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D. Rochman

State of the art report (SOTA): present status

WPNCS SG12 Meeting, June 27th, 2022, OECD Headquarters, Paris, France

Zertifiziertes Managementsystem STARS ISO 9001

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Report

- Main goal of the SG12: SOTA report (available on Overleaf)

Contents

Report

- Main goal of the SG12: SOTA report
  - Available on Overleaf
  - Some parts are well advanced:
    - Section 4 (Physical origin)
    - Section 5 (Measurements)
    - Section 6.3 (Calculation methods/Standards)
  - Some parts are advanced:
    - Section 6.4 (Calculation methods/Summation & best estimate methods)
    - Section 6.6 (Calculation methods/Uncertainties)
  - Some parts are less advanced:
    - Sections 1, 2 and 3 (Introduction, Motivation, Definition)
    - Sections 7, 8 (Computer codes, Validation)
    - Sections 9, 10 (Recommendations, Conclusion)

Report: Motivation

2 Motivation [All]

Remark from the 1st meeting:

- why is better DH knowledge important (LOCA, SNF storage)
- Indicate different safety approach (nation wise, institute wise)
- Indicate different level of maturity in different countries
- Inform non specialists,
- Inform about the cost of experiments
- Inform that experiments are a necessity
- important parameters (for different cooling times, e.g. power for short time, or burnup for longer time)
- time scales at stakes covered in this report, for instance 7 periods: 0-1days, 1-10days, 10-100days, 100days-1year, 1-10years, 10-40years, 40-100years and 100-1e^5 years.

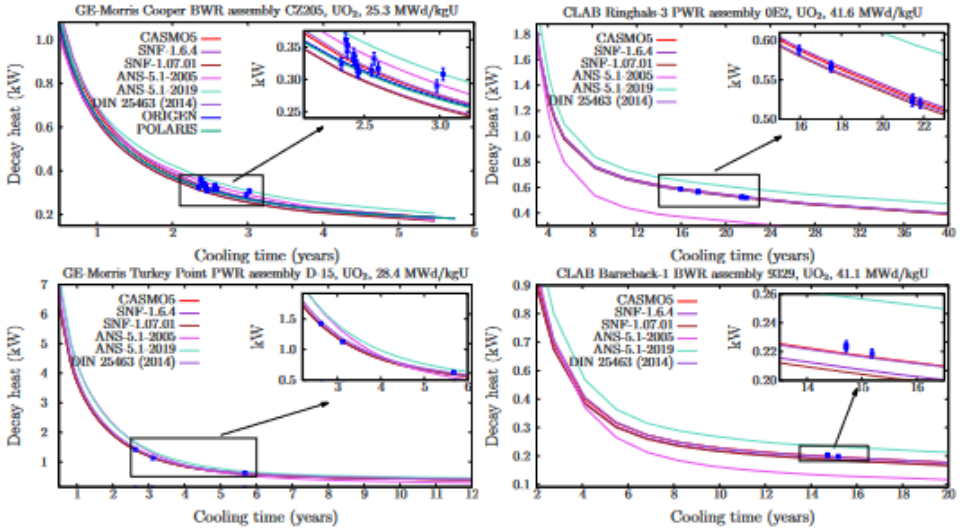


Fig. 2. Example of calculated and measured decay heat for specific assemblies (left: BWR, right: PWR).

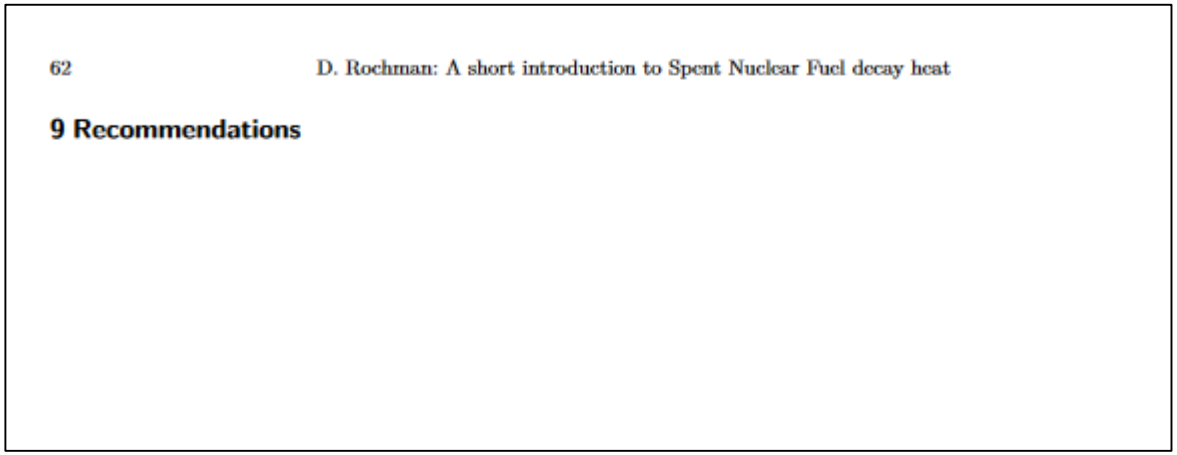
The estimation of decay heat is relevant for fuel management over a large period of cooling time: short (*e.g.* for LOCA or RIA), intermediate (for on-site SNF storage) and long (for off-site storage such as deep geological repository). Some general information are provided in the following section.

2.1 Decay heat for short cooling times

2.2 Decay heat for intermediate cooling times

2.3 Decay heat for long cooling times

Report: Recommendations



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9 Recommendations

- Empty for now, but what shall we focus on ?
  - New measurements ?
  - Smaller uncertainties ?
  - …

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Wir schaffen Wissen – heute für morgen