



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION III  
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March 7, 2019

EA-15-264

Mr. Charles Arnone  
Vice President, Operations  
Entergy Nuclear Operations, Inc.  
Palisades Nuclear Plant  
27780 Blue Star Memorial Highway  
Covert, MI 49043-9530

SUBJECT: REVISED NON-CITED VIOLATION—PALISADES NUCLEAR PLANT  
NRC INTEGRATED INSPECTION REPORT 05000255/2015003  
(NCV 05000255/2015003-01; FAILURE TO JUSTIFY CONTINUED  
SERVICE OF SAFETY-RELATED ELECTROLYTIC CAPACITORS  
INSTALLED BEYOND THEIR SERVICE LIFE)

Dear Mr. Arnone:

On November 30, 2015, Palisades Nuclear Plant (PNP) provided a written response to U.S. Nuclear Regulatory Commission (NRC) Inspection Report 05000255/2015003, which was issued on October 30, 2015. Specifically, the letter contested Non-Cited Violation 05000255/2015003-01 associated with the failure to justify continued service of safety-related containment floor level indicating transmitter electrolytic capacitors installed beyond their service life. The letter explained PNP agreed a performance deficiency occurred but disagreed the deficiency was associated with a violation of Title 10 of the *Code of Federal Regulations*, Part 50, Appendix B, Criterion III, "Design Control," as stated in the inspection report. The letter further stated PNP believed the performance deficiency was associated with 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings."

The NRC carefully reviewed PNP's reply and determined the Non-Cited Violation should be changed to a violation of Technical Specifications Section 5.4.1, "Procedures," as shown in the enclosed report. Technical Specifications Section 5.4.1, requires, in part, the establishment, implementation, and maintenance of written procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Section 9 of the Regulatory Guide requires the development of preventive maintenance schedules and associated procedures for the inspection or replacement of parts that have a specific lifetime. The bases for the staff's conclusion are detailed in the enclosed report.

This letter, its enclosure, PNP's November 30, 2015, response, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

**/RA/**

Kenneth O'Brien, Director  
Division of Reactor Safety

Docket No. 50-255  
License No. DPR-20

Enclosure:  
NRC Staff Assessment of Disputed  
NCV 05000255/2015003-01

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Letter to Charles Arnone from Kenneth O'Brien dated March 7, 2019.

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## NRC STAFF ASSESSMENT OF DISPUTED NCV 05000255/2015003-01

The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the information provided in Palisades Nuclear Plant (PNP) letter dated November 30, 2015. This review was performed by staff members having relevant technical and regulatory knowledge and who did not participate in the inspection documented in NRC Inspection Report 05000255/2015003. Documents referenced are listed in the Reference Section of this Enclosure.

### 1. BACKGROUND

On June 21, 2015, containment floor level indicating transmitter (LIT) 0446B failed a surveillance required by Technical Specifications (TS) due to a failure of its electrolytic capacitor. The licensee determined the likely cause was operation beyond 10 years and replaced the failed component. Further review by the inspectors revealed the licensee had a preventive maintenance template for the capacitors in LIT-0446B and its redundant component LIT-0446A, which recommended inspection or replacement on a 12 year interval. However, no preventive maintenance schedule or associated procedures for the inspection or replacement of the components had been established. Rather, the components were scheduled to be replaced on an "as-required" basis.

The inspectors also found the licensee had established a maintenance schedule for capacitors installed in other safety-related systems. The difference in treatment was driven by a prior decision to classify some of the capacitors as "critical" and others as "non-critical" within its Preventive Maintenance Program. For components the licensee had classified as "critical" in its Preventive Maintenance Program, a preventive maintenance schedule of 10 years had been established, which was consistent with industry operating experience and guidance pertinent to the service life of electrolytic capacitors. No such schedule or replacement procedures were developed for the "non-critical" components.

The licensee missed a potential opportunity to establish a maintenance schedule for the capacitors in LIT-0446A and LIT-0446B when it evaluated service life information available in NRC Information Notice (IN) 2012-11, "Age-Related Capacitor Degradation." That IN included a vendor-recommended 10-year replacement interval for electrolytic capacitors similar to those in LIT-0446B and LIT-0446A. However, during its review of the IN, the licensee concluded no further action was needed since its "critical" components already had a 10-year preventive maintenance schedule.

