilda prioriteringar kan komma att meddelas inför varje *Call for Proposals*.

Reaktorsäkerhet, nukleär beredskap och miljöfrågor har prioriterats i Norden under många år. En av de största utmaningarna utgörs av de tekniska systemens komplexitet tillsammans med miljö- och tillsynsaspekter. Vetande från en mängd olika sakområden (reaktorteknik, kärnfysik, teknisk säkerhet, mätteknik, miljövetenskap, radiobiologi, information och kommunikationsteknologi) måste samordnas. Kontinuerlig utveckling och förbättringar är nödvändigt, och existerande kunskap och hjälpmedel ses över och ständigt förbättras.

Många års erfarenhet visar att seminarier, kurser och utbildning är utmärkta hjälpmedel för att sprida kunskap, stimulera diskussion och utveckla nätverk. Det är extra värdefullt om deltagarna hjälper till med förberedelse- och efterarbetet. Seminarier bör alltid resultera i en skriftlig slutrapport. NKS-medverkan i andra relevanta nordiska, europeiska och andra internationella seminarier uppmuntras.

Kompetensen på kärnsäkerhetsområdet kan höjas genom utbildning på flera olika sätt, t ex genom att organisera och stöda nordiska kurser på MSc- och PhD-nivå. Det är även värdefullt om enskilda studenters deltagande i NKS/R- eller NKS/B-aktiviteter är

relevant för och kan hjälpa dem i deras studier. Även andra former av utbildning kan övervägas, t ex:

- Olika typer av workshops, med inbjudna föreläsare och som slutrapporteras i sakgranskade tidskrifter (*proceedings in refereed journals*)
- Träning, övning, utbytesbesök mellan forskningsinstitutioner

Aktivitetsrelaterade informationsfrågor förs till respektive aktivitet och programområde. NKS-insatserna inkluderar inte safeguards, transporter, allmänt strålskydd och extern hotbild, annat än som ren uppföljning av tidigare verksamhet. Frågor om hantering av avfall från gruvverksamhet som inte avser urangruvor hör normalt inte hemma inom NKS, inte heller kostnadsberäkningar (t ex av avveckling och rivning av kärntekniska anläggningar). Men sådana aktiviteter kan ingå där det finns synergieffekter.

Reaktorsäkerhet (R-delen)

R1 Prioriteringar och utmaningar inom NKS/R-programmet

Forskningsaktiviteter som prioriteras inom R-delen varierar över tid med vilka frågor som bedöms vara aktuella att utreda eller informera omkring. Aktiviteterna kan innebära att ta fram ny kunskap, att sammanställa kunskap på ett systematiskt sätt för att underlätta tillämpning, eller pilotprojekt som innebär tillämpning av ny kunskap eller ny teknik. Det kan också vara att sprida kunskap genom temaseminarier eller utbildning.

NKS' finansiella bidrag utgör en liten del (någon procent) av forskningsanslagen i Norden inom reaktorsäkerhet inklusive avveckling och avfall. Bidraget kan därför inte förväntas ha en avgörande betydelse för utveckling inom forskningsområdet som sådant. Utöver det förväntade resultatet av en aktivitet värderas även hur den genomförs och hur resultaten ska spridas vid bedömning av hur väl aktiviteten bidrar till en nordisk samsyn och i övrigt ger mervärden enligt NKS' kriterier.

Prioritering av aktiviteter bör även göras utifrån betydelsen för säkerheten hos befintliga reaktorer/reaktorprojekt. Driftmässiga eller ekonomiska frågor ges lägre prioritet. Pågående nationell och internationell forskning inom området ska vägas in i val av aktiviteter liksom samverkan med sådana.

Kärnkraftindustrin och myndigheterna har ett antal aktuella utmaningar som är av särskilt stort intresse inom vilka forskningsaktiviteter prioriteras. Det gäller säkerhetsmässig modernisering av äldre reaktorer, harmonisering av säkerhetskrav, effekthöjningar, åldringsproblem, avveckling och rivning, avfallshantering och förvar såväl som nya kärntekniska anläggningar.

R2 Huvudområden och programinnehåll inom R-delen

Som en vägledning anges i det följande de huvudområden som bedömts som aktuella för den närmaste 5 åren exemplifierade med några underrubriker.
Följande förkortningar används i texten:

BWR	Boiling Water Reactor
CFD	Computational Fluid Dynamics
HR	Human Reliability
MTO	Människa, teknik, organisation

NDT	Non-Destructive Testing
PSA	Probabilistisk säkerhetsanalys
RI-ISI	Risk-Informed In-Service Inspection

Reaktorfysik och termohydraulik
Exempel på områden:

- Härd-instabilitets/-svängningsfenom i BWR-bränsle med högre utbränning
- Reaktorfysik och dynamik
- Termohydraulik och CFD-kalkyler
- Integration av olika modeller

Modernisering, införande av ny teknik och nya krav
Exempel på områden:

- Digitala kontrollrum; nya krav
- Effekthöjningar

Åldring av anläggningar
Exempel på områden:

- Termisk eller mekanisk utmattning
- Bestrålningsskador på reaktortryckkärlet
- Inneslutningsbetongens ålderspåverkan
- NDT-teknologi och validering av metoder
- RI-ISI, strategier och applikation av metoden
- Åldringshanteringsprogram och åldringsmekanismer: helhetsbild av kärnkraftanläggningar
- Nya materialkonstruktioner, deras egenskaper samt åldrande

Svåra haverier
Exempel på områden:

- Jods och halogeners kemiska uppträdande vid svåra haverier
- Interaktion av härdsmälta och betong

Probabilistiska metoder
Exempel på områden:

- Tillämpning av PSA för säkerhetsvärdering
- Överskådlig resultatpresentation på olika nivåer
- Uppskattning av osäkerheter
- Krav på PSA-studier beroende på typ av tillämpning
- Verifiering av försvar på djupet (defense in depth) med PSA
- Nordisk harmonisering av krav på PSA-studier och tillämpningar
- Referensbibliotek för guider och regler
- Harmonisering av väsentliga definitioner och begrepp inom säkerhetsområdet

Organisation, människa och säkerhetskultur
Exempel på områden:

- Modeller och metoder för säkerhetsgranskning
- Säkerhetskulturens inverkan på inträffade händelser
- Åtgärder i samband med händelseutredningar
- Benchmarking inom kärnkraftindustri och med andra säkerhetskritiska områden
- Säkerhetsvärdering av organisatoriska förändringar

- Säkerhetskultur och värdering av organisationen
- Säkerhetsaspekter vid användning av underleverantörer i kärnkraftindistri
- Införande av nya tekniker och nya arbetsmetoder
- Tillämpning av HR-metoder (MTO) i kärnkraftverk

Avveckling och rivning av kärntekniska anläggningar
Exempel på områden:
- Avveckling och rivning av forskningsreaktorer
- Medverkan (*inddragelse*) av sakägare (*stakeholders*) i de nordiska länderna
- Myndighetskrav i de nordiska länderna på dekommissioneringsprojekt
- Erfarenheter från dekommissioneringsprojekt

Gemensamma seminarier för R- och B-delarna
Exempel på områden:
- PSA, svåra haverier och haveriberedskap
- Avveckling av kärntekniska anläggningar och befriande från övervakning
- Miljökonsekvensbeskrivningar

Förteckningen av ämnesområden ovan är inte komplett. Alla förslag till nya aktiviteter inom de åtta huvudområdena kommer att beaktas i utvärderingsprocessen. Mer preciserade prioriteringar av vilken typ av aktivitetsförslag styrelsen gärna emotser kan komma att göras i samband med varje *Call for Proposals*.

Beredskap (Emergency Preparedness, B-delen)

B1 The aim and challenges of the NKS/B program

The aim of the NKS/B program is to strengthen Nordic work concerning
- radiological emergency preparedness
- management of radioactive waste and discharges
- radioecology and environmental assessments

In addition to the threats from potential nuclear accidents, threats related to the possibility of malicious uses of radioactive or nuclear substances is now seen as a major concern. The case of polonium-210 poisoning and contamination in London in November 2006 is an example of an unexpected situation that demonstrates new challenges related to, e.g., special competence regarding measurement/analytical techniques and radiation protection assessments.

During the last 30 years or so, a lot of experience and knowledge regarding consequences of radioactive discharges, fallout and environmental radioactivity have been gained. The research has to a large extent focused on the behavior of a few important radionuclides. This competence and knowledge must be maintained and further developed to include a wider range of relevant radionuclides.

In the past, radiation protection criteria were developed only for humans, and it was assumed that by protecting man, other species would be protected to an acceptable degree. In recent years several problems have been identified with this existing tenet, with the result that systems for protection of flora and fauna, *per se*, are being developed and tested. Several knowledge gaps relating to this have already been identified, especially with regard to radionuclide uptake, transfer and biological

response indicators. Furthermore, there is a need to obtain more experience in the practical application of environmental protection frameworks in typical Nordic environments.

Since 2004, uranium prices have increased sharply, leading to a higher interest in uranium prospecting, and also thorium, in several Nordic countries. Mining and milling for uranium and thorium, and also some other metals, give rise to waste rock and tailings with enhanced concentrations of radioactive substances from the natural series, and there is public interest concerning radiation safety and contamination of the environment. A wide range of monitoring and measurement techniques will be needed for the risk assessments.

B2 Program content

Research activities, investigations, exercises

Potential activities should fall into one of the following four main categories:

E Emergency Preparedness (in general, as well as specific tools)
Examples of activities:

- Recent nuclear and radioecological emergencies and incidents causing public interest: lessons learned and implications for emergency preparedness
- Potential malicious uses of radioactive substances: security and emergency response
- Exercises and harmonization of activities
- Dose assessments and biodosimetry
- Countermeasures: effectiveness and practicability
- Information and communication: further development of systems and methods
- Decision support systems: integration of existing knowledge

W Waste and Discharges
Examples of activities:

- Waste and discharges from decommissioning activities
- Cost assessments of decontamination measures and remediation
- NORM waste from mining and milling (NORM: Naturally Occurring Radioactive Material)
- Interventions and clean-up operations
- Disposal of radioactive sources

R Radioecological Assessments
Examples of activities:

- Transport and ecological transfer of radionuclides in terrestrial environments
- Radioactivity in natural produce and foodstuffs produced in contaminated areas: temporal trends and seasonal effects
- Dose assessments from artificial and natural radionuclides
- Radiation effects in biota: studies of reference ecosystems and reference species for Nordic environments
- Case studies at locations with elevated concentrations of radionuclides
- Marine environments of special importance
- Syntheses of earlier radioecological studies of Nordic interest

M Measurement Strategy, Technology and Quality Assurance

Examples of activities:

- Implementation of international standards and regulations in Nordic countries (e.g., foodstuffs, bulk materials)
- Sampling/measurement strategies for contaminated material, - areas, - foodstuffs
- Systems for mobile measurements
- Validation of methods for sampling and preconcentration of radionuclides
- Radionuclide analytical techniques and intercomparisons

Gränsöverskridande aktiviteter

Aktiviteter inom ett antal områden är inte alltid renodlat R eller B. Exempel på områden som kan bli aktuella de närmaste åren är

- avveckling och avfall
- information och kommunikation med till exempel media och allmänhet som målgrupp
- gemensamma seminarier

De närmaste åren kommer frågor som rör avveckling av nukleära installationer och avfallshantering att kräva allt större uppmärksamhet. Detta kommer att inbegripa analys av tekniska säkerhetsaspekter, kvantiteter och egenskaper hos radioaktivt avfall, utsläpp av radioaktiva ämnen och skydd av miljön.

