U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Dispositioning Information Related to Service Life of Installed Safety-Related SSCs

Inspector Guidance
(Draft)

February 2018

Objectives – This Guidance Will:

1. Assist inspectors in identifying and dispositioning issues related to how long safety-related Structures, Systems, Components (SSCs) remain in service
2. Clarify use of terminology
3. Clarify the applicability of various regulations and industry standards
4. Acknowledge issues related to service life that are not specifically covered by regulations
5. Describe a framework for inspectors to evaluate information related to service life
    a. Identifying applicability and performance deficiencies
    b. Provide guidance in how to document findings under the ROP
6. Walk through examples of how to document findings

Why is this guidance needed?

- The staff has noted multiple instances where the provisions of 10 CFR Part 50, Appendix B, TS, and other regulations were not met that resulted from SSCs installed beyond their documented service life. In some cases, the licensee had no justification (or basis) for continued service.

- In some instances, end-of-life failures resulted.

Failed capacitor bank – end of life failures

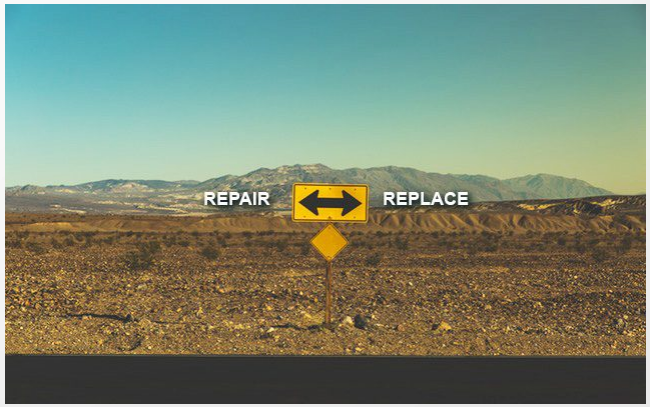
Why is this guidance needed? (cont'd)

- In general, when the licensee becomes aware of information relevant to safety-related equipment installed in the plant, the staff expects the licensee to evaluate (determine applicability) and disposition that information.
- While NRC regulatory requirements involving service life issues may or may not be applicable to App B design control requirements, other NRC regulatory requirements may be applicable.
- Commitments made to the NRC, including self-imposed standards, licensee programs and procedures, are applicable to this guidance.

Age-related failure of a GE 200 amp breaker that was installed in a panel for over 30 years.

Is Aging Bad?

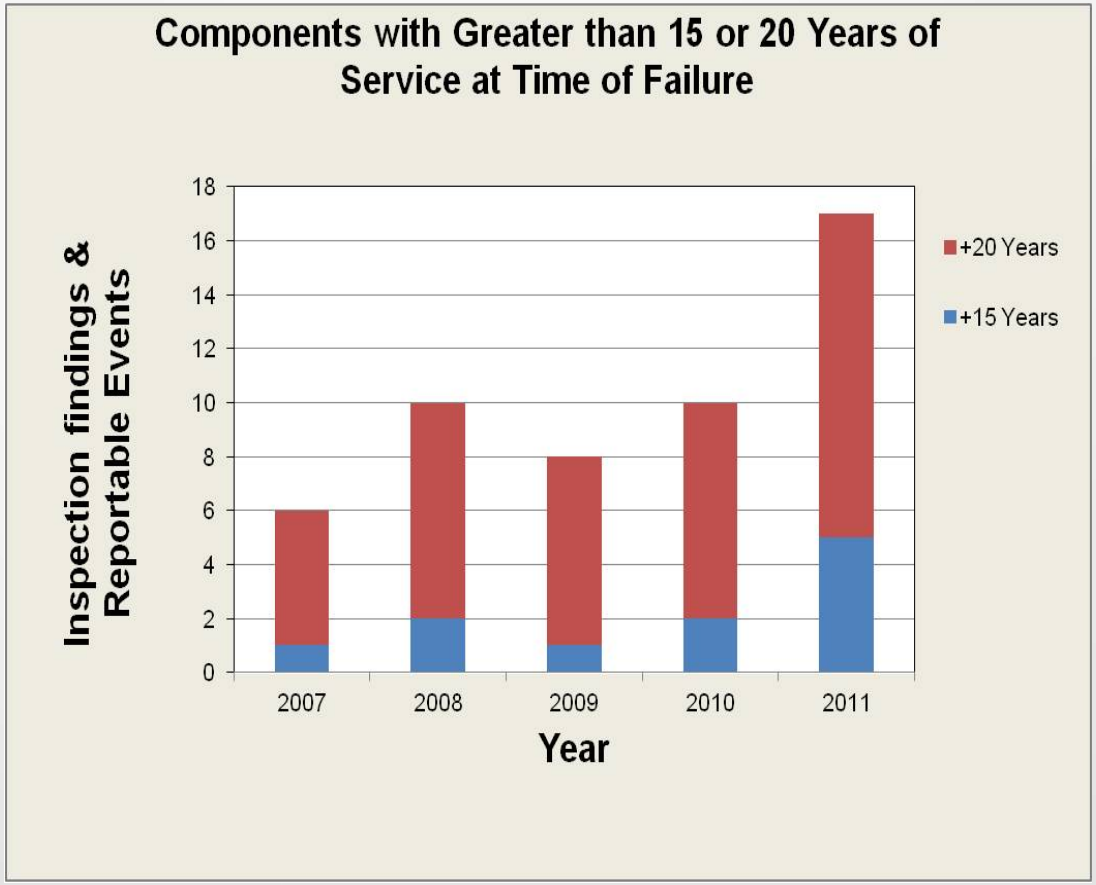
- All SCCs age, and aging by itself is an expected phenomenon.
- This training is focused on a defined service life as a consequence of aging based on pre-defined conditions.
- This training is also focused on changes to the defined service life that can be brought about by equipment usage characteristics and operating conditions (e.g. number of cycles, voltage, current, temperature), and identified through the use of operating experience.