On October 30, 2015, the NRC issued Integrated Inspection Report 05000255/2015003 documenting the 3-month period of inspection that assessed, in part, this issue. This report documented this issue as a finding of very-low safety significance (Green) and an associated Non-Cited Violation (NCV) of Title 10 of the *Code of Federal Regulations* (CFR), Part 50, Appendix B, Criterion III, for the failure to review for suitability of application of the safety-related electrolytic capacitors in the containment floor LITs, which were installed beyond their service life. This inspection report dispositioned this issue as NCV 05000255/2015003-01.

On November 30, 2015, PNP provided a written response to the NRC contesting the enforcement decision associated with NCV 05000255/2015003-01. Specifically, the letter explained PNP agreed a performance deficiency occurred but disagreed it was associated with a violation of 10 CFR Part 50, Appendix B, Criterion III, as stated in the inspection report. Rather, PNP stated the performance deficiency was associated with 10 CFR Part 50, Appendix B, Criterion V.

## **2. ORIGINAL ENFORCEMENT DECISION**

The original enforcement decision as stated in Inspection Report 05000255/2015003 was:

Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of SSCs [structures, systems, and components].

Contrary to the above, as of June 21, 2015, the licensee failed to review for suitability of application of parts essential to the safety-related functions of the containment floor level indicating system. Specifically, the licensee did not review for suitability of application of safety-related electrolytic capacitors in the containment floor LITs that were installed beyond their recommended service life to justify their continued service considering in-service deterioration. As part of their immediate corrective actions, the licensee replaced the failed components.

## **3. LICENSEE POSITION**

In the letter dated November 30, 2015, the licensee stated PNP agreed a performance deficiency occurred but disagreed it was associated with a violation of 10 CFR Part 50, Appendix B, Criterion III, as stated in the inspection report. The letter further stated PNP believed the performance deficiency was associated with 10 CFR Part 50, Appendix B, Criterion V. The basis for the licensee's position was, in part, that regulatory requirements (including Criterion V) and NRC endorsed quality assurance program standards (including Regulatory Guide 1.33, Revision 2) require the establishment of maintenance schedules as opposed to strictly adhering to vendor recommendations or formally evaluating deviations from those recommendations under a quality assurance program established to meet 10 CFR Part 50, Appendix B. The licensee agreed it had not established a preventive maintenance schedule for the capacitors in LIT-0446B and LIT-0446A. In addition, the licensee asserted issuance of NCV 05000255/2015003-01 was premature because the underlying NRC staff position may be changed by the ongoing NRC development of a Regulatory Issue Summary (RIS).

## **4. NRC STAFF REVIEW**

The NRC staff considered PNP's assertion that "...regulatory requirements and NRC endorsed quality assurance program standards do not require licensees to strictly adhere to vendor recommendations or formally evaluate deviations from those recommendations under the Appendix B quality assurance program." The NRC staff agrees that a licensee may not have requirements involving strict adherence to vendor recommendations, unless specified in other design and licensing basis documents. However, the NRC does require the establishment of quality assurance programs and supporting procedures that, among other things, set preventive maintenance schedules for the inspection or replacement of parts that have a specific lifetime.

## **NRC STAFF ASSESSMENT OF DISPUTED NCV 05000255/2015003-01**

In this case, the licensee's preventive maintenance template established a specific lifetime for electrolytic capacitor inspection/replacement interval of once every 12 years. The licensee had established procedures with a replacement interval of up to 10 years for electrolytic capacitors classified as "critical" components. However, no preventive maintenance schedule or associated procedures were developed for electrolytic capacitors classified as "non-critical" components. The capacitor that failed in LIT-0446B, which was in a safety-related system, was classified as "non-critical".

As discussed in the licensee's letter, the failure to develop procedures to ensure continued quality of the safety-related electrolytic capacitors in LIT-0446B and LIT-0446A during the equipment operational phase could be dispositioned as a violation of 10 CFR Part 50, Appendix B, Criterion V, which requires, in part, activities affecting quality to be prescribed by documented procedures of a type appropriate to the circumstances. Similarly, the issue could be dispositioned as a violation of TS Section 5.4.1, "Procedures," which requires, in part, the establishment, implementation, and maintenance of written procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Section 9 of the Regulatory Guide requires the development of preventive maintenance schedules and associated procedures for the inspection or replacement of parts that have a specific lifetime.

Finally, the staff considered the licensee's position that any inspection finding in this matter should await the development of a RIS. Since the licensee's letter, the NRC decided not to issue a RIS as explained in the Statements of Considerations published by the NRC in 83 FR 46199 (September 12, 2018). Instead of issuing a RIS, in 2018, the NRC provided training to inspectors to, in part, assist them in identifying and dispositioning issues related to how long safety-related structures, systems, and components remain in service and clarify the applicability of various regulations and industry standards.

