# NKS-R Status

# June 2016

*Emma Palm*
*NKS-R Program Manager*

*Board meeting,*
*Copenhagen, 22 June 2016*

# Summary

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

- Since last NKS-R status report
  - *4 final reports published on website (ADdGROUND, LESUN, MODIG, PLANS)*
- Delayed activities (from before 2015)
  - *None*
- Activities commencing in 2015
  - *4 (of 8) completed, final reports missing for ATR-2015, COPSAR, DECOSE, and L3PSA*
- Activities commencing in 2016
  - *7 out of 8 contracts signed, work proceeding according to plan*
  - *Fortum & TVO support agreement drafts have not yet been sent*

# Status NKS-R 2015 projects

| Activity | Final report | Cont. 2016 | Comments |
|---|---|---|---|
| ADdGROUND | Yes | Yes | Finished |
| ATR-2015 | No | No | Final report expected in June 2016 (budget 300) |
| COPSAR | No | Yes | Final report submitted but not approved by VTT and LUT, nothing from KTH (budget 500) |
| DECOSE | No | No | Final report expected in June 2016 (budget 460) |
| L3PSA | No | Yes | Final report expected in June 2016 (budget 340) |
| LESUN | Yes | No | Finished |
| MODIG | Yes | No | Finished |
| PLANS | Yes | No | Finished |

Deadline according to contract is the 31st of January 2016 for all activities.

*Emma Palm*
*NKS-R Programme Manager*

# Status NKS-R 2016 projects

| Activity | Contract signed | Comments |
|---|---|---|
| ADdGROUND | Yes | No deviations, project going well. |
| BREDA | No | Project started with delay due to altered circumstances for the project (see next slides). |
| COPSAR | Yes | Project started with delay due to funding changes (see next slides). |
| FIREBAN | Yes | No deviations, project going well. |
| HYBRID | Yes | No deviations, project going well. |
| L3PSA | Yes | No deviations, project going well. |
| SC_AIM | Yes | No deviations, project going well. |
| SPARC | Yes | No deviations, project going well. |

# Effects of budget cuts CfP 2016

- Many of the activities are used to receiving less than the sum they applied for.
- Adjustments to the original plan also depends on the funding from additional financiers
  - How handle funding not coming though as expected from other sources?
- In general, the deliverables will not change. Instead the hours allocated to performing a certain task has been reduced.

# BREDA–RPV – renewed evaluation (400 kDKK)

- Background: could not retrieve samples from RPV @ BKAB => large change in work stated for 2016.

- Discussed in coordination group => let NKS-R evaluations evaluate the project again based on updated work proposal from activity leader

- Result from renewed evaluation: (see next page)
  - 4 out of 6 NKS-R evaluators have responded

  - 3 out of the 4 see no need to change their evaluation => the overall score of BREDA – RPV is virtually unchanged =>
  - **Funding recommended by NKS-R programme manager & coordination group.**

# BREDA –RPV – renewed evaluation

| Name | Evaluation | Impact | Comments |
|---|---|---|---|
| Nici Bergroth | No change | None | The pre-study could even make the project better. |
| Tiimo Vanttola | No change | None | Just a change in the order of work. |
| Olga German | Renewed evaluation | Lowers score | The relevancy and the value of the first year project is low in itself for the industry and end users. It is expected that the project will deliver more applicable results in upcoming years, but it will need to be re-evaluated accordingly. |
| Annelie Bergman | No change | None | Good to make use of Barsebäck before it's too late. I see no reason to change my evaluation, since the only thing that's changed is the timing of actions. It is true that the RPV samples will be delayed, but there is a lot to do before and for the PhD student to get started. My evaluation is colored by the whole project rather than the deliveries for 2016, but I see this as a necessity if NKS shall co-finance any PhD projects at all. As for the other funders, SSM hs not changed its decision to co-finance the PhD student. |
| Atle Valseth | No respons | - | |
| Tarja Ikaheimonen | No respons | - | |

# COPSAR – altered funding situation (500 kDKK)

COPSAR – COntainment Pressure Suppression Systems Analysis for BWR

- Proposal stated project had funding from SAFIR2018 and NORTHNET, however;
  - SAFIR reduced funding => reduced funding for COPSAR too
  - NORTHNET – no funding for COPSAR

- Activity leader expressed interest in waiting to se if SSM would cover the lost funding from NORTHNET. However, 20th April: SSM still undecided =>
  - wrote to activity leader with request for clarification of
    - funding situation
    - possible impact of altered funding situation

