



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 30, 2024

EA-24-057

Ms. Carrie Fosaaen
Senior Director, Regulatory Affairs
NuScale Power, LLC
1100 NE Circle Blvd., Suite 200 Corvallis, OR 97330

SUBJECT: NUSCALE POWER LLC – DISPUTED CITED VIOLATION REVISED
05200050/2024-201-01

Dear Ms. Fosaaen:

I am responding to your letter dated May 10, 2024 (Agencywide Documents Access and Management System (ADAMS) No. ML24131A153), in which you disputed the Severity Level IV (SL-IV) Notice of Violation (NOV) 05200050/2024-201-01 as identified in the United States (U.S.) Nuclear Regulatory Commission (NRC) Inspection Report 05200050/2024-201 (ADAMS Accession No. ML24099A129), dated April 12, 2024. The NOV described examples where NuScale Power, LLC (hereafter referred to as NuScale) failed to implement the requirements of Criterion V, "Instructions, Procedures and Drawings," in accordance with Appendix B to 10 CFR Part 50.

In response to your dispute, NRC staff members who were not involved with the original inspection effort conducted a detailed, independent review of your May 10th letter. This review was informed by guidance in Part I, Section 2.8, of the NRC Enforcement Manual, which is titled "Disputed Violations." The current Enforcement Manual is included on the NRC's Web Site at <https://www.nrc.gov/about-nrc/regulatory/enforcement/guidance.html>.

After careful consideration of the basis for your dispute of the NOV, the NRC concluded that the original violation remained valid. However, the staff revised the violation to remove one example which was determined to be minor. The SL-IV NOV was evaluated in accordance with the NRC Enforcement Policy which is found on the NRC's website at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. The violation, attached in Enclosure 1, involved the failure to adequately follow prescribed procedures for the (a) classification of an engineering calculation assessing the safety-related function of the Decay Heat Removal System pertaining to its ability to achieve and maintain safe shutdown and (b) screening of an error related to combustible gas control accumulation in the Reactor Coolant System, for applicability to the Emergency Core Cooling System evaluation model in NuScale's Design Certification. The violation is cited in the enclosed Notice of Violation (Notice) because it was identified by the NRC.

You are required to respond to this letter and to follow the instructions specified in the enclosed NOV when preparing your response. In your response to the enclosed NOV, NuScale should document the results of the extent of condition review for the finding and

determine if there are any effects on design activities associated with the Standard Design Approval Application (SDAA). If you have additional information that you believe the NRC should consider, you may provide it in your response to the NOV. The NRC's review of your response to the NOV also will determine if further enforcement action is necessary to ensure compliance with regulatory requirements.

To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the Public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such information, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information).

In accordance with 10 CFR 2.390, "Public inspections, exemptions, requests for withholding," of the NRC's "Rules of Practice," a copy of this letter and your response will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System component of the NRC's ADAMS. ADAMS is accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Should you have any additional questions, please contact Douglas Bollock of my staff at 301-415-6609.

Sincerely,



Signed by N. Felts, Russell
on 09/30/24

Russell Felts, Director
Division of Reactor Oversight
Office of Nuclear Reactor Regulation

Docket No.: 05200050

Enclosures:

1. Revised Notice of Violation
2. Background – Inspection Report
05200050/2024-201
3. Nuclear Regulatory Commission's Review
and Conclusions for NOV 05200050/202
4-201-01

SUBJECT: NUSCALE POWER LLC – DISPUTED CITED VIOLATION REVISED 05200050/2024-
201-01 DATE: September 30, 2024

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ADAMS Accession No.: ML24214A127**NRR-106**

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NOTICE OF VIOLATION

NuScale Power, LLC
Corvallis, OR

Docket No. 05200050
EA-24-057

During an NRC inspection conducted at the NuScale Power, LLC (hereafter referred to as NuScale) facility in Corvallis, OR, from February 26 through March 1, 2024, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Criterion V, "Instruction, Procedures, and Drawings," of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," states that "Activities affecting quality shall be prescribed by documents, instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings."

Section 2.5, "Instructions, Procedures, and Drawings," of NuScale's Quality Assurance Program Description (QAPD), states that "NuScale has established the necessary measures and governing procedures to ensure that activities affecting quality are prescribed by, and performed in accordance with, instruction, procedures, or drawings of a type appropriate to the circumstances and which, where applicable, include quantitative or qualitative acceptance criteria to implement the QAP as described in this document."

