



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001
August 21, 2017

MEMORANDUM TO: James G. Danna, Chief
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Michael L. Marshall, Jr., Senior Project Manager *Michael L. Marshall*
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF INTERNAL NRC STAFF MEETINGS CONCERNING
ASME CODE CASE N-702, "ALTERNATIVE REQUIREMENTS FOR
BOILING WATER REACTOR (BWR) NOZZLE INNER RADIUS AND
NOZZLE-TO-SHELL WELDS, SECTION XI, DIVISION 1"

On July 26, 2017, an internal meeting was held between the U.S. Nuclear Regulatory Commission (NRC) technical staff and project staff working on open requests for alternative American Society of Mechanical Engineers (ASME) Code Case N-702, "Alternative Requirements for Boiling Water Reactor (BWR) Nozzle Inner Radius and Nozzle-To-Shell Welds, Section XI, Division 1," reviews. The purpose of the meeting was to discuss how requests to use Code Case N-702 should be processed in the future and whether the relief requests in-house concerning Code Case N-702 are being handled consistently. Requests for alternatives to implement Code Case N-702 are in-house for the Grand Gulf Nuclear Station, Hope Creek Generating Station, Quad Cities Nuclear Power Station, Nine Mile Point Nuclear Station, and LaSalle County Station. A list of attendees (not all inclusive) is enclosed.

The need for the meeting arose because:

- Licensees have been submitting requests for alternatives despite Code Case N-702 being listed in NRC Regulatory Guide (RG) 1.147, Revision 17, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13339A689), as conditionally approved. One of the conditions is to obtain NRC review and approval of the licensee's evaluation demonstrating the applicability of the code case prior to application of the code case. There were discussions among the NRC staff as to whether it was more appropriate for licensees to obtain approval by following the condition in the RG or to continue requesting alternatives per the regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(z).
- The Electric Power Research Institute (EPRI) issued a letter, dated July 6, 2017 (see Enclosure 2), to the Boiling Water Reactor Vessel and Internals Project (BWRVIP) members informing licensees to stop submitting requests for alternatives per 10 CFR 50.55a(z) and to provide an evaluation demonstrating the applicability of the code case for their plant to the applicable NRC project manager for approval of the evaluation. At the time this letter was issued, there was discussion among the NRC staff whether it was appropriate for the NRC to approve the use of the code case outside of 10 CFR 50.55a(z).

- Some licensees submitted requests to use Code Case N-702 for one interval (e.g., Grand Gulf Nuclear Station, Hope Creek Generating Station) and others (e.g., Quad Cities Nuclear Power Station, Nine Mile Point Nuclear Station) have requested multiple intervals (e.g., through the end of the period of the renewed license). There was a question among the staff whether approving the use of the code case for multiple intervals is appropriate. Also, there were questions among the NRC staff concerning licensees' awareness of the option of requesting approval for multiple intervals.

During the July 26, 2017, meeting, the NRC technical staff and project staff reached the following decisions by consensus:

- Approvals associated with use of Code Case N-702 need to be requested and approved as an alternative per 10 CFR 50.55a(z). This decision was informed by prior discussions with the NRC Office of the General Counsel (OGC) (i.e., rulemaking and operating reactor attorneys) on how the approval mentioned in the condition for Code Case N-702 should be handled. The advice from OGC was that the correct way to request and approve the application of Code Case N-702 is an alternative per 10 CFR 50.55a(z).
- Approving the use of the code case for multiple intervals is appropriate if the licensee uses bounding values for fluence up to 60 years. The Vessels and Internals Integrity Branch, Division of Engineering, Office of Nuclear Reactor Regulation (EVIB), has a high degree of confidence in this technical position and believes there is little likelihood that new information would be discovered that would question the frequency of inspections included in Code Case N-702.
- EVIB believes it would be more efficient for both the NRC and licensees if licensees request approval for multiple intervals. Project managers should contact licensees that have requested or plan to request approval for one interval and present the following options to the licensees for their consideration:
 - Request to extend the applicability of Code Case N-702 up to 60 years by submitting an analysis consistent with Appendix A of BWRVIP-241, "BWR Vessel and Internals Project, Probabilistic Fracture Mechanics Evaluation for the Boiling Water Reactor Nozzle-to-Vessel Shell Welds and Nozzle Blend Radii."
 - Request to extend the applicability of Code Case N-702 up to 60 years by performing a plant-specific probabilistic fracture mechanics analysis.
 - Continue with their original request to approve Code Case N-702 for only one interval (e.g., the fourth interval).