Många gånger leder studier av säkerhetsfrågor till avsevärt intresse från allmänheten. Vid behov kan därför aktiviteter avseende strategier, hantering och tekniker för information om sådana frågor inkluderas i NKS-arbetet.

Det är styrelsen som avgör om en gränsöverskridande aktivitet ska föras till R- eller B-delen, eller om den ska hanteras på annat sätt. Det finns ingen programchef för gränsöverskridande aktiviteter. Vid speciella tillfällen kan styrelsen besluta att en gränsöverskridande aktivitet beviljas NKS-medel utan att förslaget först genomgått den normala proceduren med *Call for Proposals*. Styrelsen beslutar då från fall till fall vilka särskilda villkor som ska gälla.

Riktlinjer

Styrning av NKS-arbetet

Nordisk kärnsäkerhetsforskning (NKS) bedriver teknisk/vetenskapligt arbete inom kärnsäkerhetsområdet i de fem nordiska länderna, och involverar centrala säkerhets- och strålskyddsmyndigheter, kraftindustri och andra företag, forskningsorganisationer etc. Koordinering och samverkan mellan alla inblandade parter (såväl finansiärer som slutanvändare och övriga programdeltagare) är därför av vikt.

Till hjälp i vardagsarbetet finns nedanstående riktlinjer som ett styrinstrument för att styrelsens intentioner ska uppnås. Riktlinjerna, liksom ramprogrammet och aktivitetskriterierna, uppdateras vid behov, och alla väsentliga ändringar beslutas av styrelsen. Det dagliga arbetet med ekonomihantering, rapportutgivning etc följer den praxis som samlats i en separat administrativ handbok. Den senaste versionen av handboken finns på www.nks.org.

Hur en NKS-aktivitet blir till

NKS' styrelse överväger löpande vilka områden och aktiviteter som är av störst värde för finansiärer och användare av resultaten. Vid val av nya aktiviteter ska hänsyn tas till finansiärernas och de nordiska säkerhetsmyndigheternas, kärnkraftsorganisationernas och forskningsinstitutens aktuella behov samt till det nordiska mervärdet. Syftet ska vara klart och entydigt beskrivet.

Normalt är det externa organisationer som tar initiativ till nya aktiviteter, oavsett om det gäller R, B eller gränsöverskridande aktiviteter. Men även styrelsen och programcheferna kan ta initiativ till aktiviteter, till exempel större seminarier.

Utgångspunkten är att det finns någon som har identifierat ett behov och att det finns användare av de önskade resultaten (exempelvis myndighet, kraftbolag) och en utförande organisation (exempelvis forskningsinstitut, konsult, kraftbolag).

Utarbetandet av en forskningsaktivitet kan inledas med en kontakt mellan en användare och en utförare som resulterar i ett förenklad övergripande projektbeskrivning, om intresse finns hos båda parter. Denna förenklade projektbeskrivning kan sedan användas för att ta upp en diskussion inom NKS för att se om det finns ett bredare intresse och om förutsättningar finns för att projektet ska kunna uppfylla kriterierna. I detta läge kan även ytterligare utförare komma in om det behövs.

Om kriterierna uppfylls kan utföraren ta fram ett aktivitetsförslag enligt gällande format, förankra det inom berörd projektgrupp och lämna in det till berörd programchef för värdering enligt nedan.

Från aktivitetsförslag till genomförd NKS-aktivitet

Vid en procedur med *Call for Proposals* efterlyser programcheferna förslag till nya NKS-aktiviteter. Proceduren genomförs minst en gång om året (inför styrelsens novembermöte), men kan vid behov genomföras två gånger (inför november- och majmötena). Berörda organisationer inbjuds att sända in förslag till aktiviteter till respektive programchef. Samtidigt publiceras de teknisk/vetenskapliga kriterier och formella krav som ansökningarna ska uppfylla. För att få NKS-stöd krävs normalt en

hälftenfinansiering (*in-kind*) av aktiviteterna från de deltagande organisationerna. Efter ansökningstidens utgång utvärderar programcheferna förslagen i samarbete med en evalueringsgrupp, utgående från de fastställda kriterierna. Programcheferna sammanställer sedan evalueringsresultaten tillsammans med sina egna prioriteringar och förslag till beslut i en rapport till styrelsen. Denna beslutar vilka aktiviteter som ska beviljas NKS-medel och vilken budget de får. Förfarandet ger flexibilitet åt programmet och innebär ett visst mått av konkurrens.

Programcheferna upprättar därefter avtal med berörda organisationer, och arbetet inom de godkända aktiviteterna kan påbörjas. Vid nästa styrelsemöte ska alla nya aktiviteter ha påbörjats och programcheferna lämnar statusrapporter för den samlade verksamheten inom programområdet. Eventuella styrelsebeslut förmedlas av programcheferna till de aktivitetsansvariga.

Genom rapporter från programchefen kan styrelsen bedöma uppnådda resultat och avgöra om en aktivitet ska fortsätta, utökas, minskas eller avbrytas. En aktivitet betraktas som genomförd först när slutrapporten är klar. Programchefen avrapporterar därefter till styrelsen, som fattar beslut om ett eventuellt godkännande av aktiviteten. Sedan kan resultaten formellt överlämnas av programchefen till slutanvändarna för implementering. Styrelsen bör ombesörja att genomförda och godkända aktiviteter snarast utvärderas.

Vid behov (till exempel i brådskande fall) kan ordföranden ta initiativ till att den normala beslutsproceduren ovan ersätts med en så kallad *Silent Procedure*. Det innebär att ett aktivitetsförslag eller kompletterande information sänds ut till styrelsen för kommentarer före ett angivet datum. Den som har invändningar ska meddela detta (*break silence*) inom angiven tid, annars har man accepterat förslaget.

Kriterier för NKS-aktiviteter

Följande kriterier ska vara uppfyllda för såväl programmet i sin helhet som för de olika aktiviteterna:

- Aktiviteterna ska rymmas inom ramprogrammet
- Det ska finnas ett klart nordiskt mervärde, inklusive
    - skapande och vidmakthållande av nordiska nätverk
    - spridning och utvidgning av nordisk kompetens inom sakområdet
- Det teknisk/vetenskapliga innehållet ska hålla hög internationell standard och ha ett nyhetsvärde
- Arbetet ska präglas av en helhetssyn, vara transparent och öppet för bredast möjliga deltagande
- Normalt ska minst tre länder stöda en aktivitet (t ex genom aktivt deltagande eller intresse av slutresultaten) för att aktiviteten ska genomföras
- Målen ska vara tydliga och mätbara
- Resultaten av verksamheten ska vara av påtaglig nytta för finansiärer och slutanvändare
- De praktiska resultaten ska presenteras i form av
    - konferenser, seminarier, temamöten etc
    - tekniska rapporter och vetenskapliga artiklar i internationellt erkända sakgranskade publikationer *(refereed journals)*
    - rekommendationer, manualer, handböcker, checklistor

- DVD, CD-ROM, nätplatser och andra elektroniska media
- undervisnings- och informationsmaterial

För att verksamheten över huvud taget ska bli möjlig måste NKS-budgeten kompletteras med obetalda insatser av de deltagande organisationerna i form av t ex arbetstid, resor och laboratorieresurser. Ansökningar om NKS-medel ska därför innehålla en specifikation av värdet av förväntade egeninsatser. Detta värde ska normalt uppgå till minst lika mycket som det begärda NKS-stödet.

NKS satsar på en jämn fördelning av forskningsmedlen över tiden dels mellan R- och B-delarna, dels inom aktiviterna mellan deltagande länder och organisationer i Norden. En jämn könsfördelning eftersträvas, och unga forskare ska uppmuntras att delta. När så är möjligt och lämpligt kan stöd ges till MSc- och PhD-studerande så att de kan delta i NKS-arbetet. Där så är relevant kan NKS-arbetet koordineras med andra internationella aktiviteter. Verksamheten ska bedrivas resurssnålt, kostnadseffektivt och miljömedvetet.

Kvalitetssäkring

Kvaliteten på det utförda arbetet och verksamheten i stort granskas och säkras genom

- utvärdering av de aktivitetsförslag som sänds in under *Call for Proposals*
- medverkan av slutanvändarna i hela arbetsprocessen: planering, genomförande, slutrapportering, implementering och utvärdering
- löpande diskussioner på styrelsemötena
- publicering av resultat i rapporter och sakgranskade publikationer (*refereed journals*)
- spridning och diskussion av resultat i nordiska och internationella fora (konferenser, seminarier, temamöten etc)
- regelbundna utvärderingar av det teknisk/vetenskapliga programmet och den administrativa stödfunktionen

Internationellt samarbete

Det internationella samarbetet ska bedrivas i överensstämmelse med de riktlinjer som fastläggs av NKS' styrelse. NKS ska eftersträva goda internationella kontakter och sprida kunskap internationellt om sin verksamhet. Målet är att där så är möjligt och önskvärt samordna nordiska och internationella aktiviteter för att effektivisera säkerhetsarbetet och öka resursutbytet. Vid behov kan NKS användas som plattform för internationell koordinering av specifikt nordiska intressen inom NKS' kompetensområde. Utomnordiskt deltagande i NKS-verksamheten ska godkännas i förväg av berörd programchef.

Kommunikation, information och resultatspridning

NKS' kommunikation (inklusive information och resultatspridning) ska vara planerad och systematisk och följa nedanstående samt den praxis som framgår av administrativa handboken.

Syftet med NKS' kommunikation

NKS' målgrupper ska ges god kunskap om de möjligheter som NKS erbjuder i form av samarbete, kunskapsutbyte och finansiering samt få kännedom om uppnådda resultat.

