



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
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May 7, 2015

MEMORANDUM TO: Aby S. Mohseni, Deputy Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

FROM: Mohammed A. Shuaibi, Deputy Director /RA Kenneth O'Brien Acting for/
Division of Reactor Safety
Region III

SUBJECT: 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)

INTRODUCTION

During several inspections, the inspectors identified examples of structures, systems, and components (SSCs) that were in operation beyond the service life specified in vendor manuals, vendor correspondence or Certificates of Compliance. Specifically, this Task Interface Agreement (TIA) relates to Unresolved Items (URIs) identified at the Monticello Nuclear Generating Plant (URI 05000263/2012008-01), the Palisades Nuclear Plant (URI 05000255/2013005-06) and the D. C. Cook Nuclear Power Plant (URI 05000315/2012007-02; 05000316/2012007-02).

This TIA documents the existing regulatory position as determined by Region III and the Office of Nuclear Reactor Regulation (NRR) regarding safety-related SSCs that have been in service longer than their documented service life, as specified in the licensee's 10 CFR 50.2 design bases or supporting design information¹, or where information has been identified that challenges either: the service life documented in the licensee's 10 CFR 50.2, design bases or supporting design information; or the licensee's presumed service life for the safety-related SSC.

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¹ NRC Regulatory Guide 1.186, "Guidance and Examples for Identifying 10 CFR 50.2 Design Bases," endorses Appendix B to Nuclear Energy Institute (NEI) document NEI 97-04, "Guidance and Examples for Identifying 10 CFR 50.2 Design Bases."

Specifically, when a safety-related SSC's service life has been exceeded or the licensee becomes aware of information² that challenges the documented or licensee presumed service life, the licensee must promptly address and document this nonconforming condition in accordance with the licensee's NRC-approved Quality Assurance Program and the licensee's operability/functionality and corrective action programs³.

The Region III staff worked closely with NRR members in developing these positions, which were subsequently communicated via this document using the Concurrence Method as described in NRR Office Instruction COM-106, "Control of Task Interface Agreements," Revision 4.

BACKGROUND

In 2010, the Operating Experience Branch of NRR issued Operating Experience Smart Sample (OPESS) FY 2010-01, "Recent Inspection Experience for Components Installed Beyond Vendor Recommended Service Life." This OPESS describes inspection experience between 2005 and 2010 that identified about 30 findings where the root or contributing causes of the SSC failures involved exceeding vendor recommended service life of components. The OPESS states, "for those components that are beyond vendor recommended life (...) verify that the licensee has conducted an appropriate assessment for age-related issues for components installed beyond vendor-recommended life through periodic testing or an engineering evaluation that has accounted for environmental effects (elevated temperatures, humidity, harsh environments)." In addition, this inspection experience was the subject of multiple Information Notices and violations of regulatory requirements. Some of these examples are listed in the reference section of this TIA.

The U.S. Nuclear Regulatory Commission (NRC) completed Problem Identification and Resolution Inspections at Monticello Nuclear Generating Plant (Inspection Report (IR) 05000263/2012008) and Palisades Nuclear Plant (IR 05000255/2013005) on October 19, 2012, and December 10, 2013, respectively. In addition, the NRC completed a Component Design Bases Inspection at Donald C. Cook Nuclear Power Plant on December 31, 2012, documented in IR 05000315/2012007; 05000316/2012007. During each of these inspections, the inspectors identified several safety-related SSCs in mild environments installed for periods greater than the period of time specified in the vendor correspondence, vendor manual or Certificates of Compliance. The inspectors noted the licensees were neither replacing nor documenting an evaluation to justify extending the use of the SSCs beyond the period specified in these documents. As a result of these inspections, the inspectors opened URLs at each of these facilities.

LICENSEE'S POSITION

² In response to Generic Letter 83-28, "Required Actions Based on Generic Implications of Salem ATWS Events," licensee's established programs to ensure, in part that, that vendor information is complete, current and controlled throughout the life of their plants, and is appropriately referenced or incorporated into plant instructions and procedures. Licensees may also become aware of applicable information through their operating experience program, interaction with other licensees, or NRC staff. This information may be documented in a variety of forms (e.g., condition reports, vendor manuals, certificates of compliance, or service information letters).

³ As discussed in Appendix B to Nuclear Energy Institute (NEI) document NEI 97-04, "Guidance and Examples for Identifying 10 CFR 50.2 Design Bases." Deviations from either 10 CFR 50.2 design bases or supporting design information should be evaluated and remedied in accordance with Generic Letter 91-18 (Revision 1), "...Resolution of Degraded and Nonconforming Conditions," [currently referred to as NRC Inspection Manual, Manual Chapter 0326, "Operability Determinations & Functionality Assessments for Conditions Adverse to Safety or Quality."]

Some licensees have maintained that their industry group preventative maintenance (PM) template evaluations provide the basis for replacement of safety-related SSCs installed in mild environments. Specifically, the licensees evaluate replacement intervals for SSCs based on criticality and service conditions (i.e., duty cycle). For some SSCs, the replacement interval is based on performance, using successful PM test results to justify continued use. The licensees do not perform evaluations related to SSC service life because they assert that defining specific service life limits for safety-related SSCs in mild environments is not required. The licensees' basis for this position is that the concept of "qualified life" is presented in 10 CFR 50.49, "Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants," and, in the Federal Register published on January 21, 1983, the NRC clarified that this rule does not cover the electric equipment located in mild environments.