Background

2012 IOEB Study

Study noted increase in the number of findings and reportable events involving licensees operating equipment beyond documented service life without an adequate justification.



IOEB Study - ADAMS Accession No.: ML13044A469

Background (cont'd)

Information Notice 2012-06

"Ineffective Use of Vendor Technical Recommendations"

- Informs addressees of operating experience regarding ineffective use of vendor recommendations
- Discusses several events including a Calvert Cliffs dual-unit trip and subsequent emergency EDG failure to start
- The EDG failure was attributed (in part) to a time delay relay that had been in service longer than the vendor documentation recommended
- No performance monitoring program was in place

What are the Issues?

How to consistently disposition information involving service life

General Case (common):

- Licensee becomes aware of information that could affect the service life of an SSC or its ability to continue to perform its safety function(s)
- Examples of information include but are not limited to vendor information, NRC generic communications, industry topical reports, and operating experience.

Licensing Basis Case (less common):

- Licensee becomes aware that a safety-related SSC has been installed longer than the time period specified in their licensing basis documentation.

What are the Issues?

Is service life information considered “design basis” information, or information supporting the design?

Service life information may be considered design basis information or supporting the design if it has been used or mentioned as part of the current licensing basis.

An example would be the UFSAR description of station vital batteries that have an expected service life of 20 years.

Service life information that is not considered part of the current licensing basis would not be design basis information, or information supporting the design.

Terminology

NRC inspectors should have a framework to ensure consistent use of terminology related to dispositioning information related to the time period that safety-related SSCs are installed

- Information
- Service Life
- Awareness
- Licensing Basis
- Regulatory Commitments
- Quality Assurance program
- Licensee Procedures
- Operability and Functionality
- Non-conforming

Terminology (Cont'd)
(Examples of Information)

"Information" can describe a mechanism or trait that may affect the ability of a safety-related SSC to continue to perform its safety function(s). Information can come from a variety of sources. Some examples include:

- Vendor Information
  - Technical Bulletins
  - Letters
  - Service advisories
  - Manuals
- NRC Generic Communications
- Industry Operating Experience (including plant specific/fleet)
- Industry Sources
  - INPO
  - EPRI
  - Owners Groups
- Licensee engineering analyses

Terminology (cont'd)

- Service Life
  A term with various meanings based on context and situation. It is used to describe the period of time for which satisfactory performance can be demonstrated for a specific set of service conditions. Related terms include: qualified life, shelf life, designated life, design life, and installed life.

- Awareness
  Knowledge or perception of a situation or fact. Inspectors should take into account which entity in the licensee organization has possession of the information. If a field technician is aware, that is different than licensed operators or a shift manager being aware.