Kommunikationen om NKS ska befästa bilden av NKS som en kompetent och aktiv organisation – nationellt, nordiskt och internationellt. Den ska också presentera resultaten av NKS' aktiviteter så att resultaten kan användas direkt i praktisk verksamhet hos slutanvändarna. När NKS-stödda aktiviteter och rapporter omnämns eller citeras i olika sammanhang (externa publikationer, konferenser etc) bör de aktivitetsansvariga bevaka att hänvisning görs till NKS' insats och nätplats (*hjemmeside*).

Ansvarsfördelning

Styrelsen fastställer policyn för NKS' kommunikation.

Ordföranden ansvarar för att samstämmig information om NKS framställs och uppdateras i alla NKS' huvudkanaler, som nätplats (*hjemmeside*), informationsbroschyrer och andra större publikationer.

Programcheferna informerar de aktivitetsansvariga om deras informationsuppgifter.

De aktivitetsansvariga ska se till att samstämmig information om respektive aktivitet sprids på NKS' nätplats, i pressmeddelanden och i övrigt informationsmaterial som handlar om aktiviteten.

De som aktivt deltar i NKS-arbetet ansvarar för kommunikationen med slutanvändare, presumtiva aktivitetsansvariga och andra intressenter för att stämma av nuvarande användarnytta och kommande behov hos slutanvändarna.

Ordföranden svarar på frågor från journalister och andra rörande huvudinriktningen av NKS' arbete, programcheferna om sådant som gäller respektive programområde och de aktivitetsansvariga om sådant som rör deras respektive aktivitet.

Målgrupper

Målgrupperna för NKS' information och kommunikation är
dels primära (NKS-kretsen): ägarna, övriga styrelsen, medverkande, slutanvändare
dels sekundära: fackintresserade, beslutsfattare, informatörer (särskilt media), allmänheten etc

NKS' interna och externa kommunikations- och informationsverksamhet ska målgruppsanpassas och effektivt bidra till att NKS' mål uppnås.

Kanaler

De främsta kanalerna för NKS' kommunikation och information är:

- nätplatsen (*hjemmesiden*) www.nks.org
- prenumererade elektroniska nyhetsbrev
- elektroniska rapporter (via till exempel DVD och CD) samt tryckta rapporter och broschyrer
- konferenser, seminarier, arbetsmöten och internationellt samarbete
- vetenskapliga artiklar i sakgranskade publikationer (*refereed journals*)
- den dialog som förs med slutanvändarna av alla inom NKS via personliga möten, telefon, epost och liknande

Oavsett valet av kanal ska kommunikationen och informationen vara öppen, kostnadsfri, aktiv och korrekt. Vissa konferenser och seminarier kan dock vara förenade med en deltagaravgift.

För samtliga konferenser och seminarier i NKS' regi gäller att alla utomnordiska deltagare ska godkännas i förväg av berörd programchef för evenemanget i fråga.

De elektroniska nyhetsbreven (*NewsLetters*) publiceras normalt två gånger om året, före styrelsens möten i maj och november. Nyhetsbreven är utan bilagor och innehåller främst samlad information om det senaste halvårets nya rapporter, aktuella seminarier och liknande. Materialet kan genom länkar till nätplatsen laddas ner kostnadsfritt. Dessutom publiceras korta nyhetsmeddelanden (*NewsFlashes*)vid behov för att informera om nya rapporter eller inbjuda till något aktuellt seminarium. Man kan prenumerera på *NewsLetters* och *NewsFlashes* genom att kontakta NKS-sekretariatet på nks@nks.org .

Innehåll

Alla större seminarier och alla nya rapporter ska annonseras på nätplatsen och i ett elektroniskt nyhetsbrev. I god tid före proceduren med *Call for Proposals* ska programcheferna sörja för att den relevanta informationen om ansökningsförfarandet och utvärderingen placeras på nätplatsen och annonseras i ett elektroniskt nyhetsbrev. I övrigt avgör programcheferna vad inom respektive programområde som ska annonseras elektroniskt.

Kännedom om särskilt intressanta resultat kan spridas genom populära sammanfattningar, broschyrer och liknande, eller nationellt genom till exempel pressmeddelanden. Media kan inbjudas till seminarier, presentationer etc som bedöms vara av allmänt intresse.

Länkar

Nätplatsen *ska* innehålla länkar till ägarna, övriga styrelsen och större medverkande nordiska organisationer och slutanvändare. Dessutom *får* länkar läggas in till andra organisationer efter beslut av ordföranden. När en länk till *en* nordisk organisation läggs in på NKS' nätplats ska länkar läggas in även till motsvarande *övriga* nordiska organisationer. Inga krav ska ställas på motprestationer hos dem som får en länk på NKS' nätplats.

Friskrivningsklausul (*Disclaimer*)

Varje rapport, CD, DVD och liknande ska förses med en friskrivningsklausul (*Disclaimer*) enligt till exempel följande:

> The views expressed in the documents on this CD remain the responsibility of the authors and do not necessarily reflect those of NKS. In particular, neither NKS nor any other organization or body supporting NKS activities can be held responsible for the material presented on this CD.

Kommunikationsinsatser

Vid alla seminarier, deltaganden i utställningar och liknande, ska den aktivitetsansvariga överväga huruvida och vid vilken tidpunkt ett pressmeddelande ska skrivas och distribueras till lokala medier och relevanta facktidskrifter. Informationsenheten vid den aktivitetsansvarigas hemmaorganisation bör tillfrågas. Vid större evenemang kan även journalister från facktidskrifter och lokala medier inbjudas. Presskonferenser kan ordnas vid särskilt nyhetsheta arrangemang.

Omvärldsanalys ska göras fortlöpande för att bevaka fackområdet och bedöma om kommunikationspolicyn behöver revideras.

Översyn av definitionen av målgrupperna ska göras när omvärldsanalysen signalerar om nya behov och nya intressenter.

Övriga insatser diskuteras från fall till fall men kommunikation ska alltid finnas med i planeringen av NKS-arbetet. (Även om det inte ska göras någon planerad kommunikationsinsats måste läget analyseras och beslut fattas.)

Ansvarsområden och arbetsuppgifter

Ägarna

- Tecknar löpande skriftliga avtal om det fortsatta samarbetet, dess finansiering och övriga villkor.
- Väljer styrelsens ordförande samt tillsätter övriga styrelsemedlemmar, programchefer, evaluerare etc.
- Är det yttersta policyskapande organet.
- Beslutar om riktlinjer för struktur, arbetsformer och övergripande administrativa frågor.
- Sörjer för huvuddelen av finansieringen.
- Godkänner räkenskaperna.
- Delegerar vid behov arbetsuppgifter och ansvar till lämplig nivå.
- Tillsätter ordföranden.
- Tillsätter programcheferna på en tidsbestämd period på villkor som framgår av ingånget skriftligt avtal.

Styrelsen

- Fattar beslut i frågor om prioriteringar, program, budget och aktiviteter.
- Lägger fram förslag till policyändringar till ägarna och godkänner NKS' officiella policydokument.
- Bevakar löpande kvalitets- och effektivitetsaspekterna, värderar de teknisk/ vetenskapliga resultaten av aktiviteterna och godkänner slutrapporterade aktiviteter.
- Beslutar om övergripande riktlinjer för extern och intern information, kommunikation och resultatspridning, och identifierar de viktigaste målgrupperna.
- Utför i övrigt de uppgifter som ägarna ålägger den samt de uppgifter som framgår av den administrativa handboken.
- Delegerar vid behov arbetsuppgifter och ansvar till lämplig nivå.
- Tillsätter sekretariatet på en tidsbestämd period på villkor som framgår av ingånget skriftligt avtal

Ordföranden

- Tillsätts av ägarna.
- Ansvarar för att NKS-programmet genomförs enligt fastställd arbetsplan och budget.
- Inkallar vid behov till ägarmöten och håller löpande kontakt med ägarna och styrelsen.
- Ingår i styrelsen, leder dess möten och övervakar att dess beslut genomförs.
- Verkar som NKS' officiella talesman, är informationsansvarig samt ansvarig utgivare och redaktör för nyhetsbreven, och utgör en gemensam resurs för hela NKS.
- Följer arbetet inom NKS-programmets olika områden, inklusive gränsöverskridande aktiviteter, samt det administrativa arbetet, inklusive räkenskaper och revision.
- Övervakar koordineringen mellan programområdena och deltar vid behov i koordineringsmöten med programcheferna och sekretariatet och leder dessa möten.
- Sörjer för att

  - styrelsens möten förbereds och nödvändiga dokument till styrelsen färdigställs (budgetförslag, årsräkenskaper, revisionsprotokollat, utvärderingsdirektiv och annat beslutsunderlag)
  - NKS' struktur och administrativa rutiner vid behov revideras
  - policydokumentet och den administrativa handboken vid behov ses över
- Ingår vid behov avtal, undertecknar skrivelser och attesterar vissa fakturor.
- Utför i övrigt de uppgifter som åläggs av ägarna och styrelsen samt de uppgifter som framgår av den administrativa handboken.

Sekretariatet

- Tillsätts av styrelsen på en tidsbestämd period på villkor som framgår av ingånget skriftligt avtal.

Löpande arbetsuppgifter

- Utgör en administrativ stödfunktion för hela NKS och deltar vid behov i styrelsens möten.
- Distribuerar material (rapporter, kallelser till möten, underlag till möten etc) till styrelsen, programchefer och andra, allt efter behov.
- Ansvarar för den ekonomiska förvaltningen, sköter bokföring och utbetalningar för hela programmet, beställer revision av räkenskaperna, hanterar avtal, reservationer, kontrakt etc.
- Sammanställer ekonomiska rapporter till ägarna, styrelsen och programcheferna.
- Sköter arkivering av handlingar och bokföringsunderlag samt organisation av referensbibliotek och bibliotekstjänster.
- Rekvirerar ekonomiska medel från ägarna och andra finansiärer enligt avtal.
- Bearbetar och redigerar NKS-rapporter, såsom tekniska rapporter, slutrapporter och evalueringsrapporter.
- Ger ut såväl tryckta rapporter som rapporter i elektronisk form.
- Hanterar tryckerikontakter, upphandlar tryckeritjänster, samlar in rapportmaterial.
- Sköter det dagliga underhållet och uppdateringen av NKS' nätplats, och ger ut NKS' elektroniska nyhetsbrev (NewsLetter och NewsFlash).
- Deltar i arbetet med genomgång av administrativa rutiner, inklusive avtals- och momsfrågor. Vidareutvecklar den administrativa handboken tillsammans med ordföranden och programcheferna. Upprättar och uppdaterar adresslistor och andra administrativa dokument. Deltar i möten med ordföranden och programcheferna ett par gånger om året. Har vid behov telefonmöten med berörda parter.
- Hjälper till i arbetet med mindre seminarier som arrangeras inom R- och B-delarna (utskick av informationsmaterial, uppläggning och uppdatering av nätplatser med mera).
- Utför i övrigt de uppgifter som (inom NKS-avtalets ramar) åläggs av ägarna, styrelsen och ordföranden samt de uppgifter som framgår av den administrativa handboken.

