

NKS-R Status

May 2019

Overall the work in NKS-R is progressing according to plan

- **Status for the activities from CfP 2019:**
 - Contracts signed for all 6 activities (one contract from KTH for THEOS not signed yet)
 - No major delays reported
 - Fortum & TVO support agreements submitted on 25 April
- **Status for the activities from CfP 2018:**
 - 4 out of 6 activities from 2018 completed and reports published on website
 - 1 draft report received (FIREBAN)
 - 1 activity to be completed (SPARC)
- **Status for the activities from CfP 2017:**
 - 1 draft report received (FIREBAN)
 - 1 activity to be completed (WRANC)

Funded activities from CfP 2019

	Acronym	Full name	Research area
Cont.	BREDA-RPV	<i>Barsebäck RPV trepan studies</i>	Plant life management and extension
	SPARC	<i>Scenarios and Phenomena Affecting Risk of Containment Failure and Release Characteristics</i>	Severe accidents
New	COCOS	<i>Corrosion of copper in sulphide containing environment: the role and properties of sulphide films</i>	Decommissioning ^a
	PROSAFE	<i>Prolonged time windows and safe states</i>	Risk analysis & probabilistic methods
	TETRA	<i>Tellurium transport in the primary circuit of nuclear power plant</i>	Severe accidents
	THEOS	<i>Thermal Hydraulics of the Suppression Pool</i>	Thermal hydraulics

a) ‘Decommissioning and management of reactor waste and spent fuel’

Status for activities from CfP 2019

Table 5. NKS-R 2019 activities

Activity	Title	Lead	Partners	Funding [kDKK]	Total [kDKK]
BREDA-RPV	<i>Barsebäck RPV trepan studies</i>	KTH	KTH	47	471
			VTT	212	
			CTH	212	
COCOS	<i>Corrosion of copper in sulphide containing environment: the role and properties of sulphide films</i>	VTT	VTT	318	565
			KTH	247	
PROSAFE	<i>Prolonged time windows and safe states</i>	Risk Pilot	Risk Pilot	117,75	471
			LRC	117,75	
			VTT	117,75	
			IFE	117,75	
SPARC	<i>Scenarios and Phenomena Affecting Risk of Containment Failure and Release Characteristics</i>	KTH	KTH	297	565
			VTT	268	
TETRA	<i>Tellurium transport in the primary circuit of nuclear power plant</i>	CTH	CTH	175	525
			VTT	245	
			UIO	105	
THEOS	<i>Thermal Hydraulics of the Suppression Pool</i>	KTH	KTH	189	565
			LUT	188	
			VTT	188	

All partners accepted the funding reduction of ca 6 %.

Contract from KTH for THEOS has not arrived yet.

New NKS-R reports published on website

NORDEC

- NKS-417: *Challenges and opportunities for improving Nordic nuclear decommissioning* (Feb 2019)

BREDA-RPV

- NKS-418: *Barsebäck as a Research and Development Platform, Extraction and Analysis of Service-aged and Irradiated Reactor Pressure Vessel Material* (Feb 2019)

SITRON

- NKS-419: *Site risk analysis for nuclear installations* (Feb 2019)

SYNTAGMA

- NKS-424: *Synthetic ground motions to support the Fennoscandian GMPEs* (Apr 2019)

Status for delayed activities from CfP 2017 and 2018

SPARC 2018

- Final report for 2018 ”will be submitted in June 2019” (11 Feb)

FIREBAN 2017 and FIREBAN 2018

- One combined final report for 2017 and 2018 was received on May 6.
Final editing is ongoing.

WRANC 2017

- Experimental work completed. Final report ”done in May/June” (2 May).

Planned seminars/conferences/publications



- PROSAFE:
 - Interim workshop in December 2019

Travel assistance for young scientists



No requests have been received in 2019 so far.

The NKS-R article is now published in the June issue of *Nuclear Engineering and Technology* (Volume 51, Issue 3, pp. 647-653, <https://doi.org/10.1016/j.net.2018.11.013>).

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Review Article

Nordic research and development cooperation to strengthen nuclear reactor safety after the Fukushima accident



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ABSTRACT

NKS (Nordic Nuclear Safety Research) is a forum for Nordic cooperation and competence sharing within nuclear safety and emergency preparedness, serving as an umbrella for Nordic initiatives and interests. An overview of the funded activities within the nuclear safety program (NKS-R) during the last few years is presented in this article. The presented research covers the areas of *thermal hydraulics, severe accidents, risk analysis and probabilistic methods, organisational issues and safety culture, decommissioning and plant life management and extension*. Activities are focused towards practical and directly applicable scientific results and competence building. NKS-R funds research activities with particular relevance for the development of Nordic reactor safety research, and promotes participation of young scientists in the activities. The activities involve experimental and analytical studies, workshops, case studies and seminars, and bring together technical research organisations, universities, authorities, industries and consultant companies from the Nordic countries.

As exemplified in this report, the NKS-R program provides support with high additionality particularly in smaller R&D projects and pilot projects, and offers the opportunity for network building and valuable collaborations between experts at the leading Nordic research facilities within reactor safety.

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