AUDIT REPORT

ANP-10337, REVISION 0, SUPPLEMENT 1P, REVISION 0,

"DEFORMABLE SPACER GRID ELEMENT"

DOCUMENT NO. 99902041

EPID NO. L-2018-TOP-0037

By letter dated September 21, 2018, Framatome, Inc. (Framatome) submitted a supplement to a topical report (TR) which presents a methodology to analyze deformable spacer grid elements. This methodology is intended for use with ANP-10337P-A (henceforth referred to as the "base TR"), which describes a general methodology for analysis of the dynamic response of fuel assembly structures as a result of vibratory loads imposed by seismic and/or loss-of-coolant accident events. The TR supplement is entitled, "Deformable Spacer Grid Element," and can be identified by its TR supplement number, ANP-10337, Supplement 1P.

This TR supplement presents the necessary analysis elements for testing and analysis of deformable spacer grid elements that behave as specified in the **Applicability** section of the TR supplement. These analysis elements are intended to be plugged into the overall analysis methodology described in the base TR, along with any additional supplements to ensure that the overall methodology remains applicable. As a part of its review, the Nuclear Regulatory Commission (NRC) staff determined that an audit for understanding would be the most effective approach to enable the NRC staff to develop focused Request for Additional Information (RAI) questions so that the licensee can provide quality and timely responses.

The audit was held at the Framatome facilities in Lynchburg, VA, from March 26 to 28, 2019. The audit plan, along with further detail on the regulatory background, can be found in Enclosure 1. A list of attendees for the entrance meeting is shown in Enclosure 2. The NRC staff member participating in the audit discussions was Scott Krepel, who is the lead technical reviewer for this TR. Nicholas Klymyshyn from Pacific Northwest National Laboratories was contracted by the NRC to support this review. Jonathan Rowley also participated in his role as the project manager responsible for the review process of this TR.

In addition to the audit plan, Framatome was provided with a set of 51 informal technical questions to help Framatome prepare for the questions that the reviewers intended to ask and discuss at the audit. Framatome prepared informal responses to the 51 audit questions and supported detailed discussions with the NRC during the audit. The audit was scheduled for two days with an optional half-day planned in case extra time was needed.

Overall, Framatome was prepared to address the NRC comments and concerns. The discussion covered each of the 51 audit questions, in order. Most of the original audit questions were fully resolved by clarifications regarding the contents of the TR during the audit. Some of the original audit questions will be issued to Framatome as RAI questions because the information was determined to be necessary to make a safety determination, therefore, it needed to be placed on the docket.

In addition to interactive discussions with Framatome, the NRC staff reviewed the following internal technical reports and calculation packages that support ANP-10337, Supplement 1:

•	[]		
•	[1
•	I		1	

During the audit, the NRC staff reviewed the information provided in the packages and discussed it with the Framatome staff. There was open communication throughout the audit and it was conducted in accordance with the audit plan with no known deviation. Because of the discussions, 11 open items were identified for which the Framatome staff understood that further clarification or discussion would be necessary. These items will be captured in RAI questions by the NRC staff. Overall, the audit was very successful in advancing the NRC's understanding of the technical content of ANP-10337, Supplement 1, as well as Framatome's intent in implementing Supplement 1 within its existing approved seismic analysis framework.

At the end of the audit, the NRC and Framatome staff members conducted an exit meeting on March 27, 2019. At this meeting, the NRC and Framatome staff went through a list of the identified open items. The NRC staff provided feedback to clarify whether the information proposed to be docketed by the Framatome staff would be sufficiently detailed to address the relevant clarification or concern. The purpose of this discussion was to achieve a mutual understanding on the necessary scope for the future responses to the RAI questions to avoid the need for additional RAI questions.

The NRC staff indicated that Framatome should expect to see the RAI questions within a few months