- Current Licensing Basis (CLB)
  The set of NRC requirements applicable to a specific plant and a licensee's written commitments for ensuring compliance with and operation within applicable NRC requirements and the plant specific design basis, [including all modifications and additions to such commitments over the life of the license] that are docketed and in effect. Examples include: NRC regulations in 10 CFR Parts 2, 20, 50, 54, 70, 72, 73, license conditions, TS, and exemptions.

Terminology (cont'd)

- Regulatory Commitments
  Actions proposed in writing by the licensee to be completed by a certain date. These are submitted in writing on the docket and can be modified without prior NRC approval.

- Quality Assurance Program (Plan)
  NRC approved, represents the licensee's interpretation of applicability of 10 CFR Appendix B to their station's operations.

- Operability and Functionality
  Terms related to an SSC's ability to perform it's safety function(s). The NRC's guidance is contained in Inspection Manual Chapter 0326, "Operability Determinations & Functionality Assessments for Conditions Adverse to Quality or Safety."

Terminology (cont'd)

- <u>Non-conforming Condition</u>
  A condition of an SSC that involves a failure to meet the CLB or a situation in which quality has been reduced because of factors such as improper design, testing, construction, or modification.

- Obligation
  An enforceable regulatory requirement such as a rule, regulation, order, or operating license, including the technical specifications and license conditions.

  Run-to-failure (RTF) (also known as run to maintenance). A situation where the SSC has no planned preventive maintenance program. The SSC is replaced upon failure. Some non-risk significant SSCs are operated in this fashion. NUMARC 93-01 (implementation guidance for the Maintenance Rule) contains some guidance.

Applicable Regulations and Industry Standards

STS 5.4.1, "Procedures," RG 1.33, "Quality Assurance Program Requirements"

STS 5.4.1 states that "written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in RG 1.33, Appendix A."

- Appendix A of RG 1.33 states that PM schedules should be developed to specify the replacement of items such as filters, strainers, wear rings (i.e., consummables).

- Appendix A of RG 1.33 also lists typical activities that should be covered by procedures. **Examples include repair/replacement of safety-related equipment that is expected to need replacement over the life of the plant.**

Applicable Regulations and Industry Standards (cont'd)

NRC-Approved QA Program (Appendix B)

- The QA Program is required by the operating license.
- The QA Program follows the format and implements the requirements of 10 CFR Part 50, Appendix B.
- The QA Program contains additional details and description not present in the regulation.
- Although nothing prohibits NRC inspectors from citing directly against the NRC-approved QA Program, inspectors have historically cited directly against 10 CFR Part 50 Appendix B.
- Determining the appropriate Appendix B criterion to cite against involves several factors (e.g.- nature of the performance deficiency, primary cause related to procedural compliance, repetitiveness, justification for continued service)

Applicable Regulations and Industry Standards (cont'd)

Corrective Action Program (CAP) and licensee's screening process

- Most if not all licensees have a screening process for determining whether information is applicable to the site.
- Some licensees may not have an information screening process to determine applicability but may employ other programs, (e.g. operating experience), to determine if information requires corrective action.
- For information that requires corrective action, licensees would use their QA program, CAP, and operability/functionality process to properly disposition the information.

Applicable Regulations and Industry Standards (cont.)

10 CFR 50.49, "Environmental qualification of electric equipment important to safety for nuclear power plants"

- 10 CFR 50.49 requirements are relatively narrow and prescriptive
- 10 CFR 50.49 states that an SSC covered by this regulation [i.e., safety-related electrical equipment installed in a harsh environment] must perform its safety function up to the end of its qualified life.
- The term "qualified life" has meaning in 10 CFR 50.49 as it applies to electrical equipment installed in a harsh environment. This should not be confused with the term "service life" as used in this guidance.

Related Regulations and Industry Standards (cont'd)

IEEE-323, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations"

- Class 1E SSCs are typically qualified for environmental and seismic conditions in accordance with IEEE-323.
- Although staff regulatory guides endorse IEEE-323, and many licensees commit to the guidance contained within, the use of IEEE Standard 323 is not required by regulation.
- IEEE-323 and its associated regulatory guidance do not require licensees to define a specific service life or design life for safety-related SSCs in mild environments.

