From: Nick Kellenberger
To: Stephanie Devlin-Gill (She/Her)
Cc: Mallecia Sutton; Ryan Sprengel; Ian Gifford
Subject: [External_Sender] Radiological Source Term Topical Report - Follow Up Information
Date: Friday, October 27, 2023 2:55:46 PM
Attachments: image001.png

Stephanie,

This email confirms TerraPower's intent to provide a supplement to the subject topical report based on the feedback received during the public meeting held on October 10, 2023. Our current plan is to submit the supplement in mid-January 2024. Also, provided below is the current plan on how the topical report will be incorporated into the PSAR.

The planned scope for this supplement includes**:**

1. Additional code use examples, to illustrate how the evaluation method is structured for PSAR, what inputs are used, and which code options are selected.
2. Additional assessment matrix detail specific to the evaluation method's use in the PSAR and preliminary confidence in having reasonable results.
3. Additional discussion on the PIRT evaluations being performed following the initial PIRTs performed, specifically additional work currently ongoing to support the CPA.

Additional guidance will be provided for the report to walkthrough how the elements will be used, or define the expected level of evaluation for CPA.

Planned incorporation of existing report within PSAR

Overall incorporation is intended to meet the expectation described in NEI 21-07 Item 2.2 of Section C "SAR Content Guidance":

> **Two-Step Licensing (CP Content)**
>
> For a CP application, Section 2.2 will mirror the discussions above but will reflect the preliminary nature of the design information as appropriate. The PSAR should describe the technical areas that require research and development to confirm the assumptions and methodologies used to present the mechanistic source term.

Intended incorporation of existing report to support CPA is as follows:

- **Section 1**: Introduction – **Incorporated** to summarize the overall scope of events and regulatory requirements expected to be met when defining source terms for the PSAR, and a high level summary of the plant's systems in relation to one another for context in Section 2.

- **Section 2**: EM Capability requirements – **Incorporated** to provide detail on the initial baseline work completed for EM development. This includes:
  - The scope of events to be analyzed with this EM,

The phenomena identified with events with the potential for radionuclide release
    - The figures of merit to be evaluated against
    - Transport processes to be evaluated in the EM
    - Documentation of the initial PIRT process, to guide the overall EM development process.

  In addition, Section 2 is expected to be supplemented with additional information per Planned Scope - Item 3. above.

- **Section 3**: EM Assessment Base – **Incorporated** to define the scope of work required to be complete prior to issuing a final method for FSAR/OLA, and to provide checks where no future work is currently planned but may be required if results of other testing/scaling analyses require it.

  In addition, Section 3 is expected to be supplemented with additional information per Planned Scope - Item 2. above.

- **Section 4**: EM Development – **Incorporated** to define the codes selected for use in evaluating mechanistic source terms and define the known flow of information (inputs/outputs) through the EM.

  This section is also incorporated to define the expected structure of the final EM, the events that it will be able to analyze, and to identify known areas requiring additional evaluation prior to the method being considered complete (ex. The list of known gaps based on codes selected and phenomena identified is defined to be addressed in the final EM).

  In addition, Section 4 (or a new appendix) is expected to be supplemented with additional information per Planned Scope – Item 1. Above.

- **Section 5**: EM Adequacy Assessment – **Incorporated** to define the end goals of the EM development plan. The final EM will need to address these items in order to be considered successful. This includes expectations for evaluating the codes selected, the scalability of the EM, how applicable the EM is to the final design, and code verification. Known gaps for the codes selected are documented for future resolution.

- **Section 6**: Natrium Sample Analysis Results – Not incorporated for PSAR.

- **Section 7**: Adequacy Decision – Not incorporated for PSAR.

- **Section 8**: Conclusions and Limitations – **Incorporated** to identify limitations needed to be addressed by the final EM or final design.

- **Section 9**: References – No additional incorporation beyond applicable portions referenced in the sections above.

- **Appendix A**: Sample Calculations – Not incorporated for PSAR, information provided as preliminary illustration of method use.

Please let me know if you have any questions.

Thanks,

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