

**From:** [Justin Hudson](#)  
**To:** [Ayman I. Hawari](#)  
**Cc:** [Gerald Wicks](#); [Colby Fleming](#); [Edward Helvenston](#); [Josh Borromeo](#); [Duane Hardesty](#)  
**Subject:** Audit Report Related to the NRC Staff Review of the North Carolina State University License Request Regarding Vented Fueled Experiments for the PULSTAR Research Reactor (EPID No. L-2022-NFA-0004)  
**Date:** Friday, July 28, 2023 1:54:00 PM  
**Attachments:** [Audit Report for NCSU.pdf](#)

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Dear Dr. Hawari:

By letter dated April 18, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22108A16), as supplemented by letters dated July 11, 2022, March 13, 2023, May 12, 2023, and June 20, 2023 (ML22193A167, ML23075A056, ML23132A126, ML23171B001, respectively), North Carolina State University applied for an amendment to Facility Operating License No. R-120 for the North Carolina State University PULSTAR Research Reactor. The amendment revises the Technical Specifications and License Conditions to provide a single fission rate limit that applies to all fueled experiments; to allow NCSU to perform fueled experiments with plutonium, in addition to uranium-235; and to allow NCSU to perform vented fueled experiments.

Attached is a report on the regulatory audit conducted by staff of the U.S. Nuclear Regulatory Commission (NRC) from November 7, 2022, to July 28, 2023, in connection with its review of the application. The audit report does not make any licensing conclusions or findings, but it is part of the administrative record of the NRC staff's review of the application and may provide information supporting the NRC staff's safety evaluation. The audit followed the plan provided by letter dated October 31, 2022 (ML22304A184), unless otherwise noted in the enclosed report.

If you have any questions, please contact me at (301) 287-0538 or by email at [Justin.Hudson@nrc.gov](mailto:Justin.Hudson@nrc.gov).

Justin Hudson

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OFFICE OF NUCLEAR REACTOR REGULATION

REGULATORY AUDIT REPORT

REGARDING THE LICENSE AMENDMENT REQUEST FOR VENTED FUELED  
EXPERIMENTS

FACILITY OPERATING LICENSE NO. R-120

NORTH CAROLINA STATE UNIVERSITY

NORTH CAROLINA STATE UNIVERSITY PULSTAR RESEARCH REACTOR

DOCKET NO. 50-297

Location: North Carolina State University PULSTAR Research Reactor, Raleigh, North Carolina, and U.S. Nuclear Regulatory Commission Headquarters, Rockville, MD

Dates: 11/08/2022 – 07/28/2023

Audit Team Members: Justin Hudson, Audit Team Leader  
Edward Helvenston, Audit Team Member

Licensee Representatives: Dr. Ayman Hawari, Director  
Dr. Colby Fleming, Reactor Manager  
Gerald Wicks, Reactor Health Physicist

Background

By letter dated April 18, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22108A16), as supplemented by letters dated July 11, 2022, March 13, 2023, May 12, 2023, and June 20, 2023 (ML22193A167, ML23075A056, ML23132A126, ML23171B001, respectively), North Carolina State University applied for an amendment to Facility Operating License No. R-120 for the North Carolina State University PULSTAR Research Reactor. The amendment revises the Technical Specifications and License Conditions to provide a single fission rate limit that applies to all fueled experiments; to allow NCSU to perform fueled experiments with plutonium, in addition to uranium-235; and to allow NCSU to perform vented fueled experiments.

This audit allowed the U.S. Nuclear Regulatory Commission (NRC) staff (the staff) to gain a better understanding of North Carolina State University's (NCSU) license amendment request related to fueled experiments and perform a more effective and efficient review with the objective of improving communication and avoiding unnecessary requests for additional information (RAIs). Reviewing underlying documentation and engaging in audit discussions about site characteristics facilitated the staff's understanding of the license amendment request application.

This report summarizes the regulatory audit conducted by the staff from November 7, 2022, to July 28, 2023, in connection with its review of the license amendment request. The audit report does not make any licensing conclusions or findings, but it is part of the administrative record of

the staff's review of the application and may provide information supporting the staff's safety evaluation. The audit followed the plan dated October 31, 2022 (ML22304A184), unless otherwise noted in this report.