Role of the Maintenance Rule (10 CFR 50.65)

- The Maintenance Rule (MR) has a role in trending, monitoring, and preventing adverse performance in SSCs.
- While compliance with the MR is required, this regulation in and of itself does not relieve licensees of the need to screen information that may impact how long SSCs can remain in service.
- The MR is not intended to prevent all failures. It is intended to address licensee-set performance monitoring goals and standards.
- A mis-conception of the MR is that compliance with the rule (alone) is sufficient to justify continued service of SSCs beyond their documented service life(s).

Role of the Maintenance Rule (10 CFR 50.65) (Cont.)

- Absent a performance history, the MR does not mandate licensees to do anything different just because equipment is old. However, the MR does set expectations for periodically reviewing established performance goals and consideration of industry-wide operating experience. (see 50.65(a)(3)).

- The determination of what operating experience needs to be incorporated is up to the licensee.

- Note that some SSCs do not exhibit adverse performance before failure. Thus the MR may not always be an effective tool to address how long SSCs remain in service before a licensee should address refurbishment or replacement.

Role of the Maintenance Rule (10 CFR 50.65) (Cont.)

- On a case by case basis, licensees can determine through evaluation that certain SSCs may be designated as “run-to-failure” (RTF), (also known as run-to-maintenance) if they meet specific criteria as outlined in NUMARC 93-01, and as endorsed by RG 1.160 (e.g., the failure provides little or no contribution to system safety function)

- Inspectors should evaluate all safety-related SSCs that have been designated as run-to-failure/run-to-maintenance to ensure that staff-endorsed procedural guidance (e.g., NUMARC 93-01) is met.

Are Licensees Required to Define a Service Life for All Safety-Related SSCs?

No. There is no regulatory requirement to define replacement/refurbishment intervals for all safety-related SSCs.

However, some exceptions/additional requirements exist:

- 10 CFR 50.49 (qualified life of electrical equipment in harsh environment)
- Other licensing bases (e.g., UFSAR) that define or list replacement/refurbishment intervals
- Aging management programs (e.g., License Renewal) that are incorporated into a plant's licensing basis

Are Licensees Required to Define a Service Life for All Safety-Related SSCs? (cont.)

Other considerations include:

- There are SSCs installed during original plant licensing that were procured without service life documentation. However, it is the responsibility of the licensee to provide assurances that safety-related SSCs can perform their function over the life of the plant.

- Many SSCs **are** installed in the plant with a documented service life. This documentation may be vendor, licensee, or industry-generated and may be contained or referenced in plant procedures, vendor manuals, UFSAR, or other licensee documents.

- Licensees who elect to deviate from the documented service life should have a basis for doing so. Instances where there is no basis should be further pursued by the inspector to make the licensee aware and to determine if there exists a performance deficiency.

Inspector Guidance

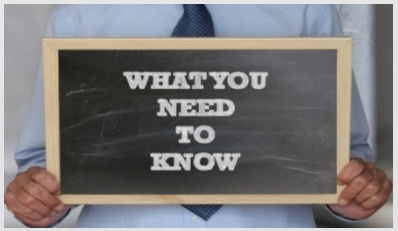
If the licensee becomes aware of information that challenges the presumption that a safety-related SSC can continue to perform its safety function(s), the inspector should:

- Assess the licensee's use of their applicability/screening process to determine if the information is applicable to the facility.
- For information that is applicable to the site, ensure the licensee dispositions the information in accordance with their NRC-approved QA program, corrective action program, and operability/functionality determination process, as appropriate.

Inspector Guidance (cont.)

If a licensee becomes aware that a safety-related SSC has been installed in the plant for longer than the amount of time described by the plant's **licensing basis documentation**, the inspector should:

- Determine if the licensee has assessed whether the SSC can continue to be relied on to perform its intended safety-related function(s) consistent with its licensing basis and NRC requirements.
- Determine if the licensee has documented their assessment prior to exceeding the time period documented in the licensing basis because it avoids the potential need to disposition a non-conforming condition.
- Evaluate whether the situation represents a non-conforming condition that should be dispositioned using the licensee's operability process.



Inspector Guidance (cont.)

There are several situations in which an inspector may wish to investigate an issue further:

- When evaluating the licensee's determination of the cause of a component failure or degraded performance
- During extent of condition reviews
- Maintenance effectiveness review
- During a component or system design review

Inspector Guidance (cont.)