Section 5.2.2 of Engineering Procedure (EP)-0303-2109, "Classification of Structures, Systems, and Components," Revision 11, dated August 30, 2023, states that "the subject matter expert will review the system functions, design basis events, and functional categorization that have been identified for the SSC's systems and documented in the system function report."

Contrary to the above, as of March 1, 2024, NuScale failed to perform activities affecting quality in accordance with prescribed instructions, procedures, or drawings. Specifically, NuScale did not adequately adhere to prescribed instructions in EP-0303-2109 in the following instance:

- NuScale failed to appropriately classify engineering calculation (EC) 101197, "DHRS Thermal Hydraulic Calculation for the NPM-20," in accordance with EP-0303-2109. EP-0303-2109 defines safety-related SSCs as "those structures, systems and components that are relied upon to remain functional during and following design-basis events to assure...the capability to shut down the reactor and maintain it in a safe shutdown condition." EC-101197 was classified as "Non-Safety Related" when its stated scope is, in part, to assess the decay heat removal system's ability to perform its safety-related function to achieve and maintain safe shutdown.

This is a Severity Level IV violation (Section 6.9.d of the NRC Enforcement Policy). This issue has been identified as Notice of Violation 05200050/2024-201-01.

Pursuant to the provisions of 10 CFR Part 2.201, "Notice of Violation," NuScale is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Chief, Quality Assurance and Vendor Inspection Branch, Division of Reactor Oversight, Office of Nuclear Reactor Regulation, within 30 days of the date of the letter transmitting this Notice of Violation. This reply should be clearly marked as a "Reply to a Notice of Violation; EA-24-057" and should include: (1) the reason for the violation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence if the correspondence adequately addresses the required response. Where good cause is shown, the NRC will consider extending the response time.

Because your response will be made available electronically for public inspection in the NRC's Public Document Room or from the NRC's Agencywide Documents Access and Management System, which is accessible from the NRC Web site at <https://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or Safeguards Information (SGI) so that the agency can make it available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information would create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If SGI is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Dated this 30th day of September 2024.

Background – Inspection Report 05200050/2024-201

The United States (U.S.) Nuclear Regulatory Commission (NRC) staff identified a notice of violation (NOV) during an NRC inspection conducted from February 26 through March 1, 2024 at the NuScale Power, LLC (hereafter referred to as NuScale), facility in Corvallis, Oregon, and at the NRC headquarters facility in Rockville, Maryland. The purpose of this technically focused NRC inspection was to verify that NuScale effectively implemented quality assurance (QA) processes and procedures for design activities performed in support of the NuScale Standard Design Approval Application (SDAA). The inspection focused on assessing compliance with the provisions of selected portions of Appendix B, “Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants,” to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, “Domestic Licensing of Production and Utilization Facilities,” 10 CFR Part 21, “Reporting of Defects and Noncompliance,” and 10 CFR Part 73, “Physical Protection of Plants and Material.”

In a letter dated May 10, 2024 (ADAMS Accession No. ML24131A153), NuScale disputed NOV 05200050/2024-201-01 which described NuScale’s failure to implement the requirements of Criterion V, “Instructions, Procedures and Drawings,” in accordance with Appendix B to 10 CFR Part 50. Specifically, NuScale did not adequately follow prescribed procedures for the (a) classification of an engineering calculation assessing the safety-related function of the Decay Heat Removal System (DHRS) pertaining to its ability to achieve and maintain safe shutdown and (b) screening of an error related to combustible gas control accumulation in the Reactor Coolant System, for applicability to the Emergency Core Cooling System evaluation model in NuScale’s Design Certification.

The NRC staff performed an independent review of the NOV based on the information in Inspection Report 05200050/2024-201, NuScale’s letter (May 10, 2024) disputing the NOV identified in the inspection report, and additional information provided by NuScale that included NuScale design documents, procedures and calculations. The NRC staff determined that NuScale did not comply with their procedures and therefore were in violation of 10 CFR Part 50, Appendix B Criterion V. The bases for NRC conclusions regarding the NOV are provided below.

