UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE RD, STE 102
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

November 3, 2022

Patricia L. Skibbee
Board President
C-10 Research and Education Foundation
11 Chestnut Street
Amesbury, MA 01913

Dear Patricia Skibbee:

On behalf of the U.S. Nuclear Regulatory Commission, I am responding to your email to the Seabrook Senior Resident Inspector on September 21, 2022, on the August 11, 2022, Seabrook Integrated Inspection Report (ADAMS Accession No. ML22222A090). Responses to the specific questions are enclosed.

Sincerely,

Matthew R. Young

Digitally signed by Matthew R. Young
Date: 2022.11.03 13:31:39 -04'00'

Matt R. Young, Chief
Projects Branch 2
Division of Operating Reactor Safety

Enclosure:
As stated

Letter to P. Skibbee from M. Young dated November 3, 2022

DISTRIBUTION:
DLew, ORA
RLorson, ORA
DCollins, DORS
PKrohn, DORS
MYoung, DORS
JDeBoer, DORS
SElkiamy, DORS
EBrady, DORS
JBresson, DORS
CNewport, DORS, SRI
TDaun, DORS, RI
LMcKown, RI OEDO
DTifft, ORA
DScrenci, ORA
NSheehan, ORA
NFloyd, DORS
JPoole, NRR

DOCUMENT NAME: https://usnrc.sharepoint.com/teams/Region-I-Branch-2/SB RIO Doc/ASR/C-10 Responses/Cover Memo and Response to C10 Questions 2nd Qtr Report final corrected.docx
ADAMS ACCESSION NUMBER: ML22307A168

X SUNSI Review		X Non-Sensitive ☐ Sensitive		X Publicly Available ☐ Non-Publicly Available	
OFFICE	RI/DORS	RI/DORS			
NAME	JDeBoer	MYoung			
DATE	11/3/22	11/3/22			

OFFICIAL RECORD COPY

U.S. Nuclear Regulatory Commission
Response to Questions in the September 20, 2022, memorandum, and email

As you requested, we are responding to eight questions in the email you submitted to us.

Q1. How can the lack of the installation of these seven extensometers have gone "unnoticed" and/or "unenforced" for three years?

The original work was entered into their work management process but was not prioritized appropriately to ensure it was completed in a timely manner. This error is the subject of the non-cited violation referenced in the second quarter 2022 NRC inspection report (ML22222A090). Following the NRC identified violation, the Licensee recognized the need to install extensometers in the locations described in the second quarter 2022 inspection report.

Q2. The report states that at least one of the seven locations, according to NextEra, does not require extensometer installation because of the presence at that site of triaxial rebar. Is there in fact a regulation that allows such an exemption? If so, please cite.

There is no regulation regarding extensometers. Under the licensee's structures monitoring program and as part of the license amendment to evaluate ASR, Tier 3 locations are required to have an extensometer to monitor for through-thickness and volumetric expansion. The licensee determined that installing extensometers at some Tier 3 locations would be impractical due to the presence of heavy and/or triaxial rebar reinforcement. In some cases, an adjacent extensometer on the same structure can be used to monitor expansion. The NRC plans to review the licensee's documented justification for not installing extensometers at these specific locations during the next periodic inspection of ASR.

Q3. If the triaxial rebar is indeed stabilizing the progress of ASR there, how did the element's expansion progress to Tier 3 status?

There were a few monitored Tier 2 areas that progressed to Tier 3. These areas were two-way reinforced (i.e., not triaxial) which represents the typical rebar design for most of the Seabrook structures. Heavy or triaxial reinforcement may not necessarily prohibit a structure from progressing to Tier 3. None of the Tier 2 areas that progressed to Tier 3 were three-way reinforced, they were two-way.

Q4. Why is this failure to install the extensometers categorized as being of "very low safety significance"?

The inspectors assessed the significance of the finding using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," and determined it was of very low safety significance (Green), because the structures maintained their functionality based on the supporting structural evaluations and monitoring data. The inspectors reviewed the structures and evaluations for these locations and noted that all of the structures have been evaluated for impact from ASR including margin for additional expansion. Therefore, the inspectors concluded there was reasonable assurance that the structures remain capable of performing their functions which supported a "very low safety significance" assessment of the performance deficiency in accordance with NRC guidance.

Q5. This violation has been cited as an NCV, as stated above. Has Seabrook ever received an NOV/Notice of Violation, in accordance with (NRC Enforcement Manual) 2.3.3? (This answer was edited from the original response to include reference to the ASR NOV that was issued in 2016)

Yes, Seabrook was issued a Notice of Violation on May 6, 2016, in Inspection Report number 2016008 (ML16127A155). This violation involved corrective actions that were not effective with regards to ASR. Seabrook has received multiple NOV's since the implementation of the Reactor Oversight Process.

Q6. Section 71111.14 (4) describes a licensee identified NCV, "Residual heat removal vaults identified as exceeding their building deformation Stage 3 limits on May 10 (2022) for structural performance and challenged the operability of the structure." What happens now that the building has exceeded those limits?

When a safety-related structure, system, or component exceeds a licensing basis limit or requirement, the licensee can perform an evaluation, as described in its corrective action program. If the evaluation determines the structure, system, or component continues to meet its design basis safety-function, the licensee is allowed to continue operation. The licensee must then either restore compliance with the licensing basis or change the licensing basis via a formal process in a timely manner commensurate with the safety significance of the degraded condition.

In the case of an element of the residual heat removal vault structure exceeding its building deformation Stage 3 limit, the licensee has conducted a formal evaluation via their corrective action program to show that the structure can perform its safety function. The licensee intends to perform physical modifications to the structure to increase its capacity and bring the impacted element within the Stage 3 limit.

Q7. "For the containment enclosure building, the entire structure was reanalyzed to increase the allowable ASR expansion." How does that process work? Could the reanalysis instead result in the finding that the building has expanded MORE than expected and is no longer able to perform its safety functions? It looks like the frequency of inspections for this building and for the residual heat removal vaults will increase to "2-6 months" (it would be good to pick a specific number), but what happens if the inspections find too much further ASR expansion/deterioration? "Physical modifications" are mentioned; what are those, and is there a publicly available plan for those?

The process for reanalyzing a structure is provided in the methodology document that the licensee submitted as part of the license amendment to evaluate the effects of ASR at Seabrook. For the containment enclosure building, a refined re-analysis was performed to incorporate updated building deformation monitoring data and to establish revised threshold monitoring limits for future monitoring. The re-analysis targeted a higher threshold factor of 1.5 to achieve higher threshold monitoring limits (i.e., higher margins for ASR expansion in the future). The licensee will need to address specific locations of localized code exceedances by completing physical modifications (strengthening of the structure). These modification plans are not public; they are controlled by the licensee and subject to NRC inspection. This re-analysis process would be similar for other structures.

If a structure were to expand beyond the identified limits and threshold factor, the licensee would need to complete an operability determination to demonstrate that the structure continues to meet its

intended safety function, or the plant would need to shut down until compliance could be demonstrated. The structures are always required to have a documented basis that demonstrates the ability to perform their safety functions.

Q8. Pages 7 and 8 list many inspected areas, but there are no results of the inspection in the report. Why is that?

According to Inspection Manual Chapter 0611, Power Reactor Inspection Reports (ML19317F647), only findings of significance are usually documented in inspection reports. Minor deficiencies, minor observations, and observations are not normally documented. In this case, no findings of significance were identified for those inspection samples.