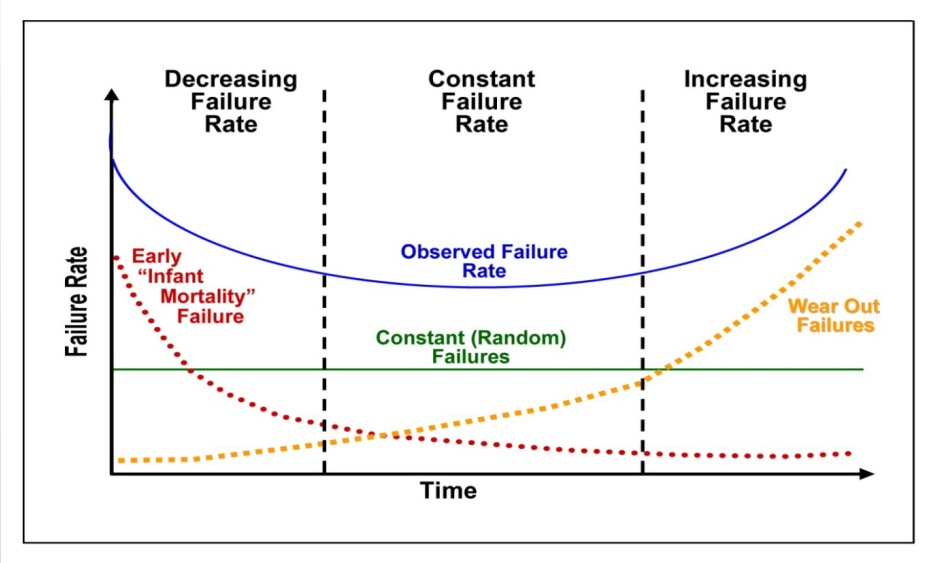
Investigation of component or system failure – questions to ask

- Was the failure age-related?
- What information did the licensee possess pertaining to how long the SSC could remain in service?
- If equipment was operated beyond this time period, did the licensee justify continued service through appropriate documentation?
- Did the licensee take into account available site-specific or industry operating experience when deciding to operate equipment beyond its service life?

Inspector Guidance (cont.)

Investigation of an SSC that is being operated beyond its documented service life:

- What information is the licensee relying on to justify operability/functionality and continued service? Has the licensee documented their assessment of the information? Where do they believe they are on the Bathtub Curve?
- Is the licensee relying solely on a clean performance history (i.e., no failures) to justify operability/functionality or continued service beyond documented service life?
- How does the component fail (i.e., after noticeable degradation, or without warning)?



Inspector Guidance (cont.)

Investigation of an SSC that is being operated beyond its documented service life (cont'd):

- Is the licensee using "generic" industry preventive maintenance templates to determine replacement/refurbishment intervals without customizing that guidance for how the SSC is being used at the plant?
  - Did they account for local environmental conditions, such as enclosed conditions, local/accident temperatures, humidity, operating pressures, etc.),
  - Did they account for how the component is actually used (e.g., always energized/only energized when operating, etc.)?
  - Was site-specific and industry operating experience, including vendor guidance, considered?

Documenting Inspection Results

The list below represents the most often used regulations for citing service life issues in a mild environment:

- STS 5.4.1/R.G. 1.33
- 10 CFR Part 50 Appendix B Criterion V
- 10 CFR Part 50 Appendix B Criterion XVI
- 10 CFR Part 50 Appendix B Criterion III
- 10 CFR Part 50.65 (‘Maintenance Rule’)

Documenting Inspection Results

- Non-compliance with the Technical Specifications (STS 5.4.1/R.G. 1.33)
  - Missing – procedures are incomplete or do not exist
  - Deficient – procedures contain errors or lack specificity (i.e., lack of adequate guidance for the repair/replacement of SSCs that have a defined life)
  - Failure to adhere – procedures are adequate, but the licensee is not following them

Documenting Inspection Results

Enforcement (cont'd)

Quality Assurance Program

- Appendix B, Criterion V, Procedures
  - Missing – procedures are incomplete or do not exist
  - Deficient – procedures contain errors or lack specificity
  - Failure to adhere – procedures are adequate, but the licensee is not following them

Documenting Inspection Results

Enforcement (cont'd)

Quality Assurance Program

- Appendix B, Criterion XVI, Corrective Action
  - Inadequate corrective actions to address a condition adverse to quality (CAQ).
  - Failure(s) that occur as a result of previous events where ineffective corrective action resulted from age-related degradation, as a result of an SSC exceeding its documented service life.