### Audit Activities

The primary objective of the audit was to enable an effective and efficient review of the license amendment request related to fueled experiments by allowing the staff to review and discuss supporting material with NCSU. Gaining access to underlying documentation and engaging in audit discussions about site characteristics facilitated the staff's understanding of the license amendment request. The audit improved communication and provided detailed information for the staff such that no RAIs were needed.

The audit was conducted from the months of November 2022, through July 2023, via Google Drive and involving one site visit in December 2022. The staff conducted the audit in accordance with the Office of Nuclear Reactor Regulation (NRR) Office Instruction NRR LIC-111, Revision 1, "Regulatory Audits."

Prior to the audit, the audit team reviewed the license amendment request and provided preliminary questions by email on November 7, 2022 (ML22312A355). The NRC staff then discussed these questions with NCSU during the onsite visit on December 20, 2022. The resolutions of these questions are provided in the table below. This onsite visit also allowed the NRC staff to gain a better understanding of the experimental area and how the licensee intends to use vented fueled experiments.

In the course of the audit, virtual meetings were held between the staff and NCSU on February 22, 2023, May 4, 2023, and June 12, 2023.

The staff reviewed the following documents via Google Drive:

- Proposed technical specifications
- Proposed license conditions
- Dose calculations background information
- Justifications for proposed changes

### Summary of Audit Outcome

The staff's audit focused on the preliminary questions sent to the licensee (ML22312A355) and reviewing additional documents to resolve these questions. The staff reviewed information through Google Drive and held discussions with NCSU staff to understand and resolve the questions. In many cases, modifications to the license amendment request were made and updated on the docket to resolve items discussed in the audit. The tables below summarize the resolution of these specific questions.

### Exit Briefing

On July 28, 2023, the audit team held an exit briefing with the licensee representatives, including Dr. Ayman Hawari, Dr. Colby Fleming, and Gerald Wicks. The NRC staff received no questions, comments, or concerns regarding the audit or the audit process.

Deviations from the Audit Plan

There were no deviations from the Audit Plan.

<b>OFFICE</b>	<b>NRR/DANU/UNPL/PM</b>	<b>NRR/DANU/UNPL/BC</b>	<b>NRR/DANU/UNPL/PM</b>
<b>NAME</b>	JHudson	JBorromeo	JHudson
<b>DATE</b>	7/28/2023	7/28/2023	7/28/2023

### Proposed License Conditions

Question Number	Question	Resolution
1.a	The LAR requests the authority to possess “up to 20 grams of contained Plutonium-239 of any enrichment in the form of fission chambers.” However, the NRC staff notes that all plutonium is considered special nuclear material, and therefore such a possession allowance should clearly include all plutonium including isotopes other than plutonium-239.	NCSU stated it would revise its request to “up to 20 grams of plutonium in the form of fission chambers” or similar.
1.b	The LAR also states this this requested plutonium is for fission chambers for upcoming planned experiments. However, it is not clear what types of experiments these fission chambers are for, whether these are commercially manufactured fission chambers, and whether they could potentially be reactor experiments (e.g., would be evaluated as part of a reactor experiment), or would be used to monitor reactor experiments.	NCSU stated that it had planned to use these fission chambers for characterization of their response to reactor conditions and comparison with performance of other fission chambers (e.g., uranium fission chambers). NCSU stated that they would not be safety channels. They could either be commercially manufactured or obtained from a collaborator but would not be made at NCSU. NCSU stated that it would consider these to be detectors, and therefore not considered to be experiments per the existing TS definition. NCSU initially stated that the plutonium fission chambers could include both sealed fission chambers, and “open-flow” fission chambers; however, NCSU subsequently stated that it would limit its use of fission chambers in conjunction with this LC to sealed fission chambers to avoid potential concerns with “open-flow” fission chambers.

2.a	The LAR requests the authority to possess “up to 35 grams of Uranium-235 in any enrichment excluding uranium containing U-233 and up to 5 grams of plutonium for fueled experiments.” This authority would replace the current allowance to possess “up to 2 grams of contained uranium-235 of any enrichment in the form of foils.” The NRC staff notes that the proposed revised LC would not clearly describe the uranium consistent with standard LC language. Also, the allowed form(s) of the uranium and plutonium are not clear.	NCSU changing wording to something like “up to 35 grams of contained U-235 of any enrichment in any form” and changing wording to “up to 5 grams of plutonium in any form.”
2.b	In addition, the NRC staff notes that the wording “for fueled experiments” in the proposed LC could limit the allowed uses of material possessed under this portion of LC 2.B.(2), and it is not clear to the NRC staff if this is NCSU’s intent.	NCSU clarified that the total material it is requesting to possess could include things like flux foils (listed in its current LC and being merged into the proposed LC) as well as material for fueled experiments. NSCU will be removing “for fueled experiments” from the proposed language.