- Review of changes (affects quantity but not quality) => **NKS-R program manager and coordination group recommend funding**

# NKS-R seminars 2016

| Activity | Seminars |
|---|---|
| ADdGROUND | --- |
| BREDA | --- |
| COPSAR | --- |
| FIREBAN | --- |
| HYBRID | --- |
| L3PSA | Final seminar 28th of January 2016 performed.<br>Final seminar planned for Q4 2016 or Q1 2017 |
| SC_AIM | Internal workshop: 16/6, International workshop 27-28 September, Finland. |
| SPARC | -- |

# NKS-R publications 2015-2016

| Activity | Publications (submitted and approved) |
|---|---|
| ADdGROUND | The paper *"Opportunities for Source Modelling to Support the Seismic Hazard Estimation for Nuclear Power Plants", V. Jussila, L. Fülöp* has been submitted to the Nuclear Science and Technology Symposium - ST2016, in Helsinki, 2-3 November 2016. |
| BREDA | --- |
| COPSAR | --- |
| FIREBAN | One MSc produced within project: "Reliability of fire barriers" |
| HYBRID | --- |
| L3PSA | --- |
| SC_AIM | Planning for scientific publication or conference proceeding |
| SPARC | 3 scientific papers published |

# Annelie's comments

Nordic nuclear safety research

Background (from board meeting notes):

- Annelie Bergman expressed concerns regarding the schedule of the activity reporting compared to what is stated in the contracts, the feedback in due time from the activities in connection with possible continuation of activities and the possibility of keeping track of the status of the activities.

- It was agreed that Annelie Bergman and Emma Palm will look into this for the next Board meeting and a proposal for change be presented for the next board meeting if needed.

# Annelie's comments cont.

- Emma & Annelie had a meeting discussing Annelie's comment.

- Results:
  - Complications:
    - funding from many sources, NKS may only contribute a small part and the project has a "natural" timeline.
    - Cant control when report writing is performed and for which money the writing is actually done.
  - Solution: "Positive reinforcement" i.e.:
    - Clarify / make a point of addressing the importance of submitting the final report in time, as "un-submitted" reports can influence
      - the evaluations and their ability to make a good evaluation when previous work is not reported

# Additional item - # NKS-R evaluators

| NKS-B (8) | NKS-R (6) | Unassigned (2) |
|---|---|---|
| Ole Harbitz | Nici Bergroth | |
| Astrid Liland | Timo Vanttola | |
| Mette Øhlenschlæger | Atle Valseth | |
| Steen Cordt Hoe | Annelie Bergman | |
| Eva Simic | | |
| Sigurður M. Magnússon | | |
| Tarja K. Ikäheimonen | Tarja K. Ikäheimonen | |
| Olga German | Olga German | |
| | | Jorma Aurela |
| | | Jens-Peter Lynov |

# Extra slides

# COPSAR – unclear funding situation (500 kDKK)

- Got response 22 April (Largest impact on experimental work (LUT), Less impact on theoretical work (VTT & KTH)

| For LUT proposal (30k€) | For LUT updated (22 k$) | For VTT & KTH |
|---|---|---|
| SRV sparger tests with combined steam injection through the sparger head and load reduction ring (LRR) in PPOOLEX | Only one test (instead of 2-3 planned originally) can be carried out. Extensive varying of steam injection mass flow rates and pool water temperatures is therefore impossible. | |
| Mixing tests with residual heat removal (RHR) system nozzles in PPOOLEX | The number of the tests needs to be reduced (from 6-7 to 3-4). | |
| Installation of a spray injection system to the PPOOLEX facility | Spray injection system cannot be manufactured and installed | No data from spray injection to simulate |
| Preliminary spray injection tests in PPOOLEX | Spray tests cannot be done. | No data from spray injection to simulate |
| Delivery of relevant experiment data to the simulation partners | | No data from spray injection to simulate, rest of data OK |

# NKS-R SPARC publications

**Takasuo, E. An experimental study of the coolability of debris beds with geometry variations. Annals of Nuclear Energy 92, 2016. pp. 251-261**

**Konovalenko A., Basso S., Kudinov P., Yakush S. E., "Experimental Investigation of Particulate Debris Spreading in a Pool", Nuclear Engineering and Design, Volume 297, pp208-219, 2016**

**Basso, S., Konovalenko, A., Kudinov, P. "Empirical Closures for Particulate Debris Bed Spreading Induced by Gas-Liquid Flow", Nuclear Engineering and Design, 297, 19-25, (2016)**