Vid behov utförs efter separat avtal följande arbetsuppgifter

- Deltar i vidareutvecklingen av NKS' nätplats.
- Arbetar med utgivning av periodiskt material (DVD, CD-ROM och liknande).
- Deltar i arbetet med gemensamma NKS-seminarier (förberedelser, genomförande, uppföljning).
- Deltar i arbetet med särskilda R- och B-seminarier (förberedelser, genomförande, uppföljning).

Programcheferna

- Tillsätts av ägarna på en tidsbestämd period på villkor som framgår av ingånget skriftligt avtal.
- Förväntas göra en arbetsinsats på cirka 50% av en heltid.
- Får leda och/eller delta i aktiviteter samt själva föreslå nya aktiviteter till styrelsen.
- Sörjer för att programmet genomförs i överensstämmelse med fastställt ramprogram, övriga styrelsebeslut och intentioner samt leder arbetet med *Call for Proposals* och lägger fram nya aktivitetsförslag för styrelsen.
- Har aktiv kontakt med relevanta nordiska fackmiljöer och slutanvändare för att förankra NKS-arbetet, föra samman utförare och intressenter samt fånga upp behov och trender på ett tidigt stadium.
- Koordinerar verksamheten sinsemellan och har löpande kontakter med ordföranden och sekretariatet.
- Har löpande kontakter med de aktivitetsansvariga och ser till att aktiviteterna genomförs och rapporteras enligt fastställda planer samt leder och övervakar informationsverksamheten inom programområdet.
- Rapporterar direkt till styrelsen, deltar i dess möten och skriver vid behov referat från dessa möten.
- Ansvarar för resultatspridning till berörda parter i form av seminarier, vetenskapliga artiklar, rapporter, dokument, arbetsmaterial etc i enlighet med riktlinjerna i den administrativa handboken.
- Sprider information från styrelsemötena till berörda personer och organisationer.
- Utför i övrigt de uppgifter som (inom NKS-avtalets ramar) åläggs av ägarna och styrelsen samt de uppgifter som framgår av ingångna kontrakt och beställningar, fastställda program- och aktivitetsplaner samt den administrativa handboken.

Övrigt

Administrativ handbok

Utöver policydokumentet finns det en administrativ handbok som reglerar de praktiska rutiner som är nödvändiga för att koordinera och effektivisera insatserna i fem länder av de organisationer och personer som deltar i NKS-verksamheten.

Arbetsgrupper för policydokumentet

R-delen:

Lars Gunsell, SKI (ordförande)
Marja-Leena Järvinen, STUK
Atle Valseth, IFE
Klaus Iversen, Dansk Dekommissionering
Patrick Isaksson, Vattenfall Power Consultant

B-delen:

Anne Liv Rudjord, Statens strålevern (ordförande)
Bjørn Thorlaksen, Beredskabsstyrelsen
Leif Moberg, SSI
Raimo Mustonen, STUK
Sigurður Emil Pálsson, Geislavarnir ríkisins

Övriga avsnitt samt sammanställning och redigering:

Sigurður M Magnússon, Geislavarnir ríkisins
Torkel Bennerstedt, TeknoTelje HB
Annette Lemmens, FRIT

NKS-R STATUS REPORT

Karoliina Ekström
NKS-R Programme Manager
May 2012

TABLE OF CONTENTS

1 Status summary

This report gives a short overview and summary of the current status of the NKS-R programme.

1.1 Seminars

One seminar is announced for this year, the *NKS-R Nordic-Gen4* seminar, which will be held in Risø 29 - 31 October 2012.

1.2 Young scientist travel support

No claims have been received this year.

1.3 Published reports

The following reports have been published since the last board meeting:

NKS-260	Prediction and validation of pool fire development in enclosures by means of CFD (Poolfire) Report – Year 1	POOLFIRE	01 Febr 2012
NKS-261	Guidelines for reliability analysis of digital systems in PSA context	DIGREL	01 Febr 2012
NKS-262	Intermediate report of MoReMO. Modelling Resilience for Maintenance and Outage	MoReMo	01 Febr 2012
NKS-263	Organizational factors in design and implementation of technological and organizational solutions in the nuclear industry.	SADE	01 Febr 2012
NKS-264	Modeling of interaction of multiple vent pipes in a pressure suppression pool	ENPOOL	30 Apr 2012

2 Activities initiated in 2011

Eight activities were initiated in 2011. Seven of these were initiated according to the normal schedule in January. Activity RASTEP was started later, in June 2011. DIGREL is a continuing activity, whereas the others are new activities. Six activities have delivered final reports, one report is promised 31.5 and the RASTEP final report isn't due before end of June.

All earlier activities than 2011 are finished.

Table 1 gives an overview of the status of 2011 activities.

Table 1. 2011 activities.

Activity	Description	First invoice	Report	Second invoice
AIAS	Ad-/absorption and desorption/revaporisation behaviour of iodine aerosols on containment surface	x	31.5	-

	materials			
DIGREL	Guidelines for reliability analysis of digital systems in PSA context	x	x	-
ENPOOL	Experimental and numerical studies on suppression pool issues	x	x	-
MoReMO	Modelling resilience for maintenance and outage	x	x	-
NOMAGE4	Nordic Nuclear Materials Forum for Generation IV Reactors	x	x	x
POOLFIRE	Predictive analysis of pool fires in enclosures by means of CFD models for risk assessment of nuclear power plants	-	x	-
SADE	Safety culture in design and implementation of technological and organisational solution - improving resilience of the sociotechnical system through the life-cycle	x	x	x
RASTEP (cross-over activity R/B)	Using bayesian belief network modelling for rapid source term prediction after a severe accident	x	30.6	-

3 Activities initiated in 2012

Nine activities were started in 2012. Seven are continuing activities and two are new. Contracts have been signed with all of these. First invoices are missing from six activities.

Table 2 gives an overview of the status of 2012 activities.

Table 2. 2012 activities.

Activity	Description	Funding
AIAS	Ad-/absorption and desorption/revaporisation behaviour of iodine aerosols on containment surface materials	500
DECOSE	Debris coolability and steam explosion	500
DIGREL	Guidelines for reliability analysis of digital systems in PSA context	300
ENPOOL	Experimental and numerical studies on suppression pool issues	590
MoReMO	Modelling resilience for maintenance and outage	500
Nordic-Gen4	Nordic nuclear forum for generation IV reactors	250
POOLFIRE	Predictive analysis of pool fires in enclosures by means of CFD models for risk assessment of nuclear power plants	360
SADE	Safety culture in design and implementation of technological and organisational solution - improving resilience of the sociotechnical system through the life-cycle	500
RASTEP (cross-over activity R/B)	Using bayesian belief network modelling for rapid source term prediction after a severe accident	400

3.1 AIAS

The goal of the project is to investigate the ad-/absorption and desorption/revaporisation behaviour of different iodine aerosols, IOx and CsI, in the containment. The project focuses on their interactions with dominating containment materials in light water reactors, such as epoxy paint films (Teknopox Aqua VA) and various reactive metal surfaces (Cu, Al, Zn, SS, Pt, Pd).

The production of both IOx and CsI aerosols and exposure to the studied surfaces is performed at VTT. For the production of IOx aerosols within AIAS-1 a modified version of the existing EXCI CONT facility had been build within AIAS-1 and will be reused within AIAS-2 in 2012. For the production of CsI aerosols another facility, the EXCI PC (EXperimental Study on Iodine Chemistry in Primary Circuit) has been build up at VTT in spring 2012.

Metal samples have been ordered and started to be prepared for exposure. Paint samples are currently prepared at Chalmers. Paint films of different age, exposed to heat, humidity and pre-irradiated ones (gamma radiation, dose rate = 14 kGy/h) are prepared using Teknopox Aqua VA epoxy paint. The samples will be exposed to the aerosols during late summer/autumn 2012 and transported by plane to Göteborg, Sweden. The samples will be analysed during autumn and winter 2012. Characterisations of the sample surfaces before and after exposure with the iodine species will be mainly performed at VTT, while desorption studies under different conditions (heat, gamma irradiation, humidity: FOMICAG facility) will be exclusively performed at Chalmers. Until now the analysis of the data gained from the analysis of the samples within AIAS-1 is still going on and the results are used for the planning of the conditions used in the desorption studies for the 2012 samples.

3.2 DECOSE

See attachment A1 for a detailed status report.

3.3 ENPOOL

See attachment A2 for a detailed status report.

3.4 MoReMO

Dissemination seminar and project planning meeting
A dissemination seminar with practitioners was held at Ringhals NPP in February to discuss preliminary findings and the organizational core task definition of maintenance during outage. The research group also performed joint analyses and discussions of the interview data and agreed on plans for the 2012 activities.
Submission of conference paper to ECCE 2012
A paper on “Understanding maintenance activities in a macrocognitive work system” has been submitted to the European Conference of Cognitive Ergonomics (ECCE) 2012.
Internal workshop
An internal 3 days’ workshop was held at VTT in April to identify and describe the “Working practices” associated to the core task demands of maintenance organization. A preliminary set of practices was identified. The core task model for a maintenance organization was also revised and updated. It is an on-going discussion in the research group on the methodological limitations and added-values of the FRAM for identifying resilience practices in maintenance activities

Interviews with process operators
The modeling of resilience for outage include a study of process operators, their perceived constraints (e.g., knowledge, technical systems, work practices, time, workload) and possible changes of work processes to improve safety and efficiency. Recently, we discussed these topics with ten process operators in two group interviews. The preliminary results show that over the years, the process operators have experienced increased task load, especially during outages. Meanwhile, the level of experience among process operators has decreased due to changes in the education and staff turnover. They emphasized that the transfer of plant knowledge and understanding from experienced workers to newcomers has decreased. The interviews also provided examples of trade-offs between efficiency and thoroughness during outage, and between concentrating and distributing activities at the plant. The process operators suggested an integrated, handheld device for procedures, work orders, communication and data links as a major safety and efficiency improvement. The interviews will be complemented with field observations during an outage in August 2012.