**Proposed Technical Specifications – Technical Specification Definition of “Fueled Experiment”**

<b>Question Number</b>	<b>Question</b>	<b>Resolution</b>
3.a	The intended meaning of definition item e. with the proposed addition of “and excludes the following” may not be fully clear.	NCSU is making “... fueled experiments exclude the following:” a separate sentence  Generally on item 3, NCSU stated that in addition to changes related to 3a through 3e it will also make the items currently listed in proposed TS definition item e.ii. separate items (e.g., e.ii through e.v) for clarity.
3.b	Regarding “detectors containing fissile material” in the item e.ii. list: Could there be a case where a detector itself is an experiment.	Detectors will not be experiments.
3.c	Regarding “sealed sources” in the item e.ii. list: Is this intended to be limited to neutron sources used in reactor operations?	NCSU clarified that it considers “sealed sources” to mean neutron sources used in reactor operations, e.g., the PuBe source.

3.d	Regarding “naturally occurring elements” in the item e.ii. list: What does this mean? The staff notes that irradiation of, for example, uranium-containing minerals, could still potentially be a fueled experiment.	NCSU clarified that it intended “naturally occurring elements” to include things like geological samples and soil which could include incidental trace amounts of uranium, which it would not consider fueled experiments. However, for clarity, NCSU stated that it would remove “naturally occurring elements” from the proposed TSs because it is generally understood that these types of experiments are not considered fueled experiments and the explicit exclusion is not needed.
3.e	Regarding “fuel used in operation of the reactor in the item e.ii. list: Is this intended to be limited to, for example, research reactor fuel elements described in Section 5 of the PULSAR reactor TSs?	NCSU stated that it will revise “fuel used in operation of the reactor” to “PULSTAR research reactor fuel described in TS 5.1.a” or similar wording.

**Proposed Technical Specifications – Technical Specification 3.5 “Radiation Monitoring**

Question Number	Question	Resolution
4.a	Does NCSU need an allowance to have proposed TS 3.5 not apply	NCSU adding an exception statement



	when irradiated fuel or fueled experiments are not in e.g., “a properly sealed and approved shipping container”?	about shipping containers.
4.b	Is it accurate that NCSU would never move fuel or experiments in the waste tank vault described in current TS 5.2.d being under the reactor license? (Question also applies to proposed TS 3.6.)	NCSU answered as “Yes.”
4.c	The NRC staff notes an apparent error in proposed TS 3.5 in that “are” should be “is.”	NCSU will revise back to the original “is.”
4.d	NCSU’s explanation for the changes to TS 3.5.b states “The names of the gas and particulate monitors are updated to better describe the monitors in light of potential experimental monitors which might be installed.” Can NCSU elaborate on what is meant by this? Is the intent to distinguish these monitors from gas or particulate monitors that will be part of experiments?	NCSU clarified that yes, its intent was to distinguish the monitors from experimental monitors. NCSU also stated that it did not intend for proposed TS 3.5.b to require a specific “Stack Gas” or “Stack Particulate” monitor because multiple monitors in the exhaust system are fully capable of performing the functions of the required monitors; NCSU will revise the proposed TS from “Stack Gas and Stack Particulate” to “Stack gas and stack particulate” (i.e., lowercase) to help clarify this.
4.e.i	Does the required monitor include both gas and particulate monitoring?	NCSU clarified that the required monitor only includes gas monitoring, as indicated by the TS wording “exhaust gas radiation monitor.”
4.e.ii	Will the required monitors isolate the experiment if setpoints exceeded? If so, is this function part of the TS?	NCSU clarified that its intent is that the required monitor would include an isolation function as indicated in the original LAR submittal dated April 18, 2022; however this function would not be part of the TS requirement.

