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10 CFR 50.90

1CAN041805

April 26, 2018

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Supplemental Information Supporting the Application for Technical Specification Change Regarding Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program (TSTF-425)
Arkansas Nuclear One, Unit 1
Docket No. 50-313
License No. DPR-51

REFERENCES: 1. Entergy Letter dated March 12, 2018, *Application for Technical Specification Change Regarding Risk-Informed Justification for the Relocation of Specific Surveillance Frequency Requirements to a Licensee Controlled Program (TSTF-425)*, Arkansas Nuclear One, Unit 1 (1CAN031801) (ML18071A319)

2. NRC Letter dated April 19, 2018, Arkansas Nuclear One, Unit 1 – Supplemental Information Needed for Acceptance of Requested Licensing Action re: Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-425, Revision 3 (EPID L-2018-LLA-0063) (1CNA041803) (ML18108A295)

Dear Sir or Madam:

In accordance with the provisions of Title 10 of the Code of Federal Regulations (10 CFR Part 50.90), "Application for Amendment of License, Construction Permit, or Early Site Permit," Entergy Operations, Inc. (Entergy) submitted a request for an amendment (Reference 1) to the technical specifications (TSs) for Arkansas Nuclear One, Unit 1 (ANO-1).

The proposed amendment would modify ANO-1 TSs by relocating specific surveillance frequencies to a licensee-controlled program with the implementation of Nuclear Energy Institute 04-10, "Risk-Informed Technical Specification Initiative 5B, Risk-Informed Method for Control of Surveillance Frequencies."

By letter dated April 19, 2018 (Reference 2), the NRC informed Entergy that additional information was needed to support completion of the Staff's acceptance review of the Reference 1 license amendment request (LAR). The Reference 2 letter stipulated that the supplemental information would be required to be submitted no later than May 9, 2018. The following states the specific information requested by the NRC. The corresponding Entergy response immediately follows each bullet listed.

NRC Request:

In Attachment 2, page 37 of 102 of the LAR, the licensee states that the large early release frequency (LERF) model was not considered in the internal flooding PRA, and the LAR does not present the results of its peer review. Consistent with Regulatory Position 4.2 of Regulatory Guide (RG) 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities (ADAMS Accession No. ML090410014) and Regulatory Issue Summary 2007-06, "Regulatory Guide 1.200 Implementation" (ADAMS Accession No. ML070650428), please provide the necessary documentation to demonstrate the technical adequacy of the licensee's PRA with respect to RG 1.200, Revision 2, as addressed below.

1. Provide a description of the LERF analysis that was considered in the 2016 Internal Flooding PRA and describe the adjustments made to the internal events LERF model to develop the internal flooding LERF model.

Entergy Response:

The internal flooding probabilistic risk assessment (PRA) model is built on the internal events PRA model for both core damage frequency (CDF) and LERF. The internal flooding LERF analysis is simply an expansion of the internal events LERF analysis. Flood-induced failures, which are detailed in the internal flooding PRA Accident Sequence Analysis Report, are entered in a database. This database is constructed for use with the Electric Power Research Institute (EPRI) FRANX software. The FRANX database and software are used to add failure logic for flood-induced equipment failures and human failure events into the PRA CAFTA model. The FRANX database links the flood-induced equipment failures and changes to human failure events with basic events in the internal events PRA model in order to quantify internal flooding risk. The same FRANX database is used for both CDF and LERF, thereby ensuring consistent treatment and inclusion of flood-induced failures regardless of the consequence being evaluated.

The internal flooding PRA LERF quantification uses the internal events PRA LERF model. Other than inserting the flood-induced failures using the FRANX software, no other adjustments are made to the internal events LERF model.

After inserting the flood-induced failures into the CAFTA logic models, the EPRI PRAQUANT software is used to quantify overall risk. The only differences between the internal flooding CDF quantification and the internal flooding LERF quantification are the selection of the top gate and the truncation value. That is, the overall process for quantification for each consequence (CDF or LERF) within the internal flooding PRA is the same.

The internal flooding model upgrade that was developed in 2016 underwent a focused-scope peer review in early 2017. Facts and observations (F&Os) which resulted from that review are currently being addressed, and associated model updates and documentation to address

the F&Os are nearly complete. The updated internal flooding model that addressed the F&Os used Revision 5p0 of the internal events model. The new internal flooding PRA model updated the logic to include the common feedwater system which is being installed in the current refueling outage, 1R27, for ANO-1 as well as to include LERF. These tasks were performed at the end of 2017.

The updated ANO-1 internal flooding model currently is undergoing technical review and owner's acceptance. As mentioned above, changes to the internal flooding model to address F&Os from the 2017, PRA focused-scope peer review are nearly complete. These changes included adding LERF to the internal flooding PRA model. Current plans are to complete the technical review of the internal flooding update after the ANO-2 internal flooding model is completed during the summer of 2018, if not before. As a result, internal flooding LERF could be quantified, if necessary, using the recently-updated internal flooding PRA model.

As described above, the internal flooding update involves use of the FRANX software to insert the flood-induced failures into the internal events PRA models and then performing the quantification. As a result, the same PRA models that would be used for internal events PRA quantification of both CDF and LERF would also be used for the internal flooding quantification. The focused-scope peer review identified no significant errors for the internal flooding accident sequences, modeling, or quantification process. Therefore, no changes in the accident sequences considered by the internal flooding PRA are expected.

NRC Request:

2. Provide details of all changes that have been made to the LERF model since it was developed, justifying that no changes constitute a PRA upgrade as defined in the ASME/ANS PRA standard.

Entergy Response:

The internal events LERF model and quantification were subjected to a peer review as part of the overall internal events PRA peer review performed in August 2009. That review used Revision 4p0 of the ANO-1 internal events PRA model. Significant findings from that peer review were resolved in Revision 5p0 of the internal events PRA model as described in the Reference 1 submittal. No other changes to the LERF model were made. As described in the Reference 1 submittal, the changes made in the Revision 5p0 update did not constitute a PRA upgrade.

As discussed above, the internal flooding PRA model uses the internal events model as the basis. There have been no changes in the processes used to quantify the internal events LERF model or to insert flood-induced failures into the PRA logic models since completion of the PRA peer reviews. As stated in Section 1-A.2 of the ASME PRA standard:

“However, it is not, for example, a PRA upgrade if an error or omission is addressed by using the existing methodology, and the change does not result in a significant change in risk-estimation capability. It is expected that such changes would generally be classified as PRA maintenance because, in most cases, the method of correction would be similar to that used for typical PRA maintenance where some new plant feature or change in operation is incorporated using the existing model structure and methods.”

Because the internal flooding LERF uses the same methods and models as the peer-reviewed internal events PRA model, the internal flooding LERF model is not considered a PRA upgrade.

NRC Request:

3. If any changes do constitute an upgrade, provide the results of a focused-scope peer review complete with F&Os and dispositions, and address any effects on the application.

Entergy Response:

As discussed above, no changes that would constitute a PRA upgrade were made.

Entergy believes the preceding information effectively addresses the supplemental information requested, and should fully support final acceptance of the referenced application.

There are no new regulatory commitments included in this submittal.

In accordance with 10 CFR 50.91, "Notice for Public Comment; State Consultation," a copy of this application, with attachments, is being provided to the designated Arkansas State Official.

If there are any questions or if additional information is needed, please contact Stephenie Pyle at 479-858-4704.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on April 26, 2018.

Sincerely,

ORIGINAL SIGNED BY RICHARD L. ANDERSON

RLA/dbb

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