3.5 Nordic-Gen4

A kick-off meeting has been held in Gardermoen (airport Oslo) on 22 March 2012. The aim of this kick-off meeting was to plan the activity of the network for 2012 (and especially the next seminar in Risø), to get updated on the latest Gen-IV activities by the different participants and to discuss the future of the network.
The preparations of the next Nordic-Gen4 seminar are well under way. A local organizing committee has been established, consisting of Bent Lauritzen (DTU Nutech), Erik Nonbøl (DTU Nutech), Dorte Juul Jensen (DTU Wind Energy), Søren Fæster (DTU Wind Energy), Morten Mostgaard Eldrup (DTU Energy conversion), Peter Kjær Willendrup (DTU Physics), Pia Elhauge (DTU Elhauge, DTU Nutech –secretary). The first announcement was sent out on the 4th of April. Detailed information and registration information can be accessed through the updated website www.Nordic-Gen4.org (which is maintained by IFE/Halden).
Several invited speakers have already confirmed their participation, such as Concetta Fazio (Nuclear Materials research in Europe), Christian Linsmeier from Garching (Advanced fusion materials characterization: The FEMaS project), Janne Wallenius, KTH (ELECTRA - a European Lead Cooled Reactor), Ferenc Mezei, ESS, (ESS target design approach: common challenges).
At the kick-off meeting, Rudi Van Nieuwenhove, Sami Penttilä, Bent Lauritzen, Natalia Luzginova, Marketa Zychova, and Radek Novotny gave an overview of the Gen-IV activities within their organizations. At IFE/Halden, work is ongoing on instrument development (for Gen-IV) and the testing of protective coatings. Testing of some of these coatings under supercritical water is being performed by VTT.
During this meeting, it was learned that Studsvik will no longer participate in the network, since Studsvik has no longer activities in this field.
It was discussed how the network could be made sustainable in the future, assuming that the funding from NKS will not last indefinitely. One possibility is to introduce a small membership fee for all the members of the network. This is now under investigation. For universities, it seems however to be very difficult to pay even a small membership fee. Therefore, it is at present unclear whether such an approach could work.
Further, it is interesting to mention that VTT has become a full member in the EERA (European Energy Research Alliance) Nuclear Materials Program (which was launched in November 2010).

On 5 March 2012, IFE has been accepted as associate partner to VTT and participated for the first time in the EERA annual congress in Brussels 2-3 May 2012.

3.6 POOLFIRE

The following achievements can be reported between December 2011 and May 2012.

The first year report was delivered at the end of January [1].

Further work was performed on the new evaporation model for pool fires. VTT has been investigating the simulation of heat transfer in and to the liquid pool. Inside the pool liquid layer, they have studied if the buoyancy current models can improve the heat transfer. Considering the heat flux to the pool, they are studying the absorption of radiation inside the fuel vapour layer.

Lund has performed successfully the first set of validation simulations using the data from the OECD PRISME project [2]. They relate to test data where a pool fire is placed in room configurations with mechanical ventilation. The work will now be imported in the automatic generation tool developed by VTT (see report December 2011)[3]. More work needed to be done to obtain the correct information of the ventilation system from the fire tests in Cadarache, France

Together with Haugesund, Lund University conducted a first set of tests in their firelab with a small methanol pool fire using a PIV set-up for measuring the velocities in flames. The work was done as part of a joined effort where a MSc student from Haugesund College is validating a new combustion model in FDS. As part of the effort, PIV measurements were performed in a methanol pool fire and a propane sandbox burner. The PIV measurements in the methanol pool fire were successfully and first data will be available before the summer. They will form the basis for a second campaign with other fuels. Major challenges with the technique are the distribution of the particles for the PIV measurements and the filtration of the radiation from the soot. A second campaign will be planned later.

Another test campaign is planned in June where a number of different square pool fires will be performed with new build containers, which are adapted to incorporate thermocouples. Tests on methanol, heptane and transformer oil are planned and the data will be able to be used as validation data for the pyrolysis model. The final test set-up will be discussed with VTT at the end of May.

Another important step is that Ringhals and OKG visited early in 2012 their colleagues in Heysham (England) and obtained real scale data from pool fires, which will also be input for the validation of the model in a real-case set-up. As such the project has access to international data. The project is running as planned and no delays occurred.

References

1. Patrick van Hees, Jonathan Wahlqvist, Simo Hostikka1, Topi Sikanen1, Bjarne Husted2, Tommy Magnusson3, Fredrik Jörud4, Prediction and validation of pool fire development in enclosures by means of CFD(Pool fire)Report–Year1, LTH Report 3163, Lund2012.
2. Patrick van Hees, Board report December 2011.
3. http://www.nea.fr/jointproj/prisme.html (downloaded 2011-12-15)

3.7 RASTEP

The main sub-activities and indicative time plan for the activity are presented below:

Sub-activities		Start	End
A.	Initial activities	July 2011	August 2011
B.	In-depth treatment of specific issues	December 2011	June 2012
C.	Signal validation	April 2012	June 2012
D.	Dissemination of results	July 2011	June 2012
E.	Project seminar	April 2012	June 2012
F.	Project report	May 2012	June 2012

Please note that most of these activities will also be carried on into the next project phase (2012-2013).

On-going activities

Initial activities
Initial activities, mainly dealing with initial work planning, have been finalised according to plan.

In-depth treatment of specific issues
This is the most important part of the NKS project, as it addresses a number of research challenges in the practical application of BBN techniques. This part of the project is partly carried out through three M.Sc. thesis works:

- *Definition and evaluation of a dynamic source term module for use within RASTEP*
- *Uncertainty analysis, sensitivity analysis, and optimisation of a Bayesian Belief Network for analysis of severe nuclear accidents*
- *Development of a systematic method for determination of conditional probabilities in a Bayesian Belief Network*

Thesis projects are to be carried out in 2012 and 2013. The first of these projects started in January 2012 and will be finalised during June or July. Further students are evaluated, and one more of these M.Sc. Thesis projects is planned to be initiated during the autumn of 2012.

Status of MSc Thesis work "Definition and evaluation of a dynamic source term module for use within RASTEP: A feasability study"
The aim of the work is to identify methods that can introduce more of a dynamic approach into the source term module of RASTEP and to investigate how/if they can be implemented in the tool (feasibility). Four different methods have been identified of which two have been selected as the most feasible. The methods are listed below with the ones considered most feasible underlined.

- Linking RASTEP to a fast-running deterministic code
- Adjusting the existing source terms (stored in the spread-sheet)
- Using DPSA methods

– Extending the Bayesian Network to a Dynamic Bayesian Network

Mapping of all the methods have been performed. Identification of ways of applying the two selected methods has been started. Documentation and discussion of the "other" methods will also be included since they concern interesting aspects of nuclear safety analysis as well as Bayesian network theory. Remaining work includes continuation of work with application of the two methods considered most feasible, as well as report writing.

Signal Validation
A start-up meeting with IFE Halden was held in mid-April, and initiation of this work, which is planned for June 2012; the work will mainly be performed during the second project phase.

Dissemination of Results
The following dissemination of results is planned during 2011-2012:

Already done
- Conference paper and presentation at the Nordic PSA Conference *Castle Meeting 2011*; Stockholm, Sweden; September 2011

Planned
- Conference paper and presentation at PSAM 11 *Probabilistic Safety Assessment and Management*; Helsinki, Finland; June 2012
- NKS report for phase 1 of the project.
- Presentation at NKS-R/B mini seminar (if held during the year)

In addition, the project is presented to various organisations when suitable occasions arise. As an example, RASTEP was presented to the IAEA (Nuclear Safety Division) in early 2011.

Project seminar
A project seminar will be held during the spring or early autumn of 2012.

Finalisation of project report
The NKS project report is planned to be released in a draft version during June 2012; finalization will follow within a month or two.

3.8 SADE

The main objective of SADE project is to identify the organizational challenges associated with design and implementation activities and contribute toward better evaluation of the risks linked to new designs and their implementation.

The following activities were planned for the year 2012:

1. In-depth analysis of the interviews conducted in 2011
2. Workshops with the power companies and the regulators in Finland and Sweden
3. Additional data gathering concerning the interface and collaboration between design organizations and end users / operators
4. Preliminary model of human and organizational factors affecting the design process.

5. Internal workshops with the research parties
6. Final report of the second phase of the SADE project

During the first reporting period of 2012 the following activities were performed:

1. In-depth analysis of the interviews conducted in 2011 is currently on-going. The analysis is focused on the identification of the factors affecting the design process and in particular on the factors emerging from the interactions of different actors involved in the design process.

2. Additional data gathering took place in the beginning of the year 2012. At the present time data were collected through:

- One workshop organised in Sweden with four representatives from a vendor.
- Two interviews conducted in Sweden with representatives from a power plant.
- One interview conducted with representative from the Swedish regulator

3. Internal workshops with the research parties have been planned and will take place in the month of May and June 2012

4. The development of the preliminary model has started and will continue during the internal workshops

5. The planning of workshops with power companies and regulators in Finland and Sweden has been discussed in the research group. The actual organisation of the workshops will take place in the late spring 2012. Workshops are conceived for discussing the preliminary model with stakeholders, and it will serve both the scope of further data gathering for the research project and as preliminary validation of the model itself.

Potential difficulties and delays

Potential difficulties and/or delays in achieving the project's objectives are:

- Delay in conducting workshops with power companies and regulators due to availability of representatives of those organisations.

Envisaged solution: planning the workshops with representative should start as soon as possible.

- Difficulties in the identification of the factors emerging from the interactions of different actors involved in the design process due to sensitive of data and willingness of the stakeholders to discuss the topic.

Envisaged solution: in the case available data are not sufficient to identify the emerging factors, research will also make use of information of available literature.

Attachments

A1. Status report DECOSE

STATUS REPORT OF DECOSE-NKS
May 11, 2012

Work at Royal Institute of Technology (KTH), Division of Nuclear Power Safety DECOSE-NKS and APRI-8

Pavel Kudinov, Simone Basso, Alexander Konovalenko, Sachin Thakre, Liangxing Li, Weimin Ma, Aram Karbojian.