### **5. CONCLUSION**

The NRC staff carefully considered the information provided by PNP in its letter dated November 30, 2015, and determined the original enforcement decision of NCV 05000255/2015003-01 should be modified as follows:

Technical Specification 5.4.1, "Procedures," states, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, "Quality Assurance Program Requirements," Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Revision 2, Appendix A, Section 9, "Procedures for Performing Maintenance," requires, in part, that preventive maintenance schedules shall be developed for the inspection or replacement of parts that have a specific lifetime.

Contrary to the above, as of June 21, 2015, the licensee failed to develop a procedure for preventive maintenance schedules for the inspection or replacement of parts that have a specific lifetime. Specifically, the licensee did not develop procedures covering a preventive maintenance schedule for the electrolytic capacitors in the containment floor level indicating system, LIT-0446A and LIT-0446B, which had a specific lifetime.

## **6. REFERENCES**

1. Letter from Mohammed A. Shuaibi to Aby S. Mohseni; “Final Task Interface Agreement—Regulatory Position on Design Life of Safety-Related Structures, Systems, and Components Related to Unresolved Items at Donald C. Cook Nuclear Power Plant, Monticello Nuclear Generating Plant, and Palisades Nuclear Plant (TIA 2014-01);” May 7, 2015.
2. Letter from Eric Duncan to Mr. Anthony Vitale; “Palisades Nuclear Plant NRC Integrated Inspection Report 05000255/2015003;” October 30, 2015.
3. Letter from Otto W. Gustafson to the NRC Document Control Desk; “Response to Non-Cited Violation Dated October 30, 2015;” November 30, 2015.
4. Letter from Edwin M. Hackett to Victor M. McCree; “Committee to Review Generic Requirements: Minutes of Meeting Numbers 446 and 447;” October 17, 2017.
5. “Definitions;” 10 CFR 50.2; 2015-2017.
6. “Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants;” 10 CFR Part 50, Appendix B; 2015-2017.
7. “Requirements for monitoring the effectiveness of maintenance at nuclear power plants;” 10 CFR 50.65; 2015-2017.
8. Regulatory Guide 1.33; February 1978; “Quality Assurance Program Requirements;” U.S. Nuclear Regulatory Commission; Washington, DC.
9. Regulatory Guide 1.186; December 2000; “Guidance and Examples for Identifying 10 CFR 50.2 Design Bases;” U.S. Nuclear Regulatory Commission; Washington, DC.
10. 34 FR 6599; “Quality Assurance Criteria for Nuclear Power Plants;” Federal Register; Volume 34; p. 6599; Washington, DC; April 17, 1969.
11. 35 FR 10498; “Quality Assurance Criteria for Nuclear Power Plants;” Federal Register; Volume 35; p. 10498; Washington, DC; June 27, 1970.
12. 48 FR 2729; “Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants;” Federal Register; Volume 48; p. 2729; Washington, DC; January 21, 1983.
13. 60 FR 22478; “Nuclear Power Plant License Renewal;” Federal Register; Volume 60; p. 22478; Washington, DC; May 8, 1995.
14. 81 FR 30571; “Disposition of Information Related to the Time Period That Safety-Related Structures, Systems, or Components Are Installed;” Federal Register; Volume 81; p. 30571; Washington, DC; May 17, 2016.
15. 83 FR 46199; “Disposition of Information Related to the Time Period That Safety-Related Structures, Systems, or Components Are Installed;” Federal Register; Volume 83; p. 46199; Washington, DC; September 12, 2018.

**NRC STAFF ASSESSMENT OF DISPUTED NCV 05000255/2015003-01**

16. NRC Enforcement Manual; Revisions 9 and 10.
17. NRC Enforcement Policy; February 4, 2015, and November 1, 2016.
18. Information Notice 2012-11; "Age-Related Capacitor Degradation;" U.S. Nuclear Regulatory Commission; Washington, DC; July 23, 2012.
19. Revised Appendix B to NEI 97-04; "Guidance and Examples for Identifying 10 CFR 50.2 Design Bases;" November 2000.
20. CR-PLP-2012-05721; "Palisades Review of IN 2012-11;" August 16, 2012.
21. "Inspector Guidance (Training) on Service Life Issues;" June 2018; ML18219A470.
22. TR-112175; "Capacitor Application and Maintenance Guide;" EPRI; Palo Alto, CA; August 19, 1999.