NUCLEAR REGULATORY COMMISSION'S EVALUATION AND CONCLUSION

1. Notice of Violation 05200050/2024-201-01

A. Summary of NuScale Response (NOV-01)

Regarding the first example of the NRC's NOV, in its response, NuScale did not dispute that the DHRS system is safety-related, and it is consistently and correctly classified as such within NuScale records. However, it does not necessarily follow that a calculation pertaining to DHRS is also safety-related as the DHRS also has nonsafety-related functions. NuScale did not dispute that procedural errors pertaining to the classification of EC-101197 occurred. However, NuScale argued that those errors occurred with respect to a different procedure than that cited by the NOV. Specifically, NuScale stated:

"Classification of Structures, Systems, and Components (SSC), EP-0303-2109 (Reference 4.4) does not directly address a design deliverable's safety classification. EP-0303-2109 is the process to define SSC classification, and those classifications are used in the design control process (via Preparation and Approval of Engineering Calculations, EP-0303-303, (Reference 4.5)) to determine safety classifications of engineering deliverables. As noted above, SSC classification is not determinative of deliverable classification. The errors made with respect to EP-0303-303 yielded an insufficient justification for the safety classification of EC-101197 and that justification was provided in the wrong portion of the calculation. However, it is not yet known whether the classification of EC-101197 was incorrect, as alleged."

NuScale indicated that they initiated a corrective action to determine the correct classification. NuScale further argued that the alleged instance of noncompliance should be understood as a failure to adhere to EP-0303-303, with unknown effect on the classification of EC-101197.

In their response regarding the second example of the NOV, NuScale did not dispute that they failed to assess, for potential reportability under 10 CFR 50.46(a)(3)(iii), the issue of combustible gas control in the reactor coolant system for the US600 design. However, they assert that assessing 10 CFR 50.46 reportability is not an activity affecting quality.

Regarding the significance of the NOV, NuScale argued that there are multiple examples in the NRC's enforcement policy and manual that relate to the examples in NOV-01 that would indicate that it is a minor violation.

B.1 NRC Evaluation (NOV-01)

Based on its independent review, the NRC concluded that the findings identified in NOV-01 occurred as described in the inspection report dated April 12, 2024 and are valid with a reclassification of the second example as minor. It was noted that without the DHRS calculations being considered safety-related, NuScale has no safety-related calculations in the DHRS to show the ability to shut down the reactor and maintain it in a safe shutdown condition. Though NuScale argued that the error is in EP-0303-303, that can be a contributing cause for its failure to adhere to EC-101197, and NuScale does not properly classify the DHRS calculations as a safety-related calculation, even if only in part.

Therefore, the first example given for NOV-01, written against 10 CFR Part 50 Appendix B Criterion V, remains valid.

For the second example of the NOV, by not evaluating for reportability under 10 CFR 50.46(a)(3)(iii), NuScale did not have assurance that all prerequisites for the operation of the reactor coolant system having been satisfied. Though NuScale was given an exemption for reporting under 10 CFR 50.46(a)(3)(iii) dated March 28, 2024 (ADAMS Accession No. ML23234A122), NuScale must still evaluate and track changes to their reactor coolant system for reporting should an applicant use the US600 SDA, DC, or TR-0516-49422-P-A, Revision 2. Therefore, the second example given in NOV-01 remains valid.

Regarding the significance of NOV-01, following the minor/more-than-minor screening criteria in Inspection Manual Chapter 0617 "Vendor and Quality Assurance Implementation Inspection Reports" Appendix E.8, Step 1, no similar example in IMC 0617 Appendix E.9 exists. NOV-01 does not align to the similar situations described in answering the question of Step 2, nor Step 4. However, Step 3 asks, "Does the issue, if left uncorrected, represent a failure to establish, implement or maintain a process, program, procedure, or quality oversight function that could render the quality of the SCC or activity unacceptable or indeterminate?", to which the answer is yes for the first example in NOV-01. By not defining the calculations in the DHRS as safety-related, NuScale could make changes to the calculation rendering the activity unacceptable or indeterminate. Therefore, the first example is more than minor.

For the second example, since NuScale is exempt from reporting under 10 CFR 50.46(a)(3)(iii) and had NuScale performed their evaluation, there would be no report necessary at this time, regardless of the evaluation's outcome, the second example is minor.