Deliverables of KTH in 2012:

Deliverable 1: The effect of the heaters geometry on the DHF. Comparison of data from POMECO-HT and COOLOCE. POMECO-FL tests for effective particle diameter.
The goals of the tests are (i) to provide comparison of DHF data with the same particles in COOLOCE and POMECO-HT which use different test sections and heater geometries, and (ii) provide measurements of pressure drop and effective particle size in POMECO-FL facility. POMECO-HT and POMECO-FL facilities have been prepared for the tests. The experiments will be started as soon as the particles will be delivered to KTH lab.
Task completion: 15 %

Deliverable 2: DECOSIM code development and validation against the experimental results produced in COOLOCE and POMECO-HT facilities.
Validation of the DECOSIM code has been started against existing COOLOCE data. Results show reasonably good agreement between experiment and prediction. Validation will be continued when new data will become available from POMECO-HT and POMECO-FL facilities.
Task completion: 30 %

Deliverable 3: Investigation of particulate debris spreading and possible effect of heaters in COOLOCE facility (Task 4).
New PDS-C facility (which stands for particulate debris spreading – closures) has been commissioned. Exploratory tests with stainless steel particles have been performed. A mock-up of the COOLOCE heaters is under design. The tests will start as the particles will be delivered to KTH lab.
Task completion: 20 %

Deliverable 4: DEFOR-A confirmatory series of tests with melt simulant material (Task 2).
Two confirmatory DEFOR-A tests have been performed with new corium simulant material ZrO_2-WO_3. The effects of jet free fall height and melt superheat were investigated. We found similar dependencies for the melt agglomeration fractions as function of water pool depth as in the previous DEFOR-A tests with another simulant material. The effect of the jet free fall height seems insignificant with respect to the particle size distribution.
Task completion: 40 %

Deliverable 5: Application of MC3D to analysis of steam explosion in a BWR containment (Task 8).
Molten fuel-coolant interaction (FCI) scenarios are considered for a Nordic BWR conditions with different jet diameters, initial melt mass and fragmentation models in order to assess the effect on the pressure rise in the containment, impulse on walls and the amount of fragmented mass. The comparison of results shows that the rate of pressure rise in the cavity is higher for larger jet diameters.
Task completion: 10 %

Deliverable 6: Reporting of the POMECO-FL, POMECO-HT and PDS experiments.
Reporting of PDS and DEFOR-A tests have been started.
Task completion: 20 %

Deliverable 7: Delivery of relevant experimental data to the simulation partners.
The task has not been started.
Task completion: 0 %

Work at VTT
DECOSE-NKS and SAFIR2014

Eveliina Takasuo, Ville Hovi, Niina Könönen, Mikko Ilvonen, Ilona Lindholm, Stefan Holmström, Tuomo Kinnunen

Deliverables of VTT in 2012:

Deliverable 1: The effect of the heater geometry on the DHF. Comparison of data from STYX with COOLOCE.
A sieve analysis has been performed for the alumina gravel used in the STYX experiments in order to achieve a particle size distribution that corresponds to the original one. The central heaters of the cylindrical test bed which were in poor condition have been replaced with new heaters. Other maintenance work has been done in order to prepare for the experiments.
Task completion: 20 %

Deliverable 2: Experiment with cylindrical geometry with water ingress through the sidewall.

The inner cylinder of the test bed has been sent to an engineering workshop for modifications in which removable sidewalls will be installed.
Task completion: 10 %

Deliverable 3: Experiment on the effect of initial pool subcooling with cylindrical debris bed geometry.

No activities yet. This experiment presumably requires no significant modifications to the test facility.
Task completion: 0 %

Deliverable 4: PORFLO code development and validation calculations against the experiments.

A 3D unstructured grid model of the cylindrical test bed has been generated by ICEM CFD. The model can be read into Fluent and PORFLO (in .cgns format). The debris bed friction models have been partially implemented into the latest PORFLO version.
Task completion: 20 %

Deliverable 5: Application of MC3D to analysis of steam explosion in a BWR containment.

No activities yet. A new research scientist has started to study steam explosion phenomenology but calculations have not yet been initiated.
Task completion: 0 %

Deliverable 6: Feasibility study for advanced instrumentation.

Discussion of the possibility of a double-tip conductivity needle probe has been on-going with Dresden-Rossendorf research center. Basic technical issues concerning the installation and positioning of the probe in the test vessel have to be resolved before reliable cost estimation can be done.
Task completion: 15 %

Deliverable 7: Reporting of the COOLOCE experiments.

Reporting will be started as soon as the there is enough data available.
Task completion: 0 %

Deliverable 8: Delivery of relevant experimental data to the simulation partners.

Reports of the experiments will be distributed after their completion. Reports and detailed specifications of the previous experiments are available.
Task completion: 0 %

A2. Status report ENPOOL

STATUS REPORT OF ENPOOL-NKS and NORTHNET RM3 April 19, 2012

Work at Lappeenranta University of Technology (LUT)
ENPOOL-NKS, NORTHNET RM3 and SAFIR2014/EXCOP

Markku Puustinen, LUT

Deliverable 1: Execution of the experiment series on DCC.

Behavior at the blowdown pipe outlet during air/steam discharge needs to be investigated experimentally in more detail in order to improve simulation models. To achieve this goal sophisticated measuring devices (for example a Particle Image Velocimetry system and a modern high speed camera) have been installed to the PPOOLEX test facility in 2011.

Direct contact condensation (DCC) at the blowdown pipe outlet with improved instrumentation for tracking the flow fields and the level of turbulence will be studied experimentally in the PPOOLEX facility. The overall goal of the experiments is to produce CFD grade measurement data of rapid steam condensation processes to be used in the development of simulation tools by VTT and KTH.

Task completion: 10 %

Deliverable 2: Reporting of the DCC experiments.

Task completion: 0 %

Deliverable 3: Execution of the experiment series on the dynamics of free water surface in the blowdown pipe.

PPOOLEX experiments in 2012 will also provide necessary data for the development of the effective momentum source (EMS) model at KTH. Dynamics and movement of the free water surface in the blowdown pipe will be detected with a fine net of measurements. Six experiments with different steam flow rates and transient times will be carried out according to the test plan written by KTH. The experiments will focus on the development of thermal stratification during a low mass flow rate period and on complete mixing due to chugging regime. These data are needed for the systematic validation of the GOTHIC models.

Possibilities to track the movement of the steam/water interface in the blowdown pipe with level and void fraction probes have been studied. The price of this kind of systems with the needed electronics and software is in the range of 20k$ to 25k$. This is considered to be too high and therefore the movement of the water level will be tracked with thermocouples.

Task completion: 20 %

Deliverable 4: Reporting of the free water surface experiments.

Task completion: 0 %

Deliverable 5: Delivery of relevant experiment data to the simulation partners.

Task completion: 0 %

Work at VTT
ENPOOL-NKS and SAFIR2014/NUMPOOL

Timo Pättikangas, Jarto Niemi, Antti Timperi and Michael Chauhan, VTT

Deliverable 1: CFD simulation of chugging in a PPOOLEX experiment.

The CFD model for chugging is further developed. The models for heat transfer and the interfacial area of liquid water and vapor are improved. In CFD modeling, the goal is to obtain correct collapse speeds of vapor bubbles and correct penetration of liquid water in the vent pipes. The PIV measurements are used for detailed comparison of the calculations to the experiments, when they become available. Simulations of the chugging phase of a PPOOLEX experiment are performed with a fine mesh and a short time step in order to achieve improved resolution in the simulations.

Modifications of the direct-contact condensation model have been started. The present condensation model is compared to Japanese observations on the heat transfer coefficients in the liquid and vapor phases. The condensation model is modified to obtain higher condensation rates at the outlets of the vent pipes and to obtain lower frequency of the chugging oscillations. Test simulations are being performed.

Task completion: 20 %

Deliverable 2: FSI calculation of collapsing vapor bubble in a PPOOLEX experiment.

Modeling of the rapid bubble collapse is refined by taking into account the effect of the finite condensation rate. This is done by fitting the calculated collapse time and pressure load with the experiments. Proper approximations for the condensation rate are searched by co-operation with the CFD part of the project. The simulations are compared to the high-speed video images and pressure measurements from the experiments. The scaling of the pressure load amplitude and duration from the laboratory experiment to the BWR are also studied.

A short Fortran program has been written, which solves the one-dimensional dynamics of a spherical, collapsing steam bubble. The code was first validated against earlier analytical and numerical calculations for the simplified case of infinite steam condensation rate. So far, constant condensation rates have also been tested. The condensation rate has been adjusted so that the bubble collapse time observed in PPOOLEX experiment COL-01 results. The aim is to test different approximations for the condensation rate and to compare the collapse times and pressure loads near the bubble with the experiments.

Task completion: 10 %

Deliverable 3: FSI calculation of chugging with a BWR model with multiple vent pipes.

The loads in a BWR are considered with an acoustic model of half or full containment, i.e., 8 or 16 vent pipes. Stochastic analysis of the loads originating from multiple vent pipes is used to analyze the loads in the chugging phase. The pressure source statistics, such as load amplitude and delay between the vent pipes, is determined from experiments and data available in literature. Simulation of the loads and structural response in the BWR geometry is performed.

Modeling the phenomenon by using modal superposition technique is studied. Modal superposition procedure is less time consuming than direct time integration, and utilizing the method would enable the examination of the response of the structure with varying loads, resulting from the variation in the desynchronization time of chugging.

The work on this subtask will be started in October.
Task completion: 0 %

Deliverable 4: Report on the CFD and FEM calculations.

A report on the CFD and FEM calculations will be written.
Task completion: 0 %

Work at Royal Institute of Technology (KTH), Division of Nuclear Power Safety ENPOOL-NKS and NORTHNET-RM3

Hua Li, Walter Villanueva, and Pavel Kudinov, KTH

Deliverable 1: Development of the new Effective Heat Source and Effective Momentum Source models.

Development of the Effective Heat Source (EHS) and Effective Momentum Source (EMS) models is on-going. Different approaches to the implementation of the EHS model have been proposed, which take into account the dynamics of steam condensation inside a blowdown pipe and pool conditions. Examples of simple approaches include uniform heat fluxes on the walls of the blowdown pipe and heat fluxes at the pipe's outlet. These approaches can result in different thermal stratification behavior in the pool.

The EMS model has been developed further by taking into account the varying nature of the steam mass flux (with respect to time) from the steam source. It has also been established that if the steam mass flux varies significantly in time, variable effective momentum can provide more accurate prediction of the time scales for mixing of the pool. The model is improved by varying the effective momentum for different time windows. Calculation of the effective momentum can also be improved significantly given an accurate water level measurements inside the blowdown pipe which is expected to be implemented with the new series of PPOOLEX tests.

Task completion: 20 %

Deliverable 2: Validation of the current version and modified GOTHIC code models against latest available data.

The EHS model has been validated against PPOOLEX STR-03 and STR-04 tests that exhibited thermal stratification. Further analysis and improvement of the EHS model to predict more accurately the thermal stratification in the experiment is being conducted. In addition, the effect of the clearing phase in these tests on the general thermal behavior of the pool is currently being investigated.

Validation of the combined EHS and EMS models against STR-09 and STR-10 tests are being done. These tests exhibit both thermal stratification and mixing. A variable effective momentum is implemented along with a modified EHS model. Validation of the EHS/EMS models against other STR tests, namely STR-05, 06, 07, 08, and 11, will also be performed.

Task completion: 15 %

Deliverable 3: Pre- and post- test simulations of the new series PPOOLEX tests.

Pre- and post- test simulations will commence in May 2012.

Task completion: 0 %

Deliverable 4: Report on the model development and validation.

A report on the model development and validation will be written.

Task completion: 0 %

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

NKS-B Status Report

Kasper G. Andersson
NKS-B Programme Manager
May 2012
Technical University of Denmark

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 2012, 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, should have been completed (i.e. final reports submitted) by the time of the NKS Board meeting. Of the NKS-B activities that started in 2012, contracts have been agreed and signed with all. Activities that started in 2012 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.