Documenting Inspection Results

Enforcement (cont'd)

Quality Assurance Program

- Appendix B, Criterion III, Design Control
  - Failure to translate appropriate design standards into procedures and instructions (i.e., the expected service life of an SSC addressed in the licensing basis)
  - Failure to address or maintain the qualified life of Class 1E electrical SSCs located in a harsh environment
  - Failure to adequately address design/operating characteristics that reduce the expected life of an SSC

Documenting Inspection Results

Enforcement (cont'd)

It is not appropriate to cite App B, Criterion III for a failure to adhere to vendor information, as there is no regulatory requirement to adhere to vendor information

Documenting Inspection Results (cont'd)

Enforcement (cont'd)

- Other Regulations

  If the performance deficiency reflects non-compliance with 10 CFR 50.49 (Environmental Qualification of Electric Equipment Important to Safety for NPP), 10 CFR 50.65 (Maintenance Rule), 10 CFR 54.37 (License Renewal Recordkeeping Requirements), or other regulation(s), inspectors should consider the most appropriate basis for documenting the issue.

Documenting Inspection Results (cont'd)

Enforcement (cont'd)

- Nonsafety-related SSCs
  - Performance deficiencies involving nonsafety-related SSCs regarding how long the SSC can remain in service may not constitute a violation of regulatory requirements, but may still result in an inspection finding.
  - These types of issues are usually cited against failure to adhere to defined licensee programs (e.g., preventive maintenance program guidance) or failure to adhere to approved procedural guidance.

Potential Scenario

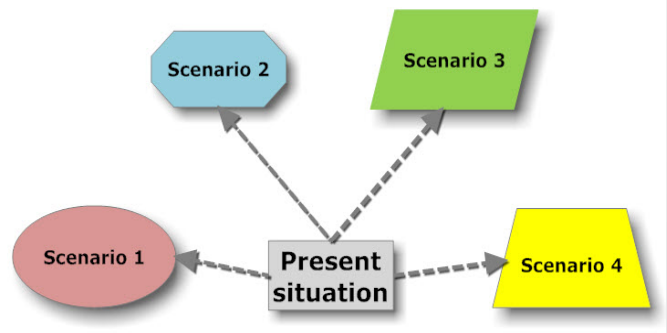
The following slides explain a potential scenario of how a licensee might become aware of information affecting the capability of safety-related SSC to perform its design function(s). The scenario includes recommendations for inspector actions and dispositioning the information. Main steps in the process include:

- NRC inspector identifies information potentially relevant to the licensee
- Inspector verifies licensee awareness or makes them aware
- Licensee/inspector identify what process the licensee is in for determining applicability
- Licensee makes applicability determination
- Proper dispositioning of applicable information
- Licensee determines necessary actions and timeframes for those actions
- NRC inspectors evaluate the licensee's disposition and proposed actions

Potential Scenario (cont'd)

Step 1:

- NRC inspector identifies information potentially relevant to the licensee.
- Inspector may come across the information in a variety of ways
  - Letter (from a vendor or elsewhere)
  - Design Basis documentation
  - Operating experience (event report, Part 21, etc.)
  - Licensee-generated



Potential Scenario (cont'd)

Step 2:

- NRC inspector verifies that the licensee is aware of the information or makes them aware:
  - Inspector should ensure that licensee awareness is at the appropriate level for getting the information into the right process.

Potential Scenario (cont'd)

Step 3:

Licensee/inspector identify what process the licensee is in for determining applicability:

- Does the licensee have an 'applicability' process?
- If no, then another process can be used to disposition the information (CAP, Operability, Vendor Information, Operating Experience, etc.)
- Processes should drive towards documentation of licensee's decision

Potential Scenario (cont'd)

Step 4:

Licensee makes applicability determination:

- NRC inspector should verify rigor of applicability determination process. Examples:
  - Consider whether a BWR issue is potentially applicable to PWRs?
  - Problem identified on one component model may be applicable to similar components
- Is licensee's scope for determining applicable appropriately broad/open-minded?