REGULATORY AND TECHNICAL ANALYSIS

10 CFR Part 50, Appendix B, Criterion III, "Design Control," states, in part, that, "Measures shall also 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 structures, systems, and components. Licensee's NRC-approved Quality Assurance Programs provide the plant-specific applications of Criterion III. A critical element in the selection of safety-related SSCs is the determination of how long an installed SSC can be relied upon to perform its specified safety function. The determination is then documented in accordance with the licensee's NRC-approved Quality Assurance Program implementation of 10 CFR 50, Appendix B.

Additionally, consistent with licensees' responses to Generic Letter 83-28, "Required Actions Based on Generic Implications of Salem ATWS Events," and Generic Letter 90-03, "Relaxation of Staff Position in Generic Letter 83-28, Item 2.2, Part 2, 'Vendor Interface of Safety Related Components,'" licensees established programs to ensure that vendor information for safety-related SSCs is complete. These programs were established to ensure that vendor information is properly evaluated for its effect on safety-related equipment. Technical disposition of vendor information, obtained through these programs, or other relevant information that the licensee receives (e.g., through the licensee's operating experience program or interaction with NRC staff) must be documented in accordance with the licensee's NRC-approved Quality Assurance Program.

When a licensee becomes aware that a safety-related SSC's service life has been exceeded or information challenges the presumption that a safety-related SSC can perform its specified function(s), the licensee must promptly address and document this nonconforming⁴ condition in accordance with the licensee's NRC-approved Quality Assurance Program and the licensee's operability/functionality and corrective action programs. These programs are collectively designed to ensure that: 1) a prompt, technically defensible determination is made regarding the ability of the SSC to perform its specified function (i.e., operability/functionality); 2) an individual knowledgeable in the technical discipline associated with the condition has enough information to independently understand the basis for the determination; 3) corrective actions

⁴ As described in NRC Inspection Manual, Manual Chapter 0326, "Operability Determinations & Functionality Assessments for Conditions Adverse to Safety or Quality," an SSC is considered "not fully qualified," i.e., degraded or nonconforming, when it does not conform to all aspects of its current licensing basis, including all applicable codes and standards, design criteria, safety analysis assumptions and specifications, and licensing commitments.

are established to restore full qualification with the current licensing basis or modify the current licensing basis; and 4) corrective actions are completed in a time-frame commensurate with their safety significance.

CONCLUSION

It continues to be the NRC staff's position that, if a safety-related SSC exceeds its specified service life or the licensee has information that challenges the presumption that a safety-related SSC can perform its specified function(s), the licensee must promptly address the nonconforming condition in accordance with their operability/functionality and corrective action programs. This includes completing appropriate corrective actions in a time frame commensurate with their safety significance. Documentation of the licensee's evaluations and corrective actions must also be completed in accordance with the licensee's NRC-approved Quality Assurance Program. Justification for extending service life must consider plant-specific operational experience, including maintenance and testing. However, plant specific operational experience alone will rarely, if ever, be sufficient to establish a technically defensible basis for service life extension.

In the circumstances described above, if the SSC's specified service life has already been exceeded, a nonconformance with the design criteria exists. If information challenges the presumption that an SSC can perform its specified function(s), a nonconformance with the licensing basis (e.g., design criteria, safety analysis assumptions, and NRC-approved Quality Assurance Program) exists.

POTENTIAL OUTCOME PATHS

- Immediate Implications: Upon receiving the conclusions of this TIA, the licensees associated with the URIs are expected to enter the issue into their respective corrective action programs and assess operability/functionality and extent of condition.
- Generic Implications: Issuing a generic communication, such as an Information Notice or Regulatory Issue Summary, is recommended to inform operating reactor licensees of this issue.
- Backfit Considerations: Resolution of this issue does not constitute a backfit because it does not involve a new or different position from a previously applicable staff position. Specifically, the documented regulatory positions are based on existing regulations, policies, and guidance. In addition, the staff's positions do not establish new interpretations of such regulations or policies.

REFERENCES

- 1) Operating Experience Branch of NRR issued Operating Experience Smart Sample (OPESS) FY 2010-01, "Recent Inspection Experience for Components Installed Beyond Vendor Recommended Service Life," ML102250279.
- 2) Inspection Report 05000263/2012008, "Monticello Nuclear Generating Plant Problem Identification and Resolution Inspection Report," November 29, 2012.

- 3) Inspection Report 05000255/2013005, "Palisades Nuclear Plant - NRC Integrated Inspection Report 05000255/2013005 and Exercise of Enforcement Discretion," February 12, 2014.
- 4) Inspection Report 05000315/2012007; 05000316/2012007, "D. C. Cook Nuclear Power Plant, Units 1 and 2, Component Design Bases Inspection," January 11, 2013, and
- 5) Title 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants."

WITHDRAWN

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Memo to Mr. Aby S. Mohseni from Mr. Mohammad A. Shuaibi dated May 7, 2015

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