Gamma Workshop
Henrik Ramebäck et al.
Gamma Workshops Proceedings

PIANOLIB
Lilián del Risco Norrlid et al.
Nordic proficiency test for whole body counting facilities

GammaRate
Hans Bjerke et al.
Radiation survey meters used for environmental monitoring

RadWaste
Xiaolin Hou et al.
Progress on radiochemical analysis for nuclear waste management in decommissioning

NKS-B activities from 2008 (June)

DepEstimates:

Estimation of fallout deposition background for various radionuclides
Activity Leader: Sigurður Emil Pálsson, Geislavarnir ríkisins

NKS-B funding: **250 kDKK**

Milestones defined in contract:
1. Planning meeting, Bergen (June 2008)
2. Short status report (November 2008)
3. Progress report, including description of concentration function (December 2008)
4. Seminar (January – February 2009)
5. Draft paper for submission to a scientific journal (15 March 2009)
6. Final report (1 April 2009)

Status
A paper with activity results has just been published in the Elsevier Journal of Environmental Radioactivity (Pálsson et al.: A simple model to estimate deposition based on a statistical reassessment of global fallout data). Having reached this milestone, the activity manager has promised to strive to deliver the final report before the Board meeting in May 2012.

NKS-B activities from 2010 (January)

MareNuc

Operationalisation of risk assessments for marine reactors
Activity Leader: Ole Reistad, NRPA, replaced by Styrkaar Hustveit, when Ole Reistad joined IFE in 2011.

NKS-B funding: **340 kDKK**

Milestones defined in contract:
1. Joint op-ed on the marine nuclear activities in the Nordic waters and the relevance for a Nordic network addressing the risks associated with these activities (Ultimo March 2010)
2. Workshop 1: Agreed methodology for scaling of source terms in relation to certain type of vessels, and prioritization of the most important nuclides for further consideration in impact assessments, on the basis of relevant literature on marine reactors and source term derivation from small reactor (April 22-23, 2010);
3. Workshop report 1 (Medio June, 2010);
4. Workshop 2: Assessment of the possible changes of risk associated with the operation of nuclear reactors in Northern European areas in relation to expected changes in vessel construction plans, new applications and introduction of new technologies (Ultimo August, 2010);
5. Workshop report 2 (Medio November, 2010):

Status
The second Workshop took place immediately after the NSFS conference in Reykjavik in August 2011. The takeover by the new activity leader has not been unproblematic, but the latest input from him is: 'We are working towards completing the report for the NKS board meeting in May'. Awaiting the final report.

NKS-B activities from 2011 (January)

RADPAST

Natural radionuclides from 238U and 232Th decay series in rural areas of the Nordic countries and dose assessments.
Activity Leader: Klas Rosén (SLU)

NKS-B funding: **500 kDKK**

Milestones defined in contract:
1. Workshop in March 3, 2011
2. Interim report on field studies by the beginning of September 2011
3. Workshop in the mid of October 2011
4. Final report by the end of December 2011

Status
Final report (based on 2 years work) was in January delayed to April to make it possible to include Po-210 data. Follow-up in April revealed that there had been a misunderstanding between the activity partners, and analysis of Po-210 in milk could not be carried out because all

material had by mistake been ashed for gamma spectrometry. In the ashing process unknown fractions of the polonium will have been released. The activity leader now plans to submit the report without the Po-210 data in time for the NKS board meeting in May.

PONPP2

Preparedness Organization at Nuclear Power Plants in the Nordic countries
Activity Leader: Jan Porsmyr (IFE-Halden)

NKS-B funding: **300 kDKK**

Contract not yet signed.

Status

Due to increased workload amongst the participants as a result of the Fukushima accident, it was in 2011 not possible to commence the planned work programme. The activity leader has recently assessed the current situation with NRPA, SSM and STUK, who can still not commit the required resources. He concludes that it will not be possible for the activity to start on 01.06.12 as planned in the revised schedule (with an end date of 01.06.13).

NKS-B activities from 2012 (January)

GASMAT

Gamma spectrometric discrimination of special nuclear materials
Activity Leader: Mark Dowdall (NRPA)

NKS-B funding: **350 kDKK**

Milestones defined in contract:
1. Summary report to NKS detailing progress as to material development (01.07.2012)
2. Actual date of activity (10.2012)
3. Final report to NKS (01.12.2012)

Status

Contract signed. Progress on schedule. Invitations sent out on schedule with deadline end of April. Date of exercise set for October to avoid clashing with REFOX exercise in Sweden. The 8 scenarios are decided upon and materials are being developed.

Nordex12

Nordic Exercises 2012
Activity leader: Sigurdur Emil Pálsson

NKS-B funding: **420 kDKK**

Milestones defined in contract:
1. Development of revised work plan in consultation with the participating Nordic Authorities (March 2012)
2. Presentation at a meeting of Nordic Authorities of NordEx12 support for Nordic participation in the Swedish REFOX exercise (March 2012)

3. Meeting for representatives from Nordic Authorities with planners of REFOX (May 2012)
4. Coordination with NKS-B MOMS of Nordic technical preparation for REFOX (e.g. harmonisation of data formats and processing, to the degree needed) (at MOMS seminar, May 2012)
5. Development and distribution of scenarios for table-top exercises for use by the authorities individually (May 2012)
6. Coordination of Nordic participation during the REFOX exercise (September 2012)
7. Progress report (including summaries of shared experience of exercises, December 2012)
8. Seminar on lessons learned after REFOX and related exercises (spring 2013)
9. Final report (May 2013)

Status
Contract signed. Progress on schedule. The first 2 milestones were reached as scheduled:
1. The work plan was developed and discussed at a Nordic authorities (NEP) meeting, 20-21 March. 2. The Nordic aspects of the planned REFOX exercise was presented in cooperation with representatives from SSM at a Nordic authorities (NEP) meeting, 20-21 March. As for the May milestones the following preparation has been made: 3: Meeting for representatives from Nordic authorities has been scheduled for 21 May, and 4: Participation in MOMS meeting 22–23 May has been announced.

Gamma Workshops 2012
Gamma Workshops 2012
Activity leader: Elisabeth Strålberg

NKS-B funding: **360 kDKK**

Milestones defined in contract:
1. Planning meeting (February/March 2012)
2. Workshops (September 2012)
3. Final report (end of December 2012)

Status
Contract signed. Progress on schedule. Progress so far: Planning meeting held at STUK 28 Feb. Preliminary agenda with focus on emergency preparedness (lessons learned from Fukushima, in-situ measurements…), but also TCS corrections and libraries (related to Fukushima). Contact with possible lecturers in progress, final agenda will not be ready until all lecturers have confirmed their participation. Place and venue are now confirmed and booked: Hotel Örk in Hveragerði, Iceland. Time: 11-12 September (arrival Monday afternoon, bus arrangements from Reykjavik to the hotel for all participant). Information about the workshops will be sent out soon.

MOMS
Mobile measurement, calibration and strategy
Activity leader: Johannes Nilssen

NKS-B funding: **500 kDKK**

Milestones defined in contract:
1. Development of agenda and finalise invitations to seminar and workshop
2. Conduct the seminar
3. Implement harmonisation efforts agreed upon from the seminar

4. Conduct practical workshop
5. Final report

Status
Contract signed. Progress on schedule. The seminar is planned for the 22-23 May 2012 at Clarion Bastion Hotel, Oslo, Norway. This has been announced through NewsFlash 36 on 3 April 2012, and information is available on NKS website. The plan is to hold the practical workshop as part of the REFOX exercise (26-27 September 2012). The exact date will be planned in coordination with SSM. Details on the workshop will be discussed during the seminar.

MUD
Meteorological uncertainty of atmospheric dispersion model results
Activity leader: Jan Havskov Sørensen (DMI)

NKS-B funding: **300 kDKK**

Milestones defined in contract:
1. Kick-off meeting (DMI, Met.no, Risø, SSM, DEMA)
2. Case studies selected (DMI, Met.no, Risø, SSM, DEMA)
3. Corresponding NWP model ensembles generated (DMI, Met.no)
4. Long-range atmospheric dispersion models applied to the case studies, and atmospheric dispersion model ensembles generated (DMI, Met.no)
5. Status meeting (DMI, Met.no, Risø, SSM, DEMA)
6. Preparation of NKS-B application for project continuation and completion next year (DMI, Met.no, Risø, SSM, DEMA)

Status
Contract signed. Progress on schedule. The kick-off meeting took place at DMI on 20-21 February, 2012, with the B programme manager attending. Meteorological scenarios which can be used for MUD have been identified. According to plans, at least two scenarios should be run. Detailed release scenarios are yet to be described. Model systems are available. Next meeting: 10-11 September, 2012.

THYROID
Assessment of accidental uptake of radioiodine in emergency situations - proficiency test and evaluation of the regional capabilities
Activity leader: Lilián del Risco Norrlid (SSM)

NKS-B funding: **280 kDKK**

Milestones defined in contract:
1. First call for activity
2. Running the calibrations and intercomparison exercise
3. Meeting of coordinators for evaluation of the results
4. Report of the activity

Status
Contract signed. Progress on schedule. Call for participation in the calibration campaign is completed, and the first list of detectors to be calibrated is generated. A schedule for circulation

of the calibration phantom and sources should be ready by the end of May. Calibration source purchases are being negotiated on the basis of the grant from the activity PIANOLIB (AFT/B(11)6).

PUBPLUME
Communicating dispersion modelling results to the public
Activity leader: Jan Erik Dyve (NRPA)

NKS-B funding: **150 kDKK**

Milestones defined in contract:
1. Workshop with follow-up meeting
2. Final report

Status
Contract signed. Progress on schedule. Planning of the seminar in the autumn is ongoing.

BERMUDA
Doses from natural radioactivity in wild mushrooms and berries to the Nordic population
Activity leader: Tuukka Turtiainen (STUK)

NKS-B funding: **250 kDKK**

Milestones defined in contract:
1. Minutes of the kick-off meeting (Helsinki, 4-5/6 2012) due 31/6 2012
2. Sampling period Jul-Oct 2012 (also laboratory work starts)
3. Interim report: Literature review and description of sampling 31/12 2012

Status
Contract signed. Progress on schedule. Kick-off meeting to be held after May Board meeting. Both STUK and UMB have recruited a M.Sc. student to work for the project in the summer/autumn and no problems are anticipated. Other partners are also assumed to be prepared. The date initially set for the meeting in June seems to be difficult for some partners, and may be moved a bit.