Potential Scenario (cont'd)

Step 5:

Licensee determines necessary actions and timeframes for those actions. Possible considerations include:

- Is there an applicable regulatory requirement?
- Does the issue involve a licensing basis document (e.g. UFSAR) or a licensee program (e.g. QA, Maint. Rule, Environmental Qualification)?
- Is there an applicable licensee procedure?
- If the licensee determines no action is required, they should have justification for the decision (e.g. technical evaluation) **[if they determine it to be a run to failure component (i.e., also known as run to maintenance) are they following MR guidance for RTF?]**

Example 1

The licensee becomes aware of a vendor technical manual which states that the replacement/refurbishment interval for a safety-related SSC is 5 years shorter than the interval they are currently using in their preventive maintenance program. The licensee has no technical analysis that justifies the difference in intervals.

- Case 1 – The licensee uses their applicability/screening process to determine that the information is applicable to the site. The licensee decides to change the replacement/refurbishment interval for the SSC.
- Case 2 – The licensee uses their applicability/screening process to determine that the information is applicable to the site. The licensee decides not to change the replacement/refurbishment interval for the SSC.
- Case 3 – The licensee uses their applicability/screening process to determine that the information is not applicable to the site, and that no changes to the replacement/refurbishment interval are needed.

Guidance for Resolving Case 1

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Case 1

The licensee uses their applicability/screening process to determine that the information is applicable to the site. The licensee decides to change the replacement/refurbishment interval for the SSC.

- The inspector should verify that the licensee properly dispositions the information in accordance with their programs (QA, CAP, Operability/Functionality).
- The inspector should be aware of any procedure or program changes planned by the licensee.
- The inspector should consider this issue for a future sample selection when performing the next Problem Identification and Resolution inspection.

Guidance for Resolving Case 2

<u>Case 2</u>

The licensee uses their applicability/screening process to determine that the information is applicable to the site, and dispositions the information in accordance with their programs (QA, CAP, Operability/Functionality). The licensee decides **<u>not to change</u>** the replacement/refurbishment interval for the SSC (or if one does not exist, to establish one).

- The inspector should review this record in the licensee's CAP to determine the licensee's rationale for taking no action.
- If the licensee documented a reasonable technical justification for choosing not to change their replacement/refurbishment interval, the inspector need not take further action.
- If the licensee did not document a reasonable technical evaluation or otherwise justify taking no action, then the inspector should inquire as to the licensee's basis for ensuring the component can continue to perform its safety function.

Guidance for Resolving Case 2

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Case 2 (cont.)

- If the licensee is relying on surveillance and testing alone to justify continued service, then further inquiry is necessary.
- Surveillance and testing alone (unless used in conjunction with other factors, such as engineering analysis, site-specific and industry OpE, vendor information, etc.), may not provide adequate assurance that the component can continue to perform its safety-related function for the life of the plant. In such cases, a licensee should have procedural guidance as to when to refurbish/replace equipment before expected failure.
- The inspector should look for procedural requirements or commitments that have established an expectation of periodic refurbishment or replacement (e.g. STS 5.4.1/RG 1.33, QA program, or site-specific PM procedures, among other information).
- It is not appropriate to run 'critical' SSCs to failure. [i.e., 'critical' as defined in NUMARC 93-01]