During the July 26, 2017, meeting, one question from a meeting participant was not fully addressed:

- If a licensee requests approval to use Code Case N-702 for one interval and includes in its request the evaluation demonstrating the applicability of the code case, as specified in RG 1.174, Rev. 17, would the licensee need to request subsequent approval once it meets the condition described in RG 1.147? The discussion amongst the staff ranged from:

- No, because the licensee obtained approval of the evaluation at the same time it received approval to use the code case for one interval. Therefore, the licensee met the condition on use of the code case without prior NRC approval.
- Yes, because the NRC approval for application of the code case was for only one interval. Therefore, a separate request would need to be made for subsequent intervals.

After the July, 26, 2017, meeting, Michael Marshall and Kimberly Green met with an attorney in OGC who was knowledgeable in the subject to discuss the question on the evaluation described in the RG for Code Case N-702. According to that attorney, it would depend on how the NRC wrote its approval. If the NRC staff only approved the use of the code case as an alternative for one interval, then the licensee would need to obtain NRC's approval for use of the code case in subsequent intervals. If the NRC staff approved the use of the code case as an alternative for one interval and approved the evaluation described in the conditional approval of Code Case N-702, then the licensee would have the option to use the code case in subsequent intervals without prior NRC approval. To date, the NRC has only issued approvals to use the code case as an alternative and has not provided a separate approval as described in RG 1.147 for the conditional approval of Code Case N-702.

On August 1, 2017, the branch chiefs for EVIB, Plant Licensing Branch I, and Plant Licensing Branch III met to discuss the (1) outreach to licensees concerning one interval versus multiple intervals option that was discussed during the July 26, 2017, meeting, and (2) need to revise or remove the conditional approval of Code Case N-702 in RG 1.147.

During the August 1, 2017, meeting, the branch chiefs reached the following decisions by consensus:

- Project managers will not be asked to contact licensees that have requested or plan to request approval to use Code Case N-702 for one interval and will present the options listed above. The requests that have been submitted and accepted for review are in various stages of completion, including completed technical reviews, and contacting licensees with completed or nearly completed technical reviews may not be prudent. Adequate precedents for licensees preparing requests regarding approval of Code Case N-702 for multiple intervals. The only action for PMs is to correct any misunderstanding by licensees, especially those that may make or plan to make a submittal in accordance with the incorrect information in the EPRI letter.
- The NRC staff does not need to develop and issue a formal communication (e.g., regulatory issue summary) to licensees to address any confusion that may arise from the wording of the conditional approval of Code Case N-702 in RG 1.147. Instead, RG 1.147 will be revised to address any confusion that may arise from the wording of the conditional approval of Code Case N-702 during the ongoing update of the RG and 10 CFR 50.55a¹.

The following action items were agreed to during the July 26, 2017, meeting, as modified by the August 1, 2017, meeting:

1. Michael Marshall will prepare a summary of the meetings to document the decisions made at the meetings.

¹ The revisions will be included in revision 19 of RG 1.147 – not revision 18.

2. Michael Marshall will prepare an e-mail to the Division of Operating Reactor Licensing project managers to:
 - a. Inform project managers of the July 6, 2017, letter from EPRI to BWRVIP members that incorrectly advises licensees on how to obtain NRC review and approval of Code Case N-702.
 - b. Inform project managers that Code Case N-702 needs to be requested and approved as an alternative per 10 CFR 50.55a(z) and to provide any needed clarification during routine communications with licensees.
3. David Rudland will contact EPRI and ask EPRI to correct the information in its July 6, 2017, letter.
4. During the next ASME Code meeting, David Rudland will inform external stakeholders that approvals associated with use of Code Case N-702 need to be requested and approved as an alternative per 10 CFR 50.55a(z).
5. David Rudland will work with Jennifer Tobin to make the appropriate corrections or clarifications to the conditional approval of Code Case N-702 in RG 1.147 during the next revision of the RG, which is already underway.

LIST OF ATTENDEES (NOT ALL INCLUSIVE)

JULY 26, 2017, INTERNAL MEETING CONCERNING ASME CODE CASE N-702

Name	Organization
David Rudland	Office of Nuclear Reactor Regulation (NRR)
On Yee	NRR
Carolyn Fairbanks	NRR
Siva Lingam	NRR
Lisa Regner	NRR
Kimberly Green	NRR
Michael Orenak	NRR
Chris Sydnor	NRR
Joel Jenkins	NRR
Ganesh Cheruvenki	NRR
Jeff Poehler	NRR
Michael Marshall	NRR

LIST OF ATTENDEES

AUGUST 1, 2017, INTERNAL MEETING CONCERNING ASME CODE CASE N-702

Name	Organization
David Rudland	NRR
David Wrona	NRR
James Danna	NRR
Michael Marshall	NRR