COSEMA
Consequences of severe raddioactive releases to Nordic marine environment
Activity leader: Vesa Suolanen (VTT)

NKS-B funding: **510 kDKK**

Milestones defined in contract:
1. Work report on consequences of releases from severe NPP accidents to the Baltic Sea
2. Work report on releases and consequences of severe submarine accidents
3. Final report (summary of stages 1&2, contributions from all partners)

Status
Contract signed. Progress on schedule. The kick off meeting of the COSEMA activity was held on 22-23 March at VTT, Espoo, with the B programme manager present. At the meeting, calculation scenarios, source term estimation methods and locations in Nordic sea area were confirmed. Work related to Nordic marine input data, needed in calculations codes, was scheduled between all participants.

RASTEP
Using Bayesian belief network modelling for rapid source term prediction after a severe accident
Activity leader: Michael Knochenhauer (Scandpower AB)

NKS-B funding: **200 kDKK** (NKS R/B crossover activity with equal funding from both R and B; NKS R contract)

Milestones defined in contract:
1. Detailed project plan 2012-08-12
2. Reference group meeting 2012-12-15
3. Project seminar 2013-05-31

Status
Contract signed. Activity starts June 2012.

Short note on status of the website, NewsLetters etc.

Website
Running: the latest version OK for 3-4 years.

Besides this the new website will be presented by the PC's for the Board.

Statistics (1000 hits):

October 2010:	44
November 2010:	36
December 2010:	29
January 2011:	44
February 2011:	28
March 2011:	35
April 2011:	29
May 2011:	34
June 2011:	23
July 2011:	22
August 2011:	30
September 2011:	33
October 2011:	31
November 2011:	32
December 2011:	32
January 2012:	34
February 2012:	31
March 2012:	34
April 2012	32

Record months have been October 2010 and January 2011 of more than 44.000 hits.

NewsLetters and NewsFlashes
Since the board meeting in January three NewsFlashes have been distributed. The one from January 13 was a short report from the board meeting, the one from April 3 included B and R activity reporting with new published reports and the one from May 3 announced the opening of the new website.. Besides this a NewsLetter is under preparation for distribution before the board meeting May 2012.

There is a list of more than 320 e-mail addresses, to which our electronic letters are forwarded.

Other kinds of info material – pamphlet and DVD
A new and updated English version of the pamphlet "Nordic Nuclear Safety Research" has been published.

The Secretariat
Finn Physant
03-05-2012

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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Sigurður M Magnússon, NKS chairman

Finn Physant, NKS secretariat

Decommissioning Risø's research reactor 2, Danish Decommissioning

nordic nuclear safety research

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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

DRAFT 7, 11-05-12

Proposal for a NKS Fukushima Seminar

Preface

The NKS PC's and NKS Chair's proposal for arrangement of a Fukushima-related NKS seminar was strongly supported by the NKS Board at its meeting in January. The NKS Board has granted the financial support of DKK 200,000 for the seminar arrangement.

The PC's were asked to jointly chair a Program Group responsible for detailing the contents and structure of the seminar. A draft seminar plan with venues and dates is to be presented at the May Board meeting. The PC's will be responsible for the practical arrangement of the seminar.

The Program Group has the following members:

Sigurdur Emil Palsson, Geislavarnir Rikisins
Eldri Holo, NRPA
Kenneth Broman, SSM
Antti Daavittila, STUK
Karoliina Ekström, NKS-R programme manager
Kasper Andersson, NKS-B programme manager

The Program Group met on the 19th of March 2012 at SIS in Herlev, Denmark, discussing the PC's draft plan that had been shown to the Board in January. A number of new ideas emerged, which are described in the meeting minutes. The draft was also discussed on the following day with the NEP Group, which also contributed constructively to the further development of the seminar plan, as reflected in the minutes from that meeting. The Program Group also had an extensive email exchange meeting on the 11th of May 2012. Some structural changes were made to the seminar plan in the light of this, which the PC's have aimed to capture in the revised plan scheduled below. A worry was expressed during the discussions that there could easily be too many topics to discuss at the seminar given the limited available time. To enhance clarity a draft time plan is proposed for the seminar, including time allocations. .

Time and venue:

The NKS Board wishes the seminar to take place immediately following its half-day meeting in Stockholm in January 2013. Suggested dates are 8-9 January 2013. The duration of the seminar will be 1½ days.

Target audience:

- Nordic authorities and regulators on different levels
- Representatives of Nordic nuclear installations

- Advisors and experts on technical issues and communication
- Nordic directors and the NKS Board

Structure of the seminar:

It was found to be useful to initiate the workshop with a short 'primer' presentation, possibly by an invited speaker, giving an overview of international findings, reports and conclusions on the Fukushima accident, with a special view to the specific topics to be addressed in detail at the seminar. By this time there should be much material available (possibly even including an UNSCEAR report). This short presentation would be beneficial in outlining current status, and setting the stage for the much more Nordic focused sessions that will form the core of the seminar.

A presentation of the objectives of the seminar and the specific topics for discussion should then follow. A draft overall formulation of the seminar objectives could be: 'On the basis of the Fukushima accident, to identify areas for possible improvement of Nordic knowledge, understanding and information handling (R&B), strengthening cooperation and identifying topics where future activities of NKS might be valuable. Priority issues relate to a chain of power plant operation safety, quality and timely availability of accident consequence prognoses, improvement of response capabilities, and discrepancies between countries in emergency interpretation and response'.

Each of the following topical sessions will include a moderated plenary discussion. Where it is deemed relevant, this will be initiated by a presentation given by either an invited speaker, one of the PC's, or other. Since we will not be able to address all of the many identified relevant topics in detail, the PC's could make a short presentation towards the end of the seminar of potentially important topics that have been identified, but which it was not possible to discuss within the narrow timeframe. The PC's can also prepare to initiate additional discussions on a few topics, in case there is (against expectation) not interest in using the entire allocated time for discussion of one of the selected topics.

The formulation of emergency preparedness related discussion topics has been made considering the recommendations of the NEP Group.

Topics relevant to different audiences (NKS R and B) will be mixed in the workshop programme.

Time schedule:

Discussion topics:

1) **Source term estimation and related methods for *timely* estimation of residual dose following a NPP release.** This is a point with some clear 'crossover' aspects, where cooperation between the reactor and preparedness sides is needed, and it would be interesting to discuss the data and information requirements. It should be discussed which measurement capabilities are and should be available in the Nordic areas to enable the best possible estimation of residual dose. Timing is an issue. This would require also discussion of the current and future features of models like the

ARGOS and RODOS decision support systems. Also incorporation in prognostic modelling of long-lasting releases could be discussed here.

2) **How can the Nordic countries improve cooperation at home and abroad?** Is it possible to pool resources and share the workload? How can the authorities improve and strengthen communication during a crisis? It should be discussed how the communication on national, organisational and responder level can be optimised to strengthen the response to crises. Also sharing data, prognoses and other safety assessments to make better use of available information is an issue that could be discussed in this context. It should be noted that the emergency preparedness in some Nordic countries could benefit from sharing expertise with others (e.g., with respect to reactors).

3) **Discrepancies or differences in Nordic perception and response.** Where did we act differently in connection with the Fukushima accident - and why? Examples are the prophylactic use of stable iodine, and screening of people in airports. Can we approach Nordic consensus? Also data, prognosis results and other information may be conflicting between countries and in relation to official reports from the authorities in the country where the release occurred. Which formal and informal information sources should be trusted, and how can the Nordic countries avoid going off in different directions? The importance of uncertainties could also be discussed here.

4) Presentations from the 5 Nordic power plants. **Lessons learned from the Fukushima accident at the Nordic nuclear power plants** with respect to checking safety functions, and particularly covering external threats including natural disasters, and essentially any event resulting in long-lasting power failure. Information on implemented, ongoing or future needed improvements of plant designs to address such issues. Short description of stress test results - presented by the plants themselves and/or as a short summary presentation in the end - together with a brief overview of findings in EU countries.

Day 1.

Start: 13:00
End: 17:00

(12:00 - 13:00 Lunch)

13:00 - 13:10 Welcome, opening words

13:10 - 13:40 Fukushima accident: international overview (suggested speaker: Wolfgang Weiss (UNSCEAR)

13:40 - 14:30 Session I (50 min.). **Lessons learned - the regulators' perspective: what are the implications so far (presentations)**?

14:30 - 15:00 Coffee

15:00 - 16:00 Session II (1h) **Topic 2: How can the Nordic countries improve cooperation at home and abroad?**

16:00 - 17:00 Session III (1h) **Topic 3: Discrepancies or differences in Nordic perception and response.**

Dinner

Day 2.

Start: 9:00
End: 17:00

9:00 - 10:20 Session IV (1h 20 min). **Topic 4: Lessons learned - the industry's perspective.**

- Short instruction - what is a stress test?
- 3 power plant presentations.

10:20 - 10:40 Coffee

10:40 - 12:00 Session V (1h 20 min). **Topic 4: Lessons learned - the industry's perspective.**

- 2 power plant presentations.
- In the end a short summary on how the Nordic plants survived the stress tests and international situation (if available) if major safety issues have come up at any plant in EU.

12:00 - 13:00 Lunch

13:00 - 14:20 Session VI (1h 20 min). **Topic 1: Source term estimation**.

14:20 -14:40 Coffee

14:40 - 15:40 Session VII (1h) **Reserved for possible extra topic.**

15:40 - 16:00 Other topics in brief, the way forward, conclusion (suggested speaker: Sigurdur M. Magnusson)

Note: Mats Isaksson from the University of Gothenburg has approached us earlier in May about the possibility of joining forces with the Swedish Radioecology Society, that are planning a meeting on radioecological effects and measurements after the accident. He suggests that it might be possible to extend the programme with an extra day on radioecology for those interested. The two arrangements might however be kept separate, but simply arranged on consecutive days, thus easing travel without combining the two.

The Secretariat

2012-05-09

Nordic nuclear safety research

The contributions to NKS from the co-financiers 2008-2012 (EUR)

	2012	2011	2010	2009	2008
Fortum Power and Heat Ltd., Finland	22.500	21.840	20.800	20.800	20.000
Teollisuuden Voima Oyj, TVO, Finland	22.500	21.840	20.800	20.800	20.000
Fennovoima Oy, Finland	7.000	7.000	6.000	5.200	5.000
Institute for Energy Technology, IFE, Norway	11.000	10.750	10.750	10.400	10.000
Forsmark Kraftgrupp AB, FKA, Sweden	12.400	11.280	10.750	10.400	10.000
Kärnkraftsäkerhet och utbilding, KSU, Sweden	11.825	10.750	10.750	10.400	10.000
Oskarshamns Kraftgrupp AB, OKG, Sweden	11.280	11.280	10.750	10.400	10.000
Vattenfall Ringhals AB, Sweden	11.825	10.750	10.750	10.400	10.000
Total co-financiers	110.330	105.490	101.350	98.800	95.000