4.e.iii	Will the required monitors detect if particulate activity is inadvertently released from a vented fueled experiment?	NCSU stated the TS-required stack particulate monitor would detect if particulate activity were inadvertently released from a vented fueled experiment. Although NCSU plans to install filters in the experiment exhaust that could remove any particulate activity released from an experiment capsule before it could reach the main facility HVAC system and the stack particulate monitor, NCSU noted that other monitors in the vicinity of vented fueled experiments (including area monitors in the vicinity of the beam port where NCSU plans to install vented fueled experiments) would also help detect and provide early indication of any unusual radioactivity releases from vented fueled experiments including unanticipated particulate accumulation on experiment filters. NCSU also noted that it periodically (and with increased frequency if elevated readings occur) performs counts on stack particulate monitor filters to analyze isotopes deposited on the filters. NCSU noted that trends in this data could also give indication if vented fueled experiments are not retaining particulates as expected.
4.e.iv	Will the vented experiment exhaust (after passing through experiment radiation monitors) enter the main facility HVAC system upstream of the stack monitors?	NCSU confirmed that all vented fueled experiment exhausts would enter the main facility HVAC system upstream of the stack monitors.

4.f	Following the proposed removal of “Ar-41” and “Co-60” from TS 3.5-1, how (i.e., to the airborne effluent concentration for what radionuclide(s)) would NCSU calibrate its stack monitors for alert and alarm purposes?	NCSU stated that it will keep “Ar-41” and “Co-60” as included in its current TS Table 3.5-1. NCSU also stated that it would provide an explanation of how the setpoints included the current TS would continue to be appropriate and conservative for operation with the proposed fueled experiments.
4.g	It is not clear to the NRC staff why the proposed revision of TS 3.5, footnote (6), is necessary given that 10 CFR Part 20 dose limits only include doses from licensed operation.	NCSU stated that it will keep TS 3.5, footnote (6), as written in the current TSs.
4.h	Regarding proposed TS 3.5, footnote (7), are vented fueled experiment radiation monitors also necessary during some period of time following experiment operation, for example, if some fission products may continue to be released from the experiment, or if the monitors are located following some holdup volume? What is meant by experiment is “in operation” or “operable”?	NCSU confirmed that it intends “experiment is in operation” in proposed TS 3.5, footnote (7), to include anytime the vented fueled experiment exhaust is operating, even if the reactor is shutdown.
4.i	Should TS 3.5, footnote (7), and the main text of TS 3.5, require that vented fueled experiment radiation and flow monitors be “operating” versus “operable” consistent with the PULSTAR TS definitions?	NCSU stated this it will revise “operable” to “operating” in the main text of TS 3.5 and in TS 3.5, footnote (7).
4.j	The NRC staff notes that the proposed TSs do not appear to contain a TS 3.8.d.iv as referenced in TS 3.5, footnote (8). In addition, proposed TS 3.8 does not appear to contain any required radiation or flow monitor setpoints.	Footnote 8 will be deleted.
4.k	Regarding the proposed revisions to the TS 3.5 bases, is Co-60 considered a potentially released radionuclide, or is it just used, e.g., as a convenient reference?	NCSU clarified that Co-60 is unlikely to be a released radionuclide, but is used as a convenient reference due to its characteristics (e.g., high-energy gamma emitter).
4.l	Regarding the proposed revisions to the TS 3.5 bases, the NRC staff notes that proposed TS 3.8 does not appear to include monitoring of flow rates as referenced in the TS 3.5 bases.	NCSU will update the basis to reflect the changes discussed for LCO 3.5.

4.m	Regarding the proposed addition of “Radiation monitor setpoints are analyzed as described in the documentation presented in the Fueled Experiment Analysis Report for TS Amendment 19” to the TS 3.5 bases, is this referring to the vented fueled experiment radiation monitors, and is this statement accurate following the revisions to NCSU’s license amendment requirement discussed in NCSU’s supplement dated July 11, 2022 (ML22193A167)?	NCSU is deleting this from the basis.
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**Proposed Technical Specifications – Technical Specification 3.6 “Confinement and Main HVAC Systems”**

Question Number	Question	Resolution
5.a	Does NCSU need an allowance to have proposed TS 3.6 not apply when irradiated fuel or fueled experiments are not in e.g., “a properly sealed and approved shipping container”? (See also ANSI/ANS-15.1-2007, Section 3.4.1, item (2).)	NCSU will be adding wording from the ANSI standard to clarify this TS.