COPY OF ELECTRIC POWER RESEARCH INSTITUTE LETTER, DATED JULY 6, 2017

ML17228A706

2017-084 _____ BWR Vessel & Internals Project (BWRVIP)

(via e-mail)

July 6, 2017

TO: All BWRVIP Committee Members



FROM: Drew Odell, Exelon, BWRVIP Integration Chairman
Andrew McGehee, EPRI, BWRVIP Program Manager

SUBJECT: Method of NRC Approval to Use ASME Code Case N-702, Alternative Requirements for Boiling Water Reactor (BWR) Nozzle Inner Radius and Nozzle-to-Shell Welds

- References:
1. BWRVIP-108NP: BWR Vessel and Internals Project, Technical Basis for the Reduction of Inspection Requirements for the Boiling Water Reactor Nozzle-to-Vessel Shell Welds and Nozzle Blend Radii, EPRI Technical Report 1016123, November 2007.
 2. BWRVIP-241: BWR Vessel and Internals Project, Probabilistic Fracture Mechanics Evaluation for the Boiling Water Reactor Nozzle-to-Vessel Shell Welds and Nozzle Blend Radii, EPRI Technical Report 1021005, October 2010.
 3. Regulatory Guide 1.147, Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1, Revision 17, August 2014.

The purpose of this letter is to provide clarification to BWRVIP members on the current method of NRC approval to use Code Case N-702. The technical basis for N-702 is BWRVIP-108NP [1] and BWRVIP-241[2]. The inspection relief provided by the use of N-702 results in significant dose and monetary savings for BWR plants. Therefore, N-702 is being widely used by the BWRs. As N-702 was not listed in RG 1.147 [3] until Revision 17, the initial requests for its use were all submitted as requests for a technical alternative in accordance with 10 CFR 50.55a(z); often referred to as relief requests. However, N-702 is now "conditionally" approved for use in RG 1.147, Revision 17. Therein, it states the following:

The technical basis supporting the implementation of this Code Case is addressed by BWRVIP-108: BWR Vessel and Internals Project, "Technical Basis for the Reduction of Inspection Requirements for the Boiling Water Reactor Nozzle-to-Vessel Shell Welds and Nozzle Blend Radii," EPRI Technical Report 1003557, October 2002 (ML-023330203) and BWRVIP-241: BWR Vessel and Internals Project, "Probabilistic Fracture Mechanics Evaluation for the Boiling Water Reactor Nozzle-to-Vessel Shell Welds and

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Nozzle Blend Radii," EPRI Technical Report 1021005, October 2010 (ML11119A041). The applicability of Code Case N-702 must be shown by demonstrating that the criteria in Section 5.0 of NRC Safety Evaluation regarding BWRVIP-108 dated December 18, 2007 (ML073600374) or Section 5.0 of NRC Safety Evaluation regarding BWRVIP-241 dated April 19, 2013 (ML13071A240) are met. The evaluation demonstrating the applicability of the Code Case shall be reviewed and approved by the NRC prior to the application of the Code Case.

Since N-702 is now conditionally approved in RG-1.147, it is considered an approved technical alternative to Code requirements and can be used subject to the conditions given in the RG. Therefore, approval in accordance with 10 CFR 50.55a(z) is no longer required. The NRC has brought it to the BWRVIP's attention that a number of plants that are updating their ASME Section XI relief requests for a new 10-year inspection interval, are resubmitting relief requests for the use of N-702. Instead, the plants need only meet the conditions in RG 1.147. Those conditions do still require NRC review and approval of the plant's demonstration of compliance with the criteria in Section 5.0 of the Safety Evaluations for BWRVIP-108 or BWRVIP-241, as applicable. To accomplish this, the plants should provide their evaluation demonstrating applicability of N-702 for their plant to their NRC Project Manager in the Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation.

It is recommended that the information contained within this letter be communicated to utility staff responsible for implementation of Inservice Inspection (ISI) programs in accordance with ASME Boiler and Pressure Vessel Code or 10CFR50.55a requirements.

If you have any questions regarding this subject, please contact Chuck Wirtz at EPRI by telephone at 440.346.7124 or by e-mail at cwirtz@contractor.epri.com.

c: BWRVIP EPRI Task Managers

SUBJECT: SUMMARY OF INTERNAL NRC STAFF MEETINGS CONCERNING ASME
CODE CASE N-702, "ALTERNATIVE REQUIREMENTS FOR BOILING WATER
REACTOR (BWR) NOZZLE INNER RADIUS AND NOZZLE-TO-SHELL WELDS,
SECTION XI, DIVISION 1," DATED AUGUST 21, 2017

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***by Email**

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