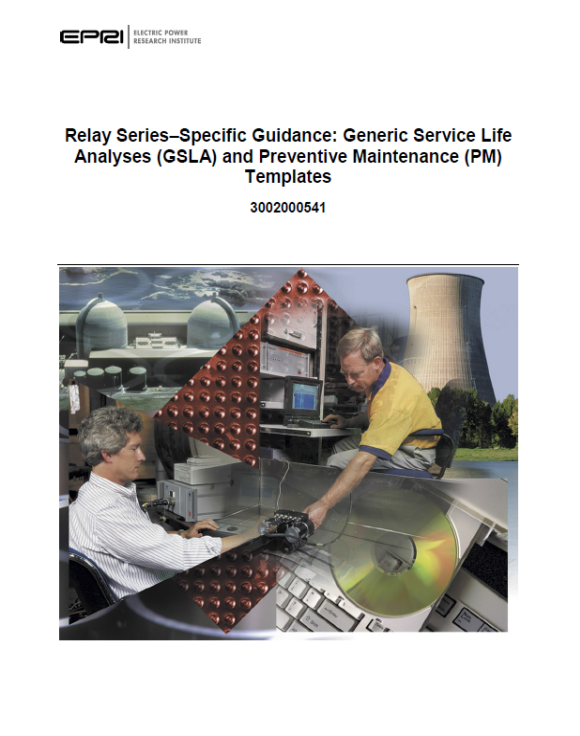
Guidance for Resolving Case 3

<u>Case 3</u>

- The licensee uses their applicability/screening process to determine that the information is not applicable to the site, and that no changes to the replacement/refurbishment interval are needed.
- The inspector should verify the licensee's basis for their decision

Example 2

The licensee has incorporated the industry-generated preventive maintenance template for a component type. The preventive maintenance template allows the licensee to choose a replacement/refurbishment interval from among a range of values. The licensee has chosen an interval that is different from the vendor-supplied documentation, without an accompanying plant-specific evaluation or assessment.


EPRI ELECTRIC POWER RESEARCH INSTITUTE

Relay Series–Specific Guidance: Generic Service Life Analyses (GSLA) and Preventive Maintenance (PM) Templates

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Guidance for Resolving Example 2

- Industry-generated PM templates are generic guidance and should not be used without adapting the template to the plant-specific situation.

- If the licensee is applying an industry-generated PM template, the inspector should verify that the licensee has properly considered/incorporated relevant factors, such as:
  - Site and industry operating experience,
  - Local environmental factors (humidity, pressure, temperature, radiation, etc.),
  - Vendor information
  - Industry/utility advocacy group guidance (e.g., BWROG/PWROG/RUG/NSIAC/INPO)

Guidance for Resolving Example 2

- If the licensee has reasonably considered applicable factors, and this approach is documented, then the inspector should determine if the approach is reasonable.
- If the engineering justification/approach is reasonable, then no further action may be warranted.
- If the justification does not appear reasonable, then the inspector should question the licensee's approach for making their determination. This may involve requesting additional documentation.
- After evaluating any additional information, the inspector must determine whether the licensee's justification is inadequate and constitutes a performance deficiency.

Real World Example 1

- An emergency diesel generator tripped on overcurrent during a test run. The overcurrent condition was caused by a failed diode in the generator excitation circuit which was known to experience elevated temperatures during operation. This was a repetitive failure which had occurred on several other occasions at this site.
- Industry operating experience was available which stated that the average life span for EDG excitation system diodes was 12 years. The operating experience also recommended that licensee's review EDG diodes subjected to elevated temperatures during operation and adjust the scope or frequency of the preventive maintenance programs accordingly.
- The licensee screened this information into their corrective action program, but closed the entry without taking any action.
- The licensee's procedures stated in part that industry operating experience, corrective maintenance history and SSC performance "shall be considered when developing the overall maintenance strategy for equipment within the scope of the preventive maintenance program."

Real World Example 1
Inspection Outcome

- Inspectors identified a condition adverse to quality based on the elevated temperature of the diodes during diesel operation, which had been previously identified by the industry and was known to shorten diode service life.
- Inspectors cited the licensee against T.S. 5.4.1 (Procedures, RG 1.33) for failure to incorporate relevant operating experience into the preventive maintenance program as required by station procedures.
- Inspectors cited the licensee against Appendix B Criterion XVI for their failure to correct a condition adverse to quality associated with elevated operating temperatures of EDG excitation system diodes.
- These performance deficiencies resulted in a White finding.

Real World Example 2

- An emergency diesel generator tripped on low coolant pressure during a test run. A flexible coupling hose had ruptured due to age-related degradation. The licensee's investigation revealed that the hose had been installed for 22 years.
- Maintenance procedure originally aligned with vendor recommendations and required hose replacement every ten years.
- Later, licensee revised procedure (without adequate justification) to required hose replacement "if leaking."
- Additionally, the licensee made further changes as a result of corrective actions for an unrelated EDG failure to replace non-metallic flexible hoses every 12 years.

Real World Example 2
Inspection Outcome

- The inspectors identified a White finding and associated violation of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” because the licensee did not provide appropriate maintenance instructions to ensure the EDG cooling flexible coupling hose was maintained to ensure adequate cooling to support the EDG No. 1 safety function.

Questions?

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