**Proposed Technical Specifications – Technical Specification 3.8, “Operations with Fueled Experiments”**

Question Number	Question	Resolution
6.a	Proposed TS 3.8.a states that “mass and fission rate for fueled experiments are limited,” but the NRC staff notes that proposed TS 3.8.a only appears to include a fission rate limit.	NCSU stated that it will revise to “fission rate is limited.
6.b	The NRC staff notes that proposed TS 3.8.b appears to be redundant to TSs 3.5 and 3.6. Proposed TS 3.8.b also appears to use different wording than proposed TSs 3.5 and 3.6 such that the requirements may not be clear.	NCSU will be removing 3.8 b due to redundancy.
6.c	The NRC staff notes that proposed TS 3.8.c appears to be redundant to TS 3.2.	NCSU will propose to delete current TS 3.8.c and provide justification (i.e., it is redundant).

6.d.i	Will vented fueled experiments still be non-corrosive for consistency with the intent of TS 3.7.a?	NCSU stated that it will add language to proposed TS 3.8.d requiring that vented fueled experiments shall be designed to prevent interaction with reactor components or pool water, to ensure that the intent of existing TS 3.7.a continues to be captured.
6.d.ii	How will NCSU ensure that having liquids in vented (unencapsulated) fueled experiments will not cause any undesirable interactions with reactor components or pool water and that the liquids are appropriately contained?	NCSU stated that this concern would be covered by the language added for i). In addition, NCSU confirmed that its TS-required reviews of experiments would ensure that adequacy of the experimental design for any vented fueled experiments, including those containing liquids.
6.d.iii	Proposed TS 3.8.d specifies that “vented experiments” do not need encapsulation, but should this state “vented fueled experiments”?	NCSU stated that it will revise both instances of “vented experiments” in proposed TS 3.8.d to “vented fueled experiments.”
6.d.iv	NCSU’s discussion of TS 3.8.d changes stated that vented experiments are restricted to not allow particulate releases, but the NRC staff notes that it is not clear whether “airborne activity” clearly excludes particulates.	NCSU stated that will revise “airborne activity” in proposed TS 3.8.d to “gaseous airborne activity.”

6.e	The NRC staff notes that proposed TS 3.8.e appears to be redundant to TSs 6.2.3 and 6.5.	NCSU will propose to delete current TS 3.8.e and provide justification (i.e., it is redundant).
6.f	The NRC staff notes that it is not clear if the list in proposed TS 3.8 beginning with “Each type of fueled experiment shall meet the following items...” is part of TS 3.8.e, or should be a separately numbered TS e.g. 3.8.[X].	NCSU will correct the TS 3.8 formatting and numbering.
6.g	Regarding proposed item ii. in the list in proposed TS 3.8 beginning with “Each type of fueled experiment shall meet the following items...”, how will NCSU ensure that experiment materials in powder form are appropriately contained?	NCSU stated that it will remove the word “powder” from this proposed TS item because “powder” is included in “solid.” NCSU confirmed that it will ensure powders are appropriately contained by, for example, use of a mesh that has a smaller size than the powder particle size, as discussed in the LAR.
6.h	Regarding proposed item iii. (as numbered on page 27 of the proposed TS change pages submitted in NCSU’s supplement dated July 11, 2022) in the list in proposed TS 3.8 beginning with “Each type of fueled experiment shall meet the following items...”, will NCSU still perform appropriate analyses for experiments located outside the pool water to ensure that thermal power is limited to prevent experiment failure?	NCSU confirmed that yes, it will still perform such analyses for experiments located outside the pool water, as appropriate. NCSU also noted that for vented fueled experiments (which may be externally heated), temperatures would be controlled to be low enough to avoid potentially driving any particulate fission products out of the experiments.

6.i	Regarding proposed item iv. in the list in proposed TS 3.8 beginning with “Each type of fueled experiment shall meet the following items...”, what locations for monitors would be considered “at the exhaust of vented fueled experiments”?	NCSU clarified that this could include any location between where the flow exits the vented fueled experiment capsule, and where the experiment flow enters the main ventilation system.
6.j	Although NCSU did not propose to revise item v. in the list in proposed TS 3.8 beginning with “Each type of fueled experiment shall meet the following items...”, the NRC staff notes that the wording of item v. does not appear to be clear in the context of the revised list in proposed TS 3.8. In addition, the NRC staff notes that item v. appears to be redundant to proposed TSs 3.8.c and 3.8.d.	NCSU stated that it will propose to delete current item v. and provide justification (i.e., it is redundant).
6.k	Regarding proposed TS 3.8.f, the basis for the addition of “total site” is not clear to the NRC staff, and it also would appear to make TS 3.8.f inconsistent with the wording of existing TS 3.7.f. In addition, the NRC staff would like to verify that proposed TS 3.8.f would be consistent with a bounding calculation of dose from credible failure of a fueled experiment allowed by the proposed TSs.	NCSU stated that it will remove its proposed addition of “total site” to current TS 3.8.f. NCSU also stated it would provide revised dose calculations to allow the NRC staff to verify that current TS 3.8.f can continue to be met by the fueled experiments proposed in the LAR.
6.l	The NRC staff notes that proposed TS 3.8.g appears to be redundant to TS 5.3.	NCSU stated that it will remove its proposed addition of new TS 3.8.g.

**Proposed Technical Specifications – Technical Specification 4.4, “Radiation Monitoring Equipment”**

<b>Question Number</b>	<b>Question</b>	<b>Resolution</b>
7.a	Should proposed TS 4.4.a additionally require channel calibration following replacement of, or changes to, the stack monitoring systems?	NCSU stated that it will provide revised language for proposed TS 4.4.a, considering wording from ANSI/ANS-15.1 and NUREG-1537.
7.b	Should proposed TS 4.4 require channel testing (e.g., daily) of the stack monitoring systems?	NCSU stated that as part of its current startup checklist (performed prior to the first reactor startup of each day), it performs channel checks of these systems to verify operability. NCSU stated that it will provide written supplemental information justifying why this is sufficient and no additional TSs are needed.



7.c	Regarding proposed TS 4.4.c, it is not clear what is meant by the wording “for as long as the experiment is in operation.”	NCSU stated that it will revise the proposed TS 4.4.c language “for as long as the experiment is in operation” to “thereafter while the experiment is operational” or similar. NCSU clarified that its intent with this provision of proposed TS 4.4.c is that it would not be required to continue to perform the TS 4.4.c surveillance if vented fueled experiments are no longer being performed, for example, if the vented fueled experiment apparatus is removed.
7.d.	Should proposed TS 4.4 require channel testing of the vented fueled experiment radiation and flow monitors?	: NCSU stated that it would proposed a new TS (e.g., TS 4.4.d) requiring that “prior to the first operation of a vented fueled experiment of the day” (or similar wording), it perform channel tests of the vented fueled experiment radiation and flow monitors.

**General Questions**

<b>Question Number</b>	<b>Question</b>	<b>Resolution</b>
8.a	The NRC staff notes that, in issuing amendments to licenses, the amendment number and date is typically only updated on TS and license pages that include TS or license changes as part of the amendment.	NCSU understood/done.
8.b	The NRC staff notes that the calculations provided by NCSU in its supplement dated July 11, 2022, appear to be example calculations of proposed experiments, rather than bounding calculations involving the maximum TS allowed time or fission rate. The NRC staff would like to confirm that NCSU calculations of experiments based on TS limits continue to result in acceptable doses.	<p>NCSU clarified that the calculations in its July 11, 2022, supplement are based on the proposed maximum TS allowed fission rate, but that this was not apparent because the supplement only specified thermal flux instead of total flux. NCSU assumed an additional non-thermal flux equal to 30 percent of the thermal flux, to make the total thermal and non-thermal flux equal to the TS limit.</p> <p>NCSU confirmed that the calculations provided in its July 11, 2022, supplement are based on similar assumptions to calculations in its original April 18, 2022, LAR (for example, same isotopes considered, and use of 0.1 correction factor for geometry inside of the reactor building).</p>

		<p>NCSU noted that the calculation results and assumption descriptions in its July 11, 2022, supplement contain several errors including:</p> <ul style="list-style-type: none"><li>• In Table 2, Column 2, “<math>6 \times 10^{-9}</math> mrem” should read “<math>6 \times 10^{-6}</math> mrem”</li><li>• In Table 2, Column 3, “<math>1 \times 10^{-3}</math> Ci” should read “<math>1.7 \times 10^{-3}</math> Ci”</li><li>• The July 11, 2022, supplement states that the encapsulated experiment accident release calculation (result Table 2, Column 4) assumed that the contents of the fueled experiment are evacuated from the reactor building over the course of 24 hours of fumigation conditions, but this should have stated 2 hours.</li></ul>
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		NCSU stated it would provide revised dose calculation details on the portal, and provide updated/correct summary of assumptions and